INSECTA MADERENSIA;

BEING

AN ACCOUNT OF THE INSECTS

OF

THE ISLANDS

OF

THE MADEIRAN GROUP.

BY

T. VERNON WOLLASTON, M.A., F.L.S.

ὁ δεσπότης γάρ μου μετεώρος αἴρεται
ἱππηδὸν εἰς τὸν ἀέρ' ἐπὶ τοῦ κανθάρου.
Aristoph. *Pax*, 80.

Berlin-Dahlem
Deutsches Entomologisches Museum
Gossler-Str. 20

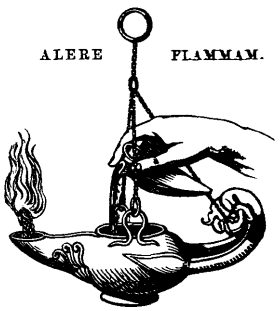
LONDON:

JOHN VAN VOORST, 1 PATERNOSTER ROW.

1854.

Though never axe until a later day
Assail'd thy forests' huge antiquity,
Yet elder Fame had many tales of thee—
Whether Phœnician shipman far astray
Had brought uncertain notices away
Of islands dreaming in the middle sea;
Or that man's heart, which struggles to be free
From this old worn-out world, had never stay
Till, for a place to rest on, it had found
A region out of ken, that happier isle,
Which the mild ocean breezes blow around,
Where they who thrice upon this mortal stage
Had kept their hands from wrong, their hearts from guile,
Should come at length, and live a tearless age.

TRENCH.



PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET.

VIRO . REVERENDO

RICARDO-THOMÆ . LOWE . A.M.

ECCLESIÆ . ANGLICANÆ

IN . INSVLIS . MADERENSIBVS

ANNOS . VNVM . ET . VIGINTI

PRÆSVLI

NECNON . SIMVL

SCIENTIA . NATVRALI . PERITISSIMO

HOC . OPVSCVLVM

QVALECVNQVE . GRATI . ANIMI . SIGNVM

DICATVM . VOLVIT

AVCTOR.

PREFACE.

IT is not without some degree of hesitation that I am at length induced to bring together my notes on the Coleoptera of the Madeiran Group in a sufficiently connected form for the press; and in offering them to the scientific world, I would wish briefly to state for what purpose they were originally commenced.

Having been advised in October of 1847 to leave England for the benefit of my health, I employed a seven months' residence at Funchal in collecting such insects (and desultory information concerning them) as came beneath my notice, but without any ulterior design than that of a mere temporary amusement, and to relieve the monotony of a winter's exile in a distant land.

In November of the following year, however, another migration being recommended to me, I decided on "making a virtue of necessity," and turning my second banishment to a more practical account than the first one; and consequently started with the full intention of accumulating matter for publication, —which I was bold to hope would at any rate so far expand, in importance and extent, as to furnish a series of papers, at a future time, for some of the Natural History journals of the day.

But having been rewarded, in this my second expedition, with more success than I had had reason to anticipate (owing in a large measure to my health having permitted me, not only to use greater diligence, but also to visit many remote rocks, and to ascend into regions, hitherto forbidden), and having convinced myself that I had obtained the major part of the species which were

to be met with between the limits of October and June; I felt that a *summer's* observation *in situ* was the main thing required to render my knowledge of the Coleopterous fauna tolerably complete. Hence, in May of 1850, at the instigation of the Rev. R. T. Lowe (whose unremitting services I shall have abundant opportunities elsewhere of announcing), having procured a tent, I again set sail for the island,—prepared to take up my abode, during the hotter period, in districts as yet but imperfectly explored; and, by thus applying myself in good earnest (at elevations, moreover, difficult of access except at that peculiar season), I conceived that I should be in a position, at the close of my third sojourn, to attempt a more lengthened and systematic treatise than I had at the beginning ventured to contemplate.

My material having, in this manner, been gradually amassed, considerable leisure was afforded me, during the intervals of my return to England, not only of carefully studying the new modifications which had been brought to light, but also of sending them for comparison to the principal museums of the Continent,—by which means I was the better qualified to form a correct opinion on their several affinities.

To those of my friends and correspondents who have aided me in this somewhat difficult task, whether in the collation of specimens or in the loan of types, I would desire to express my sincere obligations. Particularly, however, would I draw attention to the valuable help which I have received from J. O. Westwood, Esq., whose pencil has been so elaborately employed in the figures which I am thus enabled to attach, and by whom many of the minutest of the dissections were accomplished,—with a degree of delicacy, moreover, to which I did not myself at the commencement of this Work (though I have since succeeded in anatomizing the larger portion of them, likewise) lay claim.

From Frederick Smith, Esq., for the unwearied attention which he has bestowed, and the amount of skill which he has brought to play, upon the engraving, I have also more than common assistance to record.

From A. H. Haliday, Esq., of Dublin; from Messrs. White and Waterhouse, of the British Museum; and from E. W. Janson, Esq., Curator of the Entomological

Society of London, I am bound to confess that I have received much useful information and practical hints,—apart from the many facilities of reference which they have most liberally afforded me.

To Professor Heer, of Zurich, my especial acknowledgments are due,—not only for the handsome manner in which he has laid the whole of his Madeiran collections at my disposal (refusing to describe even the *novelties* which he had himself discovered), but also for putting me in possession of his private notes, compiled at Funchal during the winter of 1850 and the spring of 1851.

To Dr. H. Schaum, of Berlin, who has spared no trouble in ministering to my entomological wants, and to whose unexampled kindness I shall have frequent occasion to allude throughout the present volume; as well as to Professor Bohemann, of Stockholm, for his comparison of my *Rhyncophora* with the Schönherrian types, I owe much.

To MM. Javet, Chevrolat, Deyrolle, Jacquelin-Duval, Leon-Fairmaire, and Dr. Aubé, of Paris; as also to M. Dohrn, President of the Entomological Society of Stettin, to M. Kiesenwetter of Leipzig, M. Motschulsky of St. Petersburgh, and to T. S. Leacock, Esq., of Funchal, my recognition of services, in various ways conferred, is gratefully conceded.

And, lastly (though not least), to the Rev. R. T. Lowe, who, for upwards of twenty years British Chaplain and the sole guardian of natural science in Madeira, has not only consented to an invasion of his own field of research, but has even co-operated with me (directly and indirectly), during my successive visits to the island, to bring about the object which I had in view, I have incurred a debt which will not be easily repaid. The generosity moreover with which he has communicated, without reserve, both his local knowledge in the departments at which I have been labouring and the result of his long experience in everything connected with the country itself, demands my warmest thanks; whilst his unbounded hospitality, not only to myself, but to hundreds who have been similarly exiled under his control (too many, however, never to return), must not remain unnoticed.

If the following pages should be found of sufficient interest to attract the attention of a few out of the unfortunate invalids who flock to Funchal, winter after winter, for their health, and with whom the main lamentation which everywhere resounds is the total absence of the ordinary enjoyments of a country life, and the want of some local amusement to divert their thoughts from the *causes* of their banishment, *one* at any rate of the objects for which they have been compiled will have been fully realized.

London, July 14, 1854.

INTRODUCTION.

WHEN we review the great questions arising out of the geographical distribution of animals and plants, there can be no doubt whatsoever that the close investigation of any given area, however minute, must contribute materially, provided its position be a significant one, to lighten the labours of those more comprehensive naturalists who are able to wield, with a master's hand, the scanty data gleaned by the humbler workers in the science to a practical account. And, since it has been said that whatsoever falls within the sphere of knowledge is attached to a radius and tends towards the centre, there is reason to hope that no amount of truth, once fairly arrived at, will be eventually lost; but that it will sooner or later find its way into the central mass, to be employed, whensoever chance may require it, for the general good. Hence it is that we are encouraged, in every branch of observation, to register what we see; and to feel that the most trivial facts, if faithfully recorded, may become the basis from whence the soundest theories may arise,—such theories forsooth as have already arisen from the contemplation of circumstances apparently beneath our notice, and which have grown up, step by step, into trees of gigantic dimensions, to embrace at last large principles within their shade.

Such being the case, I have ventured to hope that the examination of islands even so small as those now under discussion may not have been altogether without profit. The intermediate situation of Madeira, which, whilst pertaining artificially to Europe, has nevertheless much in common with the north of Africa (from which in distance it is the less remote), imparts to it an interest, the importance of which the student of Zoological geography cannot fail at once to recognise: and, if we scan the results arrived at in the following pages, we shall perceive that there is positive ground for the belief that its Coleopterous fauna is, in a large measure, of a very isolated type. Although partaking, in the main, of that particular stamp which is usually acknowledged as Mediterranean, yet the number of endemic species (and even of genera) would seem to be so great, whilst the new modifications which have been brought to light are so extremely *characteristic*,

and adjusted to the peculiar nature of the country in which they are placed, that we cannot resist the conclusion that, whatever may have been the extent or condition of that ancient continent of which these several Atlantic clusters are the sure witnesses, that portion of it at any rate which the Madeiras may be supposed to represent was not only singularly rich in creations adapted specially to itself, but also that the various forms must have migrated but very slightly ere the land of passage was destroyed,—seeing that many of them had apparently not even reached those points of its area which are now the detached portions of the actual group. That this is really a fact, we may appeal, *inter alia*, to such insects as the *Tarphii* (only a single one of which, out of 15, occurs beyond Madeira proper), to *Argutor* and *Trechus* (of the same island), to *Acalles* (of which 12 members, out of 13, belong to the central mass), to the *aberrant Atlantides* and the *Anemophili* (almost exclusively Porto Santan), or to *Deucalion* (which reigns supreme on the nearly inaccessible heights of the two southern Dezertas).

Although it is of course possible that some few out of the 270 species, and even of the 41 genera, which I have treated as novelties, may have been already made known, yet I believe it will be found, on inspection, that such instances are rare; whilst concerning the claims of the majority of them, being apparently of an endemic nature, there cannot be the slightest doubt. In addition to these 270 species, there are 11 which had been previously characterized as Madeiran; thus raising the entire number to 281,—which, *out of* 482, it must be admitted is a large proportion to possess *even the chance* of being peculiar to these islands. The *genera* of the present volume amount, in all, to 213: one of these (*Cossyphodes*) had been lately described as Madeiran; and 9 at least (namely *Calobius*, *Dactylosternum*, *Xenostrongylus*, *Metophthalmus*, *Microchondrus*, *Pecteropus*, *Deucalion*, *Arthrolips* and *Macrostethus*), out of the 41 which are indicated as new, I have reason to suspect have exponents elsewhere,—which reduces the modifications which *may*, *or may not*, *be* endemic (but the larger portion of which probably are) to 34. Amongst these 34, perhaps the most remarkable are *Zargus*, *Cossyphodes*, *Europs*, *Aphanarthrum*, *Leiparthrum*, *Echinosoma*, *Xenorchestes*, *Glœosoma*, and *Ellipsodes*.

It will be seen, on a reference to the *Systematic Catalogue* of this work, that the total absence of numerous genera (and even of whole families) which are looked upon as all but universal, constitutes one of the most striking features in our entomological fauna. Thus, incredible though it may seem, not so much as a solitary witness of the *Cicindelidæ*, *Buprestidæ* or *Pselaphidæ* has hitherto been brought to light; whilst the great genera *Carabus**, *Nebria**, *Silpha*, *Necro-*

* In Dejean's Catalogue there is a *Carabus* registered as Madeiran, under the name of *C. interruptus*; and a *Nebria* under that of *N. dilatata*: but, as no vestige of either one genus or the other has come beneath my notice, and since they have totally escaped the researches of the Rev. R. T. Lowe for a period of twenty-six years, as also of the late Dr. Heinecken and of every other naturalist (so far as I am aware) subsequently; I have not the slightest hesitation in pronouncing Dejean's insects (whatsoever they were)

phorus, *Cetonia*, *Telephorus*, *Tentyria*, *Pimelia*, *Acis*, *Asida* and *Otiorhynchus* are altogether wanting. The vast race of the Thalerophagous Lamellicorns (*vid.* p. 235), as also the immense department of the *Elateridæ* (*vid.* p. 239), are represented apparently by but a single form,—as are also the *Silphidæ*, *Telephoridæ*, *Tentyriadæ*, and the *Œdemeridæ*.

Of the 13 primary sections into which I have distributed the entire Coleoptera, the *Rhyncophora* contains the largest amount of species, and the *Eucerata* the smallest. Arranged numerically, they are as follows: *Rhyncophora* (104), *Necrophaga* (80), *Geodephaga* (63), *Brachelytra* (74), *Priocerata* (35), *Atrachelia* (29), *Cordylocerata* (22), *Phytophaga* (21), *Pseudotrimera* (17), *Philhydrida* (13), *Trachelia* (11), *Hydradephaga* (7), *Eucerata* (6). Now there is an anomaly in these proportions, which it is not easy, at first sight, to account for,—namely, that, whilst Madeira is essentially a land of wood and streams, the Longicorns and Water-beetles should be the *least* shadowed forth of the whole. As regards the *latter* of these, however, the deficiency is not difficult to understand,—the rapid nature of the rivers, which are liable to sudden inundations from the mountains, and to deposit their contents in positions distant from their banks, or to pour in ceaseless torrents over the perpendicular faces of the rocks, being anything but favourable to insect life.

Of the 56 *families* which enter our lists, the *Curculionidæ*, *Staphylinidæ* and *Carabidæ* (as might be expected) take the lead,—the first numbering 80 species, the second 73, and the third 63. The next, in point of extent, is the *Colydiadæ*,—which contains 19. The *Galerucidæ* has 13; the *Lathridiadæ* and *Coccinellidæ* 12; the *Aphodiadæ* 10; the *Melyridæ* 7; the *Dytiscidæ*, *Histeridæ* and *Cerambicidæ* 6; the *Chrysomelidæ* 4, and the *Scydmænidæ* 1.

Of the *genera* with which we have here to do, *Tarphius* and *Homalota* (each of which have 15 representatives) rank first. Then comes *Atlantis* (which has 14); *Acalles* (13); *Ptinus* (10); *Trechus* and *Helops* (9); *Bembidium* and *Læmophlœus* (8); *Caulotrupis*, *Apion* and *Philonthus* (7); *Dromius*, *Corticaria*, *Aphodius*, *Longitarsus* and *Scymnus* (6); *Lixus*, *Sitona*, *Psylliodes*, *Coccinella* and *Oxytelus* (5), &c.

In glancing over our catalogue, we shall be struck, apart from the dearth in the *Hydradephaga* and *Eucerata* (already commented upon), by the great scarcity of the flower-infesting tribes,—which, in a country like Madeira, where vegetation is redundant, is not a little extraordinary. Thus, to take the various families, in succession, which may be considered as *par excellence* falling under that denomi-

---

to have been incorrectly referred (as was also, I imagine, his *Melancrus Amaroides*) to the islands of our present group. They may possibly have been Canarian, or (which is more likely still) from the Azores; but until further evidence than that of a mere Catalogue (formed in another country, and subjected to all the chances of uncertain information) be supplied, I confess I shall not be inclined to regard them as otherwise than apocryphal.

nation, we find that the *Phalacridæ* are attested by 4 *Olibri*; the entire Thalerophagous Lamellicorns by a single *Chasmatopterus*; the *Telephoridæ* by an insignificant *Malthodes*; the *Melyridæ* (which is the best indicated of the whole) by 7 species (contained in 5 different genera); the *Cleridæ* by an *Opilus* and a *Necrobia* (the last of which is unquestionably naturalized); the *Mordellidæ* by a solitary *Anaspis*; the *Œdemeridæ* by a *Stenaxis*; and the *Crioceridæ* by a *Lema* and a *Crioceris* (of which the latter, if not the former also, has been imported from Europe).

Two of the principal features observable throughout the Coleoptera of these islands, are the general obscureness of colouring (gay tints being exceedingly rare) and the *apterous tendency*. As regards the second of these, so strongly is it expressed, that, out of the 482 species hitherto detected, 178 are either altogether apterous, or else have their wings so imperfectly developed that they may be practically considered as such. About 86 moreover (out of the 482) may, I imagine, have been accidentally introduced from other countries; and, as these belong well nigh exclusively to the winged forms, the winged species which are in all probability *truly indigenous* are diminished to 218,—thus exceeding by only 40 those which are either apterous or nearly so. Numerous genera indeed (as *Tarus*, *Loricera*, *Calathus*, *Olisthopus*, *Argutor*, *Trechus*, *Hydrobius*. &c.) which are commonly winged are here almost invariably apterous: whilst of the *converse* (*i. e.* of insects which have their wings ample, although in other countries they are usually obsolete) there is, I believe, but a single instance,—namely *Pristonychus* (concerning which, *vide* p. 218). As a corollary arising out of this peculiarity, we should *à priori* be led to anticipate that a large section of the Madeiran Coleoptera would be of a very *local* character,—since, where the means of self-dispersion are reduced below the ordinary standard, a widely-acquired range is of course next to impossible. And such, on investigation, we find to be the case,—as a glance, in fact, at the *Topographical Tables* will abundantly convince.

Respecting the *proportions* which the several islands bear to each other, in the number of species observed upon them, the great difficulties attending even a temporary sojourn out of Madeira proper should be borne in mind, as serving to explain in some measure the impediments which surround us in arriving at any positive data on the subject. Independently however of this, the immense superficies of the central mass as contrasted with the satellites of the group,—containing as it does about ten times the area of Porto Santo (which last is, in its turn, gigantic when compared with the barren rocks of the Dezertas), and not only abounding in wood and water, but rising to nearly four times the height,—must naturally give it an enormous preponderance in the fauna of the entire region. Still, having (at three different periods of the year) resided for more than a month in Porto Santo, for the sole purpose of research, and having twice encamped for a week (in the winter and summer) on the Dezerta Grande, as well as on the Ilheo Chão, I believe that I am at any rate in a position to give some sort of an opinion

on this intricate question: and to any person who has a practical knowledge of the localities themselves, I think that the following numbers (unequal as they are) will not appear to be inconsistent with the opposite dimensions and aspects of the various portions of the cluster to which they respectively refer. Thus, in Madeira proper I have (up to the present period) ascertained 432 species to have occurred, in Porto Santo 111, on the Dezerta Grande 57, on the Northern Dezerta (or Ilheo Chão) 15, and on the Southern Dezerta (or Ilheo Bugio) 4. Or, if we choose to regard the Dezertas as one, the group will separate itself into three natural divisions; and we shall have for Madeira proper 432, for the Dezertas 61, and for Porto Santo 111. Of the 61 species which I have found on the Dezertas, 44 have been detected in Madeira and 29 in Porto Santo. The species which (so far as I have been able to ascertain) are *peculiar* to Madeira proper are 340, to Porto Santo 32, to the Dezerta Grande 6, to the Ilheo Chão 3, and to the Ilheo Bugio 0.

The only insects of the existence of which I have been enabled to satisfy myself for certain on *every* island are the *Scarites abbreviatus* and the *Laparocerus morio*; nevertheless I am all but convinced that the *Calathus complanatus*, *Harpalus vividus* and the *Hadrus cinerascens* (if we consider the *H. illotus* as its Porto Santan analogue) are equally universal: whilst, at the same time, they may be regarded, in conjunction with the *Tarus lineatus*, *Dromius obscuroguttatus*, *Olisthopus Maderensis*, *Omias ventrosus*, *Helops Pluto* and *confertus*, and the *Anthicus tristis*, as amongst the species which are the most abundant *individually* of all with which we are concerned.

Taking a cursory view of the Coleoptera here described, the fauna may perhaps be pronounced as having a greater affinity with that of Sicily than of any other country which has been hitherto properly investigated. Apart from the large number of our genera (and even species) which are diffused over more or less of the entire Mediterranean basin, this is especially evinced in some of the most characteristic forms,—such as *Apotomus*, *Xenostrongylus*, *Tarphius*, *Cholovocera*, *Holoparamecus*, *Berginus*, *Litargus*, *Thorictus* and *Boromorphus*. There is moreover, strange though it may appear to be, some slight (though decided) collective assimilation with what we observe in the south-western extremity of our own country and of Ireland,—nearly all the species which are common to Madeira and the British Isles being found in those particular regions; whilst one point of coincidence at any rate, and of a very remarkable nature, has been fully discussed (*vid.* p. 320) under *Mesites*. Whether or not this partial parallelism may be employed to further Professor E. Forbes's theory of the quondam approximation, by means of a continuous land, of the Kerry and Gallician hills, and of a huge miocene continent extending beyond the Azores, and including all these Atlantic clusters within its embrace, I will not venture to suggest: nevertheless it is impossible to deny that, so far as the Madeiras betoken, everything would go to favour this grand and comprehensive idea. Partaking in the main of a Mediterranean fauna, the *northern tendency* of which is in the evident direction of the

south-western portions of England and Ireland, and with a profusion of endemic modifications of its own (bearing witness to the engorgement of this ancient tract with centres of radiation created expressly for itself), whilst geology proclaims the fact that *subsidences* on a stupendous scale have taken place, by which means the ocean groups were constituted; we seem to trace out on every side records of the past, and to catch the glimpses as it were of a *veritable* Atlantis from beneath the waves of time,—being well nigh tempted to inquire,

"And thou, fairest Isle
In the daylight's smile,
Hast thou sunk in the boiling ocean,
While beyond thy strand
Rose a mightier land
From the wave in alternate motion?

"Are the isles that stud
The Atlantic flood
But the peaks of thy tallest mountains,
While repose below
The great waters' flow
Thy towns and thy towers and fountains?

"Have the ocean powers
Made their quiet bowers
In thy fanes and thy dim recesses?
Or, in haunts of thine
Do the sea-maids twine
Coral wreaths for their dewy tresses?

"But we know not where,
'Neath the desert air,
To look for the pleasant places
Of the youth of Time,
Whose austerer prime
The haunts of his childhood effaces."

Regarding the *arrangement* which I have adopted, I would especially advert to the great assistance which I have derived from Mr. Westwood's admirable *Introduction to the Modern Classification of Insects*,—a work the merit of which it is difficult to overrate, and far surpassing every other in our own country (if not elsewhere also), in a systematic point of view, for the sound impressions which it conveys, and for the masterly manner in which the subject has been treated *as a whole*. It is a comparatively easy task to single out any one family or department, and to propound new doctrines on the collocation, *inter se*, of the various fragments which unite in composing it; but to weigh the problem *in extenso*, to balance the difficulties of conflicting methods from beginning to end, and to extract

as far as may be possible the good from all (rejecting both what is superfluous and bad), is indeed a Gordian knot requiring a Solon to untie. And, whilst numerous portions have been subsequently taken in hand by others, and have here and there been modified (for better or worse), the *general plan* which Mr. Westwood has selected does still seem to offer (when contemplated in the mass) the fewest objections, so far as I am able to judge, of any which has been hitherto proposed. I would mention this, not because I have altogether followed in his wake,—having departed from it in many (perhaps too many) instances,—but simply by reason of the fact that, having made his volume my text-book *ab initio*, most of my ideas on the subject (and many even of the *changes* suggested) have arisen from a study of its contents: and, although I have not chosen to consider myself as bound implicitly to any particular author, yet I think it due to Mr. Westwood to affirm that my method of arrangement has been in a very large measure moulded out of his.

The 13 primary sections which I have made use of are those adopted by Mr. Westwood; nevertheless I have both transposed and inverted them, according as I have deemed it desirable (or where newly-discovered links rendered it necessary) to bring certain groups, formerly far asunder, into juxtaposition. Such has been the case with the *Cissidæ* and *Tomici*,—a proceeding which, on account of the close affinity of the latter with the *Cossonides*, rendered the inversion of the *Rhyncophora* absolutely necessary. Then, the removal of the *Brachelytra* (from the Pentamerous departments) to the end,—a step which, after much reflection, I have thought it advantageous, even on *its own* account, to take,—has had the happy effect of bringing *Anthrenus* (of the *Dermestidæ*) into direct contact with the *Byrrhi*, with which it has so much in common; whilst I have ventured to employ the *Scydmænidæ* (although not actually Brachelytrous) to effect a passage from *Anthicus* to the *Pselaphi* (which apparently however have no exponent in the Madeira Islands), and from thence (through *Falagria*) into the *Staphylinidæ*. The *Trogositidæ* I have preferred to treat as a distinct family, and (for reasons stated at page 154) as more akin to the *Cucujidæ* than to the *Nitidulidæ*,—with which it is now usually associated. The location of the *Anisotomidæ* may perhaps require some apology; and I may add that I am *not* prepared to defend the situation which I have assigned to it as of necessity the most natural one. I do, rather, in fact regard it as in reality Necrophagous, and would not willingly disturb the position (near to the *Silphidæ*) which it is generally supposed to occupy: still, the difficulty has been felt (*vid.* p. 484) of disconnecting it from the *Clypeastres*; and since these latter are almost universally acknowledged as inseparable from the *Pseudotrimera* (an hypothesis however which I am by no means inclined to accept as capable of positive demonstration, though I have tacitly endorsed it in the present volume), I have to a certain degree been coerced, contrary to my inclinations, in regulating its site.

It may perhaps be objected that I have sometimes been over-minute in de-

scribing my localities, and in recording the precise circumstances under which many of the species were observed. And indeed, had I employed myself in writing for the scientific world only, far removed from the scene of action, there would have been considerable force in the accusation,—for it can clearly matter but little to the universal collector to know even *what island* his specimens are peculiar to (and, therefore, *à fortiori*, the exact spot *in* that island), so long as he be fully convinced that they have come from our present Group. But let it be remembered that one of my principal designs in the following pages has been, not only to afford a complete catalogue, to the general naturalist, of Madeiran Coleoptera, but also to put into the hands of the sojourner there for a short period (of which there are several hundreds every winter from England alone, independently of those from other countries) a full and intelligible account of the actual stations in which he will probably be able to procure the several insects required. By this means, indeed, I am emboldened to hope that my researches may be turned to some practical account for the amusement of that unfortunate class of wanderers whose lot it is to submit, year after year, to an eight months' exile in Funchal. For, plainly, to point out one way (be it but one) in which even a few stray minds may find an ample field to sport in during a banishment under emergences not the most enviable, is a boon which ought not (for the sake of a useless brevity) to be overlooked, in dealing with a subject thus voluntarily undertaken (however small it be, and imperfectly performed) for the *general* good.

And to those who are resident (as occasionally happens) for a longer season than that which is ordinarily appointed for invalids, and who have health and strength sufficient to tempt them *beyond* the limits within which the more cautious adventurers are permitted to roam, I would add a few words, ere I close these desultory remarks, on the pleasures of a Tent-life.

It will doubtless seem an insignificant thing, when contemplated here, to investigate thoroughly such islands as those which we are now discussing. But the rambler *in situ*, who knows the difficulties attending even a single journey to the interior, and the almost physical impossiblity of visiting many localities except under the most auspicious circumstances and at particular times, and who has persevered in vain to reach distant rocks, and failed again and again in his efforts to obtain a landing on their inhospitable shores, he alone is in a position to understand aright the numerous obstacles which are likely to intercept his progress. Yet such impediments, when surmounted, only go to increase the satisfaction derived from the object attained, and give to the explorer who has succeeded in overcoming them an additional delight.

The admirer of Nature who has passed a long winter at the mountains' base, contented merely to gaze upon the towering peaks, which, though clear and cold at night, seldom reveal themselves during the day with sufficient constancy (through the heavy canopy of cloud which hangs around them) to warrant an ascent, hails with unbounded joy the advance of spring,—knowing that the time is

at hand when he will be able to revel at large in this Atlantic paradise, in remote spots seldom visited by strangers, and at altitudes where the fierce elements of winter shall give way at last to perpetual sunshine and the fresh breezes of a calmer sea. There is something amazingly luxurious in betaking oneself to Tent-life, after months of confinement and annoyance (it may be entirely,—*partially* it must be) in the heat and noise of Funchal. We are then perhaps more than ever open to the favourable impressions of an alpine existence;—and who can adequately tell the ecstasy of a first encampment on these invigorating hills! To turn out, morning after morning, in the solemn stillness of aërial forests,—where not a sound is heard, save ever and anon a woodman's axe in some far-off tributary ravine, or a stray bird hymning forth its matin song to the ascending sun; to feel the cool influence of the early dawn on the upland sward, and to mark the thin clouds of fleecy snow uniting gradually into a solid bank,—affording glimpses the while, as they join and separate, of the fair creation stretched out beneath; to smell the damp, cold vapour rising from the deep defiles around us, where vegetation is still rampant on primæval rocks and new generations of trees are springing up, untouched by man, from the decaying carcases of the old ones; to listen in the still, calm evening air to the humming of the insect world (the most active tenants of these elevated tracts); and to mark, as the daylight wanes, the unnumbered orbs of night stealing one by one on to the wide arch of heaven, as brilliant as they were on the first evening of their birth;—are the lofty enjoyments, all, which the intellectual mind can grasp in these transcendent heights.

It is needless however to pursue the picture further, for it is impossible to do justice to what *experience alone* can enable us to appreciate. And let not any one suppose that the varied objects and scenes of novelty which administer to our superior feelings, and charm the eye, in these upland solitudes are adapted only to the scrutiny of a naturalist, and are either beneath the notice of, or else cannot be sufficiently entered into by the general mass,—for such is by no means the case. A single trial, we are convinced, will be more than enough to prove the reverse, provided the adventurer be not altogether insensible to perceptions from without, or incurious as to the workings of the external universe around him. This however, we need scarcely add, is a *sine qua non*,—for it has been well said that "he who wondereth at nothing hath no capabilities of bliss; but he that *scrutinizeth trifles* hath a store of pleasure to his hand: and happy and wise is the man to whose mind *a trifle existeth not.*"

The great expense necessarily attending the publication of a work like the present one will be a sufficient guarantee that it has been undertaken purely as a "labour of love," and with the sole aim (within its prescribed limits) of arriving at the truth. How far I have succeeded in this is a problem which must be solved by others: meanwhile I appeal boldly to *observation, in situ*, as the test by which I would most desire to be judged,—having but little fear of the experiment, and believing that we are never in so favourable a position for deciding on the

relative importance of Zoological differences as when the local circumstances connected with them are taken into account. Where I have overlooked facts, or failed in my conclusions concerning them, I must crave that indulgence which is never denied to the honest inquirer even in a field so small as that throughout which my researches have been prosecuted,—researches which I am well aware can at the best add but an iota to our knowledge,

"A drop dissevered from the boundless sea."

FAMILIARUM DIAGNOSES.

Ordo I. COLEOPTERA.

"*Alæ* quatuor; *anticis* duris coriaceis, *posticas* membranosas (ante apicem transverse replicatas) obtegentibus.
Os ad manducationem factum.
Metamorphosis completa." (Van der Hoeven.)

Sectio I. **GEODEPHAGA** .....
- *Mandibulæ* longæ, exsertæ, ad apicem acutæ.
- *Maxillarum lobus externus* articulatus, palpiformis; *internus* ungue fixo terminatus.
- *Antennæ* filiformes; 11-articulatæ.
- *Pedes* terrestrii (sæpius valde cursorii); *tibiis* bicalcaratis.
- *Tarsi* 5-articulati.

Fam. 1. Carabidæ .....
- *Mandibulæ* haud vel leviter (rarius valde) dilatatæ.
- *Ligula* porrecta, sæpius cornea; paraglossis aucta.
- *Habitant sub lapidibus foliisque arborum dejectis, humi latitantes; plerumque valde rapaces.*

Subf. 1. Brachinides.

Elytra apice truncata (pygidium vix obtegentia), sæpius depressa.
Prothorax plus minusve cordatus.
Tibiæ anticæ intus emarginatæ.
Tarsi antici maris leviter dilatati, subtus parce squamuloso-papillosi.

1. *Tarus* (2).
2. *Dromius* (6).

Subf. 2. Scaritides.

Elytra sæpius elongata, subcylindrica. *Mandibulæ* plerumque valde dentatæ.
Prothorax postice contractus. *Mesothorax* elongatus, angustus.
Antennæ articulo primo sæpius valde elongato.
Tibiæ anticæ intus emarginatæ, plerumque palmatæ.
Tarsi in utroque sexu simplices (rarius in mare dilatati).

3. *Scarites* (2).
4. *Apotomus* (1).

Subf. 3. CARABIDES.

Palpi articulo ultimo sæpius magno, truncato, subsecuriformi.
Tibiæ omnes integræ (nec anticæ emarginatæ).
Tarsi antici maris valde dilatati.

5. *Calosoma* (1).
6. *Notiophilus* (1).

Subf. 4. HARPALIDES.

Elytra apice rotundata (pygidium plerumque obtegentia).
Tibiæ anticæ intus emarginatæ.
Tarsi maris, modo *antici* modo *anteriores* dilatati.

Div. 1. CHLÆNIIDEA.

Tarsi antici maris art. 2^bus^ vel 3^bus^ dilatatis (rotundatis vel quadratis), subtus dense spongiosis.
Unguiculi simplices. *Pedes* plerumque longiores.
Mentum vel dente medio instructum, vel edentatum.

7. *Loricera* (1).
8. *Eurygnathus* (1).
9. *Zargus* (3).

Div. 2. PTEROSTICHIDEA.

Tarsi antici maris art. 2^bus^ vel 3^bus^ dilatatis (cordatis vel triangularibus), subtus biseriatim setosis.
Unguiculi sæpius serrati.
Mentum dente medio (plerumque bifido) instructum, rarius edentatum.

10. *Pristonychus* (1).
11. *Calathus* (3).
12. *Anchomenus* (2).
13. *Olisthopus* (3).
14. *Argutor* (4).
15. *Omaseus* (2).
16. *Amara* (2).

Div. 3. HARPALIDEA.

Tarsi anteriores maris art. 3^bus^ vel 4 dilatatis, subtus plerumque biseriatim setosis.
Unguiculi sæpius simplices.
Mentum dente medio (plerumque integro) instructum, rarius edentatum.

17. *Anisodactylus* (1).
18. *Harpalus* (4).
19. *Ophonus* (1).
20. *Stenolophus* (2).
21. *Bradycellus* (2).
22. *Trechus* (9).
23. *Thalassophilus* (1).

Subf. 5. BEMBIDIADES.

Palpi articulo ultimo minutissimo, subulato.
Mentum dente medio integro instructum.
Tibiæ anticæ intus emarginatæ.
Tarsi antici maris art. 2^bus^ (sed præsertim 1°) dilatatis.

24. *Bembidium* (8).

Sectio II. **HYDRADEPHAGA**...

Mandibulæ breves, fere labro opertæ, ad apicem latiusculæ.
Maxillarum lobus externus articulatus, palpiformis (rarius exarticulatus, rariss. obsoletus).
Antennæ filiformes (rarius subfusiformes); 11-articulatæ.
Pedes natatorii (*antici* interdum subambulatorii).
Tarsi 5-articulati (*anteriores* rarius art. 4° obsoleto).

Fam. 2. DYTISCIDÆ.....

Maxillarum lobus externus palpiformis, biarticulatus.
Antennæ longiusculæ, filiformes. *Oculi* duo.
Pedes natatorii (*postici* ad motum horizontalem solum facti).
Tarsi 5-articulati (*anteriores* rarius art. 4° obsoleto).
Habitant in aquis.

25. *Colymbetes* (1).
26. *Agabus* (3).
27. *Hydroporus* (2).

Fam. 3. GYRINIDÆ .....

Maxillarum lobus externus exarticulatus (interdum obsoletus).
Antennæ brevissimæ, subfusiformes. *Oculi* quatuor.
Pedes posteriores natatorii (*antici* elongati, subambulatorii).
Tarsi 5-articulati.
Habitant in aquis quietis; superficie velocissime natantes (*demergere nescii*).

28. *Gyrinus* (1).

Sectio III. PHILHYDRIDA ...

- *Mandibulæ* breves, sæpius subopertæ, robustæ.
- *Maxillarum lobus externus* exarticulatus: *palpi maxillares* plerumque elongati.
- *Antennæ* brevissimæ, clavatæ (rarius capitatæ); 6–11-articulatæ.
- *Pedes* subnatatorii (rarius omnino terrestrii).
- *Tarsi* 5-articulati.

Fam. 4. PARNIDÆ.....

29. *Parnus* (1).

- *Mandibulæ* ad apicem dentatæ.
- *Palpi maxillares* brevissimi.
- *Pedes* subnatatorii (*tibiis* cylindricis, muticis).
- *Tarsi* art. 4 baseos subæqualibus, ultimo valde elongato.
- *Habitant in aquis quietis; plantis adhærentes; (superficie interdum lente circumferuntur, natare nescii).*

Fam. 5. HYDROPHILIDÆ.....

30. *Ochthebius* (1).
31. *Calobius* (1).
32. *Limnebius* (1).
33. *Laccobius* (1).
34. *Hydrobius* (1).
35. *Philhydrus* (1).

- *Mandibulæ* plerumque ad apicem bidentatæ.
- *Palpi maxillares* sæpius longissimi.
- *Pedes* subnatatorii (*tibiis* plus minusve spinosis, rarius muticis).
- *Tarsi* art. 1° brevissimo, 2° arcte connato; posteriores sæpius ciliati.
- *Habitant in aquis; plantis aquaticis vel lapidibus adhærentes.*

Fam. 6. SPHÆRIDIADÆ .....

36. *Dactylosternum* (1).
37. *Sphæridium* (1).
38. *Cercyon* (4).

- *Mandibulæ* plerumque edentatæ.
- *Palpi maxillares* antennarum longitudine.
- *Pedes* modo terrestrii, modo subaquatici (*tibiis* sæpius valde spinosis).
- *Tarsi* art. 1° elongato, libero.
- *Habitant in stercore, vel sub quisquiliis per margines aquarum; fodientes.*

Sectio IV. NECROPHAGA .....

- ***Maxillarum lobus externus*** **exarticulatus (rarius obsoletus).**
- ***Antennæ*** **clavatæ vel capitatæ.**
- ***Pedes*** **terrestrii (interdum subcontractiles).**
- ***Tarsi*** **sæpius 5-articulati.**

Fam. 7. SILPHIDÆ .....

39. *Catops* (1).

- *Maxillæ* bilobæ.
- *Antennæ* 11-art., apicem versus sensim incrassatæ, vel clavatæ (clavâ 4–5-art.).
- *Abdomen* e segmentis ventralibus 6 compositum.
- *Pedes* sæpius subgraciles, leviter elongati.
- *Tarsi* 5-articulati.
- *Habitant in cadaveribus putrescentibus, quisquiliis, vel sub lapidibus; vorantes.*

Fam. 8. PTILIADÆ .....

40. *Acratrichis* (3).
41. *Ptenidium* (1).

- *Maxillæ* bilobæ: *palpi maxillares* art. ultimo minutissimo, aciculari.
- *Antennæ* 11-art., capillares, subclavatæ (clavâ 3-art.).
- *Abdomen* e segmentis ventralibus 5–7 compositum.
- *Corpus* minutissimum; *alis* lanceolatis, amplissimis, longissime ciliatis.
- *Pedes* gracillimi.
- *Tarsi* 3-articulati.
- *Habitant in quisquiliis, sub foliis arborum dejectis, vel in terrâ humidâ; velocissime cursitantes.*

Fam. 9. PHALACRIDÆ .....

42. *Olibrus* (4).

- *Maxillæ* bilobæ.
- *Antennæ* 11-art., clavatæ (clavâ 3-art.).
- *Abdomen* e segmentis ventralibus 5 compositum.
- *Pedes* graciles.
- *Tarsi* 5-articulati (art. 4to minutissimo).
- *Habitant inter flores vel in graminosis; velocissime cursitantes.*

Fam. 10. NITIDULIDÆ.....

43. *Carpophilus* (3).
44. *Nitidula* (4).
45. *Pria* (1).
46. *Meligethes* (4).
47. *Xenostrongylus* (1).

Maxillæ lobo singulo instructæ (rarius bilobæ).
Antennæ 11-art., capitatæ (capitulo sæpius 3-art.).
Abdomen e segmentis ventralibus 5 compositum.
Pedes robusti, breviusculi, subcontractiles.
Tarsi 5-articulati (art. 4to minutissimo).
Habitant in floribus, sub cortice arborum, inter fungos, vel etiam in ossibus (cartilaginem arrodentes).

Fam. 11. COLYDIADÆ .....

48. *Tarphius* (15).
49. *Cossyphodes* (1).
50. *Plæosoma* (1).
51. *Europs* (1).
52. *Lyctus* (1).

Maxillæ bilobæ.
Antennæ 10–11-art., clavatæ vel capitatæ (clavâ sæpius 2- vel 3-art.).
Abdomen e segmentis ventralibus 5 compositum.
Pedes parum graciles, sæpe subcontractiles.
Tarsi 4-articulati (rarius subconici).
Habitant sub truncis corticeve arborum marcido, inter lichenes; vel in tenebris latentes.

Fam. 12. TROGOSITIDÆ .....

53. *Trogosita* (2).

Maxillæ lobo singulo instructæ (*interno* obsoleto).
Antennæ 11-art., filiformes vel subclavatæ.
Corpus plus minusve elongatum, depressum.
Pedes sat robusti, præsertim *antici*.
Tarsi sæpius 5-articulati (art. 1° minimo).
Habitant circa granaria et domos; inter oras diversas per commercium sæpe translatæ.

Fam. 13. CUCUJIDÆ .....

54. *Cryptamorpha* (1).
55. *Læmophlœus* (8).
56. *Silvanus* (3).

Maxillæ bilobæ (*lobo interno* sæpius minutissimo).
Antennæ 11-art., filiformes vel subclavatæ.
Corpus plus minusve elongatum, plerumque valde depressum.
Pedes parum graciles, *antici* sæpius robustiores.
Tarsi sæpius 5-art., in maribus interdum heteromeri; (art. 1° plerumque minimo).
Habitant sub cortice arborum, in granariis vel circa domos; commercium interdum sequentes.

Fam. 14. CRYPTOPHAGIDÆ ...

57. *Cryptophagus* (2).
58. *Diphyllus* (1).
59. *Hypocoprus* (1).
60. *Ephistemus* (1).

Maxillæ bilobæ.
Antennæ 11-art., clavatæ.
Corpus plus minusve oblongo-ovatum, convexiusculum.
Pedes sæpius parum graciles.
Tarsi 5-articulati, in maribus interdum heteromeri.
Habitant in fungis, quisquiliis, vel etiam in domibus; interdum semina destruentes.

Fam. 15. LATHRIDIADÆ .....

61. *Cholovocera* (1).
62. *Holoparamecus* (1).
63. *Corticaria* (6).
64. *Lathridius* (3).
65. *Metophthalmus* (1).

Maxillæ bilobæ (*lobo interno* sæpius obsoleto).
Antennæ 8–11-art., clavatæ.
Corpus minutum, plus minusve oblongo-ovatum, convexum vel depressum.
Pedes subgraciles.
Tarsi sæpius 3-articulati (*antici* interdum 4-art.).
Habitant sub lapidibus, cortice, in locis subterraneis, vel in formicarum nidis; currentes.

Fam. 16. MYCETOPHAGIDÆ...

66. *Berginus* (1).
67. *Microchondrus* (1).
68. *Typhæa* (1).
69. *Litargus* (1).

Maxillæ bilobæ.
Antennæ 11-art., clavatæ.
Corpus plus minusve oblongo-ovatum, convexiusculum, pilosum, pictum.
Pedes parum graciles.
Tarsi 4-articulati (*antici* in maribus sæpius 3-art.).
Habitant inter fungos, sub cortice arborum, vel in ligno antiquo; sæpius agiliter moventes.

Fam. 17. DERMESTIDÆ .....

70. *Dermestes* (1).
71. *Attagenus* (1).
72. *Anthrenus* (1).

- *Maxillæ* bilobæ.
- *Antennæ* 11-art., clavatæ; in foveâ prosterni interdum reponendæ.
- *Corpus* plus minusve oblongum vel ovatum, crassum, sæpius piloso-variegatum.
- *Pedes* parum graciles, subcontractiles.
- *Tarsi* 5-articulati.
- *Habitant in pellibus et circa domos; vel* (*rarius*) *inter flores in aperto, volare amantes.*

Sectio V. **CORDYLOCERATA**...

- *Maxillarum lobus externus* exarticulatus; *internus* vel minutus vel obsoletus.
- *Antennæ* breves, capitatæ, serrato-, vel lamellato-clavatæ (sæpe geniculatæ); 8–11-art.
- *Pedes* terrestrii (sæpe omnino contractiles).
- *Tarsi* 5-articulati.

Fam. 18. BYRRHIDÆ .....

73. *Syncalypta* (3).

- *Maxillæ* bilobæ. (*Mandibulæ* vix exsertæ.)
- *Antennæ* 11-art., clavatæ, breves; in foveâ prosterni reponendæ.
- *Corpus* ovatum, crassum, sericeo-pilosum; *prosterno* antice producto; *alis* rarius obsoletis.
- *Pedes* robusti, contractiles; (*femoribus tibiis*que longitudinaliter excavatis).
- *Tarsi* 5-articulati, ad tibias reponendi.
- *Habitant in graminosis, sub lapidibus, vel in arenosis; propter humum lente repentes.*

Fam. 19. HISTERIDÆ .....

74. *Hister* (1).
75. *Paromalus* (2).
76. *Saprinus* (3).

- *Maxillæ* bilobæ. (*Mandibulæ* sæpius magnæ, exsertæ.)
- *Antennæ* 11-art., capitatæ, breves, geniculatæ; scapo longissimo, in foveâ sub margine capitis reponendo.
- *Corpus* rotundato-quadratum, durum, glaberrimum; *prosterno* antice sæpius producto; *elytris* truncatis.
- *Pedes* robusti, contractiles; (*tibiis* plus minusve longitudinaliter excavatis et dentatis).
- *Tarsi* 5-articulati, ad tibias sæpius reponendi.
- *Habitant in cadaveribus et quisquiliis, vel etiam sub lapidibus; lente repentes.*

Fam. 20. THORICTIDÆ.....

77. *Thorictus* (1).

- *Maxillæ* bilobæ. (*Mandibulæ* vix exsertæ.)
- *Antennæ* 11-art., capitatæ, brevissimæ, robustæ; ad marginem capitis reponendæ.
- *Corpus* obtuso-subovatum, durum, politissimum; *mesosterno* brevissimo, *scutello* vix observando; *alis* obsoletis.
- *Pedes* robustissimi, subcontractiles (*tibiis* setosis), ad basin valde approximati.
- *Tarsi* 5-articulati, breves, subconici.
- *Habitant in formicarum nidis, vel sub lapidibus; latentes.*

Fam. 21. APHODIADÆ .....

78. *Aphodius* (6).
79. *Oxyomus* (2).
80. *Psammodius* (2).

- *Maxillæ* bilobæ. (*Mandibulæ labrum*que membranaceum clypeo opertæ.)
- *Antennæ* 9-art., lamellato-clavatæ, breves; in foveâ ad marginem capitis reponendæ.
- *Corpus* plus minusve oblongum, convexum; *scutello* distincto.
- *Pedes* robusti, subcontractiles; (*tibiis anticis* tridentatis, *posterioribus* setosis).
- *Tarsi* 5-articulati, ad tibias reponendi.
- *Habitant in stercore, quisquiliis, vel in arenosis; fodientes.*

Fam. 22. TROGIDÆ .....
81. *Trox* (1).

- *Maxillæ* bilobæ. (*Mandibulæ labrum*que inæquale crustaceum clypeo haud opertæ.)
- *Antennæ* 9–10-art., lamellato-clavatæ, breves; in foveâ ad marginem capitis reponendæ.
- *Corpus* ovatum, crassum, tuberculato-rugosum; *scutello* distincto.
- *Pedes* parum robusti, subcontractiles; (*tibiis* setosis, *anticis* obscure dentatis).
- *Tarsi* 5-articulati.
- *Habitant quisquilias in arenosis; interdum etiam ad ossa allectæ* (*cartilaginem arrodentes*).

Fam. 23. GLAPHYRIDÆ .....
82. *Chasmatopterus* (1).

- *Maxillæ lobo singulo* dentato instructæ. (*Mandibulæ* subopertæ. *Labrum* crustaceum exsertum.)
- *Antennæ* 9–10-art., lamellato-clavatæ, breves; in foveâ ad marginem capitis reponendæ.
- *Corpus* oblongum, subconvexum, pilosum; *scutello* distincto; *elytris* leviter truncatis.
- *Pedes* elongati; (*tibiis anticis* ad apicem internum oblique truncatis, excavatis).
- *Tarsi* 5-articulati, graciles; *unguiculis* sæpius dentatis vel bifidis.
- *Habitant super plantas; flores foliaque devorantes.*

Sectio VI. **PRIOCERATA** .....

- *Maxillarum lobus externus* exarticulatus.
- *Antennæ* mediocres, filiformes, serratæ vel pectinatæ (rarius clavatæ); sæpius 11-art.
- *Corpus* modo durum, prosterno producto; modo molle, prosterno simplici.
- *Pedes* terrestrii (interdum subcontractiles).
- *Tarsi* plerumque 5-articulati.

Fam. 24. THROSCIDÆ .....
83. *Trixagus* (1).

- *Maxillæ* bilobæ. (*Mandibulæ* leviter exsertæ.)
- *Antennæ* 11-art., clavatæ, breves; in foveâ prosterni reponendæ.
- *Corpus* ellipticum, durum; *prothorace* ad angulos posticos valde producto, *prosterno* antice producto.
- *Pedes* graciles, contractiles.
- *Tarsi* 5-articulati, graciles, recepti.
- *Habitant in foliis arborum, inter lichenes, vel in arenosis; currentes.*

Fam. 25. ELATERIDÆ .....
84. *Coptostethus* (1).

- *Maxillæ* bilobæ. (*Mandibulæ* ad apicem plerumque fissæ.)
- *Antennæ* 11-art., plus minusve breves et serrato-filiformes; in foveâ prosterni sæpius reponendæ.
- *Corpus* plus minusve angusto-oblongum, durum; *prothorace* ad angulos posticos valde producto, *prosterno* antice et postice producto (postice spiniformi, spinâ in mesosternum receptâ).
- *Pedes* breviusculi, subcontractiles.
- *Tarsi* 5-articulati, simplices vel laminiferi; *unguiculis* modo simplicibus modo serratis.
- *Habitant super plantas, vel in ligno antiquo; (dorso impositæ) resilientes.*

Fam. 26. CYPHONIDÆ .....
85. *Eucinetus* (1).

- *Maxillæ* bilobæ. (*Palpi labiales* in typicis furcati, sed in genere nostro simplices.)
- *Antennæ* 11-art., breves, filiformes vel subserratæ.
- *Corpus* plus minusve ovatum vel hemisphæricum (in typicis molle); *prosterno* simplici.
- *Pedes* sat graciles, *postici* interdum saltatorii.
- *Tarsi* 5-articulati.
- *Habitant in paludosis, vel etiam sub cortice laxo; interdum ægre saltantes.*

Fam. 27. TELEPHORIDÆ .....

86. *Malthodes* (1).

Maxillæ bilobæ. (*Mandibulæ* graciles, acutæ.)
Antennæ 10–11-art., mediocres, filiformes; ad basin plus minusve approximatæ.
Corpus sæpius elongato-lineare, molle; *prosterno* simplici; *elytris* sæpe abbreviatis, *alas* detegentibus.
Pedes longiusculi, subgraciles.
Tarsi 5-articulati, articulo penultimo bilobo.
Habitant inter flores (*præsertim umbelliferos*), *vel in apricis graminosis; bene volantes.*

Fam. 28. MELYRIDÆ .....

87. *Malachius* (1).
88. *Pecteropus* (3).
89. *Dasytes* (1).
90. *Melyrosoma* (2).

Maxillæ bilobæ. (*Mandibulæ* latæ, ad apicem sæpius acutæ, bifidæ.)
Antennæ 11-art., breviusculæ, plus minusve serrato-filiformes, (in maribus interdum pectinatæ).
Corpus plus minusve elongato-oblongum, læte coloratum, molle; *prosterno* simplici; *alis* amplissimis.
Pedes plerumque longiusculi, subgraciles.
Tarsi 5-art. (aliquo articulo uno in maribus interdum producto); *unguiculis* membranâ auctis.
Habitant in floribus; apricitate bene volantes.

Fam. 29. CLERIDÆ .....

91. *Opilus* (1).
92. *Necrobia* (1).

Maxillæ bilobæ. (*Mandibulæ* infra apicem sæpius unidentatæ.)
Antennæ 11-art., breves, plus minusve clavatæ (rarius serrato-filiformes).
Corpus elongato-subcylindricum, pilosum, læte coloratum, punctatum, durusculum; *prosterno* simplici.
Pedes longiusculi, parum robusti, rarius subcontractiles.
Tarsi 5-art. (modo omnes, modo aliquo pari uno pseudotetrameri), art. 3° vel 4° sæpius bilobo.
Habitant inter flores, in ligno antiquo; vel etiam in ossibus (*cartilaginem rodentes*).

Fam. 30. PTINIDÆ .....

93. *Ptinus* (10).
94. *Mezium* (1).
95. *Gibbium* (1).
96. *Anobium* (4).

Maxillæ bilobæ (*lobo interno* lato). (*Mandibulæ* dente plus minusve medio, obtuso instructæ.)
Antennæ 11-art., breviusculæ, filiformes vel subclavatæ; sæpe ad basin approximatæ.
Corpus plus minusve orbiculato-ovatum vel oblongum, durum; *prosterno* simplici; *capite* deflexo.
Pedes longiusculi, graciles vel robusti, plerumque subcontractiles; (*tibiis* simplicibus).
Tarsi 5-articulati.
Habitant inter pelles, circa domos et in ligno antiquo; vel inter lichenes in aperto latentes.

Fam. 31. CISSIDÆ .....

97. *Cis* (3).
98. *Octotemnus* (1).
99. *Ptilinus* (1).
100. *Rhyzopertha* (1).

Maxillæ bilobæ (*lobo interno* plerumque minutissimo). (*Mandibulæ* ad apicem sæpius bidentatæ.)
Antennæ 8–11-art., clavatæ (clavâ laxâ 3-art.), breves, distantes, (rariss. flabellato-serratæ).
Corpus subcylindricum, durum; *prothorace* antice producto, interdum rugoso, *prosterno* simplici; *capite* deflexo.
Pedes breviusculi, subcontractiles; (*tibiis* simplicibus, vel apicem versus externum dentatis).
Tarsi 4-, vel 5-articulati.
Habitant in fungis, ligno antiquo, vel (*rarius*) *circa domos; sæpius terebrantes.*

Sectio VII. **RHYNCHOPHORA.**

- *Labrum* sæpius obsoletum.
- *Maxillæ lobo singulo* lato exarticulato plerumque instructæ (*interno* obsoleto).
- *Antennæ* sæpius geniculatæ (art. 1° elongato), capitatæ vel clavatæ; 9–12-art.
- *Corpus* plus minusve elongato-ovatum vel cylindricum; *capite* (præsertim in maribus) rostrato.
- *Pedes* terrestrii (rarius subcontractiles); *tibiis* uncinatis vel simplicibus.
- *Tarsi* pseudotetrameri (i. e. 5-art., art. 3° bilobo 4^tum^ minutiss. recipiente), rariss. simplices.

Fam. 32. TOMICIDÆ.....

101. *Tomicus* (2).
102. *Aphanarthrum* (1).
103. *Leiparthrum* (4).

- *Maxillæ lobo singulo* lato setoso instructæ (*interno* obsoleto). (*Mandibulæ* latæ, obtusæ.)
- *Labrum* obsoletum. *Palpi* (præsertim *maxillares*) crassi, conici. *Ligula* elongata.
- *Antennæ* 8–11-art., capitatæ, breves, geniculatæ (scapo longissimo), ad marginem capitis insertæ.
- *Corpus* cylindricum; *prothorace* antice producto, sæpius rugoso; *capite* deflexo, vix rostrato.
- *Pedes* brevissimi, robusti, subcontractiles; (*tibiis* sæpius compressis, extus dentatis).
- *Tarsi* 5- (rariss. 4-) art., simplices (art. 4° saltem minutissimo), ad tibias reponendi.
- *Habitant in ligno, vel sub cortice arborum; valide terebrantes.*

Fam. 33. HYLESINIDÆ .....

104. *Phlœophthorus* (1).
105. *Hylurgus* (2).
106. *Hylastes* (2).

- *Maxillæ lobo singulo* lato setoso instructæ (*interno* obsoleto). (*Mandibulæ* latæ, obtusæ.)
- *Labrum* obsoletum. *Palpi* (præsertim *maxillares*) crassi, conici. *Ligula* elongata.
- *Antennæ* 8–11-art., capitatæ, breves, geniculatæ (scapo longissimo), ad marginem capitis insertæ.
- *Corpus* ovatum vel cylindricum; *prothorace* leviter producto, rarius rugoso; *capite* deflexo, sensim rostrato.
- *Pedes* breves, robusti, subcontractiles; (*tibiis* sæpius compressis, extus dentatis).
- *Tarsi* pseudotetrameri, ad tibias reponendi.
- *Habitant in ligno, vel sub cortice arborum; valide terebrantes.*

Fam. 34. CURCULIONIDÆ ...

- *Maxillæ lobo singulo* lato setoso instructæ (*interno* obsoleto). (*Mandibulæ* latæ, obtusiusculæ.)
- *Labrum* obsoletum. *Palpi* crassi, conici. *Ligula* elongata.
- *Antennæ* 7–12-art., clavatæ vel capitatæ, geniculatæ (scapo longissimo), rostro scrobiculato insertæ.
- *Corpus* plus minusve elongato-ovatum, convexum; *capite* sæpius deflexo, (interdum valde) rostrato.
- *Pedes* modice elongati, rarius subcontractiles; (*tibiis* vel simplicibus, vel ad apicem uncinatis).
- *Tarsi* pseudotetrameri.
- *Habitant super arbores et plantas; folia, semina, vel etiam ramos, destruentes.*

Div. 1.

- *Rostrum* cylindricum vel filiforme, plerumque elongatum (rarius thorace brevius).
- *Antennæ* ante vel pone medium rostri (nec juxta sinum oris) insertæ.

} *Mecorhynchi.*

Subf. 1. Cossonides.

107. *Rhyncolus* (1).
108. *Phlœophagus* (1).
109. *Caulotrupis* (7).
110. *Caulophilus* (1).
111. *Stenotis* (1).
112. *Mesites* (2).

Antennæ breves; *funiculo* 7-art.; *clavâ* subsolidâ, ad apicem spongiosâ.
Pedes antici ad basin distantes vel approximati.

Subf. 2. Rhynchophorides.

113. *Sitophilus* (2).

Antennæ mediocres; *funiculo* 6- (rarius 5-) art.; *clavâ* subsolidâ vel 2-art.
Pedes antici plerumque paulo longiores.

Subf. 3. Cionides.

114. *Cionus* (1).

Antennæ breviuscuæ; *funiculo* 5-art.; *clavâ* 3-, vel 4-art.
Pedes antici ad basin vel approximati vel distantes.

Subf. 4. Cryptorhynchides.

115. *Ceutorhynchus* (4).
116. *Cœliodes* (1).
117. *Acalles* (13).

Antennæ mediocres; *funiculo* 7-art.; *clavâ* 4-art.
Rostrum inflexum, in canaliculam pectoralem distinctam applicandum.
Pedes antici ad basin distantes.

Subf. 5. Erirhinides.

118. *Tychius* (3).
119. *Pissodes* (1).
120. *Lixus* (5).

Antennæ mediocres; *funiculo* 7-art.; *clavâ* 4-art.
Pedes antici ad basin approximati.

Div. 2. { *Rostrum* plus minusve crassum et deforme, breviusculum. / *Antennæ* prope apicem rostri (sæpe juxta sinum oris) insertæ; sæpissime 12 artæ. } *Brachyrhynchi.*

Subf. 6. Cyclomides.

121. *Cyphoscelis* (1).
122. *Laparocerus* (1).
123. *Atlantis* (14).
124. *Omias* (3).
125. *Anemophilus* (3).
126. *Lichenophagus* (2).
127. *Scoliocerus* (2).
128. *Trachyphlœus* (1).

Canalicula antennalis subrecta, versus medium rostri ascendens.
Rostrum breve, subhorizontale, lineare, teretiusculum (nonnunquam apicem versus subattenuatum).
Corpus plerumque brevius, subovatum, apterum.

Subf. 7. Byrsopsides.

129. *Echinosoma* (1).

Canalicula antennalis infra-ocularis, curvata vel obliqua.
Rostrum breve, inflexum, in canaliculam pectoralem plerumque applicandum.
Corpus sæpius ovatum, convexum, inæquale, squamosum, apterum; *scutello* nullo.
Tarsi plerumque angustati, setosi.

Subf. 8. Molytides.

130. *Hypera* (3).

Canalicula antennalis infra- (vel subinfra-) ocularis, curvata vel obliqua.
Rostrum longius, deflexum, subcylindricum, paulo arcuatum.
Corpus plus minusve oblongum, squamosum et pubescens, apterum vel alatum.

Subf. 9. Cleonides.

131. *Cleonus* (1).

Canalicula antennalis infra-ocularis, curvata vel obliqua.
Rostrum longiusculum, deflexum, apice sæpius subincrassatum.
Corpus plerumque sat magnum, squamosum et pubescens, alatum vel apterum.

Subf. 10. Brachyderides.

132. *Sitona* (5).

Canalicula antennalis infra-ocularis, curvata vel obliqua.
Rostrum breve (interdum brevissimum), subhorizontale, fere capitis latitudine, planiusculum.
Corpus elongato-oblongum (rarius ovatum), alatum vel apterum.

Fam. 35. ATTELABIDÆ .....

133. *Apion* (7).
134. *Auletes* (1).

Maxillæ lobo singulo lato setoso instructæ (*interno* obsoleto). (*Mandibulæ* latæ, obtusiusculæ.)
Labrum obsoletum. *Palpi* crassi, conici.
Antennæ 11–12-art., clavatæ vel subfiliformes, rectæ, rostro vix scrobiculato insertæ.
Corpus sæpius ovatum, convexum; *capite* subdeflexo, (sæpissime valde) rostrato.
Pedes modice elongati; (*tibiis* plerumque simplicibus).
Tarsi pseudotetrameri.
Habitant super plantas et arbores; folia devorantes.

Fam. 36. BRUCHIDÆ .....

Maxillæ bilobæ. (*Mandibulæ* robustæ, acutiusculæ.)
Labrum distinctum. *Palpi* sat elongati, filiformes.
Antennæ 11-art., subfiliformes vel clavatæ, rectæ, rostro haud scrobiculato insertæ.
Corpus rotundato-ovatum, convexum; *capite* deflexo, leviter rostrato, lato; *elytris* sæpius abbreviatis.
Pedes modice elongati; (*tibiis* plerumque simplicibus): *postici* interdum validiores.
Tarsi pseudotetrameri.
Habitant super plantas, semina destruentes; inter lichenes, vel (*rarius*) *sub cortice arborum laxo.*

Subf. 1. ANTHRIBIDES.

135. *Xenorchestes* (1).

Antennæ apicem versus plerumque clavatæ, (in maribus interdum longiores).
Oculi integri.
Pedes postici haud validiores (sed rariss. subsaltatorii).

Subf. 2. BRUCHIDES.

136. *Bruchus* (3).

Antennæ filiformes, aut apicem versus leviter incrassatæ et sæpius subserratæ.
Oculi lunati (i. e. intus profunde emarginati).
Pedes postici plerumque validiores.

Sectio VIII. **EUCERATA**.....

Labrum exsertum (rariss. obsoletum).
Maxillarum lobus externus exarticulatus; *internus* distinctus (rariss. obsoletus).
Antennæ plus minusve longissimæ, filiformes vel setaceæ (rarius serratæ); sæpius 11-art.
Corpus plerumque magnum, elongatum; *oculis* sæpius intus emarginatis.
Pedes terrestrii, longiores; (*femoribus* sæpe clavatis).
Tarsi pseudotetrameri.

Fam. 37. CERAMBICIDÆ .....

137. *Stromatium* (1).
138. *Phymatodes* (1).
139. *Blabinotus* (1).
140. *Trichoferus* (1).
141. *Clytus* (1).
142. *Deucalion* (1).

Maxillæ bilobæ (*lobo interno* sat magno), submembranaceæ.
Antennæ sæpius 11-art., longissimæ, filiformes vel serratæ, ad marginem oculorum internum insertæ.
Corpus magnum, plus minusve parallelum; *capite* modo porrecto, modo deflexo.
Pedes elongati; (*femoribus* plus minusve clavatis).
Habitant intra lignum antiquum, sub cortice, vel in floribus; sæpius bene volantes.

Sectio IX. **PHYTOPHAGA**

- *Maxillarum lobus externus* sæpius subarticulatus, pseudopalpiformis.
- *Antennæ* breviusculæ, filiformes vel leviter incrassatæ, plus minusve approximatæ; sæpius 11-art.
- *Corpus* ovale, crassum (rarius elongatum), sæpius læte coloratum et glabrum.
- *Pedes* terrestrii; (*postici* interdum saltatorii).
- *Tarsi* pseudotetrameri.

Fam. 38. CRIOCERIDÆ

143. *Lema* (1).
144. *Crioceris* (1).

- *Maxillæ* bilobæ (lobis latis subæqualibus, *externo* haud palpiformi), submembranaceæ.
- *Antennæ* 11-art., apicem versus sæpius vix incrassatæ, ad basin parum distantes.
- *Corpus* plus minusve elongato-oblongum, parallelum, pictum; *abdomine* amplo.
- *Prothorax* elytris angustior, sæpius subcylindricus.
- *Pedes* sat elongati; (*femoribus posticis* interdum incrassatis, dentatis; *tibiis* sæpe subcurvatis).
- *Habitant in plantis, præsertim subaquaticis, vel inter flores; folia et ramos destruentes.*

Fam. 39. CASSIDIDÆ

145. *Cassida* (2).

- *Maxillæ* bilobæ (*lobo ext°* angusto, recto, subpalpiformi; *int°* parvo), cum *labio*, membranaceæ.
- *Antennæ* 11-art., breves, apicem versus sensim incrassatæ, ad basin approximatæ.
- *Corpus* latum, subtus deplanatum, plus minusve rotundatum; *prosterno* antice leviter producto.
- *Prothorax* et *elytra* ad latera valde producti; *illo* semicirculari, caput obtegente.
- *Pedes* breves, retractiles; *tarsis* latiusculis (art. 3° longe bilobo, 4^{tum} 5^{tumque} includente).
- *Habitant super folia plantarum, præcipue in locis humidiusculis; lente repentes.*

Fam. 40. GALERUCIDÆ

146. *Haltica* (2).
147. *Longitarsus* (6).
148. *Psylliodes* (5).

- *Maxillæ* bilobæ (*lobo ext°* angusto, fracto, subpalpiformi; *into°* lato, magno), membranaceæ.
- *Antennæ* 11- (rariss. 10-) art., longiusculæ, subfiliformes, ad basin approximatæ.
- *Corpus* plus minusve ovatum, convexiusculum.
- *Prothorax* et *elytra* basi latitudine vix æquales.
- *Pedes* sat graciles, longiusculi; (*femoribus posticis* sæpissime incrassatis, saltatoriis).
- *Habitant super folia plantarum, præsertim in graminosis; plerumque fortiter salientes.*

Fam. 41. CHRYSOMELIDÆ

149. *Mniophilosoma* (1).
150. *Cryptocephalus* (1).
151. *Chrysomela* (1).
152. *Gastrophysa* (1).

- *Maxillæ* bilobæ (*lobo ext°* sæpius subpalpiformi, incurvo), submembranaceæ.
- *Antennæ* 11-art., breviusculæ, filiformes vel leviter incrassatæ, ad basin distantes.
- *Corpus* rotundato-, vel subcylindrico-ovatum, convexum, crassum, sæpe splendore superbiens.
- *Prothorax* et *elytra* basi latitudine æquales.
- *Pedes* sat robusti, subretractiles; *tarsis* latiusculis.
- *Habitant in foliis plantarum; apricitate gaudentes.*

Sectio X. **PSEUDOTRIMERA.**

Maxillarum lobus externus exarticulatus; *internus* interdum obsoletus.

Antennæ plus minusve brevissimæ, clavatæ (rarius subfiliformes); sæpius 11-art.

Corpus ovale vel hemisphæricum, glabrum aut tenuiter pubescens.

Pedes terrestrii (sæpius subcontractiles).

Tarsi pseudotrimeri (i. e. 4-art., art. 2° bilobo, 3um minutiss. recipiente).

Fam. 42. COCCINELLIDÆ.....

153. *Coccinella* (5).
154. *Scymnus* (6).
155. *Rhyzobius* (1).

Maxillæ bilobæ. (*Mandibulæ* sæpius apice bifidæ et dente sub-basali interno instructæ.)

Antennæ 11-art., brevissimæ, clavatæ, ad basin distantes.

Corpus plerumque hemisphæricum, supra convexum, subtus deplanatum, sæpius læte maculatum.

Prothorax et *elytra* basi latitudine æquales.

Pedes subcontractiles; *unguiculis* sæpius dente basali armatis (rarius apice bifidis).

Habitant super folia plantarum, in cultis, vel ad vias; Aphides devorantes.

Fam. 43. CORYLOPHIDÆ.....

156. *Clypeaster* (1).
157. *Arthrolips* (1).
158. *Sericoderus* (1).
159. *Corylophus* (1).
160. *Glæosoma* (1).

Maxillæ lobo singulo angusto, elongato, recto, apice denticulato, instructæ (*interno* obsoleto).

Mandibulæ plerumque apice denticulatæ, per marginem internum interdum crenulatæ.

Antennæ 9–11-art., breviusculæ, clavatæ vel subclavatæ, ad basin distantes vel subapproximatæ.

Corpus ovatum vel hemisphæricum, minutum, sæpius supra et subtus subconvexum; *alis* plerumque amplis ciliatis.

Prothorax et *elytra* basi latitudine æquales; *illo* ad latera et antice producto, caput obtegente.

Pedes graciles, subcontractiles; (*postici* valde distantes).

Tarsi 4-articulati, simplices.

Habitant inter plantas (*præcipue Endogenas*) *sub fibra stirpium, vel sub folia dejecta; cursitantes.*

Sectio XI. **ATRACHELIA** .....

Mandibulæ sæpius ad apicem bifidæ, et in medio fisso-sinuatæ.

Maxillarum lobus externus exarticulatus: *palpi max.* art. ultimo sæpius securiformi.

Antennæ plerumque breviusculæ, filiformes, apice leviter incrassatæ (rarius clavatæ); sæpius sub frontis margine insertæ et 11-art.

Corpus durum, plerumque haud pilosum et obscure coloratum; *capite* in cavo prothoracico usque ad oculos immerso.

Pedes terrestrii; *tibiis* bicalcaratis, et sæpius ad apicem minute spinulosis.

Tarsi heteromeri (i. e. *anteriores* 5-, *postici* 4-art.); rariss. omnes 5-, vel 4-art.

Fam. 44. ANISOTOMIDÆ .....

161. *Stagonomorpha* (1).

Maxillæ bilobæ (rariss. *lobo singulo* instructæ). (*Mandibulæ* apice integræ vel bifidæ.)

Antennæ 9–11-art., breviusculæ, clavatæ (articulo clavæ secundo sæpe minuto).

Corpus plus minusve orbiculato-ovatum, glabrum; *capite* sæpe ad pectus arcte applicando.

Prothorax et *elytra* valde convexi, basi latitudine æquales.

Pedes subcontractiles; (*tibiis* plus minusve curvatis et spinosis).

Tarsi modo 4-, modo 5-articulati, modo heteromeri.

Habitant in umbrosis humidis, sub truncis arborum marcidis, vel inter quisquilias; cursitantes.

Fam. 45. DIAPERIDÆ

162. *Ellipsodes* (1).
163. *Phaleria* (1).

Maxillæ bilobæ (*lobo int°* simplici). *Mentum* basi plerumque angustatum.

Antennæ 11-art., breviusculæ, apicem versus plus minusve moniliformes et incrassatæ.

Corpus ellipticum vel ovatum, alatum vel apterum, plerumque glabrum, convexum, colore metallico.

Pedes breviusculi; *tibiis* interdum spinulosis; *tarsis unguiculis*que simplicibus (*his* rariss. denticulatis).

Habitant in fungis, sub cortice arborum laxo, vel etiam sub lapidibus; latentes.

Fam. 46. TENEBRIONIDÆ

164. *Cerandria* (1).
165. *Tribolium* (1).
166. *Boromorphus* (1).
167. *Calcar* (1).
168. *Tenebrio* (2).
169. *Alphitobius* (1).

Maxillæ bilobæ (*lobo int°* simplici). *Mentum* basi plerumque leviter angustatum.

Antennæ 11-art., breves, apicem versus plus minusve moniliformes et leviter incrassatæ.

Corpus lineari-elongatum (rarius ovale), plerumque alatum, depressiusculum, colore obscuro.

Pedes longiusculi, robusti; *tarsis unguiculis*que simplicibus.

Habitant in domibus, pistrinis mercatorumque repositoriis (præsertim inter farinas); sæpe commercium sequentes.

Fam. 47. OPATRIDÆ

170. *Opatrum* (2).
171. *Hadrus* (3).

Maxillæ bilobæ (*lobo int°* plerumque simplici). *Clypeus* antice sæpius profunde bilobus.

Antennæ 11-art., breviusculæ, apicem versus plus minusve moniliformes et vix incrassatæ.

Corpus oblongum vel ovale, apterum vel alatum, depressiusculum, interdum pilosum, colore obscuro.

Pedes longiusculi, sat graciles; *tarsis unguiculis*que simplicibus.

Habitant in aridis maritimis, præsertim sub lapidibus, vel ad graminum radices; latentes.

Fam. 48. BLAPSIDÆ

172. *Macrostethus* (1).
173. *Blaps* (2).

Maxillæ bilobæ (*lobo int°* sæpius biuncinato).

Antennæ 11-art., breviusculæ, apicem versus moniliformes et leviter incrassatæ.

Corpus magnum, elongatum, crassum, plerumque apterum, nigrum; *elytris* connatis.

Pedes elongati; *tarsis unguiculis*que simplicibus.

Habitant circa domos, vel (præcipue in cavernis) per oram maritimam; lucem fugientes.

Fam. 49. TENTYRIADÆ

174. *Hegeter* (1).

Maxillæ bilobæ (*lobo int°* sæpius simplici): *palpi max.* art° ult° minus inflato. *Mentum* amplum.

Antennæ 11-art., breviusculæ, filiformes, vel apicem versus vix incrassatæ.

Corpus magnum, plus minusve crassum, plerumque apterum, nigrum; *elytris* sæpius connatis.

Pedes elongati; *tarsis unguiculis*que simplicibus.

Habitant in cavernis maritimis, vel sub lapidibus in aperto; sese abdentes.

Fam. 50. HELOPIDÆ

175. *Helops* (9).

Maxillæ bilobæ (*lobo int°* sæpius simplici, obtuso). *Mentum* minusculum, subquadratum.

Antennæ 11-art., longiusculæ, filiformes, apicem versus vix sensim incrassatæ.

Corpus magnum, sæpius oblongo-ovatum, convexum, alatum vel apterum; *elytris* liberis vel connatis.

Pedes elongati; *tarsis anterioribus* in maribus sæpe leviter dilatatis; *unguiculis* simplicibus.

Habitant sub lapidibus, cortice laxo, vel in cavernis; sese occultantes.

Sectio XII. **TRACHELIA** .....

- *Mandibulæ* ad apicem bifidæ vel integræ, in medio sæpe fisso-sinuatæ.
- *Maxillarum lobus ext*^{us} exarticulatus; *int*^{us} simplex, obtusus.
- *Antennæ* plerumque longiusculæ, filiformes (rariss. pectinatæ); sæpius 11-art.
- *Corpus* plus minusve molle et læte coloratum, plerumque alatum; *capite* postice lato, truncato, in cavo prothoracico usque ad oculos haud immerso.
- *Pedes* terrestrii; *tibiis* sæpius bicalcaratis (*calcariis* interdum mobilibus, æqualibus).
- *Tarsi* heteromeri (art. penultimo sæpe bilobo).

Fam. 51. ŒDEMERIDÆ .....

176. *Stenaxis* (1).

- *Maxillæ* bilobæ (apice interdum longe pencillatæ) : *palpi max.* filiformes, vel art° ult° securiformi.
- *Antennæ* 10–12-art., longiusculæ, filiformes, vel etiam setaceæ.
- *Corpus* angusto-elongatum, læte coloratum; *capite* porrecto; *prothorace* elytris (postice subattenuatis) angustiore.
- *Pedes* elongati; *femoribus masculis* sæpe incrassatis; *tarsis* plerumque art° penult° bilobo; *unguiculis* simplicibus.
- *Habitant in floribus; apricitate volare gaudentes.*

Fam. 52. MELOIDÆ .....

177. *Meloë* (3).
178. *Zonitis* (1).

- *Maxillæ* bilobæ: *palpi max.* subfiliformes (art° ult° vix inflato).
- *Antennæ* 11-art., longiusculæ, filiformes, vel in medio incrassatæ (in maribus interdum contortæ).
- *Corpus* magnum, interdum pictum vel apterum; *capite* deflexo; *elytris* sæpe abbreviatis, complicantibus.
- *Pedes* elongati; *calcariis* sæpe inæqualibus; *tarsis* simplicibus; *unguiculis* bifidis (interdum pectinatis).
- *Habitant super folia plantarum humilium, pigræ; vel inter arbores floresque, bene volantes.*

Fam. 53. MORDELLIDÆ .....

179. *Anaspis* (1).

- *Maxillæ* bilobæ: *palpi max.* art° ult° plerumque securiformi.
- *Antennæ* 11-art., breviusculæ, filiformes; vel apicem versus subserratæ, pectinatæ aut flabellatæ.
- *Corpus* arcuatum, pictum, subtus subcarinatum; *capite* inflexo; *elytris* acuminatis, sæpe abbreviatis.
- *Pedes* (præsertim *postici*) elongati; *calcariis* longis; *tarsis* simplicibus; *unguiculis* simplicibus vel bifidis.
- *Habitant in floribus* (*præcipue umbelliferis*); *vix assultim festinantes.*

Fam. 54. ANTHICIDÆ .....

180. *Anthicus* (4).
181. *Xylophilus* (1).

- *Maxillæ* bilobæ: *palpi max.* art° ult° magno securiformi.
- *Antennæ* 11-art., breviusculæ, apicem versus sensim incrassatæ.
- *Corpus* parvum, plus minusve elongatum et pictum; *capite* pedunculato; *prothorace* basi constricto.
- *Pedes* breviusculi, graciles; *tarsis* art° penult° sæpius bilobo; *unguiculis* simplicibus.
- *Habitant in graminosis et sub lapidibus, vel inter flores; sese interdum congregantes.*

Sectio XIII. **BRACHELYTRA.**

- *Maxillarum lobus externus* exarticulatus.
- *Antennæ* breviusculæ, filiformes, vel leviter incrassatæ (rariss. clavatæ); 9–11-art.
- *Corpus* plus minusve angusto-elongatum; *capite* plerumque haud immerso; *elytris* abbreviatis (rariss. integris), *abdomen* magnum, durum, mobile detegentibus.
- *Pedes* terrestrii; *tibiis* sæpius bicalcaratis.
- *Tarsi* plerumque 5-art.; sed interdum 4. 5. 5; vel *omnes* 4-, aut etiam 3-art.

Fam. 55. SCYDMÆNIDÆ .....

182. *Scydmænus* (1).

Maxillæ bilobæ. *Palpi* artº ultº minutissimo, subulato.
Antennæ 11-art., longiusculæ, sensim clavatæ (clavâ laxâ, 3- vel 4-art.).
Corpus minutum, ovatum; *prothorace* basi constricto; *elytris* abdomen totum tegentibus.
Pedes longiusculi, graciles.
Tarsi 5-art., simplices.
Habitant in graminosis, cultis, vel inter muscos; interdum una cum formicis degentes.

Fam. 56. STAPHYLINIDÆ.....

Maxillæ bilobæ. *Palpi* artº ultº vel elongato, vel parvo subulato (rariss. securiformi).
Antennæ sæpius 11- (rarius 10-, rariss. 9-) art., filiformes vel leviter incrassatæ, interdum geniculatæ.
Corpus elongatum (rarius ovatum); *prothorace* vel elytrorum latitudine, vel iis (abbreviatis) vix angustiore.
Pedes longiusculi vel breviusculi; (*anteriores* plerumque paulo breviores, validiores).
Tarsi 3–5-art.; vel *antⁱ* 4-, et *postᵉˢ* 5-art.; (sed plerumque *omnes* 5-art.).
Habitant in quisquiliis, per margines aquarum, vel in stercore; sæpius valde voraces.

Subf. 1. ALEOCHARIDES.

183. *Falagria* (1).
184. *Tachyusa* (1).
185. *Xenomma* (3).
186. *Homalota* (15).
187. *Oxypoda* (1).
188. *Aleochara* (4).
189. *Oligota* (1).

Mandibulæ sæpius muticæ. *Palpi max.* artº ultº parvo, subulato.
Antennæ 11- (rarius 10-) art., ad oculorum marginem internum insertæ, rectæ, subfiliformes.
Ligula angusta, porrecta, plerumque apice bifida.
Corpus parvum, sæpius lineare, depressiusculum; *labro* integro.
Tarsⁱ 5- (rarius 4-) art.; vel *antici* 4-, et *posteriores* 5-art.: (*antici* nonnunquam dilatati).

Subf. 2. TACHYPORIDES.

190. *Somatium* (1).
191. *Conurus* (3).
192. *Tachyporus* (2).
193. *Habrocerus* (1).
194. *Tachinus* (1).
195. *Trichophya* (1).
196. *Mycetoporus* (1).

Mandibulæ sæpius muticæ. *Palpi max.* artº ultº vel parvo subulato, vel præcedente æquali.
Antennæ 11- (rarius 10-) art., infra oculos sub frontis margine insertæ, rectæ, subfiliformes.
Ligula lata, plerumque biloba.
Corpus parvum, sæpius fusiforme, convexiusculum; *labro* integro.
Tibiæ (vel omnes, vel posteriores solum) sæpius spinulosæ.
Tarsi 5- (rarius 4-) art.: (*antici* sæpe dilatati).

Subf. 3. STAPHYLINIDES.

197. *Othius* (2).
198. *Xantholinus* (2).
199. *Staphylinus* (1).
200. *Philonthus* (7).

Mandibulæ sæpius medio dentatæ. *Palpi max.* artº ultº præcedente subæquali.
Antennæ 11-art., in frontis margine anteriore insertæ, sæpe geniculatæ et leviter incrassatæ.
Ligula parva, biloba vel integra.
Corpus plerumque magnum, lineare, depressiusculum; *labro* bilobo.
Tibiæ (vel omnes, vel posteriores solum) sæpius spinulosæ.
Tarsi 5-art.: (*antici*, præsertim in maribus, sæpe dilatati).

Subf. 4. PÆDERIDES.

201. *Achenium* (1).
202. *Lathrobium* (1).
203. *Lithocharis* (3).
204. *Rugilus* (1).
205. *Sunius* (2).
206. *Mecognathus* (1).

Mandibulæ tenues, elongatæ, medio dentatæ. *Palpi max.* artº ultº minuto, sæpius subulato.
Antennæ 11-art., infra oculos sub frontis margine insertæ, plerumque rectæ, filiformes.
Ligula biloba, lobis modo approximatis modo distantibus.
Corpus parvusculum, sæpius angusto-filiforme; *labro* bilobo, vel bidentato.
Prothorax immarginatus. *Scutellum* distinctum, triangulare.
Tarsi 5-art.: (*antici* interdum dilatati).

Subf. 5. STENIDES.

Mandibulæ tenues, elongatæ, pone apicem valde unidentatæ.

Palpi max. artº 1º elongato, ultº minutissimo (vix observando).

Antennæ 11-art., inter oculos (in fronte) plerumque insertæ, rectæ, clavatæ.

Ligula levissime mento affixa (quare, insecto moriente, cum œsophago sæpe prolabitur).

207. *Stenus* (4).

Corpus parvusculum, filiforme; *capite* magno; *labro* integro vel denticulato.

Prothorax immarginatus. *Scutellum* vix distinctum. *Coxæ anticæ* minutæ.

Tarsi 5- (rarius 4-) art., graciles.

Subf. 6. OXYTELIDES.

Mandibulæ validiores, sæpius dentatæ. *Palpi max.* artº ultº plerumque subulato.

Antennæ 11- (rarius 10-) art., sub frontis margine laterali insertæ, sæpe refractæ, subincrassatæ.

208. *Platysthetus* (2).
209. *Oxytelus* (5).
210. *Trogophlœus* (1).

Ligula apice sinuata, vel biloba (rarius integra).

Corpus parvum, lineare, subcylindricum vel depressum; *labro* membranâ utrinque acuminatâ aucto.

Tarsi 3- (in speciebus aberrantibus 5-) art., plerumque graciles.

Subf. 7. OMALIADES.

Mandibulæ breves, sæpius muticæ. *Palpi max.* filiformes, artº ultº longiusculo.

Antennæ 11-art., sub frontis margine laterali insertæ, rectæ, apicem versus vix incrassatæ.

211. *Omalium* (2).

Ligula lata, biloba. *Maxillarum lobus internus* unco corneo armatus.

Corpus parvum, lineari-oblongum, depressum; *fronte* ocellis duobus instructâ.

Elytra pectore longiora, angulis exterioribus apicalibus rotundatis.

Tarsi 5-art.: (*antici* rarius subdilatati).

Subf. 8. PROTEINIDES.

Mandibulæ breves, muticæ. *Palpi max.* filiformes, artº ultº longiusculo.

Antennæ 11- (rarius 9-) art., sub frontis margine laterali insertæ, rectæ, subclavatæ.

212. *Megarthrus* (1).
213. *Metopsia* (1).

Ligula biloba (rariss. integra). *Maxillarum lobus internus* unco (interdum duplice) armatus.

Corpus parvum, sæpius ovatum, latiusculum, depressum; *fronte* rarius ocello instructâ.

Elytra pectore longiora. *Coxæ anticæ* cylindricæ, haud exsertæ.

Tarsi 5- (vel 3-) art., breviusculi.

CATALOGUS TOPOGRAPHICUS.

Sectio I. GEODEPHAGA.

Fam. 1. Carabidæ.

(Subf. 1. *Brachinides.*)

	Madera.	Pinus Stus.	Des. Bor.	Des. Gr.	Des. Austr.
1. TARUS, *Clairv.*					
1. lineatus, *Schön.*	*	..	..	..	..
2. suturalis, *Dej.*	*	*	..	*	..
2. DROMIUS, *Bon.*					
3. insularis, *Woll.*	*	..	*	*	..
4. sigma, *Rossi*, α.	..	*	..	..	..
4. ———, β.	*	..	..	..	..
4. ———, γ.	*	..	..	..	..
5. arenicolus, *Woll.*	..	*	..	..	..
6. obscuroguttatus, (*Anders.*) *Dufts.*	*	..	..	..	..
7. negrita, *Woll.*	*	..	..	..	..
8. glabratus, (*Meg.*) *Dufts.*	*	*	..	*	..

(Subf. 2. *Scaritides.*)

3. SCARITES, *Fab.*					
9. abbreviatus, (*Koll.*) *Dej.* α.	*	..	..	..	..
9. ———— β.	..	*	..	..	..
9. ———— γ.	*	..	..	..	*
9. ———— δ.	..	..	*	*	..
10. humeralis, *Woll.*	..	*	..	..	..
4. APOTOMUS, *Hoffm.*					
11. rufus, *Rossi*	*	..	..	..	..

(Subf. 3. *Carabides.*)

5. CALOSOMA, *Weber*					
12. Maderæ, *Fab.*	*	*	..	..	..
6. NOTIOPHILUS, *Dum.*					
13. geminatus, *Dej.*	*	..	..	*	..

(Subf. 4. *Harpalides.*)

(Div. 1. *Chlæniidea.*)

7. LORICERA, *Lat.*					
14. Wollastonii, *Javet*	*	..	..	..	..
8. EURYGNATHUS, *Woll.*					
15. Latreillei, *Lap.*	..	*	..	..	..
15. ———, var. β.	..	..	..	*	..
9. ZARGUS, *Woll.*					
16. Schaumii, *Woll.*	*	..	..	..	..
17. Desertæ, *Woll*	..	..	..	*	..
18. pellucidus, *Woll.*	*	..	..	..	..
18. ———, var. β.	..	..	..	*	..

(Div. 2. *Pterostichidea.*)

10. PRISTONYCHUS, *Dej.*					
19. alatus, *Woll.*	*	*	..	..	..
11. CALATHUS, *Bon.*					
20. vividus, *Fab.*	*	..	..	..	..
21. complanatus, (*Koll.*) *Dej.* α.	*	..	..	..	..
21. ———— β.	..	..	..	*	..
21. ———— γ.	..	*	..	..	..
21. ———— δ.	*	..	..	..	..
22. fuscus, *Fab.*	*	..	..	..	..
12. ANCHOMENUS, *Bon.*					
23. pallipes, *Fab.*	*	..	..	..	..
23. ———, var. β.	*	*	..	..	..
24. marginatus, *Linn.*	*	..	..	..	..
13. OLISTHOPUS, *Dej.*					
25. Maderensis, *Woll.*	*	..	..	..	..
25. ———, var. β.	..	..	..	*	..
26. Ericæ, *Woll.*	*	..	..	..	..
27. elongatus, *Woll.*	*	..	..	..	..
14. ARGUTOR, (*Meg.*) *Steph.*					
28. robustus, *Woll.*	*	..	..	..	..
29. gracilipes, *Woll.*	*	..	..	..	..
30. dilaticollis, *Woll.*	*	..	..	..	..
31. curtus, *Woll.*	*	..	..	..	..
31. ———, var. β.	*	..	..	..	..
15. OMASEUS, (*Ziegl.*) *Steph.*					
32. nigerrimus, *Dej.*	*	..	..	..	..
33. Wollastoni, *Heer*	*	..	..	..	..
16. AMARA, *Bon.*					
34. trivialis, *Gyll.*	*	*	..	..	..
34. ———, var. β.	*	..	..	..	..
35. superans, *Woll.*	*	..	..	..	..

(Div. 3. *Harpalidea.*)

17. ANISODACTYLUS, *Dej.*					
36. binotatus, *Fab.*	*	..	..	..	..
18. HARPALUS, *Lat.*					
37. attenuatus, *Steph.*	*	..	..	..	..
37. ———, var. β.	..	..	..	*	..
38. litigiosus, *Dej.*	*	*	..	..	..
39. distinguendus, *Dufts.*	*	*	..	..	..
40. vividus, *Dej.* α.	*	..	..	..	..
40. ———— β.	*	..	*	*	..
40. ———— γ.	..	*	..	..	..
19. OPHONUS, (*Ziegl.*) *Steph.*					
41. obscurus, *Fab.*	*	..	..	..	..
20. STENOLOPHUS, (*Meg.*) *Steph.*					
42. Teutonus, *Schr.*	*	..	..	..	..
43. dorsalis, *Fab.*	*	..	..	..	..

	Madera.	Pinus Stus.	Des. Bor.	Des. Gr.	Des. Austr.
21. BRADYCELLUS, *Erich.*					
44. fulvus, *Mshm*	*	..	..	..	..
45. excultus, *Woll.*	*	..	..	..	..
45. ———, var. β.	*	..	..	..	..
22. TRECHUS, *Clairv.*					
46. fimicola, *Woll.*	*	..	..	..	..
47. nigrocruciatus, *Woll.*	*	..	..	..	..
47. ———, var. β.	*	..	..	..	..
48. flavomarginatus, *Woll.*	*	..	..	..	..
48. ———, var. β.	*	..	..	..	..
49. dilutus, *Woll.*	*	..	..	..	..
50. umbricola, *Woll.*	*	..	..	..	..
50. ———, var. β.	*	..	..	..	..
51. quadricollis, *Woll.*	*	..	..	..	..
52. custos, *Woll.*	*	..	..	..	..
53. alticola, *Woll.*	*	..	..	..	..
54. cautus, *Woll.*	..	*	..	..	..
23. THALASSOPHILUS, *Woll.*					
55. Whitei, *Woll.*	*	*	..	..	..
(Subf. 5. *Bembidiades.*)					
24. BEMBIDIUM, *Lat.*					
56. bistriatum, (*Meg.*) *Dufts.*	*	..	..	..	..
57. curvimanum, *Woll.*	..	*	..	..	..
58. Lucasii, *Duval*	*	..	..	..	..
59. obtusum, *Sturm*	*	*	..	*	..
60. Atlanticum, *Woll.* α.	*	*	..	..	..
60. ———, β.	*	*	..	..	..
60. ———, γ.	*	*	..	..	..
60. ———, δ.	..	*	..	..	..
60. ———, ε.	*	..	..	..	..
61. tabellatum, *Woll.*	*	..	..	..	..
62. elongatum, *Dej.*	*	..	..	..	..
63. Schmidtii, *Woll.*	*	..	..	..	..
Sectio II. HYDRADEPHAGA.					
Fam. 2. Dytiscidæ.					
25. COLYMBETES, *Clairv.*					
64. Lanio, *Fab.*	*	..	..	..	..
26. AGABUS, *Leach*					
65. bipustulatus, *Linn.*	*	..	..	..	..
66. nebulosus, *Forst.*	*	..	..	..	..
66. ———, var. β.	*	..	..	..	..
67. Maderensis, *Woll.*	*	..	..	..	..
27. HYDROPORUS, *Clairv.*					
68. vigilans, *Woll.*	*	..	..	..	..
69. confluens, *Fab.*	*	..	..	..	..
Fam. 3. Gyrinidæ.					
28. GYRINUS, *Linn.*					
70. natator, *Linn.*	*	..	..	..	..
Sectio III. PHILHYDRIDA.					
Fam. 4. Parnidæ.					
29. PARNUS, *Fab.*					
71. prolifericornis, *Fab.*	*	..	..	..	..
Fam. 5. Hydrophilidæ.					
30. OCHTHEBIUS, *Leach*					
72. 4-foveolatus, (*Mots.*) *Woll.*	*	..	..	..	..
31. CALOBIUS, *Woll.*					
73. Heeri, *Woll.*	*	..	..	..	..
32. LIMNEBIUS, *Leach*					
74. grandicollis, *Woll.*	*	..	..	..	..
33. LACCOBIUS, *Erich.*					
75. minutus, *Linn.*	*	..	..	..	..
34. HYDROBIUS, *Leach*					
76. conglobatus, *Woll.*	*	..	..	..	..
35. PHILHYDRUS, *Sol.*					
77. melanocephalus, *Oliv.*	..	*	..	..	..
77. ———, var. β.	..	*	..	..	..
Fam. 6. Sphæridiadæ.					
36. DACTYLOSTERNUM, *Woll.*					
78. Roussetii, *Woll.*	*	..	..	..	..
37. SPHÆRIDIUM, *Fab.*					
79. bipustulatum, *Fab.*	*	..	..	..	..
38. CERCYON, *Leach*					
80. inquinatum, *Woll.*	*	..	..	..	..
81. fimetarium, *Woll.*	*	..	..	..	..
82. centrimaculatum, *Sturm*	*	..	..	..	..
82. ———, var. β.	*	..	..	..	..
83. quisquilium, *Linn.*	*	*	..	..	..
Sectio IV. NECROPHAGA.					
Fam. 7. Silphidæ.					
39. CATOPS, *Payk.*					
84. velox, *Spence*	*	..	..	..	..
Fam. 8. Ptiliadæ.					
40. ACRATRICHIS, *Mots.*					
85. umbricola, *Woll.*	*	..	..	..	..
86. fascicularis, *Herbst*	*	..	..	..	..
87. pumila, *Erich.*	*	..	..	..	..
41. PTENIDIUM, *Erich.*					
88. apicale, (*Sturm*) *Gillm.*	*	..	..	*	..
Fam. 9. Phalacridæ.					
42. OLIBRUS, *Erich.*					
89. Cinerariæ, *Woll.*	*	..	..	..	..
90. bicolor, *Fab.*	*	..	..	..	..
91. liquidus, *Erich.*	*	..	..	..	..
92. consimilis, *Mshm*	*	..	..	..	..
Fam. 10. Nitidulidæ.					
43. CARPOPHILUS, (*Leach*) *Steph.*					
93. mutilatus, (*Hoffm.*) *Erich.*	*	..	..	..	..
94. auropilosus, *Woll.*	*	..	..	..	..
95. hemipterus, *Linn.*	*	..	..	..	..
44. NITIDULA, *Fab.*					
96. flexuosa, *Oliv.*	..	*	..	..	..
97. 4-pustulata, *Fab.*	*	..	..	..	..

	Madera.	Prus Sius.	Des. Bor.	Des. Gr.	Des. Austr.
98. discoidea, *Fab.*	*	..	..	..	..
99. obsoleta, *Fab.*	*	..	..	..	..
45. Pria, (*Kirby*) *Steph.*					
100. Dulcamaræ, *Scop.*	*	..	..	..	..
46. Meligethes, (*Kirby*) *Steph.*					
101. Isoplexidis, *Woll.*	*	..	..	..	..
101. ———, var. β.	*	..	..	..	..
102. tristis, (*Schüpp.*) *Sturm*	*	*	..	*	..
103. picipes, *Sturm*	*	..	..	..	..
104. varicollis, *Woll.*	*	..	..	..	..
104. ———, var. β.	*	..	..	..	..
47. Xenostrongylus, *Woll.*					
105. histrio, *Woll.*	*	*	..	*	..
Fam. 11. Colydiadæ.					
48. Tarphius, (*Germ.*) *Erich.*					
106. parallelus, *Woll.*	*	..	..	..	..
107. Lowei, *Woll.*	*	*	..	..	..
108. inornatus, *Woll.*	*	..	..	..	..
109. spinipes, *Woll.*	*	..	..	..	..
110. sylvicola, *Woll.*	*	..	..	..	..
111. rotundatus, *Woll.*	*	..	..	..	..
112. Lauri, *Woll.*	*	..	..	..	..
113. compactus, *Woll.*	*	..	..	..	..
114. nodosus, *Woll.*	*	..	..	..	..
115. cicatricosus, *Woll.*	*	..	..	..	..
116. testudinalis, *Woll.*	*	..	..	..	..
117. truncatus, *Woll.*	*	..	..	..	..
118. echinatus, *Woll.*	*	..	..	..	..
119. brevicollis, *Woll.*	*	..	..	..	..
120. rugosus, *Woll.*	*	..	..	..	..
49. Cossyphodes, *Westw.*					
121. Wollastonii, *Westw.*	*	..	..	..	..
50. Phlœosoma, *Woll.*					
122. ellipticum, *Woll.*	*	..	..	..	..
51. Europs, *Woll.*					
123. impressicollis, *Woll.*	..	..	..	*	..
52. Lyctus, *Fab.*					
124. brunneus, *Steph.*	*	..	..	..	..
Fam. 12. Trogositidæ.					
53. Trogosita, *Oliv.*					
125. mauritanica, *Linn.*	*	..	..	..	..
126. serrata, *Woll.*	*	..	..	..	..
Fam. 13. Cucujidæ.					
54. Cryptamorpha, *Woll.*					
127. Musæ, *Woll.*	*	..	..	..	..
55. Læmophlœus, (*Dej.*) *Erich.*					
128. Donacioides, *Woll.*	*	..	..	..	..
129. granulatus, *Woll.*	*	..	..	..	..
130. vermiculatus, *Woll.*	*	..	..	..	..
131. pusillus, *Schön.*	*	..	..	..	..
132. ferrugineus, (*Creutz.*) *Steph.*	*	..	..	..	..
133. clavicollis, *Woll.*	*	..	..	..	..
134. axillaris, *Woll.*	*	..	..	..	..
135. Stenoides, *Woll.*	*	..	..	..	..
56. Silvanus, *Lat.*					
136. Surinamensis, *Linn.*	*	..	..	..	..
137. dentatus, *Mshm*	*	..	..	..	..
138. advena, (*Kunze*) *Waltl.*	*	..	..	..	..
Fam. 14. Cryptophagidæ.					
57. Cryptophagus, *Herbst*					
139. affinis, *Sturm*	*	..	..	..	..
483. Nitiduloides, *Woll.*	*	..	..	..	..
58. Diphyllus, *Redt.*					
140. lunatus, *Fab.*	*	..	..	..	..
59. Hypocoprus, *Mots.*					
141. Motschulskii, *Woll.*	..	*	..	..	..
60. Ephistemus, (*Westw.*) *Steph.*					
142. dimidiatus, *Sturm*	*	..	..	..	..
143. alternans, *Woll.*	*	..	..	..	..
Fam. 15. Lathridiadæ.					
61. Cholovocera, *Mots.*					
144. Maderæ, (*Westw.*) *Woll.*	*	..	..	..	..
62. Holoparamecus, *Curtis*					
145. niger, (*Chevr.*) *Aubé*	*	*	..	..	..
63. Corticaria, *Mshm*					
146. rotulicollis, *Woll.*	*	..	..	..	..
147. crenicollis, *Mann.*	*	..	..	..	..
148. fulva, (*Chevr.*) *Mann.*	*	..	..	..	..
149. rotundicollis, *Woll.*	*	..	..	..	..
150. curta, *Woll.*	*	*	..	*	..
151. Fagi, *Woll.*	*	..	..	..	..
64. Lathridius, *Herbst*					
152. assimilis, *Mann.*	*	..	..	..	..
153. minutus, *Linn.*	*	..	..	..	..
154. transversus, *Oliv.*	*	..	..	..	..
65. Metophthalmus, (*Mots.*) *Woll.*					
155. asperatus, *Woll.*	*	..	..	..	..
Fam. 16. Mycetophagidæ.					
66. Berginus, (*Dej.*) *Erich.*					
156. Tamarisci, (*Dej.*) *Woll.*	*	*	..	..	..
67. Microchondrus, (*Guér.*) *Woll.*					
157. domuum, (*Guér.*) *Woll.*	*	..	..	..	..
68. Typhæa, (*Kirby*) *Steph.*					
158. fumata, *Linn.*	*	..	..	..	..
69. Litargus, *Erich.*					
159. pictus, *Woll.*	*	..	..	..	..
Fam. 17. Dermestidæ.					
70. Dermestes, *Linn.*					
160. vulpinus, *Fab.*	*	..	..	..	..
71. Attagenus, *Lat.*					
161. megatoma, *Fab.*	*	..	..	..	..
72. Anthrenus, *Geoffr.*					
162. varius, *Fab.*	*	..	..	..	..

Sectio V. CORDYLOCERATA.

	Madera.	Prus Stus.	Des. Bor.	Des. Gr.	Des. Austr.
Fam. 18. Byrrhidæ.					
73. SYNCALYPTA, (*Dillw.*) *Steph.*					
163. capitata, *Woll.*	*	..	..	..	..
164. ovuliformis, *Woll.*	*	..	..	..	..
165. horrida, *Woll.*	..	*	..	..	..
Fam. 19. Histeridæ.					
74. HISTER, *Linn.*					
166. major, *Linn.*	..	*	..	..	..
75. PAROMALUS, *Erich.*					
167. minimus, (*Dej.*) *Aubé*	*	..	..	..	..
168. pumilio, *Erich.*	*	..	..	..	..
76. SAPRINUS, *Erich.*					
169. nitidulus, *Fab.*	*	..	..	..	..
169. ———, var. β.	*	..	..	..	..
170. chalcites, *Illig.*	*	*	..	*	..
171. metallicus, *Herbst*	..	*	..	..	..
Fam. 20. Thorictidæ.					
77. THORICTUS, *Germ.*					
172. Westwoodii, *Woll.*	*	..	..	..	..
Fam. 21. Aphodiadæ.					
78. APHODIUS, *Illig.*					
173. Hydrochæris, *Fab.*	*	*	..	..	..
174. nitidulus, *Fab.*	*	*	..	..	..
175. rufus, *Illig.*	*	..	..	..	..
176. lividus, *Oliv.*	*	..	..	..	..
177. Pedrosi, *Woll.*	..	*	..	..	..
178. granarius, *Linn.*	*	*	..	..	..
79. OXYOMUS, (*Esch.*) *De Casteln.*					
179. Heineckeni, *Woll.*	*	..	..	..	..
180. brevicollis, *Woll.*	*	..	..	..	..
80. PSAMMODIUS, *Gyll.*					
181. sabulosus, (*Dej.*) *Mulst*	*	*	..	..	..
182. cæsus, *Pnz.*	*	..	..	..	..
Fam. 22. Trogidæ.					
81. TROX, *Fab.*					
183. scaber, *Linn.*	*	..	..	..	..
Fam. 23. Glaphyridæ.					
82. CHASMATOPTERUS, (*Dej.*) *Lat.*					
184. nigrocinctus, *Woll.*	*	..	..	..	..

Sectio VI. PRIOCERATA.

	Madera.	Prus Stus.	Des. Bor.	Des. Gr.	Des. Austr.
Fam. 24. Throscidæ.					
83. TRIXAGUS, *Kugell.*					
185. gracilis, *Woll.*	*	..	..	..	..
Fam. 25. Elateridæ.					
84. COPTOSTETHUS, *Woll.*					
186. femoratus, *Woll.*	..	*	..	..	..
Fam. 26. Cyphonidæ.					
85. EUCINETUS, *Schüpp.*					
187. ovum, *Woll.*	*	..	..	..	..
Fam. 27. Telephoridæ.					
86. MALTHODES, *Kies.*					
188. Kiesenwetteri, *Woll.*	*	..	..	..	..
Fam. 28. Melyridæ.					
87. MALACHIUS, *Fab.*					
189. militaris, *Woll.*	*	..	..	..	..
88. PECTEROPUS, *Woll.*					
190. Maderensis, *Woll.*	*	..	..	..	..
190. ———, var. β.	*	..	..	..	..
191. rugosus, *Woll.*	*	..	..	..	..
192. rostratus, *Woll.* α.	..	*	..	..	..
192. ——— β.	..	..	..	*	..
89. DASYTES, *Payk.*					
193. illustris, (*Mots.*) *Woll.*	*	*	..	*	..
90. MELYROSOMA, *Woll.*					
194. oceanicum, *Woll.*	*	..	..	..	..
195. Artemisiæ, *Woll.*	..	..	*	*	..
Fam. 29. Cleridæ.					
91. OPILUS, *Lat.*					
196. mollis, *Linn.*	*	..	..	..	..
92. NECROBIA, *Oliv.*					
197. ruficollis, *Thung.*	*	..	..	..	..
Fam. 30. Ptinidæ.					
93. PTINUS, *Linn.*					
198. advena, *Woll.*	*	..	..	..	..
199. mauritanicus, *Lucas*	*	..	..	..	..
200. Dawsoni, *Woll.*	..	..	..	*	..
201. pinguis, *Woll.*	*	..	..	..	..
202. orbatus, *Woll.*	*	..	..	..	..
203. nodulus, *Woll.*	..	*	..	..	..
204. pilula, *Woll.*	*	..	..	..	..
205. albopictus, *Woll.* α.	*	..	..	..	..
205. ——— β.	..	..	..	*	..
205. ——— γ.	..	*	..	*	..
205. ——— δ.	..	..	*	..	..
206. longicornis, *Woll.*	*	..	..	..	..
207. fragilis, *Woll.*	..	*	..	*	..
94. MEZIUM, (*Leach*) *Curtis*					
208. sulcatum, *Fab.*	*	..	..	..	..
95. GIBBIUM, *Scop.*					
209. scotias, *Fab.*	*	..	..	..	..
96. ANOBIUM, *Fab.*					
210. velatum, *Woll.*	*	..	..	..	..
211. paniceum, *Linn.*	*	..	..	..	..
212. striatum, *Oliv.*	*	..	..	..	..
213. Ptilinoides, *Woll.*	*	..	..	..	..
Fam. 31. Cissidæ.					
97. CIS, *Lat.*					
214. Wollastonii, *Mellié*	*	..	..	..	..
215. fuscipes, (*Chevr.*) *Mellié*	*	..	..	..	..
216. Lauri, *Woll.*	*	..	..	..	..
98. OCTOTEMNUS, *Mellié*					
217. opacus, *Mellié*	*	..	..	..	..
99. PTILINUS, *Geoffr.*					
218. cylindripennis, *Woll.*	*	..	..	..	..

	Madera.	Ptus Stus.	Des. Bor.	Des. Gr.	Des. Austr.
100. RHYZOPERTHA, *Steph.*					
219. pusilla, *Fab.*	*	..	..	..	..
Sectio VII. RHYNCHOPHORA.					
Fam. 32. Tomicidæ.					
101. TOMICUS, *Lat.*					
220. villosus, *Fab.*	*	..	..	..	..
221. Dohrnii, *Woll.*	*	..	..	..	..
102. APHANARTHRUM, *Woll.*					
222. Euphorbiæ, *Woll.*	*	..	..	..	..
103. LEIPARTHRUM, *Woll.*					
223. mandibulare, *Woll.*	*	..	..	..	..
224. bituberculatum, *Woll.*	*	..	..	..	..
224. ———, var. β.	*	..	..	..	..
225. curtum, *Woll.*	*	..	..	..	..
226. Artemisiæ, *Woll.*	..	..	*	..	..
Fam. 33. Hylesinidæ.					
104. PHLŒOPHTHORUS, *Woll.*					
227. perfoliatus, *Woll.*	*	..	..	..	..
105. HYLURGUS, *Lat.*					
228. ligniperda, *Fab.*	*	..	..	..	..
229. piniperda, *Linn.*	*	..	..	..	..
106. HYLASTES, *Erich.*					
230. Trifolii, *Müll.*	*	..	..	..	..
231. clavus, *Woll.*	*	..	..	..	..
Fam. 34. Curculionidæ.					
(Div. 1. *Mecorhynchi.*)					
(Subf. 1. *Cossonides.*)					
107. RHYNCOLUS, (*Creutz.*) *Germ.*					
232. tenax, *Woll.*	*	..	..	..	..
108. PHLŒOPHAGUS, *Schön.*					
233. sulcipennis, *Woll.*	*	..	..	..	..
109. CAULOTRUPIS, *Woll.*					
234. lacertosus, *Woll.*	*	..	..	..	..
235. lucifugus, *Woll.* α.	*	..	..	..	..
235. ——— β.	..	..	..	*	..
235. ——— γ.	..	*	..	..	..
235. ——— δ.	..	..	*	..	..
236. impius, *Woll.*	*	..	..	*	..
237. terebrans, *Woll.*	..	*	..	..	..
238. Chevrolatii, *Woll.*	*	..	..	..	..
238. ———, var. β.	*	..	..	..	..
239. opacus, *Woll.*	*	..	..	..	..
240. conicollis, *Woll.*	*	..	..	..	..
240. ———, var. β.	..	..	..	*	..
110. CAULOPHILUS, *Woll.*					
241. sculpturatus, *Woll.*	*	..	..	..	..
111. STENOTIS, *Woll.*					
242. acicula, *Woll.*	*	..	..	..	..
112. MESITES, *Schön.*					
243. Euphorbiæ, *Woll.*	*	..	..	..	..
243. ———, var. β.	*	..	..	..	..
243. ———, var. γ.	*	..	..	..	..
244. Maderensis, *Woll.*	*	..	..	..	..
244. ———, var. β.	*	..	..	..	..
(Subf. 2. *Rhynchophorides.*)					
113. SITOPHILUS, *Schön.*					
245. granarius, *Linn.*	*	..	..	..	..
246. Oryzæ, *Linn.*	*	..	..	..	..
(Subf. 3. *Cionides.*)					
114. CIONUS, *Clairv.*					
247. pulchellus, *Herbst*	*	..	..	..	..
(Subf. 4. *Cryptorhynchides.*)					
115. CEUTORHYNCHUS, (*Schüpp.*) *Schön.*					
248. Echii, *Fab.*	*	*	..	..	..
249. quadridens, *Pnz.*	*	..	..	*	..
250. nigroterminatus, *Woll.*	*	..	..	..	..
251. lineatotessellatus, *Woll.*	*	..	..	..	..
116. CŒLIODES, *Schön.*					
252. fuliginosus, *Mshm*	*	..	..	..	..
117. ACALLES, *Schön.*					
253. saxicola, *Woll.*	..	..	..	*	..
254. pulverulentus, *Woll.*	*	..	..	..	..
255. oblitus, *Woll.*	*	..	..	..	..
256. nodiferus, *Woll.*	*	..	..	..	..
257. Vau, *Woll.*	*	..	..	..	..
258. terminalis, *Woll.*	*	..	..	..	..
258. ———, var. β.	*	..	..	..	..
259. ornatus, *Woll.*	*	..	..	..	..
260. dispar, *Woll.*	*	..	..	..	..
261. albolineatus, *Woll.*	*	..	..	..	..
262. globulipennis, *Woll.*	*	..	..	..	..
263. lunulatus, *Woll.*	*	..	..	..	..
264. cylindricollis, *Woll.*	*	..	..	..	..
265. Wollastoni, *Chevr.*	*	..	..	..	..
(Subf. 5. *Erirhinides.*)					
118. TYCHIUS, (*Germ.*) *Schön.*					
266. robustus, *Woll.*	..	*	*	*	..
267. albosquamosus, *Woll.*	..	..	..	*	..
268. filirostris, *Woll.*	..	*	..	..	..
119. PISSODES, *Germ.*					
269. notatus, *Fab.*	*	..	..	..	..
120. LIXUS, *Fab.*					
270. Cheiranthi, *Woll.*	*	..	..	..	..
271. Chawneri, *Woll.*	*	..	..	..	..
272. vectiformis, *Woll.*	..	*	..	..	..
273. angustatus, *Fab.*	*	..	..	..	..
274. rufitarsis, *Schön.*	*	..	..	..	..
(Div. 2. *Brachyrhynchi.*)					
(Subf. 6. *Cyclomides.*)					
121. CYPHOSCELIS, *Woll.*					
275. distorta, *Woll.*	*	..	..	..	..
122. LAPAROCERUS, *Schön.*					
276. morio, *Schön.*	*	*	*	*	*
123. ATLANTIS, *Woll.*					
277. clavatus, *Woll.*	*	..	..	..	..
278. lamellipes, *Woll.*	*	..	..	..	..
279. calcatrix, *Woll.*	*	..	..	..	..
280. noctivagans, *Woll.*	*	..	..	..	..
281. lauripotens, *Woll.*	*	..	..	..	..
282. australis, *Woll.*	*	..	..	..	..
283. vespertinus, *Woll.*	*	..	..	..	..
284. lanatus, *Woll.*	*	..	..	..	..

	Madera.	Ptus Stus.	Des. Bor.	Des. Gr.	Des. Austr.
285. navicularis, *Woll.*	..	*	..	..	..
286. inconstans, *Woll.*	..	*	..	..	..
287. mendax, *Woll.*	..	*	..	..	..
288. instabilis, *Woll.*	..	*	..	..	..
289. excelsus, *Woll.*	*	..	..	..	..
——————, var. β.	*	..	..	..	..
290. Schaumii, *Woll.*	..	*	..	..	..
——————, var. β. (=291 huj. op.)	*	..	..	..	..
124. OMIAS, (*Germ.*) *Schön.*					
292. ventrosus, *Woll.*	*	..	..	..	..
293. ænescens, *Woll.*	*	..	..	..	..
294. Waterhousei, *Woll.*	*	..	..	..	..
——————, var. β.	..	..	..	*	..
125. ANEMOPHILUS, *Woll.*					
295. crassus, *Woll.*	..	*	..	..	..
296. subtessellatus, *Woll.*	..	*	..	..	..
297. trossulus, *Woll.*	..	*	..	..	..
126. LICHENOPHAGUS, *Woll.*					
298. fritillus, *Woll.*	..	*	..	..	..
299. acuminatus, *Woll.*	..	..	..	*	..
127. SCOLIOCERUS, *Woll.*					
300. Maderæ, *Woll.*	*	..	..	..	..
301. curvipes, *Woll.*	*	..	..	..	..
128. TRACHYPHLŒUS, *Germ.*					
302. scaber, *Linn.*	*	..	..	..	..
(Subf. 7. *Byrsopsides.*)					
129. ECHINOSOMA, *Woll.*					
303. porcellus, *Woll.*	*	..	..	..	..
(Subf. 8. *Molytides.*)					
130. HYPERA, *Germ.*					
304. lunata, *Woll.*	*	*	..	..	..
305. murina, *Fab.*	*	*	..	..	..
306. variabilis, *Herbst*	*	..	..	*	..
(Subf. 9. *Cleonides.*)					
131. CLEONUS, *Schön.*					
307. plicatus, *Oliv.*	..	*	..	*	..
(Subf. 10. *Brachyderides.*)					
132. SITONA, *Germ.*					
308. gressoria, *Fab.*	*	..	..	..	..
309. latipennis, *Schön.*	*	..	..	..	..
310. cambrica, (*Kby*) *Steph.*	*	*	..	..	..
311. lineata, *Linn.*	*	*	..	..	..
312. humeralis, (*Kby*) *Steph.*	*	*	..	..	..
Fam. 35. Attelabidæ.					
133. APION, *Herbst*					
313. vernale, *Fab.*	*	..	..	..	..
314. sagittiferum, *Woll.*	*	*	..	*	..
315. Malvæ, *Fab.*	*	..	..	..	..
316. frumentarium, *Linn.*	*	*	..	..	..
317. chalybeipenne, (*Schön.*) *Woll.*	*	*	..	..	..
——————, var. β.	*	..	..	..	..
318. Wollastoni, *Chevr.*	*	..	..	..	..
319. rotundipenne, *Woll.*	*	..	..	..	..
134. AULETES, *Schön.*					
320. Maderensis, *Woll.*	*	..	..	..	..
——————, var. β.	*	..	..	..	..
——————, var. γ.	*	..	..	..	..
Fam. 36. Bruchidæ.					
(Subf. 1. *Anthribides.*)					
135. XENORCHESTES, *Woll.*					
321. saltitans, *Woll.*	*	..	..	..	..
(Subf. 2. *Bruchides.*)					
136. BRUCHUS, *Geoffr.*					
322. rufimanus, *Schön.*	*	..	..	..	..
323. subellipticus, *Woll.*	*	..	..	..	..
324. lichenicola, *Woll.*	..	*	..	*	..
Sectio VIII. EUCERATA.					
Fam. 37. Cerambicidæ.					
137. STROMATIUM, *Serv.*					
325. unicolor, *Oliv.*	*	..	..	..	..
138. PHYMATODES, *Mulst*					
326. variabilis, *Linn.*	*	..	..	..	..
——————, var. β.	*	..	..	..	..
139. BLABINOTUS, *Woll.*					
327. spinicollis, *Woll.*	*	..	..	..	..
140. TRICHOFERUS, *Woll.*					
328. senex, *Woll.*	*	..	..	..	..
141. CLYTUS, *Fab.*					
329. Arietis, *Linn.*	*	..	..	..	..
142. DEUCALION, *Woll.*					
330. Desertarum, *Woll.*	..	..	..	*	*
Sectio IX. PHYTOPHAGA.					
Fam. 38. Crioceridæ.					
143. LEMA, *Fab.*					
331. melanopa, *Linn.*	*	*	..	..	..
——————, var. β.	..	*	..	..	..
144. CRIOCERIS, *Geoffr.*					
332. Asparagi, *Linn.*	*	..	..	..	..
Fam. 39. Cassididæ.					
145. CASSIDA, *Linn.*					
333. nebulosa, *Linn.*	*	..	..	..	..
334. hemisphærica, *Herbst*	*	..	..	..	..
Fam. 40. Galerucidæ.					
146. HALTICA, *Geoffr.*					
335. subtilis, *Woll.*	*	*	..	*	..
336. Salicariæ, *Payk.*	*	*	..	..	..
147. LONGITARSUS, *Lat.*					
337. Isoplexidis, *Woll.*	*	..	..	..	..
338. Cinerariæ, *Woll.*	*	..	..	..	..
339. saltator, *Woll.*	*	..	..	..	..

	Madera.	Ptus Stus.	Des. Bor.	Des. Gr.	Des. Austr.
340. lutescens, *Gyll.*	*	*	..	..	..
341. nervosus, *Woll.*	*	*	..	..	..
———, var. β.	..	..	..	*	..
342. nubigena, *Woll.*	*	..	..	..	..
148. PSYLLIODES, *Lat.*					
343. chrysocephala, *Linn.*	*	..	..	..	..
344. hospes, *Woll.*	*	*	..	..	..
345. umbratilis, *Woll.*	*	..	..	..	..
346. vehemens, *Woll.*	*	..	..	..	..
———, var. β.	*	..	..	..	..
———, var. γ.	..	*	..	..	..
347. tarsata, *Woll.*	*	..	..	..	..
Fam. 41. Chrysomelidæ.					
149. MNIOPHILOSOMA, *Woll.*					
348. læve, *Woll.*	*	..	..	..	..
150. CRYPTOCEPHALUS, *Geoffr.*					
349. crenatus, *Woll.*	*	..	..	..	..
151. CHRYSOMELA, *Linn.*					
350. Fragariæ, *Woll.*	*	..	..	..	..
152. GASTROPHYSA, (*Chevr.*) *Redt.*					
351. Polygoni, *Linn.*	*	..	..	..	..
Sectio X. PSEUDOTRIMERA.					
Fam. 42. Coccinellidæ.					
153. COCCINELLA, *Linn.*					
352. mutabilis, *Scriba*	*	*	..	..	..
353. 7-punctata, *Linn.*	*	*	..	*	..
354. 14-pustulata, *Linn.*	*	..	..	..	..
355. testudinea, (*Hein.*) *Woll.*	*	..	..	..	..
———, var. β.	*	..	..	..	..
356. Genistæ, *Woll.*	*	..	..	..	..
154. SCYMNUS, *Kugell.*					
357. Durantæ, *Woll.*	*	..	..	..	..
———, var. β.	*	..	..	..	..
358. marginalis, *Rossi*	*	..	..	..	..
———, var. β.	*	..	..	..	..
359. arcuatus, *Rossi*, α.	*	..	..	..	..
———, β.	*	..	..	..	..
———, γ.	*	..	..	..	..
———, δ.	*	..	..	..	..
———, ε.	*	..	..	..	..
360. flavopictus, *Woll.*	*	..	*	..	..
361. minimus, *Rossi*	*	..	..	..	..
362. Limnichoides, *Woll.*	..	*	..	..	..
155. RHYZOBIUS, *Steph.*					
363. litura, *Fab.*	*	*	..	..	..
———, var. β.	..	..	..	*	..
Fam. 43. Corylophidæ.					
156. CLYPEASTER, (*Anders.*) *Redt.*					
364. pusillus, *Gyll.*	*	..	..	*	..
157. ARTHROLIPS, *Woll.*					
365. piceum, (*Kunze*) *Comolli*	*	..	..	*	..
158. SERICODERUS, *Steph.*					
366. lateralis, (*Meg.*) *Gyll.*	*	..	..	..	..
159. CORYLOPHUS, (*Leach*) *Steph.*					
367. tectiformis, *Woll.*	*	..	..	..	..
160. GLŒOSOMA, *Woll.*					
368. velox, *Woll.*	*	..	..	..	..
Sectio XI. ATRACHELIA.					
Fam. 44. Anisotomidæ.					
161. STAGONOMORPHA, *Woll.*					
369. sphærula, *Woll.*	*	..	..	..	..
370. unicolor, *Woll.*	*	..	..	..	..
Fam. 45. Diaperidæ.					
162. ELLIPSODES, *Woll.*					
371. glabratus, *Fab.*	*	..	..	..	..
———, var. β.	..	..	..	*	..
163. PHALERIA, *Lat.*					
372. ciliata, *Woll.*	..	*	..	..	..
Fam. 46. Tenebrionidæ.					
164. CERANDRIA, (*Dej.*) *Lucas*					
373. cornuta, *Fab.*	*	..	..	*	..
165. TRIBOLIUM, *MacLeay*					
374. ferrugineum, *Fab.*	*	..	..	..	..
166. BOROMORPHUS, (*Mots.*) *Woll.*					
375. Maderæ, *Woll.*	*	*	..	..	..
167. CALCAR, (*Dej.*) *Lat.*					
376. elongatus, *Herbst*	*	..	..	..	..
168. TENEBRIO, *Linn.*					
377. molitor, *Linn.*	*	..	..	..	..
378. obscurus, *Fab.*	*	..	..	..	..
169. ALPHITOBIUS, *Steph.*					
379. diaperinus, *Kugell.*	*	..	..	..	..
Fam. 47. Opatridæ.					
170. OPATRUM, *Fab.*					
380. fuscum, *Herbst*	*	*	..	*	..
381. errans, *Woll.*	*	..	..	..	..
171. HADRUS, (*Dej.*) *Woll.*					
382. alpinus, *Woll.*	*	..	..	..	..
383. cinerascens, (*Dej.*) *Woll.*	*	..	*	*	*
384. illotus, *Woll.*	..	*	..	..	..
Fam. 48. Blapsidæ.					
172. MACROSTETHUS, *Woll.*					
385. tuberculatus, *Woll.*	..	..	*	..	..
173. BLAPS, *Fab.*					
386. gages, *Linn.*	*	*	..	..	..
———, var. β.	*	..	..	..	..
387. fatadica, (*Creutz.*) *Sturm*	*	*	..	..	..

	Madera.	Pt.s Stus.	Des. Bor.	Des. Gr.	Des. Austr.
Fam. 49. Tentyriadæ.					
174. HEGETER, *Lat.*					
388. elongatus, *Oliv.*	*	*	..	..	..
Fam. 50. Helopidæ.					
175. HELOPS, *Fab.*					
389. Vulcanus, *Woll.* α	..	..	*	*	..
389. ——— β.	*	..	..	..	..
389. ——— γ.	*	..	..	..	..
389. ——— δ.	*	..	..	..	..
390. confertus, *Woll.* α.	*	..	..	..	..
390. ——— β.	*	..	..	..	..
391. Pluto, *Woll.*	*	..	..	..	..
392. infernus, *Woll.*	..	*	..	..	..
393. lucifugus, *Woll.*	..	*	..	..	..
393. ———, var. β.	..	*	..	..	..
394. congregatus, *Woll.* α.	..	..	..	*	..
394. ———, β.	*	..	..	..	..
395. futilis, *Woll.* α.	*	..	..	..	..
395. ———, β.	..	..	..	*	..
396. cinnamomeus, *Woll.*	*	..	..	..	..
397. Portosanctanus, *Woll.*	..	*	..	..	..
Sectio XII. TRACHELIA.					
Fam. 51. Œdemeridæ.					
176. STENAXIS, *Schmidt*					
398. Lowei, *Woll.*	*	..	..	..	..
Fam. 52. Meloidæ.					
177. MELOË, *Linn.*					
399. austrinus, *Woll.*	*	..	..	..	..
400. rugosus, *Mshm*	*	..	..	..	..
401. flavicomus, *Woll.*	*	*	..	*	..
178. ZONITIS, *Fab.*					
402. 4-punctata, *Fab.*	*	*	..	..	..
402. ———, var. β.	*	*	..	..	..
Fam. 53. Mordellidæ.					
179. ANASPIS, *Geoffr.*					
403. Proteus, *Woll.*	*	*	*	*	..
403. ———, var. β.	*	*	*	*	..
Fam. 54. Anthicidæ.					
180. ANTHICUS, *Payk.*					
404. instabilis, (*Hoffm.*) *Schmidt*	*	*	..	..	..
405. litoralis, *Heer*	*	..	..	..	..
406. hispidus, *Rossi*	*	..	..	..	..
407. tristis, *Schmidt*	*	..	..	..	..
407. ———, var. β.	*	..	..	..	..
181. XYLOPHILUS, (*Bonelli*) *Lat.*					
408. pallescens, *Woll.*	*	..	..	..	..
Sectio XIII. BRACHELYTRA.					
Fam. 55. Scydmænidæ.					
182. SCYDMÆNUS, *Lat.*					
409. Helferi, *Schaum*	*	..	..	..	..

	Madera.	Pt.s Stus.	Des. Bor.	Des. Gr.	Des. Austr.
Fam. 56. Staphylinidæ.					
(Subf. 1. *Aleocharides.*)					
183. FALAGRIA, (*Leach*) *Mann.*					
410. obscura, *Grav.*	*	..	..	..	..
184. TACHYUSA, *Erich.*					
411. raptoria, *Woll.*	*	..	..	..	..
185. XENOMMA, *Woll.*					
412. planifrons, *Woll.*	*	..	..	..	..
413. formicarum, *Woll.*	*	..	..	..	..
414. filiforme, *Woll.*	*	*	..	..	..
186. HOMALOTA, *Mann.*					
415. sanguinolenta, *Woll.*	*	..	..	..	..
415. ———, var. β.	*	..	..	..	..
416. granulosa, *Woll.*	*	..	..	..	..
417. obliquepunctata, *Woll.*	*	..	..	..	..
418. luticola, *Woll.*	*	..	..	..	..
419. gregaria, *Erich.*	..	*	..	..	..
420. Philonthoides, *Woll.*	*	..	..	..	..
421. currens, *Woll.*	*	..	..	..	..
422. tantilla, *Woll.*	*	..	..	..	..
423. plebeia, *Woll.*	*	..	..	..	..
424. sodalis, *Erich.*	*	..	..	..	..
425. umbratilis, *Woll.*	*	..	..	..	..
426. insignis, *Woll.*	*	..	..	..	..
427. atramentaria, (*Kby*) *Gyll.*	*	*	..	..	..
428. longicornis, *Grav.*	*	..	..	..	..
429. lividipennis, *Mann.*	*	..	..	..	..
187. OXYPODA, *Mann.*					
430. litigiosa, *Heer*	*	..	..	..	..
188. ALEOCHARA, *Grav.*					
431. Armitagei, *Woll.*	*	..	..	..	..
432. tristis, *Grav.*	*	..	..	..	..
433. nitida, *Grav.*	*	*	..	..	..
433. ———, var. β.	*	..	..	..	..
434. morion, *Grav.*	*	..	..	..	..
189. OLIGOTA, *Mann.*					
435. inflata, *Mann.*	*	*	..	..	..
(Subf. 2. *Tachyporides.*)					
190. SOMATIUM, *Woll.*					
436. anale, *Woll.*	*	..	..	..	..
191. CONURUS, *Steph.*					
437. pubescens, *Payk.*	*	..	..	..	..
438. pedicularius, *Grav.*	*	*	..	..	..
439. monticola, *Woll.*	*	..	..	..	..
439. ———, var. β.	*	..	..	..	..
192. TACHYPORUS, *Grav.*					
440. celer, *Woll.*	*	..	..	..	..
441. brunneus, *Fab.*	*	*	..	..	..
193. HABROCERUS, *Erich.*					
442. capillaricornis, *Grav.*	*	..	..	..	..
194. TACHINUS, *Grav.*					
443. Silphoides, *Linn.*	*	..	..	..	..
195. TRICHOPHYA, *Mann.*					
444. Huttoni, *Woll.*	*	..	..	..	..
196. MYCETOPORUS, *Mann.*					
445. pronus, *Erich.*	*	..	..	..	..
445. ———, var. β.	*	..	..	..	..

	Madera.	Pinæ Stus.	Des. Bor.	Des. Gr.	Des. Austr.
(Subf. 3. *Staphylinides.*)					
197. OTHIUS, (*Leach*) *Steph.*					
446. strigulosus, *Woll.*	*	..	..	..	..
447. Jansoni, *Woll.*	*	..	..	..	..
198. XANTHOLINUS, *Dahl*					
448. punctulatus, *Payk.*	*	..	..	..	..
449. linearis, *Oliv.*	*	..	..	..	..
199. STAPHYLINUS, *Linn.*					
450. maxillosus, *Linn.*	*	*	..	..	..
200. PHILONTHUS, (*Leach*) *Steph.*					
451. æneus, *Rossi*	*	..	..	..	..
452. umbratilis, *Grav.*	*	..	..	..	..
453. sordidus, *Grav.*	*	..	..	*	..
454. bipustulatus, *Pnz.*	*	*	..	..	..
455. varians, *Pyk.*	*	..	..	..	..
456. aterrimus, *Grav.*	*	*	..	..	..
457. filiformis, *Woll.*	*	..	..	..	..
(Subf. 4. *Pæderides.*)					
201. ACHENIUM, (*Leach*) *Curtis.*					
458. Hartungii, *Heer*	*	..	..	..	..
202. LATHROBIUM, *Grav.*					
459. multipunctatum, *Grav.*	*	..	..	..	..
203. LITHOCHARIS, (*Dej.*) *Lacord.*					
460. fuscula, (*Ziegl.*) *Lacord.*	*	..	..	..	..
461. ochracea, *Grav.*	*	..	..	..	..
462. melanocephala, *Fab.*	*	*	..	*	..
204. RUGILUS, (*Leach*) *Curtis*					
463. affinis, *Erich.*	*	..	..	..	..
205. SUNIUS, (*Leach*) *Steph.*					
464. angustatus, *Payk.*	*	*	..	..	..
465. bimaculatus, *Erich.*	*	..	..	..	..
206. MECOGNATHUS, *Woll.*					
466. Chimæra, *Woll.*	*	..	..	..	..
(Subf. 5. *Stenides.*)					
207. STENUS, *Lat.*					
467. guttula, *Müll.*	*	..	..	..	..
468. providus, *Erich.*	*	..	..	..	..
469. undulatus, *Woll.*	*	..	..	..	..
470. Heeri, *Woll.*	*	..	..	..	..
470. ———, var. β.	*	..	..	..	..
(Subf. 6. *Oxytelides.*)					
208. PLATYSTHETUS, *Mann.*					
471. spinosus, *Erich.*	..	*	..	..	..
472. fossor, *Woll.*	*	..	..	..	..
209. OXYTELUS, *Grav.*					
473. piceus, *Linn.*	*	*	..	..	..
474. sculptus, *Grav.*	*	..	..	..	..
475. complanatus, *Erich.*	*	..	..	..	..
476. nitidulus, *Grav.*	*	*	..	..	..
477. glareosus, *Woll.*	*	..	..	..	..
210. TROGOPHLŒUS, *Mann.*					
478. nanus, *Woll.*	*	..	..	..	..
(Subf. 7. *Omaliades.*)					
211. OMALIUM, *Grav.*					
479. ocellatum, *Woll.*	..	..	*	..	..
480. granulatum, *Woll.*	*	..	..	..	..
(Subf. 8. *Proteinides.*)					
212. MEGARTHRUS, (*Kby*) *Steph.*					
481. longicornis, *Woll.*	*	..	..	..	..
213. METOPSIA, *Woll.*					
482. ampliata, *Woll.*	*	..	..	..	..

INSECTA MADERENSIA.

ORDO I. COLEOPTERA.

SECTIO I. GEODEPHAGA.

Fam. 1. CARABIDÆ.

(Subf. 1. BRACHINIDES.)

Genus 1. TARUS.

Clairville, *Ent. Helv.* ii. 94 (1806).

Corpus mediocre, oblongo-ovatum, depressum: *prothorace* subcordato: *elytris* apice truncatis: *alis* (in speciebus Maderensibus) obsoletis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi. *Labrum* transverso-quadratum, antice vix emarginatum et setis paucis longis instructum, angulis anticis rotundatis. *Mandibulæ* incurvæ acutæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi maxillares* subfiliformes, articulo ultimo elongato subfusiformi apice truncato: *labiales* longiusculi, articulo ultimo magno subsecuriformi. *Mentum* transversum, antice profunde emarginatum et dente medio brevi integro instructum. *Ligula* cornea, apice truncata pilisque duabus aucta; *paraglossis* membranaceis apice rotundatis, ei æqualibus. *Pedes* longiusculi: *tarsis anticis* in maribus vix dilatatis: *unguiculis* serratis.

The entire central tooth of the emargination of its mentum, added to its elongated labial palpi, with their large subsecuriform terminal joint, will be sufficient, apart from external differences readily apparent, to distinguish *Tarus** from other allied

* The names of *Tarus* and *Cymindis* were proposed at the same time, the former by Clairville, the latter by Latreille, for the present genus; and the second of the above titles is the one more generally recognised by recent continental entomologists. Since neither of them, however, possess claims in point of priority, I have preferred retaining the first, as open to the fewest objections, κύμινδις having been originally applied by Homer and early Ionic writers, to a certain bird supposed to be of the Falcon tribe.

groups. The *Tari* are, for the most part, prettily coloured insects, their elytra being more or less ornamented with longitudinal lines or stripes. They reside, principally, beneath stones, and delight in open grassy spots.

1. Tarus lineatus.

T. piceo-niger punctatus, elytris punctato-striatis, prothoracis lateribus, elytrorum margine exteriore vittâque elongatâ subconfluenti, antennis pedibusque testaceis.

Long. corp. lin. $3\frac{1}{2}$–4.

(*Carabus lineatus*, Schön. *Syn. Ins.* i. 179. t. 3. f. 5 (1806).
Cymindis lineata, Dej. *Spec. des Col.* i. 207 (1825).
—— *vittata*, Dahl. *in litt.*
Lebia lineola, Dufour, *Ann. Gen. Soc. Phys.* vi. 322 (1843).

Habitat sub lapidibus in montibus Maderæ, tempore hiberno et vernali, vulgatissimus.

T. dark piceous-black, slightly shining. *Head* and *prothorax* deeply and rugosely punctured; the *latter* channelled, rather wide anteriorly, and with the extreme lateral edges dull testaceous. *Elytra* somewhat short, expanded behind the middle, regularly and finely striated, the striæ minutely and uniformly punctured, the interstices also punctured; with the lateral margin, and a longitudinal vitta anteriorly and posteriorly (especially the former) confluent with it, broadly testaceous,—leaving a wide band down the suture, constricted at the apex, and a narrow lateral postmedial stria, abbreviated at both ends, of the same colour as the head and prothorax, viz. piceous-black. *Legs, palpi* and *antennæ* testaceous.

The Madeiran specimens of this insect differ from Spanish and Algerian ones, in my collection, in being slightly shorter, in having their head and the disk of their prothorax somewhat darker, and in their elytral striæ being less deeply impressed. In all other respects they agree sufficiently well with the ordinary European type. The *T. lineatus* is a species more especially peculiar to Mediterranean latitudes, being found in the south of France, Italy, Sicily, and on the coast of Barbary. Dejean, however, mentions that it has been also taken in the south of Russia. From the *T. suturalis* it differs in its rather smaller size, more darkly painted surface, in its wider prothorax (which, with the head, is more rugosely punctured and less polished), and by its elytral striæ being more decidedly punctate than is the case in that species. Its elytra, moreover, when viewed beneath the microscope, appear uniformly and finely reticulose,—a sculpture which is scarcely perceptible in the *T. suturalis*, except under a far higher magnifying power. It is an exceedingly common insect, during the autumnal, winter, and early spring months, throughout the mountainous districts of Madeira, occurring for the most part beneath stones in open grassy spots towards the highest peaks. On the lofty uplands between the Pico dos Arieros and the Pico da Lagoa, as also on the Paul da Serra, and on the precipitous slopes at the edges of the Curral das Freiras, it is

extremely abundant; and it has been, likewise, taken by Professor Heer near the Mount Church. It makes its appearance about the middle of July, and lasts until the following spring. I have not observed it in any of the other islands of the group.

2. Tarus suturalis.

T. testaceus leviter punctatus, elytris striatis, capite prothoraceque parvo rufo-ferrugineis, elytrorum suturâ lineolâque posticâ abbreviatâ obscure fuscis.

Long. corp. lin. 4–4½.

Cymindis suturalis, Dej. *Spec. des Col.* i. 206 (1825).

Habitat sub lapidibus in locis arenosis ad oram maritimam ins. Portûs Sancti, tempore vernali, vulgatissimus: unicum exemplar etiam ad summum cacumen ins. Desertæ Grandis mense Januario A.D. 1849 inveni.

T. pale testaceous, elongate. *Head* and *prothorax* narrower than in the last species, and more finely punctured and polished, rufo-testaceous; the *latter* channelled, small, and rounded behind. *Elytra* slightly longer and narrower than in *T. lineatus*, depressed, regularly and distinctly striated, the striæ impunctate, the interstices rather deeply punctured; the suture, especially posteriorly, a short stria springing from it behind the middle (and extending, anteriorly, about half-way to the base), and a narrow lateral one, distinct behind but vanishing in front, more or less obscurely fuscescent, or piceous-black.

The present *Tarus*, which has been hitherto known as peculiarly Egyptian, is evidently very nearly allied, in a natural arrangement, to the *T. lineata*; and so it was considered by Dejean, who, in his *Species général des Coléoptères*, in 1825, placed the two insects almost in juxtaposition. It is interesting therefore to find both of them inhabiting the Madeira Islands, and to remark moreover that they are the only *Tari*, so far at least as I have hitherto observed, which the group produces. The *T. suturalis* is exceedingly abundant in Porto Santo, occurring beneath stones in dry sandy spots about the sea-shore, particularly to the east and west of the Cidáde and on the Campo de Baxo. It would seem to be especially common during the winter months. It does not exist, apparently, in Madeira proper, being there replaced by the previous species: but on the extreme summit of the Dezerta Grande I detected, during January 1849, a single specimen in the crevice of a weather-beaten rock. It is a common insect on the shores at Alexandria, from whence I possess a fine series collected by my friend Dr. H. Schaum of Berlin.

Genus 2. DROMIUS.

Bonelli, *Observat. Ent.* i. *tab. synopt.* (1813).

Corpus parvum, oblongo-ovatum, depressum: *prothorace* subcordato: *elytris* apice truncatis: *alis* modo amplis, modo (ut in speciebus nostris plurimis obtinet) obsoletis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi.

Labrum transverso-quadratum, antice setis paucis longis instructum. *Mandibulæ* incurvæ acutæ, basi subdenticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* articulo ultimo elongato, in *maxillaribus* ovato apice truncato, in *labialibus* subacuminato-ovato. *Mentum* transversum, antice profunde emarginatum et dente medio nullo instructum. *Ligula* cornea, apice rotundata ciliata pilisque duabus longis aucta; *paraglossis* ei connatis, subcoriaceis. *Pedes* longiusculi: *tarsis* articulo quarto integro: *unguiculis* serratis.

Dromius contains some of the smallest of the known *Carabidæ*; and from *Tarus*, the only other Madeiran genus of the subfamily *Brachinides*, it may be readily known by the comparatively minute size of the species which compose it, by the absence of a central tooth to the emargination of its mentum, by the rounded apex of its ligula, and by the acuminated terminal joint of its labial and maxillary palpi, especially the former. Although occurring, more or less abundantly, in most parts of the world, it is especially a European genus; the species being found principally beneath the bark of trees, amongst moss, in crevices of the earth, and under stones. They are extremely active in their movements, running with the utmost velocity (whence indeed their name); and they are occasionally, like the *Tari*, very gregarious.

3. Dromius insularis, *Woll.*

D. lineari-elongatus testaceus parce pubescens subopacus, capite prothoraceque rufo-testaceis, hujus disco, elytrorum suturâ fasciâque pone medium abbreviatâ nigro-fuscis.

Long. corp. lin. $2\frac{1}{2}$–$2\frac{3}{4}$.

Habitat sub lapidibus in insulis Maderæ, Desertæ Grandis, et Desertæ Borealis, æstate rarissimus.

D. elongate, somewhat broad and parallel, testaceous, nearly opake, covered, especially on the elytra, with exceedingly fine, short, erect, distant hairs. *Head* large, broad, ovate, dark rufo-testaceous, longitudinally strigose between the eyes. *Prothorax* subquadrate, narrowed behind, about as broad in front as the base of the elytra, deeply channelled, rufo-testaceous with the disk darker. *Elytra* elongate, parallel, deeply striated, the striæ impunctate, or with a few indistinct irregular impressions on the outer ones; the suture, and an abbreviated transverse fascia behind the middle, fuscous or black. *Wings* obsolete. *Claws* very powerfully toothed internally.

This large and interesting *Dromius* is perhaps one of the rarest and most truly indigenous insects which the Madeira Islands have hitherto produced. It would appear to represent the common *D. linearis* of Northern and Central Europe, partaking however, almost equally, of the *D. longiceps* likewise,—although at the same time abundantly distinct, specifically, from them both. In its large size, and in the impunctate striæ, dark suture and obscure post-medial fascia of its elytra, it approaches the latter; nevertheless it recedes from it altogether (apart from its more opake and pubescent surface, and the less apical position of its elytral patch) in its broader and more parallel form, less elongated antennæ, and in its wider and

shorter head and prothorax: whilst from the former (with which it agrees better in the length of its antennæ, the shape and colour of its head and prothorax, and in its striated forehead) it is no less evidently removed by its much larger size, more parallel outline, broader head, opake subpubescent surface, and by the impunctate striæ, dark suture, and abbreviated fascia of its elytra. It is, apparently, extremely rare, although widely distributed throughout the islands of the group. I have captured it twice, from under stones, on the Dezerta Grande (on the great western promontory beyond the head of the northern valley),—during May; twice on the Ilheo Chão, or Flat Dezerta,—in June; and once in Madeira, at the Feijãa de Córte,—at the beginning of August: all in 1850.

---

4. Dromius sigma.

D. testaceus nitidus, capite nigro-fusco, elytris substriatis, suturâ fasciâque mediâ dentatâ fuscis.

Var. α. prothorace rufo-testaceo immaculato (ins. *Portus Sanctus*).

Var. β. paulo longior, prothoracis disco infuscato (ins. *Madera*).

Var. γ. subopacus, prothorace toto et elytrorum basi fasciâque mediâ latissimâ fuscis (ins. "*Ilheo de Fora*," juxta promontorium Sancti Laurentii Maderæ).

Long. corp. lin. $1\frac{3}{4}$–2.

Carabus sigma, Rossi, *Fna Etrus.* i. 226 (1790).
Dromius sigma, Dej. *Spec. Col.* i. 235 (1825).
——— *fasciatus*, Sturm, *Deutsch. Fna*, vii. 42 (1827).
——— *sigma*, *bipennifer* et *Sturmii*, Bab. *Trans. Ent. Soc. Lond.* i. 85 (1836).
——— *sigma*, Heer, *Col. Helv.* 9 (1841).

Habitat insulas Maderenses, sub lapidibus, hinc inde non infrequens: varietas α. una in Portu Sancto et nusquam nisi illic occurrit: varietas β. montibus Maderæ propria est: varietatis γ. unicum exemplar vidi, in insulâ quâdam juxta promontorium Sancti Laurentii Maderæ "Ilheo de Fora" dictâ a meipso, d. 19 Mart. A.D. 1849, repertum.

D. pale testaceous. *Head* narrow and rather elongated, dark brownish-black, or black. *Prothorax* subquadrate, a little narrowed behind, deeply channelled. *Elytra* most obscurely striated, the humeral angles considerably rounded-off; the suture, and a narrow submedial zigzag fascia, dark fuscous. *Wings* obsolete.

Var. α. shining; the prothorax rufo-testaceous and immaculate. (The state peculiar to *Porto Santo*.)

Var. β. a little longer, shining; the prothorax rufo-testaceous, with its disk and anterior portion darkly, and the region of the scutellum obscurely, infuscate. (The state peculiar to *Madeira*.)

Var. γ. opake; the entire prothorax, and the base of the elytra, fuscous; and the transverse fascia of the latter extremely broad. (Captured on the *Ilheo de Fora*.)

Scattered sparingly, though principally at lofty altitudes, throughout Madeira and Porto Santo. In the former I have taken it from beneath stones at the

edges of the Curral das Freiras, and on the northern limits of the Paul da Serra, —near the extreme head of the Ribeiro do Inferno; and it has been, likewise, captured by Mr. Rousset on the Pico d'Arribentão, above Funchal. It is an insect of wide European distribution, ranging from Lapland to the Mediterranean shores; and, hence, its comparative rarity in our island group would seem to imply that it has there reached, in all probability, one of its most southern locations,—an hypothesis which the consideration that, while in higher latitudes it is confined mainly to the lowest elevations, its normal Madeiran limits are apparently from about 1500 to 6000 feet above the sea, would go far to corroborate. By a reference to the above diagnosis, it will be seen that the typical European state of the *D. sigma* does not occur at all in Madeira proper, but only in Porto Santo. True it is that the modifications in the several islands present but slight differences *inter se*; nevertheless, being constant, I would lay particular stress upon them, since they go very materially to prove that the effects of isolation on external insect form are even more important, if possible, than those of latitude. That this is the case, in the present instance, appears clear from facts so minute as these. For, out of the many specimens which have come under my observation from various countries of Europe, if there is one point more constant than another in this otherwise variable species, it is, I believe, under all circumstances, its immaculate prothorax. Now while this, we may almost say essential, character obtains in Porto Santo, in Madeira it does not hold good: the prothorax there is invariably infuscate in the centre; and on a small adjacent rock it is entirely dark. Nor let any one suppose that details apparently so trivial are beneath our notice, or the mere result of chance, since it is by the observation of such-like points, and by marking their development according to the circumstances of the several localities in which they obtain, that we are alone able to appreciate their importance, and so to form, in a wider and geographical sense, a correct estimate of their value.

5. Dromius arenicolus, *Woll.*

D. latus ater nitidus, elytris substriatis, lateribus, guttâ elongatâ obliquâ humerali fasciâque transversâ subapicali pallidis, tibiis tarsisque piceis.

Long. corp. lin. $1\frac{3}{4}$–2.

Habitat sub lapidibus in locis arenosis Portûs Sancti, præsertim per oram maritimam, tempore vernali vulgatissimus.

D. broad, deep black, shining, sometimes with an obscure æneous tinge. *Head* broad. *Prothorax* short, subcordate, much narrowed behind. *Elytra* rather faintly striated, with the lateral margin, an elongated oblique humeral vitta or stria (confluent with it), and a transverse fascia a little before the apex, very pale testaceous. *Wings* obsolete. *Tibiæ* and *tarsi* piceous. The pale portions of the elytra are sometimes indistinct, though never absent; and occasionally they are altogether confluent.

Somewhat allied to the *D. albomaculatus*, Lucas, from Algeria (as may be seen by a reference to the splendid work on the insects of that country, published by the French Government,—p. 18. pl. 2. fig. 8), though at the same time with abundant specific characters to separate it therefrom. The present *Dromius* is peculiar to Porto Santo, in which island I captured it in great profusion, from beneath stones, during April and May 1848; as also, subsequently, in December of the same year, and in April 1849. It is found in dry exposed spots of a low elevation, being especially abundant on the level of the sea-shore in the vicinity of the Cidáde, and on the open plain of the Campo de Baxo. It is the Porto Santan representative of the *D. obscuroguttatus*; and distinct as it is in colouring from that insect, I am by no means prepared to assert that it may not be, in reality, a local modification of it, brought about by isolation through a long series of ages on a calcareous soil. As such a concession, however, would at once entail a host of difficulties regarding the validity of other "species" (even of European genera) similarly circumstanced; and since out of many hundred specimens which have come beneath my notice, not a single intermediate link has hitherto occurred to connect the two, I do not venture to amalgamate them;—suffice it to record my conviction, in this brief remark, that if the time ever should arrive in which the real effects of latitude and climate on external insect form are better appreciated than is now the case, the present *Dromius*, along with other insects innumerable in positions nearer home, will in all probability be doomed, *as species*, to sink.

6. Dromius obscuroguttatus.

D. latus atro-subæneus, elytris substriatis maculâ obscurissimâ humerali pallidâ, tibiis tarsisque piceis. Long. corp. lin. $1\frac{3}{4}$.

Lebia obscuroguttata, (Anders.) Duft. *Fna Austr.* ii. 249 (1812).
Dromius spilotus, Dej. *Spec. Col.* i. 246 (1825).
——— *impunctatus*, (Kby.) Steph. *Ill. Brit. Ent.* i. 23 (1828).
——— *obscuroguttatus*, Erich. *Käf. der Mark Brand.* i. 32 (1837).

Habitat sub lapidibus in montibus superioribus Maderæ, tempore hiberno et vernali copiosissimus.

D. broad, deep black, with an æneous tinge. *Head* broad. *Prothorax* short, subcordate, much narrowed behind. *Elytra* very faintly striated, with an extremely obscure, somewhat oblique patch at the anterior lateral angles paler. *Wings* obsolete. *Tibiæ* and *tarsi* piceous.

Apart from its somewhat smaller size and fainter striæ, the present species may be at once known from the *D. arenicolus* by the total absence of pale patches on its elytra,—excepting a most obscure spot, sometimes scarcely apparent, towards their humeral angles. It is a common European insect; and the Madeiran specimens recede from the ordinary ones in being slightly larger, and in having their elytra more obscurely striated, with the humeral patch less distinct: their entire surface moreover is of a deeper black,—a difference which is especially perceptible

on the legs. I have hitherto observed it in no islands of the group except Madeira proper, and only there at high elevations,—where however it is extremely abundant. It occurs in the greatest profusion, from the end of the summer to the early spring months, beneath stones, in the lofty mountain district between the Pico da Lagoa and the Pico dos Arieros; as also on the flat alpine plain of the Paul da Serra, from 5000 to 6000 feet above the sea. Although so common throughout Europe, it is perhaps, when geographically considered, one of the most interesting of the Madeiran Coleoptera, as affording another and even more striking example, not only of the modification of form in a normally northern insect when on its southern limit (the result, however, perhaps more strictly, as in the case of the varieties of the *D. sigma*, of *isolation* rather than of latitude); but as showing, likewise, how a species abundant on the low sandy shores and sheltered sea-cliffs of more temperate regions finds its position here only on the summits of the loftiest mountains. It is true that the aberration from the typical state, as in the *D. sigma*, is not in the present instance very considerable; yet, when the circumstances producing it are taken into account, I am persuaded that the difference is exactly of that nature on which too great stress cannot possibly be placed, when discussing the general question of geographical distribution as having a tendency, more or less directly, to affect both colour and form. It is well known to naturalists that a multitude of insects from the New World, receding from their European analogues merely in certain excessively minute characters, have usually been pronounced at once as new to science, first because those differences are constant, and secondly because the specimens have been received from the other side of the Atlantic. And yet in instances like the present, as in many others which we shall have occasion to notice,—in an island which, while it belongs artificially to Europe, is yet, naturally, sufficiently distinct from it as to form at any rate a stepping-stone to the coast of Africa and the mountains of Barbary,—species similarly circumstanced are not necessarily received as new (and rightly so, I apprehend), though in every respect affording differences not only *analogous* to those already mentioned, but in many cases positively identical with them. If however a specific line of demarcation does of necessity exist between the creatures of the Old and New Worlds, the problem yet remains unsolved, so long as intermediate islands present parallel modifications, where that line is to be drawn. Meanwhile, how far geographical varieties of this kind, concerning the non-specific claims of which confessedly but little doubt can exist, may lead to the explanation of the Transatlantic ones just referred to, I will not venture to suggest. Yet certain it is that the one case bears directly on the other; and that, if we can prove that common European insects when isolated in the ocean become in nearly all cases more or less modified externally in form, there is at least presumptive evidence that the law will hold good on a wider scale, and may be extended not only to the Atlantic itself, but even to countries beyond it. The differences of the present *Dromius* from its more northern representatives are, as just stated, small; never-

theless, since they are *fixed*, those naturalists who do not believe in geographical influence, might choose to consider them of sufficient importance to erect a new species upon. But after a careful comparison of this with other insects similarly circumstanced, I am convinced that the modifications in question are merely local ones, and such as may be reasonably accounted for by the combined agencies of latitude and isolation, and the consequently altered habits of the creature, which is thus compelled to seek alpine localities in lieu of its natural ones:—observations which I have been induced to enter into here somewhat at length, as likely to apply in numerous other cases hereafter to be considered.

7. Dromius negrita, *Woll.*

D. ater vel obscurissime subæneo-ater, capite majore, prothorace subquadrato, elytris obsolete striatis. Long. corp. lin. $1\frac{1}{2}$.

Habitat ad vias vel sub lapidibus Maderæ, autumno sat frequens.

D. deep black, or with a very obscure æneous tinge, shining. *Head* rather large and broad. *Prothorax* subquadrate, rounded behind, with a deep central channel. *Elytra* very obscurely striated. *Wings* small.

Known from the *D. obscuroguttatus* by its smaller size, darker and more flattened surface, and by the entire absence of pale patches, whether at the shoulders or elsewhere. It is very nearly allied to the following species, but may be distinguished from it by its somewhat larger bulk, more robust head and prothorax, the latter of which is not quite so much narrowed behind as in that insect, and by its elytral striæ, although obscure, being sufficiently apparent. It is tolerably abundant throughout Madeira, between the limits of about from 1000 to 3000 feet above the sea; and it may be frequently observed darting rapidly across pathways, or in grassy spots amongst dead leaves, in company with the *D. glabratus*. In the pine-woods of the Curral das Romeiras, above Funchal, I took it very plentifully during the autumn of 1847; and, subsequently, at the Ribeiro Frio in August.

8. Dromius glabratus.

D. angustus ater vel obscure subæneo-ater, capite minore, prothorace subcordato, elytris lævibus. Long. corp. lin. $1\frac{1}{4}$.

Lebia glabrata, (Meg.) Duft. *Fna Austr.* ii. 248 (1812).
Dromius glabratus, Dej. *Spec. des Col.* i. 244 (1825).
——— ———, Steph. *Ill. Brit. Ent.* i. 25 (1828).
——— ———, Heer, *Fna Col. Helv.* 11 (1841).

Habitat hinc inde sub lapidibus vel ad vias in insulis Maderæ, Portûs Sancti, ac Desertæ Grandis, toto anno frequens.

D. deep black, or with an obscure æneous tinge, exceedingly shining. *Head* slightly smaller and narrower than in the last species. *Prothorax* short, subcordate, a little smaller than in the *D. ne-*

grita, and rather more rounded behind, deeply channeled. *Elytra* usually unstriated, though occasionally with indications of striæ just perceptible. *Wings* sufficiently ample.

The smallest of the Madeiran *Dromii*, differing from the last species in its slightly narrower and shorter head and prothorax, the latter of which is more subcordate than is the case in that insect, and in its usually total freedom from elytral striæ. It is common throughout the islands of the group, or at any rate in Madeira, Porto Santo, and on the Dezerta Grande, in all of which I have captured it abundantly, although generally at a rather low elevation. It is universal throughout Europe; and occurs also in Algeria and in the Canary Islands.

(Subf. 2. SCARITIDES.)

Genus 3. SCARITES.

Fabricius, *Syst. Ent.* 249 (1775).

Corpus magnum, oblongum, subdepressum: *mesothorace* cylindrico elongato angusto: *prothorace* antice lato truncato, postice contracto: *alis* obsoletis. *Antennæ* filiformes, apicem versus pilosæ et vix incrassatæ, in maribus longiusculæ; articulo primo valde elongato subflexuoso-conico, secundo breviore (tertii quartique conjunctim fere longitudine), quinto ad ultimum pilosissimis subæqualibus. *Labrum* breve transversum trilobum, lobis externis pilis incurvis ciliatis, omnibus setis paucis mediis longissimis intra marginem instructis. *Mandibulæ* maximæ, validæ, porrectæ, intus fortiter dentatæ. *Maxillæ* bilobæ, elongatæ, flexuosæ: *lobo externo* palpiformi biarticulato: *interno* apice incurvo, intus valde et dense ciliato. *Palpi* filiformes, articulo ultimo subcylindrico. *Mentum* jugulo connatum, transversum, trilobum, lobo medio carinato et ad apicem acuto inflexo. *Ligula* brevis, lata, pilosissima, emarginata. *Pedes* robusti: *tibiis anticis* valde palmatis, *intermediis* ante apicem externum spinis (plerumque duabus) armatis, *posticis* simplicibus: *tarsis* in utroque sexu *unguiculis*que simplicibus.

Some of the largest Carabideous insects are included in the genus *Scarites*; the species of which may be at once known by their narrow, cylindrical mesothorax, which, by disconnecting the prothorax from the base of the elytra, causes the former, which is itself usually rounded off behind, to appear pedunculated. Their strongly palmated fore-tibiæ enable them to burrow into the ground with considerable dexterity, and their greatly developed mandibles give them no slight advantage over the smaller insects on which they feed. They are chiefly nocturnal in their habits, residing beneath stones, logs of wood, or under dead leaves, from which in the daytime they seldom wander; and on being exposed to the light they quickly recede into their burrows, out of which, from their great depth, it is not always easy to extricate them. In the mountains of Madeira, where detached blocks of basalt lie confusedly together, and become gradually overgrown with vegetation, the caverns thus formed are well adapted for the residence of the *Scaritidæ*; and we accordingly find the single species which (although not peculiar

to them, yet which) alone ascends to a sufficient altitude to embrace those regions, in the greatest profusion. It occupies the loftiest peaks of nearly all the islands, and was probably once abundant over the entire ancient continent, whatever its limits may have been, of which the Madeiran Group forms but an isolated part. There are traces of it in the Canary Islands, from whence occasional specimens have been brought, and which, from the want of local data and of sufficient numbers to reason upon, have in their turn been severally regarded as distinct. The fact however is that the species in question is an extremely variable one, assuming differences of size according to the altitude at which it lives, and differences of sculpture according to the circumstances of the spot on which it is isolated. That such is actually the case, a careful observation of the many minute changes which the insect has undergone in the various islands and altitudes of the Madeiran Group will, I think, prove to a demonstration. For it is impossible to suppose that every rock contains its own *species*, that is to say, has had a separate creation expressly for itself,—a conclusion at which we must assuredly arrive, if small and even constant differences are *of necessity* specific. Rejecting therefore this hypothesis as utterly untenable, and as contrary to all experience, we are driven to acknowledge that isolation *does*, in nearly every instance, in the course of time, affect, more or less sensibly, external insect form;—which being admitted, we have at once an intelligible principle whereby to account for modifications innumerable, each of which, when viewed simply as a difference, independently of the circumstances producing it, might have been regarded as sufficient to erect a "species" upon, had the desire for multiplying them overbalanced the love of truth.

9. Scarites abbreviatus.

S. ater nitidus subdepressus, elytris ovatis impunctato-striatis, marginibus granulatis et seriato-tuberculatis, angulis humeralibus vix prominentibus.

Long. corp. lin. $8\frac{1}{2}$–16.

Var. α. politissimus; elytris brevi-ovatis, margine basali rugose granulato tuberculisque distinctis obsito.—Long. 9–13 lin. (ins. *Madera*).

Var. β. politus; elytris brevi-ovatis, margine basali obsoletissime granulato tuberculisque parvis obscuris obsito.—Long. $8\frac{1}{2}$–13 lin. (ins. *Portus Sanctus*).

Var. γ. politus; elytris ovalibus, margine basali parce granulato tuberculisque obsito.—Long. 10–12 lin. (ins. *Ilheo de Fora* dicta).

Var. δ. politus; elytris elongato-ovalibus, margine basali obsoletissime granulato tuberculisque valde distinctis obsito, tuberculo humerali majore.—Long. 12–16 lin. (ins^{ae} *Deserta Borealis* et *Deserta Grandis*).

Scarites abbreviatus, (Kollar) Dej. *Spec. des Col.* i. 379 (1825).

Habitat sub lapidibus in insulis Maderensibus, sat frequens: in Maderâ propriâ atque in Desertâ

Grandi montes inde a 1000′ s. m. usque ad cacumina præcipue occupat; sed in Portu Sancto, Desertâ Boreali, et in insulâ prope promontorium Sancti Laurentii Maderæ "Ilheo de Fora" dictâ fere ad maris litus descendit.

S. black, shining, slightly depressed. *Head* large, with two deep longitudinal depressions on the forehead. *Prothorax* transverse, wide in front, narrower and rounded posteriorly, with an impressed transverse line behind the front margin, and a channel down the disk. *Elytra* ovate, with the humeral angles a little prominent, but not projecting beyond the outer margin, deeply striated, the striæ being impunctate; with the entire margin (basal as well as lateral) thickly and more or less coarsely granulated, and with a single row of tubercles (more or less distinct) throughout. *Antennæ* and *legs* (especially the *tibiæ* and *tarsi*) piceous; the last seven joints of the *former* densely clothed with a fine yellowish pubescence, and the *latter* thickly fringed with strong golden or rufous bristles.

Var. α. extremely shining. Elytra short, ovate, expanded behind the middle; the basal margin thickly and coarsely granulated, and with a row of distinct tubercles. (*Madeira.*)

Var. β. shining. Elytra short, ovate, expanded behind the middle; the basal margin with scarcely perceptible granules, but with a row of rather distinct tubercles. (*Porto Santo.*)

Var. γ. shining; with the head and prothorax rather narrower than in the other varieties. Elytra rather longer, and a little expanded about the middle; the basal margin granulated (though not very distinctly), and with a row of tolerably distinct tubercles. (*Ilheo de Fora.*)

Var. δ. shining, very large. Elytra long, and a little expanded about the middle; the basal margin with scarcely perceptible granules, but with a row of exceedingly distinct tubercles, the outer or humeral tubercle being the largest. (*Northern* and *Central Dezertas.*)

This is the common *Scarites* of the Madeira Islands, and it may be known, in all its varieties, from the *S. humeralis* by its brighter surface and less parallel form, by its humeral angles, although a little prominent, never projecting beyond the outer edge of its elytra, and by the more granulated margins of the latter, which have, in every case, a row of tubercles, more or less distinct, along their *entire length*, lateral as well as basal. It ranges from the sea-shore to the extreme summits of the loftiest mountains. In Madeira proper, however, it is most abundant between the limits of about 2000 to 5000 feet above the sea; whilst in Porto Santo, the Flat Dezerta, and on the Ilheo de Fora it descends to the level of the shore. On the Dezerta Grande it is attached principally, as in Madeira, to the higher altitudes, being extremely common in the fissures of the weather-beaten rocks of the most elevated peaks; where the specimens moreover attain a very large size,—although they are scarcely perhaps so gigantic as those on the northern island, in which the average length is from 13 to 16 lines. The Madeiran specimens are smaller, and more shining, than any of the other varieties.

10. Scarites humeralis, *Woll.*

S. ater plerumque opacus depressus, elytris elongato-ovatis impunctato-striatis, marginibus granulatis et apicem versus solum obscure seriato-tuberculatis, angulis humeralibus valde prominentibus.

Long. corp. lin. 11–15.

Habitat sub lapidibus ins. Portûs Sancti, cum præcedente sed illo multo rarior.

S. black, usually opake, depressed. *Head* rather large, with two deep longitudinal depressions on the forehead. *Prothorax* transverse, wide in front, narrower and rounded posteriorly, with an impressed transverse line behind the front margin, and a channel down the disk. *Elytra* elongate-ovate, with the humeral angles very prominent and distinctly projecting beyond the outer margin, deeply striated, the striæ being impunctate; with the entire margin (basal as well as lateral) most minutely and obscurely granulated, and with a single row of tubercles (always minute) towards the apex only. *Antennæ* and *legs* as in the previous species.

Readily distinguished from the *S. abbreviatus*, with which however I had for some time confounded it, by its more elongated, depressed, and straightened form, usually opake surface, by its prominent humeral angles which project perceptibly beyond the outer margin of its elytra, and, more especially, by the minuteness of the granules and the total absence of tubercles, except at the extreme apex, along the edges of the latter. Although the above characters are more than sufficient, of themselves, to establish the species, yet the fact that it is found in company with the *S. abbreviatus* is additional evidence, were such necessary, that it is in reality distinct, and no local variety of that insect. It seems to be peculiar to Porto Santo, where it occurs, beneath stones, along with the *var.* β. of the *S. abbreviatus*, in the low sandy plains near the coast. It is however by far the rarer of the two.

Genus 4. APOTOMUS.

(Hoffmansegg) Illiger, *Mag. für Ins.* vi. 348 (1807).

Corpus parvum, subcylindrico-oblongum, pubescens: *mesothorace* cylindrico elongato angusto: *prothorace* parvo subgloboso, postice constricto: *alis* obsoletis. *Antennæ* longiusculæ filiformes, articulo primo crassiusculo vix elongato, secundo reliquis subæqualibus cylindricis breviore. *Labrum* læve transversum emarginatum, angulis anticis leviter productis. *Mandibulæ* vix porrectæ. *Maxillæ* bilobæ, intus ciliatæ. *Palpi* filiformes: *maxillares* longissimi, articulo ultimo elongato-cylindrico: *labiales* breviores, articulo ultimo acuminato piloso. *Mentum* jugulo connatum, transversum, antice emarginatum et dente medio acuto instructum. *Pedes* longissimi: *tibiis* simplicibus haud palmatis, *posterioribus* ad apicem oblique excavato-truncatis spinisque munitis: *tarsis* articulo primo elongato, *anticis* in maribus leviter dilatatis: *unguiculis* simplicibus.

The little genus *Apotomus* is confined chiefly to Mediterranean latitudes, and the two or three species of which it is composed appear to be nowhere abundant. The *A. rufus*,—the only Madeiran representative,—has been recorded in Spain, Portugal, Italy, Sicily, the south of France, and in Algeria: and I possess, likewise, specimens from Corfu; as also a species very nearly allied to it from Egypt, collected at Cairo by my friend Dr. H. Schaum of Berlin. The group recedes from the typical *Scaritides* in having the tibiæ simple and unpalmated, the maxillary palpi extremely long, and the terminal joint of the labial ones pilose and acuminated,—a circumstance which caused Latreille to place it near to *Bembidium*, in which the palpi are distinctly subulated. It is evidently however more nearly allied to *Ditomus*, a position universally conceded to it by recent entomologists.

Unlike *Scarites*, the species are extremely active, running with the utmost velocity. They are very voracious, and reside principally beneath stones in moist spots. In the south of Europe they are usually taken at the edges of rivers and streams, but the only specimen which I have myself captured in the Madeira Islands was in a decidedly dry locality.

11. Apotomus rufus.

A. rufo-ferrugineus pubescens, elytris profunde punctato-striatis, pedibus elongatis testaceis.

Long. corp. lin. 2.

Scarites rufus, Rossi, *Fna Etrus.* i. 229. pl. 4. f. 3 (1790).
——— ——, Oliv. *Ent.* iii. 36. 15 (1795).
Apotomus rufus, Hoffmansegg, Ill. *Mag. fur Ins.* vi. 348 (1807).
——— ——, Dej. *Spec. des Col.* i. 450 (1825).
——— ——, Brullé, *Hist. Nat. des Ins.* v. 88 (1835).

Habitat sub lapidibus prope urbem Funchalensem Maderæ, rarior: species a meipso semel tantum, ad Praya Formoza d. 8 Mai. A.D. 1848, reperta; sed nuper ad oram maritimam juxta Gorgulho Januario ineunte cl. Dom. Heer, Turici, detexit.

A. rufo-testaceous, very pubescent. *Head* and *prothorax* exceedingly shining; the *former* narrow; the *latter* small and globose, constricted behind, and with a slight dorsal channel which is more particularly apparent in front. *Elytra* somewhat cylindrical, regularly and deeply punctate-striated. *Antennæ* dusky testaceous. *Legs* long, and very pale.

Apparently rare. The only specimen which I have myself hitherto captured was from beneath a stone, on the 8th of May 1848, on the rocky ledge immediately above the Praya Formoza, near Funchal. It has been subsequently, however, taken by Professor Heer, at the Gorgulho, in the vicinity of the same spot; as also by M. Rousset. It runs with extreme rapidity, and has more the appearance, at first sight and when in motion, of a pale-coloured ant than of a Coleopterous insect.

(Subf. 3. CARABIDES.)

Genus 5. CALOSOMA.

Weber, *Observat. Entom.* 20 (script. *Callisoma*) (1801).

Corpus magnum, parallelo-ovatum: prothorace brevi transverso: *alis* amplis. *Antennæ* filiformes, apicem versus pilosæ, in maribus capite prothoraceque paulo longiores, in fœminis breviores; articulo primo robusto, secundo brevi, tertio elongato, reliquis subæqualibus. *Labrum* breve transversum bilobum, lobis ciliatis. *Mandibulæ* exsertæ substriolatæ, intus ad basin dente obtuso instructæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* apice subito incurvo acutissimo, intus valde et dense ciliato. *Palpi* longissimi, articulo ultimo subsecuriformi-truncato. *Mentum* transversum trilobum, lobo medio brevi acuto. *Ligula* brevissima, pilosa; *paraglossis* coriaceis, ei contiguis eamque superantibus. *Pedes* longiusculi, robusti: *tibiis* intus haud emarginatis: *tarsis anticis* in maribus articulis quatuor valde dilatatis: *unguiculis* simplicibus.

The present genus contains insects of a large size, most of which are more or less brilliantly ornamented with metallic tints; which even in the black species are scarcely ever altogether absent, being there replaced by minute golden punctures, or lines. The only representative which the Madeira Islands possess belongs to this latter division. The *Calosomata* are exceedingly voracious; and may be often observed either crawling rapidly over the ground in grassy spots, or else mounting the trunks and branches of trees, where they can obtain with greater facility the smaller insects and larvæ on which they subsist. It is one of the most widely distributed genera in the world; nevertheless the species composing it are not so numerous as might be expected. North and South America, the West Indian Islands, the Cape of Good Hope, the western coast of Africa, China, Siberia, and even the little island of St. Helena, have however each of them, like Europe, their peculiar forms. The Madeiran species is found throughout central and southern Europe, but is nowhere abundant; nevertheless it would seem to be commoner in Mediterranean latitudes than elsewhere. It occurs likewise in the Canarian Group.

12. Calosoma Maderæ.

C. nigrum, elytris substriatis obsolete transversim undulato-rugosis punctisque viridi-æneis seriatim impressis, tibiis posterioribus incurvis.

Long. corp. lin. $10\frac{1}{2}$–13.

Carabus Maderæ, Fab. *Syst. Ent.* 237 (1775).
——— *Indagator*, Fab. *Mant. Ins.* i. 197 (1787).
——— *hortensis*, Rossi, *Fna Etrus.* i. 205. t. 1. f. 3 (1790).
——— *auropunctatus*, Rossi (*nec* Payk.) *Mant.* i. 75 (1792).
——— *Maderæ*, et *Indagator*, Oliv. *Ent.* iii. 35. 31 et 42 (1795).
——— *Maderæ*, et *Calosoma Indagator*, Fab. *Syst. Eleu.* i. 175 et 211 (1801).
Calosoma Indagator, Dej. *Spec. des Col.* ii. 205 (1826).
——— ———, Heer, *Col. Helv.* 33 (1841).

Habitat in montibus Maderæ Portûsque Sancti, æstate et autumno frequens: ad Ribeiro Frio per plures annos copiosissime colligebat Rev. Dom. Lowe; atque etiam a Cabo Gerajão prope Funchal cl. Dom. Heer, Turici, mihi nuper communicavit.

C. black, very slightly shining. *Head* and *prothorax* rather roughly punctured; the *latter* short and small, regularly rounded at the sides, and with a very obscure longitudinal channel which vanishes in front. *Elytra* finely striated, the striæ usually punctured, but both punctures and striæ occasionally almost obsolete; the interstices with minute, transverse, curved reticulations, having much the appearance of imbricated scales; with three rows of bright golden or greenish impressed points. *Four hinder tibiæ* long and slightly curved*, the *anterior* ones short and robust.

The *Carabus Maderæ* and *Carabus Indagator*, both of Fabricius, are unquestion-

* It seems to have been overlooked by Dejean, as well as by the other naturalists who have described the present insect, that it is not merely the intermediate tibiæ which are curved, but the hinder ones also.

ably the same species; and as the former was established first, we are bound, in right of priority, to retain our present insect, specifically, under that name, although the latter is the one by which it has been hitherto universally recognised. It appears however that the insect was first described by Fabricius, from a Madeiran specimen in the Banksian collection, in the year 1775, as *Carabus Maderæ*; and that in 1787 he gave the name of *Carabus Indagator* to examples of the same from Barbary. There is no doubt whatsoever that the two insects are one and the same species. There is not the remotest difference between them in any single respect, except that the head and prothorax of the Madeiran specimens are a little more roughly punctured (nevertheless almost imperceptibly so) than is the case in the European and African ones. And we can only suppose, either that Fabricius described them hastily (as indeed would appear to be the case, since he registers them both as *apterous*, whereas they are powerfully winged) and without comparison *inter se*; or else that the single Madeiran example from which he drew up his diagnosis chanced to be some slight aberration from the normal type. The former of these suppositions, however, is probably correct; for although no difference whatever exists between the insects in question, yet in 1801 he places them, in his *Systema Eleutheratorum*, in different *genera*, retaining the *Maderæ* as a *Carabus*, and raising the *Indagator* to the rank of a *Calosoma*! Be the cause of the mistake however what it may, it is probable that, having once described them as distinct, they were never afterwards re-examined, but were retained as such in the whole of his later works,—from whence they have been transcribed into nearly every catalogue that has been subsequently published. Being an insect which finds its maximum in Mediterranean latitudes, it would, even *à priori*, seem far from unlikely that Madeira and the opposite coast of Barbary should produce it in common: and such, on investigation, we find to be the case. It occurs likewise in Spain, Italy, the south of France, and in the Canary Islands. The *Calosoma Indagator* of Gyllenhal, and of other northern entomologists, is not the Fabrician species, but the *Carabus auropunctatus* of Paykull,—nearly allied to it. The true *C. Indagator* of Fabricius (*i. e.* our present species, *Maderæ*,—by which name it must stand) does not occur apparently in northern Europe at all.

It is tolerably abundant throughout Madeira and Porto Santo, both at intermediate and lofty altitudes. In the former, it has been taken in great profusion by the Rev. R. T. Lowe at the Ribeiro Frio, particularly during August of 1849, and I have myself captured it sparingly in the same district. During my encampment in the upland region of the Fanal, in July 1850, I observed it in considerable numbers, both there and on the Serra of Seisal, crawling rapidly over the short grass in the hot sunshine, especially after showers. I have not myself detected it below the elevation of about 3000 feet above the sea; nevertheless I possess specimens collected by Professor Heer, at the end of May, on the Cabo Gerajão, near Funchal; and others by M. Rousset, on the Ilheo de Baxo of Porto Santo,—the lowest altitudes, so far as I am aware, in which it has hitherto been found.

Genus 6. NOTIOPHILUS.

Dumeril, *Consid. gén. sur les Ins.* 169 (1823).

Corpus parvum, parallelo-oblongum, politissimum: *capite* lato, *oculis* maximis prominentibus: *prothorace* transverso-quadrato: *alis* amplis. *Antennæ* filiformes, breviusculæ. *Labrum* rotundatum, margine antico parce ciliato. *Mandibulæ* arcuatæ acutæ, margine interno dentato. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* incurvo acuto, intus ad basin valde ciliato. *Palpi* robusti, articulo ultimo subovato-truncato. *Mentum* transversum trilobum, lateribus rotundatis, lobo medio brevi emarginato. *Ligula* antice dilatata, in medio acute producta; *paraglossis* angustis incurvis, ligulam vix superantibus. *Pedes* sat graciles: *tibiis* intus haud emarginatis: *tarsis anticis* in maribus articulis tribus vix dilatatis: *unguiculis* simplicibus.

The singular little insects which compose the genus *Notiophilus* are well known by their depressed, brilliantly polished surfaces, parallel outline, large transverse heads, prominent eyes, and by their square prothorax. Although specifically not very numerous, yet abounding as they do, individually, throughout the whole of Europe, they must be familiar to almost every eye, their small glittering bodies so often observed darting across our pathways, or by the field-sides, especially after showers, either from beneath clods of earth or out of crevices of the soil, sparkling like coats of mail to the sun, giving them a character peculiarly their own. They are extremely variable both in their sculpture and hue, being subject to considerable local modifications, though more particularly affected, it would appear, by altitude. Thus, for instance, in our own country, the common representative of the plains is found likewise on the summits of the mountains, but at that elevation it becomes liable to great alternations of colour, ranging from pale brassy-brown, with the apex testaceous, into deep black. The sculpture however, perhaps, is nearly as much dependent on other circumstances, for its modification, as on altitude, since it seems tolerably clear that proximity to the sea-shore, especially where the localities are saline, will frequently produce a more faintly impressed surface,—a peculiarity indeed which I have remarked in other insects besides the *Notiophili*.

13. Notiophilus geminatus.

N. viridi-æneus nitidus, prothorace quadrato, dense præsertim ad latera punctato, elytris leviter punctato-striatis plagâ longitudinali suturali nitidissimâ, tibiis testaceis.

Long. corp. lin. $2\frac{1}{4}$–$2\frac{1}{2}$.

Notiophilus geminatus, Dej. *Spec. des Col.* v. 589 (1831).

Habitat in montibus Maderæ ac Desertæ Grandis, præsertim ad vias vel sub lapidibus, hinc inde non infrequens.

N. brassy-brown, usually with a greenish tinge. *Head* wide, with deep longitudinal striæ between the *eyes*, which are large and prominent. *Prothorax* short, transverse-quadrate, slightly produced in the centre of the front margin, and with a deep longitudinal channel; punctured all over, though obscurely so on the disk. *Elytra* much depressed, finely punctate-striated, the second interstice

from the suture extremely broad and much polished. *Tibiæ*, and *base of antennæ* testaceous. Apex of the *latter*, the *femora*, and *tarsi* black.

A somewhat rare insect in Madeira, where I have only taken it sparingly, and at an altitude from about 3000 to 4000 feet above the sea. The few examples which I possess are principally from the mountain-slopes at the edges of the Curral das Freiras: it has however been captured by M. Rousset on the Pico d'Arribentão, above Funchal. On the Dezerta Grande, where the specimens attain a larger size, it is far more abundant, occurring in tolerable profusion beneath the small cluster of fir-trees which have been planted, in the red volcanic soil, on the flat portion of the summit near to the commencement of the western promontory. It is found throughout Southern Europe, and in the north of Africa; and it has been recorded by Webb and Berthelot in the Canary Islands.

(Subf. 4. HARPALIDES.)

(Div. 1. CHLÆNIIDEA.)

Genus 7. LORICERA.

Latreille, *Gen. Crust. et Ins.* i. 224 (1806).

(Subgenus ELLIPTOSOMA, *Woll.*) (Tab. I. fig. 2.)

Corpus mediocre, elongato-ovatum: *prothorace* subcordato: *elytris* (in Loricerâ typicâ parallelo-ovatis, sed in nostrâ) ellipticis: *alis* obsoletis. *Antennæ* (I. 2 *a*) curvatæ setaceæ, articulis quinque baseos setis longissimis munitis, reliquis dense pilosis setisque debilioribus paulatim evanescentibus instructis: articulo primo longissimo robusto subfusiformi, secundo brevi subnodoso, tertio (in specie nostrâ) valde elongato trinodoso, quarto paulo breviore binodoso, quinto (secundo subæquali) subclavato, reliquis longitudine subæqualibus (sexto obconico, sequentibus subcylindricis). *Labrum* (I. 2 *b*) porrectum, subovatum, postice late truncatum et antice truncato-emarginatum. *Mandibulæ* (I. 2 *c*) curtæ acutissimæ incurvæ, basi intus denticulatæ, extus (in nostrâ) profunde fissæ. *Maxillæ* (I. 2 *d*) bilobæ, extus ad basin spinoso-fissæ: *lobo externo* palpiformi biarticulato: *interno* apice acutissimo inflexo, intus valde setoso-ciliato. *Palpi* elongati filiformes, articulo ultimo elongato subfusiformi-truncato; *labiales* (I. 2 *e*) articulo penultimo valde elongato subcurvato, intus leviter binodoso pilisque longissimis duabus aucto. *Mentum* transversum, antice profunde emarginatum et (in typicâ dente medio obtuso, sed in specie Maderensi) dente medio nullo instructum, lobis rotundatis et ad latera externa pilosis. *Ligula* apice leviter acuminata; *paraglossis* eam vix superantibus. *Pedes* (in typicâ breviusculi, sed in nostrâ), præsertim *postici*, longissimi: *tarsis anticis* in maribus articulis tribus baseos valde dilatatis: *unguiculis* simplicibus.

The Madeiran representative of the common *Loricera pilicornis* is one of the rarest and most interesting of all the indigenous *Carabidæ*. Whilst totally distinct from that insect in species, it even recedes from it generically in some respects; and I am by no means convinced that it has not as great a claim to constitute a genus as many other forms have which are now universally admitted,—although

in reality they are but offshoots, in like manner, from central groups. True it is that the singular structure of its antennæ (which have nevertheless, however, peculiarities of their own in the proportions of their joints) would tend to identify it with *Loricera*; but still there is no reason why that very character may not be typical of a small cluster of collateral forms, in precisely the same manner as is the case with *Habrocerus* and *Trichophya* amongst the *Staphylinidæ*. To say nothing of the modifications sufficiently evident in some of its antennal articulations (amongst which, however, the very long and trinodose third one should be particularly noticed), our present insect differs from *Loricera* proper, primarily, in the construction of its mentum, which has no indication whatsoever of a tooth in the centre of its emargination, and has its lobes moreover externally pilose and internally increased by a small lateral projection. The outer fissures, likewise, of its maxillæ are different from those of the true *Loricera*; its mandibles have a deep external incision at their base; its upper lip is very distinctly truncated and emarginated at the apex; and the penultimate joint of its labial palpi is much elongated, subflexuose, and has the rudiments of nodules on its inner edge. In its outward aspect also the insect unquestionably recedes from *Loricera*, its elliptical elytra and extremely elongated legs giving it a very peculiar appearance. Still, I have thought it better, in the present instance, not to isolate it; and have merely proposed a subgeneric name, in case that future investigations, as is not improbable, should bring to light other, collateral, forms, ranging beneath a similar type, and so render its separation desirable.

14. Loricera Wollastonii. (Tab. I. fig. 2.)

L. piceo-brunnea, elytris ellipticis impunctato-striatis, antennis pedibusque testaceis.

Long. corp. lin. 4.

Loricera Wollastonii, Javet, *Bull. de la Soc. Ent. de France* (2ième série) x. 23 (1852).

Habitat sub lapidibus truncisque arborum prolapsis, vel ad fontes, per regionem Maderæ sylvaticam, inde a 3500′ s. m., toto anno; rarissima.

L. dark piceous-brown, slightly shining. *Head* and *prothorax* with a greenish or æneous tinge; the *former* broad, with a depression down the forehead, and constricted behind the *eyes*, which are prominent; the latter narrow, cordate, with a deep fovea on each side behind. *Elytra* elliptical, much rounded off at the shoulders and acuminated posteriorly, flattened, deeply striated, the striæ being impunctate, and with three, sometimes obsolete, depressions down the disk of each. *Mouth, legs,* and *antennæ* testaceous.

Apparently extremely rare, although widely distributed throughout the sylvan districts of Madeira, above the altitude of about 3500 feet. It occurs under stones and fallen timber in moist spots, especially in the immediate vicinity of the minute trickling streams which issue from out of the crevices of the rocks in the dense ravines of a high elevation. I first discovered it, on the 18th of February 1849,

near the upper extemity of the Boa Ventura: and in May 1850 I again detected it, beneath logs of wood, at the edges of the Levada of the Ribeiro Frio; and during my encampment in the lofty uplands of the Cruzinhas and the Fanal, in July of the same year, I obtained several specimens from beneath dead leaves and under the decaying trunks of trees with which those remote forest regions everywhere abound.

Genus 8. EURYGNATHUS, *Woll.* (Tab. I. fig. 1 et 3.)

Corpus magnum, oblongo-ovatum, depressum, Licino affine: *capite* magno, in fœminis latiore et plerumque maximo: *prothorace* subquadrato: *elytris* connatis: *alis* nullis. *Antennæ* filiformes, capite prothoraceque vix breviores, articulo primo robusto, secundo brevi, tertii apice et sequentibus pilosis. *Labrum* (I. 1 *a*, et I. 3 *a*) transversum, antice setosum integrum. *Mandibulæ* validæ latæ robustæ crassæ obtusissimæ, superficie superiore inæquali, intus haud dentatæ. *Maxillæ* (I. 3 *b*) bilobæ, breves: *lobo externo* palpiformi biarticulato: *interno* flexuoso, parum obtuso, intus valde ciliato. *Palpi* articulo penultimo elongato, ultimo subsecuriformi-truncato. *Mentum* (I. 3 *c*) transversum, antice profunde emarginatum et dente medio nullo instructum. *Ligula* ampla elongato-quadrata, apice integra; *paraglossis* ei æqualibus. *Pedes* elongati, vix robusti: *tarsis anticis* in maribus (I. 1 *b*) articulis primo et secundo valde dilatatis (illo elongato-subquadrato, hoc breviore transverso-quadrato), tertio quartoque parvis; ultimo in *omnibus* elongato subclavato: *unguiculis* simplicibus.

A εὐρὺς *latus*, et γνάθος *mandibulum*.

The singular insect, so abundant in Porto Santo, from which the above diagnosis has been drawn, might *primâ facie* be mistaken for a gigantic *Licinus*; nevertheless a closer inspection will at once show that it possesses many important distinctions which must tend to separate it altogether from that genus. Thus, for instance, its mandibles are extremely broad, obtuse, and thick, without any appearance of teeth internally; its upper lip, unlike that of *Licinus*, is perfectly entire; its ligula is more elongated; and its inner maxillary lobe is short, and blunt at the apex. Its greatest peculiarities, however, are unquestionably external ones, for, in addition to its apterous body and connate elytra (in both of which respects it recedes from *Licinus*), it presents a most anomalous character,—and one unparalleled in any other Coleopterous form with which I am acquainted,—in the fact that the *females* have the head usually greatly developed and broad, whilst in the males it is comparatively narrow and small. So unusual a circumstance as this led me to suppose, before I had seen the insect in sufficient profusion, that there were two distinct species, and that I had only obtained one sex of each: but during my residence in the island of Porto Santo, in the winter of 1848, I had an opportunity not only of observing them *in situ*, but also *in coitu*; and of remarking likewise, from the examination of many hundred specimens, that the dilated tarsi (the essential characteristic of the males) invariably accompanied the small heads, —and *vice versâ*. It was not, however, in every instance that the heads of the females were *largely* developed; nevertheless the tendency to become so was

apparent in them all, and in about two-thirds of the entire number which came beneath my notice, it was literally immense. This character is so remarkable, that we should naturally have expected, even *à priori*, that others would be found, in conjunction with it, of sufficient importance to establish the *Licinus Latreillei* of Laporte as a distinct genus.

15. Eurygnathus Latreillei. (Tab. I. fig. 1 et 3.)

E. ater nitidus, prothorace subquadrato angulis posticis punctatis, elytris ovatis striatis, striis vix punctatis, antennarum apice pedibusque piceis.

Fœm. capite plerumque latiore magno.

Long. corp. lin. 9½–12.

Var. β. opacus, prothorace latiore lateribus valde recurvis, angulis posticis vix punctatis, elytris parallelo-ovatis, punctato-striatis. (Ins. *Deserta Grandis.*)

Long. corp. lin. 11–13.

Licinus Latreillei, Laporte, *Etud. Ent.* i. 83 (1834).

Habitat sub lapidibus in Portu Sancto, tempore hiberno et vernali, vulgaris: varietatem β. in insulâ Desertæ Grandis solâ, mense Januario A.D. 1849, inveni.

E. deep black, shining. *Eyes* small, remote from the *prothorax*, which is subquadrate, and a little narrowed behind, with the lateral edges (especially posteriorly) recurved upwards; with a longitudinal channel down the disk, and with a few large, shallow, scattered punctures towards the basal angles. *Elytra* deeply striated, the striæ being scarcely perceptibly punctate. *Antennæ* (the basal portions of the first and second joints excepted), *palpi*, a depressed segmental space behind the labrum, and the *feet*, more or less brown or piceous.

Var. β. larger and more parallel, opake; the prothorax rather wider, especially in front, with its edges more broadly recurved and its hinder angles less distinctly punctured; whilst the elytral striæ are more perceptibly punctate. (The state peculiar to the *Dezerta Grande.*)

A common insect beneath stones in Porto Santo, during the winter and early spring months. I have usually found it in greater profusion towards the eastern extremity of the island than in any other position, especially on the grassy slopes of the Pico de Baxo (the high conical hill, on the coast, to the eastward of the Cidáde), and in the dry, sandy, fossiliferous district immediately below it, to the north, known as the Zimbral d'Areia,—at the mouth of the Ribeiro de Serra de Fora. On the open plain of the Campo de Baxo, which extends across the island to the westward of the town, it likewise occurs, though more sparingly: whilst on the large adjacent limestone rock of the Ilheo de Baxo, where I first discovered it, it is tolerably abundant. The specimens on the Dezerta Grande assume a distinct variety,—the insect having apparently become modified by long isolation on that island, where it not only attains a much larger size than in Porto Santo, but is invariably also more parallel and opake, has the sides of its prothorax more

recurved, with the punctures towards the lateral angles almost obsolete, and the striæ of its elytra somewhat more evidently punctate. It is exceedingly rare on the Dezerta Grande, the only spot in which I have hitherto observed it being, under stones, at the upper edge of the precipitous gorge which descends to the eastern shore from the immediate head of the long northern valley. On the Flat Dezerta, or Ilheo Chao, I have not succeeded in detecting it; nor as yet in any part of Madeira proper.

Genus 9. ZARGUS, *Woll.* (Tab. I. fig. 4, 5 et 6.)

Corpus mediocre, elongato-ovatum, depressum, Calatho habitu generali proximum sed ab eo certe distinctum: *prothorace* subcordato: *elytris* plus minusve interrupto-striatis: *alis* obsoletis. *Antennæ* filiformes gracillimæ, capite prothoraceque paulo longiores, articulo primo elongato sat robusto clavato, secundo brevi, tertio primo breviore. *Labrum* (I. 4 *a*) prominulum transversum, antice profunde bilobum, lobo quoque setâ longissimâ apicali instructo. *Mandibulæ* porrectæ elongatæ angustatæ, ad apicem subito inflexæ acutæ, infra apicem dente magno acuto basi latissimo munitæ, margine interno valde ciliato. *Maxillæ* (I. 4 *b*) bilobæ, angusto-elongatæ: *lobo externo* palpiformi biarticulato, articulo primo elongato flexuoso, secundo crassiore elongato-subovato: *interno* huic paulo longiore, angusto recto, ad apicem subito incurvo acutissimo, intus dense et fortiter ciliato. *Palpi* elongati subfiliformes: *maxillares* articulo primo minuto, secundo elongato subcurvato, tertio quartoque longitudine æqualibus, hoc elongato fusiformi-ovato: *labiales* (I. 4 *c*) e scapis ligulæ connatis surgentes, articulo primo minuto, secundo tertioque subæqualibus, illo setis duabus internis aucto, hoc elongato fusiformi-subovato. *Mentum* transversum, antice profunde emarginatum et dente medio nullo instructum. *Ligula* elongata apice truncata, membranacea, in mediâ parte anticâ subcornea setisque duabus ornata; *paraglossis* tenuissimis acuminatis, eam superantibus. *Pedes* longiusculi, graciles: *tarsis anticis* in maribus (I. 4 *d*, 4 *e*) articulis primo, secundo et tertio valde dilatatis subtus lacinioso-papillosis (primo obtriangulari angulis anticis rotundatis, secundo tertioque subrotundatis), quarto parvo triangulari; ultimo in *omnibus* elongato subclavato: *unguiculis* simplicibus.

Huic generi nomen dedi in honorem *Zargo*, insignis viri Lusitanici, qui, A.D. 1419, Maderam primus invenisse apud historiæ scriptores memoratur.

There is perhaps no genus which it has been found necessary to establish, in the present work, for the reception of new Coleopterous forms from the Madeira Islands, more interesting, or which may be said to be better defined or more strictly indigenous, than the present one; for not only does it differ in many of its most essential characters from the subfamily *Harpalides* (to which, nevertheless, it evidently belongs), but,—if we except a portion of the *Scaritides*,—it recedes, in its powerfully dentate and *ciliated* mandibles, from every member of the entire *Carabidæ* with which I am acquainted. Whilst however there can be no doubt but that it is correctly referred to the *Harpalides*, its exact position therein is not at first sight altogether intelligible. From the *Pterostichidea* (the second of the three great divisions of the *Harpalides*), to some of the genera of which, particularly *Calathus*, it most nearly, in its outward aspect, approximates, the rounded form of its dilated tarsal joints, which are densely clothed beneath with ragged appendages,

arranged promiscuously and not distributed in a double row; added to the untoothed emargination of its mentum, its simple claws, its deeply bilobed upper lip, membranaceous ligula, and its largely developed paraglossæ, entirely remove it. And although the first four of the above details (namely, the structure of its male foot, above and below, its unserrated claws, and its mentum destitute of a central tooth) point to the *Chlæniidea* as its more natural location; yet the remaining three (namely, the remarkable form of its upper lip, its thin imperfect ligula, and its ample paraglossæ), in addition to its porrected, strongly dentate, and ciliated mandibles, are altogether as unrepresented in that division as they are in the *Pterostichidea*, and would seem almost to debar it from entrance even there. Still there is no other section of the *Harpalides* which, as usually defined, could so well receive it; and since it is necessarily a choice between difficulties in assigning it a position at all, we must be content to accept that one which offers the fewest obstacles to its admission. Whilst therefore it must needs present anomalies wherever it be placed, yet I believe that it will be found, upon the whole, *when at the end of the Chlæniidea* (and immediately before the commencement of the *Pterostichidea*) to be nearest to those genera with which it has the greatest affinity*. And strange as it may appear in a geographical point of view, I am inclined to suspect that it has perhaps a closer connection with the little genus *Homethes*, Newman, from Australia, than with any other form hitherto discovered. The *Zargi* are extremely voracious, and have as much the habits as they have the external aspect of the *Calathi*. They reside, almost exclusively, beneath stones in grassy spots, and are more particularly abundant at low and intermediate altitudes.

16. Zargus Schaumii, *Woll.* (Tab. I. fig. 5.)

Z. nigro-piceus, supra piceus opacus valde depressus, prothorace subelongato angusto cordato marginibus infuscatis, elytris profunde interrupto-striatis, lateribus antennisque infuscatis, pedibus pallidis.

Long. corp. lin. 5–5¾.

Habitat in graminosis Maderæ, sub lapidibus, non infrequens: in Maderâ australi inter 500′ et 3000′ s. m. prædominat, sed in Maderâ boreali usque ad maris litus descendit.

Ob gratias mihi amicissime oblatas hanc speciem Zargi eximiam in honorem Entomologici peritissimi H. Schaum, M.D., Berolini, stabilivi.

Z. beneath dark piceous-black; above piceous, opake, and exceedingly flattened. *Mouth* prominent, and rufo-piceous. *Prothorax* narrow, somewhat elongated, cordate, widest in front, much

---

* True it is indeed that its extremely membranaceous ligula, with the minute subcorneous centre, finds an analogue in the genus *Brachinus*; and that the papillose under surface of its male tarsi, its untoothed mentum, simple claws, and subclavate palpi are, likewise, severally represented in the other genera of the *Brachinides*; nevertheless I cannot persuade myself that it has any real affinity whatsoever

wrinkled, and with an obscure longitudinal channel; the margins broadly infuscate, a good deal flattened, and recurved, especially behind. *Elytra* ovate, very much depressed, most finely and minutely granulated, and very deeply striated,—the striæ interrupted at regular intervals, and consisting of a series of elongated impressions which cause the surface to appear pitted or embossed; the lateral margins obscurely infuscate, and with a series of large ocellated impressions. *Antennæ* and *legs* long and slender; the *former* fuscous; the *latter*, especially the *femora*, very pale testaceous.

A very elegant and peculiar insect, and at once distinguished from the other *Zargi* by its large size, flattened form, piceous hue, by its long, slender legs and antennæ, by its subcordate and comparatively elongated prothorax, and by its deeply pitted elytra. It is found, beneath stones, in most parts of Madeira, though seldom above the altitude of about 3500 feet. On the northern side of the island it descends to the sea-shore, but on the southern its range does not commence so low. It occurs very plentifully at times, making its appearance about the end of summer and lasting until the following spring. On the western slopes of the Pico do Cardo, near Funchal, in the Chestnut-wood in the vicinity of the Mount Church, as also in the north of the island, at the Passo d'Areia near São Vincente, on the level of the beach, I have myself captured it in considerable abundance. It seems to be a species peculiar to Madeira proper, it not having been hitherto observed in any of the other islands of the group.

17. Zargus Desertæ, *Woll.* (Tab. I. fig. 4.)

Z. piceo-niger opacus depressus, prothorace parvo angusto rotundato-subcordato marginibus obscurissime subinfuscatis, elytris leviter subinterrupto-striatis, lateribus antennisque subinfuscatis, tarsis fuscis.

Long. corp. lin. 4–4¾.

Habitat sub lapidibus in ins. Desertæ Grandis, una cum *Calatho complanato* degens,—Januario exeunte A.D. 1849 a meipso detectus.

Z. black, with a very slightly piceous tinge, opake, and depressed, though not quite so much so as the last species. *Mouth* exceedingly prominent, and piceous. *Prothorax* short, small, much rounded at the sides, being widest about the middle, slightly wrinkled, and with a tolerably distinct longitudinal channel; the margins very narrowly and most obscurely infuscate, scarcely at all flattened, and very slightly recurved behind. *Elytra* ovate, less depressed than in the *Z. Schaumii*, most finely and minutely granuled, and lightly striated,—the striæ having generally a little tendency to be interrupted, though far less so than is the case in the last species; the extreme lateral margins most obscurely infuscate, and with a series of large ocellated im-

---

with the insects of that division of the *Carabidæ*, since its entire general habit recedes from them altogether, and bespeaks, in every respect, an intimate relation to the *Harpalides*. Added to which, the largely-expanded and rounded joints of its male tarsi would, even alone, at once remove it from the whole race of the *Brachinides*.

pressions. *Antennæ* and *legs* shorter and rather more robust than those of the *Z. Schaumii*; the *former* fuscous; the *latter* piceous, with the *tarsi* rufo-fuscous.

An exceedingly well-marked species, intermediate, both in size and sculpture, between the *Z. Schaumii* and the *Z. pellucidus*, though with abundant distinctive characters of its own. Its dark, black hue (its extreme margins, its mouth, and its tarsi being alone somewhat fuscescent), added to its short, laterally-rounded prothorax (which is widest about the middle), and its lightly impressed, scarcely interrupted elytral striæ, will serve *primâ facie* to separate it from the rest of the genus; whilst from the *Z. Schaumii* in particular its shorter legs and antennæ, and its less depressed form will still further tend to remove it. It occurs exclusively, so far as I have hitherto observed, on the Dezerta Grande, where I captured it in tolerable abundance, in company with *Calathus complanatus*, during January 1849, from beneath stones at the head of the great northern valley. They are extremely active, and apparently very voracious (as indeed their prominent, thickly ciliated mandibles would seem to indicate), attacking indiscriminately everything with which they may chance to be enclosed, not even sparing their own kind. I possess a remarkable example of a hybrid between the *Z. Desertæ* and the *C. complanatus*, in which one of the elytra is that of an ordinary *Calathus*, whilst the other is much shorter and precisely that of the former insect: the claws moreover are very imperfectly formed, and some of them are not developed at all. It was taken under a stone, in company with a profusion of specimens of the two species in question, of which there can be no doubt but that it is the common progeny.

18. Zargus pellucidus, *Woll.* (Tab. I. fig. 6.)

Z. nigro-piceus, supra luteo-infuscatus nitidus subdepressus, prothorace parvo angusto subquadrato marginibus pallidis, elytris diluto-infuscatis striatis, lateribus, antennis pedibusque pallidis.

Var. β. vix major et obscurior (ins. *Deserta Grandis*).

Long. corp. lin. $3\frac{1}{4}$–$3\frac{1}{2}$.

Habitat sub lapidibus Maderæ, in convallibus umbrosis declivibusque humidiusculis, tempore hiberno et vernali, rarissimus: *var.* β. in ins. Desertâ Grandi et tantum illic occurrit, qua mense Januario A.D. 1849 duo specimina in rupium fissuris apricarum detexi.

Z. beneath dark piceous-black; above yellowish-brown, though of an unequal or irregular intensity in different parts, which gives it a diluted or somewhat transparent appearance; shining, and about as much depressed as the last species. *Mouth* prominent, and pale testaceous. *Prothorax* very small, narrow and subquadrate, a little wider before than behind, with very slight indications of wrinkles, and with a deep dorsal channel; the margins broadly and distinctly pale, leaving a square patch on the disk alone dark. *Elytra* ovate, a little more depressed than in the *Z. Desertæ*, regularly and rather deeply striated,—the striæ having apparently no tendency to be interrupted; with two small depressions on the disk of each, and occasionally one or two extra, irregular ones, which however appear to be accidental rather than typical; the lateral margins (particularly the

large ocellated impressions) always, and the shoulders and suture occasionally, more or less pale. *Antennæ* and *legs* slender, but not very long, and exceedingly pale testaceous.

Var. β. a little larger and darker. (The state peculiar to the *Dezerta Grande*.)

An extremely rare insect, and known at once from the other *Zargi* here described by its comparatively small size, by its shining, yellowish-brown and irregularly clouded surface, by its minute, narrow, and subquadrate prothorax, which has the margins broadly and distinctly pale, and by its elytra being uniformly striated, and free from the pitted appearance which is so evident in the *Z. Schaumii*, and is indicated, though more obscurely, in the last species also. It would seem to be of the greatest rarity, the only four specimens which have as yet come beneath my observation having been captured by myself,—two in Madeira proper, amongst small stones and vegetation at the base of the damp perpendicular rocks about half-way up the Ribeiro de Santa Luzia, during the early spring; and two on the Dezerta Grande, from out of the cracks of the exposed weather-beaten eminences of red volcanic soil (so well known to all who have landed on the island by their loose rotten structure, and worn, rounded forms) at the extreme head of the great northern valley, during January 1849.

(Div. 2. PTEROSTICHIDEA.)

Genus 10. PRISTONYCHUS.

Dejean, *Species des Col.* iii. 43 (1828).

Corpus sat magnum, elongato-ovatum, depressiusculum: *prothorace* subcordato: *alis* (in typicis obsoletis, sed in specie Maderensi) amplissimis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi. *Labrum* quadratum, antice leviter emarginatum et setis paucis longissimis instructum, angulis anticis rotundatis ciliatis. *Mandibulæ* incurvæ acutæ, intus basi denticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes, articulo ultimo fusiformi-truncato. *Mentum* transversum, antice profunde emarginatum et dente medio brevi bifido instructum. *Ligula* cornea, apice truncata pilisque duobus longissimis aucta: *paraglossis* membranaceis linearibus, eam longe superantibus. *Pedes* longi, graciles: *tarsis anticis* in maribus articulis primo, secundo et tertio leviter dilatatis, triangularibus et subtus biseriato-setosis: *unguiculis* basi leviter serratis.

Pristonychus in nearly all purely structural points is coincident with *Calathus*, its more elongated paraglossæ, which are linear, and stretch out to a considerable distance beyond the apex of its ligula, added to its less powerfully serrated claws, being apparently the sole distinctive characters, apart from external ones, which remove it from that genus*. In real fact however, the whole of this section of the

* I have not seen it elsewhere remarked, but I imagine that it is, in all probability, owing to the want of this prolongation of the paraglossæ in *Calathus* that the ligula of that genus is described by Erichson,

Carabidæ presents so few, and such slight modifications in the oral organs that it is positively necessary to depend in a great measure on outward details even for generic purposes, unless we are content to amalgamate many groups which are universally received. As some compensation however for the deficiency in structural differences, the *Pristonychi* are most easily separated from the *Calathi* externally, being not only larger and darker insects (their colour being for the most part black, with a violet or purplish tinge), and with much longer legs, but their prothorax is in every instance more or less narrowed behind, instead of (as is the case with the latter) in front. The *Pristonychi* are of a more darkling nature than the *Calathi*, being, like the genus *Sphodrus*, often found in houses, or at any rate in the immediate vicinity of habitations: and even when this is not the case, the same kind of propensity seems to be indicated by the peculiarity of the localities which they select,—a marked preference being shown for caves, and other partially sheltered spots, beneath the stones in which they frequently delight to congregate.

19. Pristonychus alatus, *Woll.*

P. alatus, niger, prothorace subcordato, elytris subpunctato-striatis obscure cyaneis, antennis pedibusque plus minusve picescentibus, tibiis in utroque sexu rectis.

Long. corp. lin. 6–9.

Habitat sub lapidibus in collinis Maderæ maritimis atque in cavernis tufæ, sat frequens: ad Ribeiro Secco prope urbem Funchalensem d. 13 Feb. collegit cl. Dom. Heer, necnon haud procul a Sanctâ Cruce egomet deprehensi: in insulâ Portu Sancto usque ad maris litus descendit, qua prope oppidum mense Decembri exeunte A.D. 1848 copiosissime legi.

P. dark piceous-black, and very slightly shining; above with an obscure bluish tinge, especially on the elytra, where it is occasionally comparatively brilliant. *Head* and *prothorax* narrower than the elytra; the *former* with two deep longitudinal impressions on the forehead; the *latter* subcordate, with an obscure dorsal channel, and with a deep longitudinal fovea on either side at the base. *Elytra* striated, the striæ being most obscurely punctured. *Wings* greatly developed. *Legs palpi* and *antennæ* more or less picescent; the apex of the *last*, and the *tarsi*, brownish. *Tibiæ*, in both sexes, straight, and very slender. *Claws* distinctly serrated.

For a long time I had conceived the present *Pristonychus* to be identical with the European *P. subcyaneus*, for it bears so strong a resemblance *primâ facie* to that insect, that, without examination, it is not easy to separate the two. A more careful inquiry however has since convinced me that the Madeiran species is unquestionably distinct, since the structural differences which it exhibits are such as can scarcely be accounted for by the agency either of isolation or of latitude. Thus,

and by most entomologists after him, as "ligula apice rotundata." In real truth the ligula of *Calathus* is as much truncated in front as that of *Pristonychus* and of the allied genera; but the fact of its paraglossæ being short, and consequently not projecting at the angles, gives the entire labium a somewhat rounded appearance anteriorly.

in its largely developed wings it recedes, I believe, from every *Pristonychus* yet described, whilst its straightened and slender tibiæ, in both sexes, will serve, additionally, to distinguish it from the *P. subcyaneus*, in which the intermediate and hinder pair (especially the former) are decidedly curved, as well as more densely ciliated towards their internal apex. The claws, moreover, of the *P. alatus* are more powerfully serrated at their base than is usual in the other representatives of the genus. It does not appear to be a very abundant insect in Madeira, although pretty generally distributed along the southern coast in positions slightly elevated above the shore. On the hills between Machico and Sancta Cruz I have captured it, not uncommonly, during the winter months; and it has been, likewise, taken by Professor Heer in the Ribeiro Secco, near Funchal. In Porto Santo it is comparatively plentiful, where, at the end of December 1848, I obtained it in considerable profusion from the vicinity of the Cidáde.

Genus 11. CALATHUS.

Bonelli, *Observ. Ent.* i. *tab. syn.* (1809).

Corpus mediocre, elongato-ovatum, plerumque depressum: *prothorace* subquadrato, antice sæpius angustato: *alis* (in typicis amplis, sed in speciebus Maderensibus) obsoletis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi, tertio primo multo longiore. *Labrum* quadratum, antice leviter emarginatum et setis paucis longissimis instructum, angulis anticis rotundatis ciliatis. *Mandibulæ* breves incurvæ acutæ, intus basi denticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes, articulo ultimo subfusiformi-truncato. *Mentum* transversum, antice profunde emarginatum et dente medio brevi bifido instructum. *Ligula* cornea, apice truncata pilisque duobus longissimis aucta; *paraglossis* membranaceis, ei æqualibus. *Pedes* longiusculi, graciles: *tarsis anticis* in maribus articulis primo, secundo et tertio leviter dilatatis, subtriangularibus: *unguiculis* valde serratis.

The distinctions between the present genus and the last have been already pointed out,—their main difference, so far at least as their oral organs are concerned, consisting in the form and development of their respective paraglossæ, and the consequent modifications in the general aspect of their labia. So greatly indeed, in the parts of their mouth, do the whole of these immediate groups resemble each other, that both *Calathus* and *Pristonychus* approximate almost as much to *Argutor* as they do *inter se*; and, in fact, if that genus could be severed from *Pterostichus*, it would constitute, in the structure of its trophi, a very gradual passage between the two, since its paraglossæ are shorter and less porrected than those of the latter, but more developed than those of the former,—whilst in the truncation of their ligulæ the whole three are almost coincident. Externally however both *Pristonychus* and *Calathus* recede very evidently from *Argutor*, though especially perhaps in having their fore-tibiæ and male tarsi less dilated than is the case with the latter and its allied groups. The *Calathi* reside principally beneath

stones in grassy spots, and in Madeira are most abundant at intermediate and lofty altitudes.

20. Calathus vividus.

C. apterus fusco-piceus, prothorace angusto elongato-quadrato lateribus valde reflexis ferrugineis, elytris ovatis profunde striatis, singulo punctis tribus vel quatuor impresso, antennis pedibusque longissimis testaceis.

Long. corp. lin. 6–7.

Carabus vividus, Fab. (testibus D.D. Schaum, Westermann et Schiödte) *Syst. Eleu.* i. 194 (1801).
——— ——— Schön. *Syn. Ins.* i. 199 (1806).

Habitat sub lapidibus truncisque arborum prolapsis in montibus Maderæ, sat frequens.

C. apterous, light brownish-piceous, rarely dark; the males slightly shining, the females opake. *Head* and *prothorax* elongated; the *latter* narrow and nearly parallel, with the sides usually much reflexed and ferruginous; longitudinally channelled in the centre, and with a large impunctate fovea on either side at the base. *Elytra* ovate, broadest about the middle, deeply striated, and each with three or four usually distinct impressions down its disk near the third stria from the suture. *Legs* and *antennæ* exceedingly long, and, with the *palpi*, usually pale ferruginous, or testaceous.

The present species may be distinguished from every variety of the *C. complanatus* by its larger size, by the greater length of its legs and antennæ, and by its narrow, elongated, parallel prothorax, which has the lateral margins usually much recurved. The colour also is generally somewhat paler than in that insect, and its legs and antennæ are more testaceous. It is decidedly rarer than either of the other Madeiran *Calathi*, nevertheless it is sufficiently abundant in certain districts of a lofty elevation. I have taken it near the summit of the Pico Ruivo, at about 6000 feet above the sea; and it was captured by Professor Heer on the Pico dos Bodes and at the Jardim de Serra, in 1851. That the insect is correctly identified I am enabled to state on the authority of my friend Dr. H. Schaum of Berlin, who examined the original type in the Royal Museum of Copenhagen in the year 1845. This conclusion has been recently corroborated by a communication from M. Dohrn of Stettin, who forwarded my own specimens for comparison to Copenhagen, where they were pronounced, by both Westermann and Schiödte, to be unquestionably the true *Carabus vividus* of Fabricius. It is wrongly stated in the *Systema Eleutheratorum* to be winged, since, like the rest of the Madeiran *Calathi*, it is invariably apterous: and had not the original types been still in existence, it would have been impossible to have recognised our present insect in the miserably poor diagnosis there given of it, which would seem indeed,—if it conveys the slightest idea of anything at all, being equally applicable to about two-thirds of the entire *Carabidæ*,—to be better adapted perhaps to the *Harpalus* which Dejean erroneously, though not unnaturally, afterwards referred to it, than to the *Calathus* now under consideration.

21. Calathus complanatus.

C. apterus piceus, prothorace subquadrato antice et postice leviter angustato lateribus subreflexis vix ferrugineis, elytris ovatis profunde striatis, singulo punctis tribus vel quatuor impresso, antennis pedibusque ferrugineis.

Long. corp. lin. $4\frac{1}{2}$–$5\frac{3}{4}$.

Var. α. depressus piceus, in utroque sexu præsertim fœmineo subopacus, prothorace angustato. Long. 5–$5\frac{1}{2}$ lin. (*Madera*; usque ad 4000′ s. m. prædominans.)

Var. β. depressus nigro-piceus leviter angustatus, in utroque sexu præsertim fœmineo subopacus, prothorace angustato. Long. 5–6 lin. (*Deserta Grandis.*)

Var. γ. valde depressus piceus latiusculus brevis, mare parum nitido, fœminâ valde opacâ, prothorace latiusculo. Long. $4\frac{1}{2}$–$5\frac{1}{2}$ lin. (*Portus Sanctus.*)

Var. δ. subconvexus piceus latus breviusculus, in utroque sexu præsertim masculo nitidus, prothorace lato. Long. $4\frac{1}{2}$–5 lin. (*Madera*; a 4000′ s. m. usque ad cacumina montium ascendens.)

Long. corp. lin. $4\frac{1}{2}$–6.

Calathus complanatus, (Kollar) Dej. *Spec. des Col.* iii. 73 (1828).

Habitat insulas Maderenses, sub lapidibus truncisque arborum projectis, ubique vulgatissimus, ab orâ maritimâ usque ad cacumina montium ascendens.

C. apterous, usually dark piceous; the males slightly shining, the females more or less opake. *Head* and *prothorax* less elongated than in the *C. vividus*; the *latter* subquadrate, slightly narrowed both before and behind, with the sides less reflexed than, and not so ferruginous as, in that species; longitudinally channelled in the centre, and with an impunctate fovea on either side at the base. *Elytra* ovate, broadest about the middle, deeply striated, and each with three or four rather obscure impressions down the disk near the third stria from the suture. *Legs* and *antennæ* much shorter than in the last species, and, with the *palpi*, generally dark ferruginous.

Var. α. depressed, piceous; prothorax narrow; both sexes, especially the female, nearly opake. (*Madeira*: the typical state below 4000 feet.)

Var. β. depressed, dark piceous, not quite so wide as the last, and the elytra rather more faintly striated; prothorax narrow; both sexes, especially the female, nearly opake. (*Dezerta Grande.*)

Var. γ. exceedingly depressed, piceous, generally broader in proportion and shorter than the other varieties; prothorax rather wide, and a little convex anteriorly; the males very distinctly shining, the females exceedingly opake. (*Porto Santo.*)

Var δ. rather convex, light piceous, broad and short; prothorax wide, convex in front; both sexes shining, especially the male, which is often very bright. (*Madeira*: the usual state in the loftiest altitudes.)

The present insect is perhaps one of the most variable of all the Madeiran Coleoptera, there being scarcely an altitude or a single rock which has not its own modification of it, although the aberrations, it is true, are oftentimes but small. Still, since their outer limits are exceedingly far apart, they become, in the general question concerning the influence of locality on insect form, extremely important, and show but too clearly how great a number of so-called *species* might be erected

on a single one, when they are not viewed in the mass, and where only a few examples, received from a distant country and without any local data to reason from, constitute the whole of our knowledge concerning them. I have not of course attempted, in the above diagnosis, to indicate all the varieties of this protean species, for they are so numerous that such would be impossible; but I have endeavoured to alight upon those more prominent forms which are characteristic of the islands and altitudes in which they severally obtain. Nevertheless they must be regarded only as resting-points on the way, since the intermediate links, and even occasionally perhaps monstrosities at either extremity, can be supplied without difficulty by observation on the spot. It will be perceived that those specimens which have been isolated on the Dezerta Grande have, as usual, attained a somewhat larger size than those on the other islands; whereas the Porto Santan representatives, in addition to the flatter surface which they have assumed, have slightly diminished in stature: whilst in the less uniform island of Madeira, where alone we have sufficient altitude to influence them, we observe a range of structure proportionably large,—in length, breadth, colour and sculpture, according to the circumstances of the respective districts.

22. Calathus fuscus.

C. sub-alatus piceus, prothorace quadrato antice leviter angustato lateribus ferrugineis, elytris subparallelis subtiliter striatis, singulo punctis duobus impresso, antennis pedibusque testaceis.

Long. corp. lin. 5.

Carabus fuscus, Fab. *Ent. Syst.* i. 158 (1792).
——— *ambiguus*, Payk. *Fna Suec.* i. 165 (1798).
Harpalus fuscus, Gyll. *Ins. Suec.* ii. 126 (1810).
Calathus fuscus, Dej. *Spec. des Col.* iii. 71 (1828).

Habitat sub lapidibus in montibus superioribus Maderæ, inde a 3500′ s. m., copiosissime.

C. apterous, or with the wings very rudimentary; piceous, the males exceedingly shining, the females rather more opake. *Head* and *prothorax* much polished; the *latter* quadrate, wide behind and a little narrowed in front, with the sides scarcely at all reflexed, though brightly ferruginous; longitudinally but not deeply channelled in the centre, and with a very shallow impunctate fovea on either side at the base. *Elytra* nearly parallel, slightly broader in the middle than at the base, finely striated, and each with two impressions on the disk, the anterior one being near the third stria, and the posterior one near the second, from the suture. *Legs*, *antennæ* and *palpi* testaceous.

A common European insect, at once distinguished from the two preceding species by its comparatively parallel form, wide prothorax, glossy surface, by its shorter legs and antennæ, and by its more finely striated elytra, which have only two punctures, and those often very indistinct, upon the disk of each. It occurs abundantly beneath stones in the mountains of Madeira, though only at high altitudes, making its appearance at about 3000 feet above the sea, and ascending

to the summits of the loftiest peaks. During the autumnal and winter months I have observed it in the greatest profusion in the elevated region between the Pico da Lagoa and the Pico dos Arieros; and on the extreme summit of the Pico Ruivo, 6100 feet above the sea, in the middle of the summer. It is abundant in most parts of Europe, being recorded in Sweden, Germany, France, Switzerland, Russia and Dalmatia. In cooler latitudes it would appear to seek the lower lands,—in England being found more particularly on the southern coasts; and on the sandy sea-shores in Wales. The Madeiran specimens differ from their more northern representatives in having their wings either very rudimentary or else entirely obsolete.

Genus 12. ANCHOMENUS.

Bonelli, *Observat. Ent.* i. *tab. syn.* (1809).

Corpus mediocre vel minusculum, elongato-ovatum: *prothorace* vel (ut in typicis) angustato subcordato angulis posticis subrectis, vel (ut in aberrantibus) latiore subtransverso angulis posticis rotundatis: *alis* modo (ut in speciebus nostris) amplis, modo obsoletis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi, tertio primo longitudine æquali. *Labrum* quadratum, antice vix emarginatum et setis paucis longissimis instructum. *Mandibulæ* incurvæ acutæ, intus basi denticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes: *maxillares* articulo ultimo subfusiformi-truncato: *labiales* articulo ultimo vel (ut in typicis) subacuminato, vel (ut in aberrantibus) subfusiformi-truncato. *Mentum* transversum, antice profunde emarginatum et dente medio acuto integro instructum. *Ligula* cornea, apice truncata pilisque duobus longissimis aucta; *paraglossis* membranaceis, ei subæqualibus. *Pedes* graciusculi: *tarsis anticis* in maribus articulis primo, secundo et tertio dilatatis: *unguiculis* simplicibus.

Like so many of the allied genera, *Anchomenus* does not in its oral organs present any very decided modifications peculiarly its own,—its principal character consisting in the shape of the central tooth of the emargination of its mentum, which, instead of being bifid, is acute and entire. In external aspect the species have a tendency to arrange themselves under two types of form, which however, since they merge imperceptibly into each other, cannot be considered as of more than sectional importance. In the first of these, which are usually looked upon as the normal members of the group, the prothorax is comparatively narrow and subcordate, and with the hinder angles well defined and more or less approaching to right angles; the labial palpi moreover are slightly acuminated at their apex: whilst in the second the prothorax is broader and more transverse, the posterior angles are considerably rounded, and the terminal joint of the labial palpi is, like that of the maxillary ones of both divisions, subfusiform-truncate. This latter group has been ordinarily known under the generic name of *Agonum*, but its distinctions are so gradually lost sight of in those of the former that it cannot possibly be retained as separate, although in countries where the intermediate

links do not exist, it may be convenient to regard it as at any rate a *section* of *Anchomenus* proper. In the only two Madeiran specimens which I have hitherto been able to detect, it so happens that we have a *typical* representative of each of these divisions; and hence the above remarks seem almost necessary, in order to account for the juxtaposition of insects apparently so dissimilar under a common genus. The *Anchomeni* occur beneath stones in damp localities, and are especially partial to the margins of streams and swampy undrained spots.

§ I. *Prothorax angustatus subcordatus, angulis posticis subrectis: palpi labiales articulo ultimo subacuminato.*

23. Anchomenus pallipes.

A. nigro-piceus, prothorace postice punctato, elytris striatis, antennis pedibusque pallidis.

Var. β. piceus, elytrorum margine, antennis pedibusque pallidis.

Long. corp. lin. $3\frac{1}{2}$.

Carabus oblongus, Fab. *Ent. Syst.* i. 140. 72 (sed vid. 71) (1792).
——— *pallipes*, Fab. *Syst. Eleu.* i. 187 (1801).
——— *albipes*, Illig. *Mag. für Insekt.* i. 54 (1801).
Anchomenus albipes, Sturm, *Deutsch. Fna*, v. 175 (1824).
——— *pallipes*, Dej. *Spec. des Col.* iii. 119 (1828).
——— ———, Heer, *Fna Col. Helv.* 58 (1841).

Habitat per litora fluviorum atque in locis humidis Maderæ, sub lapidibus, toto anno vulgaris.

A. pitchy-black, slightly shining. *Head* and *prothorax* much narrower than the elytra; the *latter* a little convex, subcordate, with an obscure dorsal channel, and coarsely punctured behind. *Elytra* striated, the striæ being impunctate. *Antennæ, palpi* and *legs* pale testaceous.

Var. β. less deeply black, with the margins of the elytra, and occasionally also the suture, pale ferruginous.

Rather a common insect, beneath stones, at the edges of most of the small mountain streams of Madeira, though more particularly abundant between the limits of from 2000 to 4000 feet above the sea. I have not myself observed it in the other islands of the group, but I possess an old and pale-coloured specimen from the collection of the late Dr. Heinecken, and labelled as a "*Stomis*," which appears to have been taken in Porto Santo. It is universal throughout Europe, and occurs likewise in Algeria.

§ II. *Prothorax latior, plus minusve transversus, angulis posticis rotundatis: palpi labiales articulo ultimo (ut in maxillaribus) subfusiformi-truncato.* (Agonum, *Bon.*)

24. Anchomenus marginatus.

A. æneo-viridis depressus, prothorace postice utrinque impresso, elytris subpunctato-striatis, singulo punctis tribus impresso, margine tibiisque testaceis.

Long. corp. lin. $4\frac{1}{4}$–$4\frac{1}{2}$.

Carabus marginatus, Linn. *Fna Suec.* (nec *Syst. Nat.*) 222 (1761).
——— ———, Fab. *Ent. Syst.* i. 158 (1792).
Harpalus marginatus, Gyll. *Fna Suec.* ii. 154 (1810).
Agonum marginatum, Dej. *Spec. des Col.* iii. 133 (1828).
——— ———, Erich. *Käf. der Mark Brand.* i. 109 (1837).

Habitat sub lapidibus in humidis editioribus Maderæ, rarissime; a meipso ad Lagoam Fanalensem mense Julio A.D. 1850 inventus.

A. green, with an æneous tinge, and slightly shining. *Head* and *prothorax* broader than those of the last species, but nevertheless narrower than the elytra; the *former* very green; the *latter* depressed, the sides and hinder angles rounded, with a dorsal channel, and with a deep impunctate fovea on either side at the base; the extreme lateral margins sometimes obscurely pale. *Elytra* very delicately granulated; striated, the striæ with very minutely impressed points; with three large impressions down the disk of each, the anterior one of which is on the third stria, and the two posterior ones on the second, from the suture; the margins broadly testaceous. *Antennæ at base*, and the *femora*, somewhat piceous. *Tibiæ*, except at the extreme apex, testaceous. *Tarsi* and *apex of antennæ* usually piceous-black.

Although so abundant an insect throughout Europe and in Algeria, the *A. marginatus* is apparently of the greatest rarity in Madeira, occurring only at a very lofty elevation. The upland district of the Fanal (about 5000 feet above the sea) is the only region in which I have hitherto observed it, where, during my encampment in July 1850, I captured several specimens from beneath stones in moist spots, especially at the extreme head of the Ribeiro Fundo and at the bottom of the round crater-like basin, known as the Lagoa, immediately before the descent of the mountain-road towards Porto Moniz.

Genus 13. OLISTHOPUS. (Tab. I. fig. 7, 8.)

Dejean, *Spec. des Col.* iii. 176 (1828).

Corpus minusculum, plus minusve elongato-ovatum: *prothorace* subcordato, angulis posticis rotundatis: *alis* (in speciebus Maderensibus) obsoletis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi, tertio primo longitudine æquali. *Labrum* (I. 8 *a*) quadratum, antice integrum et setis paucis longissimis instructum. *Mandibulæ* acutæ rectiusculæ. *Maxillæ* (I. 8 *b*) bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* articulo ultimo fusiformi-acuminato. *Mentum* (I. 8 *c*) transversum, antice profunde emarginatum et dente medio nullo instructum. *Ligula* cornea, apice truncata pilisque duobus longis aucta; *paraglossis* membranaceis, eam paulo superantibus. *Pedes* graciusculi: *tarsis anticis* in maribus (I. 8 *d*) articulis primo, secundo et tertio leviter dilatatis: *unguiculis* simplicibus.

The *Olisthopi* in outward aspect approach some of the aberrant members of the last genus; nevertheless they recede from the *Anchomeni* altogether in having no central tooth to the emargination of their mentum. The species, which are few in number, are usually extremely shining and of a brownish-brassy tinge. They

would seem to play a rather important part amongst the *Carabidæ* of these islands, the whole three species being, apparently, not only peculiar to Madeira, but two out of them being so excessively abundant within their restricted limits, as, in all probability, to answer some especial purpose in the insect economy of those remote regions. They reside beneath stones and the bark of trees, principally at a lofty elevation, making their appearance in the autumn and lasting until the end of the following spring.

25. Olisthopus Maderensis, *Woll.* (Tab. I. fig. 7.)

O. ovatus subconvexus nigro- vel æneo-fuscus, prothorace rotundato, elytris striatis, singulo punctis tribus impresso, interstitiis obsoletissime granulatis, margine et suturâ plus minusve rufo-flavescentibus, antennis pedibusque pallido-testaceis.

Var. β. major rufo-fuscus opacus, prothoracis lateribus, elytrorumque margine et suturâ late flavescentibus, singulo punctis tribus obsoletissime impresso, interstitiis distincte granulatis. (Ins. *Deserta Grandis.*)

Long. corp. lin. 3–3½.

Habitat sub lapidibus in montibus Maderæ, a 2000′ s. m. usque ad cacumina ascendens, tempore hiberno et vernali, copiosissimus: *var.* β. sola in Desertâ Grandi, et tantum illic, nisi fallor, occurrit, qua mense Januario A.D. 1849 plurima specimina in summâ insulâ detexi.

O. ovate, very shining, a little convex, usually dark brassy-brown, or else brassy-black. *Head* and *prothorax* darker than the rest of the surface; the *former* elongated; the *latter* rather large, wide in front, and much rounded posteriorly, rugosely punctured at the sides and behind, and with a channel down the disk; the extreme margin very obscurely paler. *Elytra* finely striated, the interstices, under a high magnifying power, being most minutely granuled; with three more or less distinct impressions down the disk of each near to the third stria from the suture; the margins, especially about the shoulders, distinctly, and the suture more or less obscurely fuscescent. *Legs*, *antennæ* and *palpi* pale testaceous.

Var. β. larger and opake; reddish-brown, the *margins* of the prothorax and elytra, and the *suture* of the latter, broadly and distinctly pale: the *prothorax* scarcely at all punctured behind: the interstices of the *elytra* very distinctly granuled, and the three impressed points on the third stria of each from the suture almost obsolete. (The state peculiar to the *Dezerta Grande.*)

I had for a long time considered the present *Olisthopus* to be identical with the *O. glabratus*, of Brullé, from the Canary Islands, of which indeed I still think it not impossible that it may turn out eventually to be a local state. Nevertheless, not having been able to procure specimens for comparison, and since the present species by no means answers to the short and unsatisfactory description given by Brullé in the *Histoire Naturelle des Iles Canaries* of Webb and Berthelot, I am induced to retain it as separate, until at any rate further evidence shall decide the point. In the absence in fact of actual examples to judge from, it is impossible to reconcile the Madeiran insect with the diagnosis, as there enunciated, of the

Canarian one. Thus, for instance, no mention is made whatsoever of the pale suture, which (though occasionally obscure) is never absent from the *O. Maderensis*: nor can I at all recognise the greatly produced humeral angles of the elytra, and the flexuose hinder margin of the prothorax, which in that description constitute two of the most important features. The elytral striæ, likewise, are said to be deep, and the interstices convex, neither of which is the case in those of our present insect,—which would appear moreover to be larger than the one there detailed. Hence, I conclude, either that the two are in reality distinct, or else (assuming M. Brullé's diagnosis to be a generally correct one) that the Canarian form is a very decided variety as compared with the Madeiran one. Be this however as it may, the want of any certain information on the subject renders it not only desirable, but even necessary not to amalgamate them. The *O. Maderensis* may be at once known from the *O. Ericæ* by its larger, broader, more ovate, and convexer body, by its darker colour, wider and more posteriorly-rounded prothorax, and by the three impressed points on the disk of each of its elytra being smaller and less evident than those of that species. It is usually also more glossy, and its pale elytral margins are sometimes only apparent at the shoulders, since the lighter colour has always a tendency to vanish posteriorly. In their habits the two species are altogether dissimilar, the first occurring, almost exclusively, under stones in open grassy spots, whilst the second harbours beneath the bark and fibre of trees within the sylvan regions. The *O. Maderensis*, moreover, inhabits a wider extent of country, not only making its appearance at a lower elevation than the *O. Ericæ*, but ranging to a higher one. The former indeed may be said to commence at 2500 feet above the sea, and to continue to the summits of the loftiest peaks; whereas the latter is not found in any profusion below 4000, and, after passing through its maximum at an even higher level, it almost ceases at an altitude of about 5000 feet. Our present *Olisthopus* seems to be more particularly abundant from the end of the summer to the following spring, existing in large numbers on most of the grassy mountain slopes and exposed upland districts of the interior of the island, in company with the numerous other insects which delight in such localities. The *var.* β, from the Dezerta Grande, is particularly interesting, as not only supplying another example of the results of isolation on external form, but as showing, in addition, the singular tendency which most of the insects exhibit on that rock to attain a somewhat larger than the average size. So great indeed is the change which the *O. Maderensis* has undergone, through a long series of ages, on the Dezerta Grande, that had the case been a solitary one, I should not have hesitated in regarding the specimens obtained from thence as specifically distinct; nevertheless, with the knowledge both of the modifying effects of isolation, and also of the *kind* of modification essentially peculiar to that island, I am perfectly satisfied that it is a mere local state, although a very remarkable one, and has no claim whatsoever to be otherwise considered.

26. Olisthopus Ericæ, *Woll.* (Tab. I. fig. 8.)

O. elongato-ovatus depressus fusco-æneus, prothorace elongato-rotundato, elytris striatis, singulo punctis tribus magnis profunde impresso, interstitiis distincte granulatis, margine et suturâ plus minusve flavescentibus, antennis pedibusque pallido-testaceis.

Long. corp. lin. $2\frac{1}{2}$–$2\frac{3}{4}$.

Habitat per partem Maderæ sylvaticam, præcipue sub cortice *Ericæ scopariæ*, L., et *E. arboreæ*, L., inter 4000′ et 5000′ s.m. crescentium, æstate non infrequens: in regione Fanalensi necnon ad Cruzinhas abundat, qua mense Julio A.D. 1850 copiosissime deprehensi.

O. narrower than the last, elongate-ovate, shining, depressed, and pale brassy-brown,—occasionally almost æneo-testaceous, and sometimes with a slight metallic splendour of blue or green. *Head* and *prothorax* darker than the rest of the surface; the *former* shorter than that of the *O. Maderensis*; the *latter* narrow, and attenuated posteriorly, nevertheless with the hinder angles not completely rounded off; very rugosely punctured at the sides and behind, and with a deep channel down the disk; the sides sometimes a little pale. *Elytra* faintly striated, the interstices distinctly granuled; with three very large and distinct impressions down the disk of each near to the third stria from the suture; the margins and suture more or less distinctly and broadly pale, the lighter colour being occasionally so much diffused as to leave an elongated vitta on the disk alone slightly darker. *Legs, antennæ* and *palpi* very pale testaceous.

The smaller size, and narrower and flatter body of the present species, added to its paler and more metallic surface, more quadrate prothorax, and the larger and deeper punctures down the disk of each of its elytra, will be sufficient to separate it at first sight from the last. Its interstices, moreover, are more evidently granuled than those of the *O. Maderensis*, its prothorax, at the sides and behind, is more roughly punctured, and its antennæ are distinctly shorter. It is also by far the rarer insect of the two, or at any rate more local, its range, as already stated, being both smaller and confined to portions of the island less easy of access. It does not appear to be ever very abundant either below the altitude of 4000, or above 5000, feet, although during the winter-time I have taken occasional specimens so low down in the Boa Ventura as about the midway point between the coast and the Bocca das Torrinhas, which is scarcely elevated perhaps more than 2500 feet above the sea. It is evident however that it attains its maximum in a much loftier region, since on many of the extensive Serras between the limits of 4000 and 5000 feet it exists in actual profusion. During my encampment at the Cruzinhas, in July 1850, I had an opportunity of witnessing this, on a large scale, in the dense forest uplands known as the Serra de Seisal. That district is principally clothed with the gigantic Tree Heaths (*Erica scoparia*, Linn., and *E. arborea*, Linn.); and beneath the fibrous outer envelope of these the *O. Ericæ* literally swarmed. Nor indeed did it preponderate in any one particular spot, but extended over the whole of those sylvan tracts. It is a remarkably active insect; and the only successful way in which I could secure them was, by placing a large net beneath the trunks and branches of the trees (an operation which their singularly distorted and flexuose forms rendered extremely easy), and peeling off

promiscuously the dry, loosely-attached, external fibre, when the *Olisthopi* would fall out by hundreds from beneath it. They were generally accompanied by the pupa and imago of a minute *Blatta*, which, if possible, was even the more agile of the two. They were seldom to be obtained by any other means, although aberrant specimens might here and there be seen, beneath stones, or the chippings of timber,—the too frequent indications of the woodman's axe in those remote regions.

27. Olisthopus elongatus, *Woll.*

O. parallelo-ovatus depressus fusco-æneus, prothorace subquadrato-rotundato, elytris striatis, singulo punctis tribus impresso, margine obscure subflavescenti, antennis pedibusque pallido-testaceis.

Long. corp. lin. $2\frac{3}{4}$.

Habitat sub lapidibus in pinetis Maderæ, necnon in collibus apricis maritimis, hinc inde autumno non infrequens.

O. elongate-ovate and considerably parallel, a little shining, depressed, and brassy-brown. *Head* and *prothorax* rather darker than the elytra; the *former* somewhat short; the *latter* subquadrate, and with the hinder angles a little rounded, rugosely punctured at the sides and behind, and with a channel down the disk. *Elytra* distinctly striated, with three rather large impressions down the disk of each near to the third stria from the suture; the margins, especially at the shoulders, obscurely fuscescent. *Legs*, *antennæ* and *palpi* pale testaceous.

Apart from minor characteristics sufficiently apparent, the *O. elongatus* may be known from its Madeiran allies by its narrower and more parallel outline, and by its subquadrate, concolorous prothorax. It would seem to be the representative in these islands of the European *O. fuscatus*, although at the same time presenting too many distinctive peculiarities of its own to allow of its being identified with that insect. Thus, it recedes from it in its much smaller size, narrower and more parallel form, in its pale æneous surface, in its more quadrate and rather shorter prothorax, and in its less deeply striated elytra. Nevertheless it has clearly a greater affinity with the ordinary *Olisthopi* of more northern latitudes than either of the other species. It is, apparently, not very common, and confined to lower altitudes than the *O. Ericæ* and the *O. Maderensis*, occurring, beneath stones, either on the grassy slopes in the vicinity of the coast, or else in the pine-woods of intermediate elevations. I have observed it frequently, during the autumnal months, on the exposed sunny cliffs towards the Brazen Head, and in the fir-plantations below the Palheiro,—a position in which it has been likewise captured, subsequently, by M. Rousset.

Genus 14. ARGUTOR.

(Megerle) Steph. *Ill. Brit. Ent.* i. 102 (1828).

Corpus mediocre, plus minusve oblongo-quadratum, depressum: *prothorace* quadrato, postice (in nostris saltem) lato: *alis* modo amplis, modo (ut in speciebus Maderensibus) obsoletis. *Antennæ*

filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi. *Labrum* transverso-quadratum, antice vix emarginatum et setis paucis longissimis instructum, angulis anticis rotundatis ciliatis. *Mandibulæ* incurvæ acutæ, intus basi denticulatæ. *Maxillæ* bilobæ: lobo externo palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes, articulo ultimo fusiformi-truncato. *Mentum* transversum, antice profunde emarginatum et dente medio brevi bifido instructum. *Ligula* cornea, apice truncata pilisque duobus longis aucta; *paraglossis* membranaceis liberis, eam paulo superantibus. *Pedes* robusti: *tibiis masculis** (in speciebus Maderensibus) modo intermediis, modo posterioribus plus minusve curvato-dilatatis et intus ante apicem interdum ampliato-distortis: *tarsis anticis* in maribus articulis primo, secundo et tertio dilatatis, cordatis et subtus biseriato-setosis: *unguiculis* simplicibus.

Both *Argutor* and *Omaseus*, although formerly located far apart, are now universally allowed to be but sections of the great genus *Pterostichus*; and perhaps rightly so, since it must be admitted that their distinctive characters are (like those indeed of *all* the subdivisions of the latter, as now received,) so small, and, being merely external ones, merge into each other by such slow and imperceptible degrees, that it is impossible, except under a very lax system and somewhat imaginary laws, to regard any of them as of generic importance. Nevertheless, since it is equally true that the several subsidiary modifications into which the *Pterostichi* have a tendency to distribute themselves are well enough defined *in their normal states* to be made use of with much convenience, for *more* than subsidiary purposes, in countries where the intermediate connecting links do not exist, and since the few representatives of the entire group which I have hitherto detected in the Madeira Islands belong essentially to *Argutor* and *Omaseus* as formerly enunciated, I have preferred in the present instance keeping them separate,—deeming this brief remark as sufficient to point out how far they have any real claims for isolation when a wider system of arrangement, so as to embrace the whole of their allies known to science, is entered upon. The Madeiran species of *Argutor* differ very materially from those of boreal and temperate climates, as radiating from a larger and apterous type which appears to attain its maximum in Mediterranean countries, though especially perhaps in the north of Africa, on the elevated Serras of Spain and Portugal, and in the Pyrenees. To this section belong the *A. Abaxoides*, *Amaroides*, *Barbara*, *Hispanica*, and other such-like forms, which would almost seem, *primâ facie*, to merit the right of removal from

* Species hujus generis quæ insulas Maderenses colunt secundum tibiarum maris structuram hoc modo apte dissolvi possunt:

§ I. *Tibiæ intermediæ ante apicem intus valde ampliato-distortæ.*

1. Tibiæ posticæ ad apicem dilatatæ . . . . . robustus.
2. Tibiæ posticæ ad apicem fere simplices . . . . . dilaticollis.

§ II. *Tibiæ intermediæ aut simplices, aut ante apicem intus obscurissime ampliato-distortæ.*

3. Tibiæ posticæ ad apicem simplices . . . . . gracilipes.
4. Tibiæ posticæ ad apicem obscure dilatatæ . . . . . curtus.

the smaller members of the group. After a careful examination, however, of their oral organs, I can perceive nothing in structure which indicates the slightest aberration from the normal state; and it is probable therefore that there may be many specific gradations yet undiscovered in the mountains of central Europe, which will unite the comparatively gigantic individuals of the south with the minute ones of northern regions. Some such steps indeed do actually occur in the Swiss Alps, where I have taken, at a high altitude near the head of the St. Gothard Pass, species (the *A. spadiceus*, Dej., for instance, and the *A. alpestris*, Heer) having much the habits and outline of our present type, but inferior as regards size.

The Argutors of Madeira, although not positively peculiar to the upland portions of the island, are more particularly abundant between the limits of from 2000 to 4000 feet above the sea. On the southern side indeed they seldom make their appearance below 1500 feet, although in the north, where the climate is considerably colder, I have observed occasional specimens, during the winter months, even on the level of the shore. In both instances however they begin to diminish in numbers above 4000 feet, and at 5000 they have usually ceased. The sylvan district in fact, properly so called, may be said to be their range; a definition however which, while it is actually true as regards altitude, is only partially so as regards position,—since, in addition to their normal habitat, beneath stones, logs of wood, and fallen leaves, within the forest regions, they do also occur on the grassy slopes and moist cloudy plains of the open country. Up to the present period I have not remarked a single *Argutor* in any of the other islands of the group, from which indeed it is far from impossible that the genus may have partially at any rate, if not entirely, disappeared since the destruction of the ancient timber, which is recorded, at least in Porto Santo*, to have been once luxuriant.

28. Argutor robustus, *Woll.*

A. robustus nigro-piceus subconvexus, prothorace quadrato, elytris profunde striatis singulo punctis duobus minutissimis impresso, antennis pedibusque rufo-piceis.

Mas, nitidus, elytris parallelis; tibiis intermediis curvatis ante apicem intus valde ampliato-distortis, posticis subrectis ad apicem dilatatis.

Fœm. subopacus, elytris ovatis; tibiis posterioribus simplicibus.

Long. corp. lin. $5\frac{3}{4}$–$6\frac{3}{4}$.

Habitat per regionem Maderæ sylvaticam, sub lapidibus truncisque arborum prolapsis, præsertim a 2000′ usque ad 5000′ s. m., toto anno frequens.

A. robust, dark piceous, and a little convex. *Prothorax* large, quadrate, with a slight dorsal channel, and with a distinct subpunctate fovea on either side at the base. *Elytra* deeply striated, the

---

* Cf. *Historia Insulana das Ilhos a Portugal Sugeytas no Oceano occidental.* Composita par Antonio Cordyro da Compagnia de Jesu: Lisboa, 1717.

striæ impunctate, and the interstices convex; with two exceedingly minute impressed points on the disk of each, the anterior one being near the third stria, and the posterior one near the second, from the suture. *Antennæ, palpi* and *legs* rufo-piceous; the *last* strong and robust.

Male, shining, and with the elytra parallel; the *intermediate tibiæ* slightly curved, greatly dilated at, and suddenly distorted internally a little before, the apex; and with the *hinder* ones nearly straight, likewise (though less powerfully) dilated at their apex, but not distorted internally.

Female, rather opake, and with the elytra ovate, being somewhat expanded posteriorly; and with the *four hinder tibiæ* simple.

This large *Argutor* may be at once known from the remainder of the genus here described by its robuster form and more quadrate prothorax (which has moreover the basal foveæ perceptibly, although not deeply, punctured), and by its four hinder male tibiæ being, all of them, especially the intermediate ones (which are, likewise, curved and inwardly distorted), suddenly and distinctly dilated at their apex. The degree of dilatation and curvature indeed of their four hinder tibiæ, added to the relative amount, and the peculiarity, of the distortion of the inner edge of the intermediate pair, is at once sufficient whereby to distinguish the *males* of all the Madeiran species from each other; but the females, in which these tibial modifications do not hold good, are, *inter se*, proportionably less easy of identification. The females of the present insect, however, may be easily recognised by their large size, those of the *A. gracilipes* alone even approaching them in stature, with which however they cannot possibly be confounded, their thick and less parallel bodies, added to their more powerful legs, at once preventing such a contingency. The *A. robustus* is by no means an uncommon species throughout Madeira, occurring beneath stones and dead leaves in most parts of the island, especially within the sylvan districts and between the altitudes of about 2000 and 5000 feet above the sea.

29. Argutor gracilipes, *Woll.*

A. parallelo-oblongus angustus gracilis nigro-piceus depressus, prothorace subquadrato, elytris striatis singulo punctis duobus minutissimis impresso, antennis pedibusque rufo-piceis, tibiis posterioribus in utroque sexu simplicibus.

Long. corp. lin. 5–5¾.

Habitat in iisdem locis ac præcedens sed illo paulo rarior: in Maderâ boreali usque ad maris litus descendit, qua per oram maritimam prope São Vincente tempore hiberno sub lapidibus observavi.

A. parallel-oblong, slenderer and narrower than the last species, dark piceous, depressed; the males shining, the females somewhat less so. *Prothorax* rather short, subquadrate, slightly narrowed, and with the angles a little produced, in front; with a dorsal channel, and with a distinct impunctate fovea on either side at the base. *Elytra* elongate, parallel, or sometimes just perceptibly attenuated behind, deeply striated, although not quite so coarsely so as the last species, the striæ impunctate, and the interstices a little convex; with two exceedingly minute impressed points in the same positions as those on the *A. robustus*. *Antennæ, palpi* and *legs* rufo-piceous; the *last* long and slender, and with the four hinder tibiæ simple in both sexes.

An exceedingly well-defined insect, and one which may be readily recognised by its comparatively slender and more parallel form, and by its four hinder tibiæ being simple in both sexes. In fact, with the exception, of course, of the dilatation of the anterior tarsi, the sole difference between the males and the females is that the former are just perceptibly the more shining of the two. In its large size it recedes from all the Madeiran Argutors except the *A. robustus*, from which nevertheless its more depressed and narrower body, added to its much slenderer legs, will, apart from the structure of its tibiæ, at once remove it. It is not quite so abundant as that species, although widely distributed over the island at intermediate altitudes. On the northern side indeed it descends to a low elevation, since I have observed it, during the winter months, at the Passo d'Areia near São Vincente beneath stones on the level of the sea-shore. On the southern, however, I believe it seldom occurs below the elevation of about 1500 feet.

30. Argutor dilaticollis, *Woll.*

A. oblongo-ovatus latus nigro-piceus valde depressus, prothorace subquadrato postice lato, elytris leviter striatis singulo punctis duobus distinctis impresso, antennis pedibusque rufo-piceis.

Mas, nitidus; tibiis intermediis longe ante apicem intus valde ampliato-distortis, posticis subrectis fere simplicibus.

Fœm. vix minus nitidus; tibiis posterioribus simplicibus.

Long. corp. lin. $4\frac{1}{2}$–5.

Habitat sub lapidibus foliisque arborum dejectis per partem Maderæ sylvaticam æstate non infrequens: ad Lombo dos Pecegueiros abundat, qua mense Julio A.D. 1850 copiose deprehensi.

A. broad, oblong-ovate, robust, dark piceous, and much depressed. *Prothorax* large, subquadrate, usually very broad behind and a little narrowed in front; with a slight dorsal channel, and with a somewhat obscure, impunctate fovea on either side at the base. *Elytra* ovate, broad at the extreme base and attenuated posteriorly, where moreover there is scarcely any appearance of truncation or of excavation; finely striated, the striæ impunctate, and the interstices much flattened; with two very distinctly impressed points in the same positions as those of the last species. *Antennæ, palpi* and *legs* rufo-piceous; the *last* robust.

Male, shining; the *intermediate tibiæ* considerably curved, a good deal dilated at, and suddenly distorted internally a long way before, the apex; and with the *hinder* ones straight and almost simple.

Female, scarcely less shining; and with the *four hinder tibiæ* simple.

The present *Argutor* and the following one, from their smaller size and comparatively ovate forms, are not likely to be confounded with either of the preceding species, and it is consequently only necessary to be able to distinguish them *inter se*. The males can of course be at once recognised from the characters given in their respective diagnoses,—the intermediate tibiæ being much curved in those of the *A. dilaticollis*, and with the inner edge considerably distorted or developed at a distance from the apex; whilst in those of the *A. curtus* the whole

posterior four are nearly simple. But there is a much greater difficulty in separating the females, since, from their similarity of outline, the smaller varieties of the former and the larger ones of the latter do certainly approach each other at times very closely, and might almost be supposed, were it not for the great structural peculiarities afforded by the males, to belong to one and the same species. Still, even in the case of the females, it is only in these intermediate links, being the extremes of each, aberrant in the opposite directions, that there is any real difficulty in separating the two, since *typically* the prothorax of the *A. dilaticollis* is so much wider behind, in both sexes, than is the case with that of the *A. curtus*, and its elytra are so much broader at their extreme base and more attenuated posteriorly (there being moreover scarcely any tendency to the apical excavation which is more or less apparent in nearly all the states of the *A. curtus*), and the entire insect is so much flatter, larger, and more robust (especially in the development of its legs), that *in its normal state* even the female characters are easily grasped. But, as touching the externally approximating *varieties of each* above mentioned, I must confess that, after a careful examination of more than eighty specimens in my possession, there are but few points on which to lay hold in drawing the line of demarcation between them; and I think perhaps that the somewhat less truncated elytra and more robust legs of the *A. dilaticollis* are the most important facts to be observed, *in such specimens*, while endeavouring to identify them. And we may here just remark, that the near resemblance of the insects in question, in these intermediate but fortunately not very numerous female links, does not in any way affect their specific validity, which is already proved to a demonstration by the invariable structural differences in the tibiæ of their respective males. And, proceeding therefore on the positive conviction that differences do exist, even though we may not always be able at once to appreciate them, we are compelled to attach the greatest weight to minute (and, in ordinary cases, perhaps trivial) characters which may afford the slightest clue towards a right adjustment of the specimens before us.

The *A. dilaticollis* is, apparently, much rarer than any of the other Madeiran representatives of the genus, being found principally beneath stones and logs of wood in the dense ravines of intermediate altitudes, especially towards the north of the island. During my encampment at the Lombo dos Pecegueiros, in July 1850, I captured it in comparative abundance throughout the whole of that remote district.

31. Argutor curtus, *Woll.*

A. oblongo-ovatus graciusculus nigro-piceus subdepressus, prothorace subquadrato postice sæpius latiusculo, elytris leviter striatis singulo punctis duobus sat distinctis impresso, antennis pedibusque rufo-piceis.

Mas, nitidus; tibiis intermediis leviter curvatis ante apicem intus obscurissime ampliato-distortis, posticis vix curvatis ad apicem obscure dilatatis.

Fœm. paulo magis depressus, interdum subopacus; tibiis posterioribus simplicibus.

Var. β. paulo angustior convexiusculus, prothorace subelongato, elytris apice minus truncatis.

Long. corp. lin. $3\frac{3}{4}$–$4\frac{1}{2}$.

Habitat in convallibus declivibusque Maderæ humidiusculis, præsertim sub lapidibus truncisque arborum projectis, tempore vernali frequens.

A. oblong-ovate, narrower than the last species, and less robust, piceous, or dark piceous, and sometimes with a just perceptible æneous tinge. *Prothorax* subquadrate, not quite so broad behind as that of the last species, and more narrowed anteriorly; with a slight dorsal channel, and with an impunctate fovea on either side at the base,—about which however a few exceedingly obscure and irregular punctures are sometimes evident. *Elytra* ovate, in most instances broadest a little *behind* the extreme base, and rather more truncated at the apex than those of the *A. dilaticollis*, where they are usually also (especially in the case of the females) a little excavated; finely striated, the striæ impunctate, and the interstices sometimes rather convex (and, although flatter in the females than in the males, never so much depressed as those of the *A. dilaticollis*); with two distinctly impressed points in the same positions as those of the other species. *Antennæ*, *palpi* and *legs* rufo-piceous; the *last* slenderer than those of the *A. dilaticollis*.

Male, shining; with the *intermediate tibiæ* slightly curved, a little dilated at, but most obscurely distorted a little before, the apex; and with the *hinder* ones also slightly curved, and a little dilated, though not distorted, at their apex.

Female, a little more depressed, and sometimes (though not always) slightly opake; the elytra rather more distinctly excavated at their apex, and with the interstices a little flatter; with the *four hinder tibiæ* simple.

Var. β. a little narrower and darker, without any indication of the obscure æneous tinge which is just perceptible in most of the other specimens. *Prothorax* slightly longer. *Elytra* more oval and narrow, the widest part being about the middle, instead of immediately behind the front margin; and less truncated behind. Both sexes equally shining, and their intermediate tibiæ less pilose internally.

Notwithstanding the undoubted specific difference between the present insect and the last, as proved not only by the very dissimilar structure of their male tibiæ, but also by the well-defined aspects of their respective normal forms, their females, as already stated, are apt occasionally to become difficult to separate, owing to the near approximation in size and outline of some of their extreme aberrant specimens. As regards these *female varieties*, they have been already discussed; and it will be sufficient therefore to remark here, that the *A. curtus*, typically, may be at once recognised from that species by its smaller size, narrower and less depressed form, by its usually somewhat apically-truncated or excavated elytra, and by its slenderer legs. It is widely distributed over the mountain regions of Madeira, and in the moist dense ravines of a high elevation, although nowhere very abundant. Towards the upper extremity of the Ribeiro de Santa Luzia, during the early spring, I have found it more commonly perhaps than in any other locality,—principally amongst the loose stones and grass at the immediate base of the lofty perpendicular rocks by which that narrow gorge is laterally

enclosed. The *var.* β. is somewhat scarcer than the ordinary state, and confined more exclusively to the higher altitudes.

Genus 15. OMASEUS. (Tab. I. fig. 9.)

(Ziegler) Steph. *Ill. Brit. Ent.* i. 112 (1828).

Corpus mediocre, plus minusve elongato-oblongum, sæpius convexiusculum : *prothorace* subcordato : *alis* modo (ut in speciebus Maderensibus) amplis, modo obsoletis. *Antennæ* filiformes, capitis prothoracisque longitudine, articulis primo et tertio reliquis longioribus subæqualibus (illo robustiore), secundo brevi. *Labrum* transverso-quadratum, antice vix emarginatum et setis paucis longissimis instructum. *Mandibulæ* incurvæ acutæ, intus basi denticulatæ. *Maxillæ* bilobæ : *lobo externo* palpiformi biarticulato : *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes, articulo ultimo truncato, in *maxillaribus* breviusculo, in *labialibus* elongato. *Mentum* transversum, antice profunde emarginatum et dente medio brevi bifido instructum. *Ligula* cornea, apice truncata ; *paraglossis* membranaceis liberis, eam paulo superantibus. *Pedes* robusti : *tarsis anticis* in maribus articulis primo, secundo et tertio dilatatis, cordatis et subtus biseriato-setosis : *unguiculis* simplicibus.

Although, as above stated, the present genus and the last cannot strictly be looked upon as distinct, since in their oral organs they differ in no essential respect, and even externally merge into each other by gradations almost imperceptible; yet their *normal* aspects are so dissimilar, that I have preferred, since none of the Madeiran species are aberrant, treating them here as separate. And indeed, when thus viewed, detached from the intermediate connecting links, they are so readily identified, and possess so few outward points in common, that they would seem in reality to be altogether isolated groups. The large elongated outline and the deep black colour of *Omaseus* proper contrast sufficiently with the shorter, comparatively broader, more quadrate, and depressed body, and the piceous hue of *Argutor*, as represented in these islands, to render the chance of confounding them *inter se* utterly impossible.

32. Omaseus nigerrimus.

O. elongatus ater subnitidus convexiusculus, prothorace subquadrato basi utrinque foveolato, elytris apice rotundatis profunde subpunctato-striatis singulo punctis tribus magnis valde distinctis impresso, pedibus elongatis robustis.

Long. corp. lin. 7.

Feronia nigerrima, Dej. *Spec. des Col.* iii. 291 (1828).
Pterostichus simplicipunctatus, Kollar, *in litt.*

Habitat sub lapidibus in locis humidis Maderæ australis, rarissimus : exemplar unicum, prope Funchal, egomet tantum deprehensi, sed alterum a cl. Dom. Heinecken M.D. olim captum in museo Loweano vidi ; necnon tertium, ad Ribeiro de João Gomez lectum, nuperrime communicavit Dom. Rousset.

O. elongate, deep black, slightly shining, and a little convex. *Head* large, elongate, impunctate, and

with two very deep longitudinal impressions between the eyes. *Prothorax* large, subquadrate, slightly rounded and narrowed behind, broadly margined, the margin (especially towards the posterior angles) being much recurved; convex in front; with a longitudinal channel down the disk, and a deep, wide, punctured, rounded fovea on either side at the base. *Elytra* nearly parallel, rounded posteriorly, deeply striated, the striæ being scarcely perceptibly punctate; and with three large and distinctly impressed points, or foveæ, down the disk of each, of which the anterior one is near to the third stria, and the two hinder ones to the second, from the suture. *Legs* long and robust.

The present insect is closely allied to the common *O. aterrimus* of northern and central Europe, of which it is not impossible that it may be in reality but a geographical variety. Still, it is usually retained as a species, and as such therefore it must stand. It differs from the *O. aterrimus* in being larger and less shining, in having its prothorax less quadrate (the sides and hinder angles being a little more rounded), by its elytra being more deeply striated, but with the striæ less evidently punctate, and by the three foveæ down the disk of each being much smaller. It has been found in Spain, on the Pyrenees, and in Tangier; but in Madeira it is extremely rare. I have myself taken, hitherto, but a single specimen,—from beneath a stone in a boggy piece of ground in the Rev. R. T. Lowe's garden at the Levada. I possess however one more example, lately communicated by M. Rousset from the Ribeiro de João Gomez, near Funchal; and I have seen a third, in the collection of the Rev. R. T. Lowe, which was captured many years ago by the late Dr. Heinecken.

33. Omaseus Wollastoni. (Tab. I. fig. 9.)

O. elongatus ater nitidissimus depressus, prothorace subcordato basi utrinque bifoveolato, elytris apice acuminatis profunde punctato-striatis singulo punctis nullis impresso, pedibus brevioribus gracilioribus.

Long. corp. lin. $6\frac{1}{2}$.

Pterostichus Wollastoni, Heer, *in litt.*

Habitat sub lapidibus Maderæ australis, in collibus declivibusque maritimis, rarior: species valde distincta, et a Entomologo peritissimo Os^do^ Heer, Turici, super promontorium Cabo Gerajão dictum d. 25 Feb. A.D 1851 primo inventa, unde etiam nuperrime communicavit Dom. Rousset.

O. elongate, narrower than the last species, deep black, exceedingly shining, and depressed. *Head* small, short and narrow, much constricted behind the *eyes*, which are very prominent; punctured, though sparingly so upon the disk, and with two short and very obscure longitudinal impressions between the eyes. *Prothorax* small, subcordate, much narrowed behind, and rounded at the sides, with the extreme hinder angles produced into a minute tooth, narrowly margined, the margin not being recurved; depressed, punctured behind; with a longitudinal channel down the disk, and two distinct, narrow, rugosely-punctured foveæ on either side at the base. *Elytra* nearly parallel, acuminated behind, deeply striated, the striæ being distinctly punctate; and without any indications of impressed points, or foveæ, on their respective disks. *Legs* slenderer and shorter than those of the last species: the setæ at the extreme apex of the *tibiæ* (especially of the four hinder ones) golden-yellow.

The discovery of this very distinct and beautiful *Omaseus* is due to my friend Professor Heer of Zurich, who, during his residence in Madeira in the winter of 1850–51, captured several specimens from beneath stones on the Cabo Gerajão, or Brazen Head; in which locality it has been subsequently taken by M. Rousset. It is one of the few Coleopterous insects which appear to have escaped my observation during my repeated researches in these islands. It may be at once distinguished from the *O. nigerrimus* by its slenderer, more shining and depressed body, by its much smaller head and prothorax (the latter of which is more subcordate, much more narrowly margined; and has moreover *two* foveæ on either side at its base, and its extreme hinder angles produced into a minute tooth), by its shorter and more delicate legs, and by its elytra having no appearance whatsoever of impressed foveæ on their disks, and their striæ very distinctly punctured.

Genus 16. AMARA.

Bonelli, *Observat. Ent.* i. (1809).

Corpus minusculum, plus minusve ovale: *prothorace* sæpius subquadrato: *alis* amplis. *Antennæ* filiformes, capitis prothoracisque longitudine, articulo primo sequentibus robustiore, secundo brevi. *Labrum* quadratum, antice leviter emarginatum et setis paucis longissimis instructum. *Mandibulæ* breves validæ, intus basi denticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes, articulo ultimo fusiformi-subtruncato. *Mentum* transversum, antice profunde emarginatum et dente medio bifido (rarius integro) instructum. *Ligula* membranacea, apice truncata pilisque duobus longis aucta; *paraglossis* eam haud superantibus. *Pedes* validiusculi: *tarsis anticis* in maribus articulis primo, secundo et tertio dilatatis: *unguiculis* simplicibus.

The *Amaræ*, so abundant in our own country and throughout the whole of Europe, are too familiar to every eye to require comment. Their shining brassy surfaces and more or less oval forms, seen so constantly darting across our pathways, in fields and by the road-sides, in the hot sunshine, are associated with our earliest recollections, and can have scarcely failed to have attracted the attention of the most unobservant. In the details of their mouth they recede but slightly from the allied genera; but their external aspect is fortunately so well defined as to render us independent of structural characters even in our *generic* definition of them. I have hitherto detected but two species in the Madeira Islands, one of which however would appear to be peculiar to the group.

34. Amara trivialis.

A. ovalis ænea, prothorace antice angustato angulis posticis acutis, basi impunctato utrinque foveolato, elytris striatis, antennarum basi rufo-ferrugineâ, tibiis rufo-piceis.

Var. β. cærulescenti-, vel viridescenti-micans, nitida.

Long. corp. lin. 3–3½.

Harpalus trivialis, Gyll. (*nec* Duft.) *Ins. Suec.* ii. 140 (1810).
Amara trivialis, Dej. *Spec. des Col.* iii. 464 (1828).
—— ———, Erich. *Käf. der Mark Brand.* i. 87 (1837).
—— ———, Heer, *Fna Col. Helv.* 94 (1841).

Habitat ad vias vel sub lapidibus Maderæ Portusque Sancti, usque ad 4000′ s. m., hinc inde non infrequens.

A. somewhat parallel-oval, slightly depressed, very shining, and æneous. *Head* rather narrow. *Prothorax* narrowed in front, with the posterior angles acute and somewhat produced, concolorous; obscurely channelled down the centre; impunctate, with a narrow distinct fovea, or impressed line, on either side at the base, and sometimes a very obscure smaller one towards the hinder angles. *Elytra* finely striated, the striæ being most minutely and almost imperceptibly punctured. *Antennæ* with the first three joints and the base of the fourth bright rufo-ferruginous. *Tibiæ* dull rufo-piceous. *Femora, tarsi* and *apex of antennæ* nearly black.

Var. β. with the upper surface adorned with more or less of a dark bluish, or greenish metallic splendour.

The size, form, colour and sculpture at once distinguish this common European *Amara* from the following one. It is a species of very wide geographical range, occurring in all parts of Europe, and in Algeria; and it has been likewise recorded from Siberia and North America. It is by no means an abundant insect in Madeira, although distributed sparingly over the island from the gardens of Funchal up to the mountain slopes of the Great Curral. At the Ribeiro Frio I have found it, during the winter and spring, in comparative profusion,—especially crawling across the road during the gleams of sunshine, after rain. In Porto Santo I have likewise captured it, though somewhat rarely.

35. Amara superans, *Woll.*

A. oblongo-ovalis lata picea, prothorace antice latiusculo angulis posticis subobtusis, basi punctato utrinque bifoveolato, elytris striatis, antennis pedibusque rufo-ferrugineis.

Long. corp. lin. 4.

Habitat sub lapidibus in montibus superioribus Maderæ, ultra 5000′ s. m., tempore hiberno et vernali, rarissime: Amara valde indigena, et prope summum montem Pico dos Arieros dictum mensibus Januario et Februario A.D. 1849 a meipso detecta.

A. oblong-ovate, broad, slightly depressed, shining, and piceous. *Head* rather wide. *Prothorax* somewhat broader in front than behind, with the posterior angles slightly obtuse, and the extreme lateral margin a little rufescent; obscurely channelled down the centre; coarsely and deeply punctured behind, and with two distinct foveæ on either side at the base, the inner ones of which are the largest. *Elytra* faintly striated, the striæ being impunctate. *Legs* and *antennæ* uniformly pale rufo-ferruginous.

A large and truly indigenous *Amara*, and apparently extremely rare, the only spot in which I have hitherto observed it being the exposed alpine ridge, over-

looking the Meyo Metada, between the Ice House Peak and the Pico dos Arieros, at an elevation of between 5000 and 6000 feet above the sea, where, during January and February of 1849, I detected several specimens, in company with *Trechus alticolus*, beneath stones. It would seem to be the representative in these islands of the European *A. patricia*, which I have captured in situations precisely similar on the Swiss Alps. It presents however abundant distinctive characters to separate it from that insect,—as, for instance, its more parallel and flattened form, the impunctate and comparatively lightly impressed striæ of its elytra, and the less acute posterior, and more produced anterior angles of its prothorax; added to which, its uniformly pale piceous hue would tend even further to separate it. From its size and general outline it might at first sight be almost mistaken for a *Harpalus*; nevertheless its male tarsi being dilated in the anterior pair alone is of course at once sufficient, apart from less evident differences, to remove it from the whole of that extensive group.

(Div. 3. HARPALIDEA.)

Genus 17. ANISODACTYLUS.

Dejean, *Spec. des Col.* iv. 132 (1829).

Corpus mediocre, oblongum: *prothorace* subquadrato: *alis* amplis. *Antennæ* filiformes, capitis prothoracisque longitudine, articulo primo sequentibus robustiore, secundo brevi. *Labrum* quadratum, antice leviter emarginatum et setis paucis longissimis instructum. *Mandibulæ* breves, dente medio interno obtuso armatæ, basi denticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes, articulo ultimo fusiformi-subtruncato. *Mentum* transversum, antice profunde emarginatum et dente medio nullo instructum. *Ligula* apice truncata; *paraglossis* coriaceis acuminatis. *Pedes* validi: *tarsis anterioribus* in maribus articulis quatuor subtus dense spongiosis, secundo, tertio et quarto valde dilatatis, primo minore: *unguiculis* simplicibus.

Anisodactylus differs from *Harpalus* in having the first joint of the four anterior tarsi of its males small and narrow, whilst the following three are greatly dilated: their under surface moreover is destitute of the double row of setæ usually apparent in the present division and in the *Pterostichidea*, being densely spongiose instead,—in which respect it assimilates the typical members of the *Chlæniidea*. Its mentum, likewise, has no tooth in the centre of its emargination, a structure of extremely rare occurrence amongst the *Harpali*, in which the tooth, although obtuse and short, is nearly always distinct.

36. Anisodactylus binotatus.

A. ater, antennarum basi et palporum tarsorumque apice rufo-ferrugineis, elytris profunde striatis.

Long. corp. lin. 5–5½.

Carabus binotatus, Fab. *Ent. Syst.* i. 151 (1792).
Harpalus binotatus, Gyll. *Ins. Suec.* ii. 122 (1810).
Anisodactylus binotatus, Dej. *Spec. des Col.* iv. 140 (1829).
———— ————, Heer, *Fna Col. Helv.* 100 (1841).

Habitat sub lapidibus per litora rivulorum atque in locis humidis Maderæ, infra 3000′ s. m., toto anno vulgaris.

A. elongate, deep black; the *males* slightly shining, the *females* a little opake. *Head* with two irregular longitudinal impressions between the eyes, and sometimes with a very obscure rufous spot in the centre of its forehead. *Prothorax* subquadrate, a little narrowed posteriorly, the hinder angles nearly right angles; with a longitudinal channel down the disk, and a large, shallow, roughened fovea on either side at the base. *Elytra* elongate, rather convex, deeply striated, the striæ being impunctate, and the interstices convex and likewise impunctate. *Legs* deep pitchy-black. *Antennæ* at base and extreme apex, *palpi* at apex, and the *tarsi* also at apex, rufo-ferruginous.

A most abundant insect throughout Europe and the north of Africa; and tolerably common in most parts of Madeira below the altitude of about 3000 feet above the sea, where it occurs beneath stones at the edges of the streams. At the Curral das Romeiras, and in the other ravines above Funchal, I have at times observed it in considerable profusion.

Genus 18. HARPALUS.

Latreille, *Gen. Crust. et Ins.* i. 201 (1806).

Corpus mediocre, oblongum: *prothorace* subquadrato, postice plus minusve attenuato: *alis* sæpius amplis, sed in specie Maderensi unâ obsoletis. *Antennæ* filiformes, capitis prothoracisque longitudine, articulo primo sequentibus robustiore, secundo brevi. *Labrum* subquadratum, antice leviter emarginatum et setis paucis longissimis instructum, angulis anticis rotundatis ciliatis. *Mandibulæ* breves acutæ, dente medio brevi interno obtuso instructæ, basi subdenticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* filiformes, articulo ultimo fusiformi-subtruncato. *Mentum* transversum, antice profunde emarginatum et dente medio brevi obtuso (rarissime obsoleto) instructum. *Ligula* cornea angusta, apice truncata; *paraglossis* amplis membranaceis rotundatis, eam paulo superantibus. *Pedes* validi: *tarsis anterioribus* in maribus articulis quatuor dilatatis, subtus biseriato-setosis: *unguiculis* simplicibus.

The present genus, so widely distributed over the world, has apparently but four representatives in the Madeira Islands, three of which are common European species, whilst the other, which belongs to an altogether different type of form, is peculiar to this region. There is but little fear of confounding the *Harpali* with any other insects with which we are here concerned, their oblong bodies, and usually black or obscure surfaces, added to the four powerfully dilated anterior tarsi of their male sex, being of themselves sufficient whereby to distinguish them from the allied groups.

§ I. *Alæ amplæ; elytra libera; mentum dente medio brevi obtuso instructum.*

37. Harpalus attenuatus.

H. elongato-oblongus niger, prothorace subquadrato basi attenuato, angulis posticis subrectis et utrinque distincte foveolato, elytris profunde striatis, antennis fusco-ferrugineis, tibiis tarsisque rufo-piceis.

Var. β. paulo longior et nitidior. (Ins. *Deserta Grandis.*)

Long. corp. lin. 3½–4½.

Harpalus attenuatus, Steph. *Ill. Brit. Ent.* i. 152 (1828).
——— *consentaneus*, Dej. *Spec. des Col.* iv. 302 (1829).
——— *desertus*, Steven, *in litt.*
——— *Sardeus*, Dahl, *in litt.*

Habitat sub lapidibus in montibus Maderæ necnon in ins. Desertâ Grandi, sat vulgaris.

H. elongate-oblong, black; the *males* shining, the *females* opake. *Head* rather wide, with the impressions between the eyes exceedingly obscure. *Prothorax* subquadrate, and with a deep dorsal channel; narrowed towards the base, where it is very rugosely punctured and with a distinct fovea on either side; the hinder angles nearly right angles. *Elytra* elongate-subovate, deeply striated, the striæ being impunctate; and each with a very minutely impressed point, on the third interstice, behind. *Antennæ* and *palpi* dull ferruginous, *tibiæ* and *tarsi* rufo-piceous.

Var. β. slightly larger, and both sexes a little more shining. (The state peculiar to the *Dezerta Grande.*)

The present *Harpalus* is closely allied to the following one, but differs from it in its uniformly smaller size, in its somewhat less convex and more elongated prothorax (in which, also, the central channel and basal foveæ are more evident, and the hinder angles better defined), in its more coarsely striated elytra, and by its femora being usually of a deeper black, which causes the tibiæ and tarsi to appear very distinctly rufescent. It is rather a common insect in Madeira, occurring beneath stones on the grassy mountain-slopes, especially between the limits of from 2000 to 3000 feet above the sea. On the Dezerta Grande it is likewise tolerably abundant, where however the specimens are a little larger and more elongated, and just perceptibly more shining. It is a species of very wide geographical range, being recorded in England, France, Dalmatia, the Caucasus, Sardinia, Spain, the Canary Islands, and in Algeria; and existing I believe in nearly all parts of Europe. I possess specimens from the Scilly Islands, captured by the late F. Holme, Esq., of Corpus Christi College, Oxford.

38. Harpalus litigiosus.

H. elongato-oblongus niger antice subangustatus, prothorace convexo transverso-quadrato basi vix attenuato, angulis posticis obtusiusculis et utrinque vix foveolato, elytris striatis, antennis fusco-ferrugineis, femoribus piceis, tibiis tarsisque rufo-piceis.

Long. corp. lin. 4½–5½.

Harpalus litigiosus, Dej. *Spec. des Col.* iv. 361 (1829).
———— ————, Heer, *Fna Col. Helv.* 111 (1841).

Habitat Maderam australem, in saxosis planiusculis prope sinum Praya Formoza dictum tempore vernali A.D. 1848 a meipso sub lapidibus inventus: in Portu Sancto semel tantum legi.

H. elongate-ovate, black, and somewhat narrowed anteriorly; *both sexes* almost equally shining. *Head* rather wide, with the impressions between the eyes more distinct than those of the last species. *Prothorax* subquadrate, rather wide and short, convex in front, and with its extreme margins often most narrowly and obscurely rufescent; with an indistinct dorsal channel; a little rounded at the sides, and less narrowed towards the base than in the *H. abbreviatus*, where it is distinctly punctured and transversely impressed, but with the foveæ exceedingly shallow and obscure; the hinder angles more obtuse, or at any rate rather more rounded and less defined than those of the last species. *Elytra* elongate-subovate, rather less deeply striated than in the last species, the striæ not being perceptibly punctate; and each with a very minutely impressed point, on the third interstice, behind. *Antennæ* and *legs* nearly the same as those of the *H. abbreviatus*; but the *latter* rather longer, and with the *femora* more piceous.

Differs from the preceding species in its larger size, in its rather more anteriorly-narrowed outline, in its proportionably somewhat shorter, convexer, and less posteriorly attenuated prothorax (on which, moreover, the central channel and hinder foveæ are exceedingly indistinct), in its more finely striated elytra, and in its femora being usually of a less decided black. It would seem to be a scarce insect in Madeira, or at any rate extremely local, the only spot in which I have observed it being the low, rocky, and comparatively flattened ledge immediately above the Praya Formoza, near Funchal,—where however during the spring of 1848 I captured it, from beneath stones, in tolerable abundance. In Porto Santo I have taken hitherto but a single example. It occurs sparingly throughout central and southern Europe, and is recorded in Switzerland, France and Dalmatia.

39. Harpalus distinguendus.

H. elongato-oblongus niger, supra aut viridis aut viridi-æneus, prothorace subquadrato basi leviter attenuato, angulis posticis subrectis et utrinque distincte foveolato, elytris striatis, femoribus plerumque nigrescentibus, tibiis ad basin ferrugineis, ad apicem tarsisque rufo-piceis.

Long. corp. lin. 4–5.

Carabus distinguendus, Duft. *Fna Aust.* ii. 76 (1812).
Harpalus distinguendus, Dej. *Spec. des Col.* iv. 274 (1829).
———— ————, Erich. *Käf. der Mark. Brand.* i. 48 (1837).
———— ————, Heer, *Fna Col. Helv.* 106 (1841).

Habitat ad vias vel sub lapidibus Maderæ, sat vulgaris: in Portu Sancto prædominat, vineta camposque aridos prope oppidum colens.

H. elongate-ovate, beneath black, above green, brassy, or brassy-green; shining, especially the males. *Head* moderate, with two impressions between the eyes. *Prothorax* subquadrate, and the extreme

lateral margins generally obscurely and narrowly rufescent; a little narrowed towards the base, where it is coarsely punctured and with a distinct fovea on either side; the hinder angles almost right angles. *Elytra* somewhat parallel-ovate, deeply striated, the striæ being sometimes very obscurely punctate, the interstices impunctate; a little excavated at the apex, and each with a very minutely impressed point, on the third interstice, behind. *Femora* usually dark: *tibiæ at base* ferruginous; their *apex*, and the *tarsi*, more or less rufo-piceous, or piceous. *Antennæ* fuscous, with the base bright rufo-ferruginous.

The *H. distinguendus* is very closely allied to the common European *H. æneus*, and, although easily separable from it when in its normal state, yet the frequent occurrence of connecting links between the two would seem to imply that it may perhaps, in reality, be but a local variety of that species. Still, it is usually acknowledged to be distinct, and as such therefore I would retain it, more especially since the Madeiran specimens are in their general aspect exceedingly typical ones. It differs from the *H. æneus* in having its elytra only just perceptibly excavated at their apex, and in their submarginal interstices being unpunctured and almost free from pubescence, in its hinder prothoracic angles being less obtuse, in the prothorax itself being more deeply punctured, and foveolated, towards the base, and by its femora being for the most part darkly coloured,—whereas in the *H. æneus* it is the tendency of the legs to be altogether pale. It is a common insect throughout Madeira, occurring beneath stones at nearly all elevations; and in Porto Santo it is even more abundant still, where I have at times observed it in the low sandy vineyards behind the sea-beach in the greatest profusion. It is found in most parts of central and southern Europe, and is recorded by Dejean as having been brought even from the Brazils.

§ II. *Alæ nullæ; elytra interdum subconnata; mentum dente medio nullo instructum.*

40. Harpalus vividus.

H. oblongus piceus, vel nigro- vel fusco-piceus, prothorace transverso-subquadrato basi attenuato, angulis posticis rectis et utrinque plus minusve leviter foveolato, elytris striatis, singulo ad apicem suturalem extremum oblique truncato, antennis pedibusque pallidis.

Var. α. angustus convexiusculus plerumque fusco-piceus; mas politus, fœmina sæpius subopaca; prothorace ad basin valde attenuato, distincte et creberrime punctulato et utrinque sat profunde foveolato; elytris liberis subovatis profunde striatis, interstitiis convexiusculis, antennis pedibusque pallido-ferrugineis. Long. $4\frac{1}{4}$–$5\frac{1}{4}$ lin. (Per *regionem Maderæ sylvaticam* varietas prædominans.)

Var. β. latior depressus piceus vel ferrugineo-piceus; mas politissimus, fœmina polita; prothorace omnino latiore ad basin attenuato, obsolete punctulato et utrinque foveolato; elytris sæpius connatis truncato-subovatis striatis, interstitiis depressis, antennis pedibusque ferrugineis. Long. $4\frac{3}{4}$–$5\frac{3}{4}$ lin. (Status *Desertam Grandem* et *Desertam Borealem* colens: necnon *per oram maritimam* atque *in summis montibus Maderæ* plus minusve obtinens.)

Var. γ. latus depressus plerumque nigro-piceus; mas subopacus, fœmina opaca; prothorace lato ad basin minus attenuato, impunctato et utrinque vix foveolato; elytris sæpius connatis truncato-subovatis leviter striatis, interstitiis depressis, antennis pedibusque diluto-ferrugineis. Long. $4\frac{3}{4}$–$5\frac{1}{4}$ lin. (*Portui Sancto insulisque parvis adjacentibus* propria.)

Long. corp. lin. $4\frac{1}{4}$–$5\frac{3}{4}$.

Harpalus vividus, Dej. (*nec* Fab. 1801), *Spec. des Col.* iv. 332 (1829).

Habitat sub lapidibus omnium insularum Maderensium, ab orâ maritimâ usque ad cacumina montium copiosissime ascendens.

H. oblong, of either a dark-, or a more or less brownish-piceous, occasionally (especially when immature) almost ferruginous, usually depressed; the *males* more or less shining, the *females* generally, though not always, a little opake. *Head* rather large, with scarcely any indications of the usual longitudinal impressions between the eyes. *Prothorax* more or less subquadrate, and narrowed posteriorly; also, in most of the varieties, more or less punctured towards the base, and with a fovea on either side,—both the punctures and foveæ having a tendency in the several states to become more and more obsolete; generally with the extreme lateral margins obscurely and narrowly rufescent. *Elytra* more or less ovate, and striated, the striæ being impunctate; a little excavated behind, and each of them obliquely truncated off at its extreme apex, causing the two to divaricate very minutely at the extremity of the suture; and each of them with a most minutely impressed point, on the third interstice, behind. *Legs, antennæ* and *palpi* ferruginous.

Var. α. comparatively narrow and rather convex, generally of a brownish-piceous hue; the *males* shining, the *females* a little opake. *Prothorax* narrow, and much attenuated behind, closely, finely, and distinctly punctured towards the base, and with a deep fovea on either side. *Elytra* not soldered together, subovate, and a little acuminated behind, deeply striated, and the interstices rather convex. *Legs, antennæ* and *palpi* very pale ferruginous. (*Madeira*: the typical state throughout the sylvan districts.)

Var. β. distinctly broader and more depressed, piceous, and sometimes with more or less of a ferruginous hue; *both sexes* shining, the males being very highly polished. *Prothorax* broader than in *var.* α, and not quite so much attenuated behind, most obscurely punctured towards the base, the punctures being almost evanescent, and the foveæ more obscure. *Elytra* generally soldered together, a little broader and shorter, in proportion, than those of the *var.* α, and more truncated both before and behind, less deeply striated, and the interstices flattened. *Legs, antennæ* and *palpi* ferruginous. (*Northern* and *Central Dezertas*; and more or less applicable to the maritime and alpine specimens of *Madeira*.)

Var. γ. of nearly the same form as the *var.* β, but darker, being usually piceous-black, and depressed; *both sexes* opake, though especially the female. *Prothorax* broad and subquadrate, being less attenuated behind than in either of the other varieties, impunctate, and the basal foveæ almost obsolete. *Elytra* generally soldered together, broad and short, much truncated both before and behind, lightly striated, and the interstices flattened. *Legs, antennæ* and *palpi* darker than in the other varieties, being dusky-ferruginous. (*Porto Santo*, and the *small adjacent islands*.)

A truly indigenous species; and since it is perhaps one of the most variable with **which we have** here to do, it may be well selected as an example of the modifying **influence of isolation** and local circumstances on external insect form. Whether

we consider its peculiarity to the Madeiran group, or the singular type of structure which it displays, it may appropriately be termed *the Harpalus* of this region: and, judging from its existence on every rock, large or small, and at all altitudes, and from its capability of adapting itself to contingencies of every kind, we are led to believe that it was probably abundant over a great portion of that ancient continent of which these islands are amongst the many surviving witnesses. Ranging from the sea-shore to the extreme summits of the loftiest mountains, accommodating itself at one time to a low barren rock of twenty yards circumference, tenanted only by *Helopidæ*, *Hadri*, Lizards and Gulls, at another to the deep wooded ravines of intermediate altitudes, around which the clouds perpetually cling and where vegetation and decay are ever rampant, or harbouring beneath the rough basaltic blocks of the weather-beaten peaks, 6000 feet above the sea,—we should naturally expect, *à priori*, to discover some slight modifications of outward structure according as the respective localities differed in condition. And such we find to be everywhere the case. I am satisfied moreover that it is only by a careful observation on the spot that an insect like the present one can be properly understood; for to anybody acquainted with it practically in all its phases it is but too evident how many "species," so-called, might be established on undoubted varieties, where there exists a desire for creating them, and where our sole knowledge is gathered from a few stray specimens collected by another person, and unaccompanied by local information to render the aberrations intelligible. For it must be tracked from the sea-shore to an elevation of more than 6000 feet before we are enabled to discern the causes by which its development is controlled, or even to connect by slow and easy gradations its opposite extremes of form. And it is an interesting fact that the distance between its variations does not increase in proportion to the distance between its altitudes. On the contrary, it would seem to pass through its minimum of size and maximum of sculpture at about the elevation of from 3000 to 4000 feet; both above and below which, that is to say, as it recedes from the upper and lower limits of the sylvan districts, it becomes gradually modified, and almost in a similar manner. Thus, to a person who had visited Madeira and had picked up specimens on the coast, and to another who had perchance penetrated into the interior, as passing visitors from the vessels are accustomed to do, and had brought away examples from the wooded mountain-slopes, the two insects would appear altogether distinct. For, commencing on the level of the beach, the usual type is broad, flat, more or less opake, with the prothorax almost impunctate, and the elytra soldered together. As we ascend higher, the breadth invariably diminishes, the brightness and depth of sculpture, up to a certain altitude, seem to increase, and the elytra are seldom or but very imperfectly united; until, on entering the lower limits of the forest region, at an elevation perhaps, *ore rotundo*, of 3000 feet, we find that it has gradually put on a very different aspect (*var.* α.), being small, narrow, bright, convex, comparatively ovate and deeply striated, the legs and antennæ have become exceedingly pale, the pro-

thorax has altered considerably in shape, being much narrowed behind and punctured, and the elytra are nearly always free. In this state it continues for about 1500 feet, when again emerging into the broad daylight of the open hills, it recommences to mould itself as it did below; until, having reached the summits of the loftiest peaks, more than 6000 feet above the sea, it has almost (though not entirely) assumed the features which characterized it on the shores beneath. This is of course only a *general* account of the changes which take place during its upward progress; yet, although exceptional cases, as to every other rule, will now and then be met with, I believe it to be perfectly true on a large scale. That modifications of a slightly different kind occur at parallel altitudes in the other islands of the group is also certain; but we must not forget that the disappearance of the dense forest everywhere except in Madeira proper may have re-adjusted for those particular spots the law which there also in all probability once obtained. Moreover, whatever the causes may be which operate in these remote spheres to affect the insect life which has become isolated upon them, it is certain, from observation, that their working is not accidental, but depends on the peculiar circumstances of the respective localities, since species of even opposite natures are affected in a similar manner on the same rocks. Thus we accordingly find, in the present case (as in others which I have already had occasion to comment upon under the genera *Scarites*, *Eurygnathus*, *Calathus* and *Olisthopus*), that the specimens which have been detached on the two northern Dezertas have attained a larger size than those on any other island, that the Madeiran ones are the smallest, whilst those in Porto Santo are unusually depressed. Although confined to the sylvan districts and less abundant than any of the remainder, I have nevertheless assumed *var.* α. to be the normal state; first, because, judging from the description, I believe it to be the particular form described by Dejean in 1829, and secondly, because the Madeira Islands, as their name implies, being by nature islands of *wood*, it is the variety in all probability which would have formerly predominated throughout the group,—the other modifications being the result in some measure of the destruction of the timber, and partially therefore, though indirectly, referable to the agency of man. I have contented myself, in the above diagnosis, by indicating three varieties only, since it is impossible to define the limits and ranges of subsidiary modifications, my sole object having been to give a generally correct idea on a broad scale.

This species, which, in all its phases, is well distinguished from the rest of the genus inhabiting these islands, presents a type of structure peculiarly its own. Thus, for instance, it is universally apterous (whereas the others are winged), the mentum has no tooth in the centre of its emargination (a structure of very rare occurrence in the true *Harpali*), and the extreme apices of each of its elytra are always truncated obliquely, causing them to diverge minutely, or divaricate, at the termination of the suture. But perhaps its most singular character, and in which it differs from every other *Harpalus* with which I am acquainted, consists

in the tendency of its elytra to become united or soldered together. I say "the tendency," because it is not always the case that they are joined (which, since the law exists at all, is perhaps the more remarkable), although in most instances, especially in localities much exposed and but slightly elevated above the sea-shore, they are. I have examples, however, from the upper as well as the lower regions, in which both states are represented; and others again in which the elytra are only partially connected, being free at the apex though firmly attached towards the scutellum. In every instance, however, even where they are united throughout their entire length, a little force will succeed in separating them, showing their structure, as I have indicated in the diagnosis, to be *subconnate* rather than connate. But that it does require force to effect the disjunction, when they are really in the condition described, is proved to a demonstration to any one who has seen the *remains* of the insect beneath the slabs of stone on many of the small adjacent islands where it most abounds, or drifting about over the surface of the rocks,—under which circumstances I have observed them in immense numbers, apparently the accumulation of two or three generations, which the violence of the elements had not been able to sever. It is rare in the sylvan districts to find them joined, nevertheless such is sometimes the case,—thus proving that the peculiarity is not actually essential, but merely one which it is the tendency of the species to assume, and which is more developed in some specimens, and under certain conditions, than in others.

The *Carabus vividus* of Fabricius, although in description best according with the present insect, is proved, from specimens still in existence in the Royal Museum of Copenhagen, as already stated, to be a *Calathus*. The *Harpalus* now under consideration was in fact first described by Dejean, in 1829, who appears to have mistaken it for the Fabrician *C. vividus*, and to have quoted it as such.

Genus 19. OPHONUS.

(Ziegler) Steph. *Ill. Brit. Ent.* i. 159 (1828).

Corpus et *instrumenta cibaria* fere ut in Harpalo, sed illud subtiliter pubescens et undique punctulatum; necnon *pedes* plerumque paulo graciliores.

There cannot be the slightest doubt but that the *Ophoni* do not in reality constitute more than a section of *Harpalus*, their minutely pubescent and punctulated bodies, added to their somewhat longer and less robust legs, being the sole characters on which their isolation was ever made to rest. And it was therefore well remarked by Dejean, in his *Species général des Coléoptères*, that the genus, as defined by Ziegler, was founded on an inadequate diagnosis and could not, consequently, be upheld. Still, as it is not altogether expunged even by recent entomologists, and since its only Madeiran representative is a peculiarly typical member of the group as formerly received, I have preferred retaining it in the present

instance as distinct, deeming it sufficient to have pointed out thus far the real nature of its generic claims.

41. Ophonus obscurus.

O. oblongus subpubescens punctatus, infra niger, supra subcyanescens, prothorace transverso-subquadrato lateribus rotundatis, elytris striatis depressis, interstitiis minutissime punctulatis, antennis pedibusque rufo-ferrugineis.

Long. corp. lin. $5\frac{1}{8}$.

Carabus obscurus, Fab. *Ent. Syst.* i. 151 (1792).
Harpalus obscurus, Sturm, *Deutsch. Fna*, iv. 85 (1818).
Ophonus obscurus, Steph. *Ill. Brit. Ent.* i. 160 (1828).
Harpalus obscurus, Dej. *Spec. des Col.* iv. 197 (1829).

Habitat in locis humidis Maderæ, rarissimus; sub lapide ad fornacem exoletam calcariam juxta Sanctum Vincentium "Forno de Cal" dictam a meipso d. 2 Jul. A.D. 1850 semel tantum repertus.

O. oblong, very slightly shining, punctured all over, and a little pubescent; beneath dark pitchy-black; above with the *head* and *prothorax* of a very obscure bluish tinge and coarsely punctured; the *latter* rather smoother on the disk, and with a faint dorsal channel, somewhat transverse-quadrate, a little narrowed behind, and with the sides and angles slightly rounded. *Elytra* rather more distinctly blue than the rest of the surface, depressed and striated, the striæ being impunctate, and with the interstices thickly and finely punctulated. *Legs*, *antennæ* and *palpi* rufo-ferruginous.

A tolerably common insect throughout Europe and the north of Africa. In Madeira however it would appear to be of the greatest rarity, the only indigenous specimen which I have seen having been captured by myself from beneath a stone at the edges of the small stream which issues from out of the limestone rock (so well known to geologists from its isolated and elevated position amidst the surrounding basalt) at the Forno de Cal, near São Vincente, on the 2nd of July 1850.

Genus 20. STENOLOPHUS.

(Megerle) Steph. *Ill. Brit. Ent.* i. 165 (1828).

Corpus parvum, oblongum: *prothorace* subquadrato: *alis* amplis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo brevi. *Labrum* subquadratum, antice truncatum et setis paucis longissimis instructum. *Mandibulæ* breves acutæ, intus basi subdenticulatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* articulo ultimo penultimo majore, fusiformi-subacuminato. *Mentum* transversum, antice profunde emarginatum et dente medio nullo instructum. *Ligula* cornea, apice truncata; *paraglossis* membranaceis rotundatis, eam haud superantibus. *Pedes* vix robusti: *tarsis anterioribus* in maribus articulis quatuor dilatatis, subtus biseriato-setosis: *unguiculis* simplicibus.

The present genus is somewhat intermediate between the preceding one and *Trechus*; nevertheless it may be at once known from the former by the much

smaller size, and by the more ornamented, prettily painted surfaces of the species which compose it, by the more acuminated terminal joint of their palpi, and by the central tooth of their mentum being always obsolete,—whilst from the latter and *Bradycellus*, to which in general aspect it is far more intimately related, it differs in the simple emargination of its mentum, in its ligula being straightly truncated at the apex, and in having the whole *four* anterior tarsi, as in *Harpalus*, dilated in its male sex. The *Stenolophi* are insects eminently peculiar to damp localities, residing for the most part amongst wet moss, and beneath stones, at the edges of ponds and streams, or burrowing into the loose mud at the roots of rushes and grass in marshy spots,—thus in their habits (as well as in their structure) making an evident step towards the coming genera, which are more and more subaquatic as we approach the *Bembidiades*, and, through them, the truly Hydradephagous groups.

§ I. *Tarsi antici maris articulo penultimo profunde emarginato, bilobo.*

42. Stenolophus Teutonus.

S. oblongus niger, prothorace quadrato rufo, elytris rufis maculâ posticâ communi maximâ subcyanescenti-nigrâ ornatis, antennarum basi pedibusque rufo-testaceis.

Long. corp. lin. 3–3½.

Carabus Teutonus, Schrank, *Enum. Ins. Austr.* 214 (1781).
——— *vaporariorum*, Fab. (*nec* Linn. A.D. 1761) *Ent. Syst.* i. 164 (1792).
——— ———, Duft. *Fna Austr.* ii. 141 (1812).
Stenolophus vaporariorum, Dej. *Spec. des Col.* iv. 407 (1829).
——— ———, Heer, *Fna Col. Helv.* 115 (1841).

Habitat sub lapidibus per litora rivulorum atque in locis humidis Maderæ, sat frequens: in convallibus supra Funchal autumno abundat, necnon in Maderâ boreali, ad Sanctam Annam, mense Maio observavi.

S. oblong, black, shining. *Prothorax*, above and below, bright rufous; quadrate; with a faint dorsal channel; and with a very obscure impunctate fovea on either side at the base. *Elytra* rufous (being usually however a little paler than the prothorax), and with a large hinder patch, common to both, and covering nearly two-thirds of their entire surface, dark bluish-black; deeply striated, the striæ being impunctate. *Legs, palpi* and *base of antennæ* rufo-testaceous.

By no means an uncommon insect both in the north and south of Madeira, between the limits of from 1000 to about 3000 feet above the sea, occurring beneath stones in moist spots and at the edges of the streams. At the Curral das Romeiras, and in the other ravines above Funchal, I have taken it in tolerable abundance during the autumnal months, and in equal profusion, at the end of May, on the damp ledges of the perpendicular rocks towards the upper extremity of the Ribeiro de Santa Luzia; as also, about the middle of May, on the northern side of the island, at Santa Anna. It is found in nearly all parts of Europe, and is recorded in Algeria and the Canary Islands.

§ II. *Tarsi antici maris articulo penultimo leviter emarginato, subcordato.*

43. Stenolophus dorsalis.

S. oblongus niger, prothorace subquadrato postice leviter attenuato, testaceo in discum late nigro-infuscato, elytris testaceis plagâ postmediâ communi magnâ plus minusve suffusâ subcyanescenti-nigrâ ornatis, antennarum basi pedibusque testaceis.

Long. corp. lin. $1\frac{2}{3}$.

Carabus dorsalis, Fab. *Ent. Syst.* i. 165 (1792).
Harpalus dorsalis, Gyll. *Ins. Suec.* ii. 164 (1810).
Acupalpus dorsalis, Dej. *Spec. des Col.* iv. 446 (1829).
Stenolophus dorsalis, Erich. *Käf. der Mark Brand.* i. 61 (1837).

Habitat ad ripas fluviorum Maderensium, rarissime,—sub lapidibus ad "Forno de Cal" a meipso Julio ineunte A.D. 1850 una cum *Ophono obscuro* (sed multo copiosior) detectus.

S. oblong, black, shining. *Prothorax* testaceous, with a large patch on the disk (which is sometimes so much developed as to leave only the extreme margins paler) brownish-black; subquadrate, and a little narrowed behind; with a faint dorsal channel; and an obscure subpunctate fovea on either side at the base. *Elytra* testaceous, with the region of the scutellum occasionally, and an elongated, more or less suffused, postmedial patch, common to both, bluish-black; striated, the striæ being impunctate. *Legs, palpi* and *base of antennæ* testaceous.

Apparently extremely rare in Madeira, or at any rate local. The only spot in which I have observed it is the Forno de Cal, near São Vincente, where, on the 2nd of July 1850, I captured several specimens, in company with the hitherto unique example of *Ophonus obscurus*, from under stones at the edges of the stream immediately adjoining the famous limestone rock. Like the *S. Teutonus*, it inhabits most parts of Europe, and is found likewise in the Canary Islands and in Algeria.

Genus 21. BRADYCELLUS. (Tab. II. fig. 4.)

Erichson, *Käf. der Mark Brand.* i. 64 (1837).

Corpus parvum, plus minusve oblongo-ovatum: *prothorace* subquadrato: *alis* (in speciebus Maderensibus) obsoletis. *Antennæ* filiformes, capitis prothoracisque longitudine, articulo primo sequentibus robustiore, secundo breviusculo. *Labrum* (II. 4 *a*) subquadratum, antice truncatum et setis paucis longissimis instructum. *Mandibulæ* (II. 4 *b*) breves acutæ, intus basi denticulatæ. *Maxillæ* (II. 4 *c*) bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* articulo ultimo penultimo majore, fusiformi-subacuminato. *Mentum* (II. 4 *d*) transversum, antice profunde emarginatum et dente medio acuto integro instructum. *Ligula* cornea, apice in typicis sinuata, rarius truncata; *paraglossis* membranaceis subacuminatis, eam paulo superantibus. *Pedes* vix robusti: *tarsis anticis* in maribus articulis quatuor dilatatis, subtus biseriato-setosis (primo sæpius subquadrato): *unguiculis* simplicibus.

Bradycellus agrees with *Trechus* in having the emargination of its mentum toothed in the centre, and in its male tarsi being only dilated in the front pair of

legs: nevertheless it recedes from it in having the terminal joint of its palpi large and fusiform (instead of conical), in its males having four joints of their feet dilated (instead of two), and in its ligula being more or less sinuated at the apex (instead of rounded), with the paraglossæ scarcely extending beyond it, whereas in *Trechus* the latter are exceedingly long and linear.

§ I. *Ligula apice sinuata, paraglossis eam vix superantibus; tarsi antici maris articulo primo subquadrato.*

44. Bradycellus fulvus.

B. oblongo-ovatus rufescenti-piceus, prothorace subquadrato postice leviter attenuato, elytris piceis profunde striatis, antennis pedibusque ferrugineis.

Long. corp. lin. $2\frac{1}{4}$.

Carabus fulvus, Marsh. *Ent. Brit.* i. 456 (1802).
Trechus fulvus, Steph. *Ill. Brit. Ent.* i. 169 (1828).
Acupalpus harpalinus, Dej. *Spec. des Col.* iv. 471 (1829).
———— ————, Heer, *Fna Col. Helv.* 118 (1841).

Habitat in convallibus Maderæ humidiusculis, necnon sub lapidibus in graminosis editioribus, hinc inde, autumno prædominans.

B. oblong-ovate, rufo-piceous, shining; when immature almost ferruginous. *Prothorax* somewhat short and subquadrate, slightly narrowed and transversely impressed behind, and with the sides and posterior angles a little rounded; with a faint dorsal channel, and with a deep coarsely-punctured fovea on either side at the base. *Elytra* often a shade darker than the prothorax, deeply striated, the striæ being impunctate. *Legs, palpi* and *antennæ* ferruginous; the *last* short and robust.

The *B. fulvus*, so abundant throughout Europe, occurs in Madeira only at intermediate and lofty elevations, ranging from about 1500 to 5000 feet above the sea, although attaining its maximum, apparently, towards the lower rather than the upper extremity of those limits. At the Curral das Romeiras, and the other ravines above Funchal, I have taken it rather commonly during the autumnal months, both by brushing the rank vegetation in damp spots and from amongst loose shingle at a short distance from the streams. It is also found sparingly, beneath stones, on the exposed mountain-slopes of higher altitudes, under which circumstances I have observed it on the descent to the open plain of the Fateiras from the Pico Poizo. The Madeiran specimens differ from their more northern representatives in having the wings invariably obsolete.

§ II. *Ligula apice truncata, paraglossis eam parum superantibus; tarsi antici maris articulo primo vix subquadrato.*

45. Bradycellus excultus, *Woll.* (Tab. II. fig. 4.)

B. oblongo-ovatus piceus, prothorace subquadrato postice attenuato, testaceo, in discum leviter infus-

cato, elytrorum margine et suturâ obscure pallidioribus, antennarum basi pedibusque pallido-testaceis, tarsis plerumque obscurioribus.

Var. β. piceus, prothoracis limbo elytrorumque suturâ solum pallidioribus.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{3}{4}$.

Habitat in locis editioribus Maderæ, sub lapidibus, præsertim per partem sylvaticam, a 2500′ s. m. fere ad cacumina montium ascendens: ad basin rupium excelsarum in Ribeiro de Santa Luzia, inter radices graminum ibidem crescentium, necnon in regione Fanalensi (5000′ s. m.) mense Julio A.D. 1850, rarius deprehensi.

B. oblong-ovate, piceous, shining, sometimes with a just perceptibly bluish tinge. *Prothorax* testaceous, with a more or less dusky cloud on its disk; a little longer in proportion than that of the last species, and rather more narrowed behind, where it is slightly punctured but not transversely impressed; the posterior angles obtuse; with an obscure dorsal channel, and a narrow fovea on either side at the base. *Elytra* less deeply striated than in the *B. fulvus*, the striæ however, as in that insect, being impunctate; the suture and lateral margins, especially the former, a little paler. *Antennæ* fuscous towards the apex; their *base*, the *palpi*, and the *legs* pale testaceous,—the *tarsi* and the extremity of the *tibiæ* being usually a little darker.

Var. β. entirely piceous-black, with the extreme margins of the prothorax and the suture of the elytra, alone, very obscurely paler. *Legs*, *palpi* and *antennæ* as in the normal state.

A most distinct and beautiful *Bradycellus*, and apparently of the greatest rarity, being confined, so far as I have hitherto observed, to remote upland spots more or less difficult of access. I have taken it, during the winter and early spring, towards the upper extremity of the Ribeiro de Santa Luzia, especially from amongst loose stones at the roots of the vegetation at the immediate base of the lofty perpendicular rocks: and in July 1850 I captured it sparingly in the bed of a dried-up stream in the elevated region of the Fanal, more than 5000 feet above the sea: and a specimen has been recently communicated to me by M. Rousset, from the Pico d'Arribentão, above Funchal.

Genus 22. TRECHUS. (Tab. II. fig. 1, 2, 3.)

Clairville, *Ent. Helv.* ii. 23 (1806).

Corpus parvum, plus minusve ovatum, vel oblongo-ovatum: *prothorace* subquadrato: *alis* typice amplis, sed in speciebus Maderensibus plurimis obsoletis. *Antennæ* filiformes, capite prothoraceque paulo longiores, articulo primo sequentibus robustiore, secundo breviusculo. *Labrum* (II. 1 *a*, 2 *a*) transversum, antice plus minusve emarginatum et setis paucis longissimis instructum. *Mandibulæ* (II. 1 *a*) prominulæ acutæ, intus basi denticulatæ. *Maxillæ* (II. 1 *b*, 2 *b*) bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* articulo ultimo penultimo paulo minore, in typicis conico, sed in nostris plerumque subfusiformi-conico. *Mentum* (II. 1 *c*, 2 *c*) transversum, antice profunde emarginatum et dente medio vel (ut in speciebus typicis) integro, vel (ut in aberrantibus) bifido instructum. *Ligula* cornea, apice rotundata, rarius truncata; *paraglossis* linearibus, eam longe superantibus. *Pedes* graciusculi: *tarsis anticis* in maribus (II. 1 *d*) articulis primo et secundo dilatatis atque intus productis: *unguiculis* simplicibus.

In spite of the large number of *Trechi* described below, there is but one amongst them of the ordinary European form, the remainder being moulded on a type which would seem to be peculiarly Madeiran, and almost in fact to merit separation from the normal members of the genus. In its usual state *Trechus* is winged, has the central tooth of the emargination of its mentum entire, and the ultimate joint of its palpi very decidedly conical (being of the same breadth at the base as the penultimate one is at the apex); whereas, with the single exception just mentioned, all our present species are apterous, the tooth of their mentum is universally bifid, and the terminal articulation of their palpi has a tendency to become rather more fusiform than conical. Still, since in their very elongated linear paraglossæ, and in the two internally-produced dilated joints of their male tarsi, they retain the essential characters of the true *Trechi*, I would not regard the above aberrations as indicative of more than a well-defined subsidiary section,—especially since the non-development of wings may be almost looked upon as a geographical deficiency amongst the Coleopterous population of these islands,—and have therefore merely proposed a subgeneric name in case that it should be found desirable, at any future period, to isolate it as a distinct group. The *Trechi* are particularly partial to damp spots, nevertheless they are not so subaquatic in their habits as the *Bembidia*, being found beneath stones, logs of wood, and dead leaves within the sylvan districts, more than at the edges of streams and on wet mud,—the localities eminently selected by the latter. In Madeira they are nearly exclusively confined to the dense ravines of intermediate and lofty altitudes.

§ I. *Alatus: mentum dente medio integro instructum: palpi articulo ultimo conico.*

46. Trechus ~~fimicolus~~, *Woll.*
fimicolor Woll. Cat. Col. Ins. Mad. pg 18. (1857).

T. oblongo-ovatus depressus diluto-testaceus, capite nigro, prothorace subcordato basi utrinque vix impresso angulis posticis subrotundatis, elytris substriatis, antennis pedibusque testaceis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{3}$.

Habitat Maderam borealem, stercore bovino arido in castanetis Sanctæ Annæ Junio exeunte A.D. 1850 a meipso sat copiose repertus.

T. oblong-ovate, flattened, shining, and brownish- or lurid-testaceous. *Head* black. *Prothorax* somewhat cordate, or subquadrate and narrowed behind; the posterior angles a little rounded; with a faint dorsal channel; and a scarcely perceptible impression on either side at the base; sometimes a little rufescent, and with the *extreme* lateral edges generally dark. *Elytra* with very obsolete indications of striæ towards the suture, but almost unstriated towards the margin; and with two very minutely impressed points on the disk of each. *Antennæ, mouth* and *legs* testaceous; the *first* short and robust.

Of all the Madeiran *Trechi* which I have hitherto detected, the present one is the only species which may be said to be truly typical of the genus. It may

perhaps be regarded as the representative of the common European *T. minutus* in these islands; which indeed in general aspect it somewhat resembles, though at the same time with abundant distinctive characters of its own. Thus, for instance, it is always very much smaller than that insect, and its colour is invariably pale lurid-testaceous (instead of rufo-piceous), whilst its head is of a deep black; its prothorax is subcordate (instead of transverse), and proportionably much longer than in that species; its elytra are almost imperceptibly striated, and its antennæ are extremely short and robust, being scarcely more than half the length of those of the *T. minutus*. It is apparently extremely rare, the only spot in which I have observed it being at Santa Anna, in the north of the island, where, at the end of June 1850, I captured many specimens, on several occasions, beneath the chestnut-trees in the vineyard of Senhor Louiz Acciaioly, and invariably in the perforations of dried cow-dung,—a somewhat singular *habitat* for a *Trechus*; nevertheless I was not able to procure it under any other circumstances.

§ II. *Apterus: mentum dente medio bifido instructum: palpi articulo ultimo subfusiformi-conico.*

(Subgenus CALOTRECHUS, *Woll.*)

A. *Elytra plus minusve variegata.*

47. Trechus nigrocruciatus, *Woll.* (Tab. II. fig. 1.)

T. ovatus nigro-piceus, prothorace subquadrato basi lato et utrinque impresso angulis posticis subacuminato-rectis, elytris mox pone basin convexis leviter striatis rufo-testaceis cruce maximâ nigro-piceâ ornatis, antennis infuscatis, pedibus pallidis.

Var. β. omnino pallidior, prothorace ad latera testaceo, elytris pallidis fasciâ subapicali dentatâ nigrescenti ornatis.

Long. corp. lin. $2\frac{1}{3}$–$2\frac{1}{2}$.

Habitat in Maderâ sylvaticâ excelsâ, sub lapidibus foliisque arborum dejectis, circa 5000′ s. m., rarissimus: in locis humidiusculis prope Cruzinhas, necnon ad summam originem convallis Ribeiro Fundo dictæ, quæ in regione Fanalensi sita est, mense Julio A.D. 1850 primus inveni.

T. ovate, shining, and piceous-black. *Prothorax* subquadrate, wide behind and narrowed in front; the posterior angles somewhat acuminated and nearly right angles; with a deep dorsal channel; and a wide, somewhat wrinkled fovea on either side at the base; the lateral margins a little reflexed, and in most instances very obscurely rufescent. *Elytra* convex just behind the base, rather lightly striated, and with two minutely impressed points on the disk of each near the third stria from the suture; rufo-testaceous, with a broad, immensely developed black cross in the centre, occupying the greater portion of the entire surface, and leaving only an elongated patch about the shoulders, the apex, and a narrow ill-defined marginal line (connecting the two), pale. *Antennæ* infuscate; their *basal joints*, the *palpi* and the *legs* pale testaceous,—the *tarsi at base* and the *tibiæ at apex* being usually a little obscurer.

Var. β. altogether paler; the lateral margins of the prothorax being dull testaceous; and the elytra, with the exception of a zigzag postmedial fascia which is more or less black, entirely pale.

A most elegant species, and apparently one of the rarest of all the Madeiran Coleoptera. It may be at once known from the remainder of the genus here described by its large ovate outline, by its posteriorly widened prothorax, and by its brightly spotted elytra,—which last indeed might almost have been described as quadripunctate did not the existence of the pale varieties seem rather to imply that they should be regarded, more correctly, as testaceous, with two darker bands (the one sutural, and the other postmedial,—and intersecting each other at right angles) placed upon them, and which are so immensely developed as to cover the entire surface except a conspicuous spot at each of the shoulders, the apex, and a narrow connecting line along the margin. It occurs only at very lofty elevations, its range being the upper limits of the sylvan districts, and extending perhaps from about 4500 to 5000 feet above the sea. It is found beneath dead rotting leaves in the vicinity of the springs and small trickling streams; under which circumstances I captured it at the Cruzinhas, during my encampment there in July 1850, as also at the extreme head of the Ribeiro Fundo,—on the northern edge of the Fanal.

48. Trechus flavomarginatus, *Woll.* (Tab. II. fig. 2.)

T. oblongo-ovatus depressus nigro-piceus, prothorace subquadrato basi vix angustato et utrinque impresso angulis posticis subrectis, elytris striatis ad marginem præsertim antice et postice flavo-testaceis, antennis infuscatis, pedibus pallidis.

Var. β. paulo major et latior, valde depressus, elytris minus profunde striatis atque latius flavo-marginatis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat per regionem Maderæ sylvaticam, sub lapidibus truncisque arborum projectis, præsertim in locis humidiusculis, toto anno frequens.

T. oblong-ovate, depressed, shining, and piceous-black. *Prothorax* subquadrate, rather wider in front than behind; the posterior angles nearly right angles; with an obscure dorsal channel; and a distinct fovea on either side at the base. *Elytra* deeply striated; and with two distinctly impressed points on the disk of each near the third stria from the suture; with the margins, especially about the shoulders and apex, more or less distinctly testaceous-yellow; and the suture also just perceptibly pale. *Antennæ* darkly infuscate; their *basal joints*, the *palpi* and the *legs* very pale testaceous,—the *tibiæ at apex*, especially the hinder ones, being a little dusky.

Var. β. rather larger, and proportionably wider, also somewhat more depressed; the elytra less deeply striated, and with the margins and suture more broadly and distinctly testaceous.

Apparently the most abundant of all the *Trechi* peculiar to these islands; and it may perhaps be regarded as especially characteristic of the Madeiran type,—occupying somewhat of a central position from which most of the others would seem to radiate. It presents, in common with the *T. dilutus*, a very evident intermediate link between the large, ovate, spotted form of the *T. nigrocruciatus* and

the more elongated, deeply-coloured, and concolorous ones represented by the *T. umbricola*, *custos*, *alticola*, and *cautus*. It may be readily known from the remainder of the present section by its small size, and by the universally testaceous margin of its elytra; which is never entirely absent, and which, as though to recognise the same principle of colouring which obtains in the last species, is somewhat expanded at the humeral angles and apex,—thus calling to mind in a slight degree the four large and well-defined patches so conspicuous in that insect. Still, these spot-like expansions are so doubtful and suffused, compared with those of the *T. nigrocruciatus*, that they can scarcely be looked upon as more than mere dilations of the pale marginal line,—and not therefore as the *primary* tint of the elytra, left uncovered by the darker central cloud imposed upon them. And, although it is almost immaterial by which method we choose to consider the present arrangement of the light and dark portions of the surface to have been produced, yet the fact that the former is the most probable is worthy of notice, as showing the manner in which the law of colouring would appear to change at this midway point between the two specific extremes. It is essentially a sylvan insect, ranging from about 2000 to nearly 5000 feet above the sea, and abounding throughout the wooded districts in most parts of the island. I have observed it in great profusion at the Ribeiro Frio, during the spring and early summer; at the Lombo dos Pecegueiros, and at the Cruzinhas, in July; and at the Feijãa de Córte in August; and I have likewise captured it in the Boa Ventura in January. It would appear to attain its maximum at an altitude of from 3000 to about 4000 feet: and in the upland region of the Fanal it is comparatively scarce,—its place being there supplied by the *T. custos*, which is the prevailing species. The *var.* β. I have hitherto only taken in the Boa Ventura and at the Cruzinhas.

49. Trechus dilutus, *Woll.*

T. oblongo-ovatus depressus fusco-piceus, prothorace subcordato basi utrinque profunde impresso angulis posticis acuminato-subrectis, elytris profunde striatis fusco-testaceis maculâ posticâ maximâ antice valde suffusâ fusco-piceâ ornatis, antennis infuscatis, pedibus pallidis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Habitat cum præcedente, sed illo multo rarior, locos magis editiores præcipue colens.

T. oblong-ovate, depressed, shining, of a dirty piceous-brown, irregularly clouded in parts, giving the surface a somewhat transparent appearance. *Prothorax* subcordate, or subquadrate and narrowed behind; the posterior angles sensibly acuminated, and nearly right angles; with a dorsal channel; and a deep fovea on either side at the base. *Elytra* more deeply striated than in the last species; and with two larger and more distinctly impressed points on the disk of each near the third stria from the suture; dull brownish-testaceous, shading off gradually behind into a large cloudy fusco-piceous patch, which is more or less distinct in the different specimens, and which usually covers the entire hinder portion of the surface. *Antennæ* and *legs* as in the last species, though generally not quite so pale.

A very distinct little species, and readily known from the remainder by its comparatively subcordate prothorax, which has the hinder angles produced into a minute point, and by its diluted, cloudy surface,—the darker portions shading off so gradually, and yet so unequally, into the lighter ones as to give the insect somewhat the appearance of tortoiseshell. It is more deeply striated than any of the rest, and the impressed points on its elytra are usually larger and more apparent. It is generally taken in company with the *T. flavomarginatus*, which at first sight it slightly resembles. It is however by far the rarer of the two, and occurs in lofty rather than in intermediate altitudes. My specimens are principally from the Lombo dos Pecegueiros, the Cruzinhas, the Lombo das Vacas, and the Fanal.

B. *Elytra, suturâ obscurissimâ exceptâ, concoloria.*

50. Trechus umbricola, *Woll.* (Tab. II. fig. 3.)

T. oblongo-ovatus subconvexus nigro-piceus, prothorace subquadrato basi utrinque profunde impresso angulis posticis subrectis, elytris striatis, antennis pedibusque pallidis.

Var. β. paulo minor et interdum picescentior, elytris profundius striatis.

Long. corp. lin. $2\frac{1}{2}$–$2\frac{2}{3}$.

Habitat Maderam borealem sylvaticam, sub lapidibus truncisque arborum prolapsis, a 3000′ s. m. usque ad 5000′ prædominans: ad Lombo dos Pecegueiros abundat, qua mense Julio A.D. 1850 sat copiose collegi.

T. oblong-ovate, rather convex, shining, and piceous-black; when immature more or less ferruginous. *Prothorax* subquadrate; the posterior angles a little thickened, and nearly right angles; with a dorsal channel; and a deep fovea on either side at the base. *Elytra* rather lightly striated; and with two impressed points on the disk of each near the third stria from the *suture*, which is just perceptibly paler than the rest of the surface, especially behind. *Antennæ* ferruginous; *palpi* and the *legs* testaceous,—the *femora at base* and the *tibiæ towards the apex* (especially the hinder ones) being usually a little dusky.

Var. β. rather smaller, and a little more piceous; the prothorax a little narrower, and the elytra more deeply striated.

Readily known by its large, elongated outline and dark piceous hue,—its legs and antennæ, and the suture behind, being alone pale. Although not so broad, in proportion, as the *T. nigrocruciatus*, it is the longest of the Madeiran *Trechi*; and it would appear moreover to be one of the rarer, or at any rate the more local, species. It is confined to the damp sylvan districts of intermediate and lofty elevations; and seems to be commoner in the region of the Lombo dos Pecegueiros than in any other portion of the island which I have had an opportunity of investigating,—where, during July 1850, I captured it from beneath stones and decaying logs of wood in comparative abundance. I have likewise taken it, though more sparingly, on the Lombo das Vacas, in June; as also at the Cruzinhas and the Fanal.

51. Trechus quadricollis, *Woll.*

T. ovato-oblongus subdepressus rufo-ferrugineus, prothorace subquadrato basi utrinque profunde impresso angulis posticis rectis, elytris profunde striatis, antennis ferrugineis, pedibus pallidis.

Long. corp. lin. $2\frac{1}{8}$.

Habitat Maderam australem, rarissimus;—ad Curral das Romeiras, autumno exeunte A.D. 1847, sub cortice *Lauri Indicæ* laxo semel tantum repertus.

T. ovate-oblong, slightly depressed, shining, and pale rufo-testaceous. *Prothorax* subquadrate; the sides almost straight, and the posterior angles nearly right angles; with a distinct dorsal channel; and a deep fovea on either side at the base. *Elytra* somewhat parallel, deeply striated, the striæ being just perceptibly punctate; and with two very obscurely impressed points on the disk of each near the third stria from the *suture*, which is behind just appreciably paler than the rest of the surface. *Antennæ*, *palpi* and *legs*, especially the last, pale testaceous,—the *tibiæ* being scarcely more dusky than the femora and tarsi.

The specimen from which the above description has been compiled is hitherto unique; nevertheless it presents so many distinctive features of its own that there can be no doubt as to its true specific claims. Apart from its pale rufo-ferruginous hue, which in the absence of further examples to judge from can scarcely be pronounced for certain to be an invariable character, its somewhat oblong, subparallel outline, its rather large and square prothorax, which is scarcely at all narrowed behind, and its deeply striated elytra, will at once serve, in conjunction, to remove it from the remainder of the Madeiran *Trechi*. It was captured by myself, in the autumn of 1847, from beneath the loose bark of an old vinhatico at the Curral das Romeiras, above Funchal.

52. Trechus custos, *Woll.*

T. oblongo-ovatus subconvexus piceus, prothorace subquadrato basi leviter angustato et utrinque impresso angulis posticis subrotundatis, elytris striatis, antennis pedibusque pallidis.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat in iisdem locis ac *T. flavomarginatus*, sed etiam paulo ultra regionem sylvaticam hinc inde ascendens.

T. oblong-ovate, a little convex, shining, and piceous; rarely piceous-black. *Prothorax* subquadrate, and narrowed behind; the sides distinctly, and the posterior angles obscurely, rounded; with a dorsal channel; and a rather obscure fovea on either side at the base. *Elytra* ovate, lightly striated; and with two rather distinctly impressed points on the disk of each near the third stria from the *suture*, which, especially behind, is a little paler than the rest of the surface. *Antennæ* ferrugineous, and generally a little infuscate towards their apex; the *palpi* and the *legs* pale testaceous,—the *femora at extreme base*, and the *tibiæ towards the apex*, being a little dusky.

Next to the *T. flavomarginatus*, this is unquestionably the commonest of the Madeiran *Trechi*, being found beneath stones and decaying logs of wood through-

out the entire sylvan regions, and occasionally indeed extending even a little beyond them. It is the prevailing species in the upland district of the Fanal, and on most of the alpine Serras where the forest, although on a gigantic scale, is less dense, and is gradually becoming extinct. Nevertheless, though attaining its maximum in these elevated tracts, it is by no means peculiar to them, since it exists, more or less abundantly, at all altitudes between the limits of from 2500 to 5000 feet above the sea; and at all seasons of the year. I have taken it in great profusion, in July, at the Lombo dos Pecegueiros, the Cruzinhas, and the Fanal; as also, more sparingly, at the head of the Ribeiro de João Delgada; at the Feijãa de Córte, in August; and at the Ribeiro Frio during the winter and early spring. I possess an example from the south of the island (I believe from the Curral das Romeiras) which is somewhat larger and more convex than the ordinary type, and has its prothorax proportionably a little smaller and more quadrate; but I conceive it to be merely a local state of our present insect, and without even the claim to be regarded as a permanent variety.

53. Trechus alticola, *Woll.*

T. oblongo-ovatus subconvexus nigro-piceus politissimus, prothorace subquadrato basi vix angustato et utrinque impresso angulis posticis obtusis, elytris leviter striatis, antennis pedibusque pallidis, tibiis distincte infuscatis.

Long. corp. lin. 2.

Habitat sub lapidibus in montibus superioribus Maderæ;—supra fastigium saxosum in ascensu montis Pico dos Arieros dicti, Meya Metáde prospiciens, tempore hiberno et vernali A.D. 1849 a meipso captus.

T. oblong-ovate, a little convex, exceedingly shining, and piceous-black. *Prothorax* subquadrate, not quite so much narrowed behind as that of the *T. custos*; the posterior angles obtuse but scarcely at all rounded; with a dorsal channel; and a distinct fovea on either side at the base. *Elytra* ovate, very lightly striated; and with two distinctly impressed points on the disk of each near the third stria from the *suture*, which is somewhat more perceptibly pale than in the last species, especially behind. *Antennæ* and *legs* as in the *T. custos*, only with the *tibiæ*, particularly towards their apex, more evidently infuscate.

This is the only Madeiran *Trechus* of which I have the slightest doubt as to the true specific claims, since it unquestionably approaches the *T. custos* very closely: nevertheless since the minute points which separate it from that insect appear to remain constant, and since in its habits it recedes from the rest of the genus here described, I have thought it better not to unite the two, until at all events further evidence shall decide the question. It is the only one, so far as I am aware, in Madeira proper, the normal range of which would seem to be extra-sylvan, the single locality in which I have hitherto observed it being the lofty uplands between the Ice House Peak and the Pico dos Arieros,—at an elevation of not less

than 5600 feet above the sea, and far removed from the highest forest limits in that portion of the island. The spot moreover being one which, from its exposed nature, could never have been wooded at any time, there is the less reason for suspecting that the *T. alticola* may be merely a state of the *T. custos*, gradually assumed since the disappearance of the native timber from the region which it inhabits. When such causes as these can be shown to have operated, I would at all times make abundant allowances for them, since their effect in certain instances has been already proved to a demonstration: but where there is equally decisive evidence that they could never have been brought into play, small differences must frequently be regarded as of primary importance where, under other circumstances, even greater ones might be comparatively worthless. For these reasons I am induced to believe that the two insects under consideration may be in reality distinct; and, until intermediate links, both in aspect and habits, shall have been found to connect them, I think we have sufficient grounds for retaining them as such. The *T. alticola* differs from every form of the *T. custos* which has come beneath my notice in being more brightly polished and of a uniformly darker hue, in having its prothorax slightly less attenuated behind, its elytra more obscurely striated, and its tibiæ in all instances much more evidently infuscate,—more so in fact than is the case with any of the other species. I captured it, on several occasions, during the winter and early spring of 1849, in company with *Amara superans*, on the bleak exposed ridge, overlooking the head of the Metáde valley, between, as already stated, the Ice House Peak and the Pico dos Arieros.

54. Trechus cautus, *Woll.*

T. ovatus antice subattenuatus, convexus piceus, prothorace convexo subquadrato basi vix angustato et haud impresso angulis posticis obtusis, elytris striatis, striis ad latera evanescentibus, antennis pedibusque rufo-ferrugineis.

Long. corp. lin. 2.

Habitat in montibus Portûs Sancti, sub lapidibus in declivibus graminosis, tempore hiberno et vernali, rarior.

T. ovate, rather attenuated anteriorly and expanded behind, convex, shining, and piceous. *Prothorax* convex, subquadrate, the posterior angles obtuse; with a very obscure dorsal channel; and with no appearance whatsoever of foveæ at the base. *Elytra* ovate, distinctly striated towards the suture but almost unstriated towards the margin; with two impressed points on the disk of each near the third stria from the *suture*, which is obscurely paler than the rest of the surface, especially behind. *Antennæ, palpi* and *legs* rufo-ferruginous.

An exceedingly well-marked species, and readily known from the rest of the genus here described by its ovate and somewhat anteriorly-acuminated form, by its convex prothorax, which has no appearance whatsoever of foveæ or impressions behind, and by the striæ of its elytra, although distinct near the suture, being

evanescent towards the outer margin. It is the only *Trechus* which I have hitherto observed in any of the other islands of the group; being apparently peculiar to Porto Santo, where, during the winter and early spring, I have observed it in tolerable abundance, beneath stones, on the grassy mountain-slopes at an elevation of about 900 feet above the sea,—though especially on the green exposed ridge which connects the Pico de Facho with the Pico do Castello.

Genus 23. THALASSOPHILUS, *Woll.* (Tab. II. fig. 5.)

Corpus parvum, lineare: *prothorace* cordato: *alis* obsoletis. *Antennæ* filiformes, capite prothoraceque multo longiores, articulo primo sequentibus robustiore, secundo breviusculo, reliquis subæqualibus. *Labrum* (II. 5 *a*) transversum, antice profunde emarginatum, aut potius bilobum, lobo quoque apice barbato et setis paucis longissimis instructo. *Mandibulæ* (II. 5 *b*, 5 *c*) longæ porrectæ acutæ, intus basi denticulatæ. *Maxillæ* (II. 5 *d*) bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* articulo ultimo penultimo minore, in *maxillaribus* conico, in *labialibus* (II. 5 *e*) subfusiformi-conico. *Mentum* transversum, antice profunde emarginatum et dente medio brevi bifido instructum. *Ligula* brevis subcornea, apice rotundata pilisque longissimis ornata; *paraglossis* angustis linearibus, eam superantibus. *Pedes* robusti: *tarsis anticis* in maribus (II. 5 *f*) articulis primo et secundo dilatatis atque intus productis: *unguiculis* simplicibus.

A *θάλασσα* mare, et *φίλος* amicus.

The very interesting insect for which the present genus has been established approaches slightly, in its outward appearance, to the *Cillenum laterale* of our own country; nevertheless the large terminal joint of its palpi will of course remove it from the whole section of the *Bembidiades*, whilst from that species in particular the bifid central tooth of its mentum and deeply bilobed upper lip, in conjunction with its elongated antennæ (which have the fourth joint *not* shorter than the previous one) and the peculiar dilation of its male tarsi, will serve additionally to distinguish it. In the proportions of its palpi indeed, and of its upper lip, as well as in its freedom from wings, *Thalassophilus* is perhaps more nearly related to *Aëpus* than to anything else with which I am acquainted. Still, its comparatively gigantic size and dissimilar form, added to the bifid tooth of its mentum, will readily separate it from that genus also: and it may not inappropriately be regarded as constituting a passage between the *Harpalides* and the *Bembidiades*,—for whilst the greatly developed ultimate joint of its palpi must needs place it amongst the former, yet its general habits and aspect are so intimately allied to some of the early members of the latter as to render its affinity with them likewise scarcely less obvious.

55. Thalassophilus Whitei, *Woll.* (Tab. II. fig. 5.)

T. rufo-ferrugineus nitidus depressus, capite picescenti, prothorace cordato lateribus postice sub-

reflexis, elytris diluto-testaceis striatis, striis ad latera evanescentibus, fasciâ subapicali obscurâ nigrescenti ornatis et singulo punctis duobus distinctis impresso, pedibus testaceis.

Long. corp. lin. $1\frac{2}{3}$.

Habitat insulas Maderenses, in subsalinis ad ostia rivulorum, vel per litora maris, inter lapillos fodiens; rarissimus: duo specimina tantum vidi, unum sc. in ins. Portûs Sancti Decembri mense A.D. 1848 a meipso inventum, et alterum a Dom. Rousset ab orâ Funchalensi maritimâ nuperrime communicatum.

Amico cl. A. White, Arm., Musei Britannici comiti, hoc insectum valde indigenum et certe novum tribui.

T. elongate, parallel, depressed, shining, and rufo-ferruginous. *Head* large, more or less rufo-piceous, with two very deep longitudinal furrows down the forehead; *eyes* prominent. *Prothorax* cordate, margined, especially towards the base, where it is a little reflexed; the extreme posterior angles rather prominent and acute; with a distinct dorsal channel; but with no appearance of foveæ behind. *Elytra* testaceous, striated, the striæ not being perceptibly punctate and vanishing towards the margins; with two deep impressions on the disk of each; and with an obscure, cloudy, ill-defined patch, common to both and forming an almost obsolete subapical fascia, slightly infuscate. *Antennæ* infuscate towards their apex. *Legs* testaceous.

Apparently one of the rarest of the Madeiran Coleoptera, residing, like the European *Blemus areolatus* and its allies, beneath shingle in brackish spots, into which it burrows with great dexterity. In spite of my constant researches in these islands I have hitherto captured but a single specimen,—detected, during December 1848, at the edges of a small stream in the island of Porto Santo, known as the Ribeiro de Serra de Fora, at a short distance before it empties itself into the sea. A second example however has been recently communicated to me by M. Rousset,—discovered, I believe, on the beach near Funchal. The Madeiran representative is somewhat more highly coloured than the Porto Santan one, its subapical fascia being more distinctly developed; but whether this is merely accidental, or would hold good on a larger scale, I am unable, in the absence of further evidence, to decide.

(Subf. 5. BEMBIDIADES.)

Genus 24. BEMBIDIUM. (Tab. II. fig. 6.)

Latreille, *Gen. Crust. et Ins.* i. 183 (script. *Bembidion*) (1806).

Corpus parvum, plus minusve oblongum: *alis* amplis. *Antennæ* filiformes, capite prothoraceque sæpius paulo longiores, articulo primo sequentibus robustiore. *Labrum* breve transversum, antice plus minusve leviter emarginatum et setis paucis longissimis instructum. *Mandibulæ* porrectæ arcuatæ acutæ, intus basi plerumque denticulatæ. *Maxillæ* (II. 6 *a*) bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, apice uncinato, intus valde ciliato. *Palpi* articulo penultimo maximo subclavato, ultimo minutissimo subuliformi acuto. *Mentum* (II. 6 *b*)

transversum, antice profunde emarginatum et dente medio integro instructum. *Ligula* cornea, apice subrotundata; *paraglossis* sublinearibus, eam parum superantibus. *Pedes* robusti: *tarsis anticis* in maribus (II. 6 *c*) articulis primo et secundo dilatatis (illo magno subquadrato): *unguiculis* simplicibus.

The immense genus *Bembidium*, with its numerous subdivisions (proposed successively as genera by Megerle, Ziegler and Leach), would seem *primâ facie* to include many well-defined types of form; nevertheless the sections which the several modifications tend to compose merge into each other by such slow gradations, that, like the divisions of *Pterostichus*, it is not possible in a general arrangement to uphold them. In the structure of their oral organs they present, *inter se*, scarcely the slightest difference, every one of them being moulded on a pattern so nearly similar as to be almost coincident. The minute, subulated terminal joint of their palpi, the entire central tooth of their mentum, and the largely dilated basal articulation of their two anterior male feet are the principal distinctive features which the group displays;—the first of which moreover is clearly the most important, as serving even of itself to isolate the *Bembidiades* from the whole of the other subfamilies of the *Carabidæ*. In their habits the species are essentially subaquatic, being peculiar to moist spots, and especially abundant beneath stones and shingle at the margins of ponds and streams.

(Subgenus TACHYS, *Ziegl.*)

56. Bembidium bistriatum.

B. fusco-piceum depressum, prothorace subcordato angulis posticis subrectis, elytro singulo striis duabus suturalibus punctoque impresso, antennarum basi pedibusque testaceis.

Long. corp. lin. $\frac{3}{4}$.

Elaphrus bistriatus, (Meg.) Duft. *Fna Austr.* ii. 205 (1812).
Tachys minutissimus, (Leach) Steph. *Ill. Brit. Ent.* ii. 7 (1829).
Bembidium bistriatum, Dej. *Spec. des Col.* v. 42 (1831).
———— ————, Heer, *Fna Col. Helv.* 123 (1841).

Habitat Maderam, vel ad margines rivulorum, vel super oras rupium humidarum exstantes, inter muscos lapillosque degens, a vere novo usque ad autumnum, sat vulgare.

B. minute, not very shining, depressed, and brownish-piceous; sometimes almost ferruginous, or even with a very slight testaceous tinge. *Prothorax* subcordate, the posterior angles nearly right angles; with a deep dorsal channel; and an impression on either side at the base. *Elytra* ovate; with two distinct striæ on each near the suture, the outer ones being evanescent; and with a single, rather distinctly impressed point on the disk of each before the middle. *Antennæ* infuscate; their *basal joints*, the *apex of the terminal one*, the *palpi* and the *legs* testaceous.

Rather a common insect beneath small stones and moss on the damp ledges of the rocks, and amongst loose shingle by the margins of the trickling streams, both

in the north and south of Madeira, at somewhat low and intermediate altitudes. About half-way up the Ribeiro de Santa Luzia, from Funchal, I have taken it in considerable abundance during the spring; and in June and July at São Vincente and the Forno de Cal. It occurs throughout the greater portion of central and southern Europe. The Madeiran specimens differ from their more northern representatives in being a little narrower and less depressed, and in having their legs and antennæ not quite so robust.

57. Bembidium curvimanum, *Woll.* (Tab. II. fig. 6.)

B. nigrum angustiusculum, prothorace subquadrato angulis posticis rectis, elytro singulo striis quatuor punctatis suturam versus impresso et plagis duabus obscuris, unâ magnâ subhumerali et alterâ minore subapicali, valde suffusis rufescentibus ornato, antennarum basi pedibusque testaceis.

Long. corp. lin. 1.

Habitat in ins. Portûs Sancti, rarissimum;—sub lapide ad marginem rivuli cujusdam Ribeiro de Serra de Fora dicti semel tantum, Decembri mense A.D. 1848, repertum.

B. rather narrow, shining, and black. *Prothorax* longer in proportion than that of the *B. Lucasii*, and more quadrate, the posterior angles being right angles; with a distinct dorsal channel; and an obscure impression on either side at the base. *Elytra* elongate-ovate; with four striæ, and the rudiments of a fifth, on each towards the suture, the outer ones being evanescent; the striæ distinctly punctured, the sutural one being the longest, and the others gradually abbreviated, though less abruptly so than in the *B. Lucasii*; the two impressed points (so distinct on the disk of each in that species, on the third stria from the suture) being here almost, if not altogether obsolete; each with a large, obscure, ill-defined, suffused, rufescent blotch near the shoulder, and a smaller one, even more indistinct still, behind the apex. *Antennæ at base, palpi* and *legs* testaceous: the *first* ferruginous, or slightly infuscate, towards their apex: the *two anterior tibiæ* suddenly bent inwards at a short distance from their extremity.

A very peculiar and interesting little *Bembidium*, and hitherto unique,—the specimen from which the above description has been compiled having been captured by myself in Porto Santo, at the edges of the small stream known as the Ribeiro de Serra de Fora, during December 1848. It would seem to be the representative of the *B. Lucasii* in that island, to which in some respects it is allied, although abundantly distinct from it specifically. Thus, it not only recedes from it, as indeed it does from all the *Bembidia* here described, in the singular construction of its anterior tibiæ, which are so suddenly bent inwards at a short distance from their extremity as to give the insect a most unusual appearance, but it differs likewise in its minuter size, and in its narrower and more parallel outline, in its total freedom from the brassy-green tinge which is there so conspicuous, in its squarer and proportionably longer prothorax, which is much less narrowed behind, and in its elytra having *two* patches on each,—which are moreover large (especially the humeral one), rufescent, and so extremely suffused as to

be only just distinguishable. The striæ of its elytra are also perceptibly punctate, and at least four in number (there being the rudiments of even a fifth), whereas in the *B. Lucasii* there are merely three; and the impressed points on the disk are apparently obsolete.

58. Bembidium Lucasii.

B. æneo-viridescenti-nigrum, prothorace transverso-subquadrato basi attenuato angulis posticis subrectis, elytro singulo striis tribus suturam versus punctisque duobus impresso et maculâ subapicali parvâ rotundatâ valde distinctâ testaceâ ornato, antennarum basi pedibusque testaceis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{3}$.

Bembidium Lucasii, Duval, *Ann. de la Soc. Ent. de France* (2ième série), x. 137 (1851).

Habitat in humidis Maderæ, ad Sanctam Annam Maio exeunte A.D. 1850 copiose collectum; necnon exemplar unicum etiam in Maderâ australi, prope urbem Funchalensem, cl. Dom. Heer detexit: in vicinitate aquarum desilientium prædominat, nunc in luto sepultum, nunc per superficiem velocissime currens,—quapropter difficilius capiendum.

B. larger than the last species, shining, dark greenish-black, and generally with a very obscure brassy tinge. *Prothorax* short, subcordate, attenuated behind, nevertheless with the posterior angles nearly right angles; with an obscure dorsal channel; and an impression on either side at the base. *Elytra* ovate; with three deep striæ on each towards the suture, the outer ones being evanescent; the striæ not perceptibly punctured, the sutural one being the longest, and the others successively shorter and abruptly terminated anteriorly; with two impressed points on the disk of each on the third, or outer stria; each with a small, rounded, well-defined patch, behind the apex, testaceous. *Antennæ at base, palpi* and *legs* testaceous: the *first* rather longer than those of the *B. curvimanum*, and more darkly infuscate towards their apex: the *two anterior tibiæ* just perceptibly bent inwards at a short distance from their extremity, though very much less so than in the last species.

The distinctions between the present species and the last have been already pointed out. The *B. Lucasii* is strictly a Mediterranean insect, having been hitherto only recorded in Algeria and Spain. Although not rare, it is apparently extremely local in Madeira, the only spot in which I have observed it in any profusion being at Santa Anna, in the north of the island, where, during May and June of 1850, I captured it in great abundance at the edges of the small stream which crosses the pathway down to the sea, at about a third of the distance, from the Quinta of Senhor Louiz Acciaioly. On the southern side of the island I have not as yet, myself, detected it; but I possess a specimen, communicated to me by Professor Heer of Zurich, collected during the winter of 1850–51 in the vicinity of Funchal.

59. Bembidium obtusum.

B. subviridescenti-, vel subpicescenti-nigrum, prothorace subquadrato angulis posticis rotundato-

obtusis, elytris leviter punctato-striatis, singulo punctis duobus impresso, antennarum basi pedibusque ferrugineis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Bembidium obtusum, Sturm, *Deutsch. Fna*, vi. 165 (1825).
Tachys obtusus, Steph. *Ill. Brit. Ent.* ii. 6 (1829).
Bembidium obtusum, Dej. *Spec. des Col.* v. 177 (1831).
———— ————, Heer, *Fna Col. Helv.* 136 (1841).

Habitat insulas Maderenses, sub lapidibus vel ad vias, hinc inde ab orâ maritimâ usque ad summos montes ascendens: in graminosis Portûs Sancti abundat; necnon in ins. Desertâ Grandi, quâ specimina amplitudine accrescunt.

B. elongate-oblong, shining, black, and with a just perceptibly greenish, or piceous tinge. *Prothorax* large, subquadrate, the sides and posterior angles being somewhat rounded; with a dorsal channel; and an impression on either side at the base. *Elytra* somewhat parallel; finely punctate-striated, the striæ being evanescent towards the margin; and with two minutely impressed points on the disk of each near the third stria from the suture. *Antennæ at base*, and *legs* ferruginous; the *former* darkly infuscate towards their apex.

The *B. obtusum*, so universal throughout Europe and the north of Africa, occurs in most of the islands of the Madeiran group, though not very abundantly in any of them. It is found at all altitudes, but is commoner in low, or but slightly elevated localities than in the higher regions, existing beneath stones in grassy spots, and occasionally to be seen, especially on the wing, even in the gardens of Funchal. On the cliffs to the eastward of the town, towards the Cabo Gerajão, I have taken it constantly, during the autumnal months; as also, late in the spring, at Santa Anna; and, during July, in the lofty district of the Fanal,—upwards of 5000 feet above the sea. It has been likewise captured by Professor Heer at the Campanário and on the Pico da Cruz. On the mountain slopes of Porto Santo it is by no means rare; and I possess a tolerably extensive series from the Dezerta Grande, obtained, during my encampment there with the Rev. R. T. Lowe, in May 1850, and ranging somewhat above the average in point of size. On *all* the islands indeed the insect attains a larger stature than it does in more northern countries, and presents other differences likewise, which it is evident however are merely geographical ones. Thus, it is not only longer than the ordinary type but proportionably more parallel, the hinder angles of its prothorax are a little more rounded and less thickened, its elytral striæ are much less deeply impressed, and its entire surface is more brilliantly polished. It is in fact the particular state which appears to obtain, more or less evidently, throughout the greater portion of southern Europe,—and is, consequently, the result of latitude rather than of isolation. I am informed by my friend Dr. H. Schaum of Berlin that he has observed precisely the same variety at Nice, as the Madeiran one, where it is extremely abundant.

(Subgenus PERYPHUS, *Meg.*)

60. Bembidium Atlanticum, *Woll.*

B. subcyaneo-, vel subænescenti-viride, prothorace parvo cordato basi valde attenuato angulis posticis rectis, elytris punctato-striatis fasciâ communi subapicali rufo-testaceâ (interdum obsoletâ) decoratis, singulo punctis duobus distinctis impresso et plagâ subhumerali suffusâ rufo-testaceâ (interdum obsoletâ) ornatis, antennarum basi pedibusque rufo-testaceis.

Var. α. subcyaneo-viride, elytris fere immaculatis, fasciâ plagisque obsoletis. (In *Maderâ Boreali* status typicus.)

Var. β. subcyaneo-, vel subænescenti-viride, elytrorum fasciâ plagisque valde indistinctis. (In *Maderâ Boreali* et in *Portu Sancto*; rarior.)

Var. γ. cyaneo-viride, elytrorum fasciâ plagisque valde distinctis. (In *Portu Sancto* status typicus; sed in *Maderâ Boreali* rarissimus.)

Var. δ. cyaneo-viride, elytris læte coloratis, fere testaceis, fasciâ distinctâ et plagis valde suffusis confluentibus. (In *Portu Sancto*, rarior.)

Var. ε. paulo majus et latius, cyaneo-ænescenti-viride, elytris fere immaculatis, fasciâ omnino et plagis fere obsoletis; pedibus, præsertim tibiis, inæqualiter infuscatis. (In *Maderâ Australi*, rarissimus.)

Long. corp. lin. $2\frac{1}{2}$–$2\frac{2}{3}$.

Habitat per litora rivulorum Maderæ, præsertim Borealis; necnon in ins. Portu Sancto, tempore hiberno et vernali, frequens: var. α. in Ribeiro de São Jorge, haud procul a Sanctâ Annâ, abundat, quâ d. 17 Mai. A.D. 1850 copiosissime collegi; varietatis β. exemplar unicum hactenus vidi, a meipso ad Curral das Romeiras in Maderâ Australi autumno exeunte A.D. 1847 detectum.

B. shining, more or less of a bluish-green hue, and occasionally with a brassy tinge. *Prothorax* small, cordate, convex, and highly polished, much attenuated, and transversely punctured, behind, the posterior angles being right angles; with a distinct dorsal channel; and a deep fovea on either side at the base. *Elytra* parallel; uniformly punctate-striated; with two distinctly impressed points on the disk of each near the third stria from the suture; with a large sublunulate fascia behind, common to both, and a diffused patch on each about the region of the shoulders, more or less obscurely rufo-testaceous,—either the fascia or the patches, and occasionally both, having a tendency to become obsolete. *Antennæ at base, palpi* and *legs* rufo-testaceous: the *first* more or less infuscate towards their apex.

Var. α. bluish-green; and with the elytra almost immaculate,—there being scarcely the slightest indication of either the fascia or patches. (The typical state in the *north of Madeira.*)

Var. β. bluish-green, or green with an æneous tinge; the elytra with both the fascia and patches perceptible, although indistinct. (Abnormal both in the *north of Madeira* and in *Porto Santo.*)

Var. γ. bluish-green, or greenish-blue; the elytra with the fascia and patches exceedingly well defined. (The typical state in *Porto Santo*, but extremely rare in the *north of Madeira.*)

Var. δ. bluish-green, or greenish-blue; the elytra almost testaceous, the fascia being exceedingly bright, and the patches large, and so much diffused as to be almost confluent, and to cover the

greater portion of the surface. Antennæ less infuscate than in the other states. (The extreme pale variety of *Porto Santo*.)

Var. ε. somewhat larger and broader than any of the above states; brassy-green, and with a bluish tinge unequally distributed over the surface; the elytra almost immaculate, the fascia being obsolete, and the patches only just indicated. Legs, especially the tibiæ, more or less infuscated in parts. (Ravines in the *south of Madeira*.)

Throughout all the Madeiran Coleoptera there is perhaps no insect which displays such an extraordinary range of colouring as the present one does; and although it is true that the section of *Bembidium* to which it belongs is essentially a variable one, yet I am not acquainted with any *Peryphus* in which the paler patches of the elytra are so remarkably unstable, or which appear to be so completely under the control of external circumstances, as are those of the *B. Atlanticum**: and indeed unless viewed in the mass, we should scarcely be inclined to recognise the same species in the many different aspects which it puts on between its extremes. The examination however of a very large number of examples, and a careful consideration of the several localities and altitudes in which they were taken, has convinced me that there is unquestionably but a single type of form amongst my entire series, since the whole are so intimately connected, by successive gradations both of outline and colour, that it is perfectly impossible to isolate even a single specimen, or to draw a line of specific demarcation between any two consecutive members of the chain. It will be perceived, by a reference to the above diagnosis, that the insect in question passes imperceptibly from nearly a pure green, through a well-defined spotted state, into one which has the elytra almost testaceous,—the paler portions being at last so largely developed as to become confluent and almost to cover the entire surface. In Madeira proper the darker varieties would seem to be typical; whereas in Porto Santo the brightly coloured ones preponderate, and in fact are all but universal. Both extremes do nevertheless occur in both islands, the tendency being merely, in either case, to assume the particular modification characteristic of the spot. In the north of Madeira the specimens are somewhat narrower than either the southern or the Porto Santan representatives. I have taken it abundantly in the Ribeiro de São Jorge, where, on the 17th of May 1850, I observed it in literal profusion, near the old road from Santa Anna to Ponta Delgada, which crosses the valley at a greater distance from the sea than the present one does, and consequently at a somewhat higher elevation. In the south of the island it is far scarcer,—the tributary ravine to the Curral das Romeiras being the only spot in which I have hitherto detected it. In Porto Santo it is tolerably common: and, at edges of a small stream which finds its way over the abrupt rocks of the northern shore, from the

* Our present insect is probably allied to the *B. Lusitanicum*, Putzeys (Entom. Zeit., A.D. 1845, p. 139); nevertheless I should state that I forwarded specimens to M. Duval, of Paris, during the time in which he was preparing his monograph on the European *Bembidia*, who pronounced them to be unquestionably new.

open plain of the Campo de Baxo, I captured an extensive series, during December of 1848.

61. Bembidium tabellatum, *Woll.*

B. valde depressum nigro-viride subopacum, prothorace cordato basi attenuato angulis posticis rectis, elytris profunde subpunctato-striatis, singulo punctis tribus magnis distinctis impresso, antennarum basi pedibusque rufo-piceis.

Long. corp. lin. 3.

Habitat Maderam australem, ad marginem rivuli cujusdam parvi prope Curral das Romeiras, sero autumno A.D. 1847, inventum: in Maderâ boreali mihi adhuc non obvium.

B. very much depressed, dull blackish-green, and nearly opake. *Prothorax* small, cordate, much attenuated behind, the posterior angles being right angles; with a distinct dorsal channel; and a very deep, roughened fovea on either side at the base. *Elytra* less parallel than in the last species, and rather acuminated behind; very deeply striated, the striæ being minutely punctured and the interstices rather convex; with three very large, distinct, and deeply impressed points on the disk of each near the third stria from the suture. *Antennæ* elongated, their base rufo-piceous or ferruginous; darkly infuscated, or almost black, towards their apex. *Legs* more or less piceous, or fusco-piceous.

Apparently the representative in these islands of the common *B. tibiale* of more northern latitudes, of which indeed it is just possible that it may be a geographical variety. Still, it presents so many small distinctive characters peculiarly its own that it is scarcely safe to refer it to that insect. Thus, it differs from it in its extraordinarily depressed body, in its uniformly opake and darker surface, in its small, short, and cordate prothorax, which is exceedingly attenuated behind, and in its more deeply striated and apically acuminated elytra, which have moreover three very large and distinctly impressed points, instead of only two, on the disk of each. Its antennæ also are somewhat longer than those of that species, and its tibiæ are *not* sensibly paler than the femora and tarsi,—its legs being entirely picescent. It would seem to be local, occurring at the edges of the streams towards the south of the island. In the ravine immediately to the westward of the Curral das Romeiras, towards the Mount Church, I captured it sparingly during the autumn of 1847, but I have not since succeeded in detecting it.

62. Bembidium elongatum.

B. angusto-elongatum subænescenti-viride, prothorace elongato-subcordato basi valde attenuato angulis posticis rectis, antice posticeque punctato, elytris subcyanescentibus subcylindricis profunde punctato-striatis, striis apicem versus evanescentibus, singulo punctis duobus impresso et maculâ submarginali testaceâ longe intra apicem ornato, antennarum basi pedibusque pallidis.

Long. corp. lin. 2–2⅓.

Bembidium elongatum, Dej. *Spec. des Col.* v. 148 (1831).
———— ————, Heer, *Fna Col. Helv.* 134 (1841).

Habitat Maderam, vel ad ripas fluviorum vel sub lapidibus in locis humidis, toto anno frequens: in Maderâ boreali fere ad maris litus descendit, sed in australi vix infra 1500′ s. m. hactenus observavi.

B. elongated and narrow, shining, dark obscure green, and with a slightly æneous tinge. *Prothorax* elongate-subcordate, convex, and highly polished, much attenuated behind, the posterior angles being right angles; with a cluster of large, scattered punctures in front, and a greater number across the hinder margin; with a distinct dorsal channel; and a small fovea on either side at the base. *Elytra* with a slightly bluish tinge; subcylindrical, with the sides nearly parallel; deeply punctate-striated, the striæ vanishing near the *apex*, which is obscurely testaceous; each with two impressed points on its disk near the third stria from the suture (of which the anterior one is large and distinct, and the posterior one almost obsolete), and a rounded, submarginal, testaceous patch at a considerable distance behind the apex. *Antennæ at base* rufo-testaceous, darkly infuscated towards their apex. *Legs* (except the extreme base of the tibiæ, which is darker) pale testaceous.

The narrow, elongated outline and subcylindrical body of the present *Bembidium*, added to its (not posteriorly only, but) *anteriorly* punctured prothorax, its dark green surface, and the pale submarginal patch with which each of its elytra is ornamented at a considerable distance behind the apex, will be sufficient to distinguish it, even *primâ facie*, from the remainder of the genus here described. It is a tolerably abundant insect in Madeira, being widely distributed over the island at intermediate and lofty elevations, and occurring beneath stones by the edges of the streams, at nearly all seasons of the year. Towards the north it is less peculiar to the mountain districts than it is in the south, being not uncommon in the vicinity of São Vincente and at the Forno de Cal; whereas the lowest altitude at which I have hitherto observed it in the latter is the Curral das Romeiras, above Funchal, where during the autumn of 1847 I captured it in considerable profusion. It would seem to attain its maximum, however, in much higher regions, being very plentiful in damp spots on the mountain-slopes immediately below the summit of the Paul da Serra,—both on the ascent from São Vincente, and likewise, on its north-western limits, towards the Fanal. It is recorded in Spain, France, Switzerland, Styria, and Dalmatia; and I have seen specimens, in the collection of J. Rix, Esq. of St. Neots, which were taken in Jersey.

(Subgenus LOPHA, *Meg.*)

63. Bembidium Schmidtii, *Woll.*

B. subænescenti-atrum, prothorace cordato basi valde attenuato punctato angulis posticis rectis, elytris antice profunde punctato-striatis, striis pone medium evanescentibus, singulo punctis duobus magnis impresso et maculis duabus diluto-testaceis, unâ magnâ triangulari subhumerali

et alterâ minore longe intra apicem sitâ, ad marginem fere confluentibus ornato, antennarum basi pedibusque rufo-picescentibus.

Long. corp. lin. 2–2⅛.

Habitat ad margines aquarum, vel stagnantium vel fluentium, in Maderâ excelsâ sylvaticâ, rarius: ad Cruzinhas prædominat, quâ mense Julio ineunte A.D. 1850 plurima specimina cepi.

In honorem Entomologici periti Dom. Ferd. Jos. Schmidt nomen triviale dedi.

B. shining, and deep æneous-black. *Prothorax* cordate, a good deal wrinkled in front, coarsely punctured and much attenuated behind, the posterior angles being right angles; with a dorsal channel; and a small fovea on either side at the base. *Elytra* oblong-ovate; deeply punctate-striated anteriorly, the striæ being almost evanescent about the middle; with two large, though not very deeply impressed points on the disk of each near the third stria from the suture, and each with a large subtriangular patch about the shoulders, and a smaller, somewhat rounded one at a considerable distance behind the apex (the two almost united towards the lateral margin), dull testaceous. *Antennæ at base* and *legs* more or less rufo-picescent.

The present *Bembidium* would seem to be the Madeiran representative of the *B. callosum*, Kust., of central and southern Europe. It is not impossible indeed that it may be an extreme local state of that insect; nevertheless, like the *B. tabellatum*, it possesses so many peculiarities essentially its own that I prefer retaining it as separate to incurring the risk of conceding too much to geographical effects. It differs from the species in question in being larger, and proportionably broader, in its more brassy hue, in the obscurer patches of its much more deeply striated elytra, and in its legs being uniformly darker and more piceous. It is, apparently, exceedingly rare, or at any rate local, its normal range being the edges of the streams and pools towards the upper limits of the wooded districts. The only occasion on which I ever observed it plentifully was, in the lofty region of the Cruzinhas, during July 1850. I once indeed captured a few specimens even on the level of the shore, on the coast-road leading from São Vincente to Seisal,—in the vicinity of the first large waterfall, which issues from the ravines above and finds its way, over the beach, into the sea. From the nature of the spot, however, I have not the slightest doubt but that they had been washed down by some of the floods which occur so frequently in Madeira, and with such violence, especially towards the north of the island, as occasionally to carry almost everything before them;—a supposition which is rendered the more probable from the fact that other insects, unquestionably alpine, were found in company with them, which could scarcely have existed in such a position except by accident.

Sectio II. HYDRADEPHAGA.

Fam. 2. DYTISCIDÆ.

Genus 25. COLYMBETES.

Clairville, *Ent. Helv.* ii. 198 (1806).

Corpus vel mediocre, vel (ut in specie nostrâ) magnum, plus minusve oblongum: *alis* amplis. *Antennæ* filiformes. *Labrum* brevissimum, antice leviter emarginatum. *Mandibulæ* breves, apice lato-emarginatæ, intus basi bidentatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, ad apicem uncinato, intus valde ciliato. *Palpi maxillares* articulo ultimo elongato-truncato: *labiales* articulo secundo elongato, ultimo paulo breviore subarcuato. *Mentum* transversum, antice profunde emarginatum et dente medio brevi truncato instructum. *Ligula* quadrata, antice ciliata. *Pedes* natatorii: *tarsis anterioribus* in maribus articulis tribus dilatatis, subtus acetabulis obsitis: *unguiculis anterioribus* magnis valde curvatis æqualibus, *posticis* subrectis inæqualibus, superiore fixo.

The genus *Colymbetes*, embracing *Ilybius* and *Agabus*, which are now regarded as distinct, was established by Clairville in 1806; but it was not until 1817 that it was restricted (as above defined), by Dr. Leach, to the larger members of the group. As thus limited, it has, apparently, but a single representative in the Madeira Islands; namely—

64. Colymbetes Lanio.

C. oblongus nigro-piceus, capitis parte anticâ maculisque duabus in fronte sitis et prothoracis lateribus rufo-testaceis, elytris testaceis densissime nigro-irroratis, singulo longitudinaliter profunde triseriato-punctato, antennis pedibusque rufo-ferrugineis.

Long. corp. lin. 10.

Dytiscus Lanio, Fab. *Ent. Syst.* i. 190 (1792).
——— ———, Oliv. *Ent.* iii. 40. 19. pl. 2. fig. 9 (1795).
Colymbetes Lanio, Aubé, *Hydrocanth.* 221 (1838).

Habitat in aquis Maderæ, præsertim fluentibus, a 1000′ usque ad 4000′ s. m. ascendens: in rivulis supra Funchal, necnon in Maderâ boreali in ascensu a São Vincente ad campum illum Paul da Serra dictum, æstate et autumno abundat.

C. large, oblong, and somewhat convex; both sexes shining; piceous-black. *Head* and *prothorax* (especially in the male sex) somewhat reticulose: the *former* with its anterior portion (commencing from the insertion of the antennæ), and two large transverse patches on the forehead, rufo-testaceous, and with a sinuated impression on either side, between the eyes: the *latter* transverse, impressed behind and before, and with the edges broadly rufo-testaceous. *Elytra* testaceous, and exceedingly densely besprinkled with minute, black, and more or less confluent spots, which almost obscure the entire surface; with three longitudinal rows of large and deeply impressed points on each, the outer one of which is the least apparent. *Legs* and *antennæ* rufo-ferruginous.

A large and beautiful *Colymbetes*, and apparently peculiar to Madeira,—having been first described by Fabricius, from a specimen in the Banksian collection, in the year 1792. It is universally distributed, beyond the elevation of about 1000 feet, but is more especially abundant between the limits of from 3000 to 4000, above the sea. Owing to the rapidity of the mountain torrents, water insects are comparatively scarce in Madeira; and the present species would seem to be one of the few which is able to exist indiscriminately, its powerful and greatly developed wings enabling it to take refuge in the most isolated pools, and in other spots which it could not possibly reach except by flight. In the streams which issue from the Paul da Serra it is common; and I have observed it, likewise, in most of the rivers flowing towards the south of the island, particularly in the Ribeiro de Santa Luzia and at the Curral das Romeiras,—where it occurs in profusion at nearly all seasons of the year, though especially during the autumnal months.

Genus 26. AGABUS.

Leach, *Zool. Miscell.* iii. 69, 72 (1817).

Corpus fere ut in genere præcedenti, sed minus. *Palpi labiales* articulis secundo et ultimo subæqualibus: *mentum* antice dente medio brevi subemarginato instructum: et *unguiculi postici* (ut anteriores) æquales curvati mobiles.

Agabus may be readily distinguished from *Colymbetes* proper by the smaller size of the species which compose it, by the second and third joints of its labial palpi being of almost the same length, and by its two hinder claws being, like the remainder, equal and moveable,—instead of unequal and with the larger one fixed. So far as I have hitherto observed, the genus has three representatives in Madeira; one of which, moreover, is peculiar to the island.

65. Agabus bipustulatus.

A. oblongus subdepressus subænescenti-nigropiceus, minutissime longitudinaliter strigulosus, ore et capitis maculis duabus obscurissimis in fronte sitis ferrugineis, elytro singulo longitudinaliter confuse triseriato-punctato, antennis pedibusque picescenti-ferrugineis.

Variat colore plus minusve picescenti,—præsertim in fœminâ, cujus superficies plerumque opacior est.

Long. corp. lin. 5–5½.

Dytiscus bipustulatus, Linn. *Syst. Nat.* ii. 667 (1767).
——— ———, Fab. *Syst. Eleu.* i. 263 (1801).
Colymbetes bipustulatus, Steph. *Ill. Brit. Ent.* ii. 80 (1829).
Agabus bipustulatus, Aubé, *Hydrocan.* 357 (1838).

Habitat in rivulis Maderæ, necnon in aquis quietis; ubique vulgaris, sed supra 1000′ s. m. prædominans.

A. oblong, and somewhat depressed, dark piceous-black, and with a slightly æneous tinge; the entire

surface most closely and minutely strigulose; the males shining; the females opake, and usually of a somewhat more piceous hue. *Head* with the parts of the mouth, and two very obscure transverse patches on the forehead dull ferruginous. *Prothorax* sparingly punctured along its hinder margin towards the posterior angles. *Elytra* with three very irregular longitudinal rows of impressed points on each. *Legs* and *antennæ* more or less rufo-piceous, or rufo-ferruginous; the *latter* being the paler of the two; and the *former* with the femora generally somewhat darker than the tibiæ and tarsi.

The *A. bipustulatus*, so abundant throughout the whole of Europe and the north of Africa, occurs in nearly all the streams and pools of Madeira, and at all altitudes,—though perhaps it is more common above the elevation of 1000 feet than below it. Being an insect of such wide geographical range, we should not expect it to be much affected by either latitude or position; and accordingly we find that the Madeiran specimens do not in any respect differ from the usual type.

66. Agabus nebulosus.

A. ovatus convexus nitidus nigro-piceus, capitis parte anticâ maculisque duabus in fronte sitis obscure rufo-testaceis, prothorace rufo-testaceo in discum bimaculato, elytris testaceis, maculis plurimis minutis inæqualibus nigris plus minusve confluentibus undique irroratis, singulo longitudinaliter obsoletissime triseriato-punctulato, antennis pedibusque rufescenti-testaceis.

Var. β. maculis frontalibus vel obsoletis vel confluentibus, prothorace immaculato.

Long. corp. lin. 4–4½.

Dytiscus nebulosus, Forster, *Nov. Spec. Ins.* 56 (1771).
——— *bipunctatus*, Fab. *Mant. Ins.* 190 (1787).
——— ———, Oliv. *Ent.* iii. 40. 22 (1795).
Colymbetes nebulosus, Steph. *Ill. Brit. Ent.* ii. 72 (1829).
Agabus bipunctatus, Aubé, *Hydrocan.* 328 (1838).

Habitat Maderam, in aquis prope urbem Funchalensem a Dom. Rousset nuper detectus.

A. ovate, rather convex, beneath piceous-black; both sexes shining. *Head* dark behind, its anterior portion (commencing from about the insertion of the antennæ), and two obscure transverse patches on the forehead, dull rufo-testaceous. *Prothorax* rufo-testaceous, rather mottled, or clouded, in parts, and with two small darker patches on the centre of its disk; most minutely and sparingly punctured along its hinder margin towards the posterior angles. *Elytra* testaceous, and more or less densely mottled, or clouded (especially behind), with small, irregular, partially confluent, black patches or spots,—which leave however a large, ill-defined blotch upon each, behind the middle of the lateral margin, entirely pale; with three longitudinal rows of most minutely impressed points just perceptible on each. *Legs* and *antennæ* rufo-testaceous.

Var. β. with the frontal patches either obsolete or confluent;—in the latter case causing the head, except the hinder and lateral margins, to be entirely ferruginous: and with the prothorax immaculate, the two small discal spots being absent.

Apparently somewhat scarce, and confined, so far as I have been able to ascertain, to the streams in the vicinity of Funchal, from whence I have lately received

several specimens captured by M. Rousset. It is one of the few representatives of the Coleoptera which appear to have escaped my own observation in these islands. Judging from the examples before me, the only local peculiarity which the species would seem to possess is, that the state in which the prothorax is immaculate, and which in most countries is aberrant, is apparently, in Madeira, the commoner of the two. Still, as I have not had an opportunity of myself observing this *in situ*, I am scarcely in a position to decide whether or not it is the case generally; and hence I have preferred considering the darker form as the typical one, as being more in accordance with our usual notions regarding the insect. It is abundant throughout the whole of Europe; and it is recorded by Webb and Berthelot in the Canarian Group.

67. Agabus Maderensis, *Woll.*

A. oblongus parum nitidus, nigro-piceus, ore, capitis maculis duabus obscurissimis, prothoracis lateribus, antennis, pedibusque ferrugineis, elytrorum superficie paulo inæquali, profunde subseriato-punctatâ.

Long. corp. lin. 3–3½.

Habitat in aquis Maderæ, præsertim ultra 2000′ s. m., toto anno frequens: in Maderâ boreali prædominat, quâ fere ad maris litus descendit.

A. oblong, less convex than the last species, but more so than the *A. bipustulatus*, dark piceous; both sexes shining, although not very highly polished. *Head* with the parts of the mouth, and two very obscure transverse patches on the hinder portion of the forehead dull ferruginous. *Prothorax* broader in front than is the case with any of the other species (its sides being much less oblique); with a slightly impressed transverse line along its hinder margin; considerably roughened, and with a few scattered punctures, towards the posterior angles; with the lateral edges more or less distinctly ferruginous. *Elytra* with their surface rather uneven, and more or less roughened with large, scattered punctures, which have a tendency to arrange themselves in three or four longitudinal rows on each, of which the sutural one is generally the most evident. *Legs* and *antennæ* entirely ferruginous.

An exceedingly indigenous insect, and readily distinguished from the previous two by its smaller size and piceous colour, by the ferruginous edges of its anteriorly-broader prothorax, and by the somewhat uneven surface and large punctures of its elytra,—the latter of which are extremely irregular and diffused, having for the most part merely a tendency to arrange themselves in longitudinal rows. It is abundant in all the mountain torrents of Madeira, from an elevation, on the southern side of the island of about 1000 feet, and on the northern from nearly the level of the shore, up to the highest point at which water is found to exist. It is rarer however towards the south than it is in the north. In the former I have not detected it much below the upper extremity of the Ribeiro de Santa Luzia; but at São Vincente, in the latter, I once took it sparingly even on the sea-beach, by the edges of a small stream which issues from the perpendicular

cliffs over the road to Seisal,—where however it is more than probable that it had been washed down from the lofty ravines above. On the upland plain of the Paul da Serra, 5000 feet above the sea, I have captured it in profusion, from under stones in the shallow pools and springs which feed the waters of the valley beneath; as also in similar positions at the Cruzinhas, in the Ribeiro de Seisal, and at the respective heads of the Ribeiro Fundo and the Ribeiro de João Delgada: and likewise, very plentifully at times, in the levada of the Ribeiro Frio, amongst moist leaves and rubbish in spots from whence the water had retired.

Genus 27. HYDROPORUS.

Clairville, *Ent. Helv.* ii. 183 (1806).

Corpus parvum, oblongum vel ovatum: *prothorace* basi in medio producto: *alis* amplis. *Antennæ* filiformes. *Labrum* brevissimum transversum, antice profunde emarginatum. *Mandibulæ* breves, apice late emarginatæ, intus unidentatæ. *Maxillæ* bilobæ: *lobo externo* palpiformi biarticulato: *interno* acuto incurvo, ad apicem uncinato, intus ciliato. *Palpi* articulo ultimo elongato robusto subtruncato. *Mentum* transversum, antice profunde emarginatum et dente medio brevi acuto instructum. *Ligula* subquadrata. *Pedes* natatorii: *tarsis anterioribus* 4-articulatis, in maribus articulis tribus dilatatis; *posticis* 5-articulatis: *unguiculis omnibus* æqualibus mobilibus.

The minute size of the *Hydropori*, added to their four anterior tarsi being quadriarticulate, will, apart from minor characters, at once distinguish them from the members of the allied groups. Up to the present period, but two representatives of this large genus have been detected in Madeira, which, for an island abounding with streams, and in a genus so widely distributed and extensive, is somewhat remarkable. It may be indeed that the excessive rapidity of the torrents, which are constantly liable, from the heavy rains, to overflow their limits and to precipitate their contents on to distant and isolated spots (which quickly afterwards, either by evaporation or absorption, become dry), is anything but favourable to aquatic life; but whether such be the case or not, it is certain that the *Hydradephaga* are extremely scarce.

68. Hydroporus vigilans, *Woll.*

H. oblongus subdepressus fusco-piceus, capite, prothorace, elytrorumque lineis interruptis, plus minusve rufo-testaceis, antennis pedibusque pallido-ferrugineis.

Long. corp. lin. $2\frac{1}{2}$–$2\frac{2}{3}$.

Habitat in rivulis Maderæ, præsertim per regiones superiores, toto anno vulgaris.

H. oblong, somewhat depressed, dark brownish-piceous; the males shining, the females opake. *Head* and *prothorax* rufo-testaceous; the *former* large, and more or less dusky about the region of the eyes; the *latter* regularly and equally rounded at the sides, being broadest in the middle, distinctly punctured along its anterior and posterior margins, and with a narrow transverse portion before and behind (and occasionally the disk also) more or less cloudy or infuscate.

Elytra with a few faint, irregular, interrupted longitudinal lines dull testaceous; and with three longitudinal rows of impressed points on each,—the two inner ones of which are distinct, and disposed in depressed striæ, whilst the outer one is almost obsolete. *Prothorax beneath, legs, antennæ,* and *parts of the mouth* pale ferruginous.

A rather common *Hydroporus* in nearly all the streams of Madeira, above the altitude of 1000 feet; and on the northern side of the island descending to a much lower elevation. In the Ribeiro de Santa Luzia, and at the Curral das Romeiras, above Funchal, I have observed it in great profusion; and in the rivulets issuing from the Paul da Serra it is equally abundant. Its normal range however would appear to be from about 2000 to 3000 feet above the sea. Near São Vincente indeed I have captured it, occasionally, on the level of the shore; but, like the *Agabus Maderensis* with which it was found in company, it is possible that such specimens had descended from the lofty ravines above, which terminate at that particular point, as indeed they do almost everywhere along the northern coast, in abrupt sea cliffs, over which the mountain torrents pour in constant waterfalls. In such positions it is clear that insects of a normally higher range might, and in all probability would, be continually washed down,—especially during the severe floods to which the island is subject,—and so become naturalized below.

69. Hydroporus confluens.

H. ovatus nigro-piceus, supra flavus capite postice leviter infuscato atque elytris apicem versus lineis interruptis nigris ornatis, antennis pedibusque testaceis.

Long. corp. lin. $1\frac{1}{3}$.

Dytiscus confluens, Fab. *Ent. Syst.* i. 198 (1792).
Hyphydrus confluens, Gyll. *Ins. Suec.* i. 522 (1808).
Hygrotus confluens, Steph. *Ill. Brit. Ent.* ii. 47 (1828).
Hydroporus confluens, Aubé, *Hydrocan.* 557 (1838).

Habitat Maderam australem, rarissimus: in stagno quodam parvo haud procul ab urbe Funchalensi sito exemplar unicum nuperrime collegit Dom. Rousset.

H. ovate, shining, beneath piceous-black, above pale yellow. *Head* of a deeper yellow than the rest of the surface, being almost testaceous; dusky behind, and about the region of the eyes. *Prothorax* very short and small, narrower than the elytra, being attenuated in front, and with the sides (though oblique) straight; punctured before and behind. *Elytra* exceedingly pale, with the suture, and four irregular lines towards the apex of each, deep black,—of which the one nearest to the suture is short; the second longer, extending to a little before the middle; the third somewhat shorter than the first; and the fourth long but broken, the lower portion being confluent with the third, and the upper (which in the common European type is well-defined, and only just detached) almost obsolete, being merely indicated by a minute dash considerably in advance of the former: with two or three longitudinal rows of impressed points (disposed in striæ) on each, and some large scattered punctures about the region of the suture. *Legs* and *antennæ* pale testaceous.

Readily known by its small size and ovate form, by its pallid hue, and by the abbreviated black lines with which the apical portion of its elytra are decorated; —but which are somewhat shorter and less distinct in the single Madeiran specimen which has hitherto come beneath my notice than in the ordinary type. It is to M. Rousset that we are indebted for the admission of this species into our fauna, a unique example (which is just perceptibly narrower than is usually the case with its more northern representatives) having been lately discovered by him in the immediate vicinity of Funchal. It is an abundant insect throughout the whole of Europe and in the north of Africa,—being recorded in Egypt, Algeria, and Barbary.

Fam. 3. GYRINIDÆ.

Genus 28. GYRINUS.

Linnæus, *Syst. Nat.* ii. 567 (1767).

Corpus parvum, ovatum: *oculis* quatuor: *prothorace* basi in medio producto: *alis* amplis. *Antennæ* 10-articulatæ, brevissimæ, articulo primo minuto, secundo maximo globoso extus in lobum producto, reliquis brevissimis inter se arcte applicatis, clavam fusiformem efficientibus. *Labrum* transversum, antice leviter emarginatum. *Mandibulæ* breves, apice emarginato-dentatæ. *Maxillæ* bilobæ: *lobo externo* angusto subulato, exarticulato: *interno* acuto incurvo, ad apicem uncinato, intus valde ciliato. *Palpi* breves, articulo ultimo in *maxillaribus* magno ovato, in *labialibus* graciliore. *Mentum* transversum, antice profunde emarginatum. *Ligula* brevis lata, apice truncata. *Pedes posteriores* natatorii, breves compressi; *postici* elongati: *tarsis posterioribus* articulis primo, secundo et tertio intus valde productis, ultimo minutissimo.

The Linnæan genus *Gyrinus* presents such remarkable features in the structure of its tarsi, antennæ and mouth, that it is hardly necessary to point out its distinctions from any of the neighbouring forms. The species are indeed too well known, from their habits, to require comment: their small, brilliant bodies so constantly to be seen on the surfaces of the still pools, ditches, and quiet waters of nearly every country,—weaving circles, and clustering, in the sun,—can scarcely have failed to have attracted the attention of the most casual observers. I am doubtful whether the group is truly indigenous to these islands, not having myself succeeded in detecting it, and the only representative which I have hitherto seen being an example of the common *G. natator*, given to me by the Rev. R. T. Lowe from the collection of the late Dr. Heinecken, but unaccompanied by the details of its capture.

70. Gyrinus natator.

G. ovatus subviridescenti-niger nitidus, elytris striato-punctatis, prothoracis elytrorumque marginibus inflexis, pectore, ano, pedibusque rufo-testaceis.

Long. corp. lin. 3.

Dytiscus natator, Linn. *Fna Suec.* 779 (1761).
Gyrinus natator, Linn. *Syst. Nat.* 567 (1767).
——— ———, Fab. *Ent. Syst.* i. 202 (1792).
——— ———, Aubé, *Hydrocan.* 664 (1838).

Habitat Maderam, mihi non obvius: exemplar unicum, a Dom. Heinecken olim captum (ex Angliâ cum plantis aquaticis introductus ?) in museo Loweano vidi.

G. ovate, black, with a slightly greenish tinge, shining. *Prothorax* short, produced in the centre behind; and transversely furrowed in front, especially towards the anterior angles. *Elytra* truncated at their apex, and finely striate-punctate; their *inflexed margin* (with that of the prothorax), the *breast*, the *apex of the abdomen* underneath, and the *legs* rufo-testaceous.

As just stated, it is not without hesitation that I admit the common European *G. natator* into our present fauna: nevertheless, since there cannot be any doubt that Dr. Heinecken's specimen was captured in the island, it is possible that the species may be truly indigenous, although rare, and that it has hitherto escaped the observation both of myself and the other naturalists who have been working during the last few years in the Madeiran group. I think it far from unlikely, however, that the unique example on which its admission must be considered to rest may have been accidentally introduced with aquatic plants, from more northern latitudes, which were formerly imported into the gardens more generally than they are now by the English residents;—an idea which is rendered the more probable, since I am informed by Mr. Lowe that Dr. Heinecken's collection was principally made in the immediate vicinity of Funchal, where the fresh-water tanks, attached to nearly every house, would afford ample facilities for an insect like the present one to become temporarily naturalized.

Sectio III. PHILHYDRIDA.

Fam. 4. PARNIDÆ.

Genus 29. PARNUS.

Fabricius, *Ent. Syst.* i. 245 (1792).

Corpus minusculum, subcylindrico-oblongum, villosum: *alis* amplis. *Antennæ* 10-articulatæ brevissimæ, articulis primo et secundo majoribus, hoc maximo extus valde producto, reliquis brevissimis, clavam elongato-fusiformem subserratam efficientibus. *Labrum* amplum transversum, antice leviter emarginatum. *Mandibulæ* acutæ, apice dentatæ. *Maxillæ* bilobæ membranaceæ: *lobo externo* latiusculo: *interno* angusto, intus ciliato. *Palpi* brevissimi, articulo ultimo robusto, in *maxillaribus* subovato, in *labialibus* subgloboso. *Mentum* transversum, antice leviter emarginatum. *Ligula* ampla. *Pedes* ambulatorio-subnatatorii, graciles elongati: *tibiis* cylindricis muticis: *tarsis* articulis quatuor subæqualibus, quinto longissimo.

The genus *Parnus*, concerning the location of which entomologists are still so much divided, may be readily known by the subcylindrical, villose bodies of the few species which compose it, by their slender elongated legs and unarmed tibiæ, and by their subnatatorial habits,—their legs not being formed for swimming, but for walking on muddy banks, or adhering to the submerged aquatic plants of ditches and pools. They are of an extremely sluggish nature, and possess the power of remaining a great length of time under water, their woolly surfaces enabling them to retain a sufficient quantity of air for respiration during submersion.

71. Parnus prolifericornis.

P. subcylindrico-oblongus fusco-niger, infra albido-holosericeus, supra olivaceo-villosus, elytris obsoletissime subpunctato-striatis, tarsis elongatis piceis.

Long. corp. lin. 2–2½.

Parnus prolifericornis, Fab. *Ent. Syst.* i. 245 (1792).
——— ———, Gyll. *Ins. Suec.* i. 139 (1808).
——— ———, Steph. *Ill. Brit. Ent.* ii. 103 (1829).
——— ———, Zett. *Ins. Lap.* 125 (1840).

Habitat in aquis quietis Maderæ, plantis aquaticis adhærens, vel sub lapidibus ad margines rivulorum, toto anno frequens.

P. elongate, subcylindrical-oblong, brownish-black with a just perceptibly æneous tinge; densely clothed beneath with a short, whitish, and above with a long, woolly, olivaceous pubescence; minutely punctured. *Prothorax* convex on the disk; and with an impressed longitudinal line on either side. *Elytra* very obsoletely striated, the striæ having obscure indications of being punctured. *Tarsi* long and piceous.

Abundant at all seasons of the year at the edges of the pools and streams of Madeira, ranging from about 1000 to 5000 feet above the sea. My own specimens are principally from the Curral das Romeiras, Santa Anna, the Cruzinhas, and the Fanal; but there is scarcely a district in the island in which I have not observed it to exist. It is a common insect throughout Europe and Algeria; and the Madeiran specimens do not appear to differ in any respect from the ordinary type.

Fam. 5. HYDROPHILIDÆ.

Genus 30. OCHTHEBIUS.

Leach, *Zool. Miscell.* iii. 91 (1817).

Corpus minutum, elongato-ovatum: *prothorace* subcordato, plus minusve foveolato: *alis* amplis. *Antennæ* 9-articulatæ brevissimæ, articulis primo et secundo robustis, illo elongato flexuoso, hoc breviore subovato, tertio gracillimo subspatulato, quarto brevi minutissimo, reliquis clavam oblongam pubescentem quinque-articulatam apice obtusam efficientibus. *Labrum* transversum, antice leviter emarginatum ciliatum. *Mandibulæ* breves latæ, apice fissæ, basi membranaceæ

dente trifido armatæ. *Maxillæ* bilobæ: *lobo externo* articulato angusto, apice acutissime uncinato: *interno* breviore, ad apicem acuto incurvo uncinato, intus spinuloso ciliato. *Palpi maxillares* vix longiusculi, articulo ultimo minuto subulato: *labiales* (in typicis brevissimi, sed in specie Maderensi) parum elongati, articulo primo brevissimo, secundo longissimo biflexuoso, ultimo brevi subovato. *Mentum* amplum subquadratum, margine antico rotundato. *Ligula* brevis lata, apice vix emarginata. *Pedes* subnatatorii, robusti, *antici* breviusculi: *femoribus* subcylindricis: *tibiis* rectis spinosis, *anticis* apicem versus leviter dilatatis: *tarsis* haud ciliatis, articulo primo brevissimo, secundo arcte connato, quinto elongato curvato.

The little genus *Ochthebius* may be known by its 9-jointed antennæ, by its subcordate and more or less foveolated prothorax, and by its comparatively short maxillary palpi, with their minute, subulated terminal joint. I have not been able to detect more than a single species in Madeira, viz.—

72. Ochthebius 4-foveolatus.

O. elongato-ovatus nigro-æneus parce pubescens, prothorace subcordato canaliculato utrinque lineâ longitudinali interruptâ, foveolas duas efficiente, instructo, lateribus rugose inæqualiter impressis, elytris profunde punctatis haud striatis, antennis pedibusque rufo-testaceis.

Long. corp. lin. $1\frac{1}{3}$.

Ochthebius 4-*foveolatus*, Motschulsky, *in litt.*

Habitat Maderam borealem,—in rivulo Ribeiro de São Jorge dicto, haud procul a Sanctâ Annâ, d. 17 Mai. A.D. 1850 a meipso copiosissime inventus.

O. elongate-ovate, dark æneous, shining, and very sparingly pubescent; clothed beneath with a fine, white, decumbent pile. *Head* with two very deep rounded depressions on the forehead. *Prothorax* subcordate; with a dorsal channel, and two short, deep, distinct foveæ on either side, placed one over the other as though formed by an interrupted longitudinal line; rugosely and deeply impressed towards the lateral margins (a small portion of which behind is transparent and white), where there are indications of one or two other abbreviated, though irregular foveæ. *Elytra* coarsely punctured, but not punctate-striated. *Legs, antennæ* and *palpi* rufo-testaceous.

Clearly the Madeiran representative of the *O. punctatus* of more northern latitudes, although with too many distinctive characters of its own to allow of its being identified with that species. It differs from it, principally, in its greater bulk and comparatively broader outline, in its more brassy and less pubescent surface, in its legs being longer and more robust, and in its prothorax being altogether larger and more distinctly foveolated. I have observed it hitherto only in the north of the island; where, on the 17th of May 1850, I captured it in the utmost profusion in the Ribeiro de São Jorge, close to the ascent of the old road to Santa Anna. I have retained the name which was proposed for it by M. Motschulsky during his late visit to England.

Genus 31. CALOBIUS*, *Woll.* (Tab. II. fig. 7.)

Corpus minutum, gracile, elongatum: *capite* producto; *oculis* magnis, valde prominentibus: *prothorace* subquadrato, postice rotundato: *elytris* ad apicem pygidium vix tegentibus: *alis* amplis. *Antennæ* (II. 7 *a*) 9-articulatæ brevissimæ, articulis primo et secundo robustis, illo longissimo biflexuoso, hoc breviore obpyriformi, tertio gracillimo subspatulato, reliquis clavam parallelo-oblongam sex-articulatam apice obtusam efficientibus (quarto transverso brevissimo, intus in mucronem minutissimum acutissimum producto). *Labrum* (II. 7 *b*) maximum durum corneum, valde porrectum, subquadratum, antice in medio profunde incisum, aut potius bilobum, haud ciliatum. *Mandibulæ* (II. 7 *c*) breves latissimæ, basi membranaceæ, apicem versus internum denticulatæ. *Maxillæ* (II. 7 *d*) bilobæ: *lobo externo* brevi lato subrecto, apice intus mucronato: *interno* paulo longiore graciliore, ad apicem acutissime uncinato, intus in medio setoso-pencillato. *Palpi maxillares* articulo primo minutissimo, secundo curvato, tertio vix longiore robustiore subclavato, ultimo minuto subulato. *Labium* totum (II. 7 *e*) valde imperfectum: palpos et ligulam detegere haud potui, et nisi fallor omnino obsoleti sunt: patella magna mentiformis, utrinque in angulum medium acutissimum producta, sola apparet, sed antice est magis tenuis ac dense ciliata, atque inter pilos fortasse partium oris inferiorum rudimenta lateant, sed vere abesse credo. *Pedes* subnatatorii, elongati gracillimi: *femoribus* cylindricis: *tibiis* linearibus, haud spinosis sed subtilissime pubescentibus: *tarsis* (II. 7 *f*) haud ciliatis, elongatis, articulo primo brevissimo, secundo arcte connato, quinto longissimo curvato.

A καλὸς formosus, et βίος vita.

Throughout all the Madeiran Coleoptera there is no form more truly interesting than *Calobius*, which so completely unites the *essential* characters of *Ochthebius* and *Hydræna*, that, at first sight, it might almost be referred to either of those groups. In reality, however, it is perhaps more nearly akin to the latter than to the former, agreeing with it in its porrected, deeply-incised, and unciliated upper lip, in its long slender legs, and in its antennæ being composed of seven articulations only: but the enormously lengthened maxillary palpi of that genus, with their large, somewhat thickened, and fusiform terminal joint, are entirely unrepresented in our present insect, which possesses the short and apically-subulated palpi which constitute one of the main distinctive features of *Ochthebius*. Nevertheless, whilst it appropriates so many of the most important structural details of the two genera in question, it offers very decided peculiarities in which it recedes from them both, since its short, broad, and mucronated outer maxillary lobe, and its subelongated and powerfully hooked inner one are exceedingly remarkable in this department of the *Philhydrida*, in which the maxillæ are not generally so highly developed: added to which, its perfectly unfurrowed and posteriorly rounded prothorax, and its granulated, unpunctured surface give it an unusual appearance, which we are altogether unaccustomed to in the ordinary modifications of its immediate allies. And it is worthy of observation that its habits are as anomalous as its aspect; for, although many of the *Ochthebii* and *Hydrænæ*, it is well known, delight in brackish spots, yet I am not aware that any of them

* The present genus is written *Halobius* in the plate by mistake.

reside in water that is purely salt,—whereas *Calobius* occurs amongst marine *Confervæ* in the pools formed by the actual sea.

73. Calobius Heeri, *Woll.* (Tab. II. fig. 7.)

C. gracilis glaber et fere opacus, crebre granulatus, subænescenti- vel subcuprescenti-niger, prothoracis limbo pellucido et angulis posticis valde rotundatis, elytris obsoletissime substriatis, antennis tibiisque diluto-testaceis.

Long. corp. lin. 1.

Habitat Maderam maritimam, mihi non obvius: ad "Gorgulho," haud procul ab urbe Funchalensi, inter confervas in stagnantibus aquis marinis crescentes, primus detexit cl. Dom. Heer, cujus in honorem nomen triviale dedi.

C. slender, elongated, glabrous, and almost opake, brownish-black, and with either an æneous or a slightly coppery tinge. *Head* and *prothorax* closely and minutely granulated; the *former* a good deal produced, with the *eyes* very large and prominent, and with an impression on either side of the forehead; the *latter* subquadrate, being truncated in front and rounded behind, without any appearance of grooves or sulci,—even the dorsal channel being in most instances imperceptible; the extreme margins (anterior, posterior and lateral), especially towards the anterior angles, transparent. *Elytra* rather more roughened than the head and prothorax, and (under a high magnifying power) with a few very minute, distant punctures, disposed in longitudinal rows, and with the interstices just perceptibly raised. *Antennæ* exceedingly short and slender, usually not at all apparent from above; flavescent. *Palpi* and *legs* piceous-black,—the latter having the *tibiæ*, especially the two anterior ones, obscurely flavescent.

It is to Professor Heer that we are indebted for the discovery of this very interesting little insect, which entirely eluded my own researches in these islands. It was first detected by him, on the 6th of February 1851, adhering to marine *Confervæ* in salt-water pools at the Gorgulho, near Funchal,—in which position it has been since captured, abundantly, by M. Rousset. I am informed by my friend Dr. H. Schaum, of Berlin, that it is very closely allied to the *Ochthebius quadricollis*, Mulsant (Ann. de la Soc. Royal d'Agricult. de Lyon, A.D. 1844, p. 377), from Corsica and Dalmatia, though specifically distinct; and that in all probability the above species will be found, on dissection, to be a true *Calobius*.

Genus 32. LIMNEBIUS.

Leach, *Zool. Miscell.* iii. 93 (1817).

Corpus minutum, plus minusve ovatum vel ellipticum: *prothorace* brevi, postice lato: *elytris* apice leviter truncatis, pygidium vix tegentibus: *alis* amplis. *Antennæ* 8-articulatæ brevissimæ, articulis primo et secundo elongatis, tertio, quarto et quinto minutis, reliquis clavam triarticulatam efficientibus. *Labrum* transversum, antice leviter emarginatum. *Mandibulæ* breves latæ, apice fissæ. *Maxillæ* bilobæ: *lobo externo* lato, apice dense barbato: *interno* paulo longiore, angusto, recto, ad apicem uncinato, intus ciliato. *Palpi* filiformes, articulo ultimo elongato

fusiformi-cylindrico; *maxillares* longissimi; *labiales* mediocres. *Mentum* amplum, transverso-quadratum. *Ligula* brevis lata, apice fissa. *Pedes* subnatatorii, robusti, *antici* breviusculi: *femoribus tibiis*que compressis: *his* curvatis; *anticis* extus seriato-spinulosis, apicem versus dilatatis; *posterioribus* leviter spinosis, vix ciliatis: *tarsis* articulo primo brevissimo, secundo arcte connato; *posterioribus* ciliatis.

The minute size and somewhat elliptical outline of the *Limnebii* (which, unlike *Ochthebius* and *Calobius*, have their prothorax broadest behind), added to their 8-jointed antennæ and their entire freedom from metallic lustre, will be sufficient,—apart from the distinctive peculiarities of their oral organs, which, although considerable, are, necessarily, in insects thus small, less easy of observation,—at once to separate them from the members of the neighbouring groups. In their habits, they prefer stagnant water to streams, residing in shallow pools and ponds, especially towards the margins, and attaching themselves to stones and decaying leaves, or whatever other substances chance may place in their way,—the form of their bodies, which are flattened beneath, and arched and polished above, being eminently adapted for the kind of adhesion which is characteristic of the greater portion of this department of the *Philhydrida*.

74. Limnebius grandicollis, *Woll.*

L. subelliptico-obovatus niger, minutissime et parce pubescens, subtiliter punctulatus, prothorace elytrisque obscure pallido-marginatis, antennis, palpis pedibusque ferrugineis.

Long. corp. lin. $\frac{3}{4}$.

Habitat in aquis Maderæ, vel stagnantibus vel lente fluentibus,—ad Cruzinhas (5000′ s. m.), foliis arborum madidis adhærens, Julio ineunte A.D. 1850 repertus.

L. somewhat ovate or elliptical, and rather acuminated posteriorly, black, slightly shining, minutely and sparingly pubescent, and most delicately but rather closely punctulated. *Prothorax* large and broad, being widest behind; the lateral margins, especially about the hinder angles, dull rufo-ferruginous; without any appearance of a dorsal channel. *Scutellum* rounded and very minute. *Elytra* acuminated behind, with the extreme margins very obscurely ferruginous. *Legs, antennæ* and *palpi* pale ferruginous.

The present insect differs a little from all the European *Limnebii* which have hitherto come beneath my notice, and cannot, I think, be consistently referred to any of them; its comparatively pubescent and distinctly punctulated upper surface, its large prothorax, its very minute scutellum, and its much posteriorly-acuminated elytra combining to indicate what I have but little doubt is an additional species,—though one which is evidently closely allied to some of the more northern members of the group. It is extremely rare,—or, at any rate, local,—being apparently confined to lofty altitudes, and to spots more or less difficult of access. The only district in fact in which I have observed it is the region of the Cruzinhas (about 5000 feet above the sea),—where, during July 1850, I captured many

specimens, adhering to the under sides of decaying leaves, in the small shallow pools and trickling streams with which those densely wooded uplands everywhere abound.

Genus 33. LACCOBIUS.

Erichson, *Käf. der Mark Brand.* i. 202 (1837).

Corpus parvum, subhemisphæricum: *prothorace* brevi, postice lato: *alis* amplis. *Antennæ* 8-articulatæ breves, articulo primo longiusculo, secundo breviore crasso, tertio minutissimo, quarto quintoque latioribus transversis arcte connatis (hoc subpoculiformi), reliquis clavam oblongam pubescentem triarticulatam efficientibus. *Labrum* transversum, antice vix emarginatum. *Mandibulæ* breves latæ, apice incurvæ fissæ. *Maxillæ* bilobæ: *lobo externo* lato ovato, apice barbato, ungue minutissimo incurvo terminali munito: *interno* paulo breviore angustiore, intus ad apicem barbato ciliato, margine interno membranâ instructo. *Palpi* subfiliformes, articulo ultimo elongato-subovato; *maxillares* longiusculi; *labiales* mediocres. *Mentum* amplum, transverso-quadratum, margine antico rotundato. *Ligula* brevis lata, apice fissa, aut potius biloba. *Pedes* subnatatorii, robusti, *antici* breviusculi: *femoribus tibiis*que compressis: *his* spinosis, valde calcaratis, haud ciliatis; *anticis* apicem versus leviter dilatatis; *posticis* curvatis: *tarsis* filiformibus elongatis parce ciliatis, articulo primo brevissimo, secundo arcte connato.

Laccobius may be known by the convex and somewhat hemispherical form of the insects composing it,—which are not only of a much larger size than the *Limnebii*, and have their elytra entirely covering their abdomen, but the articulations of their antennæ and the lobes of their maxillæ are differently constructed from those of that genus; their tibiæ also (the hinder pair of which are alone curved) are more powerfully spurred and spinulose, and their tarsi are more elongated and slender. From *Hydrobius* (to which, in general aspect, it approaches nearer than it does to *Limnebius*), its 8-jointed antennæ, the minute terminal claw with which the outer lobe of its maxillæ is furnished, added to its hinder tibiæ being slightly curved, will readily separate it.

75. Laccobius minutus.

L. rotundato-ovatus convexus niger punctulatus, prothoracis lateribus elytrisque pallido-testaceis, his dense substriato-punctatis et plus minusve, præsertim in discum, nigro-irroratis, antennis pedibusque pallido-ferrugineis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Chrysomela minuta, Linn. *Fna Suec.* 166 (1761).
Hydrophilus bipunctatus, Fab. *Syst. Eleu.* i. 254 (1801).
———— *minutus*, Gyll. *Ins. Suec.* i. 116 (1808).
Laccobius minutus, Erich. *Käf. der Mark Brand.* i. 203 (1837).

Habitat Maderam excelsam sylvaticam, in locis similibus ac *Limnebius grandicollis*, sed illo multo frequentior.

L. short-ovate, convex, black (sometimes with a just perceptibly æneous tinge), and slightly shining.

Head and *prothorax* densely and minutely punctulated; the *latter* with the sides broadly testaceous. *Elytra* closely substriate-punctate (the punctures having generally only a tendency to arrange themselves in longitudinal rows); pale testaceous, and more or less densely mottled, or besprinkled (especially on the disk), with black. *Legs, palpi* and *antennæ* either testaceous or else very pale ferruginous.

The Madeiran specimens of this common European insect differ in being a little larger and less shining than the ordinary type, and in having the punctures of their elytra somewhat less distinct and not quite so regularly disposed in striæ. It is decidedly rare, being confined almost exclusively, like the *Limnebius grandicollis*, to lofty positions within the sylvan districts. I have taken it at the Ribeiro Frio, in the spring; in the small trickling streams of the Cruzinhas, adhering to submerged leaves; and in similar spots at the head of the Ribeiro Fundo, on the northern edges of the Fanal,—during July.

Genus 34. HYDROBIUS.

Leach, *Zool. Miscell.* iii. 93 (1817).

Corpus vel mediocre, vel (ut in specie Maderensi) parvum, oblongo- vel rotundato-ovale: *prothorace* postice lato: *mesosterno* carinato: *alis* (in typicis amplis, sed in specie nostrâ) obsoletis. *Antennæ* 9-articulatæ breves, articulo primo elongato crasso flexuoso, secundo paulo breviore subcylindrico, tertio brevi, quarto quintoque brevissimis, sexto lato subpoculiformi, reliquis validioribus, clavam magnam oblongam pubescentem triarticulatam efficientibus, ultimo (in typicis vel acuminato vel oblongo, sed in nostrâ) globoso. *Labrum* transversum, antice leviter emarginatum. *Mandibulæ* breves latæ obtectæ, apice incurvæ acutæ fissæ. *Maxillæ* bilobæ: *lobo externo* brevi lato, apice dense barbato: *interno* paulo breviore angustiore, intus ad apicem barbato ciliato, margine interno membranâ instructo. *Palpi maxillares* breviusculi robusti, articulo ultimo penultimo longiore; *labiales* mediocres. *Mentum* amplum, transverso-quadratum, margine antico rotundato sed ad summum apicem sæpius leviter emarginato. *Ligula* lata, apice fissa, aut potius biloba, lobis rotundatis ciliatis. *Pedes* subnatatorii, robusti, *antici* vix breviores: *femoribus tibiis*que subcompressis: *his* rectis spinosis, valde calcaratis, apicem versus (præsertim *anticis*) leviter dilatatis: *tarsis* (præcipue *posterioribus*) parce ciliatis, articulo primo brevissimo, secundo arcte connato.

In addition to minor points of distinction, sufficiently apparent, *Hydrobius* may be known from *Laccobius* by its 9-jointed antennæ, by the absence of any indication of a curved hook to the outer lobe of its maxillæ, and by its uniformly straightened tibiæ. The minute and suborbicular form of a few of the species which compose it (represented in Madeira by the only member of the group which I have hitherto been able to detect) gives them, at first sight, a strong resemblance to *Chætarthria*, Waterh. (Steph. *Ill. Brit. Ent.* A.D. 1832; = *Cyllidium*, Erich. *Käf. der Mark Brand.* A.D. 1837); but the simple sternum of that genus, added to the slender and very elongated basal, and the short, thick, and globose second, joints of its antennæ, and the large penultimate (and small, truncated

terminal) one of its labial palpi, will be more than sufficient to prevent the possibility of confounding it, on closer examination, with *Hydrobius*.

76. Hydrobius conglobatus, *Woll.*

H. subglobosus nitidiusculus niger, minutissime punctulatus, prothoracis lateribus diluto-testaceis, elytris confertissime et subtilissime granulatis, singulo striâ suturali posticâ leviter impresso, ad marginem anguste, sed ad apicem late testaceis, pedibus rufo-piceis.

Long. corp. lin. 1–1½.

Habitat Maderam borealem excelsam sylvaticam, rarissime,—ad summam originem convallis Ribeiro de João Delgada dictæ d. 19 Jul. A.D. 1850 a meipso detectus.

H. short, subglobose, black, and slightly shining; regularly punctured above with somewhat distant, but excessively minute points. *Prothorax* with the sides broadly testaceous. *Elytra* with a very lightly impressed sutural stria on each behind, but none whatsoever in front; rather less shining than the prothorax, and, in addition to the punctures (which are not disposed in striæ), most minutely and closely granulated (a sculpture, however, which is only apparent under a high magnifying power); the lateral margins narrowly and obscurely, but the apex broadly, testaceous, —the junction of the darker and lighter portions being usually somewhat abrupt and oblique, (the suture also, when the elytra are upraised, appearing slightly pale). *Wings* entirely obsolete. *Palpi* and *antennæ* testaceous. *Legs* rufo-piceous.

A most distinct and interesting little *Hydrobius*; and one which, from its minute size and subglobose body, bears a considerable *primâ facie* resemblance (as already stated) to the genus *Chætarthria*. Its antennæ and trophi however prove it to be a true *Hydrobius*: and it would appear to be the Madeiran representative of the common *H. globulus* of more northern latitudes,—although abundantly separated from that insect, specifically, in structure, sculpture, and form. Thus, to say nothing of its being apterous, it is much shorter, more globose, and less highly polished than the *H. globulus*; the pale apex of its elytra, instead of shading off gradually and imperceptibly into the darker base, is usually well-defined and abrupt, terminating obliquely at about one-third of the distance from the extremity; and the large and deep punctures which are so apparent on the upper surface of that species are, in the *H. conglobatus*, far apart and excessively small; whilst the elytra are (in addition) most closely and finely granulated,—or, more strictly perhaps (for it is only beneath a very high magnifying power that it is perceptible), densely crowded with an under-series of most delicate and minutely impressed points. This peculiarity of sculpture indeed (although a microscopic character) is exceedingly remarkable, and one which I do not see developed, to the same extent, in any other member of the *Philhydrida* with which I am acquainted. From the *H. globulus* it likewise recedes in the club of its antennæ, which is large and perfoliated, and with the ultimate joint (instead of being acuminated) exceedingly globose. It is, apparently, of the greatest rarity, and

confined to high altitudes. The only three specimens which I have seen were captured by myself, on the 19th of July 1850, in the bed of a small trickling stream which issues out of the rocks at the extreme head of the Ribeiro de João Delgada.

Genus 35. PHILHYDRUS.

Solier, *Ann. de la Soc. Ent. de France*, iii. 315 (1834).

Corpus fere ut in Hydrobio, sed majoris magnitudinis et minus convexum; *alis* amplis; *palpis maxillaribus* longissimis gracilioribus, articulo ultimo penultimo breviore.

Philhydrus is sometimes regarded as a section of the last genus; but it would appear to have as great a claim for isolation as at any rate many other groups which are universally received. It differs from *Hydrobius* in the less convex form of the insects which compose it, and in the much greater length of their maxillary palpi,—which are slender, and have the terminal joint always shorter than the penultimate one. In the Madeira Islands, moreover, the great disparity of size between the single representatives of each genus will serve additionally to distinguish them.

77. Philhydrus melanocephalus.

P. ovalis nitidus niger, supra fusco-testaceus, capite postice nigricanti, prothorace in discum plus minusve obsolete infuscato, elytro singulo striâ suturali posticâ impresso et plagâ parvâ basali obscurâ longe intra humerum sitâ nigrescente ornato, tibiis tarsisque picescenti-ferrugineis.

Var. β. supra late nigrescens, limbo solo obscure pallidescenti.

Long. corp. lin. 2½–3.

Hydrophilus melanocephalus, Oliv. *Ent.* iii. 39. 14 (1795).
———— ————, Gyll. *Ins. Suec.* i. 119 (1808).
Hydrobius melanocephalus, Erich. *Käf. der Mark Brand.* i. 209 (1837).
Philhydrus melanocephalus, Mulsant, *Palp.* 137 (1844).

Habitat Portum Sanctum: in rivulo quodam parvo Ribeiro de Serra de Fora dicto, lapidibus adhærentem, Aprili exeunte A.D. 1848 copiose collegi: in Maderâ propriâ mihi adhuc non obvius.

P. oval, rather convex (though depressed compared with the *H. conglobatus*), and shining; most minutely and closely punctured all over; piceous-black. *Head* with a large subtriangular patch in front of each eye paler. *Prothorax* and *elytra* brownish-testaceous; the *former* generally more or less obsoletely infuscated on its disk, slightly punctured in front of its posterior angles, and with an impressed point on either side of its disk behind; the *latter* with just perceptible indications (under a high magnifying power) of punctured striæ, but with a deep sutural one on each behind, with a small obscure dash at the extreme base of each, rather nearer to the shoulder than to the suture, and occasionally a still fainter and more elongated one close to the shoulder itself, more or less dusky-black. *Femora* piceous; *tibiæ, tarsi, palpi* and *antennæ* rufo-ferruginous; the first two more or less picescent.

Var. β. with the entire upper disk darkly and broadly infuscated, or almost black,—the patches in

front of the eyes, and the lateral margins of the prothorax and of the elytra (especially the former) being alone paler.

Found only, so far as I have hitherto observed, in the island of Porto Santo; where I captured it in profusion, during April 1848, adhering to the undersides of stones in the little stream known as the Ribeiro de Serra de Fora. It occurs in nearly all parts of Europe, and is abundant in Algeria.

Fam. 6. SPHÆRIDIADÆ.

Genus 36. DACTYLOSTERNUM, *Woll.* (Tab. III. fig. 1.)

Corpus minusculum, oblongum, subdepressum: *prothorace* postice lato: *elytris* profunde striatis: *metasterno* (III. 1 *a*) plano, antice in mucronem subsagittatum (III. 1 *a**) producto: *alis* amplis. *Antennæ* (III. 1 *b*) 9-articulatæ geniculatæ, ante oculos sub margine capitis insertæ, articulo primo longissimo ad basin flexuoso, secundo brevi subconico-truncato, tertio, quarto quintoque minutissimis, sexto latiore subpoculiformi, reliquis clavam magnam pubescentem elongato-ovalem triarticulatam efficientibus. *Labrum* (III. 1 *c*) breve transversum, antice emarginatum et dense ciliatum. *Mandibulæ* (III. 1 *d*) validæ, apice incurvæ acutæ, longe intra apicem unidentatæ et margine interno membranaceo ciliato. *Maxillæ* (III. 1 *e*) bilobæ subcoriaceæ: *lobo externo* brevi lato, apice dense barbato: *interno* paulo breviore, intus membranaceo, apicem versus pubescente. *Palpi maxillares* longiusculi, articulo secundo robusto subclavato, ultimo subfusiformi: *labiales* (III. 1 *f*) e scapis ligulæ connatis surgentes, mediocres. *Mentum* amplum transverso-quadratum angulis anticis acutis, margine antico subrotundato sed ad apicem ipsum leviter bilobo. *Ligula* lata, profunde biloba, lobis divergentibus pubescentibus. *Pedes* (III. 1 *g*. 1 *h*) subfossorii, robusti: *femoribus tibiis*que subcompressis; *his* parce seriato-spinulosis, valde calcaratis, apicem versus leviter dilatatis: *tarsis*, præsertim *posterioribus* (III. 1 *h*), articulo primo elongato libero: *unguiculis* (III. 1 *k*) simplicibus, subtus ad basin rotundato-ampliatis.

A δάκτυλος digitus, et στέρνον pectus.

The very anomalous insect for the reception of which I have established the present genus is perhaps one of the most remarkable of all the Madeiran Coleoptera. It would appear to constitute a connecting link between *Cercyon* and *Cyclonotum*, agreeing with the first in the subsolid club of its 9-jointed antennæ, and in its deeply punctate-striated elytra; whilst in its emarginated labrum, in its transverse-quadrate mentum, and in its simple meso-, and anteriorly produced meta-sterna it assumes to a certain extent the peculiarities of the second. In its mandibles however it is central between the two. For one of the most important characteristics of *Cyclonotum* is its apically bifid mandibles,—a structure which it possesses in common with the members of the preceding family, the *Hydrophilidæ* (to which in fact in many respects it more strictly belongs). In the remainder of the *Sphæridiadæ* however (a group almost purely, with the exception of *Cyclonotum*, terrestrial) this modification is lost sight of, the mandibles being edentate. Now, the habits of *Dactylosternum* are exactly intermediate between those of

Cyclonotum and *Cercyon*, since it combines the subaquatic propensities of the one with the stercoraceous tendency of the other; and hence it is extremely interesting to find an intermediate state of mandible corresponding, as it were, to its double nature,—for the tooth which, in the former case, by being placed at the extremity causes the mandibles to be cleft, and by being removed altogether, in the latter, to be unarmed, being situated so far from the termination in *Dactylosternum* as to indicate, almost of itself, a type of form midway between the extremes. The general aspect of the insect under consideration is that of an enormous *Cercyon*; nevertheless, although coinciding with that genus (as already stated) in the details of its antennæ, and in its punctate-striated elytra,—it wants, not merely the edentate mandibles, but likewise the entire upper lip, the semicircular mentum, and the simple meso-, and the keeled meta-sterna, the most essential features of that group.

It will be perceived, by a reference to the plate, that the anterior metasternal appendage of our present genus is of a very singular kind; since it not only differs from that which exists in *Cyclonotum*, but from every other corresponding process with which I am acquainted.

78. Dactylosternum Roussetii, *Woll.* (Tab. III. fig. 1.)

D. oblongum subdepressum nitidum nigrum, minutissime et creberrime punctulatum, elytris profunde (præsertim postice) punctato-striatis, antennis pallido-testaceis clavâ infuscatâ, palpis pedibusque rufo-piceis, tarsis præsertim anticis pallidioribus.

Long. corp. lin. $2\frac{1}{3}$.

Habitat Maderam australem, mihi non obvium: exemplar unicum, a Rev^{do} Dom^{o} Lowe munifice donatum, fere ad hoc tempus solum possedi; sed plurima specimina sub lapidibus crustaceisque vacuis marinis in humidis per oram Funchalensem maritimam, sed præsertim ad stagna circa stabula suilla, nuperrime detexit Dom. Rousset, insectorum Maderensium scrutator, cujus in honorem speciem stabilivi.

D. oblong, and a little depressed, black, and shining; most closely and delicately punctulated all over. *Prothorax* sometimes narrowly and very indistinctly piceous at the extreme edge of its front emargination. *Scutellum* large and triangular. *Elytra* deeply punctate-striated, especially behind. *Antennæ at base* pale testaceous, their *club* infuscated. *Palpi* and *legs* rufo-piceous; the tarsi (particularly the two front ones) being a little paler.

The present insect is one which altogether escaped my own observations in the Madeira Islands. And indeed until within the last few months but a single example had come beneath my notice, captured many years ago by the late Dr. Heinecken, from whose collection it was presented to me by the Rev. R. T. Lowe. It is therefore with great pleasure that I have just received a large series from M. Rousset, collected in moist spots on the beach near Funchal,—especially (as he informs me) in the empty shells of crabs, and other marine Crustacea,

which had accumulated about the pig-sties and sewers, and other such-like filthy receptacles of the rejectamenta of the town. At the base of the sea-wall at the Santiago Fort he states that it is exceedingly common.

Genus 37. SPHÆRIDIUM.

Fabricius, *Syst. Eleu.* i. 92 (1801).

Corpus minusculum, subhemisphæricum, minus convexum: *prothorace* postice lato sinuato: *elytris* fere haud striatis: *mesosterno* carinato: *metasterno* plano, antice haud producto: *alis* amplis. *Antennæ* 8-articulatæ breviusculæ, articulo primo longissimo ad basin flexuoso, secundo brevi subconico-truncato, tertio quartoque minutissimis, quinto lato brevissimo subpoculiformi, reliquis clavam magnam pubescentem subperfoliatam elongato-ovalem triarticulatam efficientibus (ultimo apice oblique truncato). *Labrum* breve transversum, antice integrum et dense ciliatum. *Mandibulæ* validæ, apice edentatæ incurvæ, intus membranaceæ ciliatæ. *Maxillæ* bilobæ membranaceæ: *lobo externo* brevi lato, apice dense barbato: *interno* angustiore brevissimo, intus membranâ (ad apicem pencillatâ) instructo. *Palpi maxillares* longiusculi, articulo secundo robusto subclavato: *labiales* mediocres, articulo ultimo minuto, penultimo majore crasso. *Mentum* amplum transverso-subquadratum angulis anticis rotundatis, margine antico subrotundato. *Ligula* lata, profunde biloba, lobis divergentibus pubescentibus. *Pedes* fossorii, robusti: *femoribus tibiisque* compressis; *his* valde spinosis et calcaratis, apicem versus dilatatis: *tarsis* articulo primo elongato libero, *anticis* in maribus articulis quatuor brevissimis, ultimo ad apicem valde uncinato-ampliato.

Their 8-jointed antennæ, and powerfully spined tibiæ, added to the singularly distorted and hooked terminal joint of their male fore-feet, will at once distinguish the *Sphæridia* from the members of the allied groups. They are larger and less convex than the representatives of the following genus; and their elytra are either altogether unstriated, or else have the striæ so excessively obsolete that they may be practically regarded as such. In their habits they are purely stercoraceous, not even having, apparently, the subaquatic *tendency* displayed by some of the species of *Cercyon*.

79. Sphæridium bipustulatum.

S. subhemisphæricum sub-opacum nigrum, minutissime et creberrime punctulatum, prothorace elytrisque angustissime pallido-marginatis, his ad apicem late rufo-testaceis, singulo striâ suturali posticâ impresso et maculâ subhumerali rubescente obsoletissimâ vix perspicuâ ornato, pedibus rufo-ferrugineis.

Long. corp. lin. $2\frac{1}{4}$–$2\frac{1}{2}$.

Sphæridium bipustulatum, Fab. *Spec. Ins.* i. 78 (1781).
Dermestes 4-maculatus, Mshm, *Ent. Brit.* 66 (1802).
Sphæridium marginatum, Heer, *Fna Col. Helv.* 488, var. *d.* (1841).
——— *bipustulatum*, Mulsant, *Palp.* 154, var. B. (1844).

Habitat Maderam, præsertim infra 2000′ s. m., in stercore bovino, toto anno frequens.

S. hemispherical, black, and somewhat opake; most closely and delicately punctulated all over. *Prothorax* and *elytra* with their extreme lateral margins narrowly rufo-testaceous: the *latter* with the apex broadly, and more or less brightly rufo-testaceous; each with an impressed sutural line behind, and with a most obscure and obsolete patch (generally scarcely perceptible, except when the elytra are upraised) towards the shoulders rufescent. *Legs* rufo-ferruginous.

The Madeiran state of this common European insect would appear to be that in which the subhumeral patches of the elytra are all but evanescent; since it is only in very rare instances that they are distinctly perceptible. It is abundant throughout Madeira, in the dung of cattle, though principally at rather low elevations. In the vicinity of Funchal, and at Santa Anna in the north of the island, I have observed it very plentifully at most seasons of the year.

Genus 38. CERCYON.

Leach, *Zool. Miscell.* iii. 95 (1817).

Corpus parvum, convexum: *prothorace* postice lato: *elytris* plerumque profunde striatis: *mesosterno* carinato: *metasterno* plano, antice haud producto: *alis* amplis. *Antennæ* 9-articulatæ breviusculæ, articulo primo longissimo ad basin flexuoso, secundo brevi subconico-truncato, tertio, quarto quintoque minutissimis, sexto latiore subpoculiformi, reliquis clavam magnam pubescentem subsolidam oblongo-ovalem triarticulatam efficientibus. *Labrum* breve transversum, antice integrum et dense ciliatum. *Mandibulæ* validæ, apice edentatæ incurvæ, intus membranaceæ ciliatæ. *Maxillæ* bilobæ membranaceæ: *lobo externo* brevi lato, apice dense barbato: *interno* angustiore brevissimo, intus membranâ (ad apicem pencillatâ) instructo. *Palpi maxillares* longiusculi graciles, articulo secundo robusto subclavato: *labiales* mediocres. *Mentum* amplum semicirculare. *Ligula* lata, profunde biloba, lobis divergentibus pubescentibus. *Pedes* fossorii, robusti: *femoribus tibiisque* compressis; *his* seriato-spinulosis, apicem versus (præsertim *posterioribus*) dilatatis: *tarsis* (præsertim posterioribus) articulo primo elongato libero.

Cercyon may be readily known from *Sphæridium* by the smaller and convexer bodies of the insects which compose it, by their more or less deeply striated elytra, by their less powerfully spined tibiæ, and by the somewhat more solid club of their 9-jointed antennæ. Although typically stercoraceous, some of the species have a decidedly subaquatic tendency, residing amongst moss and decaying vegetable matter in marshy spots, and at the edges of ponds,—into the mud and refuse of which their powerful tibiæ enable them to burrow with considerable dexterity. It is a genus more particularly abundant in northern and temperate latitudes. Like the *Homalotæ* however, and many of the smaller dung-infesting *Brachelytra*, the *Cercya* are constantly liable to become naturalized through the agency of cattle; and I think it far from improbable that two at least, out of the four Madeiran representatives, may have been originally introduced into the island, either from south-western Europe or else from England.

80. Cercyon inquinatum, *Woll.*

C. rotundato-oblongum convexum nigrum nitidissimum, prothorace plus minusve subpicescenti, elytris profunde subcrenato-striatis, pedibus rufo-ferrugineis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Habitat Maderam australem, a Dom. Rousset ab orâ Funchalensi maritimâ nuper communicatum.

C. roundish-oblong, convex, black, and exceedingly shining; most delicately, but not very closely punctulated all over (the punctures appearing, under the microscope, smaller and more remote than those of any of the other species). *Prothorax* more or less perceptibly picescent, especially at the margins. *Elytra* deeply crenate- (scarcely punctate-) striated, particularly behind; and with slight indications of a curved, or lunate, portion a little behind the apex, and common to both, dull rufescent or infuscate. *Antennæ at base,* and the *palpi,* rufo-testaceous; the *former* with the club (which is more elongated than in the other species) infuscate. *Legs* rufo-ferruginous, or rufo-piceous.

An exceedingly distinct species, and one which may be readily known from the rest of the *Cercya* here described by its larger, somewhat rounder, and more highly polished body, by its elytra being more evidently *crenate*-striated, and by the comparatively elongated club of its antennæ. It is moreover of a darker hue,—the tendency of its prothorax to become picescent being at times so slight as to be scarcely perceptible; whilst the obscure sublunate portion, or patch, towards the apex of its elytra is, likewise, occasionally nearly obsolete. It is an insect which entirely escaped my own observations in the Madeira Islands, the only specimens which I have seen having been lately communicated by M. Rousset, who captured them on the sea-beach at Funchal. It recedes from all the European members of the genus with which I am acquainted, but is more allied perhaps to the common *C. flavipes* than to any other;—from which nevertheless its differently coloured, less punctured, and more shining surface, added to its crenate-striated elytra, will be sufficient, apart from minor characteristics, at once to remove it.

81. Cercyon fimetarium, *Woll.*

C. obovatum (postice acuminatum) convexum nigrum subnitidum distincte punctulatum, elytris profunde punctato-striatis ad apicem late testaceis, pedibus pallido-ferrugineis.

Long. corp. lin. 1.

Habitat Maderam, in stercore bovino ubique vulgaris, ab orâ maritimâ fere ad cacumina montium ascendens.

C. obovate (being somewhat acuminated behind), convex, black, and but slightly shining; rather closely and distinctly punctulated all over. *Prothorax* concolorous, the margins having no tendency to be paler. *Elytra* deeply punctate-striated; with the apex, and more or less of the lateral edges, broadly and brightly testaceous. *Antennæ at base,* and the *palpi* testaceous; the *former* with the club, and the *latter* more or less in parts, infuscate. *Legs* pale ferruginous.

Known from the last by its diminished bulk, and by the broadly and distinctly paler terminal portion of its elytra; whilst its posteriorly-acuminated, more deeply punctured, and less shining body, and its entirely dark prothorax will at once separate it from the whole of the genus with which we have here to do. It is somewhat allied to the common European *C. anale*,—from which however its smaller size, much more coarsely sculptured surface, and its very brightly testaceous hinder apex will readily remove it. It is pretty generally distributed throughout Madeira, occurring, in the dung of cattle, in nearly all parts of the island. I have observed it in the neighbourhood of Funchal, as also at Santa Anna and São Vincente, during the summer months; and in the lofty region of the Cruzinhas in July.

82. Cercyon centrimaculatum.

C. subrotundato-oblongum subconvexum nigrum nitidum, prothoracis lateribus elytrisque diluto-testaceis, his subpunctato-striatis maculâ magnâ postmediâ communi infuscatâ plus minusve suffusâ ornatis, pedibus rufo-ferrugineis.

Var. β. prothorace elytrisque diluto-testaceis, illo in discum solum obscure infuscato, horum maculâ postmediâ communi fere obsoletâ, pedibus pallidioribus.

Long. corp. lin. $\frac{3}{4}$–1.

Sphæridium centrimaculatum, Sturm, *Deutsch. Fna*, ii. 23 (1807).
——— *pygmæum*, Gyll. *Ins. Suec.* i. 104, var. *b.* (1808).
Cercyon centrimaculatum, Erich. *Käf. der Mark Brand.* i. 218 (1837).
——— ———, Mulsant, *Palp.* 169 (1844).

Habitat Maderam, in iisdem locis ac præcedens sed illo multo copiosior.

C. short and oblong, but not quite so much rounded as the *C. inquinatum*, and somewhat less convex than either of the foregoing species; black or piceous-black, and shining; closely and delicately punctulated all over. *Prothorax* with the lateral edges narrowly testaceous. *Elytra* sub-punctate-striated; dull testaceous, and with a large, usually ill-defined and suffused, postmedial fascia or cloud, common to both, infuscate. *Antennæ, palpi* and *legs* as in the last species.

Var. β. with the prothorax and elytra dull diluted-testaceous; the *former* having only an obscure cloud on the disk infuscate, and the postmedial patch of the *latter* being almost obsolete. *Limbs* altogether a little paler.

The smallest and by far the most abundant of the Madeiran *Cercya*. It is of an exceedingly variable hue; nevertheless the most essential feature which it possesses, namely the hinder fascia or cloud with which its elytra are adorned, is more or less expressed throughout all its varieties, and will serve to distinguish it from the remainder of the genus here described. The paler state (which I have indicated as *var.* β) is to a certain extent the result of immaturity; whilst the extreme darker ones, especially when they happen to be below the average in size, approach at first sight to the common *C. pygmæum* of more northern latitudes. Even such specimens as these however,—that is to say, where the postmedial

patch is so largely developed as to cover nearly the whole of the elytra,—a small erubescent portion at the *base* (which in the *C. pygmæum*, a species pale only behind, does not exist) is sufficient to point out the law of colouring, and thus, independently of minor differences, to distinguish them from that insect. It occurs in most parts of Madeira, and at all seasons of the year. In the vicinity of Funchal, and at Santa Anna in the north of the island, I have observed it in great profusion; as also on the edges of the Paul da Serra. It is found throughout the whole of Europe, and is recorded by Mulsant as having been brought even from South America.

83. Cercyon quisquilium.

C. oblongum subconvexum nigrum nitidum, prothoracis lateribus elytrisque flavis, his subpunctato-striatis, pedibus rufo-ferrugineis.

Long. corp. lin. 1–1$\frac{1}{8}$.

Scarabæus quisquilius, Linn. *Fna Suec.* 138 (1761).
Sphæridium unipunctatum, var. Fab. *Ent. Syst.* i. 82 (1792).
Cercyon quisquilium, Steph. *Ill. Brit. Ent.* ii. 153. ♂ (1829).
——— ———, Mulsant, *Palp.* 166 (1844).

Habitat in stercore bovino Maderæ Portûsque Sancti, vulgaris: circa Funchal interdum abundat, etiam in ipsâ urbe occurrens quâ tempore sereno per aërem volare sæpissime videatur.

C. oblong, and about as convex as the last species, black, and shining; closely and delicately punctulated all over. *Prothorax* with the extreme lateral edges dull testaceous, or ferruginous. *Elytra* subpunctate-striated; bright testaceous-yellow. *Antennæ, palpi,* and *legs* as in the last species, except that the first two are rather more darkly infuscated in parts.

Readily known from the last two species by its rather larger bulk; and from all the *Cercya* here described by the colour of its elytra, which are uniformly of a pale testaceous or yellow hue. The common *C. unipunctatus*, L., is supposed by some entomologists to be the female of the present insect: but, if such is the case, it is at least remarkable that I should not have detected that sex in the Madeira Islands, where the present one is extremely abundant. *A priori* therefore, I should rather be inclined to agree with Mulsant in considering them as distinct. It occurs plentifully in most parts of Madeira, in the dung of cattle, my own specimens being principally from the neighbourhood of Funchal, Santa Anna, and from the upland district of the Fanal. In Porto Santo it is equally common. It is universal throughout Europe and the north of Africa,—from the former of which it has probably been introduced into these islands.

Sectio IV. NECROPHAGA.

Fam. 7. SILPHIDÆ.

Genus 39. CATOPS.

Paykull, *Fna Suec.* i. 342 (1798).

Corpus minusculum, plus minusve ovatum, subtilissime pubescens: *prothorace* magno convexo, basi lato, angulis posticis acutis: *alis* amplis. *Antennæ* capitis prothoracisque longitudine, apicem versus leviter incrassatæ, articulo octavo contiguis paulo minore, ultimo ad apicem ipsum acuto. *Labrum* transversum, antice leviter emarginatum. *Mandibulæ* corneæ acutæ, apicem versus unidentatæ. *Maxillæ* bilobæ: *lobo externo* lineari, apice truncato: *interno* paulo breviore, ungue corneo terminali munito. *Palpi maxillares* articulo ultimo conico acuminato: *labiales* breves, articulo ultimo ovato. *Mentum* transverso-quadratum. *Ligula* profunde biloba. *Pedes* elongati graciles: *femoribus anticis* in maribus interdum dente obscuro obtuso subtus armatis: *tarsis anticis* in maribus articulis tribus subdilatatis.

A single member of the present genus is the only representative of the entire *Silphidæ* which I have hitherto been able to detect in the Madeira Islands. Strictly speaking, it falls under *Ptomophagus* of Illiger; but the distinctive characteristics of that group are so trifling,—depending almost exclusively on the shorter antennæ, the more acute hinder prothoracic angles, and the less evidently striated elytra of the insects which compose it,—that they can scarcely be regarded, at the utmost, as of more than sectional importance. In their habits, the species of *Catops* are exceedingly active, and reside, for the most part, beneath decaying vegetable substances, and stones in damp, sylvan spots.

84. Catops velox.

C. obovatus fuscus, prothorace diluto-ferrugineo, elytris plus minusve nigrescentibus, singulo striâ suturali impresso, antennarum basi pedibusque ferrugineis.

Long. corp. lin. $1\frac{1}{2}$.

Choleva velox, Spence, *Linn. Trans.* xi. 154 (1809).
Ptomophagus velox, Steph. *Ill. Brit. Ent.* iii. 6 (1830).
Catops velox, Erich. *Käf. der Mark Brand.* i. 243 (1837).

Habitat in Maderâ sylvaticâ excelsâ, rarissime;—ad Ribeiro Frio sub stipitibus madidis prope marginem aquæ ductûs "Levada" Lusitanice dicti jacentibus tempore vernali captus.

C. obovate (being rather acuminated behind), obscure rusty-brown (when immature, almost ferruginous), very slightly shining, and densely clothed throughout with a minute yellowish pile. *Prothorax* dull ferruginous, and very convex. *Elytra* darker than the prothorax, and generally a little darker than the head also,—being more or less of a blackish-brown; each with a deeply

impressed stria near the suture. *Antennæ* very slightly incrassated towards their apex; their *basal joints* and the *legs* ferruginous.

A common European insect, but apparently of the greatest rarity in Madeira, the only two indigenous examples which I have seen having been captured by myself at the edges of the Levada of the Ribeiro Frio, during the early spring. They differ in no respect from the ordinary type, except that their antennæ are perhaps just perceptibly longer, and somewhat less incrassated at their apex.

Fam. 8. PTILIADÆ.

Genus 40. ACRATRICHIS.

Motschulsky, *Bull. de la Soc. Imp. de Moscou*, xxi. 569 (1848).

Corpus minutissimum, latum, punctatissimum, pubescens: *prothorace* maximo convexo, basi plerumque latissimo, angulis posticis plus minusve productis: *elytris* subdepressis, apice truncatis: *mesosterno* carinato, *scutello* maximo: *abdomine* ex segmentis ventralibus sex composito: *alis* amplissimis lanceolatis, pilis longissimis instructis. *Antennæ* rectæ capillares pilosæ, articulis primo et secundo robustissimis subquadratis, tertio ad octavum gracilibus latitudine æqualibus, reliquis sensim crassiores, clavam laxam valde elongatam triarticulatam efficientibus. *Labrum* amplum porrectum subtriangulare. *Mandibulæ* acutæ, intus bidentatæ. *Maxillæ* bilobæ membranaceæ: *lobo externo* elongato, intus crenulato: *interno* breviore angustiore, intus ciliato. *Palpi maxillares* articulo penultimo maximo lato subpyriformi, ultimo minutissimo aciculari: *labiales* biarticulati gracillimi, ad apicem ligulæ inserti. *Mentum* angustum transversum. *Ligula* elongata, apice fissa, basi paraglossis aucta. *Pedes* valde cursorii, graciles: *coxis posticis* laminatis distantibus: *tarsis* 3-articulatis, articulo ultimo elongato.

The excessive minuteness of the insects comprehended under the *Ptiliadæ* will at once distinguish them from the members of every other family. The entire group indeed is one of the most isolated and best defined within the whole range of the Coleoptera, its unique characters of wing and foot being of themselves sufficient to remove it from every other department. Nor are its oral organs less remarkable, their singularly developed paraglossæ and palpi displaying modifications of structure exceedingly anomalous. It is under the appellation of *Trichopteryx* (proposed by Kirby, for the *Silpha minutissima* of Marsham, in 1828*, and first defined, by Stephens, in 1830) that the present genus is usually recognised. That title however having been preoccupied in the Lepidoptera, by Hubner, in 1816, it is clear that (whether afterwards retained or not) it cannot strictly be employed in another Order; and hence it was that Motschulsky in 1848 published the name of *Acratrichis* instead,—which ought therefore, in accordance with the laws of priority, to be received. When their microscopic dimensions are considered, the species of *Acratrichis* may be regarded as amongst the most active

* Vide *Int. to Ent.* iii. 41,—note.

of the whole animal kingdom, the velocity with which they run being perfectly prodigious. Like *Catops*, they delight in moist and shady spots, occurring under dead leaves, logs of wood, and other rotting substances of a vegetable nature; as well as at the roots of grass, and amongst moss, in damp localities beneath trees.

85. Acratrichis umbricola, *Woll.*

A. obovata lata valde pubescens fusco-nigra subopaca, prothorace amplissimo elytris latiore, subpicescenti, angulis posticis dilutioribus et valdissime productis, antennis pedibusque pallido-testaceis.

Long. corp. lin. $\frac{1}{2}$.

Habitat in montibus Maderæ, sub foliis arborum madidis,—prope lacum crateriformem Lagoa dictum, in regione Fanalensi, d. 12 Jul. A.D. 1850 parcissime lecta.

A. broad, and obovate (being much wider in front than behind), brownish-black, and with a just perceptibly yellowish or æneous tinge; closely punctured, subopake, and exceedingly pubescent. *Prothorax* very large, and wide (especially behind), surpassing the elytra in breadth; convex, and usually rather more fuscous, or picescent than the rest of the surface; with its posterior angles much produced, and (together with its *extreme* basal edge) somewhat flavescent. *Elytra* short and wide, with their hinder margin a little paler. *Antennæ* and *legs* pale-testaceous; the former rather long.

A large and well-marked *Acratrichis*, somewhat approaching to the *A. grandicollis* and the *A. atomaria* of more northern latitudes: nevertheless it differs from both of those species in its superior size, in its wider (though proportionably shorter) form, in its very pale legs and antennæ, and in its greatly developed and somewhat picescent prothorax,—which, at its base, far exceeds the elytra in breadth. It is apparently extremely rare, and confined to lofty sylvan spots where the constantly accumulating leaves are in a state of perpetual decay. In such localities I have taken it, during July, in the upland region of the Fanal (more than 5000 feet above the sea), especially at the edges of the round crater-like basin, known as the Lagoa, immediately before the descent of the mountain-road to the Ribeiro da Janella and Porto Moniz.

86. Acratrichis fascicularis.

A. oblongo-ovata pubescens nigra nitida, prothorace amplo ad basin elytris paulo latiore, angulis posticis valde productis, antennis infuscatis, pedibus testaceis.

Long. corp. lin. $\frac{1}{3}$.

Latridius fascicularis, Herbst, *Käf.* v. 8. t. 44. f. 7 (1793).
Trichopteryx fascicularis, Heer, *Fna Col. Helv.* i. 374 (1841).
——— *grandicollis*, Erich. *Nat. der Ins. Deutsch.* iii. 20 (1848).

Habitat Maderam, sub stercore foliisque arborum marcidis, æstate minus frequens.

A. smaller than the *A. umbricola*, and more oblong (being neither so wide in front nor so acuminated behind), and, likewise, of a deeper black; a little more coarsely punctured and shining, but not nearly so pubescent. *Prothorax* large, but not so greatly developed as that of the last species, and only slightly exceeding, behind, the base of the elytra in breadth; convex, and concolorous with the rest of the surface; with its posterior angles produced, but not so much so as those of the *A. umbricola*, and apparently not at all flavescent, though the *extreme* basal edge in that particular region is just perceptibly paler. *Elytra* with their hinder margin a little paler. *Antennæ* shorter and darker than those of the last species, being infuscate. *Legs* testaceous.

I can perceive no real distinctions between the present *Acratrichis* and the common European *A. fascicularis*; though it is due to my friend M. Motschulsky to state that he was able to detect some minute difference (unappreciable by myself) sufficient, as he supposed, to separate it from that insect,—and hence the specific title of *brevicornis* was proposed for it by him. An accurate measurement however will show that its antennæ are not in reality shorter than those of the ordinary *A. fascicularis*; and, rather therefore than incur the risk of multiplying names unnecessarily in these microscopic tribes, I prefer ascribing it to that species, especially since I cannot, myself, discover any characters important enough to warrant its removal from it.

87. Acratrichis pumila.

A. ovato-oblonga pubescens nigra subnitida, prothorace elytrorum latitudine subæquali, angulis posticis leviter productis, antennis fusco-piceis, pedibus testaceis.

Long. corp. lin. $\frac{1}{4}$–$\frac{3}{8}$.

Ptilium sericans, Schupp. *in litt.*
Trichopteryx sericans, Gillm. *in* Sturm, *Deutsch. Fna*, xvii. 52 (*nec* Heer, 1841) (1845).
———— *pumila*, Erich. *Nat. der Ins. Deutsch.* iii. 22 (1848).
Acratrichis pumila, Mots. *Bull. de la Soc. Imp. de Moscou*, xxi. 568 (1848).

Habitat Maderam, et borealem et australem, ad radices graminum vel sub foliis arborum marcidis, infra 3000′ s. m. ubique vulgaris.

A. the smallest of the three species, and more oblong than either of the others, being of almost equal breadth before and behind,—though, if anything, rather more expanded posteriorly than in front; deep black; rather distinctly punctured and pubescent, but not quite so shining as the *A. fascicularis*. *Prothorax* less developed than in either of the other species, being scarcely perceptibly broader behind than the base of the elytra; less convex than in either of the other species; and entirely concolorous with the rest of the surface; and with its posterior angles very much less produced. *Elytra* with their hinder margin a little paler. *Antennæ* and *legs* as in the *A. fascicularis*; except that the *former* are a little more darkly infuscated, or picescent, and have their apical joint rather more acuminated.

The smallest of the Madeiran *Ptiliadæ*; and I believe I do not err in referring it to the *A. pumila* of Erichson. It may be readily known from the other two species of the present genus by its more oblong and narrower outline, and by its

hinder prothoracic angles being scarcely at all produced*. It is an abundant insect throughout Madeira, below the altitude of about 3000 feet, during the summer and autumnal months,—occurring principally at the roots of grass, and beneath leaves and other decaying vegetable substances. In the vicinity of Funchal, and also at Santa Anna, I have observed it at times in great profusion.

Genus 41. PTENIDIUM.

Erichson, *Nat. der Ins. Deutsch.* iii. 34 (1848).

Corpus minutissimum, ovale, convexiusculum, nitidissimum, subglabrum: *prothorace* lateribus rotundatis, antice et postice subæqualiter angustato, angulis posticis plus minusve rotundatis: *elytris* apice integris subacuminatis: *mesosterno* vix carinato, *scutello* magno: *abdomine* ex segmentis ventralibus septem composito: *alis* amplissimis lanceolatis, pilis longissimis instructis. *Instrumenta cibaria* fere ut in Acratrichi. *Pedes* valde cursorii, graciles: *coxis posticis* simplicibus distantibus: *tarsis* 3-articulatis, articulo ultimo elongato.

The present group may be known from the previous one by the more oval, convex, and polished bodies of the minute insects which compose it,—the elytra of which cover the whole of their abdomen, instead of being (as in *Acratrichis*) abruptly truncated behind. Their upper surface, moreover, is almost entirely free from punctures and pubescence, and their prothorax (instead of being dilated) is constricted at its base, with the posterior angles more or less rounded and obtuse. In their habits, the species are similar to the members of the last genus.

88. Ptenidium apicale.

P. oblongo-ovale convexum subglabrum nigrum nitidissimum remote punctatum, prothoracis angulis posticis lateribusque rotundatis, elytris apicem versus late flavescentibus, antennis pedibusque pallido-testaceis.

Long. corp. lin. $\frac{1}{3}$.

Ptilium apicale, Sturm, *in litt.*
Trichopteryx apicalis, Gillm. *in* Sturm, *Deutsch. Fna*, xvii. 85 (1845).
Ptenidium apicale, Erich. *Nat. der Ins. Deutsch.* iii. 36 (1848).

Habitat Maderam, ad radices graminum, vel sub lapidibus foliisque arborum marcidis toto anno vulgaris: etiam in ins. Desertâ Grandi occurrit, quâ Maio exeunte, A.D. 1850 pauca specimina cepi.

---

* The present *Acratrichis* varies the eighth of a line in length, and a little in outline, according to the altitude and circumstances under which it is found, but it retains the same characters of colour, sculpture, and pubescence throughout,—as I have been able to ascertain from the examination of a very large series of specimens collected from all parts of the island. I should mention however that it was separated into three species by M. Motschulsky, two of them being considered as new, for which he proposed the names of *nigricornis* and *ovatula*; whilst the third (depending on a single individual, without a head) he identified with the *minutissima* of Linnæus. In my opinion, however, they are all referable to one; and I am inclined to think that the common *A. pumila* is the species to which they must be assigned.

P. oblong-oval, convex, and exceedingly highly polished; deep black; remotely punctured and very sparingly pubescent. *Prothorax* rounded at the sides, being broadest a little behind the middle and narrowed at its extreme base; the posterior angles rounded. *Elytra* with the punctures more perceptible than those on the prothorax; broadly flavescent towards their apex,—though more or less distinctly so in different specimens. *Antennæ* and *legs* pale testaceous.

The only *Ptenidium**, apparently, in the Madeira Islands; and exceedingly abundant below the elevation of about 3000 feet. It resides principally at the roots of grass and beneath fallen leaves, under which circumstances I have captured it in the utmost profusion in the Chestnut-woods at Santa Anna, and in the dense forest region of the Lombo dos Pecegueiros, during the summer months. On the southern side of the island it is equally common; and it may be often observed in gardens about Funchal. In that of the Rev. R. T. Lowe, at the Levada, I have taken it in great abundance; as also on the Pico do Cardo, from under stones beneath the Fir-trees: and even, though more sparingly, on the Dezerta Grande.

Fam. 9. PHALACRIDÆ.

Genus 42. OLIBRUS. (Tab. II. fig. 9.)

Erichson, *Nat. der Ins. Deutsch.* iii. 113 (1848).

Corpus minusculum, obovatum vel ellipticum, convexum, nitidissimum, glabrum: *prothorace* postice lato: *alis* amplis. *Antennæ* (II. 9 *a*) breviusculæ, articulis primo et secundo (illo præcipue) crassis, tertio longiore graciliore, quarto ad octavum paulatim brevioribus sed latitudine vix crescentibus, reliquis clavam magnam laxam oblongam triarticulatam efficientibus. *Labrum* breve transversum, antice integrum ciliatum. *Mandibulæ* (II. 9 *b*) validæ incurvæ, apice fortiter bidentatæ, intus basin versus membranâ instructæ. *Maxillæ* (II. 9 *c*) bilobæ membranaceæ: *lobo externo* longiusculo lato, apice dense barbato: *interno* brevi angusto pencillato. *Palpi maxillares* (II. 9 *c*) breviusculi filiformes, articulo ultimo elongato-ovato: *labiales* (II. 9 *d*) breves, sat robusti, articulo ultimo acuminato. *Mentum* amplum transverso-quadratum membranaceum,

---

* I cannot observe the slightest difference in any of the Madeiran specimens of this insect which I have hitherto examined: nevertheless M. Motschulsky, since his late visit to England, has distributed my series under three species, bearing the names of *P. punctatum*, Gyll., *elongatulum*, Mots., and *atomaroides*, Mots. After a careful comparison however of the whole of them beneath the microscope, and a consideration of the circumstances under which they were taken, anything like specific distinctions appear to me to be simply imaginary, since I am unable to detect so much as a single aberration out of the entire number of sufficient importance to be regarded as even a variety. I have consequently sunk them: and I believe that they are more correctly referred to the *P. apicale*, Sturm, than to any other member of the genus. From the *P. punctatum* they differ (*vide* Gyll. *Ins. Suec.* iv. 293, and Sturm's *Deutsch. Fna*, xvii. 84) in having the apex of their elytra always flavescent, and their punctures less apparent,—those moreover on the prothorax being the faintest and exceedingly few in number; whereas in that insect the punctures are described as being numerous, and more deeply impressed on the prothorax than on the elytra. The prothorax also of the *P. punctatum* is of a different form.

antice leviter angustatum et tenuissimum, utrinque in lobum medium lateralem productum. *Ligula* lata biloba, lobis rotundatis ciliatis. *Pedes* cursorii, subgraciles: *femoribus tibiis*que compressis, *his* apice leviter spinulosis et calcariis internis sat distinctis munitis: *tarsis* (II. 9 *e*. 9 *f*. 9 *g*) articulo tertio bilobo, quarto minutissimo; *posticis* (II. 9 *e*) elongatis, articulo secundo longiusculo.

Olibrus was established by Erichson, in 1848, in order to contain those members of *Phalacrus* which had the terminal joint of their maxillary palpi slightly robuster than is the case with the ordinary representatives of the group, their tibial spurs distincter, and their two hinder tarsi somewhat more produced, and with the second articulation the longest. To these characters however I think the construction of the mentum should certainly be added, since, if my observations be correct, it is the most invariable, and therefore the most important, feature which the several species possess. Thus, in all the *Olibri* which I have dissected it is narrowed anteriorly (where it is extremely thin and membranaceous), and has the sides produced, about the middle, into a large rounded lobe; whereas in the true *Phalacri* it is broader in front than behind, truncated at the apex, and altogether more transverse and of a thicker texture. In fact, with the exception of the peculiarity of their mentum, it seems to me that the *Olibri*, as defined by Erichson, are apt to merge almost imperceptibly (especially as regards the spines of their tibiæ) into the normal *Phalacri*,—of which the common European *P. coruscus* is supposed to be the type: and it is far from improbable moreover that in some of the forms an intermediate state of mentum may exist likewise,—in which case none of the elements of *Olibrus* can be considered as sufficiently constant to be of more than sectional significance. They are insects which are subject to considerable instability, both in size and colour, and are consequently in many instances extremely difficult to determine, specifically. There are few genera indeed amongst the entire Coleoptera in which an extensive series of examples is more positively required in order to investigate the species aright, and to discover the boundaries between which some of them would appear to range. They are almost exclusively of flower-infesting habits; and run with the utmost agility. They are excessively gregarious, and may usually therefore be taken in large numbers where they exist at all.

89. Olibrus Cinerariæ, *Woll.* (Tab. II. fig. 9.)

O. subrotundato-obovatus subviridescenti-niger nitidus, capite prothoraceque rufo-testaceis, elytris substriatis ad apicem testaceis, singuli striis duabus suturam versus reliquis paulo distinctioribus, antennis pedibusque testaceis.

Long. corp. lin. $1\frac{1}{3}$.

Habitat flores *Cinerariæ auritæ* (= *Senecionis Maderensis*, De Cand.) in rupibus Maderæ crescentis, præsertim per partem sylvaticam æstate, rarissimus: ad Cruzinhas est paulo copiosior, quâ Julio ineunte A.D. 1850 plurima specimina collegi.

O. roundish-ovate (being but very slightly wider in front than behind), convex, shining, and black,—with a just distinguishable greenish tinge. *Head* and *prothorax* bright rufo-testaceous. *Elytra* obscurely substriated, the striæ (as in the other species) vanishing in front, the two on each which are nearest the suture being more distinct than the rest: their apex more or less pale testaceous. *Antennæ* and *legs* testaceous, or rufo-testaceous,—being usually only a shade paler than the head and prothorax.

A large and most elegant *Olibrus*, and at once distinguished by its comparatively hemispheric form, by its bright rufo-testaceous head and prothorax, and by its deep black elytra,—which have a just perceptibly greenish tinge on their surface, and of which the extreme apex is alone pale. It is apparently exceedingly rare, or at any rate local, occurring principally at high elevations, and in remote spots, within the sylvan districts. It would seem to be confined to the flowers of the *Cineraria aurita*, the purple clusters of which are so conspicuous on the damp perpendicular rocks of lofty altitudes. I have captured it, sparingly, near the head of the Ribeiro de Santa Luzia in May; and, more abundantly, in the upland region of the Cruzinhas, during July.

90. Olibrus bicolor.

O. obovatus subænescenti-nigropiceus nitidissimus, elytris substriatis, apicem versus obscure diluto-rufescentibus, singuli striis duabus suturam versus distinctioribus, antennis pedibusque subdiluto-testaceis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Sphæridium bicolor, Fab. *Ent. Syst.* i. 82 (1792).
Phalacrus bicolor, Sturm, *Deutsch. Fna*, ii. 77 (1807).
———— ———, Gyll. *Ins. Suec.* iii. 431 (1813).
Olibrus bicolor, Erich. *Nat. der Ins. Deutsch.* iii. 116 (1848).

Habitat in floribus Maderæ, hinc inde, tempore vernali, vulgatissimus.

O. obovate (being distinctly wider in front than behind), convex, exceedingly brilliantly polished, and more or less of a dark rufo-piceous, or piceous-black hue,—with a very perceptibly æneous tinge. *Elytra* obscurely substriated, the two striæ on each nearest to the suture being alone tolerably distinct: more or less obscurely, and very gradually dull brownish-rufescent, or somewhat chestnut, towards the apex. *Antennæ* and *legs* dull testaceous.

There can be no doubt but that the present insect and the following one approach each other very closely, and it is not without hesitation that I have treated them as separate. For some time indeed I had considered them to be but modifications of the *O. bicolor*; nevertheless a careful comparison of a very large series of specimens has subsequently induced me to believe that they are truly distinct, since there is no difficulty whatsoever in discriminating them in a general way, even though it is equally certain that about two examples out of every forty which I have examined are doubtful, and might apparently be referred to either. Still,

the normal states are so clearly expressed that I cannot regard these occasional links as more than exceptional varieties from either side, and which would fall as unmistakeably into their proper spheres as any of the remainder, were we better able to grasp their exact characteristics, and to appreciate small shades of difference which are not the less real because obscure. Nor must we forget that in our ignorance of even the nature of "species," so called, we may sometimes err in attempting to define too rigidly the boundaries of their attributes; for, whilst, as a matter of course, we must unquestionably assume them to be absolutely unconnected (that is to say, to have descended from common parents,—each of their peculiar kind), yet it is difficult to assert positively that creatures which in outward points are thus intimately allied are of necessity *so* opposite in their endowments that they may not now and then intermix, and produce those very aberrations (albeit perhaps not able, themselves, to perpetuate their race) which we are apt to lay hold of, even when occurring thus sparingly, to destroy the specific claims of the insects which have accidentally given them birth. And I should frequently, therefore, be inclined to look upon such-like media as *lapsus naturæ* rather than as connective,—at any rate where they are only of rare experience and exist between forms the limits of which are otherwise clear and unambiguous. With these few remarks, which I have somewhat prolonged, as likely to apply in instances besides the present one, it will be sufficient to add that the *O. bicolor* (which, if my identification of it be correct, would appear to attain a rather larger size in Madeira than the ordinary type) may be distinguished, for the most part, from the following species, not merely by its superior bulk, but by its less posteriorly-acuminated outline, by its usually just perceptibly darker and less brassy hue, and by its legs and antennæ being, almost invariably, both of a more diluted testaceous tinge and (proportionably) a trifle longer. It is an abundant insect, during the spring and summer months, in certain parts of Madeira, at rather low and intermediate elevations. In May of 1849, whilst encamped in the Ribeiro de Santa Luzia with the Rev. R. T. Lowe, I captured it in the utmost profusion from amongst the long grass and flowers immediately outside my tent,—and in company with the *O. liquidus*, which thus, at all events, cannot be a *local variety* of it.

91. Olibrus liquidus.

O. obovatus postice paulo magis acuminatus, subænescenti-nigropiceus nitidissimus, elytris substriatis, apicem versus diluto-rufescentibus, singuli striis duabus suturam versus distinctioribus, antennis pedibusque testaceis, illis breviusculis.

Long. corp. lin. $\frac{11}{12}$–$1\frac{1}{3}$.

Phalacrus ovatus, Hoffm. *in mus.*
Olibrus liquidus, Erich. *Nat. der Ins. Deutsch.* iii. 117 (1848).

Habitat Maderam, in locis similibus ac *O. bicolor*, una cum illo degens.

O. similar to the last species, but smaller and of more variable stature, a little narrower in proportion, and rather more acuminated behind, also, for the most part, with a little more perceptibly brassy tinge. *Elytra* as in the *O. bicolor*, but generally a little paler, or more brightly chestnut, posteriorly. *Antennæ* and *legs* testaceous, being a shade paler than those of that insect.

The distinctions between the present insect and the last have been already fully pointed out, not only under that species, but likewise in the above comparative diagnosis. It is equally abundant, occurring on flowers and amongst grass, and usually in company with it. I believe it to be correctly referred to the *O. liquidus* of Erichson, with the description of which it appears to agree sufficiently well.

92. Olibrus consimilis.

O. rotundato-oblongus infuscato-rufopiceus nitidissimus, elytris apicem versus late testaceis, singulo striâ suturali valde profundâ impresso, antennis pedibusque testaceis, illis breviusculis.

Long. corp. lin. 1–1¼.

Dermestes consimilis, Mshm, *Ent. Brit.* i. 75 (1802).
Phalacrus geminus, Illig. *in Panz. Krit. Rev.* i. 27 (1805).
——— *testaceus*, Gyll. *Ins. Suec.* iii. 432 (1813).
Olibrus geminus, Erich. *Nat. der Ins. Deutsch.* iii. 120 (1848).

Habitat in graminosis Maderæ, rarissimus: tria specimina adhuc vidi, unum sc. ad summam originem convallis Ribeiro de Santa Luzia dictæ Maio exeunte A.D. 1849, et duo ad Lombo dos Pecegueiros mense Julio A.D. 1850, a meipso reperta.

O. roundish-oblong (being but very slightly wider in front than behind, but neither quite so broad nor so rounded as the *O. Cinerariæ*), not quite so convex as any of the other species, exceedingly brilliantly polished, and of a pale, brownish-rufopiceous hue. *Elytra* almost unstriated, with the exception of a single, very deeply impressed sutural stria on each: their apex broadly and brightly testaceous. *Antennæ* and *legs*, also, testaceous: the *former* rather short.

A most abundant European insect, but apparently extremely rare in Madeira, which in all probability is one of its most southern stations. During my constant researches in all parts of the island I have hitherto taken but three specimens;—one in 1849 in the Ribeiro de Santa Luzia, and two at the Lombo dos Pecegueiros in July 1850. It may be readily known from the rest of the *Olibri* here described by its pale fusco-piceous hue, by its short and comparatively oblong form, by its rather abbreviated antennæ, and by the *single* deep stria with which each of its elytra are impressed close to the suture.

Fam. 10. NITIDULIDÆ.

Genus 43. CARPOPHILUS.

(Leach) Steph. *Ill. Brit. Ent.* iii. 50 (1830).

Corpus minusculum, plus minusve subcylindrico-oblongum: *prothorace* subquadrato convexo: *elytris*

abbreviatis, apice truncatis: *alis* amplis. *Antennæ* breves, articulo primo magno crasso, secundo et tertio longioribus et (hoc præcipue) gracilioribus, quarto ad octavum minutis latitudine paulatim vix crescentibus, reliquis capitulum magnum solidum orbiculato-ovatum triarticulatum efficientibus. *Labrum* semicirculare ciliatum, antice fisso-emarginatum. *Mandibulæ* validæ, apice bidentatæ. *Maxillæ* lobo singulo pubescenti instructæ. *Palpi* filiformes, articulo ultimo elongato, in *maxillaribus* subacuminato, in *labialibus* crassiore ovato-truncato. *Mentum* transverso-quadratum, antice angustatum. *Ligula* apice biloba, lobis divergentibus pubescentibus. *Pedes* subcontractiles: *tarsis* articulo quarto minutissimo.

Apart from the modifications of its trophi, which may be gathered from the above diagnosis, but which differ however but slightly from those of the neighbouring genera, *Carpophilus* may be known by its abbreviated elytra and its more quadrate prothorax,—which last is usually convex throughout, instead of having the margins flattened or recurved, as is more or less the case in *Nitidula* proper. It is a genus which subsists mainly on articles of commerce, especially sugar and dried fruits; and hence, as might be expected, is widely distributed over the world, following everywhere in the track of man. The species are often very abundant on board ship; and in all probability the three Madeiran representatives have been imported into the island from other countries, being found either in Funchal itself, or in houses where merchandise is stowed away, in its immediate vicinity.

93. Carpophilus mutilatus.

C. subcylindrico-oblongus rufo-ferrugineus pubescens, prothorace magno subquadrato, elytris vix pallidioribus, abdomine supra et infra subfuscescente.

Long. corp. lin. $1\frac{2}{3}$.

Nitidula hemiptera, Fab. (*nec* Linn. 1767) *Ent. Syst.* i. 261 (1792).
Carpophilus mutilatus, (Hoffm. *in mus.*) Erich. Germ. *Zeitsch. für die Ent.* iv. 258 (1843).

Habitat in domibus Maderæ, præsertim prope Funchal, minus frequens; in ipsâ urbe mercatorum repositoriis frequentior, forsan ex Americæ meridionalis insulis illuc saccharinis introductus.

C. oblong, somewhat parallel and subcylindric; punctured, rufo-ferruginous, and clothed with paler pubescence. *Prothorax* large and subquadrate, being almost as broad before as behind. *Beneath* with the meso- and meta-thoraces and the abdomen (the last above as well as below) slightly darker. *Elytra* a little paler than the remainder of the surface.

Evidently imported into Madeira; occurring on the walls of houses in and near Funchal, though nowhere abundantly. In granaries and warehouses, however, it is less scarce, where it would appear to feed more especially on sugar and dried fruits, in company with the *C. hemipterus*. It is found under similar circumstances in the south of Europe,—where it is recorded in Spain, Portugal and Sicily: I also possess specimens from Italy. It was wrongly referred by Fabricius to the *Dermestes hemipterus* of Linnæus, which is a totally different insect, as may be seen from the diagnosis given below; and hence it is that the name of

mutilatus (first proposed by Hoffmansegg for a specimen from Portugal) was retained by Erichson for the present species.

94. Carpophilus auropilosus, *Woll.*

C. oblongus fusco-niger pubescens, prothorace magno subquadrato convexo, antennis pedibusque ferrugineis.

Long. corp. lin. $1\frac{1}{4}$.

Habitat urbem Funchalensem, unde exemplar unicum Dom. Rousset nuper misit.

C. oblong, punctured, black with a slight brownish tinge, and densely clothed with pale yellowish pubescence. *Prothorax* large, convex and subquadrate, being nearly as broad before as behind. *Elytra* with the *extreme* apical margin a little infuscate. *Mouth, legs* and *antennæ* ferruginous, the *last* with their *club* somewhat dusky.

Distinguished from the *C. mutilatus* and the *C. hemipterus* by its somewhat smaller size and uniformly dark hue,—its antennæ and legs, added to the golden pubescence with which it is clothed, being alone pale. The only specimen which I have seen was lately communicated to me by M. Rousset, by whom it was captured in the vicinity of Funchal. Like the other Madeiran *Carpophili*, it is probably an introduced insect: nevertheless, not having been able to identify it with any known species, I have been compelled to describe it as new.

95. Carpophilus hemipterus.

C. subovato-oblongus nigro-fuscus pubescens, prothorace minus quadrato, elytro singulo maculis duabus, unâ sc. humerali sinuatâ et alterâ apicali magnâ, flavis interdum confluentibus ornato, antennarum basi pedibusque testaceis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{2}{3}$.

Dermestes hemipterus, Linn. *Syst. Nat.* ii. 567 (1767).
Nitidula bimaculata, Oliv. *Ent.* ii. 12. 6 (1790).
——— ———, Gyll. *Ins. Suec.* i. 244 (1808).
Carpophilus hemipterus, Sturm, *Deutsch. Fna*, xv. 36 (1844).
——— ———, Erich. *Nat. der Ins. Deutsch.* iii. 135 (1848).

Habitat Maderam, cum *C. mutilato* sed illo multo copiosior.

C. oblong-ovate, punctured, blackish-brown, or black, and clothed with a yellowish pubescence. *Prothorax* large, but somewhat transverse, being a little narrower before than behind, and with the margins occasionally slightly paler than the disk. *Elytra* rather shorter than in either of the preceding species, with two zigzag patches on each,—viz. a small one at the shoulder, and a large one occupying more or less of the entire apical half,—pale yellow; the latter sometimes so broad as to be almost confluent with the former. *Mouth, base of antennæ* and *legs* testaceous.

Found in company with the *C. mutilatus*, but much more plentifully: amongst

dried figs I have observed it occasionally in the greatest profusion. It is common throughout Europe and in Algeria, but was, originally, in all probability, a native of a colder climate than the *C. mutilatus*, since the latter has not been able, apparently, to establish itself in northern Europe, whereas the present insect occurs in equal abundance both in the north and the south.

Genus 44. NITIDULA.

Fabricius, *Syst. Ent.* 77 (1775).

Corpus minusculum, plus minusve depressum et læte coloratum: *prothorace* in discum subconvexo, ad latera plerumque complanato necnon sæpius subrecurvo: *elytris* apice truncatis, pygidium vix tegentibus: *alis* amplis. *Antennæ* breviusculæ, articulo primo magno crasso, secundo ad octavum multo gracilioribus (tertio sæpe reliquis longiore graciliore), reliquis capitulum magnum subsolidum orbiculato-ovatum triarticulatum efficientibus. *Labrum* antice ciliatum. *Mandibulæ* validæ, apice bidentatæ. *Maxillæ lobo singulo* pubescenti instructæ. *Palpi* filiformes. *Mentum* transverso-subquadratum, antice vel leviter emarginatum vel productum. *Ligula* apice biloba, lobis magnis pubescentibus. *Pedes* subcontractiles: *tibiis* extus integris: *tarsis* articulo quarto minutissimo, *anticis* articulis tribus sæpius dilatatis.

The *Nitidulæ*, subdivided by Erichson, as I cannot but believe, into too many genera, may, apart from the distinctive characters of their oral organs (which will be gathered from the above diagnosis), be usually recognised from their allies by their comparatively depressed bodies, and by the more or less flattened edges of their prothorax. In their economy they are midway between *Carpophilus* and *Meligethes*, combining the ossiphagous, or almost omnivorous, propensities of the former with the flower-infesting habits of the latter. And, since we have such opposite modes of life indicated in the same genus, we find, as would naturally be expected, insects of intermediate tendencies likewise,—which are perhaps the most numerous, and may be considered as constituting the normal members of the group. Such species reside between chippings of wood or under the bark of trees, feeding on decaying vegetable matter, more particularly in spots where recent wounds have caused the sap to exude and the bark to have become loose. Of the four representatives however which I have hitherto detected in the Madeira Islands, three belong to the ossiphagous, and one only to the strictly subcortical division: and it is more than probable indeed that the former may have been accidentally imported from more northern latitudes, since they do not appear to exist at all in the uncultivated regions, but merely in the vicinity of the towns,—positions in which they would be the more easily naturalized, from the constant supply of their proper food with which such localities must necessarily abound.

§ I. *Labrum transversum, antice leviter emarginatum : palpi articulo ultimo subacuminato : mentum antice plus minusve productum* (Nitidula *et* Omosita, *Erich.*). Habitant præcipue in cadaveribus.

96. Nitidula flexuosa.

N. lato-oblonga depressa subfusco-nigra, prothorace antice vix emarginato, lateribus testaceis ciliatis, elytris maculâ mediâ communi abbreviatâ necnon plagâ magnâ (postice dentatâ) ad humerum singuli sitâ pallido-testaceis ornatis, antennarum basi pedibusque testaceis.

Long. corp. lin. $1\frac{1}{2}$–$2\frac{2}{3}$.

Nitidula flexuosa, Oliv. *Ent.* ii. 12. 7 (1790).
——— ———, Fab. *Ent. Syst.* i. 258 (1792).
——— ———, Heer, *Fna Col. Helv.* 397 (1841).
——— ———, Erich. *Nat. der Ins. Deutsch.* iii. 159 (1848).

Habitat in cadaveribus Portûs Sancti, tempore hiberno et vernali non infrequens.

N. broad and oblong, depressed, dull brownish- or piceous-black, most minutely punctulated, and pubescent. *Prothorax* very slightly emarginated, or arcuated, in front; large and wide, rounded at the sides, and broadest a little behind the middle; the lateral edges testaceous, and fringed with a fine silken pubescence. *Elytra* with a transverse abbreviated central patch, common to both, and a large flexuose (posteriorly ragged) portion at the shoulder of each (usually enclosing a minute isolated one within its concavity) pale testaceous. *Antennæ at base* and the *legs* testaceous; the *former* with their club infuscate.

Owing probably to its habits, which would favour its dissemination over the civilized countries of the world, the present large and beautiful *Nitidula* is an insect of very wide geographical range. It occurs (though scarcely in such abundance as some of the allied species) throughout the greater portion of Europe and the north of Africa; and it has been even received from Syria, and other parts of Asia. Hitherto I have not observed it in Madeira proper, but only in the island of Porto Santo, where, during December of 1848, I captured it in great profusion, adhering to the dried skeleton of a goat, on the edges of the Campo de Baxo, to the westward of the Cidáde.

97. Nitidula 4-pustulata.

N. angusto-suboblonga fusco-nigra, prothorace convexo antice vix emarginato, lateribus ciliatis, elytro singulo maculis duabus, unâ sc. subrotundatâ longe intra humerum sitâ necnon alterâ majore oblongâ obliquâ postmediâ, testaceis ornato, antennarum basi pedibusque ferrugineis.

Long. corp. lin. 1–$1\frac{1}{2}$.

Nitidula 4-pustulata, Fab. *Ent. Syst.* i. 255 (1792).
——— ———, Illig. *Mag. für Ins.* i. 88 (1801).
——— ———, Heer, *Fna Col. Helv.* 401 (1841).
——— ———, Erich. *Nat. der Ins. Deutsch.* iii. 160 (1848).

Habitat Maderam, et borealem et australem, tempore hiberno et vernali, passim,—etiam in hortis Funchalensibus interdum abundans.

N. narrow and nearly oblong, less depressed than the last species, brownish-black, most minutely punctulated, and pubescent. *Prothorax* scarcely at all emarginated in front (being even less so than in the *N. flexuosa*), narrower in proportion than that of the last species, and straighter at the sides; the lateral edges fringed with a fine silken pubescence. *Elytra* with a small roundish patch a long way within the humeral angle of each, and a larger, oblique and somewhat oblong one a little behind their respective disks, testaceous. *Antennæ at base* and the *legs* ferruginous; the *former* with their club infuscate.

In all probability an imported insect into Madeira, occurring principally in the immediate vicinity of Funchal,—especially in gardens, where it may be often captured adhering to bones. I have however taken it, likewise, in the north of the island, at Santa Anna, though more sparingly. It occurs throughout the greater portion of Europe, but is not usually so abundant as the *N. discoidea*.

98. Nitidula discoidea.

N. lato-suboblonga nigra, prothorace antice profunde emarginato, inæquali, pone discum bifoveolato, limbo plus minusve ferrugineo, elytris in discum latissime testaceis, antennis pedibusque infuscato-ferrugineis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Nitidula discoidea, Fab. *Ent. Syst.* 78 (1775).
——— ———, Illig. *Käf. Preus.* 381 (1798).
——— ———, Gyll. *Ins. Suec.* i. 219 (1808).
——— ———, Heer, *Fna Col. Helv.* 398 (1841).
Omosita ———, Erich. *Nat. der Ins. Deutsch.* iii. 168 (1848).

Habitat in ossibus prope Funchal, una cum præcedente degens sed illâ rarior.

N. broad and oblong, a little more convex on the disk than either of the preceding species, black, rather coarsely punctulated (especially on the prothorax), and somewhat sparingly pubescent. *Prothorax* deeply emarginated in front, short and transverse, the entire margins (especially about the anterior angles) more or less dusky ferruginous; its surface uneven, being considerably flattened and a little recurved at the sides, and with two short rounded foveæ behind the centre of the disk. *Elytra* with a large, ragged, pale testaceous blotch, common to both, upon the disk,—leaving only the margins, the apical portion, and a few broken lines or spots within the paler region, black. *Antennæ* and *legs* brownish-ferruginous.

One of the commonest European *Nitidulæ*, and, like the *N. 4-pustulata*, probably naturalized in Madeira, where it is apparently exceedingly scarce. I have taken it from out of bones in the neighbourhood of Funchal, during the winter and spring, but have not as yet observed it in any other portion of the island.

§ II. *Labrum semicirculare, antice anguste fisso-emarginatum : palpi articulo ultimo in maxillaribus subovato, in labialibus crassiore subrotundato-truncato : mentum antice leviter emarginatum.* (Epuræa, *Erich.*) Habitant plerumque sub cortice arborum vel etiam in floribus.

99. Nitidula obsoleta.

N. oblonga depressa diluto-testacea, in discum plus minusve subinfuscata, prothorace antice profunde emarginato, elytro singulo maculis duabus obsoletissimis vix observandis pallidioribus ornato, antennarum basi pedibusque testaceis.

Variat colore omnino pallido-testaceo.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Nitidula obsoleta, Fab. *Ent. Syst.* i. 256 (1792).
——— ———, Gyll. *Ins. Suec.* i. 223 (1808).
——— ———, Heer, *Fna Col. Helv.* 398 (1841).
Epuræa ———, Erich. *Nat. der Ins. Deutsch.* iii. 148 (1848).

Habitat Maderam sylvaticam, sub cortice arborum truncisque recenter sectis, tempore vernali et æstivo, rarissima : ad Ribeiro Frio necnon in Maderâ boreali, in castanetis Sanctæ Annæ, hinc inde observavi.

N. oblong, depressed, testaceous, minutely punctulated and pubescent. *Prothorax* very deeply emargined in front (being rather more so than even that of the last species), rather straightened at the sides, and broadest a little behind the middle; the disk generally slightly infuscated. *Elytra*, likewise, a little darker on the disk; and each with an exceedingly obscure (sometimes scarcely perceptible) patch behind the centre of its disk, and another (still obscurer) about the region of the shoulder, paler. *Antennæ* and *legs* usually of a rather paler testaceous shade than the rest of the surface; the *former* with their club infuscate.

Likewise a common European insect, but exceedingly rare in Madeira, being found sparingly throughout the sylvan districts beneath the bark and chippings of trees, or adhering to the under sides of recently felled trunks. I have taken it, during the summer months, at the Ribeiro Frio and in the Chestnut-woods of Santa Anna; as also at the head of the Ribeiro de Santa Luzia, during my encampment there with the Rev. R. T. Lowe, in May 1849.

Genus 45. PRIA.

(Kirby) Steph. *Ill. Brit. Ent.* iii. 49 (1830).

Corpus minusculum, subconvexum : *prothorace* leviter marginato : *elytris* apice truncatis, pygidium totum vix tegentibus : *alis* amplis. *Antennæ*, præcipue in maribus, longiusculæ, clavâ masculâ 4-articulatâ laxâ subserratâ (articulis octavo, nono et decimo intus productis), clavâ fœmineâ 3-articulatâ solidiore. *Labrum* prominulum, antice ciliatum et profunde bilobum. *Mandibulæ* validæ, apice denticulatæ, basi latissimæ. *Maxillæ lobo singulo* brevi pubescenti instructæ. *Palpi* filiformes, articulo ultimo subacuminato-truncato. *Mentum* subquadratum antice angustatum, summo apice emarginato. *Ligula* apice biloba, lobis angustis divergentibus pubescentibus.

Pedes contractiles: *tibiis anticis* ad marginem externum minutissime spinulosis: *tarsis* articulo quarto minutissimo, *anticis* articulis tribus dilatatis.

Of the present genus but a single species has been hitherto discovered, namely the *Laria Dulcamaræ* of Scopoli,—for the *male* of which (supposed erroneously to be distinct from the female) the group was originally proposed. It is on account of the structure of its antennæ that the mistake as regards the sexes appears to have arisen,—those of the male being the longest, and having their club composed of four loosely-attached and (with the exception of the apical one) internally-produced joints, whereas in the female it is subsolid and merely triarticulate. Such characters as these are of course sufficient, even of themselves, to separate *Pria* from the allied forms; and we need only therefore add that it would seem, externally, to constitute somewhat of a connecting link between *Nitidula* and *Meligethes*, its partially pale surface and submargined prothorax leading us very gradually from the variegated and flattened bodies of the former to the darker and convexer ones of the latter,—to which in its flower-infesting habits however it is the more nearly allied.

100. Pria Dulcamaræ.

P. oblonga infuscato-ferruginea, regione scutellari, pectore, abdomine antennarumque clavâ plus minusve nigrescentibus, antennarum basi pedibusque diluto-testaceis.

Long. corp. lin. $\frac{2}{3}$–1.

Laria Dulcamaræ, Scop. *Ent. Carn.* 22 (1763).
Nitidula Dulcamaræ, Ill. *Käf. Preus.* 387 (1798).
Silpha truncatella, Mshm, *Ent. Brit.* i. 123 (1802).
Pria truncatella et Meligethes Dulcamaræ, Steph. *Ill. Brit. Ent.* iii. 45 et 50 (1830).
—— *Dulcamaræ*, Sturm, *Deutsch. Fna*, xv. 127 (1844).

Habitat in floribus Maderæ, tempore vernali et æstivo, non infrequens: ab hortis Funchalensibus fere ad summos montes ascendit, sed in locis intermediis (e. g. castanetis Sanctæ Annæ) præcipue abundat.

P. oblong, slightly convex, brownish-ferruginous, or testaceous-brown, minutely punctulated and pubescent. *Prothorax* subquadrate. The *region of the scutellum*, the *breast*, the *abdomen*, and the *antennæ* at *apex* more or less dark, or nigrescent. The *last* at base, and the *legs* diluted-testaceous.

A widely distributed insect over Europe, but apparently somewhat scarce in Madeira;—occurring however sparingly in most parts of the island, and at nearly all elevations. I have taken it from out of flowers in the gardens around Funchal, in May,—especially in that of the Rev. R. T. Lowe at the Levada; as also in the Chestnut-woods of Santa Anna, more abundantly, in June; and in the upland region of the Cruzinhas (nearly 5000 feet above the sea), during July.

Genus 46. MELIGETHES.

(Kirby) Steph. *Ill. Brit. Ent.* iii. 45 (1830).

Corpus minusculum, convexum, colore sæpius obscuro vel submetallico: *prothorace* vix marginato: *elytris* apice truncatis, pygidium totum vix tegentibus: *alis* amplis. *Antennæ* breviusculæ, articulis primo et secundo (illo præcipue) magnis crassis, tertio reliquis longiore graciliore, inde ad octavum paulatim brevioribus crassioribus, reliquis capitulum magnum subsolidum orbiculato-ovatum triarticulatum efficientibus. *Labrum* antice ciliatum et profunde bilobum. *Mandibulæ* validæ, apice denticulatæ, basi latæ. *Maxillæ lobo singulo* elongato pubescenti instructæ. *Palpi* subfiliformes, articulo ultimo subacuminato-truncato. *Mentum* transversum antice angustatum, summo apice emarginato. *Ligula* apice biloba, lobis magnis pubescentibus. *Pedes* contractiles: *tibiis* (præsertim *anticis*) ad marginem externum sæpius spinulosis: *tarsis* articulo quarto minutissimo, *anticis* articulis tribus dilatatis.

Meligethes, although differing but slightly in real structure from the neighbouring genera, has nevertheless, as may be gathered from the above diagnosis, small distinctive features of its own (amongst which the elongated lobe of its maxillæ should be especially noticed) even in the details of its oral organs. In its deeply bilobed upper lip and in the truncated apex of its labial palpi it coincides with *Pria*; whilst, on the other hand, its transverse mentum and the shortness of its antennæ would tend to strengthen its relation with *Nitidula*. Externally, however, there is but little fear of confounding the species which compose it with those of any of the neighbouring groups, their convex and usually darkly coloured bodies, which are generally either entirely black or else ornamented with a slightly metallic tinge, in conjunction with the comparatively unmargined edges of their prothorax, at once serving, even *primâ facie*, to identify them. Of the four Madeiran representatives which I have hitherto succeeded in detecting, two would appear to be undescribed, and are probably peculiar to these islands.

101. Meligethes Isoplexidis, *Woll.*

M. oblongo-ovatus subdepressus niger longe olivaceo-pubescens, elytris ad apicem magis abbreviatis, antennis pedibusque infuscato-ferrugineis, tibiis anticis apicem versus subdilatatis atque extus valde pectinato-serratis.

Var. β. subcyanescenti-niger et cinereo-pubescens, prothorace paulo latiore, antennis pedibusque pallidioribus.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Habitat Maderam, in floribus necnon super folia ~~*Isoplexidis Sceptri*~~ *Echium candicans*, ad rupes locis editioribus nascentis, æstate haud infrequens: ad Feijãa de Córte mense Augusto ineunte A.D. 1850 utrumque sexum (in copulâ) copiosissime cepi.

M. oblong-ovate, somewhat acuminated before and behind, comparatively depressed, black, finely and closely punctulated, and densely clothed with a long, and rather robust, olivaceous (sometimes nearly golden-yellow) pubescence. *Prothorax* subquadrate. *Elytra* more truncated behind than

is the case with any of the following species, exposing the pygidium, which is usually somewhat acuminated. *Antennæ* and *legs* dull brownish- or piceo-ferruginous: the *former* with their base a little paler: the latter with their *fore-tibiæ* slightly dilated towards the apex, and with the outer edge very powerfully serrated,—having usually about nine large teeth (diminishing in size), and about six more (very minute ones) which extend to the extreme base.

Var. β. with a slightly bluish tinge, and with the pubescence on the upper surface cinereous (instead of olivaceous): the *prothorax* rather larger and broader than in the ordinary type; and the *legs* and *antennæ* somewhat paler.

A large and distinct *Meligethes*, and one which may be readily known from the rest of the genus here described, not only by its anteriorly and posteriorly subacuminated outline, and by its more abbreviated elytra, but likewise by the dense olivaceous, or almost golden pubescence with which its upper surface is clothed, and by the structure of its fore-tibiæ, which are more powerfully serrated than in any of the other species, and have nine exceedingly robust (though unequal) teeth on the apical half of their outer edge, and about six or seven extremely minute ones extending to its base. I have as yet only detected it on the flowers and foliage of the *Isoplexis Sceptrum*, where, during the summer months, it would appear to be far from uncommon at intermediate and lofty altitudes in the mountains of Madeira,—although, from the precipitous and almost inaccessible nature of the rocks on which that magnificent plant principally flourishes, it is usually a somewhat difficult insect to obtain. On the abrupt declivities at the Feijãa de Córte, and in the remote adjoining ravine of the Ribeiro da Quebrada, I took it in great abundance, at the beginning of August 1850. Of the *var.* β. but a single specimen has hitherto come beneath my observation,—captured, by myself, at the extreme head of the Ribeiro de João Delgada during July of the same year.

102. Meligethes tristis.

M. oblongus subconvexus niger cinereo-pubescens, antennarum basi vix conspicue pallidiore, tibiis anticis sublinearibus, extus pectinato-serratis.

Long. corp. lin. 1–1¼.

Nitidula tristis, Schüpp. *in litt.*
Meligethes tristis, Sturm, *Deutsch. Fna*, xvi. 40. t. 309. f. *a*, A, *b* (1845).
——— ———, Erich. *Nat. der Ins. Deutsch.* iii. 190 (1848).
——— ———, Redt. *Fna Austr.* 169 (1849).

Habitat insulas Maderenses, tempore vernali in floribus ubique vulgaris: in Portu Sancto necnon in ins. Desertæ Grandis abundat: "Funchal in rosis," teste Dom. Heer.

M. almost oblong, rather narrower and convexer than the last species, black, finely and closely punctulated, and densely clothed with a delicate cinereous pubescence,—which has sometimes a slightly yellowish tinge. *Prothorax* subquadrate. *Antennæ at base* only just perceptibly paler than the rest of the surface. The legs with their *fore-tibiæ* comparatively linear, being less dilated, or externally rounded, towards the apex than is the case in any of the other species, and

with the outer edge powerfully serrated,—having usually six large teeth (of unequal sizes), and about five more (very minute ones) which extend nearly to, although gradually diminishing at, the base.

The present *Meligethes* may be at once known from the other species with which we are here concerned by its smaller size and almost entirely black hue (the basal portion of its antennæ being alone just perceptibly paler than the rest of the surface), as well as by the structure of its comparatively linear fore-tibiæ,—which have six very powerful teeth along the apical half of their outer edge, and about five or six other, very minute, ones gradually diminishing towards their base. The relative proportions of the teeth are not precisely the same as those which are figured in Sturm's *Deutschlands Fauna*, but typical specimens of the *M. tristis* which I have received from Berlin agree sufficiently well with the Madeiran insect as to leave but little doubt, in my own mind, that the two are specifically coincident. It is extremely abundant throughout most of the islands of the group, occurring in flowers during the spring and early summer months. In the immediate vicinity of Funchal, especially towards the upper extremity of the Ribeiro de Santa Luzia, I have at times observed it in the greatest profusion: and in Porto Santo and on the Dezerta Grande it is scarcely less common.

103. Meligethes picipes.

M. subrotundato-oblongus convexus niger cinereo-pubescens, antennis pedibusque anticis fusco-picescentibus, posterioribus fere nigris, tibiis anticis ante medium dilatatis, extus subtiliter serratis.

Long. corp. lin. 1¼.

Meligethes picipes, Sturm, *Deutsch. Fna*, xvi. 47. t. 310. f. *a*, A, *b* (1845).
——— ———, Erich. *Nat. der Ins. Deutsch.* iii. 199 (1848).
——— ———, Redt. *Fna Austr.* 170 (1849).

Habitat in floribus Maderæ, una cum *M. tristi* degens, vulgatissimus.

M. roundish-oblong, being a little broader and convexer (and, on the average, a trifle larger) than the *M. tristis*, deep black, finely and closely punctulated, and clothed (more or less) with a delicate cinereous pubescence. *Prothoraæ* just perceptibly more transverse than that of the last species. *Antennæ* and the *two fore-legs* dark brownish-ferruginous, or picescent; the *four hinder legs* being always of a darker tinge, and generally nearly black: the *fore-tibiæ* considerably dilated a little before the middle, and with the outer edge very finely serrated along its entire length,—the teeth which are situated on the broadest portion being slightly larger than the rest.

Like the last, a common European *Meligethes*. It may be known from the other Madeiran species by its colour being almost entirely black with the exception of its front-legs and antennæ, which (although sometimes obscurely so) are always paler than the two hinder pair. It is, at first sight, very closely allied to

the *M. tristis*, with which it is usually found in company; nevertheless, the points just enumerated, in conjunction with its slightly larger size, its comparatively broader and convexer form, its somewhat less pubescent elytra, and the more rounded and finely serrated external edge of its fore-tibiæ, will, on examination, readily separate it from that insect. It is abundant throughout Madeira, at nearly all altitudes below about 4000 feet, occurring on flowers, for the most part in company with the *M. tristis*, during the spring and early summer months. In the neighbourhood of Funchal, in the Ribeiro de Santa Luzia, in the north of the island (at Santa Anna), and in the district of the Ribeiro Frio I have observed it in considerable profusion.

104. Meligethes varicollis, *Woll.*

M. subrotundato-oblongus convexus æneo-viridis subcinereo-pubescens et profundius punctulatus, antennis pedibusque ferrugineis, tibiis anticis ante medium dilatatis, extus subtiliter serratis.

***Var.* β.** (an sexualis distinctio ?) **prothoracis lateribus, antennis pedibusque testaceis.**

Long. corp. lin. $1\frac{1}{8}$–$1\frac{1}{3}$.

Habitat Maderam sylvaticam, in floribus,—a meipso ad Ribeiro Frio d. 22 Mai. A.D. 1850 repertus.

M. large and robust, roundish-oblong, convex, brassy-green, rather coarsely punctulated (especially on the elytra), and more or less clothed with a cinereous pubescence,—which has sometimes a yellowish tinge. *Prothorax* wider and more transverse than in any of the other species. *Antennæ* and *legs* brownish-ferruginous: the latter with their *fore-tibiæ* considerably dilated a little before the middle, and the outer edge finely serrated along its entire length,—the teeth gradually diminishing in size from the apex.

***Var.* β.** with the lateral margins of the prothorax broadly testaceous; antennæ and legs paler than in the ordinary state, being testaceous.

An exceedingly well-marked and truly indigenous species. It may be at once recognised from the remainder of the genus here described by its brassy-green surface, more distinctly punctulated elytra, and,—in the case of the variety (a state which, if indeed it be not a sexual modification, of which I am by no means certain, it seems constantly liable to assume),—by the broadly pale margins of its prothorax. In its general outline, and in the structure of its fore-tibiæ, it approaches the *M. picipes*; but the above characters, independently of its larger size and its much paler limbs, will immediately distinguish it from that insect. It is, apparently, the rarest of the Madeiran members of the group, or at any rate the most local; and would seem to be confined to sylvan spots of intermediate altitudes. The only occasion on which I have hitherto observed it was on the 22nd of May 1850, at the Ribeiro Frio,—where both varieties were tolerably abundant, in flowers, at the edges of the Levada. Its season is probably of short duration, since later in the summer I searched for it, in exactly the same position and under the same circumstances, in vain.

Genus 47. XENOSTRONGYLUS, *Woll.* (Tab. II. fig. 8.)

Corpus parvum, convexum, valde pubescens: *prothorace* vix marginato: *elytris* abdomen totum tegentibus: *alis* amplis. *Antennæ* prothoracis longitudine, articulis primo et secundo (illo præcipue) magnis crassis, tertio reliquis longiore graciliore, quarto ad octavum paulatim brevioribus sed vix crassioribus, reliquis capitulum magnum subsolidum rotundato-oblongum triarticulatum efficientibus. *Labrum* prominulum transversum, antice profunde bilobum, lobis rotundatis extus ciliatis. *Mandibulæ* validæ, in medio latæ, extus basi sinuatæ, intus membranâ pubescenti instructæ necnon ad apicem dentibus quatuor armatæ. *Maxillæ lobo singulo* elongato, apice subdilatato pubescenti, instructæ. *Palpi* subfiliformes, articulo secundo tertio longiore, ultimo subfusiformi-truncato. *Ligula* elongata, apice biloba, lobis rotundatis ciliatis. *Mentum* transverso-quadratum, antice profunde emarginatum. *Pedes* subcontractiles: *tibiis* ad marginem externum integris: *tarsis* articulo quarto minutissimo, *anticis* articulis tribus dilatatis valde cordatis.

A ξένος mirabilis, et Strongylus (genus Coleopterorum).

The peculiar little insect, so singularly variegated externally, from which the above generic diagnosis has been drawn out, would appear to be intermediate between *Meligethes* on the one hand, and *Thalycra* and *Cychramus* on the other; partaking of the former in its deeply bilobed upper lip and in the construction of its mandibles, whilst its very convex body, its extremely pubescent and variously-coloured surface, and its unserrated tibiæ would tend to associate it more evidently with the latter. Its lichen-infesting habits however would indicate a closer affinity with the *Strongylinæ* than with any of the preceding forms; nevertheless its oral organs are so nearly similar to those of *Meligethes* that it clearly ought not to be far removed from that group:—and I would therefore place it immediately after it, in which position it constitutes a very natural passage to the *Strongyli*, which in their turn lead us gradually on into the *Colydiadæ*. From *Cryptarcha*, to which it might be supposed at first sight to be related, it is readily distinguished by the remarkable construction of the antennæ of that genus, which have not only their basal joint inserted beneath the lateral margins of the head, but, likewise, the terminal articulation of their (perfoliated) club spongiose and greatly truncated at its extremity,—where it is surmounted moreover by a small conical excrescence. It seems to be the representative of a type which exists sparingly in Mediterranean latitudes, but which has not hitherto, apparently, been characterized. Thus, I am informed by M. Leon Fairmaire, of Paris, that he has lately received the *X. histrio* from Sicily; whilst a second species* has come under my

* This species is closely allied to the Madeiran one, though unquestionably distinct from it specifically. It may be briefly described as follows:—

Xenostrongylus Canariensis, *Woll.*

X. brevis rotundato-ovatus subconvexus niger, pube nigrescenti, subcinereâ et fulvâ subdepressâ variegatus, antennis pedibusque infuscato-testaceis.

Long. corp. lin. $\frac{7}{8}$.

Habitat in insulis Canariensibus, a Teneriffâ a Rev^do^ Dom. Armitage communicatus.

X. smaller than the *X. histrio*, and not quite so convex, also of a much darker colour, the surface being

observation, from the Canary Islands, where it was discovered by the Rev. W. J. Armitage in Teneriffe.

105. Xenostrongylus histrio, *Woll.* (Tab. II. fig. 8.)

X. rotundato-ovatus convexus piceus, pube cinereâ, fulvâ et nigrâ robustâ depressâ læte fasciato-variegatus, antennis pedibusque testaceis.

Long. corp. lin. 1.

Habitat insulas Maderenses, præsertim inter lichenes in rupium fissuris crescentes, hinc inde vulgaris: in Portu Sancto necnon in Desertâ Grandi abundat; sed etiam in hortis culinaribus vinetisque Maderæ australis, vix ab urbe Funchalensi remotis, super folia plantarum tempore vernali interdum legatur.

X. roundish-ovate, convex, piceous, finely punctulated (but not punctate-striated), and densely clothed with a long, exceedingly robust and decumbent pile,—which on the under side of the insect is uniformly cinereous; but above cinereous, fulvous, and black, intermixed, and occasionally with a slight addition of golden-brown, which gives the entire upper surface a beautifully variegated and histrionic appearance. *Prothorax* and *elytra* ornamented with more or less confluent patches and broken fasciæ; which on the *former* are arranged principally on the hinder portion, and have their concavities turned towards and resting upon the base; whilst on the *latter* it is their main tendency to shape-out a large arcuated postmedial one, parallel to the curvature of the margin and enclosing a darker central portion behind the *scutellum* (which is, itself, however, always clothed with pale pubescence). The pubescence of this large arcuated fascia (which is often a good deal broken and interrupted) is normally, like the scutellum, composed of pale cinereous hairs; and there are usually indications of a smaller transverse zigzag band (of the same colour) between it and the apex. The space between these two fasciæ, as also an obscure subsidiary ill-defined arch in front of the disk (*i. e.* in the dark space behind the scutellum), with the pubescence, typically, of a fulvous or golden-brown tinge:—but, although these are the positions and tints of the fasciæ and patches in well-developed and brilliant specimens, the whole are often so much obscured and shaded-off into each other as to be but indistinctly defined; in all instances however the large and comparatively dark portion of the elytra behind the scutellum is at once apparent. *Antennæ* and *legs* testaceous; the *former* with their club generally a little dusky.

One of the most elegant of the Madeiran Coleoptera, the interrupted, arcuated fasciæ, and broken patches, of variously coloured pubescence, with which its upper surface is densely crowded, giving it, at first sight, an almost histrionic appearance. It occurs throughout most of the islands of the group, and in certain positions in the greatest abundance. Typically, it is an inhabitant of lichen

---

apparently almost black. The pubescence likewise of an altogether darker nature, and neither quite so robust nor so completely depressed,—a larger portion of it being black; with distinct indications, nevertheless, of a paler, variegated, arched subapical fascia on the elytra. *Antennæ* and *legs* darker than those of the *X. histrio*; the *former* having their club considerably infuscated.

As already mentioned, it was detected by the Rev. W. J. Armitage in Teneriffe; but the circumstances of its capture I have not been able to ascertain.

(particularly of the *Ramalina scopulorum* and the *Evernia prunastri*),—in the bunches of which on the exposed weather-beaten rocks of Porto Santo and the Dezerta Grande I have observed it, hybernating, literally by thousands. As the season advances, however, it would appear, partially, to leave the rocks, when it may be found in grassy spots in their vicinity,—and frequently taking flight to more distant localities. Thus, during April 1848, I captured it even in the gardens near Funchal, on the leaves of plants (especially those of the *Sinapis* tribe) and in an exceedingly active state. A few weeks later however it was in far greater abundance on the mountain-slopes of Porto Santo, where immediately below the extreme summit of the Pico de Facho it existed in the utmost profusion. In May of 1849, whilst encamped with the Rev. R. T. Lowe high up in the Ribeiro de Santa Luzia, I took it in considerable numbers from amongst the vegetation which clothes the lofty perpendicular edges of the ravine. As already stated, it varies a good deal in the brightness of its colouring: and I have usually remarked that the Porto Santan representatives are, on the average, of an obscurer hue than the Madeiran ones; whilst those from the Dezerta Grande are somewhat intermediate between the two.

Fam. 11. COLYDIADÆ.

Genus 48. TARPHIUS. (Tab. III. fig. 4, 5 et 6.)

(Germar) Erich. *Nat. der Ins. Deutsch.* iii. 256 (1848).

Corpus minusculum, subconvexum vel gibbosum, sæpius rugosum et lutosum: *capite prothoraceque* granulis (plerumque crebris et valde obtusis) obsitis, granulo quoque setulâ parvâ mediâ munito; *illo* prothoracis excavatione fere ad oculos inserto; *hoc* amplo, in discum convexo, lateribus valde complanatis, antice profunde emarginato caput recipiente: *scutello* minutissimo (vix observando): *alis* obsoletis. *Antennæ* (III. 4 *a*) prothoracis longitudine, distantes, rectæ, ante oculos et sub margine capitis insertæ, per otium sub lateribus concavis reponendæ, articulo primo magno crasso superne vix conspicuo, secundo sat robusto, sed primo paulo graciliore, subclavato apice truncato, tertio gracili reliquis paulo longiore, quarto ad nonum longitudine decrescentibus vix paulatim crassioribus, decimo et undecimo clavam magnam laxam abruptam biarticulatam efficientibus, illo subpoculiformi intus interdum obscurissime producto, hoc subgloboso. *Labrum* (III. 4 *b*) subquadratum angulis anticis rotundatis, margine ciliato. *Mandibulæ* (III. 4 *c*) validæ, apice edentatæ acutæ, intus medio leviter sinuatæ ac laciniâ membranaceâ pubescenti instructæ. *Maxillæ* (III. 4 *d*) bilobæ: *lobo externo* apice dilatato truncato, dense barbato: *interno* angustiore vix breviore, valde ciliato, apice uncinato. *Palpi maxillares* articulo primo minuto, secundo et tertio incrassatis, subæqualibus, ultimo robusto ovato, ad summum apicem subcarnoso et vix oblique truncato: *labiales* articulis primo et secundo subæqualibus, illo gracili, hoc subclavato, ultimo ovato robusto ad apicem subcarnoso-subtruncato. *Mentum* (III. 4 *e*) subquadratum. *Ligula* subrotundato-quadrata, antice valde ciliata. *Pedes* (III. 4 *f*, 4 *g*) cursorii, subcontractiles, distantes: *femoribus tibiis*que compressis, *his* gracilibus, extus sæpe obsoletissime erosis, aut potius subserratis, et mox pone apicem subito subconstrictis, apicem subdilatatum efformantibus: *tarsis* (III. 4 *f*, 4 *g*, et 6) 4-articulatis, articulis tribus baseos subæqualibus intus valde barbatis,

primo interdum (in sexu masculo, ut opinor) in lobum spiniformem plus minusve obtusum subtus producto (III. 4*f*, et 6), quarto valde elongato flexuoso subclavato, *unguiculis* simplicibus munito.

There is perhaps no Madeiran genus more interesting geographically, or better defined, than *Tarphius*. In its general contour and habits, and in its 4-jointed tarsi, it is intimately related to such groups as *Diodesma*, *Coxelus*, *Colobicus* and *Synchita*, though with abundant distinctive characters of its own. It is with the first of these however that it would seem to possess the strongest affinity, since it not only approaches it in the details of its antennæ and mouth, but likewise in its freedom from wings. Nevertheless, in many of its most important features it recedes from the whole of them, and in none more so than in the structure of its feet,—which have a tendency in (what I believe to be) the males of most of the representatives to have their basal articulation produced beneath into a more or less acute spiniform lobe, and which in some instances is so exaggerated as to be at once conspicuous even to the naked eye. As regards their outward configuration, the *Tarphii* are either brightly maculated on their elytra or else armed with nodules,—the one state appearing to be normal and the other aberrant. Where the patches are well-marked* there is seldom any indication of protuberances; but, as the former are gradually removed the latter begin to arise†,—until, at last, in those species‡ where the patches are altogether either evanescent or suffused, the projections have attained their maximum and become detached humps (concolorous with the rest of the body) in the exact positions occupied by the spots. These prominences however are generated in a rather singular manner, and should perhaps, more strictly, be defined as broken ridges than isolated nodes; for as the blotches vanish the alternate interstices (which have always a faint *tendency* to elevation) become not only more perceptibly raised, but, at the same time, *interrupted*, especially behind,—thus leaving larger or smaller gibbosities, which have every appearance, at first sight, of having been independently developed. In rare cases§ indeed there is a pale tinge even on the nodules, but in such the colour is more or less distributed over the entire elytra also,—diluting their surface and giving them a somewhat transparent aspect. Another modification‖ occurs, in which the short rigid pubescence with which the insect is clothed takes a partially golden tinge, and imparts to the hunches, even in the absence of under-patches, a dirty-yellowish cast,—so keeping up the analogy of the latter in a very peculiar way.

The males of the *Tarphii*, if I be right in my identification of them, are for the most part a little smaller than the females; and, since this is in accordance with what we observe throughout the Coleoptera generally, it is probable, thus far at

* E. g. *T. rotundatus*, *Lauri*, and *Lowei*.
‡ *T. testudinalis*, *nodosus*, and *rugosus*.
‖ *T. nodosus* and *testudinalis*.
† *T. echinatns* and *compactus*.
§ *T. cicatricosus*, *truncatus*, and *brevicollis*.

least, that the sexes have been correctly determined. Nevertheless, if such be true, the ordinary law of development would seem in one respect to be departed from, the tubercles being frequently more particularly enlarged in the *females*: at any rate this is so unmistakeably carried out in a single instance* that the fact ought not to remain unnoticed. The whole of the members have a tendency to be more or less covered with a scaly substance resembling dirt, and which at times so completely envelopes them as nearly to conceal even the brighter portions of the spotted forms. They are, likewise, as regards at all events their elytra, more or less wrinkled and rugulose,—although (considering the *T. Lauri* as a specific centre from which most of the others appear as it were to radiate) it will be perceived that a few indeed become comparatively smooth,—even whilst the greater number recede so manifestly in the opposite direction that they become at length almost difficult to characterize from the accumulation of protuberances, ridges, granules, and setæ with which they are beset. The sculpture of their heads and prothoraces (the latter particularly) is exceedingly anomalous, and constitutes in fact a significant item even in their *generic* diagnosis. Thus, our first impression, on examining one of the outer limits of its variations, would probably be that it was widely and openly reticulose: nevertheless a closer inspection (especially of the subcircularity of the "reticulations," and of how they gradually contract, and become, during the process, more and more elevated) would at once explain the nature of the structure, which may be pronounced, under all circumstances, to be *granulate*. When thus enunciated, the successive modifications are easily intelligible,—the extreme state in one direction being that in which the pustules are so closely set, broad, and *flattened* as to cause the surface to appear reticulated; whilst that in which they have diminished so far in breadth as to leave spaces between them, and have become proportionably more upraised and acute, is the ultra condition in the other. The former of these obtains in that section of the genus which I have assumed (for Madeira) to be normal, whereas the latter is indicative of those members which are aberrant. In Sicily however, where the only representative which has hitherto been discovered occurs, it is not impossible that the second of these states may prevail, since the *T. gibbulus* of that island has the granules comparatively minute and few, and with a more decided appearance of being truly isolated and distinct than in any of the species with which we are here concerned. Whilst the insects are at rest their antennæ recline backwards beneath the dilated edges of their prothorax, which, although not channeled, is concave, or slightly hollowed out, on the under side in order to receive them. In the Sicilian *T. gibbulus*, this cavity, owing partially to the excessive prominence of its pronotum which causes the sides to descend like a roof, is remarkably evident,—nevertheless even there it can scarcely be considered *grooved*, as described by Erichson. I have observed that several of the species (as, for instance, the *T. rotundatus*, *nodosus*, and *cicatricosus*) are liable to be affected with an extremely

* *T. nodosus.*

minute, elliptical, and almost microscopic parasite (III. 4*), which attaches itself so firmly to the body, especially about the thoracic region, that it is not without considerable force and perseverance that it can be removed.

As already stated, there is perhaps no genus throughout the whole of the Coleoptera with which we have here to do, more important, in a geographical sense, than *Tarphius*. Represented hitherto by a single European species of the greatest rarity,—the *T. gibbulus*†, from Sicily (of which a short notice is given in Erichson's *Nat. der Ins. Deutschlands*, vol. iii. p. 256, A.D. 1848),—it was almost unknown to science; and hence the detection of a series thus extensive in the Madeiran islands, moulded on a pattern so similar to the Sicilian type, becomes doubly interesting. Of the influence and economy, *in situ*, of such an assemblage it is not easy to speculate,—suffice it therefore to remark that the enormous numbers in which they exist, when compared with the limits within which they are confined, would seem to point to some especial end which they may be presumed to fulfil amongst the insect population of those remote upland districts. Meanwhile it is far from improbable, that, like many of the *Nitidulidæ* and the Xylophagous groups, they may assist materially in the decomposition of the superfluous masses of loose, rolling timber with which the damp ravines and dense

† I am indebted to J. O. Westwood, Esq. for the loan of a specimen of the true *Tarphius gibbulus*, which was captured by the late Mr. Melly in Sicily: and as Erichson's brief notice of it is hardly sufficient to serve for even a *generic* diagnosis, and therefore, *à fortiori*, a specific one, I subjoin the following description, in order to point out in what manner the Sicilian species differs from the fifteen Madeiran ones:—

Tarphius gibbulus.

T. gibbus cylindricus piceus pilosus lutosus; prothorace amplo antice subtruncato, pone medium dilatato, in discum valde convexo, lateribus rotundatis vix complanatis, granulis dispersis obtusis obsito, obsolete canaliculato et margine postico (præsertim ad angulos) impresso; elytris rugoso- (sed vix seriato-) punctatis, antice et postice obsoletissime submaculatis; antennis pedibusque ferrugineis.

Long. corp. lin. $1\frac{1}{3}$.

Recedes from all the Madeiran *Tarphii* in its very convex and cylindrical form; in its long, flexible and pilose (instead of rigid and setose) pubescence; in its prothorax having the hinder margin deeply impressed transversely (especially towards the posterior angles), the disk exceedingly convex, and the sides but slightly flattened,—and although scarcely *grooved* beneath yet considerably concave, or hollowed out, for the reception of the antennæ. The *closely-set*, large, and obtuse granules which on the prothorax of most of the Madeiran species are so apparent (and which give it an almost reticulated sculpture), are here entirely wanting, being replaced by minute and distant ones. There is no indication on the elytra of either ridges or nodules; but the bright patches with which most of the Madeiran representatives are more or less adorned (or, rather, which it is their tendency to possess) are here faintly expressed by the somewhat paler hue of the basal and apical portions, which is gradually shaded-off into the darker central disk. Although differing widely in detail from all the species described below, I am inclined to consider the *T. gibbulus* as possessing a greater affinity with the *T. Lowei* than with any of the others, from which indeed in size, sculpture, colour and contour it is not very remote:—a fact of considerable interest when we remember that, of all the Madeiran *Tarphii*, not only does the *T. Lowei* recede farthest in aspect and habits from the local type, but that it is, likewise, of a wider distribution than the remainder, being the only one, so far as I am aware, which is found out of Madeira proper.

mountain-slopes of Madeira everywhere abound. To such localities it is that they are exclusively assigned, occurring in the greatest profusion in those spots which are the least accessible, and where consequently the primæval timber is, except by the hand of time, most untouched. In their habits the *Tarphii* are strictly nocturnal, adhering to the under sides of moist decaying logs of wood, felled timber, and even stones during the day, and being only active, apparently, by night. From 2000 to 5000 feet above the sea may be said to include their range; nevertheless they are more peculiarly abundant from 3000 to 4000, and it is perhaps towards the upper edge of those bounds that they find their maximum. Out of a large assortment of specimens, collected in nearly all parts of the sylvan regions, I have succeeded in detecting fifteen distinct forms; and, although this number may appear considerable for an island thus small, yet I have but little doubt, from the evident local importance of the race, that its extent is even greater still, and that other species will yet be brought to light different from any of those described below. Considering however the inaccessible nature of their favourite haunts, it is far from unlikely that many of them will remain for ever undiscovered,—a possibility which is not lessened by the fact either of the remarkable manner in which they are able to counterfeit death, and so to elude observation, or of the near resemblance of the dull rusty colouring of their uneven and inanimate-looking surfaces to the stones, lichen, and portions of rotting wood to which in the day-time they remain firmly fixed*.

* Out of 486 specimens which I have lately been examining, I find the species distributed in the proportions indicated in the annexed table, which I cannot but consider worthy of insertion, not merely because so large a number of examples will perhaps never be brought together again for comparison, but, more especially, because the remote and numerous positions in which I have collected induce me to believe that it will give a very correct idea of the comparative rarity of the several members of the group :—

T. parallelus	8
— *Lowei*	6
— *inornatus* (♂ 5, ♀ 14)	19
— *spinipes*	1
— *sylvicola*	4
— *rotundatus*	148
— *Lauri* (♂ 91, ♀ 107)	198
— *compactus*	17
— *nodosus* (♂ 24, ♀ 29)	53
— *cicatricosus*	14
— *testudinalis*	5
— *truncatus*	5
— *echinatus*	4
— *brevicollis*	3
— *rugosus*	1
	486

I should state that this enumeration is entirely of *Madeiran* specimens, and does not include those of the *T. Lowei* from Porto Santo, which on several occasions have occurred in indefinite numbers. Nor does it contain the entire mass even of those which I have captured in Madeira proper, since many have been distributed amongst my friends in the course of the last three years. But I believe it will, nevertheless, present a fair estimate of the comparative abundance of the species which I have described.

106. Tarphius parallelus, *Woll.*

T. parallelo-oblongus opacus ferrugineus, prothorace amplo ante medium dilatato, rugoso, granulis obtusis obsito, vix canaliculato, elytris concoloribus rugosissime (sed vix seriato-) punctatis, interstitiis alternis leviter elevatis, tarsis in utroque sexu simplicibus.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat in Maderâ sylvaticâ excelsâ, sub stipitibus truncisque arborum projectis, æstate, rarior;—per regionem Fanalensem necnon ad Lombo dos Pecegueiros mense Julio A.D. 1850 a meipso lectus.

T. large, oblong, and parallel, dull rusty ferruginous, more or less covered with scales, and opake. *Head* and *prothorax* rough, and beset with obtuse granules: the *latter* sometimes distinctly, but generally very obscurely, channeled, broader in front than behind, though most dilated a little before the middle; the sides much flattened, and the front edge a little raised along the central emargination. *Elytra* concolorous, very rugosely punctured and transversely wrinkled,—the punctures however having scarcely any tendency to be disposed in striæ; the suture and alternate interstices most obscurely raised. *Antennæ* and *legs* a little paler: the *latter* with their *tarsi* simple in both sexes.

A large and most distinct species, its parallel outline and anteriorly widened prothorax, in conjunction with its pale rusty colour, and the sculpture of its upper surface,—which is extremely rugose, and yet without the slightest indication of nodules,—being at once sufficient to separate it from the remainder of the genus here described. It is apparently exceedingly rare, and confined to moist shady spots of a lofty altitude. During July of 1850 I captured it sparingly both at the Lombo dos Pecegueiros and in the upland region of the Fanal.

107. Tarphius Lowei, *Woll.* (Tab. III. fig. 5.)

T. subparallelo-oblongus interdum vix opacus subinfuscato-niger, prothorace sublunulato (angulis posticis rotundatis), granulis dispersis obtusis obsito, elytris rufo-maculatis rugose seriato-punctatis, tarsis in utroque sexu simplicibus.

Long. corp. lin. $1\frac{1}{8}$–$1\frac{1}{3}$.

Habitat lichenes in truncis ramisque arborum emortuis crescentes per partem Maderæ sylvaticam, rarissimus: in Portu Sancto abundat, quâ Decembri mense A.D. 1848, præsertim in ascensu montis Pico d'Anna Ferreira dicti, e rupium fissuris copiosissime collegi.

In honorem Rev^{di} Dom. Lowe, A.M., qui in insulis Maderensibus, per tot annos longe lateque celebris, scientiæ naturalis solus investigator elucebat, hanc Tarphii speciem eximiam valde distinctam nuncupavi.

T. small and rather parallel, black or brownish-black, generally much incrusted with dirty scales, and not quite so opake as the last species,—being often perceptibly shining. *Head* and *prothorax* rough, and beset with somewhat distant, small, dark, and obtuse granules: the *latter* not channeled, but sometimes most obscurely transversely-impressed behind, sublunulate (being widened a little before the middle and with the hinder angles much rounded-off,—as well as indistinctly excavated towards the posterior margin). *Elytra* linear, rugosely punctured, and

transversely wrinkled (the punctures when the scales are removed appearing in very evident rows); *each* ornamented with rufous or rufo-testaceous spots, which are arranged, typically, as follows:—a large oblong one at the inner base, parallel to and alongside the suture; a rather narrower one (likewise elongated) towards the margin and in front of the shoulder, but extending nearer to the apex than the last; a small roundish one on the inner disk; and two large ones behind,—one towards the suture and the other towards the margin,—which usually, as in most of the spotted species, become confluent, and form an irregular arcuated fascia which has its concavity turned towards the apex of the elytron. *Antennæ* and *tarsi* ferruginous: the *latter* simple in both sexes.

The smallest of the *Tarphii* here described, and readily known (apart from its maculated surface) by the rounded hinder angles of its comparatively sublunulate prothorax. It is the only member of the group which I have hitherto detected out of Madeira proper,—being extremely abundant, during the winter and spring, amongst lichen in the fissures of the exposed weather-beaten rocks of Porto Santo. I first discovered it in April 1848, on the northern side of the extreme summit of the Pico de Facho; and during December of the same year it occurred in literal profusion on the ascent of the Pico d'Anna Ferreira from the east. In Madeira it would appear to be extremely rare, although widely distributed over the sylvan districts between the limits of from 3000 to about 4500 feet above the sea. It seems to be more peculiarly attached than any of the other species to lichen, ascending, in the forest regions, to the highest branches of the trees,—as I have proved (not without some risk) both at the Ribeiro Frio and the Fanal. During my encampment at the Lombo dos Pecegueiros in July 1850, I captured it by brushing the rank vegetation immediately outside my tent, in the dusk of the evening,—at which time its nocturnal wanderings, like those of the other representatives of the genus, may be said to commence.

108. Tarphius inornatus, *Woll.*

T. subcylindrico-oblongus subnitidus nigro-piceus, prothorace subquadrato, granulis crebris magnis obtusissimis obsito, vix canaliculato, elytris concoloribus seriato-punctatis (punctis magnis distinctis), interstitiis alternis leviter elevatis.

Mas, tarsis posticis articulo basilari in lobum elongatum spiniformem subtus producto.

Fœm. tarsis simplicibus.

Long. corp. lin. *mas,* $1\frac{2}{3}$–2 : *fœm.* 2.

Habitat Maderam sylvaticam, sub truncis arborum putridis hinc inde humi jacentibus, non infrequens.

T. large, oblong, parallel and somewhat cylindric, dark piceous, generally but slightly covered with scales, and a little shining. *Head* and *prothorax* rather smooth, and closely beset with large and very obtuse granules: the *latter* not channeled (or, occasionally, most obscurely so), subquadrate (the sides being comparatively straight), and in its widest point scarcely equalling the elytra in breadth. *Elytra* concolorous, seriate-punctate (the punctures being large, particularly in the female,—though rather shallow upon the disk), and but very slightly (especially in the male

sex) wrinkled transversely; the suture and alternate interstices most obscurely raised. *Antennæ* and *tarsi* ferruginous.

Male, with the basal joint of the two hinder tarsi produced beneath into a very elongated, spiniform lobe,—which to the naked eye appears like an acute articulated spine, but under the microscope an elongated lobe, narrowed towards the apex though rounded, and furnished with a pencil of minute hairs, at the extreme point.

Female, with the tarsi simple.

Easily distinguished by its robust and somewhat cylindrical form, by its dark subglabrous surface, and by the large, though somewhat shallow punctures of its elytra. Apart from which, the *males* may be of course at once known by the structure of their tarsi,—of which the four anterior ones are simple, whilst the posterior pair have their basal joint developed beneath into a long spiniform lobe. It is apparently one of the rarer forms, or at any rate partial in its distribution. My specimens were chiefly captured at the Ribeiro Frio and at the Feijãa de Córte,—during August. It is the only *Tarphius* which I have hitherto observed in the Ribeiro de Santa Luzia, where, at the extreme head of the ravine, close to the great waterfall, it is still tolerably abundant under the bark, and amongst the remains of the old trees with which that gorge must have been once densely clothed,—but which are now rapidly disappearing, as in so many other parts of the island, before the woodman's axe.

109. Tarphius spinipes, *Woll.*

T. subovato-oblongus vix opacus nigro-piceus, prothorace subquadrato, granulis crebris magnis obtusissimis obsito, elytris concoloribus seriato-punctatis (punctis minus profundis), interstitiis alternis leviter elevatis.

Mas, tarsis anticis et posticis articulo basilari in lobum (in posticis elongatissimum) spiniformem subtus producto, intermediis vix simplicibus.

Fœm. adhuc latet. (Specimen unicum, sc. masculum, tantum habeo.)

Long. corp. lin. $1\frac{2}{3}$.

Habitat in Maderâ sylvaticâ, semel tantum repertus.

T. rather smaller than the *T. inornatus*, also less parallel and rather more ovate, dark piceous, a good deal obscured with scales, and but very slightly shining. *Head* and *prothorax* closely beset with large and very obtuse granules: the *latter* apparently unchanneled, and subquadrate. *Elytra* concolorous, lightly seriate-punctate, and a little wrinkled transversely,—the punctures being less distinct than those of the last species; the suture and alternate interstices most obscurely raised. *Antennæ* and *legs* ferruginous: the *latter* with their femora and tibiæ only slightly darker than the *tarsi*,—being merely a little more picescent.

Male, with basal joint of the fore-tarsi produced beneath into a robust, elongated, spiniform lobe,—which appears under a high magnifying power to be obtusely rounded and furnished with a pencil of hairs at the apex: the *intermediate* ones nearly simple, the basal joint being most obscurely produced beneath: the *posterior* pair with the basal joint produced into a very long,

spiniform and somewhat acute lobe,—likewise surmounted at the extremity (as in all the other joints of the tarsi throughout the genus) with a small tuft of pile.

Female, as yet undiscovered.

Hitherto unique; nevertheless the remarkable structure of its feet,—the specimen happening fortunately to be a male,—will prevent the possibility of its being confounded with any of the other species hitherto discovered. It may be at once known, so far as that sex is concerned, by its intermediate tarsi being almost simple, whilst the anterior and posterior ones are produced beneath into a long and robust spiniform lobe. I am not quite certain as to the exact position in which it was taken; but I believe that I captured it either at the Ribeiro Frio or at the Lombo dos Pecegueiros, during the summer of 1850.

110. Tarphius sylvicola, *Woll.*

T. rotundato-ovatus brevis subnitidus niger, prothorace antice attenuato, granulis crebris magnis obtusissimis obsito, elytris concoloribus profunde seriato-punctatis, pone medium leviter nodosis, tarsis in utroque sexu simplicibus.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat in Maderæ sylvaticis, ad Ribeiro Frio necnon ad Lombo dos Pecegueiros æstate mediâ A.D. 1850 deprehensus.

T. short and round, of a deeper black than any of the other species, almost free from scales, and a little shining. *Head* and *prothorax* beset with very close, large and exceedingly obtuse granules: the *latter* not channeled, short, much dilated behind and narrowed in front (the sides, although oblique, being comparatively but very slightly curved). *Elytra* concolorous, short and much rounded behind, deeply seriate-punctate, and without transverse wrinkles,—the punctures being large, regular and distinct; with three or four rather obscure nodules between the apex and the centre of the disk. *Antennæ* and *tarsi* (which are simple in both sexes) pale ferruginous: the femora and tibiæ darker, though paler and more piceous than the rest of the surface.

A well-marked little species; and one which may be known by its short rounded form and dark concolorous hue,—the elytra moreover being armed with small protuberances towards their hinder region. It is more allied to the *T. rotundatus* than to any of the other *Tarphii* here described; nevertheless its smaller size and anteriorly-attenuated prothorax will, apart from the nodules of its unspotted surface, readily separate it from that insect. It is one of the rarest of the genus, four specimens being all that I have hitherto captured of it,—two of which were taken at the Ribeiro Frio, and two at the Lombo dos Pecegueiros, during July 1850.

111. Tarphius rotundatus, *Woll.*

T. rotundato-ovatus subnitidus piceus, prothorace transverso circa vel pone medium leviter dilatato,

granulis crebris magnis obtusissimis obsito, elytris rufo-maculatis profunde seriato-punctatis, tarsis in utroque sexu simplicibus.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{7}{8}$.

Habitat in Maderæ umbrosis excelsis, sub truncis arborum prolapsis vel ligno recenter secto, æstate vulgaris,—ad Ribeiro Frio prædominans.

T. roundish-ovate (being however neither quite so round nor so short as the *T. sylvicola*), light piceous (sometimes rufo-piceous), usually pretty free from scales, and slightly shining. *Head* and *prothorax* beset with very close, large, and exceedingly obtuse granules: the *latter* not channeled, rather short, and dilated either about or (more often) behind the middle. *Elytra* somewhat rounded behind; *each* ornamented with large, bright, rufous, or rufo-testaceous patches (the number and positions of which are much the same as those of the *T. Lowei*), which sometimes however are dull, one or more (especially the subhumeral one) having even a tendency to disappear,—the subapical ones nearly always confluent, forming a large bright fascia behind; deeply seriate-punctate, and without transverse wrinkles,—the punctures being large, regular, and distinct. *Antennæ* and *legs* ferruginous: the *former*, and the *tarsi* of the latter (which are simple in both sexes), being paler than the femora and tibiæ.

The *T. rotundatus* differs from the other *spotted* species in its comparatively rounded form, in its short and broad prothorax, and in the smooth interstices, and the deep and regular punctures, of its elytra. Next to the *T. Lauri*, it is certainly the most common of the genus, abounding beneath logs of decaying wood, felled timber, and stones in nearly all the dense ravines of intermediate and lofty altitudes, though especially between the limits of from 3000 to 4500 feet above the sea. I have taken it plentifully, during the summer months, both at the Cruzinhas and the Ribeiro Frio,—particularly the latter.

112. Tarphius Lauri, *Woll.* (Tab. III. fig. 4.)

T. ovatus vix opacus piceus vel rufo-piceus, prothorace longiusculo postice angustato et mox ante medium dilatato, granulis crebris obtusissimis obsito, elytris rufo-maculatis rugose seriato-punctatis.

Mas, tarsis, præsertim posticis, articulo basilari in lobum brevissimum obtusum (apice barbatum) subtus producto. (III. 4*f*.)

Fœm. tarsis simplicibus. (III. 4.)

Long. corp. lin. $1\frac{1}{3}$–$1\frac{7}{8}$.

Habitat in iisdem locis ac *T. rotundatus* (una cum illo degens), toto anno vulgaris.

T. ovate, piceous or rufo-piceous, usually not much covered with scales, and less perceptibly shining than the last species,—being nearly opake. *Head* and *prothorax* beset with very close and exceedingly obtuse granules: the *latter* not channeled, rather long, abruptly expanded just before the middle, and narrowed before and behind. *Elytra* ornamented with bright rufous or rufo-testaceous patches (the number and positions of which are the same as in the *T. rotundatus*),

which occasionally however become rather obscure; deeply seriate-punctate, and much wrinkled transversely; the suture and alternate interstices most obscurely raised,—sometimes but just perceptibly so. *Antennæ* and *legs* of the same colour as those of the last species.

Male, with the basal joint of all the tarsi (though especially perhaps of the posterior ones) produced beneath into a very short and rounded lobe,—which however, from being terminated by an unusually distinct tuft of convergent pile, has the appearance under an insufficient magnifying power of being longer and more acute than it really is.

Female, with the tarsi simple.

The present species, the *T. rotundatus* and the *T. Lowei* are the most distinctly spotted of the group, the patches on each of them occasionally becoming obscure but never being altogether absent. The *T. Lauri* is at once distinguished from the *T. Lowei* by its comparatively gigantic bulk and its altogether different form (especially of the prothorax); whilst from the *T. rotundatus* its more lengthened, ovate outline, and elongated, posteriorly narrowed prothorax, in conjunction with its very rugosely punctured and somewhat more brightly maculated elytra, will equally remove it. Apart from which, its male sex may be recognised, even *primâ facie*, from the rest of the genus by the short rounded lobe into which the basal joint of *all* its tarsi is produced. The females are, in every respect with the exception of the feet, similar to the males. It is unquestionably the most abundant of the Madeiran *Tarphii*; and, in a certain sense, it is a kind of central modification from which most of the others would appear as it were to radiate. It is common in all the damp ravines and on the densely wooded mountain-slopes of intermediate and rather lofty elevations. In the districts of the Ribeiro Frio, the Cruzinhas, and the Fanal I have taken it in the greatest profusion; and, during June, sparingly, in even the chestnut-woods of São Vincente,—the lowest position (about 1300 feet above the sea) at which, so far as I am aware, any member of the genus has hitherto been observed.

113. Tarphius compactus, *Woll.*

T. subquadrato-ovatus breviusculus compactus piceus, prothorace subquadrato postice minus angustato, granulis crebris obtusissimis obsito, elytris concoloribus latiusculis rugose seriato-punctatis, pone medium vix nodosis, tarsis in utroque sexu simplicibus.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{7}{8}$.

Habitat Maderam excelsam sylvaticam, æstate minus frequens.

T. a little larger than the *T. Lauri*, and somewhat more quadrate and compact, dull piceous, generally much incrusted with dirty mud-like scales, and but very slightly shining. *Head* and *prothorax* beset with very close and exceedingly obtuse granules: the *latter* not channeled (or very obscurely so), somewhat square,—the sides being regularly, though only slightly, rounded, and the front edge a little raised along the central emargination. *Elytra* concolorous, rather wide and straight at the shoulders, and rounded behind; seriate-punctate, and wrinkled transversely; the

suture and alternate interstices a little raised and interrupted,—forming, generally, most obscure nodules behind, which are more or less sparingly clothed with a dull olivaceous pubescence. *Antennæ* and *legs* ferruginous: the *latter* with their femora and tibiæ a little darker than the *tarsi*, which are simple in both sexes.

Less distinct, *primâ facie*, than any of the remainder; nevertheless it may be known by its compact, rather short, and squarish form, by its obscure and generally much incrusted surface, and by its subconcolorous and subnodose elytra. Although without many decided characters to separate it from one or two of its allies, yet, after a careful examination of many specimens, I am inclined to believe that the *T. compactus* is a true species, being somewhat intermediate between the *T. nodosus*, on the one hand, and the *T. Lauri* and *rotundatus*, on the other,—partaking slightly of the characters of the whole three, though merging into none. It is not very common, but is found occasionally, during the summer months, in the damp ravines of intermediate altitudes, in company with the rest. My specimens were taken principally at the Ribeiro Frio.

114. Tarphius nodosus, *Woll.* (Tab. III. fig. 6.)

T. subquadrato-ovatus robustus niger, prothorace subquadrato, granulis crebris obtusissimis obsito, elytris concoloribus rugose seriato-punctatis, interstitiis alternis elevatis interruptis, nodos formantibus.

Mas, elytrorum nodis minoribus, tarsis anterioribus articulo basilari in lobum longissimum spiniformem acutum subtus producto, posticis simplicibus.

Fœm. elytrorum nodis majoribus, tarsis simplicibus.

Long. corp. lin. *mas*, $1\frac{1}{2}$–$1\frac{7}{8}$: *fœm.* $1\frac{7}{8}$–$2\frac{1}{3}$.

Habitat per regionem Maderæ sylvaticam, sub truncis arborum prolapsis necnon sub lapidibus, æstate haud infrequens.

T. large and robust, and somewhat quadrate, dull black, not much clothed with scales, and with the setæ of an obscure golden-brown tinge. *Head* and *prothorax* beset with very close and obtuse granules: the *latter* obscurely channeled, rather wide and subquadrate,—being widest however a little before the middle. *Elytra* concolorous, rugosely seriate-punctate, and wrinkled transversely; the suture and alternate interstices elevated and interrupted, especially towards the outer disk and apex, forming distinct nodules. *Antennæ* and *legs* of the same colour as those of the last species.

Male, rather smaller than the female, and with the nodules less apparent: the basal joint of the *fore* and *intermediate tarsi* produced internally into a very long, spiniform and acute lobe; the *hinder tarsi* simple.

Female, large and robust, with the surface more uneven, the nodules being greatly developed: the *tarsi* simple.

Distinguished from all the *Tarphii* here described;—as regards the males, by its four front feet having their basal joint produced beneath into a very elongated,

spiniform lobe, which does not exist in the hinder pair; and, in the case of the females, by its large, subquadrate and robust form, and by its greatly developed nodules. The females might sometimes be confounded with the *T. cicatricosus*, did not the more diluted and piceous hue, and the anteriorly-narrower outline of that insect, in conjunction with the pale, subglabrous tubercles of its somewhat less deeply sculptured elytra, at once separate it from the present one. After the *T. Lauri* and *rotundatus*, it is the most abundant and widely distributed member of the group. I have taken it, during the summer months, in the region of the Ribeiro Frio, the Cruzinhas, at the Lombo dos Pecegueiros, and the Fanal.

115. Tarphius cicatricosus, *Woll.*

T. subovatus piceus, prothorace lateribus dilutioribus, granulis crebris obtusissimis obsito, vix canaliculato, elytris submaculatis rugose (sed vix seriato-) punctatis, interstitiis alternis elevatis interruptis, nodos rufescentibus subglabros formantibus, tarsis in utroque sexu simplicibus.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat in locis similibus ac præcedens, sed illo rarior.

T. a little smaller, more ovate, and narrower (especially in front) than the *T. nodosus*, piceous, and often more or less diluted or rufescent, and nearly free from scales. *Head* and *prothorax* beset with very close and obtuse granules: the *latter* not channeled (or very obscurely so), rather shorter than in the preceding species and not quite so wide, and with the flattened sides often of a paler or more rufescent tinge,—which imparts to them a somewhat transparent appearance. *Elytra* more or less indistinctly spotted, rugosely seriate-punctate,—the punctures being obscurer and smaller than those of the *T. nodosus*; the suture and alternate interstices raised and interrupted, forming (in the usual positions) distinct, but not very large, subglabrous nodules, which are always paler than the rest of the surface and often of a bright rufous tinge,—especially the hinder, broken fascia, which is at times large, and diffused over the entire apical portion of the elytra. *Antennæ* and *legs* a little paler than those of the last species: the *latter* with the *tarsi* simple in both sexes.

Somewhat allied, at first sight, to the females of the *T. nodosus*, though easily separable from them, on examination, by its more diluted or rufescent hue, by its rather shorter and narrower prothorax, and by the smaller and more lightly-impressed punctures of its elytra,—which last have the tubercles always paler than the remainder of the surface, being usually (together with the hinder noduled fascia) of a distinctly rufous tinge. It is one of the rarer species, and is found in the same localities as the last.

116. Tarphius testudinalis, *Woll.*

T. elongato-oblongus subnitidus piceus, prothorace amplo lateribus valde complanatis, granulis crebris obtusis obsito, canaliculato, elytris concoloribus inæqualibus ad apicem magis acuminatis,

profunde et rugose seriato-punctatis, interstitiis alternis elevatis interruptis, nodos magnos formantibus, tarsis in utroque sexu simplicibus.

Long. corp. lin. 2–2⅓.

Habitat in Maderâ sylvaticâ excelsâ, æstate rarior.

T. very large and robust, squarish-oblong, light piceous and a little shining (and sometimes with a slightly transparent appearance, which gives the insect rather the aspect of tortoiseshell), not much covered with scales, but more or less clothed with short and distinct golden-brown setæ. *Head* and *prothorax* beset with close and obtuse granules: the *latter* channeled, large and wide, dilated before the middle, and the sides much flattened and somewhat diluted in colouring, or subtransparent. *Elytra* concolorous, much acuminated at the apex, very uneven, deeply and rugosely seriate-punctate, and wrinkled (the punctures being exceedingly large and distinct); the alternate interstices much raised and interrupted, forming large nodules in the usual positions, which are more densely beset with the golden-brown setæ than the remainder of the surface. *Antennæ* and *legs* as in the last species: the *latter* with the *tarsi* simple in both sexes.

Well distinguished from its congeners by its robust, though proportionably elongated form, by its pale rusty-piceous (or almost tortoiseshell-coloured) hue, by the widely flattened edges of its prothorax, and by the large regularly-disposed punctures and fully-developed nodules of its exceedingly uneven and apically-acuminated elytra. Although one of the rarest of the Madeiran *Tarphii*, it is nevertheless widely distributed over the sylvan districts of the island, occurring during the summer months, in company with its allies, in the damp woods of lofty altitudes. My specimens are principally from the Cruzinhas, the Lombo dos Pecegueiros, and the Fanal.

117. Tarphius truncatus, *Woll.*

T. parallelo-oblongus valde setosus piceus, prothorace rugoso, ante medium leviter dilatato, granulis crebris obtusis obsito, canaliculato, elytris submaculatis postice truncatis, profunde et rugose seriato-punctatis, interstitiis alternis leviter elevatis interruptis, nodos formantibus, tarsis in utroque sexu simplicibus.

Long. corp. lin. 1½.

Habitat in editioribus sylvaticis Maderæ, una cum aliis degens, æstate rarissimus.

T. parallel-oblong, being very much smaller and (comparatively) narrower than the last species, bright rusty-piceous, not much covered with scales, but densely clothed with somewhat short and rigid setæ. *Head* and *prothorax* rough, and closely beset with obtuse granules and setæ: the *latter* channeled, not much dilated,—but widest a little before the middle, where it is about the breadth of the elytra; the posterior portion a little attenuated, and the sides not much curved. *Elytra* submaculated, parallel, a little narrowed and rather more shortened behind than in the other species, very rugosely seriate-punctate; the alternate interstices raised and interrupted, forming nodules and ridges in the usual positions, which are somewhat more lightly

coloured than the rest of the surface. *Antennæ* and *legs* as in the preceding species: the *latter* with the *tarsi* simple in both sexes.

The small size and parallel outline of the present species, in conjunction with its rigidly, though somewhat shortly setose surface, and the comparatively truncated, or abruptly-shortened hinder portion of its elytra, will suffice to discriminate it from its allies. In its submaculated and nodose elytra it approaches the *T. brevicollis*; nevertheless its comparatively short setæ, added to its narrower and less ovate form, and its entirely different prothorax, at once remove it from that insect. It is one of the rarest of the genus, and is taken in company with the other species,—although, as will be perceived by a reference to the numerical table given above, exceedingly sparingly.

118. Tarphius echinatus, *Woll.*

T. ovatus valde et longissime setosus ferrugineus, prothorace brevi rugoso, circa medium dilatato, granulis obscuris obsito, elytris submaculatis rugose seriato-punctatis, interstitiis alternis leviter elevatis, nodos vix formantibus, tarsis in utroque sexu (nisi fallor) simplicibus.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat Maderam sylvaticam, in iisdem locis ac præcedens, rarissimus.

T. short and ovate, more or less ferruginous, not much incrusted with scales, but densely clothed with very long, erect and rigid setæ. *Head* and *prothorax* rough, and beset with rather small, obtuse granules,—which, from the bristles and scales with which they are intermingled, are usually somewhat obscure: the *latter* not channeled (or very indistinctly so), rather short and wide, most dilated about, or a little before the middle, but with the sides not greatly curved,—the anterior and posterior portions being subequally attenuated. *Elytra* rather rounded behind, submaculated,—having exceedingly obscure patches in the usual positions, which appear, normally, to be much diffused over the elytra (thus diluting their surface) and to take the form of ill-defined blotches rather than distinct spots; rugosely seriate-punctate, the punctures being large and distinct; the suture and alternate interstices a little raised and somewhat interrupted, though scarcely sufficiently so as to form nodules. *Antennæ* and *legs* rather paler than those of the last species: the *latter* with the *tarsi* (I believe) simple in both sexes.

The present species and the *T. brevicollis* are readily separated from the remainder of the genus by the comparatively long and erect bristles with which they are beset. At first sight they would appear to be, *inter se*, a good deal allied; but a more accurate inspection will disclose abundant characters by which they may be distinguished from each other. Thus, the more rounded, or ovate outline of the *T. echinatus*, in conjunction with its ferruginous hue, the greater length of its bristles, and its much less basally-constricted (or medially dilated) prothorax, will, apart from minor points, be more than sufficient to prevent the possibility of confounding it with that insect.

119. Tarphius brevicollis, *Woll.*

T. quadrato-ovatus piceo-ferrugineus valde et longe setosus, prothorace rugoso brevissimo lato, circa medium subito dilatato et postice angustato, granulis obscurissimis obsito, canaliculato, elytris submaculatis rugose subseriato-granulatis, interstitiis alternis leviter elevatis interruptis, nodos formantibus, tarsis in utroque sexu (nisi fallor) simplicibus.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat in locis similibus ac *T. echinatus*, æstate rarissimus.

T. short, more quadrate and oblong than the *T. echinatus*, and of a slightly darker, or more rusty, ferruginous hue, not much incrusted with scales, but densely clothed with long, erect and rigid setæ,—which however are shorter than those of the last species. *Head* and *prothorax* rough, and beset with obscure and rather distant granules, which are so mixed up with bristles and scales as to be but indistinctly perceptible: the *latter* deeply channeled, very short, suddenly and greatly dilated in the middle, and narrowed before and behind, especially the latter,—which causes the sides to be considerably curved. *Elytra* more or less indistinctly spotted, more parallel at the base than those of the last insect, rugosely granuled (rather than punctured), and wrinkled transversely,—the granules being more especially perceptible towards the outer margin, and appearing to replace the punctures which are more or less evident in the whole of the preceding species, although somewhat intermingled with, and merging into, punctures towards the suture; the alternate interstices slightly elevated and interrupted, forming small but very distinct nodules in the usual positions, which with the ridges are rather more lightly coloured, or rufescent, than the rest of the surface. *Antennæ* and *legs* as in the last species.

The distinctions between the present insect and the last have been already pointed out,—its more parallel, or oblong outline, added to its somewhat shorter setæ and darker hue, its more noduled, granulated, and less evidently punctured elytra, and the totally different form of its (deeply channeled) prothorax, being sufficient, even *primâ facie*, to separate it from that species. It is extremely rare, being found, in company with its allies, in the damp wooded districts of lofty elevations.

120. Tarphius rugosus, *Woll.*

T. oblongo-quadratus nigro-piceus, prothorace rugoso amplo, ante medium valde dilatato, lateribus subæqualiter rotundatis, granulis dispersis obtusis obsito, canaliculato, elytris concoloribus rugose granulatis, interstitio juxta suturam costato-elevato, reliquis valde interruptis, nodum exstantem longe pone apicem singuli situm formantibus, tarsis in utroque sexu (nisi fallor) simplicibus.

Long. corp. lin. vix 2.

Habitat in Maderâ sylvaticâ, semel tantum (ad Ribeiro Frio) repertus.

T. large, squarer than any of the other species, piceous-black, rough, apparently a good deal incrusted with scales, and quite opake. *Head* and *prothorax* very rough, and beset with rather small, distant granules, which are more or less concealed amidst the very short and robust setæ with which they are intermixed: the *latter* deeply channeled, very large, and much dilated about the

middle, and with the sides almost equally rounded before and behind. *Elytra* concolorous, rough, quadrate, rather suddenly shortened behind, very densely crowded with granules, bristles and scales,—the first of which preponderate, but are apparently not disposed in rows; the interstice of each elytron nearest to the suture raised, and scarcely at all interrupted, though more especially apparent (in the form of an elongated prominent ridge) behind the middle,—and the remaining ones hardly perceptibly elevated except towards the apex, where a very prominent isolated projection (nearer to the outer margin than to the suture) is the principal fragment of them which is evident, although a few, exceedingly obscure ones about the disk are just indicated. *Antennæ* and *legs* a little darker than those of the last insect.

An exceedingly distinct and large species, and one which may be readily known from the remainder of the genus here described by its wide, quadrate form, by its greatly dilated and anteriorly-rounded prothorax, by its dark rugose surface, and by the very prominent outer, and costate inner protuberances of its elytra,—which last are extremely roughly granulated, and with no indications of punctures intermixed. It is hitherto unique, the specimens from which the above description has been compiled having been captured by myself at the Ribeiro Frio,—where I have since frequently searched for it, but in vain.

Genus 49. COSSYPHODES. (Tab. III. fig. 3.)

Westwood, *Trans. Ent. Soc. of Lond.* (New Series) i. 168 (1851).

Corpus parvum, valde depressum, subparallelo-oblongum, ad latera complanatum, *Cossyphi* formam simulans, sed ab eo affinitate longe distans: *capite* magno semicirculari, fere plano, margine laterali paulo elevato atque ad basin impressione parvâ obliquo-longitudinali utrinque instructo; *oculis* obsoletis, aut saltem haud detectis (an in fossulis duabus longitudinalibus reconditis?); subtus (III. 3 *a*), *jugulo* utrinque porrecto, fossulas duas pro receptione antennarum formante: *prothorace* et *elytris* in dorso longitudinaliter carinatis et utrinque carinis gracilibus (aut potius striis elevatis) notatis; *illo* transverso-quadrato: *scutello* haud observando: *alis* obsoletis: *abdomine* (III. 3 *b*) ex segmentis ventralibus quinque (paulatim longitudine decrescentibus) composito. *Antennæ* (III. 3 *c*) brevissimæ distantes geniculatæ, sub margine capitis insertæ et inter otium sub lateribus reponendæ, articulo primo maximo crasso elongato superne recondito, secundo parvo breviter ovato, tertio ad nonum brevissimis transversis latitudine leviter crescentibus, decimo et undecimo magnis arcte applicatis, capitulum magnum abruptum ovalem biarticulatum efficientibus. *Labrum* (III. 3 *d*) sub clypeo reconditum, transverso-quadratum, angulis anticis rotundatis ciliatis. *Mandibulæ* (III. 3 *e*, 3 *f*) breves validæ corneæ, apice bidentatæ, intus medio sinuatæ. *Maxillæ* (III. 3 *g*) bilobæ, processu externo porrecto (basin palporum defendente) munitæ: *lobo externo* brevi, apice truncato pubescenti: *interno* huic vix breviore, valde ciliato. *Palpi maxillares* articulis penultimo et antepenultimo brevibus latis, ultimo multo longiore subovali-subacuminato: *labiales* (III. 3 *h*) articulis primo et secundo minutis subæqualibus, ultimo longiore apice subacuminato. *Mentum* amplissimum subquadratum, lateribus in medio emarginato-incisis. *Ligula* brevis angustior, angulis anticis ciliatis. *Pedes* (III. 3 *k*, 3 *l*, 3 *m*) valde cursorii brevissimi compressi, *antici* paulo longiores: *tibiis* gracilibus, ad femora inter otium applicandis: *tarsis anticis* (III. 3 *k*) 5-, *posterioribus* (III. 3 *l*, 3 *m*) 4-articulatis; articulis in omnibus (ultimo acuminato excepto) brevibus, magnitudine vix sensim decrescentibus.

The extraordinary little insect for which the present genus was established by Mr. Westwood, is perhaps one of the most remarkable as yet detected within the whole range of the Coleoptera, its total freedom, apparently, from eyes, in conjunction with the singular numerical variation of its tarsal joints, presenting anomalies of a very peculiar kind. Mr. Westwood has so ably discussed its affinities, that I will not enter into them afresh, but prefer giving the result of his conclusions on the subject in his own words. "This is altogether," says he, "one of the most anomalous genera hitherto described amongst Coleopterous insects. At first sight, it possesses so strong a resemblance to the Heteromerous genus *Cossyphus*, that it was for a time regarded as merely a minute species of that genus,—for the outline of the head and pronotum are nearly continuous, so that it was not until a more careful examination was made that the ordinary exposed condition of the head, and its division from the prothorax, was observed. The tarsi are not, however, heteromerous*. The structure of the antennæ, moreover, at once removes this genus from the whole of the *Heteromera*,—since they are elbowed at the extremity of the large first joint, and have a nearly solid 2-jointed terminal club. It is, I apprehend, amongst the genera originally placed by Latreille amongst the *Xylophaga* (but separated therefrom by MacLeay, by whom they were introduced amongst the *Necrophaga*) that we must look for the true relations of this insect, some of which are already known to exhibit various numerical peculiarities in respect to the joints of their tarsi, often varying in the sexes in this respect. *Biphyllus*, as the name implies, has a 2-jointed clava to the antennæ, and some of the species of *Cerylon* have similarly polished bodies. *Bitoma* has also a biarticulate club to the antennæ, as well as a carinated pronotum and elytra. This last-named genus, in fact, notwithstanding the various very striking points of disagreement with *Cossyphodes*, may perhaps be regarded as most nearly allied to it of any known genus; indeed the parts of the mouth of *Bitoma*, as figured by Mr. Curtis, present a strong general conformity with those of *Cossyphodes*."

121. Cossyphodes Wollastonii. (Tab. III. fig. 3.)

C. latus subparallelo-oblongus valde depressus ferrugineus lævis subnitidus, antennis pedibusque concoloribus.

Long. corp. lin. 1½.

Cossyphodes Wollastonii, Westw. *Trans. Ent. Soc. of Lond.* (*New Series*) i. 170 (1851).

Habitat in Maderâ australi prope urbem Funchalensem, rarissimus: ad Praya Formoza exemplar unicum sub lapide, Maio exeunte A.D. 1848, primus inveni; sed nidos *Œcophthoræ pusillæ* colere

---

* Strictly speaking, the tarsi are heteromerous,—that is to say, they do not consist of the same number of articulations in all the legs: but in the *true Heteromera* the hinder feet alone are 4-jointed,—whereas in the genus before us the *four* posterior tarsi are quadriarticulate, the front pair only being pentamerous.

apud cl. Dom. Heer, Turici, dicitur, qui plurima specimina ad Gorgulho, necnon etiam in ipsâ urbe, mensibus Januario et Februario A.D. 1851 detexit.

C. broad, parallel-oblong (the outline of the head, prothorax and elytra being nearly continuous), much flattened (especially at the sides), ferruginous or of a somewhat pale chestnut hue, spotless, and very slightly shining,—the surface appearing beneath the microscope to be densely beset with an excessively minute and short decumbent cinereous pubescence, which gives the entire insect a peculiar kind of opacity, or, more strictly perhaps, bloom, which is perceptible even to the naked eye. *Head* large and semicircular, almost flat, the margin (especially towards the hinder angles) a little elevated, impressed on either side at the base with a small oblique longitudinal line, occupying the positions of the *eyes*, which are apparently quite obsolete,—although it is just possible that they may be imperfectly developed, and concealed within these depressions. *Prothorax* large, transverse-quadrate, much flattened at the sides, and obtusely keeled down the centre of its disk,—also with three smaller, very delicate carinæ, or raised striæ, on either side of this central elevation. *Elytra*, likewise, keeled along the suture and much flattened laterally, but with *four* delicately raised carinæ on either side,—instead of three. *Antennæ* and *legs* concolorous with, or perhaps a little paler than, the remainder of the surface.

Apparently extremely rare,—or, at any rate, local; and, from its peculiar habits, somewhat difficult to obtain. A single example was first discovered by myself, on the 8th of May 1848, beneath a stone on the flat ledge of ground immediately above the Praya Formoza, near Funchal,—the only specimen in fact which I have hitherto taken. It is to the researches of Professor Heer of Zurich that we are indebted for a knowledge of its habits, who informs me that he has captured it in the nests of *Œcophthora pusilla* both at the Gorgulho and even in Funchal itself. Having collected a portion of the earth in which the nests of that ant were situated, and having carefully placed it in his house in Funchal, he states that he used frequently to observe a specimen of *Cossyphodes* adhering to the small loose stones which he had allowed to remain on the surface. But, even when thus sought after in its legitimate position, it would seem to be far from common, since Professor Heer, during his winter's residence in the island, did not obtain, I believe, more than seven or eight examples in all. It runs with such prodigious velocity that more than ordinary dexterity is required in securing it,—which, for a *blind* insect (if indeed its eyes be in reality altogether wanting, as would certainly appear to be the case) is very remarkable.

Genus 50. PLŒOSOMA*, *Woll.* (Tab. IX. fig. 9.)

Corpus parvum ellipticum glaberrimum: *capite* in cavo prothoracico usque ad oculos immerso: *prothorace* postice lato elytris arcte applicato: *abdomine* ex segmentis ventralibus quinque composito, segmento basali amplo: *scutello* distincto subtriangulari: *alis* obsoletis. *Antennæ* (IX. 9 *a*) breviusculæ (capitis prothoracisque vix longitudine) distantes capitatæ, articulo primo robusto

* Genus *Ceryloni* affinitate proximum, sed labro bilobo valde membranaceo, tibiis subcurvatis excalcaratis, alis obsoletis, necnon formâ vix punctatâ ellipticâ ab eo sat distinctum videtur.

crasso, secundo huic longitudine subæquali at multo graciliore subcylindrico, tertio breviore, inde ad nonum latitudine vix crescentibus longitudine subæqualibus, reliquis capitulum magnum abruptum ovale solidissimum obscure biarticulatum efficientibus. *Labrum* (IX. 9 *b*) amplum membranaceum pilosum, antice bilobum, marginibus membraneo-tenuissimis. *Mandibulæ* (IX. 9 *c*) magnæ validæ elongatæ corneæ, basi latæ, apice bidentatæ, inde ad medium sinuatæ et membranâ auctæ. *Maxillæ* (IX. 9 *d*) bilobæ membranaceæ: *lobo externo* elongatissimo gracili recto, apice leviter pubescenti: *interno* breviore gracillimo recto, apicem versus ciliato. *Palpi maxillares* articulo primo longiusculo flexuoso, secundo crassiore paulo breviore, tertio maximo inflato subovato, ultimo primi longitudine sed recto aciculari: *labiales* (IX. 9 *e*) articulo primo flexuoso, secundo maximo inflato subovato, ultimo primi longitudine sed recto aciculari. *Mentum* elongato-subquadratum, antice acuminatum, lateribus ante basin constrictis. *Ligula* apice bifida, lobis latis membraneo-tenuissimis aucta. *Pedes* sat validi: *tibiis* (præsertim *anticis*) subflexuosis apicem versus dilatatis vix calcaratis: *tarsis* (IX. 9 *f*) 4-articulatis pilosis, articulo primo leviter elongato, secundo et tertio brevioribus æqualibus, ultimo longissimo subclavato *unguiculis* simplicibus munito.

A πλοῖον navis, et σῶμα corpus.

The little insect on which I have erected the present genus is perhaps one of the most truly indigenous of all the Madeiran Coleoptera. After a careful consideration of its habits, and of the different points of its structure, I have not the slightest doubt but that it is correctly placed amongst the *Colydiadæ*, with which, in its four-jointed tarsi, bidentate mandibles, and its biarticulate antennal club (the essential characteristics of that family) it entirely coincides. It is in fact closely allied to *Cerylon*, not only in its general habit (*Plœosoma* being not merely subcortical, but also, like that genus, found in the very centre of moist decaying wood) and glabrous surface, but more especially in the elongated, narrow lobes of its maxillæ, quadriarticulate feet, in the shape of its mentum, in the extremely solid club of its antennæ, and in the largely inflated penultimate, and aciculated ultimate, joints both of its labial and maxillary palpi. Still, in spite of this evident approach to *Cerylon*, it is not possible that it can be actually associated with it, since in its deeply bilobed, membranous upper lip, in its slightly curved, unspurred tibiæ, in its obsolete wings, as well as in its elliptical form, and in its comparatively impunctate surface it recedes from that genus entirely. It is certain however that it should be placed near to it, since it evidently forms one of those small attendant genera so often observed as offshoots from a central type, the importance of which, when geographically considered, it is difficult to overrate.

122. Plœosoma ellipticum, *Woll.* (Tab. IX. fig. 9.)

P. ellipticum convexum piceum læve nitidum, prothorace leviter punctato, elytris vix punctatis apice rufescentibus, antennis pedibusque ferrugineis.

Long. corp. lin. 1–1¼.

Habitat sub cortice, in ligno putrido, vel sub truncis arborum marcidis in locis humidiusculis Maderæ, inter 2500′ et 5000′ s. m. toto anno non infrequens.

P. elliptical (being widest about the middle, and almost equally attenuated before and behind), convex, bright piceous, shining, and free from pubescence. *Prothorax* ample, wide behind (where it is closely applied to the elytra), more or less rufescent, and covered, both above and below, with shallow but rather large punctures. *Elytra* generally rufescent towards their apex, extremely minutely and distantly punctured,—the punctures being scarcely perceptible except under a high magnifying power; when they will be observed moreover to be slightly disposed in rows. *Mouth, antennæ* and *legs* ferruginous.

The small size, in conjunction with the glabrous, shining, and elliptical body, of this interesting insect will readily distinguish it from the remainder of the *Colydiadæ* here described. It is confined exclusively to the forest districts of Madeira, where it would appear to range between the limits of from about 2500 to 5000 feet above the sea, occurring more especially, as might be expected, in those spots which, from the difficulty of access, have been least disturbed. It is found either beneath bark or in the interior of rotting wood,—occasionally even adhering to the undersides of wet decaying logs, particularly in regions where the moisture is excessive, and where consequently decomposition goes on the most rapidly. I have taken it at the base of the Pico Grande and in the Boa Ventura, during February; on the Lombo das Vacas, in June; at the Lombo dos Pecegueiros, in July; and at the Feijãa de Córte, at the beginning of August.

Genus 51. EUROPS*, *Woll.* (Tab. III. fig. 1.)

Corpus parvum, subcylindrico-lineare: *capite* subpedunculato, in maribus (III. 2) magno, in fœminis mediocri, *oculis* magnis prominentibus, subtus (III. 2 *a*), *jugulo* (præsertim in maribus) lateribus utrinque valde dilatatis, projecturam subconcavam (superne, ante oculos, conspicuam) formante: *prothorace* elongato, lineari-quadrato: *mesothorace* superne subobservando, *scutello* minuto: *elytris* apice truncato-abbreviatis, abdomen haud tegentibus: *alis* amplis: *abdomine* ex segmentis ventralibus quinque composito, segmento apicali reliquis paulo longiore. *Antennæ* breves (capite paulo longiores) distantes rectæ, articulis primo et secundo robustis subglobosis, illo majore crassiore, tertio ad octavum brevibus subtransversis subæqualibus, reliquis clavam magnam abruptam ovalem biarticulatam efficientibus (nono magno subpoculiformi, ultimo maximo subgloboso obscurissime biannulato atque ad apicem leviter tuberculato-subacuminato). *Labrum* brevissimum, vix conspicuum. *Mandibulæ* (III. 2 *a*, 2 *b*) magnæ validæ corneæ triangulæ, extus basi sinuatæ, apice incurvæ acutæ, intus pone medium laciniâ pubescenti instructæ. *Maxillæ* (III. 2 *c*) bilobæ: *lobo externo* gracillimo aciculari curvato: *interno* huic longitudine æquali, lato, valde pubescenti. *Palpi maxillares* articulo primo brevissimo, secundo et tertio robustioribus subæqualibus, ultimo multo longiore subconico-subacuminato: *labiales* (III. 2 *d*) articulo primo brevissimo, secundo paulo majore crassiore, ultimo elongato robusto subovali-subacuminato. *Mentum* elongato-quadratum, apicem versus angustatum. *Ligula* elongata linearis, apice rotundata. *Pedes* parum robusti: *tibiis* apicem versus leviter dilatatis: *tarsis* (III. 2 *e*) 4-articulatis pilosis, articulis primo et secundo latis crassis, tertio minuto, quarto longissimo subclavato *unguiculis* simplicibus munito.

A εὐρὺς latus, et ὄψ vultus.

* Genus maxillarum formâ elytrisque truncatis *Rhyzophago* simillimum, sed tarsorum structurâ et habitu generali *Colydiadis* affinitate proximum videtur, et cum illis, nisi fallor, recte ponendum est.

The insect for the reception of which the present genus is founded bears, at first sight, a strong resemblance to a *Rhyzophagus*, but the details of its mouth and tarsi point out at once its true location, amongst the *Colydiadæ*,—from some of the members of which it is not very remotely distant. Still, there are a few points, it must be confessed, in which it approaches *Rhyzophagus*, especially in its slender, aciculated outer maxillary lobe, and its truncated elytra; though the abundant characters in which it recedes from it are sufficient to remove it altogether from that group. Thus, the structure of its antennæ will at once be noticed, which are not only shorter and more robust, but want likewise the elongated third joint of *Rhyzophagus*, and have their club, in lieu of a solid one, much perfoliated,—being composed of two subequal, loosely-connected parts, the first of which is large and cup-shaped, and the second globose and obscurely annulated (as though made up of two). It differs moreover very considerably in the form of the largely developed head of its males; which is not only (as indeed is the case in both sexes) constricted into a tolerably distinct neck posteriorly, but is, likewise, broadest just behind the eyes. The edges of the jugulum, underneath, are so much developed laterally as to be apparent from above, the projecting portion seeming, at first sight (especially in the males, where it is largest), to belong to the lateral margins of the head itself. The eyes, unlike those of *Rhyzophagus*, are large and prominent; and the entire insect, instead of being glabrous, is, both above and below, pilose. The elytra are much more abbreviated posteriorly than in any of the *Rhyzophagi*, being broadly and transversely truncated,—exposing the pygidium, which is greatly elongated. The legs are slenderer also, and somewhat shorter, and without any appearance on the tibiæ of external teeth; whilst the feet, instead of being heteromerous in one sex, are, as in most of the *Colydiadæ*, quadriarticulate throughout.

123. Europs impressicollis, *Woll.* (Tab. III. fig. 2.)

E. angustus subcylindrico-linearis rufo-ferrugineus et parce pubescens, capite prothoraceque remote punctatis, hoc elongato-quadrato in disco profunde longitudinaliter impresso, elytris punctato-striatis pallido-testaceis sed ad apicem nigro-infuscatis, pedibus testaceis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Habitat in insulâ Desertæ Grandis, rarissimus,—Maio exeunte A.D. 1850, apricitate volitans, a meipso deprehensus.

E. narrow, linear, somewhat cylindrical, sparingly pubescent, shining, and rufo-ferruginous. *Head* and *prothorax* remotely but rather deeply punctured: the *former* large (especially in the males) and wide,—though widest immediately behind the eyes, and from thence suddenly constricted posteriorly into a neck, which is tolerably apparent when the head is at all protruded; gradually a little dilated, on either side, in front of the eyes, and, likewise, elevated into somewhat of a ridge, out of which spring the antennæ,—these ridges causing, in conjunction with the slightly convex clypeus, two oblique depressions, or sulci, to appear on the forehead; the lateral portions of the *jugulum*, underneath (III. 2 *a*), are so much produced, or swollen (particularly in the male sex),

as to project beyond the margin of the head in the form of a rounded concave prominence, which, when viewed from above, it is not easy, at first sight, to separate from the sides of the upper surface itself,—an arrangement which causes the lateral expansion in front of the eyes (at which point this under-process makes its appearance) to seem larger and more irregular than it really is:—the *latter* (*i. e.* the *prothorax*) extremely narrowly margined at the sides and behind, long and parallel, just perceptibly narrower than the elytra, and with a broad and deep elongated longitudinal depression on the disk,—which however scarcely extends to either the anterior or the posterior margins. *Elytra* pale testaceous, deeply punctate-striated, and much abbreviated and transversely truncated behind, exposing the pygidium,—which, together with the apex of the former, their extreme lateral margins, and sometimes even their suture, is more or less black (in quite mature specimens rather deeply so, but in others merely infuscated or picescent). *Antennæ* ferruginous. *Legs* testaceous. *Beneath* dark ferruginous, with the underside of the head and the three hinder segments of the abdomen paler.

Of the greatest rarity,—the few specimens which I have hitherto seen having been captured by myself on the Dezerta Grande, during my encampment there with the Rev. R. T. Lowe at the end of May 1850. They were taken on the outer canvass of my tent,—whither they had flown, in company with other insects (particularly the minute *Arthrolips piceus*), in the hot sunshine,—on the high ridge at the commencement of the long northern valley, immediately above the precipitous gorge which constitutes the only ascent of the island from the landing-place below.

Genus 52. LYCTUS. (Tab. IV. fig. 3.)

Fabricius, *Ent. Syst.* i. ii. 502 (1792).

Corpus minusculum, lineari-cylindricum: *capite* lato; *oculis* magnis prominentibus: *prothorace* elongato-subquadrato, postice interdum (ut in specie Maderensi) leviter angustato et angulis anticis ampliato-productis; lateribus plus minusve crenulatis: *elytris* integris: *alis* amplis. *Antennæ* (IV. 3 *a*) breviusculæ (capitis prothoracisque vix longitudine) distantes, articulis primo et secundo robustis, illo majore crassiore, tertio ad nonum longitudine paulatim vix decrescentibus latitudine subæqualibus, decimo et undecimo clavam magnam ovalem biarticulatam efficientibus (articulis subæqualibus, illo subpoculiformi, hoc paulo angustiore ovato basi truncato). *Labrum* (IV. 3 *b*) amplum porrectum, antice leviter bilobum, lobis rotundatis et longe ciliatis. *Mandibulæ* (IV. 3 *c*) validæ corneæ, apice incurvæ bidentatæ. *Maxillæ* (IV. 3 *d*) bilobæ: *lobo externo* elongato, apice valde pubescenti: *interno* breviore recto, intus pubescenti ciliato. *Palpi maxillares* elongati, articulis primo et secundo longitudine subæqualibus (illo flexuoso, hoc subclavato), tertio paulo breviore, ultimo elongato apice plus minusve acuminato: *labiales* (IV. 3 *e*) e scapis ligulæ connatis surgentes, articulo primo longiusculo subflexuoso, secundo paulo breviore subclavato, ultimo elongato apice plus minusve acuminato. *Mentum* semicirculare, ad summum apicem vel integrum, vel (ut in specie nostrâ) leviter truncatum. *Ligula* subovata antice acuminata, lobis longis tenuissimo-membranaceis aucta. *Pedes* parum graciles: *tibiis anticis* (IV. 3 *f*) apicem versus leviter dilatatis, ad apicem externum in angulum exstantem productis, ad internum unco robustissimo munitis, *posterioribus* (IV. 3 *g*) rectis gracilibus: *tarsis* 4-articulatis, articulis primo, secundo et tertio longitudine subæqualibus (primo vix longiore, et subtus ante basin leviter constricto,—alium articulum, sc. basalem, fere simulanti), quarto longissimo subclavato *unguiculis* simplicibus munito.

The insect which represents *Lyctus* in Madeira constitutes the genus *Xylotrogus* of Stephens, which was established in 1830 to receive the identical species now under consideration, which appears to be liable to importation throughout the civilized world, and in which the prothorax is more constricted behind, and with its anterior angles more developed and produced, than is the case with the acknowledged type. Mr. Stephens's characters being merely external ones, it would have been difficult without dissection to have offered an opinion as to their real value, or whether they were accompanied by corresponding differences of positive structure. In addition however to the Madeiran examples, I have lately received from Mr. Westwood (by whom the specimen which is figured was dissected) a true *X. brunneus* (captured, many years ago, at Paris by M. Chevrolat,—who, believing it to be undescribed, proposed for it the name of *L. Glycyrrhizæ*), and have consequently been enabled to examine minutely its oral organs and other details. After comparing them carefully with those of the *L. canaliculatus*, I cannot perceive any decided distinctions whatsoever between the two,—the slightly more elongated and apically-acuminated palpi of the *X. brunneus*, in conjunction with its rather less robust antennæ, being the sole points, unless I am much mistaken, in which (apart from the shape of its prothorax) it recedes from the normal state;—and it is clearly impossible to regard such trivial modifications as of more than specific importance. In defining its palpi as "very short," and its prothoracic margins as "not crenated" (the main features selected in order to separate it from *Lyctus*), Mr. Stephens was unquestionably in error, since its palpi are distinctly *longer* than those of the *L. canaliculatus*, whilst the edges of its prothorax are certainly crenulated,—albeit more obscurely so than in the common generic type. So completely indeed are the structural minutiæ of the *L. canaliculatus* possessed by the *X. brunneus* that it is almost needless to enumerate them: suffice it therefore to observe that, in the proportions of their antennæ, in their bilobed upper lips, bidentate mandibles, as also in their maxillæ, semicircular menta, peculiar, apically-acuminated ligulæ, in their powerful and curiously armed anterior tibiæ, and in the constricted basal joint of their quadriarticulate feet, the two insects are actually identical.

124. Lyctus brunneus. (Tab. IV. fig. 3.)

L. angustus cylindricus pubescens brunneus, capite prothoraceque crebre punctatis, hoc postice leviter angustato angulis anticis productis obtusis, elytris ferrugineis obsolete substriato-punctatis (striis suturam versus evanescentibus), interstitiis minutissime punctulatis.

Long. corp. lin. $1\frac{1}{3}$–$2\frac{1}{3}$.

Lyctus parasiticus, Steph. *Syst. Cat. of Brit. Ins.* 94 (1829).
Xylotrogus brunneus, Steph. *Ill. Brit. Ent.* iii. 116 (1830).
Lyctus Colydioides ? Dej. *Cat.* (edit. 3) 338 (1837).
—— *Glycyrrhizæ*, Chev. *in Dej. Cat.* (edit. 3) 338 (1837).

Habitat Maderam, circa oppida et vicos, vel etiam in urbe ipsâ Funchalensi, hinc inde, rarior: in

domo quadam ad Seisal, mense Julio A.D. 1850, primus detexit Rev^dus Dom. Lowe; sed plurima specimina a Dom. Hartung Maderâ ablata nuper cl. Dohrn communicavit.

L. narrow, linear, cylindrical, brown or reddish-brown, pubescent, and but very slightly shining. *Head* and *prothorax* coarsely and rather closely punctured: the *former* widest about the *eyes*, which are very large and prominent: the *latter* elongated, a little narrowed and straightened posteriorly, and with the anterior angles considerably enlarged (although obtuse) and downwardly produced; the sides minutely crenulated; convex in front, where there is no appearance of a dorsal channel, but with a wide and more or less shallow longitudinal depression on the hinder disk. *Elytra* ferruginous, being paler and more rufescent than the head and prothorax; obsoletely and finely striate-punctate,—the striæ being tolerably apparent towards the outer portion, but vanishing near the suture; the interstices minutely punctulated; entire and rounded at the apex. *Antennæ* and *legs* concolorous with, or perhaps a little darker than, the elytra.

The present *Lyctus* has in all probability been naturalized in these islands, it being an insect which, from its habits, is liable to constant transmission throughout the world: nevertheless, since it would appear to establish itself with greater facility in subaustral than in northern regions, it may perhaps be truly indigenous on the southern Mediterranean limits,—in which case it is just possible that Madeira may come within its legitimate range. It is my belief, however, that it has been imported from other countries,—an hypothesis which is somewhat strengthened by the fact that it is never found, so far at least as I am aware, except either in or near the villages and towns, whilst most of the specimens which have hitherto turned up were captured in the houses themselves. The first example which came beneath my notice was detected by the Rev. R. T. Lowe, during July 1850, in a Quinta at Seisal: and it was not until June of the following year that it again occurred,—when a second was communicated by M. Dohrn of Stettin, which had crawled out of a dried skin which had been prepared in Madeira by M. Hartung. About the same time, moreover, I received it from Mr. Leacock,—taken in Funchal; and within the last month M. Dohrn has informed me that it has been reared in abundance at Königsberg, from larvæ which have been lately brought away from the island. In its habits, it would seem, to a certain extent, to combine the dermaphagous tendency of *Trogosita* with the lignivorous propensities of the true *Lycti*, since it is, apparently, able to adapt itself to even dried *animal* food. Still, like the common European *L. canaliculatus*, it is normally attached to wood,—from out of which indeed M. Dohrn states that the Königsberg specimens were produced.

Fam. 12. TROGOSITIDÆ.

Genus 53. TROGOSITA.

Olivier, *Ent.* ii. 19 (scrip. Trogossita) (1790).

Corpus mediocre, elongatum: *prothorace* sæpius subcordato, angulis anticis productis: *alis* amplis.

Antennæ breviusculæ (capitis prothoracisque vix longitudine), articulo primo robusto, secundo minuto, reliquis usque ad apicem sensim crassioribus (rarius subclavatis). *Labrum* transverso-quadratum, antice integrum et valde ciliatum. *Mandibulæ* magnæ validæ corneæ porrectæ, basi latæ, apice fortiter bidentatæ. *Maxillæ lobo singulo* elongato valde ciliato ad apicem obtuso instructæ (*interno* obsoleto). *Palpi* articulo ultimo elongato, subfusiformi-truncato. *Mentum* transversum, apice late emarginatum. *Ligula* ampla cornea integra, antice pilosa. *Pedes* validi: *tibiis anticis* apicem versus leviter dilatatis, calcari interno maximo robusto unciformi (externo reliquis æquali, minuto): *tarsis* articulo primo minutissimo, ultimo elongato subclavato.

The elongated and more or less flattened bodies of the *Trogositæ*, in conjunction with their obsolete inner maxillary lobe, and the extraordinary enlargement of one of their two front tibial spurs, as compared with the other, will be sufficient whereby to distinguish them from their immediate allies. In the construction of their mentum, and in the minute basal joint of their tarsi, as well as in the smallness of the second articulation of their antennæ, they approach the *Læmophlœi* and other typical members of the *Cucujidæ*,—with many of which in habits, likewise, they essentially coincide. Hence, I have preferred the present position for them to placing them amongst the *Nitidulidæ*, with which they are now usually associated,—deeming the above peculiarities of greater importance than even the non-development of the inner lobe of their maxillæ; and especially so since several of the *Cucujidæ* have that lobe so far reduced in size as to indicate, even in this respect, a no very distant relation with *Trogosita*. Were its habits indeed alone to be taken into account, the present genus might be supposed to have some affinity with *Tenebrio* and other representatives of the *Heteromera*; but its pentamerous feet, and the total absence of an internal emargination to its mandibles, apart from other points no less evident, will at once remove it *in toto* from the whole of those groups.

§ I. *Prothorax subcordatus, angulis ipsis posticis exstantibus: antennæ apicem versus sensim incrassatæ.*

125. Trogosita mauritanica.

T. depressa picea subnitida, elytris post medium leviter dilatatis, subpunctato-striatis.

Long. corp. lin. 4.

Tenebrio mauritanicus, Linn. *Syst. Nat.* ii. 674 (1767).
Trogossita mauritanica, Oliv. *Ent.* ii. 19. 6. pl. 1. fig. 2 *a*, *b* (1790).
Trogosita caraboides, Fab. *Ent. Syst.* i. 115 (1792).
——— *mauritanica*, Gyll. *Ins. Suec.* i. 72 (1808).
——— ———, Erich. *Nat. der Ins. Deutsch.* iii. 243 (1848).

Habitat in granariis domibusque Maderæ, præsertim circa Funchal, vulgaris: interdum in ipsâ urbe (mercatorum repositoriis) abundat, ex alienis certe introducta.

T. elongated, much depressed, dark piceous, and slightly shining. *Head* and *prothorax* deeply punctured: the *latter* somewhat short and cordate (being broad in front and narrowed behind),

with the anterior angles produced, and the extreme posterior ones distinctly prominent. *Elytra* widest behind the middle, and faintly punctate-striated; the interstices each with two rows of minutely impressed points. *Body beneath*, and the *legs* bright rufo-piceous. *Antennæ* darker (especially in the middle), and gradually incrassated towards their apex.

The common *T. mauritanica* is one of those insects which follow in the wake of commerce, and it is consequently found, at times, in nearly all countries of the world. It is not only with flour and grain, but even amongst skins and furs, and such like merchandise, that it is liable to become introduced; and in England it has been frequently received, alive, in boxes of natural curiosities from India and China. In Madeira it is, in like manner, at intervals abundant,—occurring in granaries and warehouses in and near Funchal; and I have occasionally captured it on board vessels which have been lying at anchor in the bay.

§ II. *Prothorax subquadratus, angulis ipsis posticis vix exstantibus: antennæ breviores, ad apicem clavatæ (articulis nono, decimo et undecimo clavam distinctam intus serratam efficientibus).*

126. Trogosita serrata, *Woll.*

T. angusto-subcylindrica picescenti-ferruginea subopaca, elytris parallelis profunde punctato-striatis. Long. corp. lin. $3\frac{1}{2}$.

Habitat Maderam; mihi non obvia, sed duo specimina benigne communicavit Rev^dus^ Dom. Lowe.

T. narrower, more cylindrical and parallel than the *T. mauritanica*, also less depressed, of a pale piceo-ferruginous hue, and much more opake. *Head* and *prothorax* deeply punctured: the *latter* much more quadrate than that of the last species (being narrower in front and broader behind,—and consequently with the sides straighter); with the anterior angles rather obtuser and less produced, and the extreme posterior ones not so much thickened or prominent as those of that insect. *Elytra* narrow, parallel, and deeply punctate-striated; the interstices each with two rows of most minutely impressed points. *Antennæ* and *legs* concolorous with the rest of the surface; the *latter* rather shorter than those of the *T. mauritanica*, and distinctly clavated at their apex,—the terminal three joints forming a tolerably abrupt and internally-serrated club.

In its distinctly clavated antennæ and comparatively subquadrate prothorax the present insect recedes from the normal members of the genus. As regards the former indeed its structure is very remarkable, the ninth, tenth and eleventh joints forming an abrupt and internally-serrated club:—nevertheless there can be no doubt but that it is a true *Trogosita*, since in all other respects it retains the essential characteristics of the group. I have not, myself, succeeded in detecting it in the Madeira Islands, the only two specimens which have hitherto come beneath my notice having been presented to me by the Rev. R. T. Lowe from the collection of the late Dr. Heinecken, by whom they were captured many years ago near Funchal,—and where it is far from improbable that they may have been accidentally introduced with corn or merchandise.

Fam. 13. CUCUJIDÆ.

Genus 54. CRYPTAMORPHA, *Woll.* (Tab. IV. fig. 1.)

Corpus minusculum, parallelo-elongatum, depressum, Psammœco affine: *prothorace* subcylindrico, lateribus (præsertim ad angulos anticos) crenulatis: *scutello* distincto, transverso: *alis* amplis. *Antennæ* capite prothoraceque paulo longiores, parum robustæ, subfiliformes (apicem versus vix sensim incrassatæ), articulo primo sat elongato, secundo brevi, reliquis ad decimum longitudine vix decrescentibus, undecimo ovato basi truncato. *Labrum* (IV. 1 *a*) porrectum transversum, antice integrum ciliatum. *Mandibulæ* (IV. 1 *b*) validæ, basi latæ, ad summum apicem (ut in Dendrophago) bidentatæ, necnon infra apicem dente minuto instructæ. *Maxillæ* (IV. 1 *c*) bilobæ: *lobo externo* lato, apice valde pubescenti: *interno* minuto angusto valde pubescenti membranaceo. *Palpi maxillares* articulo primo minutissimo, secundo magno crasso subclavato, tertio minore transverso, ultimo fusiformi-subacuminato basi truncato: *labiales* (IV. 1 *d*) articulo primo minutissimo, secundo magno crasso subclavato, ultimo maximo brevi latissimo securiformi-transverso apice truncato. *Mentum* breve transversum, antice angustatum, ad summum apicem excavato-emarginatum et angulis lateralibus porrectis acutis. *Ligula* membranacea, antice pilosa. *Pedes* valde cursorii: *tibiis* muticis: *tarsis* (IV. 1 *e*) pilosis (in maribus, nisi fallor, heteromeris), articulo primo leviter abbreviato, secundo et tertio longitudine subæqualibus (illo subcordato, hoc profunde bilobo), quarto minutissimo inter lobos tertii immerso, ultimo elongato *unguiculis* simplicibus munito.

A *Crypta* (genus Coleopterorum) et *μορφὴ* figura.

I had for some time regarded the insect on which the present genus is founded as a true *Psammœcus* (= *Crypta*, Steph. A.D. 1830), to which both in its habits and outline it is very closely allied. A more careful examination, however, of its oral organs and feet has subsequently convinced me that it is impossible to associate it with that group, as usually defined (and of which the *Anthicus bipunctatus* of Fabricius is supposed to be the type), however much it may resemble some of the members of it externally,—since it is wanting in many of the most essential structural characteristics on which it is made to depend. Thus, the enormously developed securiform joint with which the maxillary palpi of *Psammœcus* are terminated is here narrow and fusiform, and even *acuminated* towards its apex; whilst the labial ones have their ultimate articulation immensely swollen, and *more* abruptly hatchet-shaped than is there the case. Its mandibles also, which are bidentate at their extremity, and have a small additional subapical tooth within, recede from those of *Psammœcus*, and coincide almost entirely with the modification which obtains in *Dendrophagus*. Then, the mentum likewise is of a very different form, being deeply emarginated anteriorly, instead of produced; whilst, lastly, its tarsi (instead of being quadriarticulate) are pentamerous in the females (the minute fourth joint being concealed between the greatly enlarged lobes of the third), and heteromerous (unless indeed my observations deceive me) in the males. Upon the whole, therefore, I should consider *Cryptamorpha* as an

undoubtedly new genus,—intermediate perhaps between *Psammœcus* and *Dendrophagus*; since it partakes of the former in its general habits and aspect, in its prominent upper lip, and in the construction of the inner lobe of its maxillæ and third tarsal joint; whilst in its mandibles and maxillary palpi, and in the number of the articulations of its feet (in *one* sex at all events, if not indeed in both) it approaches the latter. In the shape of its mentum and labial palpi, on the other hand, it agrees with neither,—although the first more nearly resembles that of *Dendrophagus* than of *Psammœcus*, whilst the second assimilate those of *Psammœcus* rather than of *Dendrophagus*.

127. Cryptamorpha Musæ, *Woll.* (Tab. IV. fig. 1.)

C. elongata depressa pubescens rufo-testacea, elytris profunde punctato-striatis testaceis maculâ subscutellari fasciâque postmediâ, necnon lineâ plus minusve conjungenti vel suffusâ (in singulo prope suturam sitâ), nigrescentibus, antennis pedibusque pallido-testaceis, illarum articulis subapicalibus infuscatis.

Long. corp. lin. $1\frac{2}{3}$.

Habitat in Maderâ australi, circa urbem Funchalensem, rarissime: in horto Ecclesiæ Anglicanæ (quæ in Beco das Arãnhas sita est), sub fibrâ *Musæ sapientum*, Linn., Augusto ineunte A.D. 1850 primus inveni; et tempore vernali A.D. 1851 in floribus *Calocasiæ* cl. Dom. Heer detexit.

C. elongated, depressed, very pubescent, and rufo-testaceous. ***Head*** **rather large and prominent, finely punctulated, and with a deep and narrow longitudinal impression, or groove, on either side between the eyes, which however terminates abruptly on the hinder portion of the forehead.** ***Prothorax*** elongated and subcylindrical, a little narrowed behind, and with the hinder disk a good deal flattened; rather more deeply punctured than the head (the spaces between the punctures appearing beneath a high magnifying power to be very delicately roughened, or somewhat granulose); with the lateral edges minutely crenulated,—especially about the anterior angles, which are a little downwardly-produced. *Elytra* deeply punctate-striated; testaceous, with a somewhat triangular patch in front of the scutellum, and a transverse postmedial abbreviated zigzag fascia, common to both,—as also a narrow connecting line close alongside the suture of each (but which is often suffused, or even evanescent, especially in front),—black. *Antennæ* and *legs* pale testaceous: the *former* with their subapical joints more or less infuscated,—the terminal one being always pale.

A most elegant insect, and apparently extremely scarce; being confined, so far as I am aware, to hot sheltered spots in and immediately around Funchal. It was first discovered by myself, early in August 1850, in the garden of the English Church in the Beco das Arãnhas, beneath the outer fibre of the stems of the Banana (*Musa sapientum*, Linn.),—where it would appear more especially to reside, subsisting (much in the same manner as the *Psammœcus bipunctatus* does on the *Carex acuta* of central and northern Europe) on the sap with which that gigantic Monocotyledon abounds;—a mode of life for which its unarmed and densely

pubescent maxillæ and its deeply bilobed antepenultimate tarsal joint would seem to be peculiarly adapted. It is exceedingly rapid in its movements, running with such immense velocity when exposed to the light as not to be secured without some degree of dexterity. Professor Heer informs me that he met with it sparingly on the flowers of a *Calocasia*, in Funchal, during the spring of 1851; and I have lately received a specimen from M. Dohrn of Stettin, communicated to him by M. Hartung.

Genus 55. LÆMOPHLŒUS. (Tab. III. fig. 7, 8 et 9.)

(Dej. *Cat.* edit. 2. 315) Erich. *Nat. der Ins. Deutsch.* iii. 315 (1848).

Corpus minusculum vel parvum, parallelo-elongatum, plerumque valde depressum: *capite prothoraceque* striâ longitudinali elevatâ utrinque sæpius instructis, *hoc* angulis anticis plus minusve leviter productis: *alis* amplis. *Antennæ* vel (III. 8) filiformes et (præsertim in maribus) longiusculæ, vel (III. 7, 9) moniliformes breviores robustæ et apicem versus sensim subincrassatæ; articulo primo sat elongato robusto, secundo brevi, reliquis modo (III. 8) latitudine æqualibus et longitudine subcrescentibus, modo (III. 7, 9) longitudine subæqualibus et latitudine leviter crescentibus (ultimo interdum subturbinato, aut potius ad apicem ipsum tuberculato). *Labrum* (III. 8 *a*) porrectum, subsemicirculare, antice ciliatum. *Mandibulæ* (III. 8 *b*) validæ, ad summum apicem bidentatæ et infra apicem excisæ, basin versus membranâ tenui auctæ. *Maxillæ* (III. 8 *c*) bilobæ: *lobo externo* lato, apice valde pubescenti: *interno* minutissimo brevi angusto, ad apicem acutissimo-uncinato. *Palpi maxillares* articulo primo minutissimo, secundo majore crassiore subclavato, tertio brevi, ultimo secundo vix longiore fusiformi basi truncato: *labiales* (III. 8 *d*) e scapis ligulæ connatis surgentes, articulo primo minutissimo, secundo et ultimo elongatis longitudine subæqualibus (illo subclavato, hoc subfusiformi basi truncato). *Mentum* breve transversum, antice excavato-emarginatum. *Ligula* cornea, antice pilosa. *Pedes* sat robusti: *tibiis* calcari terminali, præcipue in *anticis* (III. 8 *e*), armatis: *tarsis* simplicibus (in maribus heteromeris), articulo primo minutissimo ægre observando, ultimo elongato *unguiculis* simplicibus munito.

In addition to the structure of their oral organs and feet,—amongst the details of which the excessive minuteness of their (uncinated) inner maxillary lobe (as though to connect them with the *Trogositidæ*, in which that lobe is obsolete), and the heteromerous condition of the male sex should be especially noticed,—the *Læmophlœi* may be at once recognised by many external characteristics peculiarly their own. Thus, their usually small size and exceedingly flattened bodies, in conjunction with the elevated submarginal stria which (although occasionally increased by a second one) is seldom, if ever, entirely absent from the edges of either their forehead or prothorax, as also the singular tendency which a portion of the species possess to have the terminal joint of their antennæ so distinctly tubercled at its apex as almost to seem (beneath a high magnifying power) to be composed of two, are nearly sufficient, even alone, to separate them from the members of the allied groups. Nevertheless, in some other respects they present considerable diversity *inter se*,—so much so indeed, that, were the *extremes* of form

merely to be taken into account, they might appear to arrange themselves under two well-defined sections; in the first (III. 8) of which the antennæ are long (especially in the males) and filiform (the articulations being inclined, if anything, rather to increase in length and diminish in breadth), and the forehead is terminated abruptly, and hollowed out, immediately before the point of their insertion: whilst in the second (III. 7, 9) the antennæ are comparatively abbreviated, moniliform, and robust (the joints becoming, for the most part, gradually thicker from the base), and the forehead is much more produced anteriorly, being truncated only at its extremity, —and generally moreover in a straight line instead of an incurved arc. These modifications however, although remarkably apparent in the extremes, are so far lost sight of, and merged into each other, in the means as to be scarcely traceable; and hence it is not possible to make use of them, for even subsidiary purposes, in a universal arrangement. Still, since all the representatives which I have hitherto been able to detect in the Madeira Islands are unmistakeable members of one or the other of these opposite types, the divisions may be employed in the present instance with great convenience.

§ I. *Antennæ longæ filiformes, articulo ultimo debiliore tuberculiformi (quasi ex articulis duobus composito): frons ad antennarum insertionem late subemarginato-truncata: elytra apice truncata.*

128. Læmophlœus Donacioides, *Woll.* (Tab. III. fig. 8.)

L. plumbeo-piceus granulatus opacus, capite prothoraceque subtiliter punctatis, hoc breviusculo subquadrato, angulis anticis subexstantibus, posticis subrotundatis, margine antico lineis duabus brevissimis politis submediis notato, elytris testaceis striatis ad apicem valde truncatis, suturâ, striis et interdum margine plumbeis, antennarum basi ferrugineâ, pedibus testaceis.

Mas, antennis longissimis, prothorace pone discum punctis duobus magnis (rarius evanescentibus) utrinque longitudinaliter impresso.

Fœm. antennis minus elongatis, prothorace haud impresso.

Long. corp. lin. *mas,* $1\frac{2}{3}$: *fœm.* $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat Maderam sylvaticam, sub cortice arborum, rarissimus: in sylvis convallis Boa Ventura dictæ d. 18 Febr. A.D. 1849 primus inveni; necnon in castanetis Sanctæ Annæ æstate mediâ A.D. 1850 parce collegi.

L. large, exceedingly depressed, dull piceous with a lead-coloured tinge, opake, and almost free from pubescence. *Head* and *prothorax* very closely and rather coarsely granulated, and with fine punctures intermixed: *forehead* with the anterior edge truncated, and hollowed out immediately in front of the antennæ; with a raised marginal stria, and a very distinctly impressed central one down the disk. *Prothorax* rather short, subquadrate, and slightly narrowed behind; the posterior angles somewhat rounded, and the anterior ones a little prominent; with two small, polished, longitudinal spaces in the centre of the front margin,—resembling very minute portions of glabrous lines. *Elytra* more delicately granulated than the head and prothorax, very shortly and most sparingly pubescent; very much truncated behind, exposing the pygidium; distinctly

striated upon the disk,—the striæ vanishing towards the base and apex, especially the latter; testaceous, with the suture, the striæ, and occasionally also the external margins, darker. *Antennæ at base* ferruginous; and with their apical joint very distinctly tubercled at its extremity. *Legs* testaceous.

Male, with the antennæ exceedingly long; and with two large punctures, or rounded foveæ (rarely evanescent), placed longitudinally on either side of the hinder prothoracic disk.

A large and most beautiful *Læmophlœus*, and one which recedes in many important particulars from the other members of the genus here described,—its dark and comparatively variegated surface, and the great length of its antennæ, in conjunction with the two abbreviated polished spaces at the anterior margin, and the four rounded impressions (in the male sex) on the hinder disk of its prothorax, giving it a character essentially its own. It is, apparently, very rare, and confined to intermediate altitudes within the sylvan districts. I have taken it during the summer months, on more than one occasion, from beneath the bark of the Spanish chestnuts in Senhor Louiz Acciaioly's vineyard at Santa Anna; and, likewise, in the Boa Ventura, on the 18th of February 1849.

129. Læmophlœus granulatus, *Woll.*

L. rufo-ferrugineus granulatus opacus, capite prothoraceque parce leviter punctatis, hoc elongato-subquadrato angulis subæqualiter exstantibus, elytris striatis ad apicem leviter truncatis, pedibus rufo-testaceis.

Mas, antennis longioribus.

Long. corp. lin. 1–1$\frac{1}{3}$.

Habitat per regionem Maderæ sylvaticam, non infrequens: in convalle Boa Ventura dictâ mense Februario, necnon tempore æstivo in castanetis Sanctæ Annæ, sat copiose observavi.

L. exceedingly depressed, parallel, rufo-ferruginous, opake, and almost free from pubescence. *Head* and *prothorax* very closely granulated, and with fine and very shallow punctures intermixed: *forehead* with the anterior edge truncated and hollowed out immediately in front of the antennæ; with a raised marginal stria, and a very distinctly impressed central one down the disk. *Prothorax* elongate-subquadrate, and very slightly narrowed behind; with the anterior and posterior angles almost equally prominent (the former perhaps, if anything, being rather the more so). *Elytra* rather long, similarly granulated with the head and prothorax; much less truncated behind than those of the last species; striated,—the subsutural striæ being generally obsolete in front. *Antennæ* longer in the males than in the females (longer, in both sexes, than those of any of the following species, but shorter than those of the *L. Donacioides*); and with their apical joint very distinctly tubercled at its extremity. *Legs* rufo-testaceous.

In their opake, granulated, and almost unpubescent surfaces, and in the comparatively great length of their antennæ (the apical articulation of which is shrunk and suddenly acuminated at its extremity,—so as to resemble a separate tubercle, or even an additional joint), as well as in the broad truncation (or somewhat

emargined anterior edge) of their foreheads, the present insect and the last are coincident: but the small size and pale immaculate hue of the *L. granulatus* would tend, *primâ facie*, to associate it more with the members of the second section than with the *L. Donacioides*. The above characters however will of course at once distinguish it from any of the following species,—from which, moreover, its deep frontal stria and the subequally prominent angles of its straightened prothorax will serve even further to remove it. It is widely distributed over the forest regions of Madeira, above the elevation of about 1500 feet. I have captured it from beneath the bark of trees, during the winter, in the Boa Ventura; and, in the summer, at the Ribeiro Frio and the Lombo dos Pecegueiros,—as also, though more sparingly, in the Chestnut-woods of Santa Anna.

§ II. *Antennæ breviores, plus minusve moniliformes (apicem versus interdum leviter incrassatæ), articulo ultimo fere vel omnino integro; frons antice magis producta, ad apicem solum subrecto-truncata; elytra apice integra.*

130. Læmophlœus vermiculatus, *Woll.*

L. angustus pallido-ferrugineus subnitidus parce subtiliter pubescens, capite prothoraceque (præsertim illo) subvermiculato-punctato, hoc postice attenuato, angulis anticis subobtusis, posticis rotundatis, elytris striatis vix pallidioribus, pedibus testaceis.

Mas adhuc latet (exemplar unicum, sc. fœmineum, tantum possideo).

Long. corp. lin. $\frac{7}{8}$.

Habitat Maderam borealem sylvaticam,—in castanetis Sanctæ Annæ æstate mediâ A.D. 1850 a meipso repertus.

L. small and narrow, depressed, parallel, pale ferruginous, slightly shining, and very sparingly pubescent. *Head* and *prothorax* rather deeply, but somewhat irregularly punctured,—the punctures (especially on the former) being lengthened, or, more strictly, with a tendency to become confluent and to produce somewhat curved furrows, as though they had been scooped or eaten out: *forehead* considerably produced anteriorly, and with the extreme edge straightly truncated (as is more or less the case with all the species of this division) in front; with a raised marginal stria, but with scarcely any indications of a central line down the disk. *Prothorax* long, rather more convex than that of the *L. granulatus*, and narrowed behind; with the anterior angles obtuse and scarcely at all prominent, and the posterior ones rounded off. *Elytra* rather long and parallel, a little paler than the head and prothorax; entire at their apex; and very distinctly striated. *Legs* testaceous.

The present minute species, of which I have seen hitherto but a single example, may be known by its narrow and parallel outline, and by the singular punctures of its head and (somewhat posteriorly-narrowed) prothorax,—which (especially on the former) have the appearance, when viewed beneath the microscope, of being carved or eaten out, rather than round and isolated. My unique specimen was captured in the Chestnut-woods of Santa Anna, during the summer of 1850.

131. Læmophlœus pusillus.

L. curtus pallido-ferrugineus subnitidus valde pubescens, prothorace subquadrato punctato, angulis anticis obtusis, posticis rectis, elytris striatis vix pallidioribus, interstitiis obscure seriato-punctulatis, pedibus testaceis.

Mas, antennis paulo longioribus.

Long. corp. lin. $\frac{3}{4}$.

Cucujus minutus, Oliv. (*nec* Kugell. *in Schneid. Mag.* 1791–1794) *Ent.* iv. bis 8, 9 (1795).
——— *pusillus,* Schön. *Syn. Ins.* iii. 55 (1817).
Læmophlœus pusillus, Erich. *Nat. der Ins. Deutsch.* iii. 321 (1848).
———— ———, Sturm, *Deutsch. Fna,* xxi. 50. tab. 383. fig. E, F (1851).

Habitat in granariis domibusque Maderæ, præsertim in urbe ipsâ Funchalensi, toto anno vulgatissimus,—forsan ex Europâ vel Americæ meridionalis insulis introductus.

L. very minute, short and comparatively broad, exceedingly depressed, pale ferruginous, slightly shining, and very pubescent. *Head* and *prothorax* rather unequally punctured: *forehead* less produced anteriorly than in the last species, but transversely truncated in front; with a raised marginal stria, and sometimes with exceedingly faint indications of an abbreviated central line behind. *Prothorax* short, broad and subquadrate, scarcely at all narrowed behind, and with the disk much depressed; the posterior angles right angles, and the anterior ones obtuse. *Elytra* a little paler than the head and prothorax, very pubescent; entire at their apex; distinctly striated, and with the interstices longitudinally (though obscurely) punctured. *Antennæ* of equal thickness throughout,—short and rather robust in the females, and with the joints subglobose; a little longer in the males, and with the joints rather less abbreviated. *Legs* testaceous.

The smallest of the Madeiran *Læmophlœi*, and readily known, apart from its diminutive bulk, by its comparatively short and broad outline and very pubescent surface, and by the somewhat irregular punctures of its head and (almost *quadrate*) prothorax. It is unquestionably an imported insect into Madeira, being extremely common in the granaries and houses of Funchal; and it may be frequently observed crawling up the outer walls, even in the city itself, in great profusion. At times indeed it makes its appearance in actual multitudes, especially during the autumnal months,—when it may be seen emerging from the windows and doorways, especially of the shops in various parts of the town, the white-washed exteriors of the buildings, in conjunction with its somewhat sluggish movements, rendering it, even though thus minute, remarkably conspicuous. It has become naturalized in most parts of Europe, being a species liable to transmission amongst civilized countries with different kinds of stores,—though especially with corn and rice. It appears however to be truly indigenous in certain districts of central and subaustral latitudes; and it is not improbable therefore that the southern Mediterranean limits may have been one of its original centres of diffusion.

132. Læmophlœus ferrugineus.

L. pallido-ferrugineus nitidus pubescens, prothorace elongato punctato, postice attenuato, angulis anticis obtusis, posticis exstantibus, elytris striatis vix pallidioribus, pedibus testaceis.

Mas mihi in Maderâ non obvius (fœminam tantum habeo); sed differt solum antennis paulo longioribus (teste *Læmophlœi Monographiâ*, in Sturm, *Deutsch. Fna*, xxi. tab. 383. fig. B).

Long. corp. lin. 1.

Cucujus ferrugineus, Creutzer, *in litt.*
——— *testaceus*, Payk. (*nec* Fab. 1792) *Fna Suec.* ii. 168 (1798).
——— *ferrugineus*, Steph. *Ill. Brit. Ent.* iv. 232 (1831).
Læmophlœus ferrugineus, Erich. *Nat. der Ins. Deutsch.* iii. 322 (1848).
——— ———, Sturm, *Deutsch. Fna*, xxi. 53. tab. 383. fig. B (1851).

Habitat in iisdem locis ac præcedens, semel tantum (in urbe Funchalensi) captus.

L. a little longer, more parallel and shining than the *L. pusillus*, depressed, pale ferruginous, and clothed with a silken pubescence. *Head* and *prothorax* rather more finely punctured than (and perhaps not quite so much depressed as in) the last species: *forehead* as in that insect, but without the slightest indication, apparently, of a central line. *Prothorax* rather long, and narrowed behind; the posterior angles prominent, and the anterior ones obtuse. *Elytra* a little paler than the head and prothorax, rather longer than in the last species, very pubescent; entire at their apex; and distinctly striated. *Legs* testaceous.

Somewhat intermediate between the *L. pusillus* and the *L. clavicollis*,—from the former of which however it may be known by its rather longer, more parallel and shining body, and by the totally different construction of its prothorax; whilst the more distinctly prominent hinder angles of the last, which is of a more depressed and less posteriorly-narrowed form, in conjunction with the comparatively broader outline of the entire insect, will serve to separate it from the latter*. In its habits and general contour, however, it is clearly more related to the first of those species (with which it appears to be found in company) than to the second, it being liable, in the same manner, to importation, amongst grain,—under which circumstances it occasionally makes its appearance, in Europe, in considerable abundance. In Madeira I have hitherto captured but a single specimen; but, since that one was taken in Funchal, it is probable that it would be detected in sufficient numbers were the granaries and storehouses of the city to be properly investigated.

133. Læmophlœus clavicollis, *Woll.*

L. angustus pallido-ferrugineus subnitidus pubescens, capite prothoraceque subconvexis, illo postice

---

* In size and outward aspect the *L. ferrugineus* approaches the *L. duplicatus* of Waltl; but it has not the slightest indication of the *double* prothoracic line which constitutes one of the principal distinctive features of that insect; whilst from the *L. vermiculatus* it may be recognized by its broader and more pubescent surface, by the different character of the punctuation of its forehead, and by the prominent hinder angles of its prothorax.

lato, hoc punctato antice dilatato et postice valde attenuato, angulis anticis obtusis, posticis subrotundatis, elytris striatis vix pallidioribus, pedibus testaceis.

Mas, antennis paulo longioribus, capite postice latiore.

Long. corp. lin. $\frac{2}{3}$–$1\frac{1}{8}$.

Habitat Maderam sylvaticam, sub cortice arborum, præsertim in castanetis;—ad Sanctam Annam necnon ad Lombo dos Pecegueiros æstate mediâ A.D. 1850 detectus.

L. narrow and parallel, pale ferruginous, slightly shining, and pubescent. *Head* and *prothorax* punctured, and more convex than in any of the foregoing species: the *former* (especially in the male sex) wide between the eyes; with the *forehead* produced, and transversely truncated, in front; with a raised marginal stria, but usually without any indications of a central line. *Prothorax* long, wide in front and exceedingly narrowed behind; with the anterior angles obtuse, and the posterior ones just perceptibly prominent at their extreme point. *Elytra* parallel, a little paler than the head and prothorax; entire, or nearly so, at their apex; and distinctly striated. *Antennæ* just perceptibly thickened towards their extremities,—the joints being subglobose; a little longer in the males than in the females. *Legs* pale testaceous.

The peculiar shape of the head and prothorax of the present *Læmophlœus*,—the former of which (especially in the male sex) is wide between the eyes, whilst the latter is very much attenuated posteriorly,—will serve to distinguish it, *primâ facie*, from the remainder of the genus here described except the *L. axillaris*;—from which nevertheless its much smaller size and pallid hue, in conjunction with its pubescent surface and different sculpture, will equally remove it. From the *L. ferrugineus* it differs in its narrower outline, and in the more rounded hinder angles of its somewhat convexer and much more posteriorly-attenuated prothorax. In its habits it is quite distinct from that insect, being a truly indigenous species, and confined to the sylvan districts of intermediate altitudes. It is apparently however more attached to the chestnut-woods than to the native laurels,—my specimens being principally from the vineyards of Santa Anna and from that portion of the dense forest-region of the Lombo dos Pecegueiros known as the Chão das Castanheiras.

134. Læmophlœus axillaris, *Woll.* (Tab. III. fig. 7.)

L. angusto-subcylindricus piceus subopacus, capite prothoraceque convexis, illo postice latissimo profunde longitudinaliter striguloso-punctato, hoc subtilissime granulato et subruguloso-punctato, antice valde dilatato et postice attenuato, angulis rotundato-obtusis, elytris striatis subtilissime granulatis ad humeros læte rufescentibus, antennis tibiisque picescenti-ferrugineis, tarsis testaceis.

Mas (III. 7), antennis brevibus moniliformibus robustis, apicem versus subincrassatis.

Long. corp. lin. $1\frac{1}{4}$.

Habitat in Maderâ sylvaticâ, rarissimus; ad Ribeiro Frio Augusto ineunte A.D. 1850 semel tantum repertus.

L. long, narrow, and somewhat cylindrical, piceous with a slightly rufescent, or rosy tinge, subopake, but almost free from pubescence. *Head* and *prothorax* convex: the *former* rather suddenly shortened (or less convex) in front of the antennæ, exceedingly wide (at any rate in the male sex) between the eyes (which are small, and placed at a considerable distance from the anterior edge of the prothorax), and very rugosely punctured,—the punctures being somewhat confluent, or vermiculate, causing the sculpture to be almost longitudinally strigulose; with the *forehead* much produced, although transversely truncated, in front; with a raised marginal stria, and a very obscurely depressed central one down the disk. *Prothorax* long, most delicately and minutely granulated, exceedingly wide in front and narrowed behind; and with all the angles rounded or obtuse; the extreme front margin a little paler, or rufescent. *Elytra* subcylindrical, likewise most minutely granulated; entire at their apex; distinctly striated, and with the interstices longitudinally (though very obscurely) punctured; with an ill-defined and suffused patch at the shoulder of each of a rosy or rufescent tinge. *Antennæ* piceo-ferruginous, short, moniliform (the joints being subglobose), and robust (at any rate in the male,—and therefore probably, *à fortiori*, in the female), and becoming gradually a little thicker towards their apex. *Femora* rufo-picescent: *tibiæ* piceo-ferruginous; *tarsi* testaceous.

One of the most distinct and elegant of the Madeiran *Læmophlœi*. It may be immediately known from all the other species by its long, narrow, and subcylindrical form, by its excessively broad head and posteriorly-narrowed prothorax (from the anterior edge of which its unusually *small eyes* are placed at a considerable distance), by its deeply sculptured and longitudinally strigulose forehead, and by the dark colour of its body,—a suffused, rosy, or rufescent portion at the shoulder of each of its elytra being alone paler. It is, apparently, extremely rare, the only specimen (a male) which has hitherto come under my observation having been captured by myself at the edges of the Levada of the Ribeiro Frio, August 6, 1850.

135. Læmophlœus Stenoides, *Woll.* (Tab. III. fig. 9.)

L. antice subattenuatus rufo-ferrugineus opacus subtilissime subgranulatus, capite prothoraceque valde rugulosis (sed vix punctatis), hoc elongato-subquadrato, angulis anticis obtusis, posticis leviter exstantibus, elytris costato-striatis, pedibus rufo-testaceis.

Mas adhuc latet (fœminam tantum habeo,—cujus antennæ sunt valde robustæ et brevissimæ).

Long. corp. lin. $1\frac{1}{4}$.

Habitat Maderam; una cum *L. axillari*, d. 6 Aug. A.D. 1850, ad Ribeiro Frio a meipso captus.

L. somewhat attenuated anteriorly, depressed, rufo-ferruginous, opake, free from pubescence, and most minutely roughened, or very delicately subgranulated, all over. *Head* and *prothorax* (especially the former) greatly wrinkled, but not punctured: *forehead* much produced, though transversely truncated, in front; with a raised marginal stria, and with obscure indications of a slightly elevated central one, which vanishes however both before and behind. *Prothorax* elongate-subquadrate (being straight and very slightly narrowed behind); the anterior angles obtuse, and the posterior ones a little prominent. *Elytra* entire at their apex; and with about four very distinctly *raised* striæ on each. *Antennæ* (at any rate in the female, of which I can alone speak)

exceedingly short, moniliform, and robust, becoming sensibly thicker towards their apex. *Legs* rufo-testaceous.

An exceedingly well-defined species,—its anteriorly subacuminated outline, in conjunction with the excessive shortness and robustness of its antennæ, the opake and greatly wrinkled (though *unpunctured*) surface of its head and prothorax, and its *raised* elytral striæ, at once distinguishing it from all the *Læmophlœi* with which we have here to do. Like the *L. axillaris*, it is hitherto unique, the example from which the above description has been drawn out having been captured by myself, in company with that insect, at the Ribeiro Frio, during August 1850.

Genus 56. SILVANUS.

Latreille, *Gen. Crust. et Ins.* iii. 19 (1807).

Corpus minusculum vel parvum, plus minusve elongatum angustatum et depressum: *prothorace* angulis (præsertim anticis) sæpius valde productis, ad latera plus minusve crenulato-dentato: *alis* amplis. *Antennæ* sæpius subclavatæ, articulis primo, secundo et tertio longitudine subæqualibus (primo sat robusto), quarto ad septimum subglobosis, octavo paulo minore, reliquis clavam plus minusve obscuram laxam triarticulatam efficientibus. *Labrum* transversum, antice integrum ciliatum. *Mandibulæ* validæ acutæ, infra apicem profunde excisæ ciliatæ. *Maxillæ* bilobæ: *lobo externo* lato, apice valde pubescenti: *interno* minuto brevi angusto pubescenti. *Palpi maxillares* articulo primo angusto flexuoso, secundo et tertio crassis subæqualibus, ultimo elongato fusiformi basi truncato: *labiales* articulo primo minutissimo, secundo et ultimo elongatis longitudine subæqualibus (illo subclavato, hoc subfusiformi basi truncato). *Mentum* transversum, antice excavato-emarginatum. *Ligula* ampla subquadrata, apice valde pilosa. *Pedes* robusti: *tarsis* articulis primo, secundo et tertio magnis subæqualibus (tertio cordato), quarto minutissimo.

Not to mention minor points of distinction, which will be readily gathered from the above diagnosis, the genus *Silvanus* may be known from *Læmophlœus* by its usually less depressed form, by its shorter and more clavated antennæ, and by the structure of its mandibles and tarsi,—the last of which are pentamerous in both sexes, and have their basal articulation comparatively large (*not* being perceptibly more abbreviated than either of the following two), and their fourth one extremely minute. In their oral organs, as well as in their habits, the *Silvani* approach very closely to the *Cryptophagi* (from which indeed one or two of the less typical species are not, at first sight, very easily separable),—thus constituting a very natural link between the *Cryptophagidæ* and the *Cucujidæ*, to *both* of which they are so intimately related that it matters but little, I conceive, to which of those families we choose to assign them. The most essential features in which they recede from *Cryptophagus*, apart from their narrower, flatter, and generally more sculptured bodies, are the longer and subacuminated terminal joint of their palpi, and the construction of their feet,—those of the *Cryptophagi* being heteromerous in the

males, and with their penultimate articulation, in both males and females, scarcely smaller than any of those which precede it. The *Silvani* are insects peculiarly liable to dissemination over the world through the medium of commerce, feeding on sugar and other saccharine substances,—amongst which however (since they are more particularly indigenous to tropical climates) they are, in northern latitudes, more frequently perhaps to be found dead than alive. Some of the aberrant members of the group (represented by the *S. advena* in Madeira) are less restricted in their modes of life, occurring in various kinds of stores, and being partially attached even to farinaceous preparations and grain,—like some of the true *Cryptophagi*.

136. Silvanus Surinamensis.

S. subparallelo-elongatus angustus fuscus opacus, capite prothoraceque crebre et profunde punctatis, illo magno, hoc tricarinato et dentibus sex lateralibus utrinque armato, elytris profunde substriato-punctatis, interstitiis alternis leviter elevatis, antennis minus clavatis, pedibus rufo-picescentibus.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{3}$.

Dermestes Surinamensis, Linn. *Syst. Nat.* i. 2. 565 (1767).
Anobium frumentarium, Fab. *Mant. Ins.* i. 39 (1787).
Ips frumentaria, Oliv. *Ent.* ii. 18. 10 (1790).
Dermestes 6-dentatus, Fab. *Ent. Syst.* i. 232 (1792).
Silvanus Surinamensis, Steph. *Ill. Brit. Ent.* iii. 104 (1830).
——— *frumentarius*, Sturm, *Deutsch. Fna*, xxi. 90. tab. 388. f. A. (1851).

Habitat urbem Funchalensem, in domibus et mercatorum repositoriis, illuc saccharinis introductus.

S. elongated and narrow, subparallel (being very slightly narrowed anteriorly), less depressed than the *S. dentatus*, reddish-brown, exceedingly pubescent, and opake. *Head* and *prothorax* very deeply and closely punctured: the *former* large, wide at its base, and with the sides sinuous and considerably raised in front of the *eyes*, which are small: the *latter* narrow and elongated, almost equally attenuated before and behind; with a straight central ridge down the disk, and an incurved one on either side; the lateral edges armed, each, with six teeth,—those constituting the anterior and posterior angles being very long and acute. *Elytra* deeply substriate-punctate, and with the alternate interstices elevated. *Antennæ* less clavated at their apex than those of either of the following species. *Legs* bright rufo-piceous.

A universally imported insect (though, in northern latitudes, never, I believe, in a living state), amongst sugar and other articles of commerce, throughout the civilized world,—and of constant occurrence in Madeira, under such circumstances. It may be known by its narrow, elongated outline, by its largely-developed head, minute eyes, and tricostate prothorax, and by its antennæ being less distinctly clavated than those of the allied species.

137. Silvanus dentatus.

S. parallelo-elongatus depressus fuscus vix opacus, capite prothoraceque crebre sed minus profunde

subpunctatis, hoc amplo dentibus sex lateralibus magnis utrinque armato, elytris leviter subseriato-punctatis, interstitiis alternis (præsertim versus latera) elevatis, antennis robustis clavatis, pedibus rufo-picescentibus, femoribus denticulo minuto subtus munitis.

Long. corp. lin. $1\frac{1}{2}$.

Corticaria dentata, Mshm, *Ent. Brit.* i. 108 (1802).
Silvanus dentatus, Steph. *Ill. Brit. Ent.* iii. 104 (1830).
——— *intermedius*, Smith, *Cat. Ins. Brit. Mus.* (*Cucujidæ*) 16 (1851).

Habitat in iisdem locis ac præcedens, saccharinis introductus.

S. larger, broader, more parallel and depressed than the *S. Surinamensis*, reddish-brown, pubescent, but not quite opake. *Head* and *prothorax* much less deeply and distinctly (although closely) punctured than in that insect: the *former* with the sides straight posteriorly, and raised from the extreme base to the insertion of the antennæ, which causes a longitudinal groove, or depression, to be shaped out at either edge: the *latter* altogether larger and wider (especially in front) than that of the *S. Surinamensis*, much produced behind (in front of the scutellum), and comparatively convex,—there being no appearance of ridges, although with two very obscure and shallow curved depressions on the hinder disk, which almost unite posteriorly; the lateral edges armed each with six powerful teeth,—which are obtuser and wider than those of the last species, the ones which constitute the anterior and posterior angles (although greatly developed) not being quite so long and acute, compared with the remainder, as in that insect. *Elytra* more rufescent than the rest of the surface, very lightly subseriate-punctate, and with the alternate interstices (especially towards the margin) elevated. *Antennæ* robust, and much more clavated than those of the last species. *Legs* bright rufo-piceous; the *two hinder femora* being armed beneath with a small and acute tooth.

Found under the same circumstances as the *S. Surinamensis*, being constantly liable to importation, amongst sugar and other saccharine substances, from tropical climates. As with that species, I have never been able, either in Madeira or elsewhere, to detect it in a living state,—it apparently not having succeeded in naturalizing itself in more northern latitudes.

138. Silvanus advena.

S. oblongo-ovatus subconvexus pallido-ferrugineus vel testaceus nitidus, capite prothoraceque minute punctulatis, hoc convexo subquadrato, angulis anticis valde ampliato-exstantibus, posticis subrectis, elytris vix pallidioribus obscure leviter subseriato-punctatis, antennis abrupte clavatis.

Long. corp. lin. 1.

Cryptophagus ferrugineus, Sturm, *Cat.* 127 (1826).
——— *advena*, (Kunze) Waltl, *in Silb. Rev. Ent.* ii. 256 (1834).
Silvanus ferrugineus, Sturm, *Cat.* 235 (1843).
——— *advena*, Erich. *Nat. der Ins. Deutsch.* iii. 339 (1848).
——— ———, Sturm, *Deutsch. Fna*, xxi. 100. tab. 390. f. B. (1851).

Habitat in granariis domibusque Maderæ, rarior,—forsan cum frumentariis in insulam invectus.

S. smaller, broader, more ovate and convex than either of the previous species, pale rufo-ferruginous

or even testaceous, shining, and pubescent. *Head* and *prothorax* very delicately punctulated, and closely so at the sides: the *latter* subquadrate, a little narrowed behind, convex and without any appearance of either ridges or depressions; the anterior angles produced into a large, powerful, and obtuse tooth, or projection, and the posterior ones almost right angles,—the edges being tolerably straight, and very minutely and regularly crenulated throughout. *Elytra* slightly paler than the head and prothorax, obscurely and very lightly subseriate-punctate; and with the interstices very minutely punctulated, but not raised. *Antennæ* exceedingly abruptly clavated at their apex.

The present insect, in its general contour and testaceous hue, bears such a strong resemblance to a *Cryptophagus*, that it might be almost supposed, at first sight, to be referable to that genus: nevertheless a more careful inspection of its structural characters will show it to be a true *Silvanus*,—although unquestionably a less typical member of the group than either of the preceding species. Apart from its pallid, more shining, and less sculptured surface, it recedes so completely from the other *Silvani* here described in its comparatively convex and oblong form, and in the construction of its (subquadrate) prothorax,—which has the anterior angles produced into a large and obtuse tooth, and the hinder ones nearly right angles, whilst the lateral edges are minutely crenulated throughout,—as to render the chance of confounding it with either of them altogether impossible. In its habits moreover, as well as in its outward aspect, it makes an evident approach towards *Cryptophagus*,—it being more general in its mode of life, and often attaching itself to farinaceous substances and grain. Although, owing to its liability to transmission amongst articles of commerce, its proper country is not now easy to decide, it is evidently a native of more northern regions than either the *S. Surinamensis* or the *S. dentatus*; and perhaps the southern Mediterranean limits may be regarded as, in all probability, one of its original areas of diffusion. It is apparently rare in Madeira, the only specimens which have hitherto come beneath my notice having been captured by myself in the garden of the Quinta d'Ambrosio, near Funchal, during January 1848.

Fam. 14. CRYPTOPHAGIDÆ.

Genus 57. CRYPTOPHAGUS.

Herbst, *Nat. die Käf.* iv. 172 (scrip. Kryptophagus) (1792).

Corpus minusculum vel parvum, plus minusve oblongo-ovatum et convexum: *prothorace* angulis anticis elongato-ampliatis et subrecurvo-incrassatis, ad latera plus minusve dentato-crenulato. *alis* amplis. *Antennæ* clavatæ, articulis primo et secundo (illo præcipue) parum robustis, tertio paulo longiore, quarto ad octavum brevioribus subæqualibus, reliquis clavam sublaxam triarticulatam efficientibus (ultimo ad apicem oblique truncato). *Labrum* transversum, antice integrum ciliatum. *Mandibulæ* validæ acutæ, infra apicem subcrenulatæ, dein excisæ ciliatæ. *Maxillæ* bilobæ: *lobo externo* lato, apice valde pubescenti: *interno* minore angustiore pubescenti. *Palpi*

maxillares articulo primo angusto flexuoso, secundo et tertio crassioribus subæqualibus, ultimo ovato: *labiales* e scapis ligulæ connatis surgentes, articulo primo flexuoso, secundo crassiore brevi, ultimo apice subtruncato. *Mentum* amplum, antice angustatum, summo apice excavato-emarginato. *Ligula* subquadrata, apice membranâ pilosâ aucta. *Pedes* minus robusti: *tarsis* simplicibus (in maribus heteromeris); articulis omnibus, ultimo excepto, subæqualibus latitudine vix decrescentibus.

The *Cryptophagi* may be at once distinguished by the structure of their prothorax, which, throughout the genus, presents but slight successive modifications of a type which is common to the whole of it,—in which the anterior angles are developed into a more or less elongated shoulder, or ridge (which forms a kind of lengthened tooth, with the apex usually pointing backwards), whilst the remaining portion of the edges are, either partially or altogether, subcrenulated, and have a small and more or less evident spine, on either side, about the centre. The species are generally somewhat pubescent and convex, and are principally of a testaceous, or pale ferruginous hue; whilst the males, unlike those of the *Silvani*, are heteromerous,—the tarsal joints moreover, of both sexes, being (with the exception of the apical one) of almost equal length. They are insects of rather various habits, residing either in the open country (amongst Boleti, and beneath the loose bark and moss of trees), or else attaching themselves, like the *Silvani* and many of the *Heteromera*, to inhabited spots,—subsisting on grain, farinaceous substances, biscuits, and other articles of commerce, to which they frequently do considerable damage on board ship. The same species in fact will often adapt themselves to these opposite modes of life,—as is eminently the case with the single Madeiran representative of the group.

139. Cryptophagus affinis.

C. oblongo-ovatus convexus pallido-ferrugineus subnitidus et valde pubescens, capite prothoraceque profunde punctatis, hoc subquadrato-transverso dente medio laterali utrinque armato et angulis anticis elongato-ampliatis, elytris vix pallidioribus undique (sed haud striato-) punctatis.

Long. corp. lin. 1–1$\frac{1}{8}$.

Cryptophagus affinis, Sturm, *Deutsch. Fna*, xvi. 79. tab. 314. f. C. (1845).
———— ——, Erich. *Nat. der Ins. Deutsch.* iii. 360 (1848).
———— ——, Redt. *Fna Austr.* 192 (1849).

Habitat Maderam, a domibus granariisque Funchalensibus usque ad regionem sylvaticam ascendens, toto anno vulgaris: in ipsâ urbe interdum abundat, inter plantas *Teæ* siccatas præsertim latitans, quarum semina destruit.

C. oblong-ovate, convex, pale ferruginous, or sometimes almost testaceous, slightly shining, and densely clothed with a long and silken pubescence. *Head* and *prothorax* deeply punctured: the *latter* more or less transverse-quadrate (varying a little in length in different specimens), with the anterior angles enlarged into an obtuse, shoulder-like projection, or ridge, and with a minute, subrecurved tooth about the centre of either lateral edge,—the space between which and the

hinder angles is very obscurely crenulated (the crenulations being only perceptible beneath a high magnifying power). *Elytra* usually a little paler than the rest of the surface, and punctured all over,—the punctures being rather smaller than those on the head and prothorax, and with no tendency to be disposed in striæ.

Out of the many examples of *Cryptophagus* which I have hitherto captured in Madeira, I have not been able to satisfy myself that more than a single species is indicated,—although in some respects there is certainly a slight diversity (especially as regards the length of the prothorax) in the external outline of a few of them. Having carefully however examined the whole of my specimens beneath the microscope, I find that the shape and relative proportions of their lateral denticulations offer no essential differences throughout (even though they may occasionally be rather largely developed); and hence I have not ventured to draw lines of demarcation between consecutive shades of form, which, even if not altogether imaginary, are at any rate so nearly coincident as to be with difficulty separable,—and that moreover in a genus which I cannot but believe has been already too much subjected to a like abuse. Our present insect is, *in its normal state*, unquestionably referable to the *C. affinis* of Sturm,—a species very closely allied to the *C. scanicus* and *cellaris*, though differing in being a little more strongly punctured, and in its (robuster) central prothoracic tooth having a tendency to be more perceptibly recurved (or backwardly directed) at its apex. As already stated, it is exceedingly varied in its habits, occurring at nearly all elevations, from the houses and granaries of Funchal (where it abounds amongst Indian corn, and other stores) up to the sylvan districts of intermediate altitudes, —in which it is found under the loose bark of trees, and decaying logs of wood, or even stones. With such a power of adaptation, it is not surprising that it should display some slight distinctive modifications according to the circumstances of its position; and in fact we should *à priori* expect that such would actually be the case. Although existing in such profusion at times in Funchal as to have the appearance of having been imported, yet any doubt as to its claims to be truly indigenous are at once set at rest by the fact that I have taken it in almost equal numbers in distant spots, far removed from any traces of habitations. Thus, I have captured it, during May, at the edges of the Levada of the Ribeiro Frio; at the Lombo dos Pecegueiros, in July (where I have observed it crawling rapidly up the outer canvass of my tent, towards the dusk of the evening); and at the Feijãa de Córte, in August,—by brushing the rank vegetation beneath the gigantic chestnut-trees for which that remote region is so celebrated.

Genus 58. DIPHYLLUS.

Redtenbacher, *Fna Austr.* 188 (1849).

Corpus minusculum, oblongo-ovatum, subconvexum: *prothorace* vix simplici (adlatera minute subcrenulato) et striis duabus elevatis utrinque instructo: *alis* amplis. *Antennæ* breves clavatæ,

articulis primo et secundo (illo præcipue) robustis, tertio ad nonum brevioribus subæqualibus latitudine vix crescentibus, reliquis clavam magnam laxam biarticulatam efficientibus (decimo magno subpoculiformi, undecimo paulo minore suborbiculato basi subtruncato). *Labrum* transversum, antice integrum ciliatum. *Mandibulæ* validæ acutæ, ad basin externam fisso-sinuatæ, intus excisæ ciliatæ et membrana instructæ. *Maxillæ* bilobæ: *lobo externo* subovato, apice valde pubescenti: *interno* paulo breviore pubescenti. *Palpi maxillares* articulo primo angusto flexuoso, secundo et tertio crassioribus subæqualibus, ultimo elongato fusiformi basi truncato: *labiales* articulo primo subflexuoso, secundo paulo longiore crassiore, ultimo maximo crasso securiformi-truncato. *Mentum* amplum, antice angustatum, summo apice excavato-emarginato. *Ligula* quadrata, apice membranâ divergenti pilosâ aucta. *Pedes* subgraciles: *tarsis* articulis primo, secundo et tertio subæqualibus (tertio subcordato), quarto minutissimo.

The genus *Diphyllus* (=*Biphyllus* of Dejean's Catalogue, A.D. 1821), founded on the *Dermestes lunatus* of Fabricius, combines, to a certain extent, the characters of *Cryptophagus* and *Silvanus*, agreeing with the former in its general habits and contour, in its abruptly clavated antennæ, and in the shape of its ligula; whilst in the structure of its mandibles, maxillary palpi and feet it approaches the latter. In its biarticulated club, and in the greatly developed, securiform ultimate joint of its labial palpi, it differs from them both,—peculiarities moreover which are sufficient, even of themselves, to distinguish it from the other allied groups. By a glance at the above diagnosis, it will be seen that *Diphyllus* has more in common with *Silvanus* than it has with *Cryptophagus*; so that it might, not without reason, be supposed to lead us in the opposite direction to that which I have endeavoured to make it indicate, that is to say, towards the previous family, the *Cucujidæ*,—a supposition which the large and securiform termination of its labial palpi (in which it assimilates *Psammœcus* and *Cryptamorpha*), and its elevated prothoracic striæ (in which it approaches *Læmophlœus*) would not indeed tend to render the less probable. Still, however, it has so many points of agreement with *Cryptophagus* likewise, that I have preferred placing it in the present position to breaking the link between either *Silvanus* and *Cryptophagus* or between the former and *Læmophlœus*,—which I cannot but believe are all too nearly related *inter se* to render it desirable to interpolate a form like *Diphyllus* between them; and it would be manifestly unnatural, I conceive, to assign it an *earlier* position amongst the *Cucujidæ*, receding as it does in external structure and habits from the normal members of that division. In the selection of its food, *Diphyllus* does not appear to display any vegetable tendency,—bones, and other partially dried animal substances, being its favourite haunts.

140. Diphyllus lunatus.

D. oblongo-ovatus niger nitidus pubescens, capite prothoraceque profunde punctatis, hoc transverso postice lato, elytris punctato-striatis fasciâ mediâ communi valde abbreviatâ bilunulatâ albido-pubescente ornatis, antennis pedibusque picescenti-ferrugineis.

Long. corp. lin. $1\frac{2}{3}$.

Dermestes lunatus, Fab. *Ent. Syst.* i. 232 (1792).
Silpha Sphæriæ, Mshm, *Ent. Brit.* i. 122 (1802).
Biphyllus lunatus, Steph. *Ill. Brit. Ent.* iii. 78 (1830).
Diphyllus lunatus, Redt. *Fna Austr.* 188 (1849).

Habitat Maderam, rarissimus: unicum exemplar solum adhuc vidi,—haud procul ab origine convallis Ribeiro de Santa Luzia dictæ, per aërem volitans, Maio exeunte A.D. 1849 a meipso deprehensum.

D. oblong-ovate, convex, black, with a just perceptibly bluish or subcyaneous tinge, shining, and exceedingly pubescent. *Head* and *prothorax* deeply and rather irregularly punctured: the *latter* short, wide behind and rather narrowed in front (the lateral edges being rounded and very obscurely crenulated); with two raised longitudinal lines on either side (the outer one of which is the more evident) towards, and parallel to the edge. *Elytra* deeply punctate-striated; with a sublunulate patch on each (confluent at the suture, and forming, in conjunction, a transverse and exceedingly abbreviated zigzag fascia, common to both, on the centre of the disk) composed of whitish, or cinereous pubescence; and with a minuter, and generally much obscurer, rounded one, of a similar character, near the apex of each. *Antennæ* and *legs* piceo-ferruginous, or rufo-piceous: the *former* short.

The *D. lunatus*, which occurs, though not very abundantly, throughout the greater portion of Europe, would appear to be exceedingly rare in Madeira, a single example only having hitherto come beneath my observation. It was captured by myself, on the wing, towards the upper extremity of the Ribeiro de Santa Luzia, during my encampment there with the Rev. R. T. Lowe, at the end of May 1849. It is just perceptibly larger than the average of British specimens; as also of a somewhat deeper black, and with the discal fascia of a purer white.

Genus 59. HYPOCOPRUS.

Motschulsky, *Bull. de la Soc. Imp. de Moscou*, 72. tab. v. fig. *d*–D''' (1839).

Corpus minutum, angusto-parallelum: *prothorace* simplici (ad latera haud crenulato): *abdomine* ex segmentis ventralibus (longitudine paulatim decrescentibus) quinque composito: *alis* amplissimis, minutissime punctulatis, ad basin angustis sed apicem versus dilatatis, per marginem inferiorem totam longe ciliatis. *Antennæ* capitis prothoracisque longitudine, articulis primo et secundo (illo præcipue) robustis, tertio (in specie typicâ minuto, quarti longitudine; sed in nostrâ) secundo vix breviore sed graciliore, quarto minuto globoso, quinto (in typicâ maximo obconico extus producto; sed in nostrâ) magno crasso globoso ad apicem subtruncato, sexto, septimo et octavo æqualibus (in typicâ subconicis; sed in nostrâ) globosis moniliformibus parvis (quarto vix majoribus), reliquis clavam laxam elongatam triarticulatam efficientibus (nono et decimo in typicâ transversis, sed in nostrâ globosis apice subtruncatis; ultimo in typicâ pyriformi, sed in nostrâ ovato). (Hujus generis, apud cl. Motschulsky primum indicati, instrumenta cibaria haud examinavi, at, si ex unico specimine indiscisso adjudicare licet, genus antennarum structurâ, habitu generali alisque valde anomalis amplissimis ciliatis sat distinctum videtur: transitum forsan inter Cryptophagidas et Ptiliadas constituat, sed Cryptophagidis affinitate proximum est et cum illis, nisi fallor, recte ponendum). *Pedes* cursorii: *femoribus* sat incrassatis: *tibiis* gracilibus, apicem versus vix dilatatis: *tarsis* filiformibus, articulo primo parvo ad basin subrecondito,

secundo, tertio et quarto majoribus subæqualibus (quarto in posticis paulo minore), ultimo elongato vix subclavato *unguiculis* simplicibus munito.

Possessing but a single example of the minute insect which constitutes the present genus, and being unwilling to sacrifice a unique specimen for dissection, I have not examined the details of its mouth. Unfortunately, the characters given by Motschulsky in the *Bulletin de la Société Impériale de Moscou* are, likewise, merely external ones: nevertheless they include so many points of peculiarity that there can be but little fear of confounding *Hypocoprus* with the members of any of the neighbouring groups,—its diminutive bulk, and narrow, elongated outline, in conjunction with its pentamerous feet and the very singular conformation of its antennæ (which have their fifth joint considerably enlarged,—thus calling to mind, as aptly remarked by Motschulsky, the little Pselaphideous *Tychi*,—whilst the one which precedes, and the three which follow it are small), being abundantly sufficient, when combined, whereby at once to identify it. The anomalous nature of its wings does not appear to have been noticed by Motschulsky;—a structure which in fact tends very considerably to confirm his opinion that *Hypocoprus* may perhaps constitute a passage between the *Cryptophagidæ* and the *Ptiliadæ*, their enormous dimensions and hair-like appendages making a very decided approach to those of the latter family. In addition to their unusual development, as regards size, the wings of *Hypocoprus* are greatly narrowed at their base, and then suddenly dilated,—their entire lower edge being strongly ciliated, much in the same manner (although in a less degree) as we observe in the *Ptiliadæ*. They are nearly free from nerves, and delicately punctulated all over,—coinciding thus far with those of *Ephistemus*: whilst in some respects they are identical with the modification which obtains in *Paramecosoma*,—with which genus indeed I am inclined to suspect that *Hypocoprus* has by no means a distant affinity.

141. Hypocoprus Motschulskii, *Woll.*

H. angusto-elongatus fuscus subnitidus pubescens, capite prothoraceque creberrime et minutissime granulatis punctisque obsoletissimis adspersis, hoc elongato-quadrato, elytris parallelis prothorace vix latioribus, singulo striâ suturali posticâ impresso, antennis pedibusque diluto-testaceis.

Long. corp. lin. $\frac{1}{2}$.

Habitat ins. Portûs Sancti, rarissimus: in ascensu montis Pico d'Anna Ferreira dicti, inter graminum radices humi cursitans, d. 21 Ap. A.D. 1849 specimen unicum inveni.

In honorem cl. Dom. Motschulsky, Petropoli, nomen triviale dixi.

H. elongated and narrow, dark brown, slightly shining, and pubescent. *Head* and *prothorax* closely and minutely granulated all over, and with large (although exceedingly shallow and almost obsolete) punctures intermixed: the *former* porrected and triangular, being almost as wide as the prothorax in its widest part, which is immediately behind the *eyes*,—which are tolerably

large, and remote from the anterior margin of the prothorax: the *latter* elongate-quadrate, and very slightly narrower than the elytra (the lateral edges being nearly parallel, and the posterior angles scarcely more rounded or obtuse than the anterior ones); without any appearance of either a longitudinal channel or ridges, though with a small and obscure rounded depression, or fovea, in the centre of the hinder disk. *Elytra* elongated and parallel, rather more shining and less evidently sculptured than the head and prothorax, with their apex rounded, and each with a single impressed stria close alongside the suture,—more especially apparent behind. *Antennæ* and *legs* diluted testaceous; the *former* with their club a little infuscated.

Apparently of the greatest rarity, the unique example from which the above description has been drawn out having been detected by myself in the island of Porto Santo, April 21, 1849,—running rapidly over the hot ground, in a dry and grassy spot on the ascent of the Pico d'Anna Ferreira from the west. I have dedicated the species to my friend M. Motschulsky of St. Petersburg, to whom we are indebted for our knowledge of the genus,—which was described by him from a specimen, to which he gave the name of *H. Lathridioides**, captured out of a nest of the *Formica rufa* (into which he supposes that it had been accidentally introduced with the dung of mice,—though it seems more probable that the insect is in reality an attendant upon ants) on the prairies of the Caucasus.

Genus 60. EPHISTEMUS.

(Westwood) Steph. *Ill. Brit. Ent.* ii. 167 (1829).

Corpus minutum, globoso-ovatum, valde convexum: *prothorace* postice lato, elytris arcte applicato: *alis* plerumque amplis et minutissime punctulatis, sed in specie Maderensi unâ obsoletis. *Antennæ* clavatæ, basi subapproximatæ, articulis primo et secundo (illo præcipue) robustis, tertio graciliore (secundi fere longitudine), quarto ad octavum in speciebus typicis brevibus subglobosis, sed in specierum Maderensium unâ alternatim brevibus et longioribus (i. e. quarto, sexto, octavo brevibus, et quinto septimoque longioribus), reliquis clavam magnam laxam triarticulatam efficientibus. *Labrum* transverso-subquadratum, antice leviter rotundatum et ciliatum. *Mandibulæ* validæ acutæ, intus excisæ et membranâ ciliatâ auctæ (necnon rarissime dente minuto infra apicem instructæ). *Maxillæ* bilobæ: *lobo externo* apice valde pubescenti: *interno* paulo breviore, ciliato. *Palpi maxillares* articulo primo angusto flexuoso, secundo maximo crasso, tertio angustiore brevi, ultimo elongato fusiformi basi truncato: *labiales* articulo primo angusto flexuoso, secundo maximo crasso subgloboso, ultimo aciculari. *Mentum* amplum, antice angustatum, summo apice emarginato-sinuato. *Ligula* subquadrata, apice truncata integra, angulis anticis (in *Ephistemo alternante* saltem) membranâ tenuissimâ divergenti-acuminatâ auctis. *Pedes* graciles: *tarsis* articulis primo, secundo et tertio subæqualibus (tertio subcordato), quarto minuto.

---

* Judging from the description and figure, given in the *Bull. de la Soc. Imp. de Moscou*, our present *Hypocoprus* differs from the *H. Lathridioides*,—first, in the distinctive *structural* modifications of the joints of its antennæ (which will be at once gathered from the above diagnosis; but which do not appear to be of more than specific importance, since the same essential character of the enlarged fifth articulation is equally expressed in both); and, secondly, in its more granulated and pubescent surface, in its posteriorly-undilated prothorax, and in its somewhat broader head.

The little genus *Ephistemus** (=*Psychidium*, Heer, *Fna Col. Helv.* A.D. 1841) may be readily known by the basally-subapproximated antennæ, and by the very incrassated second, and subaciculated ultimate joints of both the labial and maxillary palpi of the few minute and subglobose insects which compose it. Of the two representatives which I have hitherto detected in Madeira one only is typical,—the other, which is apparently peculiar to the island, being aberrant in so many points of its structure as well nigh to merit isolation from the normal members of the group. Thus, in addition to the non-development of its wings (a local peculiarity however which seems to be almost a geographical one, since it obtains throughout the larger portion of the Coleoptera with which we have here to do), its mandibles have a minute tooth immediately within their apex (which I do not observe in any other *Ephistemus* which I have dissected), whilst its antennæ, which (with the legs) are very much longer than in the ordinary species, have their articulations, from the fourth to the eighth (inclusive), instead of being abbreviated and subequal, alternately long and short. The *Ephistemi* occur principally amongst rank herbage beneath trees, or else under decaying vegetable substances on the damp ground,—their apically-subaciculated palpi moreover seeming to indicate a partiality for moist spots.

§ I. *Alæ amplæ: antennæ pedesque breves; illæ articulis quarto ad octavum brevibus subglobosis æqualibus: mandibulæ edentatæ.* (Ephistemi typici.)

142. Ephistemus dimidiatus.

E. brevis niger lævis nitidissimus et fere impunctatus, elytris ad apicem plus minusve rufo-picescentibus, antennis pedibusque testaceis.

Long. corp. lin. $\frac{1}{2}$.

Phalacrus dimidiatus, Sturm, *Deutsch. Fna*, ii. 85. tab. 32. fig. D (1807).
Ephistemus confinis, Steph. *Ill. Brit. Ent.* ii. 169. pl. xv. fig. 2 (1829).
Psychidium globulum, Heer, *Fna Col. Helv.* i. 433 (1841).
Epistemus dimidiatus, Sturm, *Deutsch. Fna*, xviii. 83. tab. 343. fig. A (1846).
———— ————, Erich. *Nat. der Ins. Deutsch.* iii. 401 (1848).

Habitat Maderam, et borealem et australem, præsertim in cultis et graminosis umbrosis humidiusculis infra 2000′ s. m., hinc inde non infrequens: in vinetis prope Funchal interdum occurrit, necnon in horto Loweano ad Levada etiam in fungis emortuis parce observavi.

E. short-ovate, acute before and behind, exceedingly convex and polished, black with more or less of a pieeous tinge, almost impunctate (a few most minute and distant punctures being only just

* The title of the present group was altered by Erichson into *Epistemus*,—though it is difficult to understand why, since neither the laws of nomenclature required the change, nor have the numerous names similarly compounded ever been objected to: whilst the *practical result* of a proceeding thus arbitrary is to appropriate as his own a genus which has been already fully described by another. I have consequently restored its original orthography, and assigned it to its proper author.

perceptible beneath a high power of the microscope), and entirely free from pubescence. *Elytra* more or less reddish-castaneous, or rufescent, towards their apex. *Antennæ* and *legs* short and testaceous: the *former* with their club a little dusky.

The common European *E. dimidiatus* occurs sparingly, and at most seasons of the year, throughout Madeira, below the elevation of about 2000 feet,—though more particularly in damp shady spots in the immediate vicinity of the vineyards and other cultivated grounds. I have captured it at the Curral das Romeiras, and in the Rev. R. T. Lowe's garden near Funchal,—in the last of which I have, likewise, observed it amongst dead fungi on the trunks of decayed peach-trees; and also in the neighbourhoods of São Vincente and Santa Anna, towards the northern coast.

§ II. *Alæ obsoletæ: antennæ pedesque longiores; illæ articulis quarto ad octavum alternatim brevibus et longiusculis: mandibulæ mox infra apicem dente minuto instructæ.*

(Subgenus MICROUM, *Woll.*)

143. Ephistemus alternans, *Woll.*

E. fusco-niger pubescens subopacus et distincte punctulatus, elytris sæpius ad basin rufo-castaneis ad apicem concoloribus, antennarum basi ferrugineâ, pedibus diluto-testaceis.

Long. corp. lin. $\frac{2}{3}$–$\frac{7}{8}$.

Habitat per partem Maderæ sylvaticam, in graminosis humidiusculis, rarissime;—ad Ribeiro Frio æstate A.D. 1850 a meipso captus.

E. larger, more ovate, and rather more acuminated posteriorly than the *E. dimidiatus*, also subopake, both distinctly punctulated and pubescent, and varying from a brownish black into a light chestnut hue. *Head* and *prothorax* rather more opake and more perceptibly punctured than the elytra,—their surface moreover appearing, beneath the microscope, to be closely and most delicately granulated. *Elytra* with their apex concolorous, but with their base (especially about the shoulders) usually bright rufo-castaneous. *Antennæ* and *legs* very much longer than those of the last species; the *former* (which have their joints, from the fourth to the eighth, alternately short and long) brownish-piceous, with their base ferruginous; the *latter* pale diluted testaceous.

A most elegant and truly indigenous *Ephistemus*, and apparently extremely scarce. Apart from the peculiarities of its *structure*, which have been already pointed out, its large and comparatively elongated form, added to its distinctly punctulated, pubescent, subgranulated and partially opake surface, and the tendency of its elytra to become bright rufo-castaneous at their *base* (whilst the apex is concolorous), will serve, *primâ facie*, to separate it from every other species*

* In size and general contour the *E. alternans* approaches rather nearer perhaps to my species, the *E. palustris* (*Ann. of Nat. Hist.* xviii. pl. 9. fig. 2), than to any other: nevertheless the above *structural* characters, apart from its subopake, more pubescent, and differently coloured surface, will of course remove it altogether from that insect.

hitherto described. It is one of the rarest of the Madeiran insects, the only spot in which I have hitherto observed it being in the district of the Ribeiro Frio, where, during May and August of 1850, I captured five specimens, by brushing the rank grass at the edges of the Levada.

Fam. 15. LATHRIDIADÆ.

Genus 61. CHOLOVOCERA. (Tab. X. fig. 1.)

Motschulsky, *Bull. de Moscou*, 177 (1838).

Corpus minutum, ellipticum vel rotundato-ellipticum, politum: *capite* magno lato, *oculis* ex lentibus paucis compositis: *prothorace* transverso, postice lato: *scutello* distincto triangulari: *alis* obsoletis. *Antennæ* (X. 1 *a*) valde clavatæ, capitis prothoracisque vix longitudine, 8-articulatæ, articulis primo et secundo (illo præcipue) longiusculis robustis, inde ad septimum latitudine æqualibus (tertio in typicis elongato, sed in specie Maderensi longiusculo tantum; quarto ad septimum minutis), ultimo maximo apice latissimo, securiformi. *Labrum*, *palpos labiales*, *mentum ligulam*que haud examinare potui. *Mandibulæ* (X. 1 *b*) validæ acutæ, mox infra apicem dente valido instructæ, margine interno arcuato et membranâ aucto. *Maxillæ* (X. 1 *c*) vix bilobæ: *lobo externo* magno lato recto, apice setoso leviter incurvo: *interno* minutissimo, fere obsoleto, uncinato. *Palpi maxillares* articulo primo parvo, secundo et tertio majoribus incrassatis (hoc breviore), ultimo elongato subfusiformi-ovato basi truncato. *Pedes* vix robusti: *femoribus* leviter clavatis: *tarsis* (X. 1 *d*) 3-articulatis simplicibus, articulo secundo primo paulo breviore, ultimo elongato *unguiculis* simplicibus munito.

There is no genus the natural position of which has been hitherto more doubted than *Cholovocera*. Nevertheless, owing partly perhaps to the extreme rarity of the few species which compose it, scarcely any critical remarks have ever been offered as to its affinities; and, consequently, in the different European Catalogues which have recently been published, it has been made, successively, to occupy positions altogether remote from each other,—until at last it has been entirely set aside, as one of the forms of almost impossible location. Upon the whole, however, it has been more often conceded to the *Erotylidæ* than to any other division; though it is difficult to understand why, since it is neither pseudotetramerous, nor has it the terminal joint of its palpi securiform. The apical articulation of its *antennæ* is securiform, it is true,—but the *Erotylidæ* have nothing in common with this; and we must clearly look for some other section therefore to receive it. Now the main irregularities of *Cholovocera* appear to lie in the reduced number of the joints of its antennæ, in its triarticulated, yet *simple* feet, and in the almost evanescent inner lobe of its maxillæ. And there is but one family in the Coleoptera, so far as I am aware, in which these three characteristics constitute, *in conjunction*, the chief distinguishing feature,—namely the *Lathridiadæ*. Thus, for instance, in *Holoparamecus* the tarsi are simple and triarticulate, the antennal joints vary from nine to eleven, the inner maxillary lobe is excessively small, the

mandibles are bidentate at their extremity, whilst the body is apterous, extremely smooth, and highly polished,—in all of which it is positively identical with *Cholovocera*. Again, in *Corticaria* and *Lathridius* the feet are, likewise, trimerous; and, although the antennæ are 11-jointed, the inner lobe of the maxillæ is wholly obsolete. Then, in *Monotoma* we also find a reduction in the antennal and tarsal joints (the former being curtailed to ten, and the latter to four), the inner maxillary lobe is absent, and the club of the antennæ, though not securiform, is comprehended in a single articulation. Whilst in the little genus *Metophthalmus* the number of the joints of the antennæ is diminished, in like manner, to ten, the feet are triarticulated, the inner lobe of the maxillæ is evanescent, the body is apterous, and the eyes are constructed, as regards the paucity and magnitude of the facets which compose them, on precisely the same anomalous type as those of *Cholovocera*.

Thus, we perceive that the genera of the *Lathridiadæ* contain *all* the elements (and more or less in connexion) for which *Cholovocera* is especially remarkable; and there can, consequently, be but little doubt, I imagine, that its proper situation is there. And, if we look even to external contour and habits, we shall find that this affinity is not the less indicated, since so many of the adjoining groups (as *Monotoma*, *Langellandia*, *Myrmeconomus*, and *Metophthalmus*) are notorious either for their subterraneous or Ant-associating propensities, or else, like *Holoparamecus*, for their minute bulk and glabrous surfaces. The largely-developed, securiform, one-articulated clava of *Cholovocera* cannot be regarded as of more than generic signification; and it is therefore by no means necessary that we should expect to find even the rudiments of a similar organization amongst its immediate allies: nevertheless we may perhaps detect some slight expression of it in the *obliquely-truncated* last joint of the antennæ of *Holoparamecus*, and in the *uni-articulated* club of *Monotoma*. Upon the whole, however, I am inclined to suspect that it has a more intimate relation with *Holoparamecus* than with anything else hitherto described: and, although the Madeiran representative may seem, at first sight, in its rounded outline to recede very considerably from the normal members of the *Lathridiadæ*; yet the only two other species known (namely the *C. formicaria*, Mots., from Georgia, and the *C. punctata*, Märkel, from Sicily,—typical specimens of both of which I have been enabled, through the kindness of Mr. Westwood, to examine, but which seem to be so nearly akin that it is not easy to assert in what they differ) approach them, in this respect, far more closely,—since in their narrower, and less convex bodies, and in their basally-subconstricted elytra they do in fact bear a very strong *primâ facie* resemblance to at any rate the *Holoparameci* (with which it has been already shown that in many of the most essential of their *structural* peculiarities they are actually coincident).

This remarkable genus was first described by Motschulsky, from specimens discovered beneath stones (in the vicinity of Ants' nests) at Derbent, not far from the Caspian Sea.

144. Cholovocera Maderæ. (Tab. X. fig. 1.)

C. rotundato-elliptica convexa ferruginea glaberrima politissima et fere impunctata, prothorace postice lato, antennis pedibusque vix pallidioribus.

Long. corp. lin. $\frac{7}{8}$.

Coccinella succina, Heinecken, *in litt.*
Cholovocera Maderæ, Westwood, *in litt.*

Habitat Maderam, rarissima,—formicarum nidos certe colens: unicum exemplar tantum vidi, a Rev^do^ Dom. Lowe e museo Heineckeniano mihi munifice donatum.

C. roundish-elliptical, convex, pale rufo-ferruginous, exceedingly highly polished, almost impunctate, and perfectly free from pubescence. *Head* large and wide, with the *eyes* (which are of a most anomalous structure, being composed of merely a few large facets, set widely apart upon a convex surface) prominent. *Prothorax* transverse and convex; widest behind, where it is of the same breadth as the *elytra*, on which excessively minute punctures are just traceable beneath the highest powers of the microscope. *Antennæ* and *legs* scarcely paler than the rest of the surface.

A single example only of this most interesting little insect has hitherto come under my observation,—which was captured many years ago (probably near Funchal) by the late Dr. Heinecken, from whose collection it was presented to me by the Rev. R. T. Lowe. It differs from the Georgian and Sicilian representatives of the group (which however, as already stated, appear to be almost, if not indeed entirely, identical) in its larger size and almost impunctate surface, and in its broader, less apically-acuminated, and more rounded outline,—the prothorax and elytra being widest at their extreme bases, instead of, as there, a little constricted, or pinched in (a peculiarity which, we may just remark, is particularly evident in *Holoparamecus*, likewise). In addition to which, the third joint of its antennæ is not quite so long as is the case with those of either of the above-mentioned species. Like them, it is unquestionably an attendant upon Ants,—as in fact the general singularity of its structure, more especially of its eyes, would lead us, *à priori*, to suspect.

Genus 62. HOLOPARAMECUS.

Curtis, *Ent. Mag.* i. 186 (1833).

Corpus minutum, plus minusve subelliptico-oblongum, politum: *prothorace* postice constricto et transverse impresso: *alis* obsoletis. *Antennæ* clavatæ, capitis prothoracisque longitudine, modo (ut in specie nostrâ) 11-, modo 10-, modo etiam 9-articulatæ, articulis primo et secundo (illo præcipue) elongatis robustis, inde ad nonum minutis longitudine subæqualibus et latitudine vix crescentibus, reliquis clavam magnam laxam biarticulatam efficientibus (penultimo subpoculiformi, ultimo ovato ad apicem oblique truncato). *Labrum* amplum, semicirculare, antice integrum ciliatum. *Mandibulæ* validæ acutæ, mox infra apicem dente sat conspicuo instructæ, membranâ basali auctæ. *Maxillæ* bilobæ: *lobo externo* lato recto, apice incurvo valde pubescenti: *interno* angustissimo brevi, intus valde pubescenti. *Palpi maxillares* articulo primo minutissimo, secundo maximo crasso, tertio paulo angustiore brevi, ultimo elongato fusiformi basi truncato:

labiales articulo primo parvo, secundo maximo crasso subgloboso, ultimo minore subconico. *Mentum* amplum, antice angustatum, summo apice (nisi fallor) emarginato. *Ligula* antice rotundata et membranâ tenuissimâ (ad apicem truncatâ ciliatâ) aucta. *Pedes* subgraciles: *tarsis* 3-articulatis, articulo secundo primo paulo breviore, ultimo elongato.

Holoparamecus (=*Calyptobium*, Villa, *Cat. Col. Eur.* dupl. A.D. 1833) may be at once distinguished from *Corticaria* and *Lathridius* by the biarticulated club of its antennæ, by its freedom from wings, by its apically bidentate mandibles, and by its perceptibly bilobed maxillæ. The numerical variations also in the joints of its antennæ are exceedingly remarkable, and present an anomaly which I am not aware that we find, to the same extent, in any other genus of the *Coleoptera*. This peculiarity of structure has been ably discussed by Mr. Westwood in a very interesting paper, read before the Entomological Society of London in May 1845, and published in the fourth volume of their Transactions. After tracing back the generic synonymy to its source, and pointing out the confusion which had arisen in three separate diagnoses (put forth, successively, by Mr. Curtis, himself, and Dr. Aubé), in which different species had been accidentally selected as the type, he thus sums up the result of his inquiry, from which, I think (after a careful consideration of the several forms in question, externally and in detail), it is impossible to dissent:—"We have therefore a genus in which the characters assigned to it by three different writers entirely agree, except that Mr. Curtis describes the antennæ as 9-jointed, Dr. Aubé as 11-jointed, and myself as 10-jointed. On examining these insects, and comparing them with Dr. Aubé's figures, it is impossible to arrive at any other conclusion than that they belong to one and the same genus, and that the variation in the number of the joints of the antennæ is either a specific or a sexual character, a circumstance in itself of so unusual occurrence in the Clavicorn Coleoptera, that I have considered it well worthy of being brought before the notice of the Society." Making use however of these variations in the joints of the antennæ for *sectional* purposes, which at any rate we are entitled to do, we find that the European representatives of the group arrange themselves under three heads,—the first of which embraces the *H. caularum*, Aubé (=*Pankouckii*, Guérin), and the *H. niger*, Aubé, characterized by their 11-jointed antennæ; the second the *H. Kunzei*, Aubé, in which the antennæ are but 10-articulate; and the third the *H. singularis*, Beck. (=*depressus*, Curtis, =*Villæ*, Aubé), which has the antennæ composed of nine joints only.

Regarding the affinities of this genus various opinions have been entertained. Mr. Curtis imagines that, in conjunction with *Eutheia*, it may very likely constitute a passage between the *Lathridiadæ* and the *Scydmænidæ*. Nevertheless, of its certain connexion with at all events the former there can, I think, be no reasonable doubt, its trimerous feet, and the largely developed second articulation of both its labial and maxillary palpi, apart from its general habits and aspect, bespeaking a very close relationship with *Corticaria* and *Lathridius*. Its palpi indeed correspond almost precisely with those of *Atomaria* and *Ephistemus*,

amongst the *Cryptophagidæ*, thus additionally strengthening the bond of union between that family and the present one,—which I cannot but believe are most intimately allied, even though placed by many recent naturalists far asunder. And in fact I should be even, further, inclined to suspect that, taking into account both its tarsi and oral organs, there is perhaps no form more evidently suggestive of the two (whilst *belonging* essentially to one of them) than *Holoparamecus*. In their modes of life the *Holoparameci* somewhat recede from the *Corticariæ* and *Lathridii*, being found more especially, like certain of the *Cryptophagidæ*, in the vicinity of warehouses and dwellings, where they are frequently introduced with different kinds of stores (though it may be that they should be rather regarded as inhabiting the crevices of the boxes in which the stores are contained than the stores themselves): and in England they have often been received, in a living state, amongst insects and skins, from India and China. They are not however solely attached to such positions, since one or two of the species occur beneath stones in hot exposed localities, far removed from any traces of habitations,—as is the case in many parts of the south of Europe, and with the Madeiran representative of the genus. It is only in rare instances that they appear to subsist, like the typical *Lathridiadæ*, under the bark of trees.

145. Holoparamecus niger.

H. subelliptico-oblongus angustus ferrugineus politus et subtilissime punctulatus, prothorace postice constricto et inæqualiter transverso-signato, elytro singulo striâ suturali subflexuosâ profundâ impresso, antennis pedibusque pallido-testaceis.

Long. corp. lin. $\frac{1}{2}$.

Calyptobium nigrum, Chevrier, *in litt.*
———— ————, Aubé, *Ann. de la Soc. Ent. de France* (2ième série) i. 246 (1843).

Habitat in locis inferioribus Maderæ et Portûs Sancti, vel aprico humi inter graminum radices cursitans vel sub scoriis lapidibusque latens, ab autumno usque ad ver novum vulgatissimus: "Praya Formoza, sub lapidibus," teste Dom. Heer.

H. minute, narrow and elongated, and somewhat elliptical-oblong (the widest part being, although the sides are not continuous, a little behind the base of the elytra), varying from ferruginous into a reddish-chestnut hue,—the colour being generally of a rather unequal intensity, which causes the surface to seem somewhat transparent, or pellucid; exceedingly shining, and appearing beneath the microscope to be most minutely and distantly punctulated, and even perceptibly pubescent. *Head* long and convex, scarcely so broad as the anterior part of the *prothorax*, which is rounded at the sides, constricted behind, and with its posterior region broadly, transversely, and unevenly impressed,—the impressed band continuing to the hinder angles (which are almost right angles, and have their extreme lateral edge a little thickened, and produced backwards, in the form of an elevated and straight longitudinal ridge, to about a third of the distance towards the anterior margin), and being interrupted in the centre by a large and slightly raised portion, which, from being cloven by a medial line, has somewhat the appearance of two rounded tubercles in front of (but remote from) the scutellum. *Elytra* considerably

acuminated posteriorly, and slightly so in front, being widest at a short distance behind the base; and with a deeply impressed sutural stria on each, which is slightly curved (and more especially distinct) in front. *Antennæ* and *legs* pale testaceous.

The present *Holoparamecus* recedes from the *H. caularum* (the only other member of the genus hitherto described which has eleven joints to its antennæ) principally in its darker and more pellucid hue, and in its somewhat more pubescent and posteriorly-acuminated form; whilst its hinder prothoracic constriction is of a different nature,—the raised, cloven portion in the centre being more distinctly developed than in that species, which has (instead of it) a twofold *impression* a little in advance of its place. Nevertheless it must be admitted that the two insects approach each other very closely. The *H. niger* was discovered in Sicily, in 1842, by the late Mr. Melly of Liverpool, beneath the bark of a fig-tree in the garden of a Convent near Catania, and was sent by Chevrier, under the specific title which it still retains, to Dr. Aubé for description,—by whom it was characterized in the *Annales de la Société Entomologique de France* in 1843. As its name would seem to imply, the Sicilian specimens are very much darker than the Madeiran ones,—which last appear to correspond better with a pale variety detected by Gené in Sardinia. On the sunny slopes of Madeira, at low altitudes, it is exceedingly abundant, during the autumnal and winter months, adhering to the under sides of stones and scoriæ, from the latter of which it is often almost impossible to extricate it,—its very minute size enabling it to retreat into the numerous cavities and air-holes with which they are everywhere ramified. I first took it, in October 1847, on the high cliffs between Funchal and the Cabo Gerajão; and it has subsequently occurred to me in innumerable localities throughout the southern districts of the island, from the level of the shore at the Praya Formoza to the summit of the little hills of the Pico da Cruz and the Pico do Cardo. In dry exposed spots towards the south of Porto Santo, slightly elevated above the sea, it is equally common: but I have not as yet observed it, either there or elsewhere, in any other position except either beneath stones, or else crawling at the roots of grass on the hot ground in their immediate vicinity.

Genus 63. CORTICARIA.

Marsham, *Ent. Brit.* i. 106 (1802).

Corpus minutum, plus minusve ovatum, convexiusculum, pubescens: *prothorace* subrotundato, ad latera interdum crenulato sed haud marginato: *alis* amplis. *Antennæ* clavatæ, capitis prothoracisque vix longitudine, articulis primo et secundo (illo, subgloboso, præcipue) robustis, tertio secundi longitudine, quarto paulo breviore, inde ad octavum paulatim brevioribus latitudine subæqualibus, reliquis clavam magnam laxam triarticulatam efficientibus (ultimo ovato apice oblique truncato). *Labrum* transversum, antice integrum. *Mandibulæ* acutissimæ edentatæ incurvæ, intus membranâ tenuissimâ ciliatâ auctæ. *Maxillæ lobo singulo* recto apice piloso instructæ. *Palpi maxillares* breves, articulis primo et secundo minutissimis, tertio magno sub-

globoso, ultimo minore subconico: *labiales* brevissimi, articulo primo minutissimo brevissimo, secundo maximo crasso subgloboso, ultimo minutissimo tenuissimo aciculari vix perspicuo, ad apicem ipsum setis paucis munito. *Mentum* hexagonum, antice angustatum. *Ligula* ampla lata, apice truncata integra ciliata. *Pedes* subgraciles: *tarsis* 3-articulatis, articulo primo secundo longiore, ultimo elongato.

The *Corticariæ* are readily separable, even *primâ facie*, from the *Lathridii* by their more convex, ovate, pubescent, and less sculptured bodies, and by their prothorax being broader and more rounded,—occasionally crenulated at its edges, but never margined like that of the latter; neither are the angles at all produced, nor is the disk flattened and costate. In purely structural characters, almost the only points in which the groups differ *inter se* would appear to consist in the very slight distinctive proportions of the joints of their respective antennæ and feet,—the former of which in *Corticaria* have the second articulation much less thickened than the first, and the third perceptibly longer than the fourth; whereas in *Lathridius* the second joint is nearly as much incrassated as the basal one, and the third is distinctly *shorter* than the fourth: whilst, as regards their tarsi, the first articulation (if indeed my observations be correct) is always a little longer than the second in those of the *Corticariæ*, but shorter in those of the *Lathridii*. In their habits, the members of the present genus are not so strictly subcortical as those of the following one,—which in fact their less hardened and depressed forms would seem to imply. They occur, for the most part, amongst herbage in grassy spots, hybernating more commonly under moss and lichen on the trunks of trees than beneath the bark.

146. Corticaria rotulicollis, *Woll.*

C. elongato-ovata rufo-picea, capite prothoraceque profunde et crebre punctatis, hoc ad latera valde crenulato, foveâ postmediâ rotundatâ profundâ impresso, elytris paulo obscurioribus rugulose substriato-punctatis, antennarum basi pedibusque rufo-testaceis.

Long. corp. lin. $\frac{2}{3}$–1.

Habitat Maderam, rarior,—a Rev^{do} Dom. Lowe prope Funchal primo detecta: sed plurima specimina nuper collegit Dom. Hartung, qui inter boletos in truncis laurorum nascentes invenisse apud cl. Dohrn dicitur.

C. elongate-ovate, rufo-piceous, pubescent, and very slightly shining. *Head* and *prothorax* deeply and closely punctured: the *latter* with the edges rounded, and powerfully crenulated throughout; with a large, round, and deeply impressed fovea on the centre of the hinder disk. *Elytra* a little darker and less rufescent than the head and prothorax; rather rugosely striate-punctate. *Antennæ* and *legs* rufo-testaceous; the *former* with their club infuscate.

A large and well-marked species; distinguished from the other *Corticariæ* here described by the rather deep and closely-set punctures of its head and prothorax, and by the greatly developed crenulations of the latter. It is apparently some-

what scarce, though taken occasionally near Funchal, from whence I possess specimens captured by the Rev. R. T. Lowe and Mr. Leacock: and several examples have been recently communicated to me by M. Dohrn of Stettin, which are stated to have been collected by M. Hartung from Boleti growing on the trunks of the native laurels.

147. Corticaria crenicollis.

C. elongato-ovata antice subacuminata, fulvo-ferruginea, capite prothoraceque granulatis (sed vix, præsertim illo, punctatis), hoc ad latera leviter crenulato, foveâ postmediâ rotundatâ profundâ impresso, elytris substriato-punctatis, antennis pedibusque vix pallidioribus.

Long. corp. lin. 1.

Corticaria crenicollis, Mann. *in Germ. Zeitsch. für die Ent.* v. 37 (1844).

Habitat prope urbem Maderæ Funchalensem, in horto ad Quinta d'Ambrosio pertinente semel tantum (mense Januario A.D. 1848) lecta.

C. elongate-ovate, and rather acuminated anteriorly, bright fulvo-ferruginous, and sparingly pubescent. *Head* and *prothorax* almost opake, and very distinctly granulated: the *former* with scarcely any indications of additional punctures intermixed: the *latter* with them most obscurely developed,—merely imparting to its surface a rather rugose or wrinkled appearance; with the edges rounded and obscurely crenulated (though rather more evidently so behind than in front); the postmedial fovea well-defined and exceedingly deep. *Elytra* rather shining; and substriate-punctate. *Antennæ* and *legs* almost concolorous with, or a little paler than, the rest of the surface.

At once known from the other Madeiran *Corticariæ* by its rather anteriorly-subacuminated outline and pallid hue, by its somewhat shining elytra, and by the very distinctly granulated surface of its head and prothorax,—the former of which is almost entirely free from larger additional punctures, whilst even the latter (the hinder fovea of which is excessively deeply impressed, but the sides only obscurely crenulated) has them but imperfectly developed. It is very probably an imported insect into Madeira, the single example on which its admission into the Fauna rests having been captured by myself in the garden of the Quinta d'Ambrosio, near Funchal, during the winter of 1848. It is stated by Mannerheim to be common in Finland and France.

148. Corticaria fulva.

C. elongato-ovata magis pubescens fulvo-ferruginea, capite prothoraceque valde profunde punctatis, hoc ad latera crenulato, foveâ postmediâ rotundatâ minus profundâ impresso, elytris substriato-punctatis, antennis pedibusque vix pallidioribus.

Long. corp. lin. 1–1$\frac{1}{8}$.

Latridius fulvus, Chevrier, *in litt.*
———— ——, Villa, *Cat. Col. Eur.* 45 (1835).
Corticaria fulva, Mann. *in Germ. Zeitsch. für die Ent.* v. 42 (1844).
———— ——, Redt. *Fna Austr.* 209 (1849).

Habitat Maderam, hinc inde in domibus et hortis, ex Europâ forsan introducta: ad Sanctum

Vincentium cepit Rev^dus Dom. Lowe, necnon prope urbem Funchalensem tempore hiberno egomet parce deprehensi.

C. large, elongate-ovate, pale fulvo-ferruginous (sometimes almost testaceous), clothed with exceedingly long, and rather robust pubescence, and but slightly shining. *Head* and *prothorax* beset with very large, deep, but comparatively distant punctures: the *latter* with the edges rounded and distinctly crenulated (though not quite so powerfully so as in the *C. rotulicollis*), especially behind; the postmedial fovea shallower and obscurer than in either of the preceding species. *Elytra* rather coarsely substriate-punctate. *Antennæ* and *legs* a little paler than the rest of the surface.

A rather common European insect, and in all probability naturalized in Madeira from more northern latitudes. It may be immediately recognised by its large size and pallid hue, by its exceedingly pubescent and deeply punctured surface, and by the tolerably distinct crenulations (especially behind) of its prothorax. The Madeiran specimens differ in no respect from the ordinary type, except that perhaps their postmedial prothoracic depression is a little fainter. It appears to be somewhat scarce, occurring sparingly about dwellings and out-houses, in the immediate vicinity of the villages and towns. I have captured it, during January, in the garden of the Quinta d'Ambrosio, near Funchal; and it has been taken in the north of the island, at São Vincente, by the Rev. R. T. Lowe.

149. Corticaria rotundicollis, *Woll.*

C. ovata rufo-picea, capite prothoraceque granulatis et leviter punctatis, hoc circa medium dilatato ad latera integro, foveâ postmediâ rotundatâ profundâ impresso, elytris obscurioribus substriato-punctatis, antennarum basi pedibusque rufo-testaceis.

Long. corp. lin. $\frac{2}{3}$.

Habitat in montibus Maderæ, rarissima: ad Lombo das Vacas solstitio æstivo A.D. 1850 duo specimina inveni.

C. ovate, rufo-piceous, pubescent, and rather shining. *Head* and *prothorax* distinctly granulated, and intermixed with rather obscure, shallow, and distant punctures: the *latter* with the edges rounded, but apparently not at all crenulated; widest about the middle; the postmedial fovea well-defined and deep. *Elytra* darker than the head and prothorax, rather convex posteriorly; and substriate-punctate. *Antennæ* and *legs* rufo-testaceous; the *former* with their club infuscated.

The ovate outlines of the present species and the following one will readily distinguish them from the remainder of the genus with which we have here to do. The *C. rotundicollis* however recedes from the *C. curta* in its darker hue (especially of the elytra), in its slightly larger size, and in its different prothorax,—which has its edges entire (and with no appearance of an excavation and tooth at the hinder angles), and its surface (like that of the head) very evidently granulated, the punc-

tures with which the granules are intermixed being remarkably shallow and ill-defined. Its postmedial prothoracic fovea is, likewise, deeper, and the club of its antennæ is more dusky than is the case in that insect. The only two specimens which I have hitherto seen were captured, by myself, on the Lombo das Vacas, June 21, 1850.

150. Corticaria curta, *Woll.*

C. ovata rufo-fusca, capite prothoraceque punctatis sed vix granulatis, hoc curto pone medium dilatato ad latera subintegro, circa angulos posticos leviter excavato (angulis ipsis exstantibus), foveâ postmediâ vel minus distinctâ vel obsoletâ, elytris obscurioribus (paulo magis infuscatis) striato-punctatis, antennis pedibusque testaceis.

Long. corp. lin. $\frac{1}{2}$–$\frac{2}{3}$.

Habitat sub lapidibus omnium insularum Maderensium, præsertim in locis graminosis, vulgaris: in Portu Sancto necnon in Desertâ Grandi tempore vernali abundat.

C. short, ovate, reddish-brown, pubescent, and very slightly shining. *Head* and *prothorax* much more deeply punctured and less evidently granulated than in the last species: the *latter* short, with the edges rounded and almost free from crenulations (or with very slight indications of them); widest behind the middle; minutely excavated immediately before the hinder angles (which are, themselves, however, a little prominent); the postmedial fovea usually faint, and occasionally obsolete. *Elytra* rather darker and less rufescent than the head and prothorax, being of a purer brown; and somewhat distinctly striate-punctate. *Antennæ* and *legs* testaceous; the *former* not having, usually, even their club infuscate.

The smallest of the *Corticariæ* here described, and known by its short, ovate outline, by its more or less reddish-brown, or infuscated hue, and by the construction of its prothorax,—which is broadest a little *behind* the middle, obscurely excavated immediately in front of the posterior angles (which are, themselves, consequently prominent,—assuming somewhat the form of a minute tooth), and (unlike that of the *C. rotundicollis*) is impressed with distinct and rather large punctures, the intermediate granulations being scarcely perceptible. Its antennæ moreover are usually quite pale, and the postmedial prothoracic fovea is often entirely obsolete. It would seem to be the Madeiran representative of the common European *C. fuscula*, although with too many distinctive characters of its own to allow of its being referred to that insect. Thus, for instance, it is more ovate, and, in all cases, considerably smaller; its prothorax is more suddenly dilated behind the middle, and less distinctly excavated at the posterior angles; and its antennæ, which are invariably more abbreviated and less robust, want the dusky apex which is there so conspicuous. It is the most abundant of the *Corticariæ* of these islands, and a truly indigenous species,—being widely distributed throughout the group, and in positions for the most part far removed from cultivated spots. In Porto Santo and on the Dezerta Grande I have taken it in profusion, from

beneath stones, during the spring and early summer months; whilst at intermediate altitudes of Madeira proper, whether within the sylvan regions or out of them, it is universal.

151. Corticaria Fagi, *Woll.*

C. elongato-parallela angusta fulvo-ferruginea, capite prothoraceque profunde et subremote punctatis, hoc ad latera postice crenulato, foveâ postmediâ magnâ profundâ impresso, elytris striato-punctatis, antennis pedibusque vix pallidioribus.

Long. corp. lin. $\frac{2}{3}$.

Habitat Maderam borealem sylvaticam, ad Lombo dos Pecegueiros mense Julio A.D. 1850 copiosissime lecta.

C. narrower, more elongated and parallel than any of the foregoing species, very pubescent, pale fulvo-ferruginous, and slightly shining. *Head* and *prothorax* beset with very large, deep, but somewhat remote punctures: the *latter* with the edges rounded and finely crenulated posteriorly; the postmedial fovea large and deep, but not quite so rounded as in the other species,—having a tendency to be a little curved, or arcuated in front. *Elytra* regularly and distinctly striate-punctate. *Antennæ* and *legs* concolorous with, or (especially the former) a little paler than, the rest of the surface.

The narrow and linear outline of the present *Corticaria*, in conjunction with its pallid hue and its large hinder prothoracic fovea, will at once separate it from the whole of the preceding species. It is apparently the Madeiran representative of the *C. elongata* of Schüppel, though clearly not identical with it,—since it is not only somewhat darker, and less parallel and pubescent than that insect, but its prothorax is less perceptibly crenulated posteriorly, and (together with the head) is beset with extremely large, coarse and deep punctures; whereas in the *C. elongata* the punctures are so minute as to be scarcely perceptible. It is exceedingly local, and would seem to be confined to the forest regions of intermediate and rather lofty altitudes. The only district in which I have hitherto observed it is that of the Lombo dos Pecegueiros, where, during July 1850, I captured it in profusion,—especially on the outer canvass of my tent towards the dusk of the evening and after showers. The particular spot in which I was encamped (known as the Chão das Castanheiras) being thickly studded with enormous Spanish chestnuts, I am inclined to suspect that it was from off that tree, rather than the native laurels, that my specimens must have flown.

Genus 64. LATHRIDIUS.

Herbst, *Natursyst.* v. 8 (script. Latridius) (1793).

Corpus minutum, plus minusve elongato- vel parallelo-ovatum, depressiusculum, calvum sed sculpturatum: *prothorace* sæpius elytris angustiore, elongato-subquadrato angulis anticis plus minusve ampliatis, ad latera marginato et plus minusve complanato: *alis* amplis. *Antennæ* capitis pro-

thoracisque vix longitudine, articulis primo et secundo (illo vix præcipue) subglobosis robustis, tertio secundo paulo breviore, quarto longiore, inde ad octavum paulatim brevioribus latitudine subæqualibus, reliquis clavam magnam laxam triarticulatam efficientibus (ultimo subquadrato-ovato ad apicem oblique truncato). *Labrum* breve transversum, antice vix emarginatum. *Mandibulæ* acutæ incurvæ, apice vix denticulatæ, intus membranâ tenuissimâ ciliatâ auctæ. *Maxillæ lobo singulo* recto apice piloso instructæ. *Palpi maxillares* breves, articulo primo minutissimo, secundo majore crassiore, tertio magno subgloboso, ultimo minore subconico: *labiales* brevissimi, articulo primo minutissimo brevissimo, secundo maximo crasso subgloboso, ultimo minutissimo tenuissimo aciculari vix perspicuo, ad apicem ipsum setulis paucis munito. *Mentum* hexagonum, antice angustatum. *Ligula* ampla lata, apice truncata integra ciliata. *Pedes* subgraciles: *tarsis* 3-articulatis, articulo primo secundo breviore, ultimo elongato.

The distinctions between the *Lathridii* and the *Corticariæ* have been already pointed out,—the flatter, usually less ovate, somewhat harder and more sculptured (though unpubescent) bodies of the former being at once sufficient, apart from the minute characters to be gathered from the relative proportions of their antennal and tarsal joints, whereby to separate them, even at first sight, from the latter. As lately stated, they are more strictly subcortical in their habits than the members of the previous genus: nevertheless both groups are usually more or less abundant during the summer months (at which season the insects are in an active state) amongst dense herbage and vegetation,—particularly in shady localities beneath trees, and in waste spots adjoining cultivated grounds.

152. Lathridius assimilis.

L. parallelo-subovatus piceo-ferrugineus, capite prothoraceque subpunctato-rugosis, hoc ad latera valde complanato, angulis anticis rotundato-ampliatis, elytris profunde punctato-striatis, interstitiis alternis elevatis, antennis pedibusque diluto-testaceis.

Long. corp. lin. 1.

Lathridius assimilis, Mann. *in Germ. Zeitsch.* v. 98 (1844).
———— *collaris*, Motschulsky, *in litt.*

Habitat prope urbem Maderæ Funchalensem, hinc inde, rarior.

L. elongate-subovate, rather more parallel than either of the following species, and more or less piceo-ferruginous, or pale rusty-piceous. *Head* and *prothorax* rugosely punctured and wrinkled,—the punctures being large, a good deal confluent and ill-defined: the *former* almost unchanneled: the *latter* tolerably large, and narrowed behind; the sides much flattened, and with the anterior angles considerably expanded, or rounded, outwards; with an obscure impression (or wide abbreviated channel) on the fore part of the disk, and transversely impressed behind. *Elytra* rather parallel at the sides; deeply punctate-striated,—the punctures being very large, distinct, and regular; the interstices convex, and the alternate ones elevated. *Antennæ* and *legs* a little paler than the rest of the insect,—being dull rusty-testaceous.

The present *Lathridius* may be at once known from the *L. minutus* by its rather

larger and more parallel outline, by its paler and more rusty hue, by its somewhat longer prothorax (which has the anterior angles more distinctly expanded, or rounded, outwards), and by the raised alternate interstices of its more deeply and regularly punctate-striated elytra. It is apparently scarce in Madeira, the only district in which I have hitherto taken it being the vicinity of Funchal,—where it may possibly have been accidentally introduced from more northern latitudes. It is not an uncommon insect throughout Europe, being recorded in Finland, Russia, Germany, Poland, and Switzerland; it is however far less abundant than either of the following species.

153. Lathridius minutus.

L. ovatus nigro-piceus, capite prothoraceque (vix subpunctato-) rugosis, hoc ad latera complanato, angulis anticis minus rotundato-ampliatis, elytris punctato-striatis, interstitiis convexis, antennarum basi pedibusque diluto-testaceis.

Long. corp. lin. $\frac{3}{4}$–$\frac{7}{8}$.

Tenebrio minutus, Linn. *Syst. Nat.* ii. 675 (1767).
Ips minuta, Oliv. *Ent.* ii. 18. 22 (1790).
Corticaria pulla, Mshm, *Ent. Brit.* i. 111 (1802).
Latridius porcatus, Steph. *Ill. Brit. Ent.* iii. 113 (1830).
Lathridius minutus, Mann. *in Germ. Zeitsch.* v. 96 (1844).

Habitat Maderam, usque ad 4000′ s. m. ubique vulgaris.

L. shorter and more ovate than the *L. assimilis*, and dark piceous-black. *Head* and *prothorax* almost as rugose as in that insect, but with the punctures even more irregular, being scarcely at all defined: the *former* with a distinct longitudinal channel down the centre: the *latter* rather short, and narrowed behind; the sides flattened, and with the anterior angles expanded, or rounded, outwards,—though much less so than in the *L. assimilis*; usually with a very obscure impression (or abbreviated channel) on the fore part of the disk, and transversely impressed behind. *Elytra* rounded at the sides, the widest part being about the middle; punctate-striated,—the punctures being smaller and much less distinct than those of the last species; the interstices rather convex, but the alternate ones not more elevated than the remainder. *Antennæ* and *legs* diluted-testaceous; the *former* with their club often a little infuscated.

Distinguished from the *L. assimilis*, as already stated, by its smaller, more ovate, and darker body, by its more deeply channeled forehead and less anteriorly-dilated prothorax, and by the sculpture of its elytra,—which are not only more obscurely punctured than in that insect, but want likewise the elevated alternate interstices which are there so apparent. It is by far the most abundant of the Madeiran *Lathridii*, occurring in profusion in nearly all parts of the island below the altitude of about 4000 feet. In the Ribeiro de Santa Luzia, near Funchal; in the chestnut-woods of Santa Anna; throughout the region of the Ribeiro Frio; and at the Lombo dos Pecegueiros I have captured it commonly, during the spring

and summer months,—particularly in the last of these districts, where in July 1850 I observed it by thousands on the outer canvass of my tent, whither it had flown, in company with the *Corticaria Fagi*, towards the dusk of the evening. It is a species of very wide geographical range, being recorded by Mannerheim in Lapland, Sweden, Finland, Siberia, Russia, Germany, England, France, Italy, Armenia, the Caucasus, and even from Greenland.

154. Lathridius transversus.

L. ovatus antice subacuminatus, ferrugineus, capite prothoraceque (vix subpunctato-) rugosis, hoc parvo subquadrato (angulis anticis haud ampliatis), ad latera complanato necnon ad basin profundius transversim impresso, elytris (antice sat profunde) punctato-striatis, antennis pedibusque rufo-testaceis.

Long. corp. lin. $\frac{3}{4}$–$\frac{7}{8}$.

Ips transversa, Oliv. *Ent.* ii. 18. 20. pl. 3. fig. 20 *a*, *b* (1790).
Corticaria transversa, Mshm, *Ent. Brit.* i. 109 (1802).
Latridius transversus, Steph. *Ill. Brit. Ent.* iii. 112 (1830).
Lathridius transversus, Mann. *in Germ. Zeitsch.* v. 94 (1844).

Habitat Maderam, præsertim prope urbem Funchalensem, rarior; una cum *L. assimili* a meipso captus.

L. ovate, rather acuminated anteriorly, and bright ferruginous. *Head* and *prothorax* sculptured much in the same manner as those of the *L. minutus*: the *former* obscurely channeled down the centre: the *latter* smaller and narrower (especially in front) than in either of the other species,—being subquadrate, and with the anterior angles hardly more developed (although much more rounded) than the posterior ones; with a tolerably distinct and rounded impression on the fore part of the disk, and with the hinder transverse impression deeper than in either of the preceding species. *Elytra* rather shining, and rounded at the sides, the widest part being a little behind the middle; somewhat deeply punctate-striated in front, but with the sculpture altogether much fainter posteriorly,—the punctures towards the base however being rather large and distinct. *Antennæ* and *legs* (especially the former) a little paler than the rest of the surface.

The somewhat anteriorly-acuminated outline and pallid hue of the present insect, in conjunction with the sculpture of its elytra (which is deep at their base, but fainter towards their apex), and the more distinct transverse impression and less expanded front angles of its (comparatively small, narrow and subquadrate) prothorax, will be at once sufficient to separate it, *primâ facie*, from the other Madeiran *Lathridii*. Like the last, it is a species of wide geographical range, abounding in all parts of Europe, and being recorded, in Asia, from Siberia to the Caucasus. In Madeira it would seem to be decidedly scarce, or at any rate local,—the exceedingly few specimens which have come beneath my notice having been captured by myself in the immediate vicinity of Funchal and towards the upper extremity of the Ribeiro de Santa Luzia.

Genus 65. METOPHTHALMUS. (Tab. IV. fig. 4.)

Motschulsky, *in litt.* (script. Metaphthalmus).

Corpus minutum, parallelo-subovatum, depressum, calvum, sculpturatum, Lathridio habitu proximum sed ab eo valde distinctum: *capite* porrecto costato, ad latera crenulato; *oculis* minutis valde convexis subconicis, supra marginem capitis lateralem omnino sitis atque ex lentibus paucis compositis: *prothorace* elytris angustiore, sulcato, ad latera crenulato rotundato et late complanato: *alis* obsoletis. *Antennæ* (IV. 4 *a*) ad basin ab oculis remotæ, et supra marginem (ad angulos anteriores) capitis insertæ, 10-articulatæ, clavatæ, articulis primo et secundo (illo præcipue) magnis crassis (illo subquadrato, hoc globoso), tertio brevi minuto, quarto longiore graciliore subclavato, inde ad octavum longitudine decrescentibus latitudine vix crescentibus, reliquis clavam magnam laxam elongatam biarticulatam efficientibus (penultimo brevi subpoculiformi, ultimo maximo elongato-ovato ad apicem internum oblique truncato et setis paucis munito). *Labrum* prominulum, breve transversum, antice rotundatum integrum. *Mandibulas* haud observare potui. *Maxillæ* (nisi fallor) *lobo singulo* pubescenti instructæ. *Palpi maxillares* articulo primo minutissimo, secundo magno crassiore, tertio maximo valde incrassato subgloboso, ultimo tertii longitudine sed graciliore fusiformi apice truncato: *labiales* brevissimi, articulo primo minuto brevissimo, secundo maximo crasso subgloboso, ultimo minutissimo (ægre observando) mammuliformi apice obtuso setisque paucis obscurissimis munito. *Mentum* transversum, in parte mediâ transversim punctato-perforatum, antice leviter dilatatum, apice sinuato. *Ligula* ampla lata, apice vix emarginata. *Pedes* subgraciles: *tibiis* rectis subclavatis: *tarsis* (IV. 4 *b*) 3-articulatis simplicibus, articulo primo secundo vix breviore, ultimo valde elongato fusiformi, ad apicem (in anticis saltem) minutissime bispinoso *unguiculis*que simplicibus magnis munito.

A μετὰ post, et ὀφθαλμὸς oculus.

The very interesting little genus for which Motschulsky has proposed the name of *Metaphthalmus*,—but which, since it has not yet been either published or defined, I have altered to *Metophthalmus* (as the more correct orthography),—is evidently nearly akin to *Lathridius*, though at the same time with abundant distinctive characters of its own which must altogether separate it, generically, from that group. Thus, its 10-jointed antennæ, with their biarticulated club, in conjunction with the remarkable construction of its eyes, which are exceedingly convex (although minute), and placed completely on the upper surface of the head (the lateral edges of which project perceptibly beyond them), are points amply sufficient, even alone, to separate it from the *Lathridii*,—with which nevertheless in the details of its palpi and feet, as well as in its general contour and deeply sculptured surface, it is coincident. A glance, however, at the diagnosis will show that, apart from the more conspicuous points just alluded to, there are other peculiarities, albeit less apparent, in which it does in reality recede from *Lathridius* very considerably,—amongst which, its total freedom from wings and the serrated margins of its *head* should be especially noticed. Still, it is unquestionably in its organs of sight that its most extraordinary feature is indicated, which, from their anomalous situation and diminutive size, and in the paucity of the large facets which unite in composing them, are of a very unusual nature. This type

of eye (which is likewise carried out, in almost every respect except in position, in *Cholovocera*) is of extremely rare occurrence in the Coleoptera: and since the sides of the head entirely intercept it from below, it follows that the insect must be incapable of perceiving what is immediately beneath it; and it would be interesting therefore to inquire whether its habits are in any way modified so as to meet this restricted arrangement for vision. In a certain degree this apparent deficiency has been compensated for by the great convexity of the eye, the remote lenses of which are so adjusted as to form somewhat of a cone, which thus not only gives the creature a more extended horizon, but causes also objects which are placed at merely a very short distance from it to come within its field of view. I think it far from unlikely however that it is a native of Ants' nests, or at least subterraneous in its propensities,—the single example which has hitherto been detected being in all probability a chance specimen, astray from its legitimate haunts; in which case, many of the above-mentioned irregularities become, if not actually intelligible, at any rate in accordance with what experience tells us that under such circumstances we may, in some measure, expect.

In my dissection of this minute insect, I have unfortunately failed to detect the mandibles: but the remaining particulars of its structure will more than suffice to point out its affinities,—if indeed there could, even *à priori*, have been any doubt regarding them.

155. **Metophthalmus asperatus**, *Woll.* (Tab. IV. fig. 4.)

M. parallelo-subovatus rufus, capite prothoraceque rugosis inæqualibus, illo subacuminato-porrecto in fronte binodoso utrinque costato necnon ad latera serrato, hoc ad latera serrato rotundato et late complanato, pone medium transversim impresso, in dorso convexo sed in mediâ parte ipsâ longitudinaliter concavo, elytris rufo-piceis profunde punctato-striatis, suturâ interstitiisque alternis valde elevatis.

Long. corp. lin. vix $\frac{7}{8}$.

Habitat Maderam borealem sylvaticam, ad Lombo dos Pecegueiros d. 22 Jul. A.D. 1850 a meipso repertus.

M. elongate-ovate, narrow, somewhat acuminated anteriorly, rufous, and a little shining. *Head* and *prothorax* rough, and very uneven: the *former* elongated, and considerably acuminated in front; crenulated, or more strictly perhaps serrated, at the edges; with an elevated and slightly curved ridge on either side from the *inner* margin of the eye to the insertion of the antenna, and another, almost straight and less evident one (being perceptible only beneath a high magnifying power), between it and the lateral edge, and extending from the antenna to the *outer* margin of the eye; the *forehead* with two very abbreviated striæ (forming minute nodules) in the centre,—which are nearly confluent at their commencement, but which diverge outwards, in the direction of the mouth, and enclose within their angle a minute rounded impression somewhat resembling an ocellus; *eyes* minute, and extremely convex,—placed on the upper surface of the head, the lateral margins of which project sensibly beyond them. *Prothorax* regularly rounded and crenu-

lated at the sides, although somewhat wider towards the posterior than the anterior portion; likewise, excessively uneven and furrowed,—though it is not easy to perceive the exact direction which the impressions take; the sides however are very broadly flattened, and the dorsal portion is elevated, though at the same time with an evident and wide channel, or longitudinal groove, down its (otherwise) highest, or central portion (especially apparent in front); this groove is interrupted behind the middle by a transverse one, which is somewhat more distinct,—the two intersecting each other in the form of a cross. *Elytra* considerably darker than the head and prothorax, being rufo-piceous; rather undulating in its external outline; very deeply punctate-striated (the punctures being exceedingly large and distinct); and with their suture and alternate interstices considerably raised. *Antennæ, mouth* and *legs* very pale rufous, or rufo-ferruginous.

Apparently extremely rare; the only specimen which I have seen having been captured by myself in the north of Madeira, by brushing the long and rank grass at the Lombo dos Pecegueiros, near the edges of the precipitous cliff-road between São Vincente and Seisal,—at a short distance from the eastern limit of the Ribeiro de João Delgada,—on the 22nd of July, 1850.

Fam. 16. MYCETOPHAGIDÆ.

Genus 66. BERGINUS.

(Dejean) Erichson, *Nat. der Ins. Deutsch.* iii. 405 (1848).

Corpus minutum suboblongo-cylindricum, pubescens: *prothorace* elytris paulo angustiore, ad latera minutissime crenulato-marginato (sed haud complanato): *alis* amplis. *Antennæ* capitis prothoracisque fere longitudine, clavatæ pilosæ, articulo primo robusto subgloboso, secundo longiore graciliore subclavato, tertio huic longitudine æquali sed graciliore, inde ad nonum paulatim vix brevioribus latitudine subæqualibus, reliquis clavam magnam laxam perfoliatam biarticulatam efficientibus (decimo magno subpoculiformi, ultimo paulo angustiore ovato ad apicem oblique subtruncato). *Labrum* porrectum subquadratum, antice rotundatum vix emarginatum ciliatum. *Mandibulæ* validæ triangulares, apice acutæ bidentatæ, intus basin versus membranâ tenuissimâ auctæ. *Maxillæ* bilobæ: *lobo externo* magno lato subovato, apice valde pubescenti: *interno* breviore angustissimo valde pubescenti-pencillato. *Palpi maxillares* articulo primo parvo, secundo magno elongato subclavato, tertio breviore, ultimo magno (fere subsecuriformi) subovato apice oblique truncato: *labiales* robusti, articulo primo parvo, secundo maximo crasso, ultimo vix breviore sed multo graciliore subcylindrico. *Mentum* amplum transverso-quadratum, antice integrum. *Ligula* ampla lata, apice truncata ciliata. *Pedes* graciles: *tibiis* rectis, apicem versus leviter dilatatis: *tarsis* 4-articulatis, articulo primo leviter elongato, secundo et tertio brevioribus subæqualibus, hoc emarginato ultimum elongatum recipiente; *unguiculis* simplicibus.

Berginus may, I think, be regarded as constituting a very natural passage between the *Lathridiadæ* and the *Mycetophagidæ*, being allied to both of them in many particulars of its economy and structure, whilst at the same time it embraces the *entire* essential characters of neither. It is usually however placed, and perhaps rightly, amongst the latter, as possessing a considerable affinity with such

genera as *Litargus* and *Typhæa*,—though it is almost equally impossible to overlook its relationship with *Lathridius* likewise, to which in its general contour and habits, as well as in the largely-developed penultimate joint of its labial palpi, it makes a decided approach. Still, its tetramerous feet and pubescent body (the former of which, nevertheless, do *not* appear to be triarticulate in the anterior male pair), in conjunction with its distinctly bilobed maxillæ, would seem (in a choice between the two families) to remove it into the *Mycetophagidæ*,—where indeed it is stationed by Erichson, alongside the genus *Typhæa*, which is in all probability its most correct position.

156. Berginus Tamarisci.

B. suboblongo-cylindricus brunneo-ferrugineus pubescens, capite prothoraceque rugose punctatis, hoc elongato-subquadrato ad latera minutissime crenulato, basi foveolâ rotundatâ utrinque impresso, elytris rugose subpunctato-striatis, antennis pedibusque diluto-testaceis.

Long. corp. lin. $\frac{7}{8}$–1.

Berginus Tamarisci, Dejean, *in litt.*

Habitat in locis subinferioribus Maderæ australis, præsertim in cultis vix ab urbe Funchalensi remotis, tempore vernali non infrequens: in Portu Sancto prædominat, quâ Aprili exeunte A.D. 1848 in clivis graminosis mox infra summum ipsum montem Pico de Facho dictum copiose collegi.

B. elongated, parallel, and rather cylindric, reddish-brown, pubescent, and nearly opake. *Head* and *prothorax* rugosely punctured,—the punctures being large, a good deal confluent, and not at all well-defined: the *former* with the eyes large and prominent: the *latter* somewhat elongate-quadrate (though with the hinder angles a good deal rounded) and convex; very minutely margined and crenulated at the edges; and impressed on either side, at the base (towards the posterior angles), with a small, though distinct and rounded fovea. *Elytra* parallel, rugosely punctate-striated,—the punctures however being even less defined still than those of the head and prothorax; and with the interstices (especially in front) a little raised. *Antennæ* and *legs* (particularly the latter) paler, being usually dull rufo-testaceous.

By no means an uncommon insect throughout the southern districts of Madeira, below the elevation of about 800 feet,—though more attached perhaps to the immediate vicinity of Funchal than elsewhere. It occurs principally amongst old wood in waste neglected spots within the cultivated regions, often frequenting gardens and vineyards,—under which circumstances I have once or twice captured it in that of the Rev. R. T. Lowe at the Levada, where, if I mistake not, it had issued from out of the rotten stalks of the *Datura*. On the little hill above Santo Antonio, known as the Pico do Cardo, I observed it plentifully, during March 1848, in the decayed stump of a tree, in company with the *Ptinus longicornis* and *orbatus*: whilst in Porto Santo it is altogether more abundant, and would seem likewise to be more strictly indigenous,—where, in April and May of the same year, I took it in profusion by brushing the short grass on the mountain-

slopes of the Pico de Facho (1600 feet above the sea), facing the south. It is a species of Mediterranean latitudes, though apparently somewhat scarce. It is recorded in the south of France; and I possess specimens, also, from Sicily, which agree in every respect with the Madeiran ones, except that they are just perceptibly darker in their colouring.

Genus 67. MICROCHONDRUS. (Tab. IV. fig. 2.)

Guérin-Méneville, *in litt.*

Corpus minutum, ovatum, convexum, pubescens, Mycetææ affinitate proximum sed ab eo (nisi fallor) distinctum: *prothorace* lato, ad latera minute subcrenulato-marginato: *alis* amplis. *Antennæ* capitis prothoracisque longitudine, clavatæ pilosæ, articulis primo et secundo (illo, subgloboso, præcipue) robustis longitudine subæqualibus (hoc subclavato), tertio ad octavum parvis subæqualibus, reliquis clavam magnam laxam perfoliatam triarticulatam efficientibus (nono et decimo subæqualibus subpoculiformibus, ultimo magno ovato ad apicem oblique truncato). *Labrum* (IV. 2 *a*) amplum transversum, antice membranaceum leviter emarginatum et ciliatum. *Mandibulæ* (IV. 2 *b*) validæ incurvæ, apice acutæ fortiter bidentatæ, intus late emarginatæ et membranâ tenuissimâ auctæ. *Maxillæ* (IV. 2 *c*) bilobæ: *lobo externo* magno lato subovato valde pubescenti: *interno* brevissimo angusto valde pubescenti, apice acutissimo incurvo. *Palpi maxillares* articulo primo minuto, secundo longiore subclavato, tertio breviore transverso, ultimo elongato-subovato: *labiales* (IV. 2 *d*) robusti, articulo primo minutissimo, secundo longiore crassiore subclavato, ultimo maximo valde inflato globoso apice truncato. *Mentum* amplum transverso-subquadratum, antice leviter angustatum membranaceum integrum. *Ligula* ampla lata, apice vix emarginata valde pubescens ciliata. *Pedes* graciles: *tibiis* rectis, apicem versus leviter dilatatis: *tarsis* (IV. 2 *f*) 4-articulatis, articulis primo et secundo inter se arcte conjunctis (suturâ ægre observandâ), illo hoc paulo breviore, tertio secundi longitudine sed paulo angustiore, ultimo elongato subclavato *unguiculis* simplicibus munito.

A μικρὸς parvus, et χόνδρος granum.

The insect from which the above generic diagnosis has been drawn out is intimately allied to *Mycetæa*, for which indeed it might, at first sight, be easily mistaken. After a careful examination however of the various parts of its structure, I am inclined to believe that it may perhaps present sufficient differences to warrant its separation from that genus:—an hypothesis which is rendered the more probable since Mr. Westwood informs me that it has in fact been already detached by M. Guérin-Méneville, who had supplied him with a copy of the dissections from his unpublished manuscript, which appear unquestionably, in spite of certain discrepancies, to belong to the species now under consideration. Although of an important nature, these incongruities are nevertheless such as may be readily accounted for in objects thus small and difficult of observation; and it was not until I had placed them beneath the highest magnifying power that I succeeded, myself, in detecting their actual condition. Thus, M. Guérin's details represent the tarsi as composed of only three articulations, and the inner maxillary lobe as obsolete: whereas in reality the former are tetramerous; and

the latter certainly exists, although in a very diminutive, or rudimentary state. As regards the feet, the truth is that the first two joints are so exactly connected *inter se*, and are so precisely of the same breadth throughout, that even the microscope does not show their line of demarcation without some difficulty; but that it is to be perceived, when closely looked for, there cannot be the remotest doubt. Whilst it must be admitted, therefore, that the points of deviation from *Mycetæa* are considerably reduced from what they were originally supposed to be, yet there still remain many distinctive modifications in the minutiæ of its oral organs which, when combined with external ones, will go far, I imagine, towards rendering its isolation desirable. Thus, for example, the enormously developed subglobose terminal joint of its labial palpi (which, with that of the antennæ, is obliquely truncated at its apex), added to its transverse, subemarginated upper lip, the excessive minuteness of the inner lobe of its maxillæ, and the different construction of their palpi, are all of them features which recede from the parallel ones of *Mycetæa*: whilst its *un*margined prothorax (the sides of which, however, are obsoletely crenulated), and the total exemption of its elytral punctures from longitudinal distribution, would still further tend to remove it from that genus,—to which in its general habits it manifestly approximates.

157. Microchondrus domuum. (Tab. IV. fig. 2.)

M. ovatus rufo-testaceus nitidus longe sed parce pubescens, prothorace transverso subtilissime et parce punctulato, ad latera minutissime subcrenulato, basi foveâ valde profundâ (extus subcostato-terminatâ) utrinque instructo, elytris vix distinctius punctulatis, singulo striâ suturali antice flexuosâ impresso, antennis pedibusque paulo pallidioribus.

Long. corp. lin. $\frac{7}{8}$–1.

Microchondrus domuum, Guérin, *in litt.*

Habitat in domibus Funchalensibus, rarissimus,—a meipso Novembri mense A.D. 1847 primo detectus: sed in Maderâ boreali, sub cortice arborum in castanetis Sanctæ Annæ, æstate A.D. 1850 paulo copiosiorem observavi.

M. ovate, obtuse both before and behind, rufo-testaceous, shining (especially the prothorax, which is brilliantly polished), and sparingly beset (more thickly so however towards the sides) with long pile. *Head* and *prothorax* almost impunctate (most minutely impressed and distant points being only just distinguishable even beneath the microscope): the *latter* broad, transverse, convex, and widest a short distance in front of its extreme base; with the edges rounded and a little recurved (and appearing beneath a high magnifying power to be most obscurely subcrenulated); and deeply impressed on either side behind with a large fovea, which is abruptly terminated towards the base of its *outer* limit by a slightly raised line, or costa (which however is apparent only when the insect is viewed obliquely). *Elytra* broad at the base, and with the lateral margins about the shoulders slightly and very narrowly recurved; the punctures larger and rather more evident than those of the head and prothorax, but with no tendency whatsoever to be disposed in rows; and with an impunctate stria on each alongside the suture,—and parallel to it, except in

front where it is considerably curved outwards. *Antennæ* and *legs* a little paler than the rest of the surface, being testaceous.

Independently of the *structural* characters already enumerated, the present insect may be at once known from the common *Mycetæa hirta*, to which in many respects it is so nearly allied, by its broader and less acuminated outline (especially posteriorly), by its shorter, wider and more shining prothorax (on which the raised sublateral costa, which is so conspicuous in that genus, is but faintly expressed by a small, obscure, and exceedingly abbreviated ridge on either side behind), and by its very much less sculptured surface,—its elytra (which are broad at their base, and have a distinct sutural stria on each) displaying moreover no tendency whatsoever to have their punctures even longitudinally disposed, and, therefore, *à fortiori*, of being deeply and regularly punctate-*striated* as in *Mycetæa*. It is apparently exceedingly rare, subsisting, for the most part, about, or in the immediate vicinity of dwellings. I first captured it, in November of 1847, in a house in Funchal: and in the summer of 1850 several specimens occurred to me beneath the bark of an old Spanish chestnut-tree in the north of the island,—in Senhor Louiz Acciaioly's vineyard at Santa Anna.

Genus 68. TYPHÆA.

(Kirby) Steph. *Ill. Brit. Ent.* iii. 70 (1830).

Corpus parvum, oblongum, valde pubescens: *prothorace* transverso, postice lato elytris arcte applicato: *alis* amplis. *Antennæ* capitis prothoracisque longitudine, clavatæ pilosæ, articulis primo et secundo longitudine subæqualibus (illo robusto subgloboso), tertio graciliore, inde ad octavum longitudine leviter decrescentibus latitudine crescentibus, reliquis clavam magnam laxam elongatam perfoliatam triarticulatam efficientibus (nono et decimo subpoculiformibus, ultimo subovato basi truncato). *Labrum* transversum, antice vix integrum ciliatum. *Mandibulæ* validæ, apice acutæ bifidæ, intus late emarginatæ et membranâ tenuissimâ auctæ. *Maxillæ* bilobæ: *lobo externo* magno, apice dilatato valde pubescenti: *interno* breviore angusto, apice pubescenti-pencillato. *Palpi maxillares* articulo primo parvo, secundo et tertio longioribus crassis subæqualibus, ultimo elongato subfusiformi apice oblique truncato: *labiales* articulo primo minuto, secundo paulo longiore subclavato, ultimo elongato fusiformi apice recte truncato. *Mentum* subquadrato-transversum, apice integrum. *Ligula* ampla lata cornea, apice pubescens vix emarginata. *Pedes* graciles pilosi: *tibiis* setosis et apicem versus parce spinulosis, *anticis* vix rectis apice leviter dilatatis: *tarsis* 4-articulatis (*anticis* in maribus 3-articulatis) filiformibus, in utroque sexu articulo primo (præsertim in *posticis*) longiusculo.

Typhæa (characterized wrongly by Stephens in 1830, and rightly by Curtis in 1838) is very nearly allied, in its structural details, to *Litargus*. It may however be known by its pallid hue, by its oblong and exceedingly pubescent body, and by its robust and corneous ligula. The basal joint of all its tarsi is much less elongated than in *Litargus*, whilst that of the front male pair is, likewise, not so broad. In its habits it is more fungivorous than subcortical; nevertheless it is often

found in flowers, and is very active on the wing. Like the following genus, it retains all the characters of the typical *Mycetophagidæ*.

158. Typhæa fumata.

T. oblonga testacea subnitida valde pubescens, prothorace transverso, elytris rugulosis piloso-seriatis, antennis pedibusque vix pallidioribus.

Long. corp. lin. $1\frac{1}{3}$.

Dermestes fumatus, Linn. *Syst. Nat.* ii. 564 (1767).
Mycetophagus fumatus, Gyll. *Ins. Suec.* iii. 399 (1813).
Typhæa testacea et *tomentosa*, Steph. *Ill. Brit. Ent.* iii. 71 (1830).
——— *fumata*, Curtis, *Brit. Ent.* xv. 702 (1838).
——— ———, Sturm, *Deutsch. Fna*, xix. 35. tab. 348 (1847).

Habitat Maderam, mihi non obvia; nuperrime a Dom. Rousset communicata.

T. oblong, testaceous, very slightly shining, and densely clothed with long and pale pubescence. *Head* and *prothorax* deeply punctured: the *latter* a little narrowed in front, but wide behind, where it is of the same breadth as the elytra, and closely applied to them. *Elytra* rather rough or wrinkled, obscurely punctured, the punctures having merely a very slight tendency to be disposed in rows; and with the pubescence very distinctly seriate. *Antennæ* and *legs* a little paler than the rest of the surface.

Apparently very rare (although abundant throughout the whole of Europe), having hitherto entirely escaped my own observations in the Madeira Islands. The only specimens which I have seen have been lately communicated to me by M. Rousset, to whom we are indebted for many additions to the entomological fauna of the group. There is a good deal of confusion regarding its synonymy, owing partially perhaps to the Linnæan *description* and *type* not altogether tallying. That the *Dermestes fumatus* is really however the present insect is evident from a specimen still in existence, with the original label attached to it, in the Linnæan collection,—as was also remarked by Gyllenhal, on the authority of Kirby, who, it would seem, likewise noticed the discrepancy between the diagnosis and its representative. The *Dermestes fumatus* of Marsham, although supposed both by himself and others to be the Linnæan species, is the *Mycetæa hirta* of European cabinets,—Marsham having apparently transcribed Linnæus's *description* and referred a wrong insect to it.

Genus 69. LITARGUS. (Tab. IV. fig. 5.)

Erichson, *Nat. der Ins. Deutsch.* iii. 415 (1848).

Corpus parvum, ellipticum, læte picto-variegatum: *prothorace* transverso, postice lato elytris arcte applicato: *alis* amplis. *Antennæ* capitis prothoracisque vix longitudine, clavatæ pilosæ, articulis primo, secundo et tertio longitudine subæqualibus (primo leviter robustiore, tertio graciliore subclavato), quarto ad octavum longitudine decrescentibus latitudine vix crescentibus, reliquis

clavam magnam laxam elongatam perfoliatam triarticulatam efficientibus (nono subquadrato, decimo subquadrato-transverso, ultimo subovato basi truncato). *Labrum* transversum, antice integrum parce ciliatum. *Mandibulæ* validæ, apice acutæ bifidæ, intus late emarginatæ et membranâ tenuissimâ auctæ. *Maxillæ* bilobæ: *lobo externo* magno, apice dilatato valde pubescenti: *interno* breviore minuto angusto, apice pubescenti-pencillato. *Palpi maxillares* articulo primo brevi flexuoso, secundo et tertio longioribus crassis subæqualibus, ultimo elongato subovato apice oblique truncato: *labiales* articulo primo minuto, secundo paulo longiore subclavato, ultimo elongato subfusiformi apice recte truncato. *Mentum* amplum subquadratum, apice integrum et leviter rotundatum. *Ligula* ampla lata membranacea, apice leviter emarginata pubescens ciliata. *Pedes* valde cursorii, graciles pilosi: *tibiis anticis* subrectis apice leviter dilatatis, *posterioribus* rectis extus setosis et (in specie Maderensi saltem) ad apicem ipsum pectinato-spinulosis: *tarsis* 4-articulatis (*anticis* in maribus 3-articulatis, articulo primo latiore), *posterioribus* filiformibus; *omnibus* in utroque sexu articulo primo elongato (in *anterioribus* ultimi longitudine sed in *posticis* ultimo multo longiore), secundo minore, tertio paulo breviore, ultimo subclavato *unguiculis* simplicibus munito.

The exceedingly elegant insect which represents the present genus in Madeira differs so widely from every other member of the Coleoptera with which we are here concerned, that even its *specific* characters would more than suffice to identify it. Nevertheless, it may be desirable to state that the main features which combine in separating *Litargus* from the rest of the *typical Mycetophagidæ* are, its entire eyes (which are not emarginated anteriorly, as is the case with those of *Mycetophagus* and *Triphyllus*), the triarticulated club of its antennæ, and its membranous and anteriorly-subemarginated ligula. It is the only normal genus of the *Mycetophagidæ* (the discovery of *Typhæa* being due to M. Rousset) which I have myself detected in these islands,—the construction of its tarsi, which are composed of three joints only in the anterior male pair, the remainder being quadriarticulate, entirely according with the family diagnosis as rigidly defined. The group was established by Erichson in 1848, to embrace, amongst other species (extra-European), the *Mycetophagus bifasciatus* of Fabricius, an insect by no means uncommon in Germany and France, and with which in all its purely structural details the one now under consideration strictly coincides. In external *facies* however there are a few particulars in which it recedes from it, such as, for instance, the basal angles of its pronotum *not* being produced, and its elytra being punctate-*striated*, as well as in the extreme apex of its four hinder tibiæ being fringed with minute spines;—but these are characters which can scarcely be looked upon as of generic signification, and hence I have no hesitation in regarding it as a true *Litargus*. The *Litargi* seem to be more peculiar to Mediterranean than to northern latitudes; and I have been informed by M. Leon Fairmaire, of Paris, that he has lately received two undescribed forms, somewhat allied to the *L. pictus*, from Sicily and Algeria.

159. Litargus pictus, *Woll.* (Tab. IV. fig. 5.)

L. ellipticus niger vel nigro-piceus subnitidus pubescens, prothorace brevi transverso, lateribus,

elytrorum punctato-striatorum maculis parvis fasciisque variis interruptis, antennarum basi pedibusque rufo-testaceis.

Long. corp. lin. *mas*, $1\frac{1}{3}$–$1\frac{7}{8}$: *fœm.* $1\frac{1}{2}$–**2.**

Habitat per partem Maderæ sylvaticam, inter 2000′ et 4000′ s. m., sub cortice arborum laxo non infrequens: specimen unicum etiam in horto Loweano prope Funchal (vespere volitans) deprehensi, —illic forsan e regione montanâ arboratoribus casu deportatum.

L. elliptical (or perhaps slightly more acuminated behind than before), black or piceous-black, slightly shining, and clothed with a short but robust pubescence. *Head* and *prothorax* deeply punctured: the *latter* narrowed in front but wide behind, where it is of the same breadth as the elytra and closely applied to them; the posterior margin nearly straight (the basal angles not being at all produced as in the typical *Litargi*); the edges, especially the lateral ones, more or less broadly and distinctly rufo-testaceous; with a deep fovea on either side of the hinder disk, which does not however extend to the posterior margin. *Elytra* deeply punctate-striated, and with the interstices minutely punctulated; with the lateral margins and a quantity of detached patches (which have rather the tendency to form an interrupted anterior, and a somewhat less broken postmedial, fascia) bright rufo-testaceous. *Antennæ at base*, and the *legs* testaceous; the *former* with their club (except the apical half of the terminal joint) darkly infuscated; and the *latter* with their hinder tibiæ sometimes a little dusky.

A truly indigenous and distinct *Litargus*, and by no means uncommon throughout the sylvan regions of Madeira between the limits of from 2000 to about 4500 feet above the sea. I have rarely observed it below the former of those altitudes; although I once detected a single specimen even in the immediate vicinity of Funchal (in the Rev. R. T. Lowe's garden at the Levada), attracted by the light of a candle into an open window, after twilight:—that specimen however, I have but little doubt was an accidental one, brought down perchance from the mountains through the agency of the wood-cutters, or by some other means equally the result of chance. It is found for the most part beneath the loose bark of trees,—under which circumstances I have taken it abundantly during the summer months in the districts of the Ribeiro Frio and the Fanal; as also, on the 18th of February 1849, in the Boa Ventura: and in July 1850 it was extremely plentiful at the Lombo dos Pecegueiros. In point of size, the males are a trifle smaller than the females; but, as regards rarity, both sexes would appear to be pretty evenly distributed, since out of forty-six specimens from which the above description has been compiled, twenty-five are males and twenty-one females. Although its habits are typically subcortical, it may be occasionally extracted from the very interior of soft decomposed wood,—a mode of life which would seem to be especially denoted in insects of an elliptical form; and which is carried to its maximum in such genera as *Plœosoma* and *Cerylon*, in which the unangular and boat-shaped bodies, so eminently adapted for *forcing*, rather than *gnawing* their way (like the, more cylindrical, *Xylophagi*) through a spongy, or porous medium, is still further qualified by the excessive smoothness of their surface, which offers, consequently, no resistance to their progress.

Fam. 17. DERMESTIDÆ.

Genus 70. DERMESTES.

Linnæus, *Syst. Nat.* ii. 561 (1767).

Corpus mediocre, oblongum, convexum: *prothorace* postice lato elytris arcte applicato, necnon in medio obtuse lobato: *alis* amplis. *Antennæ* breves (capite paulo longiores) clavatæ pilosæ, articulo primo subovato crasso, secundo ad septimum paulatim minutioribus vix subæqualibus, octavo brevi transverso subpatelliformi, reliquis clavam magnam ovatam triarticulatam efficientibus (ultimo antecedente angustiore minore). *Labrum* transversum, antice emarginatum ciliatum. *Mandibulæ* validæ curtæ crassæ, apice vix bidentatæ, intus ad basin emarginatæ et membranâ pilosâ auctæ. *Maxillæ* bilobæ: *lobo externo* lato, apice valde pubescenti: *interno* incurvo uncinato, intus ciliato. *Palpi maxillares*, articulo primo minuto, secundo et tertio majoribus subæqualibus, ultimo elongato subfusiformi apice truncato: *labiales* articulo primo minuto, secundo magno subclavato, ultimo majore subcylindrico. *Mentum* amplum, oblongum postice truncatum, apice vix emarginatum. *Ligula* ampla lata cordata. *Pedes* graciles retractiles: *tibiis* extus setoso-spinulosis, *anticis* subrectis apice versus leviter dilatatis, *posterioribus* rectis: *tarsis* articulis quatuor baseos subæqualibus.

The common genus *Dermestes* may be known by the thick, oblong forms of the insects which compose it, and which are almost equally rounded at either extremity, and are, most of them, more or less mottled with closely-set sericeous pile. The club of their antennæ is ovate and does *not* vary in the sexes, and the first four joints of all their tarsi are subequal. The species are found principally in skins, or amongst bones, furs, and other animal substances,—whether in a partially dried state or prepared by art; as likewise about larders, and in houses generally, where they often commit considerable damage.

160. Dermestes vulpinus.

D. oblongus niger subflavescenti-cinereo-pubescens, prothorace ad latera densius pubescenti; subtus niveo-villosus, segmento penultimo tuberculo medio rotundato piceo instructo, et ultimo vittâ mediâ nigrâ longitudinali latâ ornato necnon ad apicem (cum scutello) fulvo-pubescenti; elytro singulo ad apicem ipsum mucronato, antennarum basi pedibusque picescentibus.

Long. corp. lin. 3–4½.

Dermestes vulpinus, Fab. *Spec. Ins.* i. 64 (1781).
——— ———, Oliv. *Ent.* ii. 9. 8. pl. 1. fig. 6 (1790).
——— ———, Gyll. *Ins. Suec.* i. 147 (1808).
——— ———, Steph. *Ill. Brit. Ent.* iii. 123 (1830).

Habitat in urbe Funchalensi, ex alienis introductus: specimen unicum per aërem volitans autumno A.D. 1847 deprehensit Rev^dus^ Dom. Lowe.

D. oblong, black, slightly shining, closely and minutely punctulated all over, and clothed with a short yellowish-cinereous, or somewhat griseous pubescence. *Prothorax* with the pubescence towards

the sides longer, much denser, and slightly paler than that of the elytra,—the disk being almost denuded. *Body beneath* densely beset with snowy-white pubescence, with a black, subdenuded marginal spot at either lateral edge of each of the abdominal segments, with a round piceous tubercle in the centre of the penultimate one, and with a broad longitudinal dark subglabrous vitta on the ultimate one,—the apex of which is more or less beset (like the *scutellum*) with a fulvescent, or golden-brown pile. *Antennæ* and *legs* picescent,—the basal portion of the *former*, and the tarsi of the *latter* being paler, or more rufescent.

An insect almost cosmopolitan in its distribution, being a universal attendant on commerce throughout the civilized world. It abounds amongst merchandise of various kinds in Europe and America, and it was captured by Dr. Horsfield in Java. I have seen hitherto but a single Madeiran specimen,—which was taken in Funchal, on the wing, by the Rev. R. T. Lowe in the autumn of 1847; but as it is manifestly an imported species, no very great interest can attach to it,—since it would probably be found in sufficient numbers were the proper localities investigated which its destructive habits render but too necessary for its sustenance.

Genus 71. ATTAGENUS.

Latreille, *Gen. Crust. et Ins.* ii. 32 (1802).

Corpus sat parvum, ovale, convexum: *prothorace* postice lato elytris arcte applicato, necnon in medio sæpius subacute lobato: *alis* amplis. *Antennæ* breviusculæ clavatæ pilosæ, articulo primo subovato crasso, secundo minore subgloboso, inde ad septimum minutis longitudine vix decrescentibus, octavo brevi transverso paulo latiore, reliquis clavam magnam elongatam triarticulatam efficientibus, ultimo in mare elongatissimo, in fœminâ ovato basi truncato, in utroque sexu antecedente multo longiore. *Labrum* transversum, antice integrum ciliatum. *Mandibulæ* validæ curtæ crassæ, apice denticulatæ, intus ad basin integræ et membranâ ciliatâ angustâ auctæ. *Maxillæ* bilobæ: *lobo externo* lato, apice valde pubescenti: *interno* incurvo uncinato, intus ciliato. *Palpi maxillares* articulo primo minuto, secundo et tertio majoribus (illo hoc paulo longiore), ultimo elongato fusiformi apice acuminato-subtruncato: *labiales* articulo primo minuto, secundo majore crassiore, ultimo elongato fusiformi apice acuminato-subtruncato. *Mentum* amplum, subquadratum antice angustatum, apice leviter productum. *Ligula* ampla lata cordata. *Pedes* graciles retractiles: *tibiis* extus seriato-spinulosis, *anticis* subrectis apicem versus leviter dilatatis, *posterioribus* rectis: *tarsis* articulo primo minuto, secundo in *posterioribus* elongato.

The *Attageni* may be readily known from *Dermestes* by their smaller size, by the hinder margin of their prothorax being usually more acutely produced, or sinuated, in the centre, and by the proportions of their antennæ and trophi,—the former of which are dissimilar in the sexes, whilst the latter differ in having the upper lip entire, the mandibles less emarginated at their inner base, and the terminal joint of the palpi longer and more acuminated than is the case in that group. The four hinder feet, moreover, of *Attagenus* have their second joint much more elongated than (the ultimate one, of course, excepted) any of the remainder,—a character indeed which at once separates it from the other genera of the *Dermestidæ*.

161. Attagenus megatoma.

A. ovalis piceo-niger, supra nigro-, infra subcinereo-flavescenti-pubescens, antennarum basi pedibusque rufo-ferrugineis.

Mas, antennarum articulo ultimo elongato subcylindrico.

Long. corp. lin. $1\frac{2}{3}$–2.

Dermestes megatoma, Fab. *Ent. Syst.* v. *Suppl.* 71 (1798).
———— ————, Dufts. *Fna Austr.* iii. 40 (1825).
Attagenus megatoma, Sturm, *Deutsch. Fna*, xix. 76. tab. 355. fig. *c* (1847).
———— ————, Erich. *Nat. der Ins. Deutsch.* iii. 441 (1848).

Habitat in domibus Maderæ, rarissimus: duo specimina a Dom. Heinecken olim capta amicissime communicavit Rev^dus^ Dom. Lowe.

A. short, oval, slightly shining, piceous-black, very closely and minutely punctulated all over (less distinctly so however than the *D. vulpinus*), and clothed (above) with a black pubescence. *Body beneath* more or less densely beset with a somewhat ashy-yellow pubescence. *Antennæ* and *legs* rufo-ferruginous; the *former* with their club somewhat darker.

Two specimens only of this insect have hitherto come beneath my notice,—which were captured many years ago (probably in Funchal) by the late Dr. Heinecken, from whose collection they were presented to me by the Rev. R. T. Lowe. Being extremely old, and in a somewhat imperfect state, they are not very satisfactory subjects for examination: nevertheless I have no doubt but that they are correctly referred to the *A. megatoma* of European cabinets,—from Silesian examples of which in my possession they do not appear at all to differ, unless indeed it be that their blackness is slightly less intense (the result perchance of immaturity,—and answering to the *var.* β. of Duftschmidt's *Fauna Austriaca*), and that their prothorax is perhaps just perceptibly shorter than is there the case. Like most of the *Dermestidæ*, it is a species liable to transmission with merchandise; so that it has consequently obtained for itself a wide geographical range,—being recorded by Erichson from Syria, North America, and the West Indian Islands*.

Genus 72. ANTHRENUS.

Geoffroy, *Hist. des Ins.* i. 113 (1764).

Corpus parvum, fere orbiculatum (subtus valde convexum), squamis deciduis variegatum: *capite* parvo inflexo, ad prosternum applicando, et ocello frontali instructo: *prothorace* postice lato elytris arcte

---

* In Dejean's Catalogue there is an insect quoted as coming from Madeira, under the name of *Nosodendron Maderense*, Faldermann, and given as a synonym of the *Attagenus obtusus* of Gyllenhal. I possess specimens of the true *A. obtusus* (Schönherr) from Algeria, which are altogether distinct from the present species; and since I have no reason to believe that any *Attagenus*, except the *megatoma*, has hitherto occurred in Madeira, I should be inclined to suspect that some mistake has arisen in either the identification or the locality of Faldermann's insect.

applicato, necnon in medio acute lobato (*i. e.* in angulum medium producto): *scutello* minutissimo, ægre observando: *alis* amplis. *Antennæ* brevissimæ (capitis longitudine) clavatæ, in foveâ sub margine prothoracis inter otium repositæ, articulis primo et secundo robustis, inde ad octavum minutis subæqualibus, reliquis clavam magnam subsolidam triarticulatam efficientibus. *Labrum* transversum, antice integrum, rotundatum ciliatum. *Mandibulæ* validæ curtæ arcuatæ acutæ. *Maxillæ* bilobæ: *lobo externo* pubescenti: *interno* setaceo, intus ciliato. *Palpi* filiformes, articulo ultimo cylindrico apice truncato. *Mentum* amplum, subquadratum antice angustatum, apice vix emarginatum. *Ligula* lata cordata. *Pedes* breves gracillimi retractiles: *femoribus tibiis*que (insecto quieto) corpori arcte applicandis: *tarsis* liberis, articulis quatuor baseos subæqualibus.

Anthrenus is supposed to constitute a passage between the present family and the *Byrrhidæ*, agreeing with the former in the structure and habits of its larvæ, and in the squamose, variegated surface and slender limbs of its imago; whilst in the contractility of its legs and antennæ (which is more perfect than in the remainder of the *Dermestidæ*,—albeit not *complete*, since the tarsi are free), and in its general subglobose contour it assimilates the latter. In their modes of life moreover the species are, likewise, somewhat intermediate between *Dermestes* and *Byrrhus*, being found not only amongst skins, bones, furs, &c., but also in the open country on the flowers of *Umbelliferæ*, or even, occasionally, like the true *Byrrhi*, adhering to the undersides of stones in grassy spots.

162. Anthrenus varius.

A. suborbiculatus niger vel fusco-niger et squamis luteis variegatus, prothorace circa angulos posticos necnon ad angulum ipsum medium niveo-squamoso, elytris fasciis tribus undatis (plus minusve distinctis) niveo-squamosis ornato; subtus squamis niveis densius tectus; antennis pedibusque nigris.

Long. corp. lin. 1–1½.

Anthrenus Verbasci, Oliv. (*nec* Linn. 1767) *Ent.* ii. 14. 7. pl. 1. fig. 2 *a–d* (1790).
——— *varius*, Fab. *Ent. Syst.* i. 262 (1792).
——— ———, Sturm, *Deutsch. Fna*, ii. 127 (1807).
——— *Verbasci*, Heer, *Fna Col. Helv.* i. 441 (1841).
——— *varius*, Erich. *Nat. der Ins. Deutsch.* iii. 455 (1848).

Habitat Maderam australem, circa domos vel inter flores in hortis Funchalensibus, tempore vernali vulgaris.

A. suborbicular, black or brownish-black, and with the entire upper surface more or less densely clothed with luteous or golden-yellow scales. *Prothorax* with the region about the hinder angles, and a minute spot at the central angle of the posterior margin with the scales more or less snowy-white. *Elytra* with three transverse, flexuous, or zigzag fasciæ (sometimes a good deal interrupted, and occasionally altogether obliterated), likewise, composed of white scales. *Body beneath* with the scales very thickly set, and almost entirely white,—a small basal space at either lateral edge of each of the abdominal segments (near which there are indications, also, of a few scattered yellowish scales) being alone dark. *Antennæ* and *legs* black.

Much confusion seems to have arisen in the synonymy of the *Anthreni**,—owing partially perhaps to the perishable nature of their scales, and their consequent liability to become more or less denuded of them, under which circumstances many of the species exhibit, *primâ facie*, but slight differences from each other. When in that condition the *A. varius* and *museorum* might be almost confounded *inter se*, did not other characters than the arrangement of their pubescence exist to separate them. In all instances, however, the entirely black legs and antennæ of the former will, apart from its rather larger size and its *normal* tendency to be more densely clothed with golden-yellow scales, serve to distinguish it from the latter. The present insect is very abundant at times in the vicinity of Funchal,—particularly in gardens during the spring, where it may be often observed in the flowers of the common monthly rose: and in April of 1851 it was captured by Professor Heer from the blossoms of apple-trees. It is universally distributed over Europe, and occurs likewise in the Canary Islands.

Sectio V. CORDYLOCERATA.

Fam. 18. BYRRHIDÆ.

Genus 73. SYNCALYPTA.

(Dillwyn) Steph. *Ill. Brit. Ent.* iii. 133 (1830).

Corpus minutum, orbiculato-ovatum, convexum, plus minusve tomentosum setisque rigidis adspersum: *capite* retracto inflexo, ad prosternum applicando: *prothorace* postice lato elytris arcte applicato; *prosterno* antice producto: *alis* (in speciebus Maderensibus) obsoletis. *Antennæ* breves (capite paulo longiores) clavatæ, in foveâ prosterni inter otium repositæ, articulis primo et secundo robustis subcylindricis, inde ad octavum (in speciebus typicis minutis subæqualibus, sed in nostris) longitudine decrescentibus, reliquis clavam magnam subsolidam triarticulatam efficientibus (nono parvo transverso, decimo majore, ultimo maximo globoso vel ovato). *Labrum* breve transversum. *Mandibulæ* curtæ, apice denticulatæ, intus basi profunde sinuatæ. *Maxillæ* bilobæ:

---

* The *Anthrenus* with which we are here concerned has usually stood under the name of *Verbasci*, Linn., having been supposed to be identical with the *Byrrhus Verbasci* of the *Systema Naturæ* (A.D. 1767),—which in reality however is a totally different insect. In point of fact, Olivier was the first to characterize it (in 1790); but since he fell into the error (which has since been generally endorsed) of referring it to the *B. Verbasci* of Linnæus, his description, so far at least as the name is concerned, becomes void, and we are compelled to accept the Fabrician one of *varius* (published in 1792) instead. Linnæus's *Byrrhus Verbasci* is (as rightly conjectured by Erichson) the *Attagenus trifasciatus* of modern authors (which title it ought therefore, in right of priority, to supersede),—as may be seen by a reference to the Linnæan collection, where there are two well-preserved specimens still in existence of the *B. Verbasci*, with the original label attached to them, differing in no respect from the *Attagenus trifasciatus* of later times.

lobo externo ovato pubescenti: *interno* angustiore, intus ciliato. *Palpi maxillares* articulo ultimo fusiformi apice acuminato. *Mentum* ad basin, ad apicem, necnon ad latera emarginatum, angulis omnibus acutis. *Ligula* brevis, apicem versus angustata bifida. *Pedes* breves robustissimi, omnino retractiles (i. e., insecto quieto, corpori arcte applicati): *tibiis* latis compressis: *tarsis* longiusculis, articulis quatuor baseos longitudine leviter decrescentibus.

The genus *Syncalypta*, containing the minims of the *Byrrhidæ*, may be known by the minute, hispid bodies of the insects which compose it, and by the abrupt triarticulated club of their antennæ. It is a group purely European, and of small extent, embracing (hitherto) four or five species only, which seem to be nowhere abundant. In Madeira it is represented by three closely allied forms, which recede from the more northern types in being invariably apterous. They reside for the most part beneath stones on the grassy mountain-slopes of a high elevation, and are, apparently, somewhat rare.

163. Syncalypta capitata, *Woll.*

S. ovata nigra setis rigidis adspersa, prothorace crebre punctato, elytris punctato-striatis, pedibus rufo-piceis, antennarum ferruginearum clavâ testaceâ magnâ subglobosâ.

Long. corp. lin. $1\frac{1}{2}$.

Habitat sub lapidibus in montibus Maderæ, rarissima;—prope summum montem Pico dos Arieros dictum (circa 5500′ s. m.) autumno A.D. 1848 a meipso reperta.

S. ovate (being rather acuminated behind), slightly shining, black, more or less besprinkled with a decumbent cinereous pubescence, and with erect rigid bristles intermixed. *Head* and *prothorax* very obscurely picescent, and closely punctulated. *Elytra* punctate-striated, but more lightly so than in either of the following species. *Legs* rufo-piceous. *Antennæ* ferruginous; with their *club* testaceous, large and subglobose.

Known from the following two by its superior size, less deeply striated elytra, and by the large, abrupt and rounded club of its antennæ. It is apparently extremely rare, the only specimen which I have seen having been captured by myself, from beneath a stone, in the lofty upland region immediately below the summit of the Pico dos Arieros (about 5500 feet above the sea), during the autumn of 1848.

164. Syncalypta ovuliformis, *Woll.*

S. ovata nigra setis rigidis adspersa, prothorace crebre punctato, elytris profunde striato-punctatis, pedibus rufo-piceis, antennarum ferruginearum clavâ testaceâ ovatâ.

Long. corp. lin. $1\frac{1}{3}$.

Habitat in iisdem locis ac præcedens, sed illâ paulo frequentior.

S. rather smaller than the *S. capitata*, and with the bristles perhaps not quite so dense, or so robust.

Head and *prothorax* as in that insect, though with the punctures appearing, beneath the microscope, to be just perceptibly less deep. *Elytra* deeply striate-punctate, the punctures being more evident than in that species,—as also (on account of the striæ being less deep) than those of the following one (even though they are not so large). *Antennæ* and *legs* as in the *S. capitata*, except that the *club* of the former is smaller, more ovate and less abrupt.

Apparently the most common of the Madeiran *Syncalyptæ*, though at the same time far from abundant. It may be distinguished from the *S. capitata* by its smaller size, more deeply punctured elytral striæ, and by the less abrupt and more ovate club of its antennæ;—whilst from the following species its less rounded outline and different sculpture will equally remove it. I have taken it sparingly, during the autumnal and winter months, beneath stones, on the grassy mountain-slopes between the Fonte das Moças and the Pico dos Arieros (upwards of 5000 feet above the sea); and in July of 1850 I even captured it, at the Feijãa de Córte, beneath the loosely attached bark of trees,—a position however into which it had evidently retreated by mere accident.

165. Syncalypta horrida, *Woll.*

S. brevi-ovata nigra setis valde rigidis adspersa, prothorace remote punctato (punctis magnis), elytris profunde punctato-striatis, pedibus rufo-piceis, antennarum ferruginearum clavâ testaceâ.

Long. corp. lin. $1\frac{1}{8}$.

Habitat sub lapidibus Portûs Sancti, in locis inferioribus arenosis;—prope oppidum tempore hiberno A.D. 1848 detecta.

S. shorter than either of the preceding species, being less perceptibly acuminated behind,—but with the erect setæ rather more closely set and distinctly robuster, being exceedingly rigid. *Head* and *prothorax* as in those insects; except that the *latter* is much less densely punctured, and with the punctures themselves very much larger. *Elytra* deeply punctate-striated, the striæ being deeper than those of the last species,—and with the punctures rather larger, though perhaps (from being more deeply immersed) scarcely so apparent. *Legs* rufo-piceous. *Antennæ* ferruginous, with their *club* a little paler.

The present species may be easily recognized from the previous two by its smaller size and shorter outline, by the deeper, more distant, and very much larger punctures of its prothorax, and by its more coarsely striated elytra,—the punctures of which are, likewise, exceedingly large, though, on account of the depth of the striæ in which they are immersed, not *proportionably* evident. It is hitherto unique, the specimen from which the above description has been drawn out having been captured by myself in Porto Santo, from beneath a stone in the immediate vicinity of the town, during the winter of 1848;—thus receding in its habits altogether from the other *Syncalyptæ* here described, the range of which is the grassy slopes of the loftiest altitudes.

Fam. 19. HISTERIDÆ.

Genus 74. HISTER.

Linnæus, *Syst. Nat.* ii. 566 (1767).

Corpus mediocre, plus minusve oblongo-quadratum, durum, glaberrimum: *capite* retracto: *prothorace* postice lato elytris arcte applicato, mox intra latera striato; *prosterno* antice in lobum corneum (capitis basin inferiorem obtegentem) producto: *elytris* ad apicem truncatis, striis subrectis (omnino vel fere integris) impressis: *alis* modo amplis, modo obsoletis. *Antennæ* breves (capite vix longiores) capitatæ geniculatæ, articulo primo elongatissimo robusto flexuoso, in foveâ sub margine capitis inter otium reposito, funiculo (*i. e.* articulis inter basalem et clavam sitis,—in hoc genere ex articulis septem composito) apicem versus paulatim incrassato, reliquis capitulum magnum solidum ovale triarticulatum efficientibus. *Labrum* subquadratum marginibus valde ciliatis, antice sæpius integrum, sed interdum (ut in specie nostrâ) in medio profunde fisso-emarginatum. *Mandibulæ* magnæ validæ incurvæ exsertæ, interdum inæquales, infra apicem sæpius dente valido instructæ, ad basin sinuatæ et pubescentes. *Maxillæ* bilobæ: *lobo externo* elongato recto, intus et apice valde pubescenti: *interno* brevi pubescenti membranaceo, intus valde ciliato. *Palpi* filiformes; *maxillares* articulo primo parvo, reliquis longitudine subæqualibus (secundo et tertio flexuosis subclavatis, ultimo fusiformi); *labiales* e scapis ligulæ connatis surgentes, articulo primo parvo, secundo majore crassiore, ultimo elongato subfusiformi. *Mentum* transverso-subquadratum pilosum, apice leviter emarginatum. *Ligula* bipartita valde pilosa, lobis longis divergentibus membranaceis. *Pedes* validi retractiles: *tibiis* latis compressis, extus plus minusve fortiter dentatis (*posterioribus* necnon seriatim spinulosis): *tarsis* filiformibus (*anticis* subreceptis), articulis quatuor baseos longitudine subæqualibus.

The members of the present family,—whose power of contracting their limbs, and thus counterfeiting death, is so great as to have gained for them the popular appellation of "Mimic-Beetles," and the generic name of *Hister*,—are almost too well known to require comment. Their hard, subquadrate, highly-polished bodies and usually deep black hue, in conjunction with the excessive robustness of their strongly-spined legs, are in admirable accordance with their darkling nature and eminently burrowing propensities,—the species residing principally in putrescent substances (both animal and vegetable), which they assist in decomposing and help therefore materially to remove. The representatives of the typical genus (the one now under consideration) may, apart from their external configuration and superior size, be known from the *Paromali* and *Saprini* by the structure of their antennæ,—which have the scape (though elongated and flexuose) less strictly clavated, and the funiculus (instead of being filiform) gradually and regularly thickened towards its apex,—by the last three joints of their maxillary palpi being of nearly similar length, by their prothorax being impressed with one or more longitudinal lines towards either of its lateral edges, and the striæ of their elytra being either altogether entire or else but very slightly abbreviated behind. In their anteriorly produced prosterna and dentate mandibles they coincide with *Paromalus*; whilst in the formation of their inner maxillary lobe, in the subequal

articulations of their feet, as well as in their general habits, they are more intimately related to *Saprinus*. It is somewhat remarkable that a group so widely and uniformly distributed throughout northern and central latitudes as *Hister* is, and indeed over a great portion of the known world, should be but sparingly indicated in islands only just removed from the European continent; for in Madeira proper not so much as a single species has hitherto come beneath my notice,—a solitary specimen of the *H. major*, from the sea-shore of Porto Santo, constituting its sole claims to admission into our fauna at all.

166. Hister major.

H. oblongo-subquadratus ater nitidissimus, prothorace intra latera unistriato necnon ad latera pilis fulvis dense ciliato, elytro singulo striis quatuor (tribus fere rectis sed externâ flexuosâ fractâ) impresso, abdomine crebre punctulato, antennarum articulo ultimo fulvo.

Long. corp. lin. $5\frac{1}{2}$.

Hister major, Linn. *Syst. Nat.* ii. 566 (1767).
—— ——, Fab. *Ent. Syst.* i. 72 (1792).
—— ——, Payk. *Mon. Hist.* 11. tab. ii. fig. 3 (1811).
—— ——, Heer, *Fna Col. Helv.* i. 452 (1841)

Habitat per oram maritimam Portûs Sancti, semel tantum (A.D. 1848) repertus.

H. somewhat squarish-oblong, intense black, exceedingly highly polished, and with the faintest possible indications (rather more apparent however towards the sides) of minute punctures throughout. *Prothorax* with a deep submarginal stria on either side, and with the lateral and front edges (particularly the former) densely fringed with long fulvous pile; and with a row of punctures along the extreme hinder margin,—which however are almost evanescent in the middle, though extremely evident midway between the centre and sides. *Elytra* very obliquely truncated behind; and with four somewhat lightly impressed striæ down the outer disk of each, extending nearly to the apex,—of which the three inner ones are nearly straight, and that towards the margin greatly flexuose, and broken in the centre by a small oblique intersecting line. *Abdomen* closely and rather deeply punctulated. *Antennæ* slightly piceous, with their apical joint fulvous.

The deeply bilobed upper lip of this large and well-marked *Hister*,—in which it recedes from the ordinary generic type,—in conjunction with the bright fulvous pile with which the edges of its prothorax are densely fringed, will at once serve, even alone, to identify it from the remainder of the family here described. The only specimen which has hitherto come under my observation in these islands was captured by myself on the beach of Porto Santo, in 1848. It is an insect which does not appear to be found in northern Europe, being more especially peculiar to maritime spots of Mediterranean latitudes. In the south of France and Spain it is exceedingly common; and it occurs also in the north of Africa and in the Canarian group: and it is recorded by Linnæus as having been received even from India.

Genus 75. PAROMALUS.

Erichson, *in Klug Jahrb.* i. 167 (1834).

Corpus parvum, plerumque quadrato-rotundatum, durum, glaberrimum: *capite* retracto: *prothorace* postice lato elytris arcte applicato, latera versus haud striato; *prosterno* antice in lobum corneum (capitis basin inferiorem obtegentem) producto: *elytris* ad apicem recto-truncatis, striis subrectis (fere integris) sæpius impressis: *alis* amplis. *Antennæ* breves (capite vix longiores) capitatæ geniculatæ, articulo primo elongatissimo robusto flexuoso clavato, in foveâ sub margine capitis inter otium reposito, funiculo subfiliformi (articulis primo et ultimo majoribus, illo sat elongato, hoc latiore transverso), reliquis capitulum magnum solidum ovale triarticulatum efficientibus. *Labrum* transversum, antice integrum vix ciliatum. *Mandibulæ* magnæ validæ incurvæ exsertæ, infra apicem dente valido instructæ, ad basin latæ pubescentes. *Maxillæ* bilobæ membranaceæ: *lobo externo* elongato, intus et apice valde pubescenti: *interno* brevi angusto, apice incurvo uncinato, intus valde ciliato. *Palpi* filiformes; *maxillares* articulo primo parvo, secundo et tertio majoribus crassioribus æqualibus, ultimo elongato fusiformi basi truncato: *labiales* e scapis ligulæ connatis surgentes, articulo primo parvo, secundo majore crassiore subclavato, ultimo elongato fusiformi basi subtruncato. *Mentum* parvum, apice fisso-emarginatum. *Ligula* bipartita valde pilosa, lobis longis divergentibus membranaceis. *Pedes* validi retractiles: *tibiis* leviter incurvis, compressis, modo angustioribus modo latiusculis, extus (præsertim *anticis*) plus minusve eroso-subdentatis (*posticis* fere integris): *tarsis* filiformibus longiusculis (*anticis* subreceptis), articulo primo elongato.

Apart from the minute bulk of the few insects which unite in composing it, *Paromalus* may be known from *Hister* proper by the proportions of its antennæ (of which the scape is comparatively more robust and clavated, and the funiculus much more filiform, than is the case in that genus), by the smaller, narrower, and more uncinated inner lobe of its maxillæ, by the second and third articulations of its maxillary palpi being far shorter than the ultimate one, and by the somewhat different construction of its mentum, tibiæ and tarsi,—the last of which have their basal joint distinctly longer than (the fifth excepted) any of the rest*. It is in their habits however, more than in their structure, that the *Paromali* recede from the *Histri* and *Saprini*, since they are scarcely ever found, so far as I am aware, either in carrion or dung (the especial haunts of the latter), but in fungi, beneath the bark and moss of trees, or adhering to the under sides of stones even in the open country,—a position which may perhaps be partially accounted for by the fact, which has more than once been recorded, that some of the species occasionally

* *Paromalus* approaches very closely to the genus *Dendrophilus*, from which perhaps it is scarcely sufficiently distinct; nevertheless, since it has been separated therefrom by Erichson, I have not ventured to re-amalgamate them. After a careful dissection however of the two Madeiran *Paromali*, and also of a specimen of *Dendrophilus punctatus* (from Berlin), it appears to me that the only points in which the former recede from the latter are, first, in the somewhat longer and less robust scape, and the more oval club, of their antennæ; and, secondly, in the structure of their tibiæ, which are a little incurved, and not quite so broad,—nor are they obliquely truncated towards their external base (a peculiarity which,—though but faintly expressed in the anterior pair,—is exceedingly evident in the four hinder tibiæ of the *Dendrophili*; and which gives them the appearance of being slightly angulated about the middle of their outer edge).

associate with Ants. The second however of the two representatives described below would appear to be aberrant in this respect, occurring, like the true *Histri*, amongst putrescent substances,—of an animal as well as a vegetable nature.

§ I. *Corpus subquadrato-rotundatum: tibiis angustioribus, extus leviter eroso-subdentatis: tarsis articulo primo valde elongato.*

167. Paromalus minimus.

P. niger nitidus undique crebre punctulatus, elytro singulo striis quatuor (internâ minus profundâ, postice abbreviatâ sed antice fere ad suturam incurvâ) impresso, abdomine crebre punctulato, antennis pedibusque rufo-piceis.

Long. corp. lin. $\frac{3}{4}$.

Hister minimus, Dej. *Cat.* (edit. 1) (1821).
Dendrophilus punctatus, Steph. (nec *Ent. Hefte*) *Ill. Brit. Ent.* iii. 159 (1830).
———— *minimus*, Dej. *Cat.* (edit. 3) 143 (1837).
Paromalus minimus, Aubé, *Ann. de la Soc. Ent. de France* (2ième série) viii. 322 (1850).

Habitat sub lapidibus Maderæ, præsertim in clivis graminosis inter 2000′ et 4500′ s. m., hinc inde parum vulgaris,—formicarum nidos, nisi fallor, interdum colens.

P. small and nearly round, black, often with a piceous tinge (especially on the prothorax), shining, and closely punctulated* all over,—the punctures being rather larger on the elytra, and towards the hinder portion of the prothorax, than in front. *Elytra* with their *extreme* apex picescent; and with four impressed and obscurely punctate striæ down the outer disk of each, slightly abbreviated behind,—especially the inner one, which is moreover very much fainter than the rest, and incurved in front (where it has the appearance, beneath the microscope, of being regularly and curiously undulated, or zigzaged) nearly to the suture, where it is suddenly terminated at a short distance from the scutellum. *Abdomen* closely and finely punctulated. *Antennæ* and *legs* rufo-piceous; the *former* with their club a little paler.

A very distinct little *Paromalus*; and known at once by its minute, rounded, and densely punctulated body, and by the innermost of its *four* elytral striæ being exceedingly lightly impressed, and arcuated in front almost to the suture. It is rather a common insect throughout Madeira, occurring for the most part under stones in grassy spots, between the limits of from 2000 to about 4500 feet above the sea. On most of the mountain-slopes above Funchal I have taken it in tolerable abundance, and at all seasons of the year; as also in exposed positions at Camacha, and on the Paul da Serra, in July. It is a species of central and Mediterranean latitudes, being recorded in France, Spain, Sicily and Algeria; and I have, likewise, captured it along the southern shores of England and Wales,

* This sculpture, when viewed beneath a high magnifying power, is of a very peculiar nature, the spaces between the larger punctures being uniformly studded (especially on the elytra) with *fasciculi* of excessively minute impressions,—each fasciculus, or cluster, being usually composed of about *three* of these microscopic points, of which the central one is the largest.

and on one occasion even so far north as Lincolnshire. Dr. Aubé states that he has found it beneath dried *animal* remains near Paris; but I have not, myself, ever observed it in such situations,—though I think it far from improbable that it may be an attendant, at certain times, within the nests of Ants.

§ II. *Corpus subquadrato-oblongum: tibiis latiusculis, extus profunde eroso-subdentatis: tarsis articulo primo leviter elongato.*

168. Paromalus pumilio.

P. ater nitidissimus, prothorace versus latera parce punctulato (punctis magnis sed haud profundis) necnon per marginem ipsum posticum seriato-punctato, elytris ad apicem punctulatis, singulo striis septem profundis (suturali antice abbreviatâ) punctatis impresso, abdomine subremote punctulato, antennis pedibusque picescentibus.

Long. corp. lin. 1–1¼.

Paromalus pumilio, Erich. *in Klug Jahrb.* i. 169 (1834).

Habitat in marcidis Maderæ australis, mihi non obvius: per oram Funchalensem maritimam primus collegit Dom. Rousset, qui plurima specimina nuper communicavit.

P. larger than the *P. minimus*, squarish-oblong, of an intenser black, and much more brilliantly polished. *Prothorax* much broader in front than in that insect, almost unsculptured on the disk, but with large (though shallow) and distant punctures towards the sides; and with a row of distinct punctures along the *extreme* hinder margin,—of which the central one is slightly advanced and the most apparent. *Elytra* with their extreme apex picescent and besprinkled with large shallow punctures; and with seven deeply-impressed and distinctly punctate striæ down each, extending almost to the extreme apex,—though with the inner, or sutural one considerably abbreviated in front. *Abdomen* more sparingly punctured than in the last species,—the punctures however being large, though exceedingly shallow. *Antennæ* and *legs* somewhat darker, or less rufescent, than those of the *P. minimus*.

Readily distinguished from the *P. minimus* by its larger size, less rounded, or somewhat squarish-oblong outline, by its more brilliant, intensely black, and less punctulated surface, and by the seven very deep and distinctly punctured striæ with which its elytra are impressed. It is an insect which I have not, myself, detected in the Madeira Islands,—the discovery of it being due to M. Rousset, who informs me that it occurs abundantly (in company with *Dactylosternum Roussetii*, *Aphodius obcœnus*, and *Oxyomus sabulosus*) beneath stones, amongst animal and vegetable rejectamenta, on the sea-beach of Funchal, especially at the outlets of the filthy drains which carry off the refuse of the town below the church of Nossa Sen^{a} do Calhão, towards the St. Jago Fort. It does not appear to be a species of very general European distribution: I possess however specimens from Berlin, given to me by Dr. H. Schaum, which differ in no respect from the

Madeiran ones, except that the single row of punctures along the extreme hinder margin of their prothorax is rather less evident.

Genus 76. SAPRINUS.

Erichson, *in Klug Jahrb.* i. 172 (1834).

Corpus mediocre, plus minusve ovato-quadratum (lateribus plerumque leviter undulatis), durum, glaberrimum, sæpius punctatum: *capite* retracto: *prothorace* postice lato elytris arcte applicato, latera versus haud striato: *prosterno* antice lobo nullo instructo: *elytris* ad apicem truncatis, striis obliquis (postice valde abbreviatis) impressis: *alis* plerumque amplis. *Antennæ* brevissimæ (capitis longitudine) capitatæ geniculatæ, articulo primo elongato robustissimo flexuoso clavato, in foveâ ad marginem capitis inter otium reposito, funiculo subfiliformi (articulo primo robusto globoso-quadrato, ultimo brevissimo lato lamelliformi), reliquis capitulum magnum solidissimum truncato-globosum triarticulatum efficientibus. *Labrum* transversum, antice leviter emarginatum, lateribus ciliatis. *Mandibulæ* magnæ validæ incurvæ exsertæ (dente infra apicem sæpius obsoleto), ad basin latæ pubescentes. *Maxillæ* bilobæ membranaceæ: *lobo externo* elongato latiusculo, intus et apice valde pubescenti: *interno* brevi pubescenti, intus valde ciliato. *Palpi* filiformes; *maxillares* articulo primo parvo, secundo et tertio majoribus crassioribus subæqualibus (ultimo elongato fusiformi basi truncato): *labiales* e scapis ligulæ connatis surgentes, articulo primo parvo, secundo et tertio longitudine subæqualibus (illo subclavato, hoc fusiformi basi subtruncato). *Mentum* subquadratum, apice emarginatum. *Ligula* bipartita valde pilosa, lobis longis divergentibus membranaceis. *Pedes* validi retractiles: *tibiis* latis compressis, extus plus minusve dentatis (*posterioribus* necnon biseriatim spinulosis): *tarsis* filiformibus liberis, articulis quatuor baseos longitudine subæqualibus.

Saprinus, in the size and habits of the species which compose it, as also in the construction of its inner maxillary lobe and in the subequal joints of its feet, brings us nearly back again to *Hister*. Like the preceding group however, and others not found in the Madeira Islands, it would seem to be best understood when regarded as an offshoot from *Hister* proper. For perhaps we are too apt to be misled by names, and to imagine that *genera*, simply because they are so called, are necessarily of equal importance *inter se*: whereas it is well known to naturalists, that, attendant upon great primary forms (such as *Hister*, *Cicindela*, *Otiorhynchus*, &c.), which are distributed over more or less of the known world, we almost invariably discover a certain number of subsidiary modifications, which remain constant within their respective bounds, and are often of geographical significance, shaping out, as it were, secondary though well-defined assemblages,—satellites around their central types. It is just such a position as this that the genus before us would appear to occupy:—for, as the *Ophoni* are distinguished from *Harpalus*, the *Atlantides* from *Laparocerus*, and the *Oxyomi* from *Aphodius*, so the *Saprini* are moulded out of *Hister*, according to a fixed law which we can seldom fail even *primâ facie* to detect. Thus, their somewhat shorter, more ovate and rather undulated outline, in conjunction with the more or less submetallic hue of their comparatively punctulated surfaces, the very oblique and

posteriorly-abbreviated striæ of their elytra, and the unimpressed edges of their pronotum, all tend to prove that this variation is steadfast, and therefore,—if we choose so to designate it,—a *generic* one. And, as regards less conspicuous points of structure, their anteriorly unproduced prosternum, their perceptibly more robust and abbreviated antennæ (the scape of which is clavate, and the funiculus nearly filiform,—the basal articulation however being large and squarish, and the ultimate one broad, extremely short, and compressed into a thin plate,—whilst the club is very solid and globose), added to their subemarginated upper lip and their usually edentate mandibles, are abundantly sufficient, when combined, to separate the *Saprini*, not only from the normal Histers, but also, equally, from the *Paromali* and the remainder of their allies.

169. Saprinus nitidulus.

S. subovato-quadratus subænescenti-niger nitidissimus, capite inæqualiter punctulato, prothorace versus latera necnon per marginem posticum profunde punctato, elytro singulo striis quinque dimidiatis obliquis et unâ suturali rectâ antice obsoletâ impresso, parte posticâ dimidiâ profunde punctatâ, antennis pedibusque picescentibus, tibiis anticis spinuloso-subdentatis.

Long. corp. lin. 3–3½.

Var. β. minor, paulo magis rotundatus, tibiarum anticarum spinulis minoribus.

Long. corp. lin. 2–2½.

Hister nitidulus, Fab. *Syst. Eleu.* i. 85 (1801).
—— *semistriatus*, *Ent. Hefte*, i. 77 (1803).
—— *nitidulus*, Payk. *Mon. Hist.* 58. tab. v. fig. 3 (1811).
Saprinus nitidulus, Erich. *Käf. der Mark Brand.* ii. 670 (1839).

Habitat Maderam australem, mihi non obvius: quinque specimina, a Dom. Heinecken M.D. olim capta, benigne donavit Rev^dus^ Dom. Lowe; necnon exemplar unicum ad oram Funchalensem maritimam in marcidis detectum Dom. Rousset nuperrime misit.

S. squarish-ovate, black with an æneous tinge, and exceedingly shining. *Head* rather unequally punctured (only sparingly so behind); and with the forehead most narrowly margined at the sides (the margin being totally evanescent in front). *Prothorax* almost imperceptibly margined; with the anterior angles (which have a wide shallow depression within each) regularly rounded, and with the front emargination shallow; with large and rather deep punctures towards the sides and along the hinder margin. *Elytra* with their extreme apex sometimes a little picescent; with their posterior region (equalling about one-half of the entire surface,—and concave anteriorly) deeply and distinctly punctured; and with five deeply-impressed, punctate and very oblique striæ down the outer disk of each, extending but slightly behind the middle (of which the third is usually rather the longest, and the inner one incurved to within a short distance of the scutellum), as also a straight but anteriorly-obsolete one close alongside the suture,—the space between the third and fifth striæ being more or less punctured and rugulose. *Abdomen* rather acuminated, closely and coarsely punctured. *Antennæ* and *legs* dark piceous; the *former* with their funiculus

a little more rufescent and their club infuscate; and the *latter* with their anterior tibiæ spinulose externally,—the number of the spines being usually about twelve.

Var. β. smaller, and rather rounder in outline; and with the anterior tibiæ more minutely spinulose along their outer edge.

The *S. nitidulus* may be at once known from the two following species by its much larger, somewhat more ovate (or acuminated) body, by the anteriorly-obsolete sutural striæ of its elytra (the punctured portion of which is *concave* in front), and by the number of its fore-tibial spines being usually about twelve. It is an abundant insect throughout Europe and in the north of Africa, and it is recorded by Webb and Berthelot in the Canary Islands. I have not myself succeeded in detecting it in Madeira; but I possess five specimens, given to me by the Rev. R. T. Lowe, from the collection of the late Dr. Heinecken, by whom they were taken near Funchal. Three of these (*var.* β.) are considerably smaller than the remaining two; and from a label still attached to them, appear to have occurred in his garden at the Valle. A single *recent* individual only has come beneath my notice,—captured by M. Rousset, in company with *Paromalus pumilio*, amongst rejectamenta, in the immediate vicinity of the sewers and drains, on the beach of Funchal.

170. Saprinus chalcites.

S. subrotundato-quadratus æneus nitidissimus, capite crebre et subtiliter punctulato, prothorace versus latera leviter, sed per marginem posticum profunde punctato, elytro singulo striis quinque dimidiatis obliquis (externâ angulatâ fractâ) et unâ suturali rectâ integrâ impresso, parte posticâ dimidiâ punctatâ, antennis pedibusque rufo-piceis, tibiis anticis spinuloso-subdentatis.

Long. corp. lin. 1½–2.

Hister chalcites, Illig. *Mag. für Ins.* vi. 40 (1807).
—— *rufipes*, Gyll. *Ins. Suec.* i. 90 (1808).
—— *affinis*, Payk. *Mon. Hist.* 76. tab. vii. fig. 2 (1811).
Saprinus chalcites, Erich. *in Klug Jahrb.* i. 182 (1834).
———— ————, Lucas, *Col. de l'Algérie*, 229 (1849).

Habitat in marcidis insularum Maderensium, rarior: in Portu Sancto duo specimina (una cum *S. metallico* degens), necnon unicum etiam in Desertâ Grandi (Maio exeunte A.D. 1850) collegi: in Maderâ propriâ mihi non obvius, sed exemplar possideo a Dom. Heinecken prope urbem Funchalensem nisi fallor olim repertum.

S. roundish-quadrate, æneous (more or less bright, and occasionally with even a slightly piceous tinge), and exceedingly highly polished. *Head* very closely and finely punctured; and with the *forehead* most narrowly margined at the sides (the margin being totally evanescent in the *extreme* centre in front). *Prothorax*, likewise, narrowly margined; with the anterior angles (which have a rounded shallow depression at a considerable distance within each) broad and somewhat obliquely truncated, and the front emargination shallow; with small and very lightly impressed punctures towards the sides, and deeper ones along the hinder margin. *Elytra* with their extreme apex picescent, or ferruginous; with their posterior region (scarcely equalling a half of

the entire surface) finely but distinctly punctured; and with five deep, subpunctate and oblique striæ (not quite so oblique however as those of the *S. nitidulus*) down the outer disk of each, extending but slightly behind the middle (of which the second is rather the longest, the outer, or marginal one obscure, angulated and broken, and the inner one incurved to within a short distance of the scutellum, where it joins) a straight and entire (though anteriorly lightly impressed) one close alongside the suture,—the space between the third and fifth striæ being a little punctured and rugulose. *Abdomen* closely and coarsely punctured. *Antennæ* and *legs* bright rufo-piceous; the *latter* with their anterior tibiæ spinulose externally,—the number of the spines being usually about eight or nine.

A very distinct species; and one which may be known from the other *Saprini* here described by its more rounded outline and brassy hue, and by its bright rufo-piceous limbs; by the anterior angles of its prothorax being wider and somewhat obliquely truncated (instead of uniformly rounded) at their apex, by the general fineness of its punctuation, and by the spinules of its front tibiæ being about eight in number*. It is apparently somewhat scarce. I possess an old specimen taken by the late Dr. Heinecken near Funchal; and I have myself observed it, sparingly, in company with the *S. metallicus*, in Porto Santo,—as also on the Dezerta Grande, where I captured a single individual during my encampment there, with the Rev. R. T. Lowe, at the end of May 1850. It is an insect of rather wide geographical range, but is not very abundant throughout Europe,—occurring principally in Mediterranean latitudes. It is recorded as tolerably common in Barbary and Algeria. There are African examples in the British Museum; and I have seen others, in the collection of Mr. Waterhouse, from the Cape of Good Hope: whilst it is stated by Paykull to have been received even from the East Indies.

171. Saprinus metallicus.

S. suboblongo-quadratus æneus, vel ænescenti-niger, vel etiam subcyanescenti-niger, nitidus, capite fortiter marginato impunctato sed antice rugoso, prothorace versus latera leviter substriguloso-, sed per marginem posticum profunde, punctato, elytro singulo striis quinque dimidiatis obliquis (externâ angulatâ fractâ) et unâ suturali rectâ integrâ distinctâ impresso, parte posticâ (dimidio paulo majore) crebre punctatâ, antennis pedibusque picescentibus, tibiis anticis quinque-dentatis. Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Hister metallicus, Herbst, *Käf.* iv. 32 (1792).
—— ————, Fab. *Syst. Eleu.* i. 89 (1801).
Saprinus metallicus, Erich. *in Klug Jahrb.* i. 195 (1834).

Habitat per oram maritimam Portûs Sancti, a meipso copiose repertus.

---

* In general contour, the *S. chalcites* slightly resembles the common European *S. æneus*; nevertheless a closer examination will show that it does in reality recede from it in most of the distinctive characters above enumerated,—though especially in its elytral striæ (which are altogether dissimilar), in the shape of its prothorax (with its peculiarly subtruncated anterior angles), in its less deeply punctulated surface, and in the somewhat greater robustness of its front-tibial spines.

S. squarish-oblong, varying from æneous into æneous-black, and often with a bluish or cyaneous tinge; less shining than either of the previous species. *Head* unpunctured; but with the *forehead* strongly margined both at the sides and in front, and transversely wrinkled and pitted anteriorly. *Prothorax*, likewise, more distinctly margined than in either of the preceding species; with the anterior angles (which have *no* indication of a depression within them) porrected (though rounded), and the front emargination comparatively deep; very lightly roughened towards the sides with exceedingly faint and somewhat confluent punctures (which causes the sculpture to be slightly strigulose), but with very deep ones along the hinder margin. *Elytra* with their extreme apex more or less picescent, or ferruginous; with their posterior region (distinctly exceeding the half of the entire surface) very closely and deeply punctured; and with five deeply-impressed punctate and oblique striæ down the outer disk of each, extending but slightly behind the middle (of which the third is rather the longest, the outer, or marginal one obscure, angulated and broken, and the inner one incurved to within a short distance of the scutellum, where it joins), a straight, deep and entire one close alongside the suture,—the space between the third and fifth striæ being usually more free from punctures and wrinkles than in either of the other species. *Abdomen* closely and rather coarsely punctured. *Antennæ* and *legs* dark piceous; the *former* with their club fuscous; and the *latter* with their anterior tibiæ armed externally with five powerful teeth.

An abundant insect throughout the whole of Europe and in the north of Africa. It may be easily recognized from the previous two by its more oblong form, by its deeply pitted and strongly margined (though unpunctured) forehead, by the more porrected anterior angles of its (laterally substrigulose) prothorax (which do *not* enclose a depression, as in the other species, within them), by the punctured portion of its elytra rather *exceeding* the half of their entire surface, and by the front tibiæ being each armed with five powerful and well-defined teeth*. I have taken it abundantly on the sea-shore of Porto Santo, but have not hitherto observed it in any of the other islands of the group.

Fam. 20. THORICTIDÆ.

Genus 77. THORICTUS. (Tab. IV. fig. 6.)

Germar, *in Silb. Rev. Ent.* ii. 2. 15 (1834).

Corpus parvum, obtusum, durum, politissimum: *prothorace* amplissimo: *mesothorace* brevissimo, *scutello* minutissimo (ægre observando): *elytris* subconnatis ad apicem rotundatis integris: *alis* obsoletis. *Antennæ* (IV. 6 *a*) brevissimæ (capite vix longiores) crassæ capitatæ, ad marginem capitis repositæ, articulis primo et secundo (illo præcipue) robustis, tertio ad octavum brevibus

* The present *Saprinus* differs from the *H. metallicus* of the *Entomologische Hefte*, of Gyllenhal, and of Paykull's *Monograph* (which, according to Erichson, is the *H. rugifrons* of Paykull's *Fauna Suecica*) in being a little smaller, and in having only five teeth, instead of six, to its front tibiæ. The insect which has usually stood in British collections under the name of *S. metallicus* is (accepting Erichson's statement) the true *rugifrons*. But I think it far from improbable however that the two may be in reality but states of the same species,—in the same manner as we have two distinct modifications of the *S. nitidulus*.

longitudine æqualibus latitudine vix sensim crescentibus, reliquis capitulum magnum solidissimum ovatum apice oblique truncatum triarticulatum efficientibus (nono et decimo magnis transversis, ultimo brevissimo subemerso oblique truncato necnon ad apicem ipsum piloso). *Labrum* transverso-subquadratum, antice leviter bilobum, lobis rotundatis ciliatis. *Mandibulæ* (IV. 6 *b*) validæ crassæ obtusæ latæ glabræ, apice bidentatæ. *Maxillæ* (IV. 6 *c*) bilobæ: *lobo externo* membranaceo latiusculo, intus et apice valde pubescenti: *interno* paulo breviore angusto, apice incurvo uncinato acuto, intus pubescenti. *Palpi maxillares* articulo primo parvo subflexuoso, secundo et tertio crassioribus æqualibus, ultimo elongato-subovato basi truncato: *labiales* (IV. 6 *d*) articulo primo parvo subcarnoso translucido, secundo et tertio durioribus elongatis (illo subflexuoso clavato, hoc paulo longiore crassiore oblongo). *Mentum* (IV. 6 *e*) corneum valde anomalum, veluti e duplici parte formatum, aliâ sc. apicali quadratâ ad apicem in medio leviter fissâ, aliâ basilari (prioris stipite) latiore transverso-subquadratâ ad apicem et latera (illum præcipue) in angulum medium productâ. *Ligula* (IV. 6 *d*) membranacea, antice leviter biloba ciliata. *Pedes* robustissimi subcontractiles, omnes basi subapproximati, *anteriores* breves: *femoribus* subcurvatis: *tibiis* setosis, *anterioribus* apicem versus dilatatis: *tarsis* (præsertim *anterioribus*) crassis subconicis (apicem versus sensim acuminatis), articulis quatuor baseos subæqualibus, quinto paulo longiore subconico-truncato *unguiculis* simplicibus munito.

The little genus *Thorictus*, equal to *Sphærophorus* of Waltl (*Silb. Rev. Ent.* A.D. 1836, iv. 150) and *Xylonotrogus* of Motschulsky (*Bull. de Moscou*, A.D. 1839, tab. 5. f. C), was established by Germar in 1834 to contain a large species, the *T. castaneus*, from Nubia. It is composed of a few, very anomalous, insects almost peculiar to Mediterranean latitudes (Sicily, Corfu, Smyrna, Egypt, Algeria, &c.), and characterized by their obtuse, apterous, shining and nearly glabrous bodies, by their enormously developed prothorax and minute mesothorax, and by the excessive robustness of their legs and antennæ,—the former of which, from the reduced length of the mesosternum, approximate very closely at their base, and have their tibiæ exceedingly setose, and their tarsi thick and acuminated (a structure of very rare occurrence in the Coleoptera, but which is expressed, likewise, in *Myrmecobius*, *Cossyphodes*, and in a few of the *Histeridæ*); whilst the latter are remarkable for the terminal joint of their (particularly solid) club being unnaturally foreshortened (as though deeply immersed in the penultimate one), or obliquely lopped off (and pilose), at its extremity. Their pro- and meso-thoraces, moreover, would appear to be very intimately united,—a peculiarity which I have observed whilst dissecting them, having at times experienced no slight difficulty in accomplishing an incision between the two. In obscurer details also, the *Thoricti* present abundant distinctive features of their own, amongst which their broad, incrassated mandibles, and the extraordinary nature of their mentum should be especially noticed. Their mentum is in fact extremely anomalous, and recedes from that of every other genus with which I am acquainted; being made up, apparently, of two portions, not articulated to each other, but springing out of the jugulum, side by side, at the same place, and so firmly bound together that the inner one (which is elongated and parallel, reaching beyond the other) would have had all the appearance of having been engrafted on to the front margin of

the outer one, did not the transparency of the latter allow the former to be seen through it *from its commencement*,—thus disclosing the fact that it is really an additional plate (arising from their common base), and not merely an apical piece joined to the anterior edge of the true mentum, as *primâ facie* it might seem to be. This rectangular internal lamina bears some resemblance to a corneous ligula,—which indeed I should at first have been inclined to have considered it, had I not succeeded in dissevering the undoubted ligula from it (with the palpi affixed), which is so exceedingly delicate as to be scarcely appreciable whilst attached to the dark solid surface over which it is spread.

There are but few known species of *Thorictus*; and as respects their habits very little indeed has been hitherto ascertained. I have no hesitation however in regarding them as inhabitants of Ants'-nests,—the few stray specimens which I have ever captured having been found beneath stones in positions very similar to those in which *Cossyphodes* occurs, and their very curious, subconical feet being precisely in accordance with what we are accustomed to perceive amongst insects of an Ant-associating tendency.

172. Thorictus Westwoodii, *Woll.* (Tab. IV. fig. 6.)

T. obtusus rubescenti-badius nitidissimus, punctis dispersis minutissimis vix (præsertim in elytris) perspicuis obsitus, prothorace maximo convexo ad latera valde rotundato-ampliato (in medio latissimo necnon ad basin ipsam fortiter constricto), elytris pone discum convexis, singulo costâ basali abbreviatâ (mox intra humerum sitâ) instructo, antennis pedibusque obscurioribus.

Long. corp. lin. 1.

Habitat circa urbem Maderæ Funchalensem, rarissime: duo specimina tantum vidi, unum sc. ad Praya Formoza Maio ineunte A.D. 1848 et alterum in colle aprico prope Ribeiro de São Gonçalo mense Januario A.D. 1849, sub lapidibus a meipso inventa. Genus, ut structura tarsorum subconica atque habitus generalis valde anomalus indicare videntur, formicarum nidos nisi fallor colens.

In honorem luminis Entomologicorum J. O. Westwood, arm^{i}, qui jam per plures annos indagationi deditus Entomologiæ scientiam insulis Britannicis laudibus amplificavit, hanc speciem Thoricti certe novam institui.

T. obtuse (especially in front), bright reddish-chestnut, exceedingly highly polished, and nearly glabrous (there being just perceptible indications, beneath the microscope, of a few short and scattered hairs towards the sides,—though especially about the humeral angles of the elytra). *Prothorax* very large, and widest about the middle (where it exceeds the elytra in breadth), with the sides uniformly rounded, though much constricted at the *extreme* hinder margin; beset with minute and distinct punctures; extremely convex, particularly in front; and sometimes with an obscure oblique impression (as in the plate) on either side behind,—which at others however would appear to be obsolete. *Elytra* very convex (and semitransparent) behind the middle of the disk, being comparatively depressed towards the anterior margin; beset with most minute and distant punctures (even less perceptible than those on the prothorax, and only to be distinguished under the microscope); and with an exceedingly abbreviated costa, or ridge (and a

fovea within it, which is continuous with the oblique impression, when present, of the prothorax) at the base (immediately within the shoulder) of each. *Antennæ* and *legs* somewhat darker; except the extreme apices of the club and tarsi, which are more rufescent.

Apparently one of the rarest of the Madeiran Coleoptera, the only two specimens which have come under my notice having been captured by myself near Funchal,—one from beneath a stone (in company with *Cossyphodes Wollastonii*) on the rocky ledge above the Praya Formoza, May 8th, 1848; and the other, in a similar position, on the cliff to the eastward of the town, immediately beyond the Ribeiro de São Gonçalo, in January 1849. Although most unquestionably distinct from it, it is very nearly allied to the *T. grandicollis*, Germar, from Sicily,—for a typical example of which I am indebted to Dr. H. Schaum of Berlin. In colour and general aspect the two insects are, at first sight, tolerably similar; nevertheless the Madeiran may be easily recognised from the Sicilian one by the form of its prothorax, which is somewhat longer and less quadrate, and has the sides very much more rounded,—thus causing its breadth at the *extreme* hinder margin to be considerably less than is the case in that species. This difference of structure is very perceptible when the respective insects are viewed obliquely. The elytra, also, of the *T. Westwoodii* are a little narrower throughout, and more parallel at the shoulders, than those of the *T. grandicollis*. In his generic diagnosis published, as already stated, in 1834, Germar remarked, concerning the Nubian *T. castaneus* (from which his observations were drawn up), that he was not able to detect any traces of eyes. In the Madeiran and Sicilian representatives, however, as well as in two others, from Egypt and Algeria, which I have examined, the eyes are certainly apparent.

Fam. 21. APHODIADÆ.

Genus 78. APHODIUS.

Illiger, *Käfer Preuss.* i. 28 (1798).

Corpus mediocre, subcylindrico-oblongum, plus minusve læte coloratum: *clypeo* punctato, plerumque semihexagono antice integro, sæpius (præcipue in maribus) tuberculato: *prothorace* integro (*i. e.* haud canaliculato): *scutello* distincto: *alis* amplis. *Antennæ* breves (capitis vix longitudine) lamellato-clavatæ 9-articulatæ, ad marginem capitis inter otium repositæ, articulis primo et secundo robustis (illo longissimo subcylindrico, hoc brevi), tertio ad sextum longitudine decrescentibus latitudine crescentibus, reliquis clavam magnam triphyllam efficientibus. *Labrum* transversum tenuissimo-membranaceum pilosum, apice in medio sæpius leviter productum et interdum fissurâ minutissimâ instructum, sub clypeo (unâ cum mandibulis) opertum. *Mandibulæ* latæ, basi corneæ, dein membranaceo-coriaceæ, apicem versus tenuissimo-membranaceæ obtusæ, margine interno ciliato. *Maxillæ* bilobæ subcorneæ, lobis membranaceis; *externo* latissimo subovato, apicem versus pilis breviusculis dense obsito; *interno* minuto piloso bifido. *Palpi* filiformes; *maxillares* glabri articulo primo minuto subflexuoso, secundo elongato subclavato, tertio brevi, ultimo elongato (secundi longitudine) fusiformi-cylindrico: *labiales* pilosi, e ligulâ ad lobos menti anticos

surgentes, articulo primo longiusculo sat robusto, secundo paulo minore, tertio (primo vix breviore) subovato. *Mentum* amplum subquadratum, pilis longissimis munitum, antice leviter bilobum. *Ligula* mento fere occultata, tenuissimo-membranacea biloba ciliata. *Pedes* validi subretractiles: *tibiis anticis* dilatatis extus fortiter tridentatis, *posterioribus* spinulosis: *tarsis* filiformibus, articulis secundo, tertio et quarto longitudine subæqualibus, primo in *anticis* sæpius brevi, in *posterioribus* elongato.

Their dung-infesting propensities and burrowing nature, in conjunction with their somewhat cylindrical and more or less maculated bodies, have rendered the species of the present group familiar to almost every observer. In northern and temperate regions, where they supply the place of the larger Lamellicorns of warmer latitudes, and have the same office to perform, they are especially abundant; and hence it is that in Europe the *Aphodii* are connected with our earliest associations,—making their appearance at particular times in such vast multitudes as even to have attracted the attention of naturalists in recording the simultaneous development of animals and plants at stated seasons of the year. Well known as they are however from their habits and general outward aspect, they present structurally far greater peculiarities, which will serve additionally to separate them, in common with the rest of the family to which they belong, from the members of the other genera of this department of the Coleoptera. Thus, their extremely thin, membranous mandibles and upper lip, both of which are concealed beneath their (in *Aphodius proper* usually tubercled and unemarginated) clypeus, added to their powerfully tridentated anterior tibiæ, and the lamellated club of their 9-jointed antennæ, will more than suffice, apart from the obscurer features of their organization, to distinguish them from the whole of the other insects with which we have here to do.

173. Aphodius Hydrochæris.

A. diluto-testaceus, clypeo (subruguloso), scutello (profunde punctato) et pedibus paulo rufescentioribus, prothorace breviusculo antice marginato, sat crebre inæqualiter punctulato, in disco antico late nigrescenti necnon latera versus nebulâ obscurâ conspurcato, elytrorum interstitiis minutissime punctulatis et suturâ anguste nigrescenti.

Mas subnitidus, tuberculo frontali medio valde distincto, prothorace paulo latiore subtilius punctulato.

Fœm. subopacus, tuberculo frontali medio minus exstanti (lateralibus vix majore), prothorace paulo angustiore fortius et crebrius punctulato.

Long. corp. lin. 3–4½.

Scarabæus Hydrochæris, Fab. *Ent. Syst. Suppl.* 23 (1798).
Aphodius Hydrochæris, Illig. *Mag. für Ins.* ii. 193 (1803).
——— ———, Heer, *Fna Col. Helv.* i. 522 (1841).
——— ———, Muls. *Lamell. de France*, 217 (1842).

Habitat in stercore bovino Maderæ Portûsque Sancti, sat vulgaris,—ab autumno usque ad ver primum prædominans.

A. diluted-, or somewhat dirty-testaceous: with the *clypeus* (which is tubercled, somewhat rugulose, recurved at the edges, rounded in front, and usually a little infuscated behind), the *scutellum* (which is deeply punctured), and the *legs*, rather more rufescent, or sometimes rufo-picescent. *Prothorax* (which is rather short, and has the extreme front edge distinctly margined) unequally and rather closely punctulated; with a large and broad patch on the fore disk, and an obscure and ill-defined cloud on either side, towards the middle of the lateral edges, more or less black or brownish-black. *Elytra* crenate-striated, with the interstices most minutely and indistinctly punctulated; and with the suture narrowly darker. *Body beneath* rather coarsely punctured.

Male slightly shining; with the central frontal tubercle exceedingly prominent; and with the prothorax rather wide, and (together with the interstices of the elytra) less distinctly punctulated than that of the female.

Female subopake; with the central frontal tubercle much less developed (being scarcely more evident than the lateral ones); and with the prothorax narrower, and more deeply and closely punctulated.

The largest of the Madeiran *Aphodii*; and known from the rest by its less shining surface and dirty yellowish hue, and by the greater sexual variation in the breadth and sculpture of its (anteriorly margined) prothorax. From the *A. nitidulus*, in addition to the above characters, it may be distinguished by its slightly paler legs, smaller (and posteriorly-abbreviated) prothoracic patch, and by the usually somewhat convexer, and even more minutely punctulated, interstices of its elytra. It is rather a common insect, both in Madeira and Porto Santo, occurring in the dung of cattle at most seasons of the year, though more especially during the autumnal and winter months. It does not appear to be very generally distributed throughout Europe, being more particularly confined to subaustral and Mediterranean latitudes. Thus, in Germany and Switzerland it is scarce; whilst in the south of France, Spain, Italy, Corsica, Sardinia and Sicily it is tolerably abundant;—as also in the north of Africa (Algeria and Tangier), from whence indeed the specimens described by Fabricius, in 1789, were obtained.

174. Aphodius nitidulus.

A. nitidus testaceus, clypeo et scutello (profunde punctato) picescenti-nigris, prothorace sat crebre inæqualiter punctulato, in disco latissime nigro (latera versus sola pallido), elytrorum interstitiis minutissime punctulatis et suturâ anguste nigrescenti.

Mas, tuberculo frontali medio distincto, prothorace vix latiore paulo subtilius punctulato.

Fœm. tuberculo frontali medio minus exstanti (lateralibus vix majore), prothorace vix angustiore fortius et crebrius punctulato.

Long. corp. lin. $2\frac{1}{2}$–3.

Scarabæus nitidulus, Fab. *Ent. Syst.* i. 30 (1792).
——— *ictericus*, Payk. *Fna Suec.* i. 17 (1798).
Aphodius nitidulus, Gyll. *Ins. Suec.* i. 28 (1808).
——— ———, Steph. *Ill. Brit. Ent.* iii. 192 (1830).
——— ———, Heer, *Fna Col. Helv.* i. 523 (1841).

Habitat Maderam et Portum Sanctum, in stercore bovino, vulgaris.

A. testaceous and shining: with the *clypeus* (which is tubercled, recurved at the edges, and truncated and rufescent in front) and the *scutellum* (which is deeply punctured), piceous-black, or sometimes almost black. *Prothorax* unequally and rather closely punctulated; with an extremely largely developed patch on the disk (which covers the entire surface except the sides, and is confluent with the dusky cloud-like blotch towards the middle of the lateral edges) black. *Elytra* crenate-striated, with the interstices most minutely punctulated (though rather more evidently so than in the *A. Hydrochæris*); and with the suture narrowly black. *Body beneath* dusky brownish-testaceous, and rather coarsely punctured. *Legs* rufo-piceous.

Sexual distinctions the same as in the last species (only in a less degree), except that both sexes are almost equally shining.

A common European *Aphodius*; and one which may be distinguished from the other species here described by its almost entirely dark head and prothorax, and pale testaceous elytra,—the last of which have merely their suture black. It is the most abundant of the Madeiran representatives of the genus, being found at all seasons of the year and in nearly every island of the group,—though more especially plentiful (as indeed its stercoraceous habits would lead us to expect) in Madeira proper and Porto Santo. The specimens recede from the northern type in being usually a little paler and more distinctly punctulated.

175. Aphodius rufus.

A. angustus nitidus rufo-ferrugineus, clypeo vix tuberculato postice infuscato, prothorace sat crebre inæqualiter punctulato, in disco antico subinfuscato necnon latera versus nebulâ parvâ obscurissimâ conspurcato, elytris rufo-testaceis, interstitiis minutissime sed parum crebre punctulatis, pedibus pallido-rufo-piceis.

Long. corp. lin. 2.

Aphodius rufus, Illig. *Mag. für Ins.* ii. 195 (1803).
——— ——, Sturm, *Deutsch. Fna*, i. 144. tab. 14. fig. D (1805).
——— ——, Dufts. *Fna Austr.* i. 127 (1805).
——— ——, Erich. *Nat. der Ins. Deutsch.* iii. 836 (1848).
——— *ferrugineus*, Dahl, *in litt.*

Habitat ad vias necnon in vinetis Maderæ, in stercore bovino et equino, rarior: propę urbem Funchalensem atque in castanetis Sanctæ Annæ æstate observavi.

A. narrow, pale rufo-ferruginous and shining: with the *clypeus* (which is almost untubercled, slightly recurved at the edges, and truncated in front) infuscated along its posterior portion. *Prothorax* unequally, rather closely, but somewhat finely punctulated; very obscurely infuscated on the fore disk, and with exceedingly faint indications of a smaller patch, in the usual position, towards the middle of either lateral edge. *Elytra* a little paler than the head and prothorax, being rufo-testaceous; crenate- (or almost punctate-) striated, with the interstices most minutely, but quite perceptibly and rather closely, punctulated. *Body beneath* infuscate. *Legs* pale rufo-piceous.

Known readily by its narrow outline and pallid hue (the hinder regions of its

forehead being the only portion which is *invariably* infuscated), and by its clypeus being almost entirely free from any indications of tubercles. It occurs both in the north and south of Madeira, but is apparently somewhat scarce; I have however captured it in the neighbourhood of Funchal, and (on two occasions) at Santa Anna, in comparative abundance. It occurs, though sparingly, throughout the greater part of Europe; and is recorded in Germany, Portugal, Sicily and the Tyrol.

176. Aphodius lividus.

A. brevis, nitidissimus livido-testaceus, clypeo postice nigro-infuscato, prothorace utrinque parcissime punctato, in disco antico late et suffuse nigro-infuscato necnon latera versus nebulâ obscurâ conspurcato, elytro singulo in disco longitudinaliter obscuro-, et per suturam late nigro-infuscato, interstitiis impunctatis, pedibus pallido-rufopiceis.

Long. corp. lin. 2.

Scarabæus lividus, Oliv. *Ent.* i. 3. 86 (1789).
Aphodius Anachoreta, Fab. *Syst. Eleu.* i. 74 (1801).
Scarabæus bilituratus, Mshm, *Ent. Brit.* i. 15 (1802).
Aphodius lividus, Steph. *Ill. Brit. Ent.* iii. 192 (1830).
——— ———, Heer, *Fna Col. Helv.* i. 524 (1841).

Habitat Maderam, rarissimus: duo specimina tantum vidi, unum sc. a meipso æstate mediâ A.D. 1850 in stercore bovino ad Sanctam Annam, et alterum a Dom. Heinecken prope urbem Funchalensem d. 20 Jul. A.D. 1829, reperta.

A. rather short and broad, livid-, or pale brownish-testaceous, and exceedingly shining: with the *clypeus* (which is tubercled, recurved at the edges, and truncated in front) rather rufescent anteriorly, but darkly infuscated along its posterior portion. *Prothorax* almost impunctate, though with an exceedingly few scattered punctures towards the sides; with a large cloudy, or suffused patch on the fore-disk, and a dusky cloud, in the usual position, towards the middle of either lateral edge, more or less darkly infuscated. *Elytra* crenate-striated, with the interstices almost impunctate; with the suture broadly and darkly, and a large longitudinal dash down the disk of each obscurely, infuscated. *Body beneath* rather coarsely punctured. *Legs* pale rufopiceous.

The rather short and wide outline of the *A. lividus*, in conjunction with its extremely glossy, lurid, and comparatively unpunctured surface, its broadly infuscated suture, and the cloudy longitudinal dash down the disk of each of its elytra, will at once distinguish it from the other *Aphodii* with which we have here to do. Although common throughout Europe, and occurring also in the north of Africa, it is decidedly rare in Madeira, two specimens only having hitherto come beneath my notice,—one of which was captured by myself in the north of the island, at Santa Anna, during the summer of 1850, and the other by the late Dr. Heinecken near Funchal (according to the original label, still attached to it), on the 20th of July 1829, from whose collection it was presented to me by the Rev. R. T. Lowe.

177. Aphodius Pedrosi, *Woll.*

A. brevis antice subangustatus, nitidus nigro-piceus, prothorace utrinque valde profunde punctato ad latera paulo rufescenti, elytris rufo-piceis, interstitiis fere impunctatis, pedibus pallido-rufo-piceis.

Long. corp. lin. $1\frac{2}{3}$.

Habitat in arenosis Portûs Sancti, semel tantum (sub lapide prope oppidum) Decembri mense A.D. 1848 repertus.

In honorem illustrissimi Dom. Pedrozo, qui ab antiquâ stirpe in agro Portosanctano oriundus per tot annos nomen Lusitanicum ornavit, hunc Aphodium valde indigenum denominavi.

A. short, and rather narrowed anteriorly, piceous black, and shining: with the *clypeus* (which is rather wide, roughened, tubercled, recurved at the edges, and truncated in front) rather rufescent about the anterior margins. *Prothorax* a little narrowed in front, with exceedingly large, deep, and distinct punctures,—especially towards the sides, which are (particularly about the anterior angles) obscurely rufescent. *Elytra* rufo-piceous, being much paler and more rufescent (especially posteriorly) than the head and prothorax; crenate-striated, with the interstices almost impunctate. *Legs* pale rufo-piceous.

A very distinct little *Aphodius*, and hitherto unique. It may be recognised from the rest by its smaller size, shorter and anteriorly-subacuminated outline, by its dull-rufescent elytra, and by the extremely large and deep punctures of its prothorax. The only specimen which I have seen was captured, by myself, from beneath a stone in the vicinity of the Cidáde of Porto Santo, during December 1848. It was taken, in company with other insects, towards the dusk of the evening,—whilst burrowing into the sand which forms so prominent a feature throughout the southern district of the island. I have dedicated the species to Senhor Pedrozo, to whom I am indebted for much kindness and hospitality during my sojourns in Porto Santo.

178. Aphodius granarius.

A. breviusculus, nitidus niger, prothorace amplo utrinque parce profunde punctato necnon latera versus plagâ rufescenti obscurissimâ ornato, elytris postice interdum leviter rufescentibus, interstitiis fere impunctatis, pedibus piceis.

Long. corp. lin. 2–$2\frac{1}{2}$.

Scarabæus granarius, Linn. *Syst. Nat.* i. ii. 547 (1767).
———— ————, Oliv. *Ent.* i. 3. 82 (1789).
Aphodius granarius, Illig. *Mag. für Ins.* ii. 192 (1803).
———— ————, Steph. *Ill. Brit. Ent.* iii. 197 (1830).
———— ————, Heer, *Fna Col. Helv.* i. 519 (1841).

Habitat in stercore bovino Maderæ et Portûs Sancti, ab oris maritimis usque ad cacumina montium ascendens: in hortis Funchalensibus, ad vias, vel etiam in ipsâ urbe tempore sereno per aërem volitans sæpissime observetur.

A. rather short, deep black, and shining: with the *clypeus* (which is rather roughened, tubercled, recurved at the edges, and truncated in front) completely dark. *Prothorax* ample, with large and scattered punctures (which however are not so large as those of the *A. Pedrosi*, though larger and much more numerous than those of the *A. liridus*),—especially towards the sides, which have obscure indications of a rufescent patch (sometimes scarcely perceptible) at about the centre of either lateral edge (the position occupied by the *darker* cloud which is more or less apparent in the whole of the previous species). *Elytra* crenate-striated, with the interstices almost impunctate; and with their extreme apex sometimes a little rufescent or piceous. *Body beneath* coarsely punctured. *Legs* piceous.

Its deep-black surface, in conjunction with the just perceptibly rufescent patch on either side of its prothorax, about the centre, will more than suffice to distinguish the common European *A. granarius* from the other *Aphodii* here described. It is a universal insect throughout Madeira and Porto Santo,—occurring at all elevations, from the level of the sea-shore and the streets of Funchal (where it may be frequently captured on the wing) to within a short distance of the extreme summits of the peaks. During July of 1850 it was tolerably abundant in the upland region of the Fanal.

Genus 79. OXYOMUS.

(Eschscholtz) De Casteln. *Hist.* ii. 98 (1840).

Corpus minusculum, oblongo-ovatum, plerumque nigrum: *clypeo* sæpius semi-hexagono antice leviter emarginato, punctato sed haud tuberculato: *prothorace* modo integro, modo postice canaliculato: *scutello* distincto: *elytris* plerumque profunde sulcatis: *alis* amplis. *Antennæ, labrum, mandibulæ, maxillæ, mentum* et *ligula* fere ut in Aphodio, sed *maxillarum lobo externo* apicem versus pectinato-piloso. *Palpi* vix filiformes; *maxillares* glabri, articulo primo minuto subflexuoso, secundo longiore subclavato, tertio brevi, ultimo elongato (secundo longiore) fusiformi-ovato sed per marginem internum arcuato: *labiales* leviter pilosi, e ligulâ ad lobos menti anticos surgentes, articulo primo breviusculo, secundo paulo crassiore, ultimo elongato (primo multo longiore) ovato. *Pedes* validi subretractiles: *tibiis anticis* dilatatis, extus fortiter tridentatis, *posterioribus* spinulosis: *tarsis* filiformibus, articulis secundo, tertio et quarto longitudine subæqualibus, primo elongato.

The present genus may be considered as constituting a passage between the *Aphodii* proper and the *Psammodii*, approaching the former in its general outline, in the lightly impressed sculpture of its clypeus, in its apically-mucronated upper lip, and in the membranous and largely dilated outer lobe of its maxillæ; whilst in its freedom from frontal tubercles, in the deep striation of its elytra, subclavated palpi, and in the elongated basal joint of *all* its feet, as well as in the obscure colour of the insects which compose it, it agrees more evidently with the latter. In its slightly bilobed clypeus, however, and in its sometimes entire, sometimes channeled prothorax, it is intermediate between the two.

179. Oxyomus Heineckeni, *Woll.*

O. latiusculus subnitidus niger vel piceo-niger, prothorace transverso (ad latera subrecto et ciliato) sat profunde et parum crebre punctato, elytris profunde crenato-striatis, interstitiis latiusculis postice convexis, pedibus piceis pilosis.

Long. corp. lin. $2\frac{1}{4}$–$2\frac{1}{2}$.

Habitat prope urbem Funchalensem, rarissime; mihi non obvius, sed insulis Maderensibus certe indigenus: duo specimina, a Rev^{do} Dom. Lowe munifice donata, sola vidi, quæ pridem invenit Dom. Heinecken, M.D., cujus in memoriam nomen triviale dedi.

O. broad and much depressed, black or piceous black, and slightly shining: with the *clypeus* (which has no indication of tubercles, but is convex in the centre, a little recurved at the edges, and slightly emarginated in front) somewhat picescent, and almost unpunctured, anteriorly; but rather deeply and closely punctured behind. *Prothorax* short and broad, of nearly the same width before and behind,—the anterior and posterior angles being subequal, and the lateral edges (which are distinctly ciliated) consequently comparatively straight; rather closely and deeply punctured,—especially towards the sides, where the punctures are larger and the surface wrinkled, or uneven. *Elytra* very slightly narrowed at their base (where they are not quite so broad as the prothorax); just perceptibly notched (or *each* obliquely subtruncated) at the *extreme* apex of their suture; deeply crenate- (or almost punctate-) striated; with the interstices impunctate, broad in front, but gradually narrowed and slightly more elevated behind,—where however they are scarcely costate. *Legs* piceous, or rufo-piceous, and pilose (especially the femora, which have a row of very long hairs down the centre of their inner surface): *fore tibiæ* with three minute serrations towards the base of their outer edge (beyond the larger teeth),—which are exceedingly distinct under a moderate magnifying power: *tarsi* with the second, third and fourth joints subequal, but longer than those of the following species.

The present *Oxyomus* approaches very closely, at first sight, to the *O. brevicollis*; from which nevertheless it will be perceived, on examination, to be abundantly distinct,—receding from it not only in its greater bulk, in the different form of its *laterally setose* prothorax (which has the hinder angles much less rounded-off, and the sides therefore comparatively straight), and in the wider, more depressed, and less posteriorly-costate interstices of its elytra; but, slightly, even in the structure of its legs, which are, apparently, more pilose (particularly the femora), have the minute serrations towards the outer base of their fore-tibiæ much more evident, and their three intermediate tarsal joints perceptibly longer than is the case in that species. It is one of the insects which I have not myself succeeded in detecting, during my researches in these islands; nor indeed have any *recent* specimens hitherto come beneath my notice,—the only two examples which I have seen having been presented to me by the Rev. R. T. Lowe from the collection of the late Dr. Heinecken, by whom they were captured, many years ago, near Funchal. Possessing as it does, however, so much in common with the *O. brevicollis*, I have but little doubt that it will be found to inhabit similar spots,—towards the southern coast.

180. Oxyomus brevicollis, *Woll.*

O. subnitidus niger, prothorace transverso (angulis anticis deflexis, posticis truncato-rotundatis) paulo crebrius punctato, elytris profunde crenato-striatis, interstitiis angustioribus postice costato-convexis, pedibus piceis minus pilosis.

Long. corp. lin. 2.

Habitat Maderam australem, non infrequens: plurima specimina Junio ineunte A.D. 1849, in horto Loweano ad Levada, primus inveni; atque alia, per oram Funchalensem maritimam sub lapidibus in cloacis detecta, nuperrime communicavit Dom. Rousset.

O. smaller, and not so broad as the *O. Heineckeni*, and not quite so depressed, black, and slightly shining: with the *clypeus* as in that species, except that it is not quite so distinctly punctured behind. *Prothorax* short and broad, rather narrower behind than before,—the anterior angles being more deflexed and the posterior ones much more truncated, or gradually rounded-off, than is the case with the last species; a structure which causes the lateral edges (which are *not* ciliated) to be comparatively oblique (this difference becoming particularly apparent when the respective insects are viewed laterally); rather more closely, and perhaps not quite so deeply, punctured as in the *O. Heineckeni*, and less perceptibly wrinkled towards the sides. *Elytra* as in that insect, except that they are a little more narrowed at their base, have their striæ rather less evidently crenated, and their interstices narrower and more convex,—being distinctly elevated, or costate, behind. *Legs* much less pilose than in that species (the femora having their inner row of hairs short, and scarcely apparent): *fore-tibiæ* with two or three most minute serrations towards the base of their outer edge (beyond the larger teeth),—which are but just indicated even beneath a very high magnifying power: *tarsi* with the second, third and fourth joints subequal, but shorter than those of the *O. Heineckeni*.

Both of the *Oxyomi* here described may be known from the remainder of the Madeiran members of the present family by their comparatively broad and depressed bodies, finely sculptured, untubercled and slightly bilobed clypei, and by their short and thickly punctulated prothoraces: whilst from the *O. Heineckeni* the *O. brevicollis* is readily distinguished by its smaller and somewhat narrower outline, by the different construction of its prothorax (which, moreover, is free from the lateral cilia which are so evident in that species), by the posteriorly costate and less widened interstices of its elytra, and by its more glabrous legs. Although exceedingly local, it appears to be rather a common insect in the immediate vicinity of Funchal,—where I first discovered it, early in June 1849 (abundantly), in the garden of the Rev. R. T. Lowe at the Levada: and many specimens have been lately communicated to me by M. Rousset, captured from beneath stones and amongst rejectamenta on the beach of Funchal; where it would seem to reside, in company with *Dactylosternum Roussetii*, *Paromalus pumilio*, *Psammodius sabulosus*, and other insects which delight in such localities, in the neighbourhood of the drains and sewers, which constitute the general receptacles of the animal and vegetable refuse of the town;—precincts, which, from their uninviting nature, I have not prevailed upon myself to examine, but which in all probability would amply repay an investigation.

Genus 80. PSAMMODIUS.

Gyllenhal, *Ins. Suec.* i. 6 (1808).

Corpus minusculum, oblongo-ovatum vel subcylindricum, plerumque nigrum: *clypeo* sæpius semicirculari antice sat profunde emarginato, granulato-asperato sed haud tuberculato: *prothorace* postice canaliculato: *scutello* distincto: *elytris* plerumque profunde sulcatis: *alis* amplis. *Antennæ, mandibulæ, mentum* et *ligula* fere ut in Aphodio. *Labrum* in medio integrum. *Maxillarum lobo externo* corneo, apice dentato. *Palpi* vix filiformes; *maxillares* glabri, articulo primo minuto subflexuoso, secundo longiore subclavato, tertio brevi, ultimo elongato (secundo longiore) fusiformi-ovato sed per marginem internum arcuato: *labiales* leviter pilosi, e ligulâ ad lobos menti anticos surgentes, articulo primo parvo, secundo majore crassiore, ultimo elongato (reliquis longitudine æquali) ovato. *Pedes* validi subretractiles: *tibiis anticis* fortiter dilatatis, extus tridentatis, *posterioribus* spinulosis: *tarsis* filiformibus, articulis secundo, tertio et quarto longitudine subæqualibus, primo elongato.

Psammodius is distinguished from *Aphodius* by the smaller size and universally dark colour (as in *Oxyomus*) of the insects which compose it,—which have their elytra more deeply sulcated, their clypeus coarsely granuled, untubercled, nearly semicircular, and considerably bilobed in front, their prothorax invariably grooved behind (and beset with large punctures, remote and deep), their upper lip entire (not being produced into a cleft central mucro), the external lobe of their maxillæ horny, and powerfully toothed towards its apex, their palpi (like those of *Oxyomus*) slightly clavate, and the basal joint of *all* their feet elongated: whilst from the last genus, its more semicircular (though anteriorly emarginated) and roughened clypeus, in conjunction with its posteriorly channeled pronotum, the apically-dentated and corneous structure of its outer maxillary lobe, will, apart from minor differences, equally remove it. The *Psammodii* slightly recede, moreover, even in their habits (as indeed is likewise the case, though less apparently, with the intermediate *Oxyomi*) from the normal members of the present family, exhibiting less stercoraceous propensities, and residing either in sandy spots beneath stones, or, occasionally, amongst putrescent *animal* (as well as vegetable) substances,—into which their largely developed fore-tibiæ, which are still more powerful than those of the *Aphodii* proper, enable them to burrow with considerable dexterity.

181. Psammodius sabulosus.

P. subcylindrico-ovatus nitidus niger vel piceo-niger, prothorace antice subattenuato valde profunde sed remote punctato (punctis maximis), utrinque transverso-sulcato, elytris piceis profunde crenato-striatis, interstitiis convexis, pedibus rufo-piceis.

Variat colore omnino rufescenti vel etiam ferrugineo.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{2}{3}$.

Oxyomus sabulosus, Dej. *Cat.* (edit. 3) 163 (1837).
Platytomus sabulosus, Muls. *Lamell. de France*, 310 (1842).

Habitat in locis inferioribus Maderæ Portûsque Sancti, hinc inde vulgaris: in Portu Sancto abundat,

quâ Aprili exeunte A.D. 1848 in arenosis prope oppidum sitis primus detexi; sed per oram Funchalensem maritimam, præsertim in cloacis circa stabula suilla, nuper collegerunt DD. Rousset et Heer.

P. somewhat cylindric-ovate, and convex, being slightly narrowed in front, black or piceous-black (varying into more or less of a rufescent or ferruginous hue), and shining: with the *clypeus* (which has no indication of tubercles, but is a little recurved at the edges, and emarginated at its apex) rufescent, and very rugosely granulated, anteriorly, but almost smooth behind. *Prothorax* very convex, broader behind than before; beset with exceedingly large, deep, and remote punctures; with a deep transverse groove on either side, towards the anterior angles, and a second, usually obscurer one, behind it; and with a distinct, though very abbreviated, longitudinal channel on the hinder disk. *Elytra* usually more picescent than the head and prothorax; narrowed at the base and widest behind the middle; deeply crenate- (or almost punctate-) striated; with the interstices impunctate and rather convex,—the suture being more flattened, and sometimes (together with the apical portion of the elytra) very distinctly rufescent. *Legs* and *antennæ* rufo-piceous; the *latter* with their club ferruginous.

Readily distinguished by its ovate, anteriorly-acuminated form, more or less picescent elytra, and by the enormous and very deep punctures of its prothorax. It is a tolerably common insect, in certain positions, both in Madeira and Porto Santo. It was in the latter island that I first, myself, discovered it; where, at the end of April 1848, it occurred in great profusion, beneath stones in sandy spots, in the immediate vicinity of the Cidáde. It appeared to be more especially active during the evenings, burrowing into the loose soil with considerable dexterity. In Madeira it seems to be principally confined to the southern shore, and to the neighbourhood of Funchal,—where it has been captured abundantly both by M. Rousset and Professor Heer, amongst animal and vegetable rejectamenta, on the sea-beach. It is a species almost peculiar to Mediterranean latitudes, being recorded in the south of France and in Algeria; and I possess specimens from Spain, collected by Professor Heer near Seville.

182. Psammodius cæsus.

P. angusto-subcylindricus nitidus niger, prothorace subquadrato-transverso profunde sed remote punctato, utrinque transverso-sulcato, elytris crenato-striatis, interstitiis minus convexis, pedibus rufo-piceis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Scarabæus cæsus, Panz. *Fna Germ.* 35. 2 (1796).
Aphodius cæsus, Fab. *Syst. Eleu.* i. 82 (1801).
——— ——, Heer, *Fna Col. Helv.* i. 530 (1841).
Psammodius cæsus, Erich. *Nat. der Ins. Deutsch.* iii. 913 (1848).

Habitat Maderam, rarior: in boreali, haud procul a Sanctâ Annâ, atque etiam in urbe ipsâ Funchalensi egomet parce deprehensi; necnon per oram maritimam australem cl. Dom. Heer detexit.

P. cylindrical and very narrow, being of almost equal breadth throughout, black, and shining (espe-

cially the males) : with the *clypeus* as in the last species. *Prothorax* convex, and more quadrate than that of the *P. sabulosus*, being of almost equal breadth before and behind (though perhaps, if anything, a little widest in front) ; beset with large, deep and remote punctures (though not so large or so deep as those of that insect) ; with a deep transverse groove on either side, towards the anterior angles, and a second, obscurer one behind it ; and with a distinct, though very abbreviated, longitudinal channel on the hinder disk. *Elytra* parallel, of equal breadth throughout, crenate-striated (but less deeply so than in the *P. sabulosus*) ; with the interstices impunctate and rather flattened,—especially the suture, which is sometimes obscurely picescent. *Legs* and *antennæ* rufo-piceous ; the *latter* with their club ferruginous.

The very narrow, elongated and cylindrical body of the *P. cæsus* will at once distinguish it from the remainder of the *Aphodiadæ* with which we are here concerned. The punctures of its prothorax are not quite so large and deep, nor are the interstices of its elytra so convex as is the case with the *P. sabulosus*. It does not seem to be a very abundant insect in Madeira, though widely diffused over the island at low and intermediate altitudes. I have taken stray specimens, occasionally, in the streets and gardens of Funchal ; and a single example occurred to me in the north of the island, during the summer of 1850, beneath a stone on the lofty sea-cliff which constitutes the eastern boundary of the Ribeiro de São Jorge, at its termination : and it has been captured sparingly on the beach of Funchal by M. Rousset and Professor Heer,—where its habits are in all probability similar to those of the last species. It is pretty generally distributed throughout Europe ; and is recorded, likewise, in Algeria.

Fam. 22. TROGIDÆ.

Genus 81. TROX.

Fabricius, *Ent. Syst.* i. 86 (1792).

Corpus mediocre, plus minusve obtuso-ovatum, crassum, tuberculato-rugosum et setis rigidis adspersum : *capite* deflexo : *prothorace* brevi lato, per marginem posticum sinuato : *scutello* distincto : *alis* amplis (rarissime obsoletis). *Antennæ* breves (capite vix longiores) lamellato-clavatæ 10-articulatæ, ad marginem capitis inter otium repositæ, articulis primo et secundo robustis setisque elongatis instructis (illo longissimo subclavato, hoc brevi subgloboso), tertio ad septimum parvis longitudine subæqualibus latitudine vix crescentibus, reliquis clavam magnam triphyllam efficientibus. *Labrum* subsemicirculare crustaceum pilosum exsertum, ad apicem plus minusve inæqualiter emarginatum. *Mandibulæ* validæ corneæ crassæ, extus valde pilosæ, apicem versus incurvæ acutæ, margine interno in mediâ parte profunde fisso-sinuato et laciniâ parvâ subcoriaceâ pubescenti aucto. *Maxillæ* bilobæ subcorneæ, lobis subæqualibus ; *externo* apice setis incurvis longissimis munito ; *interno* leviter arcuato, apice valde uncinato, intus setoso-ciliato. *Palpi* leviter clavati ; *maxillares* articulo primo minuto, secundo elongato subclavato, tertio breviore, ultimo elongato (secundo longiore) fusiformi-ovato : *labiales* articulo primo minuto, secundo longiore flexuoso subclavato, tertio crassiore elongato subovato. *Mentum* amplum subquadratum, pilis longissimis munitum, antice arcuato-emarginatum. *Ligula* mento occultata,

membranacea biloba. *Pedes* parum validi subretractiles: *femoribus anticis* valde dilatatis: *tibiis anticis* extus leviter tridentatis, *omnibus* setosis: *tarsis* filiformibus, articulis quatuor baseos longitudine subæqualibus.

Apart from their thick, obtuse, more or less setose and rugosely tuberculated bodies, the *Troges* have many points of peculiarity which will serve to separate them from the neighbouring groups. Thus, for instance, their 10-jointed and basally-pilose antennæ, in conjunction with their *unequally*-emarginated upper lip and singular maxillæ, the inner lobe of which is powerfully uncinated at its tip, and scarcely smaller than the outer one (a structure of very rare occurrence in the *Cordylocerata*, in which the interior division is usually minute, and often altogether obsolete), are more than sufficient whereby to identify them. From the *Aphodiadæ* the members of the present family are immediately distinguished by the robust nature of their corneous and incrassated (though apically acute) mandibles and hardened labrum (both of which are unconcealed by the clypeus,—though, at the same time, on account of the deflexion of the head, they are not very apparent from above), and by their broader anterior femora and less dilated fore-tibiæ. In their modes of life the *Trogidæ* somewhat recede from the *Cordylocerata* generally, carrying out the subnecrophagous tendency which is faintly indicated in the aberrant *Aphodiadæ* to a much greater extent; though it is scarcely possible however to regard them as strictly necrophagous, since they partake almost equally of the *normal* habits of the *Psammodii*, in frequenting putrescent *vegetable* matter in maritime or sandy spots. Still, their constant liability to be attracted by dried animal remains compels us to regard them as at any rate partially *ossiphagous*; since, whatever may be their means of sustenance in positions where such food is not to be obtained, it is certain that they not only feed, but feed voraciously on the cartilaginous portions of bones when placed within their reach,—a propensity which their strong, pointed mandibles and uncinated maxillæ would seem in fact especially to favour.

183. Trox scaber.

T. obtuso-ovatus niger, setulis fulvis adspersus necnon ad latera ciliatus, prothorace transverso inæquali, elytris leviter punctato-striatis, interstitiis longitudinaliter fasciculato-tuberculatis, antennis ferrugineis.

Long. corp. lin. 3.

Silpha scabra, Linn. *Syst. Nat.* i. ii. 573 (1767).
Trox arenarius, Fab. *Ent. Syst.* i. 87 (1792).
—— ————, Gyll. *Ins. Suec.* i. 11 (1808).
—— *scaber*, Heer, *Fna Col. Helv.* i. 533 (1841).

Habitat Maderam, mihi non obvius: exemplar unicum, a Dom. Heinecken prope urbem Funchalensem jam pridem captum, amicissime communicavit Rev^dus^ Dom. Lowe.

T. ovate, obtuse and thick, dull black, convex, and more or less beset with short, rigid, fulvous setæ,

—with which the extreme edges of the body are uniformly ciliated. *Prothorax* very short and transverse, and with the hinder margin sinuated; thickly, but confusedly punctured, and densely setose; uneven, being roughened with obscure elevations and depressions,—amongst which however a broad longitudinal canal down the centre is exceedingly apparent. *Elytra* widest (and very obtuse) behind; lightly punctate-striated; and the interstices, each, with a longitudinal row of small tubercles, which are densely beset, or fasciculated, with rigid fulvous setæ,—of which the alternate series are somewhat the largest. *Antennæ* dull ferruginous.

A common insect throughout Europe, and in the north of Africa; but apparently of the greatest rarity in Madeira,—if indeed (of which I am by no means certain) it be in reality indigenous. A single example only has hitherto come beneath my notice, which was captured, many years ago, by the late Dr. Heinecken, from whose collection it was presented to me by the Rev. R. T. Lowe. It differs in no respect from the ordinary type, except that its prothorax is perhaps a trifle less distinctly punctured, and the tubercles of its elytra are almost equal throughout,—the alternate series being scarcely at all larger than the intermediate ones.

Fam. 23. GLAPHYRIDÆ.

Genus 82. CHASMATOPTERUS.

(Dejean, *Cat.*) Latreille, *Reg. An.* iv. 567 (1829).

Corpus mediocre, plus minusve oblongo-ovatum et valde hirsutum: *capite* subdeflexo, *oculis* antice profunde emarginatis: *elytris* apice truncatis: *alis* amplis. *Antennæ* breves (capitis vix longitudine) lamellato-clavatæ 9-articulatæ, ad marginem capitis inter otium repositæ, articulis primo et secundo robustis setisque valde elongatis instructis (illo longissimo clavato, hoc brevi subgloboso), tertio ad sextum parvis longitudine vix decrescentibus latitudine leviter crescentibus, reliquis clavam magnam triphyllam efficientibus. *Labrum* breve transversum crustaceum exsertum, apice vix integrum pilisque longissimis munitum. *Mandibulæ* validæ corneæ, extus pilosæ, apicem versus incurvæ, margine interno arcuato. *Maxillæ lobo singulo* corneo valde biuncinato ad apicem pilosissimo instructæ (*interno* obsoleto). *Palpi* vix filiformes; *maxillares* articulo primo parvo subflexuoso, secundo et tertio robustioribus longitudine subæqualibus (illo paulo majore), ultimo valde elongato (reliquis conjunctim vix longiore) fusiformi-subovato: *labiales* e ligulâ ad angulos menti anticos surgentes, articulo primo parvo, secundo longiore subclavato, tertio paulo graciliore elongato fusiformi-subovato. *Mentum* amplum subquadratum, pilis longissimis munitum. *Ligula* mento fere occultata, membranacea, lobis elongatis divergentibus introrsum ciliatis aucta. *Pedes* elongati pilosi: *tibiis posterioribus* extus mox ante medium angulato-unisubdentatis; *anticis* ad apicem in lobum elongatum productis, subtus concavis articulum tarsorum basalem longe pone apicem ipsum recipientibus: *tarsis* filiformibus articulis quatuor baseos longitudine decrescentibus, primo (præsertim in anterioribus) elongato, quinto vix subclavato *unguiculis* divisis munito.

Chasmatopterus (which, be it observed, contains the only member of the Thalerophagous *Cordylocerata* hitherto detected in the Madeira Islands) may

be known from the other genera with which we are concerned by its extremely hairy body and sub-abbreviated elytra, by its long and comparatively slender legs and divided claws, and by its blossom-infesting habits. None of its kindred forms, so numerous in Mediterranean latitudes, existing in the present instance to contrast it with, there is but little fear of confounding it with any of the groups which it is necessary here to notice: suffice it therefore to remark, that its strong and arcuated mandibles, the apically biuncinated outer, and the obsolete inner portion of its maxillæ, in conjunction with the largely divergent lobes of its ligula and the singular construction of its fore-tibiæ (which are much produced at their extremity, and obliquely scooped-out within,—the basal joint of their tarsi being received into the cavity at a considerable distance behind the tip), will be amply sufficient, apart from other characteristics readily apparent, to distinguish *Chasmatopterus* from the remainder of the Coleoptera described in this work.

And we may here briefly advert to the extraordinary circumstance, that the immense department of the Thalerophagous Lamellicorns (or those which subsist on *living* vegetable substances), so widely diffused throughout the world, should be represented in Madeira by, apparently, but a solitary species,—and even that one of such extreme rarity that, during my constant researches in these islands, at nearly all seasons and extending over a period of about three years, not so much as a single example should have occurred to me; its sole admission into our fauna resting on an isolated specimen captured by the late Dr. Heinecken, many years ago, near Funchal. When we consider the vast importance of the Thalerophagous, or Melitophilous, section of the *Cordylocerata* in promoting the fecundation of plants (the hairiness of the numerous creatures which compose it, in connection with their almost exclusive attachment to flowers, constituting them especial media in the distribution of pollen), it does certainly seem unaccountable that, in islands where sunshine is the ruling power and where the flora is literally redundant, so gross an oversight in the economy of Nature should present itself. In the Saprophagous division (or those which feed on *decomposed* vegetable matter, as, for instance, the *Aphodiadæ*), our species, on the contrary, attain a very fair average in point of number,—especially when the nature of the country and the smallness of the island cluster is taken into account; and we are naturally therefore led to inquire why it is that the Thalerophagous type is so sparingly indicated. To a certain extent, the large preponderance of Hymenopterous and Dipterous insects may compensate for the deficiency, and enable us to arrive at a partial solution of an enigma otherwise difficult;—since it is more than probable that the dispersion of the pollen is abundantly effected (so far at least as it is dependent on insect agency at all) by the extra amount of individuals which those enormous Orders are here made to embrace. Still, be the explanation what it may, the fact must ever remain strange, that so significant a portion of the Coleoptera, and one which is scarcely less universal than profuse, should be but thus faintly expressed amongst upwards of a thousand members of a subaustral fauna.

184. Chasmatopterus nigrocinctus, *Woll.*

C. oblongo-ovatus niger subnitidus et pilis longissimis pallidioribus vestitus, prothorace convexo profunde punctato, elytris subruguloso-punctatis rufo-testaceis, suturâ, margine, humeris et scutello nigris, antennis tarsisque picescentibus.

Long. corp. lin. 3½.

Habitat Maderam, rarissime: specimen unicum tantum vidi, e museo Heineckeniano a Rev^do^ Dom. Lowe benigne communicatum.

C. oblong-ovate, deep black, with a just appreciable tendency to take an obscure bluish tinge, very slightly shining, and sparingly clothed with exceedingly long and flexible griseous pile. *Head* thickly, but rather confusedly punctured; and with the front and lateral margins of the clypeus raised and recurved. *Prothorax* convex, and rather narrower than the elytra (being widest about the middle, though slightly broader behind than before); with just perceptible indications of a dorsal channel posteriorly; and uniformly beset with large, deep and distinct punctures (which are deeper, and much more remote and defined, than those upon the head). *Elytra* subrugulose; and covered with large, but rather shallow and not very well-defined, punctures (which are not however disposed in striæ); testaceous,—with the suture, the lateral and apical margins, and the shoulders (which are exceedingly prominent), together with the *scutellum*, black. *Antennæ* and *tarsi* slightly picescent.

Apparently extremely rare; and hitherto unique,—the specimen from which the above description has been drawn out having been communicated to me by the Rev. R. T. Lowe from the collection of the late Dr. Heinecken, by whom it was captured, many years ago, near Funchal.

Sectio VI. PRIOCERATA.

Fam. 24. THROSCIDÆ.

Genus 83. TRIXAGUS.

Kugelann, *in Schneid. Mag.* v. 534 (1794).

Corpus parvum, ellipticum, pubescens: *prothorace* postice lato lobato elytris arcte applicato, angulis posticis valde acuto-productis; *prosterno* antice leviter producto: *alis* amplis. *Antennæ* breviusculæ (capite prothoraceque breviores) perfoliato-clavatæ, in foveâ sub margine prothoracis inter otium repositæ, articulis primo et secundo robustis (illo elongato subclavato, hoc brevi subgloboso), tertio ad octavum parvis subæqualibus, reliquis clavam magnam elongatam subperfoliatam triarticulatam efficientibus. *Labrum* subsemicirculare pilosum. *Mandibulæ* validæ, extus leviter pilosæ, apicem versus incurvæ acutæ. *Maxillæ* bilobæ: *lobo externo* lato, intus et apice valde pubescenti: *interno* angusto incurvo ciliato. *Palpi* clavati; *maxillares* articulo primo parvo, secundo et tertio majoribus crassioribus (illo hoc paulo longiore), ultimo magno subsecuriformi; *labiales* articulo primo parvo, secundo paulo longiore subclavato, tertio magno subsecuriformi. *Mentum* amplum transversum, antice in lobum medium productum. *Ligula* magna

subquadrata, apice truncata. *Pedes* graciles contractiles: *tibiis* sublineari-compressis: *tarsis* filiformibus gracilibus in foveis tibiarum receptis, articulo primo elongato, quarto leviter bifido.

The little genus *Trixagus* (= *Throscus*, Lat., *Gen. Crust. et Ins.* ii. 36, A.D. 1807) is so doubtful in its affinities, that entomologists are still at variance as to its correct location; some placing it near to, or with the *Byrrhidæ*, some with the *Dermestidæ*, others amongst the aberrant *Eucnemidæ*, whilst by Linnæus and Latreille the *Elateridæ* were selected to receive it. In real fact however it partakes in certain respects of the essential characters of all; so that it becomes a matter of no very great importance to which of them we choose to consider it as the most nearly allied,—and, especially, since it cannot be actually admitted into any of the above divisions, but must constitute a separate family in the immediate vicinity of one or the other of them. In M. Gaubil's recently published Catalogue of the European Coleoptera it is associated with *Myrmecobius* and *Thorictus*, and made to perform the passage from the *Byrrhidæ* into the *Histri*: but, although it is unquestionably desirable that it should be regarded as the type of an isolated group, I am by no means convinced that it possesses anything in common with the latter,—whilst with *Thorictus* it does not appear to me to have even the most distant connection. To the *Byrrhidæ* it is manifestly akin in many particulars of its structure (its clavated antennæ, for instance,—which are received during repose into grooves of its *anteriorly produced* prosternum,—and in the contractility of its legs); and it is impossible to deny that it approaches very evidently towards the *Elateridæ* likewise (as its general contour, and the extremely acuminated hinder angles of its prothorax obviously indicate): so that it is, in all probability, between those two families that it forms a connecting link,—and it is simply therefore a question of degree to which of them it is the more closely related. For my own part, I am inclined to accept the position assigned to it by Mr. Westwood, in his admirable *Introduction to the Modern Classification of Insects*, as by far the most natural one,—believing, with him, that "the *least* important of its characters as *family characteristics* are those which separate it from the *Elateridæ*." The *Trixagi* are European insects, and exceedingly few in species,—three only having been hitherto described. They occur normally in fungi; though in reality they are more frequently to be *found*, in an active state, amongst dense herbage, or on the flowers and foliage of plants, in shady spots beneath trees.

185. Trixagus gracilis, *Woll.*

T. ellipticus rufo-brunneus dense cinereo-pubescens, prothorace punctulato angulis posticis valde acuto-productis necnon ad basin lobato, elytris leviter subpunctato-striatis, interstitiis distincte punctulatis, antennis ferrugineis, pedibus testaceis.

Long. corp. lin. $1\frac{1}{3}$.

Habitat Maderam australem,—in horto Loweano ad Levada, inter lichenes unâ cum *Ephistemo dimidiato* degens, a meipso repertus.

T. elliptical, reddish-brown, and densely clothed with a decumbent cinereous pile. *Head* and *prothorax* regularly punctulated: the *latter* broad behind, with the posterior angles exceedingly produced and acute, and with the basal margin lobed in the centre. *Elytra* very finely striated (the striæ being most obsoletely punctured); and with the interstices rather thickly and distinctly punctulated,—the punctures being larger and more oblong than those of the prothorax. *Antennæ* ferruginous. *Legs* testaceous.

Readily distinguished from the common European *T. dermestoides* by its smaller and narrower body, by the almost imperceptibly punctate striæ, and very distinctly punctulated interstices, of its elytra, by the absence of the two raised ridges which are so conspicuous on the forehead of that insect, and by the less abrupt and differently formed club of its much slenderer antennæ. It is intermediate between the *T. dermestoides*, Linn., and the *T. pusillus*, Heer; and I should have been inclined to have referred it to the *T. elateroides* of the latter author, had not that species been described as "pronoto longiore, anterius multo angustiore [quam in *T. dermestoides*], basi in medio impresso; elytris striatis, striis ad suturam valde obsoletis,"—none of which characters appertain to the Madeiran representative of the group; which has its elytral striæ unquestionably punctate, whilst the shape of its prothorax differs in no respect from that of the *T. dermestoides*. Its size moreover exceeds by the third of a line that given by Professor Heer for the *T. elateroides*,—of which I have not been able to procure a specimen for comparison; and with which I am consequently unable, with such points of apparent discrepancy, to identify it. It is exceedingly rare, the only example which I have seen having been captured by myself, in the garden of the Rev. R. T. Lowe, at the Levada, in company with *Ephistemus dimidiatus* and *Cis fuscipes*, amongst lichen and fungi on the rotten stump of an old peach-tree.

Fam. 25. ELATERIDÆ.

Genus 84. COPTOSTETHUS, *Woll.* (Tab. IV. fig. 8.)

Corpus parvum, elongato-subovatum, undique dense villosum: *prothorace* magno, elytris arcte applicato, angulis posticis valde acuminato-productis; *prosterno* antice producto et postice in spinam acutam attenuato (spinâ in mesosternum receptâ): *alis* obsoletis. *Antennæ* longissimæ (capite prothoraceque multo longiores) subfiliformes, basin versus subserratæ, ad prosterni superficiem inter otium arcte repositæ, articulo primo robusto, secundo brevi subgloboso, tertio majore (sed haud quarti longitudine), reliquis latitudine vix decrescentibus longitudine vix crescentibus. *Labrum* subsemicirculare pilosum. *Mandibulæ* validæ arcuatæ angustæ acutissimæ, ad basin latæ extus pilosæ, margine interno basi coriaceo leviter pubescenti necnon apicem versus dente valido instructo. *Maxillæ* (IV. 8 *b*) bilobæ membranaceæ: *lobo externo* lato, apice valde pubescenti: *interno* breviore, minus pubescenti. *Palpi* subfiliformes; *maxillares* articulo primo parvo, secundo majore crassiore, tertio breviusculo (secundo paulo graciliore), ultimo (secundo vix longiore sed crassiore) subfusiformi apice oblique truncato: *labiales* (IV. 8 *c*) e scapis ligulæ connatis

surgentes, articulo primo parvo, secundo paulo longiore crassiore, ultimo elongato subovato apice vix truncato. *Mentum* amplum subquadratum membranaceum, antice integrum tenuissimum. *Ligula* magna membranacea, antice lata, apice truncata pilosa bifida. *Pedes* elongati: *femoribus* (præsertim posticis) incrassatis: *tibiis* gracilibus: *tarsis* filiformibus simplicibus elongatis, articulis quatuor baseos longitudine decrescentibus, quinto longissimo *unguiculis* simplicibus munito.

A κοπτὸς sectus, et στῆθος pectus.

The very interesting insect from which the above structural diagnosis has been compiled would appear, in its habits and general affinity, to be the Madeiran analogue of *Cryptohypnus*, though at the same time with too many distinctive features of its own to allow of its being referred to that genus. Thus, for instance, its apterous and excessively villose body, in conjunction with its largely developed prothorax, the enormous length of its antennæ (of which the second joint only is minute,—the third being scarcely smaller than the following one), and the unusual thickness of its posterior femora, will more than suffice, apart from the modifications of its oral organs, to separate it, even *primâ facie*, from the members of that and the immediately adjoining groups. It would seem to be of the greatest rarity, two specimens merely having come beneath my notice,—captured by myself in Porto Santo during the winter of 1848: and since it is the only representative of the *Elateridæ* which enters into our fauna, it follows that in Madeira proper the family, so far at least as our researches up to the present period would tend to prove, is literally not even *indicated*,—a fact so perfectly astounding as, *à priori*, to be well nigh incredible. It cannot of course be positively affirmed that a department so vast and important as the *Elateridæ* is actually non-existent in an island thus extensive, and abounding in every condition and requisite for its subsistence, inasmuch as it is not possible to prove a negative proposition; but I can add with certainty, that, during my repeated investigations of it, distributed over an interval of nearly three years, and those of the Rev. R. T. Lowe, throughout a far longer period, and from amongst the constant collections which have been from time to time communicated to me by friends on the spot (which however have not added, in all, more than about thirty species, in the Coleoptera, to those which I had myself detected), not so much as the fragment of an *Elater* has been hitherto brought to light; and we are therefore at least entitled to conclude that, should any member of this widely-distributed race be present, it must occur in very scanty numbers to have escaped our combined observations thus far. We have already had occasion to advert to the remarkable circumstance that the Thalerophagous *Lamellicornes* should have but a single form, apparently, to bear them witness in the Madeiran group: but strange as that unquestionably is, in a country where sunshine may be said to be the one controlling element, it is perhaps surpassed by the total absence (if such be indeed the case) of the *Elateridæ* from the central mass;—whilst even in the smaller adjacent island of Porto Santo it is but just expressed.

186. Coptostethus femoratus, *Woll.* (Tab. IV. fig. 8.)

C. elongato-subovatus subænescenti-nigro-brunneus densissime cinereo-villosus, prothorace magno in disco convexo, ante medium lato necnon ad latera rotundato, elytris leviter striatis, antennis ferrugineis, pedibus testaceis, tibiarum parte mediâ infuscatâ.

Long. corp. lin. $1\frac{2}{3}$.

Habitat in montibus Portûs Sancti, rarissimus: duo specimina in cavernâ quadam basalticâ mox infra cacumen montis "Pico d'Anna Ferreira" dicti sitâ d. 7 Dec. A.D. 1848 sub lapidibus inveni.

C. elongate-subovate, blackish-brown, with a very obscure æneous tinge, minutely and indistinctly punctulated all over, and densely clothed with a long and soft cinereous pile. *Prothorax* very large, widest before the middle, and narrowed behind (the sides being rounded); very convex on the disk; and with the hinder angles exceedingly produced and acuminated. *Elytra* obtuse at the apex, and rounded at the sides,—being broadest just behind the middle; and very lightly striated. *Antennæ* exceedingly long, and ferruginous. *Legs* testaceous, with the *femora* (which, especially the hinder ones, are somewhat thickened) slightly infuscated, and with the *tibiæ* infuscated in their centre,—their base and apex being testaceous.

Apparently of the greatest rarity; the only two specimens which I have seen having been captured by myself, December 7th, 1848, in the island of Porto Santo,—from beneath loose stones in a large basaltic cavern immediately below the extreme summit of the Pico d'Anna Ferreira, facing the south.

Fam. 26. CYPHONIDÆ.

Genus 85. EUCINETUS.

Schüppel, *in Germ. Mag.* iii. 255 (1818).

Corpus parvum, ovatum, supra valde convexum, infra planum; ægre saltatorium: *capite* inflexo, ad prosternum inter otium applicando: *prothorace* parvo lato rotundato, elytris arcte applicato; *prosterno* simplici: *alis* sat amplis. *Antennæ* breviusculæ (capite prothoraceque paulo longiores) filiformes, articulo primo vix robusto cylindrico, secundo, tertio et quarto paulo gracilioribus longioribus obconicis, reliquis (ultimo ovato excepto) æqualibus suboblongis apice truncatis. *Labrum* transversum pilosum, antice integrum. *Mandibulæ* compressæ subcorneæ arcuatæ, ad basin latæ extus leviter pilosæ, apicem versus acutissimæ bifidæ, intus late emarginatæ et membranâ tenuissimâ instructæ. *Maxillæ* bilobæ: *lobo externo* membranaceo brevi lato, apice valde pubescenti: *interno* longiore validiore angusto recto, apice incurvo acutissime uncinato, intus pilis longis ciliato. *Palpi* subfiliformes pilosi; *maxillares* articulo primo parvo, secundo crassiore leviter elongato, tertio huic paulo breviore, ultimo elongato subfusiformi apice acuminato; *labiales* articulo primo parvo, secundo paulo longiore crassiore, ultimo elongato subfusiformi-ovato. *Mentum* amplum subcorneum pilosum transverso-subquadratum, antice angustatum necnon ad apicem integrum. *Ligula* transversa membranacea, basi valde constricta, apicem versus dilatata vix sub-biloba. *Pedes* elongati pilosi subcontractiles: *femoribus anticis* gracilibus cylindricis, *posterioribus* crassioribus subovatis: *tibiis anticis* gracilibus subcylindricis, apice vix calcaratis vel spinulosis; *posterioribus* robustioribus apicem versus dilatatis, apice valde spinu-

losis (*intermediis* breviusculis calcariis duobus æqualibus, *posticis* longiusculis leviter incurvis calcaribus duobus inæqualibus, munitis) : *tarsis* subacuminato-filiformibus (posterioribus longissimis), articulis quatuor baseos longitudine decrescentibus necnon ad apicem ipsum valde spinulosis, quinto gracili-subcylindrico (in posterioribus parum brevi) *unguiculis* minutis minus validis munito.

The subsaltatorial powers of *Eucinetus* (=*Nycteus*, Lat., A.D. 1825), its convex and anteriorly-obtuse body (the head being inflexed, and very closely applied during repose against the chest), in conjunction with its minute prothorax and largely spurred posterior tibiæ (with their exceedingly long, spinulose and subsetiform, or slightly acuminated*, feet), will readily distinguish it from every other genus with which we have here to do. As regards the obscurer details of its structure, its internally membranous and apically-bifid mandibles, added to the basal constriction of its ligula, and the peculiar form of its inner maxillary lobe (which, although narrower, is perceptibly *longer* than the outer one,—and is, likewise, more corneous, and armed at its tip with a robust and extremely acute claw), should be especially noticed. Its capability of jumping, which would appear to reside principally in the greatly developed calcaria of its four hinder legs, is singularly imperfect, and often degenerates into a mere shuffling motion, the insect not being ordinarily able, even during its most successful attempts, to rise much higher than an inch, —as in fact its very moderately incrassated posterior femora, as compared with those of the bounding groups generally, would seem to indicate (the strong muscles which are so evidently denoted in the *Halticæ* not being here present to require the extra support). Nevertheless, the four hinder thighs are considerably more thickened than the front ones,—which last indeed are unusually slender; the whole leg being weak, almost destitute of spinous appendages, and entirely in accordance with the smallness of the prothoracic segment for which the *Eucineti* are so remarkable. The only other point to which I would particularly direct attention relates to the spurs and spinules of the four posterior legs,—the first of which are equal in the intermediate, and unequal in the hinder pair ;—whilst the second fringe the extreme apices of the tibiæ, and of all the joints, except the last, of the tarsi, with a dense circle of rigid bristles, which in all probability assist very materially, in connexion with the two larger spurs, in enabling the creature to perform its (more or less abortive) leap. In their modes of life the *Eucineti* would seem to be in accordance with the ordinary *Cyphonidæ*, delighting in damp and rather shady spots,—and often secreting themselves beneath the loosely-attached bark of trees, or in the grooves and crevices which indent the outer surfaces of the trunks.

* This structure of foot must not be confounded with the (likewise) *acuminated* one already discussed under the genera *Cossyphodes* and *Thoractus*,—which we see so often expressed in insects of an Ant-associating tendency, but which is of an altogether different nature. The modification which obtains in *Eucinetus* is long and *setiform*, and is especially indicative of subsaltatorial, or shuffling, habits (like those, for instance, of the *Mordellidæ*); whereas the other is short, thick and conical, and completely free from anything like additional spinulose appendages,—being usually in fact constituted out of a less hardened, or more elastic, material than those of the present type.

187. Eucinetus ovum, *Woll.*

E. ovatus convexus infra planus, infuscato-niger necnon cinereo-pubescens, prothorace parvo fere impunctato, elytris dense et minute punctulatis, postice obsoletissime substriatis, apicem versus dilutioribus, antennarum basi pedibusque diluto-testaceis.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat per regionem Maderæ sylvaticam, ab autumno usque ad ver novum, rarior: sub cortice arborum laxo ad Curral das Romeiras primus detexit Rev^{dus} Dom. Armitage; necnon ad Lombo dos Pecegueiros, in Maderâ boreali, egomet parce collegi.

E. ovate (being exceedingly obtuse in front), very convex above (especially anteriorly) and flattened beneath; brownish-black, and densely clothed with a cinereous pubescence. *Prothorax* small; wide behind, and with the basal margin rounded and closely applied to the elytra,—which it exactly equals in breadth; highly polished, and almost impunctate; and usually a little diluted in colouring towards the sides. *Elytra* closely and minutely punctulated all over (the punctures appearing beneath the microscope to be rather obliquely impinged, but with scarcely any indication on the surface of the transversely-reticulated sculpture which is so conspicuous in the European species); less shining than the prothorax; very obscurely substriated behind (though rather more evidently so towards the suture than towards the margins); and more or less gradually diluted, or of a paler brown hue, at their apex. *Antennæ at base,* and the *legs* diluted-testaceous; the *latter* with the circlet of spinules which fringes the extreme apices of their *four hinder tibiæ,* and of all the joints except the last of their *four hinder tarsi,* black.

A large and very distinct *Eucinetus*; and one which may be readily known from the European *E. hæmorrhous* by its much greater bulk, wider and less apically acuminated form, by its less deeply black, or more fuscescent, hue, and by its almost total freedom from any appearance of the transverse reticulations, and by the entire absence of the brightly rufescent terminal patch, which are so conspicuous on the elytra of that species. It is exceedingly rare, being found sparingly beneath the loose bark, or in the cracks and indentations on the outer surfaces, of trees, during the autumnal and winter months, throughout the sylvan districts of intermediate altitudes. It has been captured by the Rev. W. J. Armitage at the Curral das Romeiras, near Funchal; and I have, also, taken dead specimens in the north of the island, at the Lombo dos Pecegueiros, during July.

Fam. 27. TELEPHORIDÆ.

Genus 86. MALTHODES.

Kiesenwetter, *in Linn. Ent.* vii. 265 (1852).

Corpus parvum, angusto-lineare, molle: *capite* parum convexo, postice constricto, *oculis* magnis: *prothorace* parvo subquadrato-transverso: *elytris* sæpius valde abbreviatis, *alas* amplissimas haud tegentibus. *Antennæ* (præsertim in maribus) elongatæ filiformes basi subapproximatæ, mox infra oculorum marginem internum insertæ, articulo primo leviter robusto longiusculo subclavato,

reliquis latitudine æqualibus longitudine (secundo vix breviusculo excepto) subæqualibus. *Mandibulæ* corneæ elongatæ arcuatæ, apicem versus acutæ, intus haud dentatæ. *Maxillæ* bilobæ membranaceæ: *lobo externo* lato, apice pubescenti: *interno* brevi barbato, laciniâ tenuissimo-membranaceâ ciliatâ instructo. *Palpi* subfiliformes; *maxillares* (ut mihi videntur) articulo primo parvo translucido, secundo elongato subclavato, tertio huic paulo breviore subflexuoso, ultimo elongato (secundi longitudine) leviter incrassato subfusiformi, ad apicem valde acuminato translucido; *labiales* omnino translucidi articulo primo parvo subgloboso, secundo elongato vix subclavato, ultimo subfusiformi ad apicem valde acuminato. *Mentum* membranaceum. *Ligula* tenuissimo-membranacea. *Pedes* graciles: *tibiis* subcylindricis: *tarsis* articulo primo (præsertim in *posterioribus*) elongato, quarto valde bilobo, quinto breviusculo subflexuoso *unguiculis* simplicibus munito.

Malthodes, recently established by Kiesenwetter to contain a portion of *Malthinus* of Latreille, differs principally from the latter in having the head more convex and less suddenly constricted behind, in the antennæ being inserted slightly nearer to the inner margin of the eyes, and in the mandibles being simple internally, instead of (as in that genus) armed with a powerful tooth. It possesses however many characters in common with *Malthinus*,—as, for instance, its linear-elongate form, its delicate and flexible texture, its apically abbreviated elytra and its exposed wings,—which apart from the peculiarities of its oral organs (amongst which, their almost membranous general structure, and the subfusiform, extremely acuminated terminal joint of the palpi should be especially noticed), will serve at once to distinguish it from every other allied group. They are insects nearly, if not quite, peculiar to temperate latitudes, upwards of forty species having been described as European; but, owing to the extraordinary softness of their outer envelope, which is liable to shrivel, or collapse, when dry, they are not always easy of determination. They occur for the most part amongst dense vegetation and flowers, and are often remarkably gregarious.

188. Malthodes Kiesenwetteri, *Woll.*

M. angusto-linearis subnitidus infuscato-niger et cinereo-pubescens, prothorace brevi, elytris valde abbreviatis vix pallidioribus necnon ad apicem obsolete flavo-terminatis, antennarum basi pedibusque paulo dilutioribus.

Long. corp. lin. 1–1¼.

Habitat per partem Maderæ sylvaticam, æstate non infrequens: usque ad 5000′ s. m. ascendit, sed in graminosis intermediis prædominat.

Species *M. brevicolli*, Payk., valde affinis, ab illo tamen esse vere diversa apud cl. Dom. Kiesenwetter, Lipsiæ, dicitur, cujus in honorem nomen triviale proposui.

M. narrow and linear, very slightly shining, most delicately and remotely punctulated, obscure brownish-black, and densely clothed with a rather robust cinereous pubescence. *Head* convex. *Prothorax* very short. *Elytra* usually a little paler than the head and prothorax, and exceedingly abbreviated; rather wrinkled, and with the apex of each terminated with a very obscure (some-

times only just perceptible) yellowish spot. *Antennæ at base*, and the *legs* more diluted, or fuscescent.

The Madeiran representative of the common *M. brevicollis* of more northern latitudes, to which it approximates very closely: nevertheless, having recently sent it for examination to M. Kiesenwetter, of Leipzig,—the author of an elaborate Monograph of the genus, published in the sixth volume of the *Linnæa Entomologica*,—who pronounces it to be distinct from that species, I have retained it as such. It appears to be tolerably abundant throughout the sylvan districts of the island, occurring in grassy spots, and amongst flowers, during the spring and summer months,—though, from its small size and obscure, delicate frame, it is very liable to be overlooked; its exposed wings, moreover, and general contour giving it rather the aspect, at first sight, of an Hymenopterous than of a Coleopterous insect. I have taken it at the head of the Ribeiro de Santa Luzia, and in the Chestnut-woods of Santa Anna, in May; on the Lombo das Vacas, in June; and at the Cruzinhas, and the Lombo dos Pecegueiros, in July.

Fam. 28. MELYRIDÆ.

Genus 87. MALACHIUS.

Fabricius, *Ent. Syst.* i. 221 (1792).

Corpus mediocre vel parvum, plus minusve lineari-oblongum, molle, plerumque læte coloratum: *capite* parum convexo subrotundato, *oculis* magnis prominulis, *clypeo* plus minusve membranaceo, transverso: *prothorace* sæpius subquadrato, ad latera (cum *abdomine*) interdum flabellato: *alis* amplissimis. *Antennæ* (præsertim in maribus) longiusculæ, filiformes (ut in specie nostrâ), vel serratæ; modo in utroque sexu simplices, modo in masculo articulis basilaribus intus productis; basi plus minusve approximatæ, infra oculorum marginem anticum insertæ; articulo primo leviter robusto subclavato, reliquis (secundo breviusculo et ultimo ovali exceptis) subæqualibus, vel latitudine leviter decrescentibus. *Labrum* corneum limbo coriaceo, transverso-subquadratum, antice plus minusve rotundatum. *Mandibulæ* magnæ corneæ latæ, apicem versus acutissimæ bifidæ. *Maxillæ* bilobæ, apice leviter pubescentes: *lobo externo* apice dilatato submembranaceo: *interno* paulo breviore, omnino submembranaceo. *Palpi* filiformes breviusculi; *maxillares* articulo primo parvo, secundo et tertio crassioribus subæqualibus, ultimo longiusculo fusiformi-conico ad apicem ipsum truncato; *labiales* articulis primo et secundo parvis, ultimo paulo longiore fusiformi-conico ad apicem ipsum truncato. *Mentum* (nisi fallor) veluti e duplici parte formatum, aliâ terminali magnâ subquadratâ coriaceâ apice membranaceâ, aliâ basali (prioris stipite) membranaceâ brevissimâ transversâ. *Ligula* membranacea pilosa, apice rotundata. *Pedes* elongati graciles: *tibiis* cylindricis: *tarsis* articulis quatuor baseos subtus leviter oblique productis (primo et secundo æqualibus, tertio vix breviore, quarto brevi), quinto elongato clavato, ad apicem membranâ tenuissimâ bilobâ *unguiculis*que parvis validis munito.

The common genus *Malachius*, well known by the gaily coloured (though not usually metallic) surfaces, soft texture, and the flower-infesting habits of the active

insects which compose it, is represented in the Madeira Islands by, apparently, but a single species,—which, perhaps, from the short and very membranous structure of its clypeus, may fall, more strictly, under the genus *Attalus* of Erichson. The characters however on which this latter group is made to rest are so small, that it is scarcely possible to regard them as of more than sectional importance; and I have preferred therefore quoting the present insect as a *Malachius*,—with which in every essential particular (as may be gathered from the above diagnosis, drawn solely from the Madeiran type) it unquestionably agrees.

189. Malachius militaris, *Woll.*

M. lineari-oblongus nitidus subviridescenti-ater et subtiliter cinereo-pubescens, prothorace elytrorumque apice rufis, illius disco nigro, antennarum basi pedibusque anticis obscure infuscato-picescentibus.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat in floribus Maderæ australis, præsertim in urbe ipsâ Funchalensi, tempore vernali non infrequens: in horto Ecclesiæ Anglicanæ mense Maio A.D. 1849 plurima specimina e rosis collegi.

M. narrow, linear-oblong, shining, deep black with an obscure greenish tinge, and clothed with a very delicate cinereous pubescence. *Head* convex behind. *Prothorax* bright rufous, with a dark patch in the centre of the disk (very rarely absent). *Elytra* with the apex bright rufous. *Mesothorax* underneath rufous. *Antennæ at base*, and the two front legs usually very obscurely fuscescent.

Not an uncommon insect in gardens near Funchal during the spring. It approaches a little, in general external aspect, to the common *M. pulicarius* of more northern latitudes. Nevertheless it is abundantly distinct from that species, not only in its smaller and narrower form, shorter legs and antennæ, more glabrous surface, and less dilated prothorax, but likewise in many points even of its structure,—amongst which its shorter and slenderer feet, with their more oblique joints, are at once apparent. I took it abundantly in May 1849 out of the flowers of the common monthly rose, in the garden of the English Church, in the Beco das Arãnhas, at Funchal; and it has been subsequently captured, in similar positions, by Dr. Albers of Berlin.

Genus 88. PECTEROPUS, *Woll.* (Tab. IV. fig. 7 et 9.)

Corpus mediocre vel parvum, plus minusve elongato-subovatum, molle, metallicum: *capite* modo (ut in *P. Maderensi*, Tab. IV. fig. 7) subrotundato convexiusculo *oculis* prominulis *clypeo*que brevi, modo (ut in *P. rostrato*, Tab. IV. fig. 9 *a*) subelongato depresso *oculis* minus prominulis *clypeo*que longiusculo, modo (ut in *P. rugoso*) intermedio (*i. e.* subrotundato depressiusculo *oculis* prominulis *clypeo*que leviter longiusculo); *clypeo in omnibus* membranaceo: *prothorace* rotundato-subquadrato: *alis* amplissimis. *Antennæ* (præsertim in maribus) longiusculæ subserrato-filiformes (in utroque sexu simplices), basi minus approximatæ, infra oculorum marginem anticum

(et ab illis remotæ) insertæ, articulo primo leviter robusto clavato, reliquis (secundo breviusculo et ultimo ovali exceptis) subæqualibus. *Labrum* vix coriaceum, limbo membranaceo, transverso-subquadratum, antice rotundatum. *Mandibulæ* magnæ corneæ longiusculæ, apicem versus acutissimæ bifidæ, intus membranâ angustâ tenuissimâ auctæ. *Maxillæ* (IV. 9 *b*) bilobæ, apice leviter pubescentes: *lobo externo* basi angusto subcoriaceo, apice subito dilatato submembranaceo: *interno* breviore, omnino submembranaceo. *Palpi* filiformes, breviusculi vel elongati; *maxillares* articulo primo parvo, secundo et tertio crassioribus subæqualibus (modo, ut in *P. Maderensi*, brevibus; modo, ut in *P. rostrato* et *rugoso*, longiusculis), ultimo elongato fusiformi subacuminato ad apicem ipsum vix truncato; *labiales* (IV. 9 *c*) conici crassi, articulis primo et secundo latitudine subæqualibus (illo brevi lato, hoc paulo longiore), ultimo angustiore longiusculo subfusiformi-conico ad apicem ipsum truncato. *Mentum* (ut mihi videtur) veluti e duplici parte formatum, aliâ terminali magnâ (subquadratâ ad latera rotundatâ) coriaceâ antice membranaceâ, aliâ basali (prioris stipite) corneâ apice subcoriaceâ (transverso-subquadratâ ad latera in angulum medium productâ pilisque duobus longissimis instructâ). *Ligula* elongata membranacea pilosa, apice truncata. *Pedes* elongati graciles: *tibiis* cylindricis: *tarsis* (IV. 9 *d*) articulis quatuor baseos subtus leviter oblique productis (primo et secundo æqualibus, tertio vix breviore, quarto brevi), *anticis* in maribus (IV. 7 *a*, et 9 *e*) articulo secundo in lobum elongatissimum concavum subgaleiformem apice subito incurvum (introrsum plus minusve valde nigro-setoso-pectinatum) supra-producto, quinto (in omnibus atque in utroque sexu) elongato valde clavato, apice membranâ tenuissimâ bilobâ *unguiculis*que majoribus validis munito.

A πεκτὴρ pectinator, et ποῦς pes. (Typus—*P. Maderensis*.)

A very interesting and well-marked genus, being one moreover of the most truly indigenous and characteristic throughout the Madeiran Coleoptera. Apart from the metallic lustre of the insects which compose it, it may be readily known from the allied forms, as indeed from every other with which I am acquainted, by the very peculiarly constructed second joint of its anterior male tarsi, which is oblique in an opposite direction to the remainder, being produced *on the upper side* into an extremely elongated, subgaleiform or concave process, which is deflected, and strongly pectinated within with dark and powerful bristles, which are more or less numerous in each of the species hitherto discovered,—remaining constant, in one case (*P. rugosus*) to the extreme apex only, in another (*P. rostratus*) to the apex and a small portion of the sides, whilst in a third (the *P. Maderensis*, which I should regard as the type) they fringe the terminal and lateral margins along very nearly their entire distance. All three representatives moreover differ a little in the relative proportions (the length especially) of their head, clypeus and palpi,—which, being structural points, have rendered it convenient to arrange them under separate sections. Yet, retaining as they do all essential characters in common, and, more particularly, preserving unimpaired the feature which is so remarkable in their anterior male feet (the modifications in the number of the inner bristles, and the breadth of the lobe, being of course merely specific), it is impossible to regard them in any other light than as members of a single (and perhaps geographical*) group.

* Belonging evidently to the present genus (though I have not been able to procure a male specimen, and therefore to examine the anterior tarsi of that sex) is a very interesting and distinct species, detected

§ I. *Caput subrotundatum latum subconvexum, clypeo brevi, oculis prominulis: palpi maxillares breviusculi, articulis secundo et tertio breviusculis: tarsi antici maris articulo secundo in lobum elongatum (margine apicali lateribusque intus pectinatis) supra producto.*

190. Pecteropus Maderensis, *Woll.* (Tab. IV. fig. 7.)

P. antice subacuminatus, parce pubescens nitidus viridescenti- vel cuprescenti-æneus, capite prothoraceque parce punctatis, elytris leviter subpunctato-rugulosis, antennarum basi pedibusque rufo-testaceis.

Mas sæpius viridescenti-æneus (interdum etiam omnino viridi-micans), antennis paulo longioribus, femoribus (præsertim posterioribus) plerumque subinfuscatis.

Fœm. sæpius cuprescenti-æneus, antennis paulo brevioribus, femoribus rarius infuscatis.

Var. β. capite prothoraceque crebrius punctatis necnon subtuberculatis.

Long. corp. lin. $1\frac{5}{4}$–$2\frac{7}{8}$.

Habitat Maderam, tempore æstivo, hinc inde vulgaris, a 2500′ s. m. usque ad cacumina montium ascendens: ad Lombo das Vacas die solstitiali A.D. 1850 primus inveni, et plurima specimina e floribus *Cinerariæ auritæ* (= *Senecionis Maderensis*, De Candolle) ad Cruzinhas crescentis mense Julio ejusdem anni cepi; alia etiam in summo ipso monte (6100′ s. m.) Pico Ruivo dicto, flores *Ericæ cinereæ* circumvolantia, Augusto ineunte deprehensi.

P. elongate-ovate (being rather dilated behind and acuminated anteriorly); pubescent and shining; æneous, with a more or less brilliantly greenish or coppery splendour. *Head* and *prothorax* brightly polished, and sparingly punctured: the *former* roundish, convex behind, and with two rather deep

---

by the Rev. W. J. Armitage in Teneriffe:—so that it is far from improbable that *Pecteropus* may embody a type of form which obtains, more or less, throughout the whole of the islands of this portion of the Atlantic. The following short description may serve to characterize the Canarian representative:—

Pecteropus pellucidus, *Woll.*

P. antice subacuminatus, pubescens nitidus ænescenti-niger, capite prothoraceque parce punctatis, illo subrotundato latiusculo, hoc parvo ad angulos posticos pallido-pellucido, elytris leviter subpunctato-rugulosis, antennarum tarsorumque basi subinfuscatâ.

Long. corp. lin. $1\frac{2}{3}$.

Habitat in insulâ Teneriffâ Canariensi, a Rev^do^ Dom. Armitage communicatus.

P. elongate-ovate (being dilated behind, and rather acuminated anteriorly); pubescent and shining; black with a greenish-brassy tinge. *Head* and *prothorax* rather brightly polished, and very sparingly and minutely punctured: the *former* roundish, rather convex behind, but with very slight indications of frontal impressions; with the *eyes* prominent: the *latter* small, and widest about the middle; and with the hinder angles pale whitish-testaceous and pellucid. *Elytra* very lightly rugulose and subpunctate. *Antennæ at base*, together with the *extreme apices of the tibiæ* and the *bases of the tarsi*, infuscate.

A most elegant little species; approaching more nearly, in its general outline and sculpture, to the *P. Maderensis* than to either of the other Madeiran members of the group: nevertheless, its comparatively dark surface (which is black, with a greenish-brassy tinge), in conjunction with the pale and curiously transparent portion of its margin at either posterior angle, will at once abundantly characterize it.

longitudinal impressions in front; with the *eyes* prominent: the *latter* widest about the middle. *Elytra* rugulose (but not very coarsely so) and subpunctate; usually expanded behind. *Antennæ at base* (rarely at the apex also), and the *legs* rufo-testaceous.

Male, usually greener than the female; with the antennæ, also, a little longer; and with the femora (especially the four hinder ones) generally more or less infuscated.

Female, generally more æneous, or else more coppery, than the male; with the antennæ a little shorter; and with the legs usually altogether pale, their femora being rarely infuscated.

Var. β. with the head and prothorax (of both sexes, though especially of the female) more closely and coarsely punctured: and likewise subgranulate, particularly towards the sides.

Known readily from the following members of the genus by its usually more brilliant colour (the greenish lustre, which is seldom very apparent on either of its Madeiran allies, being here, especially in the male sex, often exceedingly conspicuous), and by its brighter and less roughened surface,—the closely-set granules which are so evident on the head and prothorax of the *P. rugosus* and *rostratus* being represented by distant punctures (even though in extreme varieties a tendency to tubercles, at any rate towards the sides, may be occasionally detected). In its broad head and prominent eyes it approaches the former of those species more nearly than the latter; so much so indeed, that aberrant *females* (where granulations are slightly indicated) might sometimes be mistaken, *primâ facie*, for those of the *P. rugosus*: nevertheless, the rather larger size and more apically-expanded form, in conjunction with their convexer head (which has two deep longitudinal impressions in front), more shining, metallic body, and fainter sculpture, will always serve, on inspection, to separate them from that insect. It recedes from it very decidedly, moreover, even in its habits; being confined exclusively to the mountains, and ranging from about the altitude of 2500 feet to the highest peaks. It would seem also (as in fact its alpine nature would lead us to expect) to come into existence later in the season than the *P. rugosus*, occurring peculiarly during the summer months. It is more especially abundant within the sylvan districts, and is much attached to the flowers of the *Cineraria aurita* (=*Senecio Maderensis*, De Cand.), which hang in clusters over the damp rocks of intermediate and lofty elevations. I have captured it on the Lombo das Vacas, in June; at the Cruzinhas, the Fanal, the Ribeiro de João Delgada, and the Lombo dos Pecegueiros, in July; and at the Ribeiro Frio, in August. Whilst encamped on the summit of the Pico Ruivo (6100 feet above the sea) in August of 1850, I observed it rather commonly during the heat of the day,—at which time it was exceedingly active with its wings, flying rapidly from flower to flower; especially those of the *Erica cinerea*, which attain to such perfection on that remote upland tract. The Pico Ruivan specimens have their femora almost invariably dusky,—a state which I have generally remarked to be the exception, rather than the rule, in lower regions. As would appear to be the case with most insects, the greater the altitude at which it occurs the more ready it is as regards flight,—the rarefied atmosphere seeming to invest it with additional strength.

§ II. *Caput subrotundatum latum subdepressum, clypeo minus brevi, oculis prominulis: palpi maxillares longiusculi, articulis secundo et tertio longiusculis: tarsi antici maris articulo secundo in lobum elongatum latum (margine apicali intus pectinato) supra producto.*

191. Pecteropus rugosus, *Woll.*

P. antice minus acuminatus (subparallelus), pubescens subnitidus cuprescenti- (rarius viridescenti-) æneus, capite prothoraceque crebre tuberculato-asperatis, elytris profunde subpunctato-rugulosis, antennarum basi pedibusque rufo-testaceis, femoribus plus minusve infuscatis, antennis in utroque sexu brevioribus.

Long. corp. lin. $1\frac{3}{4}$–$1\frac{7}{8}$.

Habitat in locis inferioribus Maderæ, præsertim circa urbem Funchalensem, tempore vernali, rarior: ad Praya Formoza mense Martio A.D. 1848 plurima specimina e floribus collegi.

P. elongate-subovate (being however rather broader anteriorly, and therefore a little more parallel, than the *P. Maderensis*); more thickly pubescent, and rather less shining, than the last species; æneous, with a coppery (rarely with a greenish) additional tinge. *Head* and *prothorax* thickly and coarsely granulated: the *former* roundish, less convex than in the last species, and with scarcely any indications of frontal impressions; with the *eyes* prominent: the *latter* widest about the middle, usually a trifle larger than that of the *P. Maderensis*, and with the anterior angles perhaps a little more rounded. *Elytra* coarsely rugulose, and subpunctate; very slightly expanded behind. *Antennæ at base*, and the *legs* rufo-testaceous; the *former* rather short, and scarcely longer in the males than in the females; the *latter* with their femora (in both sexes) more or less infuscated.

A species confined, apparently, to low altitudes, occurring during the spring months in the immediate vicinity of Funchal. It appears to vary but little either in sculpture or colour,—the former being universally coarse, and represented on the head and prothorax by closely-set tubercles; whilst the latter is seldom brilliant, being generally of a dull coppery-, or almost brownish-brassy hue (having only a tinge of green), and but very slightly shining. The *males* of all the *Pecteropi* here described differ so essentially in the structure of the second joint of their fore-feet, that there is but little fear of confounding *them* (even when their other distinctive characters are aberrant) *inter se*. Nor indeed is there any difficulty as regards the opposite sex, except now and then, in rare cases, when (as lately stated) the females of the present insect might not always be at once recognised from those of the last one. A more careful examination, however, will never fail to separate the two, since the smaller size and broader outline (that is to say, less expanded posteriorly, and therefore less narrowed in front) of the *P. rugosus*, in conjunction with its flatter head (which has scarcely any indications of the longitudinal impressions which are so conspicuous in the *P. Maderensis*), and its usually rather shorter antennæ, will all tend (apart from its more obscure, coppery and roughened surface) to remove it, even at first sight, from every variety of the *P. Maderensis*. It seems to be somewhat scarce, or at any rate local; occurring

amongst flowers in the neighbourhood of Funchal, especially in low positions towards the coast. On the rocky ledge above the Praya Formoza I took it in tolerable abundance during March of 1848; since which time I have not succeeded in detecting it.

§ III. *Caput ovatum angustum depressum, clypeo longiore, oculis demissis: palpi maxillares longissimi, articulis secundo et tertio longioribus: tarsi antici maris articulo secundo in lobum elongatum (apicem versus intus valde pectinatum) supra producto.*

192. Pecteropus rostratus, *Woll.* (Tab. IV. fig. 9.)

P. antice acuminatus, pubescens subnitidus subviridescenti- vel subcuprescenti-æneus, capite prothoraceque creberrime tuberculato-asperatis, elytris profunde punctato-rugulosis, antennarum basi pedibusque rufo-testaceis, illis in mare longioribus.

Var. α. plerumque subviridescenti-æneus antice valde acuminatus, prothorace antice angustato, pedibus omnino pallidis. (Ins. *Portus Sanctus.*)

Var. β. plerumque subcuprescenti-æneus antice acuminatus, prothorace antice minus angustato, tibiis interdum vix obscurioribus. (Ins. *Deserta Grandis.*)

Long. corp. lin. 2–2¼.

Habitat in floribus Portûs Sancti et Desertæ Grandis, tempore vernali, non infrequens: *var.* α. sola in Portu Sancto solo occurrit; sed *var.* β. ad Desertam Grandem, et tantum nisi fallor ad hanc insulam, pertinet, qua Maio exeunte A.D. 1850 plurima specimina inveni.

P. elongate-ovate (being more acuminated anteriorly than either of the preceding species); thickly pubescent and very slightly shining; æneous, with either a slightly greenish or a slightly coppery tinge. *Head* and *prothorax* very thickly and coarsely granulated: the *former* ovate (being longer and narrower than in either of the other species), exceedingly depressed, and with scarcely any indications of frontal impressions; with the *eyes* hardly at all prominent: the *latter* widest either about or a little behind the middle. *Elytra* coarsely rugulose, and more distinctly punctured than in either of the previous species; rather expanded behind. *Antennæ at base,* and the *legs* rufo-testaceous; the *former* very distinctly longer in the males than in the females.

Var. α. generally of a greenish-brassy tinge, and much acuminated anteriorly,—the prothorax being usually widest a little behind the middle and considerably narrowed in front; the legs entirely pale. (The state peculiar to *Porto Santo.*)

Var. β. usually of a more coppery tinge, and less acuminated anteriorly,—the prothorax being generally widest about the middle and but very slightly narrowed in front; the tibiæ generally a little dusky. (The form on the *Dezerta Grande.*)

A very interesting *Pecteropus,* and one which has been hitherto only detected, so far as I am aware, in Porto Santo and on the Dezerta Grande. It may be immediately recognised from the *P. Maderensis* and *rugosus,* first, by the structure of the second joint of its male fore feet (the peculiarities in the distribution of the inner setæ of which have been already pointed out); and, secondly, by its somewhat larger and anteriorly tapering outline,—its narrow, ovate and exceedingly

depressed head, in conjunction with its unprojecting eyes, giving it an almost rostrate appearance. This distinctive conformation is especially evident in the Porto Santan type (Tab. IV. fig. 9), which has moreover the front region of its prothorax considerably more acuminated (being deflexed and compressed at the sides) than is the case with the Dezertan specimens,—a difference indeed which, in connection with its universally greener hue and paler legs, I might have been inclined to have regarded as specific, had not the examination of a great quantity of examples, from both islands, presented a sufficient number of intermediate links to convince me that they are in reality but local states of the same insect. The *var.* α. I captured, abundantly, in Porto Santo, in April of 1848; and the *var.* β. on the Dezerta Grande, during my encampment there with the Rev. R. T. Lowe, at the end of May 1850.

Genus 89. DASYTES.

Paykull, *Fna Suec.* ii. 156 (1798).

Corpus mediocre vel parvum, plus minusve lineare vel lineari-oblongum, vix durum, sæpe (ut in specie nostrâ) viridi-splendens, pilosum: *prothorace* sæpius subquadrato: *alis* amplissimis. *Antennæ* breves subserrato-filiformes vel omnino intus serratæ, infra oculorum marginem anticum insertæ, articulis primo et secundo intus subclavato-nodosis (illo robustiore longiore), reliquis (ultimo ovali excepto) subæqualibus plus minusve obtuse serratis. *Labrum* vix corneum limbo submembranaceo, transverso-subquadratum, antice integrum sed vix rotundatum. *Mandibulæ* magnæ corneæ latæ, apicem versus acutissimæ bifidæ, margine interno integro sæpius minute crenulato. *Maxillæ* bilobæ, apice pubescentes: *lobo externo* subcoriaceo: *interno* paulo breviore submembranaceo. *Palpi* vix filiformes; *maxillares* articulo primo parvo, secundo longiore crassiore, tertio huic paulo breviore, ultimo longiusculo subfusiformi ad apicem oblique truncato; *labiales* articulis primo et secundo (illo præcipue) parvis, ultimo crassiore longiusculo fusiformi-ovato ad apicem oblique truncato. *Mentum* (ut mihi videtur) quasi e duplici parte formatum, aliâ terminali magnâ membranaceâ apice coriaceâ, aliâ basali (prioris stipite) corneâ brevissimâ transversâ. *Ligula* membranacea pilosa, apice vix emarginata. *Pedes* elongati: *tibiis* subcylindricis: *tarsis* pilosis plerumque simplicibus, articulis quatuor baseos subtus leviter oblique productis longitudine paulatim decrescentibus (quarto minore), quinto clavato *unguiculis* validis (intus membranâ angustâ pilosâ auctis) munito.

Dasytes, like most of the genera of the *Melyridæ*, is composed of insects remarkable for their flower-infesting habits. They recede however from the gaily-coloured, more or less painted, and often spotted, or fasciated, *Malachii* in being either of a duller hue, or else brilliantly (and generally *uniformly*) ornamented with metallic tints,—the only Madeiran representative being, like several of its more northern allies, of a resplendent brassy-green lustre. In the details of their structure they do not offer any great peculiarities; nevertheless their broad (though apically-acute) mandibles, which have the internal edge scarcely at all emarginated and, in most instances, very minutely crenulate, added to the obliquely truncated last joint of their palpi, their pubescent feet, and the narrow ciliated membrane

which is attached along the inner curvature of each of their claws, should be especially noticed. Their bodies are usually more or less elongate, narrow, and pilose; and there is nearly always some slight *tendency* to metallic iridescence, even on the *darker* members of the group.

193. Dasytes illustris.

D. angusto-sublinearis pubescens viridi- vel subænescenti-viridi-splendens, capite prothoraceque profunde punctatis, hoc brevi transverso-subquadrato, elytris punctato-rugulosis, antennis (versus apicem) tarsisque nigrescentibus.

Long. corp. lin. 2–2¾.

Dasytes illustris, Motschulsky, *in litt.*

Habitat in floribus omnium insularum Maderensium tempore vernali et æstivo, vulgatissimus; ab orâ maritimâ usque ad 4000′ s. m. ascendens.

D. narrow and sublinear, thickly pubescent, shining, and of a brilliant bluish-, or brassy-green hue. *Head* and *prothorax* very thickly and coarsely punctured (the punctures being exceedingly large): the *former* roundish, rather convex behind, and with the *eyes* prominent: the *latter* short and subquadrate, though rather widest a little before the middle. *Elytra* very slightly expanded behind (sometimes almost entirely parallel), punctured and coarsely rugulose. *Antennæ towards their apex*, and the *tarsi* blackish.

The Madeiran representative of the common European *D. nobilis*,—of which it is possible indeed that it may be an extreme geographical variety. For some time in fact I had regarded it as such; but, since it unquestionably differs in many minute particulars from that insect, and since moreover it has been carefully compared with typical specimens at Berlin, by my friend Dr. H. Schaum, who considers it as distinct, I have retained it under the name which was proposed for it by M. Motschulsky during his late visit to England. It differs from the *D. nobilis* in being smaller, of a greener, or more golden hue, in its prothorax being shorter and rather more quadrate, and in the punctures of its (more rugulose) elytra not being so clearly defined. I possess a species from Corfu, which in some respects approaches the Madeiran one; but it is even smaller still, has its prothorax distinctly longer, and more narrowed behind (as in the *D. nobilis*), and its punctures altogether less developed. It is an abundant insect throughout most of the islands of the Madeiran group, occurring in flowers during the spring and early summer months, and at nearly all elevations. In low grassy spots towards the coast it may be observed at times in great profusion, especially in the vicinity of Funchal,—making its appearance in such situations in the spring, but in higher altitudes somewhat later. Thus, at the Ribeiro Frio and the Feijãa de Córte, I have captured it in August. In Porto Santo it existed by thousands during April of 1849; and in May 1850 it was equally common on the Dezerta Grande.

Genus 90. MELYROSOMA, *Woll.* (Tab. V. fig. 1 et 2.)

Corpus parvum, plus minusve elongato-suboblongum, molle, nigrum, Melyridi affinitate proximum sed ab illo certe distinctum: *capite* leviter rotundato, *oculis* prominulis, *clypeo* brevi membranaceo: *prothorace* rotundato-subquadrato: *elytris* plus minusve costatis: *alis* amplissimis. *Antennæ* (V. 2 *a*), præsertim in maribus (V. 2), longiusculæ serrato-filiformes, in utroque sexu simplices, infra oculorum marginem anticum (et ab illis remotæ) insertæ, articulis primo et secundo intus subclavato-nodosis (illo robustiore longiore), tertio brevi gracili extus oblique leviter producto, reliquis (ultimo ovali excepto) æqualibus intus acutissime et subæqualiter serratis. *Labrum* (V. 2 *b*) coriaceum limbo membranaceo, transversum, antice rotundatum. *Mandibulæ* (V. 2 *c*) magnæ corneæ latæ, apicem versus acutissimæ bifidæ, intus minutissime subcrenulatæ et membranâ angustâ tenuissimâ auctæ. *Maxillæ* (V. 2 *d*) bilobæ, lobis membranaceis apice pubescentibus: *externo* latiusculo: *interno* breviore angustiore. *Palpi* subfiliformes; *maxillares* articulo primo parvo, secundo et tertio crassioribus subæqualibus, ultimo elongato subfusiformi basi truncato ad apicem acuminato; *labiales* (V. 2 *e*) e scapis submembranaceis ligulæ connatis surgentes, articulo primo parvo, secundo paulo majore crassiore, ultimo elongato subfusiformi basi truncato ad apicem acuminato. *Mentum* (nisi fallor) veluti e duplici parte formatum, aliâ terminali (ad latera rotundatâ) coriaceâ antice membranaceâ, aliâ basali (prioris stipite) subcorneâ apice coriaceâ (ad latera in angulum medium plus minusve productâ). *Ligula* elongata membranacea pilosa, apice biloba. *Pedes* longiusculi graciles: *tibiis* subcylindricis: *tarsis* (V. 2 *f*) articulis quatuor baseos (primo et secundo præcipue) subtus leviter oblique productis (primo breviusculo basi subrecondito, secundo, tertio et quarto æqualibus paulatim minus obliquis), quinto elongato vix subclavato *unguiculis* (V. 2 *g*) magnis valde bifidis munito.

A *Melyris* (genus Coleopterorum), et σῶμα corpus.

A very interesting little genus, approaching closely, in general affinity and contour, to *Melyris*, though at the same time with abundant distinctive features of its own. Thus, the structure of its antennæ and palpi should be especially noticed,—the former of which have their third joint (which is the longest of the whole in *Melyris* proper) excessively small and obliquely produced *ex*ternally, the fourth to the tenth being very acutely (and equally) serrated within; whilst the latter are greatly attenuated at their extreme apex, instead of (as in *Melyris*) robust and obtuse. Added to which, its bifid and more acute mandibles, the short and partially concealed basal articulation of its feet, and its deeply bipartite claws, in conjunction with the less transverse prothorax, slenderer legs, and the smallness of the species which compose it, are all of them characters which will serve to separate it from the members of that group.

194. Melyrosoma oceanicum, *Woll.* (Tab. V. fig. 1.)

M. robustum nigrum et pilis brevibus subdepressis parce vestitum, capite prothoraceque rugulosо-subpunctatis, elytro singulo costis tribus (externâ fere obsoletâ) longitudinaliter instructo, interstitiis profunde, crebre et rugose (sed vix seriatim) punctatis, antennarum basi tarsisque fuscescentibus.

Mas vix minor, antennis paulo longioribus.

Long. corp. lin. $1\frac{1}{2}$–2.

Habitat in locis editioribus Maderæ, tempore æstivo, hinc inde vulgare: in summo ipso monte Ruivenso (6100′ s. m.), flores *Ericæ cinereæ* (unâ cum *Pecteropo Maderensi*) circumvolans, necnon in ascensu montis a Feijãa de Córte Augusto ineunte A.D. 1850 copiosissime collegi.

M. elongate and robust, deep black (rarely with a piceous tinge), and beset (although not very densely) with a short, nearly decumbent and somewhat cinereous pile. *Head* and *prothorax* rugulose and subpunctate: the *former* flattened: the *latter* convex, and narrowed in front. *Elytra* with the suture raised, and also with three costæ down the disk of each,—which are abbreviated posteriorly, and the outer one of which is usually nearly obsolete; the interstices deeply, very closely and coarsely punctured (the punctures being very large, but with only a slight tendency to be disposed in rows). *Antennæ at base*, and the *tarsi* just perceptibly paler than the rest of the surface.

Male a little smaller than the female, and with the antennæ distinctly longer,—though not so long as those of (both sexes of) the *M. Artemisiæ*.

Readily known from the following species by its larger and more robust form, and by its more intensely black hue. It is also far less pubescent, its forehead is flatter, and its antennæ (in both sexes; and therefore, *à fortiori*, in the female) are proportionably shorter than those of that insect. It is, apparently, peculiar to the mountains; and, so far as I have hitherto observed, to Madeira proper,—where it occurs, throughout the summer months, in flowers, from an altitude of about 3000 feet to the summits of the loftiest peaks. I first detected it, August 2nd, 1850, on the ascent of the Pico Ruivo from the Curral das Freiras, where it was extremely abundant,—especially on a precipitous projecting buttress, known as the Lombo das Portaes, overlooking the Feijãa de Córte: and during my encampment on the Pico Ruivo itself (6100 feet above the sea), I captured it in almost equal profusion (in company with the *Pecteropus Maderensis*) out of the flowers of *Erica cinerea*,—or else, on the wing, in their immediate vicinity.

195. **Melyrosoma Artemisiæ**, *Woll.* (Tab. V. fig. 2.)

M. gracile infuscato-nigrum et pilis subolivaceis longissimis mollibus suberectis vestitum, capite prothoraceque leviter subruguloso-subpunctatis, elytro singulo costis tribus longitudinaliter instructo, interstitiis profunde, crebre et rugose (sed vix seriatim) punctatis, antennarum basi, tibiis tarsisque fuscescentibus, antennis in utroque sexu elongatis.

Long. corp. lin. 1–1$\frac{1}{3}$.

Habitat insulas Desertas, æstate novâ sat frequens: in Desertâ Grandi rarius occurrit; sed in Boreali abundat, quâ inter plantas *Artemisiæ argenteæ*, Herit., fere per totam insulam nascentes, Junio ineunte A.D. 1850, plurima specimina deprehensi.

M. smaller, slenderer, and rather less expanded posteriorly than the *M. oceanicum*, also of a less intensely black hue (being more infuscated or picescent), and densely beset with an exceedingly long, silken, nearly erect, and yellowish cinereous (or somewhat olivaceous) pile,—which often imparts to the surface an obscure subæneous tinge. *Head* and *prothorax* less distinctly sculptured than in the last species (being only slightly rugulose, and with very faint indications of punctures): the *former* rather broader in proportion than that of the *M. oceanicum*, and a little

more convex behind: the *latter* narrowed in front. *Elytra* as in the last species, only with the two inner costæ not quite so much elevated, and the outer (or submarginal) one proportionably rather more so; and with the punctures of the interstices, if anything, even larger than those of that insect. *Antennæ at base,* and the *legs* (especially the *tibiæ* and *tarsi*) more or less paler, or fuscescent. *Antennæ* in both sexes of nearly equal length, and considerably more elongated (in proportion to the size of the insect) than those of the ***M. oceanicum***.

A well-defined species, and apparently peculiar to the two northern Dezertas. It differs from the preceding one in its smaller and slenderer form, and in its less intensely black hue, in the long, silken, somewhat olivaceous and almost erect pubescence with which it is beset, and by its more infuscated legs and less abbreviated antennæ,—which last are of nearly equal length in both sexes. It appears to be scarce on the Dezerta Grande; where, nevertheless, I first discovered it,—on the outer canvass of my tent, during the hot sunshine, at the end of May 1850. On the Flat Dezerta, or Ilheo Chão, however, it is far more abundant,—where a few days later (i. e. at the beginning of June) it occurred to me in profusion; principally from amongst the large masses of Wormwood (*Artemisia argentea*, Herit.) with which that remarkable little island is in certain spots densely clothed. It would seem to be less decidedly attached to flowers than the *M. oceanicum*; and indeed less so than is the case with the *Melyridæ* generally,—in which respect, as well as in many minor details of its economy, it makes an evident approach towards the following family, the *Cleridæ*.

Fam. 29. CLERIDÆ.

Genus 91. OPILUS*.

Latreille, *Hist. Nat. des Ins.* iii. 111 (script. Opilo) (1802).

Corpus mediocre, plerumque lineari-elongatum, vix durum, pubescens, læte coloratum et punctatum: *prothorace* angusto, subcylindrico postice leviter constricto: *alis* amplis. *Antennæ* pilosæ, apicem versus leviter incrassatæ, articulo primo robusto, secundo brevi, inde ad octavum obconicis latitudine subæqualibus, reliquis leviter incrassatis, clavam laxam elongatam haud abruptam triarticulatam efficientibus. *Labrum* vix coriaceum, transversum, antice bilobum valde pilosum. *Mandibulæ* magnæ corneæ validæ acutissimæ, extus valde pilosæ, infra apicem unidentatæ.

* Strictly speaking, the title of the present genus is *Opilo*; but since it has been usually quoted as *Opilus*, I have not considered it worth while to create confusion by adhering to the original orthography: nevertheless I think it exceedingly questionable how far we are justified in sanctioning the change, so long as other terminations in *o* (as, for instance, *Helluo*, *Pytho*, *Tenebrio*, *Cebrio*, *Crabro*, &c.) are permitted to remain; and whether we do not lay ourselves open to the charge of inconsistency by singling out any *one* of them as objectionable, whilst, at the same time, we endorse the rest. A similar absurdity presents itself in *Bembidion* of Latreille, which is invariably corrected into *Bembidium*; and yet *Omophron* and *Cerylon*, of the same author, are retained. If however the Latin terminal is alone admissible in these Greek compounds (and I am by no means prepared to contend that it is not to be preferred, and therefore far *better* adhered to in the coinage of new generic names), why is it that we countenance such terms as *Dorcadion*, *Ennearthron*, *Pentodon*, *Urodon*, *Lymexylon*, *Gymnaëtron*, *Cercyon*, &c., which at any rate should be governed by the *same* law,—be it of rejection or sufferance?

Maxillæ bilobæ, lobis submembranaceis, apice pubescentibus; *externo* latiusculo; *interno* breviore angustiore. *Palpi* valde clavati; *maxillares* articulo primo parvo, secundo elongato, tertio breviore subflexuoso, ultimo maximo dilatato securiformi; *labiales* articulo primo parvo, secundo elongato, ultimo maximo dilatato triangulari-securiformi. *Mentum* parvum subquadratum, antice membranaceum. *Ligula* elongata membranacea, valde pilosa bifida. *Pedes* elongati robusti hirsutissimi: *tarsis* articulis quatuor baseos subtus oblique productis laciniisque spongioso-submembranaceis pilosissimis (modo, ut in specie nostrâ) bifidis (modo integris) auctis (primo brevi ad basin recondito superne vix observando, secundo, tertio et quarto longitudine decrescentibus, obliquitate crescentibus necnon paulatim caudatioribus), quinto breviusculo minus clavato *unguiculis* simplicibus munito.

Single species of *Opilus* and *Necrobia* are the only representatives of the *Cleridæ* which have been hitherto detected in the Madeira Islands; and even of these, the *latter* at any rate would appear to have been naturalized from more northern countries,—occurring, only, either about houses or in the immediate vicinity of the towns, and at all times under doubtful circumstances. *Opilus* may be readily known by its linear outline, hirsute and prettily fasciated surface, and by the largely developed securiform joint with which the whole of its palpi are terminated. The somewhat spongiose structure, and membranous adjuncts, of the soles of its feet should be especially noticed,—the joints themselves moreover being oblique, with the basal one extremely small and (on account of its obliquity) scarcely perceptible from above; whilst the penultimate one (as also, though in a less degree, the antepenultimate) has its under appendages distinctly bilobed (a peculiarity* which is remarkably apparent in the Madeiran member of the group). The *Opili* are found principally in rotten wood, or beneath the loose bark of trees, —on which, nevertheless, they are supposed *not* to feed, but rather on the minute insects and larvæ with which such localities necessarily abound.

196. Opilus mollis.

O. lineari-elongatus subcylindricus fusco-piceus et pilis longissimis mollibus suberectis adspersus, capite prothoraceque ruguloso-punctatis, hoc postice constricto ad apicem pallidiore, elytris profunde seriatim punctatis, fasciis duabus (unâ sc. basali obliquâ, sed alterâ mediâ transversâ) et apice pallido-ornatis, antennis pedibusque pallidis.

Long. corp. lin. 4–6.

Attelabus mollis, Linn. *Fna Suec.* 186 (1761).
Notoxus mollis, Fab. *Ent. Syst.* i. 211 (1792).
Opilo mollis, Lat. *Hist. Nat. des Ins.* ix. 149 (1804).
Opilus mollis, Steph. *Ill. Brit. Ent.* iii. 323 (1830).

Habitat Maderam, æstate, rarior: ad Ribeiro Frio mense Julio A.D. 1851 detexit Rev^dus^ Dom. Lowe, necnon tria specimina prope Funchal reperta nuperrime Dom. Leacock communicavit.

---

* In a few, less typical species which do not concern us here,—as, for instance, the *O. porcatus*, Fab., and the *O. fasciculatus*, Schreib.,—this bilobed structure does not appear to hold good; the appendages of the tarsal joints being there undivided.

O. narrow, elongated and somewhat cylindrical; dark piceous brown, and beset (on the limbs as well as on the body) with an exceedingly long, very soft, woolly, and nearly erect paler pile. *Head* and *prothorax* closely and roughly punctured: the *former* broad behind: the *latter* wide in front and constricted posteriorly; with its anterior edge rufo-testaceous, and with indications of a small and oblique tubercle on either side of its fore-disk. *Elytra* very distinctly seriate-punctate (the punctures being large, regular and deep); with an oblique fascia (commencing at the shoulder of each) at the base, a transverse one about, or immediately behind, the middle, and the apex itself (the whole of them being interrupted along the suture) pale testaceous. *Body beneath* with the abdomen rufescent. *Antennæ, palpi* and *legs* bright rusty-testaceous,—except the basal two-thirds of the femora, which are extremely pale.

A common insect throughout central and southern Europe, and in the north of Africa. In Madeira however it would appear to be rare; occurring, nevertheless, during the summer months, in positions far removed from each other. I have not myself detected it in these islands: but I possess specimens from the collection of the late Dr. Heinecken; and others, which were captured by the Rev. R. T. Lowe, in July 1851, at the Ribeiro Frio; whilst three more have been recently communicated to me by Mr. Leacock,—found in his house at Santo Antonio, near Funchal.

Genus 92. NECROBIA.

Olivier, *Entom.* iv. 76 *bis* (1795).

Corpus parvum, oblongum, sat durum, pubescens, læte coloratum et punctatum: *prothorace* convexo subquadrato-rotundato: *alis* amplis. *Antennæ* prothoracis longitudine, clavatæ, articulo primo sat elongato robusto clavato, secundo brevi, tertio elongato, quarto ad octavum brevioribus latitudine vix crescentibus, reliquis clavam magnam subovatam triarticulatam efficientibus (nono et decimo breviusculis transversis, ultimo maximo crasso subquadrato ad apicem oblique truncato). *Labrum* corneum limbo coriaceo, transversum, antice bilobum pilosum. *Mandibulæ* magnæ corneæ validæ acutissimæ, infra apicem dentatæ. *Maxillæ* bilobæ, lobis submembranaceis apice pubescentibus; *externo* latiusculo; *interno* breviore, paulo angustiore. *Palpi* filiformes; *maxillares* articulo primo parvo, secundo longiusculo, tertio breviore subflexuoso, ultimo elongato fusiformi apice subacuminato; *labiales* articulo primo parvo, secundo longiore, tertio elongato fusiformi apice subacuminato. *Mentum* subquadratum, margine antico producto. *Ligula* ampla membranacea pilosa cordata. *Pedes* robusti subcontractiles: *tarsis* articulis tribus baseos subtus oblique productis laciniisque spongioso-membranaceis, pilosissimis integris auctis (primo breviusculo, secundo et tertio subæqualibus, illo subcordato, hoc valde cordato), quarto minutissimo inter tertii lobos recondito, quinto elongato clavato *unguiculis* in medio unidentatis munito.

Necrobia is by some entomologists amalgamated with *Corynetes* of Herbst (established in 1792, and therefore the older name); but it seems to me to be more natural to regard them as separate genera, since their antennæ and palpi present, both of them, sufficient characters to preclude the chance of confusing, *inter se*, the species which severally compose them. Thus, the former are thicker, and somewhat more abbreviated, in *Necrobia* than in *Corynetes*, and have their club

(instead of being oblong, narrow, and composed of three equal and loosely-attached parts) robust, broad, ovate and more compact,—the first two joints being short and transverse, and the last extremely large, wide and subquadrate, and obliquely truncated at its extremity: whilst, as regards their palpi, the apical articulation in *Necrobia* is fusiform and subacuminated (not exceeding the previous one in breadth); whereas in *Corynetes* it is dilated and securiform. In other respects, the groups are almost coincident; unless indeed it be that the minute fourth articulation of their feet is perhaps even smaller in *Necrobia* than it is in *Corynetes*, —which may possibly in fact be the reason why it was overlooked by Curtis, who gives "the tarsi 4-jointed" as one of the distinctive features of the *Necrobiæ*.

197. Necrobia ruficollis.

N. oblonga cyanea pubescens et pilis longissimis mollibus suberectis adspersa, capite prothoraceque punctatis, hoc elytrorumque basi rufis, thorace subtus pedibusque rufo-testaceis, antennis abdomineque nigrescentibus.

Long. corp. lin. 2–2½.

Anobium ruficolle, Thung. *Nov. Spec.* i. 8. fig. 7 (1781).
Dermestes ruficollis, Fab. *Ent. Syst.* i. 230 (1792).
Necrobia ruficollis, Oliv. *Ent.* iv. 76. 2. pl. 1. fig. 2 *a*, *b* (1795).
——— ———, Steph. *Ill. Brit. Ent.* iii. 327 (1830).

Habitat in domibus Maderæ (mihi non obvia), ex alienis certe introducta: duo specimina e museo Heineckeniano a Rev^do^ Dom. Lowe munifice donata sola possideo; sed in ipsâ urbe Funchalensi mense Aprili A.D. 1851 collegit cl. Dom. Heer.

N. oblong, cyaneous (or shining blue), very pubescent, and beset with exceedingly long, soft, nearly erect, paler additional pile. *Head* and *prothorax* regularly punctured: the *latter*, together with the *base of the elytra* (which are finely punctate-striated, and rugulose), rufous. *Body beneath* with the entire *thoracic segments* pale rufous, or rufo-testaceous, and with the *abdomen* black. *Antennæ* nearly black. *Legs* rufo-testaceous.

An insect of very wide geographical range, occurring in all parts of Europe, and in the north of Africa; and being recorded as having been received even from India. In real fact however, it is a species attendant upon commerce, being liable to constant transmission throughout the civilized world, amongst skins and other articles of merchandise,—on portions of which it subsists: and it is probably, in fact, through some such agency that it has insinuated itself into Madeira. It is found principally about dwellings and warehouses, in and near Funchal; but, as my own researches have been but slightly prosecuted in such positions, I have not myself succeeded in detecting it. I possess however two very old specimens from the collection of the late Dr. Heinecken,—from a label still attached to which, the insect appears to have been "common [about the year 1828] in rotten cheese;" and it has been recently taken by Professor Heer, in Funchal.

Fam. 30. PTINIDÆ.

Genus 93. PTINUS. (Tab. V. fig. 4, 5 et 6.)

Linnæus, *Syst. Nat.* ii. 565 (1767).

Corpus parvum, oblongum vel sphæricum, durum, plus minusve pubescens vel squamosum: *capite* deflexo, sub prothorace vix abscondito: *scutello* modo distincto, modo haud observando: *prothorace* vel gibboso ad basin constricto, vel convexo: *alis* modo amplis, modo obsoletis. *Antennæ* plus minusve approximatæ, aut filiformes aut subclavatæ, articulo primo robusto, secundo vix breviusculo, reliquis vel æqualibus ultimo elongato-ovato, vel latitudine sensim crassioribus ultimo ovato. *Labrum* corneum transversum, antice pilosum leviter emarginatum. *Mandibulæ* magnæ corneæ validæ latæ subtriangulares obtusæ, intus medio dente obtuso instructæ. *Maxillæ* bilobæ, lobis submembranaceis apice pubescentibus; *externo* leviter incurvo; *interno* paulo breviore latiore. *Palpi* subclavati; *maxillares* articulo primo vel parvo, vel (ut in *Mezio* et *Gibbio*) longiusculo subflexuoso, secundo et tertio crassioribus subæqualibus, ultimo elongato robusto fusiformi apice acuminato; *labiales* articulo primo gracili, secundo longiore crassiore, ultimo robusto subovato apice vix acuminato. *Mentum* corneum, modo subrotundatum, modo elongatum antice acuminatum. *Ligula* membranacea elongata, apice dilatata integra pilosa. *Pedes* longiusculi subcontractiles, graciles vel robusti: *femoribus* apicem versus subito incrassatis: *tarsis* modo longiusculis articulis quatuor baseos (primo longiusculo) longitudine leviter decrescentibus, modo breviusculis articulis quatuor baseos (præsertim in anterioribus) subæqualibus; quinto vel longiusculo vel breviusculo *unguiculis* simplicibus munito.

The great diversity, both in structure and outward contour, of the *Ptini* renders the group an extremely intricate one to define; and the gradual manner in which many of its variations are apt to merge into each other makes it almost equally useless, without an intimate acquaintance with all the forms hitherto described, to attempt to dissever any portion of it from the remainder. Yet some of the species do nevertheless exhibit, in habits as well as detail, such obvious differences *inter se*, that it is possible that a careful examination of their oral organs, on a comprehensive scale, might succeed in detecting sufficient characters for generic subdivision: but until this is done it would be lost labour to chalk out lines of demarcation,—especially in a work like the present one, which, having but a few members to deal with, must of necessity be confined within very restricted bounds. Still, the Madeiran representatives (from the want, it may be, of intermediate links to unite them) do at any rate arrange themselves under two clearly-defined heads; the first of which, like the ordinary *Ptini* of central and boreal Europe, has the body comparatively elongated and pubescent, and for the most part winged, the prothorax more or less gibbous (or nodulose) in front and transversely contracted behind, the scutellum large, and the antennæ and feet slender and filiform (the last of which, moreover, have their basal joint perceptibly longer than any of the following three);—whilst in the second (a most abundant modification along the southern Mediterranean limits) the shape is altogether more spherical, the surface more or less densely scaly (but free from pile), the body

apterous, the prothorax, instead of being humped, is simply convex, and (though rounded off) not at all *constricted* posteriorly, the scutellum is so minute as to be barely visible, the antennæ are shorter (generally very robust), and with their apical joint invariably (and the subapical ones frequently) more or less incrassated, and the legs are often unnaturally thickened, with their tarsi (in which the first four articulations, especially of the two anterior pair, are subequal) shorter and proportionably broader (though more acuminated) than is the case in the usual northern type.

How far these distinctions will obtain on a more extended view, observation can alone prove;—but I am inclined to suspect that a critical analysis of the genus, with reference not merely to the structure but also to the modes of life of the several insects which now compose it, will rather tend to uphold the divisions just alluded to than to re-amalgamate them. The members of the first of these sections are peculiarly aggressive in their nature, attaching themselves to inhabited spots, and occurring about dwellings and out-houses,—especially in the vicinity of merchandise; whilst those of the second prefer the open country, existing almost exclusively, so far as I am aware, in positions remote from any traces of civilization,—as, for instance, in the decayed branches of trees, in the crevices of weather-beaten rocks, or amongst lichen and beneath the stones of exposed mountain summits. For the latter of these the name of *Sphæricus* was proposed by Motschulsky, during his late visit to England;—which I have accordingly adopted (although in a subsidiary sense, believing it to be scarcely prudent, in so widely distributed an assemblage and with our imperfect data, to employ it in a stricter signification). The representatives of both of the above departments are subject to very great variation in size and colour; and since even the sexes themselves often display considerable incongruities *inter se*, it is not surprising that the boundaries between some of the species which are nearly allied should be occasionally difficult to trace out. Such being the fact, it is impossible to overrate the importance of studying them *in situ*,—so as to be enabled not only to connect the numerous aberrations, but even, at times, perhaps, in a certain measure to account for them: since it is by this process of inquiry that we are more likely to arrive at the truth than by the collation of treble the amount of individuals at a distance, where anything like local phænomena in connexion with them must of course be entirely overlooked. So completely indeed are some of the Madeiran *Ptini* affected by isolation, and by exposure to a perpetually stormy atmosphere, that they do not attain half the bulk on many of the adjacent rocks that they do in the more sheltered districts of the central mass; and so marvellously is this verified in a particular instance, that I have but little doubt that five or six "species" (so called) might have been recorded out of *one*, had only a few stray specimens been brought home for identification, without any regard having been paid to the respective circumstances under which they were found. Judging from many hundred examples which I have submitted to a close comparison, the most constant of their cha-

racteristics would seem to be outline and sculpture,—whilst size and colour are apparently the least to be depended upon: and hence trifling differences may be often of specific indication in the former case, where in the latter much larger ones are worthless.

A. *Antennæ basi approximatæ.*

§ I. *Corpus plus minusve oblongum pubescens alatum, prothorace gibboso ad basin valde constricto, scutello distincto: antennæ filiformes: tarsi longiusculi filiformes, articulo primo leviter elongato.* (Ptini *per Europæ partem majorem* typici).

198. Ptinus advena, *Woll.*

P. ferrugineus valde (præsertim in prothorace) subsetuloso-pubescens, scutello squamis subfulvescenti-cinereis tecto, elytris ellipticis punctato-striatis, antennis pedibusque elongatis gracilibus parce squamosis.

Long. corp. lin. $1\frac{1}{2}$.

Habitat in domibus Maderæ, rarissimus: exemplar unicum, a Rev^{do} Dom. Lowe ad Sanctum Vincentium captum, solum vidi.

P. ferruginous, and densely beset (especially on the prothorax) with a long, stiff, suberect, robust, somewhat setiform, and rather ragged pile. *Prothorax* gibbous (but scarcely subnodulose) on the fore-disk; and suddenly and greatly constricted behind. *Scutellum* distinct and round; and clothed with brownish-, or rather yellowish-cinereous scales. *Elytra* almost elliptical (being but very slightly more acuminated behind than before); and punctate-striated. *Antennæ* and *legs* elongated and slender, and rather sparingly clothed with dull yellowish-cinereous scales; the *former* filiform, with their apical joint acute; the *latter* with their *tarsi* narrow,—the basal articulation being distinctly longer than any of the following three.

A *Ptinus* of the ordinary northern mould, and one in fact of the common type of form which is so constantly liable to transmission throughout the civilized world; nevertheless, not having been able to identify it with any of the species to which I have had access, I have been compelled to describe it as new. It possesses, in conjunction with the *P. mauritanicus*, abundant characteristics (as, for instance, its comparatively large, pubescent, and more oblong body, distinctly developed scutellum and wings, its gibbous and posteriorly constricted prothorax, and the subelongated basal joint of its tarsi) which will at once separate it from the other members of the group with which we have here to do;—whilst from that insect in particular its concolorous, ferruginous hue, and its slenderer and more filiform antennæ and feet will immediately remove it. It is apparently exceedingly rare, the only specimen which I have seen having been captured in the north of the island, at São Vincente, by the Rev. R. T. Lowe.

199. Ptinus mauritanicus.

P. piceo-niger, prothorace (fortiter quadrituberculato) scutelloque squamis cinereo-fulvescentibus varie-

gatis, elytris parallelo-oblongis punctato-striatis rugulosis, fasciis duabus (unâ sc. sub-basali undulatâ, sed alterâ longe ultra medium sitâ) nivosis ornatis, antennis pedibusque elongatis robustis ferrugineis et dense (præsertim his) squamosis.

Long. corp. lin. $1\frac{2}{3}$–2.

Ptinus mauritanicus, Lucas, *Col. de l'Algérie*, 208 (1849).

Habitat Maderam, et borealem et australem, rarissimus: duo specimina sola vidi, unum sc. æstate A.D. 1850 in horto Loweano ad Levada, et alterum ad Pásso d'Areia prope Sanctum Vincentium (ad radices *Sempervivi tabuliformis*, Haw., in rupibus crescentis latitans) tempore hiberno A.D. 1849, a meipso reperta.

P. piceous-black, and sparingly beset with short and decumbent setæ. *Prothorax* extremely gibbous on the fore-disk, where it is armed with four powerful nodules (the two outer ones of which are far apart and exceedingly prominent, whilst the inner ones are smaller, placed nearer together, and slightly in advance of the others); suddenly and greatly constricted behind; and densely variegated with yellowish-cinereous, deep fulvous-brown, and whitish scales. *Scutellum* distinct and rounded, and with the scales uniformly yellowish-cinereous (being unmingled with either darker or lighter ones). *Elytra* ample, oblong, and parallel at the sides; punctate-striated and rugulose; and with two transverse fasciæ (one of which is more or less undulated and placed behind their base, whilst the other is straighter and situated midway between their apex and the centre of their disk) pure snowy-white. *Antennæ* and *legs* elongated and robust, and densely clothed (especially the latter) with yellowish-cinereous scales; the *former* filiform, with their apical joint more obtuse than that of the *P. advena*; the *latter* with their *tarsi* broader than those of that insect,—the basal articulation however being, as there, distinctly longer than any of the following three.

The largest of the Madeiran *Ptini*; and (apart from the *sectional* characteristics enumerated under the preceding species) it may be at once recognised by its wide and parallel outline, by the bright fulvescent scales of its scutellum and (quadri-tuberculate) prothorax, and by the two conspicuous and snowy-white fasciæ with which its elytra are adorned,—the anterior one of which moreover is not *basal* (as in the other decorated members of the group), but sub-basal, and usually well-defined. It is exceedingly rare; and in its habits (though not in its structure) would appear to be somewhat intermediate between the ordinary *Ptini* of northern latitudes and the more southern type (indicated under the following section), since it occurs both in the vicinity of old houses and, likewise, in the open country. Thus, out of the only two examples which have hitherto come beneath my notice (and which were captured by myself), one was taken near Funchal, during the summer of 1850, in the garden of the Rev. R. T. Lowe at the Levada; and the other in the north of the island, in February 1849, at the roots of the *Sempervivum tabuliforme*, Haw., which stud the perpendicular rocks at the Pásso d'Areia near São Vincente. It is apparently a Mediterranean insect, having been recently described by M. Lucas in the magnificent work published by the French Government on the Natural History of Algeria.

§ II. *Corpus plus minusve sphæricum squamosum apterum, prothorace convexo, scutello vix observando: antennæ ad apicem plus minusve subclavatæ: tarsi breviusculi subacuminati, articulis quatuor baseos longitudine subæqualibus.* (Ptini aberrantes, *sed in insulis Maderensibus typici.*)

(Subgenus SPHÆRICUS, *Mots. in litt.*)

200. Ptinus Dawsoni, *Woll.* (Tab. V. fig. 5.)

P. piceus squamis fulvescenti-cinereis adspersus, elytris rotundato-ovatis profunde seriato-punctatis (punctis maximis), fasciis duabus (unâ sc. ad basin ipsam positâ et postice valde inæqualiter lacero-indentatâ, sed alterâ longe ultra medium sitâ) per suturam late interruptis albidis ornatis, antennis pedibusque robustissimis ferrugineis et dense squamosis.

Long. corp. lin. $1\frac{1}{3}$.

Habitat in ins. Desertâ Grandi, sub lapide Maio exeunte A.D. 1850 a meipso repertus.

In honorem cl. Ricardi Dawson, M.D., Londini, ob gratias mihi per plures annos amice oblatas carissimi, hoc insectum pulchritudine superbiens et valde distinctum citavi.

P. piceous or brownish-piceous, and more or less besprinkled with yellowish-cinereous scales. *Prothorax* convex, rounded at the sides,—and therefore narrowed (although not *constricted*) both before and behind. *Elytra* roundish-ovate (being widest a little behind the base); less densely clothed with scales than the prothorax; very deeply seriate- (but not striate-) punctate (the punctures being exceedingly large and distinct); and with two transverse fasciæ (one of which is placed at their extreme base,—and is exceedingly ragged, and unequally produced backwards, posteriorly; whilst the other is straighter, and situated midway between their apex and the centre of their disk), which are widely interrupted in the middle, white. *Antennæ* and *legs* extremely robust, ferruginous, and densely clothed with yellowish-cinereous scales; the *former* nearly filiform, with their apical joint thick and ovate; the *latter* with their *tarsi* short and broad,—though (as in most of the other members of the present section) rather acuminated.

A most elegant and well-defined *Ptinus*; and one which is hitherto unique,—the only specimen which has been detected, so far at least as I am aware, having been captured by myself, from beneath a stone, on the lofty weather-beaten ridge which constitutes the northern extremity of the Dezerta Grande, during my encampment there with the Rev. R. T. Lowe, at the end of May 1850. As already stated, the whole of the members of the present division of the genus may be recognised from those of the preceding one by their more spherical, scaly (but unpubescent) and apterous bodies, by their almost obsolete scutella, by their convex (though not posteriorly constricted) prothoraces, and by their antennæ and legs being more abbreviated and robust,—the former of which moreover have their apical joint universally (and occasionally the subapical ones likewise) incrassated; whilst the latter are remarkable for their shorter and subacuminated feet, the basal articulation of which (especially in the two anterior pair) is scarcely longer than any of the following three, whilst the terminal one is unusually minute. Apart from which characters (which are sectional and not specific), the *P. Dawsoni* may be at once distinguished by its excessively thickened limbs, and

by the enormous punctures and conspicuous fasciæ of its comparatively ovate elytra. I have dedicated the species to my friend Richard Dawson, Esq., M.D., of London, to whom I have been indebted for much kindness throughout many years; and whose microscopic researches, in a higher department of natural science, have been long made known.

201. Ptinus pinguis, *Woll.*

P. piceus squamis cinereo-fulvescentibus dense tectus, elytris rotundatis impunctatis, fasciâ posticâ obsoletissimâ (sæpe omnino obliteratâ) ornatis, antennis pedibusque ferrugineis et dense squamosis, illis in mare (?) robustioribus.

Long. corp. lin. $\frac{7}{8}$–$1\frac{7}{8}$.

Habitat Maderam, rarior: prope Funchal egomet parce collegi, necnon exemplar unicum possideo a Rev^{do} Dom. Lowe a Maderâ boreali communicatum.

P. brownish-piceous, and densely clothed with yellowish-cinereous scales (which often assume, especially on the prothorax where they are more thickly set, a slightly golden tinge). *Prothorax* rather convex, narrow, and scarcely at all rounded at the sides; and, normally, with obscure indications of a white line down the centre, and another on either side. *Elytra* exceedingly round and convex (being widest about the middle); rather less densely clothed with scales than the prothorax; impunctate; and, in highly coloured specimens, with a very obscure paler posterior patch on each (to indicate the usual hinder fascia,—the basal one being quite obsolete). *Antennæ* and *legs* robust, especially in the males (?), ferruginous, and densely clothed with yellowish-cinereous scales; the *former* nearly filiform, with their apical joint thick and ovate; the *latter* with their *tarsi* not very short, but rather broad at the base.

Easily distinguished from the remainder of the genus here described by its entirely impunctate surface;—a peculiarity which, in connexion with its obese, extremely rounded form, and the yellowish and somewhat silken scales with which it is uniformly clothed, gives the insect, *primâ facie*, a rather greasy, or oily appearance. Like the following species, it would seem to be scarce: nevertheless I have captured it near Funchal (I believe in the Ribeiro de Santa Luzia), and I possess an old specimen from the collection of the late Dr. Heinecken; whilst another has been recently communicated to me by the Rev. R. T. Lowe, by whom it was taken in the north of the island, at São Vincente.

202. Ptinus orbatus, *Woll.* (Tab. V. fig. 6.)

P. ferrugineis squamis subfulvescenti-cinereis parce tectus, elytris subovato-rotundatis subseriato-punctatis (punctis magnis remotis), fasciâ subposticâ obsoletissimâ ornatis, antennis pedibusque brevibus robustis et vix dense squamosis.

Long. corp. lin. vix $\frac{2}{3}$.

Habitat Maderam, rarissimus: in colle quodam parvo (Pico do Cardo dicto) haud procul ab urbe Funchalensi sito, e trunco arboris emortuo (unâ cum *Ptino longicorni* degens), tempore vernali A.D. 1848 specimen unicum cepi.

P. ferruginous, and apparently not much beset with scales. *Prothorax* rather convex, small, narrow, and scarcely at all rounded at the sides. *Elytra* roundish,—though rather more ovate than those of the *P. pinguis* (being widest a little before the middle); subseriate- (but not striate-) punctate (the punctures being very large, though not deep, and exceedingly far apart; and with only a tendency to be disposed in rows). *Antennæ* and *legs* short and robust; the *former* nearly filiform, with their apical joint thick and ovate; the *latter* with their *tarsi* short, and rather broad at the base.

The ferruginous hue, in conjunction with the large, shallow and distant punctures of its (slightly ovate) elytra, and the comparative shortness of its limbs, will at once suffice to separate the *P. orbatus* from its immediate allies. The paucity of scales on the unique example from which the above description has been compiled may possibly be the result of accident,—since, from their deciduous nature, they are very liable to become obliterated; and hence I would not lay any great stress on that particular circumstance, as a specific character. Its outline, sculpture and proportions, however, will more than suffice to identify it. My specimen was captured in the dead stump of a tree, in company with the *P. longicornis*, on the little hill, known as the Pico do Cardo (about two miles to the north-west of Funchal, in the parish of Santo Antonio), during the spring of 1848.

203. Ptinus nodulus, *Woll.*

P. nigro-piceus squamis subcinereis tectus, elytris rotundatis leviter subseriatim punctatis (punctis sat magnis remotis), fasciis duabus plus minusve obsoletis (sc. basali et subposticâ) per suturam late interruptis albidis ornatis, antennis pedibusque robustis ferrugineis et dense squamosis.

Long. corp. lin. $\frac{2}{3}$–$\frac{7}{8}$.

Habitat in montibus Portûs Sancti, inter lichenes in rupium fissuris nascentes, tempore vernali vulgaris: in ascensu montis illius Pico d'Anna Ferreira dicti mense Aprili A.D. 1849 copiosissime observavi.

P. dark piceous, and more or less densely clothed with cinereous or yellowish-cinereous scales. *Prothorax* convex, narrow, and scarcely at all rounded at the sides. *Elytra* round and convex (being widest about the middle); lightly subseriate-punctate (the punctures being rather large, but exceedingly shallow, and somewhat distant; and with only a very slight tendency to be disposed in rows); and with a very obscure, interrupted, transverse band at their extreme base, and with a rather more evident, though equally interrupted, posterior one (in the usual position), more or less white. *Antennæ* and *legs* robust, ferruginous, and densely clothed with yellowish-cinereous scales; the *former* nearly filiform, with their apical joint considerably thickened and ovate; the *latter* with their *tarsi* rather short, and broad at the base.

In the large, remote and lightly-impressed punctures of its elytra the present *Ptinus* is somewhat allied to the *P. orbatus*,—nevertheless, they are neither so large nor so wide apart as those of that species; whilst, on the other hand (as regards profundity), they are even still shallower. In other respects the two insects are very distinct,—the more rounded outline of the *P. nodulus*, in conjunction with

its darker hue, larger prothorax, and its longer and more robust limbs, being at once sufficient to characterize it; whilst the peculiar nature of its sculpture will, of itself, immediately separate it from the remainder of the genus here described. I have hitherto only observed it in Porto Santo,—where however it is at times exceedingly abundant, during the early spring months, amongst lichen in the fissures of the exposed rocks, especially towards the mountain summits. In such positions, during April of 1849, I captured it in the greatest profusion, in company with the *P. fragilis* and the *Tarphius Lowei*,—particularly on the ascent of the Pico d'Anna Ferreira from the east.

204. Ptinus pilula, *Woll.*

P. fusco-piceus squamis subcinereis tectus, elytris rotundatis subruguloso-punctatis (punctis minoribus crebris), fasciis duabus (sc. basali obsoletissimâ et subposticâ plus minusve obsoletâ) per suturam late interruptis albidis ornatis, antennis pedibusque subgracilibus pallido-ferrugineis et parce squamosis.

Long. corp. lin. $\frac{2}{3}$.

Habitat Maderam; semel tantum, a meipso prope urbem Funchalensem, detectus.

P. brownish-piceous, and more or less densely clothed with dirty cinereous scales. *Prothorax* rather convex, short, and rounded at the sides. *Elytra* round, short and convex (being widest about the middle); very obscurely punctured and subrugulose (the punctures being small, ill-defined and rather close together; and without any tendency, apparently, to be disposed in rows); with very obscure indications of paler scales in the usual positions,—to represent the basal and post-medial fasciæ. *Antennæ* and *legs* rather long and slender, pale ferruginous, and very sparingly clothed with scales; the *former* nearly filiform, with their apical joint elongate-ovate; the *latter* with their *tarsi* (which, with the *tibiæ*, are paler than the femora) rather longer and narrower than those of the last species.

The present insect approaches very closely to the *P. albopictus*, with which nevertheless it can scarcely be associated,—differing as it does (even though slightly) in the most constant characters which this section of the *Ptini* appears to possess. Having unfortunately but a single individual to judge from, I should not have ventured to have regarded it as distinct, had not the examination of a very large mass of specimens of its nearest ally inclined me to suspect that the minute peculiarities which it possesses are just of the nature to indicate an additional species,—which as yet however we require greater numbers of in order to appreciate. The main points which separate it from the *P. albopictus* are its outline, proportions and sculpture. Thus, its elytra are shorter and more spherical than in any of the varieties (especially the Madeiran one,—an important consideration, as coming from the same island) of that insect, its prothorax is rather more abbreviated, and rounder at the sides, the sculpture of its elytra is more rugulose (and has the punctures, although equally small, less clearly defined), and

its legs and antennæ, particularly the latter, are less robust,—the former of which moreover have their tibiæ and tarsi paler than the femora, whilst the terminal joint of the latter is more elongated and less apically obtuse than in the *P. albopictus*. The only specimen which I have seen was captured by myself in the vicinity of Funchal (I believe in the Ribeiro de Santa Luzia) during the spring of 1849.

205. Ptinus albopictus, *Woll.* (Tab. V. fig. 4.)

P. fusco- (rarius nigro-) piceus squamis cinereis variegatus, elytris subrotundatis dilutioribus punctatis (punctis minoribus crebris), fasciis duabus (sc. basali, vel omnino diffusâ vel obsoletissimâ; et subposticâ, plus minusve distinctâ) per suturam interruptis albidis ornatis, antennis pedibusque subelongatis pallidioribus sed vix squamosis.

Var. α. nigro-piceus parce cinereo-adspersus, elytris rufescenti-brunneis, fasciâ basali obsoletâ sed subposticâ distinctâ, pedibus obscuris. Long. 1–1⅛ lin. (In *Maderâ propriâ* status typicus.)

Var. β. fusco-piceus cinereo-variegatus, elytris paulo dilutioribus, fasciâ basali diffusâ sed subposticâ distinctâ, pedibus rufo-testaceis. Long. ⅔–1 lin. (In *Desertâ Grandi* status typicus.)

Var. γ. fusco-piceus vel fusco-ferrugineus dense cinereo-variegatus, elytris paulo dilutioribus, fasciis omnino diffusis confluentibus, pedibus plerumque rufo-testaceis. Long. ⅔–1 lin. (In *Desertâ Grandi* status aberrans, sed in *Portu Sancto* typicus.) (Tab. V. fig. 4.)

Var. δ. fusco-ferrugineus dense cinereo-variegatus, elytris dilutioribus (interdum etiam subflavescentibus), fasciis diffusis sed subposticâ sæpius leviter distinctâ, pedibus rufo-testaceis vel etiam testaceis. Long. vix ½–⅔ lin. (In *Desertâ Boreali.*)

Long. corp. lin. vix ½–1⅛.

Habitat in insulis Maderensibus, usque ad 3000′ s. m. ascendens: *var.* α. ad Maderam propriam solam (nisi fallor) pertinet: *var.* β. Desertæ Grandi propria est, quâ caules *Silybi Mariani*, Grtn. (= *Cardui benedicti*, antiquorum) destruit: *var.* γ. in Portu Sancto prædominat, lichenes in rupium fissuris crescentes colens: *var.* δ. in Desertâ Boreali, et nusquam nisi illic, occurrit, quâ Junio ineunte A.D. 1850 copiosissime observavi.

P. brownish- (rarely dark) piceous, and more or less densely variegated with cinereous scales. *Prothorax* rather convex, a little longer than in the *P. pilula*, and very slightly rounded at the sides. *Elytra* subrotundate,—being, throughout all the varieties, less decidedly spherical than those of the *P. pilula* (nevertheless not ovate, since they are widest about the middle); more or less diluted, or rufescent, in colouring; punctured (the punctures being small, and close together; and without any tendency to be disposed in rows); and with more or less obscurely defined paler scales in the usual positions, to represent the fasciæ,—the basal one of which however is usually immensely diffused, so as to lose its fascia-form character, and often entirely confluent with the posterior one (being only in rare instances evanescent); whilst the hinder one is generally better defined (being seldom entirely suffused). *Antennæ* and *legs* rather slender, more or less pale, and almost free from scales; the *former* nearly filiform, with their apical joint thick and ovate; the *latter* with their *tarsi* rather long, but not very broad.

Var. α. usually large, dark piceous, and only sparingly besprinkled with (rather small) cinereous

scales; elytra dull reddish-brown, with the basal fascia almost obsolete, but the posterior one distinct; antennæ and legs darker than in any of the following species,—being scarcely paler than the prothorax. (The typical state in *Madeira proper*.)

Var. β. a little smaller, brownish-piceous, and rather more densely variegated than the last variety with cinereous scales; elytra a little paler, with the basal fascia traceable, but a great deal diffused, and with the posterior one usually very distinct; antennæ and legs rufo-testaceous. (The typical state on the *Dezerta Grande*.)

Var. γ. (Pl. V. fig. 4) a little smaller still, brownish-piceous or brownish-ferruginous, and very densely variegated with cinereous scales; elytra a little paler, with the fasciæ for the most part altogether diffused or confluent,—mottling the entire surface; antennæ and legs generally rufo-testaceous. (The aberrant state on the *Dezerta Grande*, but typical in *Porto Santo*.)

Var. δ. extremely variable in size (being sometimes, especially in the male sex, excessively minute), generally brownish-ferruginous, and often with an obscure yellowish (or almost æneous) tinge, and very densely variegated with cinereous scales; elytra a little paler (being occasionally, particularly when immature, almost testaceous), with the fasciæ generally greatly diffused,—the posterior one however being at times sufficiently apparent; antennæ and legs rufo-testaceous, or even altogether testaceous. (The state peculiar to the *Northern Dezerta*, or *Ilheo Chão*.)

The commonest of the Madeiran *Ptini*; and by far the most variable, having a separate radiating-form for almost every island of the group,—whilst, at the same time, the whole are so intimately connected together (and merge into each other) by innumerable intermediate links, that it is impossible to regard them, in spite of the opposite contour of the *extremes*, in any other light than as different aspects of a single species, according as circumstances may favour, retard, or otherwise regulate its development. Instability in fact (in its broadest sense) may be considered to be one of its most prominent characteristics, since it appears to be more sensitive to isolation and altitude than any of the other members of the genus with which we have here to do,—as may be proved to a demonstration by a careful study of its habits on the spot, where the influences of position and exposure are, in nearly all instances, more than sufficient to account for the successive phases assumed. Thus, commencing with *var.* α, which reaches its maximum in the sheltered ravines of the central mass, the bulk is usually large, and the tints comparatively intense. *Var.* β. is likewise brightly variegated, but it is smaller. Now, if our premises be correct, that locality and the action of the external elements have much to do with the changes in question, we might have expected *à priori* that this state, from its peculiarity to the Dezerta Grande, would not only have been reduced in dimensions (which it is), but in colour also (which it is not). Here, therefore, observation *in situ* becomes extremely important; since such does at once convince us that its almost exclusive attachment to the interior of the stalks of the *Silybum Marianum*, Grtn. (the *Holy Thistle* of the ancients), with which the more protected portions of that island everywhere abound, affords it ample conditions, even on so bleak a rock, for its completion. Nevertheless, its *stature* (as already stated) is slightly diminished in spite of this: and when we come to examine the individuals which infest the lichen of more open situations (aberrant

however on the Dezerta Grande, and answering to the *var.* γ. of the above diagnosis), we immediately perceive that *both* of our required results are indicated,—the reduction not being limited to size, but extended also to hue. In Porto Santo this modification is the normal one,—where the insect, likewise, displays the same lichenophagous tendency, and where the districts in which it exists are equally barren. But, if its maximum be attained in Madeira proper, and a certain number of minor deviations range throughout Porto Santo and the Dezerta Grande, it still remains for us to show where its *minimum* is to be obtained:—which, true to the *modus operandi* by which we have conjectured its divers degrees of abortion to have been brought about, would seem to be centred on the Northern Dezerta, or Ilheo Chão. When we bear in mind the minute dimensions of that flattened rock, which does not include so much as a single valley, or depression, within its bounds, and is consequently seldom free from the violence of the winds (which sweep across it incessantly, from whatever quarter they may arise); it could hardly be supposed that an insect which is so obviously subservient to atmospheric control should not have become materially affected, in its outward guise, through long seclusion on such a spot:—and accordingly we are not astonished to find the race which has been thus cut off for ages on this extraordinary little island, itself *as* extraordinary. It is indeed very remarkable to trace out how clearly the agencies we are discussing have here operated on the species under consideration,—for both sexes (though especially the male) descend on the Ilheo Chão to somewhat less than half a line in length, being literally of scarcely greater magnitude than some of the larger representatives of the *Ptiliadæ*!

After an accurate examination of a great mass of specimens of the *P. albopictus*, collected in dissimilar quarters and at numerous elevations, four *principal* phases are all that I have been able to detect,—and which it will be perceived are mainly dependent on geographical causes. To register every intervening gradation would be superfluous; nor, practically, could any advantage ensue from such a step, since the very existence of *varieties* presupposes, from the nature of the case, the media which are requisite to unite them to their parent type,—for, were such indeed absent, we could have no warrant in pronouncing them to be varieties at all. The utmost therefore that we can hope to do in an instance like the present one is, to select those more conspicuous forms which stand forth as it were from the rest, and constitute local foci from which subsidiary rays would seem in a measure to branch out.

Regarding the distribution of the *Ptinus* under consideration, it would appear to be rarer on the large than on the small islands of the group. Thus, in Madeira proper it is, so far as I have hitherto remarked, decidedly scarce. In Porto Santo it is far less so, occurring from intermediate altitudes to the very summits of the mountains,—where I have taken it, during the early spring, from amongst the dense lichen (particularly *Ramalina scopulorum* and *Evernia prunastri*) which gathers around the crevices and inequalities of the weather-beaten peaks; and I

have, likewise, brushed it from off the short grass on the southern slopes of the Pico de Facho, 1600 feet above the sea. On the Dezerta Grande it abounds in the stems of the *Silybum Marianum*, on the pith of which (in common with the *Caulotrupis impius*) it subsists; whilst on the Ilheo Chão it absolutely teems;—as I had an opportunity of witnessing during my encampment on that interesting little island, with the Rev. R. T. Lowe, at the beginning of June 1850. So perpetually (as lately mentioned) is that remote table-rock played over by the breezes of the ocean, that even a temporary respite is almost an anomaly within its desolate area; and if so be that such a crisis should chance at times to arrive, it is curious to note how every species of life, taking advantage of Nature's repose, comes forth to enjoy the calm. I shall not indeed forget the pleasure I derived, on the 5th of June 1850, from the sudden effects of a lull, after an exposure to the blasts during several successive days, on this iron-bound isle,—how all things seemed to participate in the change, and literally to rejoice. Even the vegetation, as though released from its suffering, began to look up; whilst insects, unthought of before, filled the atmosphere as it were on the instant,—as though experience had taught them that such tranquillity was of but short duration, and that, if it would be enjoyed at all, not a moment was to be lost. It was on that particular afternoon that I first appreciated the prodigious numbers of the liliputian *Ptinus* under consideration,—which, though apparently scarce during the more boisterous period, commenced now to emerge, by thousands, on every side. From whence they came it would have been difficult to conjecture, had not analogy led me to conclude that it was from out of the stalks of some of the softer plants. I believe that I obtained more by beating the *Artemisia argentea*, Herit., than by any other means; nevertheless they were in greater or less profusion everywhere,—until, as the evening approached and the winds began to return, as quickly as they came every one of them vanished.

206. Ptinus longicornis, *Woll.*

P. fusco-piceus squamis cinereis variegatus, elytris subelongato-rotundatis dilutioribus punctatis (punctis minoribus crebris), fasciis duabus (sc. basali obsoletissimâ diffusâ et subposticâ plus minusve distinctâ) albidis ornatis, antennis pedibusque elongatis pallidioribus sed vix squamosis.

Long. corp. lin. $\frac{2}{3}$–$\frac{7}{8}$.

Habitat Maderam, et borealem et australem, hinc inde non infrequens: in graminosis humidiusculis per regionem sylvaticam sitis prædominat, sed etiam in horto Loweano prope Funchal æstate parce observavi.

P. brownish-piceous, and more or less densely variegated with cinereous scales,—which however are somewhat less dense than those of the *P. albopictus*. *Prothorax* and *elytra* the same as in that species, except that the *latter* are rather more elongated (or less spherical), and not quite so suddenly shortened behind. *Antennæ* and *legs* paler than in the *var.* α. of that insect, but darker

than those of any of the other varieties; also rather longer (especially the former, which are perhaps a little more gradually incrassated towards their apex) and more robust, and almost free from scales.

I believe the present *Ptinus* to be truly distinct from the *P. albopictus*, nevertheless it must be admitted that it approaches it very closely. It is however much smaller than the Madeiran form of that species, as also somewhat less spherical and a little less shortened at its apex; and its antennæ and legs (especially the former) are proportionably a trifle longer and more robust. It is possible indeed that it may be but a state of the *P. albopictus*; nevertheless, since I possess so large a series of that insect, and have connected its numerous modifications in all the islands in which I have hitherto observed it, and (which is more particularly important) since the *P. longicornis* differs materially, both in size and outline, as well as in the length and proportions of its antennæ, from the *Madeiran* variety of the *P. albopictus*, I have not hesitated in retaining it as separate. It appears to be widely distributed over the island, although nowhere very abundant,—attaining its maximum however in the moist ravines of intermediate altitudes. Thus, I have captured it at the Ribeiro Frio in August, at the Lombo dos Pecegueiros in July (especially by brushing the rank grass and fern towards the edges of the Ribeiro do Inferno), in the chestnut-woods of Santa Anna during June, in the dead stump of a tree on the Pico do Cardo (to the north-west of Funchal) during the early spring; and, on one occasion, even close to Funchal itself,—namely, in the Rev. R. T. Lowe's garden at the Levada.

B. *Antennæ basi distantes, articulis ultimo et penultimo robustis, clavam efficientibus.*

207. Ptinus fragilis, *Woll.*

P. ater, squamis albidis (præsertim in capite prothoraceque) incrustatis, elytris subquadrato-rotundatis punctatis (punctis distinctis et parum crebris), antennis pedibusque fragilibus subpicescentibus sed vix squamosis.

Long. corp. lin. $\frac{1}{2}$–$\frac{7}{8}$.

Habitat in Portu Sancto et Desertâ Grandi, inter lichenes in rupium fissuris nascentes, a vere novo usque ad æstatem vulgaris.

P. deep black, and more or less incrusted (especially on the *head* and *prothorax*, on the latter of which they are often dense) with pure white scales. *Prothorax* slightly rounded at the sides, and widest behind the middle. *Elytra* rather less spherical than in the preceding species, and with a slight tendency to be somewhat quadrate (the anterior angles being less rounded-off); very convex, and punctured (the punctures being sufficiently distinct, and tolerably close together; and without any tendency to be disposed in rows); just perceptibly pubescent, and apparently but very sparingly clothed with scales,—though, these latter being of a very deciduous nature, it is possible that fresh and recently developed specimens might possess them to a greater extent. *Antennæ* and *tarsi* shorter than in any of the other species, and remarkably fragile, slightly

picescent (especially in the Porto Santan specimens), and almost free from scales; the *former* distant at their insertion, and with their last *two* joints distinctly and suddenly thickened,—forming a biarticulated club.

The deep black surface of the present anomalous little *Ptinus* (which has its head and prothorax, especially the latter, incrusted with snowy-white scales), in connection with its comparatively quadrate (though very convex) form, would even of themselves at once distinguish it from the remainder of the genus here described. Its structural details however are far more important, and altogether remove it from the other Madeiran members of the group,—its antennæ not only being *distant* at their base (of very rare occurrence amongst the *Ptini*, though one of the essential characteristics of *Hedobia*,—with which nevertheless in other respects it does not coincide), but having likewise their last *two* joints so distinctly and suddenly thickened as to constitute a tolerably well-defined biarticulated club. It displays moreover a very remarkable feature (which observation however *in situ* can alone appreciate) in the exceedingly fragile nature of its limbs, which are so delicate and easily removed, that it was with the utmost difficulty that I could procure so much as a single perfect specimen out of a very large number which I have, on various occasions, captured during my researches in these islands. And I would lay particular stress on this peculiarity, since the limbs of the *Ptini* are generally not only remarkably robust, but so firmly attached to the body that it requires considerable force to disengage them;—and the present species may consequently be regarded as entirely aberrant from the normal representatives of the genus. I have not hitherto detected it in Madeira proper; but it is abundant in Porto Santo and on the Dezerta Grande (especially the former), where it resides, I believe exclusively, amongst the dense masses of lichen which choke up the fissures and besprinkle the surfaces of the exposed weather-beaten rocks. It occurs during the spring and early summer months, in company with the *P. nodulus* and *albopictus*, *Tarphius Lowei*, *Xenostrongylus histrio*, and the numerous other insects of similar propensities.

Genus 94. MEZIUM.

(Leach) Curtis, *Brit. Ent.* v. 232 (1828).

Corpus parvum, durum: *capite* deflexo, sub prothorace abscondito: *prothorace* squamoso gibboso, mox ante basin valde dilatato sed ad basin ipsam subito constricto: *scutello* haud observando: *elytris* politissimis compresso-ovatis subconnatis: *alis* obsoletis. *Antennæ* approximatæ setuloso-squamosæ filiformes, articulo primo magno robusto intus producto, secundo paulo breviore graciliore, reliquis (ultimo ovato oblique subtruncato excepto) subæqualibus. *Labrum* corneum, antice pilosum valde emarginatum. *Mandibulæ* et *maxillæ* fere ut in Ptino. *Palpi* subclavati; *maxillares* articulo primo longiusculo subgracili flexuoso, secundo et tertio crassioribus subæqualibus, ultimo elongato-ovato robusto; *labiales* articulo primo longiusculo subgracili flexuoso, secundo crassiore, ultimo ovato robusto. *Mentum* corneum triangulare pilosum. *Ligula* elongata sub-

membranacea, apice integra pilosa. *Pedes* robustissimi elongati et dense subsetuloso-squamosi: *femoribus* apicem versus incrassatis: *tarsis* articulis quatuor baseos longitudine leviter decrescentibus.

Neither *Mezium* nor *Gibbium* differ very materially in the structure of their oral organs from *Ptinus*,—since their emarginated upper lip, their triangular form of mentum, and the slender, arcuated first joint of their palpi are exhibited, to a certain extent, in many of the aberrant members of that group also. Yet externally they may be easily recognised, since both of them possess characters sufficient (thus far) to warrant their isolation from their central type,—though perhaps not more important ones than those which constitute the subgenus *Sphæricus*, which in fact would appear to be related to *Ptinus proper* in about the same degree as the two now under consideration. As regards outward contour however, *Mezium* may be readily distinguished by its extremely glossy, and anteriorly setose and compressed, elytra, by the yellowish-white scales with which its head and prothorax are densely clothed (the latter of which is strongly nodose and sulcate, and dilated behind the middle, though suddenly constricted or shortened immediately before its extreme posterior margin), and by the excessive thickness of its antennæ and legs,—the former of which have their basal articulation large and internally produced, and their apical one somewhat obliquely truncated; whilst the latter have their thighs (although more robust) less abruptly clavated than is the case in *Gibbium* (with which however in its invisible scutellum, subconnate elytra, and freedom from wings it nevertheless coincides). In habits both genera agree precisely with the *normal Ptini*,—being found in and about houses, or amongst dried animal substances.

208. Mezium sulcatum.

M. castaneo-piceum, capite prothoraceque squamis albido-cinereis dense vestitis, hoc longitudinaliter valde nodoso et sulcato, elytris politissimis et basin versus setis erectis parce obsitis, antennis pedibusque robustissimis et dense subsetuloso-squamosis.

Long. corp. lin. 1–1½.

Ptinus sulcatus, Fab. *Spec. Ins.* i. 73 (1781).
—— ———, Mshm, *Ent. Brit.* i. 91 (1802).
Mezium sulcatum, Curtis, *Brit. Ent.* v. 232 (1828).
——— ———, Sturm, *Deutsch. Fna*, xii. 34. tab. 247 (1837).

Habitat in domibus Maderæ, præsertim circa oppida, hinc inde non infrequens.

M. piceous or castaneo-piceous, and impunctate. *Head* and *prothorax* closely beset with cinereous, or yellowish-white, scales; the *latter* large, greatly expanded behind, though suddenly constricted at its extreme base, and with three wide longitudinal furrows,—shaping-out broad ridges between them, which are greatly elevated and nodule-shaped on the hinder dilated portion. *Elytra* laterally compressed, especially in front, and exceedingly highly polished; and more or less

sparingly besprinkled towards their base with short, erect and rigid bristles. *Antennæ* and *legs* long, and densely clothed with paler scales (with indications of setæ intermixed); the *former* with their apical joint rather short, and somewhat obliquely truncated at its extremity.

An abundant insect throughout most parts of Europe,—being, like many others of similar habits, liable to transmission through the medium of commerce. In Madeira it occurs sparingly, in houses, in and around Funchal; and I have, likewise, captured it at Machico, and (in the north of the island) at São Vincente.

Genus 95. GIBBIUM.

Scopoli, *Int. ad Hist. Nat.* 505 (1777).

Corpus parvum, ovatum, durum, glaberrimum, politum: *capite* deflexo, sub prothorace abscondito: *prothorace* parvo, basi lato elytris arcte applicato necnon in medio producto: *scutello* haud observando: *elytris* subconnatis: *alis* obsoletis. *Antennæ* approximatæ dense squamosæ subsetaceæ, articulo primo parvo, secundo paulo majore, tertio leviter elongato, reliquis (ultimo elongato acuminato excepto) longitudine subæqualibus, latitudine vix decrescentibus. *Labrum* corneum, antice pilosum emarginatum. *Mandibulæ* et *maxillæ* fere ut in Ptino. *Palpi* filiformes; *maxillares* articulo primo longiusculo subgracili flexuoso, secundo et tertio crassioribus subæqualibus, ultimo elongato leviter robusto apice subacuminato; *labiales* articulo primo longiusculo subgracili flexuoso, secundo crassiore, ultimo elongato ovato robusto. *Mentum* corneum triangulare pilosum. *Ligula* elongata submembranacea, apice cordata pilosa. *Pedes* robusti elongati et dense squamosi: *femoribus* apicem versus sub-abrupte incrassatis: *tarsis* articulis quatuor baseos longitudine leviter decrescentibus.

As already stated, the present genus and the last are in the structure of their trophi almost identical; nevertheless in external distinctions they are so well defined, that it is perhaps desirable not to amalgamate them. Apart from its more ovate and less laterally-compressed form, *Gibbium* may be known from *Mezium* by its extremely minute and glabrous prothorax (which is narrowed in front and broad behind,—where it is closely applied to, and continuous with, the elytra; and is angulated, or produced backwards, in the centre, into the place of the scutellum), and by its rather less thickened limbs,—of which the antennæ somewhat taper towards their extremity, and have their basal articulation much smaller, and their apical one longer and more straightly acuminated, than is the case in that genus. The single known species of *Gibbium* is a very remarkable insect,—its smooth and semi-transparent surface, in conjunction with its posteriorly-inflated, ovate body, and its peculiar colour, giving it somewhat the appearance, when its limbs are closely applied beneath it, of a drop of blood.

209. Gibbium scotias.

G. ovatum rufescenti-castaneum politum glabrum, prothorace brevi minuto, antennis pedibusque robustis et dense subflavescenti-squamosis.

Long. corp. lin. 1¼.

Ptinus scotias, Fab. *Spec. Ins.* i. 74 (1781).
—— ——, Oliv. *Ent.* ii. 17. 9 (1790).
Gibbium scotias, Kugell. *in Schneid. Mag.* iv. 502 (1794).
———— ——, Sturm, *Deutsch. Fna*, xii. 32. tab. 248 (1837).

Habitat in iisdem locis ac præcedens, sed illo paulo rarius.

G. ovate (being attenuated in front and inflated behind), bright reddish-chestnut, impunctate, glabrous and shining. *Head* with an abbreviated costa on either side, behind the insertion of the antennæ, —terminating abruptly in front. *Prothorax* short and minute, narrowed anteriorly and broad behind (the sides being continuous with the base of the elytra); and produced backwards, or angulated, in the centre of its posterior margin into the place of the scutellum. *Elytra* somewhat translucent, and with indications of being longitudinally dappled. *Antennæ* and *legs* long and robust (though not quite so thickened as in *Mezium*), and densely clothed with fine, yellowish, and rather silken scales; the *former* with their apical joint long, and straightly acuminated at its extremity.

Likewise a common European insect, although perhaps not quite so generally distributed as the *M. sulcatum*. It occurs under the same circumstances as that species,—namely in and about the houses of Funchal; and has unquestionably been imported into the island from more northern latitudes.

Genus 96. ANOBIUM. (Tab. V. fig. 3.)

Fabricius, *Syst. Ent.* 62 (1775).

Corpus parvum vel mediocre, subcylindrico-oblongum, sat durum: *capite* deflexo, sub prothorace vix abscondito: *scutello* distincto: *alis* amplis. *Antennæ* distantes leviter clavatæ, articulis primo et secundo robustis (illo longiore crassiore), tertio ad octavum minutis subæqualibus, reliquis longissimis subæqualibus, clavam elongatam laxam intus subserratam efficientibus (ultimo elongato-ovato). *Labrum* corneum transversum, antice pilosum integrum. *Mandibulæ* magnæ corneæ validæ latæ subtriangulares obtusæ, infra apicem dente robusto obtuso instructæ. *Maxillæ* bilobæ, lobis submembranaceis apice pubescentibus; *externo* leviter incurvo; *interno* paulo breviore angustiore. *Palpi* subclavati; *maxillares* articulo primo parvo, secundo et tertio crassioribus subæqualibus, ultimo elongato robusto subfusiformi-ovato; *labiales* articulis primo et secundo longitudine subæqualibus (illo graciliore), ultimo elongato robusto subsecuriformi-ovato. *Mentum* corneum subtriangulare, apice truncatum. *Ligula* membranacea cordata, apice pilosa. *Pedes* parum graciles subcontractiles: *femoribus* haud clavatis, sulcatis (tibias subrecipientibus): *tarsis* articulis quatuor baseos longitudine decrescentibus.

Although typically somewhat more lignivorous, the *Anobia*, in their habits, have much in common with the *Ptini*. They may however be easily recognised from the members of that genus by their more cylindrical and longer bodies, by their *distant* and subclavated antennæ, and by their apically-bidentate mandibles, —in all of which respects it will be perceived that they make an evident approach towards *Cis*. The proportions indeed of their antennal joints (the first two of which are rather robust, the following six very minute, and the terminal three

exceedingly elongated and forming a loosely-connected club) are very remarkable, and would suffice even alone to characterize the group. Whilst apparently attaining their maximum in temperate and northern latitudes, they are insects of a wide geographical range,—the result partially perhaps of their liability to transmission amongst civilized countries with timber and various articles of merchandise and commerce, on which they principally subsist. The peculiar noise which some of the species are accustomed to make during their season of pairing, by striking their robust jaws against the wood within which they are situated,—supposed to be a signal for the opposite sex, and which, from its measured repetition, somewhat resembles the ticking of a watch,—has rendered them famous in the annals of our popular superstitions, and gained for them the name of "Death-watches."

210. Anobium velatum, *Woll.* (Tab. V. fig. 3.)

A. subcylindrico-oblongum rufescenti-brunneum et valde hirsutum, prothorace æquo (in disco convexo) et granulis magnis crebris obsito, antice truncato necnon ad latera minus rotundato, elytris profunde punctato-striatis, interstitiis subrugulosis, antennis pedibusque obscuro-ferrugineis.

Long. corp. lin. $1\frac{2}{3}$–$2\frac{1}{3}$.

Habitat in locis inferioribus Maderæ, æstate non infrequens: in horto Loweano prope Funchal mense Augusto deprehensi; necnon ad São Vincente in Maderâ boreali collegit Rev^{dus} Dom. Lowe.

A. subcylindrical-oblong, brown with more or less (especially on the elytra) of a rufescent tinge, and densely and uniformly clothed with exceedingly long, almost erect, very soft and flexible pile. *Prothorax* closely beset with rather large and coarse granules; short and wide, truncated in front, and with the sides straighter than in any of the other species,—both the anterior and posterior angles (particularly the former, which are almost right angles) being distinct; convex on the disk, but without any appearance of elevations or nodules,—though with a glabrous longitudinal line down the centre, which is more especially evident behind. *Elytra* deeply punctate-striated (the punctures being very large and well-defined); and with the interstices rather convex and roughened, though scarcely perceptibly punctulated. *Antennæ* and *legs* dull ferruginous.

Intimately related, in general contour and size, to the *A. villosum* of Mediterranean latitudes, though differing from it very materially, on examination, in the structure of its prothorax,—which (instead of being largely rounded off behind, and so extremely convex as to be almost nodose in the centre of the disk) is nearly straight at the sides (the anterior and posterior angles being almost equally prominent), and without any appearance of elevations in any portion of its surface; whilst, at the same time, it is uniformly studded with much coarser and more closely-set granules. The pubescence, likewise, is even more dense and erect than that of the *A. villosum* (and without the slightest tendency to be disposed, as is there the case, in fasciæ), and the interstices of its elytra are altogether more flattened. Although I have not been able to procure specimens for comparison, I am inclined to suspect that the *Anobium* which is quoted by Brullé in Webb and

Berthelot's *Histoire Naturelle des Iles Canaries* as the *A. villosum* may be identical with the present one,—which bears so strong a *primâ facie* resemblance to that species, that, without a careful inspection, it might be almost mistaken for it; and especially so, since the very short and loose descriptions given in that work are more than sufficient to warrant the conclusion that no great pains can have been bestowed on the determination of any of the Coleoptera enumerated in it. At all events, whether such be the case or not, the *Madeiran* insect is unquestionably distinct from its European ally. It is tolerably common, both in the north and south of the island, at rather low elevations, during the summer months,—making its appearance about July. It occurs principally in vineyards and near neglected buildings. I have taken it around Funchal in August; and it has been captured by the Rev. R. T. Lowe at São Vincente, later in the season.

211. Anobium paniceum.

A. subcylindrico-ovale rufescenti-brunneum vel ferrugineum et pubescens, prothorace æquo et granulis minutissimis subremotis obsito, antice producto necnon postice sinuato, elytris leviter subcrenato-striatis, interstitiis minutissime seriatim punctulatis et subtilissime subrugulosis, antennis pedibusque vix pallidioribus.

Long. corp. lin. 1–1½.

Dermestes paniceum, Linn. *Fna Suec.* 431 (1761).
Anobium paniceum, Oliv. *Ent.* ii. 16. 10 (1790).
——— ———, Fab. *Ent. Syst.* i. 237 (1792).
——— ———, Gyll. *Ins. Suec.* i. 293 (1808).
——— ———, Steph. *Ill. Brit. Ent.* iii. 340 (1830).

Habitat circa domos Maderæ, præsertim in pane diutius asservato, ex Europâ certe introductum: in domo amici cl. A. Ross, M.D., in ipsâ urbe Funchalensi sitâ, Januario ineunte A.D. 1848 copiosissime observavi.

A. subcylindrical-oval (being smaller and proportionably shorter than the *A. velatum*), varying from reddish-brown into pale ferruginous, and densely clothed with short and nearly decumbent pile. *Prothorax* beset with rather distant and exceedingly minute granules; short and rather wide, a little produced and rounded in front, and slightly sinuated along its hinder margin,—the central portion being somewhat produced backwards in front of the scutellum; without any appearance of nodules,—though with an abbreviated, glabrous, and very obscurely raised central keel behind. *Elytra* finely crenate- (scarcely punctate-) striated; and with the interstices perfectly flat, most delicately rugulose, and with a longitudinal series of exceedingly minute punctures down each. *Antennæ* and *legs* a little paler than the rest of the surface.

Known from the other *Anobia* here described by its shorter and more oval form, by its usually paler (or more ferruginous) hue, and by the sculpture of the interstices of its (finely *crenate*-striated) elytra,—which are most delicately rugulose, and have a longitudinal series of most minutely impressed points down each. In the length and decumbency of its pubescence it is intermediate between the

A. velatum and *striatum*; but the above characters will, of themselves, suffice to distinguish it. In its habits it is less strictly lignivorous than any of the remainder; being evidently an imported insect into Madeira, where it is found about houses and amongst stores, especially biscuit and bread,—on which, as well as on different kinds of merchandise, it appears to subsist. It is occasionally tolerably common around Funchal; and I once captured it in abundance in the city itself,—on the walls of the house belonging to my friend Dr. Ross, in the Rua da Carreira,—at the beginning of January 1848.

212. Anobium striatum.

A. subcylindricum brunneum et subtilissime pubescens, prothorace inæquali (postice carinato-nodoso) et granulis minutissimis punctisque obscuris obsito, antice acuminato-producto necnon ad angulos posticos sinuato, elytris punctato-striatis, antennis pedibusque ferrugineis.

Long. corp. lin. $1\frac{1}{3}$–2.

Anobium striatum, Oliv. *Ent.* ii. 16. 9. (1790).
——— *pertinax*, Fab. (nec Linn. 1761) *Ent. Syst.* i. 237 (1792).
——— *striatum*, Gyll. *Ins. Suec.* i. 291 (1808).
——— ———, Steph. *Ill. Brit. Ent.* iii. 340 (1830).

Habitat Maderam, hinc inde sat frequens,—ex alienis forsan introductum.

A. subcylindrical (being proportionably rather narrower, especially anteriorly, than either of the previous species), of a more or less obscure brown, and densely clothed with most minute and decumbent pile. *Prothorax* closely beset with very small and obscure granules and punctures; rather elongated and narrow,—particularly in front, where it is both constricted and rounded (which gives the sides an unequal, or undulating, appearance); with the hinder angles sinuated, or scooped out; with a slightly impressed longitudinal channel, and a greatly elevated keel-shaped nodule in the centre of the hinder disk,—on either side of which the surface is transversely impressed. *Elytra* a little paler than the prothorax, punctate-striated; and with the interstices rather convex, though scarcely punctulated. *Antennæ* and *legs* more or less ferruginous.

A most abundant European *Anobium*; and one which has in all probability, like the last species, been naturalized in Madeira from more northern latitudes. It is an insect in fact peculiarly liable to dissemination over the world through the agency of commerce,—being attached to rotten wood, and often making its appearance in considerable numbers on board ship. It is widely distributed over Madeira, though it does not seem to occur anywhere in profusion. I have captured it in the vicinity of Funchal during the early spring, at Caniçal in May, at Santa Anna and São Vincente in June, and at the Ribeiro Frio and the Feijãa de Córte in August.

213. Anobium Ptilinoides, *Woll.*

A. cylindricum rufescenti-brunneum et subtiliter pubescens, prothorace æquo convexo et granulis

minutis creberrimis obsito, antice vix producto, elytris paulo dilutioribus leviter punctato-striatis, antennis pedibusque ferrugineis.

Long. corp. lin. $2\frac{1}{3}$–3.

Habitat Maderam, mihi non obvium: tria specimina, prope urbem Funchalensem capta, nuper misit Dom. Leacock.

A. cylindrical, brown with more or less of a rufescent tinge, and densely clothed with short pile,—which is dark and erect upon the prothorax, but pale and almost decumbent on the elytra. *Prothorax* very closely beset with minute points or granules,—which, in conjunction with the short pile, give the surface an almost velvety appearance; convex, slightly produced in front, and with the sides rounded; perfectly even, having no appearance of elevations, nodules, or even of a central line. *Elytra* a little paler than the prothorax,—the colour and decumbency of the pubescence however causing it to seem paler than it really is; rather lightly punctate-striated; and with the interstices wide (but not quite flattened), though scarcely punctulated. *Antennæ* and *legs* ferruginous.

Readily known by its large size and extremely cylindrical form (in which respect it bears a very strong *primâ facie* resemblance to a *Ptilinus*), and by the small thickly-set granules and somewhat velvety surface of its (comparatively globose) prothorax,—the pubescence of which is darker and more erect than that of the elytra. It is one of the insects which entirely escaped my own observations in these islands,—the only three specimens which I have seen having been recently communicated to me by T. S. Leacock, Esq., by whom they were captured near Funchal.

Fam. 31. CISSIDÆ.

Genus 97. CIS. (Tab. V. fig. 7 et 8.)

Latreille, *Précis des Caract. Gen. des Ins.* 50 (1796).

Corpus parvum, subcylindrico-oblongum vel subcylindricum, durum: *capite* subdeflexo: *prothorace* antice plus minusve producto, interdum cornuto: *alis* parum amplis. *Antennæ* (V. 7 *a*, 8 *a*) 10-articulatæ clavatæ, articulis primo et secundo robustis (illo longiore crassiore), tertio longiusculo (vel gracili vel parum robusto), quarto ad septimum vel longitudine paulatim decrescentibus (V. 8 *a*), vel minutis subæqualibus (V. 7 *a*), reliquis clavam magnam elongatam perfoliatam triarticulatam efficientibus (octavo et nono subæqualibus, decimo paulo longiore ovato ad apicem tuberculo acuminato instructo). *Labrum* corneum subquadratum, basi leviter angustatum. *Mandibulæ* (V. 8 *b*) corneæ validæ latæ subtriangulares, intus dentibus (uno sc., mox infra apicem sito, robusto; et altero, basin versus posito, robustissimo obtuso) instructæ. *Maxillæ* (V. 8 *c*) bilobæ, lobis subcoriaceis apice setosis; *externo* magno lato apice incurvo; *interno* brevissimo minuto. *Palpi maxillares* clavati, articulo primo parvo, secundo et tertio longioribus crassioribus (hoc majore crassiore subclavato), ultimo robusto elongato-ovato: *labiales* (V. 8 *d*) articulis primo et secundo latitudine æqualibus (illo brevissimo, hoc longiusculo), ultimo gracili subovato-cylindrico. *Mentum* tenue vix coriaceum subquadratum. *Ligula* subcoriacea elongata, apice

leviter rotundata. *Pedes* parum graciles subcontractiles: *tibiis* sæpius (V. 8 *e*) simplicibus, sed interdum (V. 7 *b*, 7 *c*) apice leviter dilatatis et in *anticis* (V. 7 *b*) extus denticulatis: *tarsis* 4-articulatis, articulis tribus baseos minutis subæqualibus, quarto longissimo subclavato *unguiculis* simplicibus munito.

The genus *Cis* may be readily known by the subcylindrical and more or less glabrous bodies of the species which compose it, and by the structure of its antennæ and feet,—the former of which are but 10-articulate, and have their clava (although perfoliated) abrupt, and furnished with a minute tubercle at its tip; whilst the latter are made up of four joints only, the basal three being extremely small. It may be considered as forming a very gradual passage between the *Ptinidæ* and the Xylophagous *Pseudotetramera*: for whilst, on the one hand, it evinces a close relationship with the *Anobia* (as its apically-bidentate mandibles, its loosely-connected club, and its *generally* simple tibiæ would, apart from external features, abundantly indicate); yet, the almost obsolete inner lobe of its (*subsetose*) maxillæ, in conjunction with its elongated ligula, and the diminished number of its antennal and tarsal joints, alike combine in pointing towards the *Tomicidæ* and *Hylesini*,—in which the whole of these peculiarities, although more developed, are amongst the most essential characters possessed. And indeed I cannot but believe that the system, not unfrequently adopted, which would remove that extremity of the *Pseudotetramera* to a distance from the *Cissidæ* is anything but a natural one;—and more especially so, since there are connecting links (shortly to be noticed) which effect, even more evidently than *Cis*, a transition between the groups.

214. Cis Wollastonii. (Tab. V. fig. 8.)

C. oblongo-subcylindricus piceus subnitidus leviter subruguloso-punctulatus et subtilissime pubescens, prothorace subquadrato, antice subtruncato necnon ad latera subrecto marginato, hinc inde inæqualiter rufescenti, elytrorum basi apiceque rufescentibus, antennis pedibusque ferrugineis, illarum clavâ infuscatâ.

Long. corp. lin. $1\frac{1}{2}$–2.

Cis Wollastonii, Mellié, *in Guér. Rev. de Zool.* (2ième série) i. 586 (1849).

Habitat Maderam sylvaticam, præsertim inter 3000′ et 4500′ s.m., sub cortice arborum laxo, hinc inde non infrequens.

C. large, elongated and subcylindrical (being however a little narrowed anteriorly), not very convex, piceous, a little shining, and rather sparingly clothed throughout with an exceedingly minute, delicate, and decumbent cinereous pubescence (which however is scarcely perceptible except beneath a powerful lens). *Head* large, but very slightly deflexed (and therefore a good deal exposed), rounded and margined anteriorly, with a very faint transverse impression in front, and obscurely convex in the centre of its forehead behind. *Prothorax* subquadrate (the sides being nearly straight); truncated (or scarcely at all produced) anteriorly; finely and closely punctulated (the punctures being shallow and not very well defined); the lateral edges very broadly margined,

and the hinder one very narrowly so; the anterior angles rather obtuse; without any appearance of a dorsal channel; and with its surface more or less unequally rufescent, or diluted, in parts, —the extreme fore-margin, a patch in front of the scutellum, and a larger (transverse) one towards the anterior angles being the positions which it is the tendency of the paler portions to occupy. *Elytra* punctulated like the prothorax, but a little more rugulose or uneven (neither the punctures nor pubescence having any tendency to be disposed in rows); broadly, though more or less obscurely, rufescent at their base (especially about the shoulders) and apex, —the paler portions being generally interrupted along the suture, which in occasional (highly coloured) specimens causes them to assume somewhat the appearance of four large patches. *Antennæ* and *legs* pale ferruginous; the *former* with their club a little dusky.

A very interesting and most elegant *Cis*; and one which may be known from every other species with which I am acquainted by its large and elongated body, which is less convex than is usually the case with the normal members of the group, and by the more or less brightly rufescent patches with which its surface is ornamented,—its entire general facies somewhat calling to mind, at first sight, the Heteromerous genus *Hypophlœus*. It is widely distributed over the sylvan districts of Madeira, between the limits of from 3000 to about 4500 feet above the sea; but does not appear to be very abundant,—although, from its gregarious nature, here and there tolerably common. It is usually to be met with beneath the loosely attached bark of felled timber or of decaying trees. I have captured it, during the spring, in the region of the Ribeiro Frio; and, in the summer, at the Cruzinhas, the Lombo dos Pecegueiros, and the Fanal.

215. Cis fuscipes.

C. ovali-cylindricus fuscus subnitidus ruguloso-punctulatus et dense setuloso-pubescens, prothorace transverso subconvexo, antice leviter producto necnon ad latera subrotundato marginato, elytris vix pallidioribus, antennis pedibusque omnino testaceis.

Mas, capite leviter tuberculato.

Long. corp. lin. $1\frac{1}{8}$–$1\frac{1}{3}$.

Cis fuscipes, (Chevrolat) Mellié, *Ann. de la Soc. Ent. de France* (2ième série) vi. 271. tab. 2. fig. 25 (1848).

Habitat Maderam australem, inter lichenes in horto Loweano prope Funchal a meipso repertus.

C. shorter and more oval (and likewise rather more convex and cylindrical) than the *C. Wollastonii*, brown, a little shining, and clothed throughout with rather long, suberect and rigid setæ of a cinereous (or sometimes yellowish-cinereous) tinge. *Head* rounded and margined anteriorly, with a transverse impression in front; and slightly tubercled behind in the males. *Prothorax* more transverse and convex than that of the last species (the sides being slightly rounded); rather produced anteriorly (where it is a little paler than the rest of the surface); more rugosely and deeply punctured than in the *C. Wollastonii*; the lateral edges very broadly margined, but the hinder one almost simple; the anterior angles rather porrected and acute; and with very faint indications of a dorsal channel. *Elytra* punctured like the prothorax, but considerably rugulose or uneven (both the punctures and pubescence having a tendency to be disposed in rows). *Antennæ* and *legs* entirely pale testaceous.

A species which recedes in no respect from the ordinary generic type of more northern latitudes. It may be distinguished from its only allies with which we are here concerned, by the brown hue and setose surface of its more parallel and cylindrical body, by the somewhat porrected anterior angles of its prothorax, and by its entirely pale limbs. I am not altogether satisfied that it is truly indigenous to the Madeiran group, the only specimens which I have hitherto seen having been captured by myself close to Funchal, in the garden of the Rev. R. T. Lowe at the Levada (a spot in which I once however observed it in abundance),—from amongst lichen and fungi on the decayed stump of an old peach-tree. On several occasions I have detected it either in or near the same locality:—but, as it has been recorded by M. Mellié, in his excellent Monograph of these immediate genera, as American, it is possible that it may have been accidentally imported into the island, and thus become established in the vicinity of the town.

216. Cis Lauri, *Woll.* (Tab. V. fig. 7.)

C. ovato-subcylindricus curtus fusco-piceus opacus leviter punctulatus et dense pubescens, prothorace amplo convexo, antice valde producto necnon ad latera rotundato et angustissime marginato, elytris (præsertim postice) valde convexis, antennis pedibusque ferrugineis, illarum clavâ infuscatâ.

Mas, capite leviter tuberculato, prothorace antice sub-bidentato.

Long. corp. lin. $\frac{2}{3}$–1.

Habitat per partem Maderæ sylvaticam, sub cortice arborum vel in fungis, ubique vulgatissimus.

C. short and minute (being more ovate than either of the preceding species), a little truncated behind and exceedingly convex, dull brownish-piceous or reddish-brown, opake, and clothed with a rather fine and suberect pile of a somewhat cinereous hue. *Head* rather small, rounded and margined anteriorly, with a faint transverse impression in front; and, apparently, slightly tubercled behind in the males. *Prothorax* large and extremely convex (the sides being rounded); the anterior portion very much produced over the head (where it is generally a little paler than the rest of the surface), and divided in the males into two small rounded prominences or obscure teeth; very finely, uniformly, but not very closely punctured; the lateral and hinder edges most narrowly margined; both the anterior and posterior angles much rounded off; and without any appearance of a dorsal channel,—though faint indications of a line may be sometimes traced by the absence of punctures along a narrow central portion. *Elytra* rather more deeply punctured than the prothorax (neither the punctures nor pubescence having any tendency to be arranged in rows). *Antennæ* and *legs* pale ferruginous; the *former* with their club a little dusky.

A truly indigenous little *Cis**,—receding in its minute size, somewhat ovate, thickened, exceedingly convex, and posteriorly-subtruncated form, in its opake and finely punctulated surface, and in its largely developed prothorax (the angles of which are very much rounded off, whilst the anterior portion is produced into a

* I ought perhaps to state that I forwarded specimens of this *Cis* for comparison to M. Mellié, of Paris, immediately after the publication of his elaborate Monograph, who pronounced them to be unquestionably new.

distinct hood over the head), from the other members of the genus here described. In conjunction with the *Octotemnus opacus*, it is perhaps one of the most abundant and destructive of all the Madeiran Coleoptera,—occurring, often by thousands, beneath the bark of the native laurels at intermediate and lofty elevations. In some of the damp sylvan districts which are difficult of access it literally teems,—undergoing its changes, generation after generation, untouched. In such positions it does not confine its ravages to the trees alone, since the fungi are equally its food,—some of the larger species of which may be occasionally observed almost alive with it. I have captured it in profusion on the Lombo das Vacas, and in the regions of the Boa Ventura and the Ribeiro Frio: and it has been taken by the Rev. R. T. Lowe in the nearly inaccessible mountain-ravine between the São Vincente valley and the Ribeiro do Inferno.

Genus 98. OCTOTEMNUS.

Mellié, *Ann. de la Soc. Ent. de France* (2ième série) vi. 384 (1848).

Corpus sat minutum, subfusiformi-cylindricum, durum: *capite* deflexo: *prothorace* antice leviter producto integro: *alis* amplis. *Antennæ* 8-articulatæ clavatæ, articulis primo et secundo robustis (illo longiore crassiore), tertio longiusculo subgracili, quarto et quinto minutis subæqualibus, reliquis clavam magnam elongatam perfoliatam triarticulatam efficientibus (articulis subæqualibus, sexto et septimo vix majoribus globosis, octavo globoso-ovato). *Instrumenta cibaria* fere ut in genere præcedenti; sed *palpi* paulo graciliores, *maxillarium* articulo ultimo valde elongato. *Pedes* parum graciles subcontractiles: *tibiis* apice leviter dilatatis, per marginem externum minutissime serratis: *tarsis* 4-articulatis, articulis tribus baseos minutis subæqualibus, quarto longissimo subclavato.

Octotemnus differs from *Cis*, principally, in having but eight joints to its antennæ (the club of which moreover is exceedingly abrupt, and has its extremity free from the acute tubercle which is so conspicuous in that genus), and in its tibiæ being very minutely spinulose along their entire outer edge. The size also of the only two known species (the Madeiran representative being one of them) which compose it is smaller, the body somewhat more fusiform, and the palpi rather slenderer, and more acuminated at their apex. In other respects it coincides almost entirely with *Cis*.

217. Octotemnus opacus.

O. fusiformi-cylindricus piceus subopacus tenuissime punctulatus et parce subtiliter pubescens, prothorace antice producto necnon ad latera rotundato et angustissime marginato, elytris plerumque (præsertim basin versus) pallido-castaneis, antennis pedibusque testaceis, illarum clavâ nigrescenti.

Long. corp. lin. 1.

Octotemnus opacus, Mellié, *Ann. de la Soc. Ent. de France* (2ième série) vi. 386 (1848).

Habitat per regionem Maderæ sylvaticam, in fungis vel sub cortice arborum, toto anno vulgatissimus.

O. somewhat fusiform-cylindric (being a little narrowed both before and behind), convex, dark piceous, slightly opake, most delicately granulated all over, and very sparingly clothed with a minute, decumbent, and somewhat cinereous pubescence. *Head* rounded and slightly margined anteriorly, and with a deep transverse impression in front. *Prothorax* convex (the sides being rounded); rather narrowed and produced anteriorly (where it is of a bright reddish-brown); very minutely and uniformly punctulated; the lateral and hinder edges most narrowly margined; both the anterior and posterior angles, especially the former, much rounded off; and with slight indications (sometimes only just traceable) of an obscure central ridge. *Elytra* rather more shining than the prothorax; also with the punctures smaller, and with the surface towards their base a little roughened; of a more or less bright chestnut-brown,—the humeral region of each being often exceedingly pale. *Antennæ* and *legs* pale testaceous; the *former* with their club darkly infuscated.

A species closely allied to the common European *O. glabriculus* (which, as already stated, is the only other member of the genus hitherto described); nevertheless it may be recognised from that insect by being larger, more opake, and distinctly pubescent, by having the produced anterior portion of its pronotum bright reddish-brown, by its elytra being of a much more diluted hue (especially at their base) than the prothorax, and by the extreme paleness of its antennæ and legs,—the former of which however have their club uniformly dark. M. Mellié's diagnosis of it, in the *Annales de la Société Entomologique de France* (compiled from a single specimen which I forwarded to him after my return from the Madeira Islands in 1848), is not quite correct,—since it is there stated to be *glabrous*; whereas the existence of a well-defined (though sparingly scattered) pile is one of the most important of the characters which serve to separate it from its more northern ally (on which I am unable to detect the smallest traces, even beneath a high magnifying power, of any pubescence at all). It is abundant throughout the whole sylvan districts of Madeira, especially between the limits of from about 3000 to 5000 feet above the sea. Like the *Cis Lauri* (with which it is often found in company), it is occasionally to be met with by thousands, particularly in a species of gigantic fungus which occurs in the dense ravines of intermediate altitudes. At the Lombo dos Pecegueiros, the Feijãa de Córte, in the region of the Ribeiro Frio, and at the Curral das Romeiras (above Funchal) I have observed it in the utmost profusion.

Genus 99. PTILINUS.

Geoffroy, *Hist. Abr. des Ins.* i. 65 (~~1764~~ 1762).

Corpus sat parvum, elongatum, cylindricum, durum: *capite* deflexo: *prothorace* subgloboso convexo, antice producto et scabroso: *alis* amplis. *Antennæ* intus in fœminis serratæ, in maribus valde flabellatæ; articulis primo et secundo (in utroque sexu) simplicibus (illo leviter robusto, hoc parvo brevissimo intus subnodoso), tertio ad decimum in fœminâ intus serratis, in mare in lobos (primo brevi obtuso, reliquis longissimis) linearibus intus productis, ultimo in fœminis ovato, in maribus lineari longissimo. *Labrum* corneum transversum, antice pilosum. *Mandibulæ* curtæ

corneæ validæ latæ subtriangulares, apice acutæ bidentatæ. *Maxillæ* bilobæ, lobis submembranaceis apice pubescentibus; *externo* magno lato, apice truncato; *interno* brevissimo minuto. *Palpi* subclavati; *maxillares* articulo primo longiusculo subgracili, secundo leviter elongato subclavato, tertio breviore (primi longitudine), ultimo elongato robusto fusiformi apice acuminato; *labiales* longissimi, articulo primo parvo, secundo longissimo subflexuoso clavato, ultimo vix breviore robusto fusiformi apice subacuminato. *Mentum* corneum transversum, antice bilobum. *Ligula* membranacea cordata, apice pilosa. *Pedes* breviusculi graciles: *tibiis anterioribus* (*anticis* præcipue) extus minutissime subserratis necnon ad apicem externum in angulum leviter exstantem subdentiformem productis: *tarsis* articulis primo et secundo elongatis, tertio, quarto et quinto brevibus (tertio et quarto subtus leviter oblique productis, quinto crasso paulo longiore clavato).

Ptilinus may be readily known both by external and structural characters,—the narrow cylindrical bodies and globose prothoraces of the species which compose it, in conjunction with the two elongated basal, and the three abbreviated remaining, joints of their feet, and the singular flabellated antennæ of the male sex, being at once sufficient to distinguish it from its allies. Although easily recognised however as a genus, it is one of rather doubtful position in a general arrangement, since in the modification of its antennæ and tarsi it altogether recedes from the present family, and has more in common with the *Ptinidæ*. Still, in its apically bidentate mandibles, in the excessive minuteness of the inner lobe of its maxillæ, and in its *almost* simple tibiæ it agrees unquestionably with *Cis*; and since in some respects it is suggestive of groups even *beyond* it (peculiarities moreover which are supposed to be of greater importance than those by which it is attracted to the *Ptinidæ*,—and which its very cylindric form and its anteriorly rugulose pronotum would especially represent), I believe it is more natural to keep it nearer to *this* extremity of the *Cissidæ* than to the other,—its *tendency* (as just stated) being rather in the direction of the departments in advance of us than of those which we have left behind. The *Ptilini* reside almost exclusively in rotten wood, and are most frequently to be found about houses,—in the timber of which their rounded perforations are often but too conspicuous.

218. Ptilinus cylindripennis, *Woll.*

P. cylindricus rufescenti- vel fuscescenti-brunneus et dense subtiliter pubescens, prothorace subgloboso convexo granulato necnon antice mucronibus dispersis asperato, elytris vix punctulatis, antennis pedibusque pallidioribus.

Mas, paulo minor, antennis valde flabellatis.

Long. corp. lin. $1\frac{1}{2}$–$2\frac{1}{2}$.

Habitat Maderam, ab orâ maritimâ usque ad 3500′ s. m. ascendens: in vinetis circa urbem Funchalensem sitis, ad Sanctam Annam, necnon etiam in aperto hinc inde observavi.

P. elongated and cylindrical, varying from a dark fuscous hue into a bright reddish-brown, and densely, though very minutely pubescent. *Prothorax* exceedingly convex and globose; minutely

granulated, and with coarser tubercles or points scattered over its anterior region,—which is produced and a little acuminated, and has its extreme apical margin slightly reflexed; with a longitudinal, abbreviated, subglabrous dorsal line behind, and with obscure indications of a small irregular elevation on either side of it. *Elytra* usually rather paler than (and a little narrower than the central portion of) the prothorax; free from longitudinal costæ, and almost impunctate,—or with very slight indications of ill-defined punctures just perceptible towards the outer margins. *Antennæ* and *legs* generally pale ferruginous; the *former* usually (particularly the flabellated processes of the male articulations) a little infuscated.

The Madeiran representative of the common European *P. pectinicornis*, although most unquestionably distinct from it,—being not only, on the average (for both species are exceedingly variable in size), larger and more rufescent than that insect, but likewise differing in the sculpture of its elytra, which are (though pubescent) comparatively smooth and almost impunctate; whereas in the *P. pectinicornis* the punctures are large and conspicuous. It is decidedly scarce,—nevertheless widely distributed over Madeira, from the vineyards of the southern coast to about 3500 feet above the sea. I first captured it in the garden of the Quinta d'Ambrosio, near Funchal, during the spring of 1848; and in June of 1850 I met with it in the north of the island,—in the house of Senhor Louiz Acciaioly, at Santa Anna. It is not attached exclusively however to the vicinity of the towns and villages,—since, during July of 1850, I took it in the dense forest region of the Lombo dos Pecegueiros; and, in August of the same year, in the equally remote, though more open, district of the Feijãa de Córte.

Genus 100. RHYZOPERTHA.

Stephens, *Ill. Brit. Ent.* iii. 354 (1830).

Corpus parvum, elongatum, cylindricum, durum: *capite* deflexo: *prothorace* subgloboso convexo, antice producto et scabroso: *alis* amplis. *Antennæ* 10-articulatæ clavatæ, articulis primo et secundo robustis (illo paulo longiore crassiore), tertio ad septimum minutissimis subæqualibus, reliquis clavam magnam abruptam perfoliatam triarticulatam efficientibus (octavo et nono subæqualibus intus productis, decimo obliquo-ovato). *Labrum* subcorneum amplum hexagonum, apice valde pilosum. *Mandibulæ* magnæ corneæ validæ arcuatæ, infra apicem dente obscuro, necnon ad basin membranâ, instructæ. *Maxillæ* bilobæ, lobis submembranaceis valde pubescentibus; *externo* elongato angusto; *interno* paulo breviore angustissimo. *Palpi* subfiliformes; *maxillares* articulo primo parvo, secundo longiore crassiore clavato, tertio huic paulo breviore, ultimo longissimo subacuminato-cylindrico; *labiales* articulo primo parvo, secundo longiore crassiore, ultimo elongato subcylindrico-ovato. *Mentum* corneum transversum, antice leviter rotundato-productum. *Ligula* membranacea longiuscula, apice valde pilosa. *Pedes* breviusculi subgraciles: *tibiis* extus sparse fortiter serratis (ad apicem externum in spinam majorem, præsertim in *anticis*, productis): *tarsis* articulis quatuor baseos minutis subæqualibus (primo paulo breviore, in tibiarum apice immerso, superne vix conspicuo), quinto longissimo subclavato.

Rhyzopertha is in many respects quite as discordant as *Ptilinus*,—combining

the characters of the present family, and to a certain extent even of the previous one also, with the outward facies of the *Tomicidæ*. Like it, however, its *tendency* would appear to be towards the last of these; and, in spite therefore of the many points of discrepancy which it displays with the incipient *Pseudotetramera*, we are compelled to place it here, as, upon the whole, the best position which we can assign to it:—and which is rendered the more natural from the consideration that both it and *Ptilinus* are perhaps nearer akin to *Apate* than to anything else (a group which leads us very gradually on, particularly through the medium of its accompanying links, in the direction of the *Tomici*). Thus, for instance, the 10-jointed antennæ of *Rhyzopertha*, with its perfoliated club, in connection with its distinctly developed upper lip and slender legs, would go far to establish its affinity with *Cis*, and its farinaceous and store-infesting habits might indicate some relation even with the *Ptinidæ*; yet, on the other hand, in its extremely cylindrical form, its anteriorly roughened and produced prothorax, the obliquely subtruncated apex of its elytra, and in its serrated tibiæ, it offers so strong a *primâ facie* resemblance to *Tomicus*, that, were it not for its loosely-connected clava, it might be almost mistaken at first sight for a species of that genus,—from which, consequently, it would seem desirable that it should not be further removed than is necessary. It occurs usually in and about houses; and since, like many of the typical *Ptinidæ*, it attaches itself to different kinds of provisions and articles of commerce, it is liable to become diffused, in various ways, throughout the civilized world.

219. Rhyzopertha pusilla.

R. cylindrica ferruginea, prothorace convexo valde scabroso necnon antice mucronibus asperato, elytris nitidis profunde substriato-punctatis (punctis magnis), ad apicem oblique subtruncatis.

Long. corp. lin. 1½.

Synodendron pusillum, Fab. *Ent. Syst.* v. (*Suppl.*) 156 (1798).
Ptinus fissicornis et *piceus*, Mshm, *Ent. Brit.* i. 82 et 88 (1802).
Rhyzopertha pusilla, Steph. *Ill. Brit. Ent.* iii. 354 (1830).
———— ——, Lucas, *Col. de l'Algérie*, 468 (1849).

Habitat in domibus mercatorumque repositoriis Maderæ, præsertim in urbe ipsâ Funchalensi,—in insulam ex alienis farinariis et radicibus invecta.

R. elongated and cylindrical, bright ferruginous, and nearly free from pubescence. *Prothorax* exceedingly convex, roughly scabrous or granulated, and with coarser tubercles or points (which have a tendency to arrange themselves in concentric folds) densely scattered over its anterior region,—which is slightly narrowed, produced and rounded (but not at all acuminated), and has its extreme margin roughened and slightly reflexed; and without any appearance of a dorsal channel. *Elytra* shining, very distinctly and regularly substriate-punctate (the punctures being exceedingly large and deep, but the striæ excessively shallow); and with a slight tendency to be obliquely truncated at their extremity. *Antennæ* a little paler, and the *legs* usually a trifle darker, than the rest of the surface.

Evidently an imported insect into Madeira, occurring principally in the houses of Funchal,—where it attaches itself to articles of commerce, though more especially to farinaceous preparations and dried vegetable substances of various kinds. It is under such circumstances that it is found throughout Europe generally; and in England I have observed it, in great abundance, in powdered arrow-root. It is stated by Kirby and Spence to have been detected amongst roots of Turkey rhubarb in the East India Company's warehouses in London; and both Marsham and Stephens have remarked that it is constantly liable to be introduced with roots and seeds from India,—from whence indeed the specimens described by Fabricius in 1798 were brought. Hence, its original centre of diffusion was probably extra-European: nevertheless, if not truly indigenous, it would appear to have established itself more completely on the southern Mediterranean limits than in cooler latitudes, since M. Lucas, in his account of the Coleoptera of Algeria, records its existence beneath the bark of the *Quercus suber* and *Cytisus spinosus* during the winter and spring months, in the vicinity of Oran.

Sectio VII. RHYNCOPHORA.

Fam. 32. TOMICIDÆ.

Genus 101. TOMICUS*.

Latreille, *Hist. Nat. des Ins.* iii. 203 (1802).

Corpus parvum, cylindricum: *capite* subdeflexo, vix producto: *prothorace* amplo convexo, antice producto et scabroso: *elytris* apice plus minusve obliquo-truncatis: *alis* amplis. *Antennæ* capitatæ; scapo (*i. e.* articulo primo) longissimo clavato; funiculo (*i. e.* articulis inter scapum et capitulum sitis) 5-articulato, articulo primo robusto apice truncato, reliquis brevissimis a basi angustâ latitudine paulatim crescentibus; capitulo solidissimo, obscure quadri-annulato. *Labrum* obsoletum. *Mandibulæ* corneæ validæ subtriangulares obtusæ, infra apicem dente obtuso instructæ

* It is difficult to understand on what principle many of the European entomologists still persist in appropriating the title of *Bostrichus* for the *Tomici*, except on the unfair partiality which exists of employing everything *Fabrician* at the expense of priority. If indeed the term of *Bostrichus* is to be used at all (and there is no reason why it should not), it is clear that it should be applied to the *Dermestes capucinus*, Linn., for which it was originally established by Geoffroy in 1764,—and to which, eleven years afterwards, Fabricius chose to give the name of *Apate*. The fact of Fabricius having cited (in 1792) some of the members of the present group as *Bostrichi* cannot be the slightest excuse for endorsing his falsification of Geoffroy's generic name,—which appertains to the *Dermestes capucinus* (and to whatsoever allied species may have been since discovered) exclusively. *Bostrichus* therefore having been correctly disposed of (and moreover conceded to its *proper author*, which in common justice we are bound to do), it is evident that Latreille's appellation of *Tomicus*, proposed for these insects in 1802, should, in accordance with the laws of precedence, be accepted.

necnon ad basin sinuatæ. *Maxillæ lobo singulo* lato setoso instructæ (*interno* obsoleto). *Palpi* conici crassi; *maxillares* articulo primo brevissimo lato, secundo longiore vix graciliore, tertio brevi, ultimo minuto conico; *labiales* articulis primo et secundo crassiusculis subæqualibus, ultimo minuto conico. *Ligula* membranacea elongata subtriangularis. *Pedes* brevissimi validi: *tibiis* compressis, apicem versus dilatatis, extus fortiter dentatis, ad apicem internum spinâ rectâ armatis: *tarsis* articulis tribus baseos longiusculis crassiusculis subæqualibus, quarto minutissimo, quinto longissimo subclavato.

The *Tomicidæ*, which by some entomologists are amalgamated with the *Hylesinidæ*, would appear to supply a very natural passage into the typical *Rhyncophora* from the departments which we have just left behind us; for, whilst in all essential respects they are Pseudotetramerous, yet the peculiar characteristics of that section (and especially of the Rhyncophorous portion of it) are unquestionably less developed in them than in the more advanced forms. Thus, whilst they almost coincide as regards their oral organs with the modification observable in the *Hylesinidæ*, yet the head, which is distinctly elongated in that family (a structure which reaches its maximum in the *Curculionidæ*), is here scarcely at all produced;—and, whilst their tarsi, on the other hand, display the minute penultimate joint which is so universal throughout the entire province of the *Pseudotetramera*, yet the antepenultimate (which is, normally, in that division, deeply cordate, so as to receive the following one between its lobes) is here simple,—as though to connect the genera towards which we are approaching with the preceding (pentamerous) ones. Such are the features on which I would lay more decided stress in detaching the *Tomicidæ* from the *Hylesinidæ*; and it must be admitted that they are very important, as being of all others perhaps the most prominent which we make use of in framing our actual definition of the *Rhyncophora*. Nevertheless, essential as they are, they do not constitute all, since in the minor details of their organization there are a few particulars which may serve, albeit in a general way, to separate the two groups in question. Thus, for instance, the more cylindrical bodies of the *Tomicidæ*, the more produced and rugose front region of their pronotum (singularities, be it noticed, which are broadly expressed in the later *Cissidæ*), in conjunction with their more (obliquely) truncated extremity, are sufficiently evident, when contrasted with the corresponding points of the *Hylesinidæ*, to be at once appreciated.

Tomicus proper may be known from its immediate allies by its 5-articulated funiculus, and by the powerful denticulations of its tibiæ. It possesses also those two primary diagnostics of the ordinary members of the family,—namely the anteriorly roughened and hooded prothorax, and the obliquely terminated elytra,—more positively than is the case with either of the other Madeiran genera; both of which indeed are extremely anomalous,—whilst one of them, in the subemarginated third joint of its tarsi, is so far aberrant as to form a connecting link with the *Hylesinidæ*. The *Tomici* are of eminently lignivorous habits,—attaching themselves to the larger trees, and being in nowise connected with the stalks of smaller plants.

220. Tomicus villosus.

T. lato-cylindricus subnitidus piceo-ferrugineus et pilis longissimis erectis subfulvescentibus adspersus, prothorace undique rugose scabroso-granulato, antice rotundato sed vix asperato, elytris rugose seriatim punctatis (seriebus alternis ex punctis maximis compositis), ad apicem obliquo-truncatis, antennis pedibusque testaceis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Bostrichus villosus, Fab. *Ent. Syst.* i. ii. 367 (1792).
———— ————, Payk. *Fna Suec.* iii. 154 (1800).
Ips villosus, Mshm, *Ent. Brit.* i. 53 (1802).
Tomicus villosus, Steph. *Ill. Brit. Ent.* iii. 356 (1830).

Habitat Maderam, sub cortice arborum, rarissimus: tria specimina, in castanetis Sanctæ Annæ Junio exeunte A.D. 1850 a meipso reperta, sola vidi.

T. rather short, thick and cylindrical, slightly shining, ferruginous or pale piceo-ferruginous, and densely besprinkled with exceedingly long, erect and fulvescent hairs. *Prothorax* not very convex, uniformly and roughly scabrous or granulated, but scarcely more roughened in front than elsewhere,—where however it is rounded and produced; and without any appearance of either a dorsal channel or ridge. *Elytra* rough, and very deeply seriate-punctate (the punctures being extremely large and distinct), and the interstices with a longitudinal row of very minute punctures down each; abruptly truncated behind,—where there is a deeply-impressed stria on either side of the suture, which gradually vanishes in front, but without any tendency to additional asperity. *Antennæ* and *legs* testaceous.

A large and well-marked *Tomicus*; and readily known from the following species by its (proportionably) short, thick and robust form, pale rufo-piceous, or almost ferruginous, hue, by its extremely hairy and roughened surface, and by the sculpture of its prothorax and elytra,—the former of which moreover is *not* expanded anteriorly, whilst the latter are comparatively much truncated at their hinder extremity. It is a tolerably common insect throughout boreal and central Europe, but would appear in Madeira to be decidedly scarce,—where it is just possible indeed that it may have been introduced from more northern latitudes. Three specimens only have hitherto come beneath my notice,—all of which were captured by myself, during the summer of 1850, from under the bark of Spanish chestnut-trees in Senhor Louiz Acciaioly's vineyard at Santa Anna.

221. Tomicus Dohrnii, *Woll.*

T. angusto-cylindricus nitidus nigro-piceus et pilis brevioribus suberectis cinereis adspersus, prothorace amplo subtilissime et parce punctulato, ante medium subnodoso-convexo, antice dilatato obtuse rotundato necnon mucronibus asperato, elytris minute seriatim punctatis (seriebus alternis vix observandis), ad apicem leviter obliquo-truncatis, antennis pedibusque pallido-testaceis.

Long. corp. lin. 1–$1\frac{1}{3}$.

Habitat in Maderâ (præsertim boreali) excelsâ sylvaticâ, sub cortice arborum, hinc inde vulgatissimus.

Species valde indigena, et in honorem illust. C. A. Dohrn, qui in Germaniâ per plures annos scientiæ Entomologicæ patronus exstitit, a me denominata.

T. narrower, and comparatively more elongated, than the *T. villosus*, cylindrical (though a little expanded anteriorly), shining (especially the elytra), dark piceous, and besprinkled with fine, erect and cinereous hairs,—which however are much shorter, and not all of them so erect, as those of the last species. *Prothorax* large, straightened behind and dilated in front; with a small convexity (almost resembling the rudiments of a nodule) on its fore-disk; most delicately and distantly punctulated behind,—where it is nearly glabrous, and sometimes of an obscure rufescent tinge; greatly roughened in front with coarse and somewhat transverse tubercles and points,—where it is produced, and (on account of the expansion) *obtusely* rounded; without any appearance of either a dorsal channel or ridge. *Elytra* minutely seriate-punctate (the punctures however being much larger than those on the hinder portion of the prothorax), and the interstices also with a longitudinal row of small and exceedingly shallow punctures down each (which however, on account of their shallowness, are scarcely perceptible except beneath the microscope); the pubescence rather longer than on the prothorax, and somewhat disposed in rows posteriorly; much less evidently truncated behind than in the *T. villosus*,—where however there are indications of a few raised costæ and tubercles. *Antennæ* and *legs* pale testaceous.

A very distinct species, and one of the most truly indigenous of all the Madeiran Coleoptera,—occurring beneath the bark and in the rotten wood of the native laurels (occasionally in great profusion) in most of the sylvan regions of intermediate and lofty altitudes. It may be easily recognised by its narrow cylindrical form, by the greatly roughened and dilated anterior portion of its (large) prothorax,—the hinder half of which is bright and almost impunctate, whilst its fore-disk is upheaved into an obscure convexity (somewhat resembling an incipient nodule); by its, also, finely sculptured elytra, and by the excessive paleness of its limbs. Contrasted with the *T. villosus*, it is likewise darker, much more shining, and less pubescent. It is an insect which does not usually make its appearance much before quite the latter end of the spring. Its legitimate range would seem to be from about 2000 to 4500 feet above the sea; though it evidently attains its maximum rather towards the upper than the lower extremity of those limits. Thus, in the slightly raised districts of Santa Anna and São Vincente it is comparatively scarce,—where nevertheless I have observed it, at times, during June: but in the more elevated (and dense) forests of the Lombo dos Pecegueiros it is common; where, in the summer of 1850, I took an extensive series of specimens,—principally on the wing, or attracted to the white canvass of my tent towards the dusk of the evening: whilst, ascending higher still, to the upland Serras bordering on the Fanal, we find it in literal profusion; so much so indeed, that, whilst encamped at the Cruzinhas (early in July of the same year), I might have captured it by thousands,—especially, as at the Pecegueiros, from off my tent; although most abundantly, in that locality, during the heat of the day.

I have dedicated the species to M. Dohrn, President of the Entomological Society of Stettin, to whom I am indebted for the contribution of various insects, for comparison, throughout the elaboration of this work.

Genus 102. APHANARTHRUM, *Woll.* (Tab. VI. fig. 2.)

Corpus parvum, cylindricum, læte coloratum: *prothorace* amplo convexo, antice producto sed haud scabroso: *elytris* apice rotundatis integris: *alis* amplis. *Antennæ* (VI. 2 *a*) capitatæ; scapo longissimo clavato, basi flexuoso; funiculo 3-articulato, articulo primo robusto apice truncato basi subflexuoso, secundo et tertio minutissimis brevissimis (hoc vix observando necnon in capitulum oblique inserto); capitulo solido ovato pilosissimo quadri-annulato. *Labrum* obsoletum. *Mandibulæ* (VI. 2 *b*) corneæ validæ subtriangulares obtusæ, infra apicem dente obtuso instructæ, ad basin integræ. *Maxillæ* (VI. 2 *c*) *lobo singulo* lato setoso instructæ (*interno* obsoleto). *Palpi* conici; *maxillares* minutissimi crassi, articulis primo, secundo et tertio brevissimis transversis, ultimo paulo longiore graciliore conico; *labiales* (V. 2 *d*) longiores, articulis longitudine subæqualibus, primo et secundo crassis, ultimo gracili ovato basi truncato. *Ligula* membranacea elongata, apice truncata. *Pedes* breves validi: *tibiis* (VI. 2 *e*) compressis, apicem versus dilatatis, extus fortiter dentatis (dentibus, in *anticis* tribus vel quatuor, in *posterioribus* septem vel octo), ad apicem internum spinâ parvâ rectâ subacutâ armatis: *tarsis* articulis tribus baseos longiusculis crassiusculis subæqualibus (primo vix graciliore), quarto minutissimo, quinto longissimo *unguiculis* simplicibus munito.

Ab *ἀφανής* e visu absconditus, et *ἄρθρον* artus.

Throughout the whole of the Madeiran insects there is perhaps no form more interesting than the anomalous little species from which the above structural diagnosis has been compiled. In its general facies, it displays a peculiarity of colouring to which we are totally unaccustomed in this department of the Coleoptera, in which anything like painted or variegated surfaces is almost unknown; whilst in the proportions of its antennæ it is scarcely less remarkable. These last indeed are of a very extraordinary nature, their funiculus being composed of three joints only,—one of which moreover is so excessively minute, as to cause it, before very closely inspected, to appear actually *biarticulate*. It was some time in fact before I discovered this diminutive joint at all,—which is doubly difficult to be detected, not only because of its literally microscopic dimensions, but likewise on account of an irregularity which the genus possesses of having its funiculus inserted *obliquely* into its club,—the axes of the two, instead of *uniting* at the point of contact, being separated by an appreciable space; so that the convexity of the latter entirely conceals this item of the former from view, except when examined in a particular direction, and under favourable circumstances for definition and light—(a feature which suggested the name of *Aphanarthrum*, as, in the present instance, singularly appropriate). In its smooth prothorax and apically entire elytra it recedes from the typical *Tomicidæ*; yet its short head, greatly produced prothorax, and very cylindrical body, in conjunction with its *simple* tarsi, point to that family as, nevertheless, its correct location. Upon the whole, I am inclined to think that it may be more akin to *Hypothenemus* of Westwood (enunciated in the first volume of the Entomological Society's Transactions, in 1836) than to any other genus hitherto known,—which is not only, like *Aphanarthrum*, an exception to the generality of these groups as regards hue (exhibiting gay and opposite

tints), but has, in like manner, a 3-jointed funiculus and its feet moulded on the same type. Although thus far coincident however with *Hypothenemus*, with which it must consequently be admitted to have a very decided affinity, it is almost needless to add that it offers abundant distinctive characters of its own which entirely debar it from association with that genus,—amongst which its comparatively gigantic size, its anteriorly unroughened pronotum, and the eccentric implantation, and nearly evanescent third joint, of its funiculus should be especially noticed.

222. Aphanarthrum Euphorbiæ, *Woll.* (Tab. VI. fig. 2.)

A. cylindricum opacum fusco-nigrum et pilis brevibus cinereis vestitum, prothorace subtilissime et creberrime granulato, in medio obsoletissime carinato, antice subacuminato lurido sed haud asperato, elytris crebre ruguloso-subpunctulatis subolivaceo-luridis, fasciis duabus (unâ sc. submediâ valde sinuato-undulatâ et alterâ posticâ subarcuato-transversâ) nigris ornatis, ad apicem haud truncatis, antennis pedibusque lurido-testaceis.

Long. corp. lin. $\frac{1}{8}$–1.

Habitat per partem Maderæ sylvaticam, in truncis *Euphorbiæ melliferæ*, Linn. Phil., inter 3000′ et 5000′ s. m. nascentis, hinc inde non infrequens: in nemore illo Euphorbiarum in regione Fanalensi (prope lacum crateriformem Lagoa dictum) sito d. 17 Jul. A.D. 1851 primus copiosissime inveni; sed Augusto ineunte ejusdem anni pauca specimina etiam ad Ribeiro Frio cepi; necnon in trunco Euphorbiæ emortuo ad Jardim de Serra d. 10 Jan. A.D. 1851 collegit cl. Dom. Heer.

A. cylindrical, nearly opake, brownish-black, and densely clothed with a short, fine and cinereous pubescence. *Prothorax* most delicately and closely granulated all over (but with scarcely any indications of punctures intermixed), and not at all more roughened in front than elsewhere,—where however it is a great deal produced, somewhat acuminated, and of a dull lurid, or brownish-yellow hue; with an obscure dorsal ridge down the disk (more especially apparent posteriorly); and with the hinder margin in immature specimens slightly diluted, or lutescent. *Elytra* closely and rather rugosely subpunctulated (the punctures being small, ill-defined, and without any tendency to be disposed in rows); the pubescence rather coarser and paler than on the prothorax; rounded and entire at their extremity (having no appearance of oblique truncation); pale lurid-yellow (often with a slightly olivaceous tinge),—with a greatly sinuated submedial fascia (the lateral portions of which are oblique and transverse, and the central one suddenly looped backwards, and with its concavity turned towards the base), and a transverse subarcuated posterior one (generally disconnected at the suture, and scarcely ever extending to the lateral margins), black. *Antennæ* and *legs* lurid-testaceous; the *former* with their club a little picescent; and the *latter* with their tarsi very pale.

An insect as truly indigenous as it is remarkable; and one which might be easily overlooked, even by a careful observer, from its (apparently) exclusive attachment to the gigantic Tree Euphorbia (*Euphorbia mellifera*, Linn. Phil.) of elevated, and more or less remote, inland spots. It was not indeed until my third sojourn in these islands that I succeeded in detecting it: but, whilst encamped in the lofty

district of the Fanal during July of 1850, I was induced by the Rev. R. T. Lowe to visit a *wood* of these monstrous Euphorbias, immediately below the round crater-like basin of the Lagoa, on the descent of the mountain-road towards the Ribeira da Janella and Porto Moniz,—when, much to my delight, I found the entire substance of many of the older trees perforated by this elegant little *Aphanarthrum*; in conjunction moreover with a species of *Mesites* which hitherto I have not elsewhere met with. It is not easy in fact to pronounce which afforded me the greatest pleasure,—the sudden discovery of two novelties so interesting, or the first sight of this unique grove of noble Euphorbias: both however had their charms, and will long impart to that day a reminiscence peculiarly its own. This is not the only locality however in which it has occurred to me; for, having once ascertained its habits, I was of course on the look-out wherever the *Euphorbia mellifera* was to be traced,—and I subsequently procured it, although sparingly, at the Ribeiro Frio likewise. Nevertheless it probably exists throughout most of the upland regions in which the *Euphorbia mellifera* prevails; since, on the 10th of January 1851, it was captured, by Professor Heer, in considerable numbers at the Jardim da Serra,—where that plant is tolerably common.

Genus 103. LEIPARTHRUM, *Woll.* (Tab. V. fig. 9, et Tab. VI. fig. 3.)

Corpus minutum, cylindricum: *prothorace* amplo convexo, antice producto haud scabroso sed plerumque tuberculis minutissimis obsito: *elytris* apice rotundatis integris: *alis* amplis. *Antennæ* (VI. 3 *a*) capitatæ; scapo elongato clavato subflexuoso; funiculo 4-articulato, articulo primo robusto apice truncato, secundo et tertio minutis, quarto paulo latiore transverso; capitulo solidissimo elongato-ovato piloso, obscurissime quadri-annulato. *Labrum* obsoletum. *Mandibulæ* (VI. 3 *b*) corneæ validæ triangulares obtusæ, infra apicem dente parvo obtuso obscuro instructæ, ad basin integræ. *Maxillæ* (VI. 3 *c*) *lobo singulo* latissimo brevi rotundato setoso instructæ (*interno* obsoleto). *Palpi* subsetoso-conici; *maxillares* minuti, articulis primo, secundo et tertio brevissimis transversis, ultimo longiore graciliore subconico; *labiales* (VI. 3 *d*) longiusculi, articulo primo crasso, secundo paulo breviore crassiusculo, ultimo elongato gracili subcylindrico. *Ligula* membranacea subelongata pilosa, basi angustata, apice truncata. *Pedes* brevissimi, parum validi: *tibiis* compressis, apicem versus leviter dilatatis, *anticis* (V. 9 *a*, et VI. 3 *e*) simplicibus, *posterioribus* (V. 9 *b*, et VI. 3 *f*) subcurvatis extus 4-dentatis, *omnibus* ad apicem internum spinâ (in *anticis* elongatâ robustissimâ valde obtusâ rectâ, in *posterioribus* minore angustiore leviter acutâ subrectâ) armatis: *tarsis* 4-articulatis, articulis duobus baseos longiusculis crassis subæqualibus (primo paulo longiore basi angusto subflexuoso, secundo apice obscure emarginato), tertio minutissimo, quarto elongato *unguiculis* simplicibus munito.

A λείπω relinquo, et ἄρθρον artus. (Typus—*Leiparthrum bituberculatum.*)

At once distinguished from every modification both of the present and following families with which I am acquainted by its quadriarticulate feet;—and from all, except *Polygraphus*, *Xyloterus* and *Cryphalus*, by its four-jointed funiculus. As regards these three genera, however,—apart from its tarsi, which constitute its most anomalous feature,—it may be known; first, from *Polygraphus*, by its

simple front-tibiæ, and by its smaller and more cylindrical form; secondly, from *Xyloterus*, by (likewise) its diminutive size, by its robuster and more elongated club, its unwrinkled forehead (in both sexes), and by its strongly-dentate posterior tibiæ; whilst, thirdly, the structure of its tibiæ, and its comparatively smooth prothorax will, *inter alia*, remove it equally from *Cryphalus*. In general contour indeed it somewhat approaches to *Crypturgus*, but the biarticulated funiculus and the toothed fore-tibiæ of that genus are of themselves sufficient to separate it from *Leiparthrum*. It is needless however to trace out its affinities any further, since in its tetramerous feet it recedes from *all* the members of the *Tomicidæ* and *Hylesinidæ* combined which have been hitherto made known. The peculiar conformation of its anterior tibiæ (Pl. VI. fig. 3) however should be additionally noticed; which, although not denticulated, have two most remarkable *cracks* (for it is difficult to express them by any term so appropriate) along their outer edge, having much the appearance of recently-healed cuts, or wounds,—whilst their terminal portion is lengthened out into an exceedingly powerful, obtuse and apically-subdilated lobe. So that, when (in connection with these particulars) we take into consideration the *subemarginated* second joint of its tarsi (as though to connect the present family with the following one), and the singular tubercles which three of the species described below are armed with on the anterior region of their pronotum (and which I am inclined to suspect may in fact exist in a rudimentary state even on the fourth also,—though, if such be the case, they must be amazingly obscure, since I am not able to detect them even beneath the microscope), we may fairly regard *Leiparthrum* as one of the best-defined and most abnormal groups as yet enunciated in this department of the *Xylophaga*.

223. Leiparthrum mandibulare, *Woll.* (Tab. V. fig. 9.)

L. cylindricum diluto-testaceum et pilis rigidis parce vestitum, mandibulis magnis porrectis, prothorace minus amplo, tuberculis (sc. duobus mox infra apicem, necnon in disco antico septem vel octo minutioribus in circulum partim dispositis), obsito, elytris rugulosis obsolete substriato-subpunctatis, antennis pedibusque testaceis.

Long. corp. lin. vix 1.

Habitat Maderam borealem, sub cortice arboris cujusdam in castanetis Sanctæ Annæ semel (æstate mediâ A.D. 1850) repertum.

Insectum valde anomalum, mandibulis porrectis ordineque tuberculorum prothoracicorum mirabili ab aliis hujus generis recedens; sed tamen in tibiarum et tarsorum quadriarticulatorum formâ illis omnino congruit, et cum Leiparthro recte adnumerandum est.

L. cylindrical, slightly shining, diluted-testaceous, and sparingly clothed with a short, thick, rigid, cinereous and somewhat scaly pubescence. *Head* with the mandibles exceedingly large and porrected. *Prothorax* rather small, and beset with tolerably distinct punctures; very slightly produced in front, where it is armed with two small and obtuse tubercles, placed close together immediately within the centre of the anterior margin, and behind them (reaching to about the

middle of the disk) seven or eight more (somewhat smaller than the front pair) arranged (*vide* Pl. V. fig. 9 *a*) as follows,—two, placed near together, at a little distance behind (but rather further apart than) the front ones; and, at about an equal distance behind these, a circlet of five or six, extending to about the centre of the disk. *Elytra* slightly rugulose, and with both the punctures and setæ (the former of which are exceedingly obscure) arranged in rows,—there being a double series (one large and the other small) of each (a structure however which is not very perceptible without the aid of a powerful glass); rounded and entire at their extremity. *Antennæ* and *legs* testaceous.

There are few insects which have given me more trouble in the determination of them than the present one; for, unfortunately, the unique example which I possess (extracted from out of a cobweb, in a dead state, beneath the bark of a Spanish chestnut-tree at Santa Anna) is too much mutilated to afford a full view of all its parts. Hence it is not surprising that, before I had accurately examined such of its members as were decipherable, its enormously developed mandibles (at least for these groups) should have led me to imagine that it embodied the type of a well-marked and very anomalous genus. Further investigation however has satisfied me that it is a true *Leiparthrum*,—its 4-jointed tarsi (which I have been able most clearly to recognise) and peculiar tibiæ at once associating it with the other three representatives described below. The existence moreover of the usual pair of tubercles within the front margin of its pronotum, and of the smaller ones behind them (the arrangement of which is, in this instance, exceedingly beautiful), in connection with a similar sculpture to that which obtains in the remaining forms, will still further tend to remove all doubt as to its correct generic identification. Its ample mandibles therefore (which, after all, perhaps, may be less prominent in reality than they seem to be,—since the single damaged individual which I captured might have been accidentally so distorted as to cause the head to be pushed forward somewhat unnaturally, but which in all probability would not be perceived to be unnatural in an object thus small) can be only regarded as of specific importance,—a remark which will equally apply to the distribution of the raised points with which the anterior disk of its prothorax is furnished. As regards the *species* however, it is unquestionably most distinct and interesting,—receding from all the rest, not only in this singularity of its mandibles (which cannot possibly be *entirely* the result of chance, if indeed, as I am by no means convinced, it be so at all), but likewise in its much greater bulk, paler hue, and in the collocation of its prothoracic pustules. These last in fact (*vide* Pl. V. fig. 9 *a*) should be especially observed, since they do not appear to be dispersed irregularly about (as, when they exist at all, is usual in these groups, and which is *partially* the case with its other Madeiran allies),—but in a given order, which will be best understood by a reference to the figure, and which should be well noticed, since it is the modification which it is the *tendency* of the other species to assume also, even though the symmetry be less perfect in them than it is with the *L. mandibulare*. Of these tubercles the foremost two are slightly the largest; whilst the

remainder (which are of equal size) have the intermediate pair somewhat wider apart than the anterior ones, and those which constitute the circlet amounting to about five or six in number. My solitary specimen was taken, during the summer of 1850, in the vineyard of Senhor Louiz Acciaioly at Santa Anna. It is evidently excessively rare, otherwise it could hardly have escaped further observation during my constant researches in these islands.

224. Leiparthrum bituberculatum, *Woll.* (Tab. VI. fig. 3.)

L. subangusto-cylindricum nigro-fuscum et pilis rigidis vestitum, prothorace amplo, tuberculis (sc. duobus mox infra apicem, necnon in disco antico plurimis minutissimis in circulum vix dispositis) obsito, per marginem posticum ferrugineo, elytris rugulosis obscure striato-punctatis, antennarum basi pedibusque diluto-testaceis.

Var. β. paulo minus, ferrugineo-fuscum, prothorace postice latius ferrugineo, antennarum basi pedibusque pallidioribus.

Long. corp. lin. $\frac{2}{3}$–$\frac{7}{8}$.

Habitat Maderam sylvaticam, in umbrosis graminosis inter 2000′ et 4000′ s. m. sitis haud infrequens: *var.* β. etiam ad locos subinferiores descendit, in castanetis Sanctæ Annæ æstate abundans; sed status typicus montibus proprius est.

L. cylindrical, but narrower than the last species, blackish-brown, and more densely clothed with (the same character of) pubescence. *Prothorax* rather large, and beset with small and somewhat distant punctures; produced in front, where it is armed with two small, porrected and obtuse tubercles (which are most developed in the males), and with a few smaller scattered ones, on the fore-disk, behind them,—which have a *tendency* to arrange themselves in a circle, though much less evidently so than those of the *L. mandibulare*; the hinder margin more or less narrowly ferruginous. *Elytra* rugulose, and with the same peculiarity of sculpture and pubescence as in the last species,—except that the latter is more dense, and perhaps more evidently arranged in alternate rows of robust and finer scale-like setæ, or rigid pile; rounded and entire at their extremity. *Antennæ at base* and the *legs* diluted-testaceous; the *former* with their club a little dusky.

Var. β. a trifle smaller, and of an altogether paler hue,—being usually bright ferruginous-brown; and with the hinder margin of the prothorax, the antennæ and the legs still paler.

Both the present species and the following one are readily distinguished from the *L. Artemisiæ* by the pustules of their pronota; whilst, *inter se*, the greater size and more elongated form, in conjunction with the less developed prothorax and different colour, will serve to separate the *L. bituberculatum* from the *L. curtum*. It is not an uncommon insect within the sylvan districts of Madeira, between the limits of about 2000 and 4000 feet above the sea,—the typical specimens occupying the upper, and the *var.* β. the lower portion of this range. Thus, the mountain state (which I have assumed to be normal, and which is somewhat darker and larger than the other is apparently confined to the moist and shady

districts of rather lofty altitudes. I have captured it on the Lombo das Vacas in June, at the Lombo dos Pecegueiros in July, and at the Feijãa de Córte and the Ribeiro Frio in August. The *var.* β. (which is smaller and of a paler hue) descends lower,—the only spot in which I have hitherto detected it being the chestnut-woods of Santa Anna, where I took it in great profusion (by brushing the long grass in the vineyard of Senhor Louiz Acciaioly) during May and June of 1850.

225. Leiparthrum curtum, *Woll.*

L. brevi-cylindricum ferrugineum et pilis rigidis vestitum, prothorace amplissimo, tuberculis (sc. duobus mox infra apicem minutis, sed reliquis fere obsoletis) obsito, elytris rugulosis obscure substriato-punctatis, antennis pedibusque fere concoloribus.

Long. corp. lin. ½.

Habitat Maderam australem,—in horto Loweano prope Funchal, per aërem volitans, mense Februario A.D. 1848 a meipso deprehensum.

L. shorter, and proportionably thicker, than the *L. bituberculatum*, pale ferruginous, and with the pubescence and sculpture the same as in that insect. *Prothorax* comparatively somewhat larger (being greatly developed); with the two anterior tubercles a little smaller than in that species, and with the scattered ones behind them exceedingly minute and scarcely perceptible; the front portion also darker,—leaving the hinder margin very broadly pale. *Elytra* short; rounded and entire at their extremity. *Antennæ* and *legs* concolorous with (or perhaps slightly darker than) the elytra.

Possessing but a single example of this very minute insect, I should not have been inclined to have retained it as distinct from the preceding one, had not the examination of an extensive series of that species failed in detecting any intermediate links (in size, colour or proportions) to unite the two forms; and if indeed the present individual be a normal representative of its race (and there is no reason to suspect the contrary), there cannot be the slightest doubt as to its specific claims. In its habits moreover it would appear to be different; for, whilst I have never observed the *L. bituberculatum* except in the north of the island, or below the altitude of 2000 feet,—my unique specimen of the *L. curtum* was captured in the south, and in a position but slightly elevated above the coast; a fact which, from the analogy of other insects similarly circumstanced, would go far *à priori* to render its identity with the former at any rate improbable. Assuming therefore the above description to be universally applicable, the *L. curtum* may be at once recognised from the *L. bituberculatum* by its smaller size, shorter and proportionably broader form, paler hue, and by its more developed prothorax,—the last of which, being only dark in front, has its hinder margin very much more broadly pale than is the case even in the *var.* β. of the latter. My unique example was taken, on the wing, in the Rev. R. T. Lowe's garden, near Funchal, during February 1848.

226. Leiparthrum Artemisiæ, *Woll.*

L. subangusto-cylindricum nigrum et pilis rigidis vestitum, prothorace minus amplo, haud tuberculato, elytris rugulosis obscure striato-punctatis, antennarum basi pedibusque diluto-testaceis.

Long. corp. lin. $\frac{1}{2}$–$\frac{2}{3}$.

Habitat in ins. Desertæ Borealis, quâ Junio ineunte A.D. 1850 plurima specimina ex *Artemisiâ argenteâ*, Herit., collegi.

L. of much the same form as the *L. bituberculatum*, but rather smaller in size, of a uniform dull black hue, and with the same character of pubescence as that insect. *Prothorax* rather smaller, a little less obtuse in front, and without any indication (apparently) of the tubercles which are more or less evident in the other members of the genus. *Elytra* rounded and entire at their extremity, but with the punctures rather more defined (and distinctly smaller) than in either of the previous two species. *Antennæ at base* and the *tarsi* pale testaceous; the *club* of the former, and the *femora* and *tibiæ*, being more or less dusky.

A most distinct little species, being intermediate in length between the *L. bituberculatum* and *curtum*,—yet at once separated from them both by its uniformly dark hue (its tarsi and the base of its antennæ being alone pale), by its narrower form, and by the absence (apparently) of any indication of tubercles on its (somewhat smaller) prothorax. It appears to be peculiar to the Northern Dezerta, where I detected it, whilst encamped there with the Rev. R. T. Lowe, at the beginning of June 1850. It seemed to be more particularly attached to the thick masses of wormwood (*Artemisia argentea*, Herit.) with which that singular island is in certain positions densely clothed, and from off which the greater number of my specimens were taken,—those which did not occur on that plant having been either attracted to the white canvass of my tent, during the hot sunshine, or else captured on the wing.

Fam. 33. HYLESINIDÆ.

Genus 104. PHLŒOPHTHORUS, *Woll.* (Tab. VI. fig. 1.)

Corpus parvum, subcylindricum: *capite* leviter producto: *prothorace* amplo convexo, antice minus producto et haud scabroso: *elytris* apice rotundatis integris: *alis* amplis. *Antennæ* (VI. 1 *a*) longiusculæ clavatæ; scapo elongato subclavato, basi flexuoso; funiculo 5-articulato, articulo primo robusto apice truncato ad basin constricto sinuato, reliquis brevissimis longitudine subæqualibus, a basi angustâ latitudine paulatim crescentibus; clavâ elongatâ laxâ valde perfoliatâ triarticulatâ, articulis longitudine subæqualibus (primo et secundo latioribus, illo leviter, hoc vix intus-producto, ultimo subacuminato-ovato). *Labrum* obsoletum. *Mandibulæ* (VI. 1 *b*) corneæ validæ, basi latæ, apicem versus parum angustæ acutæ, infra apicem dente minutissimo obscurissimo instructæ. *Maxillæ* (VI. 1 *c*) *lobo singulo* lato brevissimo setoso instructæ (*interno* obsoleto). *Palpi* subsetoso-conici; *maxillares* minuti, articulis primo, secundo et tertio brevissimis transversis, ultimo longiore graciliore subcylindrico-conico; *labiales* (VI. 1 *d*) longiores, articulo

primo crasso, secundo paulo breviore crassiusculo, ultimo graciliore elongato-subovato. *Ligula* membranacea subelongata, basi angustata, apice truncata. *Pedes* longiores validi: *tibiis* compressis, apicem versus extus dentatis necnon subito et valde dilatatis, ad apicem internum spinâ rectâ (in *anticis*, V. 1 *e*, robustâ obtusâ, in *posterioribus* gracili acutâ) armatis: *tarsis* pseudotetrameris (*i. e.* 5-articulatis, articulo tertio valde bilobo quartum minutissimum inter lobos recipiente) articulis tribus baseos longiusculis crassiusculis, quinto elongato crasso clavato *unguiculis* simplicibus munito.

A φλοιὸς cortex, et φθόρος excisio.

A most important and well-marked genus, supplying a link which has been long looked for between the present family and the *Cissidæ*. It is difficult indeed to overrate the significance of this interesting form, bearing witness as it does in the strongest manner to the affinity of the two groups in question; for, whilst its oral organs and feet are moulded on the Rhyncophorous type, the triarticulated and perfoliated clava of its (comparatively elongated) antennæ is almost coincident with that of *Cis*. The antennæ of the whole of this section of the *Xylophaga*, it is well known, are remarkable for their extremely solid club,—which is perhaps the most constant of all the characters which have been employed by those who would remove it to a distance from the allies of *Apate*. I have already stated that I cannot but believe such a step to be an unnatural one; and, if further evidence were necessary in support of this, it could not be furnished more effectually than by the discovery of a modification like *Phlœophthorus*, which combines at once the *essential* features of each of the departments under consideration. Still, it must only be regarded as possessing a very limited connection with the *Cissidæ*, since the majority of its details are altogether Rhyncophorous, and point to the *Hylesinidæ* as its undoubted location. Upon the whole, I should imagine it to be more akin perhaps to *Phlœotribus* than to anything else,—which, it will be recollected, offers, as regards its clava, the only exception to the normal representatives of this division of the *Xylophaga* hitherto described. And, although the greatly lamellated club of *Phlœotribus* does certainly recede widely from that of *Phlœophthorus*, yet this difference is more in degree than in kind, since the two lower joints of that of the latter *are* slightly produced internally, as though to give the first warning of the peculiarity of development which is carried to its maximum in the former: added to which, moreover, the fact of its being composed in *both* cases of three articulations only (whereas four, when indeed they are sufficiently distinct to be recognised at all, are almost invariably indicated in the present groups),—whilst at the same time they agree equally in their tibiæ and *four*-jointed funiculi (a number which obtains only, so far as I am aware, in three other genera of the *Hylesinidæ* and *Tomicidæ* combined, namely *Tomicus*, *Hypoborus* and *Dendroctonus*),—would certainly tend to strengthen this relation rather than to weaken it. Its habits are, in all probability, more stalk-infesting than actually lignivorous,—its somewhat pliant external envelope and general contour bespeaking an attachment rather to the softer plants than to the forest-trees.

227. Phlœophthorus perfoliatus, *Woll.* (Tab. VI. fig. 1.)

P. brevi-subcylindricus niger rugulosus et pilis rigidis vestitus, prothorace parce subpunctato, elytris obscure striato-punctatis, antennis pedibusque piceis, tarsis pallidioribus, articulo ultimo testaceo. Long. corp. lin. $\frac{2}{3}$.

Habitat in sylvaticis locorum editiorum Maderæ, rarissimus: ad Lombo das Vacas solstitio æstivo A.D. 1850 duo specimina inveni.

P. short and subcylindrical, almost opake, black, and clothed with a short, thick, rigid, cinereous and somewhat scaly pubescence. *Prothorax* convex and rounded, rugulose, beset with rather large but somewhat obscure and irregular punctures; very slightly produced in front, where there are no indications of any additional asperity. *Elytra* likewise rugulose, and with both the punctures and setæ arranged in rows; rounded and entire at their extremity. *Antennæ* and *legs* slightly piceous; the *latter* with their tarsi paler,—especially the apical joint, which is testaceous.

Apparently exceedingly rare, and confined to remote sylvan spots more or less difficult of access. The only two specimens which have come beneath my observation were captured by myself, June the 21st, 1850, on the extreme summit of the lofty mountain-precipice which forms the eastern barrier of the Ribeira de São Vincente,—immediately before entering the almost inaccessible district of the Lombo das Vacas.

Genus 105. HYLURGUS.

Latreille, *Gen. Crust. et Ins.* ii. 274 (1807).

Corpus sat parvum, subovato-cylindricum: *capite* leviter producto: *prothorace* antice subacuminato, vix producto et haud scabroso: *elytris* apice rotundatis, fere integris: *alis* amplis. *Antennæ* breves capitatæ; scapo elongato subclavato, basi flexuoso; funiculo 6-articulato, articulo primo robusto apice truncato ad basin constricto sinuato, reliquis longitudine decrescentibus, a basi angustâ latitudine paulatim crescentibus; capitulo solido ovato quadri-annulato. *Labrum* obsoletum. *Mandibulæ* corneæ validæ triangulares subacutæ, infra apicem dente robusto obtuso instructæ, ad basin integræ. *Maxillæ lobo singulo* lato brevi setoso instructæ (*interno* obsoleto). *Palpi* subsetoso-conici; *maxillares* minuti, articulis primo, secundo et tertio brevibus transversis, ultimo graciliore subconico; *labiales* longiores, articulo primo crasso, secundo paulo breviore crassiusculo, ultimo graciliore subconico. *Ligula* membranacea elongata, basi angustata, apice truncata. *Pedes* parum breves, validi: *tibiis* compressis, apicem versus extus denticulatis et dilatatis, ad apicem internum spinâ (in *anterioribus* subcurvatâ robustâ sed in *posticis* subrectâ acutiusculâ) armatis: *tarsis* pseudotetrameris, articulo primo longiusculo, quinto elongato vix subclavato *unguiculis* simplicibus munito.

With the exception of *Scolytus* (which however has its tibiæ not only entire, but likewise produced into a curved claw, as in many of the *Curculionidæ*, at their *outer* apical angle), *Hylurgus* is the only European genus, in either the present family or the previous one, in which the funiculus is composed of six joints. In the structure of their oral organs and feet the members of the *Rhyncophora* are for the most part nearly coincident; and hence, in that section, we

must not look to the particulars which we have been accustomed to do in others for generic distinctions,—which is probably indeed the reason why, in the immense province of the *Curculionidæ* to which we are now approaching, the details of the mouth have been hitherto by all naturalists universally neglected. The truth however is, that the differences which they present *inter se* are comparatively so trivial, that we are driven to place less confidence in them than in points simply external;—and of all these, next to the development of the rostrum (which, as might naturally be expected in a department where the prolongation of the head is the main feature, must rank first in importance), perhaps the proportions of the antennæ and tibiæ, in conjunction with the general outward contour, are, as regards constancy, the most to be relied upon. And so it is with the genera of the *Hylesinidæ*, which, almost identical as they are in every respect with *Rhyncolus*, and other incipient *Curculionideous* forms, derive their most essential characteristics from these special portions of their body,—the modifications of which are here also of primary significance.

228. Hylurgus ligniperda.

H. subcylindricus (antice subacuminatus) elongatus niger subnitidus et pilis longissimis mollibus vestitus, prothorace elongato profunde et inæqualiter punctato, elytris subpicescentibus creberrime rugosis et obscure subpunctato-striatis, ad apicem obliquo-truncatis, femoribus tibiisque piceis, antennis tarsisque ferrugineis.

Long. corp. lin. 3–3¼.

Bostrichus ligniperda, Fab. *Ent. Syst.* i. ii. 367 (1792).
Hylesinus ———, Gyll. *Ins. Suec.* iii. 335 (1813).
Hylurgus ———, Erich. *in Wiegm. Archiv*, i. 52 (1836).
Hylesinus ———, Ratz. *Forst-Ins. Käf.* pl. viii. fig. 9 (1839).

Habitat in montibus Maderæ, præsertim in pinetis inter 1800′ et 2500′ s. m. sitis, hinc inde vulgaris: inter lignum recenter sectum ad Curral das Romeiras sero autumno A.D. 1847 copiosissime observavi.

H. elongated, subcylindrical (and slightly acuminated anteriorly), very obscurely shining, pitchy-black, and somewhat densely clothed with a long and fine pubescence. *Head* broad and produced; closely and rather roughly punctured, but without any appearance of a central ridge. *Prothorax* more deeply, unequally, but not quite so closely punctured as the head; somewhat acuminated and constricted (though very slightly produced) in front; and with a very obscurely raised impunctate central keel. *Elytra* a little more piceous than the prothorax, and with the pubescence shorter and more dense; closely and exceedingly rugulose, and obscurely punctate-striated; obliquely truncated at their extremity. *Legs* piceous, except the *tarsi*, which, with the *antennæ*, are ferruginous.

A very local insect in Madeira, and perhaps introduced from more northern latitudes with the various species of fir which are now so largely cultivated on the mountains towards the southern and eastern districts of the island. In the exten-

sive plantations of Senhor D'Ornellas, which cover a considerable portion of the hills to the north-east of Funchal, it is abundant during the autumnal and winter months; and in October of 1847 I took it in great profusion from off the stumps and amongst the chippings of pine-trees at the Curral das Romeiras. It possesses a wide European range, being recorded from the forests of Lapland and Archangel to the Mediterranean limits. It may be at once recognised from the *H. piniperda* by its superior size and more elongated prothorax, by its darker and more pubescent surface, unkeeled head, and by its extremely rugulose and obliquely truncated elytra.

229. Hylurgus piniperda.

H. subovali-cylindricus piceo-ferrugineus nitidus et pilis longiusculis mollibus vestitus, prothorace profunde punctato, elytris plerumque pallidioribus parce subrugulosis et leviter striato-punctatis, ad apicem obscurissime subtruncatis, antennis pedibusque testaceis.

Long. corp. lin. $2\frac{1}{4}$.

Dermestes piniperda, Linn. *Fna Suec.* 421 (1761).
Bostrichus piniperda, Fab. *Ent. Syst.* i. ii. 367 (1792).
Dendroctonus piniperda, Erich. *in Wiegm. Archiv*, ii. 53 (1836).
Hylesinus piniperda, Ratz. *Forst-Ins. Käf.* 171. pl. vii. fig. 1 (1839).
Hylurgus piniperda, Redt. *Fna Austr.* 364 (1849).

Habitat Maderam australem, ex Europâ forsan introductus: exemplar unicum, a Dom. Leacock prope urbem Funchalensem captum, solum vidi.

H. cylindrical (though shorter and more oval than the *H. ligniperda*), shining, pitchy-ferruginous, and somewhat sparingly clothed with a rather long and fine pubescence,—which however is neither so long nor so dense as that of the last species. *Head* and *prothorax* rather more distinctly, and less densely and rugosely, punctured than in the *H. piniperda*; the *former* with a tolerably distinct central keel; the *latter* somewhat acuminated and constricted (though very slightly produced) in front, and with a very obscurely raised and somewhat less punctured central keel. *Elytra* of a rather paler hue than the prothorax, and with the pubescence shorter, more erect, and much less dense; sparingly rugulose (though more thickly so about the shoulders and front margin), finely and very lightly striate-punctate, and with the interstices minutely, though remotely punctulated, and with a longitudinal row of small tubercles down each,—which are exceedingly apparent behind, though less so anteriorly, and evanescent towards the centre of the lateral margins; rounded at their extremity, having only the faintest possible tendency to oblique truncation. *Antennæ* and *legs* testaceous.

A common European *Hylurgus*, and one which has in all probability, like the last, been naturalized in Madeira. It may be known from the *H. ligniperda* by its smaller size and more oval outline, by its brighter, smoother, paler and less densely pubescent surface, by its strongly keeled head, shorter prothorax, and by its apically subentire elytra. The only specimen which has come beneath my observation (recently communicated by T. S. Leacock, Esq. from the vicinity of Funchal) corresponds with the ferruginous variety which is so constantly to be

met with in northern latitudes; but whether this particular state obtains in Madeira generally I am unable to say,—though it is probable that the insect would *not* be exempt from those alternations of hue which characterize it in other countries. In Erichson's analysis of this family, published in *Wiegmann's Archives* in 1836, the present species is admitted into his genus *Dendroctonus*. It unquestionably however possesses six joints to its funiculus; and since almost the only distinctive feature on which that group is made to rest is the *quadri*-articulate structure of this portion of the antennæ, it is certain that the *piniperda* is wrongly referred to *Dendroctonus*, and that it belongs in reality to *Hylurgus*.

Genus 106. HYLASTES.

Erichson, *Wiegm. Archiv*, i. 47 (1836).

Corpus parvum, plus minusve ovato- vel elongato-cylindricum: *capite* producto: *prothorace* antice sæpius subacuminato, vix producto et haud scabroso: *alis* amplis. *Antennæ* breves capitatæ; scapo elongato clavato, basi flexuoso; funiculo 7-articulato, articulo primo robusto apice truncato ad basin constricto sinuato, reliquis longitudine decrescentibus, a basi angustâ latitudine paulatim crescentibus; capitulo solido brevi-ovato quadri-annulato. *Labrum* obsoletum. *Mandibulæ, maxillæ, palpi, ligula,* et *pedes* fere ut in Hylurgo.

The 7-jointed funiculus of *Hylastes* will at once separate it from every other genus, both of the present family and of the *Tomicidæ*, here described. The only allied *European* form in fact in which that portion of the antennæ is made up of a similar number of articulations is *Hylesinus*,—but there the joints are more minute, and of subequal breadth throughout, whereas here they are gradually and uniformly thickened from the base to the club. In *Hylastes* moreover the clava is shorter and less acuminated than it is in *Hylesinus*, the scape is less distinctly curved, the head is more produced, the entire body is longer and less convex, and the tibiæ are more powerfully denticulated externally,—the anterior pair of which are, likewise, less suddenly flattened outwards at their apex than is there the case. The species display, *inter se*, considerable diversity of outline, some being elongated and cylindrical, whilst others are nearly ovate. The only two which I have hitherto detected in these islands happen to represent these opposite extremes, and hence they might be almost supposed *primâ facie* to belong to different genera. They retain however in common the essential characteristics of *Hylastes*, and merely require the intermediate links which elsewhere exist to make them intelligible members, even when viewed superficially, of one and the same group.

230. Hylastes Trifolii.

H. subovato-cylindricus brevis fusco-niger subopacus, capite minus elongato, prothorace antice acuminato creberrime ruguloso-subpunctato, elytris vix dilutioribus crebre rugosis et obscure punctato-striatis, antennis pallido-ferrugineis, pedibus piceis.

Long. corp. lin. 1¼.

Hylesinus Trifolii, Müller, *in Journ. de la Soc. des Scien. du Dep. du Mont Tonnerre* (1803).
——— ———, Schmidt, *in Ent. Zeit.* v. 395 (1844).

Habitat in graminosis per regionem Maderæ sylvaticam sitis, ad Ribeiro Frio Augusto ineunte A.D. 1850 a meipso repertus.

H. somewhat ovate-cylindric (being rather short and thick, and a little narrowed anteriorly), convex, almost opake, brownish- or pitchy-black, and rather densely beset with short pubescence. *Head* not much produced; closely and roughly punctured, but without any appearance of a central ridge. *Prothorax* likewise closely and very roughly punctured; much smaller than that of the following species, and acuminated in front,—where it is very slightly produced and a little fuscescent; and with almost imperceptible indications of a central line or ridge. *Elytra* rather more diluted, or brownish-piceous, than the prothorax; closely and exceedingly rugulose (especially about the front margin, which is distinctly raised), and rather obscurely punctate-striated (the punctures however being large); rounded and entire at their extremity. *Antennæ* pale ferruginous (or almost testaceous). *Legs* piceous.

Readily known from the *H. clavus* by its smaller, more ovate and convexer body, by its shorter and anteriorly attenuated prothorax, and by its altogether more rugulose, though less distinctly punctured, surface. It is apparently exceedingly rare, the only two examples which have come beneath my notice having been captured by myself at the Ribeiro Frio, by brushing the coarse grass at the edges of the Levada, early in August 1850. It is not an uncommon insect throughout Europe; and the Madeiran specimens differ in no respect from typical ones which I possess from the Tyrol.

231. Hylastes clavus, *Woll.*

H. angusto-cylindricus elongatus subdepressus niger, prothorace elongato subcylindrico (postice leviter angustato) subnitido et profunde vermiculato-punctato, elytris dilutioribus profunde punctato-striatis, antennis pedibusque longioribus valde robustis, illis ferrugineis, his piceis.

Long. corp. lin. $1\frac{1}{2}$.

Habitat Maderam sylvaticam æstate, rarissimus.

H. narrow, elongated and cylindrical (though a little depressed), being nearly parallel throughout, black, and rather sparingly beset with short and somewhat rigid pubescence. *Head* more produced than in the *H. Trifolii*; closely and rather finely punctured, and with a tolerably distinct central ridge. *Prothorax* very coarsely and rather distantly (but not roughly) punctured (the punctures being exceedingly large, though more or less united, especially on the disk,—so as to form somewhat vermiculate, subconfluent longitudinal grooves); much more elongated than in the last species, being nearly cylindrical, or perhaps a little narrower *behind* than in front,—where it is slightly produced and most obscurely fuscescent; and with a sufficiently apparent impunctate central line. *Elytra* considerably more diluted than the prothorax, being of a rusty, or brownish-piceous hue; much less roughened than in the *H. Trifolii* (the front margin moreover having no appearance of being raised), deeply punctate-striated (the punctures being large

and distinct), and the interstices with a row of minutely impressed points down each; rounded and entire at their extremity. *Antennæ* and *legs* longer and more robust than those of the last species; the *former* ferruginous, the *latter* piceous.

An exceedingly well-marked *Hylastes*, slightly resembling in general contour the common European *H. ater*, though with abundant distinctive characters of its own which altogether separate it specifically from that insect. From the *H. Trifolii* it may be at once recognised by its narrower, and remarkably parallel, though somewhat less convex, form, by its more produced and keeled head, by its much longer and *posteriorly*-subattenuated prothorax, by its altogether less rugulose, though more distinctly punctured, surface, and by its robuster and less abbreviated limbs. It would seem to be extremely rare,—a single specimen, captured by myself at (I believe) the Ribeiro Frio, being the only example which I have hitherto seen.

Fam. 34. CURCULIONIDÆ.

(Div. 1. MECORHYNCHI.)

(Subf. 1. COSSONIDES.)

Genus 107. RHYNCOLUS.

(Creutzer) *Germ. Ins. Spec.* 307 (1824).

Corpus parvum, subcylindricum: *rostro* brevi crassiusculo lineari subdeflexo: *prothorace* subconvexo, ad latera pone medium rotundato, antice leviter coarctato: *elytris* cylindricis: *alis* vix amplis. *Antennæ* breviusculæ crassiusculæ, in medio rostri insertæ; funiculo 7-articulato, articulo primo majore, reliquis brevioribus, ultimo clavæ haud arcte adpresso; capitulo solido subovato obscurissime annulato. *Pedes* breves validiusculi subæquales, *antici* basi approximati vel parum distantes: *femoribus* muticis: *tibiis* rectis, ad apicem externum in uncum magnum acutum productis: *tarsis* gracilibus, articulo ultimo clavato *unguiculis* mediocribus munito.

The present genus and the following one contain insects which are removed but slightly from the *Hylesinidæ*. Both in their habits and general aspect indeed they possess much in common with *Hylastes*, and may be regarded as the connecting links between the groups through which we have just passed and the *Curculionidæ*. They reside either beneath the loose bark of trees or in the interior of rotten wood,—which may be often observed to be thickly perforated with their burrows, into which their subcylindrical bodies, and the strong curved hook with which the outer apex of their tibiæ is furnished (a structure which is greatly developed in the early members of the *Curculionidæ*), enable them to advance and retreat with facility. The *Rhyncoli* are widely distributed over the world, and are usually very gregarious. Schönherr, in his *Genera et Species Curculionidum*,

describes eighteen species from Europe, four from Asia, six from Africa, and nine from America. In the Madeira Islands I have hitherto detected but a single species, namely the

232. Rhyncolus tenax, *Woll.*

R. subcylindricus rufo-brunneus plus minusve subæneus, rostro in medio carinato, prothorace crebre punctato latiusculo, elytris subcinereo-pubescentibus leviter punctato-striatis, antennis pedibusque ferrugineis.

Long. corp. lin. 1½–2.

Habitat sub cortice arborum laxo et in ligno putrido Maderæ, præsertim per regionem sylvaticam, toto anno vulgaris.

R. subcylindrical and rather depressed, reddish-brown with more or less of an æneous tinge, especially on the prothorax. *Rostrum* rather broad and linear, and keeled down the centre. *Prothorax* thickly and rather finely punctured, and with very faint indications of a keel down the disk, broadest just behind the middle (where it is almost as wide as the elytra), and a little constricted at the anterior margin. *Elytra* parallel, and somewhat transversely-rugulose, lightly punctate-striated, and more or less clothed with a fine decumbent yellowish pubescence. *Antennæ* and *legs* ferruginous.

A most abundant insect throughout the sylvan districts of Madeira, occurring beneath the bark of trees (especially that of the Vinhatico and Til), and in the substance of the rotten wood, in nearly all the dense ravines of intermediate and lofty altitudes. I have taken it at the Curral das Romeiras, near Funchal, during the autumnal and winter months; at Santa Anna and the Ribeiro Frio in May; at São Vincente and the Lombo das Vacas in June; and at the Cruzinhas, the Fanal, and the Lombo dos Pecegueiros, in July.

Genus 108. PHLŒOPHAGUS.

Schönherr, *Gen. et Spec. Curc.* iv. 1047 (1838).

Corpus parvum, subcylindrico-ovatum, plus minusve sculpturatum: *rostro* elongato teretiusculo subarcuato deflexo: *prothorace* convexo ad latera subæqualiter rotundato, antice vix coarctato: *elytris* subovatis basi truncatis, supra (præsertim posterius) convexis: *alis* (in specie nostrâ) obsoletis. *Antennæ* breviusculæ subtenues, in medio rostri insertæ; funiculo 7-articulato, articulo primo (tantum, in specie Maderensi) majore, reliquis brevioribus, ultimo clavæ haud arcte adpresso; capitulo solido subovato, obscurissime annulato. *Pedes* fere ut in Rhyncolo, sed *antici* basi plerumque approximati.

The *Phlœophagi* are a good deal allied to the *Rhyncoli*, nevertheless they may be known from them by their more ovate outline, and by their longer, narrower, and more deflexed rostrum. They are usually also more convex, especially behind, their surface is more deeply sculptured, their prothorax is more regularly rounded

at the sides, and their antennæ are for the most part a little slenderer. In the typical species moreover the second articulation of the funiculus is somewhat longer than is the case with the *Rhyncoli*: nevertheless in the only Madeiran representative which has been hitherto observed, this distinction does not appear to hold good, since there the basal joint only is enlarged, as in *Rhyncolus*.

233. Phlœophagus sulcipennis, *Woll.*

P. subcylindrico-ovatus postice convexus, niger, prothorace profundius et subremote punctato utrinque minus ampliato, elytris cinereo-setulosis profunde sulcato-punctatis, antennis pedibusque piceis.

Long. corp. lin. $1\frac{2}{3}$–$1\frac{7}{8}$.

Habitat Maderam rarissime: duo specimina, a Dom. Heinecken olim capta et mihi a Rev^{do} Dom. Lowe benigne communicata, sola vidi.

P. subcylindrical-ovate and convex, especially behind, black. *Rostrum* longer, narrower, and somewhat more curved than in the *Rhyncolus tenax*, and not keeled in the centre. *Prothorax* very deeply punctured, the punctures being large and less numerous than in the last insect, broadest about the middle (where however it is distinctly narrower than the elytra), the sides being almost equally and uniformly rounded. *Elytra* subovate, deeply sulcate-punctate, and clothed with a rigid and almost erect cinereous pubescence. *Antennæ* and *legs* piceous.

The present *Phlœophagus* is somewhat allied to the *spadix* of Herbst, though with its sculpture deeper and closer, and its rostrum shorter than in that species. It is apparently rare, being one of the few Coleopterous insects, hitherto observed, which I failed in detecting during my repeated researches in the Madeira Islands. The only two specimens that have come beneath my notice were presented to me by the Rev. R. T. Lowe from the collection of the late Dr. Heinecken, by whom they were captured, many years ago, near Funchal.

Genus 109. CAULOTRUPIS, *Woll.* (Tab. VI. fig. 6, 7, 8 et 9.)

Corpus parvum, plus minusve subcylindrico- vel fusiformi-ovatum, minus sculpturatum, glabrum: *rostro* (VI. 9 *a*), in maribus saltem, longiusculo (rarius brevi crasso) subarcuato deflexo; *oculis* parvis subrotundatis: *prothorace* ad latera rotundato (rare conico): *scutello* minutissimo, vix observando: *elytris* subovatis vel subfusiformibus basi truncatis, subconnatis: *alis* obsoletis. *Antennæ* (VI. 9 *b*) breviusculæ crassiusculæ, in medio rostri insertæ; funiculo 7-articulato, articulo primo majore, secundo primi longitudine sed graciliore, reliquis brevioribus transversis latitudine paulatim vix crescentibus, ultimo clavæ haud arcte adpresso; capitulo solido subovato, obscurissime quadri-annulato (annulis vix distinguendis). *Pedes* (VI. 9 *c*) fere ut in Rhyncolo et Phlœophago, sed *unguiculis* minoribus.

A *καυλὸς* caulis, et *τρυπάω* foro. (Typus—*Caulotrupis lucifugus*.)

The small assemblage of insects for the reception of which the present genus is

constituted is one of the most truly indigenous throughout all the Madeiran Coleoptera. Whilst their general structure shows them to be nearly related to *Phlœophagus*, their comparatively unsculptured, glabrous bodies, and almost obsolete scutella, in connexion with their subconnate elytra, freedom from wings, and stalk-infesting habits, give them a character peculiarly their own. In this last respect however (as also in its shorter rostrum) the first of the following species is somewhat aberrant, since it appears to be strictly an inhabitant of rotten wood, as the *Rhyncoli*, and not attached to mountain plants in exposed grassy spots, as is the case, more or less, with the remainder: nevertheless in all essential particulars it belongs to the present group, and must consequently be regarded as a *Caulotrupis* rather than a *Phlœophagus*. Several of them indeed may be often captured beneath chippings of felled trees within the sylvan districts: yet all are *more* abundant in the open country, where they are found either within the stems of plants, or adhering to the under sides of stones in positions entirely destitute of timber. They are apparently more numerous on the adjacent islands than in Madeira proper,—the green slopes of Porto Santo, and the weather-beaten surfaces of the two northern Dezertas and of the Ilheo de Fora affording them localities in which they would seem more especially to flourish.

234. Caulotrupis lacertosus, *Woll.* (Tab. VI. fig. 6.)

C. ovato-subcylindricus ater opacus granulatus, rostro brevi crasso, prothorace amplo subtilissime punctato, elytris leviter crenato-striatis, antennis ferrugineis, pedibus piceis.

Long. corp. lin. 2.

Habitat Maderam, in ligno emortuo ad Curral das Romeiras prope Funchal autumno exeunte A.D. 1847 a meipso inventus.

C. ovate-subcylindric and thick, deep black, minutely granulated all over, and opake. *Rostrum* short and broad. *Prothorax* convex and very large; most minutely punctured; and broadest about, or a little before, the middle. *Elytra* lightly crenate-striated, and broadest behind the middle. *Antennæ* short, and ferruginous. *Legs* piceous.

A very distinct and well-marked species, differing from all the remainder in its short, broad rostrum and largely developed prothorax, in its opake and deep black surface, and in its finely crenate-striated elytra. In habits moreover, as already stated, it would appear to recede from the rest of the genus here described, being, I believe, strictly arboreal. The only two examples which have hitherto come beneath my observation were captured by myself, during the autumn of 1847, from the interior of rotten wood, in company with the *Rhyncolus tenax*, at the Curral das Romeiras near Funchal. It was extremely sluggish in its movements, —so much so indeed that it was with difficulty that it could be made to crawl at all, when extracted out of its burrows.

235. Caulotrupis lucifugus, *Woll.* (Tab. VI. fig. 7, 9.)

C. ovato-subfusiformis niger subopacus, prothorace punctato, elytris subnitidis plus minusve obsolete substriato-punctatis, antennis ferrugineis, pedibus piceis.

Var. α. prothorace crebrius punctato, elytris substriato-punctatis interdum obscurissime subænescentibus. (*Madera propria* et *Ilheo de Fora.*)

Var. β. prothorace vix crebre punctato, elytris leviter substriato-punctatis. (*Deserta Grandis.*)

Var. γ. prothorace subremote et subtilissime punctato, elytris obsoletissime substriato-punctatis nitidioribus ænescentibus. (*Portus Sanctus.*)

Var. δ. fere ut *var.* β, sed paulo magis fusiformis ac subnitidior, et elytrorum striis minus distinctis. (*Deserta Borealis.*)

Long. corp. lin. $1\frac{2}{3}$–$2\frac{1}{4}$.

Habitat insulas Maderenses, intra plantarum caules vel sub lapidibus, toto anno non infrequens: in Desertâ Boreali prædominat, quâ Junio ineunte A.D. 1850 varietatem δ. copiosissime legi.

C. ovate-subfusiform, very slightly sculptured, black, and subopake. *Prothorax* minutely punctured; and broadest about, or a little behind, the middle. *Elytra* a little more shining than the prothorax, and in some instances (as in *var.* γ.) distinctly polished; more or less obsoletely substriate-punctate; broadest either about or a little behind the middle. *Antennæ* short, and ferruginous. *Legs* piceous.

Var. α. with the prothorax rather more thickly and distinctly punctured than in the other varieties; and with the elytra more evidently striated, and occasionally with a very obsolete æneous tinge. (*Madeira* and the *Ilheo de Fora.*)

Var. β. with the prothorax rather more remotely punctured than in the last variety; and with the elytra not quite so distinctly striated, and usually free from any indication of an æneous tinge. (*Dezerta Grande.*)

Var. γ. with the prothorax remotely and most minutely punctured (the punctures being only perceptible under rather a powerful lens); and with the elytra almost unsculptured (both the punctures and striæ being nearly obsolete), more shining than in any of the other varieties, and usually with a very distinct æneous tinge, especially behind. (*Porto Santo.*)

Var. δ. much the same as *var.* γ, only somewhat narrower and more fusiform, altogether a little more shining, and with the elytral striæ less apparent. (*Northern Dezerta* or *Ilheo Chão.*)

Although ranging through no very opposite phases, either of outline or sculpture, the present *Caulotrupis* (which I would consider the generic type) appears to possess a slight modification for every island of the Madeiran group: and hence small shades of difference, which might otherwise be regarded as trifling, become directly important, and cannot be ignored in a local Fauna,—even though a general collector may deem it unnecessary to recognise them. In real fact however, such distinctions, when viewed geographically, are of the greatest interest, as serving to illustrate what we have already so often had occasion to comment upon, namely the influence of isolation and other circumstances on external insect form. Not only is the *C. lucifugus* more generally diffused than any of the remaining species, but it would seem, likewise, to be peculiarly normal both in its

structure and habits, and therefore eminently calculated as it were to represent the genus. It is found exclusively, so far as I have hitherto observed, either in the stems of mountain plants or else beneath stones, in exposed grassy spots (entirely free from timber) of rather low and intermediate altitudes. It is apparently scarcer in Madeira proper than on the other islands, the only position in which I have as yet taken it being the sunny slopes above the cliffs to the eastward of Funchal, towards the Cabo Gerajão or Brazen Head,—where during the autumn of 1847 I captured it sparingly, from amongst short vegetation and broken fragments of shrubs between the detached blocks of tufa and scoriæ. In December 1848 I discovered the *var.* γ. in tolerable abundance in Porto Santo, adhering to dried stalks and the under-sides of stones, on the ascent of nearly all the peaks: and on the 19th of March 1849 I met with specimens on the Ilheo de Fora receding in no respect from the Madeiran ones. At the end of May 1850 I took the *var.* β. on the summit of the Dezerta Grande, during my encampment there with the Rev. R. T. Lowe: and a week later (namely, early in June) the *var.* δ. occurred in the utmost profusion on the Northern Dezerta, or Ilheo Chão, from whence I collected a large series of examples, all bearing the slight distinctive features which I have endeavoured to indicate in the diagnosis of that variety. They delight in the most windy positions; nevertheless they would appear to secrete themselves either beneath or immediately around the loose slabs of basalt, or about the stems and roots of the harder, stunted plants, with which such localities everywhere abound.

236. Caulotrupis impius, *Woll.*

C. subcylindrico-ovatus piceo-niger subopacus, prothorace leviter subpunctato, elytris subnitidis profunde punctato-striatis, antennis longiusculis ferrugineis, pedibus piceis.

Variat (immaturus) colore omnino ferrugineo.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{7}{8}$.

Habitat intra caules *Silybi Mariani,* Grtn. (= *Cardui benedicti,* antiquorum,—unde nomen triviale proposui) in ins. Desertæ Grandis, Maio exeunte A.D. 1850 a meipso copiosissime captus: in Maderâ propriâ mihi non obvius, at unicum exemplar indigenum, nisi me fallit, nuper communicavit Dom. Leacock.

C. subcylindric-ovate, brownish- or piceous-black (when immature, more or less ferruginous), and sub-opake. *Prothorax* very indistinctly punctured, the punctures being exceedingly shallow and ill-defined; broadest a little behind the middle. *Elytra* rather more shining than the prothorax, and with more or less of an obscure æneous or greenish tinge; deeply punctate-striated; subcylindrical, and broadest a little behind the middle. *Antennæ* longish, and ferruginous. *Legs* piceous.

The small size of the present *Caulotrupis* will readily separate it from every other species here described except the *C. terebrans*, from which however it is at once

distinguished by its broader and less fusiform outline, darker hue, more deeply striated elytra, and by the very obsolete punctures of its prothorax. The only locality in which I have myself hitherto observed it is on the Dezerta Grande, where, at the end of May 1850, I detected it in the utmost profusion in the rotten stems of the *Silybum Marianum*, Grtn. (the *Carduus benedictus*, or Holy Thistle, of the ancients), throughout the entire length of the long valley which runs from the northern extremity towards the centre of the island. A single specimen however has been recently communicated to me by T. S. Leacock, Esq. of Funchal, stated to have been taken in Madeira proper, though the circumstances of its capture he was unable to recall.

237. Caulotrupis terebrans, *Woll.* (Tab. VI. fig. 8.)

C. subfusiformi-ovatus æneus subnitidus, prothorace punctato, elytris nitidis striato-punctatis, antennis longiusculis pallido-ferrugineis, pedibus rufo-piceis.

Long. corp. lin. $1\frac{1}{2}$.

Habitat ad latera necnon in cacuminibus montium Portûs Sancti, intra caules plantarum vel in rupium fissuris, rarissime: in summo ipso monte Pico de Facho dicto (circa 1660′ s. m.) Aprili exeunte A.D. 1848 duo specimina inveni.

C. subfusiform-ovate, being, proportionably, a little narrower and somewhat less expanded behind than the last species, æneous, and shining. *Prothorax* much more deeply punctured than in *C. impius*, the punctures being distinct and rather large; broadest behind the middle. *Elytra* tolerably brilliant; rather deeply punctate-striated; and broadest about or a little behind the middle. *Antennæ* longish, and pale ferruginous. *Legs* rufo-piceous.

Easily distinguishable by its small bulk, comparatively brilliant and entirely brassy surface, and by its deeply punctured prothorax. This last moreover is, proportionably, somewhat more, and its elytra just perceptibly less, expanded behind than is the case with the *C. impius*, giving it altogether a slightly more fusiform appearance; in addition to which it is not quite so deeply striated as that insect. If the two examples which have come beneath my notice be typical as regards size, the *C. terebrans* (even though somewhat larger than *extreme* specimens of the *impius* and *Chevrolatii*) would seem to be the smallest *Caulotrupis*, on the average, of all the species here described. It is, apparently, excessively local, being confined, so far as I have hitherto observed, to Porto Santo,—where, during my visit to that island with the Rev. W. J. Armitage in April and May 1848, I captured a pair from out of the crevices of the rocks on the northern side of the extreme summit of the Pico de Facho (about 1660 feet above the sea); a spot in which I first discovered the *Tarphius Lowei* and *Hypera lunata*. Although I searched diligently in the same place on two subsequent occasions, I failed in detecting more; and hence it may be presumed to be not only local, but rare.

238. Caulotrupis Chevrolatii, *Woll.*

C. ovato-fusiformis æneus subnitidus, prothorace punctato, elytris nitidis obsolete substriato-punctatis, antennis elongatis pallido-ferrugineis, pedibus rufo-piceis.

Var. β. obscurior, elytrorum striis vix distinctioribus.

Long. corp. lin. $1\frac{1}{3}$–2.

Habitat per regionem sylvaticam Maderæ, sub lapidibus truncisque arborum prolapsis, a 3000′ usque ad 6000′ s. m., æstate non infrequens.

C. ovate-fusiform, æneous, and shining. *Prothorax* punctured, though not quite so deeply so as in the *C. terebrans*; broadest in the middle, and distinctly narrowed behind. *Scutellum* more apparent than in any of the other species (although excessively small). *Elytra* brilliant; lightly punctate-striated, both the punctures and striæ vanishing towards the outer margin and apex; and broadest about the middle. *Antennæ* long, and pale-ferruginous. *Legs* rufo-piceous.

Var. β. of an obscurer hue, and with the elytra somewhat more distinctly striated.

In its shining, brassy surface, and distinct prothoracic punctures, the present *Caulotrupis* assimilates the *C. terebrans*. Nevertheless its larger size, more strictly fusiform outline, posteriorly narrowed prothorax, and very lightly sculptured elytra will at once separate it from that insect: whilst in its more evident scutellum, which, though minute, is quite perceptible beneath a moderate lens, it recedes from all the other species here described. Both the *C. Chevrolatii* and *opacus* are less stalk-infesting in their habits than the allied forms, occurring principally beneath stones and amongst chippings of wood in the lofty sylvan districts. During the summer of 1850 I captured it sparingly at the Lombo das Vacas and the Lombo dos Pecegueiros; as also, in tolerable abundance, in the region of the Cruzinhas and Fanal. I have dedicated the species to M. Chevrolat of Paris, whose valuable collection has afforded me much assistance, and whose liberality in the loan and examination of specimens it gives me great pleasure to record.

239. Caulotrupis opacus, *Woll.*

C. ovato-fusiformis subpiceo-æneus subopacus, prothorace subtilissime punctato, elytris obsolete substriato-punctatis, antennis elongatis pallido-ferrugineis, pedibus rufo-piceis.

Long. corp. lin. $1\frac{2}{3}$–$2\frac{1}{4}$.

Habitat Maderam sylvaticam excelsam, in locis similibus ac præcedens, sed illo rarior.

C. ovate-fusiform (though somewhat broader, rather less convex, and more elliptical than the last species), æneous with a slightly piceous tinge, and nearly opake. *Prothorax* most minutely punctured; broadest about the middle, and more or less narrowed behind. *Elytra* lightly punctate-striated, both the punctures and striæ (as in the *C. Chevrolatii*) vanishing towards the outer margin and apex; and broadest about the middle. *Antennæ* long, and pale-ferruginous. *Legs* rufo-piceous.

A good deal allied to the last species, from which however it differs in its larger size, broader, somewhat more elliptical and depressed body, in its less distinct prothoracic punctures, obscurer colour, and in its almost opake surface. It is exceedingly rare, and, like the *C. Chevrolatii*, confined to the sylvan regions of a high elevation,—where it is found beneath decaying logs, and under chippings of wood, during the summer months. I have captured it on the Lombo das Vacas in June; and, more abundantly, at the Lombo dos Pecegueiros in July.

240. Caulotrupis conicollis, *Woll.*

C. obpyriformis æneus (vel nigro- vel violaceo-æneus) nitidus, prothorace conico fere impunctato, elytris convexis postice substriatis, antennis breviusculis ferrugineis, pedibus rufo-piceis.

Var. β. vix major, prothorace minus conico, punctis, elytrorumque striis paulo distinctioribus. (Ins. *Deserta Grandis.*)

Long. corp. lin. $1\frac{3}{4}$–$2\frac{1}{4}$.

Habitat in graminosis Maderæ, sub lapidibus truncisque arborum prolapsis, usque ad 3000′ s. m., toto anno passim: *var.* β. (ins. Desertam Grandem nisi fallor solam colens) fortasse alteram speciem constituat, nam ex unico specimine immaturo vix satis adjudicare licet: an igitur species sit vera egomet affirmare nequeo, sed credo eam ad *C. conicollem* tantum pertinere.

C. obpyriform (i. e. inverted pear-shaped), æneous, sometimes with either a violet or piceous tinge, and shining. *Prothorax* conical (being wide behind and narrowed in front, with the sides straight); almost impunctate, though with very faint indications of punctures anteriorly and at the lateral edges, especially the former. *Elytra* convex; striated behind, but nearly unsculptured in front; broadest a little before the middle. *Antennæ* shortish, and pale-ferruginous. *Legs* rufo-piceous.

Var. β. a little larger, and less pyriform (the prothorax not being quite so conical, nor the elytra so suddenly expanded before the middle), and with the prothoracic punctures and elytral striæ, especially the latter, rather more distinct. (The state peculiar to the *Dezerta Grande.*)

One of the most singular and characteristic of all the Madeiran Coleopterous insects, and easily recognized from the other *Caulotrupides* here described by its obpyriform outline (in which it resembles some of the members of the genus *Apion*), conical prothorax, more convex elytra (which are suddenly expanded a little *before* the middle), and by its almost unsculptured surface. So remarkable is its general contour, that it might almost be supposed, at first sight, to embody the type of a separate genus; nevertheless a closer inquiry into its structure and habits proves it to be an undoubted *Caulotrupis*. Like the *C. lucifugus*, it seems to be principally confined to grassy spots of low and intermediate altitudes, residing either beneath stones in exposed localities, or else (as in the north of the island) under logs of wood in the vicinity of vineyards and other cultivated grounds. I have taken it, during the autumnal and winter months, in the neighbourhood of Funchal,—especially to the eastward of the town (towards the Brazen

Head) and in the Ribeiro de Santa Luzia; and likewise, during May and June, in the chestnut-woods of Santa Anna. Of the *var.* β. (captured by myself, on the summit of the Dezerta Grande, in May 1850) I possess but a single example; and hence it is scarcely possible to decide for certain whether the small distinctive features which it presents be indicative of an additional species, or merely of a local state of the *C. conicollis*. After a careful examination, I am inclined to the latter opinion, since even Madeiran specimens do occasionally show a slight tendency to have their punctures and elytral striæ perceptibly developed; whilst, on the other hand, the small differences of its figure are scarcely more than those which cannot fail to be acknowledged in the insular modifications of the *C. lucifugus*: nevertheless it is clear that a larger number of individuals should be obtained before we pronounce absolutely on the subject.

Genus 110. CAULOPHILUS, *Woll.* (Tab. VI. fig. 4.)

Corpus parvum, lineare, depressum, sculpturatum, glabrum: *rostro* (VI. 4 *a*) longiusculo subarcuato subdeflexo; *oculis* magnis rotundatis: *prothorace* ad latera rotundato: *scutello* distincto subrotundato: *elytris* parallelis profunde sulcatis: *alis*, nisi fallor, obsoletis. *Antennæ* (VI. 4 *b*) et *pedes* (VI. 4 *c*) fere ut in Caulotrupide, sed *illæ* paulo crassiores.

A καυλὸς caulis, et φίλος amicus.

The hitherto unique insect from which the above diagnosis has been drawn out possesses much in common with *Phlœophagus* and *Caulotrupis*, though with distinctive characters of its own sufficient, as I believe, to warrant its isolation from both of them. Its linear outline, and depressed, deeply sculptured surface, in conjunction with its comparatively large eyes and scutellum, will at once serve to separate it from the latter; whilst from the former its incrassated antennæ, obsolete wings, and flattened, parallel body will, apart from minor differences, equally remove it.

241. Caulophilus sculpturatus, *Woll.* (Tab. VI. fig. 4.)

C. linearis rufo-piceus subnitidus depressus, prothorace profunde punctato, elytris profunde subcrenato-sulcatis, interstitiis seriatim punctatis, antennarum clavâ ferrugineâ.

Long. corp. lin. $1\frac{2}{3}$.

Habitat Maderam rarissimus: exemplar unicum, sero autumno A.D. 1847 prope Cabo Gerajão a meipso detectum, tantum vidi.

C. linear, depressed, rufo-piceous, and slightly shining. *Head* and *prothorax* (especially the latter) deeply and closely punctured. *Elytra* parallel, deeply subcrenate-sulcate, the interstices with a longitudinal row of small punctures down each. *Antennæ* with their club ferruginous. *Legs* rufo-piceous.

Apparently extremely rare; the only specimen which I have seen having been

captured by myself, during the autumn of 1847, on the exposed grassy eminence to the eastward of Funchal (along the Caniso road), immediately before arriving at the Cabo Gerajão or Brazen Head.

Genus 111. STENOTIS, *Woll.* (Tab. VI. fig. 5.)

Corpus parvum, angusto-lineare, depressum: *fronte* amplo integro: *rostro* longissimo tereti (ad antennarum insertionem haud ampliato) subporrecto: *oculis* mediocribus rotundatis: *prothorace* anterius acuminato, apice coarctato, basi recte truncato: *scutello* distincto lævi subrotundato: *elytris* elongatis parallelis pubescentibus, basi recte truncatis: *alis* parvis. *Antennæ* (VI. 5 *a*) mediocres subgraciles, pone medium rostri (in utroque sexu nisi fallor) insertæ; funiculo 7-articulato, articulis primo et secundo turbinatis, illo paulo crassiore, reliquis brevioribus transversis paulatim latitudine leviter crescentibus, ultimo clavæ haud arcte adpresso; capitulo solido subovato, apicem versus obscurissime annulato. *Pedes* validiusculi, *antici* paulo longiores basi parum distantes: *femoribus* clavatis subcompressis muticis: *tibiis* subrectis, ad apicem externum in uncum magnum acutum deflexum productis: *tarsis* articulo antepenultimo valde bilobo, ultimo clavato *unguiculis* parvis munito.

A στενότης angustia.

The genus *Stenotis* may be readily distinguished from *Mesites* by the minute and extremely narrow body of the singular little insect for the reception of which it has been erected, by its more pubescent surface, longer and unchannelled forehead, by the straightly truncated basal margins of its elytra and of its (anteriorly acuminated) prothorax, and by its antennæ being, in *both* sexes (unless indeed the only two specimens which have come beneath my observation are, as I do not believe to be the case, females), inserted behind the middle of its (more porrected and slenderer) rostrum: whilst, amongst its obscurer characteristics, its less hardened outer envelope, its slightly more approximated front legs, and the largely developed lobes of the antepenultimate joint of all its tarsi should be especially noticed. In its external aspect it is somewhat more exotic than the generality of the Madeiran Coleoptera, calling to mind such groups as *Catolethrus* and *Porthetes*,—from America and Southern Africa. With the former indeed it possesses a good deal in common; and it cannot but be regarded as altogether one of the most interesting forms which these islands have produced.

242. Stenotis acicula, *Woll.* (Tab. VI. fig. 5.)

S. angustissimo-linearis testacea depressa, prothorace obsolete punctato, elytris leviter punctato-striatis pubescentibus, pedibus vix pallidioribus.

Long. corp. lin. 2.

Habitat Maderam borealem sylvaticam rarissime, a meipso ad Lombo dos Pecegueiros, haud procul a Ribeira de João Delgada, 23 Jul. A.D. 1850 deprehensa.

S. extremely narrow and linear, depressed, pale testaceous, and almost opake. *Head* and *prothorax*

obsoletely punctured; the *former* elongate and sub-porrected; the *latter* narrowed anteriorly, and widest behind the middle, where it is of about the same breadth as the elytra. *Elytra* parallel, pubescent, and lightly punctate-striated. *Legs* of a slightly paler testaceous hue than the rest of the body.

Excessively rare, the only two specimens which I have seen having been captured by myself, in the north of Madeira, on the 23rd of July 1850, in the remote sylvan district of the Lombo dos Pecegueiros, towards the eastern edge of the Ribeira de João Delgada.

Genus 112. MESITES.

Schönherr, *Gen. et Spec. Curc.* iv. 1043 (1838.)

Corpus mediocre, sublineare, sculpturatum: *fronte* canaliculato: *rostro* elongato subdeflexo; in maribus crassiusculo punctulato canaliculato, prope vel ante medium (ad antennarum insertionem) plus minusve ampliato; in fœminis tenuiore integro, prope basin (ad antennarum insertionem) punctato ampliato, deinde læviore tereti: *oculis* mediocribus subrotundatis: *prothorace* apice plus minusve coarctato, basi subsinuato-truncato: *scutello* distincto lævi subrotundato: *elytris* plus minusve parallelis, (in Europæis fere glabris, sed in speciebus Maderensibus) subtiliter vel subtilissime pubescentibus, basi sinuato-truncatis: *alis* parvis, subobsoletis. *Antennæ* longiusculæ validæ, in maribus prope vel ante medium, in fœminis ad vel prope basin rostri insertæ; funiculo capituloque fere ut in Stenotis, sed hoc solidissimo (annulis haud observandis). *Pedes* fere ut in Stenotis, sed longiores validiores, *anticis* basi paulo distantioribus, *tibiis omnibus* fortius uncinatis, et *articulo tarsorum antepenultimo* minus profunde bilobo.

Mesites was established by Schönherr, in 1838, to receive the three European *Cossoni* (*pallidipennis*, *Tardii*, and *cunipes*), in which the antennæ, instead of being inserted, as in the remainder, towards the apex of the rostrum, are placed about (or a little before) the middle in the males, and at (or just in front of) the base in the females. Since the publication of the *Genera et Species Curculionidum*, no additions have been made to the group; and therefore two well-defined representatives from Madeira become extremely interesting,—and especially so since they would appear, from their vast numbers, to play a prominent part amongst the Coleopterous population of the upland districts of the island. The very near relationship moreover of one of them (in aspect, structure and habits) to an insect which, until discovered by myself in the south-west of England, was supposed to be exclusively Irish, must give the genus a geographical importance peculiarly its own, and scarcely surpassed by any other with which we have here to do. The species of *Mesites* are eminently gregarious, congregating beneath the loose bark of trees, from which they seldom wander except at night. Great variability in stature may be, also, regarded as amongst the most essential of their features. So wide indeed is the range through which they severally pass, that small individuals are often scarcely one-third of the size attained by larger ones of the same race; and hence

it becomes necessary, in nearly every instance, to procure an extensive series of specimens before we are able to connect the extremes of form, and fully to appreciate its limits.

§ I. *Antennæ breviusculæ: rostrum in maribus prope medium (ad antennarum insertionem) vix ampliatum.*

243. Mesites Euphorbiæ, *Woll.*

M. sublinearis badio-piceus depressus, prothorace profunde punctato longitudinaliter obscurissime carinato, elytris crenato-striatis subtiliter pubescentibus, suturâ necnon interdum plagâ obsoletissimâ versus latera nigrescentibus, interstitiis subplanis minutissime punctulatis, antennis pedibusque rufo-piceis.

Var. β. plerumque minor, plus minusve badius vel rufo-ferrugineus, capite, rostro ad basin, scutello, elytrorumque suturâ nigrescentibus.

Var. γ. prothoracis punctis minoribus indistinctis.

Long. corp. lin. mas, $2\frac{1}{3}$–$4\frac{1}{3}$: fœm., $2\frac{1}{2}$–$3\frac{2}{3}$.

Habitat locos editiores Maderæ, sub cortice *Euphorbiæ melliferæ*, Linn. Phil., hinc inde vulgaris: in sylvâ quâdam *Euphorbiarum* prope Lagoam Fanalensem sitâ (circa 5000′ s. m.) d. 17 Jul. A.D. 1850 copiosissime inveni.

M. sublinear, reddish-piceous with more or less of an additional chestnut hue (causing the surface to be somewhat clouded, or unequal in intensity, like the darker portions of tortoiseshell), scarcely at all shining, and exceedingly depressed. *Forehead,* in both sexes, roughly punctured and grooved between the eyes. *Prothorax* coarsely punctured, with a deep central depression behind (in front of the scutellum), and with very obscure indications of an unpunctured keel down the centre. *Elytra* perceptibly pubescent, deeply crenate-striated, with the interstices subconvex and most delicately punctulated; the suture (with the scutellum), and a very ill-defined dash towards the lateral edges, more or less obscurely darker. *Antennæ* and *legs* rufo-piceous; the *former* short, with their club ferruginous; and the *latter* with the base of their femora usually a little dusky.

Male, with the rostrum thick, punctulated and grooved, and scarcely at all dilated at the point of insertion of the antennæ,—which are placed about midway between its base and apex.

Female, with the rostrum rather shorter, slenderer, and polished, being almost unpunctulated and without a groove,—its extreme base (just in front of which its antennæ are inserted) being alone dilated and rough.

Var. β. usually of a smaller size, and more or less of a pale chestnut, or rufo-ferruginous hue,—the *head,* the *rostrum* (especially at its base), the *scutellum,* and the *elytral suture* being alone more or less distinctly darker.

Var. γ. with the prothoracic punctures exceedingly small and indistinct.

Apart from minor differences, in colour and sculpture, the present *Mesites* may be readily known from the following one by its smaller size, flatter body, and by its shorter antennæ, which in the male sex are implanted nearer the middle of the

rostrum than is the case with the *M. Maderensis*,—the rostrum itself moreover being less perceptibly expanded at the point of insertion. It is, apparently, extremely local, and attached exclusively, so far as I have hitherto observed, to the gigantic Tree-Euphorbia (*Euphorbia mellifera*, Linn. Phil.) of lofty altitudes,—beneath the bark of which it would seem to be found in certain spots in the utmost profusion. The only occasion on which I have detected it was on the 17th of June 1850, in the extraordinary *Euphorbia plantation* (upwards of 5000 feet above the sea) on the descent of the mountain-road leading from the Lagoa of the Fanal towards Porto Moniz,—where it existed in the greatest abundance.

§ II. *Antennæ longiusculæ: rostrum in maribus ante medium (ad antennarum insertionem) evidenter ampliatum.*

244. Mesites Maderensis, *Woll.*

M. sublinearis nigro-piceus subconvexus, prothorace profundius punctato longitudinaliter obscure carinato, elytris crenato-striatis subtilissime pubescentibus, interstitiis planis minute punctulatis, antennis pedibusque rufo-piceis.

Var. β. plerumque minor, plus minusve ferrugineus, capite, scutello, et interdum etiam elytrorum suturâ paulo obscurioribus.

Long. corp. lin. mas, 2⅔–6: fœm., 3–5.

Habitat in Maderæ sylvis editioribus, sub cortice arborum laxo, æstate vulgaris: per regionem Fanalensem præcipue abundat, quâ mense Julio A.D. 1850 copiosissime legi.

M. sublinear, dark piceous, almost opake, more convex than the last species. *Forehead*, in both sexes, roughly punctured and grooved between the eyes. *Prothorax* very coarsely punctured, the punctures being somewhat larger than in the *M. Euphorbiæ*; also with a deep central depression behind (in front of the scutellum), as in that insect; and with a slightly more distinct, unpunctured keel down the centre. *Elytra* almost imperceptibly pubescent; deeply crenate-striated; with the interstices flattened and rather more distinctly punctulated than in the last species. *Antennæ* and *legs* rufo-piceous; the *former* with their club more or less ferruginous.

Male, with the rostrum as in the last species, only more distinctly dilated at the point of insertion of the antennæ,—which are placed nearer to the apex than to the base.

Female, with the rostrum as in the last species.

Var. β. usually of a smaller size, and of a more or less dull ferruginous hue,—the *head*, the *scutellum*, and sometimes also the *elytral suture*, being alone obscurely darker.

The larger size, convexer body, and longer antennæ of the present *Mesites*, in addition to the differences already pointed out in the male rostrum, will serve to separate it, even *primâ facie*, from the last. Its habits moreover are of a less local character, since it does not appear to confine its ravages to any particular tree,—although *most partial* to the various kinds of laurel with which the elevated sylvan districts of Madeira principally abound. Like the *M. Euphorbiæ*, it is

strictly of an alpine nature: in fact I have never observed it below the elevation of about 3000 feet, whilst it would seem to attain its maximum at a far higher altitude. I have captured it sparingly in the region of the Ribeiro Frio, in May; and in the utmost profusion, during July, beneath loose bark at the Cruzinhas and Fanal. When viewed geographically, it is one of the most interesting of the Coleopterous inhabitants of these islands, as being the exact representative of the *M. Tardii**, Curtis, hitherto peculiar to Ireland and the south-west of England. In their modes of life indeed the two are positively coincident, both being more particularly attached to *evergreen* trees, either in mountain or submaritime spots; whilst in their range of size, colour, and general contour they present so great a similarity *inter se*, that they might at first sight be almost confounded. So close is this resemblance, that, until I had made an actual comparison, I had imagined them to be but local states of one and the same species: nevertheless, a careful examination proves them to be unquestionably distinct, their differences being such as cannot be accounted for by change of latitude, isolation, or any other union of circumstances to which they may have been, respectively, exposed. The *M. Maderensis* may be known from the *Tardii* by its more opake, slightly flatter, and less deeply sculptured surface, by the more sinuated basal margins of its prothorax and elytra, by the latter being more perceptibly pubescent (with their interstices more evidently punctulated and less rugulose), by its rostrum being less *quadrately* expanded in the males, and by the antennæ of the females being inserted nearer to the eyes than is the case in that insect.

Like its Irish analogue, it is purely nocturnal,—never wandering by day; in which respect it somewhat recedes from the *M. Euphorbiæ*, which I not only detected under the outer coating of the stems of the *Euphorbia mellifera* (in the famous plantation of the Fanal), but even, though in much smaller numbers, on the foliage also,—and which is *partially* therefore, at any rate, diurnal.

* This insect, which has not yet occurred in any part of the continent of Europe, was originally discovered in decayed hollies at Powerscourt Waterfall, in the county of Wicklow, by Mr. Tardy of Dublin. For many years subsequently it appears to have been altogether lost sight of, until detected by myself, in 1844, at Mount Edgecumbe in Devonshire,—and along the coast of Cornwall, westwards, as far as Menabilly and Fowey. In the north of Devon I have, likewise, observed it, in the valley of the Lyn, though less abundantly than on the shores of the English Channel. Thus, skirting as it were the south-western extremity of our own country, it passes over to Ireland, where it may be said to attain its maximum,—attaching itself to the trees (especially evergreens) in the mountains of Wicklow and Kerry (and probably in other districts equally), much to the detriment of the ancient timber, in which its ravages (evidently for centuries) are but too conspicuous. Judging from the extent of the injury committed, it would seem to have been commoner formerly, and more generally diffused, than now. At Killarney I have been accustomed to mark its devastations for several years past, and had constantly met with traces of it, under the form of detached elytra and broken portions of its body, in the oldest trees: but it was not until the summer of 1853 that a perfect specimen, captured by a friend in a decayed holly at Dinas, came beneath my notice. Being thus warned of more than its past existence, we commenced a careful research during the following September on Innisfallen, one of the islands of the Lower Lake, where we found it still ranging in profusion,—and from whence I obtained a fine series of examples, averaging a somewhat larger size than the Devonshire and Cornish ones.

(Subf. 2. RHYNCOPHORIDES.)

Genus 113. SITOPHILUS.

Schönherr, *Gen. et Spec. Curc.* iv. 967 (1838).

Corpus parvum, sublineari-oblongum, depressum, sculpturatum: *rostro* elongato subarcuato subdeflexo, basi (ad antennarum insertionem) ampliato; *oculis* oblongis: *prothorace* amplissimo, apice coarctato: *scutello* distincto subrotundato: *elytris* planiusculis, posterius angustatis, ad apicem abdomine brevioribus: *alis* amplis. *Antennæ* breviusculæ validæ, prope basin rostri insertæ; scapo robusto subclavato; funiculo 6-articulato articulis primo et secundo longiusculis (illo crassiore), reliquis brevioribus latitudine leviter crescentibus; capitulo solido oblongo-ovato, apice obscure annulato et spongioso. *Pedes* validi, *antici* paulo longiores basi distantes: *femoribus* clavatis muticis: *tibiis* rectis, intus (præsertim *anticis*) plus minusve crenulatis, ad apicem externum in uncum magnum acutum deflexum productis: *tarsis* reflexis.

The *Sitophili* may be easily known by their depressed and deeply-sculptured upper surface, by their greatly developed prothorax and internally crenulated tibiæ, by their posteriorly narrowed and apically abbreviated elytra, by their six-jointed funiculus, and by their antennæ being inserted near the base of the rostrum,—which is itself more or less thickened at the point of junction. In their habits they are purely granivorous, subsisting on different kinds of corn, rice, and such-like articles of commerce, to which, especially in the larva state, they are often very injurious: and hence it is that many of them have become naturalized, as is the case with the following two species of the Madeira Islands, throughout the civilized world,—abounding, at times, in granaries, and other receptacles of merchandise, in the larger cities and ports of nearly every country.

245. Sitophilus granarius.

S. rufo-ferrugineus subnitidus, prothorace profunde sparsim punctato (punctis oblongis), elytris profunde crenato-striatis, interstitiis alternis antice elevatioribus.

Mas, rostro fortius punctato et basi evidentius carinato.

Fœm., rostro læviore, basi vix carinato.

Long. corp. lin. 2–2½.

Curculio granarius, Linn. *Fna Suec.* 587 (1761).
——— ———, Fab. *Ent. Syst.* i. ii. 414 (1792).
Calandra granaria, Steph. *Ill. Brit. Ent.* iv. 9 (1831).
Sitophilus granarius, Schön. *Gen. et Spec. Curc.* iv. 977 (1838).

Habitat circa domos Funchalenses, præsertim in frumentariis, grana destruens: in ipsâ urbe prædominat quâ muros lente ascendere sæpissime videatur.

S. rufo-ferruginous, and slightly shining. *Prothorax* very deeply punctured,—the punctures being large and oblong, though somewhat remote. *Elytra* deeply crenate-striated, with the interstices

broad and convex,—the alternate ones being considerably elevated in front, and that on either side of the suture with a longitudinal row of impressed points. *Antennæ* and *legs* concolorous with, or a little paler than, the rest of the insect.

Male, with the rostrum rather more coarsely punctured, and with its base more perceptibly keeled.

Female, with the rostrum more lightly punctured, and with its base scarcely, if at all, keeled.

Readily distinguished from the following by its somewhat larger size, rufo-ferruginous hue, and by its altogether different sculpture,—its prothoracic punctures being deep, oblong and comparatively remote, whilst its elytra are *crenate*-striated, with their interstices wide, and the alternate ones much elevated in front. It is a universal insect throughout Europe, and indeed throughout the greater portion of the civilized world, being liable to transmission with corn and other grain. It is, apparently, however less common in southern latitudes than in temperate and northern ones; and hence in Madeira it is rarer than the *S. Oryzæ*, which abounds in nearly all the houses and shops of Funchal. The present species is, nevertheless, occasionally but too plentiful in granaries; and it may be constantly observed crawling on the walls, both external and internal, in and about the villages and towns.

246. Sitophilus Oryzæ.

S. nigro-piceus subopacus, prothorace profunde confertim punctato (punctis rotundatis), elytris profunde punctato-striatis, singulo maculis duabus rufescentibus ornato, antennis pedibusque rufo-ferrugineis.

Mas, rostro carinato et profunde punctato.

Fœm., rostro basi tantum carinato profunde punctato (apicem versus læviore nitido).

Long. corp. lin. $1\frac{1}{2}$–2.

Curculio Oryzæ, Linn. *Cent. Ins.* 12 (1763).
——— ———, Fab. *Ent. Syst.* i. ii. 414 (1792).
Calandra Oryzæ, Steph. *Ill. Brit. Ent.* iv. 9 (1831).
Sitophilus ———, Schön. *Gen. et Spec. Curc.* iv. 981 (1838).

Habitat inter semina *Oryzæ* et *Teæ*, vel super muros domuum Funchalensium,—unâ cum præcedente degens, sed illo multo frequentior.

S. dark-piceous, and almost opake. *Prothorax* very deeply and thickly punctured,—the punctures being round, and much closer together than those of the last species. *Elytra* deeply punctate-striated, with the interstices narrow and raised; each with a rufescent patch near the shoulder, and another towards the apex. *Antennæ* and *legs* rufo-ferruginous.

Male, with the rostrum keeled and coarsely punctured.

Female, with the rostrum keeled and coarsely punctured at its extreme base only,—being unkeeled, more lightly punctured, and shining towards its apex.

Its darker colour, and nearly opake, differently sculptured surface, in conjunction with the four rufescent patches of its elytra, will, *primâ facie*, separate the present *Sitophilus* from the preceding one. As already stated, it is by far the commoner of the two in Madeira, occurring in nearly all the houses,—and occa-

sionally abounding in the shops of Funchal and the larger villages, where it has been introduced, principally, with rice and Indian corn; on which, especially in the larva state, it almost exclusively subsists.

(Subf. 3. CIONIDES.)

Genus 114. CIONUS.

Clairville, *Ent. Helv.* i. 64 (1798).

Corpus parvum, quadrato-ovatum, convexum, squamoso-tessellatum: *rostro* elongato subarcuato tereti inflexo; *oculis* oblongo-ovatis, in fronte paulo approximatis: *prothorace* parvo, elytris multo angustiore, infra apicem coarctato: *scutello* distincto subrotundato: *elytris* amplis convexis subquadratis, anum tegentibus: *alis* amplissimis. *Antennæ* breviusculæ subgraciles, ante medium rostri insertæ; scapo apicem versus facilius clavato; funiculo 5-articulato, articulis primo et secundo longiusculis (illo crassiore), reliquis brevioribus latitudine leviter crescentibus; capitulo oblongo-ovali, obscure quadri-annulato. *Pedes* vix robusti, *antici* basi approximati: *femoribus* subclavatis, subtus unidentatis: *tibiis* rectis, ad apicem truncatis muticis.

The short, convex and subglobose body of *Cionus*, in conjunction with its minute prothorax, ample elytra and wings, prettily tessellated surface, 5-jointed funiculus, dentate femora, and apically unarmed tibiæ, will at once serve to distinguish it from the neighbouring forms here described. Its 5-articulate funiculus indeed is characteristic of the whole of Schönherr's small subfamily of *Cionides*,—a group which would appear to possess but a single representative in these islands. The *Cioni* are almost exclusively attached to the foliage of the *Scrophulariæ* and *Verbasca*, on which, both in their larva and imago states, they subsist. They are extremely gregarious, being usually found, where they exist at all, in considerable numbers; and even several species may be frequently observed congregating on the same actual plant: nevertheless in Madeira I have not been able hitherto to detect more than a solitary species.

247. Cionus pulchellus.

C. brunneus, parce griseo-squamosus, prothorace minuto nebuloso, elytris punctato-striatis, interstitiis alternis læte fasciculato-tessellatis (fasciculis ex squamis atris albisque alterne compositis), suturâ atro-trimaculatâ (maculâ intermediâ majore), antennis pedibusque pallido-ferrugineis, femoribus in medio antennarumque capitulo obscurioribus.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{3}{4}$.

Curculio pulchellus, Herbst, *Käf.* vi. 356 (1795).
Rhynchænus Solani, Gyll. (nec Fab.) *Ins. Suec.* iii. 216 (1813).
Cleopus pulchellus, Steph. *Ill. Brit. Ent.* iv. 19 (1831).
Cionus pulchellus, Schön. *Gen. et Spec. Curc.* iv. 741 (1838).

Habitat super plantas *Scrophulariæ* in Maderâ sylvaticâ nascentes, æstate non infrequens.

C. brown or reddish-brown, and more or less densely beset with a griseous pubescence. *Prothoraæ* minute, and clouded,—having usually a triangular patch at its base (in front of the scutellum), a small one on either side of its disk, and an ill defined dash at its lateral edges, indistinctly darker. *Elytra* punctate-striated; the alternate interstices with a line of slightly elevated pubescence down each, composed of alternate fascicles of black and white scales; and the suture the same, only with the fascicles white and black, respectively (instead of black and white),—the latter colour assuming three distinct dark patches, of which the intermediate one is much the largest, and forms (in conjunction with the black tufts of the alternate ridges) somewhat of an obscure post-medial fascia. *Antennæ* and *legs* pale-ferruginous; the *former* with their club darker; and the *latter* with their femora dusky in the middle.

A tolerably common insect throughout central and southern Europe. In Madeira it would appear to be scarce, or at any rate exceedingly local, and confined to intermediate altitudes,—the only district in which I have hitherto observed it being that of the Ribeiro Frio, where I have twice captured it, on a species of *Scrophularia* growing by the edges of the Levada, during the summer months.

(Subf. 4. CRYPTORHYNCHIDES.)

Genus 115. CEUTORHYNCHUS.

(Schuppel) Schönherr, *Curc. Disp. Meth.* 298 (1826).

Corpus parvum, plus minusve ovato-quadratum sculpturatum et squamosum: *rostro* elongato arcuato tereti inflexo, in canaliculam pectoralem indeterminatam (inter coxas pedum anticorum desinentem) arcte applicando; *oculis* rotundatis: *prothorace* brevi, anterius angustiore, longe infra apicem coarctato, antice plerumque reflexo-elevato, supra plus minusve inæquali et sæpissime utrinque tuberculato: *scutello* minutissimo (vix observando): *elytris* obtriangulari- (vel interdum subrotundato-) quadratis, ad apicem abdomine brevioribus et singulatim obtuse rotundatis: *alis* vel amplis vel obsoletis. *Antennæ* longiusculæ graciles, ante medium rostri insertæ; funiculo 7-articulato, articulis tribus vel quatuor basalibus longiusculis (primo crassiore), reliquis brevioribus subrotundatis; capitulo oblongo-ovali apice acuminato, quadri-annulato. *Pedes* sat robusti, *antici* basi parum distantes: *femoribus* vel muticis, vel subtus denticulo acuto armatis: *tibiis* ad apicem externum truncatis muticis ad internum nonnunquam (in maribus præcipue) leviter uncinatis.

The immense genus *Ceutorhynchus* (=*Nedyus*, Schönherr in litt., Stephens's *Illustrations of British Entomology*, A.D. 1831) may be known by the short, subquadrate bodies of the species which compose it, and which have their prothorax more or less uneven or tuberculose, and narrow in front, their femora frequently furnished with a minute spine beneath, their tibiæ always unarmed at the outer apex, and their rostrum closely applied during repose against their chest,—and received into a groove (or channel) which is never abruptly terminated behind as in *Cœliodes*, nor does it extend beyond the base of the coxæ of the anterior pair of legs. Although more or less distributed over the world, the *Ceutorhynchi*,

168 species of which are described in Schönherr's *Genera et Species Curculionidum*, are especially abundant in European latitudes,—frequenting, for the most part, the flowers and foliage of the smaller plants, upon the roots of which, in their larva state, they principally feed.

§ I. *Femora fortiter dentata: tibiæ intermediæ sinuatæ.*

248. Ceutorhynchus Echii.

C. niger fusco-squamosus, prothorace leviter canaliculato, margine postico lineisque tribus angustis albis, elytris obtriangulari-quadratis, versus latera muricatis, undique lineolis albis (quibusdam obliquis) ornatis, pedibus albo-irroratis, tarsis rufo-piceis.

Long. corp. lin. $2\frac{1}{2}$–3.

Curculio Echii, Fab. *Ent. Syst.* i. ii. 436 (1792).
——— ——, Mshm. *Ent. Brit.* i. 279 (1802).
Nedyus Echii, Steph. *Ill. Brit. Ent.* iv. 38 (1831).
Ceutorhynchus Echii, Schön. *Gen. et Spec. Curc.* iv. 504 (1837).

Habitat Maderam, rarior; necnon in montibus Portûs Sancti, quâ super plantas *Echii violacei*, Linn. (=*E. plantaginei*, Linn.) ibidem crescentes mensibus Aprili et Maio A.D. 1848 plurima specimina inveni.

C. black, clothed beneath with whitish, and above with fuscous scales. ***Head*** **with a faint keel down the centre.** ***Prothorax*** **with a narrow and faint dorsal channel, an obscure tubercle on either side of its disk, and with its front margin considerably elevated; its extreme hinder margin, three (more or less distinct) narrow longitudinal lines, and sometimes with indications also of a transverse one, white.** *Elytra* obtriangular-quadrate (the sides being oblique and almost straight), and abbreviated at the apex; roughened with small projecting prominences towards the lateral edges and shoulders; and more or less ornamented with narrow, longitudinal, white lines, and a few broken and irregular transverse or oblique ones,—giving the entire surface a somewhat pencilled appearance. *Legs* more or less clothed with whitish scales: *femora* with a large and powerful spine beneath: *intermediate tibiæ* slightly sinuated or curved: *tarsi* (as also the *antennæ*) rufo-piceous.

The large size of the present *Ceutorhynchus*, added to its powerfully spined femora, curved intermediate tibiæ, and curiously pencilled surface, will at once distinguish it from the remainder of the genus here described. It is an insect widely distributed over central and southern Europe; and it has been likewise recorded from Egypt. In these islands however it would appear to be extremely local, the only spot in which I have hitherto observed it in Madeira proper being the upper extremity of the Ribeiro de Santa Luzia. In Porto Santo it is more common, where I captured many specimens, on the southern side of the Pico de Facho, during April and May 1848,—from off plants of *Echium violaceum* growing on the grassy slopes immediately beneath the summit.

§ II. *Femora (præsertim antica) minus fortiter dentata: tibiæ rectæ.*

249. Ceutorhynchus quadridens.

C. niger subdepressus cinereo-squamosus, prothorace profunde canaliculato, elytris obtriangulari-quadratis maculâ subscutellari diluto-albidâ ornatis, pedibus cinereo-irroratis, geniculis, tibiis ad apicem, tarsisque rufo-testaceis.

Mas, antennis paulo propius apicem rostri (ut solet in multis Curculionibus) insertis, et tibiis posterioribus ad apicem internum in uncum excurvatum productis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Curculio quadridens, Panzer, *Fna Germ.* xxxvi. 13 (1796).
Rhynchænus Boraginis, Gyll. (nec Fab.) *Ins. Suec.* iii. 227, et iv. 594 (1813 et 1828).
Nedyus Borraginis, Steph. *Ill. Brit. Ent.* iv. 35 (1831).
Ceutorhynchus quadridens, Schön. *Gen. et Spec. Curc.* iv. 534 (1837).

Habitat in cultis Maderæ, præsertim in vinetis et hortis culinaribus, æstate non infrequens: etiam in ins. Desertâ Grandi, mense Maio exeunte A.D. 1850 (a Maderâ illuc forsan introductus), cepi.

C. black, more or less besprinkled or clothed (especially beneath) with cinereous or ashy scales, and somewhat depressed. *Head* strongly keeled behind, but not at all so in front. *Prothorax* coarsely and rather remotely punctured; with a wide and deep dorsal channel, especially behind, a distinct tubercle on either side of its disk, and with its front margin greatly elevated. *Elytra* obtriangular-quadrate, and very slightly abbreviated at the apex; with a more or less well-defined patch, at the base of the suture (immediately behind the scutellum), more thickly beset than the rest of the surface with ashy scales. *Legs* more or less clothed with ashy scales or hairs: *femora* with a very small and obscure spine beneath, that on the anterior pair (particularly of the males) being almost obsolete: *tibiæ* straight, with their extreme base, and a larger portion at their apex, together with the *tarsi* and the *antennæ* (except the apical half of their *club*, which is ferruginous), rufo-testaceous.

Male, with the antennæ inserted rather nearer to the apex of the rostrum than is the case with the female (a character which obtains, more or less, throughout a large portion of the *Curculionidæ*); and with the four hinder tibiæ produced at their *inner* apex into an outwardly-curved hook.

The *C. quadridens*, so extremely abundant throughout the whole of Europe, may be known from the other Madeiran *Ceutorhynchi* by its somewhat depressed form and deeply punctured prothorax, by the cinereous or ashy scales with which its upper surface is more or less besprinkled (and which are condensed into a patch about the scutellum only), and by the acute, outwardly-curved hook with which the inner apex of the four hinder tibiæ of its males are furnished. The Madeiran specimens differ from the ordinary ones in having the apex and extreme base of their tibiæ more distinctly testaceous. It occurs, during the summer months, in cultivated grounds of rather low elevations. I have taken it in the Rev. R. T. Lowe's garden near Funchal, and in the vineyards of Santa Anna; as also, in tolerable abundance, at the end of May 1850, on the Dezerta Grande,—where in all probability it has been accidentally introduced with culinary and other plants

(which, during the short period of its colonization, were once sparingly cultivated towards the southern extremity of the island) from Madeira.

250. Ceutorhynchus nigroterminatus, *Woll.*

C. niger, parce albo-squamosus, subrugulosus, prothorace canaliculato, elytris obtriangulari-quadratis abbreviatis obscure albo-irroratis, maculâ subscutellari et margine postico albidioribus, pedibus albo-irroratis, tarsis rufo-testaceis articulo ultimo nigro-terminato, antennis nigricantibus.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Habitat Maderam borealem, in castanetis Sanctæ Annæ mense Maio A.D. 1850 a meipso repertus.

C. black, densely clothed beneath with yellowish-white, and above sparingly besprinkled with white, scales; somewhat rugulose. *Head* slightly keeled behind. *Prothorax* with a wide and deep dorsal channel behind, which is almost obsolete anteriorly, with a rather small but prominent tubercle on either side of its disk, and with its front margin very slightly elevated. *Elytra* obtriangular-quadrate, somewhat short, and very much abbreviated at the apex; with a very obscure patch at the base of the suture (immediately behind the scutellum), together with the extreme hinder margin, more densely clothed than the rest of the surface with white scales. *Legs* sparingly clothed with white scales or hairs: *femora* with a tolerably distinct spine beneath, that on the anterior pair however being the smallest: *tibiæ* straight, just perceptibly rufescent at their extreme base: *tarsi* rufo-testaceous, with the extreme tip of their terminal joint black. *Antennæ* dark piceous, with their *club* nearly black.

A very distinct and interesting *Ceutorhynchus*, readily known by its somewhat shortened outline, subrugulose surface, considerably abbreviated elytra (which have not only an obscure patch about the scutellum, but likewise their hinder margin more or less densely clothed with white scales), by its comparatively dark antennæ, and by the apical joint of all its tarsi being tipped with black. It is exceedingly rare, and confined, so far as I have hitherto observed, to the north of the island,—the only two examples which I have seen having been captured by myself, during May 1850, in the chestnut-woods of Santa Anna.

251. Ceutorhynchus lineatotessellatus, *Woll.*

C. fusco-niger convexus fusco-squamosus, prothorace profunde canaliculato, elytris rotundato-quadratis subventricosis fere integris, longitudinaliter lineato-tessellatis, pedibus fusco-ferrugineis et obscure albo-annulatis.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat in graminosis Maderæ sylvaticæ, rarissimus: duo specimina hactenus vidi, unum sc. prope summam originem convallis Ribeiro de Santa Luzia dictæ tempore vernali A.D. 1849, et alterum ad Ribeiro Frio mense Augusto ineunte A.D. 1850, a meipso detecta.

C. brownish-black, clothed beneath with yellowish-white, and above with dark fuscous, scales; convex. *Head* not perceptibly keeled. *Prothorax* with a very wide and deep dorsal channel, extending to

the anterior constriction, with a very large and prominent tubercle on either side of its disk, and with its front margin tolerably elevated. *Elytra* subventricose, or inflated (the sides being considerably rounded), and scarcely at all abbreviated at the apex (the abdomen being almost entirely concealed); each ornamented with three or four indistinct longitudinal lines, composed of alternate tufts of dark brown and white scales,—the one nearest to the suture being the most apparent and entire. *Legs* dull ferruginous, or reddish-brown, and more or less indistinctly clothed with rings of whitish pubescence: *femora* with a small spine beneath, that on the anterior pair being almost obsolete: *tibiæ* straight: *tarsi*, and the *base of the antennæ*, of a slightly more testaceous hue; the *club* of the latter, especially at its apex, darker.

A truly indigenous insect, and apparently of the greatest rarity. It may be at once recognised from the foregoing *Ceutorhynchi* by its comparatively convex and inflated body,—its elytra (which almost entirely cover the abdomen, and are each of them ornamented with three or four tessellated longitudinal stripes, composed of dull alternate patches of brown and white scales) being considerably rounded,—by its deep and wide prothoracic channel, and by the pubescence of its legs being arranged in tolerably distinct rings, especially on the femora (a peculiarity however which is only apparent in fresh and unrubbed specimens). It seems to be peculiar to intermediate altitudes; and, like the last species, only two examples have as yet come beneath my notice,—one of which I captured, during the spring of 1849, from amongst thick herbage at the base of the perpendicular rocks towards the upper extremity of the Ribeiro de Santa Luzia, and the other by brushing the rank vegetation at the edges of the Levada of the Ribeiro Frio, at the beginning of August 1850.

Genus 116. CŒLIODES.

Schönherr, *Curc. Disp. Meth.* 296 (1826).

Corpus fere ut in Ceutorhyncho, sed lateribus plerumque paulo rotundatioribus, et *canaliculâ pectorali* longiore, apice argute determinatâ (usque ad coxis pedum intermediorum extendente). *Antennæ* et *pedes* fere ut in Ceutorhyncho, sed *hi* (*antici* saltem) basi vix distantiores.

Cœliodes and *Ceutorhynchus* are *primâ facie* almost coincident; nevertheless the former has usually the sides of its elytra a little more rounded than those of the latter,—whilst the formation of the pectoral groove for the reception of their rostra, which is much longer in *Cœliodes* than in *Ceutorhynchus* (extending to the base of, or even a little beyond, the intermediate coxæ), and is more deeply and abruptly terminated behind, will always serve, on closer examination, to distinguish them from each other. Several of the species of *Cœliodes* are strictly arboreal in their habits, being confined to the foliage of forest trees; nevertheless many, like the generality of the members of the preceding genus, are attached, likewise, to the smaller plants,—as is the case indeed with the only representative which I have hitherto detected in the Madeira Islands, and which I imagine has been unquestionably introduced from more northern latitudes.

252. Cœliodes fuliginosus.

C. niger, subtus dense albido-, supra parce fusco-squamulosus, prothorace canaliculato, canaliculâ in medio late interrupta, elytris rotundato-quadratis, maculis duabus sc. anticâ et posticâ suturalibus albo-squamosis ornatis, illâ fasciculo postico holosericeo-atro auctâ, pedibus parce albo-irroratis, tarsis ferrugineis articulo ultimo piceo-terminato.

Long. corp. lin. $1\frac{1}{2}$.

Curculio fuliginosus, Mshm, *Ent. Brit.* i. 280 (1802).
——— *cinereus*, Mshm, (teste Mus°. Kirb°.) *Ent. Brit.* i. 283 (1802).
Ceutorhynchus fuliginosus, Steph. *Ill. Brit. Ent.* iv. 25 (1831).
Cœliodes fuliginosus, Schön. *Gen. et Spec. Curc.* iv. 291 (1837).

Habitat in hortis culinaribus Maderæ, semel tantum (a meipso prope Funchal æstate exeunte A.D. 1850) captus.

C. dull-black, densely clothed beneath with whitish, and above sparingly with minute fuscous, scales. *Head* with a very slight and abbreviated keel behind, unkeeled and unchanneled in front. *Prothorax* with a wide and tolerably deep dorsal channel before and behind, which is greatly interrupted in the middle; with a prominent tubercle on either side of its disk, and with its front margin elevated. *Elytra* rotundate-quadrate (the sides being considerably rounded); with two abbreviated sutural patches, viz. one at the base and another (somewhat larger) at the apex, densely clothed with whitish scales,—the basal one moreover being increased behind with an elongated tuft of velvety black pile. *Legs* sparingly clothed with whitish scales or hairs: *femora* with a powerful spine beneath: *tibiæ* straight: *tarsi* dull ferruginous, with the extreme tip of their terminal joint dark piceous. *Antennæ* nearly black.

Apart from the structural character already pointed out, in the formation of its pectoral groove, the present insect* may be at once known from the Madeiran representatives of the preceding genus by its centrally-interrupted prothoracic channel, and by the well-defined white patches at the base and apex of its elytral suture,—the former of which is augmented behind by an elongated fascicle of deep black, velvety scales. It is a most abundant species throughout Europe, and one which has, in all probability, been accidentally introduced into these islands from more northern latitudes,—very possibly with some of the *Sinapidæ*, or other culinary vegetables (in the galls at the roots of which its larvæ, like those of many of the *Ceutorhynchi*, are said to reside). The only specimen which has hitherto come beneath my notice was captured by myself from off a cabbage near Funchal (in the Rev. R. T. Lowe's garden at the Levada), during the summer of 1850.

* The *C. fuliginosus* is a good deal allied to the *C. guttula*, of Fabricius,—which is almost equally abundant in European latitudes. It may however be known from it by being rather smaller, by having its forehead free from the central channel characteristic of that insect, by the somewhat different construction of its prothorax and prothoracic tubercles, and by having a conspicuous white patch (in addition to the black fascicle of scales common to both species) at the base of its elytra, immediately behind the scutellum.

Genus 117. ACALLES.

Schönherr, *Curc. Disp. Meth.* 295 (1826).

Corpus mediocre vel parvum, plus minusve oblongo-ovatum gibbosum sculpturatum, sæpius dense squamoso-variegatum: *rostro* longiusculo valido subarcuato, in maribus opaco rugose punctato et (in speciebus Maderensibus saltem) in medio plus minusve obscurissime carinato, in fœminis paulo tenuiore nitido leviter punctato; inflexo, in canaliculam pectoralem profundam argutissime determinatam (fere ad coxas pedum intermediorum extendentem) arcte applicando; *oculis* subrotundatis: *prothorace* subovato basi truncato, longe intra apicem coarctato, ad latera in medio plus minusve rotundato-ampliato, antice acuminato et (in nostris) plus minusve setoso: *scutello* aut nullo, aut minutissimo (vix observando): *elytris* subovatis basi truncatis, plus minusve gibbosis et ad apicem leviter coarctato-acuminatis, connatis: *alis* obsoletis. *Antennæ* breviusculæ crassiusculæ, prope medium rostri insertæ; funiculo 7-articulato, articulis primo et secundo elongatis, illo crassiore obconico, reliquis brevioribus subrotundatis; capitulo subovato quadriannulato. *Pedes* robusti, *antici* basi distantes, *intermedii* interdum breviusculi: *femoribus* modo (ut in nostris) muticis, modo subtus denticulo minuto armatis: *tibiis* rectis vel subrectis, ad apicem internum plerumque truncatis muticis, ad externum in uncum deflexum productis.

The connate elytra and undeveloped wings of *Acalles*, added to its densely scaly, more or less variegated and uneven surface, its robust rostrum (especially of the males, which is always more rugosely punctured and less shining than that of the females), its exceedingly deep and abruptly terminated pectoral groove, its anteriorly-acuminated prothorax, and its more or less apically-constricted hinder quarters, will at once serve to distinguish it from the neighbouring genera with which we have here to do. The insects which it embraces reside either under stones in exposed grassy spots, or amongst dense herbage beneath trees; and are extremely sluggish during the day, though more active at night. The genus may be said to play an important part amongst the *Curculionidæ* of this region, no less than thirteen species having been the result of my researches up to the present period,—all of them, apparently, peculiar to the Madeiran group. They belong however, principally, to a rather large type of form which would seem to prevail throughout Mediterranean latitudes, and traces of which we meet with, more or less evidently, in Sicily, the south of Spain, Portugal, the north of Africa, on the rocks of the Salvages*, and in the Canary Islands. In Madeira they appear to

* The gigantic and very interesting *Acalles*, which has been lately brought from those remote rocks by my friend T. S. Leacock, Esq. of Funchal, is apparently more akin to the *A. saxicola* than to any other species hitherto discovered. In its general habits and contour indeed it possesses a vast deal in common with the Dezertan insect, and proves no less clearly than the remarkable genus *Deucalion* (hereafter to be noticed), the close relationship of the Salvages to the Dezertas in their Coleopterous population. The *A. argillosus* of Schönherr, from Teneriffe, is in all probability (judging from the description) modelled on much the same type;—in which case, we have a continuous series of intimately allied forms, yet specifically distinct, existing throughout nearly all the islands of this portion of the Atlantic. I subjoin a diagnosis of the representative from the Salvages, which will not be considered, here, out of place:

Acalles Neptunus, *Woll.*

A. oblongo-ovatus, squamis cinereis magnis variegatus; prothorace ante medium latiusculo, angulis

separate themselves into two tolerably well-defined sections; in one of which the size is comparatively large, the scutellum is obsolete, and the colours are obscure,—whilst in the other they descend to a much smaller bulk, have usually their scutellum quite perceptible, and their bodies adorned with more lively tints. The representatives of the first of these divisions, moreover, are attached generally to lower districts, scarcely ever ranging above the altitude of 2000 feet, and delighting in dry and rocky localities in the vicinity of the coast; whereas those of the second attain their maximum at a far higher elevation, being more particularly numerous in the moist sylvan tracts between the limits of from 4000 to 5000 feet

---

posticis subrectis, distincte canaliculato sed transversim vix subtuberculato, ad apicem minus producto et leviter setuloso; scutello haud observando; elytris profunde punctato-striatis, ad latera subrotundatis, carinis subinterruptis vix noduliformibus obscuris instructis, plagâ hastatâ communi postmediâ (antice et postice atro-variegatâ) plus minusve obscurâ, et fasciculo minuto communi dorsali atro ornatis; antennis obscure ferrugineis.

Long. corp. lin. $3\frac{1}{2}$–5.

Habitat in insulis desolatis remotis "Salvages" dictis, super insulam minorem sub nomine "Great Piton" Anglice cognitam, a Dom. Leacock nuper collectus.

A. oblong-ovate, densely variegated with large ashy-white scales. *Rostrum* dark piceous, opake, exceedingly roughly punctured, and with a distinct abbreviated central keel, in the males;—a little slenderer, very shining, and lightly punctured in the females. *Prothorax* broad before the middle, and with the hinder angles almost right angles, causing the sides behind to appear comparatively straight: with a distinct dorsal channel, but with scarcely any indication of tubercles across the central portion: less produced in front than in any of the Madeiran species except the *A. pulverulentus*, and but very slightly setose at the apex. *Elytra* deeply punctate-striated, and not much rounded at the sides; the alternate interstices slightly raised, and sometimes a little interrupted, though hardly sufficiently so as to form nodules anywhere; with a transverse, hastate, postmedial abbreviated fascia, or patch, common to both (and terminated before and behind by a more clouded portion of the surface,—and variegated, especially behind, with irregular spots, or broken lines, of a deep black), as likewise indications, towards the sides of each, of an oblique, extremely obscure, antemedial fascia, more or less distinctly paler; and with a minute, usually distinct, fasciculated dorsal spot (likewise common to both), and sometimes also the entire portion of the suture between the hinder point of the pale hastate patch and the apex of the elytra, deep black. *Antennæ* brownish-ferruginous, being much darker than in any of the Madeiran species. *Tibiæ* encircled by a dusky ring, that on the *femora* being usually obsolete.

In its habits and general aspect, as well as in its want of a scutellum, the *A. Neptunus* agrees with those Madeiran forms which are included in the first of the two sections into which I have distributed the entire number; whilst its pale ashy-coloured scales, untubercled prothorax, the regularly hastate shape of its elytral fascia, and the very rugosely punctured rostrum of its male sex, would, as just stated, betoken a nearer relation to the *A. saxicola* than to any of the remainder. *Specifically*, however, it is scarcely necessary to add, it is of course altogether separate from that insect, even though it possesses thus much in common with it; since its comparatively enormous size, the peculiar construction of its (distinctly channeled) prothorax, which has the posterior angles so nearly right angles as to cause the sides behind to appear almost straight (its anterior portion moreover being less produced than is the case with any of the Madeiran species,—the *A. pulverulentus* excepted, which coincides with it in that respect), in conjunction with the accessions and modifications in the minutiæ of its patches and spots (already pointed out), are more than sufficient to discriminate it from its Dezertan analogue.

above the sea. The males of the following species slightly exceed the females in magnitude, and are, likewise, more abundant,—since, out of 89 specimens from which the descriptions have been compiled, I find them distributed in the proportion of 53 of the former to 36 of the latter.

§ I. *Corpus plerumque magnum, obscure coloratum; scutello nullo, aut saltem haud observando.* (Habitant in locis aridis submaritimis, præsertim infra 2000 ped. alt.)

253. Acalles saxicola, *Woll.*

A. oblongo-ovatus, squamis cinereis variegatus; prothorace convexo integro, nec canaliculato nec tuberculato sed lineis pallidioribus plus minusve obsoletis longitudinaliter decorato, ad apicem leviter setuloso; elytris profunde punctato-striatis, ad latera rotundatis, carinis interruptis nodulisve minutis post medium instructis, plagâ hastatâ communi postmediâ (antice et præsertim postice nigro-terminatâ) plus minusve obscurâ ornatis.

Long. corp. lin. 2–3$\frac{1}{8}$.

Habitat ins. Desertæ Grandis, sub lapidibus Maio exeunte A.D. 1850 a meipso repertus.

A. oblong-ovate, densely variegated with ashy-white scales. *Rostrum* dark piceous, opake and exceedingly roughly punctured in the males, being more rugose than in any of the other Madeiran species; a little slenderer, shining, and less punctured in the females. *Prothorax* convex (especially behind) and entire, having no appearance of a dorsal channel, or of tubercles across the central portion, but usually ornamented with three very obscurely paler, more or less obsolete, longitudinal lines; produced, but very slightly setose, at the apex. *Elytra* deeply punctate-striated; and rounded at the sides; with a few small nodules, or interrupted ridges, behind the middle; and with a transverse, hastate, postmedial abbreviated fascia, or patch, common to both (and terminated before and behind by a more clouded portion of the surface,—especially the latter, where there are, likewise, indications of a darker margin), more or less distinctly paler. *Antennæ* ferruginous. *Femora* and *tibiæ* (particularly the latter) each encircled by a darker ring.

Apparently peculiar to the Dezerta Grande, from whence I obtained a series of examples during my encampment there at the end of May 1850. In conjunction with the following three species, it would seem to be modelled, in some respects, on a slightly different type from the remainder of the genus,—as not only being of an obscurer hue and altogether destitute of a visible scutellum, but as, likewise, inhabiting (instead of the lofty sylvan regions) arid rocky spots, principally near the coast, and of a somewhat lower elevation. It may be known by the pale ashy-coloured scales with which it is densely variegated, by the extremely roughly punctured rostrum of the males, by its posteriorly-convex, entire prothorax, and by the small postmedial nodules and regularly hastate patch of its (laterally rounded) elytra. My specimens were captured from out of the hollows of loose stones, or scoriæ (in the furthest recesses of which they were accustomed to secrete themselves by day), towards the northern extremity of the island.

254. Acalles pulverulentus, *Woll.*

A. oblongus, squamis fusco-brunneis dense tectus; prothorace breviusculo latiusculo, transversim vix subtuberculato, ad apicem minus producto et vix setuloso; elytris profunde punctato-striatis (punctis maximis), ad latera subrectis, haud nodulosis sed interstitiis alternis post medium plus minusve elevatis et postice abrupte terminatis, plagâ sublunulatâ communi postmediâ (antice et postice nigro-terminatâ) obscurissimâ ornatis.

Long. corp. lin. $3\frac{1}{2}$.

Habitat in locis submaritimis Maderæ australis, a meipso sub lapide prope urbem Funchalensem semel tantum lectus.

A. oblong, densely clothed with dull, rusty-brown scales. *Rostrum* piceous, opake and coarsely punctured in the males, and with a somewhat more evident central line, or keel, than in the other species. *Prothorax* rather short and wide, especially before the middle, with a shallow dorsal channel, and with exceedingly faint indications of tubercles across the central portion; less produced at the apex than in any of the other species, where moreover the setæ are, apparently, not more developed than in other parts of the surface. *Elytra* exceedingly deeply punctate-striated (the punctures being larger than is the case in any of the other species); and somewhat parallel at the sides; scarcely nodulose, though with the alternate interstices just perceptibly raised at the base, and more evidently so behind the middle, where they are abruptly terminated posteriorly; and with a transverse, sublunulate, postmedial abbreviated fascia, or patch, common to both (and terminated before and behind by an obscure blackish cloud), very indistinctly paler. *Antennæ* ferruginous. *Femora* and *tibiæ* (especially the latter) each encircled by a darker ring.

Judging from the single specimen (a male) which I have hitherto captured of this insect, it would seem to be the largest of the Madeiran *Acalles*, and well distinguished specifically from all the rest,—its oblong and comparatively parallel outline, rather short and broad prothorax, which is nearly untubercled, and is less acuminated and setose anteriorly than in any of the other species, added to the enormous punctures of its elytra, its very obscure sublunulate postmedial band, and its almost uniformly brown surface (which, from the denseness and the regularity of the scales with which it is clothed, has a dull and somewhat dusty appearance), at once combining to separate it from the remainder. In its comparatively unproduced pronotum it approaches the *A. Neptunus*, from the Salvages, whilst its general habit and aspect are eminently characteristic of the first of the two sections into which I have distributed the Madeiran representatives of the genus. It appears to occur at a rather low elevation,—my unique example having been taken by myself, from beneath a stone in the vicinity of Funchal, in a dry exposed spot near the coast.

255. Acalles oblitus, *Woll.*

A. elongato-subovatus, squamis fusco-brunneis dense tectus; prothorace subangusto transversim setoso-subtuberculato, ad apicem parce bifasciculato-setoso; elytris profunde punctato-striatis, ad

latera vix rotundatis, carinis interruptis nodulisque obscuris subsetosis (præsertim post medium) instructis.

Long. corp. lin. 2.

Habitat Maderam in locis similibus ac præcedens, semel hactenus repertus.

A. elongate-subovate, and rather narrow, densely clothed, as in the last species, with rusty-brown scales. *Rostrum* with, apparently, the same sexual distinctions as in the other species. *Prothorax* somewhat narrow, with an almost obsolete dorsal channel, and with two setose and tolerably distinct tubercles across the central portion (the two lateral ones being obsolete); produced and setose at the apex, where the setæ have a tendency to arrange themselves into two fascicles. *Elytra* rather deeply punctate-striated, and but slightly rounded at the sides; with a few small obscure nodules, or interrupted ridges, especially towards the base and behind the middle,—the latter of which however are the most evident; but apparently without any indication of a transverse postmedial band. *Antennæ* and *legs* as in the last species.

Likewise unique. In its densely brown, rusty surface it resembles the *A. pulverulentus*: nevertheless its much smaller size, more ovate outline, differently constructed prothorax (which is setose anteriorly, and produced as in the other species, and has moreover two tolerably evident setose tubercles across its disk), in conjunction with the more distinct nodules and much smaller punctures of its elytra, and its apparent freedom from a postmedial patch, will readily serve to separate it from that insect. In its habits it is in every respect similar to the *A. pulverulentus*, my only specimen having been captured, from beneath a stone, on the barren cliffs to the eastward of Funchal, facing the south.

256. Acalles nodiferus, *Woll.*

A. oblongo-subovatus, squamis fusco-brunneis parce tectus, prothorace transversim subsetoso-tuberculato, ad apicem leviter setuloso; elytris profunde punctato-striatis, ad latera rotundato-ampliatis, carinis interruptis nodulisque majoribus subsetosis (præsertim post medium) instructis, plagâ communi postmediâ obscurissimâ ornatis.

Long. corp. lin. vix $3\frac{1}{2}$.

Habitat prope urbem Funchalensem Maderæ, cum præcedentibus et illis vix frequentior.

A. oblong-subovate, sparingly clothed with brownish scales. *Rostrum* as in the other species, though perhaps a little longer, proportionably, in the females. *Prothorax* with a shallow dorsal channel, and with four setose but not very distinct tubercles across the central portion (the inner ones of which are the most evident); produced, but apparently only slightly setose, at the apex. *Elytra* deeply punctate-striated; and with the sides rounded, rather uneven, and projecting; with several large interrupted ridges and nodules (formed apparently, as in the other species, by the breaking-off, the abrupt termination, and the unequal development of the elevated alternate interstices), especially towards the base and behind the middle,—the latter of which are the most distinct; and with very slight indications of a transverse, postmedial patch, common to both, a little paler. *Antennæ* and *legs* as in the previous species.

In the great development of its nodules the present *Acalles* approaches some of the early members of the second division of the genus; nevertheless its large size, obscure colour, its want of a visible scutellum, and its general habits must retain it in the first of the sections. It occurs, like the previous two species, near Funchal, where however it appears to be exceedingly scarce.

§ II. *Corpus plerumque minus, interdum læte variegatum; scutello sæpius distincte observando.* (Habitant in locis sylvaticis, præsertim supra 2000 ped. alt.)

257. Acalles Vau, *Woll.*

A. oblongo-ovatus, squamis cinereo-brunneis variegatus; prothorace transversim valde setoso-tuberculato, ad apicem dense bifasciculato-setoso; scutello valde distincto; elytris punctato-striatis, ad latera rotundato-ampliatis, carinis interruptis nodulisque majoribus setosis (præsertim post medium) instructis, figurâ V communi postmediâ valde distinctâ ornatis.

Long. corp. lin. $2\frac{1}{2}$–3.

Habitat ad rupes locorum editiorum Maderæ, inter arbusculas ibidem crescentes, æstate rarior: ad Cruzinhas et in convalli Ribeiro de João Delgada dictâ mense Julio A.D. 1850 primus inveni.

A. oblong-ovate, densely variegated with brownish and ashy-white scales. *Rostrum* with the same sexual distinctions as in the other species. *Prothorax* with a shallow dorsal channel, and with four very setose tubercles across the central portion (the inner ones of which are the largest); produced, and densely setose, at the apex, where the setæ arrange themselves into two distinct fascicles. *Scutellum* very apparent, and clothed with ashy scales. *Elytra* punctate-striated; and with the sides tolerably rounded, uneven, and projecting; with several large, more or less setose, interrupted ridges and nodules, those behind the middle being very greatly developed and prominent; and with a transverse, postmedial, very abbreviated V-shaped patch, common to both, of a more or less pure white. *Antennæ* and *legs* as in the previous species, the *latter* however being a little more variegated with pale and dark scales.

The regular and well-defined V-shaped postmedial patch of the present species will be sufficient, apart from its largely developed nodules and setæ, its comparatively evident scutellum, and the more or less ashy-white scales with which it is besprinkled, to distinguish it from the remainder of the genus here described. It is exceedingly rare; and I have hitherto only taken it by brushing the short but dense vegetation which clothes the faces of the perpendicular rocks in the lofty sylvan districts; under which circumstances I captured several specimens, both at the Cruzinhas and at the extreme head of the Ribeiro de João Delgada, during July 1850.

258. Acalles terminalis, *Woll.*

A. oblongo-ovatus, squamis luteo-brunneis variegatus; prothorace transversim setoso-tuberculato, ad apicem dense bifasciculato-setoso; scutello distincto; elytris punctato-striatis, ad latera rotundato-ampliatis, carinis interruptis nodulisque majoribus setosis (præsertim post medium) instructis,

plagâ (plerumque sub-oblunulatâ) communi postmediâ postice suffusâ (fere ad apicem continuatâ et antice solum nigro-terminatâ) plus minusve distinctâ ornatis.

Var. β. elytrorum maculâ postmediâ non solum ad apicem, sed etiam usque ad basin retrorsum ductâ, plagam suturalem suffusam postice ampliatam efficiente.

Long. corp. lin. 2–3.

Habitat per regionem Maderæ sylvaticam, a 3000′ usque ad 4000′ s. m. prædominans; ad Ribeiro Frio et Lombo dos Pecegueiros mensibus Julio et Augusto A.D. 1850 a meipso repertus.

A. oblong-ovate, densely variegated with yellowish-brown scales. *Rostrum* as in the other species. *Prothorax* with a shallow dorsal channel, and with two very setose tubercles across the central portion (the two lateral ones being small, and generally scarcely apparent); produced, and densely setose, at the apex, where the setæ arrange themselves into two distinct fascicles. *Scutellum* not quite so perceptible as in the *A. Vau*. *Elytra* punctate-striated; and with the sides tolerably rounded, somewhat uneven, and a little projecting; with several rather large, more or less setose, interrupted ridges and nodules, those behind the middle being considerably developed, though not quite so much as in the last species; and with a transverse, more or less anteriorly-convex, postmedial patch, common to both (suffused behind and usually continued to the apex, being terminated in front only by a darker portion of the surface,—where however that portion, from the *base* being somewhat pale, frequently takes the form of an obscure, transverse, brownish band), more or less distinctly paler. *Antennæ* and *legs* as in the last species.

Var. β. with the postmedial patch, not only suffused behind to the apex, but likewise continued *anteriorly* to the base,—forming a wide and indistinct sutural band which increases in width posteriorly.

Although of course much smaller than that insect, the present *Acalles* bears a slight *primâ facie* resemblance to the common *Cryptorhynchus Lapathi* of more northern latitudes; and it may be known from the other Madeiran species, not only by the yellowish-brown scales with which it is for the most part densely variegated, but likewise by its postmedial patch being generally more or less *convex* anteriorly, and suffused behind to the apex,—its front edge being alone bounded by a darker portion of the surface. That darker portion, moreover, from the elytra being obscurely pale at their base, usually assumes the form of an indistinct, brownish, transverse band, fading off gradually in front, but thickly clouded in the opposite direction;—an arrangement by which the dullest and brightest of the tints are brought into direct contact, in a rather peculiar manner, immediately beyond the middle. It is apparently, like the *A. Vau*, confined to the sylvan districts, though of a somewhat lower elevation,—being more particularly abundant between the limits of from 3000 to 4000 feet above the sea. I have captured it in the region of the Ribeiro Frio, during May and August; and at the Lombo dos Pecegueiros in July.

259. Acalles ornatus, *Woll.*

A. oblongo-ovatus, squamis griseo-brunneis variegatus; prothorace transversim valde setoso-tuber-

culato, ad apicem dense bifasciculato-setoso; scutello distincto; elytris punctato-striatis, ad latera subrotundatis, carinis interruptis nodulisque majoribus valde setosis nigrescentibus (præsertim antice et post medium) instructis, plagâ lunulato-hastatâ communi postmediâ (antice et postice nigro-terminatâ) distinctâ, maculâ subscutellari suffusâ, et fasciâ antemediâ obliquâ obscurissimâ fractâ niveâ ornatis.

Long. corp. lin. $2\frac{1}{3}$–$2\frac{2}{3}$.

Habitat in locis editioribus Maderæ sylvaticæ, ad Cruzinhas et per regionem Fanalensem æstate mediâ A.D. 1850 captus.

A. oblong-ovate, densely variegated with dark-brown scales. *Rostrum* as in the other species. *Prothorax* with a shallow dorsal channel, and with two very setose tubercles across the central portion (the two lateral ones being smaller and less apparent); produced, and densely setose, at the apex, where, as in the previous species, the setæ arrange themselves into two distinct fascicles. *Scutellum* about the same size as in the *A. terminalis*. *Elytra* punctate-striated; and with the sides not much rounded or projecting, although rather uneven; with several large, setose, and somewhat darker interrupted ridges and nodules, those towards the base and behind the middle (especially the latter) being greatly developed; with a transverse, sublunulate, or sublunulate-hastate, abbreviated, postmedial patch, common to both (and terminated before and behind by a darker portion of the surface), distinctly,—and with very faint indications towards the outer disk of each of an oblique, broken, antemedial fascia indistinctly, pale-white: also with a suffused blotch about the scutellum of a more or less obscurely paler hue. *Antennæ* and *legs* as in the other species.

The largely-developed and somewhat darkly setose nodules of the present species, added to its beautifully variegated surface (which has not only a sublunate postmedial patch, but obscure indications likewise of a broken oblique antemedial fascia, of a more or less pure white; and a suffused cloud about the region of the scutellum of a pale, though usually brownish, hue), will serve to separate it, *primâ facie*, from its congeners. It is apparently very rare, and, like the *A. Vau*, confined to the wooded regions of a lofty elevation. I captured it sparingly both at the Cruzinhas and the Fanal, during my encampment in those remote regions, in July of 1850.

260. Acalles dispar, *Woll.*

A. oblongo-ovatus, squamis nigro-brunneis variegatus; prothorace transversim setoso-subtuberculato, ad apicem sub-bifasciculato-setoso; scutello sat distincto; elytris profunde punctato-striatis, ad latera subrotundatis, carinis interruptis nodulisque minoribus subsetosis (præsertim post medium) instructis, plagâ sublunulatâ communi postmediâ (antice et postice nigro-terminatâ) plus minusve distinctâ, maculâ subscutellari (interdum obsoletâ), et fasciculo elongato communi dorsali nigro ornatis.

Long. corp. lin. $1\frac{2}{3}$–$2\frac{2}{3}$.

Habitat sub lapidibus truncisque arborum prolapsis, per partem Maderæ sylvaticam, æstate sat vulgaris.

A. oblong-ovate, densely variegated with dark brown scales. *Rostrum* as in the other species. *Prothoraæ* with a shallow dorsal channel, and with four more or less evident and setose tubercles across the central portion (the inner ones of which are the largest); produced, and setose, at the apex, where the setæ arrange themselves into two rather ill-defined fascicles. *Scutellum* as in the preceding species. *Elytra* punctate-striated; and with the sides not much rounded; with several tolerably distinct, more or less setose, and somewhat darker, interrupted ridges and nodules, those behind the middle being the largest; with a transverse, sublunulate, postmedial, abbreviated patch, common to both (and terminated before and behind by a more or less darker portion of the surface), tolerably distinctly,—and sometimes with exceedingly faint indications before the outer disk of each of an oblique, broken, antemedial fascia very indistinctly, paler: also with a suffused blotch about the scutellum more or less distinctly paler; and with a narrow, elongated, velvety, dorsal fascicle, likewise common to both (more or less obsolete, but in brightly-coloured specimens connecting the hinder portion of the scutellary blotch with the anterior edge of the sublunulate postmedial patch), of a dark blackish-brown. *Antennæ* and *legs* as in the previous species.

The commonest of the Madeiran *Acalles*, and, in stature as well as in intensity of colouring, by far the most variable. Its patches and spots are modelled much after the fashion of those of the *A. ornatus*; nevertheless it may be at once recognised from that insect by its smaller size, less developed nodules and setæ, and by its total want of the additional ashy- (or sometimes even snowy-) white scales which are there more or less evident. It seems to be peculiar to the dense wooded regions of intermediate and lofty elevations, occurring, generally beneath stones and logs of wood, in the thickest parts of the forests,—under which circumstances I took it in profusion at the Lombo dos Pecegueiros, during my encampment in that remote district in July 1850: and I have likewise captured it at the Cruzinhas and the Fanal.

261. Acalles albolineatus, *Woll.*

A. oblongo-ovatus, squamis cinereis variegatus; prothorace convexiusculo transversim vix setuloso-subtuberculato, ad apicem bifasciculato-setuloso; scutello minutissimo; elytris punctato-striatis, ad latera subrotundatis, carinis interruptis nodulisque obscuris (præsertim post medium) instructis, suturâ et plagâ (plerumque sub-oblunulatâ) communi postmediâ postice suffusâ (fere ad apicem continuatâ et antice solum abrupte terminatâ) ornatis.

Long. corp. lin. $1\frac{2}{3}$–$1\frac{3}{4}$.

Habitat in iisdem locis ac præcedens, sed illo multo rarior.

A. oblong-ovate, sparingly variegated with dull ashy-white scales. *Rostrum* as in the other species. *Prothorax* with very slight indications of a dorsal channel, somewhat convex behind, and with two tolerably distinct but scarcely setose tubercles across the central portion (the two lateral ones being almost obsolete); produced, and slightly setose, at the apex, where the setæ arrange themselves into two smallish fascicles. *Scutellum* very small. *Elytra* punctate-striated; and with the sides not much rounded; with several more or less obscure, but scarcely setose, interrupted ridges

and nodules, those behind the middle being the largest; with the suture, and with a transverse, more or less anteriorly-convex, postmedial patch, common to both (usually a good deal suffused behind, and sometimes continued to the apex,—being bounded in front only by a somewhat darker portion of the surface), more or less distinctly paler. *Antennæ* and *legs* rather more ferruginous, and somewhat less variegated, than in the preceding species.

Smaller than any of the foregoing species, and readily distinguished by its ashy-white suture and the form of its postmedial patch, which assumes somewhat the shape of that which constitutes one of the chief features of the *A. terminalis*,—having a tendency, as in that insect, to be *convex* in front (instead of concave), and to be more or less suffused behind into the apex. It is, apparently, very rare, the few specimens which I have hitherto seen having been captured by myself in the same localities as the *A. dispar*, and usually in company with it.

262. Acalles globulipennis, *Woll.*

A. ovatus, squamis nigro-brunneis variegatus; prothorace convexo transversim setuloso-subtuberculato, ad apicem sub-bifasciculato-setuloso; scutello haud observando; elytris punctato-striatis valde convexis, ad latera rotundatis, fasciculis minutis setosis nigris (præsertim post medium, fasciam arcuatam nigrescentem efficientibus) instructis, plagâ lunulatâ communi subapicali (interdum ad apicem suffusâ, sed antice semper nigro-terminatâ), et maculâ subscutellari, plus minusve distinctis, ornatis.

Long. corp. lin. $1\frac{1}{3}$–vix $1\frac{1}{2}$.

Habitat in locis graminosis humidis per Maderæ regionem sylvaticam, æstate rarior.

A. ovate, sparingly variegated with brownish scales. *Rostrum* as in the previous species. *Prothorax* with scarcely any indications of a dorsal channel, but, when denuded of its scales, with a very obscure central line or ridge; convex behind, and with two tolerably distinct setose fascicles across the central portion (the two lateral ones being almost obsolete); produced, and setose, at the apex, where the setæ arrange themselves into two ill-defined fascicles. *Scutellum* obsolete. *Elytra* punctate-striated; exceedingly convex, and with the sides greatly rounded; without either ridges or nodules, but with several minute fascicles of dark setæ, those behind the middle being the largest, and arranged transversely so as to form a dark arcuated postmedial band; with a transverse, lunulate, abbreviated, sub-apical patch, common to both (and generally more or less suffused behind into the apex, but bounded in front by the postmedial arcuated band of black fascicles),—and with a patch about the region of the scutellum, both more or less distinctly paler. *Antennæ* and *legs* as in the last species.

An exceedingly distinct and very interesting little *Acalles*, and one which departs in many respects from the ordinary Madeiran type,—at the same time making an approach towards the small representatives of more northern latitudes. It may be at once recognised from the remainder of the genus here described by its short ovate outline, by its very convex, inflated and subglobose elytra, and by the minute fasciculated tufts of black setæ (with which it is beset) supplying the

place of the ridges and nodules more or less evident in the whole of its allies,—and forming behind the middle a narrow arcuated band which bounds the anterior edge of the pale subapical patch. Although in its want of a scutellum it recedes from the species with which I have associated it, yet its general habits and contour bespeak such a far closer connection with the members of the second section than with those of the first, that I have considered its present position to be the most natural to it. It is confined to the moist sylvan districts of intermediate elevations, and is apparently extremely rare. It is however widely distributed over the island, and occurs during the summer months. I have captured it on the Lombo das Vacas in June, at the Lombo dos Pecegueiros in July, and in the region of the Ribeiro Frio in August.

263. Acalles lunulatus, *Woll.*

A. oblongo-subovatus angustus, squamis nigro-brunneis variegatus; prothorace transversim setuloso-subtuberculato, ad apicem sub-bifasciculato-setuloso; scutello valde distincto; elytris punctato-striatis, ad latera vix rotundatis, nodulis minutis setosis nigrescentibus (præsertim antice, medio, et post medium) instructis, plagâ lunulatâ communi postmediâ, et fasciâ antemediâ obliquâ fractâ, plus minusve distinctis, ornatis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat Maderam, in convallibus humidisque sylvaticis inter 2000′ et 4000′ s. m. sitis, rarissime.

A. oblong-subovate and narrow, densely variegated with dark-brown scales. *Rostrum* of the males less roughly punctured than in any of the other species, and that of the females rather coarsely sculptured at its base,—so that the sexes are not, at first sight, very easily separable. *Prothorax* with scarcely any indications of a dorsal channel, and with two very small and subsetose tubercles across the central portion (the two lateral ones being almost obsolete); produced, and slightly setose, at the apex, where however the setæ are scarcely disposed in fascicles. *Scutellum* large and rounded, and covered with pale-brown scales. *Elytra* punctate-striated; and with the sides very slightly rounded; with several minute, more or less distinct, and somewhat darker fasciculated nodules distributed, more or less evidently, in three transverse rows, the first of which is immediately behind the base, the second across the disk, and the third (where, as in the other species, they are rather more distinct) behind the middle; with a transverse, extremely lunulated, abbreviated, postmedial patch, common to both (and bounded before and behind, especially the former, by a darker portion of the surface), usually very distinctly,—and with the rudiments before the outer disk of each of an oblique, broken, antemedial fascia more or less indistinctly, paler (occasionally pure snowy-white): also with the darker central portion gradually fading-off towards the base into a paler brown. *Antennæ* and *legs* as in the preceding species, only of a somewhat more ferruginous hue.

A well-defined species, and distinguished by its narrow form, comparatively apparent scutellum, by its exceedingly lunulate postmedial patch, its more or less evident antemedial fascia, and by its nodules having a tendency to be arranged in three transverse rows. Like the *A. globulipennis*, it would seem to be peculiar to

dense humid spots of intermediate altitudes, being usually found amongst rank vegetation in the thickest parts of the forest districts, especially in the vicinity of the waterfalls and streams. In such situations, I have taken it at the Lombo dos Pecegueiros in July, and in the region of the Ribeiro Frio in August.

264. Acalles cylindricollis, *Woll.*

A. suboblongus angustus, squamis brunneis dense nebulosus; prothorace subcylindrico postice convexo, haud tuberculato sed setis paucis mediis transversim munito, ad apicem minus acuminato sed setoso; scutello distincto; elytris punctato-striatis, ad latera subrectis, haud nodulosis sed plagâ transversâ communi postmediâ (postice sed præsertim antice fusco-terminatâ) sat distinctâ, et fasciâ antemediâ obliquâ (in maculam subscutellarem obscuram antice suffusâ) obscurissimâ, ornatis.

Long. corp. lin. $1\frac{1}{3}$.

Habitat in Maderæ convallibus umbrosis, rarissimus; ad Ribeiro de Santa Luzia Maio exeunte A.D. 1849 semel tantum repertus.

A. nearly oblong, and narrow, densely variegated with brownish scales. *Rostrum* as in the other species. *Prothorax* with scarcely any indications of a dorsal channel; subcylindrical, convex behind, almost untubercled, but with a few large setæ scattered across the central portion; slightly produced, though not at all acuminated, at the apex, where however there are several large scattered setæ. *Scutellum* large. *Elytra* punctate-striated, with the sides somewhat straight, though oblique,—being rather constricted at the base and a little expanded *behind* the middle; without nodules, though with the alternate interstices just perceptibly raised throughout; with a transverse, abbreviated, postmedial patch, common to both (bounded evidently in front, and more obscurely behind, by a darker portion of the surface), tolerably distinctly,—and with an oblique antemedial fascia (suffused in front into an obscure scutellary patch,—the two together forming an indistinct, and somewhat triangular, basal blotch) most obscurely, paler. *Antennæ* and *legs* as in the last species.

It is just possible that the unique insect from which the above diagnosis has been drawn out may be but a greatly developed and local state of the *A. Wollastoni*; nevertheless since it certainly possesses characters abundantly sufficient for specific isolation, if it be a normal specimen of its kind, I am induced to retain it as separate, believing that future investigations will fully confirm me in regarding it as in reality distinct. Assuming therefore my single individual to be a typical one, it may be described as larger and more setose than the *A. Wollastoni*, as being more densely clothed with brownish scales, and altogether free from the ashy-white ones which are more or less perceptible on that insect, and as having its elytra straighter at the sides (though oblique), with their widest part *behind* the middle, and with their postmedial patch and basal space much more clearly defined,—the former of which moreover is very conspicuously terminated in front by a darker transverse portion of the surface. My solitary example was captured,

by myself, by brushing the rank vegetation at the extreme head of the Ribeiro de Santa Luzia (on the summit of the high bank to the left of the waterfall) during May of 1849.

265. Acalles Wollastoni.

A. subovato-oblongus angustus, squamis cinereo-brunneis parce nebulosus; prothorace subcylindrico postice convexo, haud tuberculato et vix setuloso, ad apicem minus acuminato et vix setuloso; scutello distincto; elytris punctato-striatis, ad latera vix rotundatis, haud nodulosis sed plagâ transversâ communi postmediâ, et fasciâ antemediâ obliquâ (interdum in nebulam subscutellarem obsoletissimam antice suffusâ), ægre discernendis subcinereis, ornatis.

Long. corp. lin. $\frac{7}{8}$–$1\frac{7}{8}$.

Acalles Wollastoni, Chevrolat, *in Guér. Rev. de Zool.* iv. (2ième série) 279 (1852).

Habitat in graminosis humidiusculis Maderæ, præsertim per partem sylvaticam, æstate, rarior: ad Lombo dos Pecegueiros et Ribeiro Frio mensibus Julio et Augusto cepi; necnon unicum exemplar etiam in castanetis Sanctæ Annæ Maio exeunte A.D. 1850 inveni.

A. subovate-oblong, and narrow, most sparingly variegated with brownish, and besprinkled with ashy, scales. *Rostrum* as in the last species. *Prothorax* apparently unchanneled; subcylindrical, convex behind, untubercled, and almost free from setæ; slightly produced, though scarcely at all acuminated or setose, at the apex. *Scutellum* large. *Elytra* punctate-striated, with the sides not quite so straight as in the last species,—being a little more rounded, with the widest part about, instead of behind, the middle; without nodules or ridges; with a faint, transverse, post-medial cloud, common to both (just perceptibly bounded in front, and sometimes likewise behind, by a more infuscated portion of the surface),—and with the rudiments of an oblique ante-medial fascia (occasionally suffused in front into a most indistinct scutellary patch,—the two together, in that case, forming an almost obsolete basal blotch), just perceptibly clothed with ashy-white scales. *Antennæ* and *legs* as in the last species.

This very minute *Acalles* (the smallest, so far as I have hitherto observed, of the whole Madeiran *Curculionidæ*) may be distinguished, apart from its diminutive size, by the almost obsolete patches and fasciæ of its elytra, which are so obscurely developed as to render the law of their formation, at first sight, not very clear. Without indeed the remainder of the genus to guide us (in which *one* type of colouring, presenting successive modifications for the several species, may be considered as prevailing more or less throughout), we perhaps might have failed to recognise anything like a fixed arrangement in the very faint lights and shades of this remarkable little insect: nevertheless, after a careful examination of its allies, we shall at once perceive that the parts of its surface which (from the ashy-white scales with which they are sparingly clothed) are just perceptibly more blanched than the rest, are in reality the combined result of a *postmedial patch* and a scarcely distinguishable *antemedial fascia*,—the latter of which, from being oblique, and generally more or less suffused in front into a palish scutellary blotch, loses its true character and assumes the form (when indeed it is sufficiently appa-

rent to be discerned at all) of a somewhat triangular, basal, subcinereous cloud. We can thus understand, that when this basal *nebula* and the postmedial *vitta* are in the least decipherable (which alone is the case in fresh and unrubbed specimens), the only darker portion which may be said to be at all evident is (the feeblest indication of) a central transverse band, expanding towards the lateral edges but decreasing in width, and becoming either almost or entirely absorbed, on the disk. It is not always however that the antemedial fascia and the scutellary blotch are entirely confluent, since sometimes the latter does not exist at all,—under which circumstances the former is of course comparatively well-defined. In the *A. cylindricollis*, on the contrary (judging from the single example which has hitherto come beneath my notice), this amalgamation is complete,—a large and faded basal patch being the consequence, and which is not only more conspicuous and of a different outline from the one which it is the tendency of the *A. Wollastoni* to possess, but seems, likewise, to be destitute of the ashy-white scales which are so characteristic of that insect. The *A. Wollastoni* is decidedly rare, occurring more particularly in moist grassy spots of the dense ravines of intermediate altitudes. I have taken it at the Lombo dos Pecegueiros in July, and at the Ribeiro Frio in August; and during May of 1850 I even captured a specimen in the chestnut-woods of Santa Anna,—the lowest elevation at which I have observed it.

(Subf. 5. ERIRHINIDES.)

Genus 118. TYCHIUS.

(Germar) Schönherr, *Curc. Disp. Meth.* 245 (1826).

Corpus parvum, oblongo-ovatum, squamosum: *rostro* elongato arcuato, modo basi crassiusculo et apicem versus paulatim attenuato, modo (ut in speciebus Maderensibus) tenui lineari: *oculis* in typicis subrotundatis, sed in speciebus insularum Maderensium duabus valde reniformibus: *prothorace* transverso, basi apiceque subtruncato, ad latera plerumque æqualiter rotundato: *alis* (in nostris) obsoletis. *Antennæ* longiusculæ sat graciles, ante medium rostri insertæ; funiculo 7-articulato, articulis primo et secundo elongatis obconicis, reliquis brevioribus; capitulo oblongo-ovato quadri-annulato. *Pedes* aut robusti, aut parum graciles, *antici* basi approximati: *femoribus* modo (ut in speciebus nostris) muticis, modo subtus denticulatis: *tibiis* rectis, ad apicem externum truncatis excavatis muticis, ad internum in uncum valde deflexum plus minusve obsoletum productis.

Although recorded from most parts of the world, the *Tychii* are more especially European insects, and may be said to find their maximum in central and Mediterranean latitudes. They occur, principally, either beneath stones in dry and sandy spots, or on the foliage of the low plants peculiar to such localities. The genus divides itself into two sections, in one of which the rostrum is somewhat thickened at its base and tapers towards its apex, whilst in the other it is slenderer and linear throughout. It is to the latter of these that the Madeiran representatives

belong. The *Tychii* are generally densely clothed with scales, but are not often variegated,—and never nodulose, as is the case with the preceding genus. They may be further recognised by their somewhat shortened prothorax, which is more or less uniformly rounded at the sides, and (which however is characteristic of the entire *Erirhinides*, the subfamily to which they belong) by their want of a pectoral groove, and by their approximated anterior legs. In the Madeira Islands the species have their rostra more or less sculptured with longitudinal sulci.

§ I. *Corpus magnum crassum; pedibus valde robustis.*

266. Tychius robustus, *Woll.*

T. ovatus fusco-piceus, squamis flavescenti-brunneis piliformibus dense tectus, prothorace transverso profunde punctato ad latera rotundato, elytris profunde crenato-striatis, interstitiis minutissime punctulatis, rostro antennisque rufo-piceis, illo sulculis punctatis a basi usque ad apicem ductis longitudinaliter instructo, oculis reniformibus.

Long. corp. lin. $2\frac{1}{3}$–3.

Habitat sub lapidibus in locis aridis Portûs Sancti, necnon in insulis Desertæ Grandis et Desertæ Borealis, a vere novo usque ad æstatem, hinc inde non infrequens: in Maderâ propriâ mihi adhuc non obvius est.

T. thick, ovate, robust, and broad; brownish-piceous, and densely clothed with fine, hair-like, yellowish-brown scales. *Rostrum* very long and linear; rufo-piceous, and (except at the extreme base) free from scales; with several deeply-punctured longitudinal sulci, commencing just in front of the base, and continuing to about the insertion of the antennæ,—where they are slightly interrupted, and afterwards resumed to the apex: *eyes* large, reniform, and extending a little beneath the head. *Prothorax* deeply punctured; broad, and transverse,—the sides being considerably and almost uniformly rounded. *Elytra* with the sides distinctly rounded, and widest about the middle; very deeply crenate-striated, and with the interstices very minutely punctulated. *Antennæ* rufo-piceous, and almost free from scales. *Legs* exceedingly robust, and as densely clothed as the rest of the surface with yellowish-brown hair-like scales.

This beautiful and truly indigenous *Tychius*, in its comparatively enormous size, excessively robust limbs, and in the fine, yellowish-brown, hair-like scales with which it is densely clothed, recedes so much from the other Madeiran species as to appear, at first sight, to be scarcely admissible into the same genus with them. Still, in all essential respects it is a *Tychius*,—belonging in reality to a larger type of form, which is by no means of uncommon occurrence in Mediterranean latitudes. Apart from the above distinctions, its broad subovate outline, transverse and laterally-rounded prothorax, and its coarsely crenate-striated elytra, in conjunction with the sulci being invariably continued throughout the *entire* length (excepting a small space near to the insertion of the antennæ) of its rostrum, will more than suffice at once to separate it from the other two members of the group

with which we have here to do. I first discovered it, during April 1848, in Porto Santo, where it was extremely common beneath stones in dry barren spots towards the southern coast,—especially on the semi-cultivated slopes but slightly elevated above the sea-shore: and, in May and June of 1850, I took it sparingly on both the Northern and Central Dezertas, during my encampment on those islands with the Rev. R. T. Lowe. The Dezertan specimens are not, usually, quite so broad as the Porto Santan ones, nor have their scales generally such a decidedly yellowish tinge. I have not hitherto observed it in Madeira proper.

§ II. *Corpus minus; pedibus gracilioribus.*

267. Tychius albosquamosus, *Woll.*

T. oblongus niger, squamis diluto-cretaceis tectus, prothorace parvo angusto subtilissime punctato, elytris striatis, interstitiis impunctatis, rostro sulculis mediis profundis ante apicem abrupte terminatis longitudinaliter instructo, oculis reniformibus subinferioribus.

Long. corp. lin. vix $1\frac{1}{2}$.

Habitat insulam Desertæ Grandis, quâ Maio exeunte A.D. 1850 exemplar unicum sub lapide inveni.

T. oblong; black, clothed with coarse chalky-white scales, and with apparently a few obscurer ones intermixed. *Rostrum* proportionably shorter, and not quite so linear as in the last species (being just perceptibly attenuated towards the apex); with the apical portion free from scales; coarsely wrinkled (though scarcely punctured) at the base; and with several longitudinal sulci, commencing a little before the middle and continued to within a short distance of the apex, where they are suddenly and abruptly terminated: *eyes* large, reniform, and extending considerably beneath the head. *Prothorax* very obscurely punctured, and in front minutely granuled; small, and much narrower than the elytra,—being widest about, or perhaps just behind, the middle. *Elytra* with the sides almost parallel (the humeral angles being nearly right angles); striated (the striæ being neither punctate nor crenate), and with the interstices impunctate. *Antennæ* and *legs* concolorous with the rest of the surface, being black; the *former* however, and the *tarsi* of the latter, being alone almost free from scales.

A most peculiar and distinct little *Tychius*, and hitherto unique. It may be readily recognised by its deep-black surface (the whole of which, however, except the antennæ, the apex of the rostrum, and the tarsi, appears to be more or less clothed with chalky-white scales), by its oblong and comparatively parallel outline (the humeral angles being nearly right angles), by its small and most obsoletely punctured prothorax (which is very much narrower than the elytra), by its simple striæ, and by the singular construction of its longitudinal rostral sulci,—which commence gradually a little before the middle and are abruptly and entirely terminated at a short distance from the apex. It is apparently extremely rare, the only specimen which has hitherto come under my notice having been captured by myself, from beneath a stone, on the Dezerta Grande, at the end of May 1850.

268. Tychius filirostris, *Woll.*

T. oblongo-ovatus piceus, squamis subflavescenti-albidis subsericeis densissime tectus, prothorace profunde punctato, elytris crenato-striatis, interstitiis impunctatis, rostro antennisque ferrugineis, illo tenuissimo sulculis punctatis ad basin longitudinaliter instructo, pedibus ferrugineis squamosis, oculis parvis subrotundatis.

Long. corp. lin. vix $1\frac{1}{2}$.

Habitat insulam Portûs Sancti; sub lapide ad Zimbral d'Areia Aprili medio A.D. 1849 semel tantum detexi.

T. oblong-ovate; piceous, and most densely clothed with somewhat silken yellowish-white scales (which are of a slightly narrower form than those on the *T. albosquamosus*). *Rostrum* long, linear, and excessively slender; ferruginous, and (except at the extreme base) free from scales; with several punctured longitudinal sulci, commencing just in front of the base and continued to about the middle, where they gradually cease: *eyes* small, roundish, and lateral. *Prothorax* deeply punctured; broader than in the *T. albosquamosus*, but not so broad as in the *T. robustus*, —being widest behind the middle. *Elytra* not quite so parallel as those of the last species (the humeral angles being more obtuse); crenate-striated, and with the interstices impunctate. *Antennæ* ferruginous, and almost free from scales. *Legs* (especially the *tibiæ* and *tarsi*) likewise ferruginous, but clothed with scales.

The excessively delicate and ferruginous rostrum of the present insect, which is indented with sulci towards its base only, added to its paler legs, and small, comparatively rounded, and more lateral eyes, will be quite sufficient to separate it, *primâ facie*, from either of the other members of the genus here described. In its general aspect it bears a strong resemblance to some of the minute *Tychii* of more northern latitudes, especially to the *T. junceus*, Reich, and the *T. flavicollis*, Stephens. A closer inspection however will not only prove that it is distinct from those species, but that it is even moulded on a different type,—its extremely slender and filiform rostrum, with its powerful basal grooves, at once identifying it with the peculiar modification which obtains in the Madeira Islands. Apart from this character, however, which we may almost call a sectional one, the *T. filiformis* is narrower than either the *T. junceus* or the *T. flavicollis*, its scales are of a broader and robuster kind, and the interstices of its elytra are unsculptured,—whereas in both of those insects (particularly the latter) the interstices are strongly punctulated. Like the *T. albosquamosus*, it is hitherto unique,—the only example which I have seen having been discovered by myself in Porto Santo, during April 1849, in the dry fossiliferous district immediately below the Pico de Baxo (to the north), known as the Zimbral d'Areia, at the mouth of the Ribeiro de Serra de Fora. Considering the barrenness of that calcareous region, and the almost total freedom from vegetation of the spot in which it occurred, its habits are not altogether evident: nevertheless, since the *Tychii* are usually active at night, it had probably wandered from a distance, and had accidentally taken shelter in the position where I found it.

Genus 119. PISSODES.

Germar. *Ins. Spec.* 316 (1824).

Corpus mediocre, oblongum, durum, squamoso-variegatum: *rostro* elongato arcuato tenui; *oculis* subovatis: *prothorace* subovato, basi sinuato-truncato: *scutello* sat magno, rotundato: *elytris* subparallelis, antice sinuato-truncatis et prothoracis basi vix latioribus, ad apicem vix coarctatis: *alis* amplissimis. *Antennæ* mediocres, prope medium rostri insertæ; funiculo 7-articulato, articulo primo longiusculo obconico, reliquis brevioribus (secundo sub-obconico); capitulo ovato, apice acuminato, quadri-annulato. *Pedes* robusti, *antici* basi approximati: *femoribus* subclavatis muticis: *tibiis* subrectis, ad apicem externum in uncum magnum deflexum arcuatum productis.

The species of *Pissodes* are, apparently, not very numerous, only ten being recorded by Schönherr in his *Genera et Species Curculionidum*; and the greater number of them are natives either of northern or alpine regions,—being especially attached, and often very injurious, to pine-forests, on the resinous trees of which they principally subsist. They may be known by their extremely hard and prettily variegated surfaces, and more or less oblong bodies, by the sinuated basal margins of their prothorax and elytra, by the somewhat shortened second joint of their funiculus, and by the exceedingly curved hook at the apex of their tibiæ.

269. Pissodes notatus.

P. oblongus rufo-piceus, squamulis albidis undique irroratus, prothorace basi valde sinuato angulis posticis acutis, in medio punctis quatuor albidis notato, scutello albido, elytris punctato-striatis, fasciis duabus (unâ sc. antemediâ obscurâ et alterâ postmediâ majore) flavo-albidis ornatis.

Long. corp. lin. $2\frac{1}{4}$–$4\frac{1}{4}$.

Curculio notatus, Fab. *Mant. Ins.* i. 103 (1787).
Rhynchænus notatus, Gyll. *Ins. Suec.* iii. 69 (1813).
———— ————, Zetterst. *Fna Ins. Lapp.* i. 315 (1828).
Pissodes notatus, Schön. *Gen. et Spec. Curc.* iii. 258 (1836).

Habitat in Maderæ australis pinetis, sub ligno recenter secto vel ad truncos arborum resinosos, autumno non infrequens: ad Curral das Romeiras abundat, quâ Novembri mense A.D. 1847 copiosissime observavi.

P. oblong, rufo-piceous, and besprinkled all over with small whitish scales. *Rostrum* long, linear, and finely punctured. *Prothorax* rugosely punctured; nearly as wide behind as the base of the elytra; with a faint unpunctured dorsal keel; and with the posterior margin considerably sinuated, the hinder angles being acute. *Scutellum* round, and densely clothed with pale scales. *Elytra* almost parallel at their base; punctate-striated; with the alternate interstices just perceptibly raised, and abruptly terminated before the apex,—which is consequently somewhat constricted; with an obscure, broken, oblique fascia before the middle, and another, larger, broader, and transverse one behind the middle, common to both, more or less clothed with white and yellowish-white scales.

The present beautiful *Pissodes* has in all probability been introduced into Madeira from higher latitudes,—perhaps with the firs which are now extensively cultivated on the uplands above Funchal, and amongst which I have hitherto alone observed it. It is an insect, however, either of a naturally wide geographical range or else with great powers of climatal adaptation, it being recorded in nearly all the countries between the limits of Lapland and Barbary. Nevertheless there can be no doubt that it is *normally* either a boreal or an alpine form, since it would appear to attain its maximum in the pine forests of northern Europe. In the large fir woods of Madeira, especially those of Senhor D'Ornellas, which clothe a considerable portion of the mountain-slopes to the south of the island, I have occasionally detected it in tolerable abundance during the autumnal months; and in November 1847 it occurred to me in actual profusion at the Curral das Romeiras, from beneath chippings of wood, and out of the crevices of the stumps of recently felled trees.

Genus 120. LIXUS.

Fabricius, *Syst. Ent.* ii. 498 (1775).

Corpus magnum vel mediocre, elongato-subcylindricum, durum, plus minusve pubescens et farinosum: *rostro* elongato subarcuato valido; *oculis* subovatis: *prothorace* conico, basi sinuato: *scutello* minutissimo, vix observando: *elytris* elongatis cylindricis, antice singulatim rotundatis et prothoracis basi vix latioribus, ad apicem modo seorsum acuminatis et plus minusve dehiscentibus, modo conjunctim rotundatis: *alis* amplis. *Antennæ* mediocres, ante medium rostri insertæ; funiculo 7-articulato, articulis primo et secundo longiusculis subobconicis, reliquis brevioribus (septimo latiore, clavæ adpresso); capitulo ovato, apice acuminato, quadri-annulato. *Pedes* robusti, *antici* basi approximati: *femoribus* modo (ut in speciebus Maderensibus) muticis, modo subtus dentatis: *tibiis* vel rectis vel subrectis, ad apicem externum in uncum magnum valde deflexum productis.

The immense genus *Lixus*, so universally distributed throughout the world, and nearly 200 species of which are described in Schönherr's great work on the *Curculionidæ*, may be known by the elongated, hardened, subcylindrical bodies of the usually somewhat large insects which compose it, and most of which have a tendency to be slightly pubescent, and more or less clothed with a very fine powdery substance resembling pollen. This dust-like covering is, in all probability, composed of exceedingly minute scales, which from their great delicacy are peculiarly perishable, and consequently not often fully apparent except on fresh or unrubbed specimens. The prothorax of the *Lixi* is conical, being generally about as wide behind as the base of their elytra; their scutellum is so small as to be scarcely distinguishable; and their elytra are, each of them, much rounded at the anterior margin, whilst at the apex they are either conjointly obtuse (as in the ordinary Coleoptera), or else separately acuminated, and with the two points more or less recurved and divergent. They are insects which occur exclusively upon plants, at

the roots and within the stems of which their larvæ reside,—much to the detriment of the inner portions, which they gradually destroy.

§ I. *Elytra apice seorsum plus minusve acuminata, interdum dehiscentia.*

270. Lixus Cheiranthi, *Woll.*

L. opacus, pube cinereo-albidâ depressâ dense tectus et lineâ marginali niveo-squamosâ valde distinctâ ornatus, prothorace leviter varioloso-granulato, elytris sat profunde striato-punctatis, apice seorsum acuminatis et subrecurvo-dehiscentibus, rostro minus elongato crasso minute subpunctato, antennis ad basin ipsam rufo-piceis.

Long. corp. lin. 5–8½.

Habitat prope urbem Maderæ Funchalensem, a Rev^do^ Dom^o^ Reynardson Novembri mense A.D. 1848 primo detectus, et mihi benevole communicatus: super plantas *Cheiranthi Cheiri,* Linn., in hortis crescentes præsertim victitat, cujus caules larva destruit.

L. opake, densely clothed with a pale ashy-white and exceedingly decumbent pubescence; and margined with a broad, conspicuous snowy-white band. *Head* with a very minute (sometimes almost obsolete) impression between the eyes; and with the *rostrum* thick, not very long, and rather densely, but very minutely and obscurely, punctulated. *Prothorax* somewhat unevenly granulated, and with obscure indications of a few irregular shallow punctures, or varioles, intermixed; and with scarcely any trace of a dorsal line. *Elytra* more shining (when denuded of their scales) than the prothorax, not granulated, and rather more thickly clothed with whitish pubescence, somewhat deeply striate-punctate; each of them considerably acuminated at the apex, the points being a good deal divergent and slightly recurved. *Antennæ* rather short, and with about two-thirds of the scape dull rufo-piceous.

A large and most elegant *Lixus*, and readily recognised from the remainder of the genus with which we have here to do by the pale ashy-white, and very decumbent pubescence with which it is densely clothed (and which, from being placed on a darker ground, gives the entire surface a somewhat leaden hue), by the extremely broad and conspicuous snowy margin with which it is begirt, by its unevenly granuled and subvariolose prothorax, by the basal portion of the scape of its (rather short) antennæ being alone rufescent, and by its comparatively greatly acuminated and apically-divergent elytra. It appears to be exceedingly scarce, and confined, so far as I am aware, to the immediate vicinity of Funchal, where it was discovered by the Rev. J. Birch Reynardson, in November of 1848, on plants of the common wallflower (*Cheiranthus Cheiri,* Linn.) in the garden of the Quinta dos Saltos (on the Caminho de Santa Luzia Velha), above the town. I possess specimens of the larva, extracted from out of the stalks by Mr. Reynardson, but they do not in any respect differ from the ordinary larvæ of the *Curculionidæ*. The insect appears to be somewhat allied to the *L. Wagneri*, Lucas, from Algeria, as also to the *L. ochraceus*, Schön., from Dalmatia,—though unquestionably distinct, specifically, from them both.

271. Lixus Chawneri, *Woll.*

L. subnitidus, pube cinereâ subtilissimâ adspersus et lineâ marginali albo-squamosâ ornatus, interdum tenuissime subflavescenti-pollinosus, prothorace confertim subruguloso-punctato, elytris striato-punctatis postice leviter attenuatis, apice seorsum vix acuminatis et vix dehiscentibus, rostro longiusculo ad basin profunde punctato, antennis basi rufo-ferrugineis.

Long. corp. lin. 5.

Habitat Maderam australem, rarissime: hanc speciem egomet haud observavi, at duo specimina possideo a Rev^do^ Dom. C. F. Chawner prope urbem Funchalensem olim capta, cujus in honorem nomen triviale proposui.

L. more shining than any of the other species, besprinkled with a most delicate, excessively minute, ashy pubescence, and occasionally bedewed with a very fine and somewhat yellowish pollen; margined with a white band, which however is not quite so broad or so white as that of the last species. *Head* with a distinct impression between the eyes; and with the *rostrum* slenderer than that of the *L. Cheiranthi*, and (in proportion) just perceptibly perhaps longer, deeply punctured at the base, but minutely so at the apex. *Prothorax* somewhat roughly and closely punctured, and with very obscure traces of a slightly raised dorsal line; regularly conical (being widest at the extreme base, and with the sides almost straight). *Elytra* striate-punctate, and gradually somewhat attenuated behind; each of them scarcely at all acuminated at the apex, the points (though not in conjunction) not being at all outwardly divergent or recurved. *Antennæ* with the scape distinctly, and the base of the funiculus obscurely, ferruginous.

The much smaller size and narrower form of the present *Lixus*, added to its more shining, less pubescent, differently coloured, and differently sculptured surface, will be sufficient, apart from its slenderer rostrum and its comparatively unacuminated and undivergent elytra, at once to distinguish it from the *L. Cheiranthi*. It is very nearly allied to a species from Sicily, given to me by the late Mr. Melly of Liverpool under the name of "*L. Jurenei*, Dahl," but which I suspect is more probably the *L. Juncii* of the same author,—since I cannot satisfy myself that there is any *Lixus* in existence bearing the above title. At any rate, whether the Sicilian representative be the *L. Juncii* or not, it approaches the Madeiran one very closely, though at the same time it unquestionably is not identical with it. It has its rostrum thicker and shorter than is the case in the *L. Chawneri*, its frontal impression is very much deeper, its prothorax is less conical, broader in front, and with the dorsal line scarcely traceable, and its elytra are somewhat more coarsely sculptured, less attenuated behind, and not at all acuminated at their apex. I have not myself detected this insect, but possess two examples which were captured by the Rev. C. Fox Chawner (to whom I have dedicated the species) several years ago near Funchal; and I have likewise another, presented to me by the Rev. R. T. Lowe, from the collection of the late Dr. Heinecken. Its habits I have not been able to ascertain; but Mr. Chawner informs me that the whole of his specimens were taken from off a single plant,—so that, like the *L. rufitarsis*, it would appear at any rate to be gregarious.

272. Lixus vectiformis, *Woll.*

L. angustus subopacus, pube cinereâ subtilissimâ adspersus et lineâ marginali albo-squamosâ ornatus, prothorace ruguloso-subpunctato, elytris leviter punctato-striatis, apice seorsum vix acuminatis sed leviter subrecurvo-dehiscentibus, rostro brevi ad basin ruguloso-subpunctato, antennis basi rufo-ferrugineis.

Long. corp. lin. 4.

Habitat in insulâ Portu Sancto, rarissimus; a meipso Decembri mense A.D. 1848 semel tantum lectus.

L. exceedingly narrow, and nearly opake, more evidently besprinkled with minute ashy pubescence than the *L. Chawneri*; but, like it, margined with a narrow whitish band. *Head* with the frontal impression very distinct, and with the eyes rather prominent; with the *rostrum* much shorter, and proportionably thicker, than that of the last species, and somewhat rugosely punctured, or variolose, at the base. *Prothorax* with the punctures not quite so well defined as those of the last species, it being rather more variolose than punctured; and with the slightly-raised dorsal line more evident. *Elytra* more lightly sculptured than in any of the other species, being moreover punctate-striated rather than striate-punctate; not more acuminated (each of them) at the apex than those of the *L. Chawneri*, nevertheless with the appearance of being rather more so on account of their being more divergent and just perceptibly recurved. *Antennæ* a little shorter than, but of the same colour as, those of the last species.

The extremely narrow body of the present insect, in conjunction with its short and thick rostrum, somewhat prominent eyes, and the subdivergent and subrecurved apices of its (lightly striated) elytra, will be quite sufficient whereby to recognise it *primâ facie* from the rest of the genus here described; whilst from its nearest ally, the *L. Chawneri*, its subsidiary distinctions may be readily gathered from the above comparative diagnosis. It is hitherto unique, the only specimen which I have seen having been captured by myself in Porto Santo,—in a small barren ravine of the Campo de Baxo, during my residence in that island with the Rev. W. J. Armitage in December 1848. I may add that I lately forwarded it (together with the previous two species) to Professor Bohemann of Stockholm, for comparison with the Schönherrian collection, by whom it was pronounced as unquestionably new.

§ II. *Elytra apice aut seorsum aut conjunctim rotundata.*

273. Lixus angustatus.

L. subnitidus, pube cinereâ subtilissimâ adspersus et flavescenti-pollinosus, prothorace rugose scabroso-punctato, elytris profunde striato-punctatis, apice conjunctim rotundatis, rostro elongato inæqualiter punctato, antennis longiusculis fusco-piceis.

Long. corp. lin. 6–8.

Curculio angustatus, Fab. *Syst. Ent.* 135 (1775).
Lixus angustatus, Fab. *Syst. Eleu.* ii. 502 (1801).
—— ——, Steph. *Ill. Brit. Ent.* iv. 158 (1831).
—— ——, Schön. *Gen. et Spec. Curc.* iii. 43 (1836).

Habitat super plantas Maderæ australis, autumno non infrequens: species valde timida et in locis quibusdam herbidis sat vulgaris, sed terrefacta humi subito decidit, quapropter difficilius invenienda.

L. slightly shining, besprinkled with a most delicate, excessively minute, ashy pubescence, and more or less densely clothed with a very fine yellow pollen. *Head* with a small impression between the eyes; and with the *rostrum* elongated, minutely punctulated, the punctures being unequal in size, and with obscure indications of an abbreviated dorsal channel at the insertion of the antennæ. *Prothorax* very roughly wrinkled and punctured, especially behind, and with scarcely any traces of a dorsal line. *Elytra* rather deeply striate-punctate, especially towards the base—where the surface also is somewhat transversely wrinkled; with their apex (conjointly) rounded and obtuse. *Antennæ* rather long, and dull brownish-piceous, with the apex obscure.

The *L. angustatus* is an insect of very wide geographical range, occurring throughout the whole of central and southern Europe, the north of Africa, and in the Canarian group; and it has likewise been recorded from Persia. It would appear however to attain its maximum in a slightly higher latitude than Madeira, being exceedingly common in Sicily, Malta, and most of the countries included within the Mediterranean basin. In England it is extremely rare,—being there on one of its most northern limits, and only making its appearance on the southern coast. It may be at once known from the other *Lixi* with which we have here to do by its large and cylindrical body, somewhat elongated rostrum and antennæ, by its elytra being conjointly rounded and obtuse at their apex, and by the fine golden-yellow powder with which it has a tendency, when in a fresh state, to be more or less densely clothed. It is not a very abundant species in Madeira, though pretty generally distributed over the south of the island from about 500 to 2000 feet above the sea. It is found, usually, amongst dense vegetation in sunny sheltered spots, but, from its habit of falling to the ground when approached, it is not always easy to secure. I have taken it amongst the thick herbage on the slopes of the Curral das Romeiras, during the autumnal months; and it has been captured in the Ribeiro de São Gonçalvo, near Funchal, by M. Rousset. The Madeiran specimens have the punctures of their elytra a little deeper than is generally the case with the English ones.

274. Lixus rufitarsis.

L. opacus, pube subcinereâ tectus, prothorace confertissime punctato, elytris punctato-striatis, apice seorsum rotundatis, interstitiis rugulosis, rostro breviusculo subgracili confertissime rugoso-subpunctato, antennis (præsertim ad basin) tarsisque rufo-ferrugineis.

Long. corp. lin. 3–4.

Lixus rufitarsis, Schön. *Gen. et Spec. Curc.* iii. 78 (1836).
—— ——, Dej. *Cat. des Col.* 296 (1837).
—— *angustatus*, Dahl, *in litt.*

Habitat in Maderæ herbidis, super folia Carduorum, hinc inde vulgaris: in convalle Ribeiro de Santa Luzia dictâ Maio exeunte A.D. 1849, necnon ad Ribeiro Frio æstate mediâ A.D. 1850, copiosissime collegi; atque etiam in horto Loweano prope Funchal exemplar unicum inveni.

L. opake, and clothed with a very distinct, somewhat ashy pubescence. *Head* usually without any appearance of an impression between the eyes; and with the *rostrum* rather short, but somewhat slender (the antennæ being inserted into it more medially than is the case with the other species), most densely and rugosely subpunctulated. *Prothorax*, also, most densely punctured, but with the punctures better defined than those on the rostrum, usually without any traces of a dorsal line, and with the sides slightly rounded. *Elytra* rather deeply punctate-striated, the interstices being minutely roughened, and rather wider at the base than the prothorax; each of them slightly rounded at the apex,—the points being, consequently, not quite in conjunction, though at the same time neither acuminated nor outwardly divergent. *Antennæ* (especially at their base), and the *tarsi*, rufo-ferruginous.

The smallest of the Madeiran *Lixi*, and readily distinguished by its opake pubescent surface, by its densely punctured prothorax and rostrum (the former of which is somewhat rounded at the sides and slightly narrower behind than the elytra, whilst the latter is rather slender and has the antennæ inserted into it about midway between its base and apex), by its roughened interstices, and by its more or less ferruginous antennæ and feet. It is a very gregarious insect (being usually exceedingly numerous, where it occurs at all), and is found principally upon thistles. It ranges in Madeira from about 300 to 3000 feet above the sea, though it is more abundant perhaps at about 2000 than at any other elevation. I took it in great profusion, in May 1849, at the extreme head of the Ribeiro de Santa Luzia; as also, later in the summer, during 1850, at the edges of the Levada of the Ribeiro Frio; and a single specimen occurred to me on one occasion even (in the Rev. R. T. Lowe's garden) near Funchal. It is not uncommon in Mediterranean latitudes, and is recorded by Schönherr from the south of France, Sicily, and Portugal.

(Div. 2. BRACHYRHYNCHI.)

(Subf. 6. CYCLOMIDES.)

Of all the insects with which we are here concerned, there are none perhaps more difficult to investigate, though at the same time more interesting geographically, than the small cluster of allied genera which commence the *Brachyrhynchi*,—the second great division of the Gonatocerous *Curculionidæ*. Our total reliance on external details throughout the sections and groups of the whole of this enormous family renders it even more perplexing to arrive at the correct affinities of

the different members which compose it; and it is only by a very careful consideration of their outward structure with reference to their habits, and of their sexual distinctions, *inter se*, that we can hope to accomplish the task at all. In Schönherr's immense work on this department of the Coleoptera, the early representatives of the *Brachyrhynchi* (recounting them in the opposite direction, which we are equally at liberty to do) are distributed under two heads, the *Otiorhynchides* and the *Cyclomides*, which would appear however to merge into each other by such imperceptible gradations, that it is scarcely possible to draw the line of demarcation between them. In their normal states, nevertheless, they may be usually recognised from each other with tolerable facility; and since all the species which I have hitherto detected in these islands belong essentially to the latter, it may be useful to remark that they are mainly distinguished from those of the former by having their rostrum somewhat shorter and less divergent at its apex, by their antennal groove being slightly shallower, wider, and less defined, and in the insects themselves being on the average of a rather smaller and less elongated bulk. Considering the circumscribed area within which their range is of course confined, the *Cyclomides* are exceedingly numerous even *specifically* in the Madeiran group, whilst *individually* they literally abound; and hence it becomes very desirable to understand their affinities aright before we attempt to generalise concerning them, and to assign to each its most natural position. Being insects moreover which are subject to considerable instability both in size and outline, it is almost necessary to view them in the mass before we can either appreciate their specific characters, or gain a true estimate of the value of their generic ones. After a very close examination of many hundred specimens, from which the following descriptions have been drawn out, I am convinced that the most important of all the minutiæ which our present type of form presents, consists in the several modifications and developments of its tibiæ and antennal scape, each of which in their turn remain perfectly constant, whilst other points are aberrant, and which therefore afford an invaluable clue, not only in a primary sense, for generic purposes, but, within subsidiary limits, even for specific ones.

With these preliminary observations, we may just state, before entering upon the distinctions of the genera *inter se*, that the Madeiran type of the larger *Cyclomides*, which may be considered as radiating from *Laparocerus*,—in one direction towards *Cyphoscelis*, in which some of the peculiarities are so much exaggerated as to appear well nigh monstrous, and in the other, through *Atlantis* and the *aberrant Atlantides*, by successive gradations, into *Omias* proper, where anything extraordinary in structure has altogether ceased to exist,—is mainly characterized by the tendency which it possesses to have, either separately or conjointly, its antennal scape extremely slender to within a short distance of the apex, where it is suddenly and abruptly clavated; and its tibiæ crenulated internally,—the four anterior ones being incurved (and concave beneath, or scooped out) at their termination, where they are armed with an inwardly directed spine which is always

most developed in the intermediate pair, and the two posterior ones being compressed and dilated at their extremity, with the outer angle prominent, and the inner one emarginated, truncated, or entire (and, consequently, more or less shaped-out into a post-apical heel), according to the genus and species of the different insects which unite in composing it. In addition to which, a very unusual structure is indicated in the tendency of the tibiæ (especially the hinder ones) of many of its representatives to be constricted before their apex, which causes their subbasal region to be rounded (sometimes very considerably) into a broader portion, or calf, which, though scarcely perceptible in *Laparocerus*, is sufficiently expressed in *Atlantis* proper, and carried to an excess in *Cyphoscelis*: whilst another character presents itself in nearly the whole of the above peculiarities being either almost or entirely evanescent* in the females,—in which sex moreover the legs are, for the most part, shorter and very much slenderer than is the case with the males.

Such are the *general* features of the larger Madeiran *Cyclomides*, and which exist, separately or conjointly, as already stated (and subjected to minor modifications), in the normal groups, but which are slowly lost sight of, through the *aberrant Atlantides*, as we move onwards towards *Omias*. Nevertheless, although merged into the ordinary smaller members of the subfamily, in one sense, gradually, the gradations are not so imperceptible but that tolerably well-defined lines of generic demarcation may be drawn between them; and were it not indeed for the *aberrant Atlantides* (more strictly perhaps to be regarded as a distinct genus), which perform the passage into *Omias*, we should scarcely recognise any resemblance at all to the minute *Cyclomides* in these comparatively gigantic forms.

The *Cyclomides* of the Madeira Islands are invariably apterous; and in many instances they have their elytra united. They are extremely gregarious in their habits, and reside principally beneath stones in the most barren spots, or on the

* Although, as regards the females of these *Cyclomides*, it is my belief that *the tibial spur at all events* is *non-existent* in them,—yet I would not wish positively to assert that any of the above characters are ever removed *in toto* from either sex; or that, for instance, the highest microscopic powers may not occasionally show the rudiments of a minute projection at the inner apex of the male tibiæ even in those instances in which I have treated the terminal spine as wanting; or, on the other hand, that the faintest crenulations cannot possibly be brought to light in cases where I have regarded them as evanescent,—since I think I am able to perceive indications of the former in the males of some of the *aberrant Atlantides* (which, however, though considered as practically unarmed, I have expressly stated to be "*fere* inarmatæ"), and of the latter in the intermediate and posterior legs of a few of the other members of that genus (one of the definitions of which is that the *front* pair alone are crenulated). It is needless however to remark that these extreme revelations of the microscope do not come within the province of descriptive Natural History, in which what is strictly *obsolete* is usually spoken of as being *absent*; for, were we once to admit such theoretical accuracy to be indispensable in our generic and specific diagnoses, utter confusion to science, from the rejection of former enunciations and statements, would, as the facilities for observation advanced, be the certain practical result. Such questions as these belong to the physiologist more than to the naturalist, and are rightly disregarded, in their ultra sense, by the latter, whose duty is to describe what everybody can see, rather than what they must *believe*, to exist,—and which can be alone appreciated by the experienced few.

exposed mountain-slopes; those which inhabit the sylvan districts (represented by some of the *Atlantides*, both typical and aberrant) being an exception to the general rule. They appear to be all more or less nocturnal insects,—scarcely ever wandering by day, though both active and voracious at night.

Genus 121. CYPHOSCELIS, *Woll.* (Tab. VII. fig. 2.)

Corpus minusculum, ovato-ellipticum, depressum, dense subtiliter pubescens: *rostro* brevi, supra plano, ad apicem attenuato et profunde triangulariter emarginato; *scrobe* oblongâ latâ, versus medium rostri ascendente; *oculis* oblongis demissis: *prothorace* depresso, basi subsinuato-, apice recto-truncato, ad latera rotundato (antice angustiore), elytris subarcte applicato: *scutello* sat magno, triangulari: *elytris* subconnatis ovatis apice attenuatis, ad basin sinuato-truncatis et illic prothorace paulo latiore, ad humeros porrectis: *alis* obsoletis. *Antennæ* (VII. 2 *a*) fere ut in Laparocero, gracillimæ, scapo subrecto subito clavato. *Pedes* in maribus (VII. 2) crassi, in fœminis graciliores sed vix breviores: *tibiis omnibus* pilosis et apice setuloso-ciliatis, intus in maribus (VII. 2 *b*, 2 *c*) distincte crenulatis, in fœminis (VII. 2 *b**, 2 *c**) nec crenulatis nec ad apicem uncinatis; *anterioribus* in maribus subtus (præsertim anticis) torto-concavis atque apicem versus subgaleiformibus, ad apicem internum in uncum parvum (in anticis obtusum minus distinctum, in intermediis conspicuorem acutiorem) inflexum productis; *anticis* in maribus (VII. 2 *b*), præsertim ad apicem, incurvis et intus basin versus in gibbam rotundatam cavam ampliatis, in fœminis (VII. 2 *b**) ad apicem solum (et haud distincte) incurvis et intus simplicibus; *intermediis* in maribus ad apicem solum incurvis et intus basin versus vix cavo-ampliatis, in *fœminis* rectis et intus simplicibus; *posticis* in utroque sexu (VII. 2 *c*, 2 *c**) rectis, in fœmineo (VII. 2 *c**) simplicibus, in masculo (VII. 2 *c*) compressis robustis latis, intus in gibbam mediam maximam rotundatam compressam (suram simulantem) subito ampliatis, apice valde dilatatis et lateraliter introrsum exsecatis, ad apicem internum nec emarginatis, nec truncatis, nec angulatis, sed etiam in calcaneum rotundatum leviter ampliatis; necnon ad externum in angulum acutum valde exstantem explanatis: *tarsis* pilosis.

A κυφὸς gibba, et σκελὶς tibia.

The exceedingly curious insect to contain which the present genus is erected presents so many peculiarities of its own, that it is scarcely possible to confound it with any of the other Madeiran *Cyclomides*. The singular type of structure in fact of which *Laparocerus* is the centre may be said to be more fully carried out in *Cyphoscelis* than in any of the neighbouring groups; and I believe therefore that it is correctly placed at the commencement of them. In its anteriorly-attenuated rostrum, and in the details of its antennæ, it coincides with *Laparocerus*,—the latter being especially remarkable, in both of these genera, for their excessive slenderness and the suddenly clavated apex of their almost straightened scape. It recedes however from that genus in particular in the shape of its prothorax, in its densely pubescent surface, and in the construction of its tibiæ,—which are perfectly simple in the females (being neither crenulated nor spined), and are not emarginated at the inner angle in the posterior pair of the opposite sex: whilst from the *whole* of these immediate forms its subelliptical outline and depressed

body, in conjunction with its oblong eyes, its basally sinuated and posteriorly acuminated elytra, with their extremely porrected shoulders, and the very remarkable development of its tibiæ, will at once remove it. These last indeed afford male characters the value of which will be readily appreciated, since the extraordinary manner in which their inner edge is expanded into a rounded prominence, or calf (especially apparent in the hinder ones, where it is medial instead of subbasal), is scarcely paralleled in any other Coleopterous genus with which I am acquainted. True it is that it may be merely an exaggeration of the tendency which the tibiæ of this Madeiran type appear to possess, to be suddenly constricted before their extremity, which causes the hinder region to appear unusually expanded, and which we see very distinctly indicated in the normal *Atlantides*; yet still, it is so largely expressed in *Cyphoscelis*, and is accompanied by so many other structural anomalies, that it cannot but be looked upon as a very important addition to its generic diagnosis. Nor is this the only irregularity which the tibiæ of *Cyphoscelis* display, the apically subgaleated conformation which is just traceable in its allies being there perceptible, not only throughout their entire length, but (in a less degree) even in the *intermediate* pair. Although it is only at their termination that they may be considered as precisely galeated, yet they are so completely concave, or scooped out (in a tortuous or twisted manner), beneath, that they have the appearance, under the microscope, of being a mere shell rather than a solid mass. Both edges of this flexuose under-groove would seem to be more or less armed with crenulations,—though, from the oblique curvature of the former, the latter are not very easily to be detected. The two front tibiæ are more regularly arcuated in the males of *Cyphoscelis* than in those of any of the approximate forms,—in all of which they are nearly straight, and inwardly directed at their extremities only. The main distinctive feature in the *hinder* male tibiæ (VII. 2 *c*) of our present genus (apart from their largely developed medial process) consists in their inner angle being neither emarginated, nor truncated, nor yet exactly entire,—but rounded into an obtuse and slightly prominent heel. In the disproportionate thickness of its legs in the two sexes, *Cyphoscelis* agrees with *Laparocerus* and the typical *Atlantides*.

275. Cyphoscelis distorta, *Woll.* (Tab. VII. fig. 2.)

C. ovato-elliptica depressa nigra, pube aurescenti-, vel viridescenti-brunneâ depressâ dense tecta, prothorace subcarinato profunde et parce punctato, elytris leviter punctato-striatis, setulis minutis erectis remotis obsitis sed vix tessellatis, antennis tarsisque pallido-ferrugineis.

Mas, pedibus robustis latis: tibiis intus crenulatis; anterioribus apice leviter uncinatis; anticis (præsertim ad apicem) incurvis; posticis in suram mediam internam ampliatis, ad apicem subito explanatis, angulo interno calcaneiformi rotundato, externo acuto exstante.

Fœm., pedibus gracilioribus sed vix brevioribus, simplicibus.

Long. corp. lin. $2\frac{1}{2}$–$3\frac{1}{4}$.

Habitat in Maderâ excelsâ sylvaticâ, sub lapidibus truncisque arborum prolapsis, æstate rarior: ad Lombo das Vacas d. 21 Jun. A.D. 1850, necnon ad Cruzinhas et Lombo dos Pecegueiros mense Julio ejusdem anni cepi.

C. nearly elliptical, much depressed, black, and densely clothed with very decumbent, golden-, or greenish-brown pubescence. *Rostrum* short, and narrowed anteriorly; longitudinally strigulose; and with a channel down the centre (sometimes replaced by a slightly elevated line), especially apparent between the *eyes*,—which are oblong and depressed. *Prothorax* with the sides rounded, but widest behind the middle; deeply and remotely punctured; and with indications of a slightly raised keel on the disk. *Elytra* lightly punctate-striated, and beset with very minute, short, distant, and nearly erect hair-like bristles; the under-pubescence having an exceedingly slight tendency to assume the tessellated appearance which in the neighbouring forms is more or less distinctly evident. *Antennæ* and *tarsi* pale rufo-ferruginous; the *latter* sometimes almost testaceous: *femora* and *tibiæ* more or less picescent.

Male, with the legs broad and robust. The *tibiæ* crenulated internally; the *four anterior ones* concave beneath, and with a small inwardly-directed spine at their inner apex; the *two anterior ones* incurved (though especially at their extremity), and slightly expanded towards their inner base; the *intermediate ones* less distinctly so; the *hinder ones* expanded inside into a large, compressed, medial process, suddenly constricted before their extremity,—the extremity itself with its external surface suddenly expanded out, the inner angle being rounded into an obtuse heel, and the outer one being produced into a prominent and acute process or angle.

Female, with the legs much slenderer, but very slightly shorter; entirely simple; the *tibiæ* being neither crenulated, hooked at their apex, nor dilated,—the *two anterior ones* however slightly incurved at their extremity.

Apparently extremely rare, and confined to lofty sylvan spots more or less difficult of access,—occurring beneath stones and logs of wood during the summer months. I have captured it on the Lombo das Vacas in June; and at the Cruzinhas, and the Lombo dos Pecegueiros, in July.

Genus 122. LAPAROCERUS. (Tab. VII. fig. 1.)

Schönherr, *Gen. et Spec. Curc.* ii. 530 (1834).

Corpus mediocre, subovato-oblongum, convexum, parce subtilissime pubescens: *rostro* (VII. 1 *a*) brevi, supra plano, ad apicem leviter attenuato et profunde triangulariter emarginato; *scrobe* oblongâ latâ, versus medium rostri ascendente; *oculis* subrotundatis: *prothorace* convexo, basi apiceque recto-truncato, ad latera rotundato (antice et postice æqualiter angustiore), elytris haud arcte applicato: *scutello* sat magno, triangulari: *elytris* connatis oblongo-subovatis, ad basin recto-truncatis, et illic prothorace latiore, ad humeros rotundatis: *alis* obsoletis. *Antennæ* (VII. 1 *a*) longæ graciles; scapo subrecto, ad apicem subito clavato; funiculo 7-articulato, articulis obconicis, primo et secundo longiusculis subæqualibus, reliquis longitudine decrescentibus; clavâ elongato-oblongâ, quadri-articulatâ. *Pedes* in maribus crassi, in fœminis graciliores breviores: *tibiis omnibus* pilosis et apice fortiter setuloso-ciliatis, intus in maribus (VII. 1 *b*, 1 *c*) distincte, sed in fœminis (VII. 1 *c**) vix perspicue crenulatis, necnon in hoc sexu ad apicem internum in uncum minutissimum (in intermediis paulo longiorem acutiorem, sed in omnibus pilis setisque fere celatum) inflexum productis; *anterioribus* in maribus ad apicem internum in uncum magnum (in

intermediis paulo longiorem acutiorem) valde inflexum productis; *anticis* in utroque sexu, sed præsertim in masculo (VII. 1 *b*), apice incurvis, necnon in hoc sexu subtus apicem versus leviter excavato-concavis atque ad apicem ipsum vix subgaleiformibus; *intermediis* in maribus fere, in fœminis omnino rectis; *posticis* in utroque sexu VII. 1 *c*, 1 *c**) rectis, in fœmineo (VII. 1 *c**) simplicibus, in masculo (VII. 1 *c*) compressis apicem versus valde sed facilius dilatatis et lateraliter introrsum exsecatis, ad apicem internum latissime arcuato-truncatis (calcaneum obtusum longe pone apicem ipsum vix exstantem efficientibus); necnon ad externum in angulum subrectum valde setulosum explanatis: *tarsis* pilosissimis.

Of *Laparocerus* but two representatives seem to have been hitherto described. Both of these, the *L. morio* and the *L. piceus*, are stated to be natives of Portugal, and have been until quite recently of the greatest rarity in the cabinets of entomologists. I have never been able either to procure or to see a truly Portuguese specimen of either; and whilst there seems no reason, geographically, to doubt that they are really indigenous to that country, nor any cause for suspicion that an error has arisen as to their correct extraction, it is just worthy of remark, that Faldermann, on whose authority they appear to have been admitted into the European fauna, either collected in, or received insects from, Madeira, where the first of the above species literally abounds. Although the *L. morio* is the only member of the genus which I have as yet been able to detect in these islands, yet it is an insect so excessively abundant throughout the whole of them,—existing on every rock, and ranging from the sea-shore to the extreme summits of the peaks,—and contains, as lately stated, all the elements of the peculiar type of form which is more or less developed in the greater portion of the larger Madeiran *Cyclomides*, that *Laparocerus* may be said to play a very important part amongst the *Curculionidæ* of the Madeiran group. The main characteristics which these immediate genera possess in common have been already pointed out; and we need merely therefore add, that whilst in its greatly thickened male legs, in its exceedingly pilose tibiæ, and in the length of its antennæ, *Laparocerus* agrees with *Cyphoscelis* and *Atlantis proper*, and whilst in its almost straightened, slender, and suddenly clavated scape, and in its short and subacuminated rostrum it is coincident with the former, it recedes from them both in its comparatively unpubescent surface, in its convex and equally-rounded prothorax, and in the construction of its tibiæ,—which are more strongly setulose at their extremity, have the apical spine of the four anterior ones more powerful, and not merely confined to (although most perceptible in) those of the males, have the internal crenulations (which exist, as in *Cyphoscelis*, in the entire number) much more evident, and, likewise, traceable in the female sex, and have their hinder male pair (VII. 1 *c*) more gradually dilated from the base, with the inner angle largely emarginated, or scooped out, so as to form an obtuse, though slightly prominent, heel at a considerable distance behind the apex. The outer angle moreover is less acute than in either of those genera, being almost a right angle,—though appearing to project further than it really does on account of the dense and robust setæ with which it

is ciliated. It will be perceived that, whilst in *Laparocerus* the males are larger than the females, in *Atlantis* the reverse is invariably the case.

276. Laparocerus morio. (Tab. VII. fig. 1.)

L. oblongo-ovatus convexus niger vel piceo-niger, pube subtilissimâ cinereâ parce tectus, prothorace valde convexo sat crebre punctulato, elytris punctato-striatis, interstitiis plus minusve obsoletissime longitudinaliter subopalino-cinereo-tessellatis et tuberculis minutissimis remotis obsitis, antennis tarsorumque apice ferrugineis.

Mas, pedibus robustis latis: tibiis intus crenulatis; anterioribus apice robuste uncinatis; anticis ad apicem incurvis; posticis apicem versus facile dilatatis, angulo interno late arcuato-emarginato (calcaneum rotundatum longe pone apicem efficiente), externo subrecto valde setuloso leviter exstante.

Fœm., paulo minor; pedibus gracilioribus brevioribus: tibiis intus obsoletissime crenulatis et apice valde indistincte uncinatis; anticis ad apicem leviter incurvis; posticis simplicibus.

Variat colore et staturâ generali: hâc vel oblongo-ovatâ evidentius subtiliter pubescente, vel majore suboblongâ fere glabrâ; illo jam nigro, jam piceo-nigro pedibus infuscatis, jam (immaturo) etiam omnino fusco-ferrugineo.

Long. corp. lin. *mas*, $4\frac{1}{2}$–$6\frac{1}{2}$: *fœm.*, $3\frac{1}{2}$–$4\frac{1}{2}$.

Laparocerus morio, Schön. *Gen. et Spec. Curc.* ii. 531 (1834).

Habitat sub lapidibus insularum omnium Maderensium, ab orâ maritimâ usque ad summos montes ascendens: in insulis Desertis, Boreali et Grandi (præsertim hâc), amplitudine accrescit, quâ mense Januario e fissuris rupium excelsarum, una cum insectis quibusdam heteromeris degens, copiosissime collegi.

L. oblong-ovate, or nearly oblong (being at times comparatively parallel), convex, black, or piceous-black, (when immature of a dull brownish-ferruginous hue,) and more or less sparingly clothed with an exceedingly minute, decumbent, cinereous pubescence,—which is occasionally nearly absent. *Rostrum* short, and narrowed anteriorly; longitudinally strigulose; and with a very deep impression, or abbreviated channel, between the *eyes*,—which are subrotundate. *Prothorax* extremely convex (in some specimens almost subglobose), with the sides regularly and equally rounded, being widest about the middle; sufficiently closely, but not very deeply punctured, the spaces between the punctures being densely beset with most minutely and delicately impressed points*. *Elytra* either ovate or suboblong, more or less deeply punctate-striated; the interstices very minutely rugulose, studded, especially behind, with small and distant tubercles, and with a very faint tendency (sometimes comparatively evident, at others scarcely distinguishable) to be longitudinally tessellated with paler portions of the pubescence, which often assume a slightly subopaline hue,—the cinereous scales being just perceptibly tinged with a bluish-, or

* When viewed beneath the microscope, this sculpture is of a very peculiar character,—the larger punctures throwing out radiating lines which almost meet, and which, in conjunction with the minutely impressed intermediate points, give the surface a somewhat rugulose appearance.

yellowish-green lustre (which moreover is generally bright upon the *scutellum*). *Antennæ*, and apex of *tarsi*, ferruginous; the *latter at base* fusco-piceous, and (with the extremity of the tibiæ) densely clothed beneath with long and pale pubescence; *femora* and *tibiæ* either black, infuscate, or entirely (especially when immature) of a dull brownish-ferruginous hue.

Male, with the legs broad and robust. The *tibiæ* distinctly crenulated internally; the *four anterior ones* with a powerful inwardly directed spine at their inner apex; the *two anterior ones* considerably incurved at their extremity; the *intermediate ones* less distinctly so; the *hinder ones* with no appearance of constriction before their extremity, but gradually and regularly dilated from the base,—the extremity itself with its external surface expanded, the inner angle being broadly emarginated (or scooped out) so as to form a rounded heel at a considerable distance behind the apex, and the outer one being only slightly produced, and consequently almost a right angle (though with the appearance of being more acute and prominent than it really is on account of the strong setæ with which it is ciliated).

Female rather smaller: with the legs much slenderer, and also perceptibly shorter; the *tibiæ* being most obscurely crenulated internally, and with an exceedingly small spine at their inner apex (most perceptible in the intermediate pair); the *two anterior ones* very slightly incurved at their extremity; the *intermediate* and *hinder ones*, especially the latter, simple.

A universal insect throughout all the islands and altitudes of the Madeiran group, abounding on many of the smaller rocks, where it congregates beneath stones in the most exposed spots, in company with *Helopidæ*, *Hadri*, and other genera of the *Heteromera*. It is a variable species, ranging from uniform black into a brownish-piceous hue, and presenting differences of size and outline according to the circumstances under which it exists. It occurs from the sea-shore to the extreme summits of the mountains, but would appear to attain its maximum on the barren maritime slopes of rather a low elevation. In the sandy plains of Porto Santo, as also on the adjacent rocks, it literally teems; and on the two northern Dezertas it is scarcely less common,—where moreover the specimens average a comparatively gigantic size, and are, for the most part, of a more elongated form. On the highest points of the Dezerta Grande I have captured it, particularly during the winter time, from out of the fissures of the weather-beaten peaks, in great profusion. In Madeira proper it is especially partial to localities either but slightly raised above the level of the beach or else of a subalpine nature; and is decidedly both scarcer and less powerfully developed within the sylvan districts than elsewhere. It is found at all seasons of the year; and is usually very gregarious.

Genus 123. ATLANTIS, *Woll.* (Tab. VII. fig. 3, 4, 5, et 6.)

Corpus mediocre vel minusculum, oblongo-ovatum vel ovatum, convexum, pube sat robustâ plus minusve variegatum: *rostro* ut in Laparocero, sed apicem versus haud attenuato, et *oculis* rotundatioribus, prominentibus: *prothorace* basi apiceque recto-truncato, ad latera rotundato (antice paulo angustiore), elytris haud arcte applicato: *scutello* sat magno, triangulari: *elytris* subconnatis, oblongo-ovatis vel ovatis, ad basin recto-truncatis et illic prothorace latiore, ad humeros rotundatis: *alis* obsoletis. *Antennæ* (VII. 5 *a*) longæ subgraciles; scapo curvato apicem versus facile incras-

sato, sed in specie singulâ (fortasse huic generi vix referendâ) (VII. 3 *a*) gracillimæ, scapo subrecto et ad apicem subito clavato (ut in Laparocero); funiculo 7-articulato, articulis obconicis, primo et secundo longiusculis (modo hoc, modo illo longiore), reliquis longitudine decrescentibus; clavâ elongato-obovatâ, distincte tri- (fortasse quadri-) articulatâ. *Pedes* (typice) in maribus crassiusculi, in fœminis graciliores sed vix breviores: *tibiis omnibus* pilosissimis et apice obscure setuloso-ciliatis, in fœminis nec intus crenulatis nec ad apicem uncinatis; *anterioribus* in maribus ad apicem internum in uncum (in anticis plerumque obsoletum, sed in intermediis sæpius distincte observandum,—necnon in omnibus pilis setisque celatum) inflexum productis; *anticis* in utroque sexu (VII. 5 *b*, 5 *b**), sed præsertim in masculo (VII. 5 *b*), apice incurvis, necnon in hoc sexu intus plus minusve obscurissime (interdum, oculo inarmato, vix perspicue) crenulatis, subtus apicem versus plus minusve leviter subconcavo-emarginatis atque ad apicem ipsum vix subgaleiformibus; *intermediis* in utroque sexu, sed præsertim in fœmineo, rectis; *posticis* in utroque sexu rectis, in fœmineo (VII. 5 *c*) simplicibus,—in speciebus aberrantibus etiam in masculo simplicibus, sed in typicis (VII. 5*) apice valde dilatatis et lateraliter introrsum exsecatis, ad apicem internum plus minusve lamellato-productis et oblique truncatis (calcaneum mox pone apicem ipsum plus minusve exstantem et acutum efficientibus); necnon ad externum in angulum plerumque acutum et valdissime exstantem explanatis: *tarsis* pilosissimis.

Typus—*Atlantis lamellipes*. (Tab. VII. fig. 5.)

The somewhat dissimilar species which I have included under the present genus are insects of extremely difficult location; and it is probable that at least three distinct modifications of form are indicated amongst them. Being unwilling however to create too many genera in this obscure department of the *Curculionidæ*, I have been content to distribute them into sections,—which, it will be perceived, are gradually more and more removed, both in size and structure, from the larger Madeiran type until they are almost merged into *Omias*. Seeing therefore that I would merely adopt this adjustment as a provisional one, it is scarcely necessary to remark, that I would only regard the *A. lamellipes*, *calcatrix*, *noctivagans*, *lauripotens*, *australis*, *vespertinus* and *lanatus* as normal *Atlantides*, believing that they are sufficiently defined to be altogether isolated from the remainder. The *A. clavatus* indeed, from the peculiar construction of its antennæ, I should rather have referred to *Laparocerus*, but, not having been able hitherto to procure a male specimen for comparison, I have thought it safer, since the sexes of that genus are so exceedingly well-defined, to keep it in its present doubtful position, where it is necessarily free for removal to wherever future investigations may render desirable: at the same time I may add that it seems far from improbable that it will be eventually found to constitute another centre of radiation of equal value with *Cyphoscelis* and *Atlantis proper*. Touching the smaller members of the group, which, for the sake of convenience, and to obviate as far as is consistent the necessity for multiplying genera, I have termed *aberrant Atlantides*, it may be enough to state that they also, in their unpilose elytra, almost equally robust legs in both sexes, and in the undilated and nearly unarmed tibiæ of their males, would appear to merit removal from the rest; nevertheless, for the reasons above assigned, I

would retain them at present as a subdivision of *Atlantis*, to which the larger of their representatives in general aspect a good deal approximate.

§ I. *Antennæ gracillimæ, scapo subrecto ad apicem subito clavato, clavâ elongato-oblongâ.*

277. Atlantis clavatus, *Woll.* (Tab. VII. fig. 3.)

A. subelliptico-ovatus gracilis piceo-niger, pube fulvescenti-brunneâ depressâ variegatus, oculis parvis valde prominentibus, prothorace (præsertim antice) angusto crebre punctato, elytris punctato-striatis obsolete undulato-inæqualibus, humeris leviter porrectis, interstitiis fulvescenti-subfasciculato-tessellatis, antennis pedibusque infuscato-testaceis, illarum articulis secundo et tertio subæqualibus.

Mas adhuc latet.

Fœm., pedibus gracilibus simplicibus.

Long. corp. lin. $3\frac{1}{2}$.

Habitat in montibus Maderæ, rarissimus;—a meipso sub lapide in descensu a fastigio "Poûso" ad campum excelsum illum Fateiras dictum, tempore vernali A.D. 1848, semel tantum repertus.

Insectum antennarum structurâ Laparocero sat affine, sed habitu cum Atlantide potius convenit: ex unico tamen specimine, fœmineo, vix satis de genere adjudicare licet. An igitur genus novum constituat egomet affirmare nequeo, sed Atlantidi affinitate generali proximum videtur.

A. subelliptical-ovate, and slender, being somewhat acute both before and behind, piceous-black, and clothed (though apparently not very densely) with a decumbent fulvescent-, or slightly golden-brown pubescence. *Rostrum* a little longer and slenderer than in any of the other species, and (as in them) slightly dilated at its apex; rugosely punctured; and with a very abbreviated longitudinal channel between the *eyes*,—which are small, perfectly round, and exceedingly prominent. *Prothorax* very much narrower than the elytra, widest behind the middle; densely and rather coarsely punctured. *Elytra* ovate, but much truncated at the base, the humeral angles being slightly porrected; the surface rather undulated or uneven; punctate-striated; entirely free from the elongated, suberect additional hairs which are so evident in nearly all the other species; the suture more densely and uniformly clothed, and the interstices (especially the alternate ones) longitudinally tessellated, with pale fulvescent-, or somewhat golden-brown pubescence. *Antennæ* and *legs* testaceous, though a little infuscated in parts; the *former* with the first and second joints of their funiculus equal, and with their club slender and elongate-oblong; the *latter* with the *claws* black.

Male, hitherto undiscovered.

Female, with the legs exceedingly slender, and simple.

As already stated, the present insect, on account of a female example having been alone discovered, is one of extremely doubtful location, and will perhaps form the type, eventually, of a distinct genus. At any rate, it cannot be a true *Atlantis*, regarding that group as limited to the seven species which constitute the first portion of the second of the sections into which I have distributed the entire number,—the construction of its antennæ, in which it is coincident with *Laparo-*

cerus and *Cyphoscelis*, unquestionably removing it in the opposite direction. Its tendency moreover to have the shoulders *porrected*, instead of rounded off, would seem still further to indicate an approach towards *Cyphoscelis*; and it is merely through ignorance of its male characters that I have been induced to place it where I have,—for the sexual distinctions both of *Cyphoscelis* and *Laparocerus* are so remarkable, that I think it better to retain it in a confessedly neutral position than to admit it into a well-defined group, only a portion of the elements of which it may perhaps be found afterwards to possess. At the same time, whilst it agrees with these two genera exactly in the peculiarity of its antennæ, it is widely separated from them both (even in the *female* sex) in its longer and unacuminated rostrum, and in its exceedingly small and prominent eyes; and I think it more than probable that its males will display modifications in the structure of their tibiæ equally important. Considering it therefore for the present as an aberrant *Atlantis*, it will be sufficient to add that it may be at once distinguished from the remainder of the genus here described, not only by the details of its antennæ above mentioned, but likewise by its somewhat anteriorly-, and posteriorly-pointed outline, by its slightly longer, slenderer, and more deeply sculptured rostrum, by its excessively small and prominent eyes, by its narrow and subconical prothorax, by the more porrected humeral angles and somewhat undulated surface of its brownly-tessellated elytra (which moreover are perfectly free from the elongated, suberect additional hairs which constitute so remarkable a feature in most of the other species), and by its testaceous legs. My unique specimen I captured, from beneath a stone, on the descent from the Poûso to the level, though elevated plain of the Fateiras, during the spring of 1848.

§ II. *Antennæ minus graciles, scapo curvato apicem versus facilius incrassato, clavâ plerumque elongato-obovatâ.*

A. *Elytra pilis longis superadditis undique adspersa. Pedes in maribus quam in fœminis crassiores; tibiis masculis ad apicem plus minusve distincte armatis (spinâ in posticis calcaneiformi), posticis dilatatis.* (Atlantides typici.)

278. Atlantis lamellipes, *Woll.* (Tab. VII. fig. 5.)

A. elongato-subovatus piceo-niger, pube diluto-flavescenti et diluto-viridescenti robustâ depressâ dense variegatus, prothorace subremote punctato, elytris punctato-striatis, pilis longis suberectis parum rigidis remotis adspersis, interstitiis alternis longitudinaliter nigro-fasciculato-tessellatis, antennis elongatis ferrugineis, articulis secundo et tertio subæqualibus.

Mas, pedibus robustis latis: tibiis anterioribus apice fere inarmatis; anticis (VII. 5 *b*) intus obscure crenulatis, apicem versus subito et profunde emarginatis atque ad apicem multo incurvis; posticis ante apicem vix constrictis, ad apicem subito valde explanatis, angulo interno subrecto (vix truncato et vix calcaneiformi), externo acuminato valdissime exstante.

Fœm. paulo major; pedibus gracilioribus sed haud brevioribus; simplicibus, aut potius angulo tibiarum posticarum (VII. 5 *c*) externo vix producto.

Long. corp. lin. 5–5⅔.

Habitat in Maderâ sylvaticâ excelsâ,—per regionem Fanalensem abundans, quâ mense Julio A.D. 1850 copiosissime observavi: inter lichenes et muscos super truncos arborum nascentes, vel sub cortice laxo, die sese latitat, nocte solâ vagans.

A. elongate-ovate, piceous-black, and densely variegated with a robust, decumbent, dull greenish-brown and dirty-yellowish pubescence. *Rostrum* slightly dilated at the apex; almost unpunctured; and with a narrow longitudinal channel, more especially apparent between the eyes. *Prothorax* widest about, or sometimes a little behind, the middle; rather remotely, but distinctly punctured. *Elytra* punctate-striated; sparingly beset with elongated, suberect, stiff additional hairs (which are rather longer posteriorly, and somewhat more numerous, than in front); and the alternate interstices longitudinally tessellated with fascicles of blacker pile. *Antennæ* elongated, and ferruginous; the first and second joints of their funiculus equal (or, if there be any difference, the former rather longer than the latter). *Legs* more or less fuscescent, or piceous; the *tarsi* fusco-ferruginous, their terminal joint (except the *claws*, which are, as in all the other species, black) being rufo-testaceous.

Male, with the legs broad and robust. The *two anterior tibiæ* with their apical spine obsolete, crenulated internally, suddenly and greatly emarginated or scooped out towards their extremity, and with the extremity itself considerably incurved; the *intermediate ones* with the spine only just perceptible (being triangular, and placed rather behind the extreme apex), with the crenulations (as in the hinder pair) obsolete*, and but slightly incurved at their extremity; the *hinder ones* very slightly constricted before their extremity, the extremity itself with its external surface suddenly and greatly expanded out, the inner angle being scarcely at all either truncated or formed into a heel, and consequently almost a right angle, and the outer one being produced into an excessively prominent and acuminated process,—the whole forming a somewhat triangular plate.

Female rather larger; with the legs slenderer, but not shorter, and simple,—the hinder tibiæ being but very slightly produced at their outer apical angle.

A large and exceedingly well-defined species. Apart from the structural modifications of its tibiæ, it may be at once known from the other *Atlantides* here described by its gigantic size, lengthened antennæ, by the dull yellowish-green pubescence with which it is variegated, by the robustness and remoteness of the elongated additional hairs with which it is beset, and by the distinctness and comparative regularity of the darker fascicles with which the alternate interstices of its elytra are longitudinally tessellated. Its male sex however is sufficiently identified even by the development of its tibiæ,—the deep subapical emargination of the anterior pair, added to the almost unarmed intermediate, and nearly entire inner angle of the posterior ones, giving it a character which it is impossible to mistake. It seems to be confined to high elevations, and to attain its maximum on the extreme upper limits of the forest districts. It is strictly

* *Vide* note, p. 355.

however a sylvan species, congregating between the loose bark of trees, moss, and lichen,—from which it never wanders by day. Like most of its allies, it becomes extremely active at night, as I have frequently experienced during my encampments in the wooded regions of lofty altitudes. I shall not indeed easily forget the positive inconvenience which I suffered from it on the night of the 16th of July 1850, whilst encamped with the Rev. R. T. Lowe in the uplands of the Fanal (more than 5000 feet above the sea),—when some unknown cause brought such a host of them, accompanied with the *A. noctivagans*, into my tent that they caused me no slight annoyance, by falling down from the canvass on to my bed. It would appear to be more especially abundant during the summer months; nevertheless it occurs in the winter also, since I have taken it, hybernating, from beneath moss on the trunks of the old vinhaticos at the edges of the mountain plain of the Fateiras,—which still remain to represent the ancient forest with which that portion of the island must have been once densely clothed.

279. Atlantis calcatrix, *Woll.*

A. elongato-subovatus piceus, pube viridescenti-, aurescenti-, et cuprescenti-micante robustâ depressâ variegatus, prothorace obsolete punctato, elytris punctato-striatis, pilis longis suberectis remotis adspersis, ubique confuse variegatis et interstitiis alternis indistincte tessellatis, antennis breviusculis rufo-ferrugineis, articulo tertio secundo vix longiore et clavâ elongato-oblongâ.

Mas, pedibus robustis latis: tibiis intermediis apice robuste armatis; anticis subgracilibus intus obscurissime crenulatis subintegris atque ad apicem leviter incurvis; posticis ante apicem constrictis, ad apicem subito valde explanatis, angulo interno oblique truncato (calcaneum obtusum digiti-, aut potius polliciformem pone apicem maxime exstantem efficiente), externo acuminato valdissime exstante.

Fœm. paulo major; pedibus gracilioribus sed haud brevioribus, simplicibus.

Long. corp. lin. $4\frac{1}{2}$–$4\frac{3}{4}$.

Habitat Maderam sylvaticam,—ad Ribeiro Frio, necnon super truncos arborum vetustarum ad oras campi illius excelsi Fateiras dicti nascentium, tempore vernali repertus.

A. elongate-ovate, a little narrower in proportion than the last species, piceous, and densely variegated with a robust, decumbent, greenish, golden-green, and sometimes slightly coppery pubescence,—reflecting more or less of a metallic splendour, though occasionally comparatively dull. *Rostrum* slightly dilated at the apex; almost unpunctured; and with a narrow longitudinal channel, more especially apparent between the eyes. *Prothorax* widest just behind the middle; and obsoletely punctured. *Elytra* rather finely punctate-striated; sparingly beset with elongated, suberect additional hairs (rather more numerous and distinct posteriorly than in front); confusedly variegated with more or less bright scales, or pubescence, the alternate interstices not being much less regularly tessellated than those of the *A. lamellipes*. *Antennæ* shorter than those of that species, and rufo-ferruginous; the second joint of their funiculus being just perceptibly longer than the first, and their club elongate-oblong. *Legs* more or less brownish-testaceous, or fusco-piceous: the *tarsi* paler, their terminal joint being rufo-testaceous.

Male, with the legs broad and robust: the *two anterior tibiæ* slender, and with their apical spine obsolete, very obscurely crenulated internally, and entire, being narrow throughout their entire length and scarcely at all emarginated towards their extremity,—with the extremity itself slightly incurved; the *intermediate ones* with the spine large and robust, and, likewise, slightly incurved at their extremity; the *hinder ones* constricted before their extremity,—the extremity itself with its external surface suddenly and immensely expanded out, the inner angle being obliquely truncated so as to form a heel (which is immensely produced, and somewhat thumb-shaped, being obtuse or rounded at its termination) behind the apex, and the outer one being produced into an excessively prominent and acuminated process.

Female, rather larger; with the legs slenderer, though not shorter, and simple.

In point of size, the present *Atlantis* is intermediate between the *A. lamellipes* and the *A. noctivagans*; nevertheless it has a far greater affinity with the latter than with the former, the comparative shortness of its antennæ, the minutiæ of its colour and sculpture, the robust apical spine of its intermediate legs, and (to a less extent) the construction both of its anterior and posterior ones, being all partially coincident with the corresponding details of that insect. So much indeed is this the case, that before I had carefully examined the few specimens which I possess, I had imagined them to be but largely developed examples of the *A. noctivagans*. A more critical comparison however has subsequently convinced me that they are certainly distinct,—since, apart from the modifications of their male tibiæ, the many small peculiarities which they display make up, in the aggregate, a considerable amount of difference, and must unquestionably establish them as a separate species. They may be known from the *A. noctivagans* (with which alone they could be confounded) by their greater bulk and somewhat less deeply sculptured surface, by the slenderer club of their antennæ, and by the tibiæ of their males,—of which the anterior pair are narrow, and almost entirely straight along their inner edge (being scarcely perceptibly constricted, or emarginated, before their extremity so as to shape-out a rounded calf towards their base); whilst the posterior ones present a peculiarity of dilatation which is very remarkable, being immensely produced behind (*i. e.* at the postapical projection formed by the oblique truncation of the inner angle) into an exceedingly prominent and thumb-shaped heel, which is not only of gigantic dimensions compared with that of the *A. noctivagans*, but is likewise rounded and obtuse at the extremity, instead of acute. The only male specimen of the *A. calcatrix* which has hitherto come beneath my notice was captured by myself from under a stone at the edges of the Levada of the Ribeiro Frio, during the spring of 1849: but I have taken females, which I do not hesitate to refer to the same species, from amongst moss and lichen on the trunks of the old vinhaticos on the eastern limits of the elevated plain of the Fateiras.

280. Atlantis noctivagans, *Woll.*

A. elongato-subovatus piceo-niger, pube viridescenti-, aurescenti-, et cuprescenti-micante plus minusve

dilutâ robustâ depressâ variegatus, prothorace punctato, elytris punctato-striatis, pilis longis suberectis adspersis, ubique confuse variegatis et interstitiis alternis indistincte tessellatis, antennis breviusculis ferrugineis articulo tertio secundo longiore.

Mas, pedibus robustis latis: tibiis intermediis apice parum robuste armatis; anticis intus obscurissime crenulatis, apicem versus facilius et leviter emarginatis atque ad apicem incurvis; posticis (VII. 5*) ante apicem constrictis, ad apicem subito valde explanatis, angulo interno oblique truncato (calcaneum acutum subtriangularem pone apicem exstantem efficiente), externo acuminato valdissime exstante.

Fœm. paulo major; pedibus gracilioribus sed haud brevioribus, simplicibus.

Long. corp. lin. $3\frac{1}{2}$–$4\frac{1}{4}$.

Habitat in locis similibus ac *A. lamellipes,* noctivagare amans.

A. elongate-ovate, piceous-black, and densely variegated with a robust, decumbent, greenish, golden-green, and somewhat coppery pubescence,—which reflects more or less of a metallic splendour. *Rostrum* and *prothorax* as in the *A. calcatrix*, the latter perhaps a little more distinctly punctured. *Elytra* as in the *A. calcatrix*, only usually rather more brilliantly variegated, the alternate interstices being much less regularly tessellated than those of the *A. lamellipes*. *Antennæ* and *legs* as in the last species; though the *former* with the second joint of their funiculus usually more evidently longer than the first, and with their club somewhat slender and elliptical.

Male, with the legs broad and robust. The *two anterior tibiæ* with their apical spine obsolete, very obscurely crenulated internally, gradually and slightly emarginated (or scooped out) towards their extremity (though very much less so, and much more gradually, than is the case with the *A. lamellipes*) so as to form a gently-rounded, though perceptibly broader portion (or calf) towards their base,—with the extremity itself slightly incurved; the *intermediate ones* with the spine large and robust (though not quite so large as that of the *A. calcatrix*), and, likewise, slightly incurved at their extremity; the *hinder ones* constricted before their extremity,—the extremity itself with its external surface suddenly and greatly expanded out, the inner angle being obliquely truncated so as to form a heel (which is considerably produced, though far less so than in the last species, and somewhat beak-shaped, being extremely angular at its termination) behind the apex, and the outer one being produced into a prominent and acuminated process (not quite so prominent however as that either of the *A. lamellipes* or of the *A. calcatrix*).

Female, rather larger; with the legs slenderer, though not shorter, and simple.

The distinctions between the present insect and the last have been already pointed out,—the respective modifications of their male tibiæ being, on account of their constancy, the most important of them. Like the whole of the *typical Atlantides* except the *A. vespertinus*, the *A. noctivagans* is essentially a sylvan species, occurring at lofty elevations (often in company with the *A. lamellipes*), and being most abundant towards the upper extremity of the forest regions. During my encampment at the Fanal, in July 1850, I captured it, as lately stated, in the utmost profusion,—where it congregates beneath the loose bark of trees, and under moss and lichen, by day, being active only at night.

281. Atlantis lauripotens, *Woll.*

A. elongato-subovatus piceo-niger, pube viridescenti-et subaurescenti-micante depressâ parce variegatus, prothorace punctato, elytris sat profunde punctato-striatis, pilis longis suberectis mollibus dense adspersis, interstitiis valde indistincte tessellatis, antennis breviusculis rufo-ferrugineis, articulo tertio secundo paulo longiore.

Mas, pedibus sat robustis latiusculis: tibiis intermediis apice robuste armatis; anticis subgracilibus intus obscurissime crenulatis, apicem versus facillime et leviter emarginatis atque ad apicem leviter incurvis; posticis ante apicem fortiter constrictis, ad apicem subito valde explanatis, angulo interno oblique truncato (calcaneum obtusum gibbiformem pone apicem multo exstantem efficiente), externo acuminato valdissime exstante.

Fœm. paulo major; pedibus gracilioribus sed haud brevioribus, simplicibus.

Long. corp. lin. 3.

Habitat in lauretis Maderæ, inter folia latitans,—ad Curral das Romeiras supra Funchal autumno exeunte A.D. 1847 a meipso detectus.

A. elongate-ovate, piceous-black (when immature, more or less rufo-ferruginous), and sparingly variegated with a rather fine, decumbent, greenish, or golden-green pubescence. *Rostrum* and *prothorax* as in the *A. noctivagans*, except that the latter is a little more distinctly punctured. *Elytra* rather deeply punctate-striated; somewhat densely beset with elongated, suberect additional hairs, which are less robust than in any of the previous species; the interstices having only the slightest possible tendency in front to be longitudinally tessellated with denser patches of the brighter pubescence, but more evidently variegated behind. *Antennæ* and *legs* as in the *A. noctivagans*.

Male, with the legs as in the last species,—but the *two anterior tibiæ* somewhat slenderer, being even still more slightly emarginated towards their inner apex, and, consequently, only just perceptibly broader at their sub-basal region than elsewhere; and the *hinder ones* much more constricted before their extremity, and with their inner heel rather more produced,—and hunch-shaped (or rounded at its apex), instead of angular and acute.

Female rather larger; with the legs slenderer, though not shorter, and simple.

Allied to the *A. noctivagans*, though certainly distinct from it;—ranging moreover in somewhat lower altitudes, and being less nocturnal in its habits. It may be recognised from that insect by its smaller size, by its rather more deeply sculptured and less variegated surface, by the suberect pile of its elytra being both denser and of a slightly softer nature, by its anterior male tibiæ being slenderer, and less perceptibly widened about their sub-basal region, and by the hinder pair being not only much more constricted before their extremity, but with the inner heel rounded, and hump-shaped, instead of acute. It would seem to occur in less elevated spots than any of the preceding species, attaining its maximum towards the lower limits of the sylvan districts,—at an elevation perhaps of from 1500 to about 2000 feet above the sea. I have hitherto detected it in the south of the island only, where it is found on the foliage of the native laurels: and during the

autumn of 1847 I captured many specimens from off the old vinhaticos of the Curral das Romeiras,—in a comparatively active state even by day.

282. Atlantis australis, *Woll.*

A. elongato-subovatus fusco-piceus, pube subviridescenti-cinereâ depressâ parce variegatus, prothorace parum profunde punctato, elytris sat profunde punctato-striatis, pilis longis suberectis mollibus dense adspersis, interstitiis vix tessellatis, antennis breviusculis rufo-ferrugineis, articulo tertio secundo paulo longiore.

Mas, pedibus sat robustis latiusculis: tibiis intermediis apice parum robuste armatis; anticis intus obscurissime crenulatis, apicem versus facillime et leviter emarginatis atque ad apicem leviter incurvis; posticis ante apicem fortiter constrictis, ad apicem subito explanatis, angulo interno oblique truncato (calcaneum acutum subtriangularem pone apicem exstantem efficiente), externo acuminato valde exstante.

Fœm. paulo major; pedibus gracilioribus sed haud brevioribus, simplicibus.

Long. corp. lin. 3–3$\frac{2}{3}$.

Habitat in Maderæ australis sylvaticis, præsertim super folia *Lauri Indicæ* et *L. fœtentis* in locis subinferioribus nascentium, æstate et autumno frequens: usque ad 800′ et 700′ s. m. descendit, etiam in cultis vix ab urbe Funchalensi remotis interdum occurrens.

A. elongate-ovate, brownish-piceous, or sometimes ferruginous, and sparingly variegated with a rather fine, decumbent, somewhat greenish-cinereous pubescence. *Rostrum* and *prothorax* as in the *A. lauripotens*, except that the latter is rather more deeply punctured. *Elytra* as in the last species, but even less variegated still, the anterior portion having usually scarcely any tendency to be longitudinally tessellated, whilst the hinder patches also are less evident than those of that insect. *Antennæ* and *legs* as in the *A. lauripotens*.

Male, with the legs as in the last species, but a little longer,—the *two anterior tibiæ* not quite so slender; and the *hinder ones* rather less expanded at their extremity, and with their inner heel beak-shaped and acute,—like that of the *A. noctivagans*.

Female rather larger; with the legs slenderer, though not shorter, and simple.

Very nearly related to the last species, with which indeed, were it not for the structural characters of its male tibiæ, it might almost be confounded. It is usually however of a more piceous, or brownish-piceous colour than that insect, its surface is even still less variegated, the pubescence being of a paler and more cinereous hue, its prothorax is rather more deeply punctured, and its legs are just perceptibly longer; whilst the hinder tibiæ of its males (which are not quite so broadly expanded at their extremity, and have their inner heel beak-shaped and acute, like that of the *A. noctivagans*) will at once distinguish that particular sex from the corresponding one of the *A. lauripotens*. Its range moreover is, apparently, lower than that of any of the preceding members of the group, since it would seem to descend into the cultivated districts, and it may be occasionally observed so low as 700 or 800 feet above the sea:—indeed in the summer of 1850

I captured it from off the foliage of a Til-tree in the grounds of the Quinta da Palmeira, above Funchal. It is more particularly abundant during the early autumnal months; and, like the *A. lauripotens*, its habits are comparatively diurnal.

283. Atlantis vespertinus, *Woll.* (Tab. VII. fig. 4.)

A. oblongo-subovatus nitidus piceus, pube subcinereâ depressâ parcissime variegatus, rostro brevi lato longitudinaliter striguloso, prothorace convexo crebre et sat profunde punctato, elytris leviter punctato-striatis, pilis longiusculis suberectis adspersis, interstitiis vix tessellatis, antennis breviusculis subgracilibus fusco-ferrugineis, articulis secundo et tertio æqualibus.

Mas, pedibus robustis latiusculis: tibiis intermediis apice parum robuste armatis; anticis intus obscurissime crenulatis, apicem versus vix emarginatis atque ad apicem leviter incurvis; posticis ante apicem haud constrictis (i. e. usque a basi facile dilatatis), ad apicem subito explanatis, angulo interno oblique truncato (calcaneum acutum subtriangularem parvum pone apicem minus exstantem efficiente), externo leviter acuminato exstante.

Fœm. paulo major; pedibus gracilioribus sed haud brevioribus, simplicibus.

Long. corp. lin. 3–3⅔.

Habitat sub lapidibus in montibus superioribus Maderæ, inde a 3000′ s. m. ascendens: ab autumno ad ver novum prædominat, quo tempore per totam regionem præcelsam cacuminibus montis Pico dos Arieros dicti subjacentem copiosissime observavi.

A. oblong-subovate, being less acuminated anteriorly than any of the other species, more or less shining and piceous, and exceedingly sparingly clothed with a decumbent subcinereous pubescence. *Rostrum* short and broad, and not at all dilated at the apex; longitudinally strigulose; and with a central channel, especially apparent between the eyes. *Prothorax* convex, with the sides almost equally rounded, being widest about the middle; closely, and more or less deeply punctured. *Elytra* lightly punctate-striated; more or less sparingly beset with longish, suberect additional hairs, which have sometimes a tendency to arrange themselves in rows; the interstices with the faintest possible tendency to be longitudinally tessellated with denser patches of the subcinereous pile. *Antennæ* short, slender, and brownish-ferruginous; the second joint of their funiculus not being perceptibly longer than the first. *Legs* as in the previous species.

Male, with the legs rather broad and robust. The *two anterior tibiæ* with their apical spine obsolete, most obscurely crenulated internally, scarcely at all emarginated towards their extremity,—the extremity itself slightly incurved; the *intermediate ones* with the spine tolerably distinct, and very slightly incurved at their extremity; the *hinder ones* not constricted before their extremity (being gradually dilated from their base),—the extremity itself with its external surface suddenly, but not very greatly, expanded out, the inner angle being obliquely truncated so as to form a heel (which is slightly produced, small, and trigonate, being extremely angular at its termination) behind the apex, and the outer one being produced into a prominent and acuminated process (though less prominent and less acuminated than in any of the previous species).

Female generally a little larger; with the legs slenderer, but not shorter, and simple.

One of the best-defined of all the *Atlantides* hitherto discovered, partaking in some measure of the peculiarities of *Laparocerus*, though not sufficiently so to be

included in that genus. In its habits moreover it recedes from the whole of the preceding members of the group, being confined exclusively to the exposed mountain-slopes of lofty altitudes, and, so far as I have hitherto observed, never entering the wooded districts. In its short, broad, unexpanded, and longitudinally strigulose rostrum, and in its convex and equally-rounded prothorax, as well as in its less densely pubescent surface and its extra-sylvan nature, it makes an evident regression in the direction of *Laparocerus*; and were there the smallest grounds for supposing that the examples from which that genus was established (in 1834) were wrongly referred to Portugal, by Faldermann (who appears either to have collected in, or else to have received insects from, Madeira), I should have been rather inclined to have identified it with the *L. piceus* of Schönherr, with which, judging from the description, it would seem in many particulars to agree. Still, several of its most striking characters (as, for instance, the suberect elongated pile with which it is more or less clothed) are not alluded to in the diagnosis as enunciated in the *Genera et Species Curculionidum*; and there can be no doubt therefore that *if the specimens described from were in reality Portuguese*, they are certainly distinct specifically from the Madeiran ones;—and it is merely the possibility (already hinted at) of a mistake having arisen as to the original types which would induce me to entertain the contrary suspicion at all. In either case, however, our present insect cannot be a *Laparocerus*, since it wants the modifications both of the antennæ and tibiæ which constitute the main features of that genus. Nevertheless it does even in these respects make a *slight* approach towards the *Laparoceri*, since the former are just perceptibly slenderer than those of the other *Atlantides*, and the latter are unconstricted before their extremity,—being gradually expanded from the base, so as scarcely to display any greater breadth about their sub-basal region than elsewhere.

The *A. vespertinus* abounds, during the winter and early spring, in open grassy spots of high elevations, ranging from about 3000 feet above the sea to the extreme mountain-tops,—and apparently attaining its maximum but a short distance below the summits of the peaks. On the upland ridges from the Fonte das Moças to the Pico dos Arieros, and from thence to the Pico da Lagoa, I have observed it by thousands in January and February, congregating beneath stones in company with Heteromerous and other insects which delight in such localities. The species varies a little in the depth of its sculpture and the density of its pubescence; but it possesses so many characters essentially its own, that there is but little fear of confounding it with any of the other *Atlantides* with which we have here to do.

284. Atlantis lanatus, *Woll.* (Tab. VII. fig. 6.)

A. elongato-ovatus nigro-, vel fusco-piceus, pube subfulvescenti-cinereâ robustâ depressâ parce variegatus, prothorace remote punctato, punctis maximis sed haud semper profundis, elytris profunde punctato-striatis, pilis valde elongatis erectis mollissimis lanatis dense adspersis, interstitiis

alternis vix tessellatis, antennis longiusculis crassis infuscato-ferrugineis, articulo tertio secundo multum longiore.

Mas, pedibus vix robustioribus: tibiis omnibus mox pone apicem internum spinâ parvâ acutâ (in posticis minutissimâ acutissimâ) armatis; anticis apicem versus incurvis; posterioribus (sed præsertim posticis) rectis; posticis ad apicem haud explanatis (omnino simplicibus).

Fœm. paulo major; pedibus vix gracilioribus et haud brevioribus, simplicibus.

Long. corp. lin. $3\frac{2}{3}$–$4\frac{1}{3}$.

Habitat Maderam australem, vel in sylvaticis super folia Laurorum, vel etiam sub lapidibus in aperto, ab autumno usque ad ver novum prædominans: ad Curral das Romeiras prope Funchal Octobri mense A.D. 1847 copiose observavi, necnon in summo monte Pico da Cruz dicto tempore hiberno A.D. 1851 detexit cl. Dom. Heer.

A. elongate-ovate, piceous-black, piceous, or brownish-piceous, and sparingly clothed with a robust, decumbent, brownish-cinereous, or entirely cinereous pubescence. *Rostrum* slightly dilated at its apex; rather distinctly sculptured, having a tendency to be longitudinally strigulose; and with a deep central channel between the eyes. *Prothorax* widest just behind the middle; rather roughened and remotely punctured, the punctures extremely large, and sometimes (though not always) deep,—the spaces between them being beset with most minutely and delicately impressed points*. *Elytra* deeply punctate-striated; densely beset with very elongated, erect, extremely fine, and woolly additional hairs, which are of a softer nature than those of any of the other species; the alternate interstices having only the slightest possible tendency (which is sometimes not at all perceptible) to be longitudinally tessellated with denser patches of the pubescence. *Antennæ* rather long, and exceedingly robust; their scape being dull ferruginous, and the remainder more or less darkly infuscated, or picescent: the second joint of their funiculus immensely longer than the first. *Legs* more or less brownish-testaceous, or fusco-piceous: the *tarsi* paler, their terminal joint being rufo-testaceous.

Male, with the legs scarcely more robust than the female: *all the tibiæ* armed with a small, acute spine (which in the hinder pair is very small, and exceedingly acute) at a short distance behind their inner apices; the *two anterior ones* considerably incurved towards their extremity; the *four posterior ones* (especially the hinder pair) straight; the *hinder ones* not expanded at their extremity, but entirely simple.

Female rather larger; with the legs very slightly slenderer, but not shorter, and simple.

A most distinct species, differing from the remainder of the genus here described, not only in the exceedingly soft, or woolly nature of the elongated erect hairs with which it is clothed, but likewise in its deeply sculptured surface (that of the prothorax, as already stated, presenting a very peculiar structure), in the thickness and robustness of its antennæ, which have the second joint of their funiculus immensely longer than the first, and in the small, acute spine with which the internal apex of *all* the tibiæ of its male sex are furnished at a short distance from

* These intermediate points are scarcely perceptible except beneath the microscope: but when thus viewed, the sculpture has much the appearance of that which forms such a peculiar feature of the *Laparocerus morio*,—except that the superior punctures are immensely larger, and the inferior ones smaller still (and less numerous) than those of that insect.

their extremity. It does in fact form somewhat of a connecting link between the typical and aberrant *Atlantides*; for whilst its excessively pilose elytra, and the slightly incrassated legs and the armed tibiæ of its males must needs (as the most important of its characters) retain it amongst the former, yet the posterior tibiæ being undilated at their termination would tend to identify it with the latter, did not the singular and very acute little spur, with which they are fortified behind their apex, exist, to represent the inner heel (as it evidently does), which is more or less largely developed, and modified, throughout the whole of the normal members of the group. The *A. lanatus* is a rather abundant insect towards the lower limits of the wooded districts,—occurring occasionally, likewise, beneath stones in more open spots. I have not myself observed it except in the south of the island; but have taken it commonly, during the autumnal months, at the Curral das Romeiras, above Funchal,—and it was captured by Professor Heer at the Mount Church, and on the Pico da Cruz, during the winter of 1850–51.

B. *Elytra pilis superadditis carentia, vel ad apicem solum parce pilosa. Pedes in utroque sexu crassitudine subæquales; tibiis masculis ad apicem fere inarmatis, posticis haud dilatatis.* (Atlantides aberrantes, *forsan genus alterum efficientes.*)

285. Atlantis navicularis, *Woll.*

A. elongato-ovatus rufo-piceus, pube aureo-viridescenti-micante robustâ depressâ parce variegatus, prothorace subremote punctato, elytris punctato-striatis, ad apicem navicularibus atque illic pilis longiusculis erectis mollissimis parce adspersis, interstitiis alternis sat distincte tessellatis, antennarum scapo gracili, articulis secundo et tertio subæqualibus.

Long. corp. lin. $3\frac{1}{2}$–$3\frac{2}{3}$.

Habitat in insulâ Portu Sancto, sub lapidibus Decembri mense A.D. 1848 a meipso repertus.

A. elongate-ovate, rufo-piceous, and sparingly variegated with a robust, decumbent, green and golden, or golden-green pubescence,—reflecting a metallic splendour. *Rostrum* and *prothorax* as in the last species; the *latter* being a little more distinctly keeled in the centre, but with the same character of punctuation (namely, large punctures with minute ones between, the former having impressed radiating lines divergent from each of them). *Elytra* somewhat parallel towards their base; rather deeply punctate-striated; quite free from additional pile except at the extreme apex, where there are a few, tolerably elongated, erect, and exceedingly soft, or silken hairs; pinched in on either side about the apex, causing the suture in that region to be prominent and keeled, and that portion of the body consequently to be boat-shaped; the alternate interstices rather distinctly tessellated with denser patches of the golden-green pubescence. *Antennæ* somewhat long and slender, rufo-ferruginous; their scape slender at the base, being rather suddenly thickened towards the apex: the first and second joints of their funiculus of about equal length. *Legs* more or less rufo-ferruginous, exceedingly pilose, and simple in both sexes*: the *tarsi* with their terminal joint rufo-testaceous.

---

* *Vide* note, p. 355.

The representatives of the second subsection of *Atlantis*,—which I would define as the aberrant members of the group, and perhaps in reality to be considered as generically distinct,—may be at once recognised by their freedom from the elongated additional pile (except at the extreme apex only) with which the elytra in the previous division is more or less densely besprinkled, and by the similarity of their legs in both sexes,—which last are not merely of equal (or, at any rate, of subequal) thickness in the two, but are, likewise, unexpanded at their termination in the males, and have the apical spine which characterizes the normal forms either entirely absent, or else so far reduced in size that it may be practically regarded as such. They are insects, moreover, of a less sylvan nature, being, with a single exception, confined, so far as I have hitherto observed, to barren, submaritime spots altogether destitute of trees,—residing beneath stones, but being, like most of the *Cyclomides*, of exceedingly gregarious habits. It is worthy of remark, that, up to the present period, I have detected but a solitary species in Madeira proper (namely, the *A. excelsus*,—the one just referred to, as ranging within the wooded districts), five, out of the remaining six, being peculiar to Porto Santo, and the other to the Ilheo de Fora,—the little island which constitutes the detached extremity of the São Laurenço promontory, the most eastern point of Madeira.

The *A. navicularis*, which, on account of the comparatively bright, golden-green scales with which it is tessellated, approaches in general aspect some of the typical members of the genus, may be readily distinguished from the rest of the present division by its remotely punctured prothorax, and by the softer, more elongated, and silken additional hairs with which the apex of its elytra is beset,—whilst the curiously constricted, or pinched-in, structure which is so apparent in that portion of its surface, and which causes the suture to project like a keel, giving a boat-shaped appearance to that particular region of its body, will serve to separate it from the whole of the other species, normal and aberrant, here described. In the somewhat slender scape of its antennæ it almost agrees with the *A. inconstans*, whilst in the equality of the first and second joints of its funiculus it recedes from that insect, as well as from the *A. instabilis*, with which it was found in company. And, upon the whole, I am inclined to think that it may perhaps have a greater affinity with the unique *A. clavatus* (though widely distinct from it specifically), than with any other *Atlantis* hitherto discovered. The only three specimens which I have seen, were captured by myself in Porto Santo, during my residence there with the Rev. W. J. Armitage, in December 1848,—but whether taken on the Campo de Baxo or at a higher elevation, I cannot at present recall.

286. Atlantis inconstans, *Woll.*

A. elongato-subovatus piceus vel fusco-piceus, pube cinereo-subcuprescente vel cinereo-subviridescente dilutâ depressâ parce variegatus, prothorace dense punctato, elytris punctato-striatis, ad apicem

setis brevibus erectis parce adspersis, interstitiis alternis valde indistincte tessellatis, antennarum scapo subgracili, articulo tertio secundo longiore.

Long. corp. lin. $3\frac{1}{2}$–$4\frac{1}{2}$.

Habitat Portum Sanctum: sub lapidibus in campis aridis, necnon in vinetis mox pone oram maritimam sitis, Decembri exeunte A.D. 1848 plurima specimina detexi.

A. elongate-subovate, piceous, or brownish-piceous, and sparingly variegated with a fine, decumbent, somewhat coppery-cinereous, or greenish-cinereous pubescence,—of an exceedingly variable nature, but usually reflecting, when viewed obliquely, more or less of a dull metallic lustre. *Rostrum* and *prothorax* as in the last species, except that the *latter* is usually widest about the middle (instead of a little behind the middle), and is very much more densely punctured,—the punctures however having generally a slight tendency to radiate as in that insect, but with the intermediate ones (even under the microscope) scarcely perceptible. *Elytra* rather deeply punctate-striated; free from additional pile except at the extreme apex, where there are a few very short bristles, or stiff hairs; the alternate interstices very obscurely tessellated with denser portions of the pubescence,—occasionally however rather distinctly so behind, where the suture also is sometimes a little more evidently paler, or blotched, than in most of the other species. *Antennæ* fusco-ferruginous, or fusco-testaceous; their scape generally a little paler than the remainder, and rather slender: the second joint of their funiculus distinctly longer than the first. *Legs* rather long, varying from rufo-ferruginous into testaceous, and simple in both sexes: the *tarsi* with their terminal joint rufo-testaceous.

The *A. inconstans* may be known by its comparatively large size and obscurely tessellated surface (which, although of a very variable nature, has generally more or less of a dull coppery or golden-green tinge when viewed obliquely), by its densely punctured prothorax, somewhat elongated legs, and by its scape being rather slender at the base. In the first joint of its funiculus being distinctly shorter than the second it agrees with the *A. instabilis*; nevertheless its much greater bulk, longer limbs, and the less robust base of its antennæ will at once separate it from that insect. It is apparently peculiar to Porto Santo, where I captured several specimens, during December 1848, from beneath stones on the open plain of the Campo de Baxo, and in the low sandy vineyards, to the south of the island, immediately behind the sea-beach.

287. Atlantis mendax, *Woll.*

A. elongato-ovatus, antice subangustatus, piceus, pube subcinereâ vel subviridescenti-cinereâ robustâ depressâ variegatus, prothorace profunde punctato, elytris punctato-striatis, ad apicem setis brevibus erectis parcissime adspersis, interstitiis alternis valde indistincte tessellatis, antennarum scapo robusto valde curvato, articulis secundo et tertio subæqualibus.

Long. corp. lin. $3\frac{1}{3}$–4.

Habitat Portum Sanctum, in iisdem locis ac præcedens, sed illo rarior.

A. elongate-ovate, and a little narrowed anteriorly, piceous, and more or less densely clothed with a

rather robust, decumbent, cinereous, or somewhat greenish-cinereous pubescence. *Rostrum* and *prothorax* as in the *A. inconstans*; the latter however with its widest portion perhaps just perceptibly less medial, and also rather more deeply, and not quite so closely punctured,—the larger punctures having no tendency to throw out radiating lines, and the intermediate ones being a little more evident than those of that species. *Elytra* rather less deeply punctate-striated than in the *A. inconstans*, and with the scales, or pubescence, somewhat more robust, paler, and with less of a metallic lustre. *Antennæ* and *legs* as in the last species; except that the *former* are rather shorter, and have their scape much robuster at its base (and more curved), and with the first and second joints of their funiculus subequal.

The distinctions between the present insect and the last have been already pointed out in the above comparative description; and it will be sufficient therefore to add that, whilst in point of size it is intermediate between the *A. inconstans* and the *A. instabilis*, and is in general structure somewhat allied to both; its anteriorly subacuminated form, the robustness of its scales and scape, and the equality of the first and second joints of its funiculus would seem to indicate, apart from minor differences, that it is a true species, and no local state of either of them. Three examples only have hitherto come under my observation; which I captured, from beneath stones, on the Campo de Baxo of Porto Santo during December 1848.

288. Atlantis instabilis, *Woll.*

A. elongato-ovatus vel subovatus, fusco-piceus vel ferrugineus, pube subcinereâ vel subfulvescenti-cinereâ depressâ variegatus, prothorace profunde punctato, elytris punctato-striatis, ad apicem setis brevibus erectis parce adspersis, interstitiis alternis plus minusve indistincte tessellatis, antennarum scapo subrobusto valde curvato, articulo tertio secundo paulo longiore.

Variat elytris rotundatioribus, vel interstitiis alternis haud perspicue tessellatis.

Long. corp. lin. 2–3¼.

Habitat in Portu Sancto, vulgaris;—sub lapidibus in Campo de Baxo, sed præsertim super promontorium quoddam oræ septentrionalis, mensibus Decembri et Aprili a meipso lectus.

A. more or less elongate-ovate, or ovate, brownish-piceous or ferruginous, and rather densely clothed with a decumbent fulvo-cinereous, or subcinereous pubescence,—which has sometimes a brownish-golden tinge, but very rarely any admixture of green. *Rostrum* and *prothorax* as in the *A. mendax*; the *latter* being perhaps rather more closely, though equally deeply punctured. *Elytra* punctate-striated; free from additional pile except at the extreme apex, where there are an exceedingly few, and very short bristles, or stiffish hairs; the alternate interstices more or less obscurely tessellated with denser portions of the pubescence, but sometimes so faintly so as to appear altogether untessellated. *Antennæ* and *legs* as in the *A. mendax*; except that the former have the scape perhaps not quite so robust (though very much thicker at its base than that of the *A. inconstans*),—and with the second joint of their funiculus a little longer than the first.

By far the commonest and most unstable of all the Porto Santan *Atlantides*,—scarcely two specimens out of more than thirty, from which the above description

has been compiled, being exactly alike. In the tessellation of its elytra it passes through many degrees of relative obscurity,—until, in some instances, the pubescence displays no traces of variegation whatsoever, being uniformly of a brownish-cinereous hue. It may however be generally recognised, in all its stages, from the *A. mendax* and the previous species (with which alone it could be confounded), by its far smaller size (some of the extreme examples scarcely attaining so much as three lines in length), and by the second joint of its funiculus being distinctly longer than the first. In this last respect however it approaches (though only to a certain extent) the *A. inconstans*; nevertheless, in addition to its comparatively diminutive bulk, it is abundantly separated from that insect, not only by the robustness and curvature of its scape and by its shorter limbs, but, likewise, by its different sculpture, colour, and form. It is essentially an inhabitant of barren exposed spots, occurring beneath stones in localities but slightly elevated above the shore. On the open plain of the Campo de Baxo, but especially on the summit of a rounded cliff on the northern coast (whilst searching for the large and beautiful *Helix testudinalis*), I captured it in considerable abundance, during December 1848 and April 1849.

289. Atlantis excelsus, *Woll.*

A. ovatus convexus fusco-niger, pube subfulvescenti-, vel subaurescenti-olivaceâ depressâ dense variegatus, rostro breviusculo crasso, prothorace brevi punctato, elytris punctato- (an potius crenato-?) striatis, nec pilis nec setis superadditis adspersis, interstitiis alternis plus minusve distincte tessellatis, antennarum scapo gracili, articulis secundo et tertio subæqualibus.

Var. β. elytris setulis subrigidis brevissimis superadditis undique obsitis.

Long. corp. lin. $2\frac{1}{2}$–$3\frac{1}{2}$.

Habitat per totam regionem Maderæ sylvaticam, sed præsertim inter 4000′ et 5000′ s. m., æstate non infrequens: folia Laurorum destruit, etiam die vagans.

A. ovate and convex, dark brownish-piceous, and densely variegated with a fine, decumbent, greenish-brown, or somewhat olivaceous pubescence,—reflecting more or less, when viewed obliquely, a dull golden lustre. *Rostrum* rather short, and scarcely at all dilated at its apex; occasionally with a tendency to be longitudinally strigulose; and with a central channel between the eyes, which is sometimes replaced in front by a slightly-raised line, or keel. *Prothorax* short, widest about the middle; transversely convex behind the middle, and with the *extreme* anterior margin often a little raised; closely and rather roughly punctured; and usually more distinctly keeled in the centre than is the case with any of the preceding species. *Elytra* punctate- (or, more strictly perhaps, crenate-) striated; free from additional erect pile in all portions of their surface; the alternate interstices more or less distinctly tessellated with denser portions of the pubescence. *Antennæ* somewhat slender, and ferruginous; their scape very slightly curved, slender at its base, and rather suddenly thickened towards its extremity: and with the first and second joints of their funiculus subequal. *Legs* as in the preceding species, but somewhat slender.

Var. β. with the elytra densely beset all over with most minute, suberect additional bristles, or stiff hairs.

There can be but little fear of confounding the present *Atlantis* with any of the remainder here described, the only one which it assimilates in the least being the *A. Schaumii*,—with which it agrees in the equality of the first and second joints of its funiculus, and, to a certain extent, in its convex and ovate form. It may however be at once recognised from that insect by the somewhat straight, and more suddenly clavated scape of its antennæ, by its thicker, and less apically-divergent rostrum, by its shorter, wider, and more deeply sculptured prothorax, and by its more posteriorly acuminated elytra,—which last are not only more closely covered and tessellated with scales and have their striæ crenated rather than punctate, but entirely want the longer additional hairs which are so conspicuous towards the hinder quarters of that insect. Added to which, its pubescence is not merely denser, but is altogether of a different colour from that of the *A. Schaumii*,—being of a uniformly dull olivaceous-, or golden-brown, and completely free from the bright metallic green tinge which characterises the small portion which exists on that insect. Its habits moreover are of a totally different nature from those of the *A. Schaumii*, being sylvan, alpine, diurnal, and solitary; whereas the latter agrees in every respect with the other aberrant *Atlantides*,—congregating in vast numbers beneath stones on the exposed mountain-slopes of low and intermediate elevations, from which it never wanders except by night. It is the only *Madeiran* representative of the present division of the genus which I have hitherto been able to detect; being not uncommon during the summer months throughout the forest regions, though apparently attaining its maximum towards their upper limits,—from about 4000 feet, perhaps, to nearly 5000 above the sea. It is found on the native laurels in the densest parts of the wooded districts, the whole of my specimens having been obtained by beating the foliage during the daytime, when they were always in an active state. I have captured it on the Lombo das Vacas in June; at the Lombo dos Pecegueiros, the Cruzinhas, the Fanal, and at the head of the Ribeiro de João Delgada, in July; and at the Ribeiro Frio in August.

In its normal state it may be immediately distinguished, apart from other (though not less important) differences, by its perfect freedom from additional erect pile, which is not traceable even at its hinder extremity; and the *var.* β., in which the entire surface of the elytra is thickly beset with short and minute setæ, is scarcely less remarkable, being unparalleled in any of the other species of *Atlantis*,—though exactly represented in the *Cyphoscelis distorta*, an insect of which the habits are exceedingly similar. The *var.* β. is decidedly rare; nevertheless I have taken it at the Cruzinhas, at the head of the Ribeiro de João Delgada, and at the Ribeiro Frio.

290. Atlantis Schaumii, *Woll.*

A. brevi-ovatus convexus piceus, pube subviridescenti-, vel subaurescenti-micante depressâ parcissime variegatus, prothorace leviter punctato, elytris subglobosis punctato-striatis, apicem versus setis

erectis parce adspersis, interstitiis alternis vix tessellatis, antennarum scapo subgracili curvato, articulis secundo et tertio subæqualibus.

Long. corp. lin. 2½–3.

Habitat in summo monte illo Portûs Sancti "Pico do Castello" dicto, sub lapidibus ruinas castelli exoleti circumjacentibus, mensibus Aprili et Maio a meipso copiosissime collectus: species valde distincta et in honorem amici H. Schaum, Berolini, citata.

A. ovate and convex, dark piceous, and most sparingly variegated with a rather robust, decumbent, greenish, or golden-green pubescence,—reflecting, when viewed obliquely, a metallic lustre. *Rostrum* not so thick as in the *A. excelsus*, and more divergent at its apex. *Prothorax* neither so short, nor proportionably so wide as in that insect, also much less deeply punctured, and with its widest point perhaps just perceptibly less medial. *Elytra* more strictly *punctate*-striated than in that species, subglobose, and more suddenly shortened behind; very distinctly besprinkled with erect, additional, stiffish hairs towards their posterior region; the alternate interstices scarcely at all tessellated, though in fresh and very perfect specimens sometimes tolerably distinctly so behind (where the scales reflect more or less of a golden-greenish splendour). *Antennæ* and *legs* as in the *A. excelsus*, except that they are altogether a little robuster,—especially the scape of the former, which is also rather more curved and less suddenly clavated at its extremity.

The distinctions between the present insect and the *A. excelsus* have been already pointed out, not only in the above comparative diagnosis, but likewise in the observations under that species. It will be sufficient therefore to remark, that in its shortened and subglobose outline, in its very sparingly pubescent surface, and in the additional erect pile with which the entire posterior portion of its elytra is besprinkled, it recedes from the whole of the genus (except the *A. Foræ*,—which may possibly be a local variety of it) here described; whilst its habits are rather more of a mountain character than those of the other Porto Santan representatives of the group. The only spot in which I have ever observed it in any profusion is at the extreme summit of the Pico do Castello, where it literally abounds; and where, during May of 1848 and April of 1849, I captured it in vast numbers, from beneath the large slabs of stone within the ruins of the ancient fort. I have dedicated the species to my friend Dr. H. Schaum of Berlin.

291. Atlantis Foræ, *Woll.*

A. ovatus subænescenti-piceus, pube subviridescenti-micante depressâ parcissime variegatus, prothorace subpunctato, elytris punctato-striatis, apicem versus setis longis erectis adspersis, interstitiis alternis vix tessellatis, antennis breviusculis scapo curvato, articulis secundo et tertio subæqualibus.

Long. corp. lin. vix 2½.

Habitat in insulâ quadam parvâ juxta promontorium Sancti Laurentii Maderæ Ilheo de Fora dictâ, sub lapide d. 19 Mart. 1849 repertus.

A. ovate, but less convex and rounded than the *A. Schaumii*, piceous, with (especially on the elytra) a distinctly brassy tinge, and most sparingly variegated with a rather robust, decumbent pubescence, of much the same character as that of the *A. Schaumii*. *Rostrum* and *prothorax* as in that species; except that the *latter* is less evidently punctured,—being in fact, on the disk, only subpunctate. *Elytra* as in the *A. Schaumii*, except that they are not quite so inflated and convex, or so abruptly shortened behind, and with the additional erect pile which is sprinkled over their apical region both longer and somewhat denser. *Antennæ* and *legs* as in that insect, except that the former are just perceptibly shorter, and perhaps a little more robust.

As just stated, the unique insect from which the above description has been drawn out may perhaps be but a local variety of the *A. Schaumii*; nevertheless, as it appears to possess small distinctive characters, which are sufficient, I think, if constant, to indicate an additional species, I have preferred retaining it as separate until at any rate future investigations shall decide the point. My single example was captured by myself on the Ilheo de Fora (the small detached rock which constitutes the extremity of the Ponta de São Laurenço), during an expedition to that minute island, with the Rev. W. J. Armitage, on the 19th of March 1849.

Genus 124. OMIAS. (Tab. VII. fig. 8.)

(Germar) Schön. *Curc. Disp. Meth.* 190 (1826).

Corpus parvum, ovatum vel subrotundatum, convexum, subglabrum vel (rarius) pube variegatum: *rostro* brevi, supra plano, ad apicem plus minusve attenuato et (in speciebus Maderensibus) triangulariter emarginato; *scrobe* (in typicis brevi subcurvatâ, sed in nostris) oblongâ latâ, versus medium rostri ascendente; *oculis* subrotundatis: *prothorace* aut subconico, aut ad latera rotundato: *scutello* (in typicis haud vel vix observando, sed in nostris) perspicuo sed parvo: *elytris* (in typicis) valde convexis: *alis* obsoletis. *Antennæ* (VII. 8 *a*) in speciebus Maderensibus longæ subgraciles; scapo curvato, ad apicem parum subito clavato; funiculo 7-articulato, articulis primo et secundo (illo præcipue) longiusculis crassiusculis, reliquis subnodosis; clavâ elongato-ovatâ, obscure articulatâ. *Pedes* (VII. 8 *b*) in utroque sexu simplices; *tibiis masculis* fere (vix omnino, nisi fallor) inarmatis, sed *anticis* ad apicem ipsum (in maribus vix magis quam in fœminis) plerumque leviter incurvis.

The insects which I have referred to *Omias* are by no means normal representatives of it; nevertheless the great difficulty of obtaining anything like fixed structural characters from the external details of these smaller *Cyclomides* renders it desirable not to multiply the genera more than is necessary, especially where no decided reasons exist for suspecting the several modifications assumed to be geographical variations (like *Atlantis*) from some central type. In fact, two out of the three species described below approach very closely, as already stated, to the lesser aberrant *Atlantides*; and it is the disparity of size more than anything else, between even the *extremes* (in opposite directions) of the respective groups, which enables us to draw the line of demarcation between them. The *O. Waterhousei*, however, would appear, in its subglobose and almost glabrous body, and in

its nearly obsolete scutellum, to agree better with the ordinary *Omiades* than either the *O. ventrosus* or the *O. flavipes*; and I am by no means certain that it might not be more natural to regard the last two as minute *Atlantides*, and the first one only as an *Omias*. Still, I prefer, upon the whole, the present arrangement, since there are a few particulars, even independently of bulk (as, for instance, their entirely pilose elytra, their perceptibly acuminated rostrum, and the basal joint of their funiculus being distinctly longer than the second), which would seem to imply that the space between the *Atlantis Foræ* and the *Omias ventrosus* is more than a specific one. Be this however as it may, there can be no doubt that two at least out of the Madeiran members of *Omias* (as I have defined them to be) are very intimately related, in real affinity, to the aberrant *Atlantides*,—since they have not only a visible scutellum, and their front tibiæ more apically incurved than is the case with the prevailing northern forms, but their surfaces are densely pubescent and by no means unusually convex, and the groove of their (somewhat long and slender) antennæ is altogether wider, and not nearly so abbreviated as that which exists in the *Omiades* proper.

§ I. *Corpus plus minusve ovatum pubescens; scutello distincto.*

292. Omias ventrosus, *Woll.*

O. subovatus piceo-niger, pube infuscato-cinereâ robustâ depressâ tectus, prothorace profunde punctato, elytris punctato-striatis, pilis brevissimis parum rigidis suberectis plerumque undique obsitis, interstitiis alternis interdum obsolete tessellatis, antennis pedibusque fusco-ferrugineis.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat sub lapidibus in graminosis editioribus Maderæ, tempore hiberno et vernali, vulgatissimus,—inter 4000′ et 5000′ s. m. prædominans.

O. subovate, black or piceous-black, and rather densely clothed with a robust, decumbent, dull brownish-cinereous pubescence. *Rostrum* short, thick, and roughly punctured: the *eyes* rather prominent. *Prothorax* deeply punctured; with the sides rounded; and widest about, or a little behind the middle. *Elytra* not very convex, and usually widest a little behind the middle; punctate-striated; beset all over with exceedingly short, robust, suberect additional hairs (which, although usually distinct, are however occasionally scarcely perceptible); the alternate interstices with a tendency to be very obscurely tessellated with denser portions of the pubescence. *Antennæ* and *legs* dull brownish-ferruginous, and more or less darkly infuscated in parts.

A most abundant insect, during the winter months, on the grassy mountain-slopes of Madeira at lofty elevations,—apparently attaining its maximum between the limits of from 4000 to about 5000 feet above the sea. On the somewhat flat and exposed district towards the base of the Pico da Silva (on the Caminho de Meio), and along the upland ridges from the Pôuso and the Fonte das Moças to the Pico da Lagoa, and from thence to the Pico dos Arieros; as well as on the

hills above the Allegria and São Roque, I have observed it, from November until April, in the utmost profusion,—congregating beneath stones, in company with other alpine insects which delight in similar localities. As already stated, I do not view it as a true *Omias*; and have merely placed it in its present position, as being unwilling to multiply genera more than is necessary in these obscure departments of the smaller *Cyclomides*: and I may repeat, that it is far from improbable that intermediate specific links will be brought to light to connect it with *Atlantis*, and that so it may eventually be found desirable to regard it, along with the *O. œnescens*, as a minute aberrant member of that group.

293. Omias ænescens, *Woll.*

O. ovatus ænescenti-nigro-piceus subnitidus, pube ænescenti-cinereâ robustâ depressâ parce tectus, prothorace subcylindrico profunde punctato, elytris subconvexis punctato-striatis, pilis longis mollibus erectis undique dense obsitis, antennis pedibusque rufo-ferrugineis vel fere testaceis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{7}{8}$.

Habitat in locis similibus ac *O. ventrosus*, unâ cum illo degens, sed multo rarior.

O. rather rounder and more ovate than the *O. ventrosus*, also generally more piceous, and with a distinctly æneous tinge, slightly shining, and rather sparingly clothed with a robust, decumbent, subcinereous, or brassy-cinereous pubescence. *Rostrum* and *prothorax* as in the last species; except that the *eyes* are perhaps a little less prominent, and the *latter* somewhat more cylindrical,—being less rounded at the sides, and not quite so broad in the middle. *Elytra* more inflated and convex than in that insect, and widest about, or just before the middle; punctate-striated; densely beset all over with rather long, soft, or silken, erect additional hairs (very much softer and longer than those of the *O. ventrosus*); the alternate interstices with, apparently, scarcely any tendency to be longitudinally tessellated. *Antennæ* and *legs* pale rufo-ferruginous, or occasionally almost rufo-testaceous; the *latter* a little robuster, in proportion, than those of the last species.

The above comparative description will be sufficient to point out the distinctions between the present insect and the last,—its more ovate and convex body, added to its more shining and perceptibly brassy surface, the denser, softer, and longer erect pile with which it is beset, its somewhat cylindrical prothorax, and its paler limbs, at once separating it, apart from minor differences, from that species. It is apparently extremely rare, and is found in company with the *O. ventrosus*,—the few specimens which have come beneath my observation having been captured by myself, during the winter and spring of 1849, on the lofty upland ridges between the Fonte das Moças and the Pico dos Arieros (from about 4000 to 5000 feet above the sea). In its great scarcity indeed it offers a striking contrast to its ally,—which, as already stated, is not only universal, but exists in literal profusion throughout most of the exposed alpine districts of the island (but amongst the large numbers of which, however, it is not impossible that it may have been occasionally overlooked).

§ II. *Corpus plus minusve subgloboso-ovatum fere glabrum; scutello minutissimo.*

294. Omias Waterhousei, *Woll.* (Tab. VII. fig. 8.)

O. subglobosus valde arcuato-convexus nitidus, obsoletissime subviridescenti-, vel subcyanescenti-ater et undique subtiliter punctulatus, prothorace subconico, elytris punctato-striatis, antennis pedibusque rufo-ferrugineis.

Var. β. paulo major et ovatior, vix minus nitidus, elytris leviter striato-punctatis. (Ins. *Deserta Grandis.*)

Long. corp. lin. $1\frac{1}{2}$–2.

Habitat sub lapidibus in montibus superioribus Maderæ, præsertim in graminosis a 3000′ usque ad 4000′ s. m., toto anno frequens: *var.* β. sola in Desertâ Grandi, et illic tantum, nisi fallor, occurrit, quâ mensibus Januario A.D. 1849 et Maio A.D. 1850 plurima specimina cepi.

In honorem peritissimi G. R. Waterhouse, Musei Britannici comiti, qui tamdiu scientiæ naturalis magister nomen Anglicanum honoribus sustulit, hoc insectum valde indigenum nuncupavi.

O. subglobose-ovate, being exceedingly convex and regularly arcuated above (there being no depression at the junction of the prothorax with the elytra), intense black, with a just perceptibly greenish or bluish tinge, shining and almost glabrous, and minutely punctulated all over. *Rostrum* very short and thick; considerably attenuated towards the apex; more roughly punctured than the rest of the surface, and with a tendency to be longitudinally strigulose: the *eyes* very much depressed. *Prothorax* subconical, being widest at, or immediately in front of, its extreme base; without any appearance of a dorsal line; and usually with an exceedingly few scales, of an opaline, greenish-white, or golden-green tinge, scattered about its sides. *Elytra* much inflated and convex, and usually widest about midway between its centre and base; rather lightly punctate-striated; entirely free from erect hairs or pile, but with a few scattered depressed scales (similar to those on the prothorax) generally apparent towards its base and apex,—especially the former, where they are often tolerably distinct about the region of the shoulders. *Antennæ* and *legs* rufo-ferruginous.

Var. β. larger and more ovate, just perceptibly less shining, and with the elytra more lightly sculptured (not only the striæ being less perceptible, but the punctures, also, shallower),—and more strictly striate-punctate than punctate-striate. (The state peculiar to the *Dezerta Grande.*)

A truly indigenous insect,—its intensely dark, subglabrous, highly polished, minutely punctulated, very convex, and regularly arcuated upper surface, added to its short, ovate outline, conical prothorax, and acuminated rostrum, giving it a character which it is impossible to mistake. The just perceptibly greenish or cyaneous tinge, moreover, which is traceable in all parts of its body, except on the limbs (which are pale rufo-ferruginous), in conjunction with the exceedingly few opaline, or greenish-white scales which are scattered about its sides, and which reflect, when viewed obliquely, more or less of a metallic lustre, impart a peculiar additional shade to its (otherwise) deep black hue, which I do not remember to have noticed in any other insect with which I am acquainted. Although by no means an ordinary *Omias*, it has rather more in common with that genus than

either the *O. ventrosus* or the *O. œnescens*,—its excessively minute scutellum, in connection with its inflated and almost unpubescent form, calling to mind some of the *Omiades* of more northern latitudes. Still, in the structure of its rostral groove and antennæ, it agrees better with the Madeiran type through which we have just passed, and which descends (liable to subsidiary modifications) from *Laparocerus* and *Atlantis*, through the *aberrant Atlantides*, until its distinctive features are almost lost sight of in these smaller groups. It is a common insect on all the mountain-slopes of Madeira, between the limits of from 2000 to 5000 feet above the sea, but is perhaps most abundant about midway between those extremes. It occurs throughout the whole year, though more particularly during the winter and spring,—at which seasons I have observed it in great profusion on the grassy declivities of the Curral das Freiras, and on the exposed ridges above the Allegria and São Roque. I have however captured it on the Lombo das Vacas in June, at the Cruzinhas and the Fanal in July, and at the Feijãa de Córte in August. It exists likewise on the Dezerta Grande, where it will be perceived, from the above diagnosis, that the specimens assume a distinct state peculiar to that island,—and where, during January 1849 and May 1850, I collected a series of examples from beneath stones on the great western promontory. I have dedicated the species to my friend G. R. Waterhouse, Esq., of the British Museum, whose long attention to the *Curculionidæ* is well known, and to whom I am indebted for much valuable assistance in the comparison of the insects of this work.

Genus 125. ANEMOPHILUS, *Woll.* (Tab. VII. fig. 7, 9.)

Corpus parvum, ovatum, convexum, pube variegatum: *rostro* et *scrobe* ut in genere præcedenti, sed *illo* paulo breviore, vix oculos attingente, et postice minus plano; *oculis* minutis subrotundatis demissis: *prothorace* ad latera subæqualiter rotundato: *scutello* vel minutissimo vel distincto: *elytris* subconnatis, ad humeros rotundatis: *alis* obsoletis. *Antennæ* (VII. 7 *a*, 9 *a*) breves crassæ; scapo curvato, ad apicem clavato; funiculo 7-articulato, articulo primo magno crasso obconico, secundo minore, reliquis brevibus subnodosis; clavâ ovatâ, obscure articulatâ. *Pedes* breves robusti: *tibiis* in utroque sexu similibus et apice valde setuloso-ciliatis; *anticis* apicem versus dilatatis, ad apicem internum leviter incurvis, ad externum vel truncatis vel acutis; *posterioribus* (VII. 7 *b*, 9 *b*) ad apicem subito plus minusve dilatatis, angulis interno et externo subæqualibus acutis.

Ab ἄνεμος ventus, et φίλος amicus. (Typus—*Anemophilus crassus*.)

The three singular little insects which I would include under the present genus, possess so many peculiarities of their own, that it is impossible to admit them, even as a separate section, into *Omias*, the distinctive modifications of their unusually short and thick limbs receding altogether from the corresponding details of the *Omiades* (as represented in Madeira), and seeming to imply, apart from minor differences, that they are correctly treated as members of an independent, though nearly allied (and, to a certain extent, subsidiary) group. As regards

indeed their antennæ and tibiæ, they are remarkably well-defined, since, irrespectively of their comparative robustness and diminished length, the former have the basal joint of their funiculus much larger and broader than the second, and their club very much rounder and more ovate than is the case with any of the preceding forms; whilst the latter have their extremity (either in all the legs or else in the two hinder pair only) suddenly (and in one instance considerably) expanded, so as to cause both angles to be not only somewhat acute, but *subequally prominent*. And if we look at their secondary characters we shall not fail to discover other features likewise, which (whilst of a less important nature in themselves), when combined with those just mentioned, will additionally tend to render the isolation of the species in question both natural and convenient. Thus, in their excessively small eyes and laterally-rounded prothorax, as well as in their very lightly striated surfaces and their rather shorter rostral groove, they would appear, scarcely less evidently, to merit detachment from the remainder of the minute *Cyclomides* with which we have here to do: and I think it far from improbable that they may in reality constitute a portion of a little geographical assemblage indigenous (if not to Porto Santo exclusively, at any rate) to the islands of the Madeiran group. With the exception of the lower elevation to which their range is confined, the *Anemophili*, in their habits, have a good deal in common with the members of the last genus, residing beneath stones in the most exposed and barren spots: nevertheless they would appear also to harbour amongst lichen in the crevices of the rocks,—a propensity which is never indicated, so far as I am aware, in any of the *Omiades*.

§ I. *Tibiæ ad apicem valde dilatatæ, anticæ ad angulum externum subproductæ: antennarum scapus leviter curvatus: scutellum minutissimum punctiforme.*

295. Anemophilus crassus, *Woll.* (Tab. VII. fig. 7.)

A. subrotundato-ovatus convexus fusco-niger vel fuscus, pube cuprescenti-cinereâ subtili depressâ parce variegatus, prothorace ruguloso-subpunctato, elytris leviter punctato-substriatis, antennis tarsisque fusco-ferrugineis, oculis minutissimis demissis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{3}{4}$.

Habitat Portum Sanctum, sub lapidibus in rupium fissuris, necnon inter lichenes ibidem nascentes, tempore hiberno et vernali vulgaris: in ascensu montis Pico d'Anna Ferreira dicti abundat, quâ Decembri mense A.D. 1848 copiosissime inveni.

A. short, roundish-ovate and convex, brownish-black, or of an entirely rusty-brown hue, and rather sparingly clothed with an excessively fine, decumbent, and somewhat ashy pubescence,—which, when viewed obliquely, reflects more or less of a coppery tinge. *Rostrum* very short and thick; and considerably attenuated towards the apex: the *eyes* exceedingly small, and very much depressed. *Prothorax* convex, with the sides regularly and considerably rounded, being widest about the middle; roughened, and obscurely punctulated. *Scutellum* extremely minute, and punctiform. *Elytra* convex, especially behind the middle, and rather suddenly shortened, or

bent inwards towards their apex; very lightly punctate-striated; without the slightest indication of either additional pile or setæ; and with the alternate interstices, apparently, untessellated. *Antennæ* and *tarsi* (and sometimes the entire legs) brownish-ferruginous; the *latter* with their *tibiæ* considerably dilated at their extremity,—the inner and outer angles being subequally prominent.

The present species, and the *A. subtessellatus*, agree in their excessively small, punctiform scutellum, and in the comparatively slight curvature of their scape. Nevertheless the *A. crassus* recedes from that insect in its perceptibly shorter and more inflated body, in its less opake, and much less densely pubescent surface, in its rather more evidently abbreviated antennæ, and in the absence of any appearance either of minute additional setæ or of tessellation from its elytra. Its tibiæ, moreover, are much more dilated at their termination, and the anterior pair (instead of being somewhat rounded off) are slightly produced at their outer angle,—a structure which, in conjunction with the incurved *interior* one (which obtains throughout the whole of these groups), causes their extremity to be unusually robust and broad. It occurs beneath stones on the grassy ledges of the rocks, as well as amongst lichen, in the mountains of Porto Santo,—where, in certain positions, it is extremely common from the beginning of the winter to the early spring. During my residence in that island, with the Rev. W. J. Armitage, in December 1848, I captured it in great profusion on the Pico d'Anna Ferreira, especially towards the eastern ascent from the Campo de Baxo.

§ II. *Tibiæ ad apicem minus dilatatæ, anticæ ad angulum externum subtruncatæ.*

A. *Antennarum scapus leviter curvatus: scutellum minutissimum punctiforme.*

296. Anemophilus subtessellatus, *Woll.*

A. ovatus subconvexus niger, pube subcuprescenti-, vel subviridescenti-cinereâ subtili depressâ dense variegatus, prothorace ruguloso-subpunctato, elytris leviter punctato-substriatis, setulis minutissimis brevissimis (interdum vix observandis) rigidis erectis undique dense obsitis, interstitiis alternis plus minusve obscure submaculoso-tessellatis, antennis tarsisque fusco-ferrugineis, oculis minutis subdemissis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{2}{3}$.

Habitat ins. Portûs Sancti, inter lichenes in rupium fissuris crescentes, una cum *Anemophilo crasso* degens,—ab autumno usque ad ver primum vulgaris.

A. ovate, but not quite so round or so convex as the *A. crassus*; also of a darker and less rusty hue, and more densely clothed,—the pubescence moreover being of a rather more yellowish-green tinge. *Rostrum, prothorax,* and *scutellum* as in that insect; except that the *first* is perhaps just perceptibly longer, and the *second* not quite so convex or so broad in the middle: the *eyes* also not quite so minute, and a little more prominent. *Elytra* less convex than in the last species,

and not quite so abruptly shortened behind; very lightly punctate-striated; densely beset all over with extremely minute (though robust) additional setæ, which in some specimens are only perceptible when viewed obliquely; and with the alternate interstices obscurely tessellated, or dappled, especially behind. *Antennæ* and *legs* as in the last species; except that the *former* are just perceptibly longer, and that the *latter* have their *tibiæ* much less dilated at their extremity,—the outer apical angle moreover of the front pair being (even proportionably) less prominent.

An equally abundant insect with the last in Porto Santo, from the autumn to the early spring. It is however more peculiarly attached to lichen than that species, since it occurs almost exclusively in the crevices of the weather-beaten rocks, and is scarcely ever found beneath stones. In December of 1848 and April of 1849 I observed it in literal profusion on the ascent of the Pico d'Anna Ferreira, in company with the *A. crassus*, the *Lichenophagus fritillus*, the *Tarphius Lowei*, and the *Ptinus nodulus*, *albopictus*, and *fragilis*,—in all of which the habits have the same lichen-infesting tendency.

B. *Antennarum scapus valde curvatus: scutellum distinctum triangulare.*

297. Anemophilus trossulus, *Woll.* (Tab. VII. fig. 9.)

A. oblongo-ovatus convexus æneo-piceus nitidus, pube ænescenti-, vel flavescenti-cinereâ robustâ depressâ parce variegatus, prothorace profunde punctato, elytris leviter punctulatis, obsoletissime striatis, pilis mollibus suberectis parcissime adspersis, antennarum basi pedibusque fusco-ferrugineis, oculis paulo majoribus subprominulis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat in Portu Sancto, rarissime,—sub lapidibus haud procul a basi montis Pico d'Anna Ferreira a meipso repertus.

A. ovate and convex, but rather more oblong and parallel than either of the foregoing species; brassy-piceous, and shining (especially the elytra), and rather sparingly clothed with an exceedingly robust, decumbent, brassy- or yellowish-cinereous pubescence. *Rostrum* rather broader at the apex than is the case with either of the other species; the *eyes*, also, a little larger and more prominent. *Prothorax* with the sides regularly, and almost equally rounded; deeply punctured,—the punctures being large and oblong, with minute rounded ones between them. *Scutellum* very much larger than in either of the other species, and triangular. *Elytra* somewhat parallel towards their base, and rounded behind; with shallow punctures all over, only a portion of them having a tendency (so faint as to be only just perceptible) to arrange themselves in longitudinal rows; sparingly besprinkled (the prothorax likewise) with very soft, suberect additional hairs; and with the alternate interstices apparently untessellated. *Antennæ* short, with their scape much curved; dull brownish-ferruginous, the funiculus being generally darker. *Legs* ferruginous, with their *four hinder tibiæ* only slightly dilated at their extremity, and the front pair with their outer apical angle rounded off.

A most interesting little insect, receding from the other members of the present group not only in its smaller and more oblong form and less acuminated rostrum,

but likewise in its comparatively large and triangular scutellum, in its shining, brassy surface (on which there are distinct indications of suberect additional pile), in its deeply punctured prothorax, and in its elytra being scarcely perceptibly striated. In the structure of its antennæ and legs, moreover, it differs slightly from the two preceding species,—since the former have their scape more curved, whilst the latter are but slightly expanded at their extremity, and have the outer apical angle of the front pair regularly rounded off. With such characters as these, it is possible that it may not be correctly associated with the *Anemophili*, as described above; and hence I have removed it into a separate section, in case that future investigations should render it desirable to detach it from the group. It does not appear to have any tendency to assume the lichen-infesting habits of its allies, the few specimens which I have hitherto taken having been from beneath stones in the open country, and at low elevations. The Campo de Baxo of Porto Santo is the only district in which I have observed it, where I captured several examples, principally towards the eastern base of the Pico d'Anna Ferreira, during April of 1849.

Genus 126. LICHENOPHAGUS, *Woll.* (Tab. VIII. fig. 1 et 3.)

Corpus sat parvum, elongato-ovatum, vix convexum, densissime squamoso-variegatum: *rostro* ut in Anemophilo, sed paulo longiore et subparallelo (apicem versus vix acuminato); *scrobe* magnâ latâ, infra oculos profundâ et ibidem curvatâ; *oculis* parvis subrotundatis: *prothorace* ad latera rotundato: *scutello* minuto subtriangulari: *elytris* subconnatis: *alis* obsoletis. *Antennæ* (VIII. 1 *a*) ut in genere præcedenti, sed paulo longiores, scapo valde curvato atque ad apicem multo magis incrassato. *Pedes* (VIII. 1 *b*) valde robusti, in utroque sexu simplices, *tibiis anticis* ad apicem ipsum solum incurvis.

A λιχὴν lichen, et φαγεῖν edere.

It is not without some hesitation that I propose another genus amongst these obscure *Cyclomides*; and I would merely therefore wish to regard the present one as provisional, since it is not improbable that intermediate species may occur to connect it with the last, to which in many respects it is clearly allied. Still, in the absence of those links, which we cannot assume to exist, it is not possible to admit the two insects which represent *Lichenophagus* into that division, their simple tibiæ, in conjunction with their immensely thickened and greatly curved scape, and their large and deep antennal groove (which scarcely ascends so high as that which obtains in *Anemophilus*, or at any rate is more apparent and arcuated beneath the eyes), at once preventing such an amalgamation: whilst, in addition to these primary distinctive characters, their superior bulk and densely scaly (instead of pubescent) surfaces, combined with their apically broader and almost parallel rostrum, their less diminutive eyes, and their longer and even robuster limbs, would seem still further to render their isolation necessary. They appear to be of entirely lichen-infesting habits, in which respect they agree with the

Anemophilus subtessellatus,—with which (whilst they recede from it in all the above-mentioned particulars) they have a greater affinity than with either of the other members of the preceding group.

298. Lichenophagus fritillus, *Woll.* (Tab. VIII. fig. 1.)

L. elongato-ovatus fusco-niger, squamis infuscato-cinereis densissime variegatus, prothorace profunde punctato, elytris punctato-striatis ad apicem sub-abrupte terminatis, interstitiis alternis læte squamoso-tessellatis, antennis fusco-piceis, tarsis diluto-testaceis.

Long. corp. lin. 2.

Habitat in rupium fissuris Portûs Sancti, inter lichenes ibidem crescentes, tempore hiberno et vernali, non infrequens: in monte Pico d'Anna Ferreira dicto præcipue abundat, quâ Decembri mense A.D. 1848 copiose observavi.

L. elongate-ovate, brownish-, or rusty-black, and exceedingly densely clothed with flat, partially overlapping, closely set, pale brownish, or brownish-cinereous scales. *Rostrum* wide, but almost parallel, being scarcely at all attenuated towards the apex. *Prothorax* with the sides rounded, being widest just behind the middle; rather produced anteriorly; deeply punctured, and more or less variegated with ashy and brown scales. *Elytra* somewhat convex (and usually a little widened) behind the middle, being rather suddenly shortened towards their apex; punctate-striated; the alternate interstices generally very distinctly and prettily tessellated with paler and darker patches of the scales. *Antennæ* with their scape dull brownish-piceous; their funiculus and club being usually a little brighter. *Legs* more or less brownish-piceous, with the *tarsi* testaceous.

Apart from all other characters (which nevertheless have been pointed out), the present insect and the following one may be at once recognised from the whole of the other *Cyclomides*, which we have as yet considered, by their densely *scaly* (instead of pubescent) surfaces, in which respect they coincide with *Scoliocerus* and *Trachyphlœus*, as well as with certain members, such as *Acalles* and *Tychius*, of the *Mecorhynchi*,—the first of the two great divisions of the Gonatocerous *Curculionidæ*. The *L. fritillus* differs from the *L. acuminatus* in its comparatively ovate outline, and in its paler, more deeply sculptured, and generally prettily tessellated surface,—on which moreover there is scarcely the slightest indication, except under a very high magnifying power, of the erect additional setæ so conspicuous on that species. It is, apparently, peculiar to Porto Santo, where however, during the winter and early spring, it is tolerably common in particular spots, amongst lichen in the fissures of the exposed weather-beaten rocks. On the ascent of the Pico d'Anna Ferreira from the east I have taken it abundantly, in company with other insects of similar habits,—though more especially at only a short distance below the extreme summit of the mountain. Although of a very gregarious nature, it is exceedingly partial in its distribution, since on many of the mountains which offered precisely similar conditions for its existence I could detect no traces of it whatsoever.

299. Lichenophagus acuminatus, *Woll.* (Tab. VIII. fig. 3.)

L. elongatus oblongo-ovatus fusco-niger, squamis subcinereo-brunneis densissime tectus et undique setulis rigidis erectis dense obsitus, prothorace punctato, elytris leviter punctato-striatis, subparallelis ad apicem leviter acuminatis, interstitiis alternis vix tessellatis, antennis fusco-piceis, tarsis ferrugineis.

Long. corp. lin. 2.

Habitat in insulâ Desertæ Grandis, semel tantum (Maio exeunte A.D. 1850) repertus.

L. rather slenderer than the *L. fritillus*, and less ovate, being more parallel and oblong; also of an obscurer and more rusty brown hue, being less variegated with paler and darker scales; densely beset all over with short, robust, and erect setæ, which however are longer and more perceptible on the elytra than on the prothorax. *Rostrum* and *prothorax* as in that species, except that they are not quite so deeply punctured, and that the widest point of the *latter* is perhaps rather more strictly medial. *Elytra*, likewise, rather less deeply punctate-striated; more parallel at their base and less shortened behind, their apex being comparatively produced or acuminated; the alternate interstices very much less tessellated than in that insect, being apparently almost concolorous with the rest of the surface. *Antennæ* and *legs* as in the *L. fritillus*; except that the *latter* are a little longer, and have their *tarsi* of an obscurer testaceous, or ferruginous.

Hitherto unique, the example from which the above diagnosis has been compiled having been discovered by myself on the Dezerta Grande, during my encampment on that island with the Rev. R. T. Lowe, at the end of May 1850. It is an exceedingly distinct species, as may be gathered from the description. Like most of the *Cyclomides*, its habits are nocturnal,—my specimen having been captured at night, attracted by the light of a candle, on the inner canvass of my tent.

Genus 127. SCOLIOCERUS, *Woll.* (Tab. VIII. fig. 2.)

Corpus sat parvum, sub-oblongum, vix convexum, parce lutoso-squamosum et undique setosum: *rostro* brevi, supra plano, ad apicem leviter attenuato et integro (nec triangulariter emarginato); *scrobe* profundâ subsinuatâ, medium oculi attingente; *oculis* rotundatis: *prothorace* subangusto, ad latera æqualiter rotundato: *scutello* distincto triangulari: *elytris* subconnatis, basi conjunctim emarginatis: *alis* obsoletis. *Antennæ* (VIII. 2 *a*) breves crassissimæ setosæ; scapo vel ad basin subito angulato-flexuoso abrupte incrassato atque inde ad apicem latitudine subæquali, vel omnino curvato atque apicem versus facilius (tamen valde) incrassato; funiculo 7-articulato, articulo primo crasso brevi, reliquis vel brevissimis longitudine subæqualibus, vel secundo paulo longiore; clavâ ovatâ, obscurissime articulatâ. *Pedes* valde robusti, setosi: *femoribus* clavatis, basi pedunculatis: *tibiis* vel subcurvatis, posterioribus apicem versus acuminatis, vel anticis solum subcurvatis; *omnibus* ad apicem (præsertim externum) valde setuloso-ciliatis, ad apicem internum (præsertim in posterioribus) in uncum acutissimum deflexum productis, necnon intus ante apicem plus minusve constrictis.

A σκολιὸς flexus, et κέρας cornu. (Typus—*Scoliocerus Maderæ.*)

Whilst somewhat related, in general aspect, to *Trachyphlœus*, the two singular

insects described below possess so many peculiarities of their own, that they cannot be referred to any of the groups hitherto published in this section of the *Curculionidæ*. They possess perhaps a greater affinity with *Cathormiocerus* than with anything else with which I am acquainted; nevertheless many of the most essential features of that genus (as, for instance, the triangularly emarginated rostrum, the submedial insertion of the antennæ with their downwardly-curved groove, the obsolete scutellum, and the straightened tibiæ) are altogether wanting to them. In fact, in the *entire* front margin of their rostrum and the central position of its lateral canal, in the details of their enormously thickened and apically-inserted antennæ, as well as in their distinct scutellum and rather largely-developed and acute tibial spine, they recede from the whole of the recognised types in this department of the *Cyclomides*; whilst the curiously distorted and basally angulated scape of the first of the following species, together with the construction of the tibiæ of them both (which in the *S. Maderæ* have the front pair deeply emarginated internally, and in the *S. curvipes* the four posterior ones considerably curved and acuminated towards their extremity), will serve additionally to characterize them. In their habits I believe them to be, at any rate partially, attendant upon Ants' nests, being usually found beneath stones on the grassy mountain-slopes in positions where the Ants are more particularly abundant,—and their anomalous structure rather favouring such an hypothesis. At all events, whether this be the case or not, it is evident that such localities are not essential for them,—since in certain districts I have observed them, occasionally, far removed from the habitations, or indeed from any traces, of Ants.

§ I. *Antennarum scapus mox pone basin subito angulato-flexuosus atque ibidem abrupte incrassatus, dein usque ad apicem latitudine subæqualis; articulo secundo brevi (sequentibus haud longiore). Tibiæ anticæ subcurvatæ, intus ante apicem emarginato-constrictæ, suram sub-basalem efficientes.*

300. Scoliocerus Maderæ, *Woll.* (Tab. VIII. fig. 2.)

S. piceo-niger subnitidus parce lutoso-squamosus, prothorace crebre punctato, elytris subpunctato-striatis, interstitiis setis suberectis longiusculis seriatim instructis, antennis pedibusque ferrugineis.

Long. corp. lin. $1\frac{3}{4}$–2.

Habitat sub lapidibus Maderæ, præsertim in graminosis minus elevatis, hinc inde non infrequens,—formicarum nidos, nisi fallor, colens.

S. oblong, and a little shining, piceous-black, and sparingly clothed with dirty, brownish-white, mud-like scales. *Rostrum* very slightly attenuated towards the apex, and longitudinally channeled. *Prothorax* with the sides regularly rounded, being widest in the middle,—but altogether a good deal narrower than the elytra; very closely, and rather deeply punctured; and usually somewhat densely clothed with scales at its lateral edges. *Elytra* nearly parallel; subpunctate-striated; the interstices flattened, and each beset with a single row of rather long, suberect setæ,—which however are often comparatively few in number (or at any rate obliterated) on the disk. *Antennæ*

and *legs* more or less ferruginous: the *former* rather the darker of the two; extremely robust; with the second joint of their funiculus excessively short (being of the same length as each of the following ones); and with their scape suddenly bent (or angulated), and thickened, immediately in front of its base, from which point it is greatly incrassated the whole way to the apex,—and, compared with that of the following species, of subequal breadth throughout the entire distance: the *latter* with their *front tibiæ* alone curved,—which moreover have their inner edge deeply constricted, or scooped out, at a considerable distance behind their extremity.

A most peculiar insect, the basally-angulated, or bent, structure of its scape, which is suddenly thickened at that point, and continues excessively robust (and but slightly increasing in breadth) the whole way to the apex, in conjunction with the deeply constricted inner margin of its front tibiæ, being of themselves sufficient to distinguish it from every other member of the *Curculionidæ* here described. From the *S. curvipes* it may be known, apart from the above (sectional) characteristics, by its rather shining and more piceous hue, by the comparative paucity of the dirty mud-like scales with which it has a tendency to be clothed, and by the somewhat longer, less rigid, and generally partially obliterated setæ with which its upper surface is beset. It is not very uncommon on the grassy slopes of Madeira at rather low elevations. On the high cliffs to the eastward of Funchal, below the Palheiro, I have observed it more abundantly than elsewhere, especially during the autumnal months; and, as already stated, I think it far from unlikely that it may be an attendant upon Ants' nests; and should such be the case, it would, in all probability, be found in greater numbers were its proper localities more rigidly investigated.

§ II. *Antennarum scapus omnino curvatus atque apicem versus facilius (tamen valde) incrassatus; articulo secundo sequentibus distincte longiore. Tibiæ omnes subcurvatæ, posteriores apicem versus acuminatæ.*

301. Scoliocerus curvipes, *Woll.*

S. fusco-niger parum dense lutoso-squamosus, prothorace crebre punctato, elytris subpunctato-striatis, interstitiis setis suberectis breviusculis valde rigidis subcrebris seriatim instructis, antennis pedibusque fusco-ferrugineis.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat Maderam, et borealem et australem, in locis similibus ac præcedens, sed usque ad clivos montium ascendens.

S. similar to the *S. Maderæ*, but of a more rusty and less piceous hue, perfectly opake, and more densely clothed all over with mud-like scales. *Rostrum* and *prothorax* as in that species, except that the *former* is perhaps a little shorter and more distinctly attenuated towards the apex. *Elytra* with the setæ of their interstices much robuster (though perhaps not quite so long) and rather more numerous,—having less of a tendency moreover to be rubbed off, or obliterated, on the disk. *Antennæ* and *legs*, likewise, darker than in that insect, being usually of a dull brownish-ferruginous: the *former* a little less thick than those of the *S. Maderæ*; with the second joint of

their funiculus perceptibly longer than any of the following ones; and with their scape curved throughout its entire length, being more gradually (although considerably) incrassated at its apex; the *latter* with *all their tibiæ* slightly curved,—and with their *four posterior ones* very distinctly acuminated towards their extremity.

The distinctions between the present species and the preceding one have been already doubly pointed out,—the peculiarities of their respective antennæ and legs being more than sufficient, even alone, to identify them. The construction of the tibiæ of the *S. curvipes* is in fact of a very singular nature, their gradually diminishing breadth, from the base, added to their slightly arcuated form (more especially evident however in the two hinder pairs), giving them a most unusual and anomalous appearance. It is rather more common than the *S. Maderæ*, and of a somewhat higher range; but in other respects its habits are very similar to those of that insect. On the mountain-slopes above Funchal, particularly towards the Pico da Silva (on the Caminho de Meio), I have constantly observed it from the autumn to the early spring; and during July of 1850 I took it, sparingly, in the chestnut-woods of Santa Anna.

Genus 128. TRACHYPHLŒUS.

Germar, *Ins. Spec.* i. 403 (1824).

Corpus sat parvum, ovatum, convexum, plerumque densissime squamosum et parce setosum: *rostro* longiusculo, supra plano, lineari, minus lato, ad apicem triangulariter emarginato; *scrobe* profundâ subrectâ elongatâ, ad medium oculorum ascendente sed eos vix attingente; *oculis* rotundatis: *prothorace* brevi transverso, ad latera subampliato-rotundato, antice valde truncato: *scutello* haud observando: *elytris* subconnatis, basi conjunctim subintegris: *alis* obsoletis. *Antennæ* breves crassæ et parce setosæ, pone apicem rostri insertæ; scapo recto, apicem versus incrassato; funiculo 7-articulato, articulo primo magno crasso obconico, secundo graciliore et paulo breviore, reliquis brevibus transversis; clavâ ovatâ, obscurissime articulatâ. *Pedes* breviusculi, valde robusti, setosi: *femoribus* subclavatis: *tibiis* rectis, ad apicem fortiter spinuloso-ciliatis, ad apicem internum (præsertim in posterioribus) in uncum minutum acutum deflexum productis, necnon intus ante apicem leviter constrictis.

The common European genus *Trachyphlœus* (which appears to possess but a single representative in the Madeira Islands) may be known from its allies with which we have here to do by the ovate, convex, densely scaly, and more or less setose bodies of the insects which compose it, by their short and transverse prothorax, linear and rather elongated rostrum (into which the antennæ are inserted at a considerable distance from the apex), and by their uncurved tibiæ and scape. They reside principally beneath stones, particularly in sandy or gravelly spots; and are, some of them, I believe, occasionally attendant upon Ants.

302. Trachyphlœus scaber.

T. ovatus fusco-niger, squamis fusco-cinereis densissime tectus, rostro ante basin strigâ transversâ

impresso, prothorace brevi inæquali, leviter canaliculato et postice utrinque foveolato, elytris subpunctato-striatis, interstitiis obsolete tessellatis et setis suberectis brevibus valde rigidis dispersis seriatim instructis, antennis pedibusque fusco-ferrugineis.

Long. corp. lin. 2.

Curculio scaber, Linn. *Fna Suec.* 176 (1761).
——— *tessellatus*, Mshm, *Ent. Brit.* i. 307 (1802).
——— *scabriculus*, Gyll. *Ins. Suec.* iii. 309 (1813).
Trachyphlœus scabriculus, Schön. *Gen. et Spec. Curc.* ii. 490 (1834).

Habitat sub lapidibus Maderæ, et borealis et australis, toto anno frequens.

T. ovate (being rather inflated posteriorly) and opake, brownish-black, and very densely clothed with brownish-cinereous scales,—which often assume more or less of a rusty or ferruginous hue. *Rostrum* rather long and almost linear (being of nearly equal breadth throughout), obscurely channeled in the centre, and with a straight transverse impression, or striga, immediately before the base. *Prothorax* short and transverse, and with the sides much rounded,—being widest just behind the middle; truncated both before and behind; rather uneven, and with a shallow central channel and a (more or less distinct) rounded fovea on either side behind. *Elytra* widest behind the middle and very convex; subpunctate-striated; the interstices rather convex, usually a little tessellated, and each beset with a single row of rather short, suberect and very stiff setæ. *Antennæ* and *legs* brownish-ferruginous, and densely clothed with scales and setæ; the *latter* rather short.

A universal insect throughout Europe, and tolerably common in Madeira at rather low and intermediate elevations,—occurring beneath stones on the grassy slopes both in the north and south of the island, and at all seasons of the year. I have taken it in the neighbourhood of Funchal, at São Vincente, and in the chestnut-woods of Santa Anna, at times, in comparative abundance.

(Subf. 7. BYRSOPSIDES.)

Genus 129. ECHINOSOMA, *Woll.* (Tab. VIII. fig. 5.)

Corpus sat parvum, ovatum, gibboso-convexum, setis valde rigidis et squamis robustis undique densissime tectum: *rostro* (VIII. 5 *a*) longiusculo, supra plano, lineari, minus lato, subdeformi, ad apicem integro (nec emarginato), leviter curvato et inflexo (ad pectus arcte applicando sed in canaliculam pectoralem haud immerso); *scrobe* angustâ elongatâ subflexuoso-obliquâ, longe infra oculum retrorsum ductâ; *oculis* minutis subrotundatis demissis: *prothorace* elongato subangusto inæquali, ad latera undulato, antice producto et leviter acuminato: *scutello* haud observando: *elytris* subconnatis, basi conjunctim leviter emarginatis: *alis* obsoletis. *Antennæ* (VIII. 5 *b*) breves graciles, pone apicem rostri insertæ; scapo recto, ad apicem subito (sed leviter) clavato, per marginem inferiorem (præsertim versus apicem) longissime et parce setoso; funiculo 5-articulato, articulo primo leviter robusto, secundo graciliore multo longiore subcylindrico, reliquis brevioribus longitudine subæqualibus latitudine leviter crescentibus; clavâ pilosâ ovatâ, obscurissime articulatâ. *Pedes* breviusculi robustissimi, longe, fortiter et densissime setosi: *femoribus* crassis sub-

clavatis: *tibiis* subrectis latis compressis breviusculis, *anterioribus* ad apicem externum in uncum parvum acutum decurvum productis, sed *posticis* (VIII. 5 *c*) simplicibus (*i. e.* haud uncinatis): *tarsis* pilosis, sed haud setosis.

Ab ἐχῖνος echinus, et σῶμα corpus.

Throughout all the Madeiran *Curculionidæ* there is perhaps no form more anomalous than that which is displayed by the singular insect from which the above diagnosis has been compiled. Its natural position in the family is indeed at first sight anything but apparent, its outward contour calling so forcibly to mind some of the members (such as *Trachodes* and *Acalles*) of the *Mecorhynchi*, as to render it doubtful whether it should not be rather referred to that division. Still, in its misshapen rostrum and in the subapical insertion of its antennæ, it is, even as regards its *primary* features, better identified with the *Brachyrhynchi*; and, after a careful consideration of the various points of its structure, I have but little doubt that it is correctly associated with the *Byrsopsides* of Schönherr,—with which in the curvature and situation of its lateral *scrobs*, in its inflexed rostrum (which is capable of being compactly lodged, during repose, against its chest), in its ovate outline, squamose and uneven surface, as well as in its obsolete scutellum and freedom from wings, it entirely agrees. Nevertheless, although thus far coincident with the representatives of that subfamily, there is at the same time no indication of the pectoral groove which is there more or less expressed,—whilst in its excessively setose body and curious antennæ it offers characters essentially its own. These last in fact are of a very unusual nature, and should be especially noticed,—being not only remarkably slender, as compared with the general robustness of the insect (and particularly of its legs), but having their funiculus composed of *five* joints only, whilst the extremely long, thick and subsetiform appendages with which the lower edge of its scape is fringed are altogether unparalleled in any other genus with which I am acquainted. Upon the whole, however, it has so much more in common with the *Byrsopsides* than with any other recognised portion of the *Curculionidæ*, that I have no hesitation in locating it there,—a station which is the more plausible in the present instance, as happening to bring it into direct contact with the Cyclomideous *Trachyphlœi*, to which *primâ facie* it is somewhat akin. Its habits would appear to be precisely those of *Acalles*, with which it is principally found in company,—and from which, when its rostrum is closely applied against its prosternum, it is not easy without examination to distinguish it.

303. Echinosoma porcellus, *Woll.* (Tab. VIII. fig. 5.)

E. ovatum, squamis fuscis robustis setisque valde rigidis erectis undique densissime tectum, prothorace in medio transversim setoso-fasciculato, elytris profunde subpunctato-striatis mox pone basin transversim setoso-fasciculatis, fasciis duabus (sc. mediâ et postmediâ) per suturam inter-

ruptis subcinereis obscure ornatis, antennis gracilibus ferrugineis, pedibus valde robustis setosis, tarsis ferrugineis.

Long. corp. lin. $1\frac{3}{4}$–2.

Habitat per regionem Maderæ sylvaticam, sub lapidibus truncisque arborum prolapsis, æstate rarissimum: ad Lombo dos Pecegueiros mense Julio, necnon ad Feijãa de Córte Augusto ineunte, A.D. 1850 parce collegi.

E. ovate, piceous, and most densely clothed with robust brownish scales, and with extremely thick, rigid and erect setæ intermixed,—which are partly of a darker and partly of a paler colour than the scales. *Rostrum* rather long and almost linear (though unequally thickened in *depth* behind its apex). *Prothorax* tolerably elongated, and considerably narrower than the elytra; uneven, and with the sides rather undulated; a good deal produced, and rather acuminated, anteriorly; with four (more or less distinct) denser fascicles of setæ transversely arranged across its central portion,—the two inner ones of which are generally very apparent, though the outer ones are often nearly obsolete. *Elytra* widest behind the middle and convex; deeply subpunctate-striated, and with the surface more or less uneven,—there being small fascicles of darker setæ transversely placed (and usually sufficiently apparent) immediately within the extreme base, and sometimes indications of others a little behind the middle; and with two transverse and somewhat oblique fasciæ (one of which is medial and the other postmedial, and both of them widely interrupted along the suture) of paler, or subcinereous scales,—which are occasionally however exceedingly obscure. *Antennæ* slender, comparatively glabrous, and ferruginous. *Legs* extremely thick and robust, and most densely beset with rigid setæ,—except the *tarsi*, which are ferruginous and merely pubescent.

Apparently extremely rare, and confined to remote sylvan spots of intermediate altitudes. It occurs beneath stones and logs of wood, in company with different species of *Acalles*,—under which circumstances I took it sparingly, during July 1850, in the dense region of the Lombo dos Pecegueiros; and also, in August of the same year, at the Feijãa de Córte.

(Subf. 8. MOLYTIDES.)

Genus 130. HYPERA.

Germar, *Mag. der Ent.* iv. 335 (1821).

Corpus mediocre vel sat parvum, plus minusve oblongo-ovatum vel oblongum, squamoso-variegatum et pilosum: *rostro* parum elongato teretiusculo lineari subgracili, ad apicem integro, leviter arcuato; *scrobe* obliquâ, infra medium oculi retrorsum ductâ sed eum vix attingente; *oculis* ovatis demissis: *prothorace* ad latera sæpius subæqualiter rotundato, antice subtruncato: *scutello* plerumque minuto triangulari: *elytris* liberis: *alis* sæpius (ut in speciebus Maderensibus) sat amplis (rarissime obsoletis). *Antennæ* mediocres subgraciles, mox pone apicem rostri insertæ; scapo subrecto, ad apicem subito clavato; funiculo 7-articulato, articulis primo et secundo elongatis obconicis (illo robustiore), reliquis brevibus latitudine vix crescentibus; clavâ elongato-ovali, quadriarticulatâ. *Pedes* longiusculi: *femoribus* clavatis: *tibiis* vel rectis vel obsoletissime subcurvatis, ad apicem fere muticis.

The immense genus *Hypera* (=*Phytonomus*, Schön. A.D. 1826) contains insects which, both in their larva and perfect states, are eminently attached to the foliage of the smaller plants,—being seldom found, like the *Cyclomides*, beneath stones; and never in any way connected, like so many of the earlier groups, with the larger vegetation and trees. In their rather narrow and subcylindrical rostra they slightly recede from the normal members of this division of the *Curculionidæ*, in which the flatness and breadth of that portion of the body constitutes one of the main distinctive features; whilst in their more or less pubescent surfaces, nearly unarmed tibiæ, disengaged elytra and usually developed wings, they seem to belong to a different type of form from those which we have just left behind us. They are subject to great instability in the colour and arrangement of their scales; and hence it is that varieties have been often described as species, and true species lost sight of amongst varieties, until the greatest confusion as regards their synonymy has been the result. Of the three representatives which have been hitherto detected in Madeira, two are abundant throughout Europe; whilst the third, which is of a more truly indigenous nature, would seem to be peculiar to these islands.

304. Hypera lunata, *Woll.*

H. nigra, squamis fuscis et fusco-nigrescentibus densissime tecta, prothorace plus minusve distincte trilineato, elytris fasciculis minutissimis nigrescentibus undique irroratis, fasciâ magnâ communi antemediâ luniformi pallidiore ornatis, antennis pedibusque ferrugineis et squamoso-variegatis.

Long. corp. lin. 3–3½.

Habitat Maderam et Portum Sanctum, rarior: in illâ mihi non obvia, tamen plurima specimina, in horto quodam ad Sanctum Antonium capta, nuper communicavit Dom. Leacock; sed in hoc egomet observavi, qua mense Aprili A.D. 1848 in summo ipso monte Pico de Facho dicto exemplar unicum e rupium fissurâ (inter lichenes) collegi.

H. large, black or piceous-black, most densely clothed with brown and blackish-brown scales, and beset with a short, decumbent and rigid pubescence. *Rostrum* rather long. *Prothorax* with the sides rounded, and rather widest just before the middle; generally with a distinct central line of paler scales, and with indications of an ill-defined and curved one on either side. *Elytra* scarcely wider behind the middle than at their base; besprinkled with very minute, and more or less evident fascicles of darker pile-like scales, and usually with four larger (triangular) ones (two on either side of the scutellum) at their extreme base; often with their entire (common) disk considerably darker than the sides,—in which case, these larger basal and the remaining (minute) fascicles are suffused (as regards colour) into the obscurer central portion; but in *all* instances with a large luniform fascia of paler scales, common to both (arising from either shoulder, and extending, in an unbroken arch, to nearly the centre of their disk), more or less apparent in front. *Antennæ* and *legs* ferruginous; but the *latter* densely variegated with darker and paler scales, and with their *claws* very robust.

A large and most elegant *Hypera*, somewhat calling to mind the *H. fasciculata*

of more northern latitudes, though abundantly distinct from it specifically,—in size, outline, colour and structure. It may be at once recognised by the greatly developed, and generally very perfectly-formed, lunate fascia of paler scales with which the anterior portion of its elytra is ornamented, and by its elongated and powerful claws. It is apparently exceedingly local, and a truly indigenous insect. The only occasion on which I have myself captured it was during April of 1848, in the island of Porto Santo,—when a single individual occurred to me, from amongst moss and lichen in a fissure of the weather-beaten rocks, on the northern side of the extreme summit of the Pico de Facho (1660 feet above the sea). I have lately however received several specimens from Madeira proper, taken by Mr. Leacock in the garden of his house (the Quinta dos Padres) at Santo Antonio, near Funchal,—where he states that they are far from uncommon, and where he has observed them (during October) for two successive years, adhering to small pegs of wood on a stone seat immediately outside his door, to which they were accustomed to attach themselves in the course of the night; and which he informs me are the only circumstances under which he has hitherto detected them.

305. Hypera murina.

H. nigra, squamis griseis vel subcinereis adspersa, prothorace paulo magis convexo obscurius trilineato, elytris plerumque minus tessellatis, squamis pallidioribus undique subæqualiter irroratis, antennis pedibusque ferrugineis.

Long. corp. lin. $2\frac{1}{4}$–$2\frac{1}{2}$.

Curculio murinus, Fab. *Ent. Syst.* i. ii. 463 (1792).
Rhynchænus murinus, Gyll. *Ins. Suec.* iii. 108 (1813).
Hypera murina, Germ. *Mag. der Ent.* iv. 341 (1821).
Phytonomus murinus, Schön. *Gen. et Spec. Curc.* ii. 383 (1834).

Habitat in locis inferioribus Maderæ Portûsque Sancti, hinc inde non infrequens.

H. black or piceous-black, more or less clothed or mottled with griseous or somewhat cinereous scales, and beset with a short, rather fine and partially decumbent pubescence. *Rostrum* a little thicker and shorter (in proportion) than that of either of the other species. *Prothorax* convex, and with the sides rounded,—being widest about the middle; and generally with only very faint indications of three longitudinal lines. *Elytra* usually just perceptibly wider behind the middle than at their base; hardly at all tessellated, though more or less mottled or besprinkled with the paler scales. *Antennæ* and *legs* ferruginous.

Very closely allied to the following species, from which it principally differs in its rather larger size and less variegated surface, in its somewhat more globose prothorax, and in its just perceptibly thicker rostrum. It occurs sparingly in grassy spots of low elevations in the neighbourhood of Funchal (occasionally beneath stones), and I have likewise taken it in Porto Santo,—in the immediate vicinity of the Cidáde.

306. Hypera variabilis.

H. nigra, squamis cinereis (vel fulvescenti-cinereis) et nigris variegata, prothorace trilineato, elytris plerumque distinctius longitudinaliter tessellatis, regione suturali basin versus obscuriore, antennis pedibusque ferrugineis.

Long. corp. lin. $2\frac{1}{3}$–$2\frac{2}{3}$.

Curculio variabilis, Herbst, *Käf.* vi. 263. tab. 80. fig. 1 (1795).
——— *bimaculatus*, Mshm, *Ent. Brit.* i. 266 (1802).
Rhynchænus variabilis, Gyll. *Ins. Suec.* iii. 104 (1813).
Phytonomus variabilis, Schön. *Gen. et Spec. Curc.* ii. 384 (1834).

Habitat Maderam, passim (usque ad 3500′ s. m. ascendens): necnon etiam in Desertâ Grandi Maio exeunte A.D. 1850 specimen unicum inveni.

H. similar to the last species, but (on the average) a little smaller, and also more densely variegated with scales,—there being generally an admixture of dark ones, and the paler ones having, also, more of a fulvescent tinge. *Rostrum* perhaps a trifle slenderer and longer than in that insect. *Prothorax* not quite so convex, and with the longitudinal lines usually better defined. *Elytra* more distinctly tessellated (the alternate interstices being more or less chequered with darker pile-like scales), and with their sutural region towards its base more evidently obscured. *Antennæ* and *legs* ferruginous.

It is possible that the present insect and the last one may be but states of the same species: nevertheless, since I believe them to be correctly identified with the common European *H. variabilis* and *murina* (which are usually retained as distinct), I have not amalgamated them. The *H. variabilis* is found sparingly throughout Madeira, in much the same positions as the *H. murina*,—ascending however somewhat higher, since (in addition to the vicinity of Funchal, in which I have frequently observed it at rather low elevations) I captured a specimen during the summer of 1850 at the Ribeiro Frio; and another, at the end of May of the same year, towards the summit of the Dezerta Grande.

(Subf. 9. CLEONIDES.)

Genus 131. CLEONUS.

Schönherr, *Curc. Disp. Meth.* 145 (1826).

Corpus sat magnum, plerumque oblongum, plus minusve squamuloso-variegatum (vel submaculatum) et pubescens, durum: *rostro* (in specie nostrâ) parum elongato sulcato-teretiusculo, basin versus subgracili sed apice paulo latiore, ad apicem ipsum vel subtruncato vel (ut in nostrâ) triangulariter emarginato, leviter arcuato; *scrobe* subflexuoso-obliquâ, versus marginem oculi inferiorem retrorsum profunde ductâ sed eum vix attingente; *oculis* ovatis demissis: *prothorace* subconico, mox pone apicem sæpius leviter constricto, necnon per marginem basalem subsinuato: *scutello* parvo rotundato: *elytris* liberis, basi sæpius singulatim subrotundatis, sed interdum (ut in specie nostrâ) conjunctim leviter emarginatis: *alis* plerumque (ut in specie Maderensi) parum amplis

(rarius obsoletis). *Antennæ* mediocres aut breviusculæ, sat validæ; scapo subrecto, ad apicem clavato; funiculo 7-articulato, articulis primo et secundo plus minusve obconicis, tertio ad sextum brevibus transversis, septimo majore clavæ arcte adpresso; clavâ acuminatâ, quadri-articulatâ. *Pedes* longiusculi: *femoribus* subclavatis: *tibiis* ad apicem internum in uncum deflexum productis.

The *Cleoni* are insects of a considerable size, of a principally elongated-oblong outline, and of either blotched or fasciated surfaces. They may be further recognised by their subconical prothorax, by their apically-subdilated rostrum (and by the form of its lateral *scrobs*, which is curved beneath, in a deep channel, almost to the inferior margin of the eye), and by the joints of their funiculus,—the first and second of which are (especially in the Madeiran representative) obconic, the third to the sixth short and transverse, whilst the seventh is larger and closely applied to the club. Their elytra, likewise, are usually slightly callose, or irregularly subnodulose, towards their extremity (as in many of the species of *Acalles*); and their tibiæ are generally produced at the inner angle into a downwardly-directed spine. They reside for the most part in gravelly or barren localities, more or less free from vegetation,—secreting themselves amongst stones during the day, with which their obscurely dappled, or submaculated, bodies often display a remarkable similarity as regards colouring; particularly when clothed with dust, which in such positions they are constantly liable to become.

307. Cleonus plicatus.

C. niger, squamulis cinereo-brunneis subcretaceis undique densissime tectus, rostro sulcato, prothorace costis plurimis undulatis instructo, elytris profunde striato-punctatis, fasciis duabus communibus (unâ sc. anticâ luniformi sed in medio latissime interruptâ, et alterâ subapicali transversâ dentatâ integrâ) vix pallidioribus ornatis.

Long. corp. lin. 6–7.

Curculio plicatus, Oliv. *Ent.* v. 83. 322. pl. 6. fig. 65 (1807).
Rhytideres plicatus, Schön. *Curc. Disp. Meth.* 150 (1826).
Cleonus plicatus, Schön. *Gen. et Spec. Curc.* ii. 203 (1834).
Cleonis plicatus, Dej. *Cat.* (3ième édit.) 281 (1837).

Habitat in Portu Sancto et Desertâ Grandi, præsertim inter lapides in rupium fissuris jacentes, hinc inde non infrequens: in Maderâ mihi non obvius.

C. large, black, but most densely clothed with whitish-brown or brownish-white scales, of a somewhat cretaceous, or chalky, nature,—and which are always of a paler colour beneath the insect than on the upper side. *Rostrum* rather long, and deeply channeled longitudinally (both in the centre and at the sides). *Prothorax* subconical, and closely beset with longitudinal costæ, which are more or less undulated or waved,—especially the one on either side of the central canal. *Elytra* a good deal broader than the prothorax, and nearly parallel; deeply striate-punctate; and with two transverse fasciæ (one of which is situated on the anterior portion, and is large and luniform, though broadly interrupted in the centre, thus constituting an oblique band on either elytron,—

whilst the other is subapical, transverse, zigzaged and abbreviated, but entire at the suture), common to both, of a rather paler hue,—and which are sometimes only just distinguishable. *Antennæ* and *legs* a little more piceous than the rest of the surface, but considerably pubescent, and (like the body) usually densely clothed with scales.

Apparently a rather scarce insect, and one which I have hitherto only observed in Porto Santo and on the Dezerta Grande,—where it occurs principally amongst dry and loose stones in the crevices of the weather-beaten rocks. In the former of those islands I detected it, not uncommonly, during April of 1848; and on the latter (in the fissures of the highest central peaks) during January 1849. It is a species of Mediterranean latitudes, being recorded in the south of Spain, France and Sicily: as also in the Canarian group.

(Subf. 10. BRACHYDERIDES.)

Genus 132. SITONA.

Germar, *Ins. Spec.* i. 414 (1824).

Corpus sat parvum, elongatum, plus minusve squamuloso-variegatum et pubescens: *rostro* brevi crasso, supra plano, sublineari aut apicem versus leviter attenuato, ad apicem ipsum sæpius triangulariter emarginato; *scrobe* angustâ curvatâ, infra oculum retrorsum desiliente; *oculis* rotundatis vel oblongis, interdum valde prominentibus: *prothorace* ad latera plus minusve rotundato, antice truncato et mox pone apicem leviter constricto: *scutello* parvo rotundato: *elytris* liberis: *alis* plerumque amplis (rarius obsoletis). *Antennæ* breviusculæ subgraciles; scapo vel recto vel subflexuoso, ad apicem clavato; funiculo 7-articulato, articulis primo et secundo obconicis (illo paulo robustiore), reliquis brevibus latitudine vix crescentibus; clavâ parum angustâ acuminatâ, quadriarticulatâ. *Pedes* longiusculi (vel subæquales vel *antici* longiores): *femoribus* subfusiformibus (*i. e.* in medio leviter incrassatis): *tibiis* ad apicem truncatis muticis.

Although widely distributed throughout the world, the *Sitonæ* are principally confined to temperate latitudes,—nearly fifty species having been recorded as European. Out of the five representatives which I have hitherto detected in these islands, none would appear to be undescribed,—whilst two out of them are of almost universal distribution, and may perhaps have been accidentally introduced from more northern countries. They are insects which may be known (amongst other distinguishing features) by their rather narrow and elongated bodies, by their short and broad rostrum (with its greatly curved lateral groove), by their somewhat slender, though abbreviated, antennæ, and by their apically-unarmed tibiæ. They occur amongst the smaller vegetation, particularly in cultivated districts,—where they often abound. In clover-fields and meadows in our own country some of the commoner ones occasionally teem; and after sudden floods they may be frequently observed by tens of thousands amongst the refuse left at the edges of rivers.

§ I. *Rostrum paulo longius et angustius, supra longitudinaliter sulcatum; oculis oblongis valde prominentibus: tarsorum spongiæ distinctæ.*

308. Sitona gressoria.

S. fusiformi-elongata, squamulis fulvescentibus tecta, prothorace profunde et rugose punctato, ad latera in medio subampliato-rotundato, elytris profunde punctato-striatis, interstitiis convexis, per suturam sæpius densius squamulosis, antennis pedibusque robustis, illis brevibus, his elongatis.

Long. corp. lin. 4–4½.

Curculio gressorius, Fab. *Ent. Syst.* i. ii. 465 (1792).
——— ———, Herbst, *Käf.* vi. 493 (1795).
Sitona gressorius, Germ. *Ins. Spec.* i. 416 (1824).
——— ———, Schön. *Gen. et Spec. Curc.* ii. 97 (1834).

Habitat Maderam, æstate rarior: in castanetis Sanctæ Annæ Junio exeunte A.D. 1850 tria specimina cepi.

S. the largest of the genus, elongate and somewhat fusiform (being acuminated both before and behind), black, and generally rather densely clothed with yellowish-brown or fulvescent scales above, and with paler ones underneath. *Rostrum* longer and narrower than in any of the following species, and more grooved (or sulcated) above,—having not only a deeper and broader central channel, but likewise one on either side of it in front of the eyes. *Eyes* large, oblong and prominent. *Prothorax* deeply and roughly punctured (the punctures being often a good deal confluent, and not very well defined); rounded at the sides,—the widest part being about the centre, at which point it is generally slightly angulated; with a conspicuous pale line down the disk, and with usually only very obscure indications of one on either side. *Elytra* deeply punctate-striated, with the interstices convex, and with the suture generally a little paler than the rest of the surface. *Antennæ* short and rather robust (and with their scape more perceptibly flexuose, and more gradually thickened towards its apex, than in any of the other species). *Legs* long (the intermediate pair being rather the shortest); with their tarsi large and distinctly cushioned beneath.

An insect of Mediterranean latitudes, and the largest of all the *Sitonæ* hitherto described. It recedes in so many respects from the normal members of the group as to have been originally regarded by Schönherr as the type of a separate genus (under the name of *Charagmus*), which, however, in his *Genera et Species Curculionidum*, he afterwards suppressed. Independently of its bulk, it may be at once known from its allies with which we have here to do, by its fusiform outline, by its more produced, proportionably narrower and deeply sulcated rostrum, by its oblong eyes, by the sides of its prothorax being subangulated in the centre, by the coarse sculpture and convex interstices of its elytra, by its rather short and thickened antennæ (the scape of which is slightly flexuose, and more *gradually* incrassated towards its apex), and by its exceedingly elongated legs. It occurs throughout southern Europe (being recorded in Italy, France and Portugal) and in the Canary Islands, but does not appear to extend into boreal, or even sub-

boreal regions. It is in fact the representative (except in habits) of the *S. grisea* of our own country (so abundant in sandy districts towards the coast), with which indeed by some entomologists it has been actually united,—but from which it is in my opinion most unquestionably distinct, displaying as it does important differences (even of structure) which can hardly be accounted for by geographical influence. Thus, it is not only of greater magnitude, and otherwise adorned in the arrangement of its scales, but its punctuation is altogether much more rugose, its eyes are more oblong, and its prothorax (the sides of which, as already stated, have a very evident tendency to be acute, instead of obtusely rounded, in their centre) is longer. It would seem to be rare in Madeira, the only three specimens which I have taken having been captured in the chestnut-woods of Santa Anna during the summer of 1850.

§ II. *Rostrum breve latum, supra lineâ mediâ longitudinali impressum; oculis subrotundatis: tarsorum spongiæ minus distinctæ.*

a. *Oculi prominentes: pedes antici leviter elongati.*

309. Sitona latipennis.

S. subovato-elongata, squamulis metallico-cinereis et albidis dense irrorata, prothorace leviter rugulosо-subpunctulato convexo, ad latera in medio rotundato-ampliato, elytris punctato-striatis convexis, post medium latioribus et callo postico utrinque notatis, interstitiis alternis plerumque obsoletissime tessellatis, antennis pedibusque ferrugineis longiusculis, illis gracilibus.

Long. corp. lin. 3–3½.

Sitona latipennis, Schön. *Gen. et Spec. Curc.* ii. 99 (1834).

Habitat in montibus Maderæ, super folia *Genistæ scopariæ*, Linn., æstate et autumno frequens.

S. somewhat ovate-elongate (being expanded posteriorly), black, and more or less densely besprinkled with very deciduous scales,—part of which (especially towards the hinder region) are white, but the greater portion submetallic-cinereous (reflecting, when viewed obliquely, either a slightly golden or greenish-golden lustre). *Rostrum* shorter and broader than that of the last species, and more flattened above,—having no lateral sulci, and not being excavated in the centre (the medial canal of that insect being here represented by merely a narrowly impressed line). *Eyes* nearly round, and very prominent. *Prothorax* almost unpunctured on the disk, but very lightly rugulose and subpunctulated towards the sides; convex, and considerably rounded at the edges,—the widest part being about the middle; with its front margin a little raised, and generally with an exceedingly shallow rounded fovea on either side of its hinder disk. *Elytra* convex, and expanded behind the middle; punctate-striated; and with the interstices flattened, —the alternate ones, together with the suture, being often very obsoletely tessellated with the darker and paler scales (but which in many instances is altogether imperceptible); rather more pubescent behind than in any of the other species, and armed on either side with a small callosity at a short distance within their apex. *Antennæ* and *legs* ferruginous, and rather long; the *former* being slender; and the *latter* having their anterior pair more elongated than the rest.

A large and well-marked member of the group, ranking next, in bulk, to the *S. gressoria*. It may be immediately recognised by its convex and comparatively *ovate* (or posteriorly inflated) body, by its greatly rounded and very lightly sculptured prothorax, by the submetallic lustre and fragile nature of its scales (which have frequently a tendency, in highly coloured examples, to tessellate the alternate interstices of its elytra), by the small callosity with which it is armed towards its hinder quarters on either side, and by its long and ferruginous antennæ and legs,—the former of which are slender, whilst the latter have their anterior pair more perceptibly lengthened than the remainder. It is a truly indigenous *Sitona*, and confined, so far as I have hitherto observed, to the common Broom (*Genista scoparia*, Linn.) of intermediate and lofty altitudes,—making its appearance about the beginning of summer and lasting until the early winter months. I have taken it abundantly at the Curral das Romeiras (above Funchal) during October and November; and on the ascent of the Paul da Serra from São Vincente, in July. It is announced by Schönherr, on the authority of Faldermann, to be a native of Portugal; and whilst there is no reason why it should not occur in that country, yet, since I have grounds for suspicion that mistakes have arisen as to the correct geographical reference of *several* of the insects which were disseminated by Faldermann (who seems either to have touched at these islands, on his travels, or else to have received specimens from them,—and by whom many species which have altogether escaped our combined researches during a course of many years, but which are universal in Portugal, were reported as Madeiran; whilst others, apparently peculiar to Madeira, were registered as Portuguese), and since I have never detected any traces of it amongst the numerous collections which I have examined from the south-western districts of Europe, I accept that statement with considerable hesitation,—and more especially so, since it is not only certain that such-like misapplications are of frequent experience in Museums of a large and general scale; but also because it is far from improbable, that, since Madeira, is regarded as a province of Portugal, any very great accuracy, or precautions against error, might have been deemed superfluous in preserving records of localities within what are *artificially* but parts (even though widely distinct by nature) of one and the same kingdom.

310. Sitona cambrica.

S. parallelo-elongata vix squamulosa sed pilis subcinereo-nigrescentibus brevibus tecta, prothorace profunde punctato, ad latera in medio rotundato-ampliato, scutello albo-squamoso, elytris sat profunde punctato-striatis, interstitiis subconvexis, antennis picescentibus.

Long. corp. lin. $2\frac{1}{3}$–$2\frac{7}{8}$.

Sitona cambrica, (Kirby) Steph. *Ill. Brit. Ent.* iv. 140 (1831).
—— *cribricollis*, Schön. *Gen. et Spec. Curc.* ii. 101 (1834).
—— *rugulosus*, Dillwyn, *in litt.*
—— *seticollis*, Woll. (olim) *in litt.*

Habitat ad vias vel sub lapidibus in locis inferioribus Maderæ Portûsque Sancti, præsertim circa urbem Funchalensem, passim.

S. elongate and parallel, black, and almost free from scales above (though closely beset with cinereous ones beneath), but rather densely clothed with pile (which is exceedingly short and decumbent on the elytra, though longer, robuster and often partially erect on the head and prothorax) of a dark hue, but which has more or less of a subcinereous and slightly fulvescent tinge when viewed obliquely. *Rostrum* as in the *S. latipennis*, but with its central canal wider and much deeper. *Eyes* large, rounded and exceedingly convex, being more prominent than in any of the other *Sitonæ* here described. *Prothoraæ* very roughly and deeply punctured; considerably rounded at the sides,—the widest part being about the middle; with its front margin a little raised; and generally with a few paler scales in the centre of its base (adjoining the *scutellum*, which is itself always beset with conspicuously pale scales). *Elytra* rather deeply punctate-striated, and with the interstices a little convex. *Antennæ* somewhat picescent, with their base ferruginous. *Legs* almost concolorous with the rest of the surface (though with the knees and tarsi perhaps a little picescent), and with their anterior pair rather more elongated than the rest,—though not so evidently so as in the *S. latipennis*.

Readily known from the other *Sitonæ* here described by its comparatively dark colour (the scutellum and a minute dash on the hinder margin of the prothorax, opposite to it, being the only portions of its upper surface which are invariably paler), by the extreme prominence of its eyes, and by the anterior half of its body being considerably pilose,—its head and rostrum (and occasionally also the prothorax) being often beset with long, partially erect, and more or less rigid hairs. It seems to be principally confined to the south of the island, and to the neighbourhood of Funchal,—where I have constantly taken it, during the autumnal and winter months, in and about the vineyards and cultivated grounds, as well as beneath stones on the grassy slopes towards the coast; and I have likewise observed it, sparingly, in Porto Santo. It appears to be one of the scarcer species throughout Europe generally, being recorded by Schönherr from Austria only. I have however met with it rather plentifully in the west of England, and on the sandy sea-shores of Wales,—especially in the immediate vicinity of Holyhead, where it abounds. The Madeiran specimens differ in no respect from the Welsh ones, of which I possess an extensive series,—though they are somewhat smaller and narrower than the average of those from Devonshire and Cornwall.

b. *Oculi minus prominentes: pedes subæquales.*

311. Sitona lineata.

S. parallelo-elongata, squamulis fuscis et subcinereo-fuscis dense tecta, prothorace crebre et subtiliter punctulato, ad latera pone medium leviter rotundato, elytris punctato-striatis, interstitiis alternis pallidioribus, antennis, tibiis tarsisque ferrugineis.

Long. corp. lin. $2\frac{1}{3}$–$2\frac{1}{2}$.

Curculio lineatus, Linn. *Fna Suec.* 183 (1761).
——— ———, Fab. *Ent. Syst.* i. ii. 466 (1792).
Sitona lineata, Steph. *Ill. Brit. Ent.* iv. 135 (1831).
—— *lineatus*, Schön. *Gen. et Spec. Curc.* ii. 109 (1834).

Habitat in Maderâ Portuque Sancto, hinc inde sat vulgaris, ex Europâ forsan introducta.

S. elongate and parallel, black, and densely clothed with fulvous and cinereo-fulvous scales above, and with pale cinereous ones beneath. *Rostrum* as in the *S. cambrica*, except that it is flatter and less sculptured above, and with the medial canal narrower and less deep. *Eyes* nearly round, and less prominent than in any of the preceding species. *Prothorax* finely and very closely punctulated; widest a little *behind* the middle; with its front margin slightly raised; and with three more or less distinct longitudinal lines composed of the paler scales. *Elytra* punctate-striated, and with the interstices flattened,—the scales of the alternate ones being more or less evidently paler. *Antennæ*, *tibiæ* and *tarsi* pale ferruginous,—the *legs* being of subequal length.

An insect which abounds throughout every portion of Europe,—from where indeed it has probably been introduced into these islands. It is not very common in Madeira, occurring principally at low elevations and in the neighbourhood of Funchal,—where I have constantly observed it during the spring months, especially in the Rev. R. T. Lowe's garden at the Levada. It is occasionally however to be met with at higher elevations, since in the summer of 1850 I took it sparingly at the Ribeiro Frio. I have likewise captured it, behind the sea-beach, in Porto Santo. It may be at once known by its parallel outline, by the light brown scales with which it is clothed (the three prothoracic lines and the alternate interstices of its elytra being alone slightly paler), and by its ferruginous antennæ, tibiæ and feet.

312. Sitona humeralis.

S. subparallelo-elongata (antice subacuminata), squamulis cinereis et infuscato-cinereis inæqualiter tecta, prothorace rugulose punctato angusto subconico (ad latera pone medium vix rotundato), elytris leviter punctato-striatis, versus latera cinereo-variegatis sed in disco communi sæpius late obscurioribus, antennis, tibiis tarsisque obscuro-ferrugineis.

Long. corp. lin. 2– vix $2\frac{1}{2}$.

Sitona humeralis, (Kirby) Steph. *Ill. Brit. Ent.* iv. 138 (1831).
—— *Pisi*, Steph. *Ill. Brit. Ent.* iv. 139 (1831).
—— *promptus*, Schön. *Gen. et Spec. Curc.* ii. 113 (1834).
Sitones promptus, Redt. *Fna Austr.* 451 (1849).

Habitat in locis similibus ac præcedens, sed paulo rarior: in Portu Sancto tamen prædominat, quâ mense Aprili A.D. 1848 plurima specimina per oram maritimam collegi.

S. about the same size as (or a little smaller than) the *S. lineata*, but rather less parallel (being slightly acuminated anteriorly), black, and densely, though unequally, clothed with cinereous and brownish-cinereous scales above,—but with uniformly cinereous ones beneath. *Rostrum* rather narrower than that of the *S. lineata*, and with its medial channel (like that of the *S. cambrica*)

deep and wide. *Eyes* round, but more depressed than in any of the other species. *Prothorax* rather rugosely punctured; narrow and subconical (being widest *behind* the middle, and less rounded at the sides than in any of the foregoing species); with its front margin slightly raised, and with three usually distinct longitudinal lines composed of the paler scales. *Elytra* somewhat finely punctate-striated, and with the interstices flattened; more or less dappled, or clothed, with paler scales towards the sides, but usually broadly infuscated, or obscured, on their common disk,—throughout nearly the entire length of the suture. *Antennæ*, *tibiæ* and *tarsi* dull ferruginous,—the *legs* (which, with the antennæ, are rather shorter than those of the *S. lineata*) being of subequal length.

Likewise an abundant European *Sitona*, though not quite so universal as the *S. lineata*,—and recorded also from Persia and the Caucasus. It may be recognised from that insect by its anteriorly-subacuminated form, by its narrower and subconical prothorax (which is more roughly punctured, and has the edges but very slightly rounded), by the pale ashy-coloured scales with which it has a tendency to be blotched or dappled towards its sides (its disk remaining broadly obscured), and by its somewhat shorter limbs. Like the last species, it may perhaps have been introduced into these islands from more northern latitudes,—occurring at low elevations within the cultivated districts. I have taken it rather plentifully behind the sandy sea-beach of Porto Santo, during the spring; but in Madeira proper it would seem to be scarce,—the only specimen which I have seen having been recently communicated by T. S. Leacock, Esq., from the neighbourhood of Funchal.

Fam. 35. ATTELABIDÆ.

Genus 133. APION. (Tab. VIII. fig. 4 et 6.)

Herbst, *Käf.* vii. 100 (1797).

Corpus minutum, ob-pyriforme et antice valde attenuatum, plus minusve pubescens vel læte coloratum (rarius squamosum): *rostro* subporrecto, plerumque gracili tereti arcuato (rarius valido), sed in paucis basi crassiusculo; *oculis* rotundatis prominulis: *prothorace* vel subconico vel subcylindrico: *scutello* parvo: *elytris* ovatis: *alis* sat amplis. *Antennæ* mediocres rectæ, ad (aut potius mox ante) basin vel versus medium rostri insertæ, sub capite inter otium inflexæ, articulo primo leviter elongato clavato, secundo breviore sub-obconico, tertio ad octavum parvis subæqualibus, reliquis inter se arcte connexis, clavam quadri-articulatam acuto-ovalem efficientibus. *Pedes* longiusculi: *tibiis* rectis teretibus, ad apicem muticis.

The genus *Apion*, so universal throughout temperate latitudes, may be recognised by the ob-pyriform (or inverted pear-shaped) and anteriorly-acuminated bodies of the numerous and minute species which unite in composing it,—and which are often gaily coloured (exhibiting occasionally metallic tints), have their surfaces more frequently pubescent than scaly (sometimes entirely glabrous), their tibiæ unarmed, and their antennæ (as is always the case in the present family)

straightened (instead of elbowed, as in the *Curculionidæ*,—the first joint being only slightly elongated), and inserted either near to the base or else towards the middle of their (usually slender, arcuated, cylindrical and porrected) rostrum. They are insects which are principally attached to the smaller plants, on the softer portions of which they subsist,—comparatively few being connected with the foliage of trees. So abundant are some of the commoner forms, in certain places and seasons, as to commit considerable damage amongst various kinds of vegetables in agricultural districts. Nearly 130 species are recorded as European,—more than 70 of which are found in the British Islands. When the southern position of Madeira and its limited area are taken into account, the group may be considered to be well represented in our Coleopterous fauna: nevertheless, out of the seven members described below, three may perhaps have been originally introduced from more northern countries,—whilst the remaining four are of remarkably indigenous habits, occurring at higher altitudes, and in spots for the most part altogether removed from any traces of cultivation.

§ I. *Antennæ ante basin rostri insertæ.*

313. Apion vernale.

A. subgracile piceo-fuscum subopacum, squamis albidis, fusco-albidis et subnigrescentibus læte variegatum, rostro breviusculo minus arcuato, prothorace ruguloso-punctato, ad basin sinuato et in disco postico distincte foveolato, elytris elongato-subovatis crenato-striatis, ad apicem ipsum subacuminato-constrictis necnon singulatim rotundatis et dehiscentibus, fasciâ postmediâ maximâ valde arcuatâ communi albidâ (antice et postice plagâ obscuriore subnudâ terminatâ) ornatis, antennis pedibusque infuscato-testaceis.

Long. corp. lin. 1–1½.

Attelabus vernalis, Fab. *Ent. Syst.* i. ii. 392 (1792).
Curculio concinnus, Mshm, *Ent. Brit.* i. 248 (1802).
Apion vernale, Gyll. *Ins. Suec.* iii. 33 (1813).
—— ——, Schön. *Gen. et Spec. Curc.* i. 273 (1833).

Habitat in graminosis Maderæ australis, tempore vernali, non infrequens.

A. rather slender, piceous-brown, subopake, and densely variegated with white and brownish-white scales,—with a few darker ones intermixed. *Rostrum* rather short, and but very slightly arcuated; thickened behind the insertion of the antennæ (which are placed at a short distance in front of its extreme base); sculptured, and densely clothed with scales, in the male; but shining, glabrous and rufo-piceous, from the insertion of the antennæ to the apex, in the female. *Prothorax* subconical, and with its posterior margin considerably sinuated; closely and roughly punctured; with a deep, distinct and somewhat rounded fovea in the centre of its hinder disk; and usually densely beset with white scales at its sides. *Elytra* elongate-subovate and crenate-striated; rather produced and constricted at their extreme apex,—where each of them is separately

rounded (and the two consequently somewhat gaping, or divergent, at the suture); and with a large, postmedial, arcuated fascia, common to both (and bounded in front and behind, especially the former, by a darker subglabrous portion,—which is generally besprinkled with a few blackish scales), more or less distinctly white. *Antennæ* and *legs* dusky-testaceous,—the *former*, and the *tarsi* of the latter, being sometimes rather more obscure.

A very distinct European *Apion*; and one which may be at once recognised, not only by its slender form and prettily fasciated surface, but likewise by the deep postmedial fovea, and greatly sinuated hind margin, of its prothorax; though, above all, by the peculiar construction of the apex of its elytra,—which I have not seen elsewhere alluded to, but which is of a very extraordinary nature. If the insect be viewed from behind, it will be perceived that each elytron is somewhat produced and separately rounded-off, so that the two slightly gape (or diverge) at the suture,—a singularity which is rendered the more apparent from their having a tendency to be, also, constricted and subelevated in that particular region. It occurs in grassy spots, and amongst dense herbage, during the spring months, in the vicinity of Funchal, though not very abundantly. During my encampment however in the Ribeiro de Santa Luzia, with the Rev. R. T. Lowe, in May of 1849, I took it in considerable numbers towards the base of the lofty perpendicular rocks which constitute the boundaries of the ravine.

314. Apion sagittiferum, *Woll.*

A. fusco-piceum subopacum, squamis albidis et subflavescenti-albidis adspersum, rostro breviusculo, prothorace ruguloso-punctato, ad basin leviter sinuato et in disco postico obscure foveolato, elytris subovatis crenato-striatis, ad apicem integris et haud acuminatis, maculâ parvâ antemediâ subsagittatâ et fasciâ postmediâ transversâ rectâ communibus albidis ornatis, antennis pedibusque testaceis, illis plerumque obscurioribus.

Long. corp. lin. 1–1$\frac{1}{8}$.

Habitat insulas Maderenses, præsertim in graminosis locorum subeditiorum, hinc inde vulgaris: in Portu Sancto et Desertâ Grandi abundat, inter lichenes in rupium fissuris crescentes tempore hiberno latitans.

A. smaller, shorter, convexer and more ovate than the *A. vernale,* brownish-piceous (sometimes with a just perceptibly æneous tinge), subopake, and clothed (though not very densely) with white and yellowish-white scales. *Rostrum* as in that insect, but a little more arcuated, less evidently thickened behind the insertion of the antennæ, and (if anything) perhaps a trifle shorter and more robust. *Prothorax* a little broader and shorter (in proportion) than that of the *A. vernale,* also with its posterior margin rather less evidently sinuated, and with the fovea (or abbreviated canal) of its hinder disk (instead of being deep and large) hardly perceptible, and sometimes obsolete; and not more besprinkled with scales towards its sides than elsewhere. *Elytra* shorter, more convex and ovate than in that species; crenate-striated; entire at their apex (having no appearance of the acuminated, constricted and subdivergent structure which is there so con-

spicuous); with a small antemedial patch on the suture of the shape of an arrow-head, or an inverted V (formed by an oblique spot on each, confluent anteriorly), and a *straight* postmedial transverse fascia (bounded in front by a darker subglabrous portion), common to both, more or less obscurely white. *Antennæ* and *legs* testaceous,—the *former* being generally more or less darkly infuscated.

A most interesting little *Apion*, and of an exceedingly indigenous nature. Before I had subjected it to a critical analysis, I had imagined it to be but a local state of the *A. vernale*,—to which in its fasciated surface and general aspect it bears a certain *primâ facie* resemblance: but, apart from its opposite habits, and many minute distinctive features (shortly to be noticed) which had long combined, even before examination, to give it a peculiar character (albeit more easily seen than expressed),—the discovery of the singularly acuminated and subdehiscent structure of the apex of the elytra which is so universal in that insect (and which is not so much as indicated here) at once removed all doubt as to its true specific claims. The comparison moreover of a very large series of specimens, collected in Madeira, Porto Santo, and on the Dezerta Grande, has subsequently convinced me that it is not even so *variable* as (under the former hypothesis) I had concluded it to be,—whilst the arrangement of its scales, as compared with those of such-like species generally, is in fact remarkably constant. Thus, it is not only smaller, convexer, thicker and more ovate than the *A. vernale*, but its prothorax is less sinuated along its posterior margin, has its central fovea very much less evident, and is not more clothed at the sides than elsewhere; whilst its elytra (which, as just stated, are *entire* at their extremity) are differently coloured,—the minute sagittiform, or inverted V-shaped, patch before the middle of the suture, in conjunction with the *straightened* transverse postmedial fascia, immediately sufficing to identify it. Its legs also are of a purer testaceous hue, and the darker portion of its scales has more or less of an obscure yellowish tinge (which frequently imparts to the entire surface a subæneous cast); whilst its antennæ are nearly always more decidedly infuscated than is the case in that insect. It is principally confined to higher elevations than the *A. vernale*, and seems to be more especially attached to lichen and dense vegetation on the rocks of intermediate altitudes. Nevertheless it is occasionally to be met with in lower regions, since I have captured it sparingly in gardens near Funchal, and (in the north of the island) in the chestnut-woods of Santa Anna. It is more abundant however in Porto Santo and on the Dezerta Grande than in Madeira proper,—where I have taken it in profusion, during the spring months, from out of the fissures of the weather-beaten peaks, as well as in grassy spots in their immediate vicinity.

315. Apion Malvæ.

A. nigrum subnitidum, squamis albidis vel subflavescenti-albidis magnis adspersum, rostro brevisculo robusto, apicem versus interdum testaceo, prothorace ruguloso-punctato (punctis

oblongis), elytris ovatis striatis omnino (regione basali triangulari exceptâ) testaceis, antennis pedibusque testaceis.

Long. corp. lin. $1\frac{1}{3}$.

Curculio Malvæ, Fab. *Syst. Ent.* 132 (1775).
——— ———, Mshm, *Ent. Brit.* i. 246 (1802).
Apion Malvæ, Schön. *Gen. et Spec. Curc.* i. 272 (1833).
——— ———, Redt. *Fna Austr.* 462 (1849).

Habitat super folia Malvarum in locis subinferioribus Maderæ, tempore vernali hinc inde vulgaris.

A. rather short and robust, black, very slightly shining, and more or less clothed (usually not very densely so on the elytra) with large (though somewhat deciduous) whitish or yellowish-white scales. *Rostrum* rather short and thick, generally slightly denuded (and often paler) towards its apex,—and with the antennæ inserted into it at a considerable distance in front of its base. *Prothorax* somewhat broad (especially behind), and with its posterior margin just perceptibly sinuated; rugosely punctured (the punctures being subconfluent, and more or less elongated or oblong). *Elytra* ovate, and striated (the striæ not being crenate, but simple); entire at their apex; and testaceous,—except the inner region of the base of *each*, which is obliquely darker (the two together causing a large triangular dusky patch to appear about the region of the scutellum). *Antennæ* and *legs* robust, and testaceous.

The *A. Malvæ*, common throughout the whole of central and southern Europe, and which perhaps has been imported into these islands from more northern latitudes, may be known by its rather ovate and thickened form, by its pale testaceous elytra and limbs (the former of which have merely a triangular patch at their base darker), and by the large, whitish, or yellowish-white scales with which it is besprinkled. It is found on the foliage of plants (especially Mallows), during the spring months, in the vicinity of Funchal,—being by no means generally diffused, though in certain spots sufficiently abundant. I have taken it in the Rev. R. T. Lowe's garden at the Levada; as also about half-way up the Ribeiro de Santa Luzia, during my encampment there in May of 1849.

316. Apion frumentarium.

A. pallido-sanguineum (oculis solis nigris) opacum subtiliter cinereo-pubescens, rostro robusto, prothorace profunde et crebre punctato, elytris ovatis profunde crenato-striatis, antennis pedibusque vix pallidioribus.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{2}{3}$.

Curculio frumentarius, Linn. *Fna Suec.* 175 (1761).
——— ———, Payk. *Mon. Curc.* 139 (1792).
Apion hæmatodes, Steph. *Ill. Brit. Ent.* iv. 174 (1831).
——*frumentarium*, Schön. *Gen. et Spec. Curc.* i. 283 (1833).

Habitat Maderam, et borealem et australem, toto anno, passim: necnon in Portu Sancto, sed minus frequens occurrit.

A. pale sanguineous (the *eyes* being alone black), opake, and sparingly besprinkled with a fine cinereous pubescence. *Rostrum* rather short (though somewhat longer than in the *A. Malvæ*) and robust, slightly shining,—and with the antennæ inserted into it at a considerable distance in front of its base. *Prothorax* with its posterior margin straightly truncated; closely and deeply punctured. *Elytra* ovate, deeply crenate-striated, and entire at their apex. *Antennæ* and *legs* scarcely paler than the rest of the surface.

The bright red, or pale sanguineous, hue of the present *Apion* (its eyes alone being black) will at once serve to distinguish it from the other species with which we have here to do. It is a universal insect throughout Europe,—and widely scattered (though somewhat sparingly) over Madeira at rather low and intermediate elevations. I have taken it in the neighbourhood of Funchal; at the Ribeiro Frio; as also (in the north of the island) at São Vincente and Santa Anna: and I have likewise captured it in Porto Santo.

317. Apion chalybeipenne.

A. elongatum nigrum subnitidum, squamulis cinereis subtilibus parce irroratum, rostro elongato arcuato, prothorace profunde punctato et postice in medio leviter canaliculato, elytris subellipticis crenato-striatis et obscure subænescenti-viridescentibus, antennis ad basin ipsam rufo-ferrugineis.

Var. β. omnino (præsertim in elytris) chalybeum et minus cinereo-pubescens.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Apion chalybeipenne, Schön. *in litt.* (teste Dom. Bohemann).

Habitat in montibus Maderæ Portûsque Sancti, præsertim super folia Malvarum, tempore vernali et æstivo non infrequens: varietatem β. ad Feijãa de Córte solum vidi.

A. elongate, black (except on the elytra), slightly shining, and sparingly besprinkled with small, exceedingly deciduous, cinereous scales. *Rostrum* long and arcuated (being more curved than in any of the other species),—and with the antennæ inserted into it at a considerable distance in front of its base. *Prothorax* with a very faint tendency to have its posterior margin sinuated; deeply and regularly punctured, but not quite so closely so as in the preceding species; and with an impressed central channel behind. *Elytra* subelliptical (being widest about the middle), and crenate-striated; a little acuminated at their apex,—where each of them has a slight tendency to be separately rounded-off; of a more or less obscure brassy-green tinge. *Antennæ* and *legs* rather robust; the *former* with their *extreme* base rufo-ferruginous.

Var. β. altogether of a chalybeous, or bluish, lustre (especially on the elytra); and with less appearance of the small cinereous scales or pubescence.

Very closely allied to the common *A. radiolus* of more northern latitudes,—from which it differs in being a little smaller, in having its rostrum and limbs somewhat shorter and less thickened, in its antennæ being more evidently ferruginous at their extreme base, and in its surface being usually more besprinkled with minute cinereous scales. The *var.* β. however is often almost free from pubescence,—nevertheless that particular state recedes entirely from the *A. radi-*

olus in colour, being of a bluish or chalybeous tint. The obscure brassy-green hue which is so perceptible on the elytra of the normal specimens is precisely similar to what we observe in that insect,—a remark which will equally apply to the (rather considerable) curvature of its rostrum. I am informed by M. Bohemann that it agrees with the *A. chalybeipenne* of Schönherr (*in litt.*), and I have therefore retained it under that name. It seems to be confined to intermediate and rather lofty elevations, occurring amongst herbage during the spring and summer months. I have taken it towards the head of the Ribeiro de Santa Luzia in May; from off a species of Mallow at the Feijãa de Córte in July; and on the ascent of the Pico Ruivo from the Curral das Freiras early in August: and I likewise captured it on the grassy mountain-slopes of Porto Santo (immediately below the summit of the Pico de Facho) during April of 1848. The *var.* β. I have hitherto only detected at the Feijãa de Córte.

§ II. *Antennæ versus medium rostri insertæ.*

318. Apion Wollastoni. (Tab. VIII. fig. 4.)

A. viridescenti-æneum nitidum, parce et subtiliter cinereo-pubescens, rostro elongato gracili, prothorace parvo profunde et rugose punctato, elytris ovatis crenato-striatis et magis metallicis (plerumque plus minusve cuprescenti-micantibus), interstitiis minutissime rugulosis et punctulatis, antennis pedibusque longiusculis robustis fere nigris.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{3}$.

Apion Wollastoni, Chevrolat, *in Guér. Rev. de Zool.* iv. (2ième série) 278 (1852).

Habitat in Maderâ boreali, ad Sanctam Annam super plantas *Equiseti fluviatilis* æstate A.D. 1850 a meipso sat copiose repertum.

A. greenish-brassy or brassy-green, shining, and sparingly besprinkled with a very fine cinereous pubescence. *Rostrum* long and arcuated (though not quite so much curved as that of the *A. chalybeipenne*),—and with the antennæ inserted into it about midway between its base and apex. *Prothorax* small, slightly rounded at the sides, and with its posterior margin straightly truncated; deeply and rugosely punctured, and with faint indications of a central channel. *Elytra* ovate, and crenate-striated; just perceptibly acuminated at their apex,—where each of them is separately rounded-off; with the interstices most delicately rugulose and punctulated; usually of a more coppery or brassy tinge than the prothorax (in which metallic-green is the prevailing hue). *Antennæ* and *legs* rather long and robust, and nearly black,—displaying but a very slight metallic lustre.

Both the present *Apion* and the following one may be known from the species here described by their antennæ being inserted near to the *middle* of their rostrum, instead of towards its base; whilst, *inter se*, the more shining and metallic body of the *A. Wollastoni*, which has its prothorax (although small) not quite so minute or so cylindrical, in conjunction with its rather more pubescent surface,

the subrugulose and delicately punctulated interstices of its (more perceptibly ovate and apically subdehiscent) elytra, and its rather longer and robuster limbs, will serve to separate it from the *A. rotundipenne*. It is apparently extremely rare (or at any rate local), the only spot in which I have hitherto observed it being in the north of the island, at Santa Anna,—where, during May and June of 1850, I captured many specimens from off the *Equisetum fluviatile* in a boggy piece of ground on the left-hand side of the road which leads from the Quinta of Senhor Louiz Acciaioly down to the sea. Although I searched diligently in similar spots, I did not succeed in procuring it elsewhere.

319. Apion rotundipenne, *Woll.* (Tab. VIII. fig. 6.)

A. purpurascenti- vel subænescenti-nigrum subopacum et vix pubescens, rostro longiusculo gracili, prothorace minuto subcylindrico profunde et sat rugose punctato, elytris vel subgloboso-ovatis vel ovatis, profunde crenato-striatis et paulo magis metallico-micantibus, interstitiis vix punctulatis, antennis pedibusque gracilibus nigris.

Long. corp. lin. $1\frac{1}{8}$–$1\frac{1}{3}$.

Habitat in montibus Maderæ, præsertim super folia *Viciæ conspicuæ*, Lowe, a vere novo usque ad autumnum non infrequens.

A. less shining and metallic than the *A. Wollastoni*, being usually either black or purplish-black, and less evidently pubescent. *Rostrum* a trifle shorter, and not quite so arcuated. *Prothorax* rather smaller and more cylindrical than that of the *A. Wollastoni* (the sides being scarcely at all rounded), and not quite so rugosely punctured. *Elytra* varying from roundish-ovate into ovate, and deeply crenate-striated; with less indications of being subdehiscent (or separately rounded-off) at their extreme apex than in the last species; the interstices with scarcely any tendency to be punctulated; generally rather more metallic than the prothorax, being either of a slightly coppery or greenish tinge. *Antennæ* and *legs* rather shorter and less robust than those of the *A. Wollastoni*, and apparently free from metallic lustre.

Apart from the above *comparative* diagnosis, the distinctions between the present species and the last one have been already pointed out. The *A. rotundipenne* varies a good deal in the outline of its elytra, which are either subglobose or else (like those of the *A. Wollastoni*) ovate. They are both of them strictly indigenous insects,—the one under consideration however being, so far as I have hitherto observed, the more widely distributed of the two. It occurs, at most seasons of the year, in grassy spots of intermediate elevations, and would seem to be more attached to the *Vicia conspicua*, Lowe, than to any other plant,—an additional reason (since that vetch is essentially Madeiran) for regarding it as a true native of the soil. I have taken it in the Ribeiro de Santa Luzia in May, at São Vincente in June, at the Lombo dos Pecegueiros in July, at the Ribeiro Frio and the Feijãa de Córte in August, and at the Curral das Romeiras during October.

Genus 134. AULETES. (Tab. VIII. fig. 7.)

Schönherr, *Curc. Disp. Meth.* 46 (1826).

Corpus parvum, oblongo-ovatum, minus durum et parce pubescens: *rostro* longiusculo porrecto, subcylindrico ad apicem leviter dilatato, minus arcuato; scrobe obsoletâ; *oculis* rotundatis prominentibus: *prothorace* basi apiceque truncato, ad latera leviter rotundato: *scutello* parvo subrotundato: *elytris* oblongis, ad apicem ipsum singulatim rotundatis: *alis* amplissimis. *Antennæ* longiusculæ rectæ, prope basin (et supra latera) rostri insertæ, articulis primo et secundo subrobustis, tertio longiore graciliore, inde ad octavum latitudine leviter crescentibus, reliquis clavam elongatam perfoliatam parum abruptam efficientibus. *Pedes* longiusculi: *tibiis* ad apicem muticis.

Auletes may be at once distinguished by the peculiarities of its rostrum and antennæ,—the former of which is porrected, subcylindrical (though slightly divergent at its apex), almost straightened, and without any indication of *scrobes*, or grooves; whilst the latter are inserted immediately before the base of the former (rather more on the upper surface than at the sides), and have their terminal three joints thickened into an elongate and perfoliated club. It seems to be a genus of subaustral latitudes,—the south of France, Hungary, Dalmatia and the Caucasus being the recorded countries of the few species which have been hitherto described. They are insects which appear to occur on the foliage of trees,—much in the same manner as the members of the allied group *Rhynchites*, to which it is nearly akin.

320. Auletes Maderensis, *Woll.* (Tab. VIII. fig. 7.)

A. infuscato-ferrugineus pubescens et profunde punctatus, elytris (suturâ nigrescenti exceptâ), antennarum basi pedibusque testaceis, elytro singulo striâ suturali impresso.

Var. β. testaceus, rostro, elytris antennisque infuscatis.

Var. γ. omnino valde infuscato-testaceus, pedibus vix pallidioribus.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{3}{4}$.

Habitat Maderam, rarissimus: ad Curral das Romeiras necnon ad Sanctam Annam in Maderâ boreali, super folia salicum parce deprehensi.

A. pubescent, and deeply punctured. *Head* and *prothorax* brownish-ferruginous, being unequally clouded in parts. *Elytra* rather less closely punctured than the prothorax, but without any tendency to have the punctures arranged in rows; testaceous, except the suture which is narrowly darker,—and alongside which there is an impressed stria on each. *Antennæ* and *legs* testaceous; the *former* with their club a little dusky.

Var. β. with the head and prothorax testaceous (the rostrum being alone infuscated). *Elytra*, and *antennæ* (especially at their apex), darkly infuscated.

Var. γ. testaceous, but altogether darkly (though very unequally) infuscated,—the legs however being a little paler than the rest of the surface.

Apparently a most variable insect,—out of the four examples which have hitherto come beneath my notice not two being alike, either in stature or colour. It would seem to be excessively rare, though found both in the north and south of the island. I first discovered it in October 1847 on the foliage of a species of Sallow at the Curral das Romeiras, above Funchal; and in June of 1850 it again occurred to me, in the vineyard of Senhor Louiz Acciaioly at Santa Anna.

Fam. 36. BRUCHIDÆ.

(Subf. 1. ANTHRIBIDES.)

Genus 135. XENORCHESTES, *Woll.* (Tab. VIII. fig. 8.)

Corpus parvum, ovatum, valde convexum, glaberrimum et politum: *capite* deflexo; *rostro* brevi lato complanato; *oculis* oblongis integris demissis, supra marginem capitis lateralem positis: *prothorace* amplo, postice lato elytris arcte applicato: *scutello* nullo: *elytris* postice leviter abbreviatis (pygidium vix obtegentibus), necnon ad apicem ipsum singulatim obliquo-truncatis: *alis* obsoletis. *Antennæ* (VIII. 8 *a*) longiusculæ (in maribus quam in fœminis paulo longiores) rectæ, basi subapproximatæ et inter oculos (in fronte) insertæ, articulis primo et secundo elongatis robustis (illo curvato), tertio ad octavum gracilioribus subæqualibus, reliquis clavam elongatam laxam minus abruptam triarticulatam efficientibus (nono et decimo intus productis). *Labrum* (VIII. 8 *b*) antice rotundatum ciliatum. *Mandibulæ* magnæ validæ, apice incurvæ acutæ, basi latæ, margine interno in dentem obtusum postmedium producto. *Maxillæ* (VIII. 8 *c*) bilobæ, longiusculæ: *lobo externo* angusto, apice pubescenti: *interno* vix breviore latiore, intus valde ciliato. *Palpi* filiformes, articulo ultimo elongato subfusiformi apice leviter acuminato; *maxillares* (VIII. 8 *c*) articulis primo et tertio minutis subæqualibus, secundo longiore crassiore, extus ampliato; *labiales* (VIII. 8 *d*) articulo secundo primo vix longiore. *Mentum* amplum, antice sinuatum necnon in medio profunde fissum. *Ligula* porrecta subrotundata pilosa. *Pedes* (præsertim *antici* necnon in sexu masculo) elongati, *postici* subsaltatorii (sed haud incrassati): *tibiis* ad apicem muticis: *tarsis* (VIII. 8 *e*) pseudotetrameris, articulo primo (in anticis præcipue) elongato, secundo ad apicem emarginato tertium bilobum recipiente, ultimo clavato *unguiculis* simplicibus munito.

A ξένος mirabilis, et ὀρχηστὴς saltator.

Throughout all the members of the Coleoptera with which we have here to do, there is no form more remarkable or interesting than *Xenorchestes*,—possessing as it does points of coincidence with groups far removed from each other. I have but little doubt however that it is correctly placed near to the *Anthribi*, since its most essential characteristics (both structural and external) betray a nearer relation to *Choragus* than perhaps to anything else hitherto described. Still, it is impossible to deny that it inherits likewise a certain affinity with some of the *Chrysomelidæ*, especially with such genera as *Mniophila* and *Mniophilosoma* (hereafter to be noticed),—in conjunction with which indeed it may very likely constitute a passage between the present family and that division of the *Phytophaga*. The parts of

its mouth are moulded in every respect after the ordinary Anthribideous type; whilst, on the other hand, its subapproximated antennæ (which are inserted into its forehead between the eyes) would tend to associate it with the departments above mentioned,—from which also its extraordinary capability of leaping would not assist in removing it. In this last peculiarity however it agrees equally with *Choragus* (of the *Bruchidæ*),—to which, as just stated, I believe it to be very nearly akin. The sexual variation in the length of its limbs is more in accordance with what we know of the *Rhyncophora* than with the *Phytophaga*; and its habits, which appear to be subcortical, incline likewise to the former. Still, as regards its mode of life, *Mniophilosoma* does not altogether differ from it, being very liable to (at any rate) *harbour* beneath loosely-attached bark,—under which circumstances I have frequently captured it in company with *Xenorchestes*; and, from its strong *primâ facie* resemblance in general contour and colouring to the *females* of that insect, have not always found it easy at first sight to separate the two.

321. Xenorchestes saltitans, *Woll.* (Tab. VIII. fig. 8.)

X. niger nitidus glaberrimus et fere impunctatus, prothoracis margine antico sæpius dilutiore, antennarum basi ferrugineâ, pedibus vel infuscato-piceis vel infuscato-ferrugineis.

Mas, plerumque paulo major, antennis pedibusque longioribus.

Long. corp. lin. $\frac{2}{3}$–$1\frac{1}{3}$.

Habitat in Maderâ sylvaticâ excelsâ, sub cortice arborum laxo, rarior: ad Ribeiro Frio tempore hiberno, necnon in regione Fanalensi mense Julio, parce observavi.

X. ovate and rather compressed laterally, exceedingly convex, black (and usually with a just appreciable greenish tinge), perfectly glabrous, highly polished, and almost unsculptured. *Prothorax* large, wide behind, and with its fore-margin generally a little transparent and diluted in colouring; appearing all but unpunctured beneath a moderate lens,—but under the microscope finely granulated, and with distant and most minutely impressed points intermixed (as also with a row of rather larger punctures along its *extreme* hinder edge). *Elytra* not perceptibly sculptured except beneath the microscope (when they will be observed to be most delicately but remotely punctulated, though even more finely so than the prothorax; and without any appearance of granules). *Antennæ* and *legs* either brownish-piceous or brownish-ferruginous.

Male, usually a little larger than the female, and with the antennæ and legs rather longer.

Exceedingly rare, and confined to the forest districts of intermediate and lofty elevations,—where it occurs beneath the dead, loosely-attached bark of trees in damp spots. I have taken it at the Ribeiro Frio during the winter; and, in July, at the Lombo dos Pecegueiros and the Fanal. It leaps but very imperfectly (not more successfully in fact than the *Eucineti*),—as indeed the construction of its hind legs (which are not more thickened than the remainder) would lead us to anticipate. From their highly-polished, glabrous, *laterally-compressed* bodies and saltatorial habits, small female examples bear a singular *primâ facie* resemblance to dark specimens of the common flea.

(Subf. 2. BRUCHIDES.)

Genus 136. BRUCHUS. (Tab. VIII. fig. 9.)

Geoffroy, *Hist. Abr. des Ins. de Paris*, i. 163 (1762).

Corpus parvum, plus minusve pubescenti-variegatum: *capite* exserto subinflexo, leviter producto (sed vix rostrato); *oculis* lunatis prominulis: *prothorace* postice lato sinuato, elytris arcte applicato: *scutello* plerumque distincto et subquadrato: *elytris* oblongo-subquadratis, postice abbreviatis (pygidium haud tegentibus), necnon ad apicem ipsum plerumque singulatim rotundatis: *alis* amplis. *Antennæ* longiusculæ validæ, juxta sinum oculorum insertæ, apicem versus crassiores et intus plerumque serratæ. *Labrum* lunulatum. *Mandibulæ* validæ triangulares, intus in medio membranâ angustâ auctæ. *Maxillæ* bilobæ graciles, valde ciliatæ. *Palpi* articulo ultimo subfusiformi. *Mentum* transversum, antice in medio emarginatum, lobis lateralibus rotundatis. *Ligula* ampla elongata, apice vix sinuata. *Pedes* validi, *postici* paulo longiores; *femoribus posticis* subincrassatis et infra dente minuto sæpius instructis; *tibiis posticis* (interdum *posterioribus*) ad apicem internum spinâ parvâ acutâ munitis; *tarsis posticis* articulo primo elongato curvato.

The *Bruchi* are insects of a very wide geographical range, nearly 250 species (about 70 of which have been recorded as European) being described in Schönherr's great work on the *Rhyncophora*. They are more numerous in tropical than in northern latitudes; and, from the seed-infesting habits of their larvæ, are constantly liable to transmission throughout the civilized world: and hence the original centres of diffusion of some of them are now not very easily to be ascertained. They may be known, amongst other features, by their apically-abbreviated and more or less subquadrate elytra, by their exserted (though subinflexed) head and lunate eyes, by the sinuated hinder margin of their prothorax, by their gradually thickened and subserrated antennæ, and by their robust posterior legs,—the femora of which are usually furnished with a small spine beneath. Out of the three representatives hitherto detected in the Madeira Islands, two have in all probability been naturalized from other countries; whilst the remaining one is of a remarkably indigenous nature,—being confined to higher altitudes, and harbouring amongst the lichen of the exposed mountain-summits.

§ I. *Scutellum distinctum, subquadratum.*

322. Bruchus rufimanus.

B. oblongo-ovatus niger, pube fulvescenti parce variegatus, prothorace ad latera in medio subangulato, elytris subcrenato-striatis et maculis plurimis parvis (præsertim in mediâ parte) albidioribus adspersis, antennarum basi pedibusque anticis rufo-testaceis, femoribus posticis obsolete et obtuse dentatis.

Long. corp. lin. $2\frac{1}{2}$.

Bruchus granarius, Mshm, (nec Linn. 1767) *Ent. Brit.* i. 235 (1802).
——— ——— et *Pisi*, Steph. *Ill. Brit. Ent.* iv. 213 (1831).
——— *rufimanus*, Schön. *Gen. et Spec. Curc.* i. 58 (1833).

Habitat prope urbem Funchalensem Maderæ (ex Europâ introductus?).

B. oblong-ovate, black, and sparingly variegated with fulvescent pubescence above,—but with rather paler beneath and on the pygidium (where, likewise, it is more dense). *Prothorax* punctured and rugulose; with its lateral edges more or less angulated about their centre; and generally with a thicker patch of somewhat paler pubescence in the middle of its hinder margin, in front of the *scutellum* (which is distinct and subquadrate). *Elytra* subcrenate-striated; the suture usually more densely clothed with the fulvescent pubescence; and with numerous small irregular paler spots (or specks) besprinkled over their surface,—especially however across the central region, where they have a *tendency* to arrange themselves in two transverse fasciæ. *Antennæ* and *legs* rather short and robust; the *base* of the *former*, and the *anterior pair* of the *latter*, bright rufo-testaceous. *Hinder femora* with a strong, but obscure and obtuse, tooth beneath.

An abundant insect throughout central and southern Europe, and recorded also from Egypt and the Caucasus. It has probably been introduced into Madeira,—where it occurs in the immediate vicinity of the towns, though not very abundantly. Apart from its large size and robust limbs, it may be at once recognised by the subangulated sides of its prothorax, and by the bright rufo-testaceous hue of its front legs and of the base of its antennæ. The small, irregular, white freckles, and the densely clothed suture, of its elytra which characterize it in its normal state are apt to be more or less obscure, and occasionally nearly obsolete.

323. Bruchus subellipticus, *Woll.*

B. elliptico-ovatus niger, pube subcinereo-fulvescenti parce variegatus, elytris leviter punctato-striatis valde abbreviatis, antennis pedibusque brevibus, illarum basi et articulo ultimo, his abdomineque rufo-testaceis, femoribus posticis valde et acute dentatis.

Long. corp. lin. $2\frac{1}{4}$.

Habitat Maderam, rarissime: specimen unicum (ex alienis forsan in insulam invectum) detexit Rev^dus^ Dom. Lowe.

B. smaller and more elliptical than the *B. rufimanus* (being considerably acuminated both before and behind), black, and with its pubescence a little more ashy and less fulvescent. *Prothorax* not quite so closely punctured, or so rugulose as in that insect; and with its lateral edges simply rounded. *Scutellum* distinct and subquadrate. *Elytra* lightly punctate-striated; exceedingly abbreviated, and each of them rather more rounded at its apex than in either of the other species here described. *Abdomen* rufo-testaceous. *Antennæ* and *legs* short; the *former* with their base and apical joint, and the *latter* entirely, rufo-testaceous. *Hinder femora* with a long and acute tooth beneath.

A single specimen only of the present *Bruchus* (detected by the Rev. R. T. Lowe

in the north of the island) has hitherto come beneath my notice, and it is most probably an imported insect into Madeira: nevertheless, not having been able to identify it with any species which I have had an opportunity of examining, I have been compelled to describe it as new. It may be immediately known by its sub-elliptical outline and short limbs, by its greatly abbreviated elytra, and by the rufo-testaceous hue of its legs, and of the base and apical joint of its antennæ. The spine of its hinder femora, also, is longer and more acute than that of either of the other members of the genus with which we have here to do.

§ II. *Scutellum minutissimum, vix observandum.*

324. Bruchus lichenicola, *Woll.* (Tab. VIII. fig. 9.)

B. ovatus niger, pube fulvescenti et cinereâ densissime variegatus, elytris striatis et fasciis duabus albido-cinereis ornatis, antennarum basi pedibusque rufo-testaceis, femoribus posticis obscure dentatis.

Variat antennis omnino testaceis et dente femorum posticorum valde indistincto.

Long. corp. lin. $\frac{3}{4}$–1.

Habitat ins. Portûs Sancti et Desertæ Grandis, inter lichenes in rupium fissuris nascentes, tempore hiberno et vernali vulgaris: in Maderâ propriâ mihi non obvius.

B. minute and ovate, black, and most densely clothed with fulvescent and ashy-white pubescence above,—but with entirely pale beneath. *Prothorax* closely punctured and subrugulose,—the paler pubescence preponderating at its sides (which are rounded) and, generally, towards the centre of its hinder margin, in front of the *scutellum* (which is very minute, and only just distinguishable). *Elytra* striated; and adorned with two more or less evident fasciæ of the paler (ashy-white) pubescence, common to both,—one of which is postmedial, and the other (which is widely interrupted at the suture) antemedial. *Antennæ* and *legs* rather fragile; the *former* with their base (sometimes with the apex also), and the *legs*, rufo-testaceous. *Hinder femora* with a small and very obscure tooth beneath, which is occasionally nearly obsolete.

A most distinct and truly indigenous little *Bruchus*,—being moreover the smallest member of the genus with which I am acquainted, averaging about three-quarters of a line in length. Independently however of its diminutive bulk, it is characterized by the excessive minuteness of its scutellum and femoral tooth, by its unusually *fragile* (though not particularly slender) limbs, and by the two more or less evident ashy-white fasciæ with which its elytra are adorned. Its habits are of a very exclusive nature, it being confined, so far as I have hitherto observed, to the lichen of the exposed weather-beaten peaks,—amongst the thick masses of which in the crevices of the rocks of Porto Santo and the Dezerta Grande it literally teems. I have not as yet detected it in Madeira proper, but in the former of those islands I might have captured it by thousands during December 1848 and April 1849; whilst, in May of 1850, it was scarcely less abundant on the

latter,—particularly in the dried bunches of *Ramalina scopulorum* and *Evernia prunastri*, in company with the *Ptinus fragilis* and other insects which delight in such situations.

Sectio VIII. EUCERATA.

Fam. 37. CERAMBICIDÆ.

Genus 137. STROMATIUM.

Serville, *Ann. de la Soc. Ent. de France*, iii. (1re série) 80 (1834).

Corpus magnum, elongatum, parallelum, pubescens, leviter depressum: *capite* subporrecto; *oculis* valde emarginatis (subluniformibus): *prothorace* æquo; ad latera in maribus rotundato-excavato, excavatione pilorum pulvino instructâ: *alis* amplis. *Antennæ* ante marginem oculorum internum insertæ, longissimæ (præsertim in maribus), setaceæ, basin versus hirsutæ, articulo primo robusto, secundo brevissimo, tertio elongato, reliquis huic paulo brevioribus longitudine subæqualibus, latitudine vix decrescentibus. *Labrum* membranaceum breve transversum, pilis longissimis munitum, apice vix emarginatum et in medio setoso-pencillatum. *Mandibulæ* magnæ corneæ validæ, basi latæ, apice acutæ, intus ante medium dente obtusissimo rotundato instructæ. *Maxillæ* bilobæ submembranaceæ, lobis valde pubescentibus pencillatis. *Palpi* robusti, vix clavati; *maxillares* articulo primo parvo, secundo et ultimo longitudine subæqualibus (hoc subovato apice oblique truncato), tertio paulo breviore; *labiales* e scapis ligulæ connatis surgentes, articulo primo parvo, secundo paulo longiore, ultimo crassiore elongato-ovato apice suboblique truncato. *Mentum* submembranaceum transversum antice angustatum, apice profunde emarginatum. *Ligula* membranacea, apice biloba, lobis divergentibus valde pilosis. *Pedes* elongati: *femoribus* compressis sublinearibus: *tarsis* (ut in hujus sectionis reliquis) pseudotetrameris.

Stromatium may be readily known by the structure of its prothorax,—which has the sides, in the male sex, slightly hollowed or scooped out, the excavation being filled up with a dense cushion of hairs; it has also its upper surface free from inequalities, and without any appearance of the more or less polished tubercles which are apparent in *Phymatodes* and *Blabinotus*. In the details of its trophi it does not offer any great peculiarities; nevertheless its more filiform, though somewhat robuster, palpi (the terminal joint of which, instead of being securiform, is ovate, and truncated at its extremity), in conjunction with its deeply emarginated mentum, should be especially noticed. The third articulation also of its antennæ is distinctly longer than the fourth (which is scarcely the case in any of the following three genera); and its femora are sublinear and compressed,—being somewhat narrowed towards their apex, instead of abruptly clavate. Apart from the entire edges of their prothorax, the females (as in the *Eucerata* generally) may be recognised by being, on the average, of a rather larger size, and by their antennæ being *proportionably* a little more abbreviated.

325. Stromatium unicolor.

S. subdepressum fulvo-testaceum creberrime rugulosum et pubescens, prothorace æquo, elytris punctis elevatis (præsertim antice) dispersis obsitis, suturâ apice acuminatâ.

Long. corp. lin. 6–11.

Callidium unicolor, Oliv. *Ent.* iv. 70. 58. pl. 7. fig. 84 (1795).
——— *strepens*, Fab. *Ent. Syst.* v. *Suppl.* 150 (1798).
Solenophorus strepens, Muls. *Long. de France*, 65 (1840).
Stromatium strepens, Lucas, *Col. de l'Algérie*, 490 (1849).

Habitat in domibus prope Funchal, ligno antiquo, ab æstate novâ usque ad autumnum non infrequens.

S. large, linear-elongate, slightly depressed, entirely fulvo-testaceous (or pale cinnamon-colour), very closely rugulose (scarcely punctured), and densely clothed with a short decumbent paler pubescence. *Antennæ* very long, rather thickly hirsute towards their base. *Prothorax* tolerably large, somewhat ovate, and truncated before and behind; its upper surface free from inequalities, though with obscure indications of a slightly elevated dorsal line on its hinder disk. *Elytra* with minute scattered tubercles, or raised points, especially apparent towards the suture and base; and with two or three very obscurely elevated ridges down each. *Antennæ* and *legs* concolorous with, or a little paler than, the rest of the surface.

The large size and pale cinnamon hue of the *S. unicolor*, apart from the generic characters of its prothorax and femora already referred to, will at once distinguish it from the remainder of the Longicorns with which we are here concerned. Since the north of Africa would appear to be one of its principal areas of diffusion, it is possible that it may be truly indigenous in these islands; nevertheless, if such be the case, it is certainly remarkable that it should not occur except in the immediate vicinity of Funchal,—to which, so far as I have hitherto observed, it seems to be almost exclusively confined. There, however, it is sufficiently common, being but too well known in the houses from the injury which it is liable to commit amongst different articles of furniture, on the old wood of which the larvæ subsist. It is not unusual indeed for the attention to be attracted by the grating noise (whence, I imagine, the very appropriate name of *strepens* was suggested, but which has unfortunately to give way to the older one applied to it by Olivier) which the perfect insect makes, on its arrival at the imago state, in gnawing its way from out of the cavities formed by the larvæ,—an operation which it often requires a considerable time to effect, resuming its labours at intervals, especially towards the evening. Owing perhaps to its frequent transmission amongst civilized countries, it is a species of wide geographical range; nevertheless, its original centre was probably within the Mediterranean limits,—it being abundant in the south of France and Spain, and (as just mentioned) in the north of Africa. The specimens in fact described by Fabricius, in 1798, were from Tangier,—and it is stated by M. Lucas to be not uncommon in logs of *Cytisus spinosus* and *Pistacea lentiscus* in the neighbourhood of Algiers. It has however been likewise recorded in Russia, Asia Minor, Persia and Mesopotamia.

Genus 138. PHYMATODES.

Mulsant, *Longic. de France*, 47 (1840).

Corpus sat magnum, elongatum, parallelum, pubescens, depressum: *capite* subporrecto; *oculis* valde emarginatis (subluniformibus): *prothorace* inæquali parvo, tuberculis obscuris aucto: *alis* amplis. *Antennæ* ad marginem oculorum internum insertæ, longissimæ (præsertim in maribus), setaceæ, articulis basilaribus setis paucis ad apicem instructis, articulo primo robusto, secundo brevissimo, reliquis longitudine subæqualibus, latitudine leviter decrescentibus. *Labrum* tenuissimo-membranaceum transversum, pilis longissimis munitum, apice rotundatum integrum et in medio pencillatum. *Mandibulæ* validæ, basi latæ, apice corneæ valde incurvæ acutissimæ, intus ante medium dente obtuso instructæ. *Maxillæ* bilobæ membranaceæ, lobis valde pubescentibus pencillatis. *Palpi* elongati parum graciles subclavati; *maxillares* articulo primo minuto, secundo et ultimo longitudine subæqualibus (hoc subsecuriformi), tertio paulo breviore; *labiales* e scapis ligulæ connatis surgentes, articulo primo vix parvo, secundo paulo longiore, ultimo elongato crasso subsecuriformi. *Mentum* corneum breve transversum, apice fere integrum. *Ligula* brevis membranacea apice biloba, lobis divergentibus pilosis. *Pedes* elongati: *femoribus* basi pedunculatis, apicem versus subito et valde clavatis.

In point of priority, *Merium*, established in the *Fauna Boreali-Americana* (in 1837), is the oldest title for the present genus; and, since Kirby expressly there states that the *Callidium variabile* of Fabricius may be regarded as the type, we should have been compelled under ordinary circumstances, notwithstanding the unimportant feature selected as the *sum total* of his diagnosis (namely, the clavation of the thighs, which is common to so many of the allied groups), to have retained that name,—even though it be usually ignored by recent entomologists. A more serious objection however lies in the fact that a *Meriam* and *Meria* did previously exist (of which Kirby could not have been aware): and, since even these infringe too closely on the Linnæan prohibition (vid. *Philosophia Botanica*, no. 228) against genera "simili sono exeuntia" (a rule still insisted upon by the laws of nomenclature), it is clear that to add a *Merium* to the list is only to perpetuate confusion, and that we have consequently a legitimate reason for discarding it altogether,—a step which the unsatisfactory nature of the character on which it was originally founded will not cause us to regret*. Regarding the peculiarities of *Phymatodes*, apart from its more flattened, less densely pubescent surface, and its extremely clavated femora, it may be known both from the

* Dr. Le Conte indeed, in the *Journal of the Academy of Natural Sciences of Philadelphia*, rejects the name of *Merium* on account of the insufficient value of the character on which the genus was established: but it seems to me that we can hardly admit such a principle without opening the door to a host of difficulties which its adoption would at once let in upon us; since it is certain that many of the groups which are now universally received were at first indicated in almost as loose and general a manner as Kirby's,—and by sanctioning it therefore we should in fact be sacrificing the law of priority to individual judgment, and resigning the necessity of retaining the first proposed names of genera to the mere option of succeeding naturalists, according as they may choose to regard the attendant diagnoses to be satisfactory or not (a standard which, as science advances, must of course vary with almost every consecutive age).

previous genus and the following one by its somewhat more incurved mandibles and slenderer palpi,—the latter of which have their apical joint more securiform than in *Stromatium*, but considerably less so than in *Blabinotus*. It is very often united with *Callidium*, from which perhaps it is scarcely in reality distinct. Nevertheless it differs from the normal state of that group in having its antennæ longer and more setaceous, the terminal articulation of its palpi more incrassated, and by the more or less glabrous prominences of its prothorax.

326. Phymatodes variabilis.

P. depressus rufo-testaceus punctatus pubescens, prothorace inæquali subtuberculato, elytris testaceis.

Var. β. niger, elytris vix subrufescentibus, antennis tarsisque fusco-ferrugineis.

Long. corp. lin. 5–6½.

Cerambyx variabilis, Linn. *Fna Suec.* 669 (1761).
——— *testaceus* et *fennicus*, id. 670 et 674.
Callidium fennicum, variabile, testaceum et *præustum*, Fab. *Ent. Syst.* i. 319, 321, 326, 327 (1792).
——— *variabile*, Steph. *Ill. Brit. Ent.* iv. 248 (1831).
Phymatodes variabile, Muls. *Longic. de France*, 47 (1840).

Habitat in vinetis hortisque Maderæ, sub cortice arborum laxo, æstate rarior.

P. smaller than the last, and much more depressed, linear-elongate, rufo-testaceous, distinctly and rather coarsely punctured, and clothed, though not very densely, with pubescence. *Antennæ* very long, with a few rigid hairs at the summit of each joint, evanescent in the apical ones. *Prothorax* rather small, and rounded at the sides; its upper surface unequal, with a large (though obscure) tubercular subglabrous prominence on either side of the disk, and an elongated central one (forming a portion of the dorsal line) behind. *Elytra* rather paler than the prothorax; much depressed, and with very obscure indications of a slightly oblique longitudinal ridge down each. *Antennæ* and *legs* concolorous with the head and prothorax.

Var. β. piceous-black; *elytra* with either a slightly rufescent or a violet tinge; *antennæ* and *tarsi* more or less fusco-ferruginous.

The common European *P. variabilis* appears subject in Madeira to much the same alternations of colouring as in more northern latitudes,—from whence indeed it may very possibly have been originally introduced. It occurs, at rather low elevations, in the vicinity of vineyards,—secreting itself beneath the loose bark of the trees upon which the vines are trained. In such situations I have taken the pale, or normal, state rather abundantly at Santa Anna during the early summer months. Of the dark variety I have seen hitherto but a single specimen, presented to me by the Rev. R. T. Lowe from the collection of the late Dr. Heinecken, by whom it was captured many years ago near Funchal.

Genus 139. BLABINOTUS, *Woll.* (Tab. IX. fig. 1.)

Corpus magnum, elongatum, parallelum, valde pubescens, subcylindricum: *capite* (IX. 1 *a* et 1 *b*) subporrecto; *oculis* leviter emarginatis (reniformibus): *prothorace* inæquali, tuberculis lævissimis

aucto, ad latera dente medio acuto instructo: *alis* amplis. *Antennæ* ante marginem oculorum internum insertæ, longissimæ subsetaceæ hirsutissimæ, articulo primo robusto, secundo brevissimo, reliquis longitudine subæqualibus, latitudine leviter decrescentibus. *Labrum* tenuissimo-membranaceum transversum, in medio setoso-pilosum, apice integrum rectum. *Mandibulæ* corneæ validæ, basi latæ, apice incurvæ acutissimæ, intus ante medium dente obscuro (in unâ rotundato obtusissimo, in alterâ, IX. 1 *c*, obsoleto) instructæ. *Maxillæ* (IX. 1 *d*) bilobæ submembranaceæ, lobis valde pubescentibus pencillatis. *Palpi* longissimi robusti valde clavati; *maxillares* articulo primo vix parvo extus profunde sinuato, secundo et ultimo longitudine subæqualibus (hoc valde securiformi dilatato), tertio paulo breviore; *labiales* (IX. 1 *e*) e scapis ligulæ connatis surgentes, articulo primo vix parvo, secundo paulo longiore crassiore, ultimo maximo securiformi valde dilatato. *Mentum* subcorneum transversum, angulis anticis rotundatis, apice leviter emarginatum membranaceum. *Ligula* membranacea, apice valde biloba, lobis divergentibus pilosis. *Pedes* elongati: *femoribus* basi pedunculatis, apicem versus clavatis.

A βλάβη injuria, et νότος auster.

Blabinotus is an exceedingly well-marked genus, presenting many peculiarities which will readily separate it from the allied groups. Thus, its extremely pilose surface and cylindrical body (which however it possesses in common with *Trichoferus*), added to the structure of its prothorax, which has two prominent, greatly developed tubercles on the disk, and the sides furnished with an acute central tooth, are, even *primâ facie*, apparent: whilst, at the same time, in its obscurer details it is not less distinctly characterized,—since its reniform eyes (somewhat *remote* from the inner margin of which the antennæ are inserted, which is not the case either in *Phymatodes* or *Trichoferus*), and the remarkable formation of its very elongated palpi, which have their last joint large and securiform and the basal maxillary one deeply* sinuated externally, at once remove it from the remainder of the Madeiran Longicorns here described. I have retained the name proposed for it by M. Chevrolat, after my first return from the Madeira Islands in 1848.

327. Blabinotus spinicollis, *Woll.* (Tab. IX. fig. 1.)

B. subcylindricus fusco-piceus valde cinereo- et flavescenti-cinereo-pubescens, prothorace inæquali tuberculato ad latera spinâ mediâ instructo, elytris profunde punctatis piloso-marmoratis, antennis pedibusque fusco-ferrugineis.

Long. corp. lin. 5–7½.

Habitat in ligno antiquo per partem Maderæ sylvaticam, non infrequens: præsertim nocte volitat, quo tempore ad ignium lumina allectus sæpissime legatur.

B. narrow, linear-elongate, subcylindrical, of an obscure rusty- or brownish-piceous, densely clothed with decumbent, silken, cinereous and yellowish hairs, and with longer and more erect ones

---

* This singularity of structure is slightly indicated also in *Clytus*, but altogether absent in the intermediate genus *Trichoferus*. In *Deucalion* it is exceedingly evident.

intermixed. *Antennæ* very long, and exceedingly hirsute, especially towards their base. *Prothorax* rather small, with the sides produced into a robust central tooth; its upper surface unequal, with a somewhat small (though very elevated and distinct) transverse tubercular glabrous prominence on either side of the disk, and an obscure, elongated, scarcely raised, central one behind (forming a portion of the dorsal line); rather rough, and with the anterior margin a little elevated. *Elytra* very coarsely and distinctly punctured, and more or less mottled with cinereous pubescence. *Antennæ* and *legs* brownish-ferruginous; the apical portion of the *former*, and the *tarsi* of the latter, being generally paler.

A truly indigenous insect, occurring in most parts of the island at intermediate altitudes,—though especially within the sylvan districts, and between the limits of about 2000 to 4000 feet above the sea. It is nocturnal in its habits, and is constantly attracted by the light of fires and candles in elevated spots. I have taken it under such circumstances at the bottom of the Curral das Freiras, in February; as also in the region of the Ribeiro Frio, during August,—where I have likewise frequently observed it drowned in the Levada, or have extracted it from out of the dead branches of the trees which clothe the mountain-slopes.

Genus 140. TRICHOFERUS, *Woll.* (Tab. IX. fig. 3.)

Corpus sat magnum, elongatum, parallelum, valde pubescens, subcylindricum: *capite* (IX. 3 *a* et 3 *b*) subporrecto; *oculis* valde emarginatis (subluniformibus): *prothorace* parvo æquo transverso-subgloboso, ad latera rotundato integro: *alis* amplis. *Antennæ* ad marginem oculorum internum insertæ, longissime subsetaceæ, basin versus leviter hirsutæ, articulo primo robusto subcylindrico, secundo brevissimo, reliquis longitudine subæqualibus, latitudine vix decrescentibus. *Labrum* tenuissimo-membranaceum transversum, in medio setoso-pilosum, apice vix integrum rectum. *Mandibulæ* validæ corneæ, basi latæ, apice incurvæ acutæ, intus ante medium dente obsoleto instructæ. *Maxillæ* (IX. 3 *c*) bilobæ membranaceæ, lobis valde pubescentibus pencillatis. *Palpi* breves robusti subclavati; *maxillares* articulo primo parvo, secundo et tertio paulo majoribus subæqualibus, ultimo subsecuriformi leviter dilatato; *labiales* (IX. 3 *d*) e scapis ligulæ connatis surgentes, articulo primo vix parvo, secundo paulo longiore crassiore, ultimo magno subsecuriformi leviter dilatato. *Mentum* subcoriaceum transversum, angulis anticis rotundatis, apice leviter productum submembranaceum. *Ligula* membranacea, apice biloba, lobis divergentibus pilosis. *Pedes* sat elongati: *femoribus* apicem versus vix clavatis.

A θρὶξ pilus, et φέρω porto.

The insect from which the above diagnosis has been compiled bears so strong a superficial resemblance to *Blabinotus*, that it might be almost mistaken for another species of that genus; nevertheless a more careful examination will at once disclose important characters in which it differs from it altogether. In fact, the peculiar structure of the palpi, prothorax, and eyes, which constitutes the main feature of *Blabinotus*, is here wanting,—since the palpi are exceedingly short, with the basal joint simple and the apical one scarcely securiform; the prothorax is rounded, being free from the inequalities, tubercles and spines which are there so

conspicuous; and the eyes, instead of being reniform, are almost as deeply emarginated as in any of the *Cerambicidæ* with which we have here to do. Its antennæ moreover are not quite so hairy as in *Blabinotus* (though its body is even more so), and its femora are much less clavate. In some respects indeed it is intermediate between *Blabinotus* and *Clytus*, uniting to a certain extent the elements of them both: nevertheless, whilst the above distinctions will readily separate it from the first, its elongated, cylindrical body, apically entire elytra, more lengthened and setiform antennæ (inserted immediately in front of the emargination of the eyes), in conjunction with its less perceptibly abbreviated anterior legs, will, apart from the modifications of its oral organs, equally remove it from the second. The two obscure patches of its prothorax, produced by the condensation of paler pile, are worthy of remark; for, being placed in nearly similar positions as the tubercles are in *Blabinotus*, they have all the appearance, *primâ facie*, of being elevated, likewise,—thus keeping up the analogy of the latter in a somewhat singular way.

328. Trichoferus senex, *Woll.* (Tab. IX. fig. 3.)

T. subcylindricus fusco-piceus valde subcinereo-pubescens, prothorace transverso-subgloboso æquo obscure piloso-bimaculato, elytris punctatis piloso-submarmoratis, antennis pedibusque rufo-ferrugineis.

Long. corp. lin. $4\frac{1}{4}$–7.

Habitat in Maderâ sylvaticâ, rarissime: duo specimina (a DD. Heinecken et Lowe capta) sola vidi.

T. narrow, linear-elongate, subcylindrical, of much the same colour as the last insect, but a little more rufescent, clothed with decumbent subcinereous hairs (of a coarser nature, and with a less decided admixture of yellow, than in the last insect), and with exceedingly long and almost erect ones intermixed. *Antennæ* just perceptibly shorter than in *Blabinotus*, and not quite so hirsute. *Prothorax* somewhat transverse-globose, its sides being regularly rounded; its upper surface free from inequalities and tubercles, though with indications of a glabrous and very abbreviated portion of an (otherwise) obsolete dorsal line in the centre of its hinder disk; and with an obscure patch, produced by denser pile, on either side of its fore disk. *Elytra* rather roughly punctured anteriorly, but obsoletely so behind (the punctures even in front being less defined than those of *Blabinotus*); with the cinereous pubescence somewhat unequally distributed (though scarcely causing the surface to appear so decidedly mottled as in the last genus); and with excessively long, fine, and erect hairs interspersed. *Antennæ* and *legs* rufo-ferruginous.

Until quite recently a single specimen only of the present insect (collected by the late Dr. Heinecken) had come beneath my notice; but a second has been just communicated by the Rev. R. T. Lowe, by whom it was detected at the Ribeiro Frio during July of 1851. It would seem to be extremely rare,—having altogether escaped my own observations in these islands (the result however perhaps of its not making its appearance until nearly the autumn, a season at which my researches in Madeira have been less prosecuted than at any other).

Genus 141. CLYTUS.

Fabricius, *Syst. Eleu.* ii. 345 (1801).

Corpus sat magnum, elongatum, pubescens: *capite* subdeflexo; *oculis* emarginatis (subluniformibus): *prothorace* majore æquo subgloboso, ad latera rotundato integro: *elytris* apice subdehiscentibus et plus minusve leviter attenuatis: *alis* amplis. *Antennæ* basi subapproximatæ (vix ad marginem oculorum internum insertæ), minus elongatæ, subfiliformes, basin versus leviter hirsutæ, articulo primo robusto, secundo brevissimo, tertio leviter elongato, reliquis longitudine paulatim decrescentibus, latitudine subæqualibus. *Labrum* submembranaceum transversum, apice vix rotundatum pilosum, ad basin parte mediâ coriaceâ leviter bilobâ auctum. *Mandibulæ* validæ corneæ, basi latæ, apice incurvæ acutæ, margine interno fere integro. *Maxillæ* bilobæ submembranaceæ, lobis elongatis valde pubescentibus pencillatis. *Palpi* breves robusti clavati; *maxillares* articulo primo vix parvo extus obscure subemarginato, secundo et tertio majoribus crassioribus, ultimo securiformi dilatato; *labiales* e scapis ligulæ connatis surgentes, articulo primo parvo, secundo paulo majore, ultimo magno subsecuriformi dilatato. *Mentum* subcorneum transversum, antice leviter emarginatum subcoriaceum. *Ligula* membranacea, apice biloba, lobis divergentibus pilosis. *Pedes posteriores* elongati, *antici* paulo breviores: *femoribus* apicem versus leviter clavatis.

Apart from less evident distinctions, the common genus *Clytus* is sufficiently characterized by its somewhat largely developed, globose and unarmed prothorax, by its comparatively short and robust antennæ (the joints of which, from the third to the apex, usually decrease in length), by the very peculiar formation of its upper lip, the almost entire inner margin of its mandibles, the rather elongated lobes of its maxillæ, by its posteriorly narrowed and slightly gaping elytra, and by its subabbreviated front legs. The species are for the most part ornamented with transverse, more or less arcuated bands; and their prevalent colours (as in the only Madeiran representative) are yellow and black.

329. Clytus Arietis.

C. subcylindricus, postice leviter attenuatus, niger pubescens, prothorace magno globoso æquo, antice et postice flavo-marginato, elytris fasciis tribus communibus (sc. sub-basali late interruptâ, mediâ biarcuatâ et posticâ integrâ) flavis ornatis, apice scutelloque flavis, antennis pedibusque rufo-ferrugineis, illis ad basin et versus apicem et femoribus anterioribus in medio infuscatis.

Long. corp. lin. $5\frac{1}{2}$.

Leptura Arietis, Linn. *Fna Suec.* 695 (1761).
Callidium Arietis, Oliv. *Ent.* iv. 70. pl. 2. fig. 20 (1795).
Clytus Arietis, Fab. *Syst. Eleu.* ii. 347 (1802).
—— ——, Steph. *Ill. Brit. Ent.* iv. 243 (1831).

Habitat prope urbem Funchalensem Maderæ a Dom. Heinecken olim detectus, cujus exemplar (in museo Loweano conservatum) solum nisi fallor exstat.

C. subcylindrical, somewhat acuminated behind, black, and pubescent. *Prothorax* rather large and globose, its sides rounded, and its upper surface free from inequalities; the anterior and posterior

margins bright yellow. *Elytra* with three transverse fasciæ, common to both (one of which is sub-basal and broadly interrupted at the suture, the second medial and biarcuate, and the third postmedial and entire), the apex, and the *scutellum*, bright yellow. *Antennæ* and *legs* rufo-ferruginous; the *former* with their basal joint and the apical five or six, and the *latter* with the central portion of their four anterior femora, infuscated.

The *C. Arietis*, so extremely common throughout Europe, may very possibly have been accidentally imported into Madeira from more northern latitudes; and especially so since it is evidently scarce in these islands, it having never come under my own observation in a recent state. The unique example on which its admission into our fauna rests was captured many years ago, in the vicinity of Funchal, by the late Dr. Heinecken,—from whose collection it was communicated to me by the Rev. R. T. Lowe.

Genus 142. DEUCALION, *Woll.* (Tab. IX. fig. 2.)

Corpus magnum, elongato-ovatum, minus pubescens: *capite* (IX. 2 *a* et 2 *b*) amplo deflexo; *oculis* valde emarginatis (subluniformibus): *prothorace* maximo elongato inæquali rugoso, ad latera dente medio parvo instructo, postice subito transversim constricto et plicato: *mesothorace* elongato cylindrico, in parte superâ scobinâ mediâ asperâ longitudinali munito (quare insectum per frictionem strepere potest): *elytris* ovatis subconnatis, valde tuberculato-asperatis, apice interdum inæqualibus: *alis* obsoletis. *Antennæ* ad marginem oculorum internum (in processus duos) insertæ, plus minusve longissimæ setaceæ, articulis intermediis leviter hirsutæ, articulo primo robusto, secundo brevissimo, tertio elongato, reliquis huic paulo brevioribus vix decrescentibus. *Labrum* magnum subcorneum, apice pilosissimum, lateribus rotundatis coriaceis. *Mandibulæ* corneæ validæ crassæ, basi latæ, apice incurvæ acutæ, margine interno integro. *Maxillæ* (IX. 2 *c*) bilobæ submembranaceæ, lobis valde setoso-pubescentibus. *Palpi* longissimi robusti subfiliformes; *maxillares* articulo primo vix parvo extus (ut in Blabinoto) profunde sinuato, secundo et tertio majoribus subæqualibus, ultimo elongato fusiformi apice subacuminato; *labiales* (IX. 2 *d*) e scapis ligulæ connatis surgentes, articulo primo vix parvo extus leviter sinuato, secundo paulo longiore crassiore, ultimo elongato fusiformi-ovato apice subacuminato. *Mentum* corneum brevissimum transversum, angulis anticis rotundatis, apice leviter emarginatum. *Ligula* longissima membranacea, antice profunde fisso-biloba, lobis subdivergentibus pilosis. *Pedes* elongati robusti: *femoribus* vix clavatis: *tibiis intermediis* pone apicem externum excavato-constrictis.

A Δευκαλίων Deucalion.

There is no genus, perhaps, throughout all the Madeiran Coleoptera, more truly indigenous than *Deucalion*. Confined apparently, so far as these islands are concerned, to the remote and almost inaccessible ridges of the two southern Dezertas, it would seem to bid defiance to the most enthusiastic adventurer who would scale those dangerous heights. Its excessive rarity moreover, even when the localities are attained, must ever impart to it a peculiar value in the eyes of a naturalist; whilst its anomalous structure and sedentary mode of life* give it an

* When we consider indeed the apterous nature of *Deucalion*, its subconnate elytra, and its attachment (at any rate in the larva state) to the interior of the stems of particular, local plants, or its retiring

additional interest in connection with that ancient continent of which these ocean ruins, on which for so many ages it has been cut off, are the undoubted witnesses. Approximating in affinity to *Parmena* and *Dorcadion*, yet presenting a modification essentially its own, it becomes doubly important in a geographical point of view; and it was therefore with the greater pleasure that I lately received, from T. S. Leacock, Esq., of Funchal, a *second* representative from the distant rocks of the Salvages (midway between Madeira and the Canaries),—on which we may almost pronounce for certain that an entomologist had never before set foot. Differing widely in specific minutiæ, yet agreeing to an identity in everything generic, they offer conjointly the strongest evidence to the *quondam* existence of many subsidiary links (long since lost, and radiating in all probability from some intermediate type) during the period when the whole of these islands were portions (and perhaps very elevated ones) of a vast continuous land.

In the details of their trophi the genera of this section of the *Eucerata* are so nearly similar, that we must not look, even in otherwise anomalous forms, for any very striking irregularities there. And yet the mouth is not altogether uncharacterized in *Deucalion*, since its laterally-rounded upper lip, long and acuminated palpi (the basal joint of which is broadly sinuated externally, as in *Blabinotus*), together with its unusually produced and deeply bilobed ligula, at once remove it from *Dorcadion*,—from which moreover its largely developed and exceedingly uneven prothorax (a hinder zone of which is suddenly constricted, as though by a wide and tightened belt, and is ribbed with *transverse* plaits), added to its curiously pitted and tubercular elytra, will still further serve to separate it. In some respects perhaps it is more akin to *Parmena* than to *Dorcadion*: nevertheless its comparatively gigantic size, and the contracted, plicate, posterior band of its (otherwise) greatly wrinkled prothorax, apart from the above-mentioned peculiarity of its elytral sculpture (one of the most remarkable features which it possesses), and its freedom from the dense elongated pile which is more or less evident in all the members of the former, will equally distinguish it from that group also.

Amongst other singularities, a tendency (which I have likewise observed, occasionally, in the *Morimi*) to have one of their elytra a little shorter than the other is strongly indicated in the *Deucaliones*. Thus, of my two examples of the *D. Desertarum* one is very decidedly so constituted; and, out of eight of the *D. oceanicum* it is traceable in no less than three. Like many of their allies in this department of the Longicorns, they are gifted with the capability of making a grating or hissing noise,—the *modus operandi* in producing which (since I have not been able to

---

propensities within the crevices of rocks, we are at once struck with the conviction that, during the enormous interval of time which has elapsed since the mighty convulsions which rent asunder these regions terminated, it has probably never removed many yards from the weather-beaten ledges which it now inhabits.

meet with any explanation of it altogether satisfactory) I have taken some pains to investigate. The solution given by Mr. Westwood, in his admirable *Introduction to the Modern Classification of Insects* (vol. i. p. 356), would seem to come nearest to the truth, but still it does not quite apply to the species under consideration,—which are moulded, thus far, on one and the same principle. Mr. Westwood states that the sound is generated by the friction of a polished portion of the *scutellum* against the edge of the prothoracic cavity. In *Deucalion*, *Parmena* and *Dorcadion*, however, there is a narrow space, in the shape of an isosceles triangle (the apex being turned towards the scutellum), which occupies *nearly the entire length* of the mesonotum, and which, from its brightness, appears at first sight to be perfectly smooth. When viewed however beneath the microscope, this longitudinal area is seen to be composed of very fine, transverse, parallel and acute ridges, closely set together after the manner of a file: and it is by depressing and raising the prothorax (an act which alternately exposes and re-covers the upper region of the *extremely cylindrical* mesothorax) that its under side is brought to play against this inner dorsal file,—by which process the stridulation is effected. In order to convince myself of the reality of this, I have relaxed many specimens of the genera in question, and have caused the sound artificially with the greatest ease.

Hence, we can immediately appreciate the object of the broadly constricted basal margin of the prothorax of *Deucalion*, which is so regulated that it may present a more perfect and contiguous surface to the mesothorax,—whilst, by being more tightly drawn as it were over that especial part, it is made likewise to grate more vigorously against the lower file. This transverse, coarctate ring is not expressed at all in *Dorcadion*, and it is but faintly suggested in a few of the *Parmenæ*: so that we should *à priori* have expected that the stridulating power of *Deucalion* would be more effectual than is there the case. And such, on inquiry, we find to be a fact: for so loud is the sound which the *D. Desertarum* is able to accomplish, that the only individual which has come under my notice in a recent state I heard at a considerable distance; and the second example as yet detected was described by the Rev. R. T. Lowe (who obtained it from the extreme summit of the Ilheo Bugio, or Southern Dezerta) as emitting a "buzzing noise, somewhat resembling that of a Humble Bee." Everything indeed in this strange genus seems designed to give full effect to these, far from unmusical, inter-thoracic notes; for, in addition to the hinder contracted belt already mentioned, the pronotum of *Deucalion* is furnished with an exceedingly deep, rounded, postmedial fovea, which (since it projects beneath) must evidently form an extra instrument of impact to sweep over the mesothoracic file,—when its head (and, simultaneously, its prothorax) is by turns lowered and upraised. In the Salvagian* representative this impression is less developed than in the Dezertan one; never-

* Whilst unwilling to insert the descriptions of extra-Madeiran *forms* into the body of this work, I can see no objection to admitting the diagnoses of a few nearly allied species (both in affinity and geographically) into the notes. The following characters therefore of the large and remarkable *Deucalion*

theless it exists in them both,—conjointly with the other structural characters above enumerated.

---

from the Salvages will not be here out of place,—and especially so since it is scarcely less remarkable in outward contour, or interesting in local importance, than its Dezertan analogue.

Deucalion oceanicus, *Woll.*

D. oblongo-ovatus crassus subdepressus niger subopacus et dense lurido-pubescens, prothorace inæquali ad latera spinâ mediâ instructo, in disco postico foveâ rotundatâ plus minusve profundâ impresso, elytris substriatis, interstitiis crebre varioloso-tuberculatis, antennis minus elongatis apicem versus fuscis.

Long. corp. lin. 5–9.

Habitat in insulis remotis "Salvages" dictis, a Dom. Leacock sub lapidibus detectus.

D. broader and thicker than the *D. Desertarum*, also rather more depressed, dull black, nearly opake, and densely clothed with short decumbent lurid (or dirty yellow) hairs. *Antennæ* considerably shorter than the body; piceous at their base, but fuscous towards their apex. *Head* large and rough; with an impressed central line, and a small, narrow and rather shallow fovea on the top of the forehead behind the eyes. *Prothorax* wider and shorter than in the *D. Desertarum*; uneven and wrinkled, and with the sides produced into an obtuse postmedial spine; the hinder margin not quite so straight as in the *D. Desertarum* (having an obscure tendency to be waved); broadly constricted (though much less distinctly so than in the Dezertan insect) posteriorly, the constricted portion being transversely-plicate; and impressed on its hinder disk (just in front of the coarctate belt) with a small, rounded and more or less shallow fovea. *Elytra* obscurely striated; the interstices thickly beset with shallow variolose pits or impressions, the anterior edge of each of which is raised into a very large, distinct, obtuse, and somewhat overhanging tubercle,—the tubercles being free from pubescence, and (as in the *D. Desertarum*) more numerous and elevated towards the humeral angles and base (nevertheless altogether larger and denser than in that species). *Legs* slightly piceous, but thickly beset, like the rest of the surface, with dirty-yellowish pile.

A most beautiful and well-marked *Deucalion*; and readily known from the *D. Desertarum* by its extraordinary instability of stature, by its broader, thicker, more depressed, and densely pubescent body, by its shorter prothorax and antennæ (the former of which is not quite so uneven as in that species, and has both the hinder central fovea and the coarctate band less defined), and by the larger, more numerous, and obtuser tubercles of its *perceptibly striated* elytra. The shallowness of its elytral impressions indeed, in conjunction with the much greater development of the prominences, might have caused it to have been described as simply tuberculose, did not the *D. Desertarum* fortunately exist to explain their formation,—which, it will be seen on inspection, is the same as in that insect. For, whilst the varioles of the *D. Desertarum* are exceedingly distinct and the tubercles small (the latter seeming to be *principally* generated by the oblique upheaval of the anterior edge of the former,—as though the result of the *indirectness* of the force which, impinging against the surface, had dug out the depressions); in the *D. oceanicus* the law is somewhat reversed,—the elevations being considerably developed, and the pits almost obsolete. The specimens from which the above description has been compiled were detected (as already mentioned) in the Salvages by T. S. Leacock, Esq. of Funchal,—whose researches on those remote rocks, in 1851, have brought to light many interesting facts bearing on their geographical relation to the one great system of which all these Atlantic groups are but detached portions. The insect under consideration came from the smaller of the two islands (known nevertheless as the "Great Piton"),—which Mr. Leacock describes as a very singular spot; being a cone of rock projecting out of a sandy base, and covered with a profusion of plants. Out of the six members of the Coleoptera which he collected, all are specifically new; yet, at the same time, so intimately allied to both the Madeiran and Canarian types as to constitute a stepping-stone as it were between the two.

330. Deucalion Desertarum, *Woll.* (Tab. IX. fig. 2.)

D. oblongo-ovatus subconvexus niger nitidus et fere glaber, prothorace elongato valde inæquali, ad latera spinâ mediâ instructo, in disco postico foveâ magnâ rotundatâ valde profundâ impresso, elytris sparsim varioloso-tuberculatis, antennis elongatis apicem versus fuscis.

Long. corp. lin. 7–8.

Habitat Desertam Grandem et Australem, rarissime: duo specimina (unum sc. a meipso in summo illius fastigio, e rupium fissurâ, Januario exeunte A.D. 1849, et alterum in hâc a Rev^do^ Dom. Lowe d. 3 Jul. ejusdem anni, detecta) sola vidi.

D. elongated, oblong-ovate, convex, deep black, shining, and almost free from pubescence. *Antennæ* nearly as long as the body; piceous at their base, but fuscous towards their apex. *Head* large and rather elongated; with an impressed central line, and with a wide and deep subtriangular fovea on the top of the forehead behind the eyes. *Prothorax* elongated; exceedingly uneven and wrinkled, and with the sides produced into an obtuse postmedial spine; the hinder margin perfectly straight; broadly and suddenly constricted posteriorly, the constricted band being transversely plicate; and impressed on its hinder disk (just in front of this coarctate belt) with a large, rounded and exceedingly deep fovea. *Elytra* with the suture rather depressed, but with scarcely any indications of striæ; somewhat irregularly beset with variolose pits, or obliquely-impinged impressions, the anterior edge of each of which is raised into a distinct, rather acute, and slightly overhanging tubercle,—the tubercles being most numerous and most elevated towards the humeral angles and base. *Legs* slightly piceous,—with the *tarsi* paler, and with the apex of each of the *tibiæ* (especially of the four hinder ones) beset with yellowish pile.

Apparently of the utmost rarity, the only two specimens which I have seen having been captured on the respective summits of the Middle and Southern Dezertas. The one from the former was taken by myself, during a week's sojourn in that desolate spot, with the Rev. W. J. Armitage, in January 1849. I extracted it from out of a crevice of an exposed weather-beaten peak (where it had secreted itself, in company with the *Scarites abbreviatus* and several species of *Helops*) at the immediate point where the great central heights commence to narrow into an almost perpendicular ridge nearly 2000 feet above the sea. Although I searched with the greatest diligence, I could not obtain more; nor indeed was I able to procure it during a subsequent encampment on the island, with the Rev. R. T. Lowe, at the end of May 1850,—even though I visited the identical crag and split open the fissures, both of it and of the hardened volcanic mud in all directions around it. The second example hitherto detected is from the still more perilous steeps of the Ilheo Bugio, or Southern Dezerta, and it is to the Rev. R. T. Lowe that we are indebted for this interesting contribution to the fauna of that almost unapproachable rock. Having, on the 3rd of July 1849, succeeded in reaching the summit, not without much difficulty and at the greatest peril (in the pursuit principally of land mollusca and plants), Mr. Lowe informs me that he met with it beneath a slab of stone, and that he was attracted (as already mentioned) by its remarkable, stridulating noise. So local indeed does this insect seem to be, that it, appa-

rently, has not extended itself even over the Dezerta Grande (where there are no external obstacles to bar its progress); but retains the very position which in all probability constituted its original centre of dissemination at the remote period of time when this ancient continent received its allotted forms. Judging from the slowness with which creatures of such habits must necessarily (under any circumstances) be diffused, it is at least unlikely that the present one could have circulated far, when the now submerged portions of that region began to give way; and hence it is not impossible that the Southern Dezerta with the adjacent part (then united to it) of the Central one may have embraced the *whole area* of its actual primæval range,—the remains of which (though they be now separated by a channel) it still continues to occupy, and from which, even where physically unimpeded, it has never roamed.

Sectio IX. PHYTOPHAGA.

Fam. 38. CRIOCERIDÆ.

Genus 143. LEMA.

Fabricius, *Ent. Syst.* v. *Suppl.* 90 (1798).

Corpus parvum, parallelo-oblongum, interdum læte coloratum: *capite* porrecto; *oculis* subintegris: *prothorace* elytris angustiore, postice sæpius constricto: *scutello* apice valde truncato: *alis* amplis. *Antennæ* robustæ filiformes, vel apicem versus vix incrassatæ, articulo primo robusto breviusculo, secundo brevissimo, tertio, quarto et quinto longitudine variabilibus, reliquis subæqualibus latitudine plus minusve leviter crescentibus. *Labrum* corneum, subquadrato-transversum, apice vix integrum. *Mandibulæ* validæ corneæ latæ, apice acutæ bifidæ, margine interno sæpius integro. *Maxillæ* bilobæ submembranaceæ, lobis valde ciliatis. *Palpi* filiformes; *maxillares* articulo primo parvo, secundo majore subclavato, tertio huic paulo breviore, ultimo elongato-oblongo apice obtuso; *labiales* articulo primo parvo, secundo majore crassiore, ultimo subovato apice obtuso. *Mentum* corneum subluniforme, antice profunde emarginatum. *Ligula* submembranacea, apice setosa integra. *Pedes* leviter elongati: *unguiculis* basi connatis.

Both *Lema* and *Crioceris* may be known from the rest of the *Phytophaga* here described by their comparatively elongated, parallel forms, and by their subcylindrical prothoraces,—which are much narrower (especially at their base) than the elytra. They are genera of a wide geographical range, occurring in nearly all parts of the world. The insects of which they are composed are principally gaily-coloured, and are exclusively attached to plants (particularly those of a succulent nature),—on which, both in their larva and perfect states, they subsist. The species are exceedingly numerous,—M. Lacordaire, in his *Monographie des Phytophages*, enumerating no less than 273 of the former, and 43 of the latter.

331. Lema melanopa.

L. parallelo-oblonga nitida viridi-cyanea, prothorace, femoribus tibiisque rufo-ferrugineis, antennis tarsisque nigris.

Var. β. elytris obscurioribus.

Long. corp. lin. $2\frac{1}{2}$–$2\frac{2}{3}$.

Chrysomela melanopa, Linn. *Fna Suec.* 573 (1761).
Lema melanopa, Fab. *Ent. Syst.* v. *Suppl.* 93 (1798).
Crioceris melanopa, Steph. *Ill. Brit. Ent.* iv. 281 (1831).
Lema melanopa, Lacordaire, *Mon. des Phytoph.* i. 393 (1845).

Habitat in humidiusculis Maderæ, a vere novo usque ad autumnum, passim: *var.* β. ad Portum Sanctum solum pertinet, quâ in arenosis maritimis prædominat, gramina *Arundinem*que *donacem* ascendens.

L. parallel-oblong, rather narrow, shining, and bright greenish-blue. *Prothorax, femora,* and *tibiæ* rufo-ferruginous; the *first* small and very convex, sparingly punctured on the disk and in front, but more closely so (and suddenly constricted) at the hinder margin. *Elytra* coarsely and regularly punctate-striated. *Antennæ, tarsi,* and the extreme tip of the *tibiæ*, black.

Var. β. with the elytra of an altogether obscurer hue, being sometimes almost dull black.

A most abundant European insect (except in the extreme north), and occurring likewise in Algeria and the Canary Islands. In Madeira it is not very common, nevertheless widely distributed throughout low and intermediate altitudes. In most of the ravines in the vicinity of Funchal it may be found sparingly during the spring and summer months. In the Ribeiro de Santa Luzia and at the Curral das Romeiras, however, I have observed it in comparative profusion; and it has been captured by Professor Heer at the Mount Church. I have taken it at the Ribeiro Frio; as also, amongst *Arundo donax* and a coarse species of grass (growing in the loose sand), behind the beach of Porto Santo,—where the specimens (*var.* β.) are usually moreover of an obscurer hue.

Genus 144. CRIOCERIS.

Geoffroy, *Ins. des Env. de Paris*, i. 237 (1764).

Corpus parvum, parallelo-oblongum, sæpius læte coloratum: *capite* porrecto, pone *oculos* (subintegros) plus minusve leviter constricto: *prothorace* elytris angustiore, postice sæpius minus constricto: *scutello* apice rotundato vel producto (rarissime truncato): *alis* amplis. *Antennæ, instrumenta cibaria* et *pedes* fere ut in Lemâ, sed *unguiculi* liberi (ad basin haud connati).

The only *constant* feature which separates *Crioceris* from *Lema* lies in the construction of its claws,—which are of the ordinary form, not being soldered together (as in that genus) at their base. Still, in a general way, it may be distinguished, likewise, by its head being somewhat more lengthened, or constricted, posteriorly,

and the hinder margin of its prothorax less so. M. Lacordaire refers, also, to the shape of the scutella of the two groups as an almost unfailing character, and one of primary importance,—that of *Lema* being directly truncated at its apex, whilst that of *Crioceris* is more rounded and produced (sometimes indeed even acute, in which case it is entirely triangular).

332. Crioceris Asparagi.

C. parallelo-oblonga nitida obscure cyaneo-virescens, prothorace rufo-ferrugineo, in disco maculis duabus obscurioribus notato, elytris ad latera et apicem ferrugineis, singulo maculis tribus (unâ sc. basali longitudinali et duabus transversis limbo laterali connexis) pallido-testaceis ornato, tibiis basi ferrugineis.

Long. corp. lin. $2\frac{2}{3}$.

Chrysomela Asparagi, Linn. *Fna Suec.* 567 (1761).
Crioceris Asparagi, Fab. *Ent. Syst.* i. 2. 10 (1792).
——— ———, Steph. *Ill. Brit. Ent.* iv. 282 (1831).
——— ———, Lacordaire, *Mon. des Phytoph.* i. 590 (1845).

Habitat prope urbem Funchalensem Maderæ in *Asparagi* ramis (quos larva destruit), non infrequens; forsan ex Europâ illuc introducta.

C. parallel-oblong, but rather wider than the last insect, shining, and obscure blackish- or bluish-green. *Prothorax* rufo-ferruginous, with two darker dorsal patches; larger, and more closely and coarsely punctured, than in the *Lema melanopa*; also less convex, and not suddenly constricted, behind. *Elytra* coarsely punctate-striated, the punctures being larger than in that species, and somewhat vanishing towards the outer margins,—which last, with the apex, are ferruginous; each with three patches (the first of which is rather small, basal, and longitudinal, whilst the other two are transverse, and confluent with the outer ferruginous margin) pale testaceous. *Antennæ* and *legs* bluish-black,—the *tibiæ* having an obscure ferruginous ring at their base.

Also a very common European insect, occurring, like the *Lema melanopa*, in every part except the extreme north. It is exclusively, I believe, confined to the *Asparagus*,—on the maturer shoots of which the larva subsists. It has without doubt been introduced into the Madeira Islands, being found only, so far as I have hitherto observed, in gardens near Funchal,—in which position it has been also captured by Professor Heer. The Madeiran specimens differ from the ordinary ones in having the two darker patches on the disk of their prothorax generally more developed. Although somewhat partial in its distribution, it is a species which is excessively abundant at times in our own country, making its appearance throughout certain districts where the Asparagus is more especially cultivated in the utmost profusion,—so much so indeed as frequently to cause considerable damage to the crops. Such, however, being its habits, its liability to importation in the present instance from higher latitudes is at once rendered intelligible.

Fam. 39. CASSIDIDÆ.

Genus 145. CASSIDA.

Linnæus, *Syst. Nat.* i. (1735).

Corpus parvum vel mediocre, latum, rotundato-ovatum, subtus deplanatum: *ore* infra caput horizontale sito necnon a prosterno subtecto: *prothorace* et *elytris* ad latera valde explanato-productis, ad basin latitudine subæqualibus; *illo* semicirculari, caput obtegente: *alis* plerumque amplis. *Antennæ* apicem versus leviter incrassatæ, articulo primo robusto parum breviusculo, secundo brevi, reliquis latitudine paulatim crescentibus (tertio ad octavum longitudine decrescentibus, octavo ad ultimum crescentibus, ultimo elongato-ovato apice acuminato). *Labrum* corneum transverso-subquadratum, apice duplicatum et in medio fisso-emarginatum, angulis anticis rotundato-ampliatis. *Mandibulæ* validæ corneæ concavæ latæ, apice rotundatæ et fortiter subporrecto-dentatæ, margine interno integro. *Maxillæ* bilobæ membranaceæ: *lobo externo* angusto subcylindrico subpalpiformi fere recto, apice obtuso pilisque paucis longissimis instructo: *interno* parvo. *Palpi* subfiliformes; *maxillares* articulo primo parvo, secundo majore subclavato, tertio huic paulo breviore, ultimo elongato subfusiformi apice acuto; *labiales* e scapis ligulæ connatis surgentes, articulo primo parvo, secundo majore crassiore, ultimo elongato subfusiformi apice acuto. *Mentum* membranaceum minutum, apice leviter concavum. *Ligula* tenuissime membranacea subovata, apice rotundata pilisque longissimis aucta. *Pedes* breves retractiles: *tarsis* brevibus latis (articulo tertio longissime bilobo, quartum quintumque breviusculum omnino includente).

The common genus *Cassida*, so universally distributed throughout the world, is almost too well known to require comment. The singular outline of the insects composing it, which are greatly flattened below, and have their prothorax and elytra expanded laterally to such an extent as to render the entire body, except the tarsi and the apical half of the antennæ, invisible from above, in conjunction with their sluggish movements and the peculiar structure of their head (which, although itself horizontal, has the mouth situated altogether beneath it), have gained for them the not inappropriate name of *Tortoise Beetles*. This curious analogy moreover with the *Testudinata* is even further carried out, in some of the species, from the remarkable colour which they present, the clouded (or waved) fasciæ and spots with which they are ornamented giving their upper surface somewhat the appearance of tortoiseshell. They are generally found, motionless, on the leaves of plants, to which their flattened under-quarters and broad feet enable them to adhere very closely; whilst the bright green hue which so many of the representatives (either entirely or in part) display, renders their chance of detection by birds, in positions thus exposed, the less probable. Such are some of the external features which readily separate the *Cassidæ* from the members of the allied groups; and yet even in obscurer details they are scarcely less remarkable, —since their enormously bilobed third tarsal joint, which completely includes (not merely the minute fourth one, but also) the *fifth* articulation between its processes,

added to their curiously concave, obtuse mandibles (the apex of which is broad and cleft into large porrected teeth, like those of a trident), and the extremely membranous nature of their *lower* oral organs (in which indeed the ordinary robustness is scarcely required, since they are protected by the somewhat produced anterior region of the prosternum), at once offer peculiarities exceedingly characteristic. In the subpalpiform outer division of their maxillæ they agree with the greater portion of this section of the *Phytophaga*.

333. Cassida nebulosa.

C. oblongo-ovata dilute flavescens, infra (limbo pallido excepto) nigra, prothoracis angulis posticis rotundatis, elytris profunde punctato-striatis nigro irroratis, interstitiis elevatis.

Long. corp. lin. $3\frac{1}{4}$.

Cassida nebulosa, Linn. *Fna Suec.* 468 (1761).
——— ——— et *affinis*, Fab. *Ent. Syst.* i. 293 (1792).
——— ———, Gyll. *Ins. Suec.* iii. 442 (1813).
——— ———, Steph. *Ill. Brit. Ent.* iv. 367 (1831).

Habitat Maderam, rarissima; exemplar unicum in museo Loweano, a Dom. Heinecken prope urbem Funchalensem olim captum, vidi.

C. oblong-ovate, nearly opake, and of a dull brownish-yellow. *Body beneath* black; with the exception of its margin, which is paler. *Prothorax* and *elytra* with the sides much expanded horizontally, and slightly recurved; the *former* coarsely punctured, with its posterior angles rounded, and with slight indications of a dorsal line,—especially behind, where there is a somewhat raised tubercle on either side of it. *Elytra* slightly convex, and with their humeral angles porrected and greatly rounded; besprinkled with small, irregular, black spots, or broken lines; deeply punctate-striated (the punctures being large and ocellate); and with the interstices, particularly towards the suture, raised. *Antennæ* and *legs* a little paler,—the apex of the *former* being somewhat dusky.

An insect which is found throughout most parts of Europe, and in certain districts rather abundantly. In Madeira it would appear to be exceedingly rare, the only specimen which has come under my observation being a very old one, from the collection of the late Dr. Heinecken, and presented to me by the Rev. R. T. Lowe. It differs from its more northern representatives in being somewhat paler, and in having the two rounded elevations, which are but just perceptible on the hinder portion of the prothoracic disk in the ordinary examples, tolerably distinct. In every other respect it coincides with the usual type.

334. Cassida hemisphærica.

C. brevis rotundato-ovata flavo-viridis convexa, capite pectoreque nigris, prothoracis angulis posticis acutis, elytris confertissime punctulatis.

Long. corp. lin. $2\frac{1}{3}$.

Cassida hemisphærica, Herbst, *Käf.* viii. 226 (1799).
——— ———, Gyll. *Ins. Suec.* iv. 645 (1827).
——— ———, Steph. *Ill. Brit. Ent.* iv. 371 (1831).
——— ———, Lucas, *Col. de l'Algérie*, 514 (1849).

Habitat in graminosis Maderæ, semel tantum (Maio exeunte A.D. 1849) lecta.

C. short, rounded-ovate, rather less opake than the last species, and of a pale yellowish-green. *Body beneath*, with the *head* and *breast* black. *Prothorax* and *elytra* with the sides much expanded, though more obliquely so than in the *C. nebulosa*, and scarcely at all recurved; the *former* closely, but almost obsoletely punctured, with its posterior angles acute, and free from all inequalities (there being scarcely any appearance of even a dorsal line). *Elytra* very convex, and with their humeral angles rather less porrected, and much more acute, than in the last species; concolorous with the rest of the surface; and rather finely and very closely punctured, but with scarcely any tendency to lines or striæ. *Antennæ*, *legs* and *abdomen* more distinctly yellow than the rest of the surface.

Likewise an exceedingly rare insect in Madeira, the only individual which I have seen having been captured by brushing the long grass on the steep bank to the left of the great Waterfall at the head of the Ribeiro de Santa Luzia,—during my encampment there, with the Rev. R. T. Lowe, at the end of May 1849. Like the *C. nebulosa*, it is found throughout the greater portion of Europe, though more especially towards the south. It is recorded by M. Lucas in Algeria; and I possess a specimen from the Canary Islands, taken by the Rev. W. J. Armitage in Teneriffe. Its smaller size and rounded form, in conjunction with its simply and closely punctulated surface, and its uniformly pale yellowish-green hue, will, apart from minor differences, at once distinguish it from the last species.

Fam. 40. GALERUCIDÆ.

Genus 146. HALTICA.

Geoffroy, *Hist. Abr. des Ins. de Paris*, i. 244 (script. *Altica*) (1762).

Corpus parvum, oblongo- vel rotundato-ovatum, convexiusculum: *capite* sæpius transverso: *prothorace* transverso, ad angulos plus minusve acuto: *elytris* vel punctatis, vel punctato-striatis: *alis* modo amplis, modo obsoletis. *Antennæ* filiformes longiusculæ, articulo primo robusto, secundo breviusculo, reliquis longitudine subæqualibus, latitudine vix crescentibus (ultimo elongato-ovato apice oblique truncato). *Labrum* amplum transverso-subquadratum, corneum limbo membranaceo, apice integrum. *Mandibulæ* magnæ, basi latæ, apice corneæ acutæ fortiter incurvo-dentatæ, margine interno membranâ angustâ aucto. *Maxillæ* bilobæ membranaceæ: *lobo externo* angusto subcylindrico subpalpiformi geniculato, apice obtuso pilisque paucis minutis instructo: *interno* haud breviore sed lato, apice dense ciliato. *Palpi maxillares* subfiliformes elongati, articulo primo parvo, secundo majore clavato, tertio huic paulo breviore crassiore apice lato, ultimo elongato conico: *labiales* e scapis ligulæ connatis surgentes, brevissimi, articulo primo parvo, secundo majore multo crassiore subgloboso, ultimo gracili aciculari-conico. *Mentum* membranaceum

subquadratum, apice fere integrum. *Ligula* membranacea, apice rotundata integra. *Pedes* (præsertim *postici* saltatorii) leviter elongati: *femoribus posticis* incrassatis: *tibiis* spinâ apicali internâ armatis (in *anterioribus* minutissimâ, ægre, nisi oculo fortiter armato, observandâ): *tarsis* articulo primo clavato (in *anterioribus* longiusculo, in *posticis* elongato), secundo et tertio longitudine subæqualibus.

The insects of the present and two following genera may be known by their minute size and enormous capability of leaping,—their posterior femora being immensely thickened, in order to support the strong muscles necessary for their saltatorial habits: and, though in all points purely structural they are very nearly akin, they offer nevertheless abundant characters *externally* which are at once sufficient, when combined, to distinguish them from each other. Thus, from *Longitarsus*, in which the body is nearly always elongate-ovate (having a tendency to be expanded and convex *beyond* the middle), the head triangular, and the prothorax subcylindrical and comparatively narrow (with its hinder angles obtuse), *Haltica proper* may be recognised by its usually more oblong, or else rounded, outline, broader head, and by its wider and more transverse prothorax,—all the angles of which (though especially the basal ones) are more or less well defined. Its antennæ and legs also are somewhat shorter than is there the case, and its tibiæ are each of them furnished with a terminal spur,—quite perceptible under the microscope even on the *anterior four*, which in that genus are entirely unarmed. Its hinder tibiæ moreover are free from the small teeth, or spinules, so apparent towards the outer apex in those of *Longitarsus*; and its feet have their first articulation more abbreviated and clavate. In their oral organs, none of these immediate groups display, as already stated, any great discrepancies *inter se*; nevertheless it will be perceived, on reference to the diagnoses, that there are a few modifications in the proportions of their antennæ and palpi (and, also, in the relative *robustness*, or consistency, of the parts of their mouth), which ought not to escape observation. From *Psylliodes* both of the above genera are separated (independently of minor features, hereafter to be noticed) by their less elliptical form, eleven-jointed antennæ, and by the construction of their posterior tibiæ, which are simple at their extremities (instead of obliquely hollowed on the outside, with the tarsi implanted into the upper edge of the emargination,—far removed from the tip, their ordinary point of insertion).

335. Haltica subtilis, *Woll.*

H. elongato-ovata depressa subviridescenti-nigro-ænea et creberrime punctulata, antennis pedibusque fere nigris, prothorace antice angustato, elytris apice truncatis subdehiscentibus.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{3}$.

Habitat insulas Maderenses non infrequens: in Maderæ propriæ vinetis hortisque culinaribus prope urbem Funchalensem sitis hinc inde occurrit, necnon in Portu Sancto locis similibus est sat vulgaris, et etiam in Desertâ Grandi æstate ineunte A.D. 1850 exemplar unicum inveni.

H. elongate-ovate, narrow, greatly depressed, slightly shining, most closely and minutely punctulated all over, and of a dark brassy hue with a faint tinge of metallic green. *Prothorax* narrowed (or laterally compressed) in front. *Elytra* with the punctures rather coarser than those on the prothorax; somewhat parallel at the sides; truncated and a little gaping at their extreme apex,—exposing a small portion of the pygidium. *Antennæ* and *legs* nearly black,—the former long.

Readily distinguished from the following species by its narrow and depressed form, thickly punctulated surface, by its long and nearly black antennæ, greenish-brassy hue, and by its apically truncated, subdehiscent elytra. It is by no means a scarce insect; and found, apparently, in most of the islands of the group,—since I have not only captured it in Madeira proper, but likewise in Porto Santo and on the Dezerta Grande. It closely resembles the common European *H. antennata*, but is a little more depressed, its elytra are somewhat more abbreviated and gaping posteriorly, and its antennæ (which are slightly longer) are simple in both sexes.

336. Haltica Salicariæ.

H. ovata convexa testacea (oculis solis nigris), prothorace brevi postice in medio transversim impresso, elytris punctato-striatis.

Long. corp. lin. $1\frac{1}{4}$.

Galeruca Salicariæ, Payk. *Fna Suec.* iii. 453 (1800).
Haltica Salicariæ, Gyll. *Ins. Suec.* iii. 554 (1813).
——— ———, Steph. *Ill. Brit. Ent.* iv. 303 (1831).
——— ———, Redt. *Fna Austr.* 529 (1849).

Habitat hortos Funchalenses, rarior: in Portu Sancto prædominat, quâ inter gramina in arenis maritimis crescentia atque super folia *Arundinis donacis* tempore vernali occurrit.

H. ovate, rather short, convex, testaceous (the eyes alone being black), and shining. *Prothorax* most delicately, but not very closely, punctured; short and broad, with an abbreviated transverse impression in the centre of its hinder margin; with its angles well defined (and almost right angles),—the anterior ones being a little thickened. *Elytra* punctate-striated, and, together with the *antennæ* and *legs*, rather paler than the rest of the surface; the *extreme* apex of the terminal joint of the *antennæ* (which are shorter than in the last species) dark.

A very abundant insect throughout Europe, from whence perhaps it may have been accidentally naturalized in these islands. In Madeira proper it is exceedingly scarce,—the only example which has come beneath my observation having been captured by myself, on a sugar-cane, in the Rev. R. T. Lowe's garden near Funchal. In Porto Santo however it is far commoner, where I have taken it in profusion, during the spring months, in the vicinity of the Cidáde,—especially on a species of coarse grass, and *Arundo donax*, with which the loose sand, immediately behind the southern beach, is more or less clothed. Its short and ovate form, in conjunction with its small, transversely-impressed prothorax, pale testaceous hue, and its

punctate-striated elytra, will serve *primâ facie* to distinguish it. The Madeiran specimens are a trifle larger and less deeply sculptured than the ordinary northern type.

Genus 147. LONGITARSUS. (Tab. IX. fig. 4 et 6.)

Latreille, *Fam. Nat. des Ins.* 405 (script. *Longitarse*) (1825).

Corpus parvum, plus minusve elongato-ovatum, pone medium plerumque subinflatum convexum: *capite* triangulari: *prothorace* angusto parvo subcylindrico, ad angulos (præsertim posticos) plus minusve rotundato: *elytris* punctatis: *alis* modo amplis, modo (ut in speciebus Maderensibus certe indigenis) obsoletis. *Antennæ* filiformes elongatæ, articulo primo robusto longiusculo, secundo brevi, reliquis subæqualibus (ultimo elongato-ovato apice oblique truncato). *Labrum* amplum transverso-subquadratum, coriaceum limbo membranaceo, apice integrum. *Mandibulæ* elongatæ, basi tenues latæ, apice corneæ acutæ fortiter incurvo-dentatæ, margine interno membranâ angustissimâ aucto. *Maxillæ*, *palpi*, *mentum* et *ligula* fere ut in Halticâ, sed *palpi labiales* paulo longiores, articulo secundo minus inflato. *Pedes* (præsertim *postici* saltatorii) elongati: *femoribus posticis* incrassatis: *tibiis anterioribus* muticis; *posticis* spinâ apicali internâ armatis, et apicem versus externum seriatim spinulosis: *tarsis* articulo primo subparallelo (in *anterioribus* lato elongato, in *posticis* angustiore longissimo), secundo et tertio in *anterioribus* longitudine vix subæqualibus, secundo in *posticis* tertium longitudine superante.

Longitarsus (=*Thyamis*, Stephens, A.D. 1831), as already stated, differs from *Haltica proper* mainly in external characters,—which however are sufficiently apparent to be at once easily detected. Thus, the comparatively elongate-ovate form of the species composing it (which nearly always have a tendency to be more or less expanded, or inflated, *beyond* the middle), their more triangular head, narrower, more cylindrical and somewhat posteriorly-rounded prothorax, their less abbreviated antennæ and legs, the last of which have the apex of the four anterior tibiæ entirely unarmed, whilst the spur on the hinder (externally spinulose) pair is larger than in *Haltica*, in conjunction with the longer and more parallel basal joint of their feet, constitute the principal points on which its separation from that genus is made to rest. All the *Longitarsi*, moreover, are simply punctulated insects; whereas the *Halticæ* are composed not only of punctured, but also of *punctate-striated* ones,—perhaps of about an equal number of each. As regards their oral organs, the mandibles of *Longitarsus* are a little longer and less corneous than those of *Haltica*; and the labial palpi are not quite so short. In their habits, the members of these genera are precisely similar,—being attached (almost exclusively) to the foliage of the smaller plants, on which they frequently abound.

§ I. *Alæ obsoletæ: antennæ longissimæ.*

337. Longitarsus Isoplexidis, *Woll.* (Tab. IX. fig. 4.)

L. oblongo-ovatus depressiusculus subopacus testaceus, capite, elytrorum suturâ, maculis duabus (unâ

sc. parvâ humerali, et alterâ magnâ rotundatâ centrali) in elytro singulo positis femorumque posticorum apice nigris, elytris substriatis, antennis apicem versus infuscatis.

Long. corp. lin. $1\frac{2}{3}$–2.

Habitat in montibus Maderæ, super folia *Isoplexidis sceptri*, æstate rarior: inter plantas ad Feijãa de Córte crescentes Augusto ineunte A.D. 1850 primus inveni.

L. elongate, rather depressed and narrow, and nearly opake. *Head* black. *Prothorax* testaceous. *Elytra* pale testaceous, with the suture (except at the *extreme* apex), a small patch immediately within either shoulder, and a very large rounded one in the centre of the disk of each, black (the sutural band spear-shaped, being expanded and subangulated behind); minutely and closely punctured; and substriated,—especially towards the outer disk. *Body beneath* (except the prothorax, which is testaceous) black. *Legs* (except the apex of the two hinder thighs, which are black), and *base of antennæ*, pale testaceous. *Antennæ at apex* infuscated.

One of the most elegant and truly indigenous of all the Coleopterous insects of these islands; and confined exclusively, so far as I have hitherto observed, to the scarce and magnificent *Isoplexis sceptrum*,—the most singularly beautiful perhaps of all the plants (strictly native) which the Madeiran group produces. It was not until my explorations of 1850 that I discovered this grand addition to our entomological fauna; and indeed, from the remote and almost inaccessible ledges on which it occurs, it might well, even though thus conspicuous, escape observation altogether. Happening however to be encamped at the Feijãa de Córte at the beginning of August of that year (a region in which the *Isoplexis* is comparatively abundant), I was enabled to examine many clusters of it, and was rewarded with *two* Coleopterous novelties (the present one and a *Meligethes*), as also with an interesting *Capsus*, hereafter to be noticed. The *Longitarsus* appeared to be more attached to the *foliage* than to the flowers,—the woolly coating of which rendered it easy of capture, notwithstanding its enormous power of bounding when transferred to a more glabrous surface. In other positions I could not detect it in equal abundance; but, were it practicable to reach the large masses of *Isoplexis* which stud the perpendicular faces of the rocks in lofty sylvan spots, it would doubtless be obtained in greater numbers: since such however is clearly impossible, it must ever remain a rarity to the researches of a naturalist. Apart from its peculiarity of colouring, it recedes from all the members of the present genus with which I am acquainted in having its elytra *striate*.

338. Longitarsus Cinerariæ, *Woll.* (Tab. IX. fig. 6.)

L. ovatus valde convexus nitidissimus ater et fere impunctatus, capite, prothorace, antennarum basi pedibusque anterioribus rufo-testaceis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Habitat Maderam in floribus *Cinerariæ auritæ*, Herit. (=*Senecionis Maderensis*, DeCand.), præsertim per regionem sylvaticam inter 3000′ et 5000′ s. m., æstate non infrequens.

L. ovate, exceedingly convex (especially behind, where it is considerably inflated), very highly polished, and, to the naked eye, almost impunctate,—though minute and delicate punctures are perceptible beneath a powerful lens. *Head, prothorax,* and *base of antennæ* bright rufo-testaceous. *Elytra* and the *two hinder legs* of the deepest black. *Body beneath* (except the *head* and *prothorax,* which are rufo-testaceous) deep black. *Apex of antennæ* of a less intense black than the elytra, being sometimes completely infuscate. *Four anterior legs* rufo-testaceous, and more or less dusky in parts,—with their *tarsi* always darker.

Like the last species, the present beautiful *Longitarsus* is of a remarkable indigenous nature, and peculiarly attached to one of the most elegant of the native plants,—the *Cineraria aurita,* Herit. (=*Senecio Maderensis,* DeCand.)—the purple clusters of which form such a conspicuous feature throughout the summer months on the damp perpendicular rocks of lofty elevations. It ranges from about 500 to 5000 feet above the sea, attaining its maximum however near the upper extremity of those limits. Towards the base of the island it is of the greatest rarity, the lowest position at which I have hitherto detected it being in the Rev. R. T. Lowe's garden near Funchal,—where I once captured a single specimen, but could never obtain more. As we ascend the mountains, it becomes gradually more abundant; until, at the altitude of about 4500 feet, we seldom visit a bunch of the *Cineraria,* in full bloom, without discovering some traces of its existence. During my encampment in the upland region of the Cruzinhas, in July of 1850, I might have taken it by hundreds,—though scarcely ever under any other circumstances than those just mentioned.

§ II. *Alæ amplæ: antennæ mediocres.*

339. Longitarsus saltator, *Woll.*

L. elongato-ovatus convexiusculus nitidus subolivaceo-testaceus, capite femorumque posticorum apice nigris, elytrorum suturâ antennarumque apicem versus plus minusve leviter infuscatis.

Long. corp. lin. $1\frac{2}{3}$.

Habitat in graminosis prope urbem Funchalensem, sero autumno, sub lapidibus non infrequens.

L. elongate-ovate, rather wide and robust, slightly convex, and shining. *Head* and the *two hinder femora,* except their extreme base, black. *Prothorax* and *elytra* dirty testaceous, with more or less of a brownish or olivaceous tinge; the *latter* rather the duller of the two (with their suture sometimes dusky), and minutely, though evidently, punctulated. *Body beneath,* except the prothorax, blackish. *Antennæ at apex* more or less infuscated.

A large and well-marked *Longitarsus,*—readily known by its wide and robust form, black head and hinder femora, and by its dirty brownish-testaceous, or somewhat olivaceous, hue. It appears to be an insect of rather low range, and by no means common,—the few specimens which I have taken having been isolated ones, during the autumnal and early winter months, from beneath stones in the

vicinity of Funchal. In general contour and affinity, it somewhat approaches the *L. Verbasci* of more northern latitudes,—though abundantly distinct from it *specifically*, in size, colour and sculpture.

340. Longitarsus lutescens.

L. elongato-ovatus convexus nitidus flavo-testaceus, capite vel nigrescente vel infuscato, elytrorum suturâ (præsertim in disco) femorumque posticorum apice nigris, antennis apicem versus ferrugineis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{3}$.

Haltica lutescens, Gyll. *Ins. Suec.* iii. 546 (1813).
Thyamis lutescens, Steph. *Ill. Brit. Ent.* iv. 310 (1831).
Longitarsus lutescens, Redt. *Fna Austr.* 533 (1849).

Habitat in graminosis montosis Maderæ et Portûs Sancti, a vere novo usque ad autumnum sat frequens.

L. elongate-ovate, convex, shining, and of an exceedingly pale, straw-coloured yellow, or flavo-testaceous. *Head*, especially behind, reddish-brown, or infuscated (rarely black). *Elytra* with the suture brownish-black (the dark band being narrow at the base, gradually a little expanded to about (or a trifle beyond) the middle, and suddenly narrowed and abbreviated before reaching the extreme apex), most minutely and obsoletely punctulated. *Body beneath*, and the apical half of the *two hinder femora*, black. *Apices of antennæ and tarsi* generally ferruginous.

Known from the rest by its extremely pallid, straw-coloured hue,—its suture, eyes, and two posterior femora being the only black portions visible from above. This dark sutural line, moreover, possesses the invariable character of being narrow and almost evanescent at the base, becoming gradually broader to about (or a little beyond) the middle, after which it is suddenly constricted,—leaving the *extreme* apex free. The head is usually only dusky (being of a slightly reddish-brown behind); and the body beneath (the inflected edges of the upper surface excepted) is entirely piceous-black. It is probably a truly indigenous insect; nevertheless, like the *L. saltator*, *nervosus* and *nubigena*, it is of a more ordinary type of form than the remaining two. It occurs both in Madeira and Porto Santo, from the spring to the autumnal months, in grassy spots of intermediate and lofty altitudes. I have brushed it from off the coarse vegetation which clothes the sides of the Curral das Romeiras, in October; as also, in similar positions, in the upland region of the Cruzinhas, in July: and, during my first visit to the island of Porto Santo, in April and May of 1848, I observed it in considerable abundance on the southern mountain-slopes immediately below the summit of the Pico de Facho. It differs from the ordinary northern type in being, on the average, somewhat larger, in having its antennæ perhaps (proportionably) a trifle longer, and in the terminal portion of its hinder thighs being more evidently and invariably dark.

341. Longitarsus nervosus, *Woll.*

L. elongato-ovatus convexus nitidus testaceus, elytris pallidioribus, femorum posticorum apice nigro-piceo, antennis apicem versus infuscatis.

Var. β. paulo major, elytris minus evidenter punctulatis vix obscurioribus subtranslucidis.

Long. corp. lin. $1\frac{1}{8}$–$1\frac{1}{3}$.

Habitat in locis similibus Maderæ Portûsque Sancti ac præcedens, sed illo copiosior: *var.* β. sola ad Desertam Grandem solam pertinet, quâ Maio exeunte A.D. 1850 plurima specimina cepi.

L. elongate-ovate, convex, shining, and testaceous. *Elytra* slightly paler than the head and prothorax; and minutely, but distinctly, punctulated. *Meso-* and *meta-thoraces* beneath, and the apical half of the *two hinder femora*, piceous-black. *Antennæ at apex* infuscated.

Var. β. rather larger, with the *elytra* less evidently punctulated and not quite so pale,—being of a more diluted, cloudy, or semitransparent hue.

Not an uncommon insect at rather low, or intermediate altitudes, occurring in most of the islands of the group. I have taken it near Funchal, during the autumn and spring, principally in the Ribeira de Santa Luzia and at the Curral das Romeiras; on the grassy slopes of Porto Santo in April; and on the Dezerta Grande in May. It may be known from the rest of the *Longitarsi* here described by its uniformly testaceous hue,—the only dark portions visible on its upper surface (apart from the eyes) being the apices of its two hinder femora; and thus, whilst its actual colour is not so pallid as that of the *L. lutescens*, yet its entire freedom from black markings above (even its head being pale) gives it a peculiar character, which it is impossible to mistake. Its body beneath, moreover, is lighter than in the other species,—the meso- and meta-sterna being alone *universally* dark. The specimens from the Dezerta Grande (*var.* β.) are a trifle larger and duskier than those from Madeira and Porto Santo, and not quite so distinctly punctulated: nevertheless they are clearly but a local form, and without any claim to specific isolation.

§ III. *Alæ obsoletæ: antennæ mediocres.*

342. Longitarsus nubigena, *Woll.*

L. parvus elongato-ovatus convexus subnitidus ferrugineus, capite, femorumque posticorum apice picescentibus, elytris minus rufescentibus subseriatim punctatis.

Long. corp. lin. $\frac{7}{8}$.

Habitat in montibus Maderæ borealis, rarissimus: specimina duo sola detexi, unum sc. ad summam originem convallis Ribeiro de João Delgada dictæ (circa 5000′ s. m.) et alterum ad Lombo dos Pecegueiros, mense Julio A.D. 1850 capta.

L. small, elongate-ovate, convex, very slightly shining, and of a dull reddish-ferruginous. *Head* slightly dusky, being of a somewhat more rufo-picescent hue than the prothorax. *Elytra* a little

paler than the prothorax, and less rufescent,—being of rusty brownish-testaceous; and rather coarsely punctured,—the punctures having a slight tendency to be disposed in rows. *Body beneath* (except the prothorax), and the apical half of the *hinder femora*, picescent. *Antennæ at apex* very slightly infuscated.

The minute size of this somewhat insignificant *Longitarsus* would be sufficient, even alone, to separate it from the remainder: nevertheless its reddish-ferruginous, or rusty-testaceous, hue, its obsolete wings, and its comparatively deeply punctured elytra,—the punctures of which are a little inclined to be disposed in rows (of very rare occurrence in the present genus),—will afford additional characters whereby to distinguish it. It is in some respects allied to the *L. Ballotæ* of Marsham, in which the wings are, also, obsolete and the elytral punctures have a slight tendency to longitudinal distribution; nevertheless its smaller bulk, darker and more rufescent hue, and (especially) its almost unsculptured prothorax, will readily remove it from that species (in which that portion of the surface is *invariably* as coarsely punctulated as the elytra). It is exceedingly scarce, the only two specimens which I have seen having been captured by myself,—one on the 19th of July 1850, at the extreme head of the Ribeiro de João Delgada, about 5000 feet above the sea; and the other in the remote forest district of the Lombo dos Pecegueiros, during the same month.

Genus 148. PSYLLIODES. (Tab. IX. fig. 5.)

Latreille, *Fam. Nat. des Ins.* 405 (script. *Psylliode*) (1825).

Corpus parvum, plus minusve elliptico-ovatum, crassum: *capite* parvo triangulari: *prothorace* transverso antice attenuato, ad angulos (præsertim posticos) plus minusve acuto: *elytris* punctato-striatis: *alis* modo amplis, modo (ut in speciebus Maderensibus plurimis) obsoletis. *Antennæ* filiformes longiusculæ 10-articulatæ, articulo primo haud robusto longiusculo subcurvato, secundo et tertio paulo brevioribus subæqualibus, quarto longiusculo, reliquis longitudine subæqualibus, latitudine vix crescentibus (ultimo elongato-ovato apice oblique truncato). *Labrum* (IX. 5 *a*), *mandibulæ* (IX. 5 *b*), *maxillæ* (IX. 5 *c*), *palpi*, *mentum* et *ligula* (IX. 5 *d*) fere ut in Longitarso, sed *ligula* apice truncata (minus rotundata). *Pedes* (præsertim *postici*, IX. 5 *e*, saltatorii) leviter elongati: *femoribus posticis* valde incrassatis: *tibiis anterioribus* simplicibus; *posticis* spinâ apicali internâ armatis, et apicem versus externum oblique excavato-truncatis valde biseriatim spinulosis, ad marginem summum excavationis tarsum recipientibus: *tarsis* articulo primo in *anterioribus* (IX. 5 *f*) plus minusve lato longiusculo subcordato, in *posticis* angustiore subflexuoso longissimo; secundo et tertio in *anterioribus* longitudine subæqualibus, secundo in *posticis* tertium longitudine valde superante.

From *Haltica proper* and *Longitarsus*, *Psylliodes* (=*Macrocnema* of Stephens, A.D. 1831) may be easily recognised by the thicker and more elliptical bodies of the species composing it, by their comparatively small heads and anteriorly-attenuated prothorax, and by the construction of their two hinder legs,—which have the femora enormously incrassated, and the tibiæ obliquely scooped out (or

truncated) externally, the tarsi being inserted (remote from the apex) into the *upper* edge of this emargination. Their elytra, unlike those of *Longitarsus*, are in every instance punctate-*striated*; and their antennæ (which is perhaps the most remarkable character of all) are composed of only ten articulations,—the second (which in the allied groups is short) being evanescent, and compensated for by the unusually long fourth one. In the exceedingly lengthened basal joint of its posterior feet, the present genus agrees with the last; but the second is considerably longer in *Psylliodes* than it is in *Longitarsus*, giving the foot a very extraordinary, geniculated appearance.

§ I. *Tarsi simplices: alæ vel amplæ vel fere obsoletæ.*

343. Psylliodes chrysocephala.

P. obovato-elliptica convexiuscula subnitida cyanescenti- (vel ænescenti-) viridis, capite, antennarum basi pedibusque (apice femorum posticorum picescente excepto) testaceis, prothorace antice vix angustato, elytris punctato-striatis.

Long. corp. lin. $1\frac{2}{3}$–2.

Chrysomela chrysocephala, Linn. *Fna Suec.* 535 (1761).
Haltica chrysocephala, Gyll. *Ins. Suec.* iii. 568 (1813).
Macrocnema chrysocephala, Steph. *Ill. Brit. Ent.* iv. 319 (1831).
Psylliodes chrysocephala, Redt. *Fna Austr.* 538 (1849).

Habitat Maderam borealem, in castanetis Sanctæ Annæ æstate mediâ A.D. 1850 a meipso detecta.

P. large, obovate-elliptical (being somewhat attenuated posteriorly), rather convex, slightly shining, and bluish- or brassy-green (when immature entirely testaceous). *Head, antennæ at base,* and *legs* (except the apical half of the two hinder femora, which are picescent), pale testaceous. *Prothorax* finely and very closely punctulated; and very slightly narrowed in front. *Elytra* acuminated behind; punctate-striated; and with the interstices very finely and most obscurely punctulated. *Antennæ at apex* pale fuscous.

A common European insect, and one which has most probably been naturalized in Madeira from higher latitudes. The only position in which I have hitherto observed it is in the north of the island, where, during the summer of 1850, I took several specimens in the vineyard of Senhor Louiz Acciaioly at Santa Anna. It may be known from the rest of the genus here described by its large size, bluish- or brassy-green surface, and by (not merely its legs, but likewise) its *head* being pale. It is not quite so cyaneous as the ordinary state,—from which it also recedes in having its elytra rather more distinctly striated: nevertheless it is clearly but a local variety.

344. Psylliodes hospes, *Woll.*

P. subelliptica depressiuscula subnitida viridescenti- (vel nigrescenti-) ænea, antennarum basi pedi-

busque (apice femorum posticorum picescente excepto) testaceis, prothorace parvo antice angustato, elytris saturate testacescentibus leviter punctato-striatis.

Long. corp. lin. $1\frac{1}{2}$.

Habitat super plantas cruciferas in vinetis hortisque culinaribus Maderæ et Portûs Sancti, æstate rarior.

P. subelliptical and rather slender, more depressed than any of the other species, shining, and greenish- (or dark) æneous. *Antennæ at base,* and *legs* (except the picescent apex of the two hinder femora), testaceous. *Prothorax* more coarsely punctulated than that of the *P. chrysocephala*; very small, and narrowed in front. *Elytra* less acuminated behind than in the last or following species; of a diluted brassy-testaceous hue; faintly punctate-striated; and with the interstices distinctly punctulated. *Antennæ at apex* dark fuscous.

Likewise, in all probability, an introduced insect into the Madeira Islands,—occurring only, I believe, in vineyards and cultivated spots in and about the towns (especially on plants allied to *Sinapis*, and other *Cruciferæ*); nevertheless, not having been able to identify it with any recorded species, I have been compelled to describe it as new. It may be known by its more depressed, less apically-acuminated form, by its small and rather coarsely punctured prothorax, and by the brassy-testaceous hue of its (*lightly* punctate-striated) elytra. It is apparently the only Madeiran *Psylliodes* in which the wings are fully developed. I have taken it, sparingly, in gardens near Funchal; as also in Porto Santo, in the immediate vicinity of the Cidáde.

345. Psylliodes umbratilis, *Woll.*

P. obovato-elliptica convexa nitida ænescenti- (vel cyanescenti-) viridis, antennarum basi pedibusque (apice femorum posticorum picescente excepto) testaceis, prothorace parvo antice angustato, elytris punctato-striatis.

Long. corp. lin. $1\frac{1}{2}$.

Habitat in graminosis humidiusculis Maderæ, inter 2000′ et 5000′ s. m., æstate rarissima, locis similibus ac *Longitarsus nubigena* occurrens.

P. somewhat short and thick, obovate-elliptical, convex, exceedingly shining, and of either a brassy- or bluish-green. *Antennæ at base,* and *legs* (except the picescent apical portion of the two hinder femora), testaceous. *Prothorax* neither quite so small, nor so coarsely punctulated as in the *P. hospes*; narrowed in front. *Elytra* acuminated behind; rather deeply punctate-striated, and with the interstices very distinctly punctulated. *Antennæ at apex* fuscous.

Distinguished by its somewhat thickened and exceedingly convex body, and by its very shining, brassy-green hue. It is in all probability a truly indigenous insect to Madeira, occurring in remote spots of a lofty elevation, where it is scarcely likely to have become naturalized. It is apparently very rare, the few examples which have come under my observation having been captured by myself

in the forest region of the Lombo dos Pecegueiros, and at the extreme head of the Ribeiro de João Delgada (about 4500 feet above the sea) during July 1850.

346. Psylliodes vehemens, *Woll.*

P. subelliptica convexa profundius punctata nitida testacea, capitis maculâ minutissimâ basali, prothoracis disco, elytrorum suturâ, femorumque posticorum apice nigrescentibus, prothorace antice angustato, elytris profunde punctato-striatis.

Var. β. elytrorum plagâ suturali in fasciam transversam postmediam plus minusve latam ampliatâ.

Var. γ. minus nitida, punctis paulo profundioribus, testacea, suturâ pone medium femorumque apice posticorum nigrescentibus. (Ins. *Portus Sanctus.*)

Long. corp. lin. 1–1½.

Habitat in graminosis Maderæ, vulgaris, ab orâ maritimâ fere ad cacumina montium ascendens; inter 1000′ et 2500′ s. m. tamen prædominat: *var.* β. nisi fallor sola ad insulam Portûs Sancti soli pertinet.

P. subelliptical, robust, convex, shining, and testaceous. *Head* and *prothorax* less densely, and much more coarsely, punctured than in any of the other species: the *former* with a minute dusky spot behind, which is sometimes nearly covered by the anterior edge of the pronotum (but scarcely ever absent): the *latter* with a broad, longitudinal black cloud (more or less defined, and widest posteriorly) down the centre, and which has generally either a bluish or a brassy tinge; slightly narrowed in front. *Elytra* very deeply punctate-striated; with the suture, and a small portion of the extreme lateral margin behind the middle, black,—the dark sutural line being exceedingly narrow at the base, but suddenly expanded about the middle, after which it again contracts. *Hinder femora* with their apex picescent. *Antennæ* infuscated at their extremity.

Var. β. with the sutural line of the elytra much dilated behind the middle (its widest part, in all instances), so as to join the dark portion of the lateral margin,—thus forming a more or less broad, transverse fascia.

Var. γ. a little less shining, and with the punctures (if anything) even more distinct; entirely pale testaceous, with merely the minute speck on the back part of the head, the scutellum, the *hinder* portion of the suture, and the tips of the posterior femora, dark;—the prothoracic cloud and the dark marginal portion of the elytra being entirely evanescent. (The state peculiar to *Porto Santo.*)

Throughout all its states, the present *Psylliodes* may be known by its testaceous, coarsely punctured surface, by the minute cloudy speck on the hinder portion of its forehead, and by its more or less (postmedially) dilated, dark, sutural line. It is an almost universal insect, existing in nearly every part of the island, from the level of the shore to within a short distance of the highest peaks,—though attaining its maximum perhaps between about 1000 and 2500 feet above the sea. Amongst long grass and herbage, wherever such is to be found, it is well nigh certain to occur during the summer months,—abounding in sheltered spots, and at the bottom of deep ravines, where the vegetation is especially rampant. In such positions, I have observed it towards the head of the Ribeiro de Santa Luzia, in the utmost profusion, in May; and in the chestnut-woods of Santa Anna,

during June and July, in equal multitudes. In the immediate vicinity of Funchal it is somewhat scarce; and, as we ascend the mountains, beyond the limits of 4000 feet, rarer still. Nevertheless it is widely distributed even over the loftiest altitudes, where in particularly exposed localities it takes shelter beneath stones,—as I have frequently remarked on the upland plain of the Fateiras and along the edges of the Caminho de Meyo, around the southern base of the Pico da Silva. During my encampment in the elevated region of the Cruzinhas, in July of 1850, I met with it sparingly; but did not detect it on the extreme summit of the Pico Ruivo,—where (with the exception of the great height) there is every condition necessary for its development. The *var.* γ, from Porto Santo, is interesting as affording another example of the modifying influences of local circumstances on external insect form. That the species is identical with the Madeiran one I have not the slightest doubt,—the sculpture and colour, as I conceive, having merely undergone a change since the remote period of its isolation on a comparatively calcareous soil.

§ II. *Tarsi anteriores articulo basilari latissimo cordato : alæ obsoletæ.*

(Subgenus EUPUS, *Woll.*)

347. Psylliodes tarsata, *Woll.* (Tab. IX. fig. 5.)

P. elliptica convexiuscula subnitida subcyanescenti-nigra, capite, prothorace, antennarum basi pedibusque (apice femorum posticorum vix picescente excepto) rufo-testaceis, prothorace amplo antice haud angustato, elytris punctato-striatis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Habitat in Maderæ umbrosis montosis, æstate non infrequens: Maderam borealem, nisi fallor, præsertim occupat, quâ mense Julio A.D. 1850 plurima specimina ad Lombo dos Pecegueiros inveni.

P. rather narrow, elliptical, somewhat convex, very slightly shining, and quite apterous. *Head* and *prothorax* almost impunctate, and of a bright rufo-testaceous; the *latter* rather large, and not at all narrowed in front. *Elytra* rather coarsely punctate-striated; acuminated posteriorly, and a little constricted at their extreme base; and of a deep subcyaneous-black. *Legs* testaceous,—except the apical portion of the *two hinder femora,* which are pale brownish-piceous. *Antennæ at base* testaceous, *at apex* infuscated. *Four anterior tarsi* with their basal joint enormously dilated, and cordate.

Throughout all the Madeiran Coleoptera there is scarcely a species better defined than the *P. tarsata,* nor is there any one perhaps which we may more safely pronounce as strictly indigenous. Receding as it does from the remainder of the genus, both in outward aspect and structure, it is hardly necessary to point out more minutely its distinctive features,—since its beautifully coloured surface, entirely apterous body (as in so many of the insects of these islands), and the immensely dilated basal joint of its four anterior feet (a very remarkable modifica-

tion, which would seem to be almost sufficient to isolate it even generically), are of themselves more than enough at once to identify it. It is exceedingly local, and confined, so far as I have hitherto observed, to the dense forest districts of the north,—occurring beneath the trees (amongst rank grass and fern) in remote spots of intermediate altitudes. During my encampment in the region of the Lombo dos Pecegueiros, in July 1850, I captured it in considerable profusion,—especially amongst the thickset and nearly impenetrable groves of Folhado, and where the moisture was most excessive. Throughout the whole tract between the Ribeiro do Inferno and the Ribeiro de João Delgada it may be said to abound,—but probably during the summer months only,—since a great number of the specimens were immature in July, as though their imago period had but just commenced.

Fam. 41. CHRYSOMELIDÆ.

Genus 149. MNIOPHILOSOMA*, *Woll.* (Tab. IX. fig. 8.)

Corpus minutum, suborbiculato-ovatum, valde convexum, politissimum, glaberrimum et fere impunctatum: *capite* deflexo; *oculis* subrotundatis: *prothorace* transverso, postice lato elytris arcte applicato: *scutello* parvo triangulari: *elytris* ad apicem conjunctim acuminatis: *alis* obsoletis. *Antennæ* (IX. 8 *a*) leviter clavatæ, inter oculos insertæ sed basi haud approximatæ, articulis primo et secundo robustis, illo elongato subclavato, tertio ad sextum gracilibus longitudine leviter decrescentibus, reliquis latitudine paulatim crescentibus (nono, decimo et undecimo clavam minus abruptam efficientibus, undecimo elongato-ovato ad apicem externum oblique truncato). *Labrum* (IX. 8 *b*) amplissimum porrectum subcoriaceum, antice profunde bilobum. *Mandibulæ* (IX. 8 *c*) magnæ corneæ latæ, apice fortiter dentatæ. *Maxillæ* (IX. 8 *d*) bilobæ membranaceæ, lobis latiusculis subæqualibus apice pubescentibus (*externo* vix palpiformi). *Palpi* subfiliformes; *maxillares* articulo primo parvo, secundo et tertio longioribus crassioribus subæqualibus, ultimo subfusiformi-conico: *labiales* (IX. 8 *e*) crassi, articulis primo et secundo latitudine subæqualibus (hoc paulo longiore), ultimo angustiore subconico. *Mentum* subquadrato-transversum, apice integrum. *Ligula* (nisi fallor) haud visibilis. *Pedes* longiusculi: *femoribus posticis* haud incrassatis: *tibiis* simplicibus, ad apicem muticis: *tarsis anterioribus* in mare (IX. 8 *f*) articulo primo magno dilatato subcordato, *posticis* in utroque sexu articulo primo leviter elongato.

A *Mniophila* (genus Coleopterorum), et σῶμα corpus.

The curious little insect from which the above characters have been compiled, and which bears a certain *primâ facie* resemblance, as already mentioned (*vid.* p. 417), to stunted female specimens of *Xenorchestes*, is very nearly akin to the European *Mniophila*, though, at the same time, certainly distinct from it,—since it not only wants the leaping propensities (and therefore the incrassated posterior femora) which are there indicated, but presents likewise many obscurer differences

* Genus *Mniophili* formam simulans et ei affinitate proximum, sed tarsorum masculorum articulo basilari valde dilatato, necnon antennarum pedumque posticorum structurâ et habitu haud saltatorio certe distinctum videtur.

(though not the less important ones) in the other particulars of its structure which combine to render its isolation the more obvious. Thus, its antennæ recede from those of that genus in having their terminal joint (as in *Haltica* and its allies) obliquely acuminated at the extremity, and in the eighth one *not* being smaller than the seventh (which is worthy of notice, since its perceptibly diminished size in *Mniophila* has been supposed by some naturalists to imply an approach towards the *Anisotomidæ*); its outer maxillary lobe also is less evidently palpiform; all its tibiæ are spurless (whereas the hinder pair in *Mniophila*, as in the other saltatorial Phytophagous groups, are armed with a strong apical spine); and the basal articulation of its four anterior male feet is greatly dilated. In their labra, mandibles and palpi, however, the genera are almost coincident. In external contour it has very much the appearance of a *Mniophila*, except that it is somewhat larger, considerably acuminated at the anal region, and is even still more polished and glabrous,—there being scarcely any traces of sculpture, except under a high microscopic power (whereas in that genus the upper surface, although sparingly, is deeply punctured). The two insects together may be considered as establishing a very natural passage between the *Galerucidæ* and *Chrysomelidæ*; for, whilst *Mniophila*, on account of its jumping habits, is properly associated with the former,—*Mniophilosoma*, on the other hand, is more correctly referred to the latter. In their general details indeed (as, for instance, their slightly clavated, basally subdistant antennæ, and their thickened, convex and remarkably glossy bodies) both are perhaps more related to the *Chrysomelidæ* than to the *Galerucidæ*: nevertheless *Mniophila* is retained (albeit at the *extremity*) in the first, since its capability of bounding is clearly the most significant feature which it possesses, and must therefore take the precedence of all others; but *Mniophilosoma*, which does not exhibit this peculiarity, finds its true location at the *commencement* of the second.

348. Mniophilosoma læve, *Woll.* (Tab. IX. fig. 8.)

M. suborbiculato-ovatum valde convexum politissimum subviridescenti-nigrum et fere impunctatum, elytris apice conjunctim acuminatis ferrugineis, antennarum basi pedibusque testaceis.

Mas paulo minor, tarsis anterioribus articulo primo dilatato.

Long. corp. lin. $\frac{2}{3}$–$\frac{7}{8}$.

Habitat in montibus Maderæ, præsertim per regionem sylvaticam, sub lapidibus, cortice arborum, vel inter lichenes, toto anno passim.

M. suborbiculate-ovate, exceedingly convex, very highly polished, perfectly glabrous, and, to the naked eye, impunctate (though under a strong lens minute and distant punctures are just perceptible); black, with more or less of a greenish tinge. *Head* sometimes rufescent between the eyes. *Elytra* conjointly acuminated at their extreme apex (which, however, on account of the great convexity of the body, is almost concealed from view), where they are more or less ferruginous, or dull

testaceous. *Antennæ at base,* and the *legs,* testaceous; the *former* with their apical portion dusky.

Males (which are rather smaller than the females) with the basal joint of their *four anterior tarsi* considerably dilated.

The minute bulk, and exceedingly convex, highly polished and almost impunctate surface of the present insect will at once distinguish it from the whole of its Madeiran allies,—even apart from its *generic* peculiarities (already pointed out). It is a truly indigenous species, occurring beneath stones and moss at intermediate and lofty altitudes, and apparently at all seasons of the year. It is decidedly scarce; though, at the same time, widely distributed over the island. Thus, I have taken it, during the winter months, from under stones, towards the upper extremity of the Ribeiro de Santa Luzia,—principally in grassy spots by the edges of the stream: and in the summer of 1850 I captured it at the Lombo dos Pecegueiros, and from beneath the dead, loosely-attached bark of trees in the upland region of the Fanal. I have also brushed it from off vegetation in the elevated district of the Cruzinhas; and, on one occasion (whilst searching for *Pupa concinna*), at the extreme head of the Ribeiro de João Delgada, I met with it in tolerable abundance, under lichen on the exposed faces of the rocks: and it has been detected by the Rev. R. T. Lowe at the Ribeiro Frio. At the Fanal I have observed it in company with the curious *Xenorchestes saltitans*, to the females of which (as lately stated) large specimens of the *Mniophilosoma*, in their size, colour, and wonderfully smooth and subglobose bodies, bear so strong a resemblance, that the two might, *primâ facie*, be almost mistaken for each other. It is needless however to remark that the most superficial *examination* would at once discover the differences: though I am inclined to suspect that there does, notwithstanding, really exist some slight affinity between the genera; a supposition which is not rendered the less probable by the saltatorial powers and subapproximated antennæ of *Xenorchestes*,—facts which would seem to indicate an approach towards the *Galerucidæ* (from which group *Mniophilosoma*, as already demonstrated, is but just removed).

Genus 150. CRYPTOCEPHALUS.

Geoffroy, *Hist. Abr. des Ins. de Paris*, i. 231 (1762).

Corpus mediocre vel parvum, plus minusve subcylindrico-ovale, convexiusculum, sæpe coloribus diversis læte pictum: *capite* deflexo; *oculis* reniformibus (intus leviter emarginatis): *prothorace* postice lato sinuato (elytrorum latitudine), amplo, antice convexo; *prosterno* simplice: *elytris* ad apicem truncatis dehiscentibus, pygidium vix tegentibus: *alis* amplis. *Antennæ* filiformes, in typicis leviter elongatæ, inter oculos insertæ sed basi haud approximatæ, articulo primo robusto, secundo brevi, tertio, quarto quintoque subgracilibus (tertio breviusculo, quarto quintoque longitudine subæqualibus), reliquis vix crassioribus subæqualibus. *Labrum* amplum subcoriaceum subquadratum, antice leviter bilobum. *Mandibulæ* magnæ corneæ inæquales, apice acutæ, infra apicem dente robusto instructæ. *Maxillæ* bilobæ: *lobo externo* lato obtuso setoso, vix palpiformi:

interno breviore (margine superiore robustiore excepto) membranaceo compresso. *Palpi* subfiliformes; *maxillares* articulo primo parvo, secundo et tertio longioribus crassioribus (illo paulo longiore subflexuoso), ultimo angustiore subovato basi truncato; *labiales* articulo primo parvo, secundo et ultimo longitudine subæqualibus (illo subclavato, hoc paulo angustiore subfusiformi basi truncato). *Mentum* corneum, in parte mediâ submembranaceum; transversum, apice vix integrum. *Ligula* subcoriacea, apice rotundata integra. *Pedes* sat robusti subretractiles, *antici* longiores: *tibiis* simplicibus.

Externally, *Cryptocephalus* may be readily known from *Chrysomela* by its more cylindrical body, which is truncated both before (on account of the deflexion of its head, which is also very deeply immersed in the prothoracic cavity) and (by reason of its apically-abbreviated, subdehiscent elytra) behind, by its more ample and convex prothorax, by its narrower, and more internally-emarginated eyes, its simple prosternum, entirely filiform antennæ, and by its somewhat elongated anterior legs. In their trophi (apart from obscurer modifications, which may be gathered from the above diagnosis) the species recede from the *Chrysomelæ*, principally, in having their upper lip larger and more robust, the terminal joint of their maxillary palpi slenderer and acuminated, and in their ligula being a little smaller, and rounded in front (instead of, as in that genus, truncated, and bifid in the centre). Both *Cryptocephalus* and *Chrysomela* are of great extent and wide geographical range, occurring in nearly all countries of the world. They include some of the most gorgeous insects throughout the whole range of the Coleoptera; and, whilst gay colours may be said to preponderate with the former, brilliant metallic splendour (in which green is the prevailing element) is eminently characteristic of the latter. It is remarkable that in the Madeira Islands, where sunshine is the ruling power, I should not have succeeded in detecting more than a single exponent of each,—and even that those should be of such extreme rarity that they must be numbered amongst the scarcest members of our present fauna. The following insignificant little *Cryptocephalus* happens to recede from the normal representatives of the group in being of a more sombre tint,—simulating in fact, in general contour and hue, the *C. signaticollis* and *minutus* of more northern latitudes.

349. Cryptocephalus crenatus, *Woll.*

C. cylindrico-ovalis depressiusculus subopacus testaceus, capite prothoraceque brevi rugulose punctatis et plus minusve infuscatis, elytris profunde crenato-striatis, infra humeros callo leviter infuscato notatis.

Long. corp. lin. 1½.

Habitat in graminosis humidiusculis Madeiræ, rarissimus: exemplar unicum ad summam originem convallis Ribeiro de Santa Luzia dictæ Maio exeunte A.D. 1849 inveni, atque duo specimina ad São Vincente æstate A.D. 1851 capta nuper communicavit Rev^dus^ Dom. Lowe.

C. cylindric-oval, a little depressed, very slightly shining (sometimes nearly opake), and testaceous.

Head and *prothorax* rather coarsely punctured and subrugulose, more or less clouded or infuscate; the *latter* short, transverse, and rather waved behind. *Elytra* deeply crenate-striated; with the small, thickened callosity within the shoulder of each slightly dusky.

A most distinct little *Cryptocephalus*; and, although related, in size and general aspect, to the *C. minutus* and *signaticollis* of higher latitudes, yet with abundant characters of its own which altogether separate it, specifically, from either of those insects. In its regularly *crenate*-striated elytra, indeed, it recedes from every *Cryptocephalus* with which I am acquainted; whilst its almost opake surface, its deeply punctured, comparatively short prothorax, and its subdepressed form, entirely remove it from any of the small European species of which the common *C. minutus* may be regarded as the type. It is apparently extremely rare. During my constant researches in Madeira, I have met with only a single example,—captured, towards the end of May 1849, at the extreme head of the Ribeiro de Santa Luzia, by brushing the rank vegetation at the foot of the perpendicular rocks on the steep bank immediately to the left of the great Waterfall. Two more specimens however have been subsequently communicated to me by the Rev. R. T. Lowe, by whom they were taken in the north of the island (during the summer of 1851), at São Vincente.

Genus 151. CHRYSOMELA. (Tab. IX. fig. 7.)

Linnæus, *Syst. Nat.* edit. i. (1735).

Corpus mediocre, plus minusve rotundato-ovatum, convexum, sæpius splendore superbiens: *capite* subporrecto; *oculis* ellipticis (intus haud emarginatis): *prothorace* transverso, postice lato (sed elytrorum vix latitudine), ad latera sæpius marginato; *prosterno* postice in lobum deplanatum plus minusve elongatum (in mesosternum receptum) producto: *elytris* ad apicem rotundatis, pygidium omnino tegentibus (in specie nostrâ lateraliter compressis et marginem versus utrumque valde corrugato-rugosis, unde nomen subgenericum *Rhyssoloma* proposui): *alis* plerumque amplis. *Antennæ* apicem versus leviter incrassatæ, in typicis minus elongatæ, inter oculos insertæ sed basi haud approximatæ, articulo primo robusto, secundo brevi, tertio, quarto quintoque subgracilibus (tertio longiusculo, quarto quintoque æqualibus), reliquis paulo crassioribus subæqualibus. *Labrum* (IX. 7 *a*) submembranaceum transversum, antice leviter bilobum. *Mandibulæ* fere ut in Cryptocephalo. *Maxillæ* (IX. 7 *b*) bilobæ: *lobo externo* lato obtuso subcylindrico setoso, vix palpiformi: *interno* vix breviore, angusto, submembranaceo, longe setoso. *Palpi* (articulo *maxillarium* ultimo incrassato plus minusve subsecuriformi excepto) fere ut in Cryptocephalo. *Mentum* (IX. 7 *c*) subcoriaceum transversum, apice plerumque leviter emarginatum. *Ligula* ampla subcoriacea, apice truncata et in medio minute bifida. *Pedes* sat robusti subretractiles: *tibiis* vel simplicibus, vel apicem versus externum dente instructis.

The *Chrysomelæ*, as already stated, may be recognised from the *Cryptocephali* by their more rounded, or ovate, outline, convexer bodies and more exposed heads, by their elytra not being abbreviated posteriorly (but entirely covering the abdomen), by their more transverse, less globose and frequently margined

prothoraces, by their more elliptical eyes, somewhat shorter and more incrassated antennæ, and by their prosternum being produced behind into a flattened lobe, which (when long enough) is received into an impression in front of the mesosternum. The main distinctive features in the parts of their mouth consist in the dilated, apically truncated, and more or less securiform terminal joint of their maxillary palpi, in their narrow and pointed inner maxillary lobe, and in their somewhat ample and anteriorly bifid ligula. The sole Madeiran representative (hitherto detected) of this immense and universally distributed group is, outwardly, of such an exceedingly anomalous structure, that, before examination, I had imagined that it would probably constitute a separate genus. Its oral organs however differ in scarcely any respect from the ordinary type; and I have been content therefore to propose for it a *subgeneric* name, in case that future researches should discover, as is not unlikely, other species moulded after the same external pattern, and thus render it desirable to detach them from the parent mass.

(Subgenus RHYSSOLOMA, *Woll.*)

350. Chrysomela Fragariæ, *Woll.* (Tab. IX. fig. 7.)

C. ovata convexa nitida viridi-splendens, capite prothoraceque fere impunctatis, elytris minute seriatim punctatis, apicem versus convexis et lateraliter compressis, utrinque (præsertim versus marginem) valde corrugato-rugosis, antennis tarsisque obscurioribus.

Long. corp. lin. $5\frac{1}{2}$.

Habitat in Maderâ sylvaticâ, super folia *Fragariæ*, rarissima: tria specimina, ad Ribeiro Frio mense Augusto A.D. 1850 a meipso lecta, sola vidi.

C. ovate, convex, shining, when alive of a very brilliant green,—which however becomes obscurer after death. *Head* and *prothorax* impunctate, except towards the sides of the *latter*,—which are broadly (though not very distinctly) margined, and have a few large, scattered punctures (which are sometimes however nearly absent) along the edges and within the submarginal depression. *Elytra* with longitudinal series, somewhat arranged in pairs, of very minute and obscure punctures (but not striated), the space between each pair having a tendency to be raised,—both the punctures and ridges however being most apparent towards the sides, and nearly evanescent on the disk; convex and laterally compressed, particularly behind, and greatly wrinkled (or uneven) towards the lateral margins, along their entire length; the suture with a slightly violet tinge. *Antennæ* (especially towards their apex), and the *tarsi*, obscurer than the rest of the surface.

A truly indigenous insect, and perhaps one of the most anomalous of the *Chrysomelæ* hitherto described,—its laterally compressed form, and the curiously shriveled, or collapsed, sides of its elytra giving it a most remarkable appearance, unlike anything else with which I am acquainted. At first sight indeed this wrinkled, or corrugated, structure might seem to be the result of a *lapsus naturæ*, as though the creature had been imperfectly developed; nevertheless, a closer

examination would have at once prevented the possibility of regarding it as the effect of chance, even had I not captured a sufficient number of specimens, precisely similar, to place beyond all question any doubts as to its normal state. It is evidently of the greatest rarity,—being confined to the sylvan districts, and coming into existence about the middle or latter end of the summer. The only three examples which have, I believe, been as yet detected were captured by myself, on the leaves of the mountain Strawberry, at the edges of the Levada of the Ribeiro Frio, in August 1850. During my repeated researches in the same locality earlier in the season, I failed in discovering it; and in all probability therefore it is an autumnal species.

Genus 152. GASTROPHYSA.

(Chevrolat, *in Dej. Cat.* 3ième édit. 429, A.D. 1837.) Redt. *Fna Austr.* 553 (1849).

Corpus parvum, fere ut in Chrysomelâ, sed *prothorax* ad latera haud marginatus, *prosterno* postice minus producto; *labrum* coriaceum, margine laterali membranaceo; *maxillarum lobi* latiores; *palporum* articulus ultimus subfusiformis basi truncatus; et *ligula* transversa, apice leviter emarginata.

Gastrophysa, which by some entomologists is regarded as a mere section of *Chrysomela*, differs from the normal members of that group, mainly, in having its maxillary palpi not incrassated at their apex, but filiform,—the terminal joint being, as in *Cryptocephalus*, somewhat cylindrical, and narrower than the previous one. In other respects it offers scarcely any peculiarities; nevertheless its prothorax is not so distinctly margined as in *Chrysomela proper*, the hinder point of its prosternum is less produced, its upper lip has the sides membranous, the lobes of its maxillæ are broader, its ligula is shorter and more transverse, and its entire body is altogether of a smaller size.

351. Gastrophysa Polygoni.

G. ovalis convexa nitida nigro-cærulea et dense punctata, prothorace, antennarum basi, pedibus anoque rufis, antennarum tarsorumque apice nigrescentibus.

Long. corp. lin. 2.

Chrysomela Polygoni, Linn. *Fna Suec.* 520 (1761).
———— ————, Gyll. *Ins. Suec.* iii. 474 (1813).
Phaedon Polygoni, Steph. *Ill. Brit. Ent.* iv. 336 (1831).
Gastrophysa Polygoni, Redt. *Fna Austr.* 553 (1849).

Habitat prope urbem Funchalensem Maderæ, a Dom. Heinecken, M.D., olim capta (ex Europâ forsan introducta).

G. oval, convex, shining, densely and deeply punctured (especially on the elytra), and of a dark submetallic blue,—the *prothorax, antennæ at base,* the *legs,* and the *apex of the abdomen* being bright rufous. *Antennæ at apex,* and the *terminal joint of the tarsi,* nearly black.

A most abundant European insect, occurring almost everywhere. In Madeira it would seem to be exceedingly rare, and certainly not truly indigenous,—the only example which I have seen (evidently an imported one) having been communicated by the Rev. R. T. Lowe from the collection of the late Dr. Heinecken, by whom it was captured many years ago near Funchal. It differs in no respect from the ordinary type, which makes it the more probable that the specimen was accidentally introduced from higher latitudes.

Sectio X. PSEUDOTRIMERA.

Fam. 42. COCCINELLIDÆ.

Genus 153. COCCINELLA. (Tab. X. fig. 5.)

Linnæus, *Syst. Nat.* edit. i. (script. *Coccionella*) (1735).

Corpus mediocre, plus minusve hemisphæricum vel ovale, supra glabrum convexum læte maculatum: *prothorace* transverso, elytrorum vix latitudine; *prosterno* postice (ut in *Gastrophysâ*) leviter producto: *mesosterno* ad apicem modo integro, modo emarginato: *elytris* punctatis, haud striatis: *alis* amplis. *Antennæ* breves clavatæ, ante oculos insertæ, articulis primo et secundo (illo præcipue) robustis (hoc breviusculo), tertio ad septimum gracilibus latitudine vix crescentibus (tertio quartoque elongatis, quinto paulo breviore, sexto et septimo brevibus longitudine æqualibus), reliquis clavam haud abruptam compressam quadriarticulatam efficientibus (ultimo lato, apice valde truncato). *Labrum* amplum coriaceum transversum, antice integrum. *Mandibulæ* subcorneæ, basi latæ, apice valde incurvæ acutissimæ bifidæ, margine interno membranâ angustâ ciliatâ aucto et basin versus dente acuto robusto instructo. *Maxillæ* bilobæ submembranaceæ, lobis valde pubescentibus, *externo* apice dilatato. *Palpi maxillares* valde clavati, articulo primo parvo, secundo et tertio majoribus crassioribus, ultimo maximo incrassato securiformi: *labiales* setiformes, articulo primo parvo, secundo et ultimo longitudine subæqualibus (illo crasso, hoc gracili cylindrico). *Mentum* submembranaceum, basi angustatum, antice latum integrum, angulis anticis ampliatis. *Ligula* elongata membranacea, apice truncata. *Pedes* subretractiles: *tibiis* simplicibus (haud calcaratis): *tarsis* pseudotrimeris (*i. e.* 4-articulatis, articulo secundo valde bilobo tertium minutissimum recipiente), *unguiculis* modo ad apicem bifidis, modo ad basin dente lato acuto armatis.

It is almost needless to enumerate the distinctive features of the *Coccinellæ*,—their hemispherical forms and glabrous, prettily spotted surfaces, in which red, black and yellow are the prevailing colours, no less than the popular term of "Lady-Birds," by which in England* they are universally recognised, being so connected with our earliest associations as to render comment upon them super-

* Speaking of the *Coccinellæ*, Mr. Westwood remarks, "it is curious that they have received nearly similar names of familiarity in other countries; thus in France they are called *bêtes de la Vierge, vaches à Dieu*, &c." This is equally the case in Madeira, where the *C. 7-punctata* is styled *Joaninha*.

fluous. The prodigious numbers in which some of the species at times make their appearance, in northern and temperate latitudes, especially during seasons when *Aphides*, on which they subsist, are unusually abundant, must further tend to familiarise them to the most superficial observer.

§ I. *Corpus hemisphærico-ovatum minus convexum; unguiculis ad apicem bifidis.* (Adonia, *Mulsant.*)

352. Coccinella mutabilis.

C. nigra, capitis maculis duabus, et prothoracis lateribus, margine antico (postice in medio vix producto) punctisque duobus parvis, plus minusve flavo-albidis, elytris rubris, pustulis sex in singulo positis unâque basali communi (plus minusve confluentibus) nigris ornatis, tibiis tarsisque anticis ferrugineis.

Long. corp. lin. 2–2½.

Coccinella mutabilis, Scriba, *Journ.* 183. 141 (1790).
———— *læta*, Fab. *Ent. Syst.* v. *Suppl.* 78 (1798).
———— *mutabilis*, Gyll. *Ins. Suec.* iv. 210 (1827).
Adonia mutabilis, Mulsant, *Sécuripalp. de France*, 39 (1846).

Habitat insulas Maderenses, ad vias vel in floribus ubique vulgaris, ab orâ maritimâ usque ad cacumina montium ascendens.

C. black. *Head* with an elongated dash at the inner margin of each eye (sometimes united, so as to cause the whole of the forehead to be pale), and the *prothorax* with the sides and the front margin (the latter of which is more or less produced backwards in the centre), and two minute spots on either side of its disk (occasionally connected with the anterior margin, thus causing it to appear trifurcate), yellowish-white. *Elytra* bright red; with six spots (more or less developed, and sometimes a little confluent) on each, and a central one, common to both, at the scutellum (which has usually a whitish cloud in front of it), black. The *front tibiæ* and *tarsi*, and *portions* of the *others*, ferruginous or rufescent.

A very abundant European insect, and one which may be known from the rest of the *Coccinellæ* here described by its more flattened, ovate form, apically bifid claws, and by the fourteen black spots of its bright red elytra. The maculations and paler patches are, some of them, occasionally confluent; nevertheless the remaining three of the above-mentioned characters will always suffice to distinguish the *C. mutabilis* from its allies. It is by far the most common of the genus in these islands, occurring throughout the entire Madeiran group and at all altitudes. In Porto Santo I have taken it in profusion, from out of flowers, during the early spring,—especially in the calcareous districts of a low elevation: and, whilst encamped on the Pico Ruivo in August of 1850, I captured it on the extreme summit of the mountain (6100 feet above the sea). In our own country it is principally attached to sandy and submaritime spots,—particularly the latter, where, during the summer months, it frequently teems.

§ II. *Corpus plus minusve hemisphæricum convexum ; unguiculis ad basin dente lato acuto armatis.*

353. Coccinella 7-punctata.

C. nigra, capitis maculis duabus, et prothoracis angulis anticis, flavo-albidis, elytris rufis, pustulis tribus in singulo positis unâque basali communi nigris ornatis.

Long. corp. lin. 3–3½.

Coccinella 7-punctata, Linn. *Fna Suec.* 477 (1761).
——— ———, Fab. *Ent. Syst.* i. 274 (1792).
——— ———, Gyll. *Ins. Suec.* iv. 163 (1827).
——— ———, Mulsant, *Sécurip. de France*, 79 (1846).

Habitat in locis graminosis omnium insularum Maderensium, hinc inde non infrequens.

C. black. *Head* with a dash at the inner margin of each eye, and the *prothorax* with the anterior angles, yellowish-white. *Elytra* pale rufous ; with three large well-defined spots on each, and a central (double) one common to both, at the scutellum (which has generally a whitish cloud in front of it), black.

The most universal of all the Lady-Birds with which I am acquainted, occurring in profusion throughout the whole of Europe and the north of Africa, and being found, in fact, in nearly every country of the Old World. Its larger bulk, and the *seven* black spots of its pale-rufous elytra will at once distinguish it from the other species with which we have here to do. It is recorded likewise in the Canary Islands. In Madeira it does not appear to be very abundant, though widely distributed over the group, from the level of the sea-shore to the mountain summits. In Porto Santo and on the Deserta Grande I have observed it in tolerable numbers.

354. Coccinella 14-pustulata.

C. nigra, capitis maculis duabus, prothoracis lateribus margineque antico (postice in medio vix producto), et elytri singuli pustulis septem, flavis ornatis, tibiis tarsisque plus minusve testaceis.

Long. corp. lin. 2.

Coccinella 14-pustulata, Linn. *Fna Suec.* 502 (1761).
——— ———, Fab. *Ent. Syst.* i. 290 (1792).
——— ———, Gyll. *Ins. Suec.* iv. 156 (1827).
——— ———, Mulsant, *Sécurip. de France*, 93 (1846).

Habitat Maderam, rarissima : exemplar unicum a Dom. Heinecken olim captum amicissime communicavit Rev^dus^ Dom. Lowe.

C. black. *Head* with a dash at the inner margin of each eye, the *prothorax* with the sides and the front margin (the latter of which is slightly produced backwards in the centre, and also a good deal enlarged about the anterior angles), and the *elytra* with seven large well-defined rounded patches on each, yellow. *Anterior tibiæ* and *tarsi*, and *portions* of the four hinder ones, testaceous.

Readily distinguished from the other *Coccinellæ* with which we are here concerned by its black surface, and by the seven large, well-defined, rounded, *yellow* spots on each of its elytra,—which moreover have *not* a common, central one in front of the scutellum. Although an abundant insect throughout Europe, it is apparently scarce in Madeira, the only specimen which I have seen being a very old one from the collection of the late Dr. Heinecken, and communicated to me by the Rev. R. T. Lowe. It seems to differ in no respect from the ordinary type.

355. Coccinella testudinea.

C. nigra, capitis maculis duabus, prothoracis lateribus margineque antico (postice longissime trifurcato), et elytri singuli plagis quinque magnis irregularibus, pallido-flavis ornatis, pedibus testaceis.

Var. β. maculis plagisque omnino majoribus, plus minusve confluentibus.

Long. corp. lin. $2\frac{1}{3}$.

Coccinella testudinea, Heinecken, *in litt.*

Habitat Maderam, et borealem et australem, præsertim in hortis super folia *Hibiscorum*, æstate non infrequens.

C. black, and more shining than any of the other species. *Head* with a large dash at the inner margin of each eye, the *prothorax* with the sides and the front margin (the latter of which is produced backwards in the centre into an exceedingly elongated bar, reaching about two-thirds of the way to the scutellum, and also on either side into a shorter and broader lobe,—the three together causing the pale margin to be strongly trifurcate), and the *elytra* with five large irregular elongated patches on each (arranged longitudinally, and the marginal ones generally more or less confluent), very pale yellow. *Antennæ* and *legs* testaceous.

Var. β. with the yellow spots and patches altogether very much developed and confluent;—those between the eyes being united, causing the *whole forehead* to be pale; the two outer lobes of the *front prothoracic margin* dilated, so as to join the pale lateral margin of the hinder angles (enclosing merely a small, rounded, black spot); the central bar hastate (being transversely dilated behind and but just separated from a minute *transverse pale patch* on the hinder margin, opposite the scutellum); and both the dorsal and lateral pair of the *elytral blotches* being greatly confluent, leaving only the suture, a small rounded spot on the centre (which marks the separation of the dorsal patches), two larger blotches towards the margin (which mark, in like manner, the separation of the lateral ones), and an irregular longitudinal line down the outer disk, not quite reaching to the apex, black.

A well-defined *Coccinella*, somewhat resembling, at first sight, the common *C. conglomerata* of more northern latitudes, though abundantly distinct from it *specifically*,—not only in its superior bulk and much more oval form, but likewise in its entirely testaceous legs and in the number, positions and development of its patches. It may be known from the other Madeiran species by the almost *equal* portions of yellow and black with which its upper surface is maculated, by the

pale anterior margin of its prothorax being very broad and deeply trifurcate, and by the extremely irregular, longitudinal, more or less confluent and greatly enlarged blotches of its elytra. It appears to be somewhat scarce, or at any rate local, and occurs during the summer months (principally in gardens), both in the north and south of the island. I have taken it near Funchal in June, and at Santa Anna and São Vincente in July,—especially on the leaves of a gigantic *Hibiscus* (in company with the *Scymnus Durantæ*), to which it seems to be particularly partial. I have retained the name which was proposed for it by the late Dr. Heinecken, whose specimens (communicated by the Rev. R. T. Lowe, with the original label still attached to them) I possess.

356. Coccinella Genistæ, *Woll.* (Tab. X. fig. 5.)

C. nigra fortius punctata, capitis maculis duabus, et prothoracis lateribus margineque antico (postice in medio integro, sed utrinque longissime et oblique producto), diluto-flavis, elytris diluto-flavis, suturâ, maculâ sub-basali communi et lineis duabus longitudinalibus in singulo positis nigris ornatis, tarsorum basi fusco-ferrugineâ.

Long. corp. lin. $1\frac{2}{3}$-$1\frac{3}{4}$.

Habitat in montibus Maderæ, rarissima: in campo excelso "Paul da Serra" dicto pauca specimina supra plantas *Genistæ scopariæ* ibidem crescentes d. 3 Jul. 1850 inveni, necnon ad Cruzinhas atque prope cacumen montis Ruivensis (6000′ s. m.) hanc Coccinellam æstate mediâ observavi.

C. small, black, and rather more distinctly punctulated than any of the other species. *Head* with a triangular dash at the inner margin of each eye, and the *prothorax* with the sides and the front margin (the latter of which is perfectly entire in the middle, having no tendency to be backwardly produced, but is elongated on either side into an oblique narrow bar,—the two approximating behind the centre of the disk) pale diluted-yellow. *Elytra*, likewise, of a pale diluted-yellow, the suture, a small patch, common to both, behind the scutellum, and two longitudinal lines on each (of which the inner one is abbreviated, especially in front), being black. *Antennæ* (except their basal joint, which is black) pale ferruginous. *Legs* slender and black,—the *tarsi at base* being dull brownish-ferruginous.

This elegant little species, which is apparently the most truly indigenous, and constant in colouring, of all the Madeiran *Coccinellæ*, may be at once recognised from the remainder by its smaller size and slenderer legs, by its more distinctly punctulated surface, and by the peculiarity of its markings,—the form of which will be best understood by a reference to the Plate. It is exceedingly rare, and confined to lofty altitudes,—where it occurs, solely (so far as I have hitherto observed), on the *Genista scoparia*, or common Broom, which clothes the uplands in many of the elevated districts of the island. I first detected it on the Paul da Serra, July the 3rd, 1850: and I subsequently met with it at the Cruzinhas; as also (during August) on the Encumiado exactly opposite to the Pico Ruivo (on the descent from the latter towards Santa Anna),—about 6000 feet above the sea.

Genus 154. SCYMNUS. (Tab. X. fig. 2 et 3.)

Kugelann, *in Schneid. Mag.* 515 (1794).

Corpus parvum, fere ut in Coccinellâ, sed minus et pilosum, *prothorax* et *elytra* basi latitudine æquales. *Antennæ* (X. 3 *a*) brevissimæ clavatæ, articulis primo et secundo robustis arcte connatis, ad suturam (ægre observandam) latitudine æqualibus (illo longiore subflexuoso), tertio ad septimum gracilibus latitudine vix crescentibus (tertio elongato, quarto ad septimum brevibus longitudine æqualibus), reliquis clavam magnam elongatam leviter abruptam quadri-articulatam efficientibus (ultimo paulo angustiore, brevi, ad apicem sub-oblique truncato). *Labrum* (X. 3 *b*), *mandibulæ* (X. 3 *c*), *maxillæ* (X. 3 *d*), *mentum* (X. 3 *e*), *ligula* et *pedes* (X. 3 *f*) fere ut in Coccinellâ. *Palpi maxillares* clavati, articulo primo parvo, secundo et tertio majoribus crassioribus, ultimo magno subsecuriformi: *labiales* filiformes, articulo primo parvo, secundo et ultimo subæqualibus (hoc subovato apice leviter acuminato).

Scymnus recedes from *Coccinella* in the smaller size and somewhat more hemispherical form of the insects which compose it (the prothorax being generally a little broader behind than is the case in that group), and by their more or less *pubescent* surfaces. In obscurer details also it offers certain distinctive modifications,—especially in the structure of its greatly abbreviated antennæ, in which the first two articulations are so closely connected together, and are of such precisely similar width at their point of junction, that they have all the appearance of a single joint; nor indeed is their line of separation easily perceived without the aid of a powerful glass. The third moreover (which in *Coccinella* is equal to the following one) is much longer than any of the succeeding (subequal) four; and the club is comparatively large and abrupt, with its terminal joint narrower, and less suddenly truncated at the apex. The antennæ are stated by Mulsant to be composed of ten articulations only, but in the two Madeiran species which I have dissected (namely the *S. Durantæ* and *Limnichoides*) there are most certainly eleven. As regards its oral organs, *Scymnus* is moulded on much the same type as *Coccinella*; nevertheless the ultimate joint both of its maxillary and labial palpi is slightly different,—the former not being quite so much dilated as in that genus, and the latter rather more so (since it is less cylindrical, and not quite so narrow). The *Scymni* are not, usually, so brightly coloured as the *Coccinellæ*, many of them being almost, or even entirely, black. Some however are prettily marked with red or yellow patches and stripes,—as is proved by four out of the six representatives described below.

§ I. *Corpus fere hemisphæricum; alis amplis.* (Habitant super foliis plantarum, præsertim in cultis.)

357. Scymnus Durantæ, *Woll.*

S. niger, elytro singulo maculis duabus plus minusve distinctis (priore magnâ obliquâ) rufescentibus ornato, capite, antennis, tibiis tarsisque rufo-ferrugineis.

Mas, prothorace dilutiore plus minusve, pedibusque fere omnino, rufo-ferrugineis.

Fœm., prothorace nigro, marginem versus anticum solum rufo-ferrugineo, femorum basi nigrescente.

Var. β. maculis (in utroque sexu) confluentibus et per elytra diffusis, suturâ (præsertim ad scutellum) solâ paulo obscuriore.

Long. corp. lin. 1–1¼.

Habitat in hortis Maderæ, præsertim super folia *Durantæ Plumieri*, Linn., in boreali prædominans: etiam ad Feijãa de Córte, Augusto ineunte A.D. 1850, pauca specimina inveni.

S. black, and exceedingly pubescent. *Elytra* with two large, more or less distinct patches on each (the anterior one being the largest, and oblique,—but neither of them extending to the outer margin) rufous, or rufescent. *Head, antennæ, tibiæ* and *tarsi* more or less brightly rufo-ferruginous.

Male, with the *prothorax*, and the *legs*, almost entirely pale rufo-ferruginous.

Female, with the *prothorax* black, except the anterior margin, and sometimes the extreme lateral edges,—which are obscure rufo-ferruginous: and with the *femora*, except at their apex, black.

Var. β. with the patches of the *elytra* (in both sexes) enlarged and suffused,—covering more or less of the entire surface, except the *suture*, which (especially about the region of the scutellum) is obscurer.

A large and distinct *Scymnus*, slightly resembling the European *S. quadrilunulatus*, though receding from it in its greater bulk, broader and rounder outline, and more pubescent surface, in its differently-formed patches, universally *pale* head, and in the more or less ferruginous prothorax of its males. From all the varieties of the *S. marginalis* it may be at once known by its superior size and somewhat denser pubescence, by the peculiar coloration of its prothorax, and by the *four* large blotches of its elytra. It is not an uncommon insect, during the summer months, especially in the north of the island,—making its appearance about the latter end of June. In the vicinity of Funchal it is rather scarce, nevertheless I have taken it sparingly in vineyards at a short distance above the town. In gardens at São Vincente, however, it is comparatively common; where, at the beginning of July 1850, I observed it in profusion on the foliage of the *Duranta Plumieri* and of a species of *Hibiscus*. Nor indeed is it confined exclusively to the inhabited districts; since, in August of the same year, a few specimens occurred to me even in the remote region of the Feijãa de Córte.

358. Scymnus marginalis.

S. niger, elytro singulo maculâ magnâ subtriangulari (ab angulo humerali fere marginis medio ad basin accedente) rufâ ornato, antennis, ore, tibiis tarsisque testaceis.

Mas, paulo minor, capite, prothoracis lateribus, pedibusque omnino, testaceis.

Fœm., capite prothoraceque nigris, femorum basi nigrescente.

Var. β. maculis (in utroque sexu) per elytra postice diffusis, suturâ maculâque magnâ subtriangulari basali communi solum nigrescentibus.

Long. corp. lin. ⅞–1.

Coccinella marginalis, Rossi, *Mant. Ins.* ii. 87 (1794).
——— *morio*, Fab. *Syst. Eleu.* i. 380 (1801).
——— *marginalis*, Gyll. *Ins. Suec.* iv. 199 (1827).
Scymnus marginalis, Mulsant, *Sécurip. de France*, 244 (1846).

Habitat Maderam australem, in vinetis prope Funchal, æstate vulgaris: in ipsâ urbe interdum abundat, quâ super plantas *Tamni edulis* (anglice "Yam") in horto Ecclesiæ Anglicanæ crescentes mense Augusto A.D. 1850 copiosissime observavi.

S. black, and pubescent. *Elytra* with a large distinct triangular patch on each (the base of which extends from the humeral angle almost to the centre of the lateral margin, and the apex to about two-thirds of the distance to the suture) bright rufous. *Antennæ*, *upper lip*, *tibiæ* and *tarsi* testaceous.

Male, rather smaller than the female; with the *head*, the *sides of the prothorax* (especially about the anterior angles), and the *entire legs*, rufo-testaceous.

Female, with the *head* and *prothorax* entirely black (except a very narrow and minute portion, sometimes scarcely perceptible, of *the anterior margin* of the *latter* immediately within either angle, which is testaceous): and with the *femora*, except at their apex, black.

Var. β. with the rufous patch of either elytron (in both sexes) suffused behind, so as to cover almost the entire surface to the apex,—the *suture* and a large *triangular portion* about the *scutellum* being alone dark. (The head and prothorax with the same sexual distinctions as in the normal state.)

An exceedingly variable species; though easily recognised from the last one, in all its phases, by its smaller size, somewhat less densely pubescent surface, and by its different prothorax,—which appears to retain its peculiarity of colouring for each sex *constant*, even whilst the patches of its elytra become suffused. In its normal state, the large and distinct triangular red spot which arises immediately below either shoulder will at once suffice to identify it: and even in the paler specimens there is never any indication of the *four* blotches which are amongst the most essential characteristics of the *S. Durantæ*. Whilst that insect appears to be most abundant in the north of the island, the *S. marginalis* is more particularly attached to the south,—where it occurs in cultivated places in and around Funchal, at times in considerable profusion. Like the *S. Durantæ*, it attains its maximum during the summer months; nevertheless I have taken it sparingly, in the vineyard of the Quinta d'Ambrosio, throughout the winter and spring. As the season however advances it grows more plentiful; until, about the beginning of August, in certain positions it may be literally said to teem. In the garden of the English Church, in the Beco das Arãnhas, I have observed it to be much attached to the leaves of the *Tamnus edulis* (more commonly known, in Madeira, as the "Yam"). It is found in nearly all parts of central and southern Europe; and is recorded by M. Lucas in Algeria.

359. Scymnus arcuatus.

S. brunneo-niger, prothorace vel omnino vel ad latera sola pallido, elytris pallido-biarcuatis (arcubus interdum confluentibus), antennis pedibusque pallidis.

Var. α. fere niger, prothorace ad latera sola pallido, elytris distincte biarcuatis.

Var. β. brunneo-niger, prothorace pallido in disco obsolete bisignato, elytris distincte biarcuatis, inter arcus plus minusve rufescente-castaneis et basi in medio nigrescentibus.

Var. γ. brunneo-niger, prothorace in disco nigrescente (i. e. signis confluentibus), elytris latissime pallido-arcuatis (i. e. arcubus confluentibus) et basi in medio nigris.

Var. δ. ut *var.* γ, sed prothorace in disco bisignato.

Var. ε. supra omnino pallidus, prothoracis signis elytrorumque arcubus vix observandis.

Long. corp. lin. ¾.

Coccinella arcuata, Rossi, *Mant. Ins.* ii. 88 (1794).
——— ———, Schön. *Syn. Ins.* i. 2. 207 (1808).
Scymnus arcuatus, Mulsant, *Sécurip. de France*, 245 (1846).

Habitat in hortis circa Funchal, a vere novo usque ad autumnum vulgaris: in vineto Loweano ad Levada super folia *Durantæ Plumieri*, necnon in horto Ecclesiæ Anglicanæ (etiam in ipsâ urbe), supra *Musam paradisiacam* copiosissime observavi.

S. more or less brownish-black, and pubescent. *Prothorax* either entirely pale, or else more or less dark upon the disk. *Elytra* with two pale concentric arcs on the hinder disk, common to both (their concavities being turned towards the scutellum); the space between the scutellum and the inner of these curves always darker than the rest of the surface, and in most of the varieties, except the extremely pale one (*var.* ε), black, and generally bipartite behind; the arcs themselves very often confluent, in which case they form a single pale arch, exceedingly broad,—in other instances the space between them is more or less chestnut, or rufescent, varying greatly in shade and intensity: the *extreme margin* of the elytra towards the apex, with the *antennæ* and *legs*, always pale.

Var. α. nearly black, with the *edges* of the *prothorax* alone pale; and the arches of the *elytra* exceedingly distinct.

Var. β. brownish-, or chestnut-black; the *prothorax* pale, with only two small (and very obscure) spots on the disk darker. *Elytra* with the arches distinct, but the space between them more diluted, or rufescent, than in *var.* α. (Apparently the typical Madeiran state.)

Var. γ. brownish-, or chestnut-black. *Prothorax* with a rather large and dark patch upon the disk (the two spots being confluent); and the *elytra* with the pale arches also confluent, forming a single postmedial curve,—exceedingly pale and broad.

Var. δ. like *var.* γ, but with the dark patch on the disk of the *prothorax* again resolved into two obscure spots (as in *var.* β).

Var. ε. altogether pallid above,—the two prothoracic spots, and the arches of the *elytra*, being almost evanescent; the *former* nevertheless are just perceptibly darker, and the *latter* very faintly paler, than the surrounding surface.

Also a very inconstant insect, yet at the same time receding so completely from the other *Scymni* here described, that there is but little fear of confounding it with any of them. The two pale concentric curves indeed with which its elytra are adorned (and which even when suffused into a single broad one do not lose their arcuated shape), in conjunction with the almost invariably darker region enclosed by the inner of these loops at the base of the suture, and, in every instance, the

extremely pallid *edges* of its prothorax, are of themselves sufficient, *primâ facie*, to identify it. It is most abundant in vineyards and cultivated grounds near Funchal, during the spring and summer months,—occurring on divers plants, though especially the *Duranta Plumieri* and the different varieties of *Hibiscus*. I have also captured it, in profusion, at the Quinta d'Ambrosio, on the foliage of the *Ficus stipulata*, during the winter; and in Funchal itself in still greater numbers (on the gigantic leaves of the Banana, in the garden of the English Church), in the Beco das Arãnhas,—in August. It is a species of Mediterranean latitudes, being recorded in the south of France, Tuscany and Sicily, but becoming rare towards the north; nevertheless it is stated to have been found even in the vicinity of Paris.

360. Scymnus flavopictus, *Woll.* (Tab. X. fig. 2.)

S. piceo-niger, capite prothoraceque (præsertim hoc) rufescentibus, elytris flavo-pictis, antennis pedibusque testaceis.

Long. corp. lin. $\frac{2}{3}$–$\frac{3}{4}$.

Habitat Maderam, rarior: in hortis prope urbem Funchalensem tempore vernali, necnon ad Lombo dos Pecegueiros d. 22 Jul. A.D. 1850, parce cepi: in ins. Desertæ Borealis tamen abundat, quâ d. 5 Jun. ejusdem anni plurima specimina apricitate volitantia deprehensi.

S. piceous-black, and densely pubescent. *Head* and *prothorax* more or less rufescent, the *former* generally the darker of the two. *Elytra* very beautifully ornamented with broken, yellow fasciæ, or patches,—the peculiar form of which will be best understood by a reference to the Plate. *Antennæ* and *legs* testaceous; the *latter* with their *femora* rather dusky.

A very distinct and elegant little *Scymnus*, and, like the *S. Limnichoides*, one of the most truly indigenous members of the Madeiran Coleoptera,—occurring not only in gardens near Funchal (where it is extremely rare), but also in remote spots within the sylvan districts; and even on the Flat Dezerta, where it is comparatively abundant. In the immediate vicinity of Funchal I have taken it sparingly, at the Quinta da Silva, during the spring; and, in the north of the island, in the almost inaccessible region of the Lombo dos Pecegueiros,—where, on the 22nd of July 1850, I brushed it from out of the thick vegetation towards the lower edge of the Ribeiro de João Delgada. It would seem however to attain its maximum on the Ilheo Chão, on which extraordinary rock I captured it in considerable numbers, during my encampment there with the Rev. R. T. Lowe, early in June of the same year. It appears, in still weather, to be peculiarly active on the wing,—under which circumstances most of my Dezertan specimens were obtained. The almost magical effect of a sudden calm at sea on insects of this description has been already alluded to*.

* *Vide* p. 270.

361. Scymnus minimus.

S. ater, profunde punctulatus, ore, antennis pedibusque (femorum posteriorum apice nigrescente excepto) testaceis.

Long. corp. lin. $\frac{2}{3}$–vix $\frac{3}{4}$.

Coccinella minima, Rossi, *Mant. Ins.* ii. 89 (1794).
——— ———, Gyll. *Ins. Suec.* iv. 195 (1827).
Scymnus ater, Dej. *Cat.* (3ième édit.) 462 (1837).
——— *minimus*, Mulsant, *Sécurip. de France*, 260 (1846).

Habitat in hortis vinetisque Maderæ, super folia plantarum, vulgaris: mense Julio ad Lombo dos Pecegueiros, necnon sero autumno in graminosis humidiusculis ad Curral das Romeiras, observavi.

S. minute, hemispherical, deep black, pubescent and shining, more coarsely and distinctly punctulated than the other species. *Mouth, antennæ, tibiæ* and *tarsi* testaceous. *Femora* more or less obscured towards their apex, especially the *hinder* ones,—the *anterior pair* being nearly as pale as the tibiæ and tarsi.

The *S. minimus* and *Limnichoides* are apparently the only Madeiran *Scymni* which are entirely black; nevertheless, receding as they do, both in structure and contour, from each other, it is scarcely possible to mistake them *inter se*. The former may be at once known by its minute size and hemispherical outline, by its comparatively shining and evidently punctulated surface, by its intensely dark hue, and by the slightly obscured apices of its posterior femora. It is an extremely abundant insect near Funchal, in vineyards and other cultivated grounds. In the Rev. R. T. Lowe's garden at the Levada I have taken it in the greatest profusion during the spring,—especially on the foliage of the *Duranta Plumieri*, to which, with several of the other species, it is remarkably attached. It is not however peculiar to the inhabited districts, since, like the *S. Durantæ* and *flavopictus*, I have captured it in remote positions far removed from any traces of civilization. In the region of the Lombo dos Pecegueiros it was not uncommon in July 1850; and I have brushed it from off the herbage which clothes the mountain-slopes of the Curral das Romeiras, during the autumnal months. It occurs throughout the greater portion of Europe, from Sweden to the Mediterranean limits.

§ II. *Corpus ovatum; alis obsoletis.* (Habitat sub lapidibus in aperto.)

362. Scymnus Limnichoides, *Woll.* (Tab. X. fig. 3.)

S. niger, prothorace interdum (præsertim ad latera) picescente, antennis pedibusque pallido-ferrugineis.

Long. corp. lin. $\frac{3}{4}$.

Habitat in montosis graminosis Portûs Sancti, sub lapidibus Aprili mense A.D. 1848 a meipso repertus.

S. ovate, apterous, black (rarely with a piceous tinge), less shining than the *S. minimus*, very finely pubescent, and most minutely, closely and delicately punctulated. *Prothorax* sometimes picescent, especially towards the lateral and anterior edges (the former of which are in nearly *all* instances a little diluted in colouring). *Antennæ* and *legs* pale ferruginous.

The present insect, although not of a very showy description, is one of the most indigenous members of our fauna; whilst in its apterous and ovate body it is the most anomalous of the *Scymni* here described. In its mode of life moreover it recedes from the rest of the genus with which we have to do,—since it occurs (not on the foliage of plants and trees, but) in exposed grassy spots beneath stones. In its general contour and texture, it is at first sight strongly suggestive of the *Limnichi*,—a deception which is even further carried out by the singularity of its habits, in which it approximates that group very closely. Like most species in which the powers of dissemination are unusually limited, it is exceedingly local, being found solely, so far as I am aware, on the mountain-slopes of Porto Santo; and even there I have hitherto only detected it on the single ridge which connects the Pico do Castello with the Pico de Facho,—where, in April of 1848, I met with it in considerable numbers. During two subsequent residences in the island I was unable to procure more, and it must therefore be regarded as one of the rarest of the Madeiran Coleoptera.

Genus 155. RHYZOBIUS.

Stephens, *Ill. Brit. Ent.* iv. 396 (1831).

Corpus parvum, ellipticum, convexum, pilosum: *vrothorace* transverso, postice elytrorum vix latitudine: *prosterno, mesosterno elytris*que fere ut in Scymno: *alis* vix amplis. *Antennæ* longiores quam Scymno, clavatæ, articulis primo et secundo (illo præcipue) robustis (hoc breviore cylindrico), tertio ad octavum gracilibus (tertio elongato, quarto ad octavum subæqualibus), reliquis clavam magnam elongatam gracilem efficientibus (nono et decimo ad apicem internum productis, undecimo ad externum truncato). *Instrumenta cibaria* et *pedes* fere ut in Scymno, sed ligula apice leviter emarginata, in parte mediâ tenuissime membranacea, et *pedes* longiores.

Rhyzobius differs from *Scymnus* in its more elliptical outline, longer legs, and in the structure of its antennæ,—which are considerably less abbreviated than those of that group, and have a slender, triarticulate, and internally serrated club, as well as their first and second joints (instead of being of similar breadth and closely connected together) formed almost exactly as in *Coccinella*. The third antennal joint however is elongated, as in the true *Scymni*; but, on account of the clava being merely *tri*articulate, the following *five* (instead of four) are in the present genus subequal. Two species only (namely the common *R. litura*, and the *discimacula* of Mulsant) have been hitherto recorded, the habits of which (like those of the *Corylophidæ*) display a closer attachment to the smaller than to the larger plants,—particularly to Monocotyledonous ones, about the roots and stems of which they are principally to be found.

363. Rhyzobius litura.

R. testaceus, abdomine nigro, elytris vel ultra medium nigro-fasciatis, vel omnino immaculatis.

Var. β. rufo-testaceus, elytris obscurioribus.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Nitidula litura, Fab. *Mant. Ins.* i. 52 (1787).
Rhyzobius litura, Steph. *Ill. Brit. Ent.* iv. 396 (1831).
Nundina litura, Dej. *Cat.* (3ième édit.) 462 (1837).
Rhizobius litura, Mulsant, *Sécurip. de France*, 262 (1846).

Habitat in insulis Maderensibus, ad graminum radices vel sub lapidibus, ubique vulgaris: *var.* β. ad Desertam Grandem præcipue pertinet.

R. elliptical, testaceous, slightly shining, and pubescent. *Head* and *prothorax* immaculate. *Elytra* with an arcuated interrupted fascia, common to both, a little beyond the middle (but which however is sometimes altogether obsolete), black. *Abdomen* blackish. *Antennæ* and *legs* scarcely paler than the rest of the surface.

Var. β. rufo-testaceous; with the elytra a good deal clouded, or obscured.

A common insect, at the roots of grass and beneath stones, in nearly all the islands of the group, especially at intermediate altitudes. It is, nevertheless, found occasionally even on the level of the shore,—under which circumstances it occurs in Porto Santo, amongst *Arundo donax*, on the loose sand behind the sea-beach. The specimens (*var.* β.) from the Dezerta Grande are rather darker in colouring than the Madeiran ones. It is abundant throughout the whole of Europe, the north of Africa, and in the Canaries. The Madeiran state differs in no respect from the ordinary one, except that it is perhaps a little more pubescent.

Fam. 43. CORYLOPHIDÆ.

Genus 156. CLYPEASTER. (Tab. X. fig. 4.)

(Andersch, *in Dej. Cat.* a.d. 1821) Redtenbacher, *Fna Austr.* 572 (1849).

Corpus minutum, ovale, pubescens, subdepressum: *prothorace* amplo semi-ovato, ad basin elytrorum latitudine, angulis posticis rectis, ad latera et (præsertim) antice valde explanato-producto (caput omnino tegente): *elytris* apice truncatis (angulis suturalibus subrotundatis): *alis* amplissimis ciliatis. *Antennæ* (X. 4 *a*) prothoracis longitudine, valde clavatæ, articulis primo et secundo (illo præcipue) elongatis robustis, inde ad sextum minutis longitudine subæqualibus latitudine leviter crescentibus, septimo et octavo latioribus transversis, reliquis clavam magnam subfissilem tri-articulatam efficientibus (nono magno semigloboso, decimo brevi transverso, undecimo huic vix longiore sed paulo angustiore et apice valde truncato). *Labrum* (X. 4 *b*) magnum coriaceum transversum, antice leviter bilobum. *Mandibulæ* (X. 4 *c*) validæ latæ, apice dentibus tribus vel quatuor armatæ, intus membranâ angustâ auctæ. *Maxillæ* (X. 4 *d*) *lobo singulo* recto angusto (ad apicem tri- vel quadri-uncinato) instructæ (*interno* obsoleto). *Palpi* breves crassi; *maxillares* fusiformes, articulo primo parvo, secundo et tertio majoribus incrassatis, ultimo paulo longiore

conico; *labiales* (X. 4 *e*) brevissimi, articulo primo parvo, secundo et ultimo majoribus incrassatis (illo subclavato, hoc subtransverso-globoso). *Ligula* vix membranacea, ampla, subquadrata, apice leviter dilatato subcorneo integro. *Pedes* (X. 4 *f*) longiusculi subcontractiles graciles: *tibiis* intus calcari apicali minuto armatis: *tarsis* (vix pseudotrimeris, nam articulus secundus haud bilobus est,—tantum, una cum articulo primo, subtus productus et pilosus) 4-articulatis, articulo primo longiusculo, secundo paulo breviore, tertio parvo (nec minutissimo), ultimo longissimo subclavato.

The little assemblage of insects usually known as the *Clypeastres* (but which I would rather designate the *Corylophidæ*) is one of the most interesting within the whole range of the Coleoptera; and whilst, on the one hand, it is manifestly akin to the *Coccinellæ*, it nevertheless makes an almost equal approach, on the other, towards the modifications attendant on *Leiodes*,—the passage to them being very gradually effected by means of such genera as *Glœosoma* and *Orthoperus*, in which (although their tetramerous feet, and the majority of their details, show them to be more immediately related to the present family) the sub-exserted head, and the glabrous convexer bodies, in conjunction with the minuteness of the second articulation of the clava*, and the less produced edges of the pronotum, are abundantly sufficient to betray an Anisotomideous tendency. The *simple* tarsi, moreover, and the great instability in the number of the antennal joints, of the species which compose it (*Clypeaster* alone possessing eleven, whilst *Arthrolips*, *Sericoderus* and *Glœosoma* have ten, and *Corylophus* and *Orthoperus* merely nine), are even further suggestive of a movement in that direction,—a like variation, as regards the latter, constituting one of the most prominent features of those groups. Although thus however displaying, to a certain extent, points of similarity both with the *Pseudotrimera* and the *Anisotomidæ*, it exhibits at the same time many structural peculiarities of its own (amongst which the narrow apically-denticulated outer, and the obsolete inner, lobes of its maxillæ, its thickened fusiform palpi, and its subcrenulated mandibles are perhaps the most important); whilst even *externally* the members would seem to be no less clearly defined,—since their diminutive bulk and eminently cursorial habits (in which they recede from the *Coccinellæ* entirely), in connection with their enormously developed wings and the expanded margin of their prothorax, combine in giving them a very remarkable character (in some respects even approximating the *Trichopterygia*, with which indeed *Sericoderus* especially has much in common).

Touching the genera *inter se*, there is but little fear of confounding their distinctions,—each of them being particularly well marked. Apart from obscurer minutiæ (which will be best gathered by a reference to the Plate), *Clypeaster* may be readily known by its more parallel, or oblong, outline, less abbreviated legs,

* This reduction in size of the second joint of the antennal club (or the fourth one from the extremity), which constitutes so marked a feature in the *Anisotomidæ*, and which, as above stated, is strongly expressed in *Glœosoma* and *Orthoperus*, is also very distinctly indicated in *Corylophus*,—a circumstance which is worthy of remark, since that genus may be said to be the most *typical* one of the present family.

and by the robustness of its *eleven-articulated* antennæ,—which, it will be perceived, not only differ in the number, but likewise in the *proportions* of their joints (of which, those from the third to the eighth are of nearly the same length but gradually increase in breadth, whilst the terminal three make up an extremely large, abrupt and internally subfissile club). The penultimate articulation, also, of its feet, although small, is not *so* minute as is the case either in *Sericoderus* or *Arthrolips*.

364. Clypeaster pusillus. (Tab. X. fig. 4.)

C. ovalis subdepressus nigro-fuscus pubescens et punctulatus, prothoracis limbo antico pallido subpellucido, antennis ferrugineis, pedibus testaceis.

Long. corp. lin. $\frac{2}{3}$.

Cossyphus pusillus, Gyll. *Ins. Suec.* ii. 576 (1810).
Clypeaster pusillus, Germ. *Fna Col. Eur.* fasc. viii. 10 (1822).
——— ———, Redt. *Fna Austr.* 572 (1849).

Habitat in graminosis Maderæ (præsertim borealis), æstate non infrequens: in castanetis Sanctæ Annæ et Sancti Vincentii mense Junio abundat; necnon in ins. Desertæ Grandis Maio exeunte A.D. 1850 exemplar unicum inveni.

C. oval, rather depressed above, but convex beneath, dusky- or blackish-brown, very slightly shining, pubescent, and rather coarsely punctulated. *Prothorax* large and semi-ovate (its sides being almost parallel behind, and its posterior angles nearly right angles); testaceous in front, where it is also somewhat transparent. *Elytra* with their extreme apex usually a little diluted in colouring (occasionally almost testaceous). *Antennæ* ferruginous, with their apical region generally darker. *Legs* dull testaceous.

The larger size and more oval or parallel outline of the present insect, in conjunction with its browner hue, its somewhat duller and more depressed surface, and its coarser punctuation, would be at once sufficient, even in the absence of structural characters, to distinguish it from *Arthrolips*. It is not uncommon in Madeira, though apparently more abundant towards the northern than the southern coast,—occurring in grassy spots, beneath trees, during the spring and summer months. In June and July of 1850 I took it in profusion in the chestnut-woods of Santa Anna and São Vincente, especially the former; as also under similar circumstances, though more sparingly, at the Lombo dos Pecegueiros: and I likewise captured a specimen on the Dezerta Grande (in company with a host of the *Arthrolips piceum*), during my encampment on that island with the Rev. R. T. Lowe, late in May of the same year. It is found throughout the greater portion of Europe, but has not yet been observed in our own country*. The

* Since the above was written, a single specimen has been detected in England,—captured by myself at Spridlington near Lincoln (a locality in which, singularly enough, another Madeiran insect, of the greatest rarity in the British Isles, though existing on the continent, namely the *Habrocerus capillaricornis*, has been recently obtained).

Madeiran specimens are more deeply punctured than their representatives from higher latitudes,—with which in all other respects however they exactly coincide.

Genus 157. ARTHROLIPS, *Woll.* (Tab. X. fig. 6.)

Corpus minutissimum, ovatum antice subacuminatum, pubescens, subconvexum: *prothorace* minore (vix *semi*-ovato), ad basin elytrorum latitudine, angulis posticis subrectis, ad latera et (præsertim) antice valde subrecurvo-producto (caput omnino tegente): *elytris* apice truncatis (angulis suturalibus rotundatis): *alis* (X. 6 *g*) amplissimis ciliatis. *Antennæ* (X. 6 *a*) prothorace breviores, 10-articulatæ, clavatæ, articulis primo et secundo (illo præcipue) elongatis robustis, inde ad sextum gracilibus latitudine æqualibus (tertio elongato, reliquis brevissimis transversis), septimo paulo majore, reliquis clavam magnam elongatam laxam perfoliatam triarticulatam efficientibus (octavo subovato apice truncato, nono vix breviore transverso, decimo paulo longiore ovali). *Instrumenta cibaria* fere ut in genere præcedenti, sed *labrum* (X. 6 *b*) antice integrum; *mandibulæ* (X. 6 *c*) et *maxillæ* (X. 6 *d*) ad apicem fortius denticulatæ (*illis* intus profunde sinuatis et membranâ ampliore instructis); *palpi labiales* articulo secundo majore crassiore; et *ligula* ampla, ad apicem recte truncata et minus robusta. *Pedes* (X. 6 *f*) paulo breviores: *tibiis* apice (nisi fallor) ecalcaratis: *tarsis* articulo tertio minutiore, quarto fortius clavato et *unguiculis* majoribus munito.

Ab ἄρθρον artus, et λείπω relinquo.

The insect for which I have proposed the name of *Arthrolips* is referred by M. Redtenbacher to *Gryphinus* (i. e. *Sericoderus* of Stephens,—the correct title as regards priority); but it appears to me to constitute an exceedingly well-marked genus between it and *Clypeaster*, partaking almost equally of the structural characteristics of them both, though in general affinity approaching the *second* more than the first. It is true that its 10-articulated antennæ might of themselves incline us to associate it with *Sericoderus*; yet it entirely wants the largely-developed prothorax, with the greatly-produced hinder angles, which are there so conspicuous,—whilst in its habits, contour, colouring and texture it approximates so much nearer to *Clypeaster*, that I cannot but believe it to be unnatural to force its union, on account of the reduction of its antennal joints, with the former (from which in so many of its primary features it altogether recedes): and hence, if it must be appended to either, I would rather widen the definitions of the latter, so as to allow of its admission there, than consent to the other alternative. In real fact however it seems to offer discrepancies abundantly sufficient to warrant its isolation from them both,—since the modifications of its antennæ and mouth as much forbid its junction with *Clypeaster* as its outward structure and aspect do with *Sericoderus*.

The trophi of most of the *Corylophidæ* are moulded on nearly the same plan; and indeed, were this not so, their microscopic dimensions would entirely preclude the employment of them for practical purposes,—and hence it becomes doubly necessary that the *external* characters at any rate should be so far apparent as to be at once appreciable for ordinary investigation. Fortunately this is the case

with the diminutive insects of which the present family is composed,—since their general lineaments, in connexion with the great variety displayed both in the number and proportions of their antennal joints, at once afford a series of combinations which may be readily grasped.

Apart from the distinctive peculiarities of its oral organs (which, though trivial, do nevertheless exist,—as a comparison of the respective figures, and a glance at the above diagnosis, will easily demonstrate), *Arthrolips* may be known from *Clypeaster* by its inferior size, *ovate* and more anteriorly acuminated body, and by its shorter antennæ and legs,—the former of which, like those of *Sericoderus**, are 10-articulate, and have the five minute joints between the second and the club of subequal breadth (the first of them however being perceptibly longer, and the last altogether a trifle larger, than the intervening three), and the clava itself loose, elongated and perfoliate: whilst from *Sericoderus* it may be recognised by its totally different configuration,—its prothorax being small, comparatively narrow, and with the posterior angles nearly right angles; whereas the prothorax of that genus is enormously developed (being considerably wider than the elytra), and has its basal angles, as in many of the *Ptiliadæ*, immensely lengthened and acute. In *Arthrolips* and *Clypeaster* moreover the body is somewhat depressed above and rounded beneath, the colour is dark, with the front edge of the pronotum (which is slightly elevated) alone pale, and the elytra (especially of the former) are subobliquely truncated at their extremity (each of them being a little blunted, or dehiscent, at the suture); whereas *Sericoderus* is convex on the upper side and flattened on the under, its surface is sericeous and of a uniformly pallid hue, the anterior margin of its pronotum has no tendency to be recurved, and its elytra are terminated *straightly* (the inner angles being right angles).

365. Arthrolips piceum. (Tab. X. fig. 6.)

A. ovatum subconvexum nigrum pubescens et subtilissime punctulatum, prothoracis limbo antico pallido subpellucido, antennis pedibusque diluto-testaceis.

Long. corp. lin. ½.

Clypeaster piceus, (Kunze) Comolli, *De Col. Nov.* 50 (1837).
——— *obscurus*, Dej. *Cat.* (3ième édit.) 455 (1837).
——— *piceus*, Lucas, *Col. de l'Algérie*, 551 (1849).
Gryphinus piceus, Redt. *Fna Austr.* 574 (1849).

Habitat Maderam, rarius, a cl. Dom. Heer ad Praya Formoza prope Funchal mense Februario A.D. 1851 detectum: in Desertâ Grandi tamen abundat, quâ Maio exeunte A.D. 1850 copiosissime collegi.

---

* Although possessing the same number of joints, the antennæ of *Arthrolips* and *Sericoderus* are nevertheless not altogether coincident,—since the third articulation is distinctly longer in the former genus than in the latter; whilst the terminal one has no appearance in *Arthrolips* of the oblique truncation which is so evident in *Sericoderus*.

A. ovate (being slightly rounded at the sides, and rather narrower before than behind), somewhat more convex than the *Clypeaster pusillus*, also much blacker and rather more shining, and most minutely punctulated,—the punctures being scarcely perceptible (especially on the prothorax) except beneath the microscope. *Prothorax* rather smaller than in that insect, being scarcely *semi*-ovate (and therefore with its sides not so parallel behind); testaceous in front, where (as in that species) it has also a tendency to be somewhat transparent. *Elytra* with the punctures rather more perceptible than on the prothorax; and with their extreme apex usually more or less diluted in colouring. *Antennæ* and *legs* diluted-testaceous.

Apart from its *generic* distinctions, which have been fully pointed out, the present insect may be easily recognised from the last by its smaller and more ovate body, somewhat blacker, brighter, and less depressed surface, and by the excessive delicacy of its punctuation,—which is altogether imperceptible except under a powerful glass. It is perhaps a trifle more pubescent and less shining than the more northern type; and its punctures, even though thus minute, are, if anything, a little more evident. It is apparently scarcer throughout Europe generally than the *Clypeaster pusillus*, being almost peculiar to central and southern latitudes. In Madeira proper it would seem to be rare, the only specimen which I have seen having been captured by Professor Heer of Zurich, in February of 1851, at the Praya Formoza near Funchal. On the Dezerta Grande however it abounds,—where, at the end of May 1850, I took it in considerable numbers, on the outer canvass of my tent (running rapidly in the hot sunshine), in company with the *Europs impressicollis*, and other species which have been already noticed. It is recorded by M. Lucas in Algeria.

Genus 158. SERICODERUS.

Stephens, *Ill. Brit. Ent.* ii. 188 (1828).

Corpus minutissimum, obovatum antice obtusum, sericeo-pubescens, convexum: *prothorace* amplissimo subluniformi, ad basin elytris latiore, angulis posticis valde productis acutissimis elytra amplectentibus, ad latera et (præsertim) antice valde decurvo-producto (caput omnino tegente): *elytris* apice truncatis (angulis suturalibus rectis): *alis* amplissimis ciliatis. *Antennæ* prothoracis longitudine, 10-articulatæ, graciles, clavatæ, articulis fere ut in genere præcedenti, sed tertio paulo breviore, et decimo ad apicem externum oblique truncato. *Instrumenta cibaria* et *pedes* fere ut in genere præcedente, sed *tibiæ* apice calcari minutissimo armatæ.

The structural characteristics of *Sericoderus* have been already mentioned,—its short, blunt and anteriorly-dilated outline, convex, sericeous upper surface and pallid hue, in conjunction with the enormously produced hinder angles of its greatly developed prothorax, its straightly terminated elytra (the sutural angles being right angles), and its comparatively slender antennæ (the third joint of which is not perceptibly elongated, whilst the apical one is obliquely lopped off at its outer extremity), constituting the main distinctive features which separate it

from *Arthrolips*. In its general contour and extremely cursorial habits, it is a genus which has much the appearance, at first sight, of an *Acratrichis*, or *Trichopteryx*; nor indeed is this resemblance a mere analogical one, since in its immensely large and ciliated wings, the peculiar formation of its prothorax, and in the straight truncation of its elytra, as well as (along with the rest of the *Corylophidæ*) in its tetramerous, simple feet, I am inclined to believe that it may possess some real affinity (albeit perhaps not a very intimate one) with that group. Like the *Trichopterygia*, moreover, it is especially found in fungi, or else beneath moist and decaying vegetable substances; whereas its immediate allies are more peculiarly attached to grassy spots,—harbouring between the outer envelope and the stems of *Monocotyledonous* plants, particularly those of the *Juncaceæ* and *Gramineæ*.

366. Sericoderus lateralis.

S. obovatus (antice obtusus) convexus rufo-testaceus sericeo-pubescens et fere impunctatus, prothorace lato antice in medio nigrescente, elytris vix obscurioribus, antennis pedibusque pallido-testaceis. Long. corp. lin. $\frac{1}{2}$.

Cossyphus lateralis, (Megerle) Gyll. *Ins. Suec.* iv. 516 (1827).
Sericoderus thoracicus, Steph. *Ill. Brit. Ent.* ii. 188 (1828).
Clypeaster lividus, Dej. *Cat.* (3ième édit.) 455 (1837).
Gryphinus lateralis, Redt. *Fna Austr.* 573 (1849).

Habitat in humidiusculis Maderæ, sub foliis arborum dejectis vel inter lichenes, ab urbe Funchalensi usque ad 4000′ s. m. ascendens.

S. short and obovate (being broad and obtuse in front), more convex than either *Clypeaster* or *Arthrolips*, of a pale (more or less livid) testaceous hue,—the prothorax however being always of a clearer (or more rufescent) colour than the elytra, which are generally moreover a little infuscated; shining, densely clothed with silken pubescence, and almost impunctate. *Prothorax* very large and wide, with its hinder angles much acuminated; and with a rounded blackish cloud in the middle of its anterior margin,—which however is rather increased in intensity perhaps by the semi-transparency of the surface, which allows the head (over which the spot is placed) to be (as in the preceding two genera) just traceable (or, at any rate, its *position*) from above. *Elytra* less shining and more pubescent than the prothorax; and much truncated at their extremity. *Antennæ* and *legs* pale-testaceous.

A tolerably common species in Madeira, from almost the level of the sea-shore to the altitude of about 4000 feet. I have taken it from out of fungi, during the winter and spring months, in the Rev. R. T. Lowe's garden near Funchal; in the chestnut-woods of Santa Anna and São Vincente, and in the lofty region of the Lombo das Vacas, in June; at the Lombo dos Pecegueiros, in July; and at the Feijãa de Córte and the Ribeiro Frio, in August. It is found throughout the greater portion of Europe, though more abundant in central and Mediterranean latitudes than towards the north. In our own country it is extremely rare, but it is apparently less scarce in Ireland. Mr. Stephens, although in possession of the

Marshamian collection, has cited as its synonym the *Scaphidium dubium* of Marsham,—which is a totally different insect (being the *Clambus Enshamensis* of Westwood, and the genus *Calyptomerus* of Redtenbacher, though in all probability distinct *specifically* from his *C. alpestris*).

Genus 159. CORYLOPHUS. (Tab. X. fig. 9.)

(Leach) Steph. *Man. Brit. Col.* 99 (1839).

Corpus minutissimum, rotundato-ovatum, glabrum, convexum: *prothorace* amplo semicirculari, ad basin elytrorum latitudine, angulis posticis leviter productis acutis, ad latera et (præsertim) antice valde subdecurvo-producto (caput omnino tegente): *elytris* apice leviter truncatis (angulis suturalibus vix rotundatis): *alis* (in typicis sat amplis ciliatis, sed in specie Maderensi) obsoletis. *Antennæ* (X. 9 *a*) prothorace paulo longiores, 9-articulatæ, graciles, leviter et facilius clavatæ, articulis primo et secundo robustis (illo longissimo, hoc paulo breviore graciliore subclavato), tertio quartoque gracilioribus latitudine æqualibus (illo hoc paulo longiore), quinto leviter crassiore, sexto minutissimo transverso, reliquis clavam elongatam minus abruptam triarticulatam efficientibus (nono majore ovato, ad apicem externum oblique truncato). *Labrum* (X. 9 *b*) magnum transverso-subquadratum, apice integrum. *Mandibulæ* (X. 9 *c*) validæ latæ, apice integræ, margine interno minutissime crenulato. *Maxillæ* (X. 9 *d*), *palpi* (X. 9 *d* et 9 *e*), *ligula* (X. 9 *e*) et *pedes* (X. 9 *f*) fere ut in Sericodero, sed *maxillarum lobus* paulo brevior et minus rectus, *palporum maxillarium articulus secundus* crassior et extus setosus, et *tibiæ anticæ* (X. 9 *f*) ad apicem internum, præsertim in maribus (?), incurvo-productæ.

Corylophus, which I would regard as the type of the present family, may be known by its more rounded outline, convex and glabrous upper surface, by its nearly semicircular prothorax, less posteriorly-truncated elytra, and by the curved inner angle (a peculiarity which is especially apparent in the males, ?) of its two front tibiæ. Its mandibles moreover are minutely crenulated along their entire length (a structure which is only just indicated in a few of the allied forms); and the second articulation of its maxillary palpi is greatly thickened,—particularly at its external apex, where it is also beset with long and robust bristles. Its antennæ however afford the most tangible distinctive characters, being (like those of *Orthoperus*, with which in proportions moreover they almost exactly coincide) only 9-jointed. *Corylophus*, *Orthoperus* and *Glœosoma*, indeed, were it not for the additional articulation possessed by the latter, would be very similar in this respect,—since their antennæ are not only more *gradually* clavated than is the case in the other genera, but the club in each of them may be said to commence at the *fifth* joint from the extremity (the fourth one being extremely minute, as in many of the *Anisotomidæ*). As a further proof of the affinity of the three groups in question, we may appeal to the shape of their anterior tibiæ,—which not only have (as already stated) their inner angle incurved (very evidently so in one sex, probably the male), but are themselves, also, *slightly arcuated* (a singularity which must still further tend to establish their relation with the members of the following

family). The only European *Corylophus* is the *C. cassidoides*, Marsham,—from which the Madeiran representative, apart from its numerous other specific features, which will be at once gathered from the diagnosis, differs in being entirely apterous.

367. Corylophus tectiformis, *Woll.* (Tab. X. fig. 9.)

C. rotundato-ovatus convexus piceus glaber minutissime granulatus et punctis vix observandis adspersus, prothorace interdum subrufescentiore, limbo antico late pallido subpellucido, antennis pedibusque diluto-testaceis.

Long. corp. lin. vix $\frac{2}{3}$.

Habitat in humidis Maderæ, per regionem sylvaticam, æstate rarior: inter plantas *Pteridis aquilinæ* ad Lombo das Vacas nascentes die solstitiali A.D. 1850 primus inveni; necnon mense Julio ad Lombo dos Pecegueiros atque in locis similibus ad Ribeiro Frio Augusto ineunte ejusdem anni cepi.

C. rounded-ovate, convex, piceous, slightly shining, entirely free from pubescence, most minutely and closely granulated, and with very delicately impressed points intermixed (both the granules and punctures being imperceptible except beneath the microscope). *Prothorax* nearly semicircular, with its hinder angles slightly acuminated; somewhat more rufescent than the elytra; and with its lateral and anterior margins (which have a slight tendency to be somewhat transparent) broadly testaceous. *Elytra* with the punctures rather more perceptible than those of the prothorax. *Antennæ* and *legs* diluted-testaceous,—the *tarsi* being exceedingly pale.

A very large and distinct *Corylophus*, being one of the most truly indigenous of the Coleopterous inhabitants of these islands,—and receding, as has been already mentioned, from the generic type in being apterous. It differs from the *C. cassidoides* of Marsham (the only European member of the group) in its much greater bulk, somewhat less shining and more evidently sculptured surface, in its dark piceous hue, more straightly truncated elytra (the sutural angles being considerably rounded off in that insect, whereas here they are nearly right angles), and in its longer antennæ. It is exceedingly rare, or at any rate local, being confined to the dense ravines of intermediate and lofty altitudes,—where it is usually to be met with amongst the rankest vegetation and in the dampest spots. Thus, during the summer of 1850, I brushed it from off wet fern in the almost inaccessible region of the Lombo das Vacas, in June; as also, under similar circumstances, at the Lombo dos Pecegueiros, in July; and at the Ribeiro Frio, by the moist edges of the Levada, in August.

Genus 160. GLŒOSOMA, *Woll.* (Tab. X. fig. 7.)

Corpus minutissimum, rotundato-ovatum, glabrum, convexum: *prothorace* sub-semicirculari, antice leviter truncato-emarginato (caput vix omnino tegente), ad basin elytrorum latitudine, angulis posticis leviter productis acutis: *elytris* apice rotundatis vix truncatis (angulis suturalibus rectis):

alis (nisi fallor) obsoletis. *Antennæ* (X. 7 *a*) prothorace paulo longiores, 10-articulatæ, sat robustæ, leviter et facilius clavatæ, articulis primo et secundo (illo præcipue) elongatis robustis, tertio paulo breviore graciliore, quarto quintoque minutissimis transversis, sexto majore crassiore, septimo minuto intus angulato, reliquis clavam elongatam minus abruptam triarticulatam efficientibus (decimo ovato). ***Labrum, mandibulas ligulam*que haud observavi.** *Maxillæ* (X. 7 *b*) *lobo singulo* angusto, apicem versus angustissimo acutissimo simplice, instructæ; *interno* vel *externo* (forte *hoc*, sed certe dicere haud potui) obsoleto. ***Palpi*** fusiformes valde incrassati; *maxillares* articulo primo parvo, secundo maximo inflato, tertio et ultimo minutis; *labiales* (X. 7 *c*) articulo primo parvo, secundo ut in maxillaribus amplissimo, ultimo minutiore subovato. *Pedes* valde cursorii: *tibiis anticis* (X. 7 *d*) subcurvatis, ad apicem internum leviter incurvo-productis: *tarsis* 4-articulatis, articulis primo et secundo longiusculis crassiusculis subæqualibus, tertio minuto, ultimo longissimo subclavato.

A γλοιὸς lævis, et σῶμα corpus.

In their comparatively rounded outline and glabrous surfaces, as well as in the minute second joint of their clava, and the curved apex of their two anterior tibiæ, the present genus and the last one are coincident; nevertheless *Glœosoma* displays many peculiarities which *Corylophus* does not,—amongst which its very convex body, the almost unproduced edges of its pronotum (the front margin being a little truncated, or scooped out, so as *not entirely* to conceal the head), added to its 10-articulated antennæ and eminently cursorial habits, are perhaps the most important. Considering the diminutive size of the insect on which the genus is founded, it is not surprising that the unique example, which has been so skilfully drawn and dissected by Mr. Westwood, should have proved insufficient for the detection of the whole of its oral organs. Nevertheless, its maxillæ and palpi are quite perceptible enough to attest its close relationship to *Orthoperus* and *Corylophus*, were indeed further evidence of its affinities *necessary* than that which its limbs and general outward contour so abundantly supply. It is curious however to remark how the enlargement of the second joint of the palpi, which in *Corylophus* extends only to the maxillary and in *Arthrolips* to the labial ones, is here carried out in *both*,—and moreover to such an extent that it would seem (especially in the maxillary pair) to monopolize almost the entire palpus (thus constituting, in conjunction with the extremely acute, aciculated single lobe of its maxillæ, the most distinctive feature possessed). Throughout all the Madeiran Coleoptera there is certainly no form more interesting than *Glœosoma*, or which tends to establish affinities more significant; for whilst, in some respects, it has so much in common with even the *typical Corylophidæ*, it nevertheless assimilates so closely, in others, many of the early members of the *Anisotomidæ*, that, at first sight, it might be almost questioned to which of the families it ought strictly to be referred. Upon the whole, however, it is I think more akin to *Orthoperus* than to anything else with which I am acquainted; though, at the same time, its 10-articulated antennæ and marvellously cursorial nature will, apart from other characters *primâ facie* apparent, at once separate it from that group (in which

the antennal joints are but nine in number and the movements comparatively sluggish).

368. Glœosoma velox, *Woll.* (Tab. X. fig. 7.)

G. rotundato-ovatum valde convexum castaneum glaberrimum et fere impunctatum, prothorace rufescentiore, antennis pedibusque diluto-testaceis.

Long. corp. lin. vix ½.

Habitat Maderam rarissime, semel tantum (sub lapide ad Praya Formoza prope Funchal, d. 8 Maii A.D. 1848) detectum.

G. rounded-ovate, very convex, of a reddish-chestnut hue, shining, entirely free from pubescence, most minutely and closely granulated, and with exceedingly shallow and most delicately impressed punctures intermixed on the elytra*, though not apparently on the prothorax (this peculiarity of sculpture being only distinguishable beneath the microscope). *Prothorax* nearly semicircular, nevertheless slightly notched or excavated in front, so as to allow the head to be partially exposed; convex, somewhat rufescent, being of a paler and clearer colour than the base of the *elytra* (though not than the apex,—which is also diluted in colouring). *Antennæ* and *legs* pale diluted testaceous.

Apparently of the greatest rarity, the unique example from which the above description has been compiled having been captured by myself, from beneath a stone, at the Praya Formoza near Funchal, on the 8th of May 1848,—where I have since often searched for it, but in vain. It ran with the most amazing velocity (a peculiarity which may perhaps, in conjunction with its excessively minute size, be one of the principal reasons why all subsequent investigations have hitherto failed in detecting more).

Sectio XI. ATRACHELIA.

Fam. 44. ANISOTOMIDÆ.

Genus 161. STAGONOMORPHA, *Woll.* (Tab. X. fig. 8.)

Corpus minutissimum, orbiculato-ovatum, glaberrimum, valde convexum: *capite* permagno lato, ad pectus inter otium arcte applicato (quare insectum globulum seminulumve simulare potest); *oculis* magnis rotundatis: *prothorace* amplo lato transverso, antice leviter emarginato, angulis

---

* When viewed beneath a high microscopic power this elytral sculpture is of a very peculiar nature, each of the small shallow "punctures" appearing to be composed in reality of two (at least, if not of more) excessively minute impressed lines, so arranged as to form an angle (pointing in the *opposite* direction to the prothorax),—which, in conjunction with the closely-set and still more delicate under-granulations, has the effect of roughening the entire surface.

(sed præsertim posticis) rotundatis: *scutello* magno lato subtriangulari: *elytris* brevibus, apice fere integris: *alis* obsoletis. *Antennæ* (X. 8 *a*) prothoracis longitudine, clavatæ, ante oculos (sed ab illis subremotæ) insertæ, articulis primo et secundo valde robustis (illo paulo majore), inde ad octavum gracilibus latitudine subæqualibus, longitudine (a tertio longiusculo) paulatim decrescentibus, reliquis clavam magnam abruptam triarticulatam efficientibus (undecimo subovato, ad apicem valde truncato). *Labrum* (X. 8 *b*) membranaceum subquadratum, antice leviter bilobum. *Mandibulæ* (X. 8 *c*) basi latæ, apice robustæ corneæ acutissimæ incurvæ, infra apicem dente parvo obtuso instructæ. *Maxillæ* (X. 8 *d*) *lobo singulo* recto intus dense ciliato instructæ, margine exteriore magis robusto et apice leviter producto acutissimo. *Palpi maxillares* fusiformes, articulo primo parvo, secundo et tertio magnis crassis (hoc illo paulo longiore), ultimo graciliore cylindrico: *labiales* (X. 8 *e*) subclavati, articulo primo parvo, secundo et ultimo magnis crassis (hoc paulo majore et ad apicem suboblique truncato). *Mentum* subtriangulare, antice valde truncatum emarginatum. *Ligula* elongata, antice tenuissime membranacea et leviter biloba. *Pedes* breves subcontractiles: *tibiis anticis* (X. 8 *f*) subcurvatis, pone apicem externum dente minutissimo instructis, *posterioribus* simplicibus: *tarsis* 4-articulatis, articulo tertio profunde bilobo (sed, nisi fallor, alterum minutissimum inter lobos haud recipiente), ultimo leviter elongato subclavato.

A *σταγὼν* gutta, et *μορφὴ* figura.

The very interesting and anomalous little beetles from which the above structural diagnosis has been drawn out would seem to combine so many of the elements of the various modifications of the *Anisotomidæ*, that, even had they not possessed distinctive peculiarities of their own, it would have been impossible to have referred them to any of the recognised groups. Thus, in their 11-jointed antennæ and general aspect they partake a good deal of *Agathidium*; whilst in their diminutive bulk, in the cylindrical apex of their maxillary palpi, and in their tetramerous* feet, they assimilate *Calyptomerus*. The latter however has not only two lobes to its maxillæ, and its mandibles constructed on a different type from those of our present insects; but its antennæ are only 10-jointed, with a biarticulated clava,—characters which obtain in *Clambus* likewise, and which thus equally prevent us from referring them to that (otherwise not dissimilar) genus. The deeply cordate third tarsal joint, however, of *Stagonomorpha*, and the single lobe of its maxillæ (the hinder edge of which is thickened along its entire length, and acuminated at its extremity, as though the first indication of the narrow and aciculated *outer* portion which is so apparent in *Clambus* and *Calyptomerus*), in conjunction with the minute tooth near to the external angle of its anterior tibiæ, its obsolete wings, and the triarticulated club of its antennæ (which are inserted at a considerable distance in front of its largely-developed eyes, and have their

* M. Redtenbacher, in his *Fauna Austriaca*, states the hinder tarsi of *Calyptomerus* to be triarticulate; but, as he had only a single specimen to judge from, and since it seems pretty evident that the common *Scaphidium dubium* of Marsham (the *Clambus Enshamensis*, Westwood), in which all the feet (like those of the true *Clambi*) are tetramerous, is a member of the same genus (albeit perhaps distinct *specifically* from his *alpestris*), there is strong reason to suspect, as Mr. Haliday has well remarked, that he was mistaken as to the number,—an hypothesis which the somewhat obscure nature of the tarsal joints would not tend to render the less probable.

ultimate joint greatly truncated, or foreshortened, at the tip), will be at once sufficient, apart from obscurer features, to separate it from its nearest allies.

Regarding the affinities of the *Anisotomidæ* great diversity of opinion may be said still to exist,—some authors following Latreille and the older naturalists (as I have preferred doing in the present instance), and so passing, by means of it, from the *Pseudotrimera* into the Heteromerous *Diaperidæ*; whilst others station it amongst the *Necrophaga*, in the neighbourhood of the *Silphidæ*, which in many respects would certainly seem to be its most reasonable position. Still, it appears to me to be impossible to separate it from the *Corylophidæ* (the connective links having been already pointed out and discussed); and hence it would become necessary, I imagine, to remove that family also, if we consider the *Necrophaga* to be alone capable of receiving it,—a step which the subscribers to the latter view have not generally adopted. And if therefore, as I apprehend to be the case, the *Anisotomidæ* and *Corylophidæ* cannot in a natural system be placed far asunder, the question simply becomes whether it is more important to retain the *former amongst the Necrophaga* than the *latter in the vicinity of the Coccinellidæ*. Without attempting the solution of this difficult problem, I have chosen here the second of these arrangements, since the quadriarticulate feet of the *Corylophidæ*, in conjunction with the other details of their structure, are almost universally admitted to point to the *Pseudotrimera* as their most plausible location; whilst the numerical instability in the tarsal joints of the *Anisotomidæ*, in which the *majority of the species are heteromerous*, would equally tend to constitute them a not impracticable passage into the *Atrachelia*,—making that division to commence with the *Diaperidæ*. Nor should we forget that so completely is variableness the very essence of a *transition* group, that, when we find great mutability to exist in any series of characters, we are even *à priori* led to suspect that the assemblage in which it occurs is in all probability connective between *some two others*; and, if moreover there should chance to be a liability on the part of the insects which it includes to assume a particular state which attains its maximum in a recognised department, we are further induced to believe that it is into *that* section which one of its extremes must conduct us;—a case which is exactly realized in the great *numerical inconstancy* and the *heteromerous tendency* of the feet of the *Anisotomidæ*.

369. Stagonomorpha sphærula, *Woll.* (Tab. X. fig. 8.)

S. orbiculato-ovata nigra glaberrima et fere impunctata, capite prothoraceque rufo-testaceis, antennis pedibusque diluto-testaceis.

Long. corp. lin. $\frac{1}{2}$.

Habitat Maderam borealem sylvaticam, rarissime, a meipso ad Lombo dos Pecegueiros d. 23 Jul. A.D. 1850 capta.

S. orbiculate-ovate (or, when the head is applied to the chest, completely orbicular), exceedingly convex, deep shining black, entirely free from pubescence, and almost impunctate (though, under a high magnifying power, appearing most delicately shagreened, and with very shallow, minute and distant punctures intermixed on the elytra,—though scarcely upon the prothorax). *Head* and *prothorax* rufo-testaceous; the *former* large and somewhat the paler of the two, with the *eyes* black. *Antennæ* and *legs* diluted testaceous.

Exceedingly rare; the only two specimens which I have seen having been taken by myself in the remote region of the Lombo dos Pecegueiros, towards the western edge of the Ribeira do Inferno, on the 23rd of July 1850.

370. Stagonomorpha unicolor, *Woll.*

S. orbiculato-ovata nigra glaberrima et fere impunctata, antennis pedibusque diluto-testaceis.

Long. corp. lin. vix ½.

Habitat in iisdem locis ac præcedens (cujus forsan varietas est), semel tantum reperta.

S. in every respect similar to the last, only (instead of the head and prothorax being pale) the entire insect (except the *antennæ* and *legs*, and the extreme edges of the prothorax, which are diluted testaceous) is of a deep black.

Also of the greatest rarity; and in fact hitherto unique. Like the last, it was captured at the Lombo dos Pecegueiros,—where I brushed it from out of the thick vegetation, beneath the trees, towards the dusk of the evening, near to the particular spot known as the Chão das Castanheiras (where my tent was pitched). It is possible that it may be merely a dark variety of the *S. sphærula*; nevertheless, having no intermediate links of colouring, and since my single specimen is a trifle smaller than that species, and with the antennæ perhaps scarcely so long, I have not ventured to amalgamate them.

Fam. 45. DIAPERIDÆ.

Genus 162. ELLIPSODES, *Woll.* (Tab. XI. fig. 2.)

Corpus parvum, ellipticum, glaberrimum, politissimum, convexum: *prothorace* transverso, postice elytrorum latitudine et illis arcte applicato; *prosterno* postice in lobum deplanatum robustum inter pedes anticos producto: *metasterno* postice anguste bifido: *elytris* subconnatis, apice acuminatis: abdomine e segmentis ventralibus quinque composito: *alis* obsoletis. *Antennæ* (XI. 2 *a*) capite prothoraceque paulo longiores, sub frontis margine laterali ante oculos oblongos insertæ, apicem versus (præsertim in maribus) leviter incrassatæ, articulis longitudine subæqualibus, ultimo ovato apice oblique truncato. *Labrum* (XI. 2 *b*) subcoriaceum transversum, antice vix integrum ciliatum. *Mandibulæ* (XI. 2 *c* et 2 *d*) validæ corneæ, infra apicem dente obtuso instructæ, unâ in medio sinuatâ et membranâ auctâ, alterâ angustiore intus curvatâ. *Maxillæ* (XI. 2 *e*) bilobæ, lobis submembranaceis pubescentibus; *externo* majore obtuso; *interno* incurvo

acutiusculo. *Palpi maxillares* elongati clavati, articulo primo vix parvo flexuoso, secundo multo longiore subclavato, tertio breviore primi longitudine, ultimo magno securiformi: *labiales* (XI. 2 *f*) subclavati, e scapis ligulæ connatis surgentes, articulis primo et secundo subæqualibus, ultimo majore elongato subfusiformi apice leviter truncato. *Mentum* subquadratum basi angustatum, apice integrum. *Ligula* robusta subcoriacea lata, antice rotundata ciliata. *Pedes* (XI. 2 *g*) subgraciles: *tibiis* parce et minute setosis: *tarsis* (XI. 2 *g*, 2 *h*, 2 *i*) heteromeris, articulis simplicibus usque ad penultimum longitudine decrescentibus, primo (præsertim in *posticis*) longiusculo, ultimo subclavato *unguiculis* in medio obscure denticulatis munito.

One of the most indigenous genera of our present fauna; and approaching nearer, I think, in habits and affinity, to *Scaphidema* of Redtenbacher than to anything else with which I am acquainted. It is however abundantly distinct from that group,—receding from it not only in its convexer and apterous body, more ample and posteriorly broader prothorax (that of *Scaphidema* being narrower at the base than the coleoptera, and moreover very deeply excavated in front, and with its sides strongly margined), and in its unstriated, subconnate elytra; but likewise in points even more purely structural, since its mandibles are robuster than is there the case, neither are they so compressed, nor bifid (although bidentate) at their tips, the terminal joint of its maxillary palpi is much larger and more securiform, its ligula is thicker and anteriorly rounder, its metasternum is bipartite behind (instead of truncated and simple), its tibiæ are powerfully spinulose (especially at the extreme apex,—where also the two internal spines are much longer than those of that genus), and its claws will be perceived under the microscope to be minutely denticulated about the middle of their inner edge, a circumstance of very rare occurrence in the *Diaperidæ*. In its elliptical outline indeed and punctulated surface, as well as in its obsolete wings, cloven metasternum, and spinulose tibiæ, it even approximates *Zophosis* (in which however the elytra, instead of being *sub*connate, are completely soldered together); nevertheless it not only wants the produced hinder prothoracic angles, and the peculiarly shaped eyes, which are there so conspicuous, but the modifications of its oral organs (particularly of the mentum, which is comparatively small, and narrowed at the base, as in the typical *Diaperidæ*, and does *not conceal* the lower parts of the mouth) will altogether remove it from the whole family of the *Pimeliadæ*.

371. Ellipsodes glabratus. (Tab. XI. fig. 2.)

E. ellipticus convexus æneus nitidissimus glaber, elytris evidenter punctulatis, antennis pedibusque ferrugineis, tibiis sæpius subinfuscatis.

Var. β. vix major obscurior et minutissime granulatus, elytris suturam versus subseriatim punctulatis, antennis pedibusque ferrugineis. (Ins. *Deserta Grandis*.)

Long. corp. lin. $1\frac{1}{2}$–$1\frac{3}{4}$.

Sphæridium glabratum, Fab. *Ent. Syst.* i. 79 (teste Mus°. Banks°.) (1792).
———— ————, Fab. *Syst. Eleu.* i. 93 (1801).

Habitat in montibus Maderæ, vel per regionem sylvaticam (sub truncis arborum prolapsis) vel sub lapidibus in aperto, inter 1800′ et 5000′ s. m., toto anno frequens: *var.* β. sola ad Desertam Grandem nisi fallor solam pertinet.

E. elliptical, dark æneous, exceedingly convex, highly polished, entirely free from pubescence, and minutely punctulated all over (the punctures however being more apparent on the elytra than on the head and prothorax). *Antennæ, palpi,* and *legs* ferruginous; the *first* rather more thickened, apically, in the males than in the females; and the *last* with their *tibiæ* generally more or less infuscated.

Var. β. a trifle longer and of a rather darker hue; not quite so shining, the entire surface being most minutely granulated, and some of the punctures of the elytra having an obscure tendency to be disposed in rows (especially towards the suture),—a peculiarity which is very rarely traceable in the Madeiran specimens. *Antennæ, palpi,* and *legs* entirely ferruginous. (The state peculiar to the *Dezerta Grande.*)

Universal throughout the mountainous districts of Madeira,—appearing to range from about 1800 to 5000 feet above the sea, though attaining its maximum perhaps midway between those limits. In its habits, it is of a retiring nature, and avoids the light, residing either beneath stones on the exposed grassy slopes, or at the roots of trees and rank vegetation within the sylvan regions. It would seem to exist at all seasons of the year; nevertheless it is more particularly abundant during the spring and early summer months. I have captured it on most of the uplands above Funchal, and towards the head of the Ribeiro de Santa Luzia, from January to March; at the edges of the Curral das Freiras in April; in the chestnut-woods of Santa Anna in May; on the Lombo das Vacas in June; at the Cruzinhas and the Lombo dos Pecegueiros in July; and at the Feijãa de Córte and the Ribeiro Frio in August. The *var.* β. is the form peculiar to the Dezerta Grande,—where I took it, sparingly, from under stones, during my encampment on that island with the Rev. R. T. Lowe, at the end of May 1850. Although but a slight aberration from the normal state, it is interesting, when viewed geographically,—as affording an additional example of the modifying influences of isolation and local circumstances, to those which have been already enumerated. Fabricius, who first characterized the species from a Madeiran specimen (still to be seen in the Banksian collection of the Linnæan Society), evidently fell into some confusion respecting it,—since he not only reports it as *black,* whereas it is entirely and invariably æneous, and identifies it with the *Sphæridium fuscum* of Olivier, with which it has nothing in common; but he even states that it (or at any rate an insect scarcely to be distinguished from it) occurs likewise in Germany! (which is almost too absurd to require refutation). Indeed, had his diagnosis and reference been alone extant, it would have been perfectly impossible to have recognised *Ellipsodes* in either of them; but, since he expressly records it as Madeiran, and since the original example is in preservation (so as to leave no doubt on the subject), the name of *glabratus,* in spite of his errors both in identification and description, must, according to the laws of priority, be retained.

Genus 163. PHALERIA.

Latreille, *Hist. Nat. des Crust. et Ins.* iii. 162 (1802).

Corpus parvum, elliptico-ovatum, supra glabrum, vel subconvexum vel subdepressum: *prothorace* postice elytrorum vix latitudine, modo (ut in specie Maderensi) antice acuminato, modo ad latera subparallelo: *metasterno* postice late et minus profunde bifido: *alis* obsoletis. *Antennæ* capite prothoraceque paulo breviores, fere ut in genere præcedente; apicem versus moniliformes leviter incrassatæ, articulo primo robusto longiusculo flexuoso, secundo breviusculo, tertio paulo longiore, ultimo ovato basi truncato. *Labrum* transversum, antice vix integrum et dense ciliatum. *Mandibulæ* validæ corneæ, apice bifidæ, unâ in medio fisso-sinuatâ et membranâ auctâ, alterâ angustiore intus curvatâ. *Maxillæ* et *palpi* fere ut in Ellipsodes, sed horum articulus ultimus in *maxillaribus* (brevioribus) minus robustus, in *labialibus* ovatior ad apicem oblique truncatus et minus acuminatus. *Mentum* subquadrato-transversum, basi leviter angustatum, apice integrum. *Ligula* submembranacea, antice leviter biloba ciliata. *Pedes* robusti: *tibiis* valde spinulosis, *anticis* compressis apicem versus late dilatatis: *tarsis* heteromeris; *posterioribus* elongatis, articulis usque ad penultimum longitudine decrescentibus (primo longiusculo).

The *Phaleriæ* may be readily known by their pallid hue and spinulose tibiæ (the anterior pair of which are greatly dilated towards their apex), and by their apterous and more or less ovate bodies. They are insects which are eminently constituted for burrowing in the sand, and are usually to be found beneath marine rejectamenta, or decaying animal substances, on the sea-shore. In such situations they are often, like many of the *Necrophaga*, exceedingly gregarious; for I have frequently remarked that, by digging just below the surface, abundance of specimens may be brought to light in spots where only single ones were externally to be seen. The species are not very numerous, but are widely distributed over the world. Two or three only are stated to be European; but others are reported from the Cape of Good Hope, North and South America, and Kamtschatka.

372. Phaleria ciliata, *Woll.*

P. elliptico-ovata testacea subconvexa vix nitida et subtilissime punctulata, prothorace glabro antice subangustato, postice foveolâ longitudinali abbreviatâ utrinque impresso, elytris leviter striatis, vel omnino pallidis vel maculâ obsoletissimâ centrali in singulo positâ ornatis, ad latera ciliatis.

Long. corp. lin. $2\frac{1}{4}$–$2\frac{1}{2}$.

Habitat per oram Portûs Sancti maritimam, a meipso Aprili exeunte A.D. 1848 copiosissime lecta.

P. elliptical-ovate, testaceous, rather convex, very slightly shining, and most minutely punctulated all over. *Prothorax* glabrous, acuminated in front, and slightly narrower at the base than the coleoptera; with a small abbreviated longitudinal impression on either side behind. *Elytra* rather paler and more opake than the prothorax, and with the sides rounded (the broadest part being a little behind the base); finely striated, and with the lateral edges ciliated with strong hairs; sometimes with a very obscure cloud on the disk of each,—but usually altogether pale. *Antennæ* and *legs* concolorous with the rest of the surface.

A species intermediate, in size and proportions, between the European *P. cadaverina* and *hemisphærica*,—its elliptical outline, however, and anteriorly acuminated prothorax, in conjunction with its convexer and more finely punctulated upper surface, at once separating it from every variety of the former; whilst its superior bulk and darker hue, added to its more distinctly sculptured and opaker body, the minute hinder foveæ of its pronotum, and its submaculated elytra, will equally remove it from the latter. In the strongly ciliated edges of its elytra it recedes alike from them both. It is apparently exceedingly local, and confined, so far as I have hitherto observed, to the island of Porto Santo,—where, in April of 1848, I took it in abundance, from beneath the remains of dead fish, on the southern beach, about a mile to the westward of the Cidáde.

Fam. 46. TENEBRIONIDÆ.

Genus 164. CERANDRIA.

(Dejean, *Cat.* 222) Lucas, *Col. de l'Algérie*, 245 (1849).

Corpus parvum, sublineari-elongatum: *capite* in maribus bicorni necnon ad frontis latera valde explanato-recurvo: *prothorace* antice dilatato: *metasterno* postice anguste bifido: *alis* amplis. *Antennæ* prothorace vix longiores, apicem versus moniliformes et leviter incrassatæ, articulo primo longiusculo flexuoso, secundo breviusculo, tertio paulo longiore, ultimo subovato. *Labrum* transversum, antice rotundatum pilosum. *Mandibulæ* validæ corneæ; in fœminâ ad apicem bifidæ et in medio leviter sinuatæ; in mare longissimæ robustæ porrectæ, ad apicem reflexæ acutæ integræ (margine interno crenulato), ad basin dente magno transverso bifido instructæ. *Maxillæ* bilobæ, lobis pubescentibus, *interno* parvo acutiusculo. *Palpi* subclavati; *maxillares* articulo primo parvo, secundo et tertio majoribus crassioribus (hoc breviore), ultimo elongato subsecuriformi-ovato; *labiales* articulo primo parvo, secundo paulo majore, ultimo elongato subfusiformi apice oblique truncato. *Mentum* transversum, antice leviter emarginatum. *Ligula* submembranacea, antice ciliata et vix integra. *Pedes* mediocres: *tibiis* subtilissime pubescentibus, ad apicem externum subtruncatis, per marginem exteriorem obscurissime subcrenulatis: *tarsis* heteromeris; *anticis* articulis primo et secundo subtus productis; *posterioribus* (sed præsertim *posticis*) articulo primo longiusculo.

In their habits, size, and colouring, the present genus and *Tribolium* are nearly coincident; nevertheless the former may be at once recognised from the latter (in which, unlike *Cerandria*, the sexes are similar) by its longer and less clavate antennæ, more convex and anteriorly dilated prothorax, by its somewhat more shining surface, punctate-striated elytra and narrower fore-tibiæ, and by the structure of the first two joints of its front feet (which are produced, or acuminated, beneath),—whilst the enormous development and recurvation, not only of the mandibles, but also of the lateral edges of the clypeus, of the males, in conjunction with the corneous processes on the hinder portion of their forehead, will prevent the possibility of confounding *them* at all events with anything else. Like so

many of the *Tenebrionidæ*, the single species which represents it is attendant upon civilization,—subsisting on grain, and other articles of commerce, and so becoming constantly liable to transmission throughout the world.

373. Cerandria cornuta.

C. sublineari-elongata rufo-ferruginea subnitida, prothorace subconvexo antice lato subtilissime punctulato, elytris punctato-striatis subdepressis.

Mas, paulo major, mandibulis magnis porrectis recurvis, fronte postice bicorni, fronteque ad latera valde recurvo-ampliatâ.

Long. corp. lin. $1\frac{1}{2}$–$2\frac{1}{2}$.

Trogosita cornuta, Fab. *Ent. Syst. Suppl.* 51 (1798).
Phaleria cornuta, Latr. *Gen. Crust. et Ins.* ii. 175 (1807).
Uloma cornuta, Steph. *Ill. Brit. Ent.* v. 10 (1832).
Cerandria cornuta, Dej. *Cat.* (3ième édit.) 222 (1837).
——— ———, Lucas, *Col. de l'Algérie*, 345 (1849).

Habitat in domibus officinisque pistoriis Maderæ, et borealis et australis, non infrequens: exemplar unicum (a meipso forsan illuc pane ablatum) etiam in ins. Desertâ Grandi Maio exeunte A.D. 1850 legi.

C. sublinear-elongate, bright rufo-ferruginous, and slightly shining. *Head* and *prothorax* closely and finely punctulated: the *former* with the *forehead* rounded in the females, a little expanded and elevated before the eyes, and slightly depressed in front,—but in the males (which have also the mandibles immensely developed and recurved) with the sides greatly dilated and recurved, causing the anterior portion to be bisinuated, or produced into a depressed central lobe; simple behind in the females, but armed with two large horn-like prominences in the males: the *latter* convex, considerably widened in front, with the extreme posterior angles well-defined and a little prominent, and with a very minute abbreviated impression on either side (near the margin) behind. *Elytra* subdepressed and punctate-striated; the interstices most minutely punctulated (the punctures having a slight tendency to be arranged in rows). *Legs*, and *antennæ at apex*, a little paler than the rest of the surface.

Unquestionably an introduced insect from more northern latitudes; nevertheless it has been long a resident in the island, since Fabricius says of it in 1801, "Habitat in Maderâ frumentum destruens." His original specimens, described in 1798, were from Tangier, and it is recorded by M. Lucas as occurring beneath the bark of trees in Algeria; so that it is not impossible that the southern Mediterranean limits may have been one of its original centres of diffusion,—even though it be now naturalized throughout a large portion of the civilized world. In Madeira it would seem to be confined to houses and granaries in and around the towns, where it is at times tolerably abundant. In May of 1850, however, I captured a single example even on the Dezerta Grande; but since it was found in the immediate vicinity of my tent, I believe it to have been accidentally imported thither, with provisions, from Funchal.

Genus 165. TRIBOLIUM.

MacLeay, *Ann. Javan.* 47 (1825).

Corpus parvum, lineari-elongatum: *capite* in utroque sexu simplice necnon ad frontis latera vix explanato: *prothorace* antice vix latiore: *metasterno* postice vix bifido: *alis* amplis. *Antennæ* prothorace paulo breviores, apicem versus clavatæ (clavâ triarticulatâ parum laxâ), articulis primo et secundo brevibus, tertio paulo longiore, ultimo rotundato-ovato basi truncato. *Labrum, maxillæ, palpi, mentum* et *ligula* fere ut in Cerandriâ, sed *palporum maxillarium articulus ultimus* minus securiformis. *Mandibulæ* validæ corneæ, apice leviter bifidæ, unâ in medio fisso-sinuatâ, alterâ leviter curvatâ. *Pedes* breviusculi: *tibiis* subtilissime pubescentibus, ad apicem externum haud truncatis; *anticis* apicem versus leviter dilatatis; *anterioribus* interdum (ut in specie Maderensi) per marginem exteriorem obscure crenulatis: *tarsis* heteromeris; *posticis* articulo primo longiusculo.

As may be gathered from the observations already offered, *Tribolium* may be distinguished from *Cerandria* (with which in many particulars it agrees) by its more linear form (the prothorax being scarcely at all widened in front), by its shorter and more clavated antennæ (the basal articulation of which is exceedingly small), by its more depressed, opaker surface, somewhat dilated anterior tibiæ (the external angle not being truncated off, as is the case in that genus), by the different sculpture of its elytra, and, above all, by the outward resemblance of its sexes (the various male developments being one of the most conspicuous features of *Cerandria*). MacLeay, who was the first to characterize the group (in 1825), described it as pentamerous and placed it amongst the *Necrophaga*, which was clearly however an error,—perhaps partially to be accounted for by the fact of his having but a single specimen to judge from. Its relation with the *Colydiadæ* indeed would seem to be merely a superficial one,—since it not only embodies all the peculiarities of the present section of the *Heteromera*, but entirely wants the 10-jointed antennæ, bipartite club and quadri-articulate feet, the primary elements of that division. Nevertheless with the kindred family of the *Trogositidæ* it may perhaps have some distant affinity, since both in structure and habits it possesses a good deal in common with it. That MacLeay's insect is identical with the *Tenebrio ferrugineus* of Fabricius, an examination of the original type, still preserved in the East India Company's Museum in London, enables me to decide; and although the careless manner in which it is mounted conceals the hinder tarsi altogether from view, yet, if there is no question concerning it *specifically*, there can certainly, *à fortiori*, be none respecting the genus,—so that there is no doubt that MacLeay was mistaken in regarding it as otherwise than heteromerous.

374. Tribolium ferrugineum.

T. lineari-elongatum rufo-ferrugineum subopacum depressum, prothorace subtiliter punctulato, elytris latera versus elevato-striatis, interstitiis minutissime sub-biseriatim punctulatis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Tenebrio ferrugineus, Fab. *Spec. Ins.* i. 324 (1781).
Colydium castaneum, Herbst, *Käf.* vii. 282. tab. 112. fig. 13 E (1797).
Ips testacea, Fab. *Ent. Syst. Suppl.* 179 (1798).
Tribolium castaneum, MacLeay, *Ann. Javan.* 47 (1825).
Stene ferruginea, Steph. *Ill. Brit. Ent.* v. 9 (1832).
Margus ferrugineus, Dej. *Cat.* (3ième édit.) 222 (1837).

Habitat in domibus mercatorumque repositoriis Maderæ ubique vulgare, ex alienis certe introductum.

T. linear-elongate (being of nearly the same breadth throughout) and narrow, dull rufo-ferruginous, nearly opake, and depressed. *Head* and *prothorax* very closely punctulated (but not quite so finely as in the *Cerandria cornuta*); the *former* with the *forehead* rounded, a little expanded and elevated before the eyes, and depressed in front; the *latter* transverse-quadrate (being scarcely at all widened anteriorly), with the posterior angles less defined than those of the last insect, and with a shallow longitudinal fovea on either side behind. *Elytra* with slightly elevated striæ, very apparent towards the sides, but evanescent on their common disk; the interstices with a usually double series of minute punctures down each. *Legs*, and (especially) the *club of the antennæ*, of a rather paler colour than the rest of the surface.

A universal insect throughout the civilized world, being, like the last one, liable to dissemination with various articles of commerce. It is moreover less exclusively granivorous in its habits, feeding occasionally on dried *animal* substances (like *Trogosita* and some of the *Dermestidæ*), and being at times very destructive to collections of insects,—residing in the crevices of the boxes, and devouring not only the cement by which they are held together, but even the specimens themselves. It is abundant in Madeira, especially about dwellings and warehouses in and near Funchal; and it may be often observed crawling up the walls of the buildings, in company with the *Læmophlœus pusillus*, *Cryptophagus affinis* and the *Sitophilus Oryzæ*, in considerable numbers.

Genus 166. BOROMORPHUS. (Tab. XI. fig. 9.)

Motschulsky, *in litt.*

Corpus parvum, elongatum, pubescens: *fronte* ad latera leviter explanato-subrecurvâ, ad apicem depressâ subtruncatâ: *prothorace* elongato, antice dilatato: *mesosterno* cylindrico, superne interdum conspicuo: *metasterno* postice vix bifido: *elytris* subconnatis: *alis* obsoletis. *Antennæ* prothoracis longitudine, sub frontis margine laterali ante oculos insertæ, subfiliformes (apicem versus vix incrassatæ), articulo primo leviter robusto basi flexuoso, secundo paulo breviore, tertio longiusculo, reliquis longitudine subæqualibus (ultimo subovato basi truncato). *Labrum* (XI. 9*a*) transversum pilosum, antice integrum. *Mandibulæ* validæ corneæ, intus arcuato-sinuatæ et membranâ auctæ, extus ad basin fissæ, unâ apice profunde bifidâ et infra apicem dente obtuso obscuro instructâ, alterâ apice leviter bifidâ et infra apicem dente magno instructâ. *Maxillæ* (XI. 9 *b*) bilobæ, lobis apice pubescentibus; *externo* magno lato; *interno* multo breviore angustiore minuto. *Palpi* elongati subclavati; *maxillares* articulo primo parvo extus sinuato, secundo et tertio majoribus crassioribus (hoc paulo breviore), ultimo elongato crassiusculo subsecuriformi-

ovato; *labiales* (XI. 9 *c*) e scapis ligulæ connatis surgentes, articulo primo parvo, secundo paulo majore, ultimo elongato fusiformi-ovato. *Mentum* amplum subquadratum, basi leviter constrictum, antice truncatum et in medio excavatum. *Ligula* membranacea, antice valde pilosa truncata. *Pedes* subgraciles: *tibiis* subtilissime pubescentibus, ad apicem externum subtruncatis: *tarsis* heteromeris; *posterioribus* (sed præsertim *posticis*) articulo primo longiusculo; ultimo in *omnibus* elongato subclavato infra (apicem versus) producto, *unguiculis* magnis simplicibus munito.

A Boros (genus Coleopterorum), et *μορφὴ* figura.

The very interesting little beetle from which the above structural diagnosis has been drawn out is somewhat related to *Boros* of Herbst, though at the same time with abundant distinctive features of its own. It may be readily known from that genus by its comparatively diminutive bulk and apterous body, by its pilose, almost opake surface and subconnate elytra, by its slenderer and filiform antennæ (those of *Boros* being terminated by a well-defined triarticulated club), by its entire (instead of centrally-bifid) upper lip, its more dentate mandibles (which have a deep fissure at their outer base), by its subclavate palpi, the exceedingly minute size of its inner maxillary lobe, and by the more membranous and less robust texture of its ligula. It is one of the most indigenous members of our fauna, occurring on nearly every island of the group. It is found principally beneath stones on the exposed maritime slopes of rather low elevations, especially those of a hot and southern aspect. It appears to be a good deal allied to the *Boros Tagenioides* of Lucas (*Col. de l'Algérie*, 338. pl. 30. fig. 9), although with very decided characters for specific separation: *generically* however the Algerine and Madeiran representatives are probably coincident. Dejean's unpublished genus *Lamus*, proposed for the reception of a small insect from Sicily, will perhaps be found to coincide with *Boromorphus*; but, having had only a single specimen for examination (communicated by M. Deyrolle of Paris), I have not been able to satisfy myself of this from actual dissection.

375. Boromorphus Maderæ, *Woll.* (Tab. XI. fig. 9.)

B. angusto-elongatus ferrugineus subopacus fulvescenti-pubescens et profunde punctatus, prothorace antice latiusculo, capite basin versus elytrisque picescentibus, pedibus vix pallidioribus.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat in locis subinferioribus apricis Maderæ Portûsque Sancti, sub lapidibus et scoriis, ab autumno usque ad ver novum vulgaris.

B. elongated, narrow, ferruginous, almost opake, slightly convex, and sparingly clothed with long silken fulvescent pubescence. *Head* and *prothorax* very closely and rather coarsely punctured: the *former* usually picescent; with the *forehead* a little expanded and elevated before the eyes, and depressed, truncated and a little paler in front: the *latter* widened anteriorly, with an impunctate central line, margined at the sides, and with the extreme hinder angles a little prominent. *Elytra* much darker than the prothorax, and usually rather darker than the head, being of a reddish- or

brownish-piceous, with the sides slightly rounded (the broadest part being about the middle); the punctures large and rather rugose, and with a slight tendency to be disposed in rows; and with the margin a little prominent and roughened at the humeral angles. *Antennæ* and *legs* (especially the latter) of a brighter colour than the rest of the insect,—being generally rufo-ferruginous.

A common insect throughout Madeira at low elevations; especially towards the southern coast,—occurring in grassy spots, beneath stones, on most of the sunny slopes facing the sea. It appears to be more particularly abundant from the autumn to the following spring. I have taken it in profusion along the cliffs to the eastward of Funchal, as far as the Cabo Gerajão, in October and November; in the Rev. R. T. Lowe's garden, at the Levada, in February; at the Praya Formoza, and on the Pico do Cardo, in March and April; as also in Porto Santo at the beginning of May. It delights in the hottest aspects, secreting itself under loose scoriæ,—from which, owing to the ramifications and hollows with which they are perforated, and into which it suddenly retreats on being exposed to the light, it is not always easy to extricate it.

Genus 167. CALCAR.

(Dejean, *Cat.* A.D. 1821) Latreille, *Règ. Animal* (2ième édit.), v. 25 (1829).

Corpus mediocre, lineari-elongatum: *fronte* ad latera vix elevatâ, ad apicem depressâ et plus minusve emarginatâ: *prothorace* elongato-subquadrato, postice vix angustato, ad angulos (præsertim posticos) rotundato: *metasterno* postice vix bifido: *alis* amplis. *Antennæ* prothorace paulo longiores, subfiliformes, apicem versus moniliformes vix incrassatæ, articulo primo leviter robusto breviusculo, secundo brevi, tertio longiore, reliquis longitudine subæqualibus (ultimo subovato basi truncato). *Labrum* subquadratum postice angustatum, apice truncatum integrum ciliatum. *Mandibulæ* validæ corneæ, intus in medio profunde fisso-sinuatæ et membranâ auctæ. *Maxillæ* bilobæ, lobis pubescentibus; *externo* lato apice setoso; *interno* paulo minore, apicem versus internum longe pectinato-setoso. *Palpi* clavati; *maxillares* articulo primo parvo extus sinuato, secundo et tertio majoribus crassioribus (hoc minore), ultimo magno subsecuriformi incrassato; *labiales* post ligulam inserti, articulo primo parvo, secundo majore crassiore, ultimo subpyriformi basi flexuoso. *Mentum* subquadratum basi angustatum, apice vix integrum, angulis anticis veluti e duplici parte formatis, aliâ deplanatâ ampliato-rotundatâ, aliâ elevatâ angulatâ. *Ligula* cornea, basi angustata, antice dilatata truncata. *Pedes* validi elongati: *femoribus anticis* leviter incrassatis: *tibiis* ad apicem externum subtruncatis; *anterioribus* (sed præsertim *anticis*) subcurvatis et ad apicem internum leviter productis (*posticis*, in maribus, dente medio obtuso interno instructis): *tarsis* heteromeris.

The genus *Calcar* presents abundant points of singularity which will serve to distinguish it from the neighbouring groups,—its narrow, shining body and elongated prothorax (which, unlike that of *Tenebrio*, has the angles, especially the basal ones, obtuse or rounded off), in conjunction with its slightly curved four anterior tibiæ, and the blunt tooth in the centre of the inner margin of its hinder

male pair, giving it a peculiar character which it is not difficult, even at first sight, to appreciate. Its oral organs, moreover, offer many well-marked features,—amongst which the strongly setose or pectinated internal lobe of its maxillæ, the remarkable insertion of its labial palpi, which arise from *behind* the ligula (this last, also, being unusually robust and corneous), and, above all, the curious structure of the front angles of its mentum, which are composed of two parts (one in the same plane as the rest of the surface, and rounded, whilst the other is more acute, though lamelliform, and raised above it), should be particularly noticed.

376. Calcar elongatus.

C. lineari-elongatus angustus niger nitidus depressus, capite prothoraceque crebre punctulatis, hoc elongato-subquadrato postice vix angustato, elytris crenato-striatis interstitiis minutissime punctulatis, antennis pedibusque piceis.

Mas, tibiis posticis intus in medio unidentatis.

Variat (immaturus) colore piceo, vel etiam obscure ferrugineo.

Long. corp. lin. $3\frac{1}{2}$–$4\frac{1}{2}$.

Tenebrio elongatus, Herbst, *Käf.* vii. 259. pl. 112. f. 2 (1797).
Trogosita calcar, Fab. *Syst. Eleu.* i. 153 (1801).
Calcar elongatus, Lucas, *Col. de l'Algérie*, 337 (1849).

Habitat in Maderæ apricis maritimis, tempore hiberno et vernali, sub lapidibus non infrequens: in planitiâ mox supra Praya Formoza sitâ mensibus Martio et Aprili interdum abundat, necnon ad Cabo Gerajão Januario ineunte A.D. 1851 detexit cl. Dom. Heer.

C. linear-elongate, narrow, black (when immature, piceous or almost ferruginous), shining and depressed. *Head* and *prothorax* closely punctured; the *former* with the *forehead* very slightly expanded and elevated before the eyes, depressed and emarginated in front; the *latter* elongate-quadrate, a little narrowed behind, and with all the angles (though especially the posterior ones) rounded off. *Elytra* parallel, crenate-striated; and with the interstices most minutely punctulated. *Antennæ* and *legs* bright piceous; the *two hinder tibiæ* of the males with a strong tooth in the centre of the inner margin.

Tolerably common, beneath stones, on the cliffs both to the east and west of Funchal, during the winter and spring months,—and, like the last insect, more especially attached to warm, sunny situations, of a southern aspect. I have not hitherto observed it in the north of the island, nor above the altitude of a thousand feet. On the comparatively level ledge of ground immediately overlooking the Praya Formoza I took it plentifully, in March and April of 1848; and Professor Heer of Zurich, during his late residence in Madeira, detected it, at the beginning of January, on the Cabo Gerajão or Brazen Head. It is a species of Mediterranean latitudes, occurring both in the south of Europe and in Algeria,—though only, so far as I am aware, in maritime districts. It was recorded as Madeiran, by Fabricius, so early as the year 1801.

Genus 168. TENEBRIO.

Linnæus, *Syst. Nat.* edit. vi. (1748).

Corpus magnum, lineari-elongatum: fronte ad latera leviter elevatâ, ad apicem depressâ truncatâ (sed vix emarginatâ): *prothorace* subquadrato, ad angulos (præsertim posticos) acuto: *metasterno* postice bifido: *alis* amplis. *Antennæ* et *mandibulæ* fere ut in Calcari. *Labrum* transversum, apice truncatum integrum dense ciliatum. *Maxillæ* bilobæ, lobis valde pubescentibus; *externo* magno lato; *interno* paulo minore, apice unco magno acuto instructo. *Palpi* subfiliformes; *maxillares* articulo primo parvo, secundo et tertio majoribus crassioribus (hoc minore), ultimo subsecuriformi vix incrassato; *labiales* articulis primo et secundo subæqualibus (hoc paulo crassiore), ultimo subsecuriformi. *Mentum* subquadratum basi angustatum, apice integrum, angulis anticis acutis. *Ligula* membranacea, antice pilosa vix emarginata. *Pedes* validi elongati: *femoribus anticis* incrassatis: *tibiis* anticis curvatis, ad apicem internum leviter productis: *tarsis* heteromeris.

The large, elongated and parallel bodies of the members of the present genus, in conjunction with their subquadrate prothorax (which, if anything, is a little wider at the base than anteriorly, and has all its angles well-defined), and the incrassated thighs and curved tibiæ of their two front legs, will be quite sufficient, apart from the modifications of their oral organs (which do not however display any very remarkable peculiarities of structure), to distinguish them from the remainder of the family to which they belong. The habits of *Tenebrio*, like those of *Cerandria* and *Alphitobius*, are essentially farinaceous, the species being particularly abundant in the vicinity of bakehouses and mills,—or even in stables, and other places where bran and meal are accustomed to be kept. In the larva state they are at times very injurious, and have obtained the name of *meal-worms*; and when the nature of their food is taken into account, the fact of their having become so widely distributed over the world as to be almost cosmopolitan, is at once intelligible.

377. Tenebrio molitor.

T. niger subnitidus creberrime punctulatus, prothorace subconvexo transverso-subquadrato, elytris obscure punctato-striatis, antennis pedibusque rufo-piceis, pedibus anticis brevibus robustis.

Long. corp. lin. 7–8.

Tenebrio molitor, Linn. *Fna Suec.* 815 (1761).
——— ———, Fab. *Ent. Syst.* i. 111 (1792).
——— ———, Gyll. *Ins. Suec.* ii. 590 (1810).
——— ———, Steph. *Ill. Brit. Ent.* v. 8 (1832).

Habitat in domibus pistrinisque circa Funchal, passim: insectum fere totius orbis terrarum civis, inter farinas dispersum, atque hoc modo in insulas Maderenses ab alienis sine dubio invectum.

T. black or pitchy-black, slightly shining, and very closely and finely punctulated all over. *Prothorax* rather convex; transverse-quadrate, with the sides rounded; and with an oblique abbreviated

fovea on either side behind. *Scutellum* broader and more transverse than in the *T. obscurus*. *Elytra* striated, the striæ being obscurely punctured. *Antennæ* and *legs* piceous or rufo-piceous; the *former*, and the *anterior pair* of the *latter*, shorter than in the *T. obscurus*, and the *anterior tibiæ* broader.

A most abundant insect throughout Europe, but, apparently, not very common in Madeira. It is found, however, occasionally in and around Funchal,—either about bakehouses and stables, or in other localities where flour and bran are usually stowed away. There are specimens in the British Museum from nearly all parts of the world; and it is recorded by Webb and Berthelot in the Canary Islands.

378. Tenebrio obscurus.

T. niger opacus creberrime ruguloso-punctulatus, prothorace depresso subquadrato, elytris obsolete punctato-striatis, pedibus anticis longioribus.

Long. corp. lin. 7–8½.

Tenebrio obscurus, Fab. *Ent. Syst.* i. 111 (1792).
——— ———, Gyll. *Ins. Suec.* ii. 591 (1810).
——— ———, Steph. *Ill. Brit. Ent.* v. 8 (1832).
——— ———, Lucas, *Col. de l'Algérie*, 337 (1849).

Habitat in locis similibus ac præcedens, sed paulo frequentior.

T. black, opake, and exceedingly closely punctulated, and subrugulose, throughout. *Prothorax* depressed and subquadrate, being more elongated than in the *T. molitor*, and with the sides straighter; with an oblique abbreviated fovea on either side behind, and with the space between them (along the hinder margin) distinctly elevated. *Elytra* striated, the striæ being very obscurely punctured. *Antennæ* and *legs* very slightly more piceous than the rest of the surface; the *former*, and the *anterior pair* of the latter more elongated than in the last species, and the *anterior tibiæ* not so broad.

Taken with the last species, and under precisely similar circumstances. It would appear to be the commoner of the two in Madeira; nevertheless, neither of them are very abundant.

Genus 169. ALPHITOBIUS.

Stephens, *Ill. Brit. Ent.* v. 11 (1832).

Corpus sat parvum, oblongum: fronte ad latera leviter elevatâ, ad apicem depressâ truncatâ (vix aut leviter emarginatâ): *prothorace* transverso, ad angulos (præsertim posticos) acuto: *metasterno* postice bifido: *alis* amplis. *Antennæ*, *labrum*, *maxillæ* et *palpi* fere ut in Tenebrione, sed *articuli antennarum subapicales* intus leviter producti, et *articulus palporum labialium ultimus* minus securiformis. *Mandibulæ* validæ corneæ, apice (præsertim in unâ infra apicem unidentatâ) bifidæ, intus profunde fisso-sinuatæ coriaceæ. *Mentum* subquadratum basi leviter angustatum, apice vix emarginatum, angulis anticis rotundatis. *Ligula* subcornea, basi angustata, apice truncata in-

tegra necnon ad angulos pilosa. *Pedes* validi: *tibiis* parce spinulosis; *anticis* compressis dilatatis; *posterioribus* ad apicem externum acutis: *tarsis* heteromeris; *posterioribus* (sed præsertim *posticis*) articulo primo longiusculo.

Alphitobius (=*Heterophaga* of Dejean's Catalogue, A.D. 1837) may be known from its allies by its proportionably broader and more oblong form (in which respect it approaches the *Opatridæ*), by the internally-serrated subapical joints of its antennæ, by its robust ligula (which however is scarcely *so* corneous as that of *Calcar*), and by its spinulose tibiæ,—the two front ones of which are slightly expanded and compressed, though both the dilatation and spines are much less distinct than is the case in *Phaleria*. Like those of so many of the *Tenebrionidæ*, its habits are of a farinaceous or meal-infesting nature; and it has consequently obtained a wide geographical range, almost exclusively through the agency of man. Nevertheless it is able to adapt itself to other circumstances also, since it is occasionally to be met with even beneath the bark of trees.

379. Alphitobius diaperinus.

A. niger vel nigro-piceus nitidus subconvexus, sat crebre punctulatus, prothorace brevi transverso, elytris punctato-striatis, antennis pedibusque rufo-piceis.

Long. corp. lin. 3.

Tenebrio diaperinus, Kugelann, *in Panz. Fna Ins. Germ.* 37. 16 (1797).
——— ———, Illig. *Käf. Preuss.* i. 115 (1798).
——— *ovatus*, Herbst, *Käf.* viii. 16. t. 118. f. 8 (1799).
——— *diaperinus*, Sturm, *Deutsch. Fna*, ii. 232 (1807).
Alphitobius mauritanicus, Steph. (nec *Fab.* 1792) *Ill. Brit. Ent.* v. 11 (1832).
Heterophaga opatroides, Dej. *Cat.* (3ième édit.) 220 (1837).
——— *diaperina*, Redt. *Fna Austr.* 594 (1849).
Trogosita castaneipes, Sam. *in litt.* (teste Mus°. Brit°.).

Habitat in domibus pistrinisque Funchalensibus (ab alienis introductus), sat frequens.

A. oblong, black or piceous-black, shining, and somewhat convex. *Head* and *prothorax* rather closely and very distinctly punctulated; the *latter* short, transverse, slightly attenuated in front, and with the sides nearly straight; sinuated along the hinder margin, and generally rather pitchy about the anterior angles. *Elytra* distinctly punctate-striated; and with the interstices minutely, but not very densely, punctulated. *Antennæ* and *legs* rufo-piceous; the *former* with their extreme apex rather paler.

A widely distributed insect throughout the world,—being subject, like so many of the present family, to transmission amongst civilized countries in articles of commerce. In Madeira, where it has unquestionably been introduced from more northern latitudes, it is at times sufficiently common,—being found principally in the vicinity of bakehouses, on the flour and meal of which it would seem, both in the larva and imago states (though not exclusively), to subsist. As some confusion has arisen in its nomenclature (at any rate in our own country), on account

of its near resemblance to a closely allied species*, I have given its synonymy somewhat more at length than I should have been otherwise inclined to have done. In addition to European ones, I possess specimens from Egypt and Algeria; as also an extensive series (recently communicated by T. S. Leacock, Esq., of Funchal) from Mazagan, immediately opposite to Madeira, on the western coast of Africa.

Fam. 47. OPATRIDÆ.

Genus 170. OPATRUM. (Tab. XI. fig. 1 et 3.)

Fabricius, *Syst. Ent.* 76 (1775).

Corpus mediocre, oblongum: fronte ad latera leviter elevatâ, ad apicem profunde bilobâ: *prothorace* transverso: *metasterno* postice bifido: *alis* plerumque (ut in speciebus nostris) amplis. *Antennæ* capitis prothoracisque longitudine, apicem versus vix incrassatæ, articulo primo leviter robusto breviusculo, secundo brevi, tertio elongato, reliquis longitudine subæqualibus. *Labrum* (XI. 1 *a*) coriaceum transverso-subquadratum, apice leviter bilobum ciliatum. *Mandibulæ* validæ corneæ latæ, intus in medio fisso-sinuatæ coriaceæ. *Maxillæ* (XI. 1 *b*) bilobæ: *lobo externo* pubescente setoso: *interno* apice acuto, simplice vel biuncinato, intus plus minusve pectinato-setoso. *Palpi maxillares* articulo primo parvo extus sinuato, secundo elongato clavato, tertio breviore, ultimo magno securiformi: *labiales* (XI. 1 *c*) articulo primo parvo, secundo majore crassiore, ultimo subovato. *Mentum* subquadratum basi angustatum, apice integrum. *Ligula* robusta, apice vix emarginata. *Pedes* validiusculi: *tibiis* minutissime setulosis; *anticis* plus minusve dilatatis: *tarsis* heteromeris; *posterioribus* (sed præsertim *posticis*) articulo primo longiusculo (*intermediis* in maribus interdum articulo primo subtus retrorsum pectinato-setoso).

The *Opatra*, though more especially abundant in temperate latitudes, are widely distributed over the world: unlike the *Tenebrionidæ*, however, they are almost exclusively inhabitants of the open country,—occurring principally in maritime districts, and at low elevations. They are particularly partial to sandy and gravelly spots; and are usually to be found either beneath stones and marine rejectamenta, or crawling at the roots of grass on the hot, dry ground. The typical species are generally nearly apterous; but the subgenus *Gonocephalum* (into

* This species, which in England is the more abundant of the two, occurs for the most part under similar circumstances as the *A. diaperinus*. It is the *Tenebrio mauritanicus* of Fabricius (*Ent. Syst.* A.D. 1792),—though *not* (as erroneously supposed by him) of Linnæus, which is the *Trogosita mauritanica* of modern collections. It is, likewise, the *Tenebrio Fagi* of Sturm (*Deutsch. Fna*, A.D. 1807); and, more recently, the *Alphitobius picipes* of Stephens,—who applied the name of *mauritanicus* to the wrong insect, namely the larger of the two now under consideration. The true *mauritanicus*, which I have not hitherto observed in the Madeira Islands, is uniformly smaller than the *diaperinus*; its prothorax also is proportionably wider in the middle (being rounded at the sides), its elytra are rather more obscurely striated, and its tibiæ are not quite so spinulose. It is perhaps more completely naturalized throughout Europe than the *diaperinus*, being found occasionally in the open country. It is recorded by Stephens as having been captured beneath turf in the neighbourhood of London; and by M. Lucas as being common under stones in Algeria,—which may perhaps have been one of its original areas of diffusion.

which our present representatives fall) has the wings comparatively large, and adapted for flight. I am not aware whether the *Gonocephala* are invariably so constituted, but I have observed that the males of one at any rate of the Madeiran members of the group (namely the common *G. fuscum*) display a singular structure in the basal joint of their intermediate feet, which is thickly pectinated on the under side with powerful bristles,—*inclined backwards* (or in an opposite direction to the rest of the tarsal setæ).

380. Opatrum fuscum. (Tab. XI. fig. 1.)

O. nigrum fusco- vel subfulvescenti-pubescens, prothorace punctato, ad latera subrecto ad basin valde sinuato, elytris vix parallelis subpunctato-striatis.

Mas, paulo minor, tarsis intermediis articulo basilari subtus retrorsum pectinato-setoso.

Long. corp. lin. $3\frac{1}{2}$–4.

Opatrum fuscum, Herbst, *Käf.* v. 225. t. 52. f. 1 (1793).
——— *tomentosum*, Dej. *Cat.* (3ième édit.) 214 (1837).
——— *septentrionale*, Faldermann, *in litt.*

Habitat in aridis maritimis insularum Maderensium, sub lapidibus, ubique frequens.

O. dull black, and densely clothed with a rigid, decumbent, fuscous, or dirty-fulvescent pubescence. *Head* and *prothorax* deeply punctured; the *latter* short, with the sides (although oblique) nearly straight, or but very slightly rounded, and with its basal margin greatly sinuated. *Elytra* more or less parallel, but usually a little wider behind the middle than anteriorly; rugulose (especially about the shoulders), and deeply striated, the striæ being subpunctate. *Scutellum*, *antennæ* (except their extreme apex, which is ferruginous), and *legs*, varying from dark piceous into piceo-ferruginous.

An abundant insect in Mediterranean latitudes, and occurring also in the Canary Islands and the Cape de Verdes. It is subject to considerable variation, not only in bulk, but likewise in the colour and density of its pubescence; and it is probably owing to this that so many *species*, so called, have been erected upon it. It may frequently be observed indeed entirely denuded of pile, under which circumstances it presents a very different appearance, at first sight, from the ordinary type. Its peculiarities however of sculpture and form, in conjunction with the remarkable recurved bristles on the under side of the basal joint of its intermediate male foot, will always succeed, on further examination, in identifying it. It is found throughout the greater portion of the Madeiran group, though principally at low elevations and in spots near the coast. In the vicinity of Funchal it is at times common in vineyards and other cultivated grounds, as well as in hot exposed localities facing the sea. I have also captured it on the Dezerta Grande; and, in the utmost profusion, on the sandy districts of Porto Santo (behind the beach) to the westward of the Cidáde,—during April and May.

381. Opatrum errans, *Woll.* (Tab. XI. fig. 3.)

O. nigrum vix pubescens, prothorace tuberculis crebre obsito, ad latera rotundato ad basin leviter sinuato, elytris parallelis punctato-striatis.

Long. corp. lin. $3\frac{1}{2}$–$4\frac{1}{2}$.

Habitat Maderam, rarior: exemplar in museo Loweano (a Dom. Heinecken olim captum) conservatur, alterum in montibus prope Curral das Freiras vere novo A.D. 1848 egomet deprehensi, et duo specimina nuperrime communicavit Dom. Rousset.

O. black, and almost free from pubescence. *Head* punctured. *Prothorax* uniformly beset with tubercles, or large elevated granules; not quite so short as in the *O. fuscum*, and with the sides more rounded (the broadest part being about the middle); and, also, less sinuated at its base. *Elytra* more parallel than in that species, rugulose (especially towards the shoulders,—where it is thickly studded with minute tubercles, which are somewhat smaller and acuter than those on the prothorax), and deeply punctate-striated. *Antennæ* (except their extreme apex, which is ferruginous), and *legs*, dark piceous.

Apparently very scarce, four specimens only having hitherto come beneath my notice. One is in the collection of the Rev. R. T. Lowe; another was captured by myself in the interior of the island, near the edges of the Curral das Freiras (about 3500 feet above the sea), during the spring of 1848; and two more have been recently communicated by M. Rousset,—whose researches have made so many additions to the Entomological fauna of the Madeiran group*. Judging from the small data which I possess concerning its habits, it would seem to be more especially confined to the higher altitudes; and it may perhaps therefore be regarded as the mountain representative of the *O. fuscum*.

* The following description of a new *Opatrum* from the Salvages, somewhat allied to the *O. errans*, may be inserted here. A single specimen has been communicated to me by T. S. Leacock, Esq., of Funchal,—by whom it was discovered on the conical island known as the "Great Piton," during his late expedition to those remote rocks:

Opatrum dilatatum, *Woll.*

O. nigrum vix pubescens, prothorace tuberculis minutissimis crebre obsito, ad latera valde rotundato-ampliato ad basin leviter undulato, elytris subovatis crenato-striatis.

Long. corp. lin. $3\frac{2}{3}$.

Habitat in insulis "Salvages" dictis, a Dom. Leacock benigne communicatum.

O. black, and almost free from pubescence. *Head* and *prothorax* beset with exceedingly minute elevated points, or granules; the *latter* large and wide, the sides being much rounded and greatly dilated about the middle, and undulated along its basal margin. *Elytra* less parallel than in either of the Madeiran species, being almost ovate; rather rugulose, and deeply crenate-striated. *Antennæ* (except at their base and apex, which are paler), and *legs*, dark piceous.

An exceedingly distinct species, differing from both of the Madeiran ones in the minute granules of its head and prothorax (the latter of which is greatly expanded in the middle, and has the sides consequently much rounded), and by its more ovate and *crenate*-striated elytra.

Genus 171. HADRUS. (Tab. XI. fig. 4, 5 et 6.)

Dejean, *Cat.* (3ième édit.) 214 (1837).

Corpus mediocre, plus minusve ovale: fronte (XI. 5 *a*, 6 *a*) ad latera leviter elevatâ, ad apicem profunde bilobâ: *prothorace* ad latera complanato: *metasterno* (XI. 5 *b*) postice vix bifido: *elytris* subconnatis: *alis* obsoletis. *Instrumenta cibaria* (XI. 5 *a*, 5 *c*, 5 *d*, 5 *e*, 6 *a*, 6 *b*, 6 *c*) fere ut in Opatro, sed *mentum* (XI. 5 *e*, 6 *c*) quasi e laminis duabus (unâ ad alteram arcte applicatâ) formatum, superâ subrotundatâ basi truncatâ, inferâ ad angulos anticos porrectâ acutâ (superne conspicuâ) ante angulos sinuatâ. *Pedes* graciles: *tibiis* minutissime setulosis, ad apicem externum (præsertim in *anticis*) oblique excavatis; *anticis* vix dilatatis: *tarsis* heteromeris; *posterioribus* (sed præsertim *posticis*) articulo primo longiusculo; ultimo in *omnibus* elongato, *unguiculis* simplicibus munito.

Ab ἁδρὸς robustus.

There is no Heteromerous genus so universally distributed throughout the Madeiran group, or at the same time so truly indigenous, as *Hadrus*,—there being scarcely a single rock, large or small, on which one or the other of the three representatives described below does not abound. The oral organs of the whole of this section of the Coleoptera are so exceedingly similar, that we can scarcely expect to find any great distinctive features there; nevertheless the mentum of *Hadrus* is very remarkable,—the projecting angles (so apparent from above, and which perhaps should be more strictly regarded as lateral prominences of the *basally corneous* ligula) of its under portion giving it a peculiar character, which does not exist, so far as I am aware, in the allied forms. The species have all the habits of the typical Melasomes,—secreting themselves beneath stones in exposed places on the coast, or between the rough basaltic blocks of higher altitudes. They are usually to be found in company with the *Helopidæ*, *Scarites abbreviatus*, and the *Laparocerus morio*; and are of an eminently gregarious nature.

382. Hadrus alpinus, *Woll.* (Tab. XI. fig. 5.)

H. oblongus niger subtilissime et creberrime granulatus, elytris vix substriatis.

Long. corp. lin. 6–7.

Habitat sub lapidibus, foliisque arborum dejectis, per partem Maderæ sylvaticam, toto anno frequens.

H. oblong (being larger and more parallel than the other species), black, almost free from scales, and most delicately and closely granulated all over. *Elytra* with the faintest possible indication of striæ. *Antennæ* and *tarsi* slightly piceous, or fuscescent.

Known at once from the following two species by its larger size, more parallel outline, and by its most closely and delicately granulated and less scaly surface. In its habits moreover it recedes from them altogether, being strictly a mountain insect,—whereas they are confined to comparatively low elevations and submaritime spots. The *H. alpinus* is, also, more especially peculiar to the *sylvan*

districts, occurring beneath dead leaves, stones, and logs of wood at lofty and intermediate altitudes. It is the least common of the three, nevertheless sufficiently abundant in certain localities. In most of the ravines opening to the south of the island, and on the Serra de Santo Antonio, it is tolerably plentiful; and it was captured by Professor Heer on the Pico Grande, in January of 1851.

383. Hadrus cinerascens. (Tab. XI. fig. 4.)

H. ovalis niger granulatus et plus minusve lutosus, elytris substriatis.

Long. corp. lin. 4½–6.

Hadrus cinerascens, Dejean, *Cat.* (3ième édit.) 214 (1837).
Asida acuminata, Kollar, *in litt.*
Hegeter granulosus, Faldermann, *in litt.*

Habitat in aridis subinferioribus maritimis Maderæ insularumque Desertarum, sub lapidibus vel in rupium fissuris, vulgatissimus,—odorem ingratum spirans.

H. oval (being rather shorter and less parallel than the last species), also more coarsely and less closely granulated, and more or less densely clothed with dirty mud-like scales. *Elytra* more distinctly striated than in that insect,—though the striæ, especially on the disk, are sometimes very faint. *Antennæ* and *tarsi* somewhat obscurely piceous.

The *H. cinerascens* may be readily distinguished from the last species by its smaller size, shorter and more oval form, by its more coarsely and less densely granulated surface, and by the somewhat distincter striæ of its elytra. It is usually also more or less clothed with a scaly substance, which imparts to it a dirty or rusty appearance; and which on the Dezerta Grande takes an almost ferruginous hue,—at times even approximating the colour of the red volcanic mud of which the higher portions of that island are in a great measure composed. It is most abundant throughout the maritime districts of Madeira, as also on the adjacent rocks and the three Dezertas; but in Porto Santo it is represented by the *H. illotus*, which may perhaps be in reality only a local variety of it. On the Ilheo de Fora (the detached extremity of the Ponta São Lourenço) it exists in the utmost profusion, and attains nearly as large a bulk as on the Ilheo Chão,—where the specimens are decidedly above the average in point of development. It is confined more peculiarly to low elevations,—congregating beneath stones, in company with *Helopidæ*, in the driest and most barren spots (its loftiest altitudes seeming scarcely to reach the *lowest* limits of the *H. alpinus*).

384. Hadrus illotus, *Woll.* (Tab. XI. fig. 6.)

H. ovalis subdepressus niger granulatus et plerumque dense lutosus, elytris striatis.

Long. corp. lin. 5–6.

Habitat in Portu Sancto insulisque parvis adjacentibus, sub lapidibus vulgaris; præcedentis forsan varietas.

H. oval (being of almost the same size and outline as the *H. cinerascens*, but more depressed), usually very densely clothed with dirty brownish mud-like scales, and with the *elytra* more distinctly striated than in either of the other species.

As already mentioned, the *H. illotus* may possibly be but a local state of the *H. cinerascens*; nevertheless, since the Madeiran members of the latter do not appear to differ in any respect (except now and then in size) from those of the neighbouring rocks, it is the less easy to assume isolation in the present case to have had sufficient influence to have brought about modifications so perceptible as those which, even at first sight, characterize the former: and yet, on the other hand, it is almost equally unnatural to imagine that an insect so common as the *H. cinerascens* should not have extended itself to Porto Santo before the separation took place, but should have been represented by a closely-allied form which in its own sphere was no less abundant. Without venturing therefore on the solution of this difficult problem, I would register the *H. illotus* as distinct, deeming it enough to have recorded my doubts thus far as to its true specific claims. It occurs in profusion throughout all the lower region of Porto Santo and on the adjacent islands, residing in spots precisely similar to those selected by its Madeiran analogue.

Fam. 48. BLAPSIDÆ.

Genus 172. MACROSTETHUS, *Woll.* (Tab. XI. fig. 8.)

Corpus magnum, elongatum, subcylindrico-ovatum, tuberculatum: *fronte* ad latera leviter elevatâ, ad apicem truncatâ: *prothorace* ovato basi truncato, fere immarginato: *metasterno* postice haud bifido: *elytris* connatis, apice haud acuminatis: *alis* obsoletis. *Antennæ* prothorace vix longiores, apicem versus sensim incrassatæ, articulo primo leviter robusto breviusculo, secundo brevi, tertio longiusculo, reliquis longitudine subæqualibus (articulis apicalibus quatuor, ultimo elongato-subquadrato excepto, subquadratis). *Labrum* (XI. 8 *a*) transverso-subquadratum, antice valde ciliatum vix emarginatum. *Mandibulæ* validæ crassæ corneæ, apice bifidæ, intus in medio profunde fisso-sinuatæ. *Maxillæ* (XI. 8 *b*) bilobæ: *lobo externo* pubescente setoso: *interno* apice acutissimo biuncinato, intus valde setoso. *Palpi maxillares* articulo primo vix parvo extus sinuato, secundo elongato subclavato, tertio primo vix longiore, ultimo magno securiformi: *labiales* (XI. 8 *c*) e scapis ligulæ connatis surgentes, articulis primo et secundo longitudine subæqualibus (illo graciliore, extus sinuato), ultimo crassiusculo pyriformi basi subflexuoso. *Mentum* robustissimum rotundato-subovatum, summo apice vix emarginato. *Ligula* antice lata, recte truncata et dense ciliata. *Pedes* longiusculi: *tibiis* fere glabris, versus apicem internum tenuiter pubescentibus (calcariis spinulisque apicalibus obsoletis): *tarsis* heteromeris; *posticis* articulo primo longiusculo; ultimo in *omnibus* elongato, *unguiculis* simplicibus munito.

A μακρὸς longus, et στῆθος pectus.

A most distinct and interesting genus, differing from *Blaps* in many important particulars, as, for instance, in its tuberculose upper surface, convexer body, ovate

and almost immarginate prothorax, unacuminated elytra, and in the structure of its antennæ and tibiæ,—the former of which (instead of being moniliform at their extremity) are distinctly clavate, with the last four joints almost quadrangular (the terminal one being large and comparatively elongated); whilst the latter are nearly glabrous, and without any indication of the two spurs, and scarcely any of the series of minute spines, which are so universal in the present groups. In minor details moreover, there are a few peculiarities which will serve, additionally, to remove it from *Blaps*,—amongst which the outwardly-excavated and somewhat longer basal articulation of its palpi, the more dilated and securiform apex of its maxillary pair, in conjunction with its rounder and less transverse mentum, and its straightly-truncated ligula, should be especially noticed.

385. Macrostethus tuberculatus, *Woll.* (Tab. XI. fig. 8.)

M. ater minutissime et crebre punctulatus, prothorace ovato basi truncato, tuberculis sublævibus vix elevatis adsperso, elytris nitidis leviter striato-punctatis, interstitiis valde seriatim tuberculatis. Long. corp. lin. 10.

Habitat in ins. Desertæ Borealis, a Rev^do^ Dom. Lowe Junio ineunte A.D. 1850 repertus.

M. elongated and somewhat cylindrical-ovate (being rather acuminated anteriorly), deep black, closely and most minutely punctulated all over. *Head* and *prothorax* nearly opake; the *latter* ovate, but truncated at the base (the widest part being a little behind the middle), and uniformly studded with slightly shining, though very obscurely elevated, tubercles. *Elytra* a good deal more shining than the head and prothorax, and subrugulose; and, in addition to the smaller punctures (which however are somewhat more distinct than the prothoracic ones), finely striate-punctate,—the interstices having a series of large and considerably raised tubercles down each. *Antennæ* and *tarsi* somewhat piceous; the *former* (which have their apex ferruginous) the paler of the two.

Apparently of the greatest rarity, the only specimen which I have seen having been presented to me by the Rev. R. T. Lowe, by whom it was discovered on the Flat Dezerta, or Ilheo Chão, during our encampment in that singular little island at the beginning of June 1850. It was captured in his tent and under rather curious circumstances,—namely in the act of emerging from beneath his bed, which had been made on the dry ground. It is unquestionably one of the most remarkable of the Coleopterous members of our fauna,—rendered doubly interesting perhaps from the remote rock on which it was taken, and to which it would consequently appear (so far at least as our observations have hitherto gone) to be peculiar. Though I searched diligently in the immediate vicinity of the spot where it occurred, I did not succeed in procuring more. It approximates a good deal, in general affinity, the *Blaps clypeata* of Germar, from Spain and Portugal,—the genus *Cœlometopus* (subsequently) of Solier, to which it is not impossible indeed that it may be found to belong; and especially so, since the tibiæ there are not only (as here) subglabrous, but have their apical calcariæ and spines so diminished in size as to be nearly obsolete, whilst the antennæ are, at the same

time, distinctly thickened at their extremities, the elytra are unacuminated posteriorly, and the aspect (as in *Macrostethus*) is somewhat cylindrical and obtuse. Specifically, however, the two are widely different,—the European representative (for an opportunity of examining which I am indebted to M. Deyrolle of Paris) being not only smaller than its Madeiran ally, and without any indication of the peculiar tuberculose sculpture which is there so conspicuous; but possessing likewise a very oppositely shaped prothorax (which, as in the more typical *Blapes*, is strongly margined, broadest *before* the middle, and slightly excavated behind).

Genus 173. BLAPS.

Fabricius, *Syst. Ent.* 254 (1775).

Corpus magnum, elongatum, plus minusve ovato-subellipticum, depressiusculum: fronte ad latera leviter elevatâ, ad apicem recte truncatâ: *prothorace* anguste marginato: *metasterno* postice haud bifido: *elytris* connatis, apice (præsertim in fœminis) acuminatis: *alis* obsoletis. *Antennæ* fere ut in Macrostetho, sed apicem versus moniliformes et minus incrassatæ (articulis quatuor apicalibus, ultimo acuminato-ovato excepto, subglobosis). *Instrumenta cibaria* fere ut in Macrostetho, sed *labrum* interdum profundius bilobum; *articulus palporum basilaris* paulo brevior extus haud excavatus, et *ultimus in maxillaribus* minus securiformi-inflatus; et *ligula* antice biloba. *Pedes* elongati: *tibiis* minutissime ruguloso-spinulosis: *tarsis* heteromeris; *posticis* articulo primo longiusculo.

The genus *Blaps*, so widely distributed throughout the Old World, is almost too familiar to render observations concerning it necessary,—the large and elongated, though somewhat thickened, bodies of the various insects which compose it, their uniformly black hue and very faintly striated, or almost unsculptured (though occasionally wrinkled), upper surfaces, in conjunction with the unusual length of their legs, and the acuminated extremities both of their elytra (especially in the female sex) and of the terminal joint of their (sub-apically moniliform) antennæ, being at once sufficient to separate it from the allied groups. The species, like the rest of the *Melasomes*, are of a darkling nature, residing either in cellars and stables (and other damp spots in the immediate vicinity of dwelling-houses) or else in caves and beneath stones in the open country,—which last however is more particularly the case in southern latitudes and in maritime districts. They are for the most part very gregarious, and emit more or less of an unpleasant odour.

386. Blaps gages.

B. atra minute et obsolete punctulata, labro profunde bilobo, prothorace convexo antice leviter dilatato, elytris subellipticis basi truncatis, antennis pedibusque longioribus.

Fœm., elytri singuli apice valde acuminato, et abdominis segmento secundo in parte media fasciculo pilorum ferrugineo instructo.

Var. β. paulo minor, prothorace antice vix dilatato.

Long. corp. lin. 12–17.

Tenebrio gages, Linn. (test. Mus° Lin°) *Syst. Nat.* ii. 676 (script., per errorem typogr., *gigas*) (1767).
Blaps gages, Fab. *Ent. Syst.* i. 106 (1792).
—— *gigas*, Lat. *Hist. Nat. des Crust. et Ins.* x. 278 (1804).
—— *gages*, Brullé, *in Webb et Berth. Hist. Nat. des Iles Canar.* 68 (1839).

Habitat per oram maritimam Maderæ Portûsque Sancti, in cavernis tufæ vel sub lapidibus, sat frequens.

B. large, and somewhat narrow in proportion to its length, deep black, slightly shining, and most minutely (but not very closely) punctulated all over (the punctures occasionally being almost imperceptible). *Labrum* deeply bilobed in front. *Prothorax* rather convex, and distinctly wider anteriorly than behind. *Elytra* most obsoletely striated (the striæ sometimes hardly perceptible); and each produced into an acute mucro at its apex, the two together forming a bifid projection. *Antennæ* and *legs* elongated; the *apex* of the former more or less fuscescent.

Female, with the extremity of the elytra more produced; and with a tuft of ferruginous hairs at the base of the second segment of the abdomen beneath.

Var. β. slightly smaller, and with the prothorax not quite so distinctly widened in front.

The largest, in bulk, of all the Coleopterous members of our fauna; and readily distinguished from the *B. fatadica* by its more lengthened and elliptical body (which is *in proportion* narrower than is there the case), by its convexer and subcordate prothorax, less sculptured surface, and by its longer limbs. It is abundant throughout the Mediterranean districts of Europe and Africa, though rarer as we proceed northwards; and it occurs likewise in the Canarian group. In the Madeira Islands it is confined principally to caverns on the sea-shore,—in which positions, in the vicinity of Funchal, it is at times tolerably common. It has been captured in profusion by Professor Heer and M. Rousset in basaltic caves at the Gorgulho, as also in the Ribeiro Secco; and I have myself met with it, sparingly, in Porto Santo,—where it would appear to be somewhat scarce. Regarding its synonymy, great confusion seems to have arisen through an inaccuracy of the press in the *Systema Naturæ*, where the word *gigas* was accidentally inserted instead of *gages*. That this *lapsus typographiæ* however ought not to be taken advantage of, in regulating the title of the species, is clear from two considerations: namely, first, that Linnæus had already described as "*Tenebrio gigas*" an insect totally different (from the Brazils),—which should, alone, have been sufficient to prove the *second* application to have been a mere misprint (more especially in so comparatively small a genus as his *Tenebrio*); and, secondly, because the original specimens are still in existence, in London, with "*gages*" distinctly attached to them,—and it is a universally admitted law that the *types* of any published collection should take the precedence over, and be allowed to correct the errors of, the work itself. Indeed, were this principle once to be abandoned, it would open the way to innumerable difficulties, and necessitate changes throughout a very large proportion of the entire Coleoptera. And if, further, Linnæus's *own admission* of the mistake were necessary (which however, in an instance like the present, could be scarcely required), it may be supplied by a reference to his copies of the *Systema Naturæ*,

in which the word *gigas* is erased and *gages* substituted in its place. This appears to have been understood and recognized by Fabricius, who quotes the *name of "gages" as Linnæan* (which both the *museum* and *manuscript* do in fact show it, in reality, to have been),—thus, very properly, making allowances for the blunder; and even identifying the insect with that of the *Systema Naturæ*, though it be there *unintentionally called "gigas."*

387. Blaps fatadica.

B. atra crebre punctulata, labro fere integro, prothorace depresso subquadrato, elytris rugulosis subovatis basi truncatis, antennis pedibusque brevioribus.

Fœm. ut in præcedente, sed elytrorum apice minus producto.

Long. corp. lin. 9–12.

Blaps fatadica, (Creutzer) Sturm, *Deutsch. Fna*, ii. 205. tab. 45. fig. *a*, *b* (1807).
——— ———, Dufts. *Fna Austr.* ii. 282 (1812).
———– *obtusa*, Steph. *Ill. Brit. Ent.* v. 23 (1832).
———*fatadica*, Brullé, *in Webb et Berth. Hist. Nat. des Iles Canar.* 68 (1839).

Habitat Maderam et Portum Sanctum, in domibus, cellis, vel etiam in cavernis tufæ (cum præcedente) per oram maritimam, vulgaris.

B. smaller, broader in proportion, and more ovate than the last species, deep black, and more coarsely and closely punctulated. *Labrum* almost entire in front. *Prothorax* more depressed than in the *B. gages*, and nearly quadrate. *Elytra* somewhat more shining than the head and prothorax (which are almost opake), rugulose, and with the faintest possible indications of striæ; the apex of each scarcely at all produced in the males, but in the females (which, as in the *B. gages*, have also a tuft of ferruginous hairs at the base of the second segment of the abdomen beneath) very distinctly so,—the points however not diverging as in the last species. *Antennæ* and *legs* much shorter than those of the *B. gages*; the *apex* of the former very obscurely fuscescent.

The commoner of the two species in the Madeira Islands; and extremely abundant throughout the whole of Europe, the north of Africa, and in the Canarian group. It is very plentiful in damp outhouses, cellars, and stables near Funchal; nevertheless it is occasionally to be found (like the *B. gages*) in basaltic caverns, or beneath stones, on the sea-shore. I have observed it likewise, plentifully, in Porto Santo.

Fam. 49. TENTYRIADÆ.

Genus 174. HEGETER. (Tab. XI. fig. 7.)

Latreille, *Hist. Nat. des Crust. et Ins.* iii. 172 (1802.)

Corpus magnum, plus minusve elongato-subovatum: *fronte* (XI. 7 *a*) ad latera leviter elevatâ, ad apicem productâ rotundatâ: *jugulo* subtus in parte mediâ impresso: *prothorace* plus minusve

quadrato, ad angulos anticos sæpius porrecto: *metasterno* postice vix bifido: *elytris* connatis: *alis* obsoletis. *Antennæ* (XI. 7 *b*) et *instrumenta cibaria* (XI. 7 *a*, 7 *c*, 7 *d*) fere ut in genere præcedente, sed *illæ* apicem versus minus incrassatæ et articulo ultimo brevi oblique truncato; *maxillarum lobus internus* simplex (nec biuncinatus); *palporum maxillarium articulus ultimus* minor et vix securiformis; *palpi labiales* longiores graciliores; et *mentum* multo amplius, ligulam fere tegens. *Pedes* plerumque elongati graciles: *tibiis* fere glabris, aut minutissime setulosis: *tarsis* heteromeris; *posterioribus* (sed præsertim *posticis*) articulo primo elongato.

The present genus, apparently the only Madeiran representative of the *Tentyriadæ*, may be known by its more or less quadrangular prothorax, by its anteriorly rounded and porrected clypeus, and by the minute, obliquely truncated apical joint of its antennæ. As in the rest of the department to which it belongs, its mentum is largely developed (almost entirely concealing the ligula), and the terminal articulation of its maxillary palpi is but slightly dilated (being far less securiform moreover than is the case in the previous families of the *Atrachelia*). The under side of its head has usually more or less of a groove and rounded impression in the centre of the jugulum (behind the mentum); and its internal maxillary lobe is simple, being never armed (as in *Blaps*) with an additional claw. Although but a single *Hegeter** would seem to enter our fauna, the genus may be said, nevertheless, to be eminently characteristic of the whole of these Atlantic islands: for, whilst endemic species are being gradually brought to light in each of them, and whilst one or two have not only overspread all, but have even been reported from the nearest European and African shores (as, for instance, the *H. elongatus* from Senegal, and the *H. Amaroides* from Spain), the existence of a collective mass, as it were, in the Canarian group points to that particular region as the probable area from whence the greater number of them were originally diffused. On the Salvages we find a modification peculiar to those rocks†; but, as just stated, it is in

* In the fourth volume of the *Ann. de la Soc. Ent. de France*, there are *two* recorded by Solier,—namely the *H. striatus*, Lat. (*i. e.* the *elongatus*, Oliv.), and the *H. Amaroides*,—as Madeiran, though only on the evidence of Dupont's collection. It is possible indeed that the latter may be found in these islands, for it is abundant in the Canaries; yet, as I have not myself succeeded in detecting it, and since it has equally evaded the researches of the Rev. R. T. Lowe, Professor Heer, Dr. Albers, MM. Hartung, Rousset and others, I have preferred not admitting it into our fauna,—inasmuch as it is far from unlikely that some mistake may have arisen respecting the locality; and more especially so, since such-like errors are of constant experience in general collections, formed of necessity through various (and not always particularly correct) media. It is the same authority which pronounces it to occur in the south of Spain: and although I have not the means of testing (and would not therefore wish to doubt) the accuracy of this statement, yet I cannot but regard the *Madeiran* habitat as at any rate *uncertain*. I would on no account however affirm that it actually does not exist in our present group, since, next to the common *H. elongatus*, it would seem to have the greatest diffusive powers (and therefore there is no reason, *à priori*, why it should not be Madeiran as well as Canarian): nevertheless, if such be the case, it is exceedingly remarkable that it should have hitherto completely escaped the combined investigations of so many working naturalists.

† This species evidently approaches one or two from Teneriffe,—of which indeed it may be perhaps but an altered state from long seclusion on these barren and exposed rocks: nevertheless, since it does not exactly accord with the description of any of those given by Brullé in Webb and Berthelot's work on

the Canaries that they attain their maximum,—where no fewer than twelve have been already recorded by Webb and Berthelot, and where it is far from unlikely that many more still remain to be detected. They are insects of a very gregarious nature, and of sedentary modes of life,—congregating in caverns and beneath stones, especially near the sea-shore, and avoiding the light. The common *H. elongatus* indeed is occasionally to be met with (in the same manner as the *Blapsidæ*) in and about houses; but their normal range is decidedly at a distance from habitations,—in which respect they partake a good deal of the character of *Helops*.

388. Hegeter elongatus. (Tab. XI. fig. 7.)

H. ater subopacus impunctatus subdepressus, capite subtus sulco brevi longitudinali profunde impresso, prothorace subquadrato ad angulos acuto, elytris striatis, antennis pedibusque longioribus, tibiis subglabris.

Long. corp. lin. 7–9.

Blaps elongata, Oliv. *Ent.* iii. 60. pl. 1. fig. 7 (1795).
Hegeter striatus, Lat. *Hist. Nat. des Crust. et Ins.* x. 276 (1804).
——— ———, Solier, *Ann. de la Soc. Ent. de France*, iv. 377 (1835).
——— ———, Brullé, *in Webb et Berth. Hist. Nat. des Iles Canar.* 64 (1839).

Habitat sub lapidibus et in cavernis Maderæ Portûsque Sancti, præsertim per oram maritimam, toto anno frequens: in cavernâ quadam basalticâ mox infra summum montem Portosanctanum Pico d'Anna Ferreira dictum sitâ mense Aprili A.D. 1849 copiosissime collegi.

H. elongate-ovate (being widest behind the middle), deep black, almost opake (especially the head and prothorax), impunctate and somewhat depressed. *Head underneath* with a very deep longitudinal (though abbreviated) impression in the centre, at the base of the mentum. *Prothorax*

---

the Canaries, and since its remote locality renders it desirable that it should be distinguished, I subjoin the following diagnosis which may serve to separate it from its allies:

Hegeter latebricola, *Woll.*

H. ater subnitidus minute punctulatus subconvexus, capite subtus vix impresso, prothorace transverso ad angulos minus acuto, elytris vix substriatis, antennis pedibusque brevioribus, tibiis leviter setulosis.

Long. corp. lin. 5½–7.

Habitat in insulis "Salvages," a Dom. Leacock nuper communicatus.

H. oblong-ovate (being widest about the middle), deep shining black, closely and minutely punctulated all over, and somewhat convex. *Head beneath* with scarcely any indication of the impression which is so deep and apparent in the Madeiran *H. elongatus*. *Prothorax* transverse, being much shorter than in that species; also with the sides slightly more rounded and the angles not quite so acute. *Elytra* with the faintest possible indications of striæ (which are sometimes however altogether obsolete). *Antennæ* and *legs* shorter than in the *H. elongatus*; the *latter* with their *tibiæ* minutely setulose.

It was discovered by T. S. Leacock, Esq., of Funchal (on the "Great Piton"), during his late expedition to the Salvages; to whom I am indebted for a fine series of specimens, in a very perfect state.

subquadrate, with the sides nearly straight and all the angles acute,—the anterior ones being considerably porrected. *Elytra* distinctly sulcated, or striated, but without any indications of punctures. *Antennæ* and *legs* long; the *latter* with their *tibiæ* almost glabrous.

Exceedingly common throughout the islands of the Madeiran group, occurring in basaltic caves, or beneath stones, in spots near to the coast,—though usually at low elevations. In Porto Santo however I have captured it, in the utmost profusion, near the summit of the Pico d'Anna Ferreira, in a large cavern opening to the south. In the neighbourhood of Funchal it is at times equally plentiful,—especially in excavations of the tufa along the sea-beach; and it is occasionally to be met with even in and around dwelling-houses (like many of the *Blapsidæ*): nevertheless the vicinity of the shore is clearly its normal range. It is abundant in the Canaries; and I am informed by M. Deyrolle of Paris that he has received it from Senegal, on the coast of Africa. Regarding the *habitat* of the *Blaps elongata* of Olivier (viz. the Cape of Good Hope), I am inclined to suspect that there must have been some error connected with it; for, if the insect be really the same as the Madeiran and Canarian one (as is universally admitted), it is extremely unlikely that it should occur at so vast a distance from its (evidently) legitimate sphere. And so, apparently, thought Dejean also (unless indeed, which is not improbable, he had *certain information* on the subject),—for, although Olivier gives the Cape of Good Hope as the locality of his species, Dejean subsequently (in his Catalogue) corrects the mistake, citing Teneriffe instead.

Fam. 50. HELOPIDÆ.

Genus 175. HELOPS. (Tab. XII.)

Fabricius, *Syst. Ent.* 257 (1775).

Corpus magnum, plus minusve (in speciebus Maderensibus saltem) oblongo-ovatum, convexum: *fronte* (XII. 2 *a*) ad latera leviter elevatâ, ad apicem truncatâ: *metasterno* postice vix bifido: *elytris* modo liberis, modo (ut in speciebus nostris) subconnatis: *alis* obsoletis. *Antennæ* capite prothoraceque paulo (in maribus interdum multo) longiores, filiformes, apicem versus vix sensim incrassatæ et haud moniliformes, articulo primo leviter robusto breviusculo, secundo brevissimo, tertio elongato, reliquis longitudine subæqualibus (ultimo extus oblique subtruncato). *Instrumenta cibaria* (XII. 2 *a*–2 *d*, 4 *a*–4 *d*, 6 *a*–6 *c*, 8 *a*–8 *c*) fere ut in Macrostetho, sed *maxillarum lobus internus* simplex latior apice obtusus, et *mentum* subquadratum antice integrum. *Pedes* elongati, plerumque subgraciles: *tibiis* subtiliter pubescentibus; *anticis* ad apicem externum (in maribus præcipue) interdum acutis: *tarsis* heteromeris, subtus dense pubescentibus (*anterioribus* articulis, ultimo excepto, interdum subcordatis et in maribus plus minusve dilatatis); *posticis* articulo primo longiusculo.

The representatives of the present very extensive genus may be known (so far at least as the European ones are concerned) by their convex, rather thickened and

more or less oblong-ovate bodies (their prothorax being usually almost as broad behind as the base of their elytra), by their comparatively elongated, filiform antennæ and by their subpubescent (unspinulose) legs,—which have the joints of the four anterior tarsi slightly cordate, and often a little dilated in the male sex. Although for the most part of a sombre hue, they are insects which are not universally (like those of the three preceding families) dark,—assuming occasionally more pleasing tints or even a metallic lustre. Still, black is their prevailing shade; as is especially implied in the Madeira Islands, where a dull rusty-brown is the most lively colour indicated,—and even that by two or three members only of a somewhat aberrant mould. In their propensities they would appear to combine those of the previous groups with the subcortical ones of the *Diaperidæ*; being found not merely beneath stones in the vicinity of the coast, and in the open country, but likewise under the moss and loose bark of trees in damp wooded spots. In so large an assemblage it is not surprising that we should discover several types of form; nevertheless, though such is the case, it is scarcely possible to make use of any of them for so much as even sectional purposes, since they all exhibit so great a congruity in the details of their trophi as to be nearly coincident, whilst *externally* they are merged *inter se* by imperceptible gradations. Although not available however in analysis, they may be advantageously studied in a general way, inasmuch as the habits and outward features of the various species are in some measure reciprocal,—or at any rate so far consistent with each other as to render the investigation of them interesting. This indeed we should *à priori* expect, for it is hardly to be supposed that creatures normally subcortical should offer no points of dissimilarity from those whose range is beneath stones along the sea-shore or in the rocky crevices of weather-beaten peaks. Did not in fact intermediate modes of life occur, between the extremes, disclosing corresponding links of structure, there might be some hope of resolving this immense race into natural divisions; but, since such are traceable, we can only contemplate the adjustments in question as a mere matter of local and specific interest, without any reference to generic simplification.

In the Madeira Islands the *Helopidæ* may be said to play an important part amongst the indigenous Coleoptera, and would seem to include but few modifications (if any) of a purely sylvan nature. On the contrary, they are all more or less residents *in aperto*, and most of them exclusively so. One or two are at times to be met with, it is true, under bark; but even *these* harbour more abundantly beneath stones, and attain in such situations a more perfect development. In reality, the entire number may be pronounced as not only extra-sylvan, but as typically natives of the most barren and exposed regions. And if we turn to their external contour, we shall perceive them all to be fashioned after a certain pattern which obtains throughout the whole of these Atlantic groups. Thus, for instance, anything approaching to gay colours does not so much as exist (their ordinary hue being deep black); then, they are, in every instance, apterous (their retiring habits

rendering wings unnecessary); their elytra are almost invariably joined together; their bodies are especially thick and subovate (or at least it is their tendency to become so, their prothoraces being wider posteriorly than is usually the case in the flower-infesting or metallic forms); and their four anterior feet are always expanded in the males,—in which sex also the legs are peculiarly robust, and the antennæ are much elongated. Like the *Hadri*, they are excessively gregarious,—clustering beneath slabs of stone (often in the utmost profusion), or secreting themselves in the chinks and fissures of the mountain-summits. They most of them emit, when captured, an unpleasant odour (like a large proportion of the *Melasomes*); and so pungent is this scent in one or two of the species, that their presence may be frequently detected even before actually observed.

389. Helops Vulcanus, *Woll.* (Tab. XII. fig. 1.)

H. subovatus ater subnitidus confertim punctulatus, prothorace amplo convexo ad latera basin versus sinuato (angulis posticis plus minusve subrectis), elytris rugosis profunde crenato-striatis, interstitiis apicem versus seriatim tuberculatis, antennis pedibusque robustis.

Var. α. latus, prothorace ad angulos posticos subrecto. (Ins^{æ}. *Deserta Borealis* et *Grandis*.)

Var. β. vix angustior convexior, prothorace ad latera valde sinuato angulis posticis rectis. (Ins. *Ilheo de Fora*.)

Var. γ. angustior minor oblongior et profundius punctatus, prothorace paulo longiore ad angulos posticos subrecto. (*Ilheo de Fora*; status aberrans.)

Var. δ. prothorace ad latera minus sinuato angulis posticis subobtusis. (*Madera*; per oram maritimam.)

Long. corp. lin. $6\frac{1}{2}$–10.

Habitat sub lapidibus et in rupium fissuris Maderæ, insularum adjacentium necnon Desertarum, præsertim mox supra oram maritimam, non infrequens: in summo Desertæ Grandis atque in insulâ Ilheo de Fora dictâ prædominat.

H. subovate, deep black, slightly shining, closely and rather coarsely punctulated. *Prothorax* large and convex; widest a little before the middle, and with the sides sinuated behind,—causing the posterior angles to be more or less of right angles. *Elytra* rugose, or transversely wrinkled; deeply crenate-striated; the interstices having each a row of tubercles, apparent behind but obsolete in front. *Legs* and *antennæ* exceedingly robust, especially in the males.

Var. α. slightly wider and larger than the other varieties. *Prothorax* with the posterior angles almost right angles, but with the anterior portion scarcely so much expanded as in the *var.* β. (The state peculiar to the *Northern* and *Central Dezertas*.)

Var. β. a trifle narrower and more convex than the Dezertan specimens. *Prothorax* with the sides greatly sinuated behind, and with the posterior angles right angles. (Typical on the *Ilheo de Fora*.)

Var. γ. the narrowest in proportion of the whole, being more oblong (or subcylindrical), also smaller and rather more deeply punctured; with the *prothorax* comparatively elongated, and its posterior angles almost right angles. (*Ilheo de Fora*; abnormal state.)

Var. δ. *prothorax* with the sides rather less sinuated than in any of the previous varieties, and with its posterior angles somewhat obtuse. (*Madeira*; in fissures of the rocks near the coast.)

It must be admitted that the *H. Vulcanus* and *confertus* approach each other very closely in most respects except in magnitude. Nevertheless they have small peculiarities of their own, which, when pointed out, will be usually at once appreciated even in those examples where their aberrations of size (in contrary directions) would seem almost to meet: and, although I was originally inclined to consider them as phases of one and the same species, yet a more accurate analysis (of an extensive series, collected in different islands and at many altitudes), and, above all, a careful observation of their habits *in situ*, has subsequently convinced me that they are truly distinct. In their normal states there could never be any hesitation, even at first sight, in passing judgment upon them; since the gigantic dimensions of the *H. Vulcanus* (more than doubling the other), in conjunction with its singularly robust legs and antennæ, would of themselves suffice to characterize it. But since both are of variable stature, it becomes necessary to be able to recognise not the extremes only, but likewise the means. Howbeit we may here premise that, even were occasional individuals to occur, out of a very large number (which, so far as my own experience is concerned, has not hitherto happened), in which real difficulty of identification would appear to exist, the problem still remains unsolved, whether an exceptional link is to be regarded as of sufficient importance to cause the amalgamation of otherwise well-defined forms; and whether a *lusus Naturæ* may not sometimes be the real explanation of what might seem to us, when contemplated from an opposite point of view, to be connective. I would merely mention this as a safeguard against a too hasty conclusion in an instance like the present one, and not that the case (so far at least as I have reason to believe) actually requires it,—since I have scarcely ever failed to separate, and that too with perfect ease, every specimen of the insects in question which has yet come beneath my notice.

Under all circumstances, I apprehend that the species which we are discussing may be determined by their limbs and prothorax,—the former of which are much thicker in the *H. Vulcanus* than in the *confertus*, whilst the latter is more excavated behind (thus not only causing the edges to be more sinuated, but likewise the posterior angles to be either subacute or right angles; whereas in the more regularly rounded and somewhat smaller and less convex prothorax of the *H. confertus*, they are comparatively obtuse). This, I think, will generally enable us to discriminate even the intermediate, or outwardly approximating, examples; but, where the inquiry simply lies between the two in their typical conditions, the immensely greater bulk of the *H. Vulcanus* (apart from the minor features enumerated in the diagnosis) will prevent any doubt from being entertained, even *primâ facie*, on the subject. Their modes of life moreover are in a high degree dissimilar,—the *confertus* being the only Madeiran *Helops* (unless I am mistaken) of subcortical pro-

pensities (it being found almost as often under bark as stones, accommodating itself to the sylvan districts); whilst the *Vulcanus* is confined to the most exposed spots near the coast, harbouring either beneath basaltic slabs on the barren cliffs, or else (which is more especially the case) in the fissures of the weather-beaten peaks of the adjacent islands. On the extreme summit of the Dezerta Grande I have captured it in profusion, during the winter and spring (in company with the *H. congregatus*, *Hadrus cinerascens*, and the *Scarites abbreviatus*),—by splitting open the masses of rock and tufa which had become loosened by the action of the atmosphere: and on the Flat Dezerta, or Ilheo Chão, it is equally abundant. On the Ilheo de Fora (the small, pyramidal, detached extremity of the Ponta São Lourenço) it is exceedingly plentiful,—where, on the 19th of March 1849, I took a vast quantity of specimens, a little differing from those of the Dezertas (though coincident with them in everything essential), and constituting two varieties, which I have endeavoured to indicate in the above description.

390. Helops confertus, *Woll.* (Tab. XII. fig. 2.)

H. subovatus ater (vel niger) subnitidus confertim punctulatus, prothorace ad latera rotundato (angulis posticis obtusis), elytris crenato-striatis, interstitiis apicem versus seriatim tuberculatis, antennis pedibusque fuscescentibus.

Var. α. elytris rugosis et profunde crenato-striatis. (In *Maderâ* status typicus, sub lapidibus corticeve arborum ubique vulgaris.)

Var. β. subpicescens (artubus dilutioribus), elytris vix rugosis et leviter crenato-striatis. (In *Maderâ* status aberrans, per regionem alpinam præsertim occurrens.)

Long. corp. lin. 5–6½.

Habitat Maderam propriam, sub lapidibus vel cortice arborum laxo, ab orâ maritimâ usque ad cacumina montium copiosissime ascendens; *var.* β. regionem alpinam præsertim colit.

H. resembling the last species, but, on the average, very much smaller; the *prothorax* a little shorter in proportion and not quite so convex; and with the sides almost uniformly rounded,—being scarcely at all sinuated or scooped out behind, so that the posterior angles are more obtuse. The *legs* and *antennæ*, also, are much less robust than those of the *H. Vulcanus*, and more or less piceous or fuscescent.

Var. α. with the elytra much roughened (as in the *H. Vulcanus*) and deeply crenate-striated. (The typical state throughout *Madeira*, except in the highest altitudes.)

Var. β. with more or less of an obscure picescent tinge,—especially on the legs and antennæ, which are sometimes almost ferruginous. *Elytra* less roughened and with the striæ not so deep,—but with the tubercles on the interstices behind, nevertheless, always apparent. (The aberrant state, occurring principally in the loftiest altitudes of *Madeira*.)

The distinctions between the present insect and the last one have been already pointed out. It is by far the most abundant of the *Helopidæ* here described, and with the most extended range,—nevertheless confined exclusively, so far as I have

hitherto observed, to Madeira proper; where it occurs at nearly all elevations, though more particularly below the altitude of 2000 feet. It is the only member of the genus included in our fauna in which a subcortical tendency would appear to be indicated: yet, *normally*, I believe that even it is extra-sylvan, since it is unquestionably commoner beneath stones than bark. It varies a little according to the altitude at which it is found, being usually deeply striated and rugose on its lower, but subpicescent and much more lightly sculptured on its upper limits. I have taken specimens indeed on the Pico Ruivo and on the mountain-plain of the Fateiras which are so far diminished in roughness as almost to resemble, at first sight, the *H. Pluto*; nevertheless the more rounded edges of their (less anteriorly-acuminated) prothorax, in conjunction with the tubercles (which are never absent) on the hinder region of their elytral interstices, will always succeed in distinguishing even such examples as these, on further examination, from that species.

391. Helops Pluto, *Woll.* (Tab. XII. fig. 3.)

H. elliptico-ovatus ater (vel niger) nitidissimus confertim punctulatus, prothorace antice acuminato ad latera oblique-subrecto, elytris leviter crenato-striatis, antennis pedibusque paulo brevioribus fuscescentibus.

Long. corp. lin. $3\frac{1}{2}$–5.

Habitat sub lapidibus Maderæ (a 3000′ s. m. usque ad summos montes ascendens), tempore hiberno et vernali vulgaris.

H. elliptical-ovate (being about equally acuminated before and behind), deep black, exceedingly shining, and closely but rather finely punctulated. *Prothorax* narrowed in front, the widest part being at the extreme hinder margin; and with the sides nearly straight (though oblique), and the posterior angles rather acute. *Elytra* scarcely at all roughened, and lightly crenate-striated; the interstices having no appearance of the hinder tubercles which are more or less evident on so many of the other species. *Legs* and *antennæ* somewhat shorter comparatively than those of the *H. confertus*, and more or less brownish-piceous or fuscescent.

An exceedingly distinct *Helops*; and readily known from the remainder of the genus here described by its elliptical outline and by its brightly shining and comparatively smooth surface,—which has no appearance of the hinder elytral tubercles which are so perceptible in most of its allies. Its prothorax also is more attenuated in front, and has the sides (although oblique) straighter, than is the case in any of the other species. It is peculiar to lofty altitudes, where however throughout the winter months it is remarkably abundant,—occurring beneath stones on the exposed grassy slopes, from about 3000 feet above the sea to the extreme summits of the peaks. In the elevated district between the Pico da Lagoa and the Pico dos Arieros I have observed it in the utmost profusion during the early spring; and I have likewise captured it on the upland plain of the Paul da

Serra, and on most of the mountain ridges in the interior of the island. It has been also taken by Professor Heer on the Pico Grande.

392. Helops infernus, *Woll.* (Tab. XII. fig. 4.)

H. oblongo-ovatus niger (vel ater) subopacus confertissime punctulatus, prothorace ad latera rotundato, elytris dense rugulosis subcrenato-striatis, interstitiis apicem versus vix seriatim tuberculatis, antennis pedibusque fuscescentibus.

Long. corp. lin. 4–6½.

Habitat sub lapidibus in campis aridis Portûs Sancti, tempore vernali, vulgaris.

H. oblong-ovate (or somewhat semicylindrical), dull black (occasionally with a very obscure piceous or rusty tinge), nearly opake, and most closely and rather roughly punctulated. *Prothorax* nearly as broad before as behind, the widest part being about the middle; and with the sides slightly but uniformly rounded. *Elytra* most densely rugulose (having almost the appearance at first sight of being closely granuled), and crenate-striated (though not very deeply so); the interstices with the hinder tubercles small, and, on account of the roughness of the surface, exceedingly indistinct. *Legs* and *antennæ* more or less brownish-piceous or fuscescent.

A species peculiar to Porto Santo, and with exceedingly well-marked characters,—which (judging from many hundred specimens which have come beneath my notice) would appear in every instance to remain constant; its somewhat oblong or semicylindrical form, in conjunction with its nearly opake and very closely punctured surface (the elytral portion of which would almost seem, at first sight, to be granulated), being at once sufficient to separate it from the rest of the Madeiran *Helopidæ* here described*. It is extremely abundant in the low sandy

* In its opacity and somewhat cylindrical contour, it slightly resembles a species from the Salvages: nevertheless the almost impunctate surface of that insect, added to its more posteriorly-narrowed prothorax, will readily separate it from the *H. infernus*. As it is certainly undescribed, I subjoin the following diagnosis, which will serve to distinguish it from its Madeiran and Porto Santan allies:

Helops Leacocianus, *Woll.*

H. oblongo-ovatus ater subopacus minutissime et vix confertim punctulatus, prothorace ad latera valde rotundato, elytris crenato-striatis, interstitiis apicem versus seriatim tuberculatis, antennis pedibusque breviusculis picescentibus.

Long. corp. lin. 5.

Habitat in insulis "Salvages," a Dom. Leacock nuper communicatus, cujus in honorem speciem stabilivi.

H. oblong-ovate, deep black, nearly opake, and most minutely, but not very densely punctulated. *Prothorax* with the sides considerably rounded, being a good deal (and almost equally) narrowed before and behind. *Elytra* very obscurely rugulose, but distinctly crenate-striated (the striæ having almost the appearance of being punctate); the interstices with the hinder tubercles large and distinct. *Legs* and *antennæ* somewhat piceous.

A single specimen of this very distinct and interesting *Helops* has been lately communicated to me by T. S. Leacock, Esq., of Funchal, by whom it was captured on the "Great Piton" (during his late expedition to the Salvages), and to whom I have dedicated the species.

districts of Porto Santo, during the winter and spring,—especially on the Campo de Baxo, and the flat cultivated ground behind the sea-beach.

393. Helops lucifugus, *Woll.* (Tab. XII. fig. 5.)

H. ovatus latiusculus subdepressus ater nitidus confertim punctulatus, prothorace amplo antice convexo ad latera vix rotundato, elytris subrugulosis profunde crenato-striatis, interstitiis apicem versus minute seriatim tuberculatis, antennis pedibusque fuscescentibus.

Var. β. minor convexior, punctis striisque paulo profundioribus, prothorace vix ampliore quadratiore.

Long. corp. lin. 4–6⅔.

Habitat in Portu Sancto, una cum præcedente degens, sed paulo rarior; *var.* β. ad regionem superiorem nisi fallor solam pertinet, quâ in ascensu montis illius Pico de Facho dicti Aprili exeunte A.D. 1848 pauca specimina sub lapidibus collegi.

H. short-ovate, rather wide and depressed, deep shining black, neither so closely nor so deeply punctulated as the *H. infernus*. *Prothorax* somewhat large in proportion to the size of the insect, rather convexer in front than at the hinder margin (a peculiarity which is especially apparent in the male sex), more narrowed anteriorly than in the last species; and with the sides consequently not quite so *uniformly* rounded. *Elytra* rather short, very slightly rugulose and deeply crenate-striated, the striæ having almost the appearance sometimes of being punctate; the interstices with the hinder tubercles small and rather more distinct than in the last species. *Legs* and *antennæ* more or less brownish-piceous or fuscescent.

Var. β. smaller and more convex; with the prothorax somewhat larger in proportion and more quadrate, being moreover as convex behind as in front; and with the punctures and elytral striæ altogether a little deeper than in the ordinary type. (The state peculiar, apparently, to the higher elevations of *Porto Santo*.)

Also a well-marked species, and, like the last, peculiar to Porto Santo. It may be known by its shortened ovate form, comparatively broad outline, and by its deep black, shining, rather depressed, and somewhat lightly punctured surface. It is found in company with the *H. infernus* on the sandy plains of a low elevation, but is apparently the scarcer of the two. There is a state (correctly referred I believe to the present insect) which I would regard as the mountain variety, in which the body is slightly smaller and more convex, the sculpture deeper, and the prothorax a little larger in proportion and more quadrate, than in the ordinary type. The only specimens which I possess of this particular modification were captured by myself, in April 1848, on the ascent (so far as I can recollect) of the Pico de Facho,—about midway between the town and summit.

394. Helops congregatus, *Woll.* (Tab. XII. fig. 6.)

H. subovatus piceus nitidus confertim punctulatus, prothorace ad latera subrotundato, elytris rugulosis profunde crenato-striatis, interstitiis apicem versus seriatim tuberculatis, antennis pedibusque plus minusve ferrugineis.

Var. α. paulo obscurior, prothorace vix angustiore, antennis pedibusque infuscato-ferrugineis. (Ins. *Deserta Grandis*.)

Var. β. paulo clarior, prothorace vix latiore densius et subprofundius punctulato, antennis pedibusque ferrugineis. (In *Maderá* status typicus.)

Long. corp. lin. $3\frac{1}{2}$–$4\frac{1}{2}$.

Habitat sub lapidibus in montibus Maderæ, minus frequens; in summo Desertæ Grandis (tempore hiberno) prædominat, in rupium fissuris una cum *H. Vulcano* latitans.

H. subovate, piceous, shining, and closely and deeply punctulated. *Prothorax* with the sides slightly rounded; less emarginated in front (and therefore with the anterior angles less porrected) than in any of the foregoing species. *Elytra* deeply crenate-striated; the interstices with the hinder tubercles rather large and distinct, and occasionally extending almost into the anterior portion. *Legs* and *antennæ* more or less ferruginous.

Var. α. of a slightly obscurer hue. *Prothorax* a trifle narrower (especially in front), and a little less deeply punctured than in the Madeiran specimens. *Legs* and *antennæ* dull ferruginous, being more or less infuscated in parts. (The state peculiar to the *Dezerta Grande*.)

Var. β. of a clearer colour. *Prothorax* just perceptibly wider and more quadrate, and also somewhat more closely and deeply punctured. *Legs* and *antennæ* almost invariably pale ferruginous. (The typical state in *Madeira*.)

The present *Helops* may be known from the rest of the genus here described by its dark *piceous* hue, shining surface and ovate form. It is found sparingly throughout most of the mountain districts of Madeira, but would appear to be more especially attached to the east of the island,—and indeed to attain its maximum on the Dezerta Grande, where I have taken it in the greatest profusion from out of the fissures of the highest central peaks. In Madeira proper I have observed it more plentifully on the hill-tops above Machico than elsewhere; nevertheless on the upland plain of the Fateiras, and other spots towards the eastern coast, it may be occasionally met with in comparative abundance*.

* Somewhat akin to this species is a small *Helops* (recently communicated by M. Rousset) from Teneriffe. From its Madeiran allies it may be at once distinguished by the peculiarity of its form and sculpture,—amongst which the almost impunctate interstices of its elytra and its total freedom from hinder tubercles should be especially noticed. It may be defined as follows:—

Helops carbunculus, *Woll.*

H. brevis ovatus nigro-piceus nitidus, prothorace profunde et confertim punctato subcordato-quadrato ad latera leviter rotundato, elytris leviter striato-punctatis, interstitiis obsoletissime punctulatis, antennis pedibusque infuscato-ferrugineis.

Long. corp. lin. $3\frac{1}{2}$.

Habitat in ins. Teneriffæ Canariensi, a Dom. Rousset nuper missus.

H. short, ovate, dark piceous, and shining. *Prothorax* deeply and closely punctured (especially towards the edges), subcordate-quadrate, being widest in front; convex anteriorly, and with the sides slightly rounded. *Elytra* not at all rugulose, and lightly striate-punctate; the interstices with most

395. Helops futilis, *Woll.* (Tab. XII. fig. 7.)

H. oblongo-subovatus ferrugineus subopacus, prothorace confertissime punctulato latiusculo subquadrato, elytris subcrenato-striatis, interstitiis obsoletissime punctulatis, antennis pedibusque testaceis.

Var. α. paulo obscurior, elytrorum interstitiis apicem versus leviter seriatim tuberculatis. (In *Maderâ* status typicus.)

Var. β. paulo clarior, elytrorum tuberculis obsoletis. (Ins. *Deserta Grandis.*)

Long. corp. lin. $2\frac{3}{4}$–$3\frac{1}{4}$.

Habitat sub lapidibus Maderæ et Desertæ Grandis, rarior.

H. somewhat oblong-ovate (or nearly oblong), ferruginous, and almost opake. *Prothorax* rather wide, convex, and subquadrate; deeply and exceedingly closely punctulated. *Elytra* finely striated (the striæ obscurely crenated); the interstices with most minutely impressed points (sometimes scarcely perceptible). *Legs* and *antennæ* testaceous.

Var. α. of a slightly obscurer hue (the edges of the prothorax and the extreme base of the elytra however being usually more rufescent, or chestnut); the elytral interstices with the hinder tubercles tolerably apparent; and the apex of the antennæ distinctly infuscated. (*Madeira.*)

Var. β. of a clearer, or more rufescent hue; the elytral interstices with the tubercles obsolete; and the apex of the antennæ less distinctly infuscated. (The state peculiar to the *Dezerta Grande.*)

Apparently the rarest of the *Helopidæ* here described; and, like the following two, of a paler colour than the generality of them. From both of those, however, it may be known by its smaller bulk, and by the punctures of its prothorax being extremely dense, whilst those on the interstices of its elytra are scarcely perceptible. The only locality in Madeira proper in which I have myself observed it is at Camacha,—where, on the 2nd of March 1848, I captured it sparingly from beneath stones on the level grassy plain close to the Quinta of Mr. Bean. It has however been subsequently taken by M. Rousset near Funchal, and by Professor Heer at the Mount Church. It would seem to exist likewise on the Dezerta Grande,—from whence I obtained a pair (of a slightly brighter hue, and with the hinder tubercles hardly distinguishable) during my sojourn on that island, with the Rev. W. J. Armitage, in January 1849.

396. Helops cinnamomeus, *Woll.* (Tab. XII. fig. 8.)

H. elongato-ovatus ferrugineus subnitidus, prothorace confertim punctulato subquadrato, elytris

---

minutely impressed points (so small as to be scarcely perceptible without the aid of a powerful glass), and without any appearance of tubercles either before or behind. *Legs* and *antennæ* dull ferruginous, being more or less infuscated in parts.

It may be regarded as the Canarian representative of the *H. congregatus*, from which however *specifically* it is abundantly distinct.

leviter subcrenato-striatis, interstitiis minute punctulatis apicem versus leviter seriatim tuberculatis, antennis pedibusque testaceis.

Long. corp. lin. $3\frac{1}{2}$–5.

Habitat Maderam australem sub lapidibus, præsertim per oram maritimam et in locis minus elevatis, ab autumno usque ad ver novum vulgaris.

H. elongate-ovate, ferruginous (either obscure or rufescent, occasionally of a somewhat reddish-cinnamon hue), and slightly shining. *Prothorax* scarcely so wide or convex (in proportion) as that of the last species, and not quite so densely punctulated; subquadrate. *Elytra* lightly subcrenate-striated (the striæ being sometimes very faint); the interstices more finely punctulated than the prothorax (though very much more coarsely than in the *H. futilis*), and with the hinder tubercles tolerably distinct. *Legs* and *antennæ* testaceous.

The palest of the Madeiran *Helopidæ*; and an exceedingly distinct species, both in habits and form. Unlike any of the previous ones, it is apparently peculiar to low elevations, occurring either on the sea-shore or within the altitude of about 900 feet. On the flat ledge of ground overlooking the Praya Formoza I have captured it in the utmost abundance, from beneath stones; as also in dry spots on the cliffs to the eastward of the town, immediately beyond the Ribeiro de São Gonçalvo,—the highest position in which I have hitherto observed it.

397. Helops Portosanctanus, *Woll.* (Tab. XII. fig. 9.)

H. angusto-oblongus piceo-ferrugineus nitidus vel opacus leviter et minus confertim punctulatus, prothorace subquadrato, elytris plus minusve obsoletissime crenato-substriatis, antennis pedibusque testaceis.

Long. corp. lin. $3\frac{1}{4}$–$4\frac{1}{2}$.

Habitat Portum Sanctum, prope maris litus atque in aridis subinferioribus, tempore hiberno et vernali vulgatissimus.

H. oblong, comparatively narrow and subcylindrical, usually of a dark piceo-ferruginous (though sometimes a little paler), either shining or opake (and with all the intermediate states),—which however appears to be in no way a sexual character. *Head* coarsely punctured. *Prothorax* and *elytra* much more finely punctulated than the head, and less closely so than in any of the previous species: the *former* rather convex, subquadrate, and with the sides more or less rounded: the *latter* very obsoletely crenate-striated (the striæ being always far less perceptible than those of the *H. cinnamomeus*, and sometimes altogether obsolete); the interstices with their punctures (though very variable in size) always rather smaller than those on the prothorax, and without any appearance of tubercles. *Legs* and *antennæ* pale diluted testaceous.

A very remarkable species; and, although more changeable in surface than any here described, retaining nevertheless many peculiarities which will readily distinguish it, in all its states, from the remainder of the *Helopidæ* with which we have to do. Its narrower and more oblong outline, in conjunction with its less thickly

punctulated prothorax and almost unstriated elytra, give it a character which it is impossible to mistake; whilst its extraordinary variableness in the depth of its punctures and its liability to intermutation between opacity and brightness (and which moreover is in no way dependent on the sex) will serve additionally to discriminate it. It occurs only (so far as I have hitherto observed) in Porto Santo, —where however it is extremely abundant, during the winter and early spring (beneath stones), on the Campo de Baxo, and on the dry barren slopes and enclosures in the immediate vicinity of the Cidáde. It is essentially of low range; and in habits would seem to be analogous to the Madeiran *H. cinnamomeus*, although abundantly distinct from it specifically.

Sectio XII. TRACHELIA.

Fam. 51. ŒDEMERIDÆ.

Genus 176. STENAXIS. (Tab. XIII. fig. 2.)

Schmidt, *in Linn. Entom.* i. 87 (1846).

Corpus mediocre, angusto-elongatum, pubescens, molle et plus minusve læte coloratum: *capite* producto; *oculis* oblongis: *prothorace* parvo subcylindrico, elytris angustiore, postice subcoarctato: *elytris* apicem versus leviter attenuatis: *alis* amplissimis. *Antennæ* in fronte prope oculos insertæ, filiformes, articulo primo vix robusto, secundo brevissimo, reliquis (e tertio elongato) longitudine paulatim vix decrescentibus. *Labrum* coriaceum subquadrato-transversum, antice vix emarginatum. *Mandibulæ* longiusculæ subrectæ, apice acutissimæ bifidæ, margine interno membranâ angustâ ciliatâ aucto, basi minutissime crenulato et ante basin fisso-sinuato. *Maxillæ* bilobæ, lobis membranaceis, apice longe pencillato-pubescentibus obtusis. *Palpi maxillares* elongati, articulo ultimo (in typicâ, sc. *S. annulato*, subsecuriformi-cylindrico, sed in specie Maderensi) subfusiformi-cylindrico: *labiales* e scapis ligulæ connatis surgentes, articulo ultimo (in typicâ subsecuriformi-obconico, sed in nostrâ) subfusiformi apice acuminato. *Mentum* fere ut in Pecteropo vel Malachio, elongatum lateribus rotundatis, antice et postice membranaceum, in parte mediâ transversâ coriaceum. *Ligula* tenuissime membranacea, profunde biloba, lobis divergentibus, apice inter lobos setis duabus mediis brevibus robustissimis instructo. *Pedes* elongati, graciles: *tibiis* ad apicem internum leviter bicalcaratis: *tarsis* heteromeris, articulo primo (præsertim in *posticis*) elongato, penultimo bilobo subtus longe pubescente, ultimo longiusculo *unguiculis* simplicibus munito.

Although the insect from which the above diagnosis has been drawn out recedes a little in the configuration of the ultimate joint of its palpi from the European *S. annulata* (the type, and hitherto sole exponent, of the group), still I have no hesitation in referring it to *Stenaxis*, since in all other essential particulars (as, for instance, its produced head, oblong eyes, the insertion of its antennæ, its simple femora, and the equality of its tibial spurs) it entirely coincides with it. Its only

structural difference indeed would seem to reside in the terminal articulation of its palpi,—which in the maxillary pair is somewhat narrower and more fusiform, and in the labial ones considerably more acuminated, than is there the case; neither of which however can be deemed of sufficient importance to cause its isolation*. Widely separated as they usually are in every system of arrangement, I cannot but believe that our present genus (together with several of its allies, which do not concern us here) possesses a slight (though decided) affinity with the *Melyridæ*,—an hypothesis which the flower-infesting habits of the two families, and many of their external features, in conjunction with the almost identical formation of their very peculiar menta, would go far to support. *Pecteropus* in fact, especially as regards one of the species (the *P. rostratus*), in the elongation of its head and mandibles, as well as in the shape of its eyes, the implantation of its antennæ, and in the details of its maxillæ and palpi, displays much in common with *Stenaxis*:—and hence the views of Lamarck, who placed the *Trachelia* in juxtaposition with *Dasytes*, may not have been altogether erroneous. I have not succeeded in detecting more than a single representative of the *Œdemeridæ* in the Madeira Islands†, which in a country where flowers are so numerous and sunshine predominant is rather extraordinary.

* It may be useful to state that *Stenaxis* is distinguished from *Œdemera* proper, principally, by the femora of its males *not* being clavate, and by its eyes being oblong and of moderate size (instead of rounded and large). In its simple thighs and general contour it approaches *Anoncodes*; but that group has the antennæ of its male sex 12-articulate, its eyes kidney-shaped, the apex of its labial palpi securiform (whereas in our insect they are acuminated), and the spurs of its front tibiæ unequal,—one being robust, and the other either nearly or altogether obsolete (whilst in *Stenaxis* the two are not only invariably present, but are of the same magnitude). In colouring and some other respects it even assimilates *Asclera*; but the *Ascleræ*, apart from minor differences, have their head unproduced, and the terminal joint of their maxillary palpi greatly developed and securiform,—a character which obtains also in *Chrysanthia*, where moreover (as in *Probosca*, *Chitona* and *Stenostoma*) the antennæ spring comparatively at a distance from the eyes, and the head (at any rate as regards the last two of them) is even still more elongated than in *Stenaxis*.

† Although the *Stenaxis Lowei* is apparently the only member of the *Œdemeridæ* in the Madeiran group, a new and very beautiful *Ditylus* has been lately communicated to me (by T. S. Leacock, Esq. of Funchal) from the distant rocks of the Salvages,—the description of which will not be considered here out of place.

Ditylus fulvus, *Woll.*

D. elongatus cylindricus fulvo-testaceus (oculis tibiarumque calcariis solis nigris) undique crebre punctatus et densissime pubescens, prothorace subcordato leviter canaliculato in disco utrinque bifoveolato, antennis apicem versus tarsisque ferrugineis.

Long. corp. lin. 6.

Habitat in insulis remotis "Salvages" dictis, a Dom. Leacock repertus.

D. elongated, narrow and cylindrical, pale fulvo-testaceous (the eyes, which are large and oblong, and the tibial spurs, being alone black), closely punctured all over, and most densely clothed with a decumbent fulvous pubescence. *Prothorax* subcordate (being narrowed posteriorly, and widest just behind its front margin); with a lightly-impressed central channel, and with two large rounded foveæ (placed longitudinally) on either side of its disk. *Elytra* rather shorter than the abdomen. *Antennæ* (except at their base), and the *tarsi*, of a slightly obscurer colour,—being somewhat ferru-

398. Stenaxis Lowei, *Woll.* (Tab. XIII. fig. 2.)

S. angusto-elongata ænescenti-viridis pubescens, prothorace supra, antennis, palpis pedibusque plus minusve rufo-testaceis, elytris subpunctato-rugulosis, singulo costâ unâ longitudinali subobliquâ notato.

Long. corp. lin. 3–3$\frac{2}{3}$.

Habitat in floribus Maderæ, inde a 1000′ s. m., æstate non infrequens: in Maderâ boreali prædominat, quâ inter flores *Dahliæ* ad Sanctam Annam mense Junio A.D. 1850 copiosissime deprehensi.

Insectum pulchritudine egregium, et Rev^{do} Dom^{o} Lowe ob gratias amicissime oblatas a me dedicatum.

S. elongated and narrow, slightly acuminated posteriorly, and (except on the prothorax, which is nearly glabrous) very pubescent. *Head* green with a brassy tinge, very lightly punctured, and a little elevated between the antennæ. *Prothorax* above bright rufo-testaceous, the sides and under portion, and an obscure (usually more or less obsolete, and always centrally-interrupted) transverse band, a little behind the front margin, dark brassy-green; almost impunctate. *Elytra* shining brassy-green, and densely rugulose (but scarcely punctured); somewhat gaping behind, and with a very elevated oblique costa, or nerve, extending from either shoulder towards (though hardly reaching) the apex. *Antennæ, palpi, mandibles* and *legs* more or less testaceous,—all of them being generally a little dusky towards their extremities.

Found in considerable profusion throughout certain districts of Madeira during the summer months, making its appearance about the beginning or middle of June. It is more general in the north and centre of the island than in the south, and seldom ranges below the altitude of 1000 feet. In Senhor Louiz Acciaioly's garden at Santa Anna I captured it in the greatest abundance, in 1850, from out of the flowers of the common yellow Dahlia, which it seemed to prefer to those of every other plant,—secreting itself at the bottom of the long, curled petals, each one of which (during the period of the insect's existence) might be usually observed, on examination, to harbour a specimen. In this manner I have frequently collected from a single Dahlia almost as many examples of the *S. Lowei* as there were petals,—and in positions moreover where a week before not the vestige of

---

ginous. The *terminal joint of the antennæ* narrowed, or subulated, immediately beyond the middle,—having the appearance, at first sight, of being composed of two articulations.

It is apparently closely allied to the *D. concolor* of Brullé, from the Canary Islands,—with typical specimens of which, in the Royal Museum of Berlin, it has been compared by my friend Dr. H. Schaum. Apart from minor differences, however, it is very much smaller than that insect; nevertheless it is sufficiently akin to it to be of the greatest interest geographically,—supplying as it does another connecting link between the Canarian fauna and that of the Salvages (which it has been already shown is but just removed, in general character, from the Madeiran one). It was discovered by T. S. Leacock, Esq. on the "Great Piton"; and is hitherto unique.

one was to be seen. They are very active on the wing,—flying rapidly in the hot sunshine from flower to flower, though within somewhat prescribed limits. Along the sheltered ledges at the sides of the Curral das Freiras it is tolerably plentiful; and on the 2nd of August 1850, I detected it in great numbers (during my ascent of the Pico Ruivo from the Feijãa de Córte) on the lofty mountain-buttress which forms the upper barrier of the Ribeiro da Quebrada: and in July of the same year it occurred to me sparingly (towards the western extremity of the Ribeiro do Inferno) at the Lombo dos Pecegueiros.

Fam. 52. MELOIDÆ.

Genus 177. MELOË. (Tab. XIII. fig. 1.)

Linnæus, *Syst. Nat.* edit. i. (1735).

Corpus magnum, grossum, molle, obscurum: *capite* deflexo, postice lato truncato; *oculis* subreniformibus: *prothorace* parvo, plus minusve subquadrato, supra deplanato: *elytris* abbreviatis, basi plus minusve complicantibus et apice singulatim rotundatis (dehiscentibus): *alis* obsoletis. *Antennæ* ante oculos insertæ, vel filiformes vel medio incrassatæ (in maribus interdum contortæ), articulo primo vix robusto, secundo brevissimo, reliquis ultimo plerumque acuminato excepto longitudine subæqualibus. *Labrum* subcordato-quadratum, antice profunde bilobum, lobis valde ciliatis. *Mandibulæ* robustissimæ corneæ, basi crassæ, apice plerumque bifidæ vel etiam trifidæ, infra apicem necnon ad basin fissæ. *Maxillæ* bilobæ, lobis subcorneis brevibus pubescentibus obtusis valde inflexis, *externo* geniculato. *Palpi maxillares* subfiliformes, articulo ultimo vix securiformi-obconico: *labiales* clavati, articulo ultimo magno securiformi. *Mentum* coriaceum transversum, antice fere integrum, lateribus rotundatis. *Ligula* magna robusta biloba, lobis valde ciliatis. *Pedes* elongati, crassiusculi (oleum per geniculos, insecto terrefacto, emittentes): *tibiis* ad apicem internum calcariis duobus (in *anterioribus* æqualibus, sed exteriore in *posticis* amplissimo compresso subcultriformi ad apicem plus minusve dilatato et oblique truncato) articulatis instructis (*calcariis ad basin articuli tarsorum primi per membranam affixis*): *tarsis* heteromeris, articulis simplicibus primo (præsertim in *posticis*) longiusculo, ultimo elongato *unguiculis* valde bifidis (aut potius quatuor simplicibus) munito.

The remarkable creatures which compose the genus *Meloë*, and which are so widely distributed over the world, are perhaps, whether we view them in their imago or their (much-disputed) larva states, amongst the most anomalous within the whole range of the Coleoptera. They may be readily known by their dark and more or less wrinkled (or crumpled) surfaces, and by their soft, swollen (or bloated) bodies,—their elytra, in addition to overlapping at the base, being considerably abbreviated and separately rounded off behind, so as to expose their greatly enlarged abdomen (which in the female sex is often so unnaturally distended as to render the insect nearly incapable of progression). Their deflexed and posteriorly dilated heads, and the comparatively minute size of their (flattened) prothoraces, in conjunction with their total freedom from wings, oftentimes

centrally-thickened antennæ, and invariably sluggish movements, give them a character moreover essentially their own; whilst the curious power which they possess of emitting an oily fluid from their limbs, when alarmed, and which has gained for them the popular name of "oil-beetles," will not tend to diminish their general singularity. The structure of their tarsi, also, is exceedingly strange,—since not only are the claws so completely bifid throughout their entire length as in fact to constitute four, but what appear to be the ordinary tibial spurs are, in reality, of an organization altogether distinct, being articulated on, by means of a strong membrane, to the basal joint of the foot. I have not seen this peculiarity elsewhere alluded to; but that it truly exists I have satisfied myself by the destruction of a vast number of specimens,—observing, in *every* instance, that on pulling off the tarsi (of each of the legs) the calcaria came away with them. I conclude therefore that *all* the spines are capable of motion, since they are unquestionably separate from the tibiæ, and in fact (as my experiment proves) far less firmly attached to it than to the foot. In every case indeed they required to be actually *cut* from the tarsus (even after the force necessarily exerted in tearing it off) before the latter was unencumbered for examination. As regards the processes themselves, the four anterior pair are of similar length, whilst the two hinder ones (as in many of the kindred genera of the present family) are unequal,—one of them being small, and the other greatly developed and flattened out (in shape more or less hastate, or cultriform, being obliquely truncated at its tip). In *Zonitis* the same relative proportions obtain, but there the spurs would seem to be fixed*,—or, at any rate, to be so intimately connected with the tibiæ (although

* Perhaps indeed the *larger* of these two hinder spurs in the *whole* of these immediate genera (where the structure exists) can never be said to be positively fixed, since its unusual magnitude and peculiar form would seem to imply that it was appropriated to some special purpose, where a certain amount of play is in all probability indispensable. Analogy moreover with the single immensely-developed process at the apex of the male *fore*-tibiæ of *Cantharis* (which almost exactly resembles those in question, and the uses of which are sufficiently obvious) would have led us even *à priori* to imagine that these now under discussion would be found, in like manner, to be capable of motion: and hence, when we speak of the calcaria as (on the whole) "steadfast" or "moveable," I am inclined to suspect that these expanded posterior ones (as belonging *always* to the latter class) should be considered as excluded from our definition. Meanwhile, in cases where *both* at any rate are not free, it is far from unlikely (since they appear to be *connected*, and must needs therefore, if at all, come away *together*) that the stationary one may tend to increase the attachment (to the tibia) of the other, and that so (though requiring a proportionably greater force to effect their removal) it may be possible to pull the tarsus out of its socket *without* causing the dislocation of the spines as in *Meloë*,—where *the whole of them* seem (as I assume from the very fact of their universal annexation to the foot, and from the elasticity of the joining medium) to be moveable. How far this cultriform appendage (for we can scarcely call it a spur, at least in the sense commonly understood by that term) may be the exponent of the missing joint in the hinder feet of these Heteromerous groups, I do not venture to speculate, nor would I attempt to throw light on a fact thus physiologically important from small and imperfect data, gleaned from the observation of a single circumstance: yet its structure is unquestionably suggestive of more than a mere *modification* of the ordinary calcaria of the Coleoptera; and, however unlikely we may be to extract an iota of truth from the inquiry, yet I believe it to be one which is not altogether so absurd as at first sight it might perchance appear.

not absolutely portions of them), that they are neither displaced with the foot nor appear to be at all affected by its removal.

The Meloës are principally vernal insects, and occur amongst low herbage,—especially the *Ranunculaceæ*, on which they feed most greedily. The apterous nature indeed of their fat unwieldy frames, combined with their slow and heavy gait, would effectually preclude them from inhabiting the trees and flowers which are so much sought after by most of the (brilliantly coloured) kindred forms (whose ample wings and superior activity are eminently adapted to their modes of life); and hence it is that they are usually to be found either on the ground itself, or else on plants but slightly elevated above it,—and from whence they are accustomed to fall, on the approach of danger, and so to become concealed amongst the grass beneath. The Madeiran species, like the European ones, are generally to be met with on warm sunny banks with a southern aspect, particularly in positions where the vegetation is but just commencing to sprout.

399. Meloë austrinus, *Woll.*

M. subcyanescenti-niger subnitidus, capite prothoraceque profunde punctatis, illo fere integro, hoc postice vix latiore supra minus inæquali, elytris rugosis, antennis pedibusque robustis.

Long. corp. lin. 7–11.

Habitat Maderam australem, in locis subinferioribus, tempore vernali non infrequens.

M. large and robust, black with an obscure bluish tinge (tolerably apparent on the elytra), and slightly shining. *Head* and *prothorax* very deeply and regularly punctured; the *former* large, and with very faint indications of a central channel (which is usually altogether obsolete posteriorly); the *latter* just perceptibly wider behind than in front, and with its upper surface less uneven than in the following two species. *Elytra* closely pitted or rugulose. *Legs* and *antennæ* robust.

The largest, and apparently the scarcest, of the Madeiran Meloës. It may be readily known from the following two by its obscure bluish tinge, by its more deeply and regularly punctured head and prothorax (the former of which has the central channel almost obsolete, whilst the latter is a little wider behind than in front), and by its robuster limbs. It seems to be confined to rather low elevations in the vicinity of Funchal,—the Cabo Gerajão, or Brazen Head, being the highest altitude, I believe, at which it has been hitherto observed; nor am I aware that it has been detected on any of the other islands of the group.

400. Meloë rugosus.

M. niger opacus, capite prothoraceque punctatis, illo leviter canaliculato, hoc postice vix angustato supra inæquali, elytris undulato-rugosis, antennis pedibusque gracilioribus.

Long. corp. lin. $5\frac{1}{2}$–9.

Meloë rugosus, Marsham, *Ent. Brit.* i. 483 (1802).
—— *autumnalis*, Leach (*nec* Oliv. 1795), *Linn. Trans.* xi. 40. pl. vi. f. 7, 8 (1817).
—— *punctatus*, Steph. *Ill. Brit. Ent.* v. 68 (1832).
—— *rugulosa*, Brullé, *in Webb et Berth. Hist. Nat. des Iles Canar.* 70 (1839).

Habitat Maderam australem, in locis similibus ac præcedens, sed illo frequentior: in graminosis prope Cabo Gerajão ab autumno usque ad ver novum prædominat, necnon ad Praya Formoza deprehensit cl. Dom. Heer.

M. smaller and slenderer than the last species, deep black, and almost opake. *Head* and *prothorax* roughly and unequally punctured (the punctures however smaller than those of the *M. austrinus*, and mixed up with a short and dark rigid pubescence); the *former* not quite so large, proportionably, as in the last species, but more deeply channeled (the channel being nevertheless usually more or less evanescent posteriorly); the *latter* a little narrower behind than in front, and very uneven. *Elytra* less closely pitted than in the *M. austrinus*,—the irregularities taking an undulatory, or wavy appearance. *Legs* and *antennæ* slenderer than those of the last species.

Found either in company with or else in similar positions as the last species, but more commonly. Nevertheless it does not appear to be very abundant, nor to occur beyond Madeira proper. I have taken it more frequently to the eastward of Funchal than elsewhere, from the autumn to the early spring,—especially in grassy spots on the cliffs towards the Brazen Head; and it has been captured at the Praya Formoza by Professor Heer. It is an insect of wide geographical range, existing throughout the greater portion of Europe, the north of Africa, and in the Canary Islands.

401. Meloë flavicomus, *Woll.* (Tab. XIII. fig. 1.)

M. niger opacus et pube brevi fulvescenti vestitus, capite prothoraceque leviter punctatis, illo profunde canaliculato, hoc postice vix angustato supra inæquali, elytris leviter undulato-rugosis, antennis pedibusque gracilibus.

Long. corp. lin. 4–7.

Habitat insulas Maderenses, in Portu Sancto prædominans: in Maderâ propriâ mihi non obvius, at exemplar unicum nuper communicavit Dom. Rousset: in Desertâ Grandi Maio exeunte A.D. 1850 parce, sed in Portu Sancto mense Aprili A.D. 1849 (sub lapidibus circa oppidum) copiosissime, collegi.

M. the smallest of the three species, and altogether the most slender, black, more or less densely clothed with a fine, short, silken, decumbent, fulvescent, or dirty-yellowish pile, and nearly opake. *Head* and *prothorax* rather more finely and regularly punctured than in the *M. rugosus*; the *former* a little smaller, proportionably, than in either of the other species, and more deeply channeled (the channel nearly always extending over the forehead posteriorly); the *latter* a little narrower behind than in front, and very uneven. *Elytra* as in the last species, but generally not quite so deeply waved. *Legs* and *antennæ* slender.

The present *Meloë* approaches nearer to the *M. murinus* (of Brandt and Erich-

son) than to any other species hitherto described; nevertheless it is certainly distinct from it. It may be at once known from its Madeiran allies by its somewhat smaller bulk, slenderer limbs, and by the fine fulvescent or yellowish pile with which it is more or less densely clothed. Its head and prothorax, also, are less coarsely punctured than is the case in either of the previous members of the group; and its forehead is usually more evidently channeled behind. It would appear to be very rare in Madeira proper, from whence indeed I have seen but a single example (recently communicated by M. Rousset). On the Dezerta Grande, however, I captured it, sparingly, in May of 1850; and in Porto Santo, in the utmost profusion, during April of 1849,—from beneath stones in sandy spots in the immediate vicinity of the Cidáde. The pubescence on the Dezertan specimens is not quite so pale as that which characterizes the Porto Santan ones.

Genus 178. ZONITIS.

Fabricius, *Syst. Ent.* 126 (1775).

Corpus magnum, subcylindricum, minus durum et læte pictum: *capite* inflexo (ad pectus subarcte applicando), postice latiusculo truncato; *oculis* oblongis utrinque subemarginatis: *prothorace* parvo semicirculari-quadrato, supra convexiusculo: *elytris* integris: *alis* amplis. *Antennæ* ad marginem oculorum internum insertæ, filiformes, elongatæ, articulo primo vix robusto, secundo brevi, reliquis longitudine subæqualibus. *Labrum* membranaceo-coriaceum, ovatum, basi truncatum, antice productum, summo apice interdum (ut in specie Maderensi) leviter emarginato. *Mandibulæ* apice acutæ integræ, basin versus plerumque fissæ, margine interno membranâ ciliatâ aucto. *Maxillæ* bilobæ rectæ, lobis membranaceis valde pubescentibus obtusis; *externo* apice longe pencillato; *interno* brevissimo. *Palpi* longiusculi filiformes, articulo ultimo subfusiformi apice truncato. *Mentum* subovatum apice recte truncatum, modo omnino membranaceum, modo in parte mediâ transversâ subcoriaceum. *Ligula* tenuissime membranacea, profunde bifida, pilosa. *Pedes* elongati, graciles: *tibiis* ad apicem internum bicalcaratis (calcariis ut in genere præcedente, sed nisi fallor haud mobilibus aut saltem ad tibias affixis): *tarsis* heteromeris, articulis simplicibus, primo elongato, ultimo longiusculo *unguiculis* valde bifidis (parte superâ latiusculâ subgaleiformi utrinque seriatim pectinatâ, et inferâ acutissimâ aciculari receptâ) munito.

Zonitis, which is almost peculiar (so far as Europe is concerned) to Mediterranean latitudes, is, in its subvesicatory properties and general organization, a good deal allied to *Meloë*; nevertheless its active movements and largely developed wings, in conjunction with its gaily maculated surface, indicate a closer affinity with other members of the present family of which *Lytta* and *Mylabris* may be regarded as the types. Like most of the *Meloidæ*, it is reported to be more or less parasitic (in its larva state) within the nests of certain aculeate Hymenoptera,—especially of bees belonging to the groups *Osmia* and *Anthophora*; but, although the *Anthophora nidularis* and the *Osmia hirta* and *Latreillei* are abundant in the Madeira Islands, I have not myself observed this tendency in its habits. The perfect insects usually frequent flowers, particularly those of the *Umbelliferæ*,—

flying rapidly in the hot sunshine; and, like *Meloë*, counterfeiting death, when captured, by contracting their limbs (under which circumstances, the head moreover being inflexed against the chest, they have a somewhat cylindrical appearance). In the minutiæ of their oral organs, we may remark that the membranous nature of their (subovate) mentum, added to their nearly filiform palpi and deeply-cleft ligula, should be principally noticed; and it will also be perceived that the singularly *geniculated* maxillæ of *Meloë* (the terminal halves of which are so greatly and suddenly bent inwards, as well nigh to form a right angle with the basal portion) are entirely wanting. Their claws are of a very beautiful structure, and constitute one of the most pleasing objects for the microscope that can possibly be selected,—each being divided into two of equal length (as in *Meloë*), the upper one of which is not only large and galeated (so as to receive the slender aciculated lower one), but is powerfully pectinated on either side (merely *one* of the rows of teeth however reaching to the *extreme* apex), as though to afford additional defence for the inner lobe. I believe this to be universally the case in *Zonitis*: at any rate it is so in the Madeiran species, and in another, which I have recently dissected, from Greece.

402. Zonitis quadripunctata.

Z. niger pubescens, capite prothoraceque profunde punctatis, elytris pallido-rufis, singulo maculis duabus (anticâ minore et interdum obsoletâ) nigrescentibus ornato, unguiculis tibiarumque calcariis piceo-ferrugineis.

Var. β. elytris vix pallidioribus immaculatis.

Long. corp. lin. 5–7.

Mylabris 4-*punctata*, Fab. *Ent. Syst.* i. ii. 89 (1792).
——— ———, Fab. *Syst. Eleu.* ii. 84 (1801).
Zonitis 4-*punctata*, Lucas, *Col. de l'Algérie*, 395 (1849).

Habitat in floribus Maderæ australis et Portûs Sancti, hinc inde non infrequens: prope urbem Funchalensem olim detexit Rev^dus^ Dom. Chawner, necnon in horto Loweano ad Levada egomet parce deprehensi; in Portu Sancto tamen abundat, quâ mensibus Decembri A.D. 1848 et Aprili 1849 inter flores umbelliferos plurima specimina collegi.

Z. large and somewhat cylindrical, densely clothed with short pubescence, black. *Head* and *prothorax* deeply punctured, and with the pubescence black; the *former* flattened between the eyes; the *latter* with an abbreviated channel behind. *Elytra* (but not the *scutellum*, which is black) pale rufous; each ornamented with two large blackish spots on its hinder disk,—the anterior one of which is the smallest, and occasionally obsolete. *Tibial spurs* and *tarsal claws* piceo-ferruginous.

Var. β. elytra entirely immaculate, and generally of a slightly paler hue.

Apparently a scarce insect in Madeira proper, though much more common in Porto Santo. In the former I have observed it only towards the south of the island, and principally in the Rev. R. T. Lowe's garden at the Levada; but in the latter I have twice captured it abundantly (namely, in December 1848 and April

1849), both in the vicinity of the Cidáde and in the valleys terminating on the eastern shore,—especially the Serra d'Entro, and about the edges of the Pico de Conselho; and I have likewise seen specimens which were taken several years ago by the Rev. C. Fox Chawner near Funchal. It is found almost exclusively on flowers, and is particularly attached to the *Umbelliferæ*. It occurs in the Mediterranean districts of Europe and Africa, but appears to be somewhat rare. I possess an example from Lombardy differing in no respect from the Madeiran ones, except that it is a little smaller and has the extreme apex of its elytra slightly darkened.

Fam. 53. MORDELLIDÆ.

Genus 179. ANASPIS.

Geoffroy, *Hist. Abr. des Ins.* i. 315 (1762).

Corpus parvum, lineari-ellipticum, plus minusve læte pictum, supra arcuatum, infra subcarinatum: *capite* valde inflexo (ad prosternum applicando) rotundato; *oculis* oblongis intus emarginatis; *prothorace* subsemicirculari (postice lato, elytris arcte applicato): *alis* amplis. *Antennæ* inter oculos insertæ, filiformes vel apicem versus vix incrassatæ, capite prothoraceque vix longiores, articulo primo haud robusto breviusculo, reliquis ultimo ovato excepto longitudine subæqualibus. *Labrum* membranaceo-coriaceum, transversum, apice integrum. *Mandibulæ* basi latæ, apicem versus incurvæ angustæ acutæ bifidæ, margine interno fisso-sinuato et membranâ tenuissimâ aucto. *Maxillæ* bilobæ rectæ, lobis membranaceis angustiusculis, apice valde penicillatis. *Palpi maxillares* elongati, articulo penultimo brevi, ultimo magno securiformi: *labiales* breviores, articulo ultimo plus minusve obtriangulari. *Mentum* breve transversum. *Ligula* membranacea elongata, apice leviter dilatata. *Pedes* elongati, subretractiles: *tibiis* ad apicem ipsum seriatim spinulosis et intus longe bicalcaratis: *tarsis* heteromeris; *intermediis* elongatis; *posticis* longissimis setaceis; articulis ultimo excepto in *omnibus* longitudine decrescentibus (primo in posterioribus elongato), duobus baseos in *anterioribus* et tribus baseos in *posticis* apice spinulosis; *anterioribus* articulo antepenultimo latiusculo subemarginato subtus longe piloso, penultimo minutissimo simplici; ultimo in *omnibus* vix elongato, *unguiculis* minutissimis simplicibus munito.

The representatives of the common European genus *Anaspis*, which are subject to great variations in colour, may be readily distinguished by their small size, narrow, elliptical bodies (which are arched above, and somewhat keeled and largely developed beneath), and by their semicircular prothoraces and rounded heads,—the latter of which are much inflected, and capable of being closely applied against the prosternum (a peculiarity which gives the insects when terrified a remarkable appearance; under which circumstances, their legs being partially retracted also, they are nearly boat-shaped). The species occur exclusively on flowers, and are for the most part very gregarious. They are exceedingly active (but nevertheless awkward) in their movements, shuffling along with a skipping or quick jerking motion,—a habit which their elongated, spinulose posterior feet and the ample

spurs of all their tibiæ must tend materially to favour. The structure of their tarsi indeed is rather singular,—the hinder pair being unusually produced and setiform, with the articulations gradually diminishing in length; whilst the four anterior ones have the penultimate joint minute, and the antepenultimate broadish and subcordate, and with its under surface densely pubescent. The claws are diminutive and *simple*,—in which last respect (as well as in its freedom from an abdominal style) the group recedes from *Mordella*.

403. Anaspis Proteus, *Woll.*

A. rufo-testaceus, capitis parte posticâ, interdum prothoracis disco, elytrorum suturâ, maculâ basali triangulari communi fasciâque mediâ (sæpe in medio interruptâ), et antennarum articulo ultimo plus minusve nigrescentibus, antennis brevibus compactis.

Var. β. fere niger (i. e. maculis fasciisque maximis confluentibus), ore, antennis (articulo apicali excepto), pedibus anticis, et tibiis tarsisque posterioribus solum pallidis.

Long. corp. lin. 1–1½.

Habitat in floribus, præsertim Umbelliferis, omnium insularum Maderensium a verno tempore usque ad æstatem vulgaris, in Portu Sancto prædominans.

A. elliptical, and minutely pubescent. *Head* and *prothorax* more or less rufo-testaceous; the *former* with the hinder half usually darker (rarely altogether pale); the *latter* with the disk sometimes infuscated or blackish, or with an indistinct transverse cloud,—nevertheless, in the normal state, usually pale. *Elytra* (typically) of a paler testaceous than the head and prothorax, with the suture, a large basal triangular patch (common to both) about the scutellum, and a more or less developed transverse medial fascia or cloud (usually ill-defined, and interrupted in the centre) blackish. *Antennæ* short and compact; their *terminal articulation*, and the *spines* at the *apices of the tibiæ* and of the *tarsal joints* (especially in the posterior legs), black.

Var. β. almost entirely black (the patches and fasciæ being so largely developed as to be confluent and to cover the greater portion of the surface), the *mouth*, *antennæ* (except the dark apical joint, and sometimes the subapical ones also), the *two front legs*, and the *tibiæ* and *tarsi* (except the black spines at the extremity of the former and at the apices of the joints of the latter,—which is the case, though in a less degree, in the anterior pair likewise) of the *four hinder ones*, being alone pale. (Even in the darkest varieties, however, very obscure indications may generally be detected of four rufescent dashes on the elytra, the black portions being seldom so greatly increased as to obliterate all traces of the usual law of colouring.)

A most unstable insect, in point of colouring (as will be perceived by a glance at the diagnosis), and apparently distinct from any European species hitherto described. Its small bulk, added to its short and exceedingly compact antennæ (which, throughout all the phases, retain their apical joint dark), should be especially noticed, as serving, amongst other characters, to separate it from its more northern allies. So great are the changes of hue through which it passes, that at first sight it would seem to vary from a uniform testaceous into a deep black. Such however is not in reality the case (as a closer examination will prove), seeing

that in the palest specimens an obscurer portion along the suture, an ill-defined triangular cloud at the base, and a sublateral dash towards either side (representing the transverse medial band), are more or less present on the elytra, and there are often the rudiments of a patch on the prothoracic disk;—whilst even in the extreme varieties, where the whole of these are so increased in size as to occupy nearly the entire surface, there are generally faint indications of four rufescent elytral blotches, which at once enable us to identify them with the rest. It is abundant in flowers throughout most of the islands of the group, during the spring and early summer months,—especially in sunny spots of low and intermediate altitudes. I have taken it on the Ilheo de Fora in March; in Porto Santo, in the utmost profusion, in April,—particularly in sheltered clefts issuing from the southern edges of the Campo de Baxo; on the two northern Dezertas in May and June; and in Madeira proper (at the Ribeiro Frio) in July. Upon the whole, the paler states would appear to preponderate in Madeira, the darker ones in Porto Santo, and the brightly-coloured ones on the smaller rocks; nevertheless, though I believe this to be true on a large scale, they are all occasionally to be found intermixed.

Fam. 54. ANTHICIDÆ.

Genus 180. ANTHICUS.

Paykull, *Fna Suec.* i. 253 (1798).

Corpus parvum, plus minusve elongatum, sæpe pictum: *capite* subquadrato-rotundato, pedunculato; *oculis* plerumque subovatis: *prothorace* elytris angustiore, postice constricto: *alis* amplis. *Antennæ, labrum, mandibulæ* et *palpi* fere ut in genere præcedente. *Maxillæ* bilobæ, lobis valde pubescentibus; *interno* brevi. *Mentum* transverso-subquadratum, antice vix emarginatum. *Ligula* membranacea parva, apice leviter acuminata. *Pedes* longiusculi, graciles: *tibiis* ad apicem internum bicalcaratis (*posticis* versus apicem externum in maribus interdum compresso-dilatatis): *tarsis* heteromeris; *posterioribus* (sed præsertim *posticis*) articulo primo elongato; penultimo in *omnibus* profunde bilobo, ultimo longiusculo *unguiculis* simplicibus munito.

The *Anthici* are widely distributed over the world,—nearly seventy species moreover being recorded as European. They may be known by their small size and pedunculated heads, by their narrow prothoraces, which are always more or less constricted behind, by the deeply bilobed penultimate point of their tarsi, and by their simple claws. They are found principally under stones, or at the roots of grass on the dry ground. In the Madeira Islands they are more particularly attached to the exposed mountain-slopes, where they may frequently be observed congregating in vast numbers beneath the large basaltic blocks (to which they seem to have the power of adhering very tenaciously) in lofty altitudes. In such situations I have detected the minute *A. tristis* by multitudes, which on being exposed to the air were but seldom detached from their positions by the violence

of the wind. The same peculiarity is perceptible in the *A. instabilis*, which is able to retain its hold during the most boisterous weather;—an apparent provision for these insects, without which they would be scarcely fitted to inhabit the localities assigned to them.

404. Anthicus instabilis*.

A. rufo-ferrugineus subnitidus sat profunde et confertim punctulatus, elytrorum margine laterali, suturâ fasciâque postmediâ plus minusve obscurioribus, antennis pedibusque parum robustis pallido-ferrugineis, femoribus interdum subpicescentibus.

Mas, tibiis posticis versus apicem externum subtriangulariter compresso-dilatatis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Anthicus instabilis, (Hoffm.) Dej. *Cat.* 217 (1836).
——— *tibialis*, Curtis (nec *Waltl*, 1835), *Brit. Ent.* 714 (1838).
——— *mauritanicus*, Lucas, *Rev. Zool.* 146 (1841).
——— *instabilis*, Schmidt, *in Stett. Ent. Zeit.* iii. 184 (1842).
——— *tibialis*, La Ferté (sed vid. p. 305), *Mon. des Anth.* 165 (1848).

Habitat sub lapidibus in collinis apricis Maderæ Portûsque Sancti, ab autumno usque ad ver primum, frequens.

A. rufo-ferruginous, slightly shining, closely and rather deeply punctulated, and pubescent. *Head* small; and with the *eyes* large and prominent. *Prothorax* rather long, and much constricted posteriorly. *Elytra* with the lateral margin, the suture, and an ill-defined fascia behind the middle, more or less obscurely fuscescent. *Legs* and *antennæ* a little paler, being pale ferruginous (though with the *femora* sometimes picescent).

Male, with the two hinder tibiæ flattened and dilated towards their outer apex into a broad and somewhat triangular plate.

(*Obs.* Exceedingly variable in colour: sometimes with the *apical* portion of the elytra, likewise, infuscated; at others with the sutural cloud evanescent,—the indistinct postmedial fascia being alone dark; and occasionally even altogether ferruginous.)

Common both in the south of Madeira and in Porto Santo, particularly during the autumnal months. I have not detected it above the altitude of 1500 feet,—its principal range (in the former) being at low elevations in the vicinity of Funchal, where it is found either beneath stones or crawling amongst the short

* Some slight confusion seems to have arisen in the synonymy of this insect. It appears that the name of *instabilis* was first proposed for it by Hoffmansegg, and that as such it was registered in Dejean's Catalogue in 1836. In 1838 it was *characterized* (for the first time) by Curtis, who, supposing it to be new, published it under the title of *A. tibialis*,—which however had been preoccupied by Waltl, for another species, in 1835. Hence it became necessary that Curtis's name should be cancelled; and it is now, accordingly, universally recognised as the *A. instabilis* of Hoffmansegg,—and was thus quoted by Schmidt in 1842. It was indeed briefly described by M. Lucas in 1841; and therefore, in right of priority, his name of *mauritanicus* should certainly be accepted. Nevertheless, since it is everywhere known as the *A. instabilis*, I have preferred retaining it as such, rather than run the risk of creating confusion by the adoption of a fresh title.

grass in exposed sunny spots towards the sea. At the Praya Formoza, and on the small rounded hills of the Pico da Cruz and Pico do Cardo, it is at times abundant; nevertheless it is on the high cliffs to the eastward of the town, especially on the lofty one immediately before reaching the Cabo Gerajão, or Brazen Head, that I have observed it in the greatest profusion. It is widely distributed throughout Europe, though occurring more frequently in Mediterranean latitudes than elsewhere,—its principal recorded districts being France, Spain, Sardinia, Sicily and Greece: and it has been taken in Algeria and Syria. It is reported also from the Crimea; and it exists even in our own country,—which however would appear to be one of its most northern stations, since it only just makes its appearance in sheltered positions along the southern coast.

405. Anthicus litoralis.

A. rufo-ferrugineus subnitidus minus profunde sed confertim punctulatus, elytris versus latera plus minusve obscurioribus, antennis pedibusque gracilibus pallido-ferrugineis.

Long. corp. lin. $1\frac{1}{3}$.

Anthicus litoralis, Heer, *in litt.*

Habitat in locis similibus ac *A. instabilis* (una cum illo degens), sed rarissime: tria specimina (duo sc. a meipso prope Cabo Gerajão autumno exeunte A.D. 1847, et unum a cl. Dom. Heer ad oram Funchalensem maritimam A.D. 1850, detecta) sola vidi.

A. similar to the *A. instabilis*, but smaller, less deeply punctulated, and usually of a rather clearer hue; the *eyes* not quite so prominent; the *elytra* with only an abbreviated dash towards either side fuscescent; and the *antennæ* and *legs* somewhat slenderer, and (if anything) a little paler; —the *latter* being apparently simple in both sexes.

Exceedingly rare, three examples only having hitherto come beneath my notice, —two of which were captured by myself, during the autumn of 1847, in company with the *A. instabilis*, on the lofty maritime hill to the right of the Caniso road, before arriving at the Cabo Gerajão; and the other by Professor Heer (whose manuscript name, lately proposed for the species, I have retained) on the sea-shore near Funchal, in 1850. Unless the whole of these specimens be females, it would seem to recede from the *A. instabilis* (apart from its much smaller size and less deeply punctulated, and somewhat differently coloured, surface) in *not* having its hinder tibiæ dilated in the male sex.

406. Anthicus hispidus.

A. niger nitidus profunde sed minus confertim punctatus et longe villosus, prothorace subrufescente convexo, elytrorum fasciâ sub-basali transversâ, antennis, tibiis tarsisque testaceis.

Long. corp. lin. $1\frac{1}{2}$.

Notoxus hispidus, Rossi, *Mant.* i. 46 (1792).
——— *bicolor*, Oliv. *Ent.* iii. 51. 3 (1795).
——— *hirtellus*, Fab. *Ent. Syst. Suppl.* 67 (1798).
Anthicus hispidus, Schmidt, *in Stett. Ent. Zeit.* iii. 132 (1842).
——— ———, La Ferté, *Mon. des Anth.* 209 (1848).

Habitat sub lapidibus in montibus Maderæ, rarissimus.

A. black, shining, deeply but not very closely punctured, and clothed with exceedingly long and erect paler flexible hairs. *Head* rather larger in proportion than that of the *A. instabilis*, and a little more truncated (or suddenly shortened) behind; but with the *eyes* not quite so prominent. *Prothorax* short and convex; and more or less rufescent, especially posteriorly. *Elytra* with a broad well-defined transverse fascia (common to both), just behind their extreme base, testaceous; and occasionally with their apex obscurely rufescent. *Antennæ*, *tibiæ* and *tarsi* testaceous, or pale diluted ferruginous; *femora* at base ferruginous, at apex piceous.

Also very scarce. I have seen but two Madeiran specimens,—both of which were captured by myself from under stones on the mountains above Funchal, immediately below the base of the Pico da Silva (at an altitude of about 3000 feet above the sea). It is found throughout central and southern Europe; and, like the *A. instabilis*, is more especially abundant in Mediterranean latitudes,—Greece, Asia Minor, Syria and Georgia being amongst its recorded countries. In England it does not appear to exist; and is rare in northern Europe, although reported to have occurred both in Sweden and Germany.

407. Anthicus tristis.

A. niger subopacus leviter sed confertissime punctulatus et cinereo-pubescens, capite magno, antennis, tibiis tarsisque infuscato-ferrugineis.

Var. β. elytro singulo maculâ humerali obscurissimâ fuscescente ornato, antennis, tibiis tarsisque sæpius infuscato-testaceis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{2}{3}$.

Anthicus fenestratus, Dej. *Cat.* (*nec* Schmidt) 238 (1837).
——— *tristis* (*var.*), Schmidt, *in Stett. Ent. Zeit.* iii. 172 (1842).
——— ——— (*vars.* β. *et* γ.), La Ferté, *Mon. des Anth.* 196, 197 (1848).

Habitat sub lapidibus in montibus superioribus Maderæ, a 3000′ s. m. usque ad cacumina ascendens, autumno copiosissimus.

A. black, less shining than any of the other species, exceedingly closely and very finely punctulated, and more or less densely clothed (especially on the elytra) with a fine, decumbent, silken, cinereous pubescence. *Head* larger than in any of the foregoing species, and round, with a glabrous longitudinal line down the centre; and with the *eyes* small and very slightly prominent. *Prothorax* rather longer, proportionably, than in the *A. hispidus*, and not so convex. *Antennæ*, *tibiæ* and *tarsi* ferruginous, and more or less infuscated in parts; *femora* at base ferruginous, at apex piceous.

Var. β. with the humeral angles of the elytra most obscurely fuscescent,—rarely sufficiently so however as to be considered maculated. *Antennæ* and *legs* altogether a little paler.

I believe that the present species is correctly referred to the *A. tristis* of Schmidt; though it is remarkable that the *typical* state for these islands coincides with the extreme dark variety of Europe (the *A. fenestratus* of Dejean's Catalogue, and the *tristis, var.* γ. of La Ferté's Monograph),—which obtains principally throughout northern France, in England, and in some parts of Spain. Very faint indications of a humeral patch are occasionally however to be traced,—the *var.* β. of La Ferté (though more obscure in colour) and of the above diagnosis; but the *normal* European form, in which a *postmedial fascia* is likewise developed, would seem in Madeira to be entirely unknown. It is an insect of very wide geographical range, being recorded in Asia Minor, Syria, Mesopotamia, Georgia, Sicily, France, England, Spain and Algeria. It is abundant in the alpine regions of Madeira, occurring beneath stones on the grassy mountain-slopes, from about an altitude of 3000 feet to the summits of the loftiest peaks. In most of the central districts I have taken it in profusion, during the autumnal and winter months,—especially on the Paul da Serra, the Fateiras, the Lombo Grande, and on all the upland ridges from the Poûso and the Fonte das Moças to the Pico da Lagoa and the Pico dos Arieros. In our own country it is attached exclusively, so far as I am aware, to low sandy spots along the southern shores,—under which circumstances I have captured it near the Isle of Portland, in May and June.

Genus 181. XYLOPHILUS. (Tab. XIII. fig. 3.)

(Bonelli) Latreille, *Fam. Nat.* 383 (1825).

Corpus parvum, ovatum: *capite* subtriangulari; *oculis* subovatis: *prothorace* elytris angustiore, (in specie nostrâ) subquadrato-transverso: *alis* amplis. *Antennæ* robustæ, apicem versus sensim incrassatæ (in typicis, articulo primo brevi haud robusto, secundo brevissimo, ultimo elongato-ovato; sed in specie Maderensi), articulo primo robusto, secundo vix minore breviore, ultimo robusto oblique truncato. *Instrumenta cibaria* fere ut in Anthico. *Pedes* longiusculi, graciles: *femoribus posticis* plerumque incrassatis, sed in nostrâ simplicibus: *tibiis* ad apicem, nisi fallor, haud calcaratis: *tarsis* heteromeris, subtus breviter pubescentibus; articulo primo in *anticis* longiusculo crasso, in *intermediis* elongato, in *posticis* longissimo cylindrico; antepenultimo in *omnibus* subtus producto, penultimo minutissimo simplici, ultimo longiusculo *unguiculis* parvis simplicibus munito.

Of the present genus we have, so far as I am aware, but a single representative in the Madeira Islands; and even that one is anything but typical, since it differs very decidedly from the normal species, not only in the structure of its antennal and tarsal joints, but likewise in the form of its head and prothorax. In *Xylophilus* proper the basal articulation of the antennæ is usually short and slender, the following, or following two, extremely abbreviated, and the apical one

considerably developed and elongate; whereas in the *X. pallescens* the first is large and robust, the second scarcely smaller, the third narrower (and a little longer) than either the second or the fourth, the fifth to the tenth decrease gradually in length but increase in breadth, and the terminal one is stout and obliquely truncated at its extremity.

408. Xylophilus pallescens, *Woll.* (Tab. XIII. fig. 3.)

X. testaceus subtiliter pubescens et minutissime punctulatus, oculis solis nigris.

Long. corp. lin. $1\frac{1}{8}$.

Habitat Maderam, rarissime; semel tantum (a meipso in domo quâdam Funchalensi) Novembri exeunte A.D. 1847 repertus.

X. elongate-ovate, very minutely pubescent, and entirely testaceous,—the *eyes* (which are large and prominent) being alone black. *Head* most minutely (and almost imperceptibly) punctulated, and broadest behind the eyes. *Prothorax* and *elytra* with the punctures rather more distinct: the *former* short, transverse-subquadrate, though a little wider in front than behind; the anterior margin somewhat rounded and produced; and the posterior angles obliquely truncated: the *latter* rounded at the sides, being widest about the middle,—nevertheless broader at the base than the prothorax. *Antennæ* and *legs* concolorous with the rest of the surface; the *former* distinctly incrassated towards their apex.

The only example of this insect which has come beneath my notice was captured by myself, during the winter of 1847, crawling on the inner wall of a house in Funchal. It would appear to be a nocturnal species, my specimen having been found late at night and in a very active state.

Sectio XIII. BRACHELYTRA.

Fam. 55. SCYDMÆNIDÆ.

Genus 182. SCYDMÆNUS.

Latreille, *Gen. Crust. et Ins.* i. 232 (1806).

Corpus minutum, ovatum: *capite* plerumque exserto subrotundato et interdum pedunculato; *oculis* rotundatis: *prothorace* elytris angustiore, postice constricto: *elytris* ellipticis, abdomen totum tegentibus: *alis* sat amplis. *Antennæ* capite prothoraceque paulo longiores, apicem versus sensim clavatæ, articulo primo robusto, secundo paulo longiore graciliore, tertio ad sextum vel septimum leviter gracilioribus longitudine subæqualibus, reliquis clavam elongatam laxam perfoliatam haud abruptam efficientibus (octavo interdum minusculo, et ultimo plerumque ovato-acuminato). *Labrum* transverso-subquadratum, antice integrum. *Mandibulæ* basi latæ, apice angustæ

acutissimæ incurvæ, infra apicem dente minuto instructæ. *Maxillæ* bilobæ; *lobo interno* brevi, intus valde ciliato. *Palpi maxillares* elongati, articulo primo minuto, secundo gracili elongato subflexuoso, tertio maximo crasso ovato apice truncato, ultimo vel minuto aciculari vel obsoleto: *labiales* breves, articulo primo obsoleto, secundo magno crasso subcylindrico, ultimo minutissimo aciculari. *Mentum* subquadratum, antice trilobum. *Ligula* apice emarginata. *Pedes* longiusculi, graciles: *femoribus* basi pedunculatis, apicem versus subito clavatis: *tibiis* haud calcaratis: *tarsis* simplicibus, articulo primo vix longiusculo, ultimo longiore *unguiculis* simplicibus munito.

The singular little insects which constitute the family *Scydmænidæ* possess so many characters peculiarly their own, that it is scarcely necessary to point out their distinctions from the members of the neighbouring groups; suffice it therefore to observe, that, whilst in their minute size, entire elytra, subclavated antennæ, more or less pedunculated heads, narrow, posteriorly-constricted prothoraces, and general habits (especially apparent in the Ant-associating propensities of some of them), they display much in common with the *Anthicidæ*; they are nevertheless, in their subulated palpi and the obsolete basal joint of the labial pair, in their simple tarsi, and other details of their structure, too nearly related to many of the early representatives of the *Brachelytra* (even though their abdomen be *not* exposed) to warrant their removal to any great distance from that department. And that this is the case, their close connection, as is now universally admitted, with the *Pselaphidæ**, in which the elytra *are* abbreviated, would tend materially to confirm. The species occur principally, like many of the *Anthici*, either amongst grass and vegetable refuse on the dry ground, or else under moss on the trunks of trees,—where in northern latitudes they would appear more especially to hybernate. In our own country they are often very abundant in gardens and other cultivated spots, particularly in and about melon- and cucumber-frames, and beneath planks on hot-beds, in company with *Monotoma*, *Anthicus*, and several of the smaller *Staphylinidæ*. The only Madeiran *Scydmænus* which I have hitherto succeeded in detecting is generally to be met with, under stones, on warm grassy slopes facing the sea. It is found for the most part at rather low elevations and in the vicinity of Ants' nests; but whether this is merely the result of accident I am not able to say,—though, judging from the analogy of kindred forms, it seems probable that the two may be in some way dependent on each other.

409. Scydmænus Helferi.

S. piceus nitidus et longe cinereo-pubescens, elytris parce punctatis, antennis pedibusque pallido-ferrugineis.

Long. corp. lin. $\frac{2}{3}$.

---

* I have not been able to detect a single member of this family in the Madeira Islands; though it is possible, that, were the Ants' nests more carefully examined, it would be found to exist.

Scydmænus Helferi, Schaum ("*var. minor*," *test.* Dom. Schaum), *Anal. Ent.* (*Dissert. inaug.*) 7 (1841).
———— ———, Lucas, *Col. de l'Algérie*, 131 (1849).

Habitat sub lapidibus Maderæ australis, præsertim in graminosis maritimis prope Cabo Gerajão, autumno non infrequens; necnon ad Rib. de João Gomez mense Februario nuper deprehensit cl. Dom. Heer.

S. ovate, piceous, exceedingly shining, and rather sparingly clothed with long cinereous, or somewhat yellowish, pubescence. *Head* and *prothorax* almost impunctate; the *latter* constricted and foveolated behind. *Elytra* with rather large, but remote, punctures. *Antennæ* and *legs* pale ferruginous.

Not very common; occurring principally in the vicinity of Funchal, and during the autumnal months. I have taken it more abundantly to the eastward of the town than elsewhere, especially in exposed grassy spots to the right of the Caniso road towards the Cabo Gerajão, or Brazen Head,—where it is found, in company with the *Anthicus instabilis* and *Holoparamecus niger*, beneath stones, generally in the neighbourhood of Ants' nests. It is peculiar to Mediterranean latitudes, being recorded in the north of Africa and in Sicily. I have not been able to procure typical specimens of the *S. Helferi* for comparison, but I am informed by Dr. Schaum of Berlin that the Madeiran species (my own examples of which he has carefully examined) differs in no respect from the Sicilian one, except that it is a little smaller: I have therefore without hesitation referred it to that insect.

Fam. 56. STAPHYLINIDÆ.

(Subf. 1. ALEOCHARIDES.)

Genus 183. FALAGRIA.

(Leach) Mannerheim, *Brachel.* 86 (1831).

Corpus minutum, subconvexum: *capite* exserto subrotundato, basi truncato pedunculato: *prothorace* subcordato, postice attenuato: *alis* amplis: *abdomine* marginato lineari. *Antennæ* ad oculorum marginem internum insertæ, capitis prothoracisque longitudine, apicem versus sensim incrassatæ, articulis tribus baseos reliquis paulo longioribus. *Labrum* transversum, antice vix emarginatum. *Mandibulæ* parvæ acutæ muticæ. *Maxillæ* bilobæ: *lobo* externo apice pubescente: *interno* huic paulo breviore, ad apicem internum oblique emarginato, per sinum spinulis brevibus ciliato. *Palpi maxillares* elongati, articulo primo minuto, secundo et tertio elongatis longitudine subæqualibus (hoc apice valde clavato), ultimo parvo subulato: *labiales* articulo primo magno subcylindrico, secundo breviore, ultimo huic paulo longiore apice subclavato. *Mentum* amplum transversum, apice leviter emarginatum. *Ligula* angustata, apice profunde bifida; *paraglossis* parvis acuminatis, intus ciliatis. *Pedes* longiusculi, graciles: *tarsis anticis* 4-, *posterioribus* 5-articulatis; posticis articulo primo elongato.

The minute genus *Falagria* may be easily distinguished by its convex subcordate

prothorax (which, on account of the narrow exposed neck, is somewhat remote from the head), by its acuminated paraglossæ, and by its two anterior tarsi being quadriarticulate. The species occur either in damp shady spots (amongst decaying leaves and fungi), or else beneath stones and shingle at the edges of streams. They are often very active on the wing,—under which circumstances they may frequently be captured during the hot sunshine after showers.

410. Falagria obscura.

F. nigro-picea pubescens nitida, capite convexo, prothorace subcordato obsolete canaliculato, elytris rufo-fuscescentibus, pedibus pallido-ferrugineis.

Long. corp. lin. 1¼.

Aleochara obscura, Grav. *Col. Micropt.* 74 (1802).
——— ———, Gyll. *Ins. Suec.* ii. 379 (1810).
Falagria obscura, Mann. *Brachel.* 87 (1831).
——— ———, Erich. *Gen. et Spec. Staph.* 54 (1839).

Habitat Maderam, per margines rivulorum, sub foliis arborum dejectis et in humidiusculis, ubique vulgaris.

F. dark piceous, shining, finely pubescent, and most obsoletely punctulated (the punctures not perceptible except beneath the microscope). *Head* orbicular, but truncated behind. *Prothoræ* subcordate (being considerably narrowed or rounded off posteriorly), and with a very indistinct dorsal channel, which is most apparent in front. *Elytra* of a pale reddish chestnut-brown. *Abdomen* strongly margined, and with the apex more or less fuscescent. *Antennæ* fusco-piceous, with the basal joints ferruginous. *Legs* pale ferruginous, or rufo-testaceous.

A most abundant European insect, and tolerably common throughout Madeira below the elevation of 1000 feet,—occurring at the edges of the streams, and beneath fallen leaves in damp spots, especially towards the north of the island. At Santa Anna and São Vincente I have captured it at times in considerable numbers.

Genus 184. TACHYUSA.

Erichson, *Käf. der Mark Brand.* i. 307 (1837).

Corpus parvum vel minutum, elongatum, (in typicis lineare subconvexum, sed in specie nostrâ) postice acuminatum, depressiusculum: *capite* exserto, rotundato basi truncato: *prothorace* elongatulo, postice subtruncato: *alis* amplis: *abdomine* marginato. *Antennæ* ad oculorum marginem internum insertæ, capite prothoraceque longiores, graciles, articulis et *instrumenta cibaria* fere ut in Homalotâ, sed *paraglossis* vix obsoletis. *Pedes* elongati, graciles: *tibiis anticis* in specie Maderensi apicem versus internum obscurissime subexcavato-truncatis necnon ad excavationis summum apicem subtiliter bispinulosis (structura quæ in Carabidis plerisque fortius obtinet): *tarsis anticis* 4-, *posterioribus* 5-articulatis; *posticis* longis, articulis longitudine decrescentibus (primo elongato).

Tachyusa may be known by its narrow and more or less constricted outline, by its usually finely pubescent sericeous surface, its rudimentary paraglossæ, and by its somewhat slender and elongated limbs,—the two front tarsi of which, as in *Homalota*, are quadriarticulate; whilst the hinder pair, as in *Calodera* (which however is altogether pentamerous), nearly equal the tibiæ in length, and have their basal joint exceedingly long. The sole Madeiran representative is nevertheless, in external contour, anything but typical, being attenuated behind and slightly depressed, and partaking more of *Homalota* in general appearance than of the ordinary *Tachyusæ*: still, its lengthened limbs, and the proportions of its greatly produced posterior feet point to the present genus as the only one capable of receiving it,—with which indeed in its subaquatic habits it likewise coincides. There is a peculiarity moreover in the fore-tibiæ of the *T. raptoria* which I do not observe in any of the European species, namely that they are obliquely truncated towards their inner apex*, and have two minute spines (or setæ) at the upper extremity of the notch (as in the *Carabidæ*),—a structure which, in conjunction with the rapid movements of the insect and its prominent eyes, would seem rather to betray a carnivorous, or at any rate a prehensile tendency. The tibial spurs, also, appear to be but imperfectly (if indeed at all) developed; though, having had but a single specimen for dissection, I may, considering the minuteness of the objects, be mistaken as regards this.

411. Tachyusa raptoria, *Woll.*

T. nigra minutissime punctulata pubescens subnitida, prothorace subquadrato postice leviter constricto, elytris apicem versus fuscescentibus, abdomine postice attenuato, femoribus tibiisque infuscatis, tarsis pallido-testaceis.

Long. corp. lin. $1\frac{1}{8}$.

Habitat Maderam australem, inter lapillos per litora fluviorum, semel tantum reperta.

T. minute, black, most delicately punctulated and pubescent, slightly shining, and depressed. *Head* rather wider than the prothorax; and with the *eyes* large and prominent. *Prothorax* a little elongated, and narrowed behind (the sides being suddenly straightened inwardly about the middle); and with a just perceptibly æneous tinge. *Elytra* obscurely fuscescent towards their apex. *Abdomen* strongly margined, and gradually attenuated behind. *Antennæ* and *legs* much elongated; the *former* with their apical joints a little diluted in colouring; the *latter* with their femora and tibiæ brownish, but with their *tarsi* (the hinder ones of which are exceedingly long) pale testaceous.

Apparently rare,—or perhaps only local, since from its minute size and insignificant general appearance it would be very liable to be overlooked. The only

* Very faint traces of this oblique emargination are to be detected even in *Calodera* (causing the apex of the tibiæ to seem slightly narrowed), but there is no appearance there of the minute spines.

specimen which I have seen was captured by myself at the edges of the stream in the Ribeira de Santa Luzia during, I believe, the winter of 1849.

Genus 185. XENOMMA, *Woll.* (Tab. XIII. fig. 4.)

Corpus parvum vel minutum, elongatum, lineare vel antice acuminatum: *capite* exserto ovato; *oculis* minutissimis demissis, supra marginem lateralem omnino sitis: *prothorace* subquadrato ad latera plus minusve rotundato, antice et postice truncato: *scutello* vel magno scutiformi vel minore transverso triangulari: *elytris* valde abbreviatis, latera corporis amplectentibus, postice præsertim ad angulum exteriorem sinuatis: *alis* obsoletis: *abdomine* marginato elongato, basin versus plus minusve constricto, segmento ultimo retractili sed sat perspicuo (stylis analibus haud exsertis). *Antennæ* (XIII. 4 *a*) ante oculorum marginem internum insertæ, capite prothoraceque plerumque paulo longiores, robustæ, apicem versus sensim incrassatæ, articulis tribus baseos reliquis longioribus (primo leviter robusto), ultimo subacuminato-ovato. *Labrum* (XIII. 4 *b*) amplum subquadrato-transversum valde pilosum, antice integrum et in medio leviter productum. *Mandibulæ* (XIII. 4 *c*) magnæ porrectæ, apice angustæ incurvæ acutæ obscurissime bifidæ, intus dente medio obscuro obtuso et membranâ basilari instructæ. *Maxillæ* (XIII. 4 *d*) bilobæ angustæ: *lobo externo* apice pubescente: *interno* huic vix longiore, intus præsertim ad apicem pube longâ dense ciliato (haud spinuloso). *Palpi maxillares* elongati, articulo primo minuto, secundo et tertio elongatis subæqualibus clavatis (illo subcurvato, hoc paulo crassiore apice truncato), ultimo subulato brevissimo: *labiales* (XIII. 4 *e*) e scapis ligulæ connatis surgentes, articulo primo elongato subcylindrico robusto, secundo paulo angustiore brevi, ultimo huic longiore subulato tenuissimo. *Mentum* subtriangulare, apice truncato et leviter emarginato. *Ligula* elongata linearis angustissima, ad apicem ipsum tenuiter et recte bifida; *paraglossis* obsoletis. *Pedes* longiusculi: *tibiis* pubescentibus, ad apicem internum bicalcaratis: *tarsis* 5-articulatis; *anticis* articulis ultimo et penultimo modo inter se arcte connatis (suturâ ægre observandâ), modo (XIII. 4 *f*) bene distinctis; *posticis* articulo primo leviter elongato; *unguiculis* elongatis.

A ξένος mirabilis, et ὄμμα facies. (Typus—*Xenomma planifrons*.)

The singular and truly indigenous insects on which the present genus is founded are in some respects allied to *Myrmedonia*, or even to *Oxypoda*, though at the same time differing from them both in many essential particulars. In their apterous bodies, in fact, and excessively diminutive, imperfectly constructed eyes, which are placed altogether *above* the lateral edges of the head (itself moreover being unusually ovate and elongated), as well as in their largely developed and porrected mandibles, and in the insertion of their antennæ, which are remote from the inner margin of the eyes, they recede from the whole of the *Aleocharides* with which I am acquainted; whilst, from *Oxypoda* in particular (with which in their pentamerous feet* they coincide), their centrally-subacuminated upper lip, longer and less spinulose inner maxillary lobe, in conjunction with their very narrow,

* In the *X. planifrons* the two front tarsi have their five joints well-defined; but in the *formicarum* and *filiforme* the penultimate and terminal ones are very closely united together, so that it requires a high microscopic power (since they are of precisely similar breadth) to discover the division between them. Nevertheless, that it is to be detected, a very careful examination of each of the species has thoroughly convinced me.

parallel ligula (which is most minutely, and *straightly*, bifid at its extreme apex only), their greatly abbreviated elytra*, and their comparatively depressed and more or less posteriorly-expanded form, will serve additionally to separate them. Their habits are, to a certain extent, in keeping with their anomalous structure,—the species being attached, unless I am much mistaken, to Ants' nests (in the immediate vicinity of which, at any rate, the few specimens which I have hitherto succeeded in detecting have always occurred).

§ I. *Scutellum scutiforme: pedes crassi, tarsorum anticorum articulis omnibus distinctis.*

412. Xenomma planifrons, *Woll.* (Tab. XIII. fig. 4.)

X. rufo-ferrugineum opacum, capite magno valde deplanato et crebre punctulato, prothorace profunde canaliculato antice lato, abdomine basi constricto ultra medium leviter dilatato, segmentis quatuor vel quinque baseos antennisque versus apicem nigris, pedibus rufo-testaceis.

Long. corp. lin. 2.

Habitat in Maderæ sylvaticis editioribus, rarissimum: exemplar unicum, ad Cruzinhas Julio ineunte A.D. 1850 a meipso sub foliis arborum dejectis lectum, solum vidi.

X. rufo-ferruginous, and opake. *Head* large and ovate, exceedingly depressed, and closely beset with ocellated punctures; with the *eyes* black, and very minute. *Prothorax* less distinctly punctured than the rest of the surface (having almost the appearance under the microscope of being delicately granulated); subquadrate with the sides rounded, being broadest in front and transversely truncated both before and behind; with the anterior angles deflexed; and with a broad and deep dorsal channel down the centre. *Scutellum* large and shield-shaped, the mesothorax being partly exposed at its edges. *Elytra* more pubescent than the head and prothorax; exceedingly abbreviated, and enveloping the sides of the body; rather narrowed and rounded at the shoulders, and waved behind (especially at the outer angles). *Abdomen* also pubescent, elongated, strongly margined, constricted in front and a little expanded beyond the middle; all the segments, except the ultimate and penultimate ones, together with the *antennæ* except the first two or three joints, black. *Legs* thick, and rufo-testaceous.

Apparently of the utmost rarity, the only specimen which I have seen having been captured (early in July of 1850) from beneath fallen leaves at the edges of a minute trickling stream in the lofty sylvan district of the Cruzinhas,—upwards of 5000 feet above the sea. Apart from its greater size and thickened limbs, it may be known by its large scutellum and head (the latter of which is much flattened and coarsely punctured), opake surface, and by its deeply channeled and anteriorly-widened prothorax.

* In their very short elytra, and in the pubescent (unspinulose) inner lobe of their maxillæ, they agree indeed with *Myrmedonia*. The outer maxillary lobe however of that genus (which is so greatly produced as to equal the palpus in length), in conjunction with its differently constructed upper lip and ligula, its distinct paraglossæ and its quadriarticulate anterior feet, will (apart from the other characters enumerated above) readily remove it from *Xenomma*.

§ II. *Scutellum transversum triangulare : pedes graciles, tarsorum anticorum articulis penultimo et ultimo inter se arcte connatis (sutura ægre distinguenda).*

413. Xenomma formicarum, *Woll.*

X. infuscato-testaceum fere impunctatum nitidum, capite angusto convexo, prothorace subquadrato integro, abdomine basi constricto ultra medium dilatato, segmentis quatuor vel quinque baseos nigrescentibus.

Long. corp. lin. $1\frac{1}{8}$.

Habitat in montibus Maderæ, sub lapidibus truncisque arborum projectis, rarius ; Formicarum nidos, nisi fallor, colens.

X. brownish-testaceous, shining, nearly impunctate, and much acuminated anteriorly. *Head* narrow, ovate and convex ; with the *eyes* excessively minute and rudimentary (even smaller than those of the *X. planifrons*), black, and not at all projecting beyond the surface of the head. *Prothorax* scarcely broader than the head ; subquadrate, being of nearly equal breadth before and behind ; and without any appearance of a dorsal channel. *Scutellum* transverse and triangular, and much smaller than in the last species. *Elytra* extremely abbreviated (more so than the *X. planifrons*) ; rather narrowed at the shoulders, and waved behind (especially at the outer angles). *Abdomen* strongly margined, constricted in front and considerably expanded beyond the middle ; all the segments except the ultimate and penultimate ones more or less blackish or piceous, but occasionally pale. *Antennæ* shorter than in the *X. planifrons*, but longer than in the *X. filiforme* (being rather longer than the head and prothorax). *Legs* much slenderer than those of the last species.

Also exceedingly scarce ; and, like the last species, confined to lofty altitudes. I have taken it sparingly, during the early spring, from beneath stones in the neighbourhood of Ants' nests, on the ascent of the Pico d'Arribentão from Funchal ; and on the 21st of June 1850, I captured a pair towards the north of the island,—in the almost inaccessible region of the Lombo das Vacas. It may be known from the *X. planifrons* by its much smaller size, narrower and convexer head, by its shining and almost impunctate surface, differently shaped, unchanneled prothorax and by its slenderer limbs. The eyes also, both of it and the *X. filiforme*, are even more minute than those of that insect,—being represented by a mere black rounded point above the lateral margin of the head.

414. Xenomma filiforme, *Woll.*

X. angusto-lineare rufo-testaceum fere impunctatum nitidum, capite angusto convexo, prothorace subquadrato integro, abdomine subparallelo, segmentis quatuor vel quinque baseos nigrescentibus, antennis brevioribus.

Long. corp. lin. $1\frac{1}{8}$–$1\frac{1}{3}$.

Habitat in locis Maderæ similibus ac præcedens, sed rarius ; *Xenommatos* sola species, nisi fallor, in

Portu Sancto occurrens, quâ mense Aprili A.D. 1848 duo specimina in clivis graminosis sub lapidibus collegi.

X. similar to the *X. formicarum*, but much narrower and more parallel (being scarcely at all expanded behind, like that species), and of a rather clearer hue; its *abdomen* with the edges and apex of even the basal segments more or less rufo-testaceous or ferruginous; and its *antennæ* distinctly shorter (not being at all longer than the head and prothorax).

The only three specimens of this very distinct species which I have hitherto seen were captured by myself, from beneath stones,—two on the grassy mountain-slopes of Porto Santo, in April 1848, and the other on the ascent of the Pico d'Arribentão, above Funchal, during the spring of the same year.

Genus 186. HOMALOTA.

Mannerheim, *Brachel.* 73 (1831).

Corpus parvum, elongatum, lineare (rarius postice acuminatum), depressum: *capite* exserto, rotundato basi truncato: *prothorace* antice truncato, postice subrotundato: *alis* plerumque amplis: *abdomine* marginato, sæpius lineari sed interdum apicem versus attenuato. *Antennæ* ad oculorum marginem internum insertæ, capite prothoraceque (interdum multo) longiores, apicem versus plus minusve sensim incrassatæ (in maribus sæpe validiores), articulis tribus baseos reliquis paulo longioribus, inter se æqualibus. *Labrum* apice rotundatum. *Mandibulæ* muticæ. *Maxillæ* bilobæ: *lobo externo* apice pubescente: *interno* huic paulo breviore, ad apicem internum oblique emarginato, per sinum spinulis brevibus ciliato. *Palpi maxillares* elongati, articulo primo minuto, secundo et tertio elongatis subæqualibus (hoc apice incrassato), ultimo parvo subulato: *labiales* articulo primo magno subcylindrico, secundo breviore, ultimo huic longiore tenuiore subulato. *Mentum* transversum, apice vix emarginatum. *Ligula* brevis, apice bifida lobis divergentibus; *paraglossis* obsoletis. *Pedes* longiusculi, graciles: *tarsis anticis* 4-, *posterioribus* 5-articulatis; *posticis* articulis quatuor baseos subæqualibus.

The immense genus *Homalota*, 134 members of which are described in Erichson's *Genera et Species Staphylinorum*, contains a quantity of small and closely allied insects of very difficult determination, and principally abundant in European latitudes. They may be known from the kindred forms by their short and bifid ligula (the lobes of which, as in nearly all the genera of the *Aleocharides* except *Xenomma*, diverge at their extremity), and by their quadriarticulate anterior feet,—which have all the joints except the ultimate one, in each pair respectively, subequal. The first of the representatives characterized below would appear to be of a rather aberrant structure, having its elytra unusually abbreviated and its body apterous: nevertheless in all other respects it retains the elements of *Homalota* proper. Amongst so large an assemblage it is not surprising that several modes of life should be indicated; some of the species occurring amongst damp vegetable refuse and in the excrement of cattle, others in grassy spots of exposed mountain districts, whilst a few are of a strictly subaquatic nature, and reside, like *Calo-*

dera, *Ocalea* and *Tachyusa*, along the margins of rivers and streams,—secreting themselves between the loose stones and shingle at the water's edge. The members of this last division (three or four of which enter our present fauna) in many instances assume the outward aspect of *Calodera*, their antennæ being comparatively elongated, their movements marvellously rapid, and their whole surface clothed (though in a less degree) with a short and silken pubescence,—a provision which the species of that group would seem, from their semi-aquatic habits, so eminently to require, since their constant liability to immersion renders it necessary that they should be provided with some means for retaining a sufficient amount of air to buoy them up, in case of accidents, and to enable them to float safely to shore. Hence it is not always easy, *primâ facie*, to separate certain of these riparial modifications from the *Caloderæ*; nevertheless an inspection of the tarsi will generally succeed in distinguishing them,—those of the latter not only being altogether pentamerous, but having the hinder pair almost as long as the entire tibiæ and with the basal joint considerably produced*.

§ I. *Corpus apterum; elytris valde abbreviatis.*

415. Homalota sanguinolenta, *Woll.*

H. rufo-testacea et plus minusve infuscata subnitida, capite piceo, prothorace lato ad latera rotundato, abdomine ultra medium subdilatato, segmentis quatuor vel quinque baseos, antennisque versus apicem nigrescentibus, pedibus testaceis.

Var. β. omnino pallidior, abdomine in medio solo nigrescente.

Long. corp. lin. $1\frac{1}{4}$.

Habitat sub lapidibus truncisque arborum prolapsis per partem Maderæ sylvaticam, præsertim in humidis editioribus, toto anno frequens.

H. rufo-testaceous (and more or less obscured in parts), slightly shining, and apterous. *Head* more or less brownish-piceous; and with the *eyes* smaller than in the *Homalotæ* generally (nevertheless considerably larger than those of *Xenomma*). *Prothorax* large and wide (with the sides rounded),—being broader than either the head or *elytra*, which last are much abbreviated (although not so

---

* Of these characters I am inclined to believe that the structure of the *hinder* feet is in reality the most to be relied upon, seeing that the highest magnifying power will sometimes scarcely succeed in satisfactorily detecting more than four joints in the front tarsi of *Calodera*; whilst, on the other hand, undoubted *Homalotæ* do occasionally show traces, as it appears to me, of five. So decidedly have I observed this to be the case, that I think it far from unlikely that *both* may, in point of fact, be pentamerous,—the penultimate articulation being usually so closely soldered to the terminal one in *Homalota* as to be altogether inseparable from it except under the deepest powers of the microscope. But the supposed missing joint does unquestionably seem to be indicated in some of the *Homalotæ* which I have recently examined, since I have not only been able to distinguish a transverse line across the lower portion of the *quasi*-ultimate articulation, but, in some instances, even a slight projecting angle at the side,—as though still further as it were to mark the junction.

short as in the preceding genus). *Abdomen* a little expanded beyond the middle, with the first four or five segments more or less black. *Antennæ at apex* brownish-black; *at base*, together with the *legs*, testaceous.

Var. β. altogether paler, the intermediate abdominal segments being alone darkened.

A most indigenous insect, and exceedingly distinct from every *Homalota* with which I am acquainted. From the remainder of the species here described it may be known, at first sight, by its combining the rufo-testaceous colouring, apterous body, exceedingly abbreviated elytra, and the posteriorly-subexpanded abdomen of *Xenomma* with the oral and tarsal characteristics of the present genus. In its somewhat diminished eyes indeed it would make a still further approach towards the former group; nevertheless the shape of its head is essentially that of *Homalota*, nor do its habits appear to be in any way dependent on those of Ants. Its freedom from wings however is worthy of remark, since it is a structure of rare occurrence in the *Homalotæ*, and one which is especially indicative of Madeiran forms,—the *apterous tendency* of the endemic insects of these islands having been more than once dilated upon. It is found only at lofty elevations; and, although it occurs not unfrequently in spots from whence the wood has disappeared, it may be defined as normally *sylvan*,—ranging from about 2500 to 5000 feet above the sea, and attaining its maximum rather towards the upper than the lower extremity of those limits. It resides beneath moist logs of wood, stones and dead leaves in damp and cloudy districts,—where it is occasionally very abundant. During my encampment in the uplands of the Cruzinhas and the Fanal, in July 1850, I captured it in profusion at the edges of the trickling streams and from under felled timber: and I have likewise taken it on the Lombo das Vacas, in June; at the Feijãa de Córte, in August; and at the Ribeiro Frio, at nearly all seasons of the year.

§ II. *Corpus plerumque alatum; elytris minus abbreviatis.*

416. Homalota granulosa, *Woll.*

H. linearis piceo-nigra subtiliter et dense granulata opaca et valde depressa, prothorace postice angustato et foveâ mediâ abbreviatâ impresso, antennis pedibusque elongatis, illis basi dilutioribus, his pallido-testaceis.

Long. corp. lin. $1\frac{3}{4}$.

Habitat in Maderâ sylvaticâ excelsâ, a meipso ad Cruzinhas Julio ineunte A.D. 1850 (sub foliis arborum dejectis) lecta.

H. linear, piceous- or brownish-black; head, prothorax and elytra finely and very closely granulated, but without any appearance of punctures intermixed; opake, and exceedingly depressed. *Prothorax* rather elongated, and a little narrowed behind; and with an obscure central depression,

or shallow fovea, posteriorly. *Abdomen* shining, and sparingly punctured. *Antennæ* and *legs* elongated; the *former* slender, and diluted at their base; the *latter* pale diluted-testaceous.

The largest of the Madeiran *Homalotæ*, and readily known by its flattened body, by its opake and granulated upper surface (there being no appearance whatsoever, except on the abdomen, of punctures intermixed), and by its elongated antennæ and legs,—the former of which are scarcely at all thickened at their extremity. It is subaquatic in its habits and apparently peculiar to very lofty altitudes,—the only specimen which I have seen having been captured, in company with *Xenomma planifrons*, from beneath moist leaves at the edges of a small stream in the elevated sylvan district of the Cruzinhas (about 5000 feet above the sea), during my encampment there in July 1850.

417. Homalota obliquepunctata, *Woll.*

H. linearis nigra subtilissime punctulata nitida depressa, prothorace postice angustato et obsolete canaliculato, elytris fuscescentibus, singulo foveolis duabus vel tribus in serie obliquâ positis impresso, antennis pedibusque longiusculis, illis basi dilutioribus, his testaceis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Habitat Maderam, inter lapillos per margines rivulorum, hinc inde sat vulgaris.

H. linear, black, most delicately but not very closely punctulated, shining, and depressed. *Prothorax* rather shorter and convexer than in the last species (but, likewise, slightly narrowed behind); and with an exceedingly obscure dorsal channel, more particularly apparent posteriorly. *Elytra* more or less fuscescent, or brownish-piceous, especially towards the suture; each with two or three shallow rounded impressions, placed obliquely, on its hinder disk. *Antennæ* and *legs* elongated; the *former* more thickened at the extremity (and with the subapical joints more transverse) than in the *H. granulosa*, diluted at their base; the *latter* testaceous.

Also a very distinct species,—differing from the rest in the two or three impressed points, or rounded foveæ, which are placed obliquely across the hinder disk of each of its elytra. Like the last, it is subaquatic in its habits; and it may be further known from that insect by its more shining surface, which is most delicately punctulated throughout (there being scarcely any indications of granules, except under the highest microscopic powers), by its more or less fuscescent (or brownish-piceous) elytra, and by its apically-robuster antennæ. It occurs in most parts of the island, from about 500 to 3000 feet above the sea,—beneath stones and shingle along the margins of the streams, amongst which it secretes itself at the water's edge. In the Ribeiro de Santa Luzia (in the south), and at São Vincente and Santa Anna (in the north), I have captured it in tolerable abundance.

418. Homalota luticola, *Woll.*

H. linearis nigra (vel fusco-nigra) subtilissime granulato-punctulata subopaca subdepressa, capite

lato depresso, prothorace transverso-subquadrato obsolete canaliculato, elytris fusco-testaceis, antennis pedibusque sat robustis, illis basi dilutioribus, his testaceis.

Long. corp. lin. $1\frac{2}{3}$.

Habitat Maderam borealem, inter muscos uvidos et lutum juxta aquas desilientes fodiens, rarior: ad Sanctum Vincentium mense Junio A.D. 1850 pauca specimina inveni.

H. rather broad and linear, black or brownish-black, head, prothorax and elytra most delicately and closely granulated, and with small punctures intermixed; nearly opake, and subdepressed. *Head* wide, and with the forehead somewhat flattened. *Prothorax* also rather wide, transverse-subquadrate (being of nearly equal breadth before and behind); and with an obscure dorsal channel. *Elytra* more or less brownish-testaceous, being generally palest towards the suture. *Abdomen* with the apical segment and the extremity of the basal ones obscurely fuscescent. *Antennæ* and *legs* not quite so long as in the *H. obliquepunctata*, but altogether a little robuster; the *former* rather less slender at their base, where they are diluted in colouring; the *latter* testaceous.

Distinguished by its comparatively wide head and prothorax (the former of which is more depressed than in any of the other species), by its brownish-testaceous elytra, rather robust limbs, and by its semi-opake and very minutely granulated surface (on which there are most delicate punctures intermixed). In its habits it is intermediate between the strictly subaquatic and terrestrial forms, residing in damp spots (generally amongst mud or moss) on the ledges of the dripping rocks or in the vicinity of cascades,—but not, like the *H. obliquepunctata* and the *Tachyusa raptoria*, beneath stones and shingle at the margins of streams. I have captured it sparingly towards the northern coast,—especially at the edges of the first waterfall, along the São Vincente beach, in the direction of Seisal.

419. Homalota gregaria.

H. angusto-linearis nigra (vel fusco-nigra) obsoletissime granulato-punctulata nitida depressa, prothorace postice vix angustato et foveâ mediâ abbreviatâ impresso, elytris subtestaceo-fuscescentibus, antennis pedibusque longiusculis, illis fuscis, his testaceis.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Homalota gregaria, Erich. *Gen. et Spec. Staph.* 87 (1839).
Tachyusa immunita, Id. 916.
Homalota gregaria, Redt. *Fna Austr.* 659 (1849).

Habitat sub lapidibus vix supra oram maritimam Portûs Sancti jacentibus, non infrequens.

H. narrow and linear, black (or brownish-black), head, prothorax and elytra most obsoletely granulated, and with scarcely appreciable punctures intermixed; shining, and depressed. *Prothorax* rather small, and very slightly narrowed behind; and with a central depression, or shallow fovea, posteriorly. *Elytra* more or less fuscescent, being palest (and generally somewhat testaceous) towards the suture. *Antennæ* and *legs* about as long as in the previous species, but rather slenderer; the *former* entirely of a dull reddish-brown, or fuscous; the *latter* testaceous.

The present *Homalota* may be known by its narrow and elongated outline, by the obscure central fovea on the hinder portion of its prothorax, by its reddish-brown antennæ, and by its distinctly fuscescent elytra. Although occurring in comparatively *dry* spots (in Porto Santo), I am inclined to suspect, from its somewhat lengthened posterior tarsi and general contour, that it is normally a subaquatic insect,—the destruction of the wood on that island having so far diminished the supply of water (which is mainly dependent, in these latitudes, on distillation from the atmosphere by the large and brightly-polished leaves of evergreen trees and shrubs) as to have rendered localities which must have been formerly moist now completely barren, and to have necessitated the adaptation of the animal and vegetable life (which was able to endure the change) to considerably altered conditions. It appears to differ in no respect from the *H. gregaria* of Erichson (the *Tachyusa immunita* of the same author), a species very abundant in central and southern Europe, except that it is a little narrower and has its elytra rather paler than is generally the case in more northern specimens. Such slight modifications as these, however, I believe that even latitude alone would be sufficient to account for,—and therefore, *à fortiori*, the circumstances to which we have just alluded. It is recorded by Erichson in Egypt, Sardinia and Austria; and it likewise occurs in England, Germany and France. In Madeira proper I have not hitherto observed it; but in Porto Santo I captured it not uncommonly, from beneath stones, at the western extremity of the island, in positions but scarcely elevated above the sea-shore,—during April 1848.

420. Homalota Philonthoides, *Woll.*

H. angusto-sublinearis fusco-nigra subtilissime granulata subopaca valdius pubescens depressa, prothorace postice vix angustato, elytris vix fuscescentioribus, antennis pedibusque longiusculis, illis basi dilutioribus, his pallido-testaceis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat in stercore bovino per Maderæ regionem sylvaticam, hinc inde non infrequens: ad Cruzinhas mense Julio ineunte A.D. 1850 sat copiose observavi.

H. rather narrow and linear, brownish- or piceous-black, head and prothorax most delicately and closely granulated, and without punctures intermixed; nearly opake, more pubescent than any of the other species, and depressed. *Prothorax* slightly narrowed behind; and usually altogether unchanneled (though sometimes with indications of a small rounded fovea in the centre of its extreme base). *Elytra* scarcely more fuscescent than the rest of the surface; and slightly punctured. *Abdomen* shining. *Antennæ* and *legs* rather long; the *former* robust, and gradually thickened to the extremity, diluted at their base; the *latter* pale testaceous.

The present insect and the *H. currens* are at first sight a good deal allied, since their characters are not always apparent without the aid of a powerful glass. Nevertheless they are unquestionably distinct, their differences not being the less real because difficult of observation. When viewed beneath the microscope indeed

they are most easily identified, both being remarkably constant. The *H. Philonthoides* may be recognized by its universally larger size and somewhat longer limbs, by its smaller scutellum, and by its more pubescent and less shining surface. Its head and prothorax, also, are sculptured in a rather peculiar manner,—being most closely and delicately granulated, without any appearance of punctures intermixed: and the latter is less quadrate than that of the *H. currens*, being very perceptibly narrowed behind. The habits moreover of the *H. Philonthoides* are essentially stercoraceous, whereas the *H. currens* is found almost exclusively beneath stones and the bark of trees in elevated grassy spots within the sylvan districts. My specimens of the former were captured in the dung of cattle, and principally during my encampment at the Cruzinhas in July 1850.

421. Homalota currens, *Woll.*

H. angusto-linearis nigra subtilissime punctulata nitida depressa, prothorace subquadrato, elytris fuscescentibus, antennis pedibusque breviusculis, illis basi vix dilutioribus, his pallido-testaceis.

Long. corp. lin. 1–1¼.

Habitat in graminosis editioribus Maderæ, præsertim per partem sylvaticam, æstate vulgaris: ad Lombo dos Pecegueiros abundat, quâ mense Julio A.D. 1850 copiosissime deprehensi.

H. smaller than the *H. Philonthoides*, narrow, and rather more linear, black (sometimes with a brownish tinge), head, prothorax and elytra finely punctulated; shining, and depressed. *Prothorax* subquadrate (being of nearly equal breadth before and behind); and usually altogether unchanneled. *Scutellum* very large, punctured, and scutiform. *Elytra* more or less distinctly fuscescent, especially towards the suture (where it is sometimes slightly testaceous). *Antennæ* and *legs* shorter than in the last species; the *former* robust, scarcely diluted in colouring at their base; the *latter* pale testaceous.

As already stated, the present insect bears a certain *primâ facie* resemblance to the last one; nevertheless its smaller bulk, less pubescent and more shining surface, in conjunction with its shorter limbs, browner elytra, more quadrate prothorax, and its large shield-shaped scutellum, will usually at once distinguish it from that species. Its sculpture also, when viewed beneath the microscope, is of a very different nature, the head and prothorax being finely punctulated,—whereas those of the *H. Philonthoides* have no indications of punctures intermixed with the granules (which are there, moreover, comparatively coarse). Its normal range is, apparently, within the sylvan districts; and, so far as I have hitherto observed, it is never found in dung, but beneath bark and stones in grassy wooded spots of lofty elevations,—being especially active in the dusk of the evening and after showers, when it is oftentimes exceedingly abundant. During my encampment at the Lombo dos Pecegueiros, in July of 1850, I captured it in the utmost profusion,—running rapidly up the outer canvass of my tent after sunset; and I have likewise taken it at Santa Anna and the Ribeiro Frio.

422. Homalota tantilla, *Woll.*

H. angusto-linearis fusco-nigra obsoletissime granulata subnitida et minus depressa, capite postice valde truncato, prothorace brevi, elytris abbreviatis picescentibus, antennis pedibusque brevibus, illis fuscis basi ferrugineis (articulo ultimo brevi crassiusculo), his pallido-testaceis.

Long. corp. lin. $\frac{7}{8}$–1.

Habitat per regionem Maderæ sylvaticam excelsam, præsertim inter arbusculas in rupibus crescentes, æstate rarior.

H. narrow and linear, brownish- or piceous-black, head and prothorax most obsoletely granulated, and with the faintest indications of a few punctures towards the sides (neither the granules nor punctures being at all appreciable except under a high microscopic power); slightly shining, and not much depressed. *Head* very straightly and abruptly truncated behind. *Prothorax* short, with the sides rounded, and of nearly equal breadth before and behind; unchanneled (though with indications of a small fovea in the centre of its extreme base). *Elytra* much abbreviated, a little more distinctly punctulated than the head and prothorax, and more or less picescent. *Abdomen* at its apex usually diluted in colouring. *Antennæ* and *legs*, especially the *former* (which are reddish-brown towards their apex and ferruginous at their base, and with their terminal joint short and ovate, being a good deal more robust than the preceding ones), abbreviated; the *latter* pale diluted-testaceous.

An insignificant (but nevertheless distinct) little species, and the smallest of the Madeiran *Homalotæ*. It may be known by its narrow and subcylindrical body, greatly (and suddenly) posteriorly-truncated head, by its comparatively abbreviated elytra and limbs, and by the short and somewhat thickened ultimate joint of its antennæ. The sculpture of its head and prothorax, moreover, is different from that of its allies,—both the granules and punctures being almost obsolete, and only just perceptible under a high power of the microscope; and the apex of its abdomen is usually fuscescent. Like the *H. currens*, it is confined principally to lofty elevations, and would seem to be peculiar, or nearly so, to the sylvan districts,—occurring in grassy spots, and amongst vegetation on rocks. I have captured it at the head of the Ribeiro de João Delgada, at the Cruzinhas and the Fanal, and (more sparingly) at Santa Anna and São Vincente,—during the summer months.

423. Homalota plebeia, *Woll.*

H. linearis fusco-nigra sat profunde punctulata nitida subconvexa, prothorace postice latiusculo, elytris vix fuscescentioribus, antennis pedibusque mediocribus, illis robustis basi dilutioribus, illis pallido-testaceis subinfuscatis.

Long. corp. lin. 1–1¼.

Habitat in locis similibus ac præcedens, rarissime.

H. not quite so linear as the *H. tantilla*, brownish- or piceous-black, head and prothorax rather coarsely punctulated (the latter with the under granules also tolerably distinct); shining, rather

more pubescent than the previous two species, and somewhat convex. *Prothorax* subquadrate, but a little wider behind than in front; and unchanneled. *Elytra* scarcely more fuscescent than the rest of the surface. *Abdomen* a little attenuated behind, and diluted in colouring at its apex. *Antennæ* and *legs* of moderate length; the *former* rather robust, diluted at their base; the *latter* pale testaceous, and more or less infuscated in parts.

Easily distinguished, under the microscope, by the comparatively coarse punctures of its head and prothorax,—the latter of which is also minutely granulated, and broad behind. Its antennæ are somewhat robust, and its body is altogether more convex than in the allied forms. It is found (like the *H. tantilla*) in elevated grassy spots within the sylvan districts, but is apparently rare. The only localities in which I have hitherto observed it are the Feijãa de Córte and the Ribeiro Frio.

424. Homalota sodalis.

H. latiuscula sublinearis nigra subtilissime punctulata nitida et minus depressa, prothorace breviusculo postice foveâ mediâ abbreviatâ sat profundâ impresso, elytris plus minusve subtestaceo-fuscis, antennis pedibusque breviusculis, illis basi dilutioribus, his pallido-testaceis.

Long. corp. lin. $1\frac{1}{8}$–$1\frac{1}{4}$.

Homalota sodalis, Erich. *Käf. der Mark. Brand.* i. 328 (1837).
———— ——, Erich. *Gen. et Spec. Staph.* 104 (1839).

Habitat in graminosis Maderæ, et borealis et australis, præsertim inter lignum putridum vel fungos, toto anno non infrequens.

H. sublinear and rather broad, black, head and prothorax very finely but rather remotely punctulated; shining, and slightly convex. *Prothorax* rather short; and with a broad, abbreviated, central fovea behind. *Elytra* more or less brownish-testaceous, but a little obscured towards either outer angle. *Antennæ* and *legs* rather short; the *former* robust, diluted at their base; the *latter* pale diluted-testaceous.

Known by its rather broad outline, slightly convex and very shining surface, by its finely punctulated head and prothorax (about as perceptibly so as in the *H. currens*), brownish-testaceous elytra, and by the somewhat deep central fovea on the hinder region of its pronotum. It is a common European insect, and widely distributed over Madeira,—occurring beneath moist logs of wood, and amongst fungi, in grassy spots. I have captured it in the Rev. R. T. Lowe's garden near Funchal; and also in the north of the island, at the Lombo dos Pecegueiros, in July.

425. Homalota umbratilis, *Woll.*

H. linearis fusco-picea fere impunctata subnitida subdepressa, prothorace elytrisque plus minusve infuscato-testaceis, abdomine testaceo ultra medium infuscato, antennis brevibus (articulo ultimo brevi subgloboso), ad basin pedibusque pallido-testaceis.

Long. corp. lin. 1.

Habitat in Maderæ sylvaticis, semel tantum (ad Lombo dos Pecegueiros, Julio ineunte A.D. 1850) capta.

H. linear, brownish-piceous, head and prothorax almost impunctate; slightly shining, and subdepressed. *Prothorax* and *elytra* paler than the head, being more or less brownish-testaceous (though apparently infuscated in parts. *Abdomen* pale at the base and apex, but obscured behind the middle. *Antennæ* very short and robust, with their base testaceous; the apical joint short, subglobose and truncated at its base. *Legs* pale testaceous.

From a single, immature specimen it is scarcely possible to pronounce for certain as to the normal condition of the present insect. Nevertheless, since it is sufficiently developed to show its general colouring and sculpture, and since it clearly cannot be identified with any other Madeiran *Homalota*, I have preferred describing it to passing it by unnoticed. In its comparatively variegated surface, indeed, and extremely short and robust antennæ (which have their apical joint subglobose), it seems to belong to a type altogether different from the remainder; and, judging from its outward contour, its habits are probably fungivorous. My unique example was captured by myself at the Lombo dos Pecegueiros, during July 1850.

426. Homalota insignis, *Woll.*

H. linearis nigra subtiliter granulato-punctulata subnitida et minus depressa, prothorace antennarumque basi rufo-testaceis, elytris infuscato-testaceis, abdominis apice dilutiore, pedibus pallido-testaceis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Habitat in fungis per Maderæ partem sylvaticam, ad Ribeiro Frio a meipso detecta.

H. linear, black, most minutely and closely granulated, and with more or less obscure punctures intermixed; slightly shining, and subdepressed. *Prothorax* subquadrate, clear rufo-testaceous; with a very obscure channel, or fovea, behind. *Elytra* testaceous, but slightly clouded (or infuscated) in parts, particularly towards the lateral edges and on their outer disks. *Abdomen* at apex more or less ferruginous. *Antennæ at base* rufo-testaceous. *Legs* pale testaceous.

A large, distinct and prettily-variegated species; and known from the rest of the genus here described, except the *H. sanguinolenta* (which however belongs to a totally different type of form), by its pale prothorax and elytra, and by its fungivorous habits. It is, apparently, scarce, or at any rate local,—the only district in which I have detected it being that of the Ribeiro Frio, where I once captured it (during the winter time) in considerable abundance.

427. Homalota atramentaria.

H. linearis subænescenti-atra subtiliter granulato-punctulata subnitida et minus depressa, capite pro-

thoraceque obscurissime canaliculatis, abdomine atro nitido, pedibus piceis, tibiis ad basin et apicem tarsisque testaceis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Staphylinus atramentarius, Kirby, *in litt.*
Aleochara atramentaria, Gyll. *Ins. Suec.* ii. 408 (1810).
Homalota ————, Erich. *Gen. et Spec. Staph.* 111 (1839).
Aleochara ————, Zett. *Ins. Lapp.* 77 (1840).

Habitat in stercore bovino Maderæ et Portûs Sancti, vulgaris.

H. linear, deep black with a just perceptibly æneous tinge, head and prothorax most minutely and closely granulated, and with rather distinct punctures intermixed; slightly shining, and subdepressed. *Head* and *prothorax* most obsoletely channeled. *Scutellum* very large and scutiform. *Elytra* occasionally a little diluted in colouring, especially towards the suture. *Abdomen* shining. *Antennæ* and *legs* slender; the *former* generally not at all diluted in colouring at their base; the *latter* piceous,—with their tibiæ at the extreme base and apex, together with the *tarsi*, testaceous.

Easily distinguished by its dark, subæneous surface (the elytra being scarcely at all diluted in hue), by its somewhat slender limbs, and by its large shield-shaped scutellum (as in the *H. currens*). It is a common Madeiran insect, especially in the south of the island,—occurring generally, in the dung of cattle, at low and intermediate altitudes. I have taken it abundantly in the vicinity of Funchal and at the Ribeiro Frio; and I have likewise observed it in Porto Santo. It is found throughout the greater portion of Europe; and is recorded by Erichson from Sweden, Germany, England and Sardinia.

428. Homalota longicornis.

H. fusiformis nigra sat rugose punctulata nitida et minus depressa, elytris infuscato-testacescentibus, antennis pedibusque elongatis robustis, his diluto-testaceis, femoribus posticis plus minusve picescentibus.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Aleochara longicornis, Grav. *Col. Micropt.* 87 (1802).
Bolitochara longicornis, Mann. *Brachel.* 83 (1831).
Homalota longicornis, Erich. *Gen. et Spec. Staph.* 129 (1839).
———— ————, Redt. *Fna Austr.* 664 (1849).

Habitat in stercore bovino Maderæ, et borealis et australis, præsertim in locis subinferioribus, vulgatissima.

H. fusiform (being acuminated both before and behind), black, coarsely punctulated, shining, and subdepressed. *Scutellum* large. *Elytra* brownish-testaceous, being palest about either inner angle, and more or less cloudy about the base, suture and lateral margins. *Antennæ* and *legs* elongated and robust; the *former* but very slightly diluted at their base; the *latter* pale diluted-testaceous (the two hinder femora being frequently picescent), and beset with a few very long and erect setæ.

A most abundant European insect, occurring almost everywhere. In Madeira it is likewise exceedingly common, at low and intermediate elevations, in the dung of cattle. I have captured it both in the north and south of the island, especially in the chestnut-woods of Santa Anna,—where during the summer of 1850 I observed it in the utmost profusion. It may be known by its fusiform outline, elongated and robust limbs, by its shining surface, brownish-testaceous elytra, and by its exclusively stercoraceous habits.

429. Homalota lividipennis.

H. fusiformis nigra confertissime punctulata subopaca sericeo-pubescens et minus depressa, prothorace amplo postice lato, elytris pedibusque testaceis, antennis robustis piceis.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{2}{3}$.

Oxypoda lividipennis, Mann. *Brachel.* 70 (1831).
Homalota livida, Erich. *Käf. der Mark Brand.* i. 337 (1837).
——— *lividipennis*, Erich. *Gen. et Spec. Staph.* 129 (1839).
———————, Redt. *Fna Austr.* 664 (1849).

Habitat in iisdem locis ac præcedens, sed paulo rarior.

H. fusiform (being acuminated both before and behind, though especially the latter), black, most densely punctulated, almost opake, slightly convex, clothed with a fine, sericeous, brownish pubescence, and subdepressed. *Prothorax* large, wide behind. *Elytra* testaceous, but more or less obscured about the region of the scutellum and at the lateral margins. *Abdomen* ferruginous at its apex. *Antennæ* and *legs* not quite so long as in the last species; the *former* very robust, piceous (or fusco-piceous), with their base a little diluted in colouring; the *latter* pale testaceous.

Likewise of exclusively stercoraceous habits, and of very wide geographical range,—occurring throughout the whole of Europe, and being reported even from America. It is a species of rather peculiar aspect, somewhat resembling an *Oxypoda*,—its large, posteriorly-dilated prothorax and apically-acuminated abdomen giving it an aspect different from the generality of the *Homalotæ*; nevertheless the structure of its tarsi shows it to belong to the present genus. Amongst other characters, its most densely punctulated and sericeous surface, in conjunction with its very robust antennæ, and its testaceous elytra (which are usually only infuscated about the region of the scutellum, and at the extreme lateral edges), will serve additionally to distinguish it. It is found principally in company with the *H. longicornis*, though not quite so abundantly; albeit it ascends to a higher elevation, since I have captured it both at the head of the Ribeiro de João Delgada and at the Cruzinhas (upwards of 5000 feet above the sea). In the vicinity of Funchal and at Santa Anna it is tolerably common,—especially the former, where, during the autumnal months, I have observed it in the utmost profusion (in the dung of cattle) on the grassy slopes to the eastward of the town, before arriving at the Cabo Gerajão or Brazen Head.

Genus 187. OXYPODA.

Mannerheim, *Brachel.* 69 (1831).

Corpus parvum, oblongo-fusiforme et minus depressum: *capite* exserto, interdum deflexo: *prothorace* convexo, antice truncato, postice latiusculo rotundato: *alis* amplis: *abdomine* marginato, plerumque apicem versus attenuato. *Antennæ* ad oculorum marginem internum insertæ, breviusculæ, apicem versus plus minusve incrassatæ (in maribus sæpe validiores), articulis secundo et tertio reliquis magis elongatis, inter se æqualibus. *Instrumenta cibaria* omnino ut in Homalotâ. *Pedes* longiusculi, graciles: *tarsis* omnibus 5-articulatis; *posticis* articulo primo elongato.

The genus *Oxypoda* is distinguished from *Homalota* by all its feet being composed of five articulations, and by its hinder pair having their basal joint elongated. Whatever value, however, these two characters may possess (and, being structural ones, they are very important), their convenience is practically much diminished on account of their microscopic nature,—the difficulty of observing them being often very considerable. There are few ordinary external members indeed (in constant use, for primary purposes, in the investigation of the Coleoptera) less easy of inspection than the tarsal joints of some of the smaller *Brachelytra*,—which are frequently so closely attached to each other, and differ so slightly in breadth, that it requires a practised eye, even with the aid of a powerful glass, to define them. The *Oxypodæ* are principally a little convexer, and more attenuated behind, than the *Homalotæ*, approaching somewhat in general contour to *Aleochara*,—a resemblance which the deflexed heads and posteriorly-widened (though rounded) prothoraces of some of the species would not tend to decrease.

430. Oxypoda litigiosa.

O. fusiformis fusco-nigra confertim punctulata subopaca sericeo-pubescens et minus depressa, prothorace postice lato, pedibus diluto-testaceis.

Long. corp. lin. $1\frac{1}{8}$.

Oxypoda litigiosa, Heer, *Fna Col. Helv.* i. 321 (1841).

Habitat Maderam, in stercore bovino, non infrequens.

O. fusiform (being almost equally acuminated before and behind), brownish-black, densely punctulated, almost opake, slightly convex, and clothed with a fine, somewhat sericeous, decumbent pubescence. *Prothorax* rather narrowed in front, and wide behind. *Abdomen* a little darker than the prothorax and elytra, and obscurely ferruginous at its apex. *Legs* diluted-testaceous. *Antennæ* short, and concolorous with the head and prothorax (being scarcely at all diluted at their base).

The present obscure and insignificant little *Oxypoda*, which, so far as I have hitherto observed, is the sole exponent of the genus in these islands, is I believe correctly referred to the *O. litigiosa* of Heer,—of which I possess typical specimens

from the collection of M. Chevrier of Geneva, differing in no respect from the Madeiran ones. It occurs sparingly, in the dung of cattle, near Funchal; but does not appear to be very generally distributed throughout the loftier districts.

Genus 188. ALEOCHARA.

Gravenhorst, *Col. Micropt.* 67 (1802).

Corpus mediocre vel parvum, plerumque fusiforme antice incrassatum, parum convexum, pubescens: *capite* exserto, deflexo: *prothorace* convexo, postice lato rotundato: *alis* amplis: *abdomine* marginato, jam parallelo, jam apicem versus attenuato. *Antennæ* ad oculorum marginem internum insertæ, breves, apicem versus incrassatæ, articulis tribus baseos reliquis paulo longioribus (primo crassiusculo, secundo et tertio obconicis). *Labrum*, *mandibulæ* et *maxillæ* fere ut in Homalotâ. *Palpi labiales* 4-articulati, articulo primo magno cylindrico, reliquis decrescentibus (quarto minutissimo). *Mentum* breve transversum, antice emarginatum. *Ligula* brevis lata, apice bifida; *paraglossis* brevissimis latis. *Pedes* breviores: *tarsis* omnibus 5-articulatis; *posticis* articulo primo elongato.

Aleochara may be distinguished by its anteriorly-incrassated body and deflexed head, by its pentamerous feet, and by its four-jointed labial palpi,—a peculiarity, in which, according to Erichson, it differs from every Coleopterous genus hitherto described. In other respects the parts of the mouth do not materially recede from those of the neighbouring groups. The species are found principally in dung and beneath decaying vegetable substances; nevertheless some few of them would appear to be carnivorous, residing amongst putrifying animal matter and in bones.

431. Aleochara Armitagei, *Woll.*

A. fusiformis fusco-nigra dense fulvo-pubescens subnitida, prothorace crebre æqualiter punctulato, elytro singulo plagâ magnâ obliquâ suffusâ rubescente ornato, pedibus, antennarumque basi et apice testaceis.

Long. corp. lin. 2–2¼.

Habitat Maderam, in stercore bovino, æstate non infrequens.

Species ut opinor insulis Maderensibus revera indigena, et in honorem amici Rev^di^ W. J. Armitage a me ob gratias oblatas denominata.

A. fusiform, brownish-black, very slightly shining, and densely clothed with a long, decumbent, fulvescent pubescence. *Prothorax* and *elytra* most densely and uniformly punctulated all over; the *latter* with a large, oblique, more or less suffused dash on each, extending almost from either sutural angle to the shoulder, reddish, or rufescent. *Antennæ* at *base* and *apex*, and the *legs*, testaceous.

The present *Aleochara*, which I have dedicated to my friend, and companion in travel, the Rev. W. J. Armitage (whose valuable assistance during two sojourns in Madeira I have already had occasion to record), may be easily known by its

fusiform outline, by the fulvous pile with which it is densely clothed, by the usually suffused reddish dash on each of its elytra, and by the paleness not only of the legs, but also of the base and *apex* of its antennæ. It is more akin to the European *A. pulla* than to any other species with which I am acquainted; nevertheless, its much larger size, in conjunction with its distinctly maculated elytra, and the different colour of its pubescence, will at once separate it from that insect. It is by no means common, though occurring (in the dung of cattle) both in the north and south of the island. I have taken it, during the autumn, in the vicinity of Funchal; and in the chestnut-woods of Santa Anna, in June.

432. Aleochara tristis.

A. sublinearis nigra subnitida, prothorace æqualiter punctulato, elytro singulo plagâ magnâ obliquâ suffusâ testaceâ ornato, antennarum basi pedibusque (tarsis pallidioribus exceptis) fusco-piceis.

Long. corp. lin. 2.

Aleochara tristis, Grav. *Mon.* 170 (1806).
———— ——, Gyll. *Ins. Suec.* ii. 430 (1810).
———— ——, Mann. *Brachel.* 66 (1831).
———— ——, Erich. *Gen. et Spec. Staph.* 162 (1839).

Habitat in iisdem locis ac præcedens, sed multo frequentior.

A. more linear than the last species, and of a deeper black (though sometimes with a just perceptible æneous tinge), slightly shining, and with the pubescence less dense. *Prothorax* and *elytra* uniformly punctulated all over (but not so closely or distinctly as in the *A. Armitagei*); the *latter* with a large, broad, oblique dash on each, extending from either sutural angle in the direction of the shoulder, testaceous. *Antennæ at base*, and the *legs*, more or less brownish-piceous; the *tarsi* paler.

A common European and Algerine insect; and perhaps, with the following two, imported into the Madeira Islands. It may be known from the *A. Armitagei* by its more parallel outline and blacker hue, by its less pubescent surface, the dark apex of its antennæ, and by its more testaceous elytral patch. It is tolerably abundant (in the excrement of cattle) throughout the neighbourhood of Funchal,—where I have observed it at times in considerable numbers, especially during the autumnal months.

433. Aleochara nitida.

A. sublinearis subænescenti-atra nitidissima, prothorace in medio biseriatim punctato, elytris profunde et parce punctatis, singulo maculâ rufo-testaceâ (ad angulum internum sitâ et plus minusve distinctâ) ornato, pedibus (tarsis vix pallidioribus exceptis) nigro-piceis.

Var. β. paulo major, elytris immaculatis.

Long. corp. lin. 1½–2.

Aleochara nitida, Grav. *Col. Micropt.* 97 (1802).
———— ———, Gyll. *Ins. Suec.* ii. 435 (1810).
———— ———, Mann. *Brachel.* 68 (1831).
———— ———, Erich. *Gen. et Spec. Staph.* 168 (1839).

Habitat Maderam et Portum Sanctum, in stercore bovino necnon in humidiusculis, vulgatissima, ab orâ maritimâ usque ad 5000′ s.m. ascendens: *var.* β. ad Maderæ regionem sylvaticam, aut saltem ad locos editiores, plerumque pertinet.

A. sublinear, deep black, with more or less of an obscure æneous tinge, exceedingly shining, and with the pubescence not very dense. *Prothorax* very highly polished, and with a double row of punctures down the disk. *Elytra* uniformly, but coarsely and rather distantly, punctured; with a usually small, more or less distinct patch on each at the hinder sutural angle, rufo-testaceous. *Legs* dark piceous, with the *tarsi* generally paler.

Var. β. rather larger, and with the elytral patches obsolete.

A species of very wide geographical range,—being found in most parts of Europe, and in the Levant. It is subject to considerable variation, both in size and in the absence or presence of its two elytral spots. It may be known, however, from the rest of the *Aleocharæ* here described by its darker and more shining surface, and by the double row of punctures down the disk of its prothorax. It is extremely abundant throughout Madeira and Porto Santo, occurring in the dung of cattle at nearly all elevations. In the neighbourhood of Funchal, and at São Vincente (in the north of the island), it may at times be met with in profusion; and I have likewise captured it, during the summer months, at the Ribeiro Frio, as also in the lofty uplands of the Cruzinhas and the Fanal.

434. Aleochara morion.

A. fusiformis nigra subnitida, prothorace crebre æqualiter punctulato, elytris concoloribus, pedibus (tarsis pallidioribus exceptis) fusco-piceis.

Long. corp. lin. $\frac{3}{4}$–$1\frac{1}{4}$.

Aleochara morion, Grav. *Col. Micropt.* 97 (1802).
———— ———, Latreille, *Hist. Nat. Crust. et Ins.* ix. 370 (1804).
———— ——— *et exigua*, Mann. *Brachel.* 68 (1831).
———— ———, Erich. *Gen. et Spec. Staph.* 175 (1839).

Habitat in stercore bovino Maderæ, et borealis et australis, toto anno vulgaris.

A. fusiform, black, very slightly shining, and beset with a short and rather close pubescence. *Prothorax* and *elytra* densely and uniformly punctulated all over; the *latter* without any indication of paler patches. *Legs* brownish-piceous, with the *tarsi* paler.

The smallest of the *Aleocharæ* here described; and easily known by its minute bulk, short, fusiform outline, and by its dark, concolorous elytra. Like the previous species, it is of wide geographical range, being recorded in all parts of

Europe and even from Central America. It is found principally (in Madeira) in company with the *A. nitida*, though less commonly: in the vicinity of Funchal, however, and at Santa Anna, I have at times observed it somewhat abundantly.

Genus 189. OLIGOTA.

Mannerheim, *Brachel.* 72 (1831).

Corpus minutissimum, (in nostrâ) lineare: *capite* deflexo latiusculo: *prothorace* brevi, postice lato: *alis* amplis: *abdomine* marginato. *Antennæ* ad oculorum marginem internum insertæ, breviusculæ, 10-articulatæ, apicem versus sensim clavatæ (clavâ oblongâ tri- vel quadri-articulatâ), articulis duobus baseos elongatis crassiusculis. *Instrumenta cibaria* fere ut in Homalotâ, sed *palporum maxillarium articulus ultimus* paulo longior, et *labialium* magis acicularis. *Pedes* breviusculi graciles: *tarsis* omnibus 4-articulatis; *posticis* articulo primo subelongato.

The extremely minute size of the *Oligotæ*, in conjunction with their clavate, 10-articulated antennæ and their tetramerous feet, are of themselves sufficient to separate the genus from the remainder of the *Aleocharides*; whilst from *Somatium* (its nearest Madeiran ally) its distinguishing characters, apart from the *sectional* ones, may be gathered by a reference to the observations under that group.

435. Oligota inflata.

O. linearis fusco-picea pubescens subnitida, prothorace convexo, antennarum basi pedibusque diluto-testaceis, abdomine ad apicem dilutiore.

Long. corp. lin. $\frac{1}{2}$–$\frac{1}{3}$.

Microcera inflata, Mann. *Brachel.* 72 (1831).
Oligota subtilis, Erich. *Käf. der Mark Brand.* i. 364 (1837).
——— ———, Erich. *Gen. et Spec. Staph.* 180 (1839).

Habitat in clivis graminosis maritimis Maderæ Portûsque Sancti, sub lapidibus et scoriis (in quarum cellulis soli exposita subito recedit), ab autumno usque ad ver novum, rarior.

O. very minute, linear, brownish-piceous (or, occasionally, piceous-black), pubescent, slightly shining, and finely punctulated. *Head* rather wide. *Prothorax* short, transverse, and convex. *Abdomen* rather darker at the base than the rest of the insect, but diluted in colouring at its *apex*. *Antennæ* at base, and the *legs*, diluted-testaceous.

It is possible that the present minute insect may be more correctly referred to the *O. pusillima*, Grav.; nevertheless, since it seems to agree better, both in size and antennæ, with the description of Erichson's *O. subtilis*, I have assigned it to that species. It is somewhat rare in Madeira, or at any rate local, the only spot in which I have hitherto captured it being (beneath stones and scoriæ) on the exposed grassy eminence to the right of the Caniso road (from Funchal), just before arriving at the Brazen Head,—in which position during the autumn of

1847 I observed it in tolerable numbers. In the spring of the following year it occurred to me, sparingly, also in Porto Santo. Owing to its diminutive bulk, and its habit, when exposed to the light, of suddenly retreating into the cells and ramifications of the scoriæ, it is not always easy to secure; and hence, in reality, it may perhaps be more abundant than would appear to be the case.

(Subf. 2. TACHYPORIDES.)

Genus 190. SOMATIUM, *Woll.* (Tab. XIII. fig. 5.)

Corpus minutum, convexiusculum, elliptico-ovatum: *capite* prothorace angustiore, deflexo: *prothorace* brevi, postice lato elytris (pectore longioribus) arcte applicato: *scutello* distincto: *alis* amplis: *abdomine* marginato breviusculo, postice attenuato (stylis analibus exsertis divergentibus). *Antennæ* (XIII. 5 *a*) sub frontis margine insertæ, capite prothoraceque paulo longiores, 10-articulatæ, articulis primo et secundo elongatis crassiusculis, tertio ad quintum angustioribus sensim brevioribus, reliquis paulatim incrassatis clavam oblongam perfoliatam 3- vel 4-articulatam efficientibus. *Labrum* (XIII. 5 *b*) transversum pilosum, apice tenuissime membranaceum et vix emarginatum. *Mandibulæ* (XIII. 5 *c*) ad apicem acutæ incurvæ muticæ, extrorsum in medio fissæ. *Maxillæ* (XIII. 5 *d*) bilobæ elongatæ angustæ rectæ: *lobo externo* apice pubescente: *interno* huic vix breviore, intus apicem versus pube ciliato. *Palpi maxillares* longissimi, articulo primo minuto, secundo et tertio elongatis subæqualibus clavatis, ultimo vix breviore, tenuissime subulato: *labiales* (XIII. 5 *e*) articulis omnibus longitudine subæqualibus (primo crasso, secundo crassiusculo, ultimo paulo breviore subulato). *Mentum* amplum, transversum. *Ligula* semicircularis, processu medio minuto umbonata; *paraglossis* obsoletis. *Pedes* (XIII. 5 *f*) longiusculi, graciles: *tibiis* pubescentibus: *tarsis* simplicibus, omnibus 4-articulatis; *posticis* (XIII. 5 *g*) articulo primo elongato.

A σωμάτιον, corpusculum.

The very interesting little insect from which the above generic diagnosis has been compiled is correctly referred, I believe, to the present subfamily; and is perhaps more related to *Hypocyptus* than to anything else hitherto described. It is true that in some few respects, as in the number of its tarsal and antennal joints, it likewise assimilates *Oligota* (amongst the *Aleocharides*); nevertheless its antennæ, which are inserted beneath the lateral margin of the forehead, in conjunction with its short and broad ligula, and its thickly-pubescent maxillæ (with the exceedingly elongated terminal articulation of their palpi), will all tend to remove it from that division: and I have no doubt therefore that *Somatium* when placed at the *commencement* of the *Tachyporides* will be found nearest to those forms with which, both in structure and habits, it has the greatest affinity. It may possibly indeed be regarded as connective between *Oligota* (in the one section) and *Hypocyptus* (in the other),—groups which certainly possess much in common, and the only ones (in the two departments combined) which, like *Somatium*, have ten-jointed antennæ and tetramerous feet. From the first of these, however, the

sectional characters above enumerated, together with its larger bulk, totally different contour, and the much greater length of its limbs, will, of themselves, at once remove it; whilst from the second (with which, in addition to its antennæ and tarsi, it agrees in its anteriorly-tapering ligula), it is equally separated by its comparatively developed abdomen, by the straight external lobe of its maxillæ, the produced ultimate joint of its palpi, and by the distinctness of its scutellum.

436. Somatium anale, *Woll.* (Tab. XIII. fig. 5.)

S. elliptico-ovatum nigro-piceum pubescens subnitidum, ore, antennis, pedibus anoque vel pallido-ferrugineis vel rufo-testaceis.

Long. corp. lin. ¾.

Habitat in Maderæ sylvaticis, inter fungos plantasve humidas (inde a 2000′ s. m.), rarissime: ad Ribeiro Frio necnon ad Lombo dos Pecegueiros (in Maderâ boreali) æstate collegi.

S. elliptical-ovate, piceous-black, pubescent, and slightly shining. *Head* and *prothorax* very minutely and obscurely punctulated; the *latter* short, convex, as wide behind as the base of the elytra, and without any appearance of a dorsal channel. *Elytra* ample (being longer than the breast), more distinctly punctulated, and very pubescent. *Antennæ* (especially at their base), *legs*, and the last two segments of the *abdomen*, either pale ferruginous or rufo-testaceous.

Exceedingly rare; inhabiting the moist sylvan districts above the elevation of 2000 feet. I have taken it from out of fungi at the Ribeiro Frio; and by brushing the rank wet fern at the Lombo dos Pecegueiros (on the edges of the cliff-road leading from São Vincente to Seisal), in July.

Genus 191. CONURUS.

Stephens, *Ill. Brit. Ent.* v. 188 (1832).

Corpus parvum, convexum, obconicum (antice obtuse rotundatum, postice valde attenuatum), pubescens: *capite* deflexo: *prothorace* postice lato, elytris arcte applicato: *mesosterno* carinato: *alis* amplis: *abdomine* immarginato, apicem versus fortiter attenuato (vivis sat elongato). *Antennæ* sub frontis margine insertæ, capite prothoraceque sæpius paulo longiores, apicem versus plus minusve leviter incrassatæ, articulo ultimo plerumque sub-oblique truncato. *Labrum* brevissimum, integrum. *Mandibulæ* breves, intus membranâ angustâ auctæ. *Maxillæ* bilobæ: *lobo externo* apice pubescente: *interno* huic paulo breviore, pubescente. *Palpi maxillares* articulo primo minuto, secundo et tertio elongatis subæqualibus (hoc leviter incrassato), ultimo minuto subulato: *labiales* articulis primo et ultimo longitudine æqualibus (illo robusto, hoc tenuiore acuminato), secundo brevi. *Mentum* transversum. *Ligula* lata, antice pilis paucis instructa biloba, incisione iterum profundius bilobâ; *paraglossis* ligulæ connatis eique æqualibus. *Pedes* longiusculi: *tibiis* plus minusve spinulosis; *anticis* per marginem externum spinulis minutissimis ciliatis: *tarsis* omnibus 5-articulatis, articulo quarto reliquis minore; *anticis* articulis primo, secundo et tertio subcordatis, in maribus leviter dilatatis; *posterioribus* elongatis, articulo primo longiusculo.

Conurus is still regarded by some entomologists as a subdivision of *Tachyporus*; but its dissimilar general habit, in conjunction with its immarginate and exceedingly acuminated abdomen, its more convex, pubescent surface, keeled mesosternum, its longer and slenderer legs, and, above all, the structure of its ligula (which is not only bilobed anteriorly, as in that genus, but has the excavation itself bilobed also), seem to be amply sufficient to render its isolation both natural and convenient. The species are found principally beneath fallen leaves, under the moist decaying bark of trees, or amongst moss. They run with the utmost velocity,—a peculiarity which, in connection with their obconical and sericeous bodies, gives them a certain resemblance, at first sight, to a *Podura*.

437. Conurus pubescens.

C. nigro-fuscus dense griseo-pubescens subopacus, elytris prothorace longioribus, antennis pedibusque testaceis.

Long. corp. lin. 2–2½.

Staphylinus pubescens (*var.* β.), Payk. *Mon. Carab. App.* 138 (1790).
———— *cellaris* (*var.* β.), Payk. *Fna Suec.* iii. 421 (1800).
Tachyporus pubescens, Grav. *Col. Micropt.* 130 (1802).
Conurus pubescens, Steph. *Ill. Brit. Ent.* v. 189 (1832).
——— ————, Erich. *Gen. et Spec. Staph.* 221 (1839).

Habitat in Maderæ sylvaticis, sub lapidibus truncisque arborum prolapsis necnon inter muscos, inde ad 3000′ s.m. sat frequens.

C. dark brown (or brownish-piceous), densely clothed with a fine griseous or lurid pubescence, and subopake (or, when the pubescence is rubbed off, slightly shining). *Prothorax* with its *extreme* hinder margin generally a little diluted in colouring. *Elytra* distinctly longer than the prothorax, and usually rather more picescent. *Abdomen* fuscescent, its apex, and the margins of its basal segments, being more or less ferruginous. *Antennæ* and *legs* rather long, and testaceous.

The largest of the Madeiran *Conuri*, and easily recognised by its densely pubescent surface, and by its brownish or lurid hue. It is an insect of very wide geographical range, occurring throughout the whole of Europe and Algeria, and being recorded by Erichson even from the south of China. In Madeira it is somewhat scarce, existing beneath moss and logs of wood in damp sylvan spots, from about 800 to 3000 feet above the sea. I have captured it in the Ribeiro de Santa Luzia, during the winter and early spring; and at the Feijãa de Córte, in August.

438. Conurus pedicularius.

C. nigro-piceus griseo-pubescens subnitidus, elytris prothorace vix brevioribus, antennis pedibusque gracilibus infuscato-testaceis.

Long. corp. lin. 1¼–1½.

Tachyporus pedicularius, Grav. *Col. Micropt.* 133 (1802).
———— ————, Gyll. *Ins. Suec.* iii. 246 (1810).
———— ————, Mann. *Brachel.* 60 (1831).
Conurus pedicularius, Erich. *Gen. et Spec. Staph.* 230 (1839).

Habitat Maderam et Portum Sanctum, in locis similibus ac præcedens, sed rarior.

C. dark piceous (or piceous-black), smaller and narrower than the *C. pubescens*, also somewhat more shining and less densely clothed with griseous pile. *Prothorax* and *elytra* each with their extreme hinder margins more or less diluted in colouring; the *latter* about the same length as, or perhaps a little shorter than, the former. *Abdomen* with its apical segment, and the margins of its basal ones, more or less ferruginous. *Antennæ* and *legs* rather shorter and slenderer than in either of the other species, and testaceous; with the *tibiæ* (especially in the Madeiran specimens, those from Porto Santo being usually rather paler) more or less dusky.

Its narrower outline, added to its comparatively shorter and slenderer limbs, will at once distinguish the present insect from either of its allies here described. It is exceedingly rare, and apparently confined to low and intermediate altitudes, —occurring in grassy places, principally beneath stones and leaves. I have taken it sparingly in the vicinity of Funchal, and also in Porto Santo. It is found throughout the greater portion of Europe; and the Madeiran specimens are a little longer than the average of their more northern representatives.

439. Conurus monticola, *Woll.*

C. nigro-piceus (vel piceus) parce griseo-pubescens nitidus, elytris prothorace vix longioribus, antennis pedibusque longiusculis robustis testaceis.

Var. β. omnino pallidior, capite prothoraceque rufo-testaceis.

Long. corp. lin. 1–1¼.

Habitat in Maderâ sylvaticâ excelsâ, sub foliis arborum dejectis ad Cruzinhas (circa 5000′ s. m.) Julio ineunte A.D. 1850 a meipso detectus.

C. dark piceous (or piceous), more shining and less pubescent than either of the other species; also, proportionably, somewhat broader. *Prothorax* and *elytra* each with their extreme hinder margins sometimes (but not always) diluted in colouring; the *latter* a little longer than the former. *Abdomen* with its apical segments, and the margins of its basal ones, more or less ferruginous. *Antennæ* and *legs* rather longer and much robuster than those of the *C. pedicularius* (the former being more distinctly incrassated, likewise, at their extremities), and bright testaceous.

Var. β. altogether paler, with the head and prothorax entirely rufo-testaceous.

By far the scarcest of the *Conuri* hitherto detected in these islands, and a truly indigenous insect,—occurring only, so far as I have observed, at lofty elevations and in remote sylvan spots. It may be known from the *C. pedicularius* by its more piceous and shining surface, broader outline, somewhat less abbreviated

elytra, and by its longer, robuster, and paler limbs. I have seen but three specimens; all of which were captured by myself, from beneath decaying leaves, at about 5000 feet above the sea, in the wooded region of the Cruzinhas,—during my encampment there in July 1850.

Genus 192. TACHYPORUS.

Gravenhorst, *Col. Micropt.* 124 (1802).

Corpus parvum, subfusiforme (antice obtusiusculum, postice attenuatum): *capite prothoraceque* glaberrimis politissimis; *illo* subdeflexo; *hoc* postice lato, elytris arcte applicato: *alis* amplis: *abdomine* marginato, apicem versus attenuato. *Antennæ* et *instrumenta cibaria* fere ut in Conuro, sed *ligulæ incisio* integra. *Pedes* modice elongati: *tibiis,* præsertim posterioribus, plus minusve spinulosis: *tarsis* omnibus 5-articulatis, articulo quarto minuto; *anticis* articulis primo, secundo et tertio subcordatis, in maribus leviter dilatatis; *posterioribus* subelongatis, articulo primo longiusculo.

The distinctions between *Tachyporus* and *Conurus* have been already pointed out,—the exceedingly glabrous and highly polished head and prothorax of the former, in conjunction with its margined abdomen, being sufficient (apart from smaller differences both of outline and structure) to separate it *primâ facie* from the latter. Both genera are in habits nearly similar; though perhaps the *Tachypori* are (if anything) somewhat less attached to decaying wood and bark than the *Conuri,*—occurring more particularly amongst moss, and in grassy spots beneath trees, where during the summer and autumnal months they are oftentimes excessively abundant.

440. Tachyporus celer, *Woll.*

T. nigro-piceus (vel piceus) subconvexus, antennis, prothoracis limbo, ano pedibusque diluto-testaceis. Long. corp. lin. $1\frac{3}{4}$.

Habitat per Maderæ regionem sylvaticam, sub lapidibus truncisque arborum projectis, inter 2000′ et 5000′ s.m., rarior.

T. somewhat convex and broad, dark piceous or piceous. *Head* and *prothorax* very highly polished; the *latter* with the sides broadly, and the anterior and posterior margins narrowly testaceous. *Elytra* closely and perceptibly punctulated, sparingly pubescent, usually more piceous than the prothorax, and with their extreme apex (especially towards the outer angle), and a very obscure dash about the shoulder (occasionally obsolete), indistinctly diluted in colouring. *Abdomen* with the extreme hinder margins of the basal segments (and sometimes with the apical ones) dull ferruginous or diluted-testaceous. *Antennæ* and *legs* diluted-testaceous; the *former* a little dusky towards their extremities.

A large and interesting *Tachyporus,*—inhabiting the forest regions of Madeira, between the limits of from 2000 to about 5000 feet above the sea. It is decidedly scarce, or more strictly perhaps (from the remote spots to which it is confined)

local; occurring beneath logs of wood, during the summer months, in the damp ravines and on the densely clothed mountain-slopes. Although found throughout most of the central districts, I have taken it more abundantly at the Feijãa de Córte than in any other position,—where in August of 1850 it was comparatively common. In the winter it would appear to be far rarer; nevertheless I have observed it at the Ribeiro Frio, occasionally, in the early spring.

441. Tachyporus brunneus.

T. rufo-testaceus subdepressus, capite, prothoracis disco, pectore abdomineque plus minusve picescentibus, antennis pedibusque testaceis.

Variat (forsan immaturus) colore omnino testaceo.

Long. corp. lin. $1\frac{1}{4}$–$1\frac{1}{2}$.

Oxyporus brunneus, Fab. *Ent. Syst.* i. ii. 535 (1792).
Staphylinus nitidulus, Oliv. *Ent.* 42. 34 (1795).
Tachyporus nitidulus, Grav. *Col. Micropt.* 126 (1802).
———— *brunneus*, Erich. *Gen. et Spec. Staph.* 241 (1839).

Habitat hinc inde in graminosis Maderæ Portusque Sancti, sat vulgaris.

T. smaller, more depressed, and narrower than the last species, rufo-testaceous. *Head* and *prothorax* very highly polished; the *former*, and the *disk of the latter*, more or less darkly picescent. *Elytra* closely and perceptibly punctulated, pubescent, and more or less dusky about the region of the scutellum. *Abdomen* generally piceous, with the hinder margins of the segments diluted in colouring. *Antennæ* and *legs* testaceous.

Obs. occasionally altogether testaceous (perhaps the result of immaturity).

Widely distributed over Madeira (though nowhere very abundant) below the altitude of about 5000 feet. My specimens are principally from the neighbourhood of Funchal, Santa Anna, and the Feijãa de Córte; but there is scarcely a locality, in which I have collected, where I have not observed it to exist. It occurs likewise in Porto Santo. It is an insect of extensive geographical range,—not only inhabiting nearly every country of Europe, but having been taken by Professor Ehrenberg in Egypt, and by Zimmerman in North America.

Genus 193. HABROCERUS.

Erichson, *Käf. der Mark Brand.* i. 400 (1839).

Corpus fere ut in Tachyporo; *capite prothoraceque* glaberrimis politissimis (*hoc* amplo, postice lato elytris arcte applicato): *elytris* glabris, ad angulum exteriorem posticum oblique truncatis: *alis* amplis: *abdomine* marginato, apicem versus attenuato. *Antennæ* valde anomalæ, fere ut in Trichophyâ, capillares, articulis primo et secundo robustis, reliquis tenuissimis nodosis verticillato-pilosellis (ultimo elliptico leviter inflato). *Instrumenta cibaria* fere ut in Tachyporo, sed *palporum maxillarium articulus ultimus* multo longior conicus acuminatus (nec subulatus), et *ligula*

apice recte truncata in medio fissa. *Pedes* breviusculi fragiles: *tibiis* omnibus plus minusve parce et leviter spinulosis: *tarsis* 5-articulatis simplicibus; *posterioribus* articulo primo elongato.

Habrocerus is so easily recognised by its anomalous antennæ, that it is needless to point out its distinctions from any genus except *Trichophya* (in which the same structure obtains). In general contour and habits it possesses nearly all the characters of *Tachyporus*, but the singularity of its antennæ (the form of which may be best understood by a reference to that of *Trichophya*, in Plate XIII. fig. 6 *a*), in conjunction with the obliquely-truncated external angle of its elytra, will at once suffice to separate it from the species of that group. According to Erichson, it constitutes a connecting link between *Tachyporus* and *Tachinus*: the terminal joint of its maxillary palpi partaking, he remarks, of the peculiarities of both genera,—being acuminated at the apex as in *Tachyporus*; though *not* small and subulated, but of equal breadth at its base (as in *Tachinus*) to the previous one. The only representative known occurs sparingly in many parts of Europe, being recorded in England, Germany, France and Sardinia; so that, with the addition of Madeira, it would seem to possess a rather wide geographical range.

442. Habrocerus capillaricornis.

H. nigro-piceus convexus nitidus, antennis pedibusque testaceis, illis paulo obscurioribus.

Long. corp. lin. 1½.

Tachyporus capillaricornis, Grav. *Mon.* 10 (1806).
——— *nodicornis* (Kby), Steph. *Ill. Brit. Ent.* v. 186 (1832).
Habrocerus capillaricornis, Erich. *Käf. der Mark Brand.* i. 401 (1839).

Habitat Maderam sylvaticam, sub lapidibus humidis truncisque arborum prolapsis, præsertim inter 2500′ et 4000′ s. m., æstate sat frequens.

H. rather broad and convex, attenuated both before and behind (especially the latter), shining, and piceous-black (though sometimes altogether piceous, and occasionally, when not quite mature, almost ferruginous). *Head* and *prothorax* very highly polished. *Elytra* not quite so bright. *Abdomen* sparingly clothed with long setæ, and with the hinder margin of each of the segments more or less perceptibly diluted in colouring. *Antennæ* and *legs* testaceous; the *former* more or less infuscated, or obscured.

By no means uncommon within the sylvan districts of Madeira,—though from 2500 to 4000 feet above the sea may perhaps be regarded as its normal range. Occurring almost exclusively during the summer months, and yet delighting as it does in positions where the moisture is excessive, it would seem (as we should naturally have expected) to attain its maximum in the dense ravines of intermediate altitudes (around which the clouds, at that season, more especially cling). It runs with the utmost velocity, and is found principally beneath stones and decaying logs of wood in the vicinity of the water-courses and streams. I have

taken it plentifully at the Ribeiro Frio (along the edges of the Levada) in July; as also in the lofty region of the Lombo das Vacas in June, and even, occasionally, in the chestnut-woods of Santa Anna,—the lowest elevation at which I have hitherto observed it. As already stated, it is widely distributed throughout Europe; nevertheless it does not appear to be anywhere very abundant*.

Genus 194. TACHINUS.

Gravenhorst, *Col. Micropt.* 135 (1802).

Corpus fere ut in Tachyporo, sed plerumque majus, convexius et latius: *capite, prothorace elytris*que glaberrimis: *mesosterno* modo (ut in specie Maderensi) carinato, modo simplici; *scutello* magno: *alis* sæpius amplis. *Antennæ* sub frontis margine insertæ, capite prothoraceque paulo longiores, filiformes vel apicem versus leviter subincrassatæ. *Instrumenta cibaria* fere ut in Tachyporo, sed *maxillarum lobus externus* rotundatior; et *palpi maxillares* filiformes, articulo ultimo majore (haud subulato), penultimo sæpius breviusculo. *Pedes* breviusculi validi: *tibiis* omnibus spinulosis: *tarsis* 5-articulatis, articulis quatuor baseos longitudine paulatim decrescentibus; *anticis* modo in utroque sexu (ut in specie nostrâ) simplicibus, modo in mare dilatatis; *posterioribus* articulo primo longiusculo.

The genus *Tachinus* approaches very closely to *Tachyporus*, and it must be admitted that the essential characters of the two are not in every instance sufficiently distinct. Still, there are slight differences of contour and structure which a practised eye will seldom fail to detect. Thus, the generally larger, broader, and proportionably shorter bodies of the *Tachini*, in conjunction with their frequently keeled mesosternum, their somewhat less elongated feet (the anterior pair of which are occasionally, as in the Madeiran representative, simple in both sexes), the rounded outer lobe of their maxillæ, and, above all, their *filiform* palpi,—the maxillary pair having the terminal joint *not* subulate (and, moreover, the penultimate one comparatively abbreviated),—are the principal points which serve, when combined, to separate them from the latter.

443. Tachinus Silphoides.

T. niger convexus, prothoracis limbo, elytrorum suturâ, apice et vittâ submarginali in singulo positâ, antennarum basi pedibusque testaceis.

Long. corp. lin. $1\frac{1}{2}$.

Staphylinus Silphoides, Linn. *Syst. Nat.* i. ii. 684 (1767).
Tachinus suturalis et marginalis, Grav. *Col. Micropt.* 144 *et* 192 (1802).
——— *Silphoides*, Steph. *Ill. Brit. Ent.* v. 194 (1832).
——— ———, Erich. *Gen. et Spec. Staph.* 245 (1839).

---

* In England it is of the greatest rarity,—where it was first discovered by the Rev. W. Kirby, at Holme, on the coast of Norfolk, in 1807. Since that period, the only recorded instance of its capture is in Lincolnshire,—where a single specimen was taken, during the summer of 1853, by F. W. Hutton, Esq., at Spridlington near Market Raisin.

Habitat ad vias atque in vinetis circa urbem Funchalensem, passim, ex Europâ australi forsan introductus: tempore sereno per aërem volitans sæpissime legatur.

T. short, convex, shining, and black. *Prothorax* rather wider than the base of the elytra; its sides broadly, and the anterior and posterior margins narrowly testaceous. *Elytra* glabrous, with an elongated submarginal streak (very often almost, and occasionally entirely, obsolete), the suture, and extremity, testaceous. *Abdomen* sparingly clothed with very long setæ, and with its apex slightly diluted in colouring. *Antennæ at base*, and the *legs*, testaceous; the *former at apex* brownish.

An abundant insect throughout Europe and in Algeria; and recorded, by Erichson, even from North America. It is by no means common in Madeira, where it has very probably been accidentally introduced,—occurring, in the dung of cattle, principally about vineyards and by the road-sides near Funchal. On warm, still evenings it may very often be captured on the wing,—under which circumstances I have frequently observed it, during the winter months, in the garden of the Quinta d'Ambrosio.

Genus 195. TRICHOPHYA. (Tab. XIII. fig. 6.)

Mannerheim, *Brachel.* 73 (1831).

Corpus parvum, lineare, depressiusculum, valde pubescens, subopacum, (a Tachyporinis notis plurimis recedens et genera Aleocharorum prima, ut bene observavit cl. Erichson, potius revocans): *capite* subporrecto triangulari; *oculis* prominulis: *prothorace* brevi transverso marginato, antice et postice æque angustato: *elytris* ad angulum exteriorem posticum integris (haud truncatis ut in Habrocero): *alis* amplis: *abdomine* marginato subparallelo. *Antennæ* (XIII. 6 *a*) ut in Habrocero, sed articulus ultimus longior elongato-oblongus et vix inflatus. *Labrum* (XIII. 6 *b*) et *mandibulæ* (XIII. 6 *c*) fere ut in Habrocero. *Maxillæ* (XIII. 6 *d*) bilobæ, lobis linearibus elongatis angustis; *externo* apice barbato; *interno* huic vix breviore, intus pube ciliato. *Palpi maxillares* elongati filiformes, articulo primo minuto, reliquis longitudine subæqualibus (ultimo elongato-ovato apice acuminato): *labiales* (XIII. 6 *e*) breves et (nisi fallor) triarticulati*, articulis primo et secundo sat validis, ultimo gracillimo subulato. *Mentum* transversum. *Ligula* brevis angusta; *paraglossis* distinctis obtusis, ligulâ brevioribus. *Pedes* mediocres, sat robusti: *tibiis* pubescentibus (haud spinulosis); *anticis* apicem versus leviter dilatatis: *tarsis* 5-articulatis; *anticis* (XIII. 6 *f*), præsertim in maribus, dilatatis; *posterioribus*, sed præsertim *posticis* (XIII. 6 *g*), articulo primo longiusculo.

It is with great pleasure that I am enabled to add a second, and very distinct, species to the present genus,—which, like *Habrocerus*, has hitherto possessed but a single representative. A glance at the above diagnosis will show in how many particulars *Trichophya* recedes from the subfamily into which it is admitted,—its

* According to Erichson, the labial palpi of the present genus are composed of but two articulations. This may possibly be the case with the European *T. pilicornis*; but the Madeiran representative (which is, nevertheless, an undoubted *Trichophya*) does certainly appear to have three.

comparatively opake, parallel, flattened and pubescent body, in conjunction with its short and margined prothorax (which is not narrowed in front, as in the neighbouring forms), its subporrected head, and its unspined legs, far rather calling to mind, at first sight, some of the early modifications of the *Aleocharides*. Nevertheless, as remarked by Erichson, it cannot be located amongst those groups, since its antennæ are inserted beneath the margin of its forehead, the terminal joint of its maxillary palpi is large (and not subulate), and its anterior feet are dilated,—in all of which it retains the primary characteristics of the *Tachyporides*. The fact is, it would seem in certain respects to be in *either* of these departments equally misplaced; but if we look, however, at its points of *agreement with each* of them, we shall perceive that its most important features are those which it exhibits in common with the *Tachyporides*,—a position which is rendered the more plausible from its antennæ being of similar structure with those of *Habrocerus* (a *typical* member of that division). In its mode of life it is almost coincident with *Habrocerus*,—occurring under logs of wood, and putrescent vegetable substances, in damp sylvan spots.

444. Trichophya Huttoni, *Woll.* (Tab. XIII. fig. 6.)

T. atra subdepressa pubescens vix nitida punctulata, prothorace transverso inæquali, antennis pedibusque (tarsis pallidioribus exceptis) fusco-piceis.

Long. corp. lin. $1\frac{3}{4}$.

Habitat in Maderâ boreali sylvaticâ, rarissime; ad Lombo dos Pecegueiros, mense Julio A.D. 1850, semel tantum detecta.

Insectum valde indigenum, et in honorem nepotis mei Frederici W. Huttoni, Coleopterorum Lincolniensium scrutatoris oculatissimi, citatum.

T. linear-elongate and somewhat depressed, deep black, distinctly and rather closely punctulated, very slightly shining, and exceedingly pubescent. *Prothorax* short and transverse; a little raised and uneven on the disk; and regularly rounded at the sides,—being widest about the middle, where it is of the same breadth as the base of the elytra. *Abdomen* linear, though suddenly acuminated at its apex, where it is somewhat diluted in colouring. *Antennæ* and *legs* (except the *tarsi*, which are paler) more or less fuscescent, or pale brownish-piceous.

Apparently of the greatest rarity,—the only specimen which has hitherto come beneath my notice having been captured by myself, adhering to the under side of a moist log of wood, in the remote forest district of the Lombo dos Pecegueiros (during my encampment there in July 1850). It may be known from the European *T. pilicornis* (apart from minor differences) by being larger, more parallel, of a much deeper black, and by its pubescence being altogether free from the yellowish tinge which is there so conspicuous. I have dedicated the species to my nephew, F. W. Hutton, Esq., whose unusual success in the capture of British insects has recently added many novelties to my collection.

Genus 196. MYCETOPORUS.

Mannerheim, *Brachel.* 62 (1831).

Corpus parvum, angusto-fusiforme, antice et postice deorsum curvatum: *capite prothoraceque* politissimis; *illo* subacuminato deflexo; *hoc* postice lato, elytris arcte applicato, punctis quatuor (margine anteriori magis minusve approximatis) transversim impresso: *elytris* punctorum seriebus tribus (unâ sc. suturali, secundâ dorsali, et tertiâ marginali) longitudinaliter impressis, ad angulum exteriorem posticum oblique subtruncatis: *alis* amplis: *abdomine* marginato, apicem versus plerumque valde attenuato, deorsum curvato. *Antennæ* sub frontis margine insertæ, capite prothoraceque modo vix longiores, modo (ut in specie nostrâ) iis longitudine vix æquales; apicem versus, præsertim in maribus, plus minusve incrassatæ. *Instrumenta cibaria* fere ut in Tachino, sed *maxillarum lobus externus* curvatus, minus obtusus; *palporum articulus ultimus* minutus tenuis subulatus (*maxillarium tertius* clavatus); et *ligula* multo angustior, apice rotundata integra. *Pedes* robusti; *coxis intermediis* valde approximatis: *tibiis* omnibus spinulosis: *tarsis* 5-articulatis simplicibus; *anticis* crassiusculis; *posterioribus* elongatis, articulo primo longiusculo.

Mycetoporus (=*Ischnosoma* of Stephens, A.D. 1832) may be readily known by its narrow fusiform body, which has not only its head but even the *abdomen* considerably curved downwards, and by the impressed points on its prothorax and elytra,—the former of which has always *four*, arranged transversely, behind the anterior edge (in addition to others, elsewhere distributed, characteristic of the several species); whilst on the latter there are usually three longitudinal series (sutural, discal, and lateral), more or less developed. It is a good deal allied, in general structure, to the genus *Bolitobius* (which, apparently, however does not occur in the Madeira Islands); but the entire front margin of its ligula, in conjunction with the slender, subulated terminal joint of its palpi, will, of themselves, at once distinguish it from that group.

445. Mycetoporus pronus.

M. rufo-testaceus nitidus, pectore abdomineque (ano plus minusve ferrugineo excepto) nigricantibus, prothorace punctis lateralibus nullis impresso et serie apicali a margine anteriore remotâ, antennis apicem versus infuscatis, pedibus testaceis.

Var. β. minor, antennis plerumque pallidioribus.

Long. corp. lin. $1\frac{3}{4}$ (*status typicus*); et 1–$1\frac{1}{2}$ (*var.* β).

Mycetoporus pronus, Erich. *Käf. der Mark Brand.* i. 414 (1839).
———— ————, Erich. *Gen. et Spec. Staph.* 285 (1839).

Habitat per Maderæ partem sylvaticam, sub cortice arborum laxo foliisque dejectis, æstate rarior.

M. slender and fusiform, being much acuminated both before and behind (though especially the latter), shining, and clear rufo-testaceous. *Head* and *prothorax* very highly polished; the *former* small, narrow, and rather acuminated; the *latter* as broad behind as the base of the elytra, and attenuated in front, without any punctures on the disk and sides, and with the four transverse ones remote from the anterior margin. *Elytra* rather less shining than the head and prothorax, and with the three longitudinal rows of punctures (especially the discal one) distinct; sometimes

a little dusky about the region of the scutellum, and posteriorly. *Abdomen* punctured and pubescent, black at the base; its apex, and generally (though not always) the hinder margins of the other segments, more or less ferruginous. *Antennæ* short and robust, very much thickened towards their extremities (where, in the larger specimens, they are infuscated). *Legs* testaceous.

Var. β. smaller, and with the antennæ usually a little paler.

There are, apparently, two distinct states of the present *Mycetoporus*,—one large (which I assume to be typical), and the other small. This disparity of bulk, moreover, does not seem to be in any way a sexual character: nevertheless, even though I have not been able to obtain intermediate links to connect the extremes, I am persuaded that the two are specifically identical,—since, with the exception of the size, and the slightly paler antennæ of the smaller variety, there does not appear to be any difference between them. I have no hesitation also in referring them to the *M. pronus* of Erichson, since they possess the exact peculiarities of the prothoracic punctures, and the short incrassated antennæ, so characteristic of that insect, and agree likewise with a typical example lately communicated by M. Dohrn from Germany,—the somewhat more pallid hue of the Madeiran specimens being of trivial importance, and in all probability the mere result of local circumstances or of latitude. It occurs in several parts of central and sub-boreal Europe; but in Madeira is exceedingly rare, where it is confined to sylvan spots of a lofty elevation. I have captured it from beneath moist decaying bark at the Feijãa de Córte, the Cruzinhas, the Lombo dos Pecegueiros, and the Fanal.

(Subf. 3. STAPHYLINIDES.)

Genus 197. OTHIUS.

(Leach) Steph. *Ill. Brit. Ent.* v. 253 (1832).

Corpus sat magnum, elongato-lineare: *capite* magno elongato-subovato, ad basin facile truncato; *oculis* rotundatis parvis (in speciebus Maderensibus minutissimis): *prothorace* oblongo, basi leviter rotundato, apice subtruncato, sæpius utrinque (inter dorsum et latus) punctis perpaucis (plus minusve remotis) longitudinaliter impresso: *elytris* punctulatis suturâ integerrimâ, (in nostris) brevissimis conjunctim subemarginato-truncatis: *alis* (in speciebus typicis amplis, sed in Maderensibus) omnino obsoletis: *abdomine* lineari marginato. *Antennæ* in frontis margine anteriore (ab oculis totidem atque inter se distantes) insertæ, breviusculæ, rectæ, filiformes, articulo primo elongato, secundo tertioque obconicis (illo breviore), ultimo subacuminato-ovato. *Labrum* profunde bilobum et pilis longissimis munitum. *Mandibulæ* validæ, intus in medio obtuse dentatæ et basin versus laciniâ membranaceâ liberâ dense ciliatâ instructæ. *Maxillæ* bilobæ: *lobo externo* brevi corneo subcylindrico, apice inflexo membranaceo valde barbato: *interno* ampliore sed multo breviore, membranaceo, intus dense pubescente. *Palpi maxillares* articulo primo minuto, secundo et tertio longitudine subæqualibus, ultimo minore fere subulato: *labiales* articulis longitudine subæqualibus, ultimo apice subacuminato. *Mentum* transversum, apice late emarginatum. *Ligula* elongata, apice rotundata integra tenuissime membranacea;

paraglossis elongatis linearibus divergentibus, interne ciliatis. *Pedes* breviusculi robusti; *coxis intermediis* contiguis: *tibiis* spinulosis: *tarsis* 5-articulatis (*anticis* dilatatis, subtus spongioso-tomentosis); *posterioribus* subelongatis, articulo primo vix longiusculo.

Othius and *Xantholinus* are, in many respects, closely allied; nevertheless the greater bulk and broader outline of the former, in conjunction with its larger head (which is not so suddenly truncated behind, and is destitute of frontal grooves), its straightened antennæ, unimbricated elytral suture, and its dilated anterior feet, will at once serve to distinguish it from the latter. In the details of their trophi the two genera are almost coincident, except that the terminal joint of the maxillary palpi of *Othius* is somewhat shorter and more subulated than is the case in *Xantholinus*. The Madeiran *Othii*, however, are not altogether normal representatives of their group,—their eyes being excessively small, their elytra rather more abbreviated than in the ordinary species, and their wings being entirely obsolete. Nevertheless, since they retain every *essential* character of *Othius*, it is impossible to regard the above peculiarities as of more than sectional importance,—though at the same time, when viewed geographically, they are extremely interesting. The insects occur, for the most part, beneath the loose decaying bark of trees, or under stones and fallen leaves, in damp spots.

446. Othius strigulosus, *Woll.*

O. niger subnitidus, capite prothoraceque subtilissime transversim strigulosis (illo magno), elytris piceis, antennis pedibusque ferrugineis.

Long. corp. lin. $5\frac{1}{2}$–$6\frac{1}{2}$.

Habitat Maderam sylvaticam, sub lapidibus foliisque arborum dejectis, præsertim ad basin rupium abruptorum, toto anno non infrequens.

O. black, and slightly shining. *Head* and *prothorax* (the former of which is large) minutely punctulated, and most delicately and closely transversely-strigulose, all over; both of them with larger punctures towards the sides (those on the former being much the most numerous). *Elytra* very short, and conjointly arched out behind; most delicately shagreened (or subgranulate), and with distant (though distinct, and somewhat obliquely-impinged) punctures intermixed; piceous, or rufo-piceous. *Abdomen* parallel at the base; and with its apex, and occasionally the lateral margins, slightly diluted in colouring. *Antennæ* ferruginous,—all the joints except the first two having a dusky ring (more or less apparent) round their centre. *Legs* ferruginous; with the *tibiæ*, especially at their apex, slightly infuscated.

A large and well-marked *Othius*, its greatly developed head, in conjunction with its finely punctulated and minutely strigulose surface, giving it a character which it is impossible, even *primâ facie*, to mistake. It is apparently rare, being confined to damp sylvan spots of intermediate elevations,—occurring principally at the roots of grass, and amongst fallen leaves, at the base of the perpendicular rocks in

the deep and moist ravines. In such positions I have captured it, during the winter and early spring months, towards the head of the Ribeiro de Santa Luzia; as also at the Ribeiro Frio, in August.

447. Othius Jansoni, *Woll.*

O. niger nitidus, capite prothoraceque politissimis, elytris plus minusve rufo-picescentibus, antennis pedibusque pallido-ferrugineis.

Long. corp. lin. 4–4¾.

Habitat in locis similibus ac præcedens, hyeme nisi fallor prædominans.

Dom°. E. W. Jansono, Soc. Ent. Londinensis curatori necnon *Staphylinorum* investigatori felicissimo, hunc *Othium* certe novum tribui.

O. smaller and rather narrower than the *O. strigulosus*, black, and shining. *Head* and *prothorax* very highly polished, and without any appearance (except under a high microscopic power) of the minute punctures and the transversely-strigulose sculpture which are so evident in that species; but with about the same arrangement of larger impressions towards their sides (those, however, on the head being perhaps rather less numerous). *Elytra* as in that insect, but more coarsely punctured, and with no appearance of under-granules; also usually somewhat more rufescent,—especially at the lateral edges (which are more evidently pilose) and apex. *Abdomen* a little constricted at the base; and with its apex, and occasionally the lateral margins, slightly diluted in colouring. *Antennæ* and *legs* pale ferruginous; with the *tibiæ* more or less infuscated.

Found, usually, under the same circumstances as the last species, and possessing about an equal range. I have captured it more abundantly in the Ribeiro de Santa Luzia than elsewhere, and principally during the winter months. It has been also communicated to me by M. Rousset from the Pico d'Arribentão, above Funchal. I have dedicated the species to E. W. Janson, Esq., Curator to the Entomological Society of London, whose well-known attention to Brachelytrous insects has aided so much in the elucidation of British forms.

Genus 198. XANTHOLINUS.

(Dahl) *Encyclop. Method.* x. 475 (1825).

Corpus mediocre, elongato-lineare, angustatum, depressiusculum: *capite* oblongo ad basin subito truncato, antice sulculis quatuor abbreviatis impresso; *oculis* rotundatis parvis: *prothorace* ut in Othio, sed punctorum seriebus quatuor plerumque notato, et basin versus subangustiore: *elytris* sæpius subseriatim punctatis, suturâ imbricatâ: *alis* amplis: *abdomine* lineari marginato. *Antennæ* in frontis margine anteriore (plerumque ab oculis magis quam inter se distantes) insertæ, breves, geniculatæ, apicem versus vix sensim incrassatæ, articulo primo elongato, secundo tertioque leviter obconicis (illo vix breviore), reliquis brevibus (ultimo subovato basi truncato). *Instrumenta cibaria* fere ut in Othio, sed *palporum maxillarium articulus ultimus* paulo longior conicus. *Pedes* breves robusti; *coxis intermediis* distantibus; *postici* anterioribus debiliores: *tibiis* spinulosis: *tarsis* 5-articulatis simplicibus; *intermediis* paulo longioribus; *omnibus* articulis primo et secundo subæqualibus.

As already stated, the *Xantholini* may be known from the *Othii* by their diminished bulk and narrower bodies (which have the head much smaller, more straightly truncated at its base, and with four abbreviated grooves in front), by their less elongated and elbowed antennæ, their imbricated elytral suture, and by their undilated anterior feet. They are, also, for the most part, somewhat flatter than the *Othii*, their prothorax has usually *two* series of impressed points (more or less evident in the different species) on either side of its disk, the punctures of their elytra are generally subseriate, their antennæ are more approximated at their insertion, and their two hinder legs are shorter and less robust. They are found principally either beneath stones and leaves in moist grassy spots, or amongst mud and wet moss at the margins of streams.

448. Xantholinus punctulatus.

X. niger nitidus, capite utrinque dense rugoso-punctato, ad basin recte truncato, prothorace punctorum serie laterali curvatâ impresso, elytris subænescentibus versus latera seriatim punctatis, antennis brevibus nigricantibus, pedibus rufo-piceis.

Long. corp. lin. 3–3½.

Staphylinus punctulatus, Payk. *Mon. Staph. Suec.* 30 (1789).
———— ————, Fab. *Ent. Syst.* i. ii. 528 (1792).
———— ————, Gyll. *Ins. Suec.* ii. 353 (1801).
Xantholinus punctulatus, Erich. *Gen. et Spec. Staph.* 328 (1839).

Habitat **Maderam** sylvaticam sub lapidibus, rarior; in castanetis Sanctæ Annæ A.D. 1850 a meipso repertus.

X. black, and shining. *Head* and *prothorax* highly polished; the *former* straightly truncated behind, very roughly and closely punctured at the sides (the punctures being large and almost confluent), and with the two inner frontal sulci deep and distinct; the *latter* with a longitudinal row of (in the Madeiran specimens) about five or six punctures on either side of its disk, and with a rather larger number arranged in a curve towards either edge. *Elytra* with a brassy tinge, and rather coarsely punctured,—the punctures being disposed in well-defined rows towards the lateral margins. *Antennæ* short, and more or less black (especially at their base). *Legs* (except the *tarsi*, which are paler) piceous, or rufo-piceous.

Both the present insect and the following one are extremely abundant throughout the whole of Europe, and are recorded also in Algeria. In Madeira the *X. punctulatus* is both scarce and local; whilst the *X. linearis* is comparatively common, and would appear to occupy a wider range. The only spot in which I have hitherto observed the former is in the north of the island,—where, in the summer of 1850, I took it sparingly in the chestnut-woods of Santa Anna.

449. Xantholinus linearis.

X. subænescenti-niger nitidus, capite magno subtiliter punctato, ad basin facilius truncato, pro-

thorace punctis lateralibus confusis impresso, elytris dilutioribus subtiliter punctatis, antennis pedibusque ferrugineo-piceis.

Variat (immaturus) colore omnino pallidiore, interdum fere ferrugineo.

Long. corp. lin. 3–3½.

Staphylinus linearis, Oliv. *Ent.* iii. 42. 19 (1795).
———— ————, Fab. *Ent. Syst. Suppl.* 180 (1798).
———— ————, Mshm, *Ent. Brit.* i. 516 (1802).
Xantholinus linearis, Erich. *Gen. et Spec. Staph.* 332 (1839).

Habitat in graminosis Maderæ, sub lapidibus truncisque arborum prolapsis, vulgaris.

X. brassy-black (when immature paler, occasionally almost ferruginous), and shining. *Head* and *prothorax* highly polished; the *former* large and subovate (being more gradually truncated behind than in the last species), much more finely and less densely punctured than in the *X. punctulatus*, and with the inner frontal sulci shorter and less deeply impressed; the *latter* with a longitudinal row of about twelve punctures on either side of its disk, but with the lateral ones disposed irregularly (and not arranged in a curve). *Elytra* diluted in colouring, rather more finely punctured than in the last species,—the punctures moreover having scarcely any tendency to be disposed in rows. *Antennæ* a trifle longer than those of that insect; piceous at their base, but fuscescent or ferruginous towards their apex. *Legs* more or less piceo-ferruginous.

Common throughout the whole of Madeira, though principally at intermediate altitudes. In the Ribeiro de Santa Luzia, the Curral das Romeiras, and in most of the ravines about Funchal, it may be found (beneath stones in grassy spots) during the winter months: and I have likewise captured it, during the summer, at the Ribeiro Frio and in the lofty uplands of the Fanal.

Genus 199. STAPHYLINUS.

Linnæus, *Syst. Nat.* (edit. x.) 421 (1758).

Corpus magnum, elongato-lineare: *capite* nonnunquam (in maribus præsertim) magno suborbiculato-quadrato, ad basin plerumque subito truncato; *oculis* oblongis: *prothorace* basi rotundato, apice truncato: *alis* amplis: *abdomine* lineari marginato. *Antennæ* in frontis margine anteriore (pone mandibularum basin) insertæ, breviusculæ, rectæ, apicem versus plus minusve (in specie nostrâ distincte) incrassatæ, articulo primo leviter elongato. *Instrumenta cibaria* fere ut in Othio, sed *mandibulæ* in medio sæpissime fortius dentatæ necnon in maribus plerumque elongatæ; *maxillarum lobus externus* longior et rectior; *palpi maxillares* filiformes; et *ligula* apice sinuata. *Pedes* robusti; *coxis intermediis* magis minusve distantibus: *tibiis* spinulosis: *tarsis* 5-articulatis (*anticis* præsertim in maribus plerumque dilatatis, subtus spongioso-tomentosis); *posterioribus* subelongatis filiformibus, articulo primo longiusculo.

The present immense genus, 103 members of which are described in Erichson's *Genera et Species Staphylinorum*, has apparently but a single exponent in the Madeira Islands,—namely the common *S. maxillosus* of Linnæus, so abundant throughout Europe, Algeria, and in the Canarian group. And hence, receding as

it does, both in general aspect and magnitude, from every other member of the *Brachelytra* with which we have here to do, it is needless to undertake the somewhat thankless task of detailing the points of peculiarity on which an assemblage thus extensive, and which contains individuals in many respects so dissimilar, is made to rest. Suffice it therefore to remark, that the comparatively large bulk of the insects which compose it, added to their ungeniculated antennæ, the elongated outer lobe of their maxillæ, the unflattened, filiform structure of their four hinder feet, and their more or less Necrophagous habits, are amongst the main distinctive features which serve, when combined, to characterize it.

450. Staphylinus maxillosus.

S. ater nitidus, elytris nigro-tomentosis fasciâ magnâ communi transversâ cinereo-pubescenti ornatis, abdomine pube nigrâ cinereâque variegato, subtus in segmentis quatuor vel quinque cinereo-pubescenti, pectore nigro-tomentoso.

Mas, capite magno (prothorace latiore), mandibulis elongatis.

Long. corp. lin. 7–10.

Staphylinus maxillosus, Linn. *Syst. Nat.* (edit. x.) 421 (1758).
———— ————, Fab. *Ent. Syst.* i. ii. 521 (1792).
Creophilus maxillosus, Steph. *Ill. Brit. Ent.* v. 202 (1832).
Staphylinus maxillosus, Erich. *Gen. et Spec. Staph.* 348 (1839).

Habitat in Maderâ Portuque Sancto, præsertim per oram maritimam, toto anno frequens.

S. large, deep black, and slightly shining. *Head* and *prothorax* highly polished; the *former* minutely punctured before and at the sides, especially in the females; the *latter* with the hinder angles much rounded off. *Elytra* variegated with black and cinereous pile,—the former preponderating at the base, and at the four hinder angles; whilst the latter constitutes a broad postmedial fascia (common to both, and more or less interrupted or distinct) intersected on either disk with a longitudinal series of black punctures (or small rounded foveæ). *Abdomen* variegated with black and cinereous pubescence above; and below with the four basal segments, and often a part of the fifth, densely clothed with cinereous pile. *Breast* beset with long and black pubescence. *Antennæ* short, robust, and distinctly subclavated; more or less piceous.

Male, with the head much larger, and quadrate (being perceptibly broader than the prothorax); and with the mandibles greatly elongated.

Tolerably common in the vicinity of Funchal, especially towards the sea-beach,—where it occurs beneath animal and vegetable rejectamenta, at times in considerable profusion. In such positions it has been taken by M. Rousset, in company with the *Saprinus nitidulus*. In gardens and vineyards also, of a slightly higher elevation, it may be occasionally captured, particularly upon the wing. In Porto Santo I have likewise observed it, in the neighbourhood of the southern shore, though less abundantly than in Madeira proper. It is universal throughout Europe; and is recorded from the north of Africa and the Canary Islands.

Genus 200. PHILONTHUS.

(Leach) Steph. *Ill. Brit. Ent.* v. 226 (1832).

Corpus plerumque mediocre, elongato-lineare: *capite* plus minusve ovato (in maribus sæpius latiore); *oculis* plerumque oblongis: *prothorace* basi rotundato, apice truncato, serie punctorum dorsali (e punctis tribus, quatuor, quinque, sex, vel etiam pluribus compositâ) utrinque impresso, necnon versus utrumque latus (inter seriem dorsalem et marginem) paucis notato: *alis* sæpius amplis: *abdomine* lineari marginato (stylis analibus plerumque exsertis). *Antennæ* in frontis margine anteriore insertæ, rectæ, filiformes aut apicem versus vix incrassatæ, articulo primo elongato, secundo tertioque obconicis (illo vix breviore), ultimo ad apicem truncatulo (aut leviter subemarginato) et inferne plus minusve acuminato. *Instrumenta cibaria* fere ut in Othio, sed *maxillarum lobus externus* rectior; et *palporum articulus ultimus* fusiformis. *Pedes* breviusculi; *coxis intermediis* modo approximatis modo distantibus: *tibiis* plerumque spinulosis: *tarsis* 5-articulatis (*anticis* aut in utroque sexu aut in masculo solo dilatatis, aut in utroque sexu simplicibus); *posterioribus* filiformibus, articulo primo plus minusve longiusculo.

The *Philonthi* are even more numerous than the *Staphylini*,—no less than 150 species being characterized by Erichson, more than 90 of which are recorded as European. They may be known by their highly-polished and nearly glabrous head and prothorax,—the latter of which has a row of punctures (composed usually of from three to six, though in some instances of more) on either side of its disk, and a few irregular ones towards the sides,—by their straightened antennæ (the terminal joint of which is obliquely subemarginated at its apex), by their filiform palpi, and by their entire ligula. They are principally stercoraceous in their habits, though found likewise beneath the rotting loosely-attached bark of trees, as well as amongst damp moss (and even fungi) in moist and shady spots.

§ I. *Prothorax seriebus dorsalibus e punctis quatuor compositis.*

451. Philonthus æneus.

P. niger, capite prothoraceque nigro-æneis (illo rotundato-subquadrato, hoc utrinque obsoletissime impresso necnon ad latera subsinuato), elytris vel nigro- vel subviridescenti-æneis et dense punctatis, pedibus vix picescentibus.

Mas, abdominis segmento quinto subtus triangulariter emarginato, tarsis anticis fortiter dilatatis.

Long. corp. lin. $4\frac{1}{2}$–$5\frac{1}{2}$.

Staphylinus æneus, Rossi, *Fna Etrus.* i. 249 (1790).
———— ——, Grav. *Col. Micropt.* 17 (1802).
———— ——, Gyll. *Ins. Suec.* ii. 314 (1810).
Philonthus æneus, Erich. *Gen. et Spec. Staph.* 437 (1839).

Habitat Maderam, in stercore bovino, rarior (ab orâ Funchalensi maritimâ tamen usque ad summos montes ascendens).

P. black. *Head* and *prothorax* highly polished, dark æneous (often with a slightly greenish tinge),

and nearly glabrous; the *former* somewhat roundish-quadrate, with some large and coarse punctures on either side *behind* the eyes, and with four others (arranged transversely) *between* them; the *latter* with a longitudinal series of four punctures on either side of its disk, and with a few scattered ones between them and the edges (which are a little sinuated),—where also it is most obsoletely impressed. *Elytra* rather more æneous than the head and prothorax, and usually with a more perceptibly greenish tinge; closely punctulated, and densely pubescent. *Legs* sometimes (especially the tibiæ and tarsi) slightly piceous.

Male, with the fourth segment of the abdomen beneath deeply and triangularly notched; and with the two front tarsi greatly dilated.

An insect of very wide geographical range, occurring in all parts of Europe, and being recorded from the confines of Asia and from South America. It appears to be rather scarce in Madeira, though diffused over the island at all elevations. I have taken it, sparingly, in the vicinity of Funchal; and during July of 1850, in the upland region of the Fanal. It may be at once known from the other *Philonthi* with which we have here to do by its large size and more æneous surface, by its somewhat more quadrate head, and by the subsinuated edges (and the oblique, though almost obsolete, impression on either side) of its prothorax. The deeply notched fourth segment moreover of the abdomen of the males will additionally serve to distinguish that particular sex.

452. Philonthus umbratilis.

P. niger, capite subrotundato, elytris nigro-æneis dense et subtiliter punctulatis, pedibus picescenti-testaceis.

Mas, tarsis anticis fortiter dilatatis.

Long. corp. lin. 3–3$\frac{1}{3}$.

Staphylinus umbratilis, Grav. *Col. Micropt.* 170 (1802).
———— *subfuscus*, Gyll. *Ins. Suec.* ii. 326 (1810).
———— ————, Mann. *Brachel.* 29 (1831).
Philonthus umbratilis, Erich. *Gen. et Spec. Staph.* 445 (1839).

Habitat Maderam borealem, per marginem rivuli cujusdam parvi ad Sanctam Annam (in lutum fodiens) a meipso repertus.

P. deep black. *Head* and *prothorax* highly polished, and nearly glabrous; the *former* roundish, and with the same character of punctuation as in the last species (and which obtains throughout all the following ones except the *P. filiformis*), and with the *palpi* either piceous or dull ferruginous; the *latter* with a longitudinal series of four punctures down either side of its disk, and with about five scattered ones between them and the edges (which are perhaps a little straighter than in any of the other species here described). *Elytra* generally with a distinct æneous tinge; closely and finely punctulated, and densely pubescent. *Antennæ* rather long, and more or less obscurely picescent towards their base. *Legs* piceo-testaceous,—being pale, but unequally darkened in parts.

Male, with the two front tarsi greatly dilated.

Likewise an abundant *Philonthus* throughout Europe, and recorded by Erichson as having been received from South America. It is decidedly rare in Madeira (where however it would appear to be truly indigenous), four specimens only having hitherto come beneath my notice,—captured by myself, from amongst wet mud, at the edges of a minute stream at Santa Anna (in the north of the island), which finds its way across the road leading from the Quinta of Senhor Louiz Acciaioly down to the sea. It may be recognised from the other Madeiran *Philonthi* by its rather broad and rounded head, more or less æneous and finely punctulated elytra, by its somewhat long and basally-picescent antennæ, diluted palpi, and by its piceo-testaceous legs.

453. Philonthus sordidus.

P. subangustus niger vel nigro-æneus, capite subovato, elytris subviridescenti-æneis parcius et profunde punctatis, pedibus piceis.

Long. corp. lin. vix 3.

Staphylinus sordidus, Grav. *Col. Micropt.* 176 (1802).
———— ————, Mann. *Brachel.* 29 (1831).
Philonthus sordidus, Erich. *Gen. et Spec. Staph.* 456 (1839).
Staphylinus sordidus, Zett. *Ins. Lapp.* 63 (1840).

Habitat prope urbem Maderæ Funchalensem, in stercore bovino, sat vulgaris; necnon in ins. Desertæ Grandis parce observavi.

P. rather narrow, and black. *Head* and *prothorax* almost as in the last species, except that they are perhaps even more highly polished still, and generally with an obscure æneous tinge; and that the *former* is less rounded (being subovate), and has the four punctures between its eyes almost equally distant from each other,—instead of the two inner ones being wide apart. *Elytra* a little shorter in proportion than those of the *P. umbratilis*, as also rather more shining and of a more evidently greenish-æneous tinge; more deeply and less closely punctured than in any of the other species here described. *Antennæ* a little shorter and less robust than those of the *P. umbratilis*, and usually entirely black. *Legs* piceous.

Rather common near Funchal, in the dung of cattle, during the autumnal and winter months,—principally below the elevation of about 2000 feet. I have taken it on the grassy slopes towards the Cabo Gerajão, or Brazen Head, more abundantly than elsewhere. Like the previous two species, it is universal throughout Europe, and may perhaps have been introduced into these islands from more northern latitudes. If such be the case, however, it has at any rate completely established itself, since in May of 1850 I detected it even on the Dezerta Grande. Apart from other characters, the deep and comparatively remote punctuation of its elytra, in conjunction with its extremely glossy surface and the nearly *equally distant* punctures across its (subovate) head, will readily distinguish it from its Madeiran allies.

§ II. *Prothorax seriebus dorsalibus e punctis quinque compositis.*

454. Philonthus bipustulatus.

P. niger, capite ovato, elytro singulo maculâ posticâ sanguineâ (interdum obsoletâ) ornato, antennis pedibusque vix picescentibus.

Mas, tarsis anticis leviter dilatatis.

Long. corp. lin. 3–3¾.

Staphylinus bipustulatus, Panz. *Fna Germ.* 27. 10 (1795).
———— ————, Grav. *Mon.* 63 (1806).
———— ————, Gyll. *Ins. Suec.* ii. 339 (1810).
Philonthus bipustulatus, Erich. *Gen. et Spec. Staph.* 468 (1839).

Habitat ins. Maderæ Portûsque Sancti, in stercore bovino, ubique vulgaris.

P. black. *Head* and *prothorax* highly polished (generally with a slightly æneous tinge), and nearly glabrous; the *former* ovate; the *latter* a little narrowed anteriorly, and with a longitudinal series of five punctures down either side of its disk, and with a few scattered ones between them and the edges. *Elytra* closely and rather finely punctulated, and densely pubescent; each of them ornamented with a bright sanguineous patch (sometimes obscured, but rarely obsolete) between its centre and inner apical angle. *Antennæ* and *legs* more or less obscurely picescent.

Male, with the two front tarsi slightly dilated.

The *five* punctures of which each of the dorsal prothoracic series is composed will at once distinguish the present insect and the following one from the other *Philonthi* here described; whilst the *P. bipustulatus* may be immediately known by the bright sanguineous patch (rarely obsolete) towards the inner apical angle of each of its elytra. It is common in Madeira and Porto Santo, from the level of the shore to the mountain-summits,—or at any rate to the highest elevations accessible to cattle, in the dung of which it occurs. During July of 1850 it was abundant in the upland district of the Fanal; and on the grassy slopes to the east of Funchal I have observed it in profusion. It is found throughout the whole of Europe and the north of Africa, and is recorded from Asia Minor and Syria.

455. Philonthus varians.

P. niger, capite ovato, pedibus vix picescentibus, coxis anticis testaceis.

Mas, tarsis anticis fortiter dilatatis.

Long. corp. lin. 3–3½.

Staphylinus varians, Payk. *Mon. Staph. Suec.* 45 (1789).
———— ————, Fab. *Ent. Syst.* i. ii. 524 (1792).
———— *opacus*, Grav. *Col. Micropt.* 26 (1802).
Philonthus varians, Erich. *Gen. et Spec. Staph.* 470 (1839).

Habitat Maderam, vel in stercore bovino vel sub lapidibus in humidis, huic inde sat vulgaris.

P. black. *Head* and *prothorax* as in the *P. bipustulatus*, except that the *former* is perhaps a trifle less broad and more ovate, and the *latter* a little more narrowed anteriorly. *Elytra* as in that species, except that there is no appearance of the bright rufo-sanguineous patch which is there so conspicuous. *Legs* slightly picescent, with their *two anterior coxæ* (and sometimes also, though less perceptibly, the inner side of all the femora) more or less testaceous.

Male, with the two front tarsi considerably dilated.

The Madeiran form of the common European *P. varians* is that in which the sanguineous (*medial*) dash on each of its elytra is altogether obsolete,—so that there can be no fear of confounding it with its (otherwise) near ally the *P. bipustulatus*, with which it is often found in company. Even the ordinary northern type however may be easily recognised from that insect, not only by the different shape and more central position of its elytral patch, but likewise by its somewhat more ovate head and anteriorly-narrower prothorax, and by the more or less testaceous hue of its two front coxæ. It possesses a very wide geographical range, occurring throughout the whole of Europe and the north of Africa, and being reported from the Cape of Good Hope and the West Indian Islands. It is pretty generally distributed over Madeira,—both in the dung of cattle, and under stones and decomposing vegetable refuse at the edges of the streams. I have taken it near Funchal, at Santa Anna, and at the Cruzinhas.

§ III. *Prothorax seriebus dorsalibus e punctis sex compositis.*

456. Philonthus aterrimus.

P. angustus niger, capite subquadrato-ovato, elytris interdum subpicescentibus, minus dense et sat profunde punctatis, antennarum basi dilutiore, pedibus infuscato-testaceis.

Mas, capite paulo majore, antrorsum subdilatato.

Long. corp. lin. 2–3$\frac{1}{3}$.

Staphylinus aterrimus, Grav. *Col. Micropt.* 41 (1802).
Cafius nigritulus, Mann. *Brachel.* 32 (1831).
Philonthus aterrimus, Erich. *Gen. et Spec. Staph.* 492 (1839).
Staphylinus aterrimus, Zett. *Ins. Lapp.* 65 (1840).

Habitat Maderam et Portum Sanctum, præsertim sub lapidibus per margines rivulorum necnon in graminosis humidiusculis, ubique frequens.

P. narrow, and black. *Head* and *prothorax* highly polished (with more or less of an æneous tinge), and nearly glabrous; the *former* subquadrate-ovate (though somewhat variable in outline), and with the *palpi* either rufo-piceous or ferruginous; the *latter* with a longitudinal series of six punctures down either side of its disk, and with a few scattered ones between them and the edges. *Elytra* very often diluted in colouring (being more or less picescent); rather distinctly, but not very closely, punctured, and densely pubescent. *Antennæ* (especially at their base) more or less diluted in hue. *Legs* pale testaceous, but unequally infuscated in parts.

Male, with the head a little larger, and somewhat dilated anteriorly.

The most abundant of the *Philonthi* with which we have here to do,—being universal throughout Madeira and Porto Santo, though principally beneath stones and amongst wet vegetation at the edges of the waterfalls and streams. I have taken it in the neighbourhood of Funchal (where it has been likewise captured by Professor Heer), in the north of the island (at São Vincente and Santa Anna), as also at the Lombo dos Pecegueiros and the Ribeiro Frio. It may be easily known by its small size and narrow outline, by the *six* punctures of which each of its prothoracic dorsal series is composed, by its subquadrate head, frequently diluted elytra, and by its pale (though unequally infuscated) legs. It occurs throughout the whole of Europe and in Algeria, and has been received from South America. In our own country it would appear to be more especially attached to the coast,—under which circumstances I have constantly observed it in great profusion.

§ IV. *Prothorax* (*et caput*) *sat crebre punctatus, lineâ mediâ longitudinali lævi: palporum articulus ultimus magis acuminatus.*

457. Philonthus filiformis, *Woll.*

P. angustissimus filiformis niger, capite quadrato, elytris subtilissime punctulatis vix dilutioribus, antennarum basi pedibusque ferrugineis, femoribus infuscatis.

Long. corp. lin. vix 2.

Habitat in Maderâ boreali, rarissimus: ad marginem rivuli cujusdam parvi juxta Sanctam Annam siti æstate A.D. 1850 exemplar unicum cepi.

P. extremely narrow and linear, and deep black. *Head* and *prothorax* highly polished, and nearly glabrous; the *former* large and quadrate, coarsely and rather closely punctured all over except quite in the centre (where there are indications of an unpunctured longitudinal line), and with the *palpi* ferruginous; the *latter* likewise coarsely punctured except in the centre (the medial space being broader and better defined than on the head). *Elytra* rather more diluted, or picescent, than the head and prothorax,—especially at their *extreme* hinder margin, which is slightly pellucid; most minutely and somewhat obsoletely punctulated, but rather coarsely pubescent. *Antennæ at base*, and the *legs*, ferruginous,—the *femora* being a little infuscated.

The minute size and very narrow filiform outline of the present insect would be alone sufficient to distinguish it from its Madeiran allies; but receding as it does in the entire character of its punctuation from the remainder, there can be but little fear of confounding it with any of the other *Philonthi* here described. At first sight indeed it would almost seem to belong to a separate genus; though in reality it is but the representative of another section, of which there are several members throughout Europe, and in which the head and prothorax are coarsely punctured all over except in the centre,—where a medial line is alone free from sculpture. The elytra, moreover, of the *P. filiformis* differ from those of the other species with which we are concerned in being most delicately (and almost obsoletely)

punctulated; whilst its comparatively quadrate head and more subulated palpi will serve additionally to characterize it. It is apparently extremely rare, the only specimen which I have seen having been captured by myself at the edges of a small stream at Santa Anna (in the north of the island) during the summer of 1850.

(Subf. 4. PÆDERIDES.)

Genus 201. ACHENIUM.

(Leach) Curtis, *Brit. Ent.* iii. pl. 115 (1826).

Corpus mediocre, elongato-lineare, valde depressum: *capite* quadrato-obcordato porrecto exserto; *oculis* parvis rotundatis demissis: *prothorace* trapeziformi (antice latiore), angulis anticis leviter exstantibus: *alis* plerumque amplis: *abdomine* lineari marginato, segmento sexto in maribus subtus triangulariter emarginato. *Antennæ* sub frontis margine insertæ, rectæ, filiformes (aut apicem versus etiam subattenuatæ), articulo primo longiusculo robusto subcylindrico, secundo breviore, ultimo acuminato-ovato. *Labrum* amplum, profunde bilobum, lobis divergentibus et pilis longissimis munitis. *Mandibulæ* minus elongatæ, in medio fortiter unidentatæ, apice valde incurvæ acutæ. *Maxillæ* bilobæ: *lobo externo* corneo, apice membranaceo barbato: *interno* membranaceo, intus dense pubescente. *Palpi maxillares* articulo primo minuto, secundo et tertio longitudine subæqualibus (hoc apicem versus leviter incrassato), ultimo minimo obtuse subulato: *labiales* articulis primo et secundo subcylindricis (hoc paulo longiore crassiore), ultimo tenui subulato secundo breviore. *Mentum* breve transversum. *Ligula* brevis biloba; *paraglossis* coriaceis, ligulam haud superantibus. *Pedes* breves robustissimi (*antici* incrassati, femoribus subdentatis, tibiis intus sinuato-excavatis): *tibiis* (sed præsertim *posterioribus*) subsetuloso-pubescentibus: *tarsis* 5-articulatis (*anticis* in utroque sexu valde dilatatis et subtus tomentosis); *posterioribus* tenuibus, articulo primo brevissimo, secundo tertioque longioribus, quarto brevi, ultimo his conjunctis longitudine æquali.

The extraordinarily depressed body of *Achenium*, in conjunction with its trapeziform prothorax, its somewhat squarish-obcordate head and its greatly thickened legs, will at once serve to distinguish it, not only from its nearest ally, *Lathrobium* (with which in most of its details it is coincident), but likewise from the remainder of the *Brachelytra* here described. The few species (hitherto detected) which compose it are principally European, and are more common in central and Mediterranean latitudes than in northern ones. They are found generally in marshy districts; and I have usually observed that the *A. depressum* in our own country (which is very nearly related to the Madeiran *A. Hartungii*) is more especially attached to muddy submaritime spots,—into the crevices of which (produced by the heat of the sun) its flattened body enables it to retreat with facility, whilst its exceedingly robust anterior legs, with their broadly dilated feet (equally so in both sexes), give it additional powers, not only for forcing its way through the narrower chinks, but also for *adhesion* in crawling up their perpendicular sides (a structure, be it remarked, which is as much adapted to its peculiar mode of life as is the

depression, albeit to answer another purpose, which is more or less traceable throughout the subcortical tribes).

458. Achenium Hartungii.

A. nigrum nitidum, capite prothoraceque parcius (hoc per plagas) punctatis, elytris rufis, regione scutellari leviter nigrescente, antennis pedibusque rufo-ferrugineis.

Long. corp. lin. vix 4.

Achenium Hartungii, Heer.

Habitat Maderam australem, rarissime: sub lapidibus super promontorium Cabo Gerajão d. 25 Feb. A.D. 1850 detexit cl. Os^dus Heer, qui in honorem Dom. G. Hartung, insectorum plantarumque Maderensium scrutatoris, in hoc opusculo speciem citare voluit.

A. exceedingly depressed, and deep black. *Head* and *prothorax* highly polished; the *former* large, subquadrate-cordate, and rather remotely punctured; the *latter* with its punctures (which are nowhere dense) more abundant about its anterior angles and sides than elsewhere, and with a few distributed along a narrow longitudinal space on either side of its disk,—which is itself (together with a considerable portion of the surface, alongside it, behind) perfectly impunctate. *Elytra* very lightly and irregularly punctulated; rufous, with their extreme basal region (about the scutellum) more or less darkened. *Antennæ, palpi* and *legs* rufo-ferruginous; the *last* (especially the femora) being at times more or less picescent.

Closely allied to the *A. depressum*, Grav., of which I doubt whether it is more than a geographical variety; nevertheless, since Professor Heer (to whom we are indebted for its admission into our present fauna) considers it to be distinct, I have retained it as such. After comparing it carefully however with a large series of that insect, collected on the southern coast of England, the only differences which I can detect are the deeper punctures of its head and prothorax (the former of which is a trifle larger, and has its hinder angles just perceptibly more rounded and obtuse), its almost entirely rufous elytra (the large triangular darker basal patch which is there so conspicuous being here but slightly indicated, and occasionally nearly evanescent), and the somewhat obscurer colour of its legs. It was discovered by Professor Heer, on the 25th of February 1851, beneath stones on the Cabo Gerajão, or Brazen Head.

Genus 202. LATHROBIUM.

Gravenhorst, *Col. Micropt.* 179 (1802).

Corpus mediocre, elongato-lineare, subcylindricum: *capite* subquadrato-rotundato porrecto exserto; *oculis* sat parvis rotundatis subdemissis: *prothorace* suboblongo, angulis omnibus rotundatis: *alis* plerumque amplis: *abdomine* lineari marginato; segmento sexto in maribus subtus triangulariter emarginato, in fœminis vel integro vel apice producto. *Antennæ* sub frontis margine insertæ, rectæ, filiformes, articulo primo longiusculo robusto, ultimo acuminato-ovato. *Instru-*

menta cibaria fere ut in Achenio, sed *labrum* paulo latius, lobis minus elongatis; *mandibulæ* vix longiores; *palporum maxillarium articulus ultimus* acutior; et *paraglossi* longiores. *Pedes* breves robusti (*antici* incrassati, femoribus subdentatis, tibiis intus longitudinaliter excavatis): *tibiis* pubescentibus: *tarsis* fere ut in genere præcedente, sed articulo ultimo breviore.

The distinctions between the members of the present genus and those of the last one have been already partially pointed out,—their more cylindrical and filiform outline, more deeply punctured surface, rounder head and more oblong prothorax being some of the main features which will serve *primâ facie* to characterize them. The legs, moreover, of the *Lathrobia* (although robust) are not quite so much thickened as those of the *Achenia*, the excavation of their anterior tibiæ is less sinuated, their eyes are slightly larger, their antennæ somewhat shorter (and more inclined to be subincrassated towards the extremity), and the ultimate joint of their feet is a little less elongated. They are insects which occur principally beneath stones, logs of wood and decaying vegetable substances, or amongst moss and under the loosely-attached bark of trees, in damp spots.

459. Lathrobium multipunctatum.

L. nigrum vel nigro-piceum nitidum, capite prothoraceque dense et profunde punctatis, elytris profunde seriatim punctatis apicem versus rufis, antennis ferrugineis, pedibus testaceis.

Long. corp. lin. 3–3½.

Lathrobium multipunctatum, Grav. *Col. Micropt.* 52 (1802).
———— ————, Gyll. *Ins. Suec.* iii. 705 (1810).
———— ————, Erich. *Gen. et Spec. Staph.* 591 (1839).
———— ————, Heer, *Fna Col. Helv.* i. 238 (1841).

Habitat sub lapidibus in humidiusculis Maderæ, a 1000′ usque ad 5500′ s. m. ascendens, toto anno passim.

L. narrow and somewhat cylindrical, either black or piceous-black. *Head* and *prothorax* highly polished (though, from being closely and deeply punctured, appearing less so than they really are); the *former* roundish, and rather more sparingly punctured upon its disk than elsewhere; the *latter* almost parallel, and with a central unpunctured line. *Elytra* deeply, very closely, and rather roughly seriate-punctate; more or less bright rufous posteriorly, but gradually darker in front. *Antennæ* and *palpi* ferruginous. *Legs* testaceous.

A common European *Lathrobium*, and sufficiently abundant also throughout Madeira,—where however it is truly indigenous, occurring beneath stones in moist spots at nearly all elevations above the altitude of about 1000 feet. I have taken it at the Curral das Romeiras during the autumn, at São Vincente and Santa Anna in June, and in the upland region of the Fanal (in the round crater-like basin known as the Lagoa) during July; but I have not hitherto observed it in any of the other islands of the group.

Genus 203. LITHOCHARIS.

(Dejean) Boisd. et Lacord. *Faun. Ent. des Env. de Paris*, i. 431 (1835).

Corpus parvum, elongato-lineare, plerumque ferrugineum et punctulatum: *capite* aut quadrato aut subtriangulari-quadrato, porrecto exserto; *oculis* vel parvis vel mediocribus, rotundatis: *prothorace* plus minusve distincte quadrangulo: *alis* sæpius amplissimis: *abdomine* lineari marginato; segmento sexto in maribus subtus triangulariter exciso, in fœminis vel rotundato vel triangulariter producto. *Antennæ* sub frontis margine insertæ, rectæ, filiformes, articulo primo longiusculo leviter robusto, ultimo acuminato-ovato. *Labrum* latum transversum, apice plerumque bidenticulatum necnon inter dentes plus minusve emarginatum. *Mandibulæ* in medio dentibus tribus vel quatuor acutis instructæ, apice valde incurvæ acutæ. *Maxillæ, palpi, mentum* et *ligula* fere ut in genere præcedente. *Pedes* longiusculi (*antici* interdum subincrassati, femoribus obsoletissime subdentatis): *tibiis* pubescentibus: *tarsis* 5-articulatis (*anticis* in maribus sæpe leviter dilatatis); *posterioribus* articulis quatuor baseos longitudine leviter decrescentibus.

The small insects which constitute the genus *Lithocharis* may be known by their more or less ferruginous, closely punctulated and finely pubescent bodies, by their largely-developed wings (with which they are for the most part exceedingly active), by their either subquadrate or triangular-quadrate heads and squarish prothorax, by their denticulated upper-lip, and by the joints of their four hinder tarsi (the ultimate one excepted) gradually decreasing in length. They are found either beneath stones or dead leaves, but (with a few exceptions,—as, for instance, the *L. melanocephala*, which is principally attached to the mountain districts) are more frequently perhaps to be captured on the wing, especially during sunshine after showers, than under other circumstances. They are widely distributed over the world,—the hitherto discovered species being in about equal proportions from Europe and America.

460. Lithocharis fuscula.

L. rufo-ferruginea subnitida, capite magno oblongo-quadrato piceo et dense ruguloso-punctato, oculis minutis, prothorace subtilius punctulato postice leviter angustato, elytris interdum hinc inde infuscatis, abdomine obscuriore, antennis pedibusque pallido-ferrugineis.

Long. corp. lin. $1\frac{2}{3}$–2.

Lithocharis fuscula, (Ziegler) Boisd. et Lacord. *Faun. Ent. des Env. de Paris*, i. 431 (1835).
———— ————, Erich. *Gen. et Spec. Staph.* 611 (1839).
———— ————, Heer, *Fna Col. Helv.* i. 235 (1841).
———— ————, Redt. *Fna Austr.* 718 (1849).

Habitat Maderam borealem, sub foliis arborum dejectis, præsertim juxta aquas desilientes et per margines rivulorum,—prope Sanctam Annam et Sanctum Vincentium mensibus Maio et Junio A.D. 1850 a meipso detecta.

L. rufo-ferruginous, very slightly shining, and clothed with a minute decumbent griseous pubescence. *Head* large, oblong-quadrate, and dark piceous; very closely, rather coarsely and roughly punc-

tured,—the punctures being large, but not very deep; with the *eyes* minute. *Prothorax* rather narrowed behind; much more finely (but not quite so closely) punctured as the head, and with a central glabrous line (which is a little elevated posteriorly). *Elytra* about as finely punctulated as the prothorax, and occasionally a little darkened, or infuscated, in parts. *Abdomen* of an obscurer hue than the prothorax and elytra. *Antennæ, palpi* and *legs* pale ferruginous,—the *first* being a little obscured.

A very distinct species*, readily known by its bright rufo-ferruginous hue, by its large, subquadrate, densely and rugosely punctured, and dark-piceous head, by its exceedingly small eyes, and by its somewhat posteriorly-narrowed prothorax. It is a truly indigenous insect in Madeira, but apparently extremely rare,—and confined, so far as I have hitherto observed, to the north of the island. I have taken it, during May, from beneath leaves at the edges of a small stream at Santa Anna, leading from the Quinta of Senhor Louiz Acciaioly down to the sea; and I also captured it, in a precisely similar position, on the 20th of June 1850, at the sides of the first large waterfall which finds its way across the beach (from the lofty ravines above) on the coast-road from São Vincente to Seisal. It occurs, though not very abundantly, throughout central Europe, being recorded in France, Germany, Switzerland and Austria; and I have occasionally met with it in England.

461. Lithocharis ochracea.

L. infuscato-ferruginea subnitida, capite triangulari-subquadrato nigro dense et subtilissime punctulato, oculis majoribus, prothorace subtiliter punctulato quadrato, abdomine obscuriore, antennis pallido-ferrugineis, pedibus testaceis.

Long. corp. lin. 2.

Pæderus ochraceus, Grav. *Col. Micropt.* 59 (1802).
Lithocharis ochracea, Erich. *Gen. et Spec. Staph.* 623 (1829).
———— ————, Heer, *Fna Col. Helv.* i. 236 (1841).
———— ————, Redt. *Fna Austr.* 718 (1849).

Habitat Maderam australem, rarior: in hortis prope Funchal duo specimina per aërem volitantia deprehensi.

L. brownish-ferruginous (being usually more infuscated and less rufous than the last species), slightly shining, and rather densely clothed with a minute, decumbent, griseous, and somewhat sericeous pubescence. *Head* rather smaller and shorter than that of the *L. fuscula* (being more triangular), and also darker (being apparently quite black); likewise (although densely) very much more finely punctulated than in that insect,—the punctures being exceedingly minute; and with the

---

* The *L. fuscula* is very nearly akin to the *L. brunnea* of Erichson, from which however it differs in its rather smaller and generally darker head, in the clearer colour of its prothorax and elytra (the latter of which are longer and more closely punctulated than is the case in that insect), and in the somewhat denser pubescence of its entire surface.

eyes very much larger. *Prothorax* nearly square (not being at all narrowed behind); a little more evidently punctulated than the head, and with very faint indications of a subelevated central line. *Elytra* about as finely punctulated as the prothorax. *Abdomen* of a rather obscurer hue than the prothorax and elytra. *Antennæ* pale ferruginous. *Palpi* and *legs* testaceous.

The rather shorter, darker, more triangular, and very much less deeply punctulated head of the present *Lithocharis*, in conjunction with its larger eyes and less rufous hue, will suffice to distinguish it, even *primâ facie*, from the *L. fuscula*,—to which in size and general aspect it is a good deal allied. Like that species, it appears to be rare in Madeira, though not confined to the northern coast, since the only two indigenous specimens which I have seen were captured by myself, on the wing, in the vicinity of Funchal,—one in the garden of the Rev. T. Freeman at the Quinta d'Ambrosio (during the winter of 1848), and the other (I believe) at the Levada. It is an insect of wide geographical range, occurring throughout the whole of Europe, and being reported from the West Indian Islands and the Brazils.

462. Lithocharis melanocephala.

L. angusta nigra nitida, capite subrotundato-quadrato parce et profunde punctato, prothorace paulo crebrius punctato testaceo-rufo, elytris piceis, antennis rufo-testaceis in medio fuscescentibus, pedibus testaceis.

Variat prothorace obscuriore (interdum fere picescente).

Long. corp. lin. $1\frac{1}{2}$–$1\frac{3}{4}$.

Pæderus melanocephalus, Fab. *Ent. Syst.* i. ii. 538 (1792).
Sunius melanocephalus, Steph. *Ill. Brit. Ent.* v. 274 (1832).
Lithocharis melanocephala, Erich. *Gen. et Spec. Staph.* 614 (1839).
———— ————, Heer, *Fna Col. Helv.* i. 235 (1841).

Habitat insulas Maderenses, præsertim sub lapidibus foliisque arborum dejectis in graminosis humidiusculis, hinc inde vulgaris: in Portu Sancto necnon etiam in Desertâ Grandi parce observavi.

L. narrow, black, shining, and clothed (very sparingly on the head and prothorax) with a minute decumbent griseous pubescence. *Head* rather smaller and narrower than in either of the previous species; remotely but rather deeply punctured; and with the *eyes* small (though rather larger, in proportion, than those of the *L. fuscula*). *Prothorax* scarcely narrowed behind; rather more closely punctured than the head, and with a central glabrous line; varying from pale rufous into piceo-rufous (and sometimes almost piceous). *Elytra* rather more densely and finely punctured; and more or less piceous. *Antennæ* rufo-testaceous, and infuscated in the centre. *Legs* testaceous.

At once known by its narrower outline and more shining surface, by its sparingly (though deeply) punctured head and prothorax (the latter of which is more or less rufous), and by its usually piceous elytra. It is a common insect throughout most of the islands of the Madeiran group,—occurring beneath stones both on the grassy slopes and amongst fallen leaves in damp sylvan spots of intermediate elevations. I have taken it abundantly at the base of the lofty perpendicular

rocks towards the upper extremity of the Ribeiro de Santa Luzia; and at the Ribeiro Frio, São Vincente and Santa Anna: as also, though more sparingly, in Porto Santo and on the Dezerta Grande. It is found in most parts of Europe and the north of Africa, but seems to be more plentiful in the higher districts than in the plains. Thus I have observed it in profusion on the Swiss Alps, on the English and Scotch moorlands, and on the mountains of Ireland and Wales.

Genus 204. RUGILUS.

(Leach) Curtis, *Brit. Ent.* iv. 168 (1827).

Corpus sat parvum, elongatum: *capite* lato subrotundato porrecto exserto, pedunculo tenui brevi prothoraci affixo; *oculis* mediocribus subrotundatis: *prothorace* subovato apice attenuato, plus minusve distincte carinato: *alis* plerumque amplis: *abdomine* marginato, basin versus angustato, segmento sexto in maribus subtus exciso, in fœminis integro rotundato. *Antennæ* rectæ, filiformes breviusculæ crassiusculæ, articulo primo longiusculo leviter robusto, ultimo acuminato-ovato. *Labrum* amplum, limbo laterali rotundato submembranaceo, apice bidenticulatum. *Mandibulæ, maxillæ, palpi, mentum* et *ligula* fere ut in Lithocharide, sed *paraglossi* longiores. *Pedes* parum elongati: *tarsis* 5-articulatis simplicibus, articulis quatuor baseos (præsertim in *posterioribus*) longitudine leviter decrescentibus.

The coarsely and closely punctured head and prothorax of the *Rugili* (the former of which is wide and subrotundate, whilst the latter is greatly acuminated in front and more or less evidently keeled down the centre), in conjunction with their rather short and robust antennæ, ample upper-lip, somewhat elongated legs, and simple feet, will serve, apart from minor characters, to distinguish them from their immediate allies. They constitute the genus *Stilicus* of Latreille (*Règne Animal*, iv. 436, A.D. 1829). Their habits are much the same as those of the *Lithocharides*,—the species occurring beneath stones, fallen leaves, and decaying vegetable substances in damp spots.

463. Rugilus affinis.

R. niger, capite prothoraceque creberrime ruguloso-punctatis, hoc carinâ mediâ glaberrimâ notato, elytris nitidis parcius et subtiliter punctulatis apice testaceis, antennis piceo-ferrugineis, pedibus testaceis, tibiis et femorum posteriorum apice fuscescentibus.

Long. corp. lin. $1\frac{3}{4}$–2.

Stilicus affinis, Erich. *Käf. der Mark Brand.* i. 522 (1837).
Rugilus affinis, Heer, *Fna Col. Helv.* i. 232 (1841).
Stilicus affinis, Redt. *Fna Austr.* 720 (1849).

Habitat sub lapidibus foliisque arborum dejectis in humidiusculis Maderæ, sat frequens.

R. black. *Head* and *prothorax* most closely and roughly punctured, and opake; the *former* large, wide, and nearly round, with the *palpi* piceous; the *latter* considerably acuminated in front, and

with a central unpunctured polished line,—which is slightly raised into a keel. *Elytra* shining, very finely and sparingly punctulated, and with the hinder margin of each testaceous. *Antennæ* ferruginous, or piceo-ferruginous, and rather short. *Legs* testaceous,—with their *tibiæ* and the *apices* of the *four hinder femora* more or less infuscated.

Rather a common insect, beneath stones in damp spots (particularly near the edges of the streams), in most parts of Madeira at intermediate elevations. I have taken it in the Ribeiro de Santa Luzia, during the spring; and (in the north of the island) at Santa Anna and the Lombo dos Pecegueiros, in June and July. It occurs throughout the greater portion of central Europe, being recorded in Germany, France, Switzerland and Austria.

Genus 205. SUNIUS.

(Leach) Steph. *Ill. Brit. Ent.* v. 274 (1832).

Corpus parvum, elongato-lineare vel elongatum, fere opacum et dense punctatum: *capite* magno, plus minusve oblongo, ad basin truncato; *oculis* vel parvis vel mediocribus, subrotundatis: *prothorace* subovato: *alis* plerumque sat amplis: *abdomine* marginato, lineari vel basin versus leviter angustato; segmento sexto in maribus subtus triangulariter inciso, in fœminis integro rotundato. *Antennæ* ut in Rugilo, sed paulo longiores graciliores, articulo ultimo oblongo. *Instrumenta cibaria* fere ut in Rugilo, sed *palporum maxillarium articulus ultimus* subtilissimus (ægre observandus). *Pedes* plerumque breviusculi: *tarsis* 5-articulatis, articulis quatuor baseos longitudine decrescentibus (quarto brevissimo, lobo membraneo subtus aucto), quinto parvo (quartum parum excedente).

The *Sunii* may be easily recognised from the *Rugili* by their generally narrower outline and more opake surface (the latter having the *elytra* usually somewhat shining and only lightly sculptured), by their more basally-truncated heads and less anteriorly-attenuated (unkeeled) prothoraces, by the scarcely distinguishable terminal joint of their maxillary palpi, and by their shorter legs and perceptibly longer and slenderer antennæ,—the first of which have the penultimate articulation of their tarsi bilobed (or rather, increased by a membrane beneath), and the ultimate one much more abbreviated than is the case in that genus; whilst the second have their final joint oblong, instead of ovate and acuminated. In their habits they differ but slightly from either the members of that group or from the *Steni*,—occurring in damp spots, though more commonly perhaps in *grassy* places beneath stones (or under vegetable refuse) than by the edges of streams.

464. Sunius angustatus.

S. niger, capite rotundato-oblongo latiusculo, elytro singulo ad apicem sinuatim testaceo, antennis pedibusque pallido-testaceis.

Long. corp. lin. $1\frac{1}{2}$–$1\frac{2}{3}$.

Staphylinus angustatus, Payk. *Mon. Staph. Suec.* 36 (1789).
———— ————, Fab. *Ent. Syst.* i. ii. 528 (1792).
Sunius angustatus, Erich. *Gen. et Spec. Staph.* 640 (1839).
—— ————, Heer, *Fna Col. Helv.* i. 229 (1841).

Habitat in humidiusculis graminosis Maderæ Portûsque Sancti, vel sub lapidibus, parum vulgaris.

S. black. *Head* and *prothorax* most closely and roughly punctured, and opake; the *former* roundish oblong and rather wide, with the *palpi* pale testaceous. *Elytra* just perceptibly less opake than the head and prothorax, and not quite so closely punctured; each with their apex, and a small hinder portion of the suture, testaceous. *Abdomen* rather more evidently shining, and less deeply and more remotely punctured. *Antennæ* and *legs* pale testaceous.

The black surface of the present common little European *Sunius*,—its limbs, the hinder margin, and a small portion of the suture, of each of its elytra, being alone pale,—will serve at once to distinguish it from everything else with which we have here to do. It is tolerably abundant beneath stones in damp grassy spots throughout the intermediate altitudes of Madeira and Porto Santo,—my specimens (from the former) having been principally collected at Santa Anna and the Feijãa de Córte. On the Dezertas I have not hitherto detected it. It is universal in Europe, and is recorded by M. Lucas in Algeria.

465. Sunius bimaculatus.

S. angustissimus piceo-niger, capite oblongo, prothorace rufo-ferrugineo ad latera obscuriore, elytris brevibus testaceis, singulo maculâ mediâ nigrâ ornato, abdominis segmentis ad apicem dilutioribus, antennis pedibusque pallido-testaceis.

Long. corp. lin. $1\frac{3}{4}$.

Sunius bimaculatus, Erich. *Gen. et Spec. Staph.* 641 (1839).

Habitat in locis inferioribus Maderæ australis, rarissime: sub lapide ad Praya Formoza exemplar unicum detexit cl. Dom. Heer.

S. exceedingly narrow and slender, black (or piceous-black). *Head* and *prothorax* closely and roughly punctured, and opake; the *former* oblong (being less rounded and a little narrower than that of the *S. angustatus*), and with the *palpi* pale testaceous; the *latter* rufo-ferruginous, and slightly infuscated at the sides. *Elytra* rather more roughened, but a little less distinctly punctured, than the head and prothorax, and almost as opake; short, and testaceous,—each being ornamented with a black patch in the centre. *Abdomen* with the hinder margin of each of its segments a little diluted, or piceo-testaceous. *Antennæ* and *legs* pale testaceous.

Although I have not been able to procure a specimen for comparison, I have but little doubt that the present very elegant *Sunius* is correctly identified with the *S. bimaculatus* of Erichson (a species discovered by Professor Gené in Sardinia),—with the description of which it accords precisely. Its admission into our fauna is due to the researches of Professor Heer, who detected a single example

beneath a stone at the Praya Formoza, near Funchal, on the 4th of February 1851,—the only instance of its capture, so far as I am aware, up to the present period.

Genus 206. MECOGNATHUS, *Woll.* (Tab. XIII. fig. 8.)

Corpus, antennæ (XIII. 8 *a*), *pedes* (XIII. 8 *e*) et *instrumenta cibaria* (XIII. 8 *b*, 8 *c*, et 8 *d*) fere ut in Sunio, sed *oculi* minutissimi; *elytra* parva valde abbreviata subconnata; *alæ* obsoletæ; *abdomine* basin versus fortiter constrictum, ultra medium dilatatum; *mandibulæ* (XIII. 8 *b*) longissimæ acutissimæ; et *palporum maxillarium articulus ultimus* obsoletus (haud observandus).

A μῆκος longitudo, et γνάθος mandibula.

The singular insect from which the above characters are drawn out may perhaps be but a geographical modification of *Sunius*; nevertheless it presents so many peculiarities of its own (amongst which its unusually minute eyes, excessively abbreviated, small, and *subconnate* elytra, its obsolete wings, and its much anteriorly-constricted and posteriorly-inflated abdomen should be especially noticed) that I have preferred retaining it as distinct; whilst in its greatly developed mandibles and the evanescent terminal joint of its maxillary palpi it still further recedes from the ordinary members of that group. The fact, however, of two normal *Sunii* being found in the Madeira Islands renders it probable that it is not a *local variation* of the genus (such as we have had occasion to remark concerning many other aberrations from central types), but that it is as much entitled to be treated separately as either *Rugilus* or *Echiaster*. In its habits *Mecognathus* is precisely similar to *Sunius*.

466. Mecognathus Chimæra, *Woll.* (Tab. XIII. fig. 8.)

M. ferrugineus, capite magno oblongo-subquadrato, elytris brevissimis vix pallidioribus, abdominis segmentis quinque baseos obscurioribus, antennis pedibusque pallido-testaceis.

Long. corp. lin. $1\frac{2}{3}$–vix 2.

Habitat per Maderæ regionem sylvaticam, sub lapidibus truncisque arborum prolapsis, rarissimus: in locis valde humidis prædominat, usque ad 5500′ s. m. ascendens.

M. ferruginous. *Head* and *prothorax* very closely and roughly punctured, and opake; the *former* large, and somewhat squarish-oblong, with the *palpi* pale testaceous. *Elytra* a shade lighter in colouring than the head and prothorax, and (although equally roughened) not quite so distinctly punctured; almost as opake, and exceedingly short. *Abdomen* very much narrowed at the base, and expanded beyond the middle; obscured, except at the apex,—where it is more or less ferruginous or testaceous. *Antennæ* and *legs* pale testaceous.

A truly indigenous insect, and apparently extremely rare,—though widely distributed over the sylvan regions of Madeira (especially towards their upper limits), to which it is exclusively confined. It occurs beneath stones and decaying

logs of wood in the dampest spots, and runs with the most prodigious velocity. I have taken it at the edges of the Levada of the Ribeiro Frio in May, at the Cruzinhas and the Fanal during July, and at the Feijãa de Córte early in August.

(Subf. 5. STENIDES.)

Genus 207. STENUS.

Latreille, *Précis des Caract. gén. des Ins.* 77 (1796).

Corpus sat parvum subcylindrico-elongatum, plus minusve dense et rugose punctatum: *capite* prothorace paulo latiore, porrecto, ad basin truncato; *oculis* permagnis rotundatis valde prominentibus: *prothorace* immarginato, plus minusve subcylindrico et postice leviter attenuato: *alis* vel parum amplis vel obsoletis: *abdomine* marginato aut immarginato, modo lineari, modo apicem versus leviter attenuato; segmento sexto in maribus subtus plerumque inciso (necnon etiam segmentis ventralibus interdum vel emarginatis vel impressis), in fœminis integro. *Antennæ* in fronte inter oculos insertæ, graciles clavatæ, articulis primo et secundo leviter robustis, nono, decimo et undecimo distincte incrassatis, clavam elongatam laxam efficientibus. *Labrum* subsemicirculare, margine integro. *Mandibulæ* infra apicem fortiter unidentatæ, valde incurvæ acutæ. *Maxillæ* bilobæ: *lobo externo* corneo, apice membranaceo barbato: *interno* corneo, per marginem internum membranaceo et dense pubescente. *Palpi maxillares* longissimi, articulis tribus baseos elongatis (longitudine paulatim crescentibus), ultimo subtilissimo, vix (oculo etiam fortiter armato) observando: *labiales* articulo primo tenui subarcuato, secundo paulo breviore sed multo crassiore subovato, ultimo tenui subulato. *Mentum* triangulare. *Ligula* biloba, lobis minimis ovatis; *paraglossis* membranaceis rotundato-ampliatis, ligulâ majoribus. *Pedes* elongati graciles, valde cursorii; *coxis anticis* minutis: *tarsis* 5-articulatis, articulis quatuor baseos longitudine decrescentibus (quarto vel integro vel bilobo).

The *Steni* possess so many peculiarities, both externally and in their oral organs, that it is impossible to confound them with the members of any other genus of the *Brachelytra*. Suffice it therefore to remark, that in their closely and roughly punctured bodies (which are more or less cylindrical, and almost invariably black, —any tendency to metallic tints being exceedingly rare, though a few of the species are brightly maculated with yellowish or reddish spots), in their enormously developed and prominent eyes, as well as in their nearly obsolete scutella, slender limbs and clavated antennæ, they offer points of distinction sufficient at once to characterize them. In the details of their trophi, however, they are even better defined still,—their semicircular, untoothed upper lip and triangular mentum, in conjunction with the elongated basal, and almost evanescent terminal, articulation of their (greatly lengthened) maxillary palpi, and the singular structure of their ligula (which is so lightly attached to the mentum that it is apt, whilst the insect is dying, to be protruded, along with the anterior portion of the alimentary canal, to an immense distance in front*), displaying additional features

* This peculiarity of the lower lip of the *Steni* is thus accounted for by Erichson: "Singulariter in

for their identification. The abdomen and penultimate tarsal joint of the various representatives afford an easy clue to their *sectional* distribution,—the former being either margined or simple; whilst the latter is in some cases bilobed, and in others entire. They are insects which reside principally in damp spots,—running with the utmost agility (especially during the hot sunshine), and being often exceedingly numerous under stones and upon wet mud at the edges of ponds and streams. They are widely disseminated over the world, more than 100 species being described by Erichson,—and upwards of 90 having been recorded as European.

§ I. *Abdomen marginatum: tarsi articulo quarto simplice.*

467. Stenus guttula.

S. niger gracilis, crebre et rugose punctatus, parce subænescenti-argenteo-pubescens, prothorace subfusiformi-angusto subinæquali, elytro singulo maculâ mediâ fulvo-testaceâ ornato, palpis pedibusque testaceis, femoribus ad apicem late nigris.

Mas, abdominis segmentis quinto et sexto subtus obsolete sinuatis, illo vix impresso sed in mediâ ipsâ parte impunctato et utrinque pilis sat longis introrsum vergentibus ciliato.

Fœm., abdominis segmento sexto subtus in medio leviter producto rotundato.

Variat palpis et tibiis, præsertim apicem versus, obscurioribus.

Long. corp. lin. 2.

Stenus guttula, Müll. Germ. *Mag.* iv. 225 (1821).
—— *Kirbii*, Curtis, *Brit. Ent.* iv. 164. pl. 164 (1827).
—— *guttula*, Erich. *Gen. et Spec. Staph.* 691 (1839).
—— ——, Heer, *Fna Col. Helv.* i. 214 (1841).

Habitat per margines rivulorum Maderæ, inter lapillos latitans, ubique vulgaris.

S. black, slender, nearly opake, and sparingly clothed (more densely so on the abdomen) with a short yellowish-, or æneous-silvery pubescence. *Head* and *prothorax* closely and roughly punctured; the *former* deeply excavated between the eyes, and with a narrow central keel behind,—and with the *palpi* either entirely pale testaceous, or else with the extreme apex of the third joint, and the greater portion of the fourth infuscated; the *latter* narrow and somewhat fusiform (being widest about the middle), and rather uneven. *Elytra* as closely and coarsely punctured as the head and prothorax, and with a large rounded spot immediately within the middle of each bright fulvo-testaceous. *Antennæ* with the intermediate joints more or less piceous. *Legs* testaceous,—with the *coxæ* entirely, and the *femora at their apex* broadly, black (and occasionally with the tibiæ, especially towards their extremities, and the tarsi infuscated or picescent).

Male, with the *fifth* and *sixth* segments of the *abdomen beneath* most obsoletely sinuated (or subemarginate); the *former* scarcely impressed, but with a small central apical portion unpunctured,

---

hoc genere ligula levissime mento affixa est, quo fit, ut agone mortis vi anteperistalticâ œsophagus cum ligulâ, paraglossis palpisque labialibus prolabitur et promuscidis porrectæ speciem præ se ferat."

and fringed on either side with a longitudinal row of fulvescent hairs,—which become gradually longer, and more and more convergent, from the base.

Female, with the *abdomen beneath* free from additional longer pile, but with the *sixth* segment slightly produced and rounded at its apex.

The slender form, and the bright orange spot on each of the elytra of the present species will at once distinguish it from the other *Steni* here described. It is a common European insect, and universal throughout the intermediate altitudes of Madeira,—occurring beneath stones and shingle at the margins of the streams, as well as amongst wet mud on the moist ledges of the rocks. I have taken it in the Ribeiro de Santa Luzia and at the Curral das Romeiras (above Funchal), during the autumn and spring; and, in August of 1850, at the Feijãa de Córte.

468. Stenus providus.

S. niger robustus, creberrime et rugose punctatus, parcissime subargenteo-pubescens, prothorace obovato in disco canaliculato, palpis pedibusque testaceis, femoribus ad apicem late, tibiis (vel omnino vel ad basin solam) tarsisque obscurioribus.

Mas, pectore impresso, densius longiusque subfulvescenti-pubescente; abdominis segmentis quinque baseos subtus longitudinaliter leviter impressis (impressione densius pubescente sed postice glabrâ politissimâ impunctatâ, ad latera a segmento secundo pilis paulatim longioribus introrsum vergentibus ciliatâ, necnon in segmento quinto carinâ denticuliformi utrinque terminatâ), segmento quinto inter denticulos acutos late emarginato, sexto profunde subtriangulariter exciso: femoribus posterioribus subincrassatis, posticis intus longius pubescentibus.

Fœm., pectore vix impresso; abdominis segmento sexto subtus producto rotundato, sed ad apicem ipsum summum minutissime emarginato: femoribus posticis haud densius pubescentibus.

Long. corp. lin. 2–2½.

Stenus providus, Erich. *Käf. der Mark Brand.* i. 546 (1837).
—— ———, Erich. *Gen. et Spec. Staph.* 707 (1839).
—— ———, Heer, *Fna Col. Helv.* i. 217 (1841).
—— ———, Redt. *Fna Austr.* 726 (1849).

Habitat Maderam, in locis similibus ac præcedens, sed illo rarior.

S. black, robust, nearly opake, and almost free from pubescence above, except on the abdomen (where it is sparingly besprinkled with short and somewhat silvery pile). *Head* and *prothoraæ* very closely and roughly punctured; the *former* slightly excavated, and deeply bisulcate, between the eyes,—and with the *palpi* pale testaceous; the *latter* obovate (being widest before the middle), and with a tolerably apparent channel in the centre of its disk (which has a tendency to be evanescent both behind and in front). *Elytra* as closely and coarsely punctured as the head and prothorax. *Antennæ* nearly black, the intermediate joints having scarcely any tendency to be picescent. *Legs* diluted-testaceous,—with the *coxæ* and *trochanters* black, and with the *femora at their apex* broadly and distinctly (and sometimes the *tibiæ*, especially towards their extremity, and the *tarsi*, more obscurely) darkened.

Male, with the *breast beneath* (between the intermediate and posterior legs) widely impressed, and more densely clothed with longer and somewhat fulvescent pile. With the *abdomen beneath* longitudinally impressed throughout the *basal five* segments, though only lightly so on the ventral ones (the impression densely clothed with fulvescent pile except towards the apex, where it is glabrous, highly polished and unpunctured; fringed on either side with long fulvescent hairs,—which become gradually longer, and more and more inwardly convergent, from about the second segment; and with its edges raised into a keel on either side of the hinder portion of the *fifth* segment, and abruptly terminated posteriorly in the form of two prominent teeth); with the *fifth* segment obliquely scooped out between the lateral keels, and also emarginated; and with the *sixth* segment deeply notched (subtriangularly) in its centre. With the *four hinder femora* slightly incrassated,—the *posterior pair* having their under edge clothed with denser and longer pubescence.

Female, with the *breast beneath* much less deeply impressed, and without any additional pile. With the *abdomen beneath* unimpressed; the *fifth* segment being simple, and the *sixth* rounded and produced,—though with its extreme apex minutely notched. And with the *four hinder femora* not at all more incrassated, nor the *posterior pair* more densely pubescent, than the rest.

Apart from the male distinctions, which will be gathered from the above diagnosis, the present *Stenus* may be immediately recognised from its few Madeiran allies by its large and robust form, and by its deeply and rugosely punctured (and comparatively unpubescent) surface. It is tolerably common throughout the intermediate altitudes of the island, occurring in much the same localities as the *S. guttula*,—though more frequently perhaps on the damp and muddy ledges of the rocks (in the vicinity of the small streams and waterfalls) than by the margins of the larger rivers. I have taken it both at Santa Anna and in the Ribeiro de Santa Luzia in sufficient abundance, during the spring and summer months. It is found in most parts of central Europe (England, France, Germany, Switzerland, Austria, &c.),—often in company with the *S. speculator** of Erichson, to which it is very closely allied.

469. Stenus undulatus, *Woll.*

S. niger nitidus, parce et leviter punctatus, dense subfulvescenti-pubescens, capite magno, prothorace obovato valde inæquali et leviter canaliculato, elytris valde undulato-inæqualibus, palpis, antennis pedibusque testaceis, femoribus ad apicem late obscurioribus.

Mas, abdominis segmentis quinto et sexto subtus obsolete sinuatis, illo in medio late sed leviter

---

* The *S. providus* may however be recognised from the *S. speculator*, not only by the abdomen of its males (which has the sixth segment more deeply and acutely notched, and the longitudinal impression, instead of being confined to the fifth, traceable throughout the basal *five*), and by the *two* hinder femora only, instead of four (of that sex), being densely pubescent; but likewise by its forehead being a little more excavated, its prothorax more evidently channeled on the disk, and by its antennæ being more decidedly black and its legs of an altogether obscurer hue. In the northern type moreover the palpi of the *S. providus* are almost invariably infuscated at their extremity (whilst those of the *S. speculator* are immaculate): but this distinction does not appear to hold good in the Madeiran specimens, which have their palpi generally entirely pale.

impresso (impressione impunctatâ politissimâ, necnon ad latera pilis paulatim valde elongatis introrsum vergentibus ciliatâ).

Fœm., abdominis segmento sexto subtus leviter producto rotundato.

Long. corp. lin. $1\frac{7}{8}$.

Habitat in Maderâ sylvaticâ excelsâ, rarissimus: per marginem rivuli cujusdam parvi ad Cruzinhas (circa 5000′ s. m.) mense Julio A.D. 1850 sub foliis arborum dejectis duo specimina inveni.

S. black, shining, and comparatively densely clothed with long and fulvescent pile. *Head* and *prothorax* remotely and finely punctured; the *former* large, excavated and bisulcate between the eyes (the intermediate ridge being raised behind into a keel),—and with the palpi testaceous; the *latter* obovate, exceedingly uneven, and obsoletely channeled posteriorly. *Elytra* as lightly and distantly punctured as the prothorax; and, likewise, exceedingly undulating or uneven. *Antennæ* and *legs* diluted-testaceous; the *former* just perceptibly dusky towards their extremity; the *latter* with their *coxæ* dark piceous, and with their *femora at the apex* broadly (though very slightly) infuscated.

Male, with the *fifth* and *sixth* segments of the *abdomen beneath* obsoletely sinuated (or subemarginate); the *former* broadly, but very lightly, impressed (the impression glabrous, highly polished and unpunctured; and fringed on either side with a longitudinal row of very long, stiff and darkly-fulvescent hairs,—which become gradually longer, and more and more inwardly convergent, from the base).

Female, with the *abdomen beneath* free from additional longer pile, but with the *sixth* segment slightly produced and rounded at its apex.

A most peculiar and distinct species,—its shining, extremely uneven, and comparatively lightly and remotely punctured surface, in conjunction with its large head, and the long and somewhat fulvescent pile with which it is clothed, giving it a character which it is impossible to mistake. It is apparently one of the rarest of the Madeiran Coleoptera, and confined to the upper limits of the sylvan districts,—the only two specimens which I have seen having been captured by myself, from under moist decaying leaves, at the edges of a minute trickling stream in the lofty region of the Cruzinhas (about 5000 feet above the sea), during July of 1850. It is an insect of a very peculiar appearance,—being rather suggestive at first sight of a larva of one of the smaller *Forficulæ*.

§ II. *Abdomen immarginatum: tarsi articulo quarto bilobo.*

470. Stenus Heeri, *Woll.*

S. niger subcylindricus, creberrime et sat rugose punctatus, densius fulvo-pubescens, prothorace obovato vix inæquali, elytris brevibus, antennarum et palporum basi pedibusque piceo-testaceis.

Mas, abdomine simplice (aut potius segmento sexto subtus obsoletissime subsinuato).

Fœm., abdominis segmento sexto subtus leviter producto rotundato.

Var. β. vix major, antennis, palpis pedibusque paulo longioribus et pallidioribus.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Habitat per Maderæ partem sylvaticam, præsertim inter 3000′ et 5000′ s.m., æstate rarior: in regione Fanalensi prædominat, quâ mense Julio A.D. 1850 plurima specimina cepi.

Stenus valde distinctus, et in honorem amici cl. Heer, qui in Helvetiâ per tot annos Entomologiæ scientiam ornavit, citatus.

S. black, subcylindrical, nearly opake, and densely clothed with a fulvescent pubescence (which is both denser and of a yellower tint than that of the *S. undulatus*). *Head* and *prothorax* very closely and sufficiently roughly punctured; the *former* excavated and bisulcate between the eyes (the intermediate ridge being raised behind into a keel),—and with the *palpi* dull testaceous at their base, but obscured towards their apex; the *latter* obovate, very slightly uneven, and with most obscure indications of an obsolete channel in front. *Elytra* exceedingly short, and about as roughly and closely punctured as the head and prothorax. *Abdomen* subconical, and unmargined. *Antennæ at base*, and the *legs*, more or less brightly piceo-testaceous; the *former* dusky at their extremity; the *latter* with the *extreme* apices of the *femora* usually darkened. *Tarsi* with the fourth joint bilobed.

Male, with the *abdomen beneath* simple, having neither additional pile nor any of the segments notched,—though the faintest possible tendency to be apically sinuated is just traceable in the *sixth*.

Female, with the *abdomen* similar to that of the male, except that the *sixth* segment is slightly produced and rounded at its apex.

Var. β. rather larger; and with the antennæ, palpi and legs proportionably a little longer, and of an altogether paler hue.

The smallest of the Madeiran *Steni*, and (apart from its unmargined abdomen and the bilobed penultimate joint of its tarsi, which remove it into an altogether different *section*) it may be at once recognised by its exceedingly abbreviated elytra, and by the *fulvous* pubescence with which it is densely clad. Like the *S. undulatus*, it is a remarkably indigenous insect, and principally attached to the upper portion of the sylvan regions,—where however it would appear to be local, if not indeed actually scarce. I have taken it beneath moist leaves, and at the edges of the minute streams, at the Cruzinhas and Fanal (more than 5000 feet above the sea), during July; and at the Feijãa de Córte, in August. The *var.* β. I have captured, likewise, at the Cruzinhas; as also, from amongst wet fern, at the Lombo dos Pecegueiros.

(Subf. 6. OXYTELIDES.)

Genus 208. PLATYSTHETUS.

Mannerheim, *Brachel.* 46 (1831).

Corpus parvum, suboblongo-lineare, subdepressum et fere glabrum: *capite* porrecto, prothoraci immisso (in maribus paulo majore necnon antice sæpe bispinoso); *oculis* sat parvis, rotundatis: *prothorace* transverso, basi rotundato, in medio profunde canaliculato: *elytris* apice dehiscentibus: *alis* amplis (interdum amplissimis): *abdomine* marginato, sursum reflectendo, subtus secundum sexum diverso. *Antennæ* sub frontis margine laterali insertæ, subrefractæ, apicem versus sensim

incrassatæ, articulo primo elongato robusto, ultimo suboblongo. *Labrum* transverso-subquadratum, laciniâ membraneâ triangulari acuminatâ utrinque (ad angulos anticos) auctum. *Mandibulæ* validæ acutæ, longe infra apicem bidentatæ, in medio membranâ ciliatâ instructæ. *Maxillæ* bilobæ membranaceæ: *lobo externo* longiusculo subrecto, apice dense barbato: *interno* breviore, intus ciliato. *Palpi maxillares* breviusculi, articulo primo minuto, secundo et tertio subæqualibus apice leviter incrassatis, ultimo minore subulato: *labiales* articulo secundo breviusculo, ultimo vix subuliformi. *Mentum* transversum. *Ligula* lata, apice leviter bisinuata; *paraglossis* ad apicem liberis acutis, intus dense ciliatis. *Pedes* breves validi (*intermedii* distantes): *tibiis* (sed præsertim *anterioribus*) extus spinulosis; *anticis* ad apicem externum emarginatis: *tarsis* 3-articulatis, articulo ultimo reliquis conjunctis multo longiore.

The almost glabrous bodies of the *Platystheti*, in conjunction with their apically-subdehiscent elytra, their spinulose, burrowing tibiæ, triarticulated feet, and the deep central channel of their (posteriorly rounded) prothorax, will at once serve to distinguish them, apart from the obscurer characters of their oral organs (which will be best understood by a reference to the above diagnosis), from their allies. In addition to the structure of their abdominal segments, the males may be usually known from the females by their rather larger heads,—which in many of the species moreover have their anterior margin armed on either side with an acute porrected tooth. They are insects which are found both in the excrement of cattle and on mud at the edges of stagnant pools. I have generally, however, observed them to be more partial to the latter situations than to the former: and I have occasionally met with the *P. cornutus*, of our own country, by myriads in the crevices formed by the heat of the sun on the beds of partially-dried ponds.

§ I. *Mandibulæ ad apicem integræ.*

471. Platysthetus spinosus.

P. niger nitidus leviter punctatus, fronte vix canaliculatâ, tibiis piceo-ferrugineis, tarsis pallido-testaceis.

Mas in insulis Maderensibus adhuc latet (sed differt, sec. cl. Erichson, abdominis segmento septimo subtus truncato necnon ad apicem denticulis duobus distantibus munito).

Fœm., capite prothoracis vix latitudine; abdominis segmento septimo subtus subtriangulariter producto, ad apicem rotundato integro.

Long. corp. lin. $2\frac{1}{2}$.

Platysthetus spinosus, Erich. *Gen. et Spec. Staph.* 784 (1839).

Habitat in arenosis Portûs Sancti, sub lapide prope oppidum Decembri mense A.D. 1848 a meipso repertus.

P. black, and shining. *Head* sparingly punctured in front, but more closely and deeply so (within the raised lateral margin of the forehead) towards either side; with a deep rounded fovea on each side of its posterior disk, immediately behind which there is an irregularly curved, or more or

less angulated, impressed line,—the basal segment which it encloses being about two-thirds of the entire breadth of the head; with scarcely any indication of the abbreviated central channel (though with a slight triangular fovea) which in nearly all the described species arises from the medial (or apical) angle of this basal line: the *forehead* with its extreme lateral edges much straightened and elevated (forming a longitudinal ridge above the eyes), with a groove immediately alongside them, and with very faint indications of two irregular furrows on either side within; and with its anterior angles (beneath which the antennæ are inserted) enlarged, somewhat inflated or prominent, and obtuse. *Prothorax* with the sides and base greatly rounded; rather more densely, but not quite so coarsely, punctured as the head; and with a much larger puncture (or rounded fovea) on either side of the centre of its anterior margin. *Elytra* a little less shining, and rather more finely punctured, than the prothorax, with a slight tendency to be diluted in colouring behind; and with a finely impressed and curved sutural line on each*. *Antennæ* and *femora* almost black; *tibiæ* piceo-ferruginous; *tarsi* pale testaceous.

Male not yet detected in the Madeira Islands (but differing, according to Erichson, from the female in the *seventh* segment of its *abdomen beneath* being truncated, instead of produced, and armed at the apex with two distant teeth).

Female, with the *head* scarcely narrower than the anterior portion of the prothorax; and with the *seventh* segment of the *abdomen beneath* somewhat triangularly produced,—though rounded and entire at its apex.

Although the single specimen from which the above diagnosis has been drawn out is larger than the size given by Erichson for the species with which I have identified it, I have but little doubt that it is correctly referred to the *P. spinosus*, —an insect which is recorded both in Portugal and France, and with the description of which it in other respects perfectly agrees. It is apparently extremely local (if not indeed scarce),—my unique example having been captured by myself at the edges of a sandy road in the immediate vicinity of the Cidáde of Porto Santo, during December of 1848. It was taken, whilst burrowing into the soil, from beneath a stone; and in all probability it would be found in abundance if that particular district (which produced many other rarities, amongst which the only individual hitherto detected of the *Syncalypta horrida* should be especially noticed) were properly searched.

§ II. *Mandibulæ ad apicem ipsum fissæ.*

472. Platysthetus fossor, *Woll.*

P. niger nitidus parce sed profunde punctatus, fronte postice leviter canaliculatâ, elytris interdum testaceo-picescentibus, tibiis tarsisque pallido-testaceis.

Mas, capite prothorace vix latiore, longe infra marginem lateralem sulcis duobus longitudinalibus

---

* I have gone thus minutely into the sculpture of the upper surface of the *P. spinosus*, because it is the same which obtains (subjected to minor modifications for the various species) throughout the *Platystheti* generally,—and is therefore the more important to be noticed.

subcurvatis utrinque impresso, necnon per marginem anticum spinis duobus porrectis acutis armato: abdominis segmento sexto subtus obsolete emarginato; septimo in medio late sed leviter impresso (impressione scutiformi ad basin emarginato-truncatâ, glabrâ politissimâ, posterius ad latera carinâ utrinque terminatâ), postice inter carinas emarginato, necnon inter carinas et latera utrinque bi-inciso (aut potius in dentem obliquum obtusum parvum producto).

Fœm., capite prothoracis vix latitudine, sulcis infra marginem lateralem obsoletis, et per marginem anticum inarmato: abdominis segmento sexto subtus truncato, sed in mediâ parte posticâ obsolete subtriangulariter elevato; septimo producto rotundato.

Variat elytris pedibusque omnino testaceis, antennarum basi ferrugineâ.

Long. corp. lin. 1–1¼.

Habitat Maderam borealem, rarior: per marginem rivuli cujusdam parvi ad Sanctam Annam (humi lutoso apricitate cursitantia) mense Julio A.D. 1850 plurima specimina collegi.

P. minute, black, and exceedingly shining. *Head* about as sparingly punctured as in the last species, but with an abbreviated and distinct (though very narrow and lightly impressed) channel arising from the medial angle of the basal transverse line, and extending to about the centre of the disk: the *forehead* with its extreme lateral edges much the same as in that insect, but with the two irregular inner furrows (on either side) obsolete in the female sex, though very deep and exceedingly well-defined in the males. *Prothorax* the same as in the *P. spinosus*, but more coarsely and remotely punctured and rather more shining. *Elytra*, likewise, a little more distantly and deeply punctured than is the case in that species, and usually more diluted in colouring,—having generally more or less of a piceo-testaceous tinge (and in pale, or immature specimens being often altogether lurid-testaceous). *Antennæ* and *femora* piceous-black; *tibiæ* and *tarsi* pale-testaceous. (In the lighter varieties the entire legs are testaceous, and the base of the antennæ is ferruginous.)

Male, with the *head* a little wider than the anterior portion of the prothorax, and with its front margin (between the antennæ) armed with two porrected (though rather outwardly curved) and exceedingly acute spines. The *abdomen beneath* with the *sixth* segment obsoletely emarginated; and with the *seventh* widely but lightly impressed in the centre (the impression shield-shaped, being pointed at one end, but truncated and emarginated at the other; glabrous and highly polished, and with its edges raised on either side posteriorly into an oblique keel), emarginated behind between the keels, and somewhat jagged (or twice incised) between either keel and edge, —or, more strictly perhaps, produced into a small oblique and obtuse tooth outside each of the carinæ.

Female, with the *head* scarcely narrower than the anterior portion of the prothorax, and with its front margin unarmed. The *abdomen beneath* with the *sixth* segment truncated, but somewhat triangularly elevated in its central region,—especially behind (where the apex of the triangle is quite perceptible, though it does not project beyond the edge); and with the *seventh* produced and rounded.

In size, sculpture, general contour, and colouring the present little *Platysthetus* very much resembles the *P. nodifrons*,—with which indeed, until I had subjected it to a critical examination, I had supposed it to be identical. Apart from minor distinctions, however, it may be at once recognised from that species, not only by

the armed heads of its males (which have a long and acute spine on either side of their anterior margin), but likewise by the structure of the abdominal segments of *both* sexes. From the *P. spinosus* it not merely recedes in its diminutive bulk, brighter and more deeply (though sparingly) punctured surface, and in the different hue of its elytra and legs, but also in its perceptible (though abbreviated) frontal canal, and in the modification of the under side of its abdomen,—which displays abundant points of dissimilarity from what has been already pointed out as characteristic of that insect, and amongst which the somewhat triangularly elevated central region of the sixth segment of the females, and the bicarinated seventh one of the males, should be especially remarked. Like the *P. spinosus*, it is apparently extremely local,—but, so far as I have hitherto observed, it is confined to Madeira proper. The only spot in fact in which I have taken it is at Santa Anna, in the north of the island,—where, during the summer of 1850, I captured a large series of specimens from amongst wet mud at the edges of a small stream which finds its way across the road leading down to the sea from the Quinta of Senhor Louiz Acciaioly.

Genus 209. OXYTELUS.

Gravenhorst, *Col. Micropt.* 101 (1802).

Corpus parvum, elongato-lineare, depressum et fere glabrum: *capite* porrecto, prothorace immisso (in maribus sæpius paulo majore); *oculis* vel mediocribus vel parvis, subovalibus, plerumque prominulis: *prothorace* transverso, basi subrotundato, in dorso sæpius longitudinaliter trisulcato, ad latera interdum crenulato, sed sæpius integro: *alis* amplis: *abdomine* lineari marginato, sursum reflectendo, subtus secundum sexum diverso. *Antennæ, instrumenta cibaria* et *pedes* fere ut in Platystheto, sed *palporum labialium articulus secundus* longior; *paraglossæ* liberæ; et *tarsorum articulus ultimus* minus elongatus.

The *Oxyteli* are in most points of their structure nearly identical with the *Platystheti*: nevertheless they may be recognised from them by their usually more opake and minutely strigulose surfaces, by their somewhat flatter bodies, and by their prothorax being almost invariably *trisulcated* down its disk,—the central groove of which is straight (being in fact the ordinary dorsal channel), whilst the one on either side is more or less curved, sinuated, and distinct, according to the successive modifications which the several members of the group display. They are insects which are widely distributed over the world,—17 species having been recorded as European, whilst others are enumerated from North and South America, India, Madagascar and the Cape of Good Hope. They are of a burrowing nature, and for the most part of stercoraceous habits (though a few are occasionally to be met with on wet mud in marshy spots),—being principally moreover exceedingly gregarious, and consequently appearing oftentimes to be more abundant specifically than they really are.

§ I. *Prothorax ad latera integerrimus.*

473. Oxytelus piceus.

♂. niger subnitidus, capite prothoraceque sat profunde inæqualiter punctatis (hujus angulis posticis obtusis), elytris longitudinaliter leviter strigulosis testaceis (regione scutellari nigrescente), antennis breviusculis ad basin diluto-testaceis, pedibus testaceis.

Mas, capite prothorace paulo latiore, subrotundato (clypeo antice ampliato): abdominis segmento sexto subtus apice bisinuato (lobo intermedio paulo longiore crassiore leviter elevato, ad apicem subemarginato-truncato); septimo profunde bi-inciso (lobis lateralibus acuminatis, intermedio paulo breviore subquadrato, ad apicem in medio obsolete acuto).

Fœm., capite prothorace paulo angustiore, subtriangulari: abdominis segmento sexto subtus apice truncato; septimo apice leviter bisinuato (lobo intermedio rotundato-triangulari, ad basin lato).

Long. corp. lin. 2–2¼.

Staphylinus piceus, Linn. *Syst. Nat.* i. ii. 686 (1767).
———— ——, Fab. *Syst. Ent.* 267 (1775).
Oxytelus piceus, Erich. *Gen. et Spec. Staph.* 788 (1839).
———— ——, Heer, *Fna Col. Helv.* i. 204 (1841).

Habitat in stercore bovino Maderæ, et borealis et australis, præsertim in locis subinferioribus, toto anno frequens: in Portu Sancto quoque occurrit.

♂. black, and slightly shining. *Head* and *prothorax* rather deeply and unequally punctured (the punctures being composed of large ones, and minute ones between): the *former* with a very abbreviated central channel behind; with its extreme lateral edges (over the eyes) sinuated, but not raised, its anterior angles (beneath which, as is universally the case in the *Oxytelides*, the antennæ are inserted) elevated and enlarged (although obtuse), and piceo-testaceous; and with the region of its clypeus depressed, less punctured, and with its front margin raised: the *latter* with its hinder angles obtuse; trisulcated down the disk (the outer grooves being slightly flexuose, and somewhat obsolete anteriorly); and widely (though not very deeply) impressed towards either side. *Elytra* testaceous, with the scutellary region usually black; and lightly longitudinally-strigulose. *Antennæ* shorter than the head and prothorax (their second joint being a little longer than the third), fuscous, with their basal four joints pale piceo-testaceous. *Legs* pale testaceous.

Male, with the *head* larger and rounder than the female (being a little wider than the anterior portion of the prothorax), and with its clypeus somewhat enlarged in front,—projecting a little beyond the fore-margin of the forehead. The *abdomen beneath* with the *sixth* segment bisinuated at its apex (the intermediate lobe being rather long, thickened, a little elevated, and subemarginate-truncated at its termination); and with the *seventh* very deeply incised on either side (the lateral lobes, thus formed, being acuminated; and the intermediate one a little shorter, squarish, and truncated at its apex,—though just perceptibly pointed in the centre).

Female, with the head a little narrower, and more triangular. The *abdomen beneath* with the *sixth* segment truncated; and with the *seventh* slightly bisinuated at its apex (the intermediate portion being of an obtuse, or rounded-triangular, form; and very wide at its base).

A common insect both in the north and south of Madeira, as well as in Porto

Santo, at rather low elevations,—occurring in the dung of cattle, at all seasons of the year. In the neighbourhoods of Funchal and Santa Anna it is at times exceedingly abundant. It is universal throughout Europe, and is recorded also from Syria. It may be at once known from the other *Oxyteli* with which we are here concerned by the largely-developed head and clypeus of its male sex, and by its pale testaceous elytra.

474. Oxytelus sculptus.

O. niger subnitidus, capite prothoraceque minus profunde inæqualiter punctatis (hujus angulis posticis acutiusculis), elytris longitudinaliter strigulosis fusco-piceis, antennis longiusculis ad basin piceo-ferrugineis, pedibus testaceis.

Mas, abdominis segmento septimo subtus profunde bi-inciso (lobo intermedio lateralibus æquali, ad apicem emarginato).

Fœm., abdominis segmento septimo subtus apice leviter bisinuato (lobo intermedio triangulari).

Long. corp. lin. 2.

Oxytelus sculptus, Grav. *Mon.* 191 (1806).
——— *longicornis*, Mann. *Brachel.* 48 (1831).
——— *sculptus*, Erich. *Gen. et Spec. Staph.* 788 (1839).
——— ———, Heer, *Fna Col. Helv.* i. 205 (1841).

Habitat Maderam, præsertim in lutosis per margines aquarum, rarior.

O. very similar to the *O. piceus*, but just perceptibly smaller: with its *head* and *prothorax* rather more densely and not quite so deeply punctured, and with a tendency to be a little more roughened (or minutely strigulose) in parts; the *former* being narrower than the prothorax in both sexes, with its central channel a little less abbreviated, and with the front margin of its clypeus somewhat more rounded and deflexed; the *latter* with its sides posteriorly just appreciably straighter (and therefore with the hinder angles a little more defined, or acute), and frequently picescent on its disk. *Elytra* rather more coarsely longitudinally-strigulose, and of a darker hue, than in that insect,—being usually chestnut, or brownish-piceous, and with only a slight testaceous tinge. *Antennæ* distinctly longer than the head and prothorax (their second joint being subequal to, or perhaps a little shorter than, the third), darker than those of the *O. piceus*,—being brownish-black, with the basal three joints piceo-ferruginous. *Legs* testaceous.

Male, with the *seventh* segment of the *abdomen beneath* deeply incised on either side (the intermediate lobe being equal to the lateral ones, and emarginated at its apex).

Female, with the *seventh* segment of the *abdomen beneath* slightly sinuated at its apex (the intermediate portion being less obtuse, or more triangular, than in the *O. piceus*, and not so wide at its base).

The above comparative diagnosis will fully explain the differences between the present insect and the last one,—the longer antennæ however of the *O. sculptus*, in conjunction with its darker elytra and the less-developed heads of its male sex, being sufficient even alone to separate it from its ally. Although, likewise, of stercoraceous habits, it is upon the whole less exclusively so than the *O. piceus*,

being often found amongst wet mud and decaying vegetable refuse at the edges of ponds and streams. I have taken it in the neighbourhood of Funchal, during the spring; and at Santa Anna, in July,—though in the latter locality only at the margin of a small rivulet on the descent from the Quinta of Senhor Louiz Acciaioly to the sea. It occurs throughout the whole of Europe, and is mentioned by Erichson as having been brought from Egypt and South America.

475. Oxytelus complanatus.

O. niger subopacus, capite, prothorace elytrisque creberrime longitudinaliter strigulosis, his interdum obscure fuscescentibus, pedibus diluto-testaceis.

Mas, capite prothoracis latitudine: abdominis segmento sexto subtus ad apicem obsolete trisinuato, necnon apicem versus parte mediâ transversâ crassiore elevatâ clypeiformi postice emarginatâ (quasi e tuberculis duobus magnis basi confluentibus formatâ) aucto; septimo late emarginato.

Fœm., capite prothorace angustiore: abdominis segmento sexto subtus truncato; septimo in medio triangulariter producto.

Long. corp. lin. $1\frac{1}{3}$–$1\frac{1}{2}$.

Oxytelus depressus, Gyll. (nec Grav. 1802) *Ins. Suec.* ii. 457 (1810).
——— *complanatus*, Erich. *Käf. der Mark Brand.* i. 595 (1837).
——— ———, Heer, *Fna Col. Helv.* i. 206 (1841).
——— ———, Redt. *Fna Austr.* 738 (1849).

Habitat Maderam, ab orâ maritimâ usque ad summos montes ascendens: in ipsâ urbe Funchalensi abundat, quâ tempore sereno per aërem volare sæpissime videatur.

O. black, and greatly depressed. *Head, prothorax* and *elytra* nearly opake, and most densely and minutely longitudinally-strigulose: the *first* with an indistinct and very abbreviated central channel (or fovea) behind, and also with obscure indications of lightly impressed punctures on its posterior portion; with its extreme edges slightly raised (except quite in front), straightened over the eyes, but regularly rounded off (the anterior angles being scarcely at all defined, and hardly even elevated) into the region of the clypeus (which is a little depressed): the *second* with its angles rather more defined, or acute, than in the other species; trisulcated down the disk (the central groove being narrowed behind, and the outer ones flexuose); and both widely and deeply impressed towards either side: the *last* of a rather less intense black than the head and prothorax,—being usually somewhat brownish or picescent posteriorly. *Antennæ* considerably shorter than the head and prothorax, black. *Legs* testaceous,—the *femora* being sometimes obscurely infuscated.

Male, with the *head* about as wide as the anterior region of the prothorax. The *abdomen beneath* with the *sixth* segment minutely waved, or trisinuated, at its termination, and increased behind the apex (in the centre) by a transverse, thickened, elevated, clypeiform, but apically emarginated, portion (as though produced by two large tubercles,—confluent, and conjointly elevated, at their base); and with the *seventh* widely emarginated.

Female, with the head a little narrower than the prothorax. The *abdomen beneath* with the *sixth* segment truncated; and with the *seventh* somewhat triangularly produced in the centre.

Throughout all the Madeiran Coleoptera there is perhaps no insect so abundant or universal as the *O. complanatus*,—which, although scarcer in the mountain districts, does nevertheless ascend to the summits of the peaks, whilst in the lowest elevations it literally teems. In the neighbourhood of Funchal it is to be met with everywhere, though its head-quarters may be said to be upon the beach, or amongst vegetable refuse in the immediate vicinity; and it may be frequently captured on the wing, both in the town itself and in the gardens and vineyards which surround it. In the north of the island it is not quite so common, though at times sufficiently numerous at São Vincente and Santa Anna; and during July of 1850 I observed it in profusion throughout the upland Serras bordering on the Cruzinhas,—5000 feet above the sea. It may be easily recognised by its greatly flattened, opake, and densely strigulose surface, by its elytra being scarcely more diluted in hue than the rest of the body (at least this is the case with the Madeiran specimens, which are rather darker in this region than the ordinary ones), and by its anteriorly-rounded and altogether more even forehead. It occurs in most parts of central and southern Europe, but appears to be rarer than many of the allied members of the genus.

476. Oxytelus nitidulus.

O. angustiusculus niger nitidulus, capite prothoraceque profunde sed parcius subruguloso-punctatis (illo pone clypeum fortiter transversim foveolato), elytris longitudinaliter strigulosis testaceo-piceis, pedibus testaceis, abdomine in utroque sexu fere simplice.

Long. corp. lin. 1–1¼.

Staphylinus piceus, Schrank (nec Linn. 1767), *Enum. Ins. Austr.* 236 (1781).
Oxytelus nitidulus, Grav. *Col. Micropt.* 107 (1802).
——— ———, Erich. *Gen. et Spec. Staph.* 795 (1839).
——— ———, Heer, *Fna Col. Helv.* i. 206 (1841).

Habitat Maderam Portumque Sanctum, præsertim in locis subinferioribus, hinc inde minus frequens.

O. small, rather narrow, black, and a little more shining than any of the preceding species. *Head* and *prothorax* deeply but rather sparingly punctured, and slightly longitudinally-strigulose: the *former* (which is a little larger in the males than in the females) with a very indistinct and abbreviated central impressed line behind; with its extreme edges slightly raised, straightened over the eyes, but the anterior angles a little better defined, and the front margin somewhat more truncated, than is the case with the *O. complanatus*; with a deep transverse fovea immediately behind (and of the same width as) the clypeus,—which is consequently raised at the base (though deflexed in front): the *latter* trisulcated down the disk (the outer grooves being slightly flexuose, but indistinct); and widely impressed towards its sides. *Elytra* varying from testaceo-piceous into nearly black; and longitudinally-strigulose. *Abdomen* almost simple in both sexes. *Antennæ* considerably shorter than the head and prothorax, black. *Legs* diluted-testaceous.

A common European *Oxytelus*,—and recorded by Erichson from Egypt, South America and Mexico. It does not seem to be very abundant in these islands,

though occurring (especially at low elevations towards the coast) both in Madeira and Porto Santo. It is an exceedingly well-marked species,—its small size and somewhat narrow outline, in conjunction with its coarsely punctured head and prothorax (the former of which has a deep transverse fovea between the eyes, thus causing the clypeus to appear elevated behind), and its rather more shining surface than is usually the case amongst the members of the present genus, being sufficient, apart from minor distinctions, at once to characterize it.

§ II. *Prothorax ad latera minutissime inæqualis, sed vix subcrenulatus.*

477. Oxytelus glareosus, *Woll.*

O. angustus fuscus opacus, capite piceo dense ruguloso, prothorace brevi fusco-ferrugineo (sulcis dorsalibus obsoletis) elytrisque dense substriguloso-rugulosis, antennis longiusculis infuscato-ferrugineis, pedibus pallido-testaceis.

Mas, capite prothoracis latitudine: abdominis segmento sexto apice truncato, septimo late emarginato.

Fœm. adhuc latet.

Long. corp. lin. 1.

Habitat in Maderâ australi, semel tantum (a meipso in horto Loweano prope Funchal tempore vernali A.D. 1848) repertus.

O. minute, exceedingly narrow, fuscous, and opake. *Head, prothorax* and *elytra* coarsely and densely roughened (the *last* however having alone much tendency to longitudinal strigulation): the *first* oblong and piceous; with a very indistinct central impressed line behind; with its extreme edges minutely raised, deeply sinuated over the eyes (which, although small, are consequently a good deal exposed,—and which, in my single example, are brownish-ferruginous), and the front margin (though rounded) a little more produced than in any of the preceding species; the region of the clypeus depressed (in a curved, and rather a sudden and regular, manner behind): the *second* short and transverse, brownish-ferruginous, with its discal sulci almost obsolete, and with its extreme lateral margins just perceptibly roughened, though scarcely subcrenulated: the *last* of a rather duller hue than the prothorax, but not so dark as the head,—being somewhat fuscous. *Abdomen* pale fuscous, with the hinder margin of each segment somewhat diluted in colouring. *Antennæ* distinctly longer than the head and prothorax (their basal joint being elongated, and subclavate at its apex), brownish-ferruginous, with their base (and the *palpi*) a little paler. *Legs* pale testaceous.

Male (?) with the head about as wide as the anterior portion of the prothorax. The *abdomen beneath* with the *sixth* segment truncated, and with the *seventh* broadly emarginated.

Female (?) as yet undetected.

The unique specimen from which the above description has been compiled presents so many points of discrepancy from the other *Oxyteli* here described, that there is but little fear of confounding it with any of them. Apart from its minute size and narrow outline, and the slightly jagged (or subcrenulated) edges of its

prothorax, it may be immediately recognised by its densely and coarsely roughened (though not very distinctly strigulose) and perfectly opake upper surface, by its oblong head, small eyes, lengthened antennæ, and by its light and rusty hue. Its colour indeed (unless my single example be immature,—which however, even if such is the case, would hardly account entirely for its peculiarity in this respect) is very remarkable,—its prothorax (on which the discal sulci are almost obsolete) and *eyes* being of a bright brownish-ferruginous, whilst its elytra and abdomen are more dull, and its head is nearly piceous. It was captured, by myself, during the spring of 1848, out of a dried bone in the Rev. R. T. Lowe's garden at the Levada,—where I have since constantly searched for it, but in vain.

Genus 210. TROGOPHLŒUS.

Mannerheim, *Brachel.* 49 (1831).

Corpus sat minutum, plus minusve subcyclindrico-lineare, plerumque creberrime et minutissime punctulatum et subtiliter sericeo-pubescens: *capite* porrecto, prothorace immisso; *oculis* rotundatis, prominulis: *prothorace* subcordato, in dorso sæpius longitudinaliter bi-impresso: *scutello* plerumque obsoleto (rarius observando): *alis* amplis: *abdomine* lineari marginato. *Antennæ* et *instrumenta cibaria* fere ut in genere præcedenti, sed *palporum maxillarium articulus ultimus* crassior; *palpi labiales* breviores; et *paraglossæ* ligulæ omnino connatæ eamque haud superantes. *Pedes* breves subtenues (*intermedii* approximati): *tibiis* muticis pubescentibus: *tarsis* 3-articulatis brevibus, articulis primo et secundo brevissimis.

The little insects included under the genus *Trogophlœus* may be known by their narrow and subcylindrical bodies, by their closely and minutely punctulated and delicately pubescent surfaces, by their more or less subcordate prothorax (which is generally impressed with two somewhat interrupted longitudinal foveæ on its hinder disk), and by their unarmed tibiæ and exceedingly short feet. They occur principally in muddy spots, especially at the edges of stagnant water and of partially dried streams: nevertheless a few are stated to be found beneath the bark of trees,—a position however in which I have not myself ever succeeded in detecting them.

478. Trogophlœus nanus, *Woll.*

T. subcylindrico-angustus subnitidus creberrime subtiliter punctulatus et pube subtili cinereâ undique tectus, prothorace subcordato, in disco postico obsolete quadrifoveolato, antennis palpisque fusco-picescentibus, pedibus diluto-testaceis.

Long. corp. lin. 1.

Habitat per margines aquarum Maderæ, rarissimus: ad Sanctam Annam æstate mediâ A.D. 1850 tria specimina cepi.

T. minute, narrow, linear, and somewhat cylindrical; black, slightly shining, densely and minutely **punctulated** (less distinctly so on the abdomen), and beset all over with a delicate cinereous

pubescence,—which however is somewhat darker on the head and prothorax than elsewhere. *Head* with the anterior angles a little raised, and with the clypeus rounded in front. *Prothorax* subcordate, and with two longitudinal interrupted impressions on its hinder disk,—constituting four somewhat obsolete foveæ. *Elytra* occasionally a little more diluted in hue towards their apex,—though at other times apparently quite black. *Antennæ* dark brownish-piceous, with their base (and the *palpi*) a shade paler. *Legs* pale diluted-testaceous.

The present minute *Trogophlœus*, which seems to differ slightly from all the European species with which I am acquainted, would appear to be extremely rare,—though, from its diminutive size, obscure hue and burrowing habits, it is of course very liable to be overlooked. The only three specimens which I have seen were captured by myself in the north of the island during the summer of 1850,—from off mud at the edges of a small stream at Santa Anna.

(Subf. 7. OMALIADES.)

Genus 211. OMALIUM.

Gravenhorst, *Col. Micropt.* 116 (1802).

Corpus parvum, lineari-oblongum, subdepressum: *capite* porrecto, postice ocellis duobus instructo; *oculis* rotundatis prominulis: *prothorace* sæpius transverso, angulis posticis subrectis: *scutello* distincto, triangulari: *elytris* pectore longioribus, angulo apicis exteriore rotundato: *alis* amplis: *abdomine* marginato. *Antennæ* sub frontis margine laterali insertæ, rectæ, apicem versus incrassatæ, articulo primo longiusculo robusto, secundo paulo minore, ultimo subovato. *Labrum* transversum, apice sinuatum et membranâ brevissimâ ciliatâ auctum. *Mandibulæ* breves muticæ. *Maxillæ* bilobæ membranaceæ: *lobo externo* apice barbato: *interno* extus corneo, apice denticulo terminato, intus ciliato. *Palpi maxillares* articulo primo minuto, secundo longiusculo, tertio paulo breviore, ultimo secundi longitudine plerumque subacuminato-fusiformi: *labiales* breviusculi, articulis primo et ultimo longitudine subæqualibus, secundo breviore. *Mentum* transversum. *Ligula* biloba, lobis rotundatis; *paraglossis* indistinctis. *Pedes* breves subtenues (*intermedii* plerumque approximati, sed in speciebus Maderensibus parum distantes): *tibiis* plus minusve subtiliter spinulosis: *tarsis* 5-articulatis (in nostris subtus dense pubescentibus), articulis quatuor baseos brevissimis inter se æqualibus, ultimo his conjunctis vel æquali vel (ut in nostris) multo longiore.

The *Omalia* may be recognised from the members of every other genus here described by the two ocelli with which the hinder region of their forehead is furnished. They are insects of a more or less oblong and subdepressed form, their elytra are ample (covering a larger portion of the abdomen than is the case in any of the preceding groups), the terminal articulation of their palpi is longer than the penultimate one (and more or less fusiform), their tibiæ are very minutely spinulose, and their tarsi (which in the Madeiran representatives are densely pubescent beneath, thus far coinciding with those of the *Anthobia*) have the first four joints

extremely short and subequal. They are principally to be found on flowers, or under the loose bark of trees; though a few occur beneath stones and decaying vegetable refuse,—especially in alpine and maritime districts.

§ I. *Palpi maxillares articulo ultimo subacuminato-fusiformi: tibiæ subtiliter spinulosæ.*

479. Omalium ocellatum, *Woll.*

O. fusco-piceum subpunctatum, capite ocellis magnis flavis instructo, prothorace inæquali, limbo elytrisque diluto-testaceis, antennarum basi ferrugineâ, pedibus testaceis.

Long. corp. lin. $1\frac{1}{3}$.

Habitat **in ins.** Desertâ Boreali, a meipso Junio ineunte A.D. 1850 repertum.

O. subovate-oblong (being a little expanded posteriorly), brownish-piceous, and slightly shining. *Head, prothorax* and *elytra* rather coarsely subpunctate: the *first* uneven; with the anterior angles raised and rather prominent (their lateral edges being slightly elevated, and produced obliquely backwards on to the forehead); with the clypeus obtusely rounded in front; and with two large ocelli of a bright yellow hue on its hinder disk: the *second* transverse, a little narrowed behind, and with its posterior angles almost right angles; likewise exceedingly uneven, but with indications of a larger longitudinal depression on either side of its disk; its margins (especially the lateral and basal ones), together with the *elytra*, diluted-testaceous. *Antennæ* rather paler than the head, and bright ferruginous at their base. *Legs* testaceous.

Readily known from the following species by its much greater bulk and proportionably wider outline, by its paler, subpunctured and more uneven surface, and by the larger (and bright yellow) ocelli with which the hinder region of its forehead is furnished. The specimen from which the above description has been compiled is hitherto unique,—having been captured by myself on the Northern Dezerta, or Ilheo Chão, during my encampment on that island, with the Rev. R. T. Lowe, at the beginning of June 1850.

§ II. *Palpi maxillares articulo ultimo graciliore subcylindrico: tibiæ vix spinulosæ.*

480. Omalium granulatum, *Woll.*

O. angustum nigro-piceum subtilissime et creberrime granulatum, capite ocellis parvis picescentibus instructo, prothorace in disco postico profunde longitudinaliter bifoveolato, antennis ferrugineis, pedibus diluto-testaceis.

Long. corp. lin. $\frac{7}{8}$.

Habitat **in** Maderâ boreali sylvaticâ, rarissime: ad Lombo dos Pecegueiros mense Julio A.D. 1850 quatuor specimina inveni.

O. minute, narrow and nearly parallel, dark piceous, and scarcely at all shining. *Head, prothorax*

and *elytra* most delicately and closely granulated (but with scarcely any indication on the first two of punctures intermixed, though a few very lightly impressed ones are just indicated on the last): the *first* less uneven than in the preceding species, with the anterior angles however raised (though not prominent, nor with their lateral edges backwardly produced on to the forehead); with the clypeus rounded in front (but a little less obtusely so than in that insect); and with a deep though very short longitudinal fovea on either side of its hinder disk, in the base of which the ocelli (which are small and picescent) are immersed: the *second* of the same form as that of the *O. ocellatum*, but less uneven (or, rather, *more regularly* impressed), and with a deep longitudinal fovea on either side of its hinder disk. *Antennæ* ferruginous. *Legs* dull testaceous.

The exceedingly minute size and narrow, parallel outline of the present *Omalium*, in conjunction with its dark piceous hue (the limbs being alone pale), its closely and delicately granulated (though scarcely punctured) surface, and the short, deep and well-defined longitudinal fovea on either side of its hinder prothoracic disk, will at once serve to distinguish it from everything else with which we have here to do. It is apparently extremely rare,—the only four specimens which I have seen having been captured by myself from off the outer canvass of my tent (whither they had flown towards the dusk of the evening), in the dense forest region of the Lombo dos Pecegueiros, during July of 1850.

(Subf. 8. PROTEININES.)

Genus 212. MEGARTHRUS. (Tab. XIII. fig. 9.)

(Kirby) Steph. *Ill. Brit. Ent.* v. 330 (1832).

Corpus parvum, subovatum, subdepressum et dense punctulatum: *capite* porrecto subtriangulari, ocellis nullis instructo; *oculis* rotundatis prominulis: *prothorace* transverso, in medio profunde canaliculato, ad latera leviter complanato, angulis posticis excavatis: *scutello* distincto, triangulari: *elytris* pectore longioribus, angulo apicis exteriore rotundato: *alis* sat amplis: *abdomine* breviusculo marginato. *Antennæ* sub frontis margine laterali insertæ, rectæ, in medio graciles, apicem versus leviter incrassatæ, articulis primo et secundo (illo præcipue) longiusculis robustis, ultimo subgloboso. *Labrum* (XIII. 9 *a*) sub frontis margine reconditum, breve transversum, antice membranâ (in typicis integrâ, sed in specie Maderensi) valde bilobâ auctum. *Mandibulæ* (XIII. 9 *b*) parvæ muticæ, intus membranâ ciliatâ instructæ. *Maxillæ* (XIII. 9 *c*) bilobæ: *lobo externo* membranaceo, apice (necnon apicem versus exteriorem) dense barbato: *interno* vix breviore, extus subcorneo apice acuminato, intus vix ciliato. *Palpi maxillares* articulo primo minuto, secundo sat magno, tertio breviore, ultimo (in specie nostrâ) secundo longiore subgracili fusiformi: *labiales* (XIII. 9 *d*) breves, articulis magnitudine leviter decrescentibus. *Mentum* corneum, antice angustatum sed ad apicem truncatum. *Ligula* biloba ciliata; *paraglossis* in specie nostrâ (nisi fallor) ligulam haud superantibus. *Pedes* breviusculi subtenues (*intermedii* subapproximati): *tibiis* muticis: *tarsis* (XIII. 9 *e*) 5-articulatis, articulis quatuor baseos brevibus leviter decrescentibus, ultimo his conjunctis breviore.

The insects of the present genus may be distinguished (apart from all other characteristics) by the incised, or narrowly excavated, hinder angles of their

(deeply channeled) prothorax. Their antennæ are somewhat slender, with the first and second joints a good deal enlarged and the ultimate one subglobose; their head is triangular and free from ocelli, their elytra cover a considerable portion of their abdomen, and their tibiæ are almost unarmed. In their habits they are chiefly fungivorous, and of a rather gregarious nature,—the four species (all European) which have been hitherto described occurring at times in the greatest profusion amongst Boleti in sylvan districts: nevertheless they may be occasionally found beneath the bark or at the roots of trees,—especially Firs, to which one or two of them seem to be more particularly attached. By a glance at the above diagnosis, it will be perceived that the Madeiran representative is not altogether a typical member of the group, since in the *bilobed* membranous appendage of its upper lip and in the shortness of its paraglossæ it coincides with the *Proteini*. Nevertheless in all other respects it is a true *Megarthrus*,—with which in its general contour, moreover, as well as in the scooped-out posterior angles of its prothorax, it precisely accords.

481. Megarthrus longicornis, *Woll.* (Tab. XIII. fig. 9.)

M. fuscus subrugulosus subopacus, prothorace profunde canaliculato, basi in medio transversim impresso, versus latera dilutiore, abdomine antennarumque apice nigrescentibus, pedibus testaceis.

Long. corp. lin. $1\frac{1}{3}$.

Habitat Maderam, rarior; semel tantum (a meipso prope Funchal) repertus.

M. subovate (being a little expanded behind the middle), fuscous, or pale brown, and minutely pubescent. *Head, prothorax* and *elytra* rather closely punctured and subrugulose, and almost opake: the *first* of a somewhat obscurer hue, and a little produced in front: the *second* of a clearer colour,—especially anteriorly and towards the sides, where it is almost ferruginous; deeply channeled down the disk; with a central transverse impression behind; with its posterior angles emarginated (or scooped out), and with its sides just appreciably subangulated at a short distance in advance of them: the *last* of a rather duller tint than the prothorax, but paler than the head. *Abdomen* more finely and remotely punctulated, just perceptibly shining, and (particularly towards its base) dark. *Antennæ* ferruginous at their base, and blackish towards their apex. *Legs* testaceous.

Apart from the *structural* peculiarities of the present *Megarthrus* (which have been already pointed out, and in which it recedes from the normal members of the group and assimilates the *Proteini*), it differs from all the European species hitherto described in its distinctly longer antennæ and in the deep central impression at the base of its prothorax,—as well as in numerous other (smaller) particulars which will be easily gathered by a reference to the diagnosis. In general *facies* it is a good deal allied to the *M. denticollis*, Beck,—with which, on examination, however, it of course cannot be for a moment confounded. I have

seen hitherto but a single specimen,—which was captured by myself in the vicinity of Funchal (though I have no recollection, or note, of the exact position) during the spring of 1848.

Genus 213. METOPSIA, *Woll.* (Tab. XIII. fig. 7.)

Corpus parvum, latum, subdepressum, rugosum sed vix pubescens: *capite* porrecto sub-semicirculari, intra angulos anticos utrinque fisso, postice ocello singulo elevato medio instructo; *oculis* parvis rotundatis, valde prominentibus: *prothorace* transverso, antice emarginato (caput recipiente), in medio profunde canaliculato, ad latera latissime subrecurvo-explanato, necnon intra angulos posticos late transversim exsecto, basi in medio sinuato: *scutello* distincto, triangulari: *elytris* pectore longioribus, angulo apicis exteriore vix rotundato: *alis* obsoletis: *abdomine* late marginato, apicem versus attenuato, segmento sexto in maribus subtus in medio triangulariter inciso. *Antennæ* et *mandibulæ* fere ut in Megarthro. *Labrum* (XIII. 7 *a*) sub frontis margine reconditum, breve transversum, antice rotundatum et membranâ integrâ auctum. *Maxillæ* (XIII. 7 *b*) bilobæ: *lobo externo* membranaceo latissimo, ad apicem truncato, intus, apice et apicem versus exteriorem dense barbato: *interno* breviore, extus subcorneo, intus vix ciliato. *Palpi* (XIII. 7 *b* et 7 *c*) fere ut in genere præcedenti, sed *maxillarium articulus secundus* longior. *Mentum* (XIII. 7 *c*) corneum, antice angustatum rotundatum, in medio carinatum. *Ligula* submembranacea lata biloba, lobis valde divergentibus acuminatis; *paraglossis* ligulam haud superantibus. *Pedes* breviusculi subtenues (*intermedii* approximati): *tibiis* pubescentibus; *intermediis* (præsertim in maribus) leviter incurvis: *tarsis* 5-articulatis brevibus, subtus dense pubescentibus, articulis quatuor baseos (præsertim in anterioribus et in sexu masculo) leviter dilatatis et paulatim decrescentibus (quarto subemarginato), ultimo his conjunctis multo breviore.

A μετὰ post, et ὀψία vesper.

The remarkable insect (apparently of nocturnal habits) from which the above characters have been drawn out is closely allied to *Phœobium*,—from which, however, it recedes in the singular form of its ligula and outer maxillary lobe, in its keeled and apically rounded mentum, in the slightly different structure of its antennæ and feet, as well as in its freedom from wings, in its comparatively large size and extremely broad outline, in its very deeply channeled prothorax, and in its more ample elytra. In the single ocellus with which it is furnished, and in the incised margins of its forehead, it agrees with that genus,—peculiarities moreover which, in conjunction with its widely flattened (or dilated) edges, and the somewhat curved intermediate tibiæ of its male sex, will at once distinguish it from every other Madeiran member of the *Brachelytra* hitherto discovered.

482. Metopsia ampliata, *Woll.* (Tab. XIII. fig. 7.)

M. lata ferruginea rugosa opaca, prothorace in medio canaliculâ profundâ glaberrimâ politâ impresso, ad latera valde explanato, antennis apicem versus obscurioribus.

Long. corp. lin. $1\frac{2}{3}$.

Habitat per regionem Maderæ sylvaticam rarissime: ad Ribeiro Frio tempore hiberno A.D. 1849 necnon ad Feijãa de Córte Julio ineunte A.D. 1850 collegi.

M. wide, ferruginous, and almost unpubescent (except on the abdomen, where it is clothed with a short pile). *Head, prothorax* and *elytra* exceedingly roughened, and opake: the *first* studded with distant granules, but only obscurely punctured; expanded at the edges but truncated in front; incised on either side of its clypeus (within the anterior angles), and with a greatly elevated ocellus in the centre of its hinder disk: the *second* much flattened and subrecurved towards the sides (which are of a slightly clearer colour); coarsely punctured, but less evidently granuled; with a wide, deep, glabrous and highly polished channel down the disk; with its posterior angles broadly sliced off along the basal margin (the incision ending abruptly nearly midway between either angle and the centre); and sinuated at the base of its dorsal canal: the *last*, likewise, expanded at the edges (but less so than the prothorax); and deeply and roughly subpunctured. *Abdomen* a little shining, and, with the apical portion of the *antennæ*, slightly obscured; the *latter* at their base testaceous. *Legs* dull testaceous, or ferruginous.

Apparently of the greatest rarity, two specimens only having hitherto come beneath my notice,—one of which I captured at the edges of the Levada of the Ribeiro Frio, during the winter of 1849; and the other, early in August of 1850, at the Feijãa de Córte.

APPENDIX.

(1) *Tarus suturalis* (p. 3). Specimens of this insect have been lately communicated to me by T. S. Leacock, Esq. of Funchal, from the Ponta São Lourenço, —the nearest portion of Madeira proper to Porto Santo (on which island, as already stated, it abounds). This discovery is of the greatest interest in a geographical point of view, as supplying another instance of the close resemblance of the fauna of the São Lourenço promontory to that of Porto Santo,—a similarity which the Terrestrial Mollusca moreover of the two districts would no less tend to confirm.

(2) *Scarites abbreviatus* (p. 11). Two examples, stated to have been brought from the Ilheo Bugio (the Southern Dezerta), have been forwarded by Mr. Leacock. They differ scarcely at all, either in size or in the sculpture of the basal margin of their elytra, from the *var.* γ. of the diagnosis,—the state which obtains on the Ilheo de Fora; and I have therefore admitted them, in my *Tables of Distribution*, under that particular variety. Nevertheless I would wish it to be understood that they are not *precisely* similar; and also that I do not hold myself responsible for their having been truly found in the locality professed.

(3) *Harpalus litigiosus* (p. 51). The Ponta São Lourenço may be added as a locality for this insect,—a district from whence I have received several specimens (along with the *H. attenuatus*) differing in no respect from the Praya Formoza and Porto Santan representatives except that their pronotum is (if anything) perhaps a trifle shorter, and just perceptibly (especially towards the posterior angles) more flattened. They have also an obscure cyaneous tinge,—the *tendency* to assume which (however indistinct) is at all times traceable, and which should have been mentioned in the diagnosis. Since the description was written, I have taken it in our own country (on the Devonshire coast),—where however it would appear to be of the greatest rarity. The English examples are more evidently cyaneous than even the Ponta São Lourenço ones; and it is probable therefore that this peculiarity of colouring is *typical* in more northern latitudes.

(4) *Cryptophagus* (p. 171). The following description of a minute and very interesting *Cryptophagus* should be inserted. It has been recently communicated by the Rev. R. T. Lowe (by whom it was discovered at the Ribeiro Frio, during the summer of 1851); and is evidently a truly indigenous species.

483. Cryptophagus Nitiduloides, *Woll.*

C. ovatus convexus rufo-ferrugineus subnitidus pubescens, capite prothoraceque punctatis, hoc subquadrato-transverso, ad latera parce irregulariter subserrato dente medio obscurissime armato et

angulis anticis incrassatis, elytris nitidioribus minute punctatis apicem versus attenuatis, antennis valde robustis, pedibus testaceis.

Long. corp. lin. $\frac{7}{8}$.

Habitat in Maderâ sylvaticâ, a Rev^{do} Dom^{o} Lowe ad Ribeiro Frio (æstate A.D. 1851) detectus.

C. ovate, convex, rufo-ferruginous, slightly shining, and clothed with a fine (though short) silken pubescence. *Head* and *prothorax* punctured (though much less densely so than in the *C. affinis*): the *latter* somewhat transverse-quadrate, and with the pubescence on either side of its disk inwardly directed, causing the dorsal region to seem (especially behind) as though obscurely keeled; the anterior angles thickened (but scarcely increased into a *ridge*, like those of the *C. affinis*); and with the lateral edges very sparingly and irregularly subserrated (hardly crenulate),—the central portion being rather more evidently dentiform than the remainder (the *extreme* medial point appearing acute under a high power of the microscope). *Elytra* rather more shining and less deeply punctured than the rest of the surface; with the humeral angles a good deal thickened and prominent; and gradually acuminated from the base to the apex. *Antennæ* exceedingly robust, and scarcely (if at all) paler than the rest of the surface. *Legs* distinctly paler, being dull testaceous.

A most anomalous little *Cryptophagus*,—bearing a certain *primâ facie* resemblance, in colour, contour and texture, to some of the paler *Nitidulæ*. In the form of its mentum it recedes from every species with which I am acquainted, the front emargination being armed in the centre with a robust corneous tooth. Apart from its diminutive bulk and the peculiar structure of the edges of its prothorax, it may be at once known from the *C. affinis* by its *ovate* outline (its elytra being gradually acuminated behind), and by its rather darker and more shining, as well as more lightly sculptured and less pubescent surface. Its greatly incrassated antennæ moreover (the terminal joint of which wants the oblique truncation which is just indicated in the normal members of the group), in conjunction with its thickened and prominent humeral angles, should be especially noticed, as serving additionally to distinguish it.

(5) *Atlantis Forœ* (p. 380). I have lately received a series of this insect from Mr. Leacock, captured on the Ponta São Lourenço; and am inclined, on further examination, to regard it as a local form of the *A. Schaumii*, and have consequently entered it as such into the *Systematic Index* at the commencement of this work. I should state, however, that the small distinctive characters (with the exception of the *size*,—which is more unstable than in the Porto Santan examples, though on the average rather larger than is there the case) already pointed out in the (then) unique specimen from which the diagnosis was compiled, appear to be perfectly constant; and I have therefore registered it as a well-defined *variety*,—which at the least it must be allowed to be. At the same time I would by no means wish to assert positively that the two may not be specifically distinct.

(6) *Meloë* (p. 526, *note*). Since the note was written relating to the largely-developed cultriform process in the hinder legs of *Meloë* (which, whilst appearing to be but a modification of the tibial spur, is in reality articulated on to the foot), my attention has been directed by Adam White, Esq., of the British Museum, to an observation by Mr. MacLeay, in the 15th volume of the *Transactions of the Linnæan Society* (A.D. 1827), which, singularly enough, almost coincides with the suggestion which I ventured to throw out. As it is a subject not altogether devoid of interest, I subjoin his remarks *verbatim*. "Hence," says he, "in Heteromerous insects generally, we may perhaps suppose that it is the fourth joint of the tarsus which vanishes. I say generally, because there may be many *exceptions* to this rule;—perhaps, for instance, *Meloë* and the insects allied to it. These are true *Heteromera*; but on looking at their posterior feet we find an obconical process, which seems to represent the lost articulation, and occasions one almost to fancy, although not perhaps very philosophically, that it is the second joint of the tarsus which articulates with the tibia."

CORRIGENDA.

× p. 63 — for *Trechus fimicolus*, read *Trechus fimicola*.
× p. 284 — *for* (1764), *read* (1762).

INDEX.

abbreviatus, Scarites, 11.
abbreviatus, Dej. (*Scarites*), 11.
Acalles, *Schön.*, 329.
Acalles albolineatus, *Woll.*, 338.
—— cylindricollis, *Woll.*, 341.
—— dispar, *Woll.*, 337.
—— globulipennis, *Woll.*, 339.
—— lunulatus, *Woll.*, 340.
—— Neptunus, *Woll.*, 330.
—— nodiferus, *Woll.*, 334.
—— oblitus, *Woll.*, 333.
—— ornatus, *Woll.*, 336.
—— pulverulentus, *Woll.*, 332.
—— saxicola, *Woll.*, 332.
—— terminalis, *Woll.*, 335.
—— Vau, *Woll.*, 335.
—— Wollastoni, 342.
—— *Wollastoni*, Chev., 342.
Achenium, *Curtis*, 586.
Achenium Hartungii, 587.
—— *Hartungii*, Heer, 587.
acicula, *Woll.*, Stenotis, 316.
Acratrichis, *Mots.*, 107.
Acratrichis fascicularis, 108.
—— pumila, 109.
—— *pumila*, Mots., 109.
—— umbricola, *Woll.*, 108.
acuminata, Koll. (*Asida*), 503.
acuminatus, *Woll.*, Lichenophagus, 391.
Acupalpus dorsalis, Dej., 60.
—— *harpalinus*, Dej., 61.
—— ——, Heer, 61.
Adonia mutabilis, Muls., 461.
advena, Waltl (*Cryptophagus*), 168.
advena, *Woll.*, Ptinus, 261.
——, Silvanus, 168.
advena, Erich. (*Silvanus*), 168.
——, Sturm (*Silvanus*), 168.
ænescens, *Woll.*, Omias, 383.
æneus, Philonthus, 580.
æneus, Erich. (*Philonthus*), 580.
——, Grav. (*Staphylinus*), 580.
——, Gyll. (*Staphylinus*), 580.
——, Rossi (*Staphylinus*), 580.
affinis, Fab. (*Cassida*), 439.
affinis, Cryptophagus, 170.
affinis, Erich. (*Cryptophagus*), 170.
——, Redt. (*Cryptophagus*), 170,
——, Sturm (*Cryptophagus*), 170.
——, Payk. (*Hister*), 216.
affinis, Rugilus, 592.
affinis, Heer (*Rugilus*), 592.
——, Erich. (*Stilicus*), 592.
——, Redt. (*Stilicus*), 592.
Agabus, *Leach*, 83.
Agabus bipunctatus, Aubé, 84.
—— bipustulatus, 83.
—— ***bipustulatus***, Aubé, 83.
—— Maderensis, *Woll.*, 85.
Agabus nebulosus, 84.
Agonum, *Bon.*, 33.
Agonum marginatum, Dej., 34.
—— ——, Erich., 34.
alatus, *Woll.*, Pristonychus, 27.
albipes, Sturm (*Anchomenus*), 33.
——, Ill. (*Carabus*), 33.
albolineatus, *Woll.*, Acalles, 338.
albopictus, *Woll.*, Ptinus, 267.
albosquamosus, *Woll.*, Tychius, 345.
ALEOCHARIDES, 540.
Aleochara, 559.
Aleochara Armitagei, *Woll.*, 559.
—— *atramentaria*, Gyll., 556.
—— ——, Zett., 556.
—— *exigua*, Mann., 561.
—— *longicornis*, Grav., 556.
—— morion, 561.
—— *morion*, Erich., 561.
—— ——, Grav., 561.
—— ——, Lat., 561.
—— ——, Mann., 561.
—— nitida, 560.
—— *nitida*, Erich., 561.
—— ——, Grav., 561.
—— ——, Gyll., 561.
—— ——, Mann., 561.
—— *obscura*, Grav., 541.
—— ——, Gyll., 541.
—— tristis, 560.
—— *tristis*, Erich., 560.
—— ——, Grav., 560.
—— ——, Gyll., 560.
—— ——, Mann., 560.
Alphitobius, *Steph.*, 497.
Alphitobius diaperinus, 498.
—— *mauritanicus*, Steph., 498.
alpinus, *Woll.*, Hadrus, 502.
alternans, *Woll.*, Ephistemus, 177.
alticola, *Woll.*, Trechus, 69.
Amara, *Bon.*, 47.
Amara superans, *Woll.*, 48.
—— trivialis, 47.
—— *trivialis*, Dej., 48.
—— ——, Erich., 48.
—— ——, Heer, 48.
Amaroides, Sol. (*Hegeter*), 509.
——, Dej. (*Melancrus*), xi.
ambiguus, Payk. (*Carabus*), 31.
ampliata, *Woll.*, Metopsia, 616.
Anachoreta, Fab. (*Aphodius*), 225.
anale, *Woll.*, Somatium, 564.
Anaspis, *Geoffr.*, 531.
Anaspis Proteus, *Woll.*, 532.
Anchomenus, *Bon.*, 32.
Anchomenus albipes, Sturm, 33.
Anchomenus marginatus, 33.
—— pallipes, 33.
—— *pallipes*, Dej., 33.
—— ——, Heer, 33.
Anemophilus, *Woll.*, 385.
Anemophilus crassus, *Woll.*, 386.
—— subtessellatus, *Woll.*, 387.
—— trossulus, *Woll.*, 388.
angustatus, Fab. (*Curculio*), 352.
angustatus, Lixus, 351.
angustatus, Dahl (*Lixus*), 353.
——, Fab. (*Lixus*), 352.
——, Schön. (*Lixus*), 352.
——, Steph. (*Lixus*), 352.
——, Fab. (*Staphylinus*), 594.
——, Payk. (*Staphylinus*), 594.
angustatus, Sunius, 593.
angustatus, Erich. (*Sunius*), 594.
——, Heer (*Sunius*), 594.
Anisodactylus, *Dej.*, 49.
Anisodactylus binotatus, 49.
—— *binotatus*, Dej., 50.
—— ——, Heer, 50.
ANISOTOMIDÆ, 482.
Anobium, *Fab.*, 275.
Anobium frumentarium, Fab., 167.
—— paniceum, 277.
—— *paniceum*, Fab., 277.
—— ——, Gyll., 277.
—— ——, Oliv., 277.
—— ——, Steph., 277.
—— *pertinax*, Fab., 278.
—— Ptilinoides, *Woll.*, 278.
—— *ruficolle*, Thung., 258.
—— striatum, 278.
—— *striatum*, Gyll., 278.
—— ——, Oliv., 278.
—— ——, Steph., 278.
—— velatum, *Woll.*, 276.
ANTHICIDÆ, 533.
Anthicus, *Payk.*, 533.
Anthicus fenestratus, Dej., 536.
—— hispidus, 536.
—— *hispidus*, La Ferté, 536.
—— ——, Schmidt, 536.
—— instabilis, 534.
—— *instabilis*, Dej., 534.
—— ——, Schmidt, 534.
—— litoralis, 535.
—— *litoralis*, Heer, 535.
—— *mauritanicus*, Lucas, 534.
—— *tibialis*, Curtis, 534.
—— ——, La Ferté, 534.
—— tristis, 536.
—— *tristis*, La Ferté, 536.
—— ——, Schmidt, 536.
ANTHRIBIDES, 417.
Anthrenus, *Geoffr.*, 204.
Anthrenus varius, 205.
—— *varius*, Erich., 205.
—— ——, Fab., 205.
—— ——, Sturm, 205.
—— *Verbasci*, Heer, 205.
—— ——, Oliv., 205.

Aphanarthrum, *Woll.*, 292.
Aphanarthrum Euphorbiæ, *Woll.*, 293.
APHODIADÆ, 221.
Aphodius, *Illig.*, 221.
Aphodius Anachoreta, Fab., 225.
—— *cæsus*, Fab., 231.
—— ——, Heer, 231.
—— *ferrugineus*, Dahl, 224.
—— granarius, 226.
—— *granarius*, Heer, 226.
—— ——, Illig., 226.
—— ——, Steph., 226.
—— Hydrochæris, 222.
—— *Hydrochæris*, Heer, 222.
—— ——, Illig., 222.
—— ——, Muls., 222.
—— lividus, 225.
—— *lividus*, Heer, 225.
—— ——, Steph., 225.
—— nitidulus, 223.
—— *nitidulus*, Gyll., 223.
—— ——, Heer, 223.
—— ——, Steph., 223.
—— Pedrosi, *Woll.*, 226.
—— rufus, 224.
—— *rufus*, Dufts., 224.
—— ——, Erich., 224.
—— ——, Illig., 224.
—— ——, Sturm, 224.
apicale, Ptenidium, 110.
apicale, Erich. (*Ptenidium*), 110.
——, Sturm (*Ptilium*), 110.
apicalis, Gillm. (*Trichopteryx*), 110.
Apion, *Herbst*, 408.
Apion chalybeipenne, 413.
—— *chalybeipenne*, Schön., 413.
—— frumentarium, 412.
—— *frumentarium*, Schön., 412.
—— *hæmatodes*, Steph., 412.
—— Malvæ, 411.
—— *Malvæ*, Redt., 412.
—— ——, Schön., 412.
—— rotundipenne, *Woll.*, 415.
—— sagittiferum, *Woll.*, 410.
—— vernale, 409.
—— *vernale*, Gyll., 409.
—— ——, Schön., 409.
—— Wollastoni, 414.
—— *Wollastoni*, Chevr., 414.
Apotomus, *Hoffm.*, 13.
Apotomus rufus, 14.
—— *rufus*, Brullé, 14.
—— ——, Dej., 14.
—— ——, Hoffm., 14.
arcuata, Rossi (*Coccinella*), 468.
——, Schön. (*Coccinella*), 468.
arcuatus, Scymnus, 467.
arcuatus, Muls. (*Scymnus*), 468.
arenarius, Gyll. (*Trox*), 233.
——, Fab. (*Trox*), 233.
arenicolus, *Woll.*, Dromius, 6.
Argutor, *Steph.*, 38.
Argutor curtus, *Woll.*, 43.
—— dilaticollis, *Woll.*, 42.
—— gracilipes, *Woll.*, 41.
—— robustus, *Woll.*, 40.
Arietis, Oliv. (*Callidium*), 429.
Arietis, Clytus, 429.
Arietis, Fab. (*Clytus*), 429.
——, Steph. (*Clytus*), 429.
——, Linn. (*Leptura*), 429.
Armitagei, *Woll.*, Aleochara, 559.
Artemisiæ, *Woll.* (Melyrosoma), 254
——, *Woll.*, Leiparthrum, 299.
Arthrolips, *Woll.*, 475.
Arthrolips piceum, 476.
Asida acuminata, Koll., 503.
Asparagi, Linn. (*Chrysomela*), 437.
Asparagi, Crioceris, 437.
Asparagi, Fab. (*Crioceris*), 437.
——, Lacord. (*Crioceris*), 437.
——, Steph. (*Crioceris*), 437.
asperatus, *Woll.*, Metophthalmus, 193.
assimilis, Lathridius, 189.
assimilis, Mann. (*Lathridius*), 189.
ater, Dej. (*Scymnus*), 470.
aterrimus, Philonthus, 584.
aterrimus, Erich. (*Philonthus*), 584.
——, Grav. (*Staphylinus*), 584.
—— Zett. (*Staphylinus*), 584.
Atlanticum, *Woll.*, Bembidium, 77.
Atlantis, *Woll.*, 361.
Atlantis australis, *Woll.*, 370.
—— calcatrix, *Woll.*, 366.
—— clavatus, *Woll.*, 363.
—— excelsus, *Woll.*, 378.
—— Foræ, *Woll.*, 380.
—— inconstans, *Woll.*, 375.
—— instabilis, *Woll.*, 377.
—— lamellipes, *Woll.*, 364.
—— lanatus, *Woll.*, 372.
—— lauripotens, *Woll.*, 369.
—— mendax, *Woll.*, 376.
—— navicularis, *Woll.*, 374.
—— noctivagans, *Woll.*, 367.
—— Schaumii, *Woll.*, 379.
—— vespertinus, *Woll.*, 371.
ATRACHELIA, 482.
atramentaria, Gyll. (*Aleochara*), 556.
——, Zett. (*Aleochara*), 556.
atramentaria, Homalota, 555.
atramentaria, Erich. (*Homalota*), 556.
atramentarius, Kirby (*Staphylinus*), 556.
Attagenus, *Lat.*, 203.
Attagenus megatoma, 204.
—— *megatoma*, Erich., 204.
—— ——, Sturm, 204.
Attagenus trifasciatus, 206.
Attalus, Erich., 245.
ATTELABIDÆ, 408.
Attelabus mollis, Linn., 256.
—— *vernalis*, Fab., 409.
attenuatus, Harpalus, 51.
attenuatus, Steph. (*Harpalus*), 51.
Auletes, *Schön.*, 416.
Auletes Maderensis, *Woll.*, 416.
auropilosus, *Woll.*, Carpophilus, 117.
auropunctatus, Rossi (*Carabus*), 15.
australis, *Woll.*, Atlantis, 370.
austrinus, *Woll.*, Meloë, 527.
autumnalis, Leach (*Meloë*), 528.
axillaris, *Woll.*, Læmophlœus, 164.

BEMBIDIADES, 72.
Bembidium, *Lat.*, 72.
Bembidium Atlanticum, *Woll.*, 77.
—— bistriatum, 73.
—— *bistriatum*, Dej., 73.
—— ——, Heer, 73.
—— curvimanum, *Woll.*, 74.
—— elongatum, 79.
—— *elongatum*, Dej., 80.
—— ——, Heer, 80.
—— Lucasii, 75.
—— *Lucasii*, Duval, 75.
—— obtusum, 75.
Bembidium obtusum, Dej., 76.
—— ——, Heer, 76.
—— ——, Sturm, 76.
—— Schmidtii, *Woll.*, 80.
—— tabellatum, *Woll.*, 79.
Berginus, *Erich.*, 194.
Berginus Tamarisci, 195.
—— *Tamarisci*, Dej., 195.
bicolor, Olibrus, 113.
bicolor, Oliv. (*Notoxus*), 536.
——, Erich. (*Olibrus*), 113.
——, Gyll. (*Phalacrus*), 113.
——, Sturm (*Phalacrus*), 113.
——, Fab. (*Sphæridium*), 113.
bilituratus, Mshm (*Scarabæus*), 225.
bimaculata, Gyll. (*Nitidula*), 117.
——, Oliv. (*Nitidula*), 117.
bimaculatus, Mshm (*Curculio*), 400.
bimaculatus, Sunius, 594.
bimaculatus, Erich. (*Sunius*), 594.
binotatus, Anisodactylus, 49.
binotatus, Dej. (*Anisodactylus*), 50.
——, Heer (*Anisodactylus*), 50.
——, Fab. (*Carabus*), 50.
——, Gyll. (*Harpalus*), 50.
bipennifer, Bab. (*Dromius*), 5.
Biphyllus lunatus, Steph., 173.
bipunctatus, Aubé (*Agabus*), 84.
——, Fab. (*Dytiscus*), 84.
——, Oliv. (*Dytiscus*), 84.
——, Fab. (*Hydrophilus*), 95.
bipustulatum, Sphæridium, 101.
bipustulatum, Fab. (*Sphæridium*), 101.
——, Muls. (*Sphæridium*), 101.
bipustulatus, Agabus, 83.
bipustulatus, Aubé (*Agabus*), 83.
——, Steph. (*Colymbetes*), 83.
——, Fab. (*Dytiscus*), 83.
——, Linn. (*Dytiscus*), 83.
bipustulatus, Philonthus, 583.
bipustulatus, Erich. (*Philonthus*), 583.
——, Grav. (*Staphylinus*), 583.
——, Gyll. (*Staphylinus*), 583.
——, Panz. (*Staphylinus*), 583.
bistriatum, Bembidium, 73.
bistriatum, Dej. (*Bembidium*), 73.
——, Heer (*Bembidium*), 73.
bistriatus, Dufts. (*Elaphrus*), 73.
bituberculatum, *Woll.*, Leiparthrum, 297.
Blabinotus, *Woll.*, 425.
Blabinotus spinicollis, *Woll.*, 426.
BLAPSIDÆ, 504.
Blaps, *Fab.*, 506.
Blaps clypeata, Germ., 505.
—— *elongata*, Oliv., 510.
—— fatadica, 508.
—— *fatadica*, Brullé, 508.
—— ——, Dufts., 508.
—— ——, Sturm, 508.
—— gages, 506.
—— *gages*, Brullé, 507.
—— ——, Fab., 507.
—— *gigas*, Lat., 507.
—— *obtusa*, Steph., 508.
Bolitochara longicornis, Mann., 556.
Boraginis, Gyll. (*Rhynchænus*), 326.
Boromorphus, *Woll.*, 492.
Boromorphus Maderæ, *Woll.*, 493.
Borraginis, Steph. (*Nedyus*), 326.
Bostrichus ligniperda, Fab., 302.
—— *piniperda*, Fab., 303.
—— *villosus*, Fab., 290.
—— ——, Payk., 290.

BRACHELYTRA, 538.
BRACHINIDES, 1.
BRACHYDERIDES, 402.
BRACHYRHYNCHI, 353.
Bradycellus, *Erich.*, 60.
Bradycellus excultus, *Woll.*, 61.
—— fulvus, 61.
brevicollis, *Woll.*, Oxyomus, 229.
——, *Woll.*, Tarphius, 144.
BRUCHIDÆ, 417.
Bruchus, *Geoffr.*, 419.
Bruchus granarius, Mshm., 420.
—— ——, Steph., 420.
—— lichenicola, *Woll.*, 421.
—— *Pisi*, Steph., 420.
—— rufimanus, 419.
—— *rufimanus*, Schön., 420.
—— subelliptocus, *Woll.*, 420.
brunneus, Lyctus, 152.
——, Tachyporus, 568.
brunneus, Fab. (*Oxyporus*), 568.
——, Erich. (*Tachyporus*), 568.
——, Steph. (*Xylotrogus*), 152.
BYRRHIDÆ, 206.
BYRSOPSIDES, 395.

cæsus, Fab. (*Aphodius*), 231.
——, Heer (*Aphodius*), 231.
cæsus, Psammodius, 231.
cæsus, Erich. (*Psammodius*), 231.
——, Panz. (*Scarabæus*), 231.
Cafius nigritulus, Mann., 584.
Calathus, *Bon.*, 28.
Calathus complanatus, 30.
—— *complanatus*, Dej., 30.
—— fuscus, 31.
—— *fuscus*, Dej., 31.
—— vividus, 29.
Calandra granaria, Steph., 321.
—— *Oryzæ*, Steph., 322.
Calcar, *Lat.*, 494.
calcar, Fab. (*Trogosita*), 495.
Calcar elongatus, 495.
—— *elongatus*, Lucas, 495.
calcatrix, *Woll.*, Atlantis, 366.
Callidium Arietis, Oliv., 429.
—— *fennicum*, Fab., 425.
—— *præustum*, Fab., 425.
—— *strepens*, Fab., 423.
—— *testaceum*, Fab., 425.
—— *unicolor*, Oliv., 423.
—— *variabile*, Fab., 425.
Calobius, *Woll.*, 92.
Calobius Heeri, *Woll.*, 93.
Calosoma, *Weber*, 14.
Calosoma Maderæ, 15.
—— *Indagator*, Dej., 15.
—— ——, Fab., 15.
—— ——, Heer, 15.
Calotrechus, *Woll.*, 64.
Calyptobium nigrum, Aubé, 182.
—— ——, Chevr., 182.
Calyptomerus, Redt., 483.
cambrica, Sitona, 405.
cambrica, Steph. (*Sitona*), 405.
Canariensis, *Woll.*, Xenostrongylus, 127.
capillaricornis, Habrocerus, 569.
capillaricornis, Erich. (*Habrocerus*), 569.
——, Grav. (*Tachyporus*), 569.
capitata, *Woll.*, Syncalypta, 207.
CARABIDÆ, 1.
CARABIDES, 14.
caraboides, Fab. (*Trogosita*), 154.
Carabus interruptus, Dej., x.
Carabus albipes, Ill., 33.
—— *ambiguus*, Payk., 31.
—— *auropunctatus*, Rossi, 15.
—— *binotatus*, Fab., 50.
—— *distinguendus*, Dufts., 52.
—— *dorsalis*, Fab., 60.
—— *fulvus*, Mshm, 61.
—— *fuscus*, Fab., 31.
—— *hortensis*, Rossi, 15.
—— *Indagator*, Oliv., 15.
—— *lineatus*, Schön., 2.
—— *Maderæ*, Fab., 15.
—— ——, Oliv., 15.
—— *marginatus*, Fab., 34.
—— ——, Linn., 34.
—— *oblongus*, Fab., 33.
—— *obscurus*, Fab., 58.
—— *pallipes*, Fab., 33.
—— *sigma*, Rossi, 5.
—— *Teutonus*, Schr., 59.
—— *vaporariorum*, Dufts., 59.
—— ——, Fab., 59.
—— *vividus*, Fab., 29.
—— ——, Schön., 29.
carbunculus, *Woll.*, Helops, 519.
Carpophilus, *Steph.*, 115.
Carpophilus auropilosus, *Woll.*, 117.
—— hemipterus, 117.
—— *hemipterus*, Erich., 117.
—— ——, Sturm, 117.
—— mutilatus, 116.
—— *mutilatus*, Erich., 116.
CASSIDIDÆ, 438.
Cassida, *Linn.*, 438.
Cassida affinis, Fab., 439.
—— hemisphærica, 439.
—— *hemisphærica*, Gyll., 440.
—— ——, Herbst, 440.
—— ——, Lucas, 440.
—— ——, Steph., 440.
—— nebulosa, 439.
—— *nebulosa*, Fab., 439.
—— ——, Gyll., 439.
—— ——, Linn., 439.
—— ——, Steph., 439.
castaneipes, Sam. (*Trogosita*), 498.
castaneum, Herbst (*Colydium*), 492.
——, MacLeay (*Tribolium*), 492.
Catops, *Payk.*, 106.
Catops velox, 106.
—— *velox*, Erich., 106.
Caulophilus, *Woll.*, 315.
Caulophilus sculpturatus, *Woll.*, 315.
Caulotrupis, *Woll.*, 308.
Caulotrupis Chevrolatii, *Woll.*, 313.
—— conicollis, *Woll.*, 314.
—— impius, *Woll.*, 311.
—— lacertosus, *Woll.*, 309.
—— lucifugus, *Woll.*, 310.
—— opacus, *Woll.*, 313.
—— terebrans, *Woll.*, 312.
cautus, *Woll.*, Trechus, 70.
celer, *Woll.*, Tachyporus, 567.
cellaris, Payk. (*Staphylinus*), 565.
centrimaculatum, Cercyon, 104.
centrimaculatum, Erich. (*Cercyon*), 104.
——, Muls. (*Cercyon*), 104.
——, Sturm (*Sphæridium*), 104.
CERAMBICIDÆ, 422.
Cerambyx fennicus, Linn., 425.
—— *testaceus*, Linn., 425.
Cerambyx variabilis, Linn., 425.
Cerandria, *Lucas*, 489.
Cerandria cornuta, 490.
—— *cornuta*, Dej., 490.
—— ——, Lucas, 490.
Cercyon, *Leach*, 102.
Cercyon centrimaculatum, 104.
—— *centrimaculatum*, Erich., 104.
—— ——, Muls., 104.
—— fimetarium, *Woll.*, 103.
—— inquinatum, *Woll.*, 103.
—— quisquilium, 105.
—— *quisquilium*, Steph., 105.
—— ——, Muls., 105.
Cerylon, Lat., 148.
Ceutorhynchus, *Schön.*, 324.
Ceutorhynchus Echii, 325.
—— *Echii*, Schön., 325.
—— *fuliginosus*, Steph., 329.
—— lineatotessellatus, *Woll.*, 327.
—— nigroterminatus, *Woll.*, 327.
—— quadridens, 326.
—— *quadridens*, Schön., 326.
chalcites, Illig. (*Hister*), 216.
chalcites, Saprinus, 216.
chalcites, Erich. (*Saprinus*), 216.
——, Lucas (*Saprinus*), 216.
chalybeipenne, Apion, 413.
chalybeipenne, Schön. (*Apion*), 413.
Charagmus, Schön., 403.
Chasmatopterus, *Lat.*, 234.
Chasmatopterus nigrocinctus, *Woll.*, 236.
Chawneri, *Woll.*, Lixus, 350.
Cheiranthi, *Woll.*, Lixus, 349.
Chevrolatii, *Woll.*, Caulotrupis, 313.
Chimæra, *Woll.*, Mecognathus, 595.
CHLÆNIIDEA, 18.
Choleva velox, Spence, 106.
Cholovocera, *Mots.*, 178.
Cholovocera Maderæ, 180.
—— *Maderæ*, Westw., 180.
chrysocephala, Linn. (*Chrysomela*), 449.
——, Gyll. (*Haltica*), 449.
——, Steph. (*Macrocnema*), 449.
chrysocephala, Psylliodes, 449.
chrysocephala, Redt. (*Psylliodes*), 449.
CHRYSOMELIDÆ, 453.
Chrysomela, *Linn.*, 457.
Chrysomela Asparagi, Linn., 437.
—— *chrysocephala*, Linn., 449.
—— Fragariæ, *Woll.*, 458.
—— *melanopa*, Linn., 436.
—— *minuta*, Linn., 95.
—— *Polygoni*, Gyll., 459.
—— ——, Linn., 459.
cicatricosus, *Woll.*, Tarphius, 141.
ciliata, *Woll.*, Phaleria, 488.
Cinerariæ, *Woll.*, Longitarsus, 444.
——, *Woll.*, Olibrus, 112.
cinerascens, Hadrus, 503.
cinerascens, Dej. (*Hadrus*), 503.
cinereus, Mshm (*Curculio*), 329.
cinnamomeus, *Woll.*, Helops, 520.
CIONIDES, 323.
Cionus, *Clairv.*, 323.
Cionus pulchellus, 323.
—— *pulchellus*, Schön., 323.
Cis, *Lat.*, 279.
Cis fuscipes, 281.
— *fuscipes*, Mellié, 281.
— Lauri, *Woll.*, 282.
— Wollastonii, 280.

Cis Wollastonii, Mellié, 280.
clavatus, *Woll.*, Atlantis, 363.
clavicollis, *Woll.*, Læmophlœus, 163.
clavus, *Woll.*, Hylastes, 305.
CLEONIDES, 400.
Cleonus, *Schön.*, 400.
Cleonus plicatus, 401.
—— *plicatus*, Dej., 401.
—— ——, Schön., 401.
Cleopus pulchellus, Steph., 323.
CLERIDÆ, 255.
Clypeaster, *Redt.*, 472.
Clypeaster lividus, Dej., 478.
—— *obscurus*, Dej., 476.
—— *piceus*, Comolli, 476.
—— ——, Lucas, 476.
—— pusillus, 474.
—— *pusillus*, Germ., 474.
—— ——, Redt., 474.
clypeata, Germ. (*Blaps*), 505.
Clytus, *Fab.*, 429.
Clytus Arietis, 429.
—— *Arietis*, Fab., 429.
—— ——, Steph., 429.
COCCINELLIDÆ, 460.
Coccinella, *Linn.*, 460.
Coccinella arcuata, Rossi, 468.
—— ——, Schön., 468.
—— Genistæ, *Woll.*, 464.
—— *marginalis*, Gyll., 467.
—— ——, Rossi, 467.
—— *minima*, Gyll., 470.
—— ——, Rossi, 470.
—— *morio*, Fab., 467.
—— mutabilis, 461.
—— *mutabilis*, Gyll., 461.
—— ——, Scriba, 461.
—— 7-punctata, 462.
—— 7-*punctata*, Fab., 462.
—— ——, Gyll., 462.
—— ——, Linn., 462.
—— ——, Muls., 462.
—— 14-pustulata, 462.
—— 14-*pustulata*, Fab., 462.
—— ——, Gyll., 462.
—— ——, Linn., 462.
—— ——, Muls., 462.
—— *succina*, Hein., 180.
—— testudinea, 463.
—— *testudinea*, Hein., 463.
Cœliodes, *Schön.*, 328.
Cœlometopus, Sol., 505.
Cœliodes fuliginosus, 329.
—— *fuliginosus*, Schön., 329.
collaris, Mots. (*Lathridius*), 189.
COLYDIADÆ, 129.
Colydioides, Dej. (*Lyctus*), 152.
Colydium castaneum, Herbst, 492.
Colymbetes, *Clairv.*, 82.
Colymbetes bipustulatus, Steph., 83.
—— Lanio, 82.
—— *Lanio*, Aubé, 82.
compactus, *Woll.*, Tarphius, 139.
complanatus, Calathus, 30.
complanatus, Dej. (*Calathus*), 30.
complanatus, Oxytelus, 608.
complanatus, Erich. (*Oxytelus*), 608.
——, Heer (*Oxytelus*), 608.
——, Redt. (*Oxytelus*), 608.
concinnus, Mshm (*Curculio*), 409.
concolor, Brullé (*Ditylus*), 524.
confertus, *Woll.*, Helops, 515.
confinis, Steph. (*Ephistemus*), 176.
confluens, Fab. (*Dytiscus*), 87.
confluens, Hydroporus, 87.
confluens, Aubé (*Hydroporus*), 87.
——, Steph. (*Hygrotus*), 87.
——, Gyll. (*Hyphydrus*), 87.
conglobatus, *Woll.*, Hydrobius, 97.
congregatus, *Woll.*, Helops, 518.
conicollis, *Woll.*, Caulotrupis, 314.
consentaneus, Dej. (*Harpalus*), 51.
consimilis, Olibrus, 115.
consimilis, Mshm (*Dermestes*), 115.
Conurus, *Steph.*, 564.
Conurus monticola, *Woll.*, 566.
—— pedicularius, 565.
—— *pedicularius*, Erich., 566.
—— pubescens, 565.
—— *pubescens*, Erich., 565.
—— ——, Steph., 565.
Coptostethus, *Woll.*, 238.
Coptostethus femoratus, *Woll.*, 240.
CORDYLOCERATA, 206.
cornuta, *Dej.*, Cerandria, 490.
cornuta, Lucas (*Cerandria*), 490.
——, Lat. (*Phaleria*), 490.
——, Fab. (*Trogosita*), 490.
——, Steph. (*Uloma*), 490.
Corticaria, *Mshm*, 183.
Corticaria crenicollis, 185.
—— *crenicollis*, Mann., 185.
—— curta, *Woll.*, 187.
—— *dentata*, Mshm, 168.
—— Fagi, *Woll.*, 188.
—— fulva, 185.
—— *fulva*, Mann., 185.
—— ——, Redt., 185.
—— *pulla*, Mshm, 190.
—— rotulicollis, *Woll.*, 184.
—— rotundicollis, *Woll.*, 186.
—— *transversa*, Mshm, 191.
CORYLOPHIDÆ, 472.
Corylophus, *Steph.*, 479.
Corylophus tectiformis, *Woll.*, 480.
COSSONIDES, 306.
Cossyphodes, *Westw.*, 145.
Cossyphodes Wollastonii, 146.
—— *Wollastonii*, Westw., 146.
Cossyphus lateralis, Gyll., 478.
—— *pusillus*, Gyll., 474.
crassus, *Woll.*, Anemophilus, 386.
crenatus, *Woll.*, Cryptocephalus, 456.
crenicollis, Corticaria, 185.
crenicollis, Mann. (*Corticaria*), 185.
Creophilus maxillosus, Steph., 579.
cribricollis, Schön. (*Sitona*), 405.
CRIOCERIDÆ, 435.
Crioceris, *Geoffr.*, 436.
Crioceris Asparagi, 437.
—— *Asparagi*, Fab., 437.
—— ——, Lacord., 437.
—— ——, Steph., 437.
—— *melanopa*, Steph., 436.
Cryptamorpha, *Woll.*, 156.
Cryptamorpha Musæ, *Woll.*, 157.
Cryptocephalus, *Geoffr.*, 455.
Cryptocephalus crenatus, *Woll.*, 456.
CRYPTOPHAGIDÆ, 169.
Cryptophagus, *Herbst*, 169.
Cryptophagus advena, Waltl., 168.
—— affinis, 170.
—— *affinis*, Erich., 170.
—— ——, Redt., 170.
—— ——, Sturm, 170.
—— *ferrugineus*, Sturm, 168.
—— Nitiduloides, *Woll.*, 618.
CRYPTORHYNCHIDES, 324.
CUCUJIDÆ, 156.
Cucujus ferrugineus, Creutz., 163.
—— ——, Steph., 163.
—— *minutus*, Oliv., 162.
—— *pusillus*, Schön., 162.
—— *testaceus*, Payk., 163.
CURCULIONIDÆ, 306.
Curculio angustatus, Fab., 352.
—— *bimaculatus*, Mshm, 400.
—— *cinereus*, Mshm, 329.
—— *concinnus*, Mshm, 409.
—— *Echii*, Fab., 325.
—— ——, Mshm, 325.
—— *frumentarius*, Linn., 412.
—— ——, Payk., 412.
—— *fuliginosus*, Mshm, 329.
—— *granarius*, Fab., 321.
—— ——, Linn., 321.
—— *gressorius*, Fab., 403.
—— ——, Herbst, 403.
—— *lineatus*, Fab., 407.
—— ——, Linn., 407.
—— *Malvæ*, Fab., 412.
—— ——, Mshm, 412.
—— *murinus*, Fab., 399.
—— *notatus*, Fab., 347.
—— *Oryzæ*, Fab., 322.
—— ——, Linn., 322.
—— *plicatus*, Oliv., 401.
—— *pulchellus*, Herbst, 323.
—— *quadridens*, Panz., 326.
—— *scaber*, Linn., 395.
—— *scabriculus*, Gyll., 395.
—— *tessellatus*, Mshm, 395.
—— *variabilis*, Herbst, 400.
currens, *Woll.*, Homalota, 552.
curta, *Woll.*, Corticaria, 187.
curtum, *Woll.*, Leiparthrum, 298.
curtus, *Woll.*, Argutor, 43.
curvimanum, *Woll.*, Bembidium, 74.
curvipes, *Woll.*, Scoliocerus, 393.
custos, *Woll.*, Trechus, 68.
CYCLOMIDES, 353.
cylindricollis, *Woll.*, Acalles, 341.
cylindripennis, *Woll.*, Ptilinus, 285.
Cymindis lineata, Dej., 2.
—— *suturalis*, Dej., 3.
—— *vittata*, Dahl, 2.
CYPHONIDÆ, 240.
Cyphoscelis, *Woll.*, 356.
Cyphoscelis distorta, *Woll.*, 357.

Dactylosternum, *Woll.*, 99.
Dactylosternum Roussetii, *Woll.*, 100.
Dasytes, *Payk.*, 251.
Dasytes illustris, 252.
Dawsoni, *Woll.*, Ptinus, 263.
Dendroctonus piniperda, Erich., 303.
Dendrophilus, Leach, 211.
Dendrophilus minimus, Dej., 212.
—— *punctatus*, Steph., 212.
dentata, Mshm (*Corticaria*), 168.
dentatus, Silvanus, 167.
dentatus, Steph. (*Silvanus*), 168.
depressus, Gyll. (*Oxytelus*), 608.
DERMESTIDÆ, 202.
Dermestes, *Linn.*, 202.
Dermestes consimilis, Mshm, 115.
—— *fumatus*, Linn., 199.
—— *hemipterus*, Linn., 117.
—— *lunatus*, Fab., 173.
—— *megatoma*, Dufts., 204.
—— ——, Fab., 204.
—— *paniceum*, Linn., 277.

Dermestes piniperda, Linn., 303.
—— 4-*maculatus*, Mshm, 101.
—— *ruficollis*, Fab., 258.
—— 6-*dentatus*, Fab., 167.
—— *Surinamensis*, Linn., 167.
—— vulpinus, 202.
—— *vulpinus*, Fab., 202.
—— ——, Gyll., 202.
—— ——, Oliv., 202.
—— ——, Steph., 202.
Desertæ, *Woll.*, Zargus, 24.
Desertarum, *Woll.*, Deucalion, 434.
desertus, Stev. (*Harpalus*), 51.
Deucalion, *Woll.*, 430.
Deucalion Desertarum, *Woll.*, 434.
—— oceanicus, *Woll.*, 433.
DIAPERIDÆ, 485.
diaperina, Redt. (*Heterophaga*), 498.
diaperinus, Alphitobius, 498.
diaperinus, Illig. (*Tenebrio*), 498.
——, Kugel. (*Tenebrio*), 498.
——, Sturm (*Tenebrio*), 498.
dilatata, Dej. (*Nebria*), x.
dilatatum, *Woll.*, Opatrum, 501.
dilaticollis, *Woll.*, Argutor, 42.
dilutus, *Woll.*, Trechus, 66.
dimidiatus, Ephistemus, 176.
dimidiatus, Erich. (*Epistemus*), 176.
——, Sturm (*Epistemus*), 176.
——, Sturm (*Phalacrus*), 176.
Diphyllus, *Redt.*, 171.
Diphyllus lunatus, 172.
—— *lunatus*, Redt., 173.
discoidea, Nitidula, 120.
discoidea, Fab. (*Nitidula*), 120.
——, Gyll. (*Nitidula*), 120.
——, Heer (*Nitidula*), 120.
——, Illig. (*Nitidula*), 120.
——, Erich. (*Omosita*), 120.
dispar, *Woll.*, Acalles, 337.
distinguendus, Dufts. (*Carabus*), 52.
distinguendus, Harpalus, 52.
distinguendus, Dej. (*Harpalus*), 52.
——, Erich. (*Harpalus*), 52.
——, Heer (*Harpalus*), 52.
distorta, *Woll.*, Cyphoscelis, 357.
Ditylus concolor, Brullé, 524.
Ditylus fulvus, *Woll.*, 523.
Dohrnii, *Woll.*, Tomicus, 290.
domuum, Microchondrus, 197.
domuum, Guér. (*Microchondrus*), 197.
Donacioides, *Woll.*, Læmophlœus, 159.
dorsalis, Dej. (*Acupalpus*), 60.
——, Fab. (*Carabus*), 60.
——, Gyll. (*Harpalus*), 60.
dorsalis, Stenolophus, 60.
dorsalis, Erich. (*Stenolophus*), 60.
Dromius, *Bon.*, 3.
Dromius arenicolus, *Woll.*, 5.
—— *bipennifer*, Bab., 5.
—— *fasciatus*, Sturm, 5.
—— glabratus, 9.
—— *glabratus*, Dej., 9.
—— ——, Heer, 9.
—— ——, Steph., 9.
—— *impunctatus*, Steph., 7.
—— insularis, *Woll.*, 4.
—— negrita, *Woll.*, 9.
—— obscuroguttatus, 7.
—— *obscuroguttatus*, Erich., 7.
—— sigma, 5.
—— *sigma*, Bab., 5.
—— ——, Dej., 5.
Dromius sigma, Heer, 5.
—— *spilotus*, Dej., 7.
—— *Sturmii*, Bab., 5.
Dulcamaræ, Scop. (*Laria*), 122.
——, Steph. (*Meligethes*), 122.
——, Illig. (*Nitidula*), 122.
Dulcamaræ, Pria, 122.
Dulcamaræ, Sturm (*Pria*), 122.
Durantæ, *Woll.*, Scymnus, 465.
DYTISCIDÆ, 82.
Dytiscus bipunctatus, Fab., 84.
—— ——, Oliv., 84.
—— *bipustulatus*, Fab., 83.
—— ——, Linn., 83.
—— *confluens*, Fab., 87.
—— *Lanio*, Fab., 82.
—— ——, Oliv., 82.
—— *natator*, Linn., 89.
—— *nebulosus*, Forst., 84.

Echii, Ceutorhynchus, 325.
Echii, Schön. (*Ceutorhynchus*), 325.
——, Fab. (*Curculio*), 325.
——, Mshm (*Curculio*), 325.
——, Steph. (*Nedyus*), 325.
echinatus, *Woll.*, Tarphius, 143.
Echinosoma, *Woll.*, 395.
Echinosoma porcellus, *Woll.*, 396.
Elaphrus bistriatus, Dufts., 73.
ELATERIDÆ, 238.
Ellipsodes, *Woll.*, 485.
Ellipsodes glabratus, 486.
ellipticum, *Woll.*, Plœosoma, 148.
Elliptosoma, *Woll.*, 18.
elongata, Oliv. (*Blaps*), 510.
elongatum, Bembidium, 79.
elongatum, Dej. (*Bembidium*), 80.
—— Heer (*Bembidium*), 80.
elongatus, Calcar, 495.
elongatus, Lucas (*Calcar*), 495.
elongatus, Hegeter, 510.
——, *Woll.*, Olisthopus, 38.
elongatus, Herbst (*Tenebrio*), 495.
Ephistemus, *Steph.*, 175.
Ephistemus alternans, *Woll.*, 177.
—— *confinis*, Steph., 176.
—— dimidiatus, 176.
—— *dimidiatus*, Erich., 176.
—— ——, Sturm, 176.
Epuræa obsoleta, Erich., 121.
Ericæ, *Woll.*, Olisthopus, 37.
ERIRHINIDES, 343.
errans, *Woll.*, Opatrum, 501.
EUCERATA, 422.
Eucinetus, *Schüpp.*, 240.
Eucinetus ovum, *Woll.*, 242.
Euphorbiæ, *Woll.*, Aphanarthrum, 293.
——, *Woll.*, Mesites, 318.
Eupus, *Woll.*, 452.
Europs, *Woll.*, 149.
Europs impressicollis, *Woll.*, 150.
Eurygnathus, *Woll.*, 20.
Eurygnathus Latreillei, 21.
excelsus, *Woll.*, Atlantis, 378.
excultus, *Woll.*, Bradycellus, 61.
exigua, Mann. (*Aleochara*), 561.

Fagi, Sturm (*Tenebrio*), 499.
Fagi, *Woll.*, Corticaria, 188.
Falagria, *Mann.*, 540.
Falagria obscura, 541.
—— *obscura*, Erich., 541.
—— ——, Mann., 541.
fasciatus, Sturm (*Dromius*), 5.
fascicularis, Acratrichis, 108.
fascicularis, Hbst (*Latridius*), 108.
——, Heer (*Trichopteryx*), 108.
fatadica, Blaps, 508.
fatadica, Brullé (*Blaps*), 508.
——, Dufts. (*Blaps*), 508.
——, Sturm (*Blaps*), 508.
femoratus, *Woll.*, Coptostethus, 240.
fenestratus, Dej. (*Anthicus*), 536.
fennicum, Fab. (*Callidium*), 425.
fennicus, Linn. (*Cerambyx*), 425.
Feronia nigerrima, Dej., 45.
ferruginea, Steph. (*Stene*), 492.
ferrugineum, Tribolium, 491.
ferrugineus, Dahl (*Aphodius*), 224.
——, Sturm (*Cryptophagus*), 168.
——, Creutz. (*Cucujus*), 163.
——, Steph. (*Cucujus*), 163.
ferrugineus, Læmophlœus, 163.
ferrugineus, Erich. (*Læmophlœus*), 163.
——, Sturm (*Læmophlœus*), 163.
——, Dej. (*Margus*), 492.
——, Sturm (*Silvanus*), 168.
——, Fab. (*Tenebrio*), 492.
filiforme, *Woll.*, Xenomma, 545.
filiformis, *Woll.*, Philonthus, 585.
filirostris, *Woll.*, Tychius, 346.
fimetarium, *Woll.*, Cercyon, 103.
fimicola, *Woll.*, Trechus, 63.
fissicornis, Mshm (*Ptinus*), 287.
flavicomus, *Woll.*, Meloë, 528.
flavomarginatus, *Woll.*, Trechus, 65.
flavopictus, *Woll.*, Scymnus, 469.
flexuosa, Oliv. (*Nitidula*), 119.
flexuosa, Nitidula, 119.
flexuosa, Erich. (*Nitidula*), 119.
——, Fab. (*Nitidula*), 119.
——, Heer (*Nitidula*), 119.
Foræ, *Woll.*, Atlantis, 380.
formicarum, *Woll.*, Xenomma, 545.
fossor, *Woll.*, Platysthetus, 603.
Fragariæ, *Woll.*, Chrysomela, 458.
fragilis, *Woll.*, Ptinus, 271.
fritillus, *Woll.*, Lichenophagus, 390.
frumentaria, Oliv. (*Ips*), 167.
frumentarium, Fab. (*Anobium*), 167.
frumentarium, Apion, 412.
frumentarium, Schön. (*Apion*), 412.
frumentarius, Linn. (*Curculio*), 412.
——, Payk. (*Curculio*), 412.
——, Sturm (*Silvanus*), 167.
fuliginosus, Steph. (*Ceutorhynchus*), 329.
fuliginosus, Cœliodes, 329.
fuliginosus, Schön. (*Cœliodes*), 329.
——, Mshm (*Curculio*), 329.
fulva, Corticaria, 185.
fulva, Mann. (*Corticaria*), 185.
——, Redt. (*Corticaria*), 185.
fulvus, Bradycellus, 61.
fulvus, Mshm (*Carabus*), 61.
fulvus, *Woll.*, Ditylus, 523.
fulvus, Chevr. (*Lathridius*), 185.
——, Villa (*Lathridius*), 185.
——, Steph. (*Trechus*), 61.
fumata, Typhæa, 199.
fumata, Curt. (*Typhæa*), 199.
——, Sturm (*Typhæa*), 199.
fumatus, Linn. (*Dermestes*), 199.
——, Gyll. (*Mycetophagus*), 199.
fuscipes, Cis, 281.
——, *Mellié* (Cis), 281.

fuscula, Lithocharis, 589.
fuscula, Erich. (*Lithocharis*), 589.
——, Heer (*Lithocharis*), 589.
——, Lacord. (*Lithocharis*), 589.
fuscum, Opatrum, 500.
fuscum, Herbst (*Opatrum*), 500.
fuscus, Calathus, 31.
fuscus, Dej. (*Calathus*), 31.
——, Fab. (*Carabus*), 31.
——, Gyll. (*Harpalus*), 31.
futilis, *Woll.*, Helops, 520.

gages, Blaps, 506.
gages, Brullé (*Blaps*), 507.
——, Fab. (*Blaps*), 507.
——, Linn. (*Tenebrio*), 507.
GALERUCIDÆ, 440.
Galeruca Salicariæ, Payk., 442.
Gastrophysa, *Redt.*, 459.
Gastrophysa Polygoni, 459.
—— *Polygoni*, Redt., 459.
geminatus, Notiophilus, 17.
geminatus, Dej. (*Notiophilus*), 17.
geminus, Erich. (*Olibrus*), 115.
——, Illig. (*Phalacrus*), 115.
Genistæ, *Woll.*, Coccinella, 464.
GEODEPHAGA, 1.
Gibbium, *Scop.*, 274.
Gibbium scotias, 274.
—— *scotias*, Kugel., 275.
—— ——, Sturm, 275.
gibbulus, Tarphius, 132.
gigas, Lat. (*Blaps*), 507.
glabrata, Dufts. (*Lebia*), 9.
glabratum, Fab. (*Sphæridium*), 486.
glabratus, Brullé (*Olisthopus*), 35.
glabratus, Dej. (*Dromius*), 9.
——, Heer (*Dromius*), 9.
——, Steph. (*Dromius*), 9.
glabratus, Ellipsodes, 486.
GLAPHYRIDÆ, 234.
glareosus, *Woll.*, Oxytelus, 610.
globulipennis, *Woll.*, Acalles, 339.
globulum, Heer (*Psychidium*), 176.
Glœosoma, *Woll.*, 480.
Glœosoma velox, *Woll.*, 482.
Glycyrrhizæ, Chev. (*Lyctus*), 152.
gracilipes, *Woll.*, Argutor, 41.
gracilis, *Woll.*, Trixagus, 237.
granaria, Steph. (*Calandra*), 321.
granarius, Aphodius, 226.
granarius, Heer (*Aphodius*), 226.
——, Illig. (*Aphodius*), 226.
——, Steph. (*Aphodius*), 226.
——, Mshm (*Bruchus*), 420.
——, Steph. (*Bruchus*), 420.
——, Fab. (*Curculio*), 321.
——, Linn. (*Curculio*), 321.
——, Linn. (*Scarabæus*), 226.
——, Oliv. (*Scarabæus*), 226.
granarius, Sitophilus, 321.
granarius, Schön. (*Sitophilus*), 321.
grandicollis, *Woll.*, Limnebius, 94.
grandicollis, Erich. (*Trichopteryx*), 108.
granulatum, *Woll.*, Omalium, 613.
granulatus, *Woll.*, Læmophlœus, 160.
granulosa, *Woll.*, Homalota, 548.
granulosus, Fald. (*Hegeter*), 503.
gregaria, Homalota, 550.
gregaria, Erich. (*Homalota*), 550.
——, Redt. (*Homalota*), 550.
gressoria, Sitona, 403.
gressorius, Fab. (*Curculio*), 403.
——, Herbst (*Curculio*), 403.
——, Germ. (*Sitona*), 403.
——, Schön. (*Sitona*), 403.
Gryphinus lateralis, Redt., 478.
—— *piceus*, Redt., 476.
guttula, Stenus, 597.
guttula, Erich. (*Stenus*), 597.
——, Heer (*Stenus*), 597.
——, Müll. (*Stenus*), 597.
GYRINIDÆ, 88.
Gyrinus, *Linn.*, 88.
Gyrinus natator, 88.
—— *natator*, Aubé, 89.
—— ——, Fab., 89.
—— ——, Linn., 89.

Habrocerus, *Erich.*, 568.
Habrocerus capillaricornis, 569.
—— *capillaricornis*, Erich., 569.
Hadrus, *Dej.*, 502.
Hadrus alpinus, *Woll.*, 502.
—— cinerascens, 503.
—— *cinerascens*, Dej., 503.
—— illotus, *Woll.*, 503.
hæmatodes, Steph. (*Apion*), 412.
Haltica, *Geoffr.*, 440.
Haltica chrysocephala, Gyll., 449.
—— *lutescens*, Gyll., 446.
—— Salicariæ, 442.
—— *Salicariæ*, Gyll., 442.
—— ——, Redt., 442.
—— ——, Steph., 442.
—— subtilis, *Woll.*, 441.
HARPALIDES, 18.
HARPALIDEA, 49.
harpalinus, Dej. (*Acupalpus*), 61.
——, Heer (*Acupalpus*), 61.
Harpalus, *Lat.*, 50.
Harpalus attenuatus, 51.
—— *attenuatus*, Steph., 51.
—— *binotatus*, Gyll., 50.
—— *consentanus*, Dej., 51.
—— *desertus*, Stev., 51.
—— distinguendus, 52.
—— *distinguendus*, Dej., 52.
—— ——, Erich., 52.
—— ——, Heer, 52.
—— *dorsalis*, Gyll., 60.
—— *fuscus*, Gyll., 31.
—— litigiosus, 51.
—— *litigiosus*, Dej., 52.
—— ——, Heer, 52.
—— *marginatus*, Gyll., 34.
—— *obscurus*, Dej., 58.
—— ——, Sturm, 58.
—— *Sardeus*, Dahl, 51.
—— *trivialis*, Gyll., 48.
—— vividus, 53.
—— *vividus*, Dej., 54.
Hartungii, Achenium, 587.
Hartungii, Heer (*Achenium*), 587.
Heeri, *Woll.*, Calobius, 93.
——, *Woll.*, Stenus, 600.
Hegeter, *Lat.*, 508.
Hegeter Amaroides, Solier, 509.
Hegeter elongatus, 510.
—— *granulosus*, Fald., 503.
—— latebricola, *Woll.*, 510.
—— *striatus*, Brullé, 510.
—— ——, Lat., 510.
—— ——, Solier, 510.
Heineckeni, *Woll.*, Oxyomus, 228.
Helferi, Scydmænus, 539.
Helferi, Lucas (*Scydmænus*), 540.
——, Schaum (*Scydmænus*), 540.
HELOPIDÆ, 511.
Helops, *Fab.*, 511.
Helops carbunculus, *Woll.*, 519.
—— cinnamomeus, *Woll.*, 520.
—— confertus, *Woll.*, 515.
—— congregatus, *Woll.*, 518.
—— futilis, *Woll.*, 520.
—— infernus, *Woll.*, 517.
—— Leacocianus, *Woll.*, 517.
—— lucifugus, *Woll.*, 518.
—— Pluto, *Woll.*, 516.
—— Portosanctanus, *Woll.*, 521.
—— Vulcanus, *Woll.*, 513.
hemiptera, Fab. (*Nitidula*), 116.
hemipterus, Carpophilus, 117.
hemipterus, Erich. (*Carpophilus*), 117.
——, Sturm (*Carpophilus*), 117.
——, Linn. (*Dermestes*), 117.
hemisphærica, Cassida, 439.
hemisphærica, Gyll. (*Cassida*), 440.
——, Herbst (*Cassida*), 440.
——, Lucas (*Cassida*), 440.
——, Steph. (*Cassida*), 440.
Heterophaga diaperina, Redt., 498.
—— *Opatroides*, Dej., 498.
hirtellus, Fab. (*Notoxus*), 536.
hispidus, Anthicus, 535.
hispidus, La Ferté (*Anthicus*), 536.
——, Schmidt (*Anthicus*), 536.
——, Rossi (*Notoxus*), 536.
HISTERIDÆ, 209.
Hister, *Linn.*, 209.
Hister affinis, Payk., 216.
—— *chalcites*, Illig., 216.
—— major, 210.
—— *major*, Fab., 210.
—— ——, Heer, 210.
—— ——, Linn., 210.
—— ——, Payk., 210.
—— *metallicus*, Fab., 217.
—— ——, Herbst, 217.
—— *minimus*, Dej., 212.
—— *nitidulus*, Fab., 215.
—— ——, Payk., 215.
—— *rufipes*, Gyll., 216.
—— *semistriatus*, Ent. Hefte, 215.
histrio, *Woll.*, Xenostrongylus, 128.
Holoparamecus, *Curt.*, 180.
Holoparamecus niger, 182.
Homalota, *Mann.*, 546.
Homalota atramentaria, 555.
—— *atramentaria*, Erich., 556.
—— currens, *Woll.*, 552.
—— granulosa, *Woll.*, 548.
—— gregaria, 550.
—— *gregaria*, Erich., 550.
—— ——, Redt., 550.
—— insignis, *Woll.*, 555.
—— *livida*, Erich., 557.
—— lividipennis, 557.
—— *lividipennis*, Erich., 557.
—— ——, Redt., 557.
—— longicornis, 556.
—— *longicornis*, Erich., 556.
—— ——, Redt., 556.
—— luticola, *Woll.*, 549.
—— obliquepunctata, *Woll.*, 549.
—— Philonthoides, *Woll.*, 551.
—— plebeia, *Woll.*, 553.
—— sanguinolenta, *Woll.*, 547.
—— sodalis, 554.
—— *sodalis*, Erich., 554.

Homalota tantilla, *Woll.*, 553.
—— umbratilis, *Woll.*, 554.
horrida, *Woll.*, Syncalypta, 208.
hortensis, Rossi (*Carabus*), 15.
hospes, *Woll.*, Psylliodes, 449.
humeralis, *Woll.*, Scarites, 12.
——, Sitona, 407.
humeralis, Steph. (*Sitona*), 407.
Huttoni, *Woll.*, Trichophya, 572.
HYDRADEPHAGA, 82.
Hydrobius, *Leach*, 96.
Hydrobius conglobatus, *Woll.*, 97.
—— *melanocephalus*, Erich., 98.
Hydrochæris, Aphodius, 222.
Hydrochæris, Heer (*Aphodius*), 222.
——, Illig. (*Aphodius*), 222.
——, Muls. (*Aphodius*), 222.
——, Fab. (*Scarabæus*), 222.
HYDROPHILIDÆ, 90.
Hydrophilus bipunctatus, Fab., 95.
—— *melanocephalus*, Gyll., 98.
—— ——, Oliv., 98.
—— *minutus*, Gyll., 95.
Hydroporus, *Clairv.*, 86.
Hydroporus confluens, 87.
—— *confluens*, Aubé, 87.
—— vigilans, *Woll.*, 86.
Hygrotus confluens, Steph., 87.
Hylastes, *Erich.*, 304.
Hylastes clavus, *Woll.*, 305.
—— Trifolii, 304.
HYLESINIDÆ, 299.
Hylesinus ligniperda, Gyll., 302.
—— ——, Ratz., 302.
—— *piniperda*, Ratz., 303.
—— *Trifolii*, Müll., 305.
—— ——, Schmidt, 305.
Hylurgus, *Lat.*, 301.
Hylurgus ligniperda, 302.
—— *ligniperda*, Erich., 302.
—— piniperda, 303.
—— *piniperda*, Redt., 303.
Hypera, *Germ.*, 397.
Hypera lunata, *Woll.*, 398.
—— murina, 399.
—— *murina*, Germ., 399.
—— variabilis, 400.
Hyphydrus confluens, Gyll., 87.
Hypocoprus, *Mots.*, 173.
Hypocoprus Motschulskii, *Woll.*, 174.

ictericus, Payk. (*Scarabæus*), 223.
illotus, *Woll.*, Hadrus, 503.
illustris, Dasytes, 252.
illustris, Mots. (*Dasytes*), 252.
immunita, Erich. (*Tachyusa*), 550.
impius, *Woll.*, Caulotrupis, 311.
impressicollis, *Woll.*, Europs, 150.
impunctatus, Steph. (*Dromius*), 7.
inconstans, *Woll.*, Atlantis, 375.
Indagator, Dej. (*Calosoma*), 15.
——, Heer (*Calosoma*), 15.
——, Fab. (*Carabus*), 15.
——, Oliv. (*Carabus*), 15.
infernus, *Woll.*, Helops, 517.
inflata, Mann. (*Microcera*), 562.
inflata, Oligota, 562.
inornatus, *Woll.*, Tarphius, 135.
inquinatum, *Woll.*, Cercyon, 103.
insignis, *Woll.*, Homalota, 555.
instabilis, Anthicus, 534.
instabilis, Dej. (*Anthicus*), 534.
——, Schmidt (*Anthicus*), 534.
instabilis, *Woll.*, Atlantis, 377.
insularis, *Woll.*, Dromius, 4.
intermedius, Smith (*Silvanus*), 168.
interruptus, Dej. (*Carabus*), x.
Ips frumentaria, Oliv., 167.
—— *minuta*, Oliv., 190.
—— *testacea*, Fab., 492.
—— *transversa*, Oliv., 191.
—— *villosus*, Mshm, 290.
Isoplexidis, *Woll.*, Longitarsus, 443.
——, *Woll.*, Meligethes, 123.

Jansoni, *Woll.*, Othius, 576.

Kiesenwetteri, *Woll.*, Malthodes, 243.
Kirbii, Curtis (*Stenus*), 597.

Laccobius, *Erich.*, 95.
Laccobius minutus, 95.
—— *minutus*, Erich., 95.
lacertosus, *Woll.*, Caulotrupis, 309.
Læmophlœus, *Erich.*, 158.
Læmophlœus axillaris, *Woll.*, 164.
—— clavicollis, *Woll.*, 163.
—— Donacioides, *Woll.*, 159.
—— ferrugineus, 163.
—— *ferrugineus*, Erich., 163.
—— ——, Sturm, 163.
—— granulatus, *Woll.*, 160.
—— pusillus, 162.
—— *pusillus*, Erich., 162.
—— ——, Sturm, 162.
—— Stenoides, *Woll.*, 165.
—— vermiculatus, *Woll.*, 161.
læta, Fab. (*Coccinella*), 461.
læve, *Woll.*, Mniophilosoma, 454.
lamellipes, *Woll.*, Atlantis, 364.
Lamus, Dejean, 493.
lanatus, *Woll.*, Atlantis, 372.
Lanio, Colymbetes, 82.
Lanio, Aubé (*Colymbetes*), 82.
——, Fab. (*Dytiscus*), 82.
——, Oliv. (*Dytiscus*), 82.
Laparocerus, *Schön.*, 358.
Laparocerus morio, 360.
—— *morio*, Schön., 360.
Laria Dulcamaræ, Scop., 122.
latebricola, *Woll.*, Hegeter, 510.
lateralis, Gyll. (*Cossyphus*), 478.
——, Redt. (*Gryphinus*), 478.
lateralis, Sericoderus, 478.
LATHRIDIADÆ, 178.
Lathridius, *Hbst*, 188.
Lathridius assimilis, 189.
—— *assimilis*, Mann., 189.
—— *collaris*, Mots., 189.
—— *fulvus*, Chevr., 185.
—— ——, Villa, 185.
—— minutus, 190.
—— *minutus*, Mann., 190.
—— transversus, 191.
—— *transversus*, Mann., 191.
Lathrobium, *Grav.*, 587.
Lathrobium multipunctatum, 588.
—— *multipunctatum*, Erich., 588.
—— ——, Grav., 588.
—— ——, Gyll., 588.
—— ——, Heer, 588.
latipennis, Sitona, 404.
latipennis, Schön. (*Sitona*), 404.
Latreillei, Eurygnathus, 21.
Latreillei, Lap. (*Licinus*), 21.
Latridius fascicularis, Hbst, 108.
—— *porcatus*, Steph., 190.
—— *transversus*, Steph., 191.
Lauri, *Woll.*, Cis, 282.
——, *Woll.*, Tarphius, 138.
lauripotens, *Woll.*, Atlantis, 369.
Leacocianus, *Woll.*, Helops, 517.
Lebia glabrata, Dufts., 9.
—— *lineola*, Dufour, 2.
—— *obscuroguttata*, Dufts., 7.
Leiparthrum, *Woll.*, 294.
Leiparthrum Artemisiæ, *Woll.*, 299.
—— bituberculatum, *Woll.*, 297.
—— curtum, *Woll.*, 298.
—— mandibulare, *Woll.*, 295.
Lema, *Fab.*, 435.
Lema melanopa, 436.
—— *melanopa*, Fab., 436.
—— ——, Lacord., 436.
Leptura Arietis, Linn., 429.
lichenicola, *Woll.*, Bruchus, 421.
Lichenophagus, *Woll.*, 389.
Lichenophagus acuminatus, *Woll.*, 391.
—— fritillus, *Woll.*, 390.
Licinus Latreillei, Lap., 21.
ligniperda, Fab. (*Bostrichus*), 302.
——, Gyll. (*Hylesinus*), 302.
——, Ratz. (*Hylesinus*), 302.
ligniperda, Hylurgus, 302.
ligniperda, Erich. (*Hylurgus*), 302.
Limnebius, *Leach*, 93.
Limnebius grandicollis, *Woll.*, 94.
Limnichoides, *Woll.*, Scymnus, 470.
linearis, Fab. (*Staphylinus*), 578.
——, Mshm (*Staphylinus*), 578.
——, Oliv. (*Staphylinus*), 578.
——, Xantholinus, 577.
——, Erich. (*Xantholinus*), 578.
lineata, Dej. (*Cymindis*), 2.
lineata, Sitona, 406.
lineata, Steph. (*Sitona*), 407.
lineatotessellatus, *Woll.*, Ceutorhynchus, 327.
lineatus, Schön. (*Carabus*), 2.
——, Fab. (*Curculio*), 407.
——, Linn. (*Curculio*), 407.
——, Schön. (*Sitona*), 407.
lineatus, Tarus, 2.
liquidus, Olibrus, 114.
liquidus, Erich. (*Olibrus*), 114.
Litargus, *Erich.*, 199.
Litargus pictus, *Woll.*, 200.
Lithocharis, *Lacord.*, 589.
Lithocharis fuscula, 589.
—— *fuscula*, Erich., 589.
—— ——, Heer, 589.
—— ——, Lacord., 589.
—— ——, Redt., 589.
—— melanocephala, 591.
—— *melanocephala*, Erich., 591.
—— ——, Heer, 591.
—— ochracea, 590.
—— *ochracea*, Erich., 590.
—— ——, Heer, 590.
—— ——, Redt., 590.
litigiosa, Oxypoda, 558.
litigiosa, Heer (*Oxypoda*), 558.
litigiosus, Harpalus, 51.
litigiosus, Dej. (*Harpalus*), 52.
——, Heer (*Harpalus*), 52.
litoralis, Anthicus, 535.
litoralis, Heer (*Anthicus*), 535.
litura, Fab. (*Nitidula*), 472.
——, Dej. (*Nundina*), 472.
litura, Rhyzobius, 472.
litura, Muls. (*Rhizobius*), 472.

litura, Steph. (*Rhyzobius*), 472.
livida, Erich. (*Homalota*), 557.
lividipennis, Homalota, 557.
lividipennis, Erich. (*Homalota*), 557.
——, Redt. (*Homalota*), 557.
——, Mann. (*Oxypoda*), 557.
lividus, Aphodius, 225.
lividus, Heer (*Aphodius*), 225.
——, Steph. (*Aphodius*), 225.
——, Dej. (*Clypeaster*), 478.
——, Oliv. (*Scarabæus*), 225.
Lixus, *Fab.*, 348.
Lixus angustatus, 351.
—— *angustatus*, Dahl, 353.
—— ——, Fab., 352.
—— ——, Schön., 352.
—— ——, Steph., 352.
—— Chawneri, *Woll.*, 350.
—— Cheiranthi, *Woll.*, 349.
—— rufitarsis, 352.
—— *rufitarsis*, Dej., 353.
—— ——, Schön., 353.
—— vectiformis, *Woll.*, 351.
longicornis, Grav. (*Aleochara*), 556.
——, Mann. (*Bolitochara*), 556.
longicornis, Homalota, 566.
longicornis, Erich. (*Homalota*), 556.
——, Redt. (*Homalota*), 556.
longicornis, *Woll.*, Megarthrus, 615.
longicornis, Mann. (*Oxytelus*), 607.
longicornis, *Woll.*, Ptinus, 270.
Longitarsus, *Lat.*, 443.
Longitarsus Cinerariæ, *Woll.*, 444.
—— Isoplexidis, *Woll.*, 443.
—— lutescens, 446.
—— *lutescens*, Redt., 446.
—— nervosus, *Woll.*, 447.
—— nubigena, *Woll.*, 447.
—— saltator, *Woll.*, 445.
Lopha, *Meg.*, 80.
Loricera, *Lat.*, 18.
Loricera Wollastonii, 19.
—— *Wollastonii*, Javet, 19.
Lowei, *Woll.*, Stenaxis, 524.
——, *Woll.*, Tarphius, 134.
Lucasii, Bembidium, 75.
Lucasii, Duval (*Bembidium*), 75.
lucifugus, *Woll.*, Caulotrupis, 310.
——, *Woll.*, Helops, 518.
lunata, *Woll.*, Hypera, 398.
lunatus, Steph. (*Biphyllus*), 173.
——, Fab. (*Dermestes*), 173.
lunatus, Diphyllus, 172.
lunatus, Redt. (*Diphyllus*), 173.
lunulatus, *Woll.*, Acalles, 340.
lutescens, Gyll. (*Haltica*), 446.
——, Redt. (*Longitarsus*), 446.
——, Steph. (*Thyamis*), 446.
luticola, *Woll.*, Homalota, 549.
Lyctus, *Fab.*, 151.
Lyctus brunneus, 152.
—— *Colydioides*, Dej., 152.
—— *Glycyrrhizæ*, Chev., 152.
—— *parasiticus*, Steph., 152.

Macrocnema chrysocephala, Steph., 449.
Macrostethus, *Woll.*, 504.
Macrostethus tuberculatus, *Woll.*, 505.
Maderæ, *Woll.*, Boromorphus, 493.
——, Calosoma, 15.
Maderæ, Fab. (*Carabus*), 15.
——, Oliv. (*Carabus*), 15.
Maderæ, Cholovocera, 180.
Maderæ, Westw. (*Cholovocera*), 180.
Maderæ, *Woll.*, Scoliocerus, 392.
Maderense, Fald. (*Nosodendron*), 204.
Maderensis, *Woll.*, Agabus, 85.
——, *Woll.*, Auletes, 416.
——, *Woll.*, Mesites, 319.
——, *Woll.*, Olisthopus, 35.
——, *Woll.*, Pecteropus, 247.
major, Hister, 210.
major, Fab. (*Hister*), 210.
——, Heer (*Hister*), 210.
——, Linn. (*Hister*), 210.
——, Payk. (*Hister*), 210.
Malachius, *Fab.*, 244.
Malachius militaris, *Woll.*, 245.
Malthinus, Lat., 243.
Malthodes, *Kies.*, 242.
Malthodes Kiesenwetteri, *Woll.*, 243.
Malvæ, Apion, 411.
Malvæ, Redt. (*Apion*), 412.
——, Schön. (*Apion*), 412.
——, Fab. (*Curculio*), 412.
——, Mshm (*Curculio*), 412.
mandibulare, *Woll.*, Leiparthrum, 295.
marginalis, Gyll. (*Coccinella*), 467.
——, Rossi (*Coccinella*), 467.
marginalis, Scymnus, 466.
marginalis, Muls. (*Scymnus*), 467.
——, Grav. (*Tachinus*), 570.
marginatum, Dej. (*Agonum*), 34.
——, Erich. (*Agonum*), 34.
——, Heer (*Sphæridium*), 101.
marginatus, Anchomenus, 33.
marginatus, Fab. (*Carabus*), 34.
——, Linn. (*Carabus*), 34.
——, Gyll. (*Harpalus*), 34.
Margus ferrugineus, Dej., 492.
mauritanica, Trogosita, 154.
mauritanica, Erich. (*Trogosita*), 154.
——, Gyll. (*Trogosita*), 154.
——, Oliv. (*Trogosita*), 154.
mauritanicus, Steph. (*Alphitobius*), 498.
——, Lucas (*Anthicus*), 534.
mauritanicus, Ptinus, 261.
mauritanicus, Lucas (*Ptinus*), 262.
——, Linn. (*Tenebrio*), 154.
maxillosus, Steph. (*Creophilus*), 579.
maxillosus, Staphylinus, 579.
maxillosus, Erich. (*Staphylinus*), 579.
——, Fab. (*Staphylinus*), 579.
——, Linn. (*Staphylinus*), 579.
Mecognathus, *Woll.*, 595.
Mecognathus Chimæra, *Woll.*, 595.
MECORHYNCHI, 306.
Megarthrus, *Steph.*, 614.
Megarthrus longicornis, *Woll.*, 615.
megatoma, Attagenus, 204.
megatoma, Erich. (*Attagenus*), 204.
——, Sturm (*Attagenus*), 204.
——, Dufts. (*Dermestes*), 204.
——, Fab. (*Dermestes*), 204.
Melancrus Amaroides, Dej., xi.
melanocephala, Lithocharis, 591.
melanocephala, Erich. (*Lithocharis*), 591.
——, Heer (*Lithocharis*), 591.
melanocephalus, Erich. (*Hydrobius*), 98.
——, Gyll. (*Hydrophilus*), 98.
——, Oliv. (*Hydrophilus*), 98.
melanocephalus, Philhydrus, 98.
melanocephalus, Muls. (*Philhydrus*), 98.
melanocephalus, Fab. (*Pæderus*), 591.
——, Steph. (*Sunius*), 591.
melanopa, Linn. (*Chrysomela*), 436.
——, Steph. (*Crioceris*), 436.
melanopa, Lema, 436.
melanopa, Fab. (*Lema*), 436.
——, Lacord. (*Lema*), 436.
Meligethes, *Steph.*, 123.
Meligethes Isoplexidis, *Woll.*, 123.
—— picipes, 125.
—— *picipes*, Erich., 125.
—— ——, Redt., 125.
—— ——, Sturm, 125.
—— tristis, 124.
—— *tristis*, Erich., 124.
—— ——, Redt., 124.
—— ——, Sturm, 124.
—— varicollis, *Woll.*, 126.
MELOIDÆ, 525.
Meloë, *Linn.*, 525.
Meloë austrinus, *Woll.*, 527.
—— *autumnalis*, Leach, 528.
—— flavicomus, *Woll.*, 528.
—— *punctatus*, Steph., 528.
—— rugosus, 527.
—— *rugosus*, Mshm, 528.
—— *rugulosa*, Brullé, 528.
MELYRIDÆ, 244.
Melyrosoma, *Woll.*, 253.
Melyrosoma Artemisiæ, *Woll.*, 254.
—— oceanicum, *Woll.*, 253.
mendax, *Woll.*, Atlantis, 376.
Merium, Kirby, 424.
Mesites, *Schön.*, 317.
Mesites Tardii, Curtis, 320.
Mesites Euphorbiæ, *Woll.*, 378.
—— Maderensis, *Woll.*, 319.
metallicus, Fab. (*Hister*), 217.
——, Herbst (*Hister*), 217.
metallicus, Saprinus, 217.
metallicus, Erich. (*Saprinus*), 217.
Metophthalmus, *Mots.*, 192.
Metophthalmus asperatus, *Woll.*, 193.
Metopsia, *Woll.*, 616.
Metopsia ampliata, *Woll.*, 616.
Mezium, *Curtis*, 272.
Mezium sulcatum, 273.
—— *sulcatum*, Curtis, 273.
—— ——, Sturm, 273.
Microcera inflata, Mann., 562.
Microchondrus, *Guér.*, 196.
Microchondrus domuum, 197.
—— *domuum*, Guér., 197.
Microum, *Woll.*, 177.
militaris, *Woll.*, Malachius, 245.
minima, Gyll. (*Coccinella*), 470.
——, Rossi (*Coccinella*), 470.
minimus, Dej. (*Dendrophilus*), 212.
——, Dej. (*Hister*), 212.
minimus, Paromalus, 212.
minimus, Aubé (*Paromalus*), 212.
minimus, Scymnus, 470.
minimus, Muls. (*Scymnus*), 470.
minuta, Linn. (*Chrysomela*), 95.
——, Oliv. (*Ips*), 190.
minutissimus, Steph. (*Tachys*), 73.
minutus, Oliv. (*Cucujus*), 162.
——, Gyll. (*Hydrophilus*), 95.
minutus, Laccobius, 95.
minutus, Erich. (*Laccobius*), 95.
minutus, Lathridius, 190.
minutus, Mann. (*Lathridius*), 190.
——, Linn. (*Tenebrio*), 190.
Mniophilosoma, *Woll.*, 453.

Mniophilosoma læve, *Woll.*, 454.
molitor, Tenebrio, 496.
molitor, Fab. (*Tenebrio*), 496.
——, Gyll. (*Tenebrio*), 496.
——, Linn. (*Tenebrio*), 496.
——, Steph. (*Tenebrio*), 496.
mollis, Linn. (*Attelabus*), 256.
——, Fab. (*Notoxus*), 256.
——, Lat. (*Opilo*), 256.
mollis, Opilus, 256.
mollis, Steph. (*Opilus*), 256.
Molytides, 397.
monticola, *Woll.*, Conurus, 566.
Mordellidæ, 531.
morio, Fab. (*Coccinella*), 467.
morio, Laparocerus, 360.
morio, Schön. (*Laparocerus*), 360.
morion, Aleochara, 561.
morion, Erich. (*Aleochara*), 561.
——, Grav. (*Aleochara*), 561.
——, Lat. (*Aleochara*), 561.
——, Mann. (*Aleochara*), 561.
Motschulskii, *Woll.*, Hypocoprus, 174.
multipunctatum, Lathrobium, 588.
multipunctatum, Erich. (*Lathrobium*), 588.
——, Grav. (*Lathrobium*), 588.
——, Gyll. (*Lathrobium*), 588.
——, Heer (*Lathrobium*), 588.
murina, Hypera, 399.
murina, Germ. (*Hypera*), 399.
murinus, Fab. (*Curculio*), 399.
——, Schön. (*Phytonomus*), 399.
——, Gyll. (*Rhynchænus*), 399.
Musæ, *Woll.*, Cryptamorpha, 157.
mutabilis, Muls. (*Adonia*), 461.
mutabilis, Coccinella, 461.
mutabilis, Gyll. (*Coccinella*), 461.
——, Scriba (*Coccinella*), 461.
mutilatus, Carpophilus, 116.
mutilatus, Erich. (*Carpophilus*), 116.
Mycetophagidæ, 194.
Mycetophagus fumatus, Gyll., 199.
Mycetoporus, *Mann.*, 573.
Mycetoporus pronus, 573.
—— *pronus*, Erich., 573.
Mylabris 4-punctata, Fab., 530.

nanus, *Woll.*, Trogophlœus, 611.
natator, Linn. (*Dytiscus*), 89.
natator, Gyrinus, 88.
natator, Aubé (*Gyrinus*), 89.
——, Fab. (*Gyrinus*), 89.
——, Linn. (*Gyrinus*), 89.
navicularis, *Woll.*, Atlantis, 374.
Nebria dilatata, Dej., x.
nebulosa, Cassida, 439.
nebulosa, Fab. (*Cassida*), 439.
——, Gyll. (*Cassida*), 439.
——, Linn. (*Cassida*), 439.
——, Steph. (*Cassida*), 439.
nebulosus, Agabus, 84.
nebulosus, Steph. (*Colymbetes*), 84.
——, Forst. (*Dytiscus*), 84.
Necrobia, *Oliv.*, 257.
Necrobia ruficollis, 258.
—— *ruficollis*, Oliv., 258.
—— ——, Steph., 258.
Necrophaga, 106.
Nedyus Borraginis, Steph., 326.
—— *Echii*, Steph., 325.
negrita, *Woll.*, Dromius, 9.
Neptunus, *Woll.*, Acalles, 330.
nervosus, *Woll.*, Longitarsus, 447.
niger, Holoparamecus, 182.
nigerrima, Dej. (*Feronia*), 45.
nigerrimus, Omaseus, 45.
nigritulus, Mann. (*Cafius*), 584.
nigrocinctus, *Woll.*, Chasmatopterus, 236.
nigrocruciatus, *Woll.*, Trechus, 64.
nigroterminatus, *Woll.*, Ceutorhynchus, 327.
nigrum, Aubé (*Calyptobium*), 182.
——, Chevrier (*Calyptobium*), 182.
nitida, Aleochara, 560.
nitida, Erich. (*Aleochara*), 561.
——, Grav. (*Aleochara*), 561.
——, Gyll. (*Aleochara*), 561.
——, Mann. (*Aleochara*), 561.
Nitidulidæ, 115.
Nitidula, *Fab.*, 118.
Nitidula bimaculata, Gyll., 117.
—— ——, Oliv., 117.
—— discoidea, 120.
—— *discoidea*, Fab., 120.
—— ——, Gyll., 120.
—— ——, Heer, 120.
—— ——, Illig., 120.
—— *Dulcamaræ*, Illig., 122.
—— flexuosa, 119.
—— *flexuosa*, Erich., 119.
—— ——, Fab., 119.
—— ——, Heer, 119.
—— ——, Oliv., 119.
—— *hemiptera*, Fab., 116.
—— *litura*, Fab., 472.
—— obsoleta, 121.
—— *obsoleta*, Fab., 121.
—— ——, Gyll., 121.
—— ——, Heer, 121.
—— 4-pustulata, 119.
—— 4-*pustulata*, Erich., 119.
—— ——, Fab., 119.
—— ——, Heer, 119.
—— ——, Illig., 119.
—— *tristis*, Schüpp., 124.
Nitiduloides, *Woll.*, Cryptophagus, 618.
nitidulus, Aphodius, 223.
nitidulus, Gyll. (*Aphodius*), 223.
——, Heer (*Aphodius*), 223.
——, Steph. (*Aphodius*), 223.
——, Fab. (*Hister*), 215.
——, Payk. (*Hister*), 215.
nitidulus, Oxytelus, 609.
nitidulus, Erich. (*Oxytelus*), 609.
——, Grav. (*Oxytelus*), 609.
——, Heer (*Oxytelus*), 609.
nitidulus, Saprinus, 215.
nitidulus, Erich. (*Saprinus*), 215.
——, Fab. (*Scarabæus*), 223.
——, Oliv. (*Staphylinus*), 568.
——, Grav. (*Tachyporus*), 568.
noctivagans, *Woll.*, Atlantis, 367.
nodicornis, Steph. (*Tachyporus*), 569.
nodiferus, *Woll.*, Acalles, 334.
nodosus, *Woll.*, Tarphius, 140.
nodulus, *Woll.*, Ptinus, 265.
Nosodendron Maderense, Fald., 204.
notatus, Fab. (*Curculio*), 347.
notatus, Pissodes, 347.
notatus, Schön. (*Pissodes*), 347.
——, Gyll. (*Rhynchænus*), 347.
——, Zett. (*Rhynchænus*), 347.
Notiophilus, *Dum.*, 17.
Notiophilus geminatus, 17.
Notiophilus geminatus, Dej., 17.
Notoxus bicolor, Oliv., 536.
—— *hirtellus*, Fab., 536.
—— *hispidus*, Rossi, 536.
—— *mollis*, Fab., 256.
nubigena, *Woll.*, Longitarsus, 447.
Nundina litura, Dej., 472.
Nycteus, Lat., 241.

obliquepunctata, *Woll.*, Homalota, 549.
oblitus, *Woll.*, Acalles, 333.
oblongus, Fab. (*Carabus*), 33.
obscura, Grav. (*Aleochara*), 541.
——, Gyll. (*Aleochara*), 541.
obscura, Falagria, 541.
obscura, Erich. (*Falagria*), 541.
——, Mann. (*Falagria*), 541.
obscuroguttata, Dufts. (*Lebia*), 7.
obscuroguttatus, Dromius, 7.
obscuroguttatus, Erich. (*Dromius*), 7.
obscurus, Fab. (*Carabus*), 58.
——, Dej. (*Clypeaster*), 476.
——, Dej. (*Harpalus*), 58.
——, Sturm (*Harpalus*), 58.
obscurus, Ophonus, 58.
obscurus, Steph. (*Ophonus*), 58.
obscurus, Tenebrio, 497.
obscurus, Fab. (*Tenebrio*), 497.
——, Gyll. (*Tenebrio*), 497.
——, Lucas (*Tenebrio*), 497.
——, Steph. (*Tenebrio*), 497.
obsoleta, Erich. (*Epuræa*), 121.
obsoleta, Nitidula, 121.
obsoleta, Fab. (*Nitidula*), 121.
——, Gyll. (*Nitidula*), 121.
——, Heer (*Nitidula*), 121.
obtusa, Steph. (*Blaps*), 508.
obtusum, Bembidium, 75.
obtusum, Dej. (*Bembidium*), 76.
——, Heer (*Bembidium*), 76.
——, Sturm (*Bembidium*), 76.
obtusus, Steph. (*Tachys*), 76.
oceanicum, *Woll.*, Melyrosoma, 253.
oceanicus, *Woll.*, Deucalion, 433.
ocellatum, *Woll.*, Omalium, 613.
ochracea, Lithocharis, 590.
ochracea, Erich. (*Lithocharis*), 590.
——, Heer (*Lithocharis*), 590.
——, Redt. (*Lithocharis*), 590.
ochraceus, Grav. (*Pæderus*), 590.
Ochthebius, *Leach*, 90.
Ochthebius 4-foveolatus, 91.
—— 4-*foveolatus*, Mots., 91.
Octotemnus, *Mellié*, 283.
Octotemnus opacus, 283.
—— *opacus*, Mellié, 283.
Œdemeridæ, 522.
Olibrus, *Erich.*, 111.
Olibrus bicolor, 113.
—— *bicolor*, Erich., 113.
—— Cinerariæ, *Woll.*, 112.
—— consimilis, 115.
—— *geminus*, Erich., 115.
—— liquidus, 114.
—— *liquidus*, Erich., 114.
Oligota, *Mann.*, 562.
Oligota inflata, 562.
—— *subtilis*, Erich., 562.
Olisthopus, *Dej.*, 34.
Olisthopus glabratus, Brullé, 35.
Olisthopus elongatus, *Woll.*, 38.
—— Ericæ, *Woll.*, 37.
—— Maderensis, *Woll.*, 35.

OMALIADES, 612.
Omalium, *Grav.*, 612.
Omalium granulatum, *Woll.*, 613.
—— ocellatum, *Woll.*, 613.
Omaseus, *Steph.*, 45.
Omaseus nigerrimus, 45.
—— Wollastoni, 46.
Omias, *Schön.*, 381.
Omias ænescens, *Woll.*, 383.
—— ventrosus, *Woll.*, 382.
—— Waterhousei, *Woll.*, 384.
Omosita discoidea, Erich., 120.
opacus, *Woll.*, Caulotrupis, 313.
——, Octotemnus, 283.
opacus, Mellié (*Octotemnus*), 283.
——, Grav. (*Staphylinus*), 583.
OPATRIDÆ, 499.
Opatroides, Dej. (*Heterophaga*), 498.
Opatrum, *Fab.*, 499.
Opatrum dilatatum, *Woll.*, 501.
—— errans, *Woll.*, 501.
—— fuscum, 500.
—— *fuscum*, Herbst, 500.
—— *septentrionale*, Fald., 500.
—— *tomentosum*, Dej., 500.
Ophonus, *Steph.*, 57.
Ophonus obscurus, 58.
—— *obscurus*, Steph., 58.
Opilo mollis, Lat., 256.
Opilus, *Lat.*, 255.
Opilus mollis, 256.
—— *mollis*, Steph., 256.
orbatus, *Woll.*, Ptinus, 264.
ornatus, *Woll.*, Acalles, 336.
Oryzæ, Steph. (*Calandra*), 322.
——, Fab. (*Curculio*), 322.
——, Linn. (*Curculio*), 322.
Oryzæ, Sitophilus, 322.
Oryzæ, Schön. (*Sitophilus*), 322.
Othius, *Steph.*, 574.
Othius Jansoni, *Woll.*, 576.
—— strigulosus, *Woll.*, 575.
ovatus, Hoffm. (*Phalacrus*), 114.
——, Herbst (*Tenebrio*), 498.
ovuliformis, *Woll.*, Syncalypta, 207.
ovum, *Woll.*, Eucinetus, 242.
Oxyomus, *DeCasteln.*, 227.
Oxyomus brevicollis, *Woll.*, 229.
—— Heineckeni, *Woll.*, 228.
—— *sabulosus*, Dej., 230.
Oxypoda, *Mann.*, 558.
Oxypoda litigiosa, 558.
—— *litigiosa*, Heer, 558.
—— *lividipennis*, Mann., 557.
Oxyporus brunneus, Fab., 568.
OXYTELIDES, 601.
Oxytelus, *Grav.*, 605.
Oxytelus complanatus, 608.
—— *complanatus*, Erich., 608.
—— ——, Heer, 608.
—— ——, Redt., 608.
—— *depressus*, Gyll., 608.
—— glareosus, *Woll.*, 610.
—— *longicornis*, Mann., 607.
—— nitidulus, 609.
—— *nitidulus*, Erich., 609.
—— ——, Grav., 609.
—— ——, Heer, 609.
—— piceus, 606.
—— *piceus*, Erich., 606.
—— ——, Heer, 606.
—— sculptus, 607.
—— *sculptus*, Erich., 607.
—— ——, Grav., 607.
Oxytelus sculptus, Heer, 607.

PÆDERIDES, 586.
Pæderus melanocephalus, Fab., 591.
—— *ochraceus*, Grav., 590.
pallescens, *Woll.*, Xylophilus, 538.
pallipes, Anchomenus, 33.
pallipes, Dej. (*Anchomenus*), 33.
——, Heer (*Anchomenus*), 33.
——, Fab. (*Carabus*), 33.
paniceum, Anobium, 277.
paniceum, Fab. (*Anobium*), 277.
——, Gyll. (*Anobium*), 277.
——, Oliv. (*Anobium*), 277.
——, Steph. (*Anobium*), 277.
——, Linn. (*Dermestes*), 277.
parallelus, *Woll.*, Tarphius, 134.
parasiticus, Steph. (*Lyctus*), 152.
PARNIDÆ, 89.
Parnus, *Fab.*, 89.
Parnus prolifericornis, 90.
—— *prolifericornis*, Fab., 90.
—— ——, Gyll., 90.
—— ——, Steph., 90.
—— ——, Zett., 90.
Paromalus, *Erich.*, 211.
Paromalus minimus, 212.
—— *minimus*, Aubé, 212.
—— pumilio, 213.
—— *pumilio*, Erich., 213.
Pecteropus, *Woll.*, 245.
Pecteropus Maderensis, *Woll.*, 247.
—— pellucidus, *Woll.*, 247.
—— rostratus, *Woll.*, 250.
—— rugosus, *Woll.*, 249.
pedicularius, Conurus, 565.
pedicularius, Erich. (*Conurus*), 566.
——, Grav. (*Tachyporus*), 566.
——, Gyll. (*Tachyporus*), 566.
——, Mann. (*Tachyporus*), 566.
Pedrosi, *Woll.*, Aphodius, 226.
pellucidus, *Woll.*, Pecteropus, 247.
——, *Woll.*, Zargus, 25.
perfoliatus, *Woll.*, Phlœophthorus, 301.
pertinax, Fab. (*Anobium*), 278.
Peryphus, *Meg.*, 77.
Phædon Polygoni, Steph., 459.
PHALACRIDÆ, 111.
Phalacrus bicolor, Gyll., 113.
—— ——, Sturm, 113.
—— *dimidiatus*, Sturm, 176.
—— *geminus*, Illig., 115.
—— *ovatus*, Hoffm., 114.
—— *testaceus*, Gyll., 115.
Phaleria, *Lat.*, 488.
Phaleria ciliata, *Woll.*, 488.
—— *cornuta*, Lat., 490.
PHILHYDRIDA, 89.
Philhydrus, *Sol.*, 98.
Philhydrus melanocephalus, 98.
—— *melanocephalus*, Muls., 98.
Philonthoides, *Woll.*, Homalota, 551.
Philonthus, *Steph.*, 580.
Philonthus æneus, 580.
—— *æneus*, Erich., 580.
—— aterrimus, 584.
—— *aterrimus*, Erich., 584.
—— bipustulatus, 583.
—— *bipustulatus*, Erich., 583.
—— filiformis, *Woll.*, 585.
—— sordidus, 582.
—— *sordidus*, Erich., 582.
—— umbratilis, 581.
—— *umbratilis*, Erich., 581.
Philonthus varians, 583.
—— *varians*, Erich., 583.
Phlœophagus, *Schön.*, 307.
Phlœophagus sulcipennis, *Woll.*, 308.
Phlœophthorus, *Woll.*, 299.
Phlœophthorus perfoliatus, *Woll.*, 301.
Phymatodes, *Muls.*, 424.
Phymatodes variabilis, 425.
—— *variabilis*, Muls., 425.
Phytonomus murinus, Schön., 399.
—— *variabilis*, Schön., 400.
PHYTOPHAGA, 435.
piceum, Arthrolips, 476.
piceus, Comoll. (*Clypeaster*), 476.
——, Lucas (*Clypeaster*), 476.
——, Redt. (*Gryphinus*), 476.
piceus, Oxytelus, 606.
piceus, Erich. (*Oxytelus*), 606.
——, Heer (*Oxytelus*), 606.
——, Mshm (*Ptinus*), 287.
——, Fab. (*Staphylinus*), 606.
——, Linn. (*Staphylinus*), 606.
——, Schr. (*Staphylinus*), 609.
picipes, Meligethes, 125.
picipes, Erich. (*Meligethes*), 125.
——, Redt. (*Meligethes*), 125.
——, Sturm (*Meligethes*), 125.
pictus, *Woll.*, Litargus, 200.
pilula, *Woll.*, Ptinus, 266.
pinguis, *Woll.*, Ptinus, 264.
piniperda, Fab. (*Bostrichus*), 303.
——, Erich. (*Dendroctonus*), 303.
——, Linn. (*Dermestes*), 303.
——, Ratz. (*Hylesinus*), 303.
piniperda, Hylurgus, 303.
piniperda, Redt. (*Hylurgus*), 303.
Pisi, Steph. (*Bruchus*), 420.
——, Steph. (*Sitona*), 407.
Pissodes, *Germ.*, 347.
Pissodes notatus, 347.
—— *notatus*, Schön., 347.
planifrons, *Woll.*, Xenomma, 544.
Platysthetus, *Mann.*, 601.
Platysthetus fossor, *Woll.*, 603.
—— spinosus, 602.
—— *spinosus*, Erich., 602.
Platytomus sabulosus, Muls., 230.
plebeia, *Woll.*, Homalota, 553.
plicatus, Dej. (*Cleonis*), 401.
plicatus, Cleonus, 401.
plicatus, Schön. (*Cleonus*), 401.
——, Oliv. (*Curculio*), 401.
——, Schön. (*Rhytideres*), 401.
Plœosoma, *Woll.*, 147.
Plœosoma ellipticum, *Woll.*, 148.
Pluto, *Woll.*, Helops, 516.
Polygoni, Gyll. (*Chrysomela*), 459.
——, Linn. (*Chrysomela*), 459.
Polygoni, Gastrophysa, 459.
Polygoni, Redt. (*Gastrophysa*), 459.
——, Steph. (*Phædon*), 459.
porcatus, Steph. (*Latridius*), 190.
porcellus, *Woll.*, Echinosoma, 396.
Portosanctanus, *Woll.*, Helops, 521.
præustum, Fab. (*Callidium*), 425.
Pria, *Steph.*, 121.
Pria Dulcamaræ, 122.
—— *Dulcamaræ*, Sturm, 122.
—— *truncatella*, Steph., 122.
PRIOCERATA, 236.
Pristonychus, *Dej.*, 26.
Pristonychus alatus, *Woll.*, 27.
prolifericornis, Parnus, 90.
prolifericornis, Fab. (*Parnus*), 90.

prolifericornis, Gyll. (*Parnus*), 90.
——, Steph. (*Parnus*), 90.
——, Zett. (*Parnus*), 90.
promptus, Schön. (*Sitona*), 407.
——, Redt. (*Sitones*), 407.
pronus, Mycetoporus, 573.
pronus, Erich. (*Mycetoporus*), 573.
PROTEINIDES, 614.
Proteus, *Woll.*, Anaspis, 532.
providus, Stenus, 598.
providus, Erich. (*Stenus*), 598.
——, Heer (*Stenus*), 598.
——, Redt. (*Stenus*), 598.
Psammodius, *Gyll.*, 230.
Psammodius cæsus, 231.
—— *cæsus*, Erich., 231.
—— sabulosus, 230.
Psammœcus, 156.
Pselaphidæ, 539.
PSEUDOTRIMERA, 460.
Psychidium globulum, Heer, 176.
Psylliodes, *Lat.*, 448.
Psylliodes chrysocephala, 449.
—— hospes, *Woll.*, 449.
—— tarsata, *Woll.*, 452.
—— umbratilis, *Woll.*, 450.
—— vehemens, *Woll.*, 451.
Ptenidium, *Erich.*, 110.
Ptenidium apicale, 110.
—— *apicale*, Erich., 110.
PTEROSTICHIDEA, 26.
Pterostichus simplicipunctatus, Koll., 45.
—— *Wollastoni*, Heer, 46.
PTILIADÆ, 107.
Ptilinoides, *Woll.*, Anobium, 278.
Ptilinus, *Geoffr.*, 284.
Ptilinus cylindripennis, *Woll.*, 285.
Ptilium apicale, Sturm, 110.
—— *sericans*, Schüpp., 109.
PTINIDÆ, 259.
Ptinus, *Linn.*, 259.
Ptinus advena, *Woll.*, 261.
—— albopictus, *Woll.*, 267.
—— Dawsoni, *Woll.*, 263.
—— *fissicornis*, Mshm, 287.
—— fragilis, *Woll.*, 271.
—— longicornis, *Woll.*, 270.
—— mauritanicus, 261.
—— *mauritanicus*, Lucas, 262.
—— nodulus, *Woll.*, 265.
—— orbatus, *Woll.*, 264.
—— pilula, *Woll.*, 266.
—— *piceus*, Mshm, 287.
—— pinguis, *Woll.*, 264.
—— *scotias*, Fab., 275.
—— ——, Oliv., 275.
—— *sulcatus*, Fab., 273.
—— ——, Mshm, 273.
Promophagus relox, Steph., 106.
pubescens, Conurus, 565.
pubescens, Erich. (*Conurus*), 565.
——, Steph. (*Conurus*), 565.
——, Park. (*Staphylinus*), 565.
——, Grav. (*Tachyporus*), 565.
pulchellus, Cionus, 323.
pulchellus, Schön. (*Cionus*), 323.
——, Steph. (*Cleopus*), 323.
——, Herbst (*Curculio*), 323.
pulla, Mshm (*Corticaria*), 190.
pulverulentus, *Woll.*, Acalles, 332.
pumila, Acratrichis, 109.
pumila, Mots. (*Acratrichis*), 109.
——, Erich. (*Trichopteryx*), 109.
pumilio, Paromalus, 213.
pumilio, Erich. (*Paromalus*), 213.
punctatus, Steph. (*Dendrophilus*), 212.
——, Steph. (*Meloë*), 528.
——, Fab. (*Staphylinus*), 577.
——, Gyll. (*Staphylinus*), 577.
——, Payk. (*Staphylinus*), 577.
punctulatus, Xantholinus, 577.
punctulatus, Erich. (*Xantholinus*), 577.
pusilla, Rhyzopertha, 287.
pusilla, Lucas (*Rhyzopertha*), 287.
——, Steph. (*Rhyzopertha*), 287.
pusillum, Fab. (*Synodendron*), 287.
pusillus, Clypeaster, 474.
pusillus, Germ. (*Clypeaster*), 474.
——, Redt. (*Clypeaster*), 474.
——, Gyll. (*Cossyphus*), 474.
——, Schön. (*Cucujus*), 162.
pusillus, Læmophlœus, 162.
pusillus, Erich. (*Læmophlœus*), 162.
——, Sturm (*Læmophlœus*), 162.
pygmæum, Gyll. (*Sphæridium*), 104.

quadricollis, *Woll.*, Trechus, 68.
quadridens, Ceutorhynchus, 326.
quadridens, Schön. (*Ceutorhynchus*), 326.
——, Panz. (*Curculio*), 326.
quadrifoveolatus, Ochthebius, 91.
quadrifoveolatus, Mots. (*Ochthebius*), 91.
quadrimaculatus, Mshm (*Dermestes*), 101.
quadripunctata, Fab. (*Mylabris*), 530.
quadripunctata, Zonitis, 530.
quadripunctata, Lucas (*Zonitis*), 530.
quadripustulata, Nitidula, 119.
quadripustulata, Erich. (*Nitidula*), 119.
——, Fab. (*Nitidula*), 119.
——, Heer (*Nitidula*), 119.
——, Illig. (*Nitidula*), 119.
quatuordecim-pustulata, Coccinella, 462.
quatuordecim-pustulata, Fab. (*Coccinella*), 462.
——, Gyll. (*Coccinella*), 462.
——, Linn. (*Coccinella*), 462.
——, Muls. (*Coccinella*), 462.
quisquilium, Cercyon, 105.
quisquilium, Muls. (*Cercyon*), 105.
——, Steph. (*Cercyon*), 105.
——, Linn. (*Scarabæus*), 105.

raptoria, *Woll.*, Tachyusa, 542.
Rhizobius litura, Muls., 472.
Rhynchænus Boraginis, Gyll., 326.
—— *murinus*, Gyll., 399.
—— *notatus*, Gyll., 347.
—— ——, Zett., 347.
—— *Solani*, Gyll., 323.
—— *variabilis*, Gyll., 400.
Rhyncolus, *Creutz.*, 306.
Rhyncolus tenax, *Woll.*, 307.
RHYNCOPHORA, 288.
RHYNCOPHORIDES, 321.
Rhyssoloma, *Woll.*, 458.
Rhytideres plicatus, Schön., 401.
Rhyzobius, *Steph.*, 471.
Rhyzobius litura, 472.
—— *litura*, Steph., 472.
Rhyzopertha, *Steph.*, 286.
Rhyzopertha pusilla, 287.
Rhyzopertha pusilla, Lucas, 287.
—— ——, Steph., 287.
robustus, *Woll.*, Argutor, 40.
——, *Woll.*, Tychius, 344.
rostratus, *Woll.*, Pecteropus, 250.
rotulicollis, *Woll.*, Corticaria, 184.
rotundatus, *Woll.*, Tarphius, 137.
rotundicollis, *Woll.*, Corticaria, 186.
rotundipenne, *Woll.*, Apion, 415.
Roussetii, *Woll.*, Dactylosternum, 100.
ruficolle, Thung. (*Anobium*), 258.
ruficollis, Fab. (*Dermestes*), 258.
ruficollis, Necrobia, 258.
ruficollis, Oliv. (*Necrobia*), 258.
——, Steph. (*Necrobia*), 258.
rufimanus, Bruchus, 419.
rufimanus, Schön. (*Bruchus*), 420.
rufipes, Gyll. (*Hister*), 216.
rufitarsis, Lixus, 352.
rufitarsis, Dej. (*Lixus*), 353.
——, Schon. (*Lixus*), 353.
rufus, Aphodius, 224.
rufus, Dufts. (*Aphodius*), 224.
——, Erich. (*Aphodius*), 224.
——, Illig. (*Aphodius*), 224.
——, Sturm (*Aphodius*), 224.
rufus, Apotomus, 14.
rufus, Brullé (*Apotomus*), 14.
——, Dej. (*Apotomus*), 14.
——, Hoffm. (*Apotomus*), 14.
——, Oliv. (*Scarites*), 14.
——, Rossi (*Scarites*), 14.
Rugilus, *Curtis*, 592.
Rugilus affinis, 592.
—— *affinis*, Heer, 592.
rugosus, Meloë, 527.
rugosus, Mshm (*Meloë*), 528.
rugosus, *Woll.*, Pecteropus, 249.
——, *Woll.*, Tarphius, 144.
rugulosa, Brullé (*Meloë*), 528.
rugulosus, Dillwyn (*Sitona*), 405.

sabulosus, Dej. (*Oxyomus*), 230.
——, Muls. (*Platytomus*), 230.
sabulosus, Psammodius, 230.
sagittiferum, *Woll.*, Apion, 410.
Salicariæ, Payk. (*Galeruca*), 442.
Salicariæ, Haltica, 442.
Salicariæ, Gyll. (*Haltica*), 442.
——, Redt. (*Haltica*), 442.
——, Steph. (*Haltica*), 442.
saltator, *Woll.*, Longitarsus, 445.
saltitans, *Woll.*, Xenorchestes, 418.
sanguinolenta, *Woll.*, Homalota, 547.
Saprinus, *Erich.*, 214.
Saprinus chalcites, 216.
—— *chalcites*, Erich., 216.
—— ——, Lucas, 216.
—— metallicus, 217.
—— *metallicus*, Erich., 217.
—— nitidulus, 215.
—— *nitidulus*, Erich., 215.
Sardeus, Dahl. (*Harpalus*), 51.
saxicola, *Woll.*, Acalles, 332.
scaber, Linn. (*Curculio*), 395.
scaber, Trachyphlœus, 394.
——, Trox, 233.
scaber, Heer (*Trox*), 233.
scabra, Linn. (*Silpha*), 233.
scabriculus, Gyll. (*Curculio*), 395.
——, Schön. (*Trachyphlœus*), 395.
Scarabæus bilituratus, Mshm, 225.
—— *cæsus*, Panz., 231.
—— *granarius*, Linn., 226.

Scarabæus granarius, Oliv., 226.
—— *Hydrochæris*, Fab., 222.
—— *ictericus*, Payk., 223.
—— *lividus*, Oliv., 225.
—— *nitidulus*, Fab., 223.
—— *quisquilius*, Linn., 105.
SCARITIDES, 10.
Scarites, *Fab.*, 10.
Scarites abbreviatus, 11.
—— *abbreviatus*, Dej., 11.
—— humeralis, *Woll.*, 12.
—— *rufus*, Oliv., 14.
—— ——, Rossi, 14.
Schaumii, *Woll.*, Atlantis, 379.
——, *Woll.*, Zargus, 23.
Schmidtii, *Woll.*, Bembidium, 80.
Scoliocerus, *Woll.*, 391.
Scoliocerus curvipes, *Woll.*, 393.
—— Maderæ, *Woll.*, 392.
scotias, Gibbium, 274.
scotias, Kugel. (*Gibbium*), 275.
——, Sturm (*Gibbium*), 275.
——, Fab. (*Ptinus*), 275.
——, Oliv. (*Ptinus*), 275.
sculpturatus, *Woll.*, Caulophilus, 315.
sculptus, Oxytelus, 607.
sculptus, Erich. (*Oxytelus*), 607.
——, Grav. (*Oxytelus*), 607.
——, Heer (*Oxytelus*), 607.
SCYDMÆNIDÆ, 538.
Scydmænus, *Lat.*, 538.
Scydmænus Helferi, 539.
—— *Helferi*, Lucas, 540.
—— ——, Schaum, 540.
Scymnus, *Kugel.*, 465.
Scymnus arcuatus, 467.
—— *arcuatus*, Muls., 468.
—— *ater*, Dej., 470.
—— Durantæ, *Woll.*, 465.
—— flavopictus, *Woll.*, 469.
—— Limnichoides, *Woll.*, 470.
—— marginalis, 466.
—— *marginalis*, Muls., 467.
—— minimus, 470.
—— *minimus*, Muls., 470.
semistriatus, Ent. Hefte (*Hister*), 215.
senex, *Woll.*, Trichoferus, 428.
septempunctata, Coccinella, 462.
septempunctata, Fab. (*Coccinella*), 462.
——, Gyll. (*Coccinella*), 462.
——, Linn. (*Coccinella*), 462.
——, Muls. (*Coccinella*), 462.
septentrionale, Fald. (*Opatrum*), 500.
sericans, Schüpp. (*Ptilium*), 109.
——, Gillm. (*Trichopteryx*), 109.
Sericoderus, *Steph.*, 477.
Sericoderus lateralis, 478.
—— *thoracicus*, Steph., 478.
serrata, *Woll.*, Trogosita, 155.
seticollis, Woll. (*Sitona*), 405.
sex-dentatus, Fab. (*Dermestes*), 167.
sigma, Rossi (*Carabus*), 5.
sigma, Dromius, 5.
sigma, Bab. (*Dromius*), 5.
——, Dej. (*Dromius*), 5.
——, Heer (*Dromius*), 5.
SILPHIDÆ, 106.
Silpha scabra, Linn., 233.
—— *Sphæriæ*, Mshm, 173.
—— *truncatella*, Mshm, 122.
Silphoides, Linn. (*Staphylinus*), 570.
Silphoides, Tachinus, 570.
Silphoides, Erich. (*Tachinus*), 570.
——, Steph. (*Tachinus*), 570.
Silvanus, *Lat.*, 166.
Silvanus advena, 168.
—— *advena*, Erich., 168.
—— ——, Sturm, 168.
—— dentatus, 167.
—— *dentatus*, Steph., 168.
—— *ferrugineus*, Sturm, 168.
—— *frumentarius*, Sturm, 167.
—— *intermedius*, Smith, 168.
—— Surinamensis, 167.
—— *Surinamensis*, Steph., 167.
simplicipunctatus, Koll. (*Pterostichus*), 45.
Sitona, *Germ.*, 402.
Sitona cambrica, 405.
—— *cambrica*, Steph., 405.
—— *cribricollis*, Schön., 405.
—— gressoria, 403.
—— *gressorius*, Germ., 403.
—— ——, Schön., 403.
—— humeralis, 407.
—— *humeralis*, Steph., 407.
—— latipennis, 404.
—— *latipennis*, Schön., 404.
—— lineata, 406.
—— *lineata*, Steph., 407.
—— *lineatus*, Schön., 407.
—— *pisi*, Steph., 407.
—— *promptus*, Schön., 407.
—— *rugulosus*, Dillwyn, 405.
—— *seticollis*, Woll., 405.
Sitones promptus, Redt., 407.
Sitophilus, *Schön.*, 321.
Sitophilus granarius, 321.
—— *granarius*, Schön., 321.
—— Oryzæ, 322.
—— *Oryzæ*, Schön., 322.
sodalis, Homalota, 554.
sodalis, Erich. (*Homalota*), 554.
Solani, Gyll. (*Rhynchænus*), 323.
Solenophorus strepens, Muls., 423.
Somatium, *Woll.*, 563.
Somatium anale, *Woll.*, 564.
sordidus, Philonthus, 582.
sordidus, Erich. (*Philonthus*), 582.
——, Grav. (*Staphylinus*), 582.
——, Mann. (*Staphylinus*), 582.
——, Zett. (*Staphylinus*), 582.
Sphæriæ, Mshm (*Silpha*), 173.
Sphærícus, *Mots.*, 263.
SPHÆRIDIADÆ, 99.
Sphæridium, *Fab.*, 101.
Sphæridium bicolor, Fab., 113.
—— bipustulatum, 101.
—— *bipustulatum*, Fab., 101.
—— ——, Muls., 101.
—— *centrimaculatum*, Sturm, 104.
—— *glabratum*, Fab., 486.
—— *marginatum*, Heer, 101.
—— *pygmæum*, Gyll., 104.
—— *unipunctatum*, Fab., 105.
Sphærophorus, Waltl, 219.
sphærula, *Woll.*, Stagonomorpha, 484.
spilotus, Dej. (*Dromius*), 7.
spinicollis, *Woll.*, Blabinotus, 426.
spinipes, *Woll.*, Tarphius, 136.
spinosus, Platysthetus, 602.
spinosus, Erich. (*Platysthetus*), 602.
Stagonomorpha, *Woll.*, 482.
Stagonomorpha sphærula, *Woll.*, 484.
—— unicolor, *Woll.*, 485.
STAPHYLINIDÆ, 540.
STAPHYLINIDES, 574.
Staphylinus, *Linn.*, 578.
Staphylinus æneus, Grav., 580.
—— ——, Gyll., 580.
—— ——, Rossi, 580.
—— *angustatus*, Fab., 594.
—— ——, Payk., 594.
—— *aterrimus*, Grav., 584.
—— ——, Zett., 584.
—— *atramentarius*, Kirby, 556.
—— *bipustulatus*, Grav., 583.
—— ——, Gyll., 583.
—— ——, Panz., 583.
—— *cellaris*, Payk., 565.
—— *linearis*, Fab., 578.
—— ——, Mshm, 578.
—— ——, Oliv., 578.
—— maxillosus, 579.
—— *maxillosus*, Erich., 579.
—— ——, Fab., 579.
—— ——, Linn., 579.
—— *nitidulus*, Oliv., 568.
—— *opacus*, Grav., 583.
—— *piceus*, Fab., 606.
—— ——, Linn., 606.
—— ——, Schr., 609.
—— *pubescens*, Payk., 565.
—— *punctulatus*, Fab., 577.
—— ——, Gyll., 577.
—— ——, Payk., 577.
—— *Silphoides*, Linn., 570.
—— *sordidus*, Grav., 582.
—— ——, Mann., 582.
—— ——, Zett., 582.
—— *subfuscus*, Gyll., 581.
—— ——, Mann., 581.
—— *umbratilis*, Grav., 581.
—— *varians*, Fab., 583.
—— ——, Payk., 583.
Stenaxis, *Schmidt*, 522.
Stenaxis Lowei, *Woll.*, 524.
Stene ferruginea, Steph., 492.
STENIDES, 596.
Stenoides, *Woll.*, Læmophlœus, 165.
Stenolophus, *Steph.*, 58.
Stenolophus dorsalis, 60.
—— *dorsalis*, Erich., 60.
—— Teutonus, 59.
—— *vaporariorum*, Dej., 59.
—— ——, Heer, 59.
Stenotis, *Woll.*, 316.
Stenotis acicula, *Woll.*, 316.
Stenus, *Lat.*, 596.
Stenus guttula, 597.
—— *guttula*, Erich., 597.
—— ——, Heer, 597.
—— ——, Müll., 597.
—— Heeri, *Woll.*, 600.
—— *Kirbii*, Curtis, 597.
—— providus, 598.
—— *providus*, Erich., 598.
—— ——, Heer, 598.
—— ——, Redt., 598.
—— undulatus, *Woll.*, 599.
Stilicus affinis, Erich., 592.
—— ——, Redt., 592.
strepens, Fab. (*Callidium*), 423.
——, Muls. (*Solenophorus*), 423.
——, Lucas (*Stromatium*), 423.
striatum, Anobium, 278.
striatum, Gyll. (*Anobium*), 278.
——, Oliv. (*Anobium*), 278.
——, Steph. (*Anobium*), 278.
striatus, Brullé (*Hegeter*), 510.
——, Lat. (*Hegeter*), 510.
——, Solier (*Hegeter*), 510.

strigulosus, *Woll.*, Othius, 575.
Stromatium, *Serv.*, 422.
Stromatium strepens, Lucas, 423.
Stromatium unicolor, 423.
Sturmii, Bab. (*Dromius*), 5.
subellipticus, *Woll.*, Bruchus, 420.
subfuscus, Gyll. (*Staphylinus*), 581.
——, Mann. (*Staphylinus*), 581.
subtessellatus, *Woll.*, Anemophilus, 387.
subtilis, *Woll.*, Haltica, 441.
subtilis, Erich. (*Oligota*), 562.
succina, Hein. (*Coccinella*), 180.
sulcatum, Mezium, 273.
sulcatum, Curtis (*Mezium*), 273.
——, Sturm (*Mezium*), 273.
sulcatus, Fab. (*Ptinus*), 273.
——, Mshm (*Ptinus*), 273.
sulcipennis, *Woll.*, Phlœophagus, 308.
Sunius, *Steph.*, 593.
Sunius angustatus, 593.
—— *angustatus*, Erich., 594.
—— ——, Heer, 594.
—— bimaculatus, 594.
—— *bimaculatus*, Erich., 594.
—— *melanocephalus*, Steph., 591.
superans, *Woll.*, Amara, 48.
Surinamensis, Linn. (*Dermestes*), 167.
Surinamensis, Silvanus, 167.
Surinamensis, Steph. (*Silvanus*), 167.
suturalis, Dej. (*Cyminidis*), 3.
——, Grav. (*Tachinus*), 570.
suturalis, Tarus, 3.
sylvicola, *Woll.*, Tarphius, 137.
Syncalypta, *Steph.*, 206.
Syncalypta capitata, *Woll.*, 207.
—— horrida, *Woll.*, 208.
—— ovuliformis, *Woll.*, 207.
Synodendron pusillum, Fab., 287.

tabellatum, *Woll.*, Bembidium, 79.
Tachinus, *Grav.*, 570.
Tachinus marginalis, Grav., 570.
—— Silphoides, 570.
—— *Silphoides*, Erich., 570.
—— ——, Steph., 570.
—— *suturalis*, Grav., 570.
TACHYPORIDES, 563.
Tachyporus, *Grav.*, 567.
Tachyporus brunneus, 568.
—— *brunneus*, Erich., 568.
—— *capillaricornis*, Grav., 569.
—— celer, *Woll.*, 567.
—— *nitidulus*, Grav., 568.
—— *nodicornis*, Steph., 569.
—— *pedicularius*, Grav., 566.
—— ——, Gyll., 566.
—— ——, Mann., 566.
—— *pubescens*, Grav., 565.
Tachys, *Ziegl.*, 73.
Tachys minutissimus, Steph., 73.
—— *obtusus*, Steph., 76.
Tachyusa, *Erich.*, 541.
Tachyusa immunita, Erich., 550.
Tachyusa raptoria, *Woll.*, 542.
Tamarisci, Berginus, 195.
Tamarisci, Dej. (*Berginus*), 195.
tantilla, *Woll.*, Homalota, 553.
Tardii, Curtis (*Mesites*), 320.
Tarphius, *Erich.*, 129.
Tarphius brevicollis, *Woll.*, 144.
—— cicatricosus, *Woll.*, 141.
—— compactus, *Woll.*, 139.
—— echinatus, *Woll.*, 143.
Tarphius gibbulus, 132.
—— inornatus, *Woll.*, 135.
—— Lauri, *Woll.*, 138.
—— Lowei, *Woll.*, 134.
—— nodosus, *Woll.*, 140.
—— parallelus, *Woll.*, 134.
—— rotundatus, *Woll.*, 137.
—— rugosus, *Woll.*, 144.
—— spinipes, *Woll.*, 136.
—— sylvicola, *Woll.*, 137.
—— testudinalis, *Woll.*, 141.
—— truncatus, *Woll.*, 142.
tarsata, *Woll.*, Psylliodes, 452.
Tarus, *Clairv.*, 1.
Tarus lineatus, 2.
—— suturalis, 3.
tectiformis, *Woll.*, Corylophus, 480.
TELEPHORIDÆ, 242.
tenax, *Woll.*, Rhyncolus, 307.
TENEBRIONIDÆ, 489.
Tenebrio, *Linn.*, 496.
Tenebrio Fagi, Sturm, 499.
Tenebrio diaperinus, Illig., 498.
—— ——, Kugel., 498.
—— ——, Sturm, 498.
—— *elongatus*, Herbst, 495.
—— *ferrugineus*, Fab., 492.
—— *gages*, Linn., 507.
—— *mauritanicus*, Linn., 154.
—— *minutus*, Linn., 190.
—— molitor, 496.
—— *molitor*, Fab., 496.
—— ——, Gyll., 496.
—— ——, Linn., 496.
—— ——, Steph., 496.
—— obscurus, 497.
—— *obscurus*, Fab., 497.
—— ——, Gyll., 497.
—— ——, Lucas, 497.
—— ——, Steph., 497.
—— *ovatus*, Herbst, 498.
TENTYRIADÆ, 508.
terebrans, *Woll.*, Caulotrupis, 312.
terminalis, *Woll.*, Acalles, 335.
tessellatus, Mshm (*Curculio*), 395.
testacea, Fab. (*Ips*), 492.
——, Steph. (*Typhœa*), 199.
testaceum, Fab. (*Callidium*), 425.
testaceus, Linn. (*Cerambyx*), 425.
——, Payk. (*Cucujus*), 163.
——, Gyll. (*Phalacrus*), 115.
testudinalis, *Woll.*, Tarphius, 141.
testudinea, Coccinella, 463.
testudinea, Hein. (*Coccinella*), 463.
Teutonus, Stenolophus, 59.
Teutonus, Schr. (*Carabus*), 59.
Thalassophilus, *Woll.*, 71.
Thalassophilus Whitei, *Woll.*, 71.
thoracicus, Steph. (*Sericoderus*), 478.
THORICTIDÆ, 218.
Thorictus, *Germ.*, 218.
Thorictus Westwoodii, *Woll.*, 220.
THROSCIDÆ, 236.
Throscus, Lat., 237.
Thyamis lutescens, Steph., 446.
tibialis, Curtis (*Anthicus*), 534.
——, La Ferté (*Anthicus*), 534.
tomentosa, Steph. (*Typhœa*), 199.
tomentosum, Dej. (*Opatrum*), 500.
TOMICIDÆ, 288.
Tomicus, *Lat.*, 288.
Tomicus Dohrnii, *Woll.*, 290.
—— villosus, 290.
—— *villosus*, Steph., 290.
TRACHELIA, 522.
Trachyphlœus, *Germ.*, 394.
Trachyphlœus scaber, 394.
—— *scabriculus*, Schön., 395.
transversa, Mshm (*Corticaria*), 191.
——, Oliv. (*Ips*), 191.
transversus, Lathridius, 191.
transversus, Mann. (*Lathridius*), 191.
——, Steph. (*Latridius*), 191.
Trechus, *Clairv.*, 62.
Trechus alticola, *Woll.*, 69.
—— cautus, *Woll.*, 70.
—— custos, *Woll.*, 68.
—— dilutus, *Woll.*, 66.
—— fimicola, *Woll.*, 63.
—— flavomarginatus, *Woll.*, 65.
—— *fulvus*, Steph., 61.
—— nigrocruciatus, *Woll.*, 64.
—— quadricollis, *Woll.*, 68.
—— umbricola, *Woll.*, 67.
Tribolium, *MacLeay*, 491.
Tribolium castaneum, MacLeay, 492.
—— ferrugineum, 491.
Trichoferus, *Woll.*, 427.
Trichoferus senex, *Woll.*, 428.
Trichophya, *Mann.*, 571.
Trichophya Huttoni, *Woll.*, 572.
Trichopteryx apicalis, Gillm., 110.
—— *fascicularis*, Heer, 108.
—— *grandicollis*, Erich., 108.
—— *pumila*, Erich., 109.
—— *sericans*, Gillm., 109.
trifasciatus (*Attagenus*), 206.
Trifolii, Hylastes, 304.
Trifolii, Müll. (*Hylesinus*), 305.
——, Schmidt (*Hylesinus*), 305.
tristis, Aleochara, 560.
tristis, Erich. (*Aleochara*), 560.
——, Grav. (*Aleochara*), 560.
——, Gyll. (*Aleochara*), 560.
——, Mann. (*Aleochara*), 560.
tristis, Anthicus, 536.
tristis, La Ferté (*Anthicus*), 536.
——, Schmidt (*Anthicus*), 536.
tristis, Meligethes, 124.
tristis, Erich. (*Meligethes*), 124.
——, Redt. (*Meligethes*), 124.
——, Sturm (*Meligethes*), 124.
——, Schüpp. (*Nitidula*), 124.
trivialis, Amara, 47.
trivialis, Dej. (*Amara*), 48.
——, Erich. (*Amara*), 48.
——, Heer (*Amara*), 48.
——, Gyll. (*Harpalus*), 48.
Trixagus, *Kugel.*, 236.
Trixagus gracilis, *Woll.*, 237.
TROGIDÆ, 232.
Trogophlœus, *Mann.*, 611.
Trogophlœus nanus, *Woll.*, 611.
TROGOSITIDÆ, 153.
Trogosita, *Oliv.*, 153.
Trogosita calcar, Fab., 495.
—— *caraboides*, Fab., 154.
—— *castaneipes*, Sam., 498.
—— *cornuta*, Fab., 490.
—— mauritanica, 154.
—— *mauritanica*, Erich., 154.
—— ——, Gyll., 154.
—— serrata, *Woll.*, 155.
Trogossita mauritanica, Oliv., 154.
trossulus, *Woll.*, Anemophilus, 388.
Trox, *Fab.*, 232.
Trox arenarius, Fab., 233.
—— ——, Gyll., 233.

Trox scaber, 233.
—— *scaber*, Heer, 233.
truncatella, Steph. (*Pria*), 122.
——, Mshm (*Silpha*), 122.
truncatus, *Woll.*, Tarphius, 142.
tuberculatus, *Woll.*, Macrostethus, 505.
Tychius, *Schön.*, 343.
Tychius albosquamosus, *Woll.*, 345.
—— filirostris, *Woll.*, 346.
—— robustus, *Woll.*, 344.
Typhæa, *Steph.*, 198.
Typhæa fumata, 199.
—— *fumata*, Curt., 199.
—— ——, Sturm, 199.
—— *testacea*, Steph., 199.
—— *tomentosa*, Steph., 199.

Uloma cornuta, Steph., 490.
umbratilis, *Woll.*, Homalota, 554.
——, Philonthus, 581.
umbratilis, Erich. (*Philonthus*), 581.
umbratilis, *Woll.*, Psylliodes, 450.
umbratilis, Grav. (*Staphylinus*), 581.
umbricola, *Woll.*, Acratrichis, 108.
——, *Woll.*, Trechus, 67.
undulatus, *Woll.*, Stenus, 599.
unicolor, Oliv. (*Callidium*), 423.
unicolor, *Woll.*, Stagonomorpha, 485.
——, Stromatium, 423.
unipunctatum, Fab. (*Sphæridium*), 105.

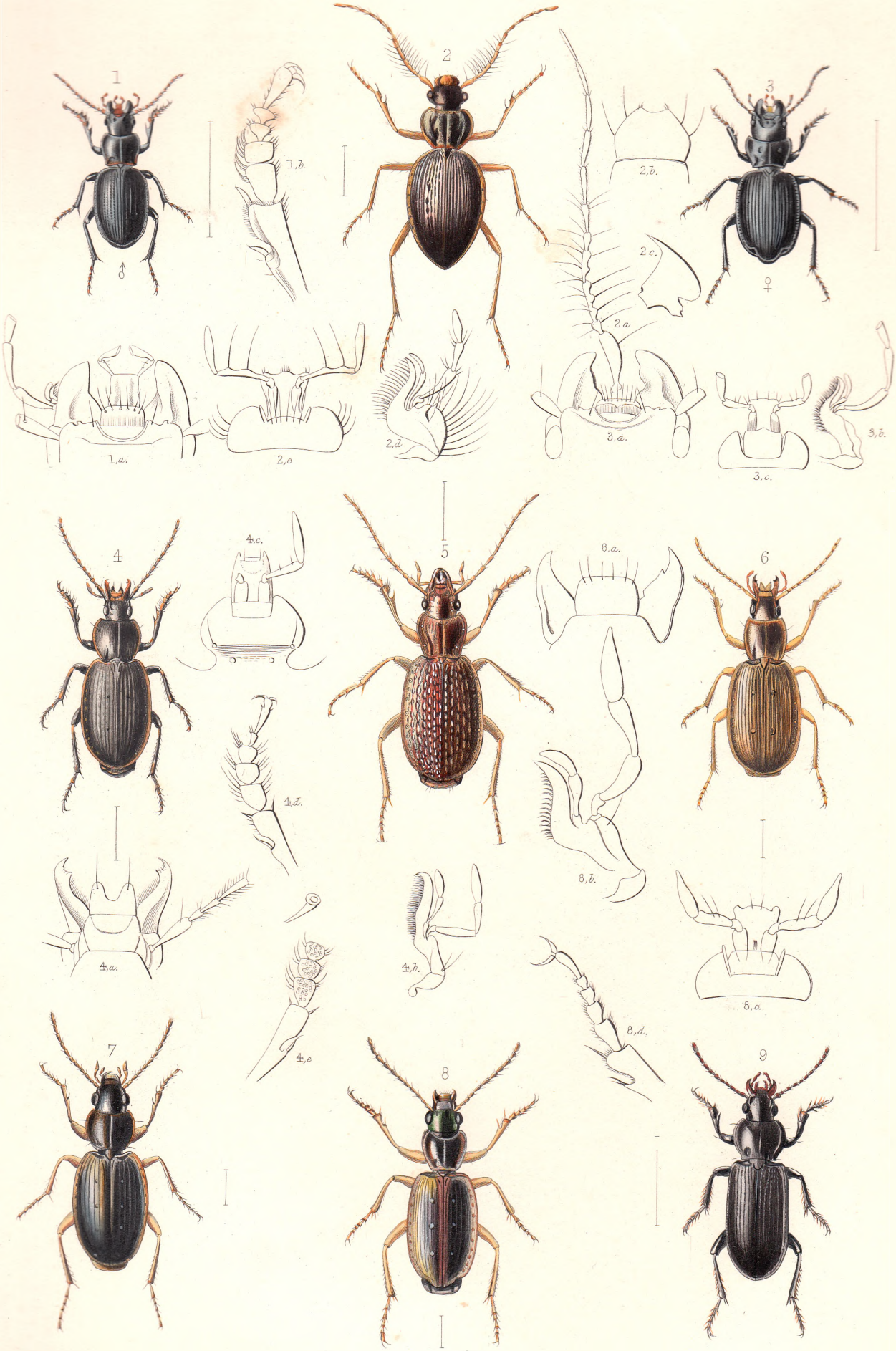
vaporariorum, Dufts. (*Carabus*), 59.
——, Fab. (*Carabus*), 59.
——, Dej. (*Stenolophus*), 59.
——, Heer (*Stenolophus*), 59.
variabile, Fab. (*Callidium*), 425.
——, Steph. (*Callidium*), 425.
——, Muls. (*Phymatodes*), 425.
variabilis, Linn. (*Cerambyx*), 425.
——, Herbst (*Curculio*), 400.
variabilis, Hypera, 400.
——, Phymatodes, 425.
variabilis, Schön. (*Phytonomus*), 400.
——, Gyll. (*Rhynchænus*), 400.
varians, Philonthus, 583.
varians, Erich. (*Philonthus*), 583.
——, Fab. (*Staphylinus*), 583.
——, Payk. (*Staphylinus*), 583.
varicollis, *Woll.*, Meligethes, 126.
varius, Anthrenus, 205.
varius, Erich. (*Anthrenus*), 205.
——, Fab. (*Anthrenus*), 205.
——, Sturm (*Anthrenus*), 205.
Vau, *Woll.*, Acalles, 335.
vectiformis, *Woll.*, Lixus, 351.
vehemens, *Woll.*, Psylliodes, 451.
velatum, *Woll.*, Anobium, 276.
velox, Catops, 106.
velox, Erich. (*Catops*), 106.
——, Spence (*Choleva*), 106.
velox, *Woll.*, Glœosoma, 482.
velox, Steph. (*Ptomophagus*), 106.
ventrosus, *Woll.*, Omias, 382.
Verbasci, Heer (*Anthrenus*), 205.
——, Oliv. (*Anthrenus*), 205.
vermiculatus, *Woll.*, Læmophlœus, 161.
vernale, Apion, 409.
vernale, Gyll. (*Apion*), 409.
——, Schön. (*Apion*), 409.
vernalis, Fab. (*Attelabus*), 409.
vespertinus, *Woll.*, Atlantis, 371.
vigilans, *Woll.*, Hydroporus, 86.
villosus, Fab. (*Bostrichus*), 290.
——, Payk. (*Bostrichus*), 290.
——, Mshm (*Ips*), 290.
villosus, Tomicus, 290.
villosus, Steph. (*Tomicus*), 290.
vittata, Dahl (*Cymindis*), 2.
vividus, Calathus, 29.
vividus, Fab. (*Carabus*), 29.
——, Schön. (*Carabus*), 29.
vividus, Harpalus, 53.
vividus, Dej. (*Harpalus*), 54.
Vulcanus, *Woll.*, Helops, 513.
vulpinus, Dermestes, 202.
vulpinus, Fab. (*Dermestes*), 202.
——, Gyll. (*Dermestes*), 202.
——, Oliv. (*Dermestes*), 202.
vulpinus, Steph. (*Dermestes*), 202.
Waterhousei, *Woll.*, Omias, 384.
Westwoodii, *Woll.*, Thorictus, 220.
Whitei, *Woll.*, Thalassophilus, 71.
Wollastoni, Acalles, 342.
Wollastoni, Chevr. (*Acalles*), 342.
Wollastoni, Apion, 414.
Wollastoni, Chevr. (*Apion*), 414.
Wollastoni, Omaseus, 46.
Wollastoni, Heer (*Pterostichus*), 46.
Wollastonii, Cis, 280.
Wollastonii, Mellié (*Cis*), 280.
Wollastonii, Cossyphodes, 146.
Wollastonii, Westw. (*Cossyphodes*), 146.
Wollastonii, Loricera, 19.
Wollastonii, Javet (*Loricera*), 19.

Xantholinus, *Dahl*, 576.
Xantholinus linearis, 577.
—— *linearis*, Erich., 578.
—— punctulatus, 577.
—— *punctulatus*, Erich., 577.
Xenomma, *Woll.*, 543.
Xenomma filiforme, *Woll.*, 545.
—— formicarum, *Woll.*, 545.
—— planifrons, *Woll.*, 544.
Xenorchestes, *Woll.*, 417.
Xenorchestes saltitans, *Woll.*, 418.
Xenostrongylus, *Woll.*, 126.
Xenostrongylus Canariensis, *Woll.*, 127.
—— histrio, *Woll.*, 128.
Xylonotrogus, Mots., 219.
Xylophilus, *Lat.*, 537.
Xylophilus pallescens, *Woll.*, 538.
Xylotrogus brunneus, Steph., 152.

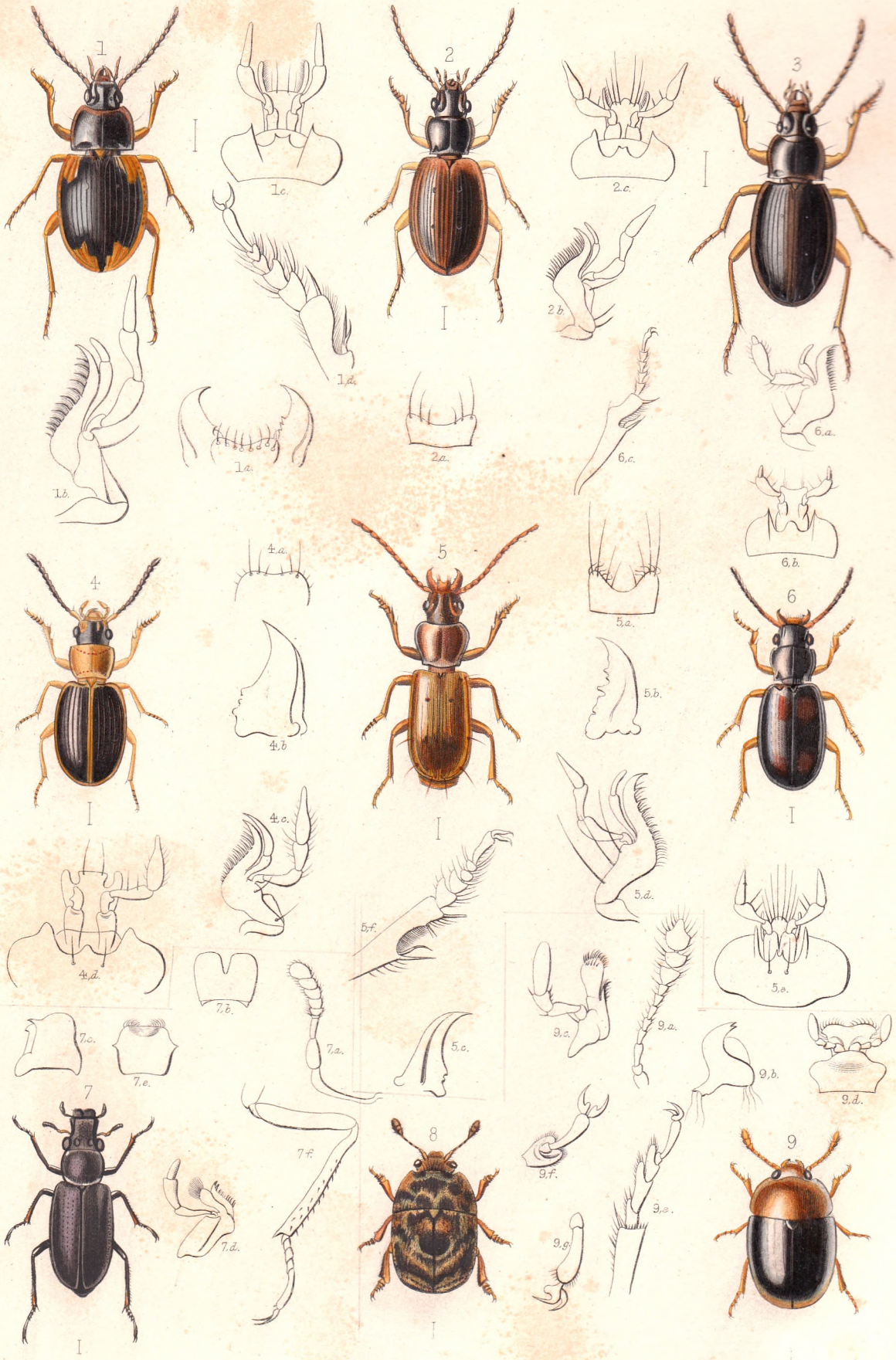
Zargus, *Woll.*, 22.
Zargus Desertæ, *Woll.*, 24.
—— pellucidus, *Woll.*, 25.
—— Schaumii, *Woll.*, 23.
Zonitis, *Fab.*, 529.
Zonitis 4-punctata, 530.
—— 4-*punctata*, Lucas, 530.

THE END.

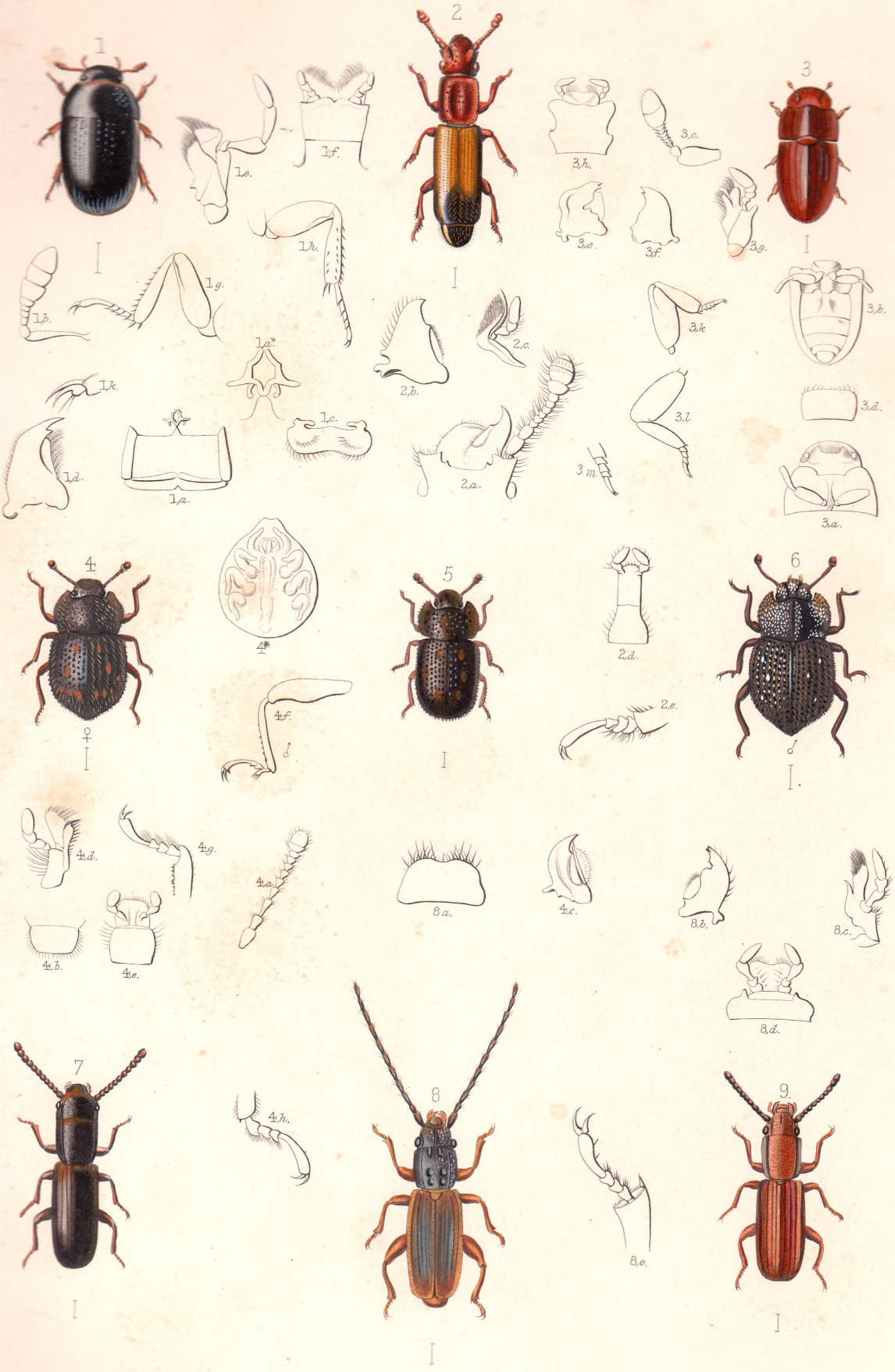
PRINTED BY
RICHARD TAYLOR AND WILLIAM FRANCIS,
RED LION COURT, FLEET STREET.



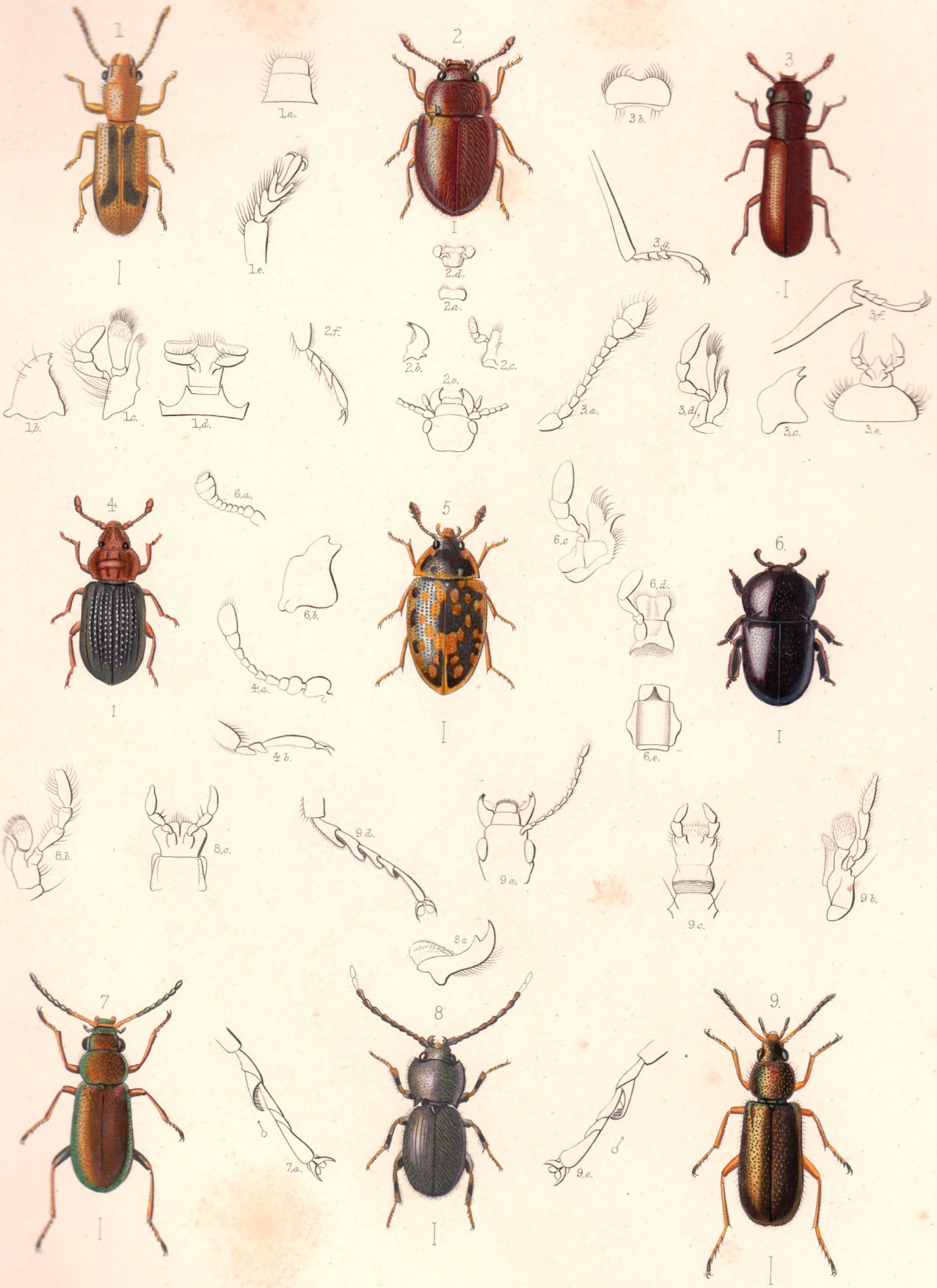
1. Eurygnathus Latreillei, Lap. ♂
2. Loricera Wollastonii, Javet.
3. Eurygnathus Latreillei, Lap. ♀
4. Zargus Desertae, Woll.
5. ——— Schaumii, Woll.
6. ——— pellucidus, Woll.
7. Olisthopus Maderensis Woll.
8. ——— Ericae, Woll.
9. Omaseus Wollastoni, Heer.



1. Trechus nigrocruciatus, Woll.
2. ——— flavomarginatus, Woll.
3. ——— umbricolus, Woll.
4. Bradycellus excultus, Woll.
5. Thalassophilus Whitei, Woll.
6. Bembidium curvimanum, Woll.
7. Calobius Heeri, Woll.
8. Xenostrongylus histrio, Woll.
9. Olibrus Cinerariae, Woll.



1. Dactylosternum Roussetii, Woll.
2. Europs impressicollis, Woll.
3. Cossyphodes Wollastoni, West.
4. Tarphius Lauri, Woll. ♀
5. ——— Lowei, Woll.
6. ——— nodosus, Woll. ♂
7. Laemophloeus axillaris, Woll.
8. ——— Donacioides, Woll.
9. ——— Stenoides, Woll.



1. Cryptamorpha Musae, Woll.
2. Macrochondrus dominum, Guérin.
3. Lyctus brunneus, Steph.
4. Metophthalmus asperatus, Woll.
5. Litargus pictus, Woll.
6. Inorictus Westwoodii, Woll.
7. Pecteropus Maderensis, Woll.
8. Coptostethus femoratus, Woll.
9. Pecteropus rostratus, Woll.



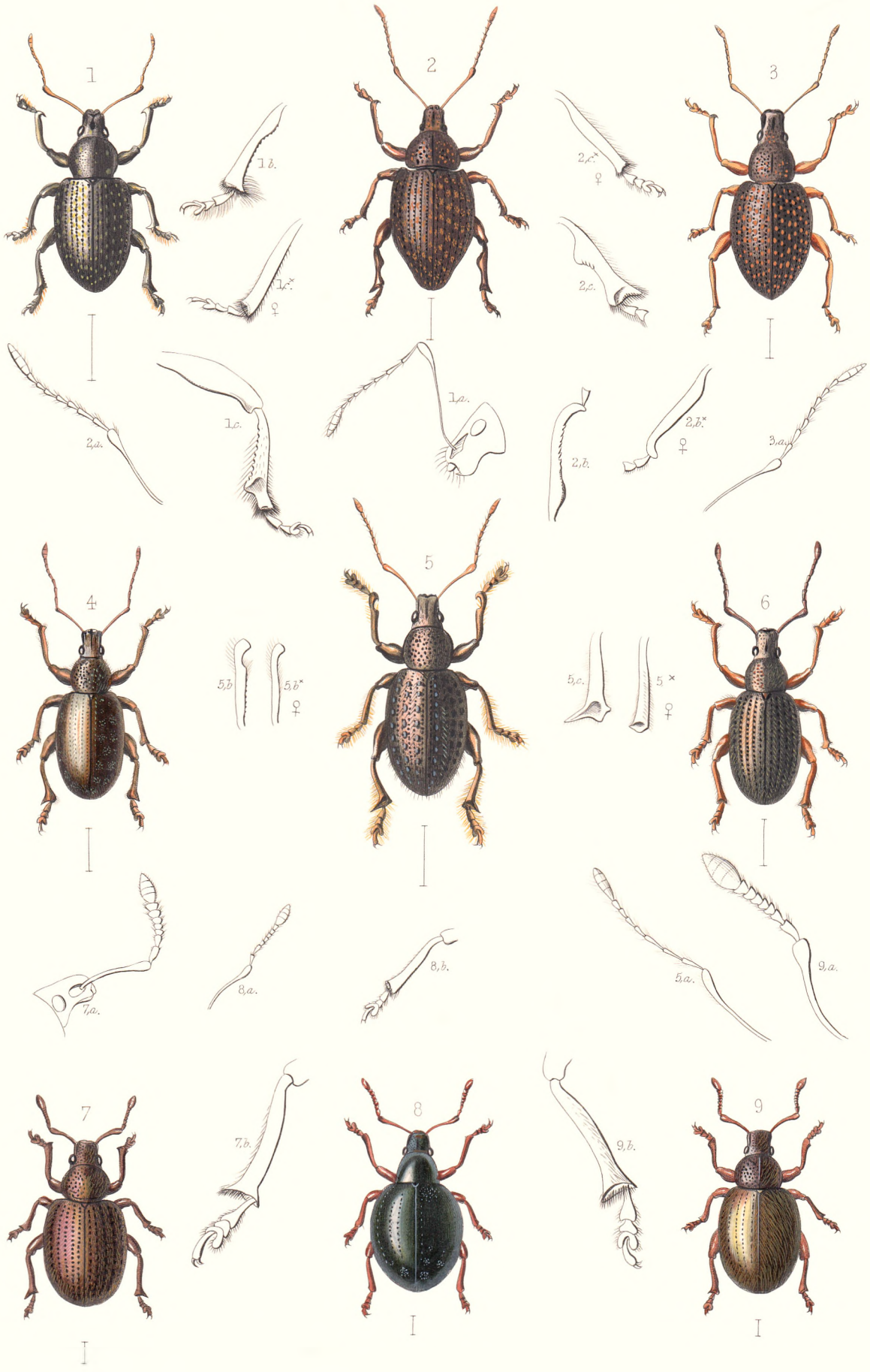
1. Melyrosoma oceanicum, Woll.
2. _____ Artemisiae, Woll.
3. Anobium velatum, Woll.
4. Ptinus albopictus, Woll.
5. _____ Dawsoni, Woll.
6. _____ orbatus, Woll.
7. Cis Lauri, Woll.
8. _____ Wollastonii, Mellie.
9. Leiparthrum mandibulare, Woll.



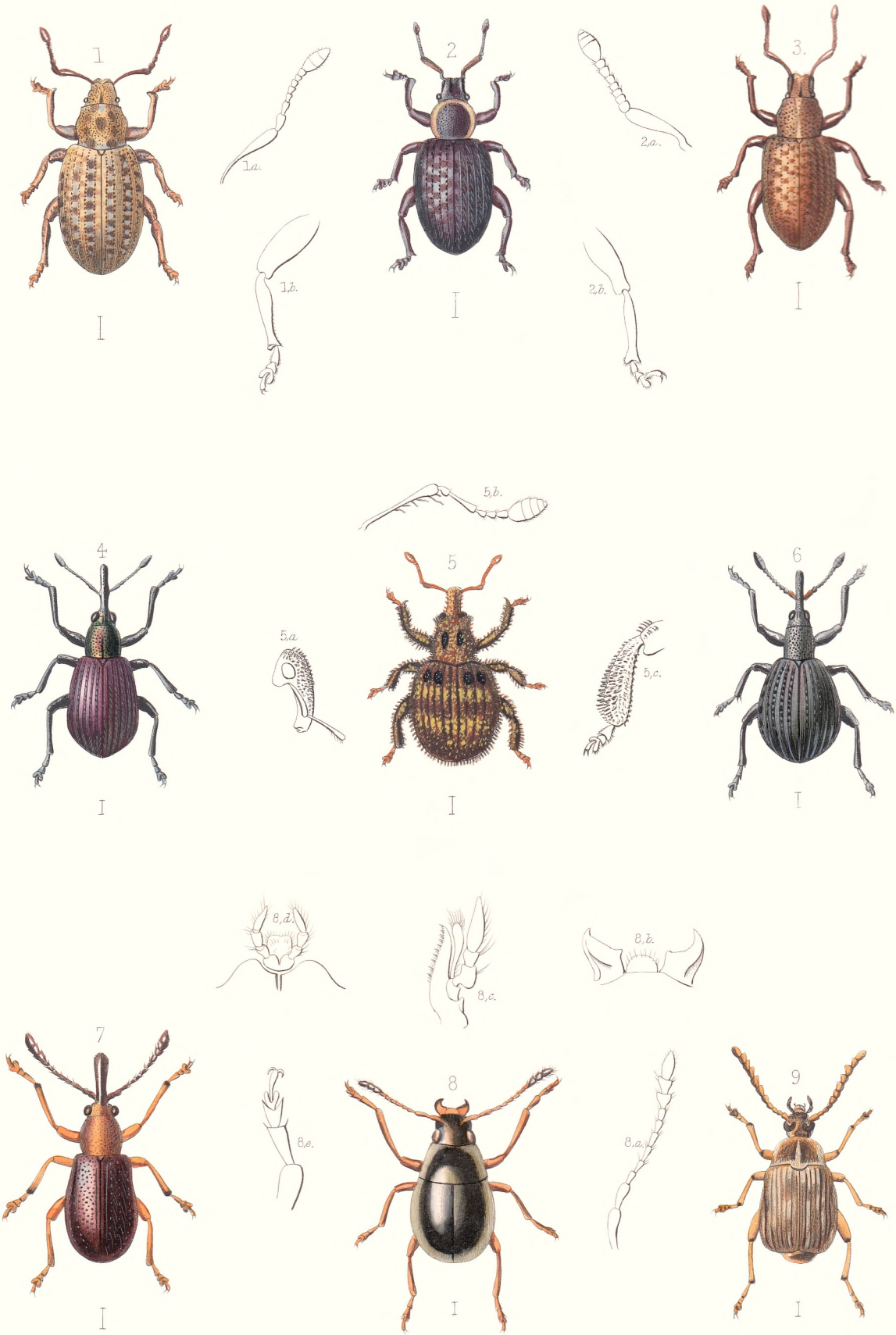
1. Phloeophrhorus perfoliatus, Woll.
2. Aphanarthrum Euphorbiae, Woll.
3. Leiparthrum bituberculatum, Woll.
4. Caulophilus sculpturatus, Woll.
5. Stenotis acicula, Woll.
6. Caulotrupis lacertosus, Woll.
7. Caulotrupis lucifugus, Woll. var. *a.*
8. _____ terebrans, Woll.
9. _____ lucifugus Woll. var. y

J.O.Westwood Del.

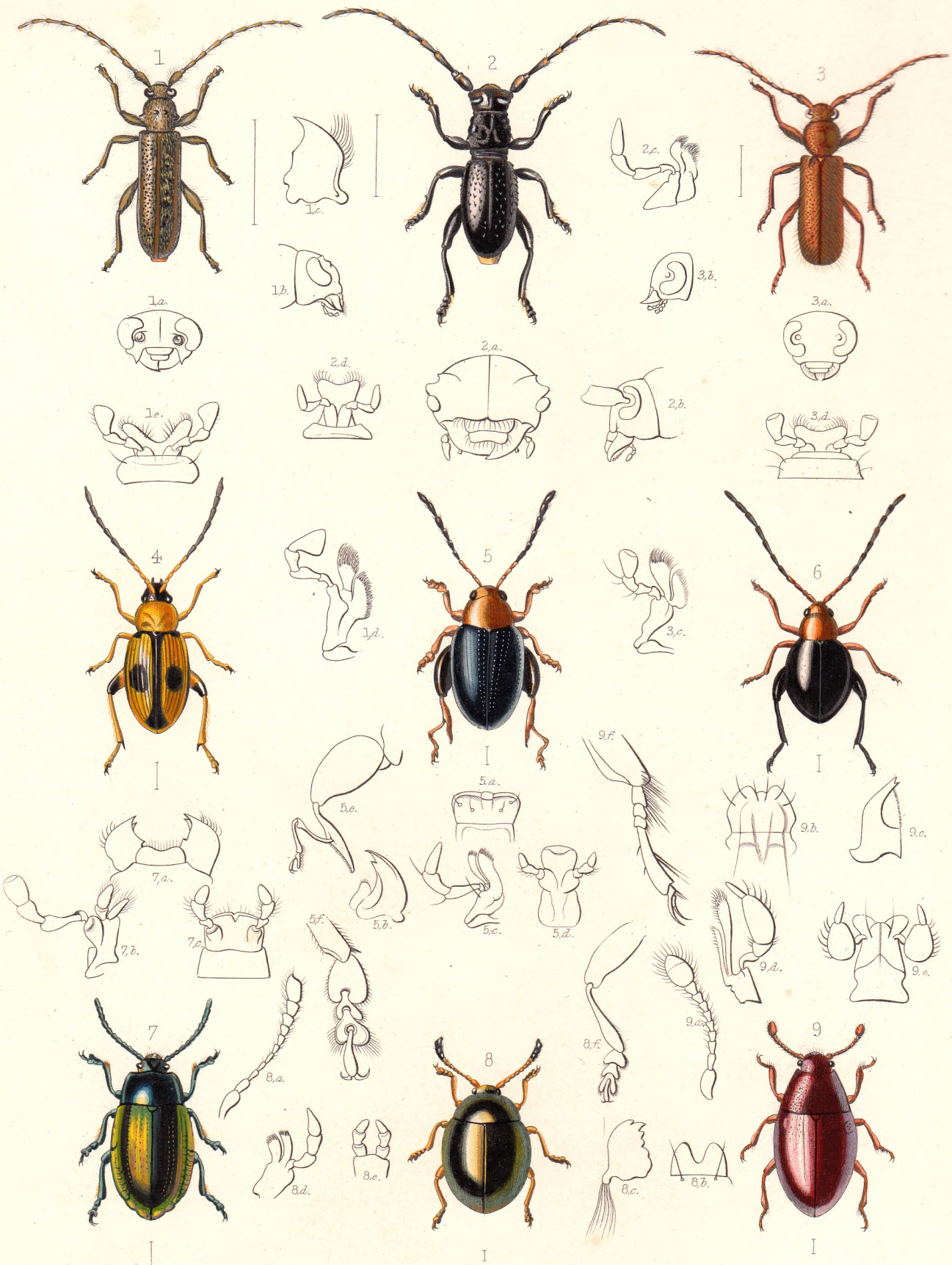
Fred. Smith, Sc.



1. Laparocerus morio, Schön.♂
2. Cyphoscelis distorta, Woll.♂
3. Atlantis clavatus, Woll.♀
4. Atlantis vespertinus, Woll.♂
5. _____ lamellipes, Woll.♂
6. _____ lanatus, Woll.
7. Anemophilus crassus, Woll.
8. Omias Waterhousei, Woll.
9. Anemophilus trossulus, Woll.



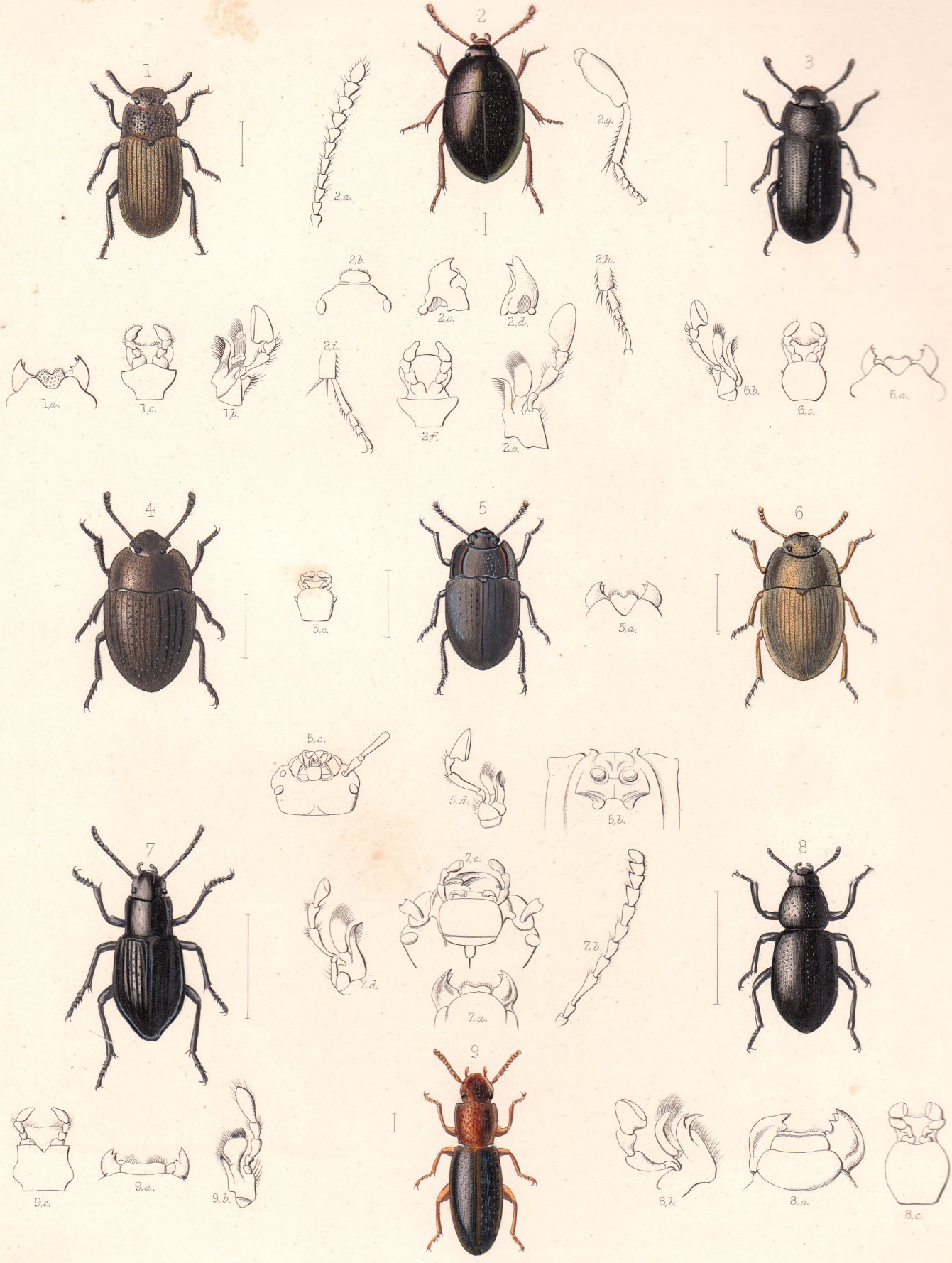
1. Lichenophagus fritillus, Woll.
2. Scoliocerus Maderae, Woll.
3. Lichenophagus acuminatus, Woll.
4. Apion Wollastoni, Chev.
5. Echinosoma porcellus, Woll.
6. Apion rotundipenne, Woll.
7. Auletes Maderensis, Woll.
8. Xenorchestes saltitans, Woll.
9. Bruchus lichenicolus, Woll.



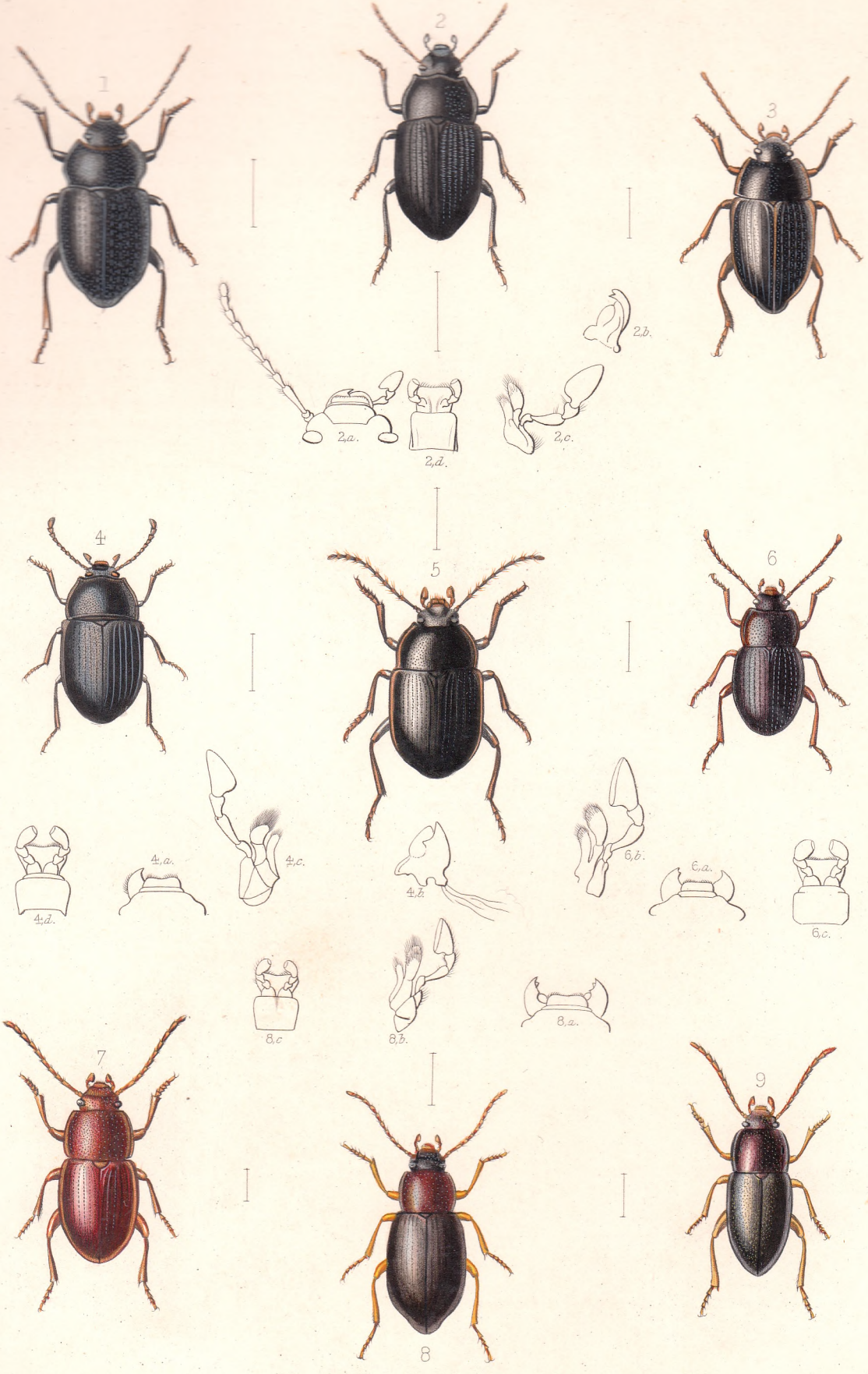
1. Blabinotus spinicollis, Woll.
2. Deucalion Desertarum, Woll.
3. Trichoferus senex, Woll.
4. Longitarsus Isoplexidis, Woll.
5. Psyllisdes tarsatus, Woll.
6. Longitarsus Gnerariae, Woll.
7. Chrysomela Fragariae, Woll.
8. Mniophilosoma laeve, Woll.
9. Ploeosoma ellipticum, Woll.



1. Cholovocera Maderae, West.
2. Scymnus flavopictus, Woll.
3. ——— Limnichoides, Woll.
4. Clypeaster pusillus, Gyll.
5. Coccinella Genistae, Woll.
6. Arthrolips piceus, Comolli.
7. Gloeosoma velox, Woll.
8. Staganomorpha sphaerula, Woll.
9. Corylophus tectiformis, Woll.



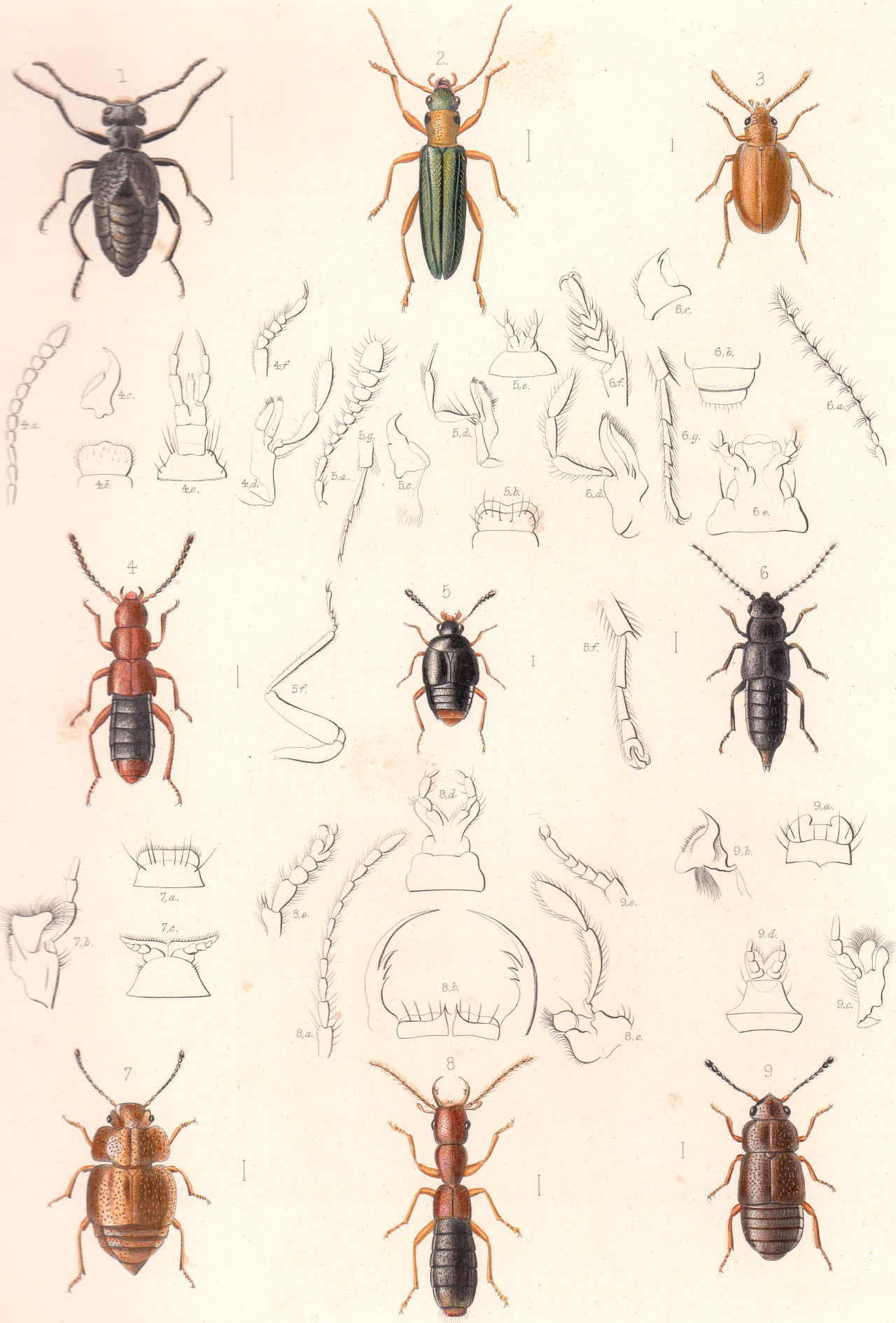
1. Opatrum fuscum, Herbst.
2. Ellipsodes glabratus, Fab.
3. Opatrum errans, Woll.
4. Hadrus cinerascens, Woll.
5. ——— alpinus, Woll.
6. ——— illotus, Woll.
7. Hegeter elongatus, Oliv.
8. Macrostethus tuberculatus Woll.
9. Boromorphus Maderae, Woll.



1. Helops Vulcanus Woll. ♂
2. ——— confertus Woll. ♀
3. ——— Pluto Woll. ♂
4. Helops infernus Woll. ♀
5. ——— lucifugus Woll. ♂
6. ——— congregatus Woll. ♂
7. Helops futilis Woll. ♂
8. ——— cinnamomeus Woll. ♀
9. ——— Portosanctanus Woll. ♂

J. C. Westwood del.

J. Swaine sc.



1. Melbe flavicornis, Woll.
2. Stenaxis Lowei, Woll.
3. Xylophilus pallescens, Woll.
4. Xenomma planifrons, Woll.
5. Somatium anale, Woll.
6. Trichophya Huttoni, Woll.
7. Metopsia amphiata, Woll.
8. Mecognathus Chimaera, Woll.
9. Megarthrus longicornis, Woll.