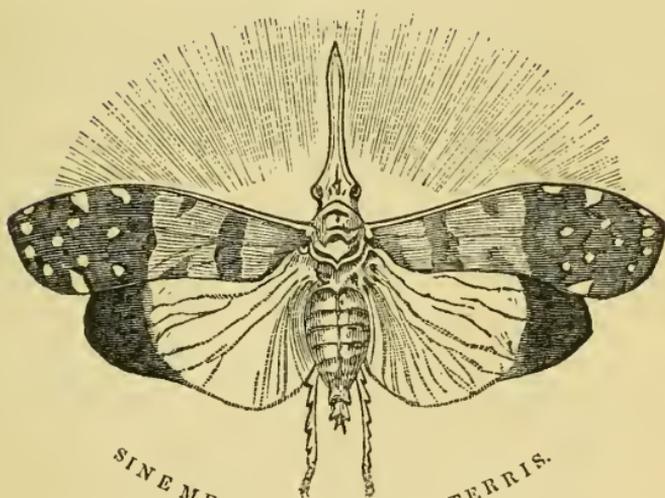






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VOL. V.



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"God, in the school of nature, useth a method so suitable and correspondent to our dulness, that our meditations should not want in the creatures, volumes (I may say) wherein to read most excellent admonitions and instructions: in every creature are they engraven in ordinary characters, and in a lesser print; as in the Scriptures that be written in capital letters once, the creatures are a bright glass, wherein we may behold our God; for as God is a glass in heaven, wherein all his creatures are seen, so are the creatures a glass upon earth, wherein we may behold and know our God."

Spiritual Honey from Natural Hives. By SAMUEL PURCHAS, A.M. 1657.



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LIST OF CONTRIBUTORS.

-
- A. S. K., 181.
 - B——n, Usk, 477.
 - Bowerbank, J. S., F.G.S. and Z.S., 39, Critchell Place, New North Road, 300.
 - Christy, William, jun., F.L.S. and Z.S., Clapham Road, 305, 431.
 - Clark, Bracy, F.L.S., 7, Taunton Place, Regent's Park, 336.
 - Davis, A. H., F.L.S., Adelaide, South Australia, 248.
 - Doubleday, Edward, Member of the Entomological Society of France, Epping, 21, 199, 269, 402, 409.
 - Douglas, J. W., 16, Edward Street, Windsor Terrace, City Road, 62, 257.
 - Haliday, A. H., M.A., Belfast, 209, 518, 519.
 - Hewitson, W. C., Bristol, 77.
 - Hope, Rev. F. W., M.A. F.R.S. L.S. &c., 37, Upper Seymour Street, 312.
 - Insect Hunter, 66.
 - Irish Insect Hunter, 140.
 - Matthews, Rev. A., M.A., Weston, 188.
 - Newman, Edward, F.L.S., 21, Union Street, Deptford, 168, 372, 408, 483.
 - Shuckard, W. E., Vice-Pres. Ent. Soc. of London, 31, Robert Street, Chelsea, 335, 481, 505.
 - Taylor, H. Stuart, 43, Dorset Street, Baker Street, 253.
 - Walker, Francis, F.L.S. G.S. &c., 49, Bedford Square, 35, 102, 417, 453, 518.
 - Walton, John, M.E.S., 1, 254.
 - Westwood, J. O., F.L.S., Member of the Entomological Society of France, Sec. Ent. Soc. of London, The Grove, Hammersmith, 259, 459, 500.

EXPLANATION OF THE PLATES.

PLATE XVII.—See ART. XXII. p. 248.

<p>Fig. 1. Anterior Wing of <i>Alysia manducator</i>.</p> <p>2. Ditto ditto <i>rufidens</i>.</p> <p>3. Ditto ditto <i>atra, mas.</i></p> <p>4. Ditto ditto <i>tipulae.</i></p> <p>5. Ditto ditto <i>Aurora.</i></p> <p>6. Ditto ditto <i>Circe.</i></p> <p>7. Ditto ditto <i>pumilio.</i></p> <p>8. Ditto ditto <i>angustula.</i></p> <p>9. Ditto ditto <i>fucicola.</i></p> <p>10. Ditto ditto <i>rufinotata.</i></p> <p>11. Ditto ditto <i>gracilicornis.</i></p> <p>12. Ditto ditto <i>contracta, fem.</i></p> <p>13. Ditto ditto <i>id. mas.</i></p> <p>14. Ditto ditto <i>maritima.</i></p> <p>15. Ditto ditto <i>pullato.</i></p>		<p>Fig. 16. Ant. Wing of <i>Alysia ruficeps</i>.</p> <p>17. Ditto ditto <i>Galatea.</i></p> <p>18. Ditto ditto <i>Cephalotes.</i></p> <p>19. Ditto ditto <i>speculum.</i></p> <p>20. Ditto ditto <i>florimela.</i></p> <p>21. Ditto ditto <i>apii.</i></p> <p>22. Ditto ditto <i>perdita.</i></p> <p>23. Ditto ditto <i>pumila.</i></p> <p>24. Ditto ditto <i>venusta.</i></p> <p>25. Ditto ditto</p> <p>26. Ditto ditto <i>concolor.</i></p> <p>27. Ditto ditto <i>punctigera.</i></p> <p>28. Posterior Wing of <i>A. manducator.</i></p> <p>29. Ditto ditto <i>picinervis.</i></p> <p>30. Ditto ditto <i>punctigera.</i></p>
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PLATE XVIII.—See ART. LII. p. 506.

EXPLANATION OF THE WOOD CUTS.

No. 1.	P. 34.	Eshing Bridge, near Godalming.		
2.	55.	Freshwater Bay, Isle of Wight.		
3.	65.	Wickham Hatch, Kent.		
4.	193.	Figure and anatomical details of <i>Deinopsis fuscatus</i> ,	<i>Matthews.</i>	
5.	194.	Ditto ditto	of <i>Centroglossa Conuroides</i> , <i>Matthews.</i>	
6.	200.	The house at Trenton Falls.		
7.	209.	Anterior wings of Hymenoptera.		
8.	210.	Posterior ditto ditto		
9.	260.	Figure and anatomical details of <i>Xiphodontus niger</i> ,	<i>Westwood.</i>	
10.	261.	Ditto ditto	of <i>Ceratognathus niger</i> , <i>Westwood.</i>	
11.	267.	Figure of <i>Dorcus Cancroides</i> ,	<i>Olivier.</i>	
12.	267.	Ditto of <i>Dorcus obtusatus</i> ,	<i>Westwood.</i>	
13.	377.	Figure and anatomical details of <i>Macratri linearis</i> ,	<i>Newman.</i>	
14.	379.	Ditto ditto	of <i>Hydnocera serrata</i> , <i>Newman.</i>	
15.	389.	Ditto ditto	of <i>Phymaphora pulchella</i> , <i>Newman.</i>	
16.	399.	Ditto ditto	of <i>Bruchomorpha oculata</i> , <i>Newman.</i>	
17.	487.	Ditto ditto	of <i>Tanychilus striatus</i> , <i>Newman.</i>	
18.	491.	Ditto ditto	of <i>Cacosceles Œdipus</i> , <i>Newman.</i>	
19.	495.	Ditto ditto	of <i>Pempsamacra Tillides</i> , <i>Newman.</i>	

C O N T E N T S.

	Page
VALEDICTORY ADDRESS	ix
ART. I. Notes upon the Genera Sitona, Polydrusus, Phyllobius, and Apion. By John Walton	1
ART. II. Communications on the Natural History of North America. By Edward Doubleday	21
ART. III. Monographia Chalciditum. By Francis Walker	35
ART. IV. Proceedings of the Entomological Society of London	56
ART. V. More Random Thoughts. By J. W. Douglas	62
ART. VI. A recently discovered Chapter of the Wanderings and Ponderings of an Insect-Hunter	66
ART. VII. Note on the Economy of Hedychrum. By W. C. Hewitson	77
ART. VIII. Proceedings of the Entomological Society of London	79
ART. IX. Proceedings of the Entomological Society of France	82
ART. X. Proceedings of the Entomological Club	87
ART. XI. An Essay on the Stridulation of Insects. By M. Goureau	89
ART. XII. Monographia Chalciditum. By Francis Walker	102
ART. XIII. Of the Management of Bees in Cashmere	119
ART. XIV. Proceedings of the Entomological Society of France	122
ART. XV. Notes of an Irish Insect Hunter	140
ART. XVI. Entomological Notes. By Edward Newman	168

	Page
ART. XVII. Brecon Beacon.—Craig-Pwllch-Dù	181
ART. XVIII. Proceedings of the Entomological Society of London	183
ART. XIX. Notice of some new Genera and Species of Brachelytra. By Rev. A. Matthews, M.A.	188
ART. XX. Communications on the Natural History of North America. By Edward Doubleday	199
ART. XXI. Proceedings of the Entomological Club	206
ART. XXII. Essay on the Classification of Parasitic Hymenoptera. By A. H. Haliday, M.A.	209
ART. XXIII. Mr. Davis's Journal, up to December 20, 1837	248
ART. XXIV. Notice of the Capture of Vanessa Antiopa in the Neighbourhood of London. By the Rev. H. Stuart Taylor	253
ART. XXV. Additional Notes on the Genus Apion. By John Walton	254
ART. XXVI. Lines written on visiting the Neighbourhood of Boxhill, Surrey, June 1837	257
ART. XXVII. <i>Lucanidarum novarum exoticarum Descriptiones, cum Monographia Generum Nigidii et Figuli.</i> Auctore J. O. Westwood, F.L.S. &c.	259
ART. XXVIII. Verses read before the Literary Society of Epping	268
ART. XXIX. Communications on the Natural History of North America. By Edward Doubleday	269
ART. XXX. On the Structure of the Scales on the Wings of Lepidopterous Insects. By J. S. Bowerbank, M.E.S. &c.	300
ART. XXXI. Notes on Madeira. By William Christy, jun., F.L.S. &c.	305
ART. XXXII. Observations on the Lamellicorns of Olivier. By the Rev. F. W. Hope, M.A. F.R.S. &c.	312
ART. XXXII.* Proceedings of the Entomological Club	326
ART. XXXIII. Proceedings of the Entomological Society of London	<i>ib.</i>
ART. XXXIV. Note of the Mode of removing the Grease from Insects by the application of Naphtha Petrolci. By W. E. Shuckard	335
ART. XXXV. Note on <i>Cæstrus Equi</i> , the Bot of Horses. By Bracy Clark	336

ART. XXXVI. Magazine of Natural History. Edited by Edward Charlesworth, Esq.	338
ART. XXXVII. The Transactions of the Entomological Society of London. Vol. II. Part I. London, 1837	339
ART. XXXVIII. Notices of Foreign Entomological Works . . .	350
ART. XXXIX. An Essay on the Stridulation of Insects. By M. Goureau	357
ART. XL. Entomological Notes. By Edward Newman	372
ART. XLI. Communications on the Natural History of North America. By Edward Doubleday	402
ART. XLII. Note on <i>Meloë</i> , &c. By Edward Newman	408
ART. XLIII. Communications on the Natural History of North America. By Edward Doubleday	409
ART. XLIV. Monographia Chalciditum. By Francis Walker . .	417
ART. XLV. Recollections of Five Days in Teneriffe. By William Christy, jun.	431
ART. XLVI. Descriptions of some Oxyuri. By Francis Walker. .	453
ART. XLVII. On the Comparative Structure of the Scutellum and other Terminal Dorsal Parts of the Thorax of Winged Insects. By J. O. Westwood, F.L.S. &c.	459
ART. XLVIII. Descriptions of some Chalcidites discovered by C. Darwin, Esq. By Francis Walker	469
ART. XLIX. Notes on various Insects, by J. B——n; with further explanatory Observations, by W. E. Shuckard	477
ART. L. Entomological Notes. By Edward Newman	483
ART. LI. On the Genus <i>Cerapterus</i> of Swederus. By J. O. Westwood, F.L.S.	500
ART. LII. Description of some new Genera of Coleoptera in the Author's Collection. By W. E. Shuckard	505
ART. LIII. Proceedings of the Entomological Society of London .	513
ART. LIV. Varieties	518

ERRATA IN VOL. IV.

- Page 41, for 1^{um} et 2^{um}, read 2^{um} et 3^{um}.
56, line 11, for O, read O. cœlatus.
59, — 18, for informam, read in formam.
95, — 4, after orbita, insert pectore.
97, — 15, erase in.
— — 30, erase et.
205, — 8, for erectus, read evectus.
206, — 20, for mas, read ð.
209, — 6, for 2, read 1^{um}.
217, — 1, after interior, insert anteriori.
220, — 3, for fem. read mas.
— — 27, for Gnaptodon, read Gnamptodon.
253, — 8, for stern, read stem.
422, — 28, for antennis integraret, read antennis interjecta.

ERRATA IN VOL. V.

- Page 220, line 5, add Palpi articulis 6 et 4.
232, — 24, add Palpi articulis 6 et 4.
238, — 34, for $\frac{1}{3}$, read $\frac{2}{3}$.
245, — 23, after 56, insert nervosa.

VALEDICTORY ADDRESS.

THE ENTOMOLOGICAL MAGAZINE is ended.—In offering to the public the Fifth and last Volume, and at the same time bidding my readers farewell for ever, I have thought it desirable to relinquish the editorial *plural*, and address my brother entomologists in the more egotistical but less assuming *singular*. Whether this work has or has not accomplished its proposed object,—the advancement of entomology,—whether it has been conducted well or ill, is for my readers to determine. Of its merits or demerits its avowed Editor cannot speak.

In the pages of the volumes before me many papers occur which seem to require a few comments. I will make these comments as concise as possible. I am well aware how irksome is the reading of Prefaces, and that the only merit they can by chance possess is brevity.

The *Colloquia Entomologica*.—However censurable many passages in these Colloquies may be, (and I have nothing to say in extenuation or palliation,) it is but just that he who deserves should alone bear the obloquy. With one exception^a they are written exclusively by myself. I need scarcely add that the conversations are purely imaginary, and that the supposed interlocutors never avowed the sentiments they found ascribed to them. It is no pleasant task to volunteer this confession; but the duty is imperative. I cannot allow

^a See Vol. I. p. 492. This acknowledgment appears to contradict a statement made in Vol. II. p. 476. In explanation it is only needful to say, that a kind friend undertook the editorship of that volume, and consequently the Colloquia were not *then* “either really or avowedly editorial.”

my friends to suffer the ill effects of my own imprudence. The writing of these hasty and desultory papers afforded me a momentary pleasure: be the penalty also mine; I neither seek nor shun it.

The Septenary System.—The strictures on this system are more violent than the occasion warranted, and would not have been admitted had any other person than myself been the object of attack. I never have, and I trust never shall, reply to a word of censure against myself. If just, I profit by it; if unjust, I laugh at and forget it. I now as firmly as ever believe in the main points of the septenary system,—the centrality of typical forms, and the consequent approximation of circles, as shown in my arrangement of the classes of Tetrapterous hexapods;—but let me add, that I consider time could scarcely be spent more idly than in endeavouring to work out sevens, fives, or threes, in the families, genera, and species. I regret to see minds of great natural capacity frittering away their powers in this puerile employment.

Monographia Chalciditum.—This monograph, which is perhaps the most elaborate and extensive ever written, could not be completed within the limits of this Magazine. Mr. Walker has printed the remainder, consisting of about 250 pages, in a separate volume, which I recommend to my readers as essential to the completion of the subject.

Metamorphosis of Crustacea.—In the Third Volume of this Magazine^b occur some of those invaluable papers, by Dr. Thompson, which have excited so much discussion among Naturalists; some having even attempted to dispute the author's veracity. On this subject Mr. MacLeay has thus expressed his opinion, in a work presently to be mentioned:—"It is true that, in consequence of the publication of Professor Rathke, some persons disputed the truth of Dr.

^b *Metamorphosis of Pinnotheres*, III. 85; *Metamorphosis of Porcellana and Portunus*, III. 275; *Double Metamorphosis in Macropodia Phalangium*; also *Notes on that of Gecarcinus hydronomus, Thelphusa erythropus, Eriphæa Carribæa, and Grapsus pelagicus*, III. 370; *Natural History and Metamorphosis of Sacculina carcini*, III. 452.

Thompson's assertions; but, so far as my own observations allowed me to form an opinion on the subject, I was ever inclined to think that this gentleman merited well of science, which is far more than could be said of any of those persons who, by crude inferences, but *never by direct observation*, have ventured to attack him."c With a candid acknowledgment that I have never proved by demonstration the truth of Dr. Thompson's assertions, I wish to take this opportunity of expressing my perfect and entire belief in the whole of his statements. I cannot understand on what grounds any casual commentator is to overthrow statements resulting from a long and laborious investigation. Before the evidence of so diligent an observer as Dr. Thompson can be in the least shaken in the minds of the unprejudiced, a series of careful experiments must be formed, a series of rigid results noted, and the statements now existing must be met by counter-statements of equal weight. Has this been the case? Do we not, on the contrary, find that investigation corroborates, rather than invalidates, these important assertions? Mr. MacLeay unhesitatingly says, that Captain Ducane, R.N., who has made at Southampton most interesting observations on the metamorphosis of Crustacea, *has confirmed Thompson's observations*. Although confirmation is always desirable, and sets the matter more thoroughly at rest, yet I confess that Dr. Thompson's unsupported statements carry perfect conviction to my mind. His conclusions rest not on isolated or accidental observations, but on elaborate researches, conducted with scrupulous care. In his Memoir on *Pinnotheres*,^d Dr. Thompson states that he kept alive those females which had large bunches of ova, and that he actually "*saw the ova hatch in great numbers, under the form of a new kind of Zoë.*" This is no expression of opinion, no proposition of a theory, but a statement of a positive fact. I cannot appreciate highly the feeling that would quash this assertion. It seems to me that Dr. Thompson's statements are not to be shaken by doubts or arguments.

c Illustrations of the Zoology of South Africa; Annulosa, p. 53.

d Entomological Magazine, Vol. III. p. 88.

Nothing short of a patient investigation, co-extensive with his own, will in any degree detract from the merit, originality, or brilliancy of his discoveries, or throw any shade over the soundness of his views.

Natural History of North America.—Messrs. Doubleday and Foster having visited most of the states of the Union, and taken up their temporary abode in the various localities they considered best calculated for entomological pursuits, are now on the eve of returning to this country. The communications from Mr. Doubleday are therefore concluded, and I am unable to state his views as to any more complete or extensive accounts of the Natural History of the United States. Mr. Doubleday, before returning to his home, is availing himself of the kind assistance of Dr. Harris, a zealous and able American entomologist, in naming such insects of his collection as have been previously described by the late lamented Thomas Say. Dr. Harris having in his possession the works and MSS. of Mr. Say, and possessing, moreover, an extensive and accurate knowledge of the species Mr. Say has described, entomologists will at once perceive the almost inestimable value of his assistance.

Entomological Notes.—These will be continued in the Magazine of Natural History, the New Series of which, from the value of its contents, and the high scientific reputation of many of its contributors, has strong claims on the cultivators of Natural History.

The present is a rich era in entomological publications, especially as regards this country. A new edition of Drury's beautiful Plates of Insects, with descriptive letter-press by Mr. Westwood, and a second edition of Dr. Bevan's Honey Bee, with some valuable additions, have just made their appearance. Mr. John Curtis's unrivalled pictorial work on British Entomology, is still regularly continued. Besides these we have a work by Mr. Kirby, on the Entomology of Canada; by Mr. MacLeay, on the Entomology of South Africa; by Mr. Hope, on the *Scarabæi* of Fabricius, and on

Exotic Hemiptera; by Mr. Shuckard, on British Fossorial Hymenoptera; and by Mr. Westwood, on the Modern Classification of Insects. To each of these I must devote a few lines. We have also in prospect a general work on British Genera of Insects, by Mr. Shuckard; and a work on British Bees, by the same gentleman; both of which are to appear before the end of the present year.

I do not think Mr. Kirby's work on the Insects of Canada^e at all likely to extend the fame of that celebrated author. Numerous new families are named, but not described, and seem formed on the mere spur of the occasion, without any rational ground, or any apparent object, except that of giving paternity to a name. I moreover observe that many well-known insects, and amongst them the large North American *Trichii*, and several *Melolothidæ*, are re-described as new. On the other hand, hosts of European species are given as Canadian, without doubt or hesitation, without even a comparison of their characters. The technical terms are anglicized after the barbarous manner of the French, but with a still greater violation of scientific usages: thus, ants are called *Formicidans*; wasps, *Vespidans*, &c. It gives me pain to condemn any thing from the pen of so honoured an author as Kirby; but I speak now as an individual commenting without fear or favour on what is going on around him; and justice compels me to say that I consider the work throughout characterized by a morbid taste for name-giving, and by a carelessness perfectly unaccountable.

Mr. MacLeay's work on the Insects of South Africa^f is not more in accordance with modern views of precision and accuracy. I find in this work an equal lack of care, and the same overweening propensity to the giving of names; several even of the figured species have been previously named;^g and I must

^e Fauna Boreali-Americana, by John Richardson, M.D. Part IV. and last. The Insects by the Rev. William Kirby. Fletcher, Norwich: Longman, London. 1837.

^f Illustrations of the Annulosa of South Africa, collected during an expedition into the interior, under the direction of Dr. Andrew Smith. By W. S. MacLeay, Esq. London: Smith & Elder. 1838.

^g In a plate of Cetoniidæ five out of six are re-christened.

remark that, throughout the work, science is perpetually made subservient to theory, and the author rides his hobby, Quinarianism, with an energy and eagerness that must discompose the risible muscles of the most saturnine entomological physiognomy in existence. In the *Horæ Entomologicæ* no competent mind can fail to trace deep and original thought, close and connected reasoning, fresh and vigorous expression; but the theory, so sublime in its first dazzling entirety, becomes feeble, if not ridiculous, in the analytical detail of the *Cetoniidæ* before us.

Mr. Hope's *Coleopterist's Manual*^h is a work of great utility: the design is excellent, but the execution is too hurried. The object of the work is to show to what modern genera the Linnæan and Fabrician species of *Scarabæus* are to be referred. In the execution of this task Mr. Hope introduces several new genera, all of which appear to me clearly defined, and of far more intrinsic value than the generality of recent genera. I cordially recommend this little volume to every student of general entomology.

Mr. Hope's *Descriptive Catalogue of the Exotic Hemiptera*ⁱ in his own collection, is another work of great utility,—a complete *multum in parvo*: the descriptions are of course in Latin, and are, for the most part, very clear and careful, yet concise. I have much pleasure in recommending this little work.

Mr. Shuckard's *Fossorial Hymenoptera*^k is of far higher scientific character than either of the preceding publications; the author has followed that excellent advice of Horace—

Denique sit quod vis, simplex duntaxat et unum;

and, in accordance with the spirit of the line, he has produced a work at once simple and complete. The author possesses an ardent love of, and a complete mastery over, his subject. A more perfect work on entomology has seldom appeared: all British entomologists must possess it.

^h The *Coleopterist's Manual*, containing the Lamellicorn Insects of Linnæus and Fabricius. By the Rev. F. W. Hope. Henry G. Bohn, London. 1837.

ⁱ A *Catalogue of the Hemiptera*, in the Collection of Rev. F. W. Hope. London, 1837.

^k *Essay on the Indigenous Fossorial Hymenoptera*. By W. E. Shuckard. Richter and Co. London. 1837.

Mr. Westwood's work¹ is of a very different kind from the foregoing, and is, as the title expresses, an introduction to the modern classification of insects. It is published in monthly numbers, six of which have already appeared, and four more are to render the work complete. This restriction of a work to a limited size is, in my opinion, exceedingly ill-judged; the sixth number does not finish the Coleoptera, and the other classes are as yet untouched. Mr. Westwood should give us at least twenty numbers. The work consists of two distinct parts; the second part is a brief and crude, if not careless abstract of the characters of British genera, the object of which is not apparent. The first part must be spoken of in different terms: it appears to me a careful and judicious digest, of rare and extensive learning, of elaborate and deep research. It is impossible to read these highly interesting pages, and to compare the text with the numerous cuts, executed from the author's own drawings, without feeling a profound respect for that invincible industry which has collected so immense a mass of information.

Mr. Taylor's Bee-keeper's Manual^m is a very small and unpretending volume: the author evidently possesses a knowledge of his subject, arranges his matter judiciously, and writes in a clear and intelligible style. Our apiarians are seldom entomologists, neither are our entomologists apiarians; hence the questions most interesting to the entomologist, as the impregnation of the queen, the hexagonal figure of the cells, the structural difference of queens and neuters, and many others, remain still in utter darkness.

My remarks on Kirby and MacLeay, the magnates of entomology, will no doubt be considered somewhat too free. Let those who think so examine their recent quartos as I have

¹ Introduction to the Modern Classification of Insects, founded on their natural habits and corresponding organization; to which is added, a Descriptive Synopsis of all the British Genera. By J. O. Westwood. London, 1838.

^m The Bee Keeper's Manual; or, Practical Hints on the Management and complete Preservation of the Honey Bee, and in particular in Collateral Hives. By Henry Taylor. Groombridge, London.

done,—undazzled by the broad margins of either,—unappalled by the dictatorial and supercilious style of the latter. I assert, without fear of contradiction, that a dozen pages of Shuckard's "Fossores," or Westwood's "Introduction," contain more information, more entomology, aye, more philosophy, than can be found in the two hot-pressed quartos now open before me. From the text I turn to the plates with real satisfaction; those in Kirby's work are good, in MacLeay's they are almost perfect: I have never seen any pictorial illustrations so beautiful. It is but justice to the highly-gifted artist to say, they are by Mr. Charles M. Curtis.

Reader! it is no easy task to say farewell, after a companionship of so many years. If I have offended thee, it is now high time to forgive and to forget it. Truly can I say, that, from the bottom of my heart, I forgive all those attacks which have been directed against myself. If any there be still conscience-stricken, and trembling in the anticipation of chastisement, I beg of them to fear no more, and accept of my forgiveness.

EDWARD NEWMAN.

DEPTFORD,

28th October, 1838.

THE
ENTOMOLOGICAL MAGAZINE.

OCTOBER, 1837.

ART. I.—*Notes upon the Genera Sitona, Polydrusus, Phyllobius, and Apion.* By JOHN WALTON.

MY DEAR SIR,—You are aware it has been my intention for some time to send you a few general remarks, upon the discrepancies that seem to have existed for a long period, amongst the species of the above-named genera. The interesting family to which they belong, has had a great share of my time and attention for more than two years. If you think the following observations may be interesting, of use to Entomologists, and of sufficient importance to merit a place in the *Magazine*, they are very much at your service. I will just say, I have had no other object than the elicitation of truth, by endeavouring to remove some of the obscurity which prevails amongst the species of the said genera. If I have been successful, I hope it will induce others, infinitely superior to me, to retrace their steps, by investigating other genera, seeing how much there is yet to be done at home; instead of allowing themselves to be so much enamoured by new forms and exotic novelties. There is much truth in the assertion, that if Entomologists would confine their studies for a time to orders or families, according to their several tastes and leisure, our path to knowledge would be made smoother, and our acquisitions the more valuable and useful.

GENUS.—SITONA.

The confusion which, more or less, exists in the synonymy, and amongst the species of this genus, is so general and extensive, that I think I may be excused in attempting to put it into better order. I have the pleasure of saying, I have been permitted freely to examine nearly all the principal metropolitan cabinets, with reference to this and the following genera: they are all much in the same plight; but it would be ungrateful not to mention here, the kindness and politeness that I have everywhere experienced from the Entomologists of London, for which I feel obliged. I hope I may be excused in referring to the collection of Mr. Kirby, as it has become the property of the Entomological Society, by the generosity of its illustrious donor, and is of easy access to entomologists. There seem to be no less than five Protean species in this genus,—viz., *S. Spartii*, *S. lineatus*, *S. tibialis*, *S. puncticollis*, and *S. pleuritica*,—every where plentiful; and when we take into consideration how closely species and their varieties frequently approximate to each other, both in habit and sculpture, we shall cease to wonder at the inaccuracies in this genus.

Sitona Spartii and *tibialis*.

I must now crave the reader's patience, to follow me through a short narrative of the circumstances which gradually led me to the consideration of the following species. After a fruitless endeavour to ascertain some of their names, by means of books, and the examination of some of the London collections, I commenced, on my return home from London, in March 1836, to collect numbers of the *S. Spartii*, and *S. tibialis*, from the *Ulex Europæus*, which I put into oblong card boxes, about $1\frac{1}{2}$ inches deep, covered with glass; and, by means of a pocket lens, I could most satisfactorily identify the sexes of each species, by observing them *in coitu*, and removing each pair, by means of a light pair of forceps, into pill-boxes. Thus I amused myself for several weeks, until I collected upwards of one hundred pairs, which I mounted, and displayed upon cards; and, when exhibited to Mr. Curtis, during a short sojourn at my house, in June 1836, he could not help laughing. Those which I did not detect *in coitu*, I put into pill-boxes, until I had several

hundreds of innumerable varieties, of two species, viz.—*S. Spartii*, and *S. tibialis*: the latter was more plentiful than the former, and both always found upon the above-mentioned plant, in Yorkshire. By capturing, setting out, and examining so many of these species, and their surprising varieties, I became familiar with what is technically called their habit, by securing them, as I apprehend, soon after their coming out of the chrysalis: they were in beautiful condition, and covered with shining scales, of a metallic lustre, particularly *S. tibialis*. I was pleased to observe I possessed numerous and very singular varieties, in form, colour and size; thus I became master, if I may use the expression, of these two species. I continued, all the remainder of the year, to collect every insect of this genus that I met with. The colour of the scales of *S. tibialis* is extremely variable, of every shade, from a coppery, silvery, bluish grey, and green: the elytra are generally lined, but in many instances concolorous, and therefore entirely without lines. This species is liable to be confounded with *S. lineatus*; but the habit is dissimilar, the elytra are shorter, and the eyes more prominent; the slender bluish grey varieties of the *S. lineatus* so closely approximate to the same varieties of the *S. tibialis*, that it is difficult for persons unacquainted with the habit of the two species to separate them. In this case, the sculpture on the thorax, when examined, will at once decide the doubt.

Sitona lineatus.—The scales upon the elytra are generally more or less distinctly lined, but frequently concolorous, and without lines. The small slender varieties are usually of a bluish grey; and the full, robust forms are often cinereous, brown, and also of a bluish grey colour; the cinereous, or brown, incline to a coppery red, which, in certain positions, have a brilliant metallic lustre. I have, therefore, been led not to attach much importance to the colour of the scales and the lineations thereof: they are often perfectly useless in deciding species, and mislead by their want of uniformity; they hide the sculpture more or less, and this important character cannot be seen distinctly without scraping them off, which is easily performed with a pen-knife, or some other light instrument.

The five Protean species mentioned before, vary so considerably in size, and assume so many singular variations in form and colour, that it is impossible for language to give a correct

idea of the same. The largest in size are broader and more robust, generally of a coppery or gold colour, which, in certain lights, is more or less brilliant; and their head, thorax, and elytra are more conspicuously developed. As they diminish in size, their stature becomes gradually more slender, the forehead narrower, and less gibbous, the thorax and elytra are also considerably modified in form, and the colour of these slender varieties is generally of a greyish blue; they are usually found nearly without scales. Whether this peculiarity is occasioned by the roving propensities of the males, or arises from age, or a greater predisposition to be detached by abrasion, it is difficult to say.

Sitona puncticollis.—A gentleman, of whose long practical experience in this order, and of whose accurate judgment and keen discriminating eye I have the highest opinion, having called my attention to the slender varieties of this species, which appeared to him distinct from the true *S. puncticollis*, (and which are known by the name of *S. canina*,) on account of their shorter elytra, and from the circumstance of his having received them from Scotland, without any of the true *S. puncticollis*, I have considered and examined his observations, with a mind open to conviction,—with a sincere desire, if possible, to search out the truth,—nay, more, with a feeling, rather to be wrong than right; but I cannot resist the evidence of my own senses; and my opinion is, that this species is specifically identical with *S. puncticollis*, differing almost entirely in its less robust form. The general character of the sculpture, after a careful examination, I find to be the same. The length of the elytra is not comparatively uniform: this is, in my opinion, a mere individual variation; but this is not the most remarkable discrepancy in the form of the elytra: in some of the narrow examples, it is singularly attenuated, from about the middle to the apex. I may add, the number of maculæ, or spots on the anterior margin of the thorax, as well as the number of those on the disk, in recent and fresh specimens, are the same in the narrow, slender varieties of this species, as in the broader or more robust forms, and are more or less evident, unless obliterated by age, or otherwise. This species I take in abundance by sweeping grassy fields; and fine specimens can only be obtained by selecting from great numbers; they are generally found in bad condition.

S. pleuritica and *S. subaurata*.—I have not the slightest hesitation in uniting these two species of Mr. Kirby. I speak confidently, because I have taken them in the autumn of last year, in the utmost profusion, by sweeping grassy fields. *S. pleuritica* is smaller, and of a more slender form than the *S. subaurata*,—the latter is of a larger, broader, and of a more robust form; in fact, the regular gradation, or law of continuity, in a good series, is evident throughout: in recent and good specimens, the elytra are beautifully tessellated, and there are two distinct spots on the thorax,—a character common to all the recent varieties, however small, that I have seen. This species is NOT *hispid*. *S. suturalis* has the habit of *S. hispidulus*, but it is at once distinguished from the latter by its being pubescent. Its sub-immersed eyes, and its lineated suture, distinguish it at once from all the other species of this genus. It seems to be provincial, being found in Wales and Yorkshire: all the other species are discriminated by specific characters so distinct, that it would be perfectly superfluous to make any observations upon them. I must now refer to a series of each species, deposited in a drawer at the Entomological Society of London; they are not so full and complete as I could wish, because I had no idea of writing this paper before I came to London, consequently I did not bring up with me a full series of varieties. I refer also to Mr. Kirby's collection; and also to a good series of each species, in the cabinet of the Entomological Club.

GENUS.—POLYDRUSUS.

I have very few remarks to make upon this genus. *P. amaurus* of Marsham, seems to be a variety of *P. confluens*; and the *P. amaurus* of Mr. Kirby's MSS. is a *Phyllobius Mali*: this name, since it does not represent a species, must sink into a synonyme. *P. marginatus* is a good species, and very local, the only known habitat being birch-wood. *P. pulchellus* may be a species; there is a single example in Mr. Stephens's cabinet, taken at Darenth Wood. *P. cervinus* is like one of the Protean species of the genus *Sitona*; it varies as much in size, and in the colour of its scales, from a green, greyish blue, silvery, to a copper. *P. melanotus* is a variety of the preceding. *P. sericeus* seems a distinct species, from a specimen in the

cabinet of Mr. Curtis, and one or more in that of Mr. Stephens. Of *P. fulvicornis* I have only seen one specimen, which is in Mr. Stephens's cabinet, and which appeared to me a variety of *P. cervinus*. All the other species are very distinct.

GENUS.—NEMOICUS.

N. oblongus varies in the colour of its thorax, being sometimes black and sometimes testaceous. I have captured it, *in copulâ*, of both colours on the thorax.

GENUS.—PHYLLOBIUS.

Whoever has paid attention to the colour of the scales in this genus, as well as to the variation of the colour of the legs, and to that of the antennæ, will not attach much importance to these fugitive characters in determining a species. I have captured the *P. Alneti* with legs of every shade of colour, from black to rufous; and have taken the *P. cæsius*, *in copula* with *P. Alneti*, the latter having black legs and the former testaceous; I have in vain attempted to find a character to separate them; the slender smaller forms, with pale legs, I consider to be males; some of the varieties, with black legs, have the scales upon the elytra of a rich silky lustre; and in certain damp situations, in a wood, much screened from light, I have taken this species with their elongate green scales changed to an ash-grey, giving to the insect the appearance of being pubescent. Specimens with this character I first suspected to be a distinct species; but having subsequently taken a pair, *in copulâ*, one of them with green elongate scales, and the other grey, I found a solution to this anomaly. Mr. Curtis has the two examples in his cabinet, which I gave to him.

P. Pyri is thought to be distinct, from its hair-like golden scales, but they are variable in their tint, to a greenish, or satiny green, thereby approximating to some of the varieties of the preceding, showing there is no uniformity in this character, but that one colour gradually merges into another. I am very much inclined to think that the colours of the scales in this species are modified, and changed by fortuitous circumstances, depending upon light, heat, and moisture; I have found them abundantly amongst nettles, umbelliferous plants, and herbage

of various kinds; specimens from the former were always darker than others. Until there is a difference discovered in the habit, and a specific character, of sufficient weight or consequence, in the sculpture, I shall regard them all as one variable species. Mr. Stephens thinks, that *P. cæsius* may be a mere variety, or the opposite sex of *P. Pyri*. I am convinced that *P. cæsius* and *P. Alneti* are identically the same species; for these and the above reasons, I have united them all under the Linnæan name of *P. Pyri*.

P. maculicornis.—A very distinct northern species, taken by me in Yorkshire: in the habit and sculpture, when examined, it will be found to be very different from *P. argentatus*, its nearest congener; there is also a good character in the second joint of the funiculus of the antennæ, it is shorter and stouter than in the following insect, the two first being of equal length, whereas in the following species (being the only one with which it can be confounded), the second joint is longer and more slender than the first of the funiculus, therefore of unequal lengths.

P. argentatus.—There is in this species and the preceding a very singular and very remarkable variation to be noticed in the form of the thorax: the females (for I have taken both species *in copulâ*) have the sides of the thorax considerably dilated at the middle, and gibbous on the disk, giving it a globose appearance; the small varieties have the thorax subcylindrical; the colour of the legs and antennæ are more or less dark, regulated by the situation in which they are found; there is also another character, in this and the preceding species, worthy of notice,—they are often taken with powerful dentated mandibles, projecting from the apex of the rostrum, a character which gives them the appearance of a *Cicindela*. I have observed other species in this genus as well as in *Polydrusus*, with exerted mandibles, some simple and others dentate; from which I infer it is a general character in these nearly allied genera.

P. Pomonæ is a variety of *P. uniformis*.

P. uniformis is a distinct species, dissimilar in habit to *P. parvulus*; the abdomen beneath is densely clothed with scales, nearly to the apex.

P. albidus is a variety of *P. uniformis*.

P. parvulus, a variable but distinct species; the abdomen beneath is pubescent, and piceous or testaceous at the apex. I have taken numerous pairs of this and *P. uniformis*, *in copulâ*,

some of which I have lodged in the cabinets of the Entomological Society and Entomological Club, for the inspection of visitors.

P. minutus, is a variety of *P. parvulus*.

P. viridicollis, said to be a good species. I have never taken it.

GENUS.—APION.

The excellent Monograph of Mr. Kirby on Herbst's genus *Apion*, published in the ninth and tenth volumes of the Linnean Transactions, is of inestimable value to entomologists; it evinces great labour and deep research. His valuable correspondence with his friend Major Gyllenhal, with presents of insects, enabled him to identify numerous species, to correct the synonymy, and to render the same in many cases less obscure. Notwithstanding his great exertions, I cannot help thinking the genus is yet in a very unsatisfactory state; on the whole, this celebrated work of Mr. Kirby is as complete, and as free from errors (considering the state of our knowledge at the time, and the scantiness of some of the materials which he had to work upon,) as could be expected; my surprise is, that the errors are so few when I consider the difficult nature of the subject, and many other unavoidable circumstances. I cannot resist my inclination to avail myself of this opportunity, here to record my individual sense of the generosity and kindness evinced by Mr. Kirby, in presenting the whole of his invaluable collection of insects to the Entomological Society: it is a proof how deeply he feels for the prosperity and advancement of his favourite science. I congratulate the entomologists of London upon so valuable an acquisition, upon the advantages they possess in having free access to the cabinets; without this I could not with any degree of satisfaction to my own mind, much less to that of others, have attempted to point out the few inaccuracies that comparatively exist in his valuable and interesting monograph. Ample means were afforded me, carefully and I hope rigorously, to examine the identical insects described by Mr. Kirby: for want of this evidence I must have remained silent, and yielded to the high authority of so celebrated an author. Through the politeness and kind attention of the curators of the Entomological Society, I have been permitted to remove this genus, and the preceding genera, into two separate drawers, to place Mr. Kirby's names under each species, and to attach

thereto a label numbered with red ink, exactly in the same order as left by him, the names and red ink numbers put to every insect, in regular order, as I took them out of the cabinet, will afford greater facilities for examination, and prevent them from being accidentally transposed or misplaced.

The simple method which I adopted to identify the sexes of *S. tibialis*, by means of oblong card boxes covered with glass, I applied with equal success to many species of this genus. I am aware objections may be raised against this plan, which I shall not attempt to combat here: I will merely say, if the experiments are conducted and watched with patience and attention, under a careful provision against all circumstances that may create errors, by taking several pairs *in coitu*, and by a close examination of the same, I have no doubt in my own mind, the most sceptical person will be convinced of the identity of the sexes; at all events, there can be no mistake with the males of species by this method, because they are seen with *certain organs*, and observed in certain situations. Though I may in many instances have succeeded, to the satisfaction of my own mind, in uniting each sex to its legitimate partner, by this method, yet I regard it only as a collateral aid in proving the sexes.

There are many important sexual characters more or less developed throughout this extensive genus, and which I consider of equal consequence with observing or taking them any way *in coitu*; these sexual characters are so conspicuously depicted, and so uniformly well defined, in the generality of the species, that I have no hesitation in saying that an entomologist, practically and familiarly acquainted with them, could at once decide upon the sex of a species that he had never seen before. I will now attempt to give an outline, and to describe generally, as well as I can, and as the nature of the subject will permit, the sexual characters of this genus.

In my opinion, the sexual distinctions are so important to be known, that no entomologist can acquire a correct knowledge of all the species of this interesting genus without them: most of the errors have originated for want of a better acquaintance with the same. The extreme locality of some of the species, and the great rarity of others, no doubt, has combined in a great measure to impede and retard our studies of these characters.

The variation in the form of the rostrum is the first and most important sexual character to be noticed. In the males it is very generally shorter and thicker than in the females; filiform, sometimes attenuated, and often pubescent before the antennæ; more generally glabrous, and, when compared with the females, somewhat dull and obscure, or less glossy. The antennæ of the males are very generally seated at a greater distance from the base of the rostrum than that of the females, but the distance varies more or less. When the antennæ are entirely testaceous in the males, the club is black in the females.

The rostrum of the females is longer, thinner, and more or less attenuated, before the antennæ—sometimes filiform, generally glossy and glabrous,—rarely pubescent. The antennæ are frequently seated nearer the base of the rostrum than in the males; but the distance is more or less variable. In pubescent species, the males are more hairy than the females, and the rostrum is pubescent before the antennæ. With all due deference and respect to the authority of so judicious and skilful an entomologist as Mr. Kirby, I must venture to say, that, at the commencement of his admirable monograph, it is evident he was not so well acquainted with the sexual characters; but he evinces a more accurate knowledge towards its conclusion. This is what might be expected of every person, as he became better acquainted with the species—for example: the characters which induced Mr. Kirby to separate *A. ruficornis* from *A. Cracca*, are entirely sexual. I must be allowed to quote his own words:—"This little insect, (*A. ruficornis*) although very nearly related to *A. Cracca*, is, I think, very distinct from it. The hair on the body is thicker, the rostrum has a shorter acumen, and it is covered, from the base to the tip, with white hairs: the antennæ, likewise, are entirely testaceous." *A. Cracca*, *A. Pomona*, and *A. subulatum*, the only three species found in this country with subulated rostrums, have all a strong analogy to each other in their sexual characters. The males of each species are more pubescent than the females; the rostrum, though subulated, is distinctly stouter in the males before the antennæ, than in the females, and covered with pubescence. The rostrum of the females is not so stout before the antennæ as in the males: it is also more attenuated, glabrous, and shining, than in that sex. There is also a remarkable sexual character in *A. Cracca*, and a few

other species in this genus: the antennæ of the males are entirely testaceous, and the female has the club black, with the base testaceous. I have recently taken the sexes of *A. Pomonæ*, at Birch Wood, *in copulâ*.

No. 5^a *A. Ervi*, 5 *mas.* and *fem.*; No. 6, *A. Lathyri*, 6 *fem.* and *mas.* Mr. Kirby says, "this species (meaning the latter) so nearly resembles the preceding, that it is not without considerable hesitation that I give it as distinct. Since, however, I possess the sexes of each, and the males differ in the shape of the rostrum, and the females, both in the proportion of the *clava* of the antennæ, and the connexion of its joints, these circumstances will, I think, warrant my separating them."

"That they feed upon the same plant, though a presumptive, is by no means a demonstrative evidence of their identity, since it often happens that the same plant furnishes food to several species of this genus. Major Gyllenhal, however, sent this amongst specimens of *A. Ervi*, considering it, I suppose, a variety." I must here venture to dissent. Mr. Kirby must have had, at this time, a very confused idea of the sexual characters, otherwise this great error is utterly unaccountable. This opinion is corroborated by the insects in his collection: the males are sometimes denoted by feminine characters, and the females by male ones. See No. 9, *A. vorax*; No. 10, *A. carulescens*; No. 43, *A. seniculus*, &c. In reply to his reasons for making a male and female out of two females, and a female and male out of two males, I must observe, I cannot see any difference in the shape of the rostrum between his first two females; nor can I see any difference in the shape of the rostrum of the last, which are two males; neither can the proportion of the *clava* of the antennæ, and the connexions of its joints, differ very materially in the same sex, unless by some fortuitous cause. *A. Ervi* and *A. Lathyri* I captured in my net, *in copula*, while sweeping. Their situation was not ambiguous,—they separated with difficulty. The sexual characters are very distinctly marked in both, and are exactly analogous to the sexual characters of *A. Viciæ*, which Mr. Kirby afterwards described, (No. 14, *A. Viciæ*, *mas.* and *fem.*) and accurately

^a These are Mr. Kirby's numbers, as they stand in the Monograph; and are taken from his identical described specimens. The sexes are also distinguished by Mr. Kirby as above.

identified the sexes. The males of both species (*A. Ervi* and *A. Vicia*) have the hair on the body thicker, the rostrum shorter, filiform, pubescent from the base to the tip, and the antennæ are seated near its middle, and are entirely testaceous. The females of both species are less hairy on their bodies, the rostrum longer, attenuated before the antennæ, glabrous and shining; the antennæ seated nearer the base of the rostrum, with their clubs black, and their basal joints rufous. Both species are very plentiful about Knaresboro', in Yorkshire. Of these two species, so analogous to each other in their sexual characters, I beg to refer to a series of both sexes, placed by me in a spare drawer at the Entomological Society, and also to Mr. Kirby's insects themselves, in support of my opinion. If sexual characters are allowed to predominate in separating species, and the act of taking and observing them *in copula* be of no weight in support of well developed sexual characters, then *A. ruficorne*, *A. Lathyri*, *A. Malvarum*, *A. foreolatum*, *A. marchicum*, *A. unicolor* must all stand, and *A. Pomona*, *A. Vicia*, *A. Vorax*, and numerous others, must be doubled.

No. 16, *A. Malvarum*, and No. 17, *A. rufirostre*. Mr. Kirby has confounded the sexes with each other. The late lamented Dr. Leach took these insects *in coitu*, the former name is therefore dropped with universal consent. No. 21, *A. Fagi*, is an immature male, of the *A. flavi-femoratum* of Kirby. No. 23, *A. flavi-femoratum*, var. β (*æstivum*) is a distinct species, and var. γ (*varipes*) the same.

A. No. 27, is *A. foreolatum*, var. β , γ . *A.* No. 37, is *A. Spencii*, 37 *mas.* and *fem.*

Having taken many of this species (for the two are male and female) in different localities, near Knaresboro', in July 1836, and not being able satisfactorily to name them by Mr. Stephens's illustrations, I compared them when I was in London, the latter end of July, with the above in Mr. Kirby's collection. Mr. Waterhouse was present, and agreed with me, that the two species and their varieties, given as distinct, were alike, and the same as mine, excepting one insect, with Mr. Kirby's original number, 27, attached to it: that is to say, he thought the *A. foreolatum* different from the varieties β γ , from *A. Spencii*, 37 *mas.* and *fem.*, and also from all mine. On my return home into Yorkshire, the beginning of August, I went to Scarboro': in a ravine or dell, just beyond the White Nab,

south of the town, and near the sea-coast, I found the *Astragalus Glycyphyllus*, out of bloom, but not the *A. Astragali* as I expected. More inland, up the dell, to make up for my disappointment, I found upon the *Vicia cracca* the two species in question, and the *A. unicolor*, all in plenty. Having taken about two hundred of each (being as many as I wished to possess, for the pleasure of supplying my friends) in three or four successive days; and being fortunate enough in securing several pairs *in coitu*, of both species, upon examining their sexual characters, I was delighted to find the whole of them conspicuously distinct, both in the *A. Spencii* and the *A. unicolor*. By mounting the whole on cards, with the sexes in pairs, and displaying their legs and antennæ, I was pleased to see I possessed a very long series of varieties of the sexes of the two species. The prominence of the eye, and consequent narrowness of the forehead, in *A. Spencii* varies considerably in both sexes, but surprisingly so in the female. The rostrum, in this species, also varies in length; the variation in the prominence of the eye is a character I have observed in many other species—viz. in *A. violaceum*, *A. curtirostre*, &c. of which I possess very singular examples, picked out of quantities that I have from time to time collected.

Mr. Kirby says, “A (meaning the one described) differs from var. β and var. γ more than the sexes usually do, and may possibly be distinct; yet they are so extremely similar to each other, that I judged it best not to separate them.” I quote this opinion of Mr. Kirby to support mine; because Mr. Waterhouse and myself were at issue on this identical insect, which he thought not the same as its varieties, β and γ . It is numbered, and labelled 27, by Mr. Kirby. I presume it is the original specimen described by him: there is no mark on the label to denote the sex: it is a male,—a variety, with a narrow head, and the pubescence is worn off by age or otherwise; the var. β is a male also, and var. γ a female.

A. Spencii is described from an unique specimen, in the collection of Mr. Spence; but there are now two insects in Mr. Kirby's collection, which appear to have been added afterwards. The first, with a number and sexual mark, thus 37 ♀; and the other labelled thus ♂; both of which are correct, as far as regards the sexes; but the insects are female and male of *A. foveolatum*. At the end of the second part of his mono-

graph, by the accession of several specimens, this insect is better described; and Mr. Kirby does not seem to have the least suspicion that it is the *A. foveolatum*, or at all like it, but links it in affinity, and next to, *A. Spartii*, a very different insect.

I must again refer to my series of this species, (*A. Spencii*) of both sexes, and to Mr. Kirby's. *A. foveolatum*, being the first described, and a male insect, according to the rigid rules of nomenclature, should stand; and it is a good specific name. *A. Spencii*, a female insect, is unfortunately described afterwards, *but in the same monograph*. I shall, therefore, retain the latter name in my cabinet, as a "tribute, justly due to one of the most acute and learned entomologists of this island." *A. striatum* is the female of *A. immune*; and No. 31, *A. immune*, is the male of the former. This is a truly Protean species; it varies very considerably in the form of the thorax and elytra: the longitudinal furrow on the thorax of both sexes is present in my Yorkshire specimens, and absent in the males only, of those taken in the south. There are two insects in Mr. Ingall's collection, one of which, at first, appeared to me to be a distinct species, and allied to *A. immune*; since which I have seen other specimens in the collection of the Entomological Club, and another in Mr. Ingall's, which lead me to a suspicion that it may turn out a singular variety of *A. immune*. My great aversion to create new species from single examples, especially when allied to an exceedingly variable one; and the want of a long series of varieties from the London habitats of *A. Pisi* and *A. immune*, imposes upon me silence for the present. I captured numbers of this species from the *Ulex Europæus*, on warm days in February last, and I experienced no difficulty in identifying the sexes of many pairs of the same; the form of the rostrum, and the situation of the antennæ thereon, in both sexes, so much resemble each other, that it requires some little practical experience to separate them by the eye.

No. 32. *A. virens*, 32 fem.; No. 33, *A. marchicum*, 33 mas. Mr. Kirby says, "this little insect (*A. marchicum*) is so similar to the one before it, that I suspect it may be only a sexual variety. The principal difference lies in the thickness and shortness of the rostrum." The first is a female, and the second a male: I have taken them repeatedly *in coitu*, and, from their well-defined sexual characters, I have

no doubt whatever they are female and male ; consequently the latter name must fall. No. 36, *A. Spartii*, 36 *mas.* and *fem.* I have several times compared this insect with *A. Rumicis*. I cannot discover any important variation either in the habit or sculpture ; I believe them to be the same insect. I invite Entomologists to examine them ; it is an insect which I have never taken in the north, therefore I do not feel myself justified in expunging one of the names ; though I have no doubt in my own mind, that *A. Rumicis* will fall, when passed through the ordeal of a rigorous examination with *A. Spartii*. The sexes are correctly given in both species, and will, therefore, not interfere with our opinions as to a separation.

No. 39, *A. unicolor*. 39 *mas.* and *fem.* This species seems to have been first described from a single specimen, in the collection of Mr. Spence ; since which two specimens, male and female, have been added to Mr. Kirby's collection, and the specific description has been amended in the second part of his monograph. The geminated elevation between the antennæ is not an uniform character. I have examined, from time to time, upwards of one hundred specimens ; sometimes it is absent, and sometimes present, in both sexes. I have females with, and without, this geminated elevation,—the sexes I captured *in copula*, at Scarborough, as before mentioned. No. 41, *A. aterrimus*. As the label, with the number, is not attached to the pin containing the insect, but on a separate pin above it, it may not apply to this small insect, which seems to be *A. velox* (long. $\frac{5}{4}$ —1 lin.) ; it cannot be intended to represent *A. aterrimus*, described by Mr. Kirby, because it is so much larger. (long. corp. $1\frac{1}{2}$ lin.) I think a different insect must have been attached to this number,—perhaps an *A. Radiolus*. Mr. Stephens has omitted *A. aterrimus* altogether, as a species unknown in this country.

No. 45, *A. Gyllenhalii*. Major Gyllenhal sent Mr. Kirby this species ; it is represented by a single insect, pinned, labelled, and numbered 45 ; it happens, unfortunately, to be a female of *A. unicolor*. I have deposited a dozen specimens of both sexes, for the inspection of Entomologists, in the cabinet of the Entomological Society, amongst which will be found examples, with piceous and black antennæ. Other dark species of this genus, particularly *A. Seniculus*, vary in the

colour of the antennæ ; I propose, notwithstanding the priority of description, in this case to retain *A. Gyllenhalii*, as a tribute to so eminent an Entomologist. No. 56, *A. Radiolus*, *mas. fem.* No. 57, *A. oxurum*, (57, *fem. mas.*) In the second part of Mr. Kirby's monograph, he has expunged *A. oxurum*, as merely a variety of *A. Radiolus*. No. 67, *A. Angustatum* ; this single insect is *A. Loti*. No. 68, *A. scutellare*. This is a very distinct species, the last described by Mr. Kirby ; it seems to be taken in plenty, by Mr. Gibson, of Hebden Bridge, Yorkshire. I never took but one specimen, a female ; but I possess two males. There are three females of this species in the British Museum, named *A. Kirbii*, and placed there by the late Dr. Leach,—a name, I am sure, every Entomologist will support in preference to *A. scutellare*, out of reverence for the living and the dead. *A. glabratum*. There is a note in the hand-writing of Mr. Kirby, in his MSS. list, that induces me to think this species is a variety of *A. Loti*. "69, N.D. *A. glabratum*, Spence, var. *Apion Loti*, K." There is an insect pinned, with a label, and a number 69, N.D. attached to the pin, but it is a male of *A. viciæ*, which unfortunately increases the obscurity : the original specimen appears from Mr. Stephens's illustrations, to be in Mr. Spence's cabinet. I have not seen one in London ; I must, therefore, give this name in doubt. No. 71, N.D. *A.* —, Kirby MSS. is *A. Loti* ; No. 72, N.D., *A. impressicolle*, Kirby MSS. This is a female of *A. punctigerum*, No. 73, N. D., *A. læviusculum*, Kirby MSS. This a fine male specimen of the same. No. 74, *A. dissimile*, Kirby MSS. This is an *A. lævicolle*, *mas.*

A. Curtisii. This insect is in the cabinet of Mr. Curtis : at first sight it has the habit of the female of *A. pubescens* ; but, upon a closer examination, it sometimes differs : the rostrum of the former is rather shorter and stouter ; the antennæ in *A. pubescens* are black ; in *A. Curtisii*, piceous, with the club black, and placed a little nearer to the base of the rostrum. *A. pubescens* is deeply impressed between the eyes, and obscurely striated. *A. Curtisii* is very indistinctly impressed between the eyes, and delicately striated ;^b in other respects,

^b These differences in the sculpture are seen more or less distinctly with a powerful lens. I use a Coddington for minute insects, it defines so well ; but without care there is danger of mutilating the insect, on account of its short focus.

I cannot see any difference. There is clearly one, if not two specimens of *A. Curtisii* in the collection of the Entomological Club, one of which certainly departs considerably from *A. pubescens* in the form of the rostrum. *A. rubens*, taken by Mr. Ingall, at Shirley Common, near Croydon, is very distinct from *A. hæmatodes*, and is the same insect mentioned by Mr. Stephens, in his illustrations. I will just observe, in addition to the characters noticed by him, that it has, distinctly, a shorter head than the latter. *A. sanguineum* is also a very good species: it is said to be a native of Scotland; but I find it tolerably plentiful about Knaresboro'. *A. stolidum*. Mr. Waterhouse assures me, he has collated this insect with an original specimen from Germar, and that he feels perfectly satisfied of its identity. He has two specimens in his cabinet, and there is one in the collection of the Entomological Club: it is, apparently, a very rare species. *A. lævigatum*. Of this beautiful and very distinct species, I have only seen one example in the collection of Mr. Kirby, taken by his friend, the Rev. Mr. Sheppard: it must be very rare, or very local. *A. picicornis*. Mr. Waterhouse took this distinct new species at Dorking: there is one in the collection of the Entomological Club. *A. Hookerii*. I have frequently met with this insect by sweeping in clover-fields; and, during the summer and autumn, near Low Harrowgate I captured this rare insect in great plenty: I have no doubt the *Trifolium pratense* is its natural food. *A. obscurum* is a distinct species: the one in Mr. Kirby's collection is a male, with its rostrum rather short, and attenuated before the antennæ. There is another, in Mr. Stephen's cabinet, which is a female, given by Aylmer Bourke Lambert, Esq., to the late Mr. Marsham.

A. flavipes. This species is stated to have black coxæ, and the anterior are said to be occasionally yellow; it is also stated the two anterior coxæ are sometimes black, and sometimes yellow: the fact is, the two anterior coxæ of the females are black, and the trochanters yellow; in the males, the anterior coxæ and trochanters are all yellow, so that this supposed want of uniformity in the colour of the coxæ is a mere sexual character, not observed before, that I am aware of, for want of not attending to the said characters. *A. lævicolle*. A very distinct species. Mr. Kirby says he thinks it was taken, but is not quite certain, in the parish of Wittersham, in the

Isle of Oxney, in Kent, a spot which abounds with insects, particularly *Hymenoptera*. *A. æstivum*. This species has the anterior trochanters, in both sexes, dark or piceous: an uniform and good character, to assist in separating it from its congeners. *A. ruficrus* seems also a very good species; it may be instantly known by its black anterior coxæ and trochanters, broad head, prominent eyes, and coarse sculpture: the only insect it is likely to be mistaken for is the female of *A. difforme*. *A. varipes* is a good and distinct species; it is easily recognised by the lower half of the intermediate and hinder tibiæ being black, and by its long and very much curved rostrum.

A. filirostre. The female of this species has a broad testaceous ring at the apex of the anterior femora, which seems to be a sexual distinction, as I could not discover it in the males. There is a female specimen in Mr. Kirby's collection, with this testaceous ring, which seems to have escaped his eye. I first noticed it in a specimen of Mr. Ingall's, as a singular character in a black insect. *A. ebeninum*. I have taken this insect in great plenty from the *Lotus major*, in several wet or damp localities, growing amongst rushes, near old clay pits or old stone quarries; I have no doubt it feeds upon this plant, having frequently taken it alone upon it. *A. Ononis*. This insect is very local in Yorkshire. I swept the *Ononis arcense* in a great number of places before I met with the insect; it was very plentiful when I found out its locality. *A. puncticollis* is a distinct new species, in the cabinets of the Entomological Club and Mr. Waterhouse.

Every species of this boundless science is of itself a study. A knowledge of the habit of insects, when acquired, is of great value, and depends on close attention to every possible variety of size, form, colour, &c. It is somewhat modified by individual variations of form; and with me I confess it is a work of time to become familiar with it; but it is there I am convinced; and, when known, it is surprising how quickly species are recognised. In my opinion, the sculpture of every species has a general character peculiar to itself, yet frequently subject to individual and important variations in the arrangement of the punctures, striæ, furrows, &c. He who insists on mathematical precision in the sculpture of every individual of a species, as if every insect was stamped with a die, or cast in a

mould, will never be at a loss for arguments to multiply new species, and to support bad ones. It is natural to suppose—and it is supported by analogy—that insects are liable to slight variations of sculpture, which should not be considered as specific, but only an individual difference. The sculpture is so variable in its nature in different species, that I have long been of this opinion, that it is exceedingly difficult, if not impossible, for language, however copious, to give to the mind a correct idea of the same; consequently, I think it is of use, and of great assistance, to refer to other described species, as a collateral aid to understand the sculpture of others.

In the following list of insects, I have only given a few foreign synonyms, and such only of the British as were necessary to identify as much as possible the insects themselves: my reasons for not giving more of both are, that I believe the principal part of them are yet in a very incorrect state; it would, therefore, only have increased the obscurity.

Having very considerably reduced the number of species in the preceding genera, I expect the attention of entomologists will be drawn to the subject, and my conclusions investigated: this is what I desire; and I shall be glad to render any gentleman all the assistance I can, in the communication of specimens, by which he may confirm or refute such species as may be doubted. I have stated what I believe to be the truth, and if in error, it is but a common infirmity of human judgment, from which the most skilful cannot claim exemption.

I remain, my dear Sir, yours truly,

JOHN WALTON.

P. S.—Annexed is a List of the Species, with the synonyms; those marked with an asterisk I have found in Yorkshire.

SITONA, *Germ.*

- * 1 *Spartii*, *Kir. MSS.*
Ulicis, *Kir. MSS.*
- * 2 *hispidulus*, *Fab.*
rufipes, *Kir. MSS.*
pallipes, *Steph.*

SITONA, *Germ.*

- * 3 *lineatus*, *Fab.*
chloropus, *Kir. MSS.*
- * 4 *tibialis*, *Gyl. Dej. Cat.*
affinis, *Kir. MSS.*
albescens, *Kir. MSS.*
lineatulus, *Kir. MSS.*
chloropus, *Marsh.*

- SITONA, *Germ.*
 * 5 puncticollis, *Kir. MSS.*
 flavescens, *Kir. MSS.*
 griseus, *Kir. MSS.*
 longiclavis, *Kir. MSS.*
 caninus, *Fab. & Gyl.*
 nigriclavis, *Marsh.*
 octopunctatus, *Ger.*
 * 6 pleuritica, *Kir. MSS.*
 subaurata, *Kir. MSS.*
 chloropus, *Marsh.*
 * 7 suturalis, *Steph.*
 * 8 humeralis, *Kir. MSS.*
 * 9 crinitus, *Olivier.*
 macularis, *Kir. MSS.*
 * 10 cambricus, *Kir. MSS.*
 rugulosus, *Dill.*
 11 fuscus, *Marsh.*
 trisulcus, *Kir.*

- POLYDRUSUS, *Germ.*
 1 confluens, *Kir. MSS.*
 amaurus, *Marsh.*
 2 marginatus, *Steph.*
 3 pulchellus, *Steph. ?*
 * 4 cervinus, *Linn.*
 melanotus, *Kir. MSS.*
 sericeus, *Schall.*
 * 6 undatus, *Fab.*
 seleneus, *Kir. MSS.*
 7 fulvicornis, *Fab. ?*
 * 8 micans, *Fab.*
 * 9 flavipes, *Gyl.*
 10 speciosus, *Steph.*

- NEMOICUS, *Dill.*
 1 oblongus, *Linn.*
 rufescens, *Kir. MSS.*
 testaceus, *Kir. MSS.*

- PHYLLOBIUS, *Schon.*
 1 Pyri, *Linn. Gyl.*
 cæsius, *Marsh.*
 angustatus, *Kir. MSS.*
 Alneti, *Fab.*
 cnides, *Marsh.*
 æruginosus, *Kir. MSS.*
 2 maculicornis.
 angustior, *Kir. MSS.*
 nigripes, *Kir. MSS.*
 3 argentatus, *Linn.*
 flavidus, *Kir. MSS.*
 femoralis, *Kir. MSS.*
 4 Mali, *Fab.*
 vespertinus, *Kir. MSS.*
 Polydrusus amaurus, *Kir. MSS.*
 5 uniformis, *Marsh.*
 Pomonæ, *Steph.*
 obscurior, *Kir. MSS.*
 albidus, *Steph.*

- PHYLLOBIUS, *Schon.*
 6 parvulus, *Fab.*
 uniformis, *Kir. MSS.*
 minutus, *Steph.*
 7 viridicollis, *Fab.*
- APION, *Herbst.*
 1 Craccæ, *Linn.*
 ♂ ruficorne, *De Geer.*
 2 Pomonæ, *Fab.*
 cærulescens, *Marsh.*
 * 3 subulatum, *Kir.*
 ♂ var. β, *Kir. MSS.*
 ♀ Marshami, *Steph.*
 ♂ Platalea, *Ger.*
 † Limonii, *Kir.*
 * 5 Rumicis, *Kir.*
 Spartii, *Kir.*
 * 6 Affine, *Kir.*
 * 8 curtirostre, *Ger.*
 brevirostre, *Kir.*
 humile, *Ger.*
 plebeium, *Ger.*
 9 velox, *Kir.*
 aterrimum, *Kir. MSS.*
 * 10 simile, *Kir.*
 * 11 tenue, *Kir.*
 * 12 Seniculus, *Kir.*
 13 Curtisii, *Kir. ?*
 * 14 pubescens, *Kir.*
 * 15 violaceum, *Kir.*
 * 16 Hydrolapathi, *Kir.*
 cæruleopenne, *Steph.*
 17 Malvæ, *Fab.*
 * 18 hæmatodes, *Kir.*
 19 rubens, *Ingall's MSS.*
 * 20 sanguineum, *Gyl.*
 * 21 frumentarium, *Linn.*
 22 vernale, *Pk.*
 * 23 Onopordi, *Kir.*
 rugicolle, *Steph.*
 bifoveolatum, *Steph.*
 elongatum, *Steph.*
 * 25 Radiolus, *Marsh.*
 aterrimum, *Marsh.*
 oxurum, *Kir.*
 penetrans, *Ger.*
 ♀ nigrescens, *Steph.*
 26 Stolidum, *Ger.*
 27 lævigatum, *Kir.*
 * 28 Æneum, *Fab.*
 * 29 Carduorum, *Kir.*
 tumidum, *Steph.*
 * 30 rufirostre, *Fab.*
 malvarum, *Kir.*
 * 31 pallipes, *Kir.*
 * 32 confluens, *Kir.*
 33 pusillum, *Ger. ?*
 34 atomaria, *Ger.*
 35 picicornis, *Waterh. MSS.*
 * 36 vicinum, *Kir.*
 * 37 Hookeri, *Kir.*

APION, *Herbst.*

- *38 Pisi, *Fab.*
 striatum, *Marsh.*
 ♂ immune, *Kir.*
 atratum, *Ger.*
 carbonarium, *Ger.*
 *39 Sorbi, *Fab.*
 *40 Ervi, *Kir.*
 ♂ Lathyri, *Kir.*
 *41 punctigerum, *Pz.*
 ♂ læviusculum, *Kir. MSS.*
 sulcifrons, *Kir.*
 ♀ impressicolle, *Kir. MSS.*
 *42 Spencii, *Kir.*
 ♂ foveolatum, *Kir.*
 intrusum, *Gyl.*
 columbinum, *Ger.*
 *43 virens, *Kir.*
 ♂ Marchicum, *Kir.*
 *44 Astragali, *Pk.*
 *45 Loti, *Kir.*
 angustatum, *Kir. MSS.*
 46 puncticollis, *Waterh. MSS.*
 47 civicum, *Ger.*
 48 pavidum, *Ger. ?*
 *49 Kirbii, ♀ *Leach.*
 ♀ scutellare, *Kir.*
 50 obscurum, *Marsh.*

APION, *Herbst.*

- *51 flavipes, *Herb.*
 *52 nigratarse, *Kir.*
 *53 assimile, *Kir.*
 *54 apricans, *Herb.*
 flavifemoratum, *Kir.*
 ♂ Fagi, *Linn.*
 55 lævicolle, *Kir.*
 ♂ dissimile, *Kir. MSS.*
 *56 æstivum, *Ger.*
 Leachii, *Steph.*
 57 ruficus, *Ger.*
 *58 Gyllenhalii, *Kir.*
 unicolor, *Kir.*
 59 varipes, *Ger.*
 60 difforme, *Ger.*
 61 filirostre, *Kir.*
 62 glabratum, *Ger. ?*
 *63 ebeninum, *Kir.*
 *64 Viciæ, *Pk.*
 Griesbachii, *Steph.*
 *65 Ononis, *Kir.*
 *66 vorax, *Herb.*
 *67 punctifrons, *Kir.*
 æratum, *Steph.*
 *68 subsulcatum, *Marsh.*
 subcæruleum, *Steph.*
 *69 Meliloti, *Kir.*

ART. II.—*Communications on the Natural History of North America.* By EDWARD DOUBLEDAY.

“ Alone, by the Schuylkill, a wanderer roved,
 And bright were its flowery banks to the eye;
 But far, very far, were the friends that he loved,
 And he gazed on its flowery banks with a sigh.
 O Nature! though blessed and bright are thy rays,
 O'er the brow of creation enchantingly thrown,
 Yet faint are they all to the lustre that plays
 In a smile from the heart that is dearly our own.”

Trenton Falls, 15th May, 1837.—After I had finished my last communication I went to Hudson, and saw R. Foster, on board the steamer for New York; then walked about the town, till the steamer for Albany arrived. Soon after getting on board it began to rain, so I was forced to go below, and consequently saw little of the country. I reached the American Hotel, at Albany, a few minutes after landing, and instantly obtained a room, although it was very full. The

legislature is sitting, and many senators and members of the Assembly were there. Next day I went to the Chambers, to hear the deliberations. The members of the Assembly meet in a large square room, with a gallery at one end, and a place also below for strangers. Immediately opposite the door is the speaker's seat, below are the clerks, and then six semi-circles of desks for the members, divided by a pathway up the centre. Each member has a chair, a spitting-box, and a desk to lay his legs on, and occasionally to write letters on: the most marked attitude of attention, either for a senator or Assembly-man, is to lean back so that the chair rests only on its hind legs, lay his legs on the desk, and put his hands in his trowsers pockets. The debates were dull, but business appeared to be got through quickly. The senate-house is smaller, but nearly similar in its construction.

Albany is a tolerably well-built town, abounding in churches. The Baptist's church is so grand a building, that I mistook it for the Capitol. The persons with whom I met at the hotel were very pleasant and communicative, especially when they found I was just landed from the old country, for few suspect me to be from England. There is less difference between the physiognomy of the Americans and English than I expected to find; in the youth of New York there is much more evidence of consumptive habit than in the youth of London. I often thought, when there, of Theocritus:—

“ The crimson rose, the bulbul's pride,
The purple violet in the shade,
The lily white, the maiden's pride,
Alike are bright, alike must fade;
The purest flake of virgin snow
Its very being must forego.
’Tis so with youth,” &c.

On the 11th of May I left Albany by the railroad to Schenectada, and thence to Utica, where R. Foster was to meet me. To Schenectada the road is rather dull, chiefly pine-barrens, *i. e.* sandy plains, covered with low pines, and an under-growth of Azaleas, Kalmias, Andromedas, &c. not yet in bloom. Schenectada stands in rather a fine situation; here we changed carriages, and were quickly off for Utica—thirteen carriages, each containing twenty-four passengers, and three luggage-waggons and a lot of wood-carts behind. I regretted passing

so rapidly along the valley of the Mohawk, on one side of which runs the railroad, on the other, the canal. It is a most romantic valley, with some as beautiful scenery as can well be imagined. In seven hours after leaving Albany I was seated at dinner at the hotel at Utica. After dinner I strolled out to see the town. One street in Utica is the pleasantest and cleanest that I have seen in any American town, always excepting Broadway, New York.

Next morning I started from Utica to look at this spot, having the night before made a bargain for a one-horse waggon and guide. At half-past seven precisely the vehicle was at the door of the hotel: it was a neatish affair, with four wheels and a long body; there was no cover, and the seat ran down the middle; the guide was a boy about thirteen years old. We were soon off, and I, equally soon, was off my seat; but this was the fault of the Utica pavement. We were quickly beyond the town, and came to a wooden bridge. "I mustn't drive fast over this, it's rather rotten," said the guide. All the bridges are so, and there is a fine of one dollar for riding or driving over them faster than a walk. We passed over in safety, and got into a road with ruts ten inches deep, and stones as big as an eighteen-gallon cask. It was a glorious morning; the Blue-birds shot by, glowing in the sunshine, bright as the blue of the heavens; flocks of little golden Thistle-birds sported along the road; hundreds of Martins (*Hirundo fulva*) were sitting in the ruts, collecting mud for building their nests; the Bob-o-tinks were singing in the apple-trees; sometimes an Oriole or a Tanager shot by us, or a Kill-deer Plover rose up from our track. All out of the waggon was delightful; but, alas! if I turned my attention for a moment to a Blue-bird, or a Bob-o-tink, I was sure to be thrown off my seat by a sudden jerk. "I guess, Sir, you don't keep a look out for the stones," said the boy; so I kept a look out for the stones, grasped the seat with both hands, and left the Bob-o-tinks to themselves. "I guess they don't take toll at this gate," said the boy, as we beheld a turnpike gate on the other side of a pond of water, through which we had to approach it; "they won't let them when the road's bad." A little further on the road was impassable, and the boy drove round through a swamp. "One of our drivers got overturned here three times in one night," said the boy; "I guess he was not a mighty careful driver."

About half way up a hill lay five or six huge logs of timber across the middle of the road. "Them's to keep people from getting stuck in that springy place, I guess," said the boy. Nice hill to drive down of a dark night, thought I. After a while the boy said it would be all good road, and we at once went into soft mud up to the axle-trees. At last we arrived: I made a bargain for accommodation, and returned, per wagon, to Utica for my luggage.

Of all the beautiful combinations of wood, rock, and water that I have seen, this is the sweetest. Had I the pencil of Salvator Rosa, or the pen of a Milton, I might try to give you some faint idea of it; but I feel really unable to make you comprehend, much less to feel, the beauty of the scene, by any words of mine. Imagine on each side of the stream a steep lime-stone rock, evidently worn by the attrition of water, presenting in some places a broken slope, with here and there a vast projecting mass overhanging the stream, in others a steep and inaccessible declivity of various height, almost perfectly smooth, and worn by the current during the lapse of ages; imagine these rocks crowned with vast Hemlocks, Beeches, Birches, &c., and the steeps clad with *Arbor-vitæ*, twenty to forty feet in height, and a variety of other shrubs, extending to the water's edge; imagine the occasional flats and intermediate spaces clothed with thousands of species of flowers and plants, now springing up so rapidly that every hour makes a change, and you will form some idea of the walls through which the mass of waters pours along the valley. Dark, gloomy, and cool, are some parts of its recesses, for even now, though the thermometer has been at 63° in the shade, vast masses of snow remain unmelted.

From a narrow passage between the rocks the water rushes most furiously; then, spreading out to three times the width of the pass, boils tumultuously, a sheet of foam being spread over its surface; a little lower it becomes more calm, then again it leaps roaring over a rock fifteen feet in height; it soon again becomes less agitated, but still flows most rapidly, till it comes to the principal fall; here it pours down a perpendicular sheet of foam on to the rocks, which break its fall into the abyss below; it now rushes furiously through another narrow pass, and continues its foaming course over masses of rock till it joins the Mohawk. After the sun has past the meridian an

hour or two, a beautiful rainbow appears over the principal fall. When I first saw this fall in all its glory, I stood in the dark shade of the gigantic Hemlocks, looking into the abyss; the silvery spray glistening in the sun,—the snow-white foam rising in clouds almost to the summit of the rock on which I stood,—a bow of the most brilliant possible colours extending from the foot to the summit of the falls,—the cliffs opposite, though rising almost perpendicularly, yet clothed with the most beautiful mantle of *Arbor-vitæ* and other graceful shrubs. I stood lost in delight. It was truly a scene—

“ Which man must see,
To know how beautiful this world must be.”

Along the side of the river, beneath the rocks, runs a path, but when the river is high, as is at present the case, it is inaccessible, from being in a great measure covered with water. I hope soon to be able to avail myself of it. To-day I clambered down the cliff, by means of the roots and branches of shrubs. This mode of progression is any thing but agreeable; but I contrived, by this means, to get a fine view of the principal fall from its foot. Here and there are large masses of rock overhanging the path, and from these trickle little springs. Under one of these masses a Pewee, *Muscicapa nunciola* of Wilson, has fixed her nest. Wood Thrushes, Ferruginous Thrushes, Robins, and numerous other birds, steal under the bushes; the Woodpeckers and Nuthatches are busy with the old stumps of the decaying pines; the Blue Jays scream in the branches, and hundreds of little *Sylvia*, Chickadees, Flycatchers, &c. are chasing insects amongst the trees and underwood. Now and then a Baltimore glances by, shining in the sunbeams. Be it remembered, Baltimores, Tanagers, Blue Birds, Blue Jays, all appear more brilliant on the wing than they do when dead.

A Humming-bird was seen yesterday. I have seen four species of *Picus*, viz. *pileatus*, *erythrocephalus*, *villosus*, and *auratus*. The *sylvia* are just coming: I have seen *S. Blackburniana*, *chrysoptera*, *striata*, *varia*, *pardalina*, *citrinella*, &c. They are as tame as it is possible: the landlord will not allow them to be disturbed. Only Owls, Crows, and Hawks are doomed to feel the power of a rifle. All small birds are

protected. Here it is truly "a populous solitude of bees and birds," though as yet the bees are hardly out.

I have only had time to explore the woods in one or two directions. On this side of the river the woods are thickest and largest. After a slight interruption I understand they extend quite to Canada: they consist of Hemlock, Sugar Maple, Beech, Birch, Elm, Lime, &c., with a great variety of shrubs below. There are one or two large patches of Raspberries not yet out, but which promise well for *Bombi*, of which some very beautiful species are coming out. The ground is covered with plants, not many of which are yet in blossom. I have found four species of *Viola*; *V. Canadensis*, *V. rotundifolia*, and two others with which I am not acquainted. There is a vast quantity of *Trillium erectum* and *erythrocarpum*, the last is peculiarly beautiful; also *Ucularia grandiflora* and *sessiliflora*, *Claytonia Virginica*, and a most beautiful and fragrant *Fumaria*. In one part of the wood is nearly an acre of *Cypripedium*, of a species with which I am not acquainted, at least, the flower not being expanded, I cannot determine it. A little *Saxifraga*, which I think must be *S. Virginiensis*, is very common on the rocks. Soon there will be thousands of flowers. The ferns are just coming up; some of them are very beautiful.

R. Foster arrived here on the 14th. We have roamed together six or eight miles over the hills, but did not obtain much, except a quantity of splendid *Cicindela*, resembling *C. campestris*, but ten times more brilliant. It has a very peculiar economy, but on this I must dilate at a future time. There are *Juli* here, more than three inches long, and about two-thirds of an inch in circumference. I have just now been to the front of the house, and a *Picus Carolinensis* allowed me to get within six yards of him, and he was not ten feet from the ground. I have seen a pair of Migratory Pigeons, and some large Hawks.

Trenton Falls, 6th June.—Here I am still, at this sweet place, in good health, in good spirits, plenty of insects to catch, of birds to watch, of flowers to admire, and of books to read; and, besides R. Foster, a couple of most intelligent persons to converse with. I love the Americans, they are so truly kind-hearted, warm, and generous, and so constantly ready to assist a stranger.

Now as to the mode of spending my time. I am up between five and six, sometimes earlier, spreading the Lepidoptera that I have taken over night; when this is done I take a short walk,—breakfast at eight,—out again till noon,—dine at two,—read in the porch, or spread insects, during the heat of the day, and then out again till dusk; then take tea, and then light up the bar-room windows to catch moths. Last night we took out the sash, and had two lamps burning, one of which, however, was moved to another room, R. Foster and one of our friends going to watch it, while the other remained with me. At present the moths are not numerous, but my friend Mr. Goodhere tells me that later in the season they are so numerous, as well as *Lucani*, *Melolonthæ*, &c., that they frequently sweep out hundreds of a morning. What astonishes me is the great number of species, compared with the number of individuals.

The house stands all but in the woods, with a grass-plot in front: on one side of the front is a piazza, and to the right an old-fashioned Dutch porch; here I love to sit with Mr. Goodhere and watch the birds, of which he is as fond as I am. Close to the porch was a Robin's nest, not three yards from our heads; the old birds were continually flying backwards and forwards, feeding their young, without exhibiting the least fear of us, even though we sometimes amused ourselves by firing at a mark with a rifle: at last we missed them, and, on looking into the nest, found that all the young had been killed. They have now built in a tree, so close to my window that I could touch the nest with a walking stick. There are numbers of Thistle-birds, Yellow-birds, Snow-birds, Song Sparrows, &c. always about: the Snow-birds are as tame as possible, they come into the porch to pick up the crumbs. Under the piazza is a bunch of *Aquilegia Canadense*, to which the Humming-birds often come: they look far more lovely than I even had expected; their flight is so exquisite, and they hover so beautifully before the flowers, making, from the motion of their wings, a most curious sound. There is also a pair of King-birds about here, but I have not seen their nest. I was much amused the other day by seeing one of them attack a large hawk, apparently a buzzard; his cry is like that of our English Buzzard, and his flight the same. This Hawk is a continued source of vexation to me, and I want to shoot him, but he is too shy; a few days ago he flew over

with a snake in his claws, and Mr. Goodhere fired at, but missed him; however he dropped the snake. Well, this fellow was on the dead top of an old Hemlock, near the creek, just opposite the house; the King-bird settled just below him on the tree, then flew into the air above him, and descended with fury on his head; the Hawk was evidently afraid to move; the King-bird flew round and round him, then perched close to him, and continued to strike him with his head; at last, tired of teasing the Hawk, he flew away.

Yesterday, just as I was coming out of the wood, I stumbled on a brood of young Partridges; I previously knew of the nest, Mr. Goodhere having shown it to me. The old hen ran about so near me that I could have killed her with my stick. These Partridges (*Tetrao Umbellus*) are not common here. A few Passenger Pigeons are breeding here. I have found the nest of a White-eyed *Vireo*, containing four eggs of her own and two of the Cow-bunting; I have not disturbed them, being desirous of watching them: the nest is suspended like that of a *Regulus*: the old one sat about two yards off watching me. The Rose-breasted Grosbeak is the sweetest songster I have yet heard here. Excepting the Nightingale and Woodlark [of England] I know no bird whose song I like better. The song of the [American] Robin is like that of our [English] Thrush; his cry, when alarmed, resembles that of our Black-bird. One of the small Thrushes has a most singular note: I cannot be sure whether this bird is the *mustelinus* or *minor* of Wilson. The Ferruginous Thrush sings most sweetly,—somewhat like our own. There is a nest of *mustelinus* close to the house. A Pewee has her nest in one of the outbuildings. The Swifts here fly just like our own, but do not scream; they have a very different cry, somewhat like *tweak*. There are no Purple Martins here; they never stay about a house when there are no boxes for them to build in: boxes, or martin-houses, are pretty plenty, so they are seldom driven to build elsewhere. The Crows here go three to a nest! always three!—as far as I can tell, this is invariably the case. The Little Grackles are still in flocks, and Mr. Goodhere tells me they are always so seen. There are not many Baltimores here, although we often see one. There are no Orchard Orioles, although I hear there are plenty a few miles hence. The Night-hawks are here, but not the Whip-poor-will: the

Night-hawk's squeak is very singular; they fly much earlier than ours; I have heard them two hours before sunset, and they sometimes fly as early as two o'clock on cloudy days. There are two species of Sandpiper.

There are still very few Coleoptera, fewer than I expected, but the moth-catching goes on in the bar-room; our friends here get out their flutes and music books, (the moths seem to like the sound of music, always coming in when it is played,) I, and R. Foster, our nets and boxes, and thus we sit till ten o'clock.

There are many beautiful little crystals found in the rocks here; the children collect them, and bring them to the house to sell to visitors. I have, in a former letter, much underrated the height of the falls; the High Falls are above one hundred feet; looking from above, they do not appear so much. The walk, for two or three miles along the rock, only safe when the water is very low, is most grand: a few days ago this walk was blocked up by a huge Hemlock falling from the top of the rocks; although three feet in diameter, it was broken short into four pieces by the fall; we soon rolled it into the stream, to be whirled along over the rocks. The Hemlocks here are from ninety to one hundred and ten feet high, and at three and a half feet from the ground are three feet in diameter. The Cypresses here are also very large; I have seen many which I could not clasp with my arms within two or three feet. The largest tree I have seen is a broad-leaved Elm, which, having been blown down, lies rotting, with hundreds of other fine timber trees; I could not get at the lower end to measure it, but, six yards from the root, it measured five and a half feet in diameter. I climbed it, and walked along it as it lay for ninety feet, for which length it is perfectly straight, and here branches into three limbs, each of which we should (in England) call a fine timber tree.

June 7th.—To-day I have taken *Lycæna Phlæas*, and a most beautiful *Melitæa*. *P. Turnus* comes to the lilacs. I am now looked on as one of the family here, and feel myself so. We have a few visitors here, some of them very pleasant people; they seldom stay more than one day. I catch moths in the bar-room, quite regardless of attracting the attention of strangers. There is no troublesome curiosity in the Americans I have met with: if they ask questions, it is with a desire of

obtaining knowledge, never from idle curiosity. I have never been troubled by them, and had rather carry my net on my arm through Trenton, than Harlow or Loughton. I have, indeed, been once or twice questioned, but always in a pleasant way.

June 10th.—After a deal of consultation thereon, R. Foster and I have resolved that he shall proceed, and I remain here. I am to meet him at Mount Pleasant, in the Ohio, where he will wait for me, and continue to collect until my arrival: this plan will considerably increase our number of species. I do not regret being left *here*, but in the south I know we shall not like to part. Every body in the house is enlisted in my service, and I have employed this morning, from six o'clock till twelve, in spreading the captures of last evening. Every night brings more than the preceding. The weather is very hot; the thermometer has been above 80°, with a cloudy sky.

June 12th.—R. Foster has started, and I shall miss him much, but less here than at any other place. Butterflies are fast increasing in number. *Turnus* is not now uncommon; four or five specimens come together to the lilac; I catch them in my fingers, but they are very frequently imperfect, having their tails broken off, but are not rubbed. *Colias Palano*, or *C. Europome*, is very common, but is difficult to catch; Mr. Goodhere says he has seen hundreds of them sitting together on the mud, during the heat of the day. The Toads here bask in the sun. The Musquitos are very troublesome, as is also a minute insect, allied to, but not a *Simulium*; it is about half a line in length; its bite is very sharp, and causes a good sized bump. I have just caught a *Sesia* and a *Macroglossum*, on the lilacs. I saw another *Sesia*, but could not catch him, he was so swift; to use a common phrase of this country, “a streak of lightning is a fool to one.”

June 15th.—I am quite puzzled to account for the small number of Coleoptera—a good many species, but so few specimens of each: there are thousands of Wood-borers, as every stump testifies. There are now fewer birds than there were three weeks ago; many of the *Sylvia* are gone northwards, I suppose. Fire-flies are getting common, but I cannot catch them, owing to their flying so high, and they only emit light by momentary flashes. I have been with a lantern to the flowers

of the wild Raspberries, but no moths were at them; this seems unaccountable. I have taken the most lovely *Noctua* I ever saw, the form and size of *Thyatira derasa*, but of a different genus. Mr. Moore has caught me a most curious *Bombyx*; it is all buff, with the exception of a large ocellus, which occupies nearly the whole of the under-wings. I cannot get a *Luna*, although I have picked up wings belonging to two individuals. Last night the moon was uncommonly brilliant, and we only took one moth at the lanterns.

Trenton Falls, June 28th.—Here I am still in this sweet place. Every day brings me fresh proofs of the good-heartedness of its worthy owner, Mr. Goodhere; and so far am I from finding, as I had been taught to expect, that my pursuits would be despised, that I am actually looked upon with greater respect on the very account of these pursuits, and experience attentions and assistance, not only from those of the household, but from the neighbours around, with whom I may chance to meet. How I love America!

The Fire-flies here are all *Lampyrites*; I have seen no *Elaterites* shine, and Mr. Goodhere informs me that there are none; they are beginning to be common, and, if I mistake not, I have three, if not four species. They appear constantly to emit a light, but so faint that, unless near, it is not discernible; at intervals of two or three seconds they give out a vivid flash, like that of a rifle; this flash is most commonly whitish, but is sometimes reddish, and sometimes greenish, and I am inclined to regard this variation of colour as indicating different species. It is amusing, though difficult, to chase these Fireflies; you see a flash, and then another, and dash forward in the apparent line of the insect's course, but the insect is too cute for you; he has turned short, and is flashing away to the right or left, far beyond your reach. In the hand, the flash is dazzling. I have sought in vain to discover the mode in which it is produced; I have no glasses of sufficient power to be of any service in dissecting.

Coleoptera are not at all plentiful; you may sweep the grass for an hour, and not get twenty specimens; you may turn over stones for as long, and be rewarded by a single *Scaphinotus* or a *Carabus*; with the exception of one species of *Melolontha*, you may beat the trees for a whole day, and not obtain ten

individuals, unless you meet with an *Acer spiratum* or a Dogwood bush in blossom. In the rotten trunks of trees you do somewhat better, but not much. I must say, that I consider the multitudes of ants which occur every where to be, in a great degree, the cause of this. The Orthoptera bid fair to be very numerous, judging from the number of larvæ and pupæ. Neuroptera are just coming out; there are a few very fine *Libellulites*; there are several species of *Agrion* precisely like our own.

Now for the Lepidoptera. Butterflies are not yet numerous, and the short twilights forbid mothing, so the only way is to light up for them. I am much struck with the resemblance which many of the Lepidoptera bear to those of England. The following species, if not identical with ours, are too near them for one to discern any difference.

Arctia papyritia.	Noctua umbratica.
Noctua furva.	Geometra procellata.
derasa.	propugnata.
lucipara.	tetragonaria.
Gamma.	pulveraria.
comma.	illunaria.
impura.	hexapterata.
Orion.	suffumata.
lota.	dubitata.
meticulosa.	margaritaria.
combusta.	putataria.
rurea.	Papilio Atalanta.
augur.	Antiopa.
brunnea.	Phlæas.

These may be identical with our own, yet really I cannot think so, unless there are importations from the old world. After catching four or five apparently British moths, it is very striking to see a huge *Cecropia* entering the room. Last night, in an interim between the arrival of the moths, (for they come by fits,) I was sitting reading *Rienzi*, when I saw something huge and white; it was a magnificent *Luna*,—such a beauty! and oh my anxiety, as he played around the window, just out of my reach! At last he entered, and in a moment was in my hand. This was by far the most foreign Lepidopterous insect I had seen.

In Diptera I have taken a few fine things, and a great many very like our own. There is one very singular *Tipula* here, with its legs, especially the tarsi, very much dilated, and

ringed with black and white; these are mostly in the grass, and are only to be obtained by sweeping, consequently are generally without legs; I have, however, succeeded in obtaining one or two perfect specimens. The mosquitoes of this country are genuine *Culices*, and come very near to *C. annulatus*; their bite is very annoying, and if you stand still but for a moment in the low or swampy grounds, they attack you by dozens; in the house we rarely see them; their bite is not worse than that of *C. annulatus*. In the south they are said to be very large, and their bite to be very bad: many of the wonderful stories current here have a reference to them, and I shall relate two.

1st. Some time since a quantity of very hard bricks were laid by the side of the Father of Waters, for some building which was to be erected on the shore; on a sudden they all disappeared,—what became of them no one knew. The following day the captain of a Mississippi steamer was descending the stream, and, looking up in the air, a dark cloud appeared approaching him: nearer and nearer came the cloud, and more and more extraordinary appeared the outline of it. Was it a flock of pigeons? No! What could it be? He took out his telescope, and lo it was a flight of mosquitoes, each with a young alligator under one wing, and a brick under the other. The mosquitoes were on a long journey; the alligators were for provisions on the road, the bricks were taken as whetstones for their beaks.

2d. A sportsman was walking by the side of the Mississippi, he saw a huge mosquito, of the kind called “gallynippers,” making directly towards him; he stepped on one side, and the gallynipper passed him; but in the line of his course was a young locust tree, and he was going so fast that he could not turn out of his course to avoid it; the insect’s beak came in contact with the tree, and passed right through; the sportsman stepped back, struck the projecting end of the beak with the butt-end of his rifle and clenched it, thus riveting the gallynipper to the tree.

I forgot to say that I have a good many fossorial Hymenoptera; there are but few *Chalcidites* yet, but some very pretty *Ichneumonites*. Here there are no reptiles, and of *Mammalia* I can get but few. There are many Ground Squirrels in the woods, but I do not like to hurt them. I had one alive and loose in

my room, but it looked so piteous at me that I could not kill it, and so let it go again. I soon afterwards caught another in my hand, but he had lost part of his tail, so I let him go too. There is one so tame as to come into the house. He came to me a few days ago as I was sitting in the porch, and ran over my boots, examining them very attentively; then he disappeared through a grating into the dairy, where he goes to drink the milk; then he ran up the piazza and round the house: he often steals almonds, &c. from our dining-room. The little Song Sparrows and Snow-birds come to the door for the broken pieces of biscuit we give them. Now they have young ones, and bring them too, feeding them before the door. How I love to watch them!

Do not forget me at the meetings of the Club. I do not forget you.

“ And still on that evening, when pleasure fills up,
 To the highest top sparkle each heart and each cup,
 Where'er my path lies, be it gloomy or bright,
 My soul, happy friends, shall be with you that night,
 Shall join in your revels, your sports, and your wiles,
 And return to me beaming all o'er with your smiles,
 Too blest if it tell me, that, 'mid the gay cheer,
 Some kind voice had murmured,—I wish he were here.”



ART. III.—*Monographia Chalciditum*. BY FRANCIS
WALKER.

(Continued from Vol. IV. page 461.)

“—— the green myriads in the peopled grass.”

GENUS ENCYRTUS—continued.

Fem.—Corpus angustum, sublineare, scitissime punctatum, pubescens, nitens: caput parvum, transversum, convexum, brevissimum, thorace paullo angustius; vertex sat latus; frons abrupte declivis: oculi mediocres: antennæ graciles, subclavatæ, pubescentes, corpore paullo breviores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes longi, sublineares, usque ad 8^{um}. curtantes vix latescentes; clava fusiformis, acuminata, articulo 8^o. latior et triplo longior: thorax ovatus, supra planus; mesothoracis scutum longitudine vix latius; paraptera non convenientia; scutellum obconicum: abdomen ovatum, planum, thorace brevius et angustius: pedes longi: alæ amplæ, longissimæ.

Sp. 35. En. Mitreus. *Fem. Viridis, scutellum et abdomen cuprea, antennæ nigræ, pedes nigro-fusci, mesopedes fulvi, alæ limpidæ.*

Encyrtus chalconotus? Dalman, *Konigl. Vetens. Acad. Handl. för år, 1820; Nees ab Ess. Hym. Ich. affn. Monogr. II. 232.*

Læte viridis, subsericeus: oculi et ocelli rufi: antennæ nigræ; articulus 1^{us}. viridis: scutellum cupreum: abdomen nigro-cupreum, nitens, læve, fere glabrum, basi cyaneo-viride: sexualia fusca: pedes nigri; coxæ virides; trochanteres fulvi; genua flava; tibiæ nigro-fuscæ; tarsi fusci: mesopedes fulvi; femora basi fusca; tarsi flavi, apice fusci: alæ limpidæ, corpore longiores; squamulæ fuscæ; nervi fulvi. (Corp. long. lin. $\frac{2}{3}$ — $\frac{5}{4}$; alar. lin. $1\frac{1}{2}$ — $1\frac{5}{4}$.)

Var. β.—Abdomen basi æneo-viride.

Var. γ.—Scutellum apice viride.

September; Scotland; Cumberland, Devonshire; Isle of Wight.

Fem.—Corpus crassum, sat longum; scite squameum, pubescens, parum nitens: caput transversum, breve, latitudine thoracis, convexum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ subclavatæ, graciles, corpore paullo breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes longi, sublineares, usque ad 8^{um}. curtantes et latescentes; clava fusiformis, articulo 8°. latior et triplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera fere convenientia; scutellum subrhombiforme, postice productum: abdomen ovatum, planum, thoraci longitudine et latitudine fere æquum: oviductus occultus: pedes sat longi.

Sp. 36. En. Phithra. Fem. *Cyaneo-viridis, scutellum æneum, abdomen cupreum, antennæ nigræ, pedes nigro-fusci, mesopedes pallidiores, alæ limpidæ.*

Cyaneo-viridis: caput et paraptera æneo-viridia: oculi et ocelli obscure rufi: antennæ nigræ; articulus 1^{us}. nigro-viridis: scutellum et metathorax ænea: abdomen nigro-cupreum, nitens, læve, fere glabrum: propedes nigro-fusci, genua flava, tarsi obscure fulvi; mesopedes fusci, femora et tibiæ apice basique fulva, tarsi fulvi apice obscuriores; metapedes nigri, genua flava, tarsi fusci: alæ limpidæ; squamulæ fuscae; nervi fulvi. (Corp. long. lin. $\frac{5}{4}$; alar. lin. $1\frac{1}{4}$.)

Found near London.

Fem.—Corpus angustum, sublineare, nitens, scitissime squameum, breviter pubescens: caput transversum, thoracis latitudine, breve, convexum; vertex latus; frons convexa: oculi mediocres: antennæ graciles, subclavatæ, corpore paullo breviores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes transversus, subquadrati, usque ad 8^{um}. latescentes; clava fusiformis, articulo 8°. plus duplo longior vix latior: thorax ovatus, supra planus: mesothoracis scutum longum quoad latum; paraptera fere convenientia; scutellum subrhombiforme, postice productum: abdomen ovatum, planum, thorace paullo brevius et angustius: oviductus subexertus: pedes longi.

Sp. 37. En. Ancharus. Fem. *Viridis, scutellum et abdomen cuprea, antennæ nigræ, pedes nigro-fusci, mesopedes pallidiores, alæ limpidæ.*

Læte viridis: oculi et ocelli obscure rufi: antennæ nigræ; articulus 1^{us} cyaneo-viridis: scutum postice cupreo varium: scutellum

cupreum; metathorax cupreo-æneus: abdomen cupreum, nitens, læve, fere glabrum, basi cyaneum: oviductus vaginæ fuscae, breves: propedes fulvi, femora nigra apice flava, tibiæ et tarsi supra fusca; mesopedes pallide fusci, genua et tarsi flava, hi apice fusci; metapedes nigri, genua et tibiæ apices flava, tarsi fulvi apice obscuriores: alæ limpidæ; squamulæ fuscae; nervi fulvi, apice fusci. (Corp. long. lin. $\frac{3}{4}$; alar. lin. 1.)

Found near London.

Fem.—Corpus pubescens, parum nitens, scite punctatum: caput transversum, thoracis latitudine, breve, convexum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, corpore paullo breviores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longicyathiformis; 3^{us}. et sequentes breves, subquadrati, usque ad 8^{um}. paullulum latescentes; clava fusiformis, articulo 8^o. quadruplo longior et multo latior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen brevi-ovatum, planum, læve, nitens, fere glabrum, subtus carinatum, apice acuminatum, thorace brevius et latius: oviductus occultus.

Sp. 38. En. Atheas. *Fem.* *Viridi-æneus*, abdomen cupreum, antennæ nigro-fuscae, pedes nigro-fusci, mesotarsi flavi, alæ sublimpidæ.

Viridi-æneus: oculi et ocelli obscure rufi: antennæ nigro-fuscae; articulus 1^{us}. viridis; 2^{us}. niger: abdomen nigro-cupreum: pedes nigri; genua et tarsi fusca; mesopedes fusci, genua flava, tarsi flavi apice fusci: alæ sublimpidæ; squamulæ fuscae; nervi flavi, apice fusci. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

September; Penzance, Cornwall.

Fem.—Corpus breve, sublineare, punctatum, pubescens, parum nitens: caput breve, subquadratum, thorace vix latius; vertex latus; frons abrupte declivis: oculi mediocres, extantes: antennæ graciles, pubescentes, thorace vix longiores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longicyathiformis; 3^{us}. et sequentes parvi, transversa, usque ad 8^{um}. latescentes; clava conica, compressa, acuminata, articulo 8^o. triplo longior et paullo latior: thorax brevi-ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum, basi medio impressum: abdomen ovatum, planum, læve, nitens, fere glabrum, apice acuminatum hirtum, thorace paullo latius vix brevius: oviductus occultus: pedes graciles.

Mas.—Caput thorace angustius : antennæ filiformes ; articuli 3°. ad 8^{um}. quadrati, subæquales ; clava fusiformis, articulo 8°. plus duplo longior.

Sp. 39. *En. truncatellus*. Mas et Fem. *Viridis, scutellum et abdomen cuprea, antennæ mari nigro-fuscæ fem. nigræ, pedes nigri, tarsi præsertim mesopedum pallidiores, alæ mari albæ fem. limpidæ.*

Encyrtus truncatellus. *Dalman, Kongl. Vetens. Acad. Handl. för år, 1820; Nees ab Ess. Hym. Ich. affin. Monogr. II. 232.*

Fem.—Nigro-cupreus : oculi et ocelli rufo-picei : antennæ nigræ ; articulus 1^{us}. nigro-*viridis* : caput et scutum cyaneo-*viridia* : pedes nigri ; coxæ et femora nigro-*viridia* ; genua fulva ; tarsi fusci ; mesotarsi fulvi, apice fusci : alæ limpidæ ; squamulæ et nervi fusca ; metalarum nervi flavi. (Corp. long. lin. $\frac{1}{3}$ — $\frac{1}{2}$; alar. lin. $\frac{2}{3}$ — $\frac{3}{4}$.)

Mas.—Antennæ nigro-fuscæ ; articulus 1^{us}. *viridis* ; 2^{us}. *niger* : mesotarsi flavi, apice fusca : alæ albæ.

Var. β.—*Fem.* Caput et mesothoracis scutum *viridia*.

Var. γ.—*Fem.* *Viridis* : paraptera, scutellum et metathorax *cuprea* : abdomen nigro-cupreum : genua flava ; tarsi flavi, apice fusci ; mesopedes flavi, femora basi fusca, tibiæ pallide fuscæ apice flavæ, tarsi apice fulvi.

June to October ; on grass in woods, near London ; Isle of Wight.

Mas.—Corpus angustum, lineare, punctatum, pubescens, parum nitens : caput magnum, transversum, subquadratum, thorace latius ; vertex latus ; frons abrupte declivis : oculi mediocres, non extantes : antennæ filiformes, pubescentes, corpore paullo breviores ; articulus 1^{us}. fusiformis ; 2^{us}. cyathiformis ; 3^{us}. et sequentes ad 8^{um}. longi, æquales, sublineares ; clava fusiformis, acuminata, articulo 8°. multo longior : thorax oblongo-quadratus, convexus : mesothoracis scutum vix latius quam longum ; paraptera fere convenientia ; scutellum brevi-obconicum : abdomen sublineare, nitens, læve, fere glabrum, thorace brevius non latius, apice rotundatum : sexualia exerta : pedes graciles : alæ angustæ.

Fem.—Antennæ subclavatæ, corporis dimidio longiores ; articulus 2^{us}. longi-cyathiformis ; 3^{us}. et sequentes oblongo-quadrati, usque

ad 8^{um}. latescentes; clava fusiformis, articulo 8^o. paullo latior et fere triplo longior: abdomen subtus carinatum: oviductus occultus.

Sp. 40. En. Dius. Mas et Fem. *Viridis, scutellum et abdomen cuprea, antennæ fuscae, pedes fuscii flavo-cincti, femora viridia, alæ limpidæ.*

Mas.—Læte cyaneo-viridis: oculi et ocelli obscure rufi: antennæ fuscae; articulus 1^{us}. nigro-viridis; 2^{us}. niger: humeri albi: scutellum cupreum: abdomen nigro-cupreum: sexualia flava: pedes fuscii; coxæ et femora viridia, hæ apice pallide flava; protibiæ apice basi et subtus flavæ; mesotarsi flavi, apice fulvi; metatarsi fulvi: alæ limpidæ; squamulæ et nervi fulva, hi apice fuscii. (Corp. long. lin. $\frac{1}{2}$ — $\frac{2}{5}$; alar. lin. $\frac{5}{4}$ —1.)

Fem.—Æneo-viridis: antennæ nigro-fuscae; articulus 1^{us}. viridis; 2^{us}. apice flavus: scutellum cupreum: tibiæ apice flavæ.

Found near Belfast, by Mr. Haliday.

Fem.—Corpus angustum, sublineare, punctatum, pubescens, parum nitens: caput breve, transversum, thoracis latitudine; vertex angustus, planus; frons antice convexa, dein abrupte declivis: oculi majusculi: antennæ clavatae, crassæ, corporis dimidio longiores; articulus 1^{us}. fusiformis, sat validus; 2^{us}. cyathiformis; 3^{us}. et sequentes subquadrati, usque ad 8^{um}. gradatim latiores et longiores; clava magna, longi-ovata, articulo 8^o. latior et plus triplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen ovatum, planum, thorace paullo longius vix angustius: oviductus occultus.

Sp. 41. En. Sosius. Fem. *Viridis, scutellum et abdomen cuprea, antennæ nigrae, pedes nigro-fuscii, mesopedes pallidiores, alæ limpidæ.*

Obscure viridis: oculi et ocelli obscure rufi: antennæ nigrae; articulus 1^{us}. viridis: scutellum cupreum: abdomen cupreum: basi læte viride: pedes nigri; trochanteres, genua et tarsi fulva, hi apice fuscii; mesopedes pallide fuscii, genua tibiæ apice et tarsi flava, hi apice fuscii; protibiæ fuscae, apice fulvæ: alæ limpidæ; squamulæ fuscae; nervi fulvi, apice fuscii. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{3}{4}$.)

Found near London.

Fem.—Corpus angustum, sublineare, pubescens, subnitens, scite punctatum: caput transversum, breve, convexum; qualis thoraci latitudo; vertex latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, graciles, corporis dimidio breviores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes minuti, subquadrati, usque ad 8^{um}. latescentes; clava longi-ovata, articulo 8^o. latior et plus duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen ovatum, planum, juxta thoraci longum et latum: oviductus occultus: pedes graciles.

Sp. 42. En. Corybas. Fem. *Viridis, abdomen cupreum, antennæ fuscæ, pedes fusci, tarsi fulvi, alæ limpidæ.*

Obscure viridis: oculi et ocelli picei: antennæ fuscæ; articulus 1^{us}. viridis; 2^{us}. niger: scutellum viridi-æneum: abdomen nigro-cupreum: pedes fusci; coxæ virides; trochanteres, genua et tarsi fulva, hi apice fusci; mesopedum tibiæ pallide fuscæ, tarsi flavi apice obscuriores: alæ limpidæ, minime fulvescentes; squamulæ fuscæ; nervi fulvi. (Corp. long. lin. $\frac{1}{2}$ — $\frac{2}{3}$; alar. lin. $\frac{3}{4}$ —1.)

Var. β.—Thorax omnino viridis.

June; near London; New Forest, Hampshire.

Fem.—Corpus breve, latum, pubescens, parum nitens, scitissime punctatum: caput transversum, breve, thorace angustius; vertex planus, sat latus; frons impressa, abrupte declivis: oculi mediocres: antennæ clavatæ, graciles, corporis dimidio paullo longiores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes transversi, subquadrati, usque ad 8^{um}. latescentes; clava longi-ovata, articulo 8^o. latior et triplo longior: thorax brevis-ovatus, parum convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen subrotundum, thorace brevius et paullo latius: oviductus occultus: pedes graciles: alæ amplæ.

Sp. 43. En. Liriope. Fem. *Viridis aut viridi-æneus, abdomen cupreum, antennæ nigræ, pedes nigro-fusci, tarsi flavi, alæ limpidæ.*

Obscure viridis: oculi et ocelli obscure rufi: antennæ nigræ; articulus 1^{us}. viridis: scutellum, paraptera et metathorax viridi-ænea: abdomen nigro-cupreum: coxæ et femora nigra; trochanteres, genua et tarsi flava, hi apice fusci; tibiæ fuscæ; mesotibiæ fulvæ, apice fuscæ: alæ limpidæ, corpore longiores; squamulæ fuscæ; nervi fulvi. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

Var. β.—Thorax omnino viridis: abdomen basi nigro-viride.

Var. γ.—Mesotibiæ fuscae, apice flavæ.

July; pine-trees, near London.

Fem.—Corpus latum, crassum, pubescens, scitissime punctatum, parum nitens: caput transversum, breve, convexum, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, corporis dimidio paullo longiores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes subquadrati, usque ad 8^{um}. curtantes et paullulum latescentes; clava fusiformis, acuminata, articulo 8^o. latior et triplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen ovatum, nitens, læve, fere glabrum, thorace paullo latius et brevius; oviductus occultus.

Sp. 44. En. Sosares. *Fem. Æneo-viridis aut cupreo-æneus, abdomen cupreum, antennæ nigrae, pedes nigri, mesopedes fusci, tarsi flavi, alæ limpidæ.*

Obscure æneo-viridis: oculi et ocelli picei: antennæ nigrae; articulus 1^{us}. viridis: abdomen nigro-cupreum: pedes nigri; trochanteres fusci; genua flava; tarsi flavi, apice fusci; protarsi fulvi; mesopedum femora et tibiæ pallide fusca, spinæ flavæ: alæ limpidæ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{2}{3}$ — $\frac{3}{4}$; alar. lin. 1— $1\frac{1}{4}$.)

Var. β.—Caput et thorax cupreo-ænea: abdomen nigro-cupreum, basi viridi-varium.

Var. γ.—Viridi-æneus: scutellum æneum: abdomen cupreo-æneum, basi viridi-varium: genua fulva; tibiæ nigro-fuscae; tarsi fulvi, apice fusci.

September; near London, Cornwall.

Fem.—Corpus crassum, latum, pubescens, scite punctatum, parum nitens: caput transversum, breve, convexum, thorace angustius; vertex angustus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, corporis dimidio longiores; articulus 1^{us}. fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes subquadrati, usque ad 8^{um}. latescentes; clava fusiformis, articulo 8^o. latior et plus triplo longior: thorax brevi-ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen brevi-ovatum, thorace paullo brevius vix angustius: oviductus occultus.

Sp. 45. En. Pertiades. Fem. *Purpureo-ater viridi varius*, abdomen cupreum, antennæ nigro-fuscae, pedes nigri, mesopedes fusci, tarsi fulvi, alæ limpidæ.

Purpureo-ater: caput viride: oculi et ocelli rufi: antennæ nigro-fuscae; articulus 1^{us}. viridis: scutellum æneo-viride, nitens, apice cupreum: abdomen nigro-cupreum: pedes nigri; trochanteres, genua et tarsi fulva; mesopedes pallide fusci; genua, tibiæ apice et tarsi flava, hi necnon metatarsi apice fusci: alæ limpidæ; squamulæ fuscae; nervi fulvi, apice obscuriores. (Corp. long. lin. $\frac{5}{4}$; alar. lin. $1\frac{1}{4}$.)

Var. β .—Metapedum genua et tarsi fusca.

September; near London; Isle of Wight.

Fem.—Corpus crassum, pubescens, scaber punctatum, parum nitens: caput transversum, subquadratum, thorace fere angustius; vertex latus; frons convexa, ad os abrupte declivis: oculi mediocres, non extantes: antennæ clavatae, pubescentes, corporis dimidio longiores; articulus 1^{us}. fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, subquadrati, usque ad 8^{um}. paullulum latentes; clava ovata, articulo 8^o. multo latior et plus duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen brevi-ovatum, planum, subtus carinatum, thorace multo brevius non latius: oviductus subexertus.

Sp. 46. En. Thinæus. Fem. *Viridis*, abdomen cupreum, antennæ nigrae, pedes nigro-fusci, femora viridia, mesopedes pallidiores, alæ limpidæ.

Nigro-viridis: caput viride, antice et subtus purpureo et cyaneo varium: oculi et ocelli obscure rufi: os fuscum: antennæ nigrae; articulus 1^{us}. nigro-viridis: pectus læve, glabrum, nitens: scutelli latera læte viridia: metathorax nigro-cupreus: abdomen nigro-cupreum, nitens, basi læte viride: coxæ et femora nigro-viridia; genua fulva; tarsi fusci; protibiæ nigrae, apice et basi fulvæ; metatibiæ nigrae; mesopedum trochanteres fulvi, femora nigra apice flava, tibiæ fuscae apice et basi flavæ, tarsi flavi apice fusci: alæ limpidæ; squamulæ fuscae; nervi fulvi, apice obscuriores. (Corp. long. lin. $\frac{2}{3}$; alar. lin. $1\frac{1}{6}$.)

Found near Belfast, by Mr. Haliday.

Fem.—Corpus latum, crassum, punctatum, parum nitens: caput transversum, breve, subquadratum, thorace fere angustius; frons

abrupte declivis: oculi mediocres, non extantes: antennæ clavatæ, pubescentes, corporis dimidio vix longiores; articulus 1^{us}. fusiformis, non dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, usque ad 8^{um}. latescentes; clava longi-ovata, articulo 8^o. plus duplo longior et paullo latior: thorax ovatus, convexus, pubescens: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen subrotundum, planum, læve, nitens, thorace multo brevius vix latius: oviductus subexertus: tibiæ rectæ.

Sp. 47. En. Dercilus. Fem. *Nigro-æneus, antennæ nigræ, pedes nigro-fusci fulvo et flavo varii, alæ fulvo-limpidæ.*

Ater: caput nigro-æneum: oculi et ocelli picei: antennæ nigræ: scutellum nigro-æneum: abdomen nigro-æneum, basi nitens: oviductus vaginæ nigræ, brevissimæ: pedes nigri; tarsi fusci; propedum femora et tibiæ apice fulva; mesopedum femora nigro-fusca apice fulva, tibiæ fusca apice et basi fulvæ, tarsi fulvi apice fusci: alæ limpidæ; proalæ apud stigma fulvo tinctæ; squamulæ fusca; nervi fulvi, apice fusci; stigma minutum. (Corp. long. lin. $\frac{2}{5}$ — $\frac{3}{4}$; alar. lin. 1— $1\frac{1}{4}$.)

Var. β.—Tarsi flavi, apice fusci; mesopedum tibiæ fulvæ basi fusco-cinctæ.

Var. γ *Var. β* similis: protarsi fulvi, apice fusci; mesotibiæ basi nigro-fusca.

Mas?—Antennæ filiformes, pilosæ, corpore non breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. cyathiformis; 3^{us}. et sequentes ad 8^{um}. longi, lineares, subæquales; clava fusiformis, acuminata, articulo 8^o. multo longior: abdomen obconicum, thorace brevius et angustius.

Æneo-iridis, abdomen cupreum, antennæ nigro-fusca, pedes flavi, metapedes fusci, alæ sublimpidæ.

Æneo-iridis: oculi et ocelli picei: antennæ nigro-fusca; articulus 1^{us}. viridis; 2^{us}. niger: abdomen nigro-cupreum, basi læte viride: pedes flavi, femora basi et tarsi apice fusca; protarsi fulvi; mesotibiæ apice fulvo cinctæ; metapedes fusci: alæ sublimpidæ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{5}{4}$.)

June, September; near London, Windsor Forest; Isle of Wight.

Fem.—Corpus angustum, sublineare, scitissime squameum, minime pubescens, parum nitens: caput transversum, breve, juxta thoraci latum; vertex latus; frons subimpressa, ad os abrupte declivis: oculi mediocres, non extantes: antennæ subclavatæ, corpore paullo breviores; articulus 1^{us}. fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes longi, lineares, pubescentes, usque ad 8^{um}. paululum curtantes et latescentes; clava fusiformis, articulo 8^o. triplo longior et paullo latior: thorax ovatus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen ovatum, planum, thorace paullo latius non longius: oviductus occultus: pedes graciles.

Sp. 48. En. Babas. *Fem.* *Æneo-viridis*, abdomen cupreum, antennæ nigro-fuscæ, pedes fulvo-flavi, metapedes fusci, alæ limpidæ.

Æneo-viridis: oculi et ocelli picei: antennæ nigro-fuscæ: abdomen nigro-cupreum: propedes læti flavi; mesopedes fulvi, tarsi flavi apice fulvi; metapedum femora nigro-fusca apice flava, tibiæ fuscæ basi flavæ apice fulvæ, tarsi flavi apice fulvi: alæ limpidæ; squamulæ et nervi fulva, hi apice obscuriores. (Corp. long. lin. $\frac{2}{3}$; alar. lin. 1.)

Found near Belfast, by Mr. Haliday.

Fem.—Corpus angustum, sublineare, nitens, scitissime squameum, parce et breviter pubescens: caput transversum, breve, juxta thoraci latum; vertex latus; frons subimpressa, ad os abrupte declivis: oculi mediocres, non extantes: antennæ subclavatæ, corpore paullo breviores; articulus 1^{us}. fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes oblongo-quadrati, usque ad 8^{um}. latescentes; clava longi-ovata, articulo 8^o. latior et plus duplo longior: thorax ovatus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum quasi semicirculum fingens, basi angulatum: abdomen ovatum, planum, thorace paullo latius non longius, apice rotundatum: oviductus occultus: pedes graciles.

Sp. 49. En. Ariantes. *Fem.* *Viridis cupreo varius*, antennæ fulvæ apice fuscæ, pedes flavi, metapedes nigro-fusci, alæ fulvo limpidæ.

Viridis: caput cupreum: oculi et ocelli picei: antennæ fulvæ; articulus 1^{us}. nigro-viridis, basi et apice fulvus; clava fusca: scutellum cupreo-varium: abdomen cupreum, basi læte viridi-

cupreum: pedes flavi; metapedum femora nigro-ænea basi et apice flava, tibiæ pallide fuscæ: alæ angustæ, fulvo-tinctæ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{5}{4}$.)

Found near Belfast, by Mr. Haliday.

Fem.—Corpus parvum, nitens, scite punctatum, parum pubescens: caput transversum, breve, convexum, thorace paullo latius; vertex latus; frons convexa, abrupte declivis: oculi mediocres: antennæ clavatæ, corporis dimidio multo longiores; articulus 1^{us}. validus, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, subquadrati, usque ad 8^{um}. latescentes; clava longi-ovata, articulo 8^o. latior et triplo longior: thorax ovatus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: abdomen ovatum, planum, subtus carinatum, thorace paullo latius non longius: oviductus occultus: pedes graciles: alæ amplæ.

Sp. 50. En. Elbasus. Fem. *Cyaneus*, abdomen cupreum, antennæ fulvæ flavo cinctæ apice fuscæ, pedes flavi, metapedes nigri, alæ limpidæ.

Cyaneus: caput nigrum, obscurum: oculi et ocelli picei: antennæ fulvæ; articulus 1^{us}. niger, basi et apice fuscus; 2^{us}. basi supra fuscus; 7^{us}. et 8^{us}. flavi; clava nigro-fusca: abdomen nigro-cupreum: pedes flavi; tarsi fulvi; metapedum femora et tibiæ nigra, genua fulva: alæ limpidæ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{5}{4}$.)

September; on grass beneath trees, near London.

Fem.—Corpus crassum, sublineare, scitissime squameum, pubescens, subnitens: caput transversum, breve, juxta thoraci latum, vertex sat latus, parum convexus; frons antice convexa, dein abrupte declivis: oculi majusculi: antennæ crassæ, corporis dimidio non longiores; articulus 1^{us}. fusiformis, subtus dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes transversi, brevissimi, usque ad 8^{um}. latescentes; clava conica, acuminata, articulo 8^o. multo latior et quadruplo longior: thorax ovatus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen ovatum, planum, haud aliter thoraci longum et latum: oviductus occultus: alæ angustæ.

Sp. 51. En. Scaurus. Fem. *Viridis*, scutellum et abdomen cuprea, antennæ nigrae, pedes nigro-fusci flavo cincti, tarsi fulvi, alæ limpidæ.

Viridis : caput antice cyaneo-viride : oculi et ocelli obscure rufi : antennæ nigræ ; articulus 1^{us}. nigro-viridis : mesothoracis paraptera et scutellum cuprea, hoc apice viridi-æneum nitens : metathorax cupreo-æneus : abdomen cupreum, læve, nitens, fere glabrum, basi læte viride : propedum femora nigra apice flava, tibiæ nigro-fuscæ apice et subtus pallidiores, tarsi fulvi apice fusci ; mesopedes flavi, femora nigra basi et apice flava, tibiæ nigro-cingulatæ, tarsi apice fusci ; metapedes nigri, tibiæ basi flavæ, tarsi fulvi apice fusci : alæ limpidæ ; squamulæ fuscæ ; nervi fulvi, apice fusci. (Corp. long. lin. $\frac{1}{5}$ — $\frac{1}{2}$; alar. lin. $\frac{2}{5}$ — $\frac{5}{4}$.)

Var. β .—Metatarsi fusci.

June, July ; on grass beneath trees, near London.

Fem.—Corpus angustum, crassum, sublineare, scitissime punctatum, pubescens, subnitens ; caput transversum, breve, juxta thoraci latum ; vertex sat latus, fere planus ; frons antice convexa, dein abrupte declivis : oculi majusculi : antennæ breves, crassæ, clavatæ, corporis dimidio breviores ; articulus 1^{us}. fusiformis, subdilatus ; 2^{us}. longi-cyathiformis ; 3^{us}. et sequentes transversi, brevissimi, usque ad 8^{um}. latentes ; clava ovata, acuminata, articulo 8^o. multo latior et plus quadruplo longior : thorax ovatus, fere planus : mesothoracis scutum transversum ; paraptera non convenientia ; scutellum obconicum : abdomen ovatum, supra planum, subtus carinatum, apice acuminatum, thorace paullo longius vix angustius : oviductus occultus : pedes validi : alæ angustæ.

Sp. 52. En. Jancirus. Fem. *Æneo-viridis*, abdomen æneum, antennæ nigro-fuscæ fulvo cinctæ, pedes nigro-fusci fulvo cincti, tarsi flavi, alæ limpidæ.

Æneo-viridis : caput viridi-cyaneum : oculi et ocelli obscure rufi : antennæ nigro-fuscæ ; articulus 1^{us}. viridis ; 2^{us}. niger, apice fulvus ; 7^{us}. et 8^{us}. fulvi ; clava nigra : scutellum apice cupreum : abdomen nigro-æneum, basi nigro-viride : pedes nigri ; trochanteres et genua fulva ; tibiæ apice flavæ ; tarsi flavi, apice fusci ; protarsi fulvi, apice obscuriores ; mesopedes flavi, femora nigra apice flava, tibiæ basi et tarsi apice fusca : alæ limpidæ ; squamulæ fuscæ ; nervi fulvi, apice fusci. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{2}{5}$.)

June, August ; on grass beneath trees, near London.

Fem.—Corpus longum, angustum, nitens, pubescens, scitissime punctatum : caput transversum, breve, convexum, thorace angustius ; vertex latus ; frons abrupte declivis : oculi mediocres : antennæ clavatæ, pubescentes, corporis dimidio non longiores ;

articulus 1^{us}. gracilis, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, subquadrati, usque ad 8^{um}. latescentes; clava fusiformis, articulo 8^o. triplo longior et paullo latior: thorax ovatus, fere planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen longi-ovatum, planum, thorace angustius et paullo longius, subtus carinatum, apice acuminatum: oviductus sub-exertus.

Sp. 53. En. Sitalces. Fem. *Viridis*, abdomen cupreum, antennæ nigræ, pedes nigro-fusci, tarsi fulvi, alæ limpidae.

Viridis: antennæ nigræ; articulus 1^{us}. viridis: oculi et ocelli picei: abdomen nigro-cupreum: pedes nigro-fusci; genua fulva; tarsi fulvi, apice obscuriores; mesotarsi flavi, apice fusci: alæ limpidae; squamulæ et nervi fusca. (Corp. long. lin. $\frac{5}{4}$; alar. lin. $1\frac{1}{4}$.)

May; near London.

Fem.—Corpus longum, angustum, nitens, pubescens, scitissime punctatum: caput breve, convexum, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, corporis dimidio vix longiores; articulus 1^{us}. validus, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes angusti, sublineares, usque ad 8^{um}. latescentes; clava longi-ovata, articulo 8^o. multo latior et plus triplo longior: thorax ovatus, planus: mesothoracis scutum quam longum vix latius; paraptera fere convenientia; scutellum obconicum: abdomen fusiforme, depressum, subcompressum, acuminatum, thorace angustius et paullo longius: alæ amplæ.

Sp. 54. En. Tennes. Fem. *Æneo-ater*, antennæ nigræ, pedes nigri, genua fulva, tarsi fusci, alæ sublimpidae.

Æneo-ater: capitis frons viridis: oculi et ocelli picei: antennæ nigræ: pedes nigri; pro et mesogenua fulva; tibiis spinæ flavæ; tarsi nigro-fusci: alæ sublimpidae; squamulæ et nervi fusca, hi apud stigma obscuriores; metalarum nervi fulvi. (Corp. long. lin. $\frac{5}{4}$; alar. lin. $1\frac{1}{4}$.)

Found near London.

Fem.—Corpus longum, angustum, pubescens, scite punctatum, parum nitens: caput brevissimum, semicirculum fingens, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ clavatæ, corporis dimidio breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes transversii, subquadrati, usque ad 8^{um}. latescentes; clava

adempta: thorax oblongus, quadratus, planus; mesothoracis scutum quam longum vix latius; paraptera non convenientia; scutellum rhombiforme: abdomen teliforme, depressum, læve, nitens, fere glabrum, thorace dimidio longius: oviductus occultus: alæ angustæ.

Sp. 55. En. Parus. Fem. *Ater*, abdomen cupreum, antennæ nigro-fuscæ, pedes nigro-fusci, tarsi pallidiores, alæ limpidæ.

Ater: oculi et ocelli picei: antennæ nigro-fuscæ: abdomen nigro-cupreum: pedes nigri; tibiæ basi pallide flavæ; tarsi nigro-fusci; mesotarsi fulvi: alæ limpidæ; squamulæ fuscæ; nervi fulvi, apice fusci. (Corp. long. lin. $\frac{5}{4}$; alar. lin. 1.)

Taken by the Rev. G. T. Rudd, near Darlington, in Durham.

Fem.—Corpus sat longum, pubescens, punctatum, obscurum: caput transversum, breve, thorace vix latius, antice semicirculum fingens: oculi mediocres, non extantes: antennæ subclavatæ, 9-articulatæ? graciles, corporis dimidio breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes longi, sublineares, usque ad 6^{um}. curtantes; clava fusiformis, articulo 6^o. plus duplo longior et paullo latior: thorax oblongo-quadratus, vix convexus: mesothoracis scutum transversum; paraptera supra non convenientia; scutellum subrhombiforme: abdomen longi-ovatum, depressum, thorace paullo angustius et longius, subtus carinatum, apice productum et acuminatum; segmenta 1^{um}. et 2^{um}. maxima: ventralia non conspicua: oviductus occultus.

Sp. 56. En. Jugæus. Fem. *Ater*, antennæ nigro-fuscæ, pedes nigro-fusci, tarsi fusci, mesotarsi fulvi, alæ limpidæ.

Ater: oculi et ocelli picei: antennæ nigro-fuscæ; articuli 1^{us}. et 2^{us}. nigri: abdomen nitens, læve, fere glabrum: pedes nigri; trochanteres et tarsi fusci; genua flava; mesopedum spinæ flavæ, tarsi fulvi: alæ limpidæ; squamulæ et nervi fulva; stigma parvum, subrotundum. (Corp. long. lin. $\frac{5}{4}$; alar. lin. 1.)

Found by Mr. Haliday, on box-trees, near Belfast.

Fem.—Corpus crassum, punctatum, pubescens, parum nitens: caput transversum, breve, thorace vix angustius; vertex convexus, latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ extrorsum crassiores, corpore breviores; articulus 1^{us}. fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes oblongo-quadrati, pubescentes, usque ad 8^{um}. curtantes et minime lates-

centes; clava fusiformis, articulo 8°. plus duplo longior vix latior: thorax subquadratus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: abdomen longi-obconicum, juxta thoraci longum, apice acuminatum: oviductus occultus.

Sp. 57. En. Belibus. Fem. *Ater*, abdomen cupreum, antennæ nigræ, pedes flavi, femora nigra, tibiæ plerumque fusæ, alæ limpidæ.

Ater: oculi et ocelli picei: antennæ nigræ: abdomen nigro-cupreum: femora nigra; tibiæ fusæ, apice flavæ; protarsi pallide fusci; pro- et mesofemora apice flava; meso- et metatarsi flavi apice fusci: alæ limpidæ, corpore longiores; squamulæ et nervi pallide fusca. (Corp. long. lin. $\frac{1}{2}$ — $\frac{5}{4}$; alar. lin. $\frac{3}{4}$ —1.)

Var. β.—Tibiæ flavæ; metatibiæ fusco cinctæ; protarsi fulvi.

October; near London.

Fem.—Corpus angustum, pubescens, scite punctatum, parum nitens: caput transversum, convexus, breve, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ filiformes, pubescentes, extrorsum crassiores, corpore paullo breviores; articulus 1^{us}. fusiformis, crassus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes usque ad 8^{um}. curtantes; clava fusiformis, articulo 8°. plus duplo longior vix latior: thorax ovatus, convexus: meso-thoracis scutum transversum; paraptera fere convenientia; scutellum obconicum: abdomen longi-ovatum, planum, thorace multo longius, apice acuminatum, subtus carinatum: oviductus occultus.

Sp. 58. En. Scyles. Fem. *Niger* aut *viridi-cupreus*, antennæ nigræ aut nigro-fusæ, pedes fulvi, femora nigro-cincta, tibiæ nonnunquam fusæ, alæ sublimpidæ.

Niger: oculi et ocelli obscure rufi: antennæ nigræ: abdomen nitens, læve, fere glabrum: pedes fulvi; tarsi obscuriores; femora nigra, basi et apice fulva; mesopedes flavi, femora supra et tarsi apice fusca: alæ sublimpidæ; squamulæ fusæ; nervi fulvi. (Corp. long. lin. $\frac{2}{3}$ — $\frac{5}{4}$; alar. lin. 1— $1\frac{1}{4}$.)

Var. β.—Nigro-viridis: antennæ nigro-fusæ: scutellum obscure cupreum: abdomen nigro-cupreum: tibiæ fusæ; mesotibiæ fulvæ.

September; Dorsetshire; North Wales.

Fem.—Corpus breve, crassum, scitissime punctatum, nitens, pubescens: caput transversum, breve, convexum, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, graciles, corporis dimidio longiores; articulus 1^{us}. gracilis, fusiformis; 3^{us}. et sequentes ad 8^{um}. producentes et paullo latescentes; clava longi-ovata, acuminata, articulo 8^o. latior et plus duplo longior: thorax ovatus, altus, parum convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen brevi-ovatum, planum, thorace brevius vix angustius: oviductus sub-exertus.

Sp. 59. En. Mamitus. *Fem.* *Ater*, abdomen nigro-cupreum, antennæ nigro-fuscæ, pedes flavo-fusci, femora nigra, alæ limpidaæ.

Ater: caput obscurum: oculi et ocelli picei: antennæ nigro-fuscæ, subtus pallidiores; articuli 1^{us}. et 2^{us}. nigri: abdomen nigro-cupreum: oviductus flavus; vaginæ fuscæ, brevissimæ: pedes flavi; propedum femora nigra apice fulva, tibiæ supra fuscæ, tarsi fulvi; mesopedum femora nigra apice fulva, tibiæ basi et tarsi apice fusca; metapedes nigri, trochanteres et genua fusca, tibiæ apice flavæ, tarsi flavi apice fusci: alæ limpidaæ; squamulæ fuscæ; nervi fulvi apice obscuriores. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{3}{4}$.)

Found near London.

Mas.—Caput transversum, brevissimum, convexum, thorace vix latius; frons abrupte declivis: oculi mediocres, vix extantes: mandibulæ 3-dentatæ, sub-quadrataæ; dentes minuti, acuti: antennæ clavatæ, corpore breviores; articulus 1^{us}. gracilis, sub-fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes oblongo-quadrati, usque ad 8^{um}. curtantes et latescentes; clava oblique truncata, articulo 8^o. latior et duplo longior: thorax oblongo-quadratus, convexus: mesothoracis scutum transversum; paraptera supra vix convenientia; scutellum brevi-obconicum: abdomen sub-rotundum, planum, paullo longius quam latum, thorace multo brevius et paullo angustius; segmenta ventralia occulta: alæ amplæ.

Fem.—Caput breve, juxta thoraci latum; frons quam *mari* convexior: antennæ corporis dimidio longiores; articuli 3^{us}. et sequentes sub-cyathiformes, usque ad 8^{um}. curtantes et latescentes; clava quam *mari* major, articulo 8^o. multo latior et triplo longior: abdomen brevi-ovatum, thorace brevius non latius, subtus

carinatum; segmenta ventralia vix conspicua: oviductus non exertus.

Sp. 60. En. clavicornis. Mas et Fem. *Viridis cupreo et aureo varius, abdomen cupreum, antennæ mari fulvæ fem. nigræ, pedes fusco-fulvi, alæ limpidæ.*

Encyrtus clavicornis. Dalman, *Kongl. Vetens. Acad. Handl. för år, 1820; Nees ab Ess. Hym. Ich. affin. Monogr. II. 225.*

Mas.—Caput aureo-viride, scaber punctatum: oculi et ocelli rufi: antennæ fulvæ; articulus 2^{us}. flavus; clava fusca: thorax viridi-æneus, scaber punctatus; mesothoracis scutellum aureum, apice læve: pectus nigrum, nitens, læve, glabrum: abdomen cupreum, læve, apice hirtum: sexualia fulva: pedes fulvi; pro- et meso-femora basi pallide fusca; metapedum femora fusca, tibiæ nigro-fuscæ, tarsi apice fusci: alæ limpidæ; squamulæ et nervi fulva, hi apud stigma obscuriores.

Fem.—Caput viride, antice cyaneo-viride, postice viridi-æneum: antennæ nigræ; articulus 1^{us}. fulvus, apice fuscus; 2^{us}. nigro-fuscus: thorax viridi-æneus; mesothoracis scutellum cupreum: abdomen cupreum, basi viridi-varium: pro- et mesofemora fusca, apice fulva. (Corp. long. lin. $\frac{1}{2}$ —1; alar. lin. 1—1 $\frac{3}{4}$.)

Var. β.—*Mas*, thorax cupreus, antice et utrinque viridis.

Var. γ.—*Mas*, caput cyaneo-viride: thorax viridis; mesothoracis scutellum cupreum.

Var. δ.—*Mas*, caput et thorax viridia: abdomen basi viridi-varium.

Var. ε.—*Mas*, profemora nigro-fusca, apice fulva.

Var. ζ.—*Fem.* caput, thorax et abdomen omnino cuprea.

Var. η.—*Fem.* abdomen cupreo purpureum, basi viridi-æneum.

Var. θ.—*Fem.* abdomen purpureo cupreum, basi læte viride.

Var. ι.—*Fem.* caput viride: thorax viridis, cupreo varius; mesothoracis scutelli discus cupreus.

Var. κ.—*Fem.* thorax viridis; mesothoracis scutellum apice æneum.

May to September; near London; Isle of Wight; Scotland.

Sp. 61. En. Eupales. Fem. *Cupreus, E. clavicorni angustior et plerumque multo minor, antennæ nigræ, pedes fusco-flavi, femora nigro-ænea, alæ limpidæ.*

Cupreus: oculi et ocelli obscure rufi: antennæ nigræ; articulus 1^{us}. nigro-æneus: abdomen basi cupreo-viride: sexualia flava:

pedes flavi; coxæ et femora nigro-ænea, hæ apice flava; tibiæ fusco-cinctæ; tarsi apice fusci: alæ limpidae; squamulæ et nervi fulva. (Corp. long. lin. $\frac{2}{3}$; alar. lin. 1.)

Var. β.—Corpus omnino cupreum: femora nigro-ænea; genua fusca; tibiæ fuscæ, metapedum obscuriores.

Found near London.

Mas.—Corpus, pedes et alæ non aliter *E. clavicorni*: antennæ subfiliformes, verticillato-pilosæ, juxta corpori longi; articulus 1^{us}. gracilis, subfusiformis; 2^{us}. brevis, cyathiformis; 3^{us}. et sequentes ad 8^{um}. longi, discreti, verticillato-pilosi; clava sublinearis, apice truncata, articulo 8^o. paullo latior et duplo fere longior.

Sp. 62. En. Arceanus. *Mas. Viridis cupreo varius, abdomen purpureo cupreum, antennæ fulvæ, pedes fusco-fulvi, femora nigro-ænea, alæ limpidae.*

Viridis: oculi et ocelli rufi: capitis vertex et mesothorax cupreo varii, hujus scutelli discus cupreus: abdomen purpureo-cupreum, basi cupreo viride: antennæ pallide fulvæ, apice obscuriores, fusco-pilosæ: pedes fulvi; coxæ et femora nigro-ænea, hæ apice fulva; metatibiæ nigro-fuscæ; meso- et metatarsi flavi, apice fusci: alæ limpidae; squamulæ et nervi fulva. (Corp. long. lin. 1; alar. lin. $1\frac{5}{4}$.)

Found near London.

Mas.—Corpus et alæ non aliter *E. clavicorni*: pedes graciliores; tibiæ rectæ: nervus cubitalis ad alæ apicem propensior: antennæ filiformes, juxta corpori longi; articulus 1^{us}. fusiformis, vix dilatatus; 2^{us}. parvus, subrotundus; 3^{us}. et sequentes longi, lineares, approximati, usque ad 8^{um}. curtantes; clava fusiformis, articulo 8^o. plus dimidio longior et paullo angustior: abdomen ovatum, basi latum, thorace brevius et angustius.

Sp. 63. En. Tanais. *Mas. Aureo-cupreus, abdomen purpureo-cupreum, antennæ crocæ, pedes flavi, alæ limpidae.*

Aureo cupreus, nitens: caput aureo-viride; vertex cupreus: oculi et ocelli obscure rufi: antennæ crocæ; articulus 1^{us}. læte flavus; 2^{us}. niger: abdomen purpureo-cupreum: pedes læte flavi; coxæ æneæ; metatibiæ fusco bicinctæ: alæ limpidae; squamulæ et nervi fulva. (Corp. long. lin. $\frac{5}{4}$; alar. lin. $1\frac{1}{2}$.)

Found near Belfast, by Mr. Haliday.

Fem.—Corpus breve, crassum, punctatum, parum nitens: caput transversum, subquadratum, juxta thoraci latum; frons abrupte declivis: oculi mediocres, non extantes: antennæ clavatæ, crassæ, corporis dimidio vix breviores; articulus 1^{us}. valde dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes subcyathiformes, breves, usque ad 8^{um}. latescentes; clava longi-ovata, acuminata, articulo 8°. plus duplo longior vix latior: thorax oblongo-quadratus, convexus; mesothoracis scutum transversum; paraptera supra convenientia; scutellum subrhombiforme, basi impressum: abdomen rotundum, planum, læve, nitens, thorace brevius vix latius: oviductus occultus: pedes sat longi.

Sp. 64. En. Dahlbomii. Fem. *Æneo-æviridis*, abdomen nigro-æneum, antennæ nigræ apice flavæ, pedes flavo-fusci, femora obscuriora, proalæ fusco-fasciatæ.

Encyrtus Dahlbomii. Westwood, Lond. and Edinb. Phil. Mag. Third Series. X. 63, 441.

Caput viride, postice viridi-æneum: oculi et ocelli obscure rufi: antennæ nigræ; clava læte flava: thorax viridis: scutellum viridi-æneum: abdomen nigro-æneum: pedes flavi; coxæ et meta-femora nigro-viridia; pro- et mesopedum femora nigro-fusca, tibiæ fusco cinctæ; metatibiæ nigro-fuscæ; tarsi apice fusci; pro-tarsi fulvi: alæ sublimpidæ; proalæ fusco apud stigma late at interrupte fasciatæ; squamulæ et nervi fusca, hi apice obscuriores. (Corp. long. lin. $\frac{1}{2}$ — $\frac{2}{3}$; alar. lin. 1—1 $\frac{1}{4}$.)

June, July; on lime-trees, near London; Isle of Jersey. Found at Port Marnock, near Belfast, by Mr. Haliday.

Fem.—Corpus, pedes et alæ non aliter *E. Dahlbomii*: antennæ clavatae, corporis dimidio vix longiores; articulus 1^{us}. fusiformis, non dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes transversi, minuti, usque ad 8^{um}. latescentes; clava ovata, plana, acuminata, articulo 8°. paullo latior et plus duplo longior.

Sp. 65. En. Erginus. Fem. *Nigro-cyaneus*, humeri albi, antennæ fuscæ apice albæ, pedes flavo-fusci, femora nigro-cyanea, proalæ fusco-fasciatæ.

Nigro-cyaneus, parum nitens: oculi et ocelli obscure rufi: antennis articulus 1^{us}. nigro-viridis; 2^{us}. niger; 3^{us}. 4^{us}. et 5^{us}. fusci; cæteri albi: humeri albi: abdomen nitens, læve: coxæ et femora nigro-cyanea; tibiæ nigro-fuscæ; trochanteres et genua fusca;

tarsi flavi, apice fusci; protarsi fulvi: alæ limpidæ; squamulæ et nervi fusca, hi basi flavi; proalæ cuique apud stigma fascia lata abbreviata fusca. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

July; on lime-trees, near London.

Mas.—Corpus sublineare, angustum, punctatum, pubescens: caput transversum, breve, convexum, juxta thoraci latum; vertex fere planus; frons convexa: oculi mediocres, non extantes: antennæ graciles, fusiformes, pubescentes, corporis dimidio longiores; articulus 1^{us}. gracilis, longissimus, extrorsum crassior; 2^{us}. et sequentes longi, lineares, usque ad 8^{um}. curtantes; clava teliformis, articulo 8^o. plus duplo longior et basi latior: thorax ovatus, parum convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen subrotundum, planum, læve, fere glabrum, thorace brevius et latius: pedes longi.

Sp. 66. En. flaminus. *Mas.* *Nigro-viridis, subtus ferrugineus, abdomen nigro-cupreum, antennæ nigræ apice albæ, pedes rufo-picei, mesotarsi albi, proalæ fusco-fasciatæ.*

Encyrtus flaminus. *Dalman, Kongl. Vetens. Acad. Handl. för år, 1826; Nees ab Ess. Hym. Ich. affn. Monogr. II. 220.*

Nigro-viridis, parum nitens: caput subtus ferrugineum: oculi et ocelli picei: antennæ nigræ; articuli 8^o. ad 11^{um}. albi: pectus ferrugineum, postice nigro-cyaneum: abdomen nigro-cupreum, nitens, basi cupreum micans, subtus nigro-cyaneum: pedes rufo-picei; mesotarsi albi: alæ albæ; proalæ cuique fascia lata arcuata fusca; nervi fusci. (Corp. long. lin. 1; alar. lin. $1\frac{3}{4}$.)

Reared at Paris, from the chrysalis of *Galeruca Calmariensis*, by the Comte de Castelleau.

Fem.—Corpus breve, latum, crassum, convexum, punctatum, pubescens: caput transversum, breve, convexum, juxta thoraci latum; frons abrupte declivis: thorax brevi-ovatus: mesothoracis scutum transversum; paraptera supra convenientia, scutellum brevi-obconicum: metathoracis scutellum semicirculum fingens: abdomen subrotundum, læve, fere glabrum, thorace brevius et paullo latius; segmenta ventralia occulta: oviductus non exertus: antennæ clavatæ, pubescentes, corporis dimidii longitudine; articulus 1^{us}. fusiformis, vix dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, subcyathiformes, approximati, usque ad 8^{um}. latescentes

et curtantes; clava ovata, plana, articulo 8°. duplo longior et paullo latior: alæ amplæ, corpore longiores.

Sp. 67. En. tessellatus. Fem. *Cupreus*, antennæ nigræ aut fuscæ nonnunquam albo-cinctæ, pedes fulvo-fusci, femora nigro-ænea, alæ fusco-variæ.

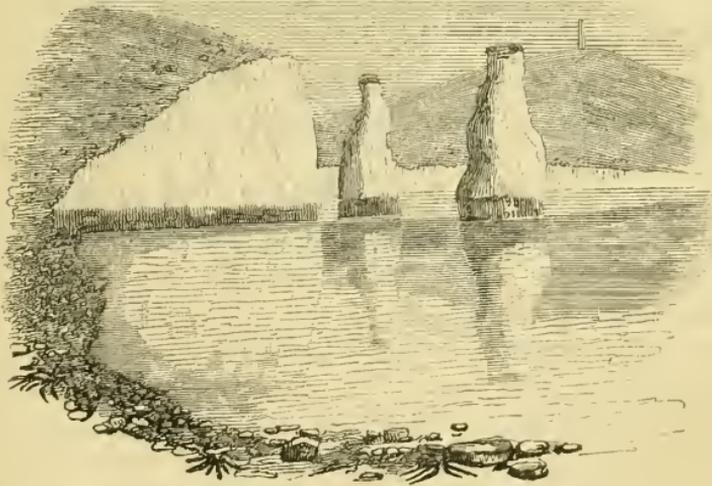
Encyrtus tessellatus. Dalman, *Kongl. Vetens. Acad. Handl. för år, 1820*; Nees ab Ess. *Hym. Ich. affn. Monogr. II. 209*.

Obscure cupreus, parum nitens: oculi et ocelli obscure rufi: antennæ nigræ: abdomen cupreum, nitens: coxæ cupreæ; trochanteres et genua ferruginea; tarsi flavi, apice fusci; pro- et metafemora nigro-ænea; propedum tibiæ et tarsi fulva, hi apice fusci, illæ fusco cinctæ; mesopedes flavi, femora basi fusca, tibiæ fusco cinctæ; metapedes nigro-fuscæ; tibiæ fuscæ: alæ limpidæ; proalæ fusco variæ; squamulæ et nervi fusca, hi apud stigma obscuriores. (Corp. long. lin. $\frac{5}{4}$; alar. lin. $1\frac{1}{2}$.)

Var. β.—Antennæ fuscæ; clava nigra.

Var. γ.—Antennæ fuscæ; articuli 7^{us}. et 8^{us}. albidii; clava nigra.

June, September; North Wales; Isle of Wight. Taken by the Rev. G. T. Rudd in Hampshire, and by Mr. Haliday near Lanark, Scotland.



ART. IV.—*Proceedings of the Entomological Society of London.*

SITTING OF THE THIRD APRIL, 1837.

Rev. F. W. HOPE, in the Chair.

THE minutes of the last meeting were confirmed.

Several donations of books and insects were announced by the SECRETARY.

A splendid pair of *Chiasognathus Grantii*, from Chiloe, were exhibited, and presented to the Society by Mr. Darwin.

A series of *Carabi*, collected by Mr. Darwin, in Terra del Fuego, were exhibited. The Chairman stated, that with one exception, he believed them to be all new; or, at least, had not been seen in any European cabinet since the days of Fabricius; and that they appeared to form a very valuable connecting chain between the northern and southern insects. Mr. Darwin described their habits, and the localities where taken.

Mr. WESTWOOD, in consequence of seeing the advertisement of a powder at a shop in the city, professing to protect turnips from the attack of the fly, by being mixed with the seed, took occasion to caution members and their friends against the imposition. The attempt had originated from the error of a writer in the "Entomological Magazine," calling himself "Rusticus," who stated that the egg of the turnip-fly was found upon the seed, which had since been proved to be totally incorrect; and therefore no such powder, applied in that way, could be of any possible avail.

Specimens of *Termites*, with part of a nidus, accompanied by a note from Lord Prudhoe, presenting them to the Society, were exhibited.

Specimens of a lepidopterous larva, found in immense quantities in a wheat-stack, near Bristol, with a sample of the wheat, were received from Mr. Raddon; and also some foreign specimens extracted from turpentine, and various drawings.

Extracts from parliamentary evidence of the state of some of the pictures in the National Gallery, attacked by *Anobia*, were read by Mr. Westwood. It appeared that the work of destruction was going rapidly forward in one or two large and valuable pictures. Mr. Sells suggested a solution of the bitter

principles of quassia and colocynth, with camphor in turpentine, as a remedy. Mr. Hope suggested a varnish of resin animè applied to the back of the picture. It was agreed, on all hands, that the metallic poisons would be dangerous to the picture. Mr. Waterhouse thought that in case all other means failed, a box might be made air-tight, with the back of the infected picture in the way of a lid, and that the fumes of prussic acid might then be applied with safety and effect. He had found this method succeed perfectly in destroying larvæ, as well as the perfect insect, in which state it was generally much more difficult to reach the vital principle than in the imago. Several members thought that the evil existed principally, if not solely, in the guards or frame-work of the pictures, many of which were made of white soft wood, peculiarly liable to the attacks of insects; and a very easy remedy might be found in the removal of these, and substitution of new ones made of materials not liable to be thus infested. Mr. Thomas Bell thought the whole subject of so much importance, that a committee might be appointed to make experiments of the various remedies proposed, and report.

A paper from Mr. SPENCE, communicating a number of valuable observations on the habits of the *Scoliti*, so destructive to the elm, and other large timber trees, was read.

Extracts from a letter received by Mr. Westwood from Mr. R. LEWIS, one of the Society's members, dated Van Diemen's Land, was read, detailing his success in Entomological captures.

A communication from Mr. SMITH to Mr. Ingpen, on the nature of the gall, so frequent on the under side of oak leaves, was read. It appears to have been a disputed point whether this gall was a fungus, or an insect habitation. From his previous want of success in discovering any tenant of any kind to these galls, Mr. Smith had been inclined to the latter opinion; but early this season he was examining some oak leaves in Coombe Wood, in a situation where they were drifted together in a heap. Those on the surface were quite dry, and the galls withered. Underneath they were moister; and on proceeding to examine the galls on those which were comparatively fresh and pulpy, he found each of them, to his no small pleasure and surprise, to contain a little black *Cynips*, in the perfect state. He afterwards carefully examined the oak leaves

still remaining on the trees, but these were all dry, and without any signs of insect life. He supposed the peculiarity of the habit, and time of reaching the imago state, had hitherto eluded the vigilance of Entomologists. Several members stated that the same discovery had been made abroad. Specimens of the *Cynips* were exhibited.

The Rev. F. W. HOPE produced his promised paper on insects internally inhabiting man. The paper was illustrated by several specimens, through the kindness of Mr. Owen, of the College of Surgeons, and thirteen tables, exhibiting in one view the genera, species, authority, date, country, sex of the subject attacked, symptoms, result, &c. &c. It enumerated forty-three distinct species of insects, mostly of the classes *Coleoptera* and *Diptera*, as having been found inhabiting the living human body, sometimes the causes of painful and protracted disease, and sometimes of death. After giving a general history and analysis of the instances he had been able to collect, the author proceeded to endeavour to account for their introduction. The process of roasting and boiling, to which our food was usually subjected, he admitted was effectual in destroying insect life in any of its stages. But the ova of *Diptera* he thought were frequently deposited in cold provisions, and thus introduced into the stomach and reared. Salads he thought were a fruitful source of introducing larvæ; and muddy water, often incautiously drunk by children, of both ova and larvæ. He combated the objection that insects could not subsist in the temperature of the human body, by the well-known examples of their occurrence in horses, cows, &c. The paper excited much interest, and considerable discussion. Mr. Westwood inquired of the author whether he considered there were any insects indigenous to the human species, or whether their occurrence was accidental. Mr. Hope replied that he thought their introduction was mostly accidental, but he was inclined to a belief in an *Æstrus Hominis*. Mr. Owen adduced some curious instances of a worm infesting that animal crawling alive out of a boiled codfish, to the no small discomfiture of those around the table; and the existence of a particular species of snail in the thermal springs of Italy. In illustration of the capability of some of the lower animals of bearing a high degree of temperature, Mr. Shuckard mentioned, on the authority of Mr. Standish, the fact of a moth escaping alive out of a

boiled potato. The habit of the common cricket, and the cock-roach, infesting ovens and bakehouses, was also quoted.

Mr. BRACY CLARK contended, at considerable length, against the existence of *Æstrus Hominis*. He entered into a general history of the *Æstri* attacking animals, their mode of operation, and their liability when deprived of their usual nidus, to make one of the human subject, if found exposed. Pallas, he said, was the first who introduced an *Æstrus Hominis*, and the continental writers had followed him without sufficient authority; for that every authenticated instance of an *Æstrus* found on man, had turned out to be the true *Æstrus Bovis*. He likewise urged the improbability of an *Æstrus* being created, whose proper habit it was to deposit its eggs in the human body, which was usually carefully clothed.

SITTING OF THE 1ST OF MAY, 1837.

Mr. STEPHENS, President, in the Chair.

The minutes of the last meeting were read and confirmed. Several new members were balloted in. A list of donations presented since the last meeting, was read by the SECRETARY.

A gigantic species of the genus *Prionus*; a case of insects containing, among others, the specimens described by Mr. GREY, in the Second Part of the Transactions; and a selection of extraordinary and highly interesting forms, from the collection of Sir PATRICK WALKER,—were severally exhibited.

Specimens of the same species of Ant, forwarded by Dr. BOSTOCK, from Liverpool, which had lately been discovered extending itself in various parts of London, supposed to be *Myrmica linearis*, were exhibited. Mr. Shuckard stated that he had minutely examined these ants, and decidedly pronounced them not to be the above-named insect, but a species entirely new.

A paper, by Mr. SELLS, on the Chigoe of the West Indies (*Pulex penetrans*), was read, accompanied by specimens, with further observations by Mr. Westwood, accompanied by drawings, investigating the specific characters of this insect. Mr. Sells described the manner of its attack, insinuating itself more particularly beneath the toe-nails; the mode resorted to by the negroes for ridding themselves of the little tormentors; and the consequences of neglect, or of unskilful operation.

Mr. Westwood decided that it was not a true *Pulex*, but required to be erected into a new genus, of which it was probably the type.

The SECRETARY, after explaining that the Entomological Society of France had mainly directed their labours to the discovery and description of new species, while the Entomological Society of London had aimed at more practical objects and results, read a portion of a letter from M. Victor Audouin, foreign honorary member, president of the Entomological Society of France, to show that they were now imitating the Entomological Society of London in this respect. M. Audouin, in this letter, detailed the plan of a course of lectures he had just engaged in, on the economy of insects in relation to the use or injury of man, in the three departments of agriculture, manufactures, and medicine.

A paper by Mr. MAIN, on the Capes or Roupe, a familiar disease among chickens, occasioned by the nidus of a species of vermes in the throat, and frequently fatal to two-thirds of a brood, was communicated by Mr. Ingpen.

A paper by Mr. ASHTON was read, describing the singular construction of the cornea of some insects. In the dragon-fly, (*Libellula Vulgata*), for instance, the numerous facets or lenses constituting the eye, are not of equal size, but are much larger towards the upper part than in the lower part of the eye. In some insects the variations in the size of the mesh are gradual, in others distinct; in some vertical, in others central, and in others lobed or tongue-shaped; but in all the instances of this remarkable construction that had fallen under Mr. Ashton's observation, he thought he could trace a relation or correspondence between the large facets, and that part of the eye most exposed by the habit of the insect to the strongest blaze of light, which he therefore supposed to be a provision of nature for moderating and equalizing its effects. All this was illustrated by descriptive drawings. Mr. Shuckard stated, that Mr. Ashton had just anticipated him, having been for some time engaged in an extensive series of similar observations; but he thought this singular variation in the structure of the eye would be found to be sexual.

The Rev. F. W. HOPE presented a monograph of Mr. Darwin's new *Carabi*, from Southern America;—and also a paper on the emblematical signification of the sacred *Scara-*

bæus of Egypt. He enumerated the various ideas and objects of which, by different authors, it was supposed to be the emblem; and gave it as his judgment, that its deepest and most universal meaning had been entirely overlooked. It is well known that the Egyptians were believers in the immortality of the soul; and from the situations near the heart, and under the eyelids, in which it was invariably found, from its being worn by soldiers going to battle, &c. he argued that the sacred beetle was the primary type and emblem of immortality, and the resurrection. Mr. Pettit and Mr. Westwood both confirmed the views of the author, though the latter gentleman thought that the idea was by no means new, being to be found at large in the writings of Latreille.

SITTING OF THE 5TH OF JUNE, 1837.

Rev. W. KIRBY, Honorary President, in the Chair.

Various donations of books and papers were received, and thanks voted respectively.

Mr. WESTWOOD made some observations on the extraordinary backwardness of the present season, as to whether it had any effect in retarding the regular appearance of insects. As far as he had observed it had no influence, but he thought the subject well worthy the investigation of Entomologists.

A paper from Mr. JENNINGS, on the larvæ of a dipterous insect voided in large quantities from the human subject, illustrated by specimens and drawings; a paper by Mr. WESTWOOD, descriptive of several new genera exhibited, with drawings; extracts of a letter, detailing the singular processional and migratory habits of two sorts of caterpillars, from a Member abroad; and a paper by Dr. RICHARDSON, on a caterpillar then ravaging the cherry-trees in Kent, with specimens,—were severally read, but did not elicit any observations of public interest.

ART. V.—*More Random Thoughts.* By J. W. DOUGLAS.

THE fact that the world which we call ours, turns on its axis daily without being perceived by us, is accounted for by knowing that we also turn with it. In like manner must it be, that the onward march of every thing connected with mind is so little noted, because we, in some measure, are also borne along in the mental revolution that is going on around us. Yet let us reflect but for a moment, and we shall see that progression is a law which is universally obeyed by all creation, and that nothing is stationary.

The elegant butterfly, that like a thing of air floats in the sunbeam, was once contained in an egg scarcely visible. Every flower that fills a place in the garland that Nature weaves around the earth—every shrub and tree that graces the mountain side or lowly plain—has arisen from a minute seed. The noble river that proudly bears on its broad bosom the majestic ships, was, but a few miles back, a stream scarcely able to float the tiny straws that the breeze had committed to it. Even the sun, the centre of our system, the soul of its body, in his daily appearance, comes not on us at once in his full glare, but rises gradually to the meridian; and though at times obscured by clouds, and at length by his decline giving birth to night, yet, 'tis only to rise again more glorious than before. Yet, more than in all these, the great principle of advancement is seen in the mind of man,—that emanation from the Deity, which, though differing from all things, is yet related to all, finding in every thing, more or less, an object for its attention. Individually, man advances by degrees; his mind and body expanding in proportion as each is exercised and trained, until he reach his full physical and mental stature. Collectively, he has advanced comparatively but a short distance in the infinity of intellectual space; for it is but lately, that, by the invention of the press, he has been able to record, for the benefit of his posterity, the discoveries of his mind or the emanations of his genius. But this point in his history having been gained, he is in a condition to keep his race continually going on; and though his stay here may be as brief as ever, yet his children may now be as wise as if their lives were a continuation of his; and so on for ever.

It is now only that we begin to reap the benefit of the wisdom of former ages ; now is

“ The dawn of mind, which, upwards on a pinion
Borne, swift as sunrise far illumines space,
And clasps this barren world in its own bright embrace.”

For, compared with the extent of space to be explored, what do we know of nature or of nature's laws ? We gaze with wonder at the discoveries of Newton, and are astonished at the giant mind that could grasp a world, and hold it till he had measured the extent of its orbit ; and yet he was so impressed with his own ignorance, that he said he was but a child gathering pebbles on the shore of the ocean. And if he were a child, what are we ?

But it will be asked, What has all this to do with Entomology ? And truly I must plead guilty to having wandered from it, as in a fine country one is often tempted, by the beauty of a prospect or the elegance of a flower, to turn aside from the straight path. Yet, though this paper may not be very closely connected with Entomology, and that science may hold a high place in our esteem, we should not forget that insects form but a part of a whole system, and that the other parts are worthy of some attention. For if attention be exclusively confined to one object, one portion only of the mind being employed, the other faculties remain idle, and the individual will be, in fact, an ignorant man. To its Creator, a world may not be of more importance than an insect, and the one was as easily formed as the other ; yet between the two there is no chasm, no gap left to create a marked division, or to give us cause to prefer one object at the expense of another. The gradations of nature's work are so gentle and minute, that every class of mind may find its appropriate employment ;—and the distribution of mental qualities is as varied as that of the material world. It is pleasing also to observe, that he who has merely the power to note the outward appearances of nature, is happier if he use that power, than if he allow it to remain idle. For it is wisely ordered, that in proportion to a man's powers, mental or physical, and in proportion to the exercise they receive, is his feeling of happiness. How great then are the pleasures of the natural philosopher, he who can inquire into

the causes of all he sees ; of the moral philosopher, who can investigate the nature of mind, and its adaptation to the external world ; and of the poet, who unites the powers of each, and communes with the unseen Spirit of the universe !

But, while to every well constituted mind the contemplation of genius and the investigation of natural phenomena are highly pleasing ; while we hold converse with the spirits of such men as Shakspeare, Milton, Burns, and others, and feel that they are indeed the friends of man ; we should not forget that, unhappily for mankind, the influence of such minds has been felt to a very limited extent, and that intellect of no mean order, has degraded itself by lending its power to carry out the very lowest qualities of our nature. Hence has arisen crime of all sorts and degrees ; above all, that wholesale destruction by man of his brethren, known by the name of war. It is a melancholy fact, that while the works of genius have been neglected, military glory has held, and still holds, the highest place in men's estimation, and a love of it is studiously cultivated.

How many thousand victims have been offered up on the altar of ambition ; and what an immensity of misery has the lust of power caused ! Yet it is some consolation to know, that this system, from the nature of things, is also advancing towards its end ; and to reflect, that as the progress of knowledge causes men to think, they will be less easily induced to believe that shedding blood and getting glory are synonymous. They will learn that there is no true glory but what is accompanied by happiness. Of this, those who have profited by the lavish waste of human life are well convinced, and hence have endeavoured to prevent men from becoming acquainted with their true condition. As well might they command the winds to be hushed, or the waves to be still ;—they could as easily counteract one law of nature as another. The course of truth is also onward.

But I still wander on ; and though tempted to proceed, will rest here. While to the naturalist I ought, perhaps, to offer some apology for the intrusion of this paper on his notice, I would, to him who is not a naturalist, commend the study of natural history, as affording an inexhaustible fund of mental gratification ; and as an incentive to perseverance, would have him reflect, that, while deriving from it pleasure to himself,

he is at the same time hastening the development of general knowledge, and the universal happiness of the human race.

“ Then let us pray that come it may,
As come *it will* for a' that ;
That sense and worth o'er a' the earth,
Shall bear the gree and a' that.

“ For a' that, and a' that,
It's coming yet for a' that,
That man to man the warld o'er,
Shall brothers be for a' that.”

15th August, 1837.

J. W. D.



ART. VI.—*A recently discovered Chapter of the Wanderings and Ponderings of an Insect-Hunter.*

MAN, in the plenitude of his wisdom, has hit on a contrivance by which one horse may be made to draw two gigs, and the happy combination is yclept a four-wheeled chaise. It was a bright sunny morning in August, when a carriage of this description issued from that hostelry in the little town of Rhaiadr-y-Gowy, which is usually known as the Lion, and is decorated with a painting, purporting to be a portraiture of some sanguinary individual of that species. The animal which gave progressive motion to the vehicle in question was a sleek, well-fed, brown mare: she received, with a playful laying back of the ears, a graceful arching of the neck, and a quiet smile of acknowledgment, two or three smart sounding stripes, which were intended to give effect to the start, at the same time putting herself into a somewhat imposing trotting attitude, and stepping out in good earnest; while the agitated double body emitted a series of croaking sounds in rapid succession, for all the world like a steam-engine with the croup. These sounds proceeded from a swivel, on which the fore part of the vehicle turned, and they kept time with admirable precision to the regular step of the sleek brown mare. The anterior gig was furnished with a leathern apron; this appendage was neatly furled, and secured to the dashing-board by two ornamental perpendicular leathern straps. From between the apron so furled, and the dashing-board, rose a forest of the fronds of various species of ferns, the roots of which were concealed by the furled apron aforesaid.

The vehicle contained three passengers, two in the anterior, one in the posterior gig, three carpet-bags, three Mackintoshes, a dog-stick, a trowel, and an insect-net. There was visible on the physiognomies of the three passengers, the traces of that dauntless and invincible energy which loudly proclaimed that the enterprise in which three such individuals were associated was one of no ordinary interest.

As the inhabitants of Rhaiadr-y-Gowy gazed in speechless admiration, the vehicle turned briskly up the road towards Llangurig, until surmounting the easy ascent from the town, the driver sharply reined in the sleek brown mare, and an individual might then be seen descending from the anterior, and another

from the posterior gig. The first of these gathered a waving frond of fern from the mountain side, and fixed it lightly in his beaver, allowing it to float freely on the mountain breeze; he then drew the insect-net carefully from its retreat, and threw it into the hollow of his arm: his companion ornamented his beaver with oak, and the two pursued their journey for a while on foot; using the vehicle as an occasional resting-place for themselves, and a constant receptacle for ferns and flowers gathered by the way.

The country round Rhaiadr-y-Gowy is of the finest boldest character of wild beauty. The roads leading towards Bualt, Cwm Elan, and Llangurig, and also the old Aberystwith road, are alike in character, though different in detail. The road, to Llangurig is admirably cut; it follows the course of Wye, and though passing among mountains tumultuously upheaved, it has no single ascent of any importance. The rocky overhanging brows of the mountains, their wooded bases, the luxuriant forestry of the banks of Wye, and the fast flow of its waters over a stony bed, rendering it a continued rapid, all combine to make this road from Rhaiadr highly interesting to the traveller; but as we approached Llangurig the country stretches out into vast and dreary mountains, that afford very little to catch the eye of the painter, the tourist, or the naturalist. Llangurig is an odd collection, of a church and half a dozen houses, all apparently built in the year one, and all equally astonished at finding themselves suddenly on a Macadamized mail-coach road,—an event which has lately taken place, and caused a mighty increment of horses, hostlers, and stabling. Wye here flows over a loose shingle; its waters are clear as crystal, and abound with small fish, which swim about in shoals of myriads, and are much in favour with the jack-herns, who stalk about in the various little bays and tributary waters, and seem quite at home, and if disturbed rise with reluctance on heavy flapping wings, and seldom fly far.

Leaving Llangurig the road gradually winds up between the vast chain of Cwm Toidder mountains on the left, and the Plinlimmon range on the right. These mountains possess a fine undulating outline, continually varying; they are clothed with a sour rushy herbage to their summit, and feed an immense number of small half-starved looking sheep and black cattle: they have a black, dreary, desolate and inhospitable look about them.

The kites were for ever wheeling over them, shaping their course with their elegantly-forked tails ; and buzzards were continually heard mewng above us. One moor-buzzard, of whitest head, swept across the mountain ; sparrow-hawks and kestrels were abundant wherever the vast waste had, by the way-side, reluctantly submitted to any attempt at cultivation. The day was hot, and the rapid *Aglaia* continually winged by us and away up the mountain ; it occurred principally where an occasional tract was partially clothed with fern, *Pteris aquilina*, of which plant it appears particularly fond. The ubiquitous *Alexis* flitted along the road, and *Tithonus* fluttered round every flower. I have before remarked the abundance of flowers in Wales, and even in this dreary region every acre of soil that had been turned up by the ploughshare produced an abundant garden of the gayest flowers, and afforded a most pleasing contrast to the monotonous face of nature all around us.

From Llangurig the road rises by a gradual ascent to the Plinlimmon Inn, a distance of eight or nine miles ; it has here reached its highest point : the two chains of mountains approximate, and the road passes between them. The view which opens beyond, has a similar monotonous and dreary grandeur : mountain is piled on mountain in every direction, and all possess the same undulating outline, and the same smooth, treeless verdure, until, at a turn in the road, Ponterwydd, with its three houses, its mill, its two bridges and solitary hostelry, appeared before us. Here we were right glad to make a halt ; as I believe does every traveller, whether on foot or horseback, or in a carriage. It is like an oasis in a desert. The house was full to overflowing ; it was crammed with travellers of all sorts and sizes ; the stables were full of horses and hostlers, and coachmen and postboys : the coach-house was inhabited by a most choice variety of vehicles, besides a cast of hawks, *viz.* kites and buzzards, which mewed incessantly, and which made very free with the various implements of locomotion.—*Extract from Note-book.* “Potatos at Ponterwydd were nasty green poisonous-looking bulbs, in size and colour more like the berries than the roots of the plant ; they were served three or four hundred in a dish : their taste was not disagreeable.”

Brightly rose the sun over the mountain tops, each casting its huge shadow on another ; here and there a mountain was half darkened by its own projection. Grand, but desolate is

such a scene. The sound of a scythe, plied by a solitary being with that jerk so peculiarly Welsh, echoed from hill to hill: the swarth was nothing but the harsh and stunted rush, valueless except for litter. Occasionally in the more sheltered situations a few small corn-fields were clustered around some miserable sheds, and waved their still green corn; but the thin, backward, and weather-beaten crops were rather a melancholy than a pleasing sight; they seemed fully to participate in the dreary desolation which reigned around.

It is in this situation, in the bosom of this very desolation, that there exists scenery as lovely, as unspeakably romantic, as man ever beheld, or as his warmest imagination can picture. It is here that our longings for the beautiful are satisfied! It is here that the spirit drinks to repletion as nature's glorious fount! It is here that wood, rock, and water are thrown together in endless variety, in beauteous disorder, in boundless profusion.

The desolate country I have attempted to describe is intersected by numerous mountain streams: of these the principal are the Rheidiol, the Mynach, and the Ystwith. These rivers, instead of flowing quietly through an open country, are in this district concealed in chasms which intersect the mountains in various directions. Now it will require the judgment of a far better instructed geologist than the Insect-Hunter, to say whether the rivers have, in the lapse of ages, by the excessive rapidity of their course, worn for themselves the chasms through which they now flow, or whether, at some distant period, the earth has been convulsed by subterraneous agency, its surface cloven, and thus those chasms created of which the rivers now avail themselves. The evidence of fissure is said to be quite indisputable, and I believe it will be difficult to account for the remarkable appearances at Ponterwydd and the Devil's Bridge, by the present action of the water. At Ponterwydd in particular it will be seen that the Rheidiol has neither chosen the most direct nor the most easy course, but has found a way through a solid rock, of very considerable height: it first flows towards the Inn, and then turns at a right angle, still through the rock, the opposite and perpendicular walls of which nearly correspond: it then arrives at a spot which it might have reached from the bridges with a tenth part of the difficulties which it has chosen to encounter. Wherever the rock is hard

and compact, we find the chasm narrow, and its walls nearly perpendicular: where the soil is composed partially of rock and partially of softer materials, the latter have yielded to the action of the water, and have crumbled away by degrees, falling into the stream; while the more solid rocks still stand boldly in their places, or have fallen from time to time into the torrent, damming up its tumultuous waters, and compelling it to take some fresh leap, or turning its course for a space in some new direction. In these situations we frequently observed the finest forest trees firmly rooted in the clefts of the rock, and stretching their arms over the roaring waters. Again, in other parts, the soil has been of a still more yielding quality, and the crumbling has been a rapid and continual operation, insomuch that the chasm has widened into a considerable ravine, the banks of which are less abrupt, and are entirely covered with a shrubby growth of forestry, which seldom rises even to a middle height before the soil is loosened about the root, and the tree pines away, or slides by degrees nearer and nearer to the water, until some great flood wholly uproots it, drives it headlong over the rocky river-bed, and perhaps carries it out to sea, or lands it afar off, amid corn-fields and gardens.

Immediately before the windows of the Ponterwydd Inn is one of the finest of these chasms, or rather more correctly speaking, is the finest part of that chasm which commences here, and winds among the mountains for several miles. The river Rheidiol, after passing under the two bridges at Ponterwydd, receives a very considerable mountain stream, which we had observed accompanying the road hither from near the Plinlimmon Inn: the united stream then rushes into the chasm above described. After it has made the angle already alluded to, another mountain stream leaps into it from a considerable height: we saw this at night after a very heavy thunder shower, and the cataract at such times is one of great beauty; beyond this the walls of the chasm are perpendicular but irregular; every little cleft affords rooting to some beautiful shrub or waving fern. Afterwards the walls decrease in height and beauty, then winding round a remarkable tongue of land, covered with the greenest turf, the chasm deepens, and its sides become sloping, though still excessively steep, and are entirely clothed with forestry. This character continues for miles, the bottom being solid rock, worn into the most grotesque and

wondrous forms by the constant and violent action of the water.

In the midst of this scenery is the Parson's Bridge, so called from a drunken parson having fallen in and been drowned there: the country people still show an indentation on the rock, which they assert he made in falling; the indentation, however, exhibits no symptom of such an origin, and perhaps the whole story is as fabulous as this portion of it. The bridge is composed of two very shaky timbers, and is accompanied by an equally shaky hand-rail. To a timorous person it would be dangerous in the extreme, as the rail would be no support in case of giddiness. The river below appears excessively deep, and its rocky sides are perfectly smooth and perpendicular.

A hundred yards or so below the Parson's Bridge, a beautiful mountain stream comes tumbling down the bank of the chasm from the very top, a distance of not less than two hundred feet. The scenery continues the same to the fall of Rheidiol. We passed in single file over the Parson's Bridge, and ascended the wooded bank of the chasm by a winding, but very steep path. Crossing a field, we entered a little churchyard, in which a huge Druidical-looking stone stands bolt upright: I believe the tourists have made out something marvellous about this, but I know not what. This church and churchyard are in the main road leading to the Devil's Bridge.

The Falls of Mynach.

The Cynophobist, the occupant of the posterior gig, an accidental fellow-traveller, the companion of a day, and fourthly and lastly, the Insect-Hunter, have turned into the coppice to the right of the road, have followed the well-beaten and stony track, and have reached that point which overlooks the falls of Mynach. These falls have been hackneyed by tourists; the subject is threadbare: every bombastic word in the English language has been used in describing them. Every wealthy and overfed invalid, ordered by his physician to Aberystwith to take in a fresh cargo of health, has raised his languid eyes to behold them. The road leading to them is so exquisitely macadamized that his Grace of Newcastle need not awake as he rolls by them on his way to the princely Hafod. The

Insect-Hunter has little relish for scenes labouring under these serious disadvantages: but, in this instance, the scribblers had done no injury, because they had given him no idea of what was now before him. The scene possessed none of the vastness, of the awfulness, of the horror, of the blackness of which so much has been written. The Insect-Hunter was disappointed in its size, and most agreeably so in its loveliness. The beauty of the scene before us was far beyond being expressed by words; I shall therefore merely describe its character. The chasm of the Mynach is of the kind which I have spoken of as being partially composed of solid rock: the interstices of the rock, in this instance, afforded firm hold for the most luxuriant and vigorous forest trees; these formed the great filling up of the picture before us: the centre was composed of rock, beautifully varied in colour, and mingled with an infinite diversity of vegetation. Near the top of the picture the Mynach appears to rush out of the solid rock, its prior course being entirely unseen; the first is not an unbroken fall, as it has often been described, but dashes over rough rocks, which break it up, as it were, into a dazzling whiteness: the fall is about six yards, the bottom part being hidden by the boughs of trees which stretch across the stream, and a series of which continue to intercept the view of the second fall. This is still more interrupted by rough points of rock than the first, and is equally whitened by the contact; it appears but partially through the boughs, and its entire height is about twenty yards. Immediately from its base issues a broad unbroken fall, of about six yards; this last, and the basin which receives it, are entirely unconcealed by any intervening boughs. From the rocky basin the river again falls, and this fourth and last fall is full forty yards; but, like the first and second, its descent is broken and somewhat scattered: the river is now entirely lost to view, the trees in the ravine intercepting a sight of its further progress. Rooted in the clefts and mingled with the rock, the oak, beech, birch, and mountain-ash were principally conspicuous; at the roots of these, roses, brambles, and a various undergrowth of vegetation, occupied every chink which a root could penetrate. Ferns particularly prevailed, and where the rock was wholly impenetrable, delicately green mosses and pictorial lichens spread themselves over its surface. All the undergrowth was constantly moistened with the spray of the

falls, and was now glittering in the rays of an unclouded sun, while gay little rainbows flickering and hovering over the scene, gave it a still additional brilliancy. Below the falls stood a blasted oak tree: the excessive whiteness of its weather-beaten bark, and the exquisitely delicate green of ferns and mosses which half covered it, were finely contrasted with the sombre foliage of the oaks in the back-ground, unlighted by the sun. Several large dragon-flies were sailing with untiring wing over the falls, pursuing their insect prey. The graceful *Paphia* occasionally floated across, and settled on the abundant blossoms of a bramble that hung suspended from the summit of a projecting rock beneath our feet.

Turning to the right, you look down the chasm in which flow the waters of Rheidiol and Mynach, united only a few hundred yards below your feet; and looking still further to the right, you see the noble and snowy fall of Rheidiol leaping from its own spacious forest-clad chasm. This fall is beautifully broken, and its volume of water is much greater than that of Mynach: it is heard also at a greater distance. After the Rheidiol and Mynach have united, a mountain stream, whose name the Insect-Hunter did not learn, came dancing into the chasm with a broken fall of eighty or ninety yards.

Returning from this truly beautiful spot, you again reach the road, and, continuing your onward course, suddenly find yourself on the Devil's Bridge. This bridge spans the chasm of the Mynach immediately before the series of falls already described: the arch is twenty-eight feet, but the chasm, six feet below, is spanned by a second arch of only twenty feet: this second is a gem of a bridge; below it the chasm narrows a few feet, and then its walls go perpendicularly down thirty-five or forty yards. The lower arch is wholly invisible from the upper, being exactly under it. The falls of Mynach are not seen from the bridge, the river making a sudden turn, and being, moreover, completely hidden by the trees; neither is it possible from any one point of view to see the falls and the bridges, although so frequently thus shown in engravings. The height, from the bridge to the bottom of the last fall, is stated to be one hundred and fifty yards, but I think this is more than the reality; I should estimate it to be between one hundred and ten and one hundred and twenty yards. The extreme singularity of the chasm or fissure through which

Mynach flows to its falls, and the daring character of the enterprise which united two such fearful precipices with a bridge, were likely to give rise, during the earlier ages of superstition, to tales of the supernatural. The earlier structure was therefore attributed by common consent to his satanic majesty, and is universally known by his name. The current legend on this matter I shall subjoin, as one of those pleasant records which illustrate the views of our forefathers. The upper bridge was built in 1753. While looking from this bridge into the chasm, a guide approached us, and conducted us to the river, both above and below the bridge; he also took us to the foot of each of the falls, and described their height, &c. The river under the bridges is comparatively still, and very deep. We had no means of fathoming the depth, but the sound of stones thrown in indicates a much greater depth than one would be led to expect from the rapidity of the river's course, and its generally small volume of water.—But now to the legend.

The Building of the Bridge.

Once on a time an old woman had a favourite black cow, that fed quietly all day and all night on the Cwm Toidder mountains, and came home every morning and every evening to her mistress to be milked. Now it happened one evening that the cow came not home; so the old woman was much troubled, and she waited and waited, but no cow came. Seeing the cow would not come home of herself, the old lady went out to fetch her, and walked up the mountain and down the mountain, till she came to the place where Mynach flows between two high rocks, and there she saw her cow on the other side of the river. Thereupon she set up a loud lamentation and howling, for she knew that the cow could not come to her, and that she could not go to the cow. There was no way of crossing the river, and it was a day's journey to go round about. In this strait the devil appeared to her. "So! so!" says the devil, "you've lost your cow, old lady, have you? Well, never mind, I'll build you a bridge over the river, and you shall go across it and fetch your cow, if you like." "Thankee, sir," said the old woman; "thankee kindly, sir! I'll be much obliged to you if you will;" and she curtsied very

low, and made obeisance with great humility. "To be sure I will," says the devil, "to be sure I will;" and he cast a look at her out of the corner of his eye—"to be sure I will, but the cow's worth something, I must make a bargain for toll—keep that dog quiet, can't you!" Now the devil said this about the dog, because the old woman had a little rough-haired cur dog, that bristled up his mane, and kept on growling and grumbling at him. "Harkee, old girl! if I build you a bridge, I'll have the first that crosses it.—Is it a bargain?" The old woman was sore perplexed when she heard this; if she went over for the cow, she knew very well she had sold herself to the devil; and if the cow came to her, then she lost her cow; but a lucky thought came to her, that she might save both herself and the cow: at any rate she would try. "Bridge or no bridge?" said the devil; "Be quick, old girl! Bridge or no bridge?" "Build the bridge, sir, if you please," said the old woman; and again she made a very respectful obeisance. "Ay, ay!" said the devil, "it's very easy to say, Build the bridge; but do you agree to the toll?" "Yes, sure, sir," replied the woman; and with that the devil put both his fore-fingers into his mouth, and gave such a shrill whistle that the mountains, woods and rocks rang again; the hawks and owls left their hiding places in the rocks, and flew about, not knowing where they went; and one struck another in its flight, and both fell together into the abyss, and were carried away by the rushing waters: and trees tossed and waved their branches, though there was not a breath of air. But there was the bridge, sure enough, and the devil was sitting on the very middle of it, and rocking himself to and fro, and grinning pleasantly with delight: and the old woman shook like an aspen leaf; but she took a crust of bread from her pocket, and showed it to her dog, and threw it over the bridge; and the dog ran bounding over for the bread, and passed the devil where he sat on the middle. "Whip the dog!" said the devil, for he was cut to the quick; he had been outwitted by an old woman; he did not want the dog, so he did not try to stop him; but the moment the dog had passed him, he knew that the bridge was crossed, and the spell was broken: he was very angry and very mortified, but he was a gentleman, and did not attempt to hurt the old woman, for he knew his bargain only extended to the first that crossed; so he arose and doffed his cap

politely to the old woman (for the keen respect the keen); and having done so, he hung his tail, being much humbled, and walked off.^a

Hafod.

This summer seat of the Duke of Newcastle is four miles from the Devil's Bridge; it is tastily situated near the chasm of the Ystwith, the back of the chasm opposite the house being very high, and beautifully wooded. Nature has done much more for this pleasant place than is generally admitted; it is a complete farce to attribute all its beauties to the hand of man, as is usually done by the eulogists of Hafod: it is true, the original owner planted a great many trees, and laid out many winding roads and paths, and built an odd looking white house; but nature gave him the glittering Ystwith, the wooded chasm, and that wild irregularity of surface which constitutes the chief beauty of all romantic scenery. The day was excessively hot; those were indeed melting moments which we spent in marching to Hafod; and it was most delightful to lie at full length beneath the huge sycamores in front of the house, and rest awhile from our toilsome walk. These sycamores have been planted in fours, each four being so close together that they have actually united, and appear as single trees. The effect is very good; the prodigious head borne by each group is quite imposing. A like good taste has pervaded the other operations of planting; the fine foliage of the copper beech is beautifully exhibited by these trees being placed singly, and in front of masses of foliage tinted with the most opposite hues. After thoroughly satisfying ourselves with Hafod, we returned by the Devil's Bridge to Pontnewydd; and right gladly did we welcome its bridges, its rivers, its mill, its chasm, its waterfalls, its lone and treeless hostelry, its mutton, and its blue potatoes.

^a Mr. Hemingway, author of "A Panorama of North Wales," appends to his account of this transaction the following excellent remark: "It must be said that Satan behaved very honourably in this case, for he kept his word,—which is more than *men* always do."

ART. VII.—*Note on the Economy of Hedychrum.* By W. C. HEWITSON.

DEAR SIR,—I feel unwilling that the following particulars should remain unknown; both because I hope they are of sufficient interest to obtain a place in your Magazine, and that they may lead to further inquiry. My knowledge of the Hymenoptera is much too scanty to furnish the names of the two insects, the subject of the following notice. I shall, therefore, feel obliged by your supplying the deficiency; and should either of them be a desideratum to the cabinet of the Club, please to admit it.

Mr. G. Waring, of Bristol, had for years been much interested by observing the numerous insect inhabitants of an arbour in his garden, in which interest I had, last year, the pleasure of partaking. Its sides are formed of hazel, which is everywhere perforated by the larvæ of *Obrium minutum*. The beetle is in the greatest profusion. The roof, which is thatched with straw, swarms like a large bee-hive with one of the insects I now send you (No. 1). Every straw, and they were many, which I examined in the spring (I do not think there was one exception), contained several of the larvæ; some as many as eleven or twelve; each in a separate cell, and carefully separated from its next neighbour by a pithy substance; all with their heads towards the open end.

At the end of June, when the insects were first beginning to come out, I cut open a number of the straws, and in each found individuals which had come to maturity before their turn, and were no doubt anxiously waiting the egress of those which preceded them. I expected to find that they would, in such cases, liberate themselves by gnawing a passage through the straw, but this they had not attempted.

Some of the straws, perhaps about one in ten, contained one, or rarely two, of the Chrysis-like (No. 2) insect, placed indiscriminately amongst the others.

In the beginning of August, when the former insect was abroad in thousands (the other being also very numerous), I again opened several of the straws, in and out of which they were continually passing, and found many of them partly filled with a sweet glutinous substance.

I will here leave the subject, and shall be very glad to see it followed by your own remarks. Mr. Hope, to whom I showed the insects at the Meeting of the British Association last year, was of opinion that they were neither of them parasitical upon the other, but upon a third insect

Yours truly,

WILLIAM C. HEWITSON.

Derby, August, 1837.

The insect No. 1 is *Psen caliginosus* of Mr. Stephens's catalogue; we cannot exactly say what it is of Mr. Shuckard's "*fossores*," as he had divided *Psen* into two genera, from both of which this little insect is excluded by the structure of its wings. The insect No. 2 is *Hedychrum bidentulum*. See Entomological Magazine, Vol. IV. p. 175.

The whole order of *Chrysidites*, to which *Hedychrum* belongs, are in a manner parasitical, *i.e.* they avail themselves of the nidus of another insect, for the purpose of depositing their egg, which, thenceforward, is entrusted solely to the care of its foster parents. The genus *Chrysis* lives on the most friendly terms with various species of *Osmia*, *Odynerus*, &c. entering their habitations with perfect freedom, and without the least fear of molestation: we have even seen the common *Epipone spinipes* wait quietly at the entrance of its tunnel until a brilliant *Chrysis* ascended the tunnel, after having paid a visit to the interior regions; and when the *Chrysis* was fairly emerged, we have seen the *Epipone* caress it and fondle it, touching it lightly and affectionately with its antennæ and tongue. From this it is to be inferred, that the connexion between the families is entirely of a friendly nature, and wholly devoid of that cruel ferocity which characterizes the attack of Ichneumons on the larvæ of Lepidoptera. With the excellent opportunity of observation possessed by Mr. Hewitson, we regret he has not himself ascertained with more precision the connexion between the two distinct genera which he has obligingly transmitted to us.

EDITOR.

ART. VIII. — *Proceedings of the Entomological Society of London.*

(Continued from p. 61.)

SITTING OF THE 3D OF JULY, 1837.

J. F. STEPHENS, Esq. President, in the Chair.

AFTER the necessary routine of business had been gone through, it was moved by Mr. CHILDREN, "That under present circumstances, and especially out of regard to the Princess Victoria, now Queen of England, the Patroness of the Society, all further business whatsoever be postponed till after the funeral of his late Majesty the King;" which having been seconded by the Rev. F. W. HOPE, was carried in silence, and the Meeting adjourned to the next in due course.

SITTING OF THE 7TH OF AUGUST, 1837.

J. F. STEPHENS, Esq. President, in the Chair.

Mr. BOWERBANK exhibited some specimens of cork, which had been greatly injured by a species of *Termes*. The vessel in which the cork was brought over to the docks, had previously contained a cargo of hoofs, horns, and bones, from which they were produced. A great deal of injury had also been done to the mast of the ship, which would have to be replaced, and it was even feared that the vessel itself was destroyed.

The insects had already committed very extensive ravages, likewise, in the localities of Saffron-hill and Whitechapel, where they attacked the posts in all directions, and were also very common in Wapping. He suggested for their destruction the essential oil of almonds, the vapour of which would probably be effective.

Mr. BAINBRIDGE exhibited a small species of Moth, which had been very injurious to apple trees in the neighbourhood of Lambeth, in many cases the leaves having been destroyed altogether. The cocoons are formed on the leaves, which soon become covered with webs so strong, that in many cases, the young leaves cannot burst through; but the larger leaves of apple trees escape, and pear trees are but rarely attacked.

Mr. WESTWOOD detailed an entomological visit lately made to Paris; and, amongst other subjects, introduced to notice a disease with which silkworms have been very extensively attacked in France, called muscadine. The malady is a parasite, which gradually envelopes the whole body in a white fungus, and destroys the worm; the mischief being produced by the explosion of a fungus, which is taken in by the spiracles and pores of the skin, as has been proved by M. Audouin, who has inoculated several worms and beetles with it.

There was also a specimen of *Scolytus pygmaeus*, an insect which attacks the oak, and has been latterly so destructive that 80,000 trees in the Bois de Vincennes have been cut down through its attacks.

Mr. Westwood made some remarks on the progress of entomology in France, which he stated to be in advance of this country; there being more working cultivators, and the collection at the Jardin des Plantes being superior to that at the British Museum; M. Audouin had lately delivered a course of fifty lectures on entomology.

Mr. Westwood exhibited the living larva of the Ant-lion, *Myrmeleon formica-leo*. This curious little creature being placed in a receptacle containing sand, instantly buried itself in the sand, leaving only its mandibles visible, and performed the operation of throwing up the sand with its head, as described in "the Grammar of Entomology" and elsewhere.

SITTING OF THE 4TH OF SEPTEMBER, 1837.

J. F. STEPHENS, Esq. President, in the Chair.

On the question of the confirmation of the minutes of the last meeting being put, Mr. INGPEN wished to make a correction in the record of what passed at the last meeting, when a lepidopterous insect was exhibited, with an excrescence double the length of the head, supposed to be of the nature of a fungus, growing out of one of the eyes. On further examination, the supposed fungus had turned out to be the stamen of an orchideous plant accidentally stuck in the eye.

Several donations of books were announced, new Members balloted in, &c.

A paper, accompanied by a drawing, was presented, descriptive of *Epomidiopteron Julii*, an hymenopterous insect in the British

Museum, and the only male specimen known, by M. de Romand, original Member of the Entomological Society of France, who was present. The paper being written in French, a translation was read by Mr. SHUCKARD.

A further portion of a paper, addressed to Mr. KIRBY, being a miscellaneous detail concerning various Foreign insects, was read.

Mr. BOWERBANK exhibited four living specimens of an African *Cerambyx*, reared in the London Docks. They were imported in the larva state in wood from Fernando Po. Specimens of the wood, with the living larvæ, were exhibited by Mr. Bowerbank, who stated that the perfect insects had been in his possession two or three weeks, fed only with a little water daily. They were in fine condition, and very lively. He presented them to the Society.

Mr. ASHTON wished to mention a remedy he had found successful for removing the oil or grease that so frequently disfigured the cabinet.—Apply the purest spirit of turpentine to the grease spot, and afterwards some powdered pipe-clay, upon the removal of which in a day or two, the grease would be found to have disappeared; and nothing but a very faint mark of the turpentine remain. He was aware this remedy had been used for the cure of the grease in the insects themselves, but thought its application to the removal of grease spots on the paper was new. Mr. Bowerbank said it was the old remedy employed by collectors to remove grease and dirt from valuable prints, &c. with the addition of spirits of wine being several times lightly painted over the parts, which would completely remove the mark left by the turpentine. Mr. Shuckard stated, from M. de Romand, that a lye made from charcoal was perfectly effectual. Mr. Newman doubted the success of any method that had yet been discovered, as he had invariably found the grease to return after a while, being removed only from the surface, and the cork of a cabinet acting as a reservoir of the exudation.

ART. IX.—*Proceedings of the Entomological Society of France.*

SITTING OF THE 7TH OF SEPTEMBER, 1836.

M. DUPONCHEL in the Chair.

The following list of donations was announced:—

M. MARINO DE SANS. Inauguration de l'Académie des Sciences naturelles et des Arts de Barcelonne.

M. A. VILLA. Sulla pioggia animale de Castelvechio, notizie ulteriori.

M. MEQUIGNON. Supplement à l'Histoire naturelle des Lépidoptères. Par M. Duponchel. 6^e livraison.

The ACADEMY. Verhandlungen der k. k. Landwirthschafts-Gesellschaft in Wien.

M. VICTOR DE MOTCHOULSKI. Notice sur le genre Bryaxis.

M. H. LUCAS. Description d'une Atte nouvelle.

The ROYAL SOCIETY OF LONDON. Nos. 17 and 18 of the Proceedings of that Society.

The ACADEMY OF SCIENCE AT BERLIN. Compte rendu des travaux de l'Académie des Sciences de Berlin. January to April, 1836.

The ACADEMY. Abhandlungen der Koeniglichen Academie der Wissenschaften zu Berlin. 2 vols. 1832 and 1834.

M. GERVAIS communicated to the Society that he had procured in abundance, in hot-houses of the Museum, a species of *Iulus*, living in the tan, which he believed to be undescribed, and proposed to name *Iulus lucifugus*. The species concealed itself entirely during the day, either in the tan or the mould, and only appeared at night. He thus described it:—somewhat less than *I. terrestris*; the body, more particularly its anterior portion, thicker than in that species; colour whitish, with the dorsal vessel very apparent; the lateral portion of each segment with a comma-shaped red spot, into which the lateral pores open; eyes very black; the hook of the penultimate segment obtuse, and not extending beyond the anus. The lateral pores secrete a reddish liquid, which smells precisely like nitrous acid. M. Gervais has endeavoured to ascertain the nature of this liquid, and he has found that it is not an alkali, nor yet an acid, which might have been imagined from its odour. He has preserved

specimens of this *Iulus* for many weeks, in a vessel exposed to the light, and has observed that they invariably conceal themselves under decayed vegetables or in the tan in the day, and only mount to the surface and move about by night.

A notice of *Apate elongata* and *A. substriata*, by M. HERMANN ASSMUSS, was read.

A notice of a new species of *Polydesmus*, by M. GERVAIS, was read.

A notice of numerous Lepidoptera from the south of Spain, by M. RAMBUR, was read.

M. ARNAUD, of Chambéry in Savoy, having been proposed by M. Feisthamel, was admitted a Member of the Society.

SITTING OF THE 6TH OF OCTOBER, 1836.

M. DUPONCHEL in the Chair.

The following donation was announced:—

M. DUPONCHEL. Supplément à l'Histoire naturelle des Lépidoptères. Par M. Duponchel. Tome III., 1^{re} livraison.

A monograph of the genus *Oxymecha*, by M. EMILE BLANCHARD, was read.

A description of a new *Tineite*, by M. BARTHÉLEMY, was read.

A description of a new species of *Ricinus*, by M. BARTHÉLEMY, was read.

An account of an Entomological Tour in Andalusia, by M. GRASLIN, was read.

M. GIRALDES having been proposed by M. Audinet Ser-ville, was admitted a Member of the Society.

SITTING OF THE 2D OF NOVEMBER, 1836.

M. DUPONCHEL in the Chair.

The following donations were announced:—

The IMPERIAL SOCIETY OF NATURALISTS AT MOSCOW. The Fourth Volume of that Society's Transactions, also the Eleventh Volume of the Bulletins of that Society.

M. MEQUIGNON. Généra des Insectes, par MM. Guerin et Percheron. 5^{me} livraison.

M. LEON DUFOUR. Memoir of an Excursion on the Pyrenees.

A letter from M. GERMAR was read, informing the Society

that he was engaged on Fossil Insects, and soliciting the Society to insert in the record of its Proceedings an invitation to entomologists to transmit any facts or specimens connected with the subject.

A letter was read from M. ZOUBKOFF, principal Secretary to the Imperial Society of Naturalists at Moscow, soliciting the Society to announce in the record of its Proceedings, that persons desirous of communicating with the Imperial Society, must do so through the Russian Ambassador.

A letter was read from M. le Baron WALCKENAER, in reference to two papers published in the previous Number of the *Annales*; one by M. LUCAS, on a new species of *Lycosa*; the other by M. LEON DUFOUR, on the genus *Filistrata*: the object of the letter was to prove that the *Lycosa erythrognata* of Lucas was identical with *Lycosa raptor* of Walckenaer; also to offer some observations on the affinities of the genus *Filistrata*.

M. DUPONCHEL read a notice sent to him to M. de Villiers of Chartres, on the subject of a scientific meeting which had taken place at Blois, during last September. In this communication M. de Villiers expressed the regret he experienced at not meeting with a single Member of the Entomological Society; he also stated that he had proposed the plan of naturalists exerting themselves in the particular district, and the particular branch of study, best suited to them; keeping a record of the same, and submitting these various records to the ensuing scientific Meeting, which should print, publish, and circulate them. The proposition was acceded to.

M. PIERRET informed the Meeting that *Papilio Feisthamelei* had been found in the environs of Perpignan, in company with *Podalirius*. This was the first notice of *P. Feisthamelei* having occurred in the French Pyrenees.

M. PIERRET also informed the Meeting of the loss the Society had sustained by the death of M. ALEXANDRE DELAMONTAIGNE.

SITING OF THE 16TH OF NOVEMBER, 1836.

M. DUPONCHEL in the Chair.

The following donations were announced:—

M. DUPONCHEL. Complément de l'Histoire naturelle des Lépidoptères. Par M, Duponchel. Tome I. 20^{me} livraison.

M. le COMTE DE LOCHES. Memoire sur le vol des Insectes, *also* Essai sur cette question, Quels sont les moyens les plus convenables pour propager la culture de l'Abeille dans les pays montueux tels que la Savoie ?

M. GUERIN. Monographie du genre *Limnadia*, *also* Monographie du nouveau genre *Calognatha*, *also* Notice sur le genre *Fulgora*.

THE ROYAL SOCIETY OF LONDON. The First Part of the Philosophical Transactions of that Society.

A letter from M. LEFEBVRE was read, resigning his office of Secretary to the Society, on account of his removal from Paris. After the letter was read, the Society deliberated on the expediency of proceeding immediately to the election of a new Secretary, or of deferring the matter to the next Sitting: the latter was agreed to. It was further resolved, on the proposition of the President, that the Assistant Secretary should write to M. Lefebvre, expressing to him the regret felt by the Society on account of his resignation; and that both letters should be printed in the record of the Society's Transactions.

M. AUDOUIN communicated to the Society some observations made by M. Payon, on the existence of small crustaceous animals, of the order *Branchiopoda*, in the salt-water pits in the neighbourhood of Marseilles. When the water, by constant evaporation, becomes saturated with salt, these little animals speedily die; and rising from the bottom, where they continued while alive, float on the surface, their bodies emitting a smell of violets, and tinging the water with a red colour, which indicates the approach of the salt harvest. Linnæus named this little insect *Cancer salinus*, from the circumstance of its having been first found by Schlosser in this situation. M. Audouin also stated that he had been consulted by the municipal authorities at Versailles in reference to multitudes of small insects which infested the flour in the granaries of that town; he found them to consist principally of the small coleopterous insect called by Linnæus *Ptinus fur*. Its presence in such immense quantities in flour was a fact that M. Audouin considered entirely new to entomologists, who had previously invariably spoken of it as attacking collections of various kinds, especially those containing skins and other animal substances. It was on account of this propensity, that De Geer called this insect *Vrillette carnissière*. It is doubtless

more in the state of larva, than that of imago, that this insect attacks flour. M. Audouin has found in the sample submitted to him an immense number of these larvæ; they had made galleries in all directions, and many had formed for themselves little cells or cocoons of the agglutinated flour; but no single one was actually transformed within its cell, in which it was doubtless waiting the approach of spring. These larvæ are about five or six millemetres in length; white; the segments of their bodies soft, and covered with long bristly hairs; their head is somewhat corneous, and of a pale yellow colour, but the labrum and mandibles are brown. These larvæ, when disturbed, contract in the same manner as those of the Cockchafer and other lamellicorn Coleoptera; in other respects they somewhat resemble those larvæ, but can extend the body to a greater length, and they move much more readily on a smooth surface. It is only during the night that they burrow in the flour; during the day they are motionless. Together with these larvæ were many of the insects in the perfect state. Independently of those of *Ptinus fur*, M. Audouin found three minuter and totally different larvæ, which were evidently lepidopterous, and perhaps those of *Pyralis farinalis*; they were but four or five millemetres in length, and appeared to be very young. These larvæ will be attentively watched, and the result communicated to the Society, as well as further remarks on the metamorphosis of *Ptinus fur*.

The following papers were read:—

Description of a new species of *Procrustes*, by M. BARTHÉLEMY.

On the copulation of some Lepidopterous genera, by M. DONZEL.

General considerations on Entomology, by M. le COMTE DE LOCHES.

Memoir on the genus *Ravina*, by M. JULIEN DESJARDINS.

Memoir on a new insect from the Isle of Mauritius, by the same.

Memoir on a gall of the broom, and on the insect which inhabits it, by M. LEON DUFOUR.

Description of a new *Zygæna*, by M. PIERRET.

M. LECONTE of Havre, proposed by M. Boisduval; M. BADHAM of Glasgow, proposed by M. Buquet; and M. le COMTE DE LOCHES, proposed by M. Charles Chevalier, were severally admitted Members of the Society.

ART. X.—*Proceedings of the Entomological Club.*

SITTING OF THE 21ST OF SEPTEMBER, 1837.

Mr. NEWMAN in the Chair.

THE following donations were announced, and the thanks of the Club voted to the respective donors:—

Mr. W. C. HEWITSON, of Derby. Some specimens of hymenopterous insects, illustrative of a paper sent for publication in the *Entomological Magazine*.

Mr. W. IMESON, of Woodside near Sydney. A collection of insects of all classes, made by himself in that neighbourhood. Among these there were several hundred fine Coleoptera, many of them entirely new to entomology.

Mr. HENRY DOUBLEDAY, of Epping. A fine assortment of British Lepidoptera, collected by himself at Epping during the present summer, purposely for the Entomological Club. Also a series of *Sympetrum flavicolatum*. Mr. Doubleday mentions the occurrence of this formerly rare species of *Libellulidæ* in the utmost profusion, during the present summer, in a part of Epping forest where he has collected for a number of years without observing it.

Mr. ROBERT FOSTER, of London. Several thousand insects, collected by himself in the northern part of the United States of North America, principally at Trenton Falls, about 200 miles north of New York. This collection was on the table; and a similarity between the species and those of Britain was observable. Mr. Stephens gave it as his opinion that the species were not identical, comparing the individuals with British ones, and pointing out trivial characters of difference in various butterflies, as *Phloxas*, *Atalanta*, *Antiopa*, &c. In the Coleoptera the same near similarity existed; in *Cicindela*, and the following genera of *Carabites*, it would require the most careful descriptive definition to distinguish the species from those of common occurrence in Britain:—*Carabus*, *Brachinus*, *Chlenius*, *Pogonus*, *Calathus*, *Anchomenus*, *Agonum*, *Pœcillus*, *Argutor Omaseus*, *Ophonus*, *Steropus*, *Platysma*, *Pterostichus*, *Amara*, *Harpalus*, *Stenolophus*, *Trechus*, *Epaphius*, *Peryphus*, and *Philothus*.

Mr. SAMUEL ALEXANDER BURLINGHAM, of Worcester. A second donation of twenty pair of *Clostera reclusa*. Upwards

of three hundred specimens of British Lepidoptera, collected by himself, at Worcester, for the cabinet of the Entomological Club.

Mr. INGALL, of London. Various British Lepidoptera.

Mr. BOWERBANK, of London. Some living specimens of a beautiful Cerambicid insect, reared from larvæ imported in timber from Fernando Po.

Mr. J. EVELEIGH, of Manchester. A beautiful series of *Macrodonia cervicornis*, a specimen of *Eniplocerus armillatus*, thirty pair of *Nyssia zonaria*, and a variety of British Lepidoptera.

BRACY CLARK, Esq. F.L.S., &c. of Regent's Park, having been at a previous sitting proposed by Mr. J. F. Christy, and seconded by Mr. Bennett, was balloted for, and unanimously elected an honorary corresponding Member of the Entomological Club.

M. FRANÇOIS JULES PICTET, of Geneva, having been at a previous meeting proposed by Mr. Newman, and seconded by Mr. Hoyer, was balloted for, and unanimously elected an honorary corresponding Member of the Entomological Club.

Mr. NEWMAN announced that Mr. Walker wished to resign his office of Secretary to the Entomological Club; Mr. Walker's resignation was accepted, and Mr. Bennett was unanimously elected the Secretary in his place.

Mr. DAVIS tendered his resignation of Membership in the Entomological Club, on the ground of his being about to leave England, and settle with his family at Adelaide in South Australia; he took leave of the Club with great regret, having spent some of the happiest hours of his life at its various Meetings; and it would afford him great pleasure, when in a distant country, to do every thing in his power to forward the objects for which the Club was associated, and to use his best exertions to add to its collection.

Mr. DAVIS's resignation was accepted, and he was at once admitted an honorary corresponding Member of the Club, the usual formula of the ballot being dispensed with.

WILLIAM CHRISTY, Esq. of London, was then proposed by Mr. Bowerbank, and seconded by Mr. Bennett, to fill the vacancy in the Club caused by the resignation of Mr. Davis; and was at once unanimously elected, the usual formula of the ballot being in this case also dispensed with.

THE

ENTOMOLOGICAL MAGAZINE.

JANUARY, 1838.

ART. XI.—*An Essay on the Stridulation of Insects.* By
M. GOUREAU.

[Extracted from the *Annales de la Société Entomologique de France.*]

NEARLY all insects are mute. Those which possess the power of producing sounds are distributed amongst the various orders, with the exception of Neuroptera, Diptera, and Aptera, which, as far as I am aware, contain no sound-producing insect inhabiting Europe.^a

The most remarkable sound-producing insects are, crickets, grasshoppers, locusts, and *Cicadae*. These little animals, throughout the summer, emit a sharp, monotonous, and wearisome sound, familiar to every one, and generally known by the name of song. Now, it has been agreed to designate by this word the noise produced in the larynx by the passage of air expelled from the lungs, and we must at once perceive that there is a wide difference between the mechanism by which the song of insects and that of other animals is effected; and since the former do not breathe by the mouth, we cannot, in strict correctness, give a name implying voice to sounds which they emit, except in those instances where such sounds are caused by the expulsion of air through the tracheæ. But if this noise result from the friction of sonorous membranes

^a The buzzing of insects is not the object of inquiry in this paper. As I am not aware that the correctness of the cause assigned for the production of this sound, in an article of the *Revue Entomologique*, Vol. III. p. 101, has been disputed, I have not thought it needful to speak of it here.

against each other, or is produced by any other mechanical cause, it is not a true voice, and should be designated by a new word, in order to distinguish, by different appellations, things which are in themselves distinct, and to prevent the possibility of confounding articulate sounds with those that are entirely mechanical. It is my intention, in this memoir, to show that insects have no true voice, and in lieu thereof are provided with musical instruments, by the use of which its place is sufficiently supplied. Instead of calling them song-insects, it will be better, after the example of the illustrious Latreille, to designate them as musicians. *Stridulation* appears to me a very suitable word by which to designate the sounds they produce. I shall employ it in this acceptation, but do not intend to discard entirely the terms *voice* and *song*, which are in general use, as these will frequently enable me to avoid tautology.

There have been many hypotheses invented to explain the production of the song of insects. Some authors have affirmed that it was generally caused by the friction of the elytra against each other; and this is in many instances correct; but the hypothesis was incomplete, inasmuch as it was not accompanied by an intimation of the way in which this friction produced stridulation, or a description of the musical instruments of such as were the subjects of observation. Others have attributed these sounds to the action of air included between the elytra, which, escaping when the insect rubs them against each other, rushes against the nervures by which they are divided into compartments, and causes them to vibrate and produce a sound; but this is not the fact. Other entomologists have thought that the noise results from certain specific internal organs. The structure of the *Cicadæ* seems to have furnished the origin of *this* hypothesis, which does not apply to all the other sound-producing insects. Lastly, a learned foreign entomologist^b has recently conjectured that the vocal organ of the locusts resides in the sub-alary cavities which these insects possess, and that the song of the crickets and grasshoppers is produced by the rapid emission of air through the posterior stigmata of the prothorax, which passes along the elytra, and causes a vibration of the sonorous membrane. But this idea

^b Vide the *Revue Entomologique*, Vol. I. p. 161.

is comprehended in one of the preceding hypotheses. The same entomologist attaches great importance to the rapid emission of air by the stigmata of the metathorax; for he attributes almost all the sounds produced by insects, and buzzing in particular, to this cause. But experiments which are not difficult to repeat,^c will convince every one that insects buzz when these stigmata are hermetically closed, and that locusts produce stridulation without the assistance of the subalary cavities.

I shall not enter into a detailed examination of any of these opinions, most of which have been entertained during times when imagination was consulted more frequently than observation, in accounting for natural phenomena. In our description of the musical instruments of insects they will be sufficiently refuted.

The celebrated Latreille has indicated the cause of the noise produced by the *Orthoptera*, in these words:^d—“ Sometimes they produce it by rubbing briskly the internal and more membranous portion of the wing-cases, which somewhat resembles a piece of talc or a mirror, against each other; and sometimes by a similar and alternate action of the posterior thighs on the elytra and wings, the thighs having the same effect as the bow of a violin.”

These expressions contain the true cause of the song of the *Orthoptera*. The object of the present memoir is to develop them, to apply them to each kind, to describe the musical instruments of the various species, and to clear up the uncertainties which at present exist on this subject.

CRICKETS (*Gryllus*, LATR.)

The field-cricket, (*Gryllus campestris*,) is very common in the province of Gex, where the warm and sandy soil is very favourable to its increase. The larva is produced from an egg of a dirty whitish colour, at the end of July, being about three millimetres in length, and two in diameter. The females are not very fruitful. One that I kept in a box during its life,

^c Vide the *Revue Entomologique*, Vol. III. p. 101.

^d Cuvier, *Règne Animal*, Vol. V. p. 180. In this and the following quotations, the second edition is referred to.

only laid four eggs. It is probable, however, that captivity and the want of suitable food had some influence, and that in a state of liberty it would have been more prolific. The young larvæ inhabit a little hole scooped in the soil. At the entrance of this they conceal themselves, and watch for their prey. At this period of their lives they are sometimes met with in the evening, during twilight, collected together in great numbers, and crossing roads and footways, leaping like toads. This is possibly in obedience to some instinct. However, it appears to me more likely that they have left their dwellings in consequence of their having been inundated by floods, and are in search of a drier district; for I believe they are generally thus seen after storms. The first time I saw such a congregation I took them for toads, and thought I was witness to one of those showers, the occurrence of which was discussed at the Academy of Sciences in the autumn of 1834. It does not seem to me impossible that inattentive observers may have fallen into a similar error, and that some of the recorded showers of toads may have no better foundation.

These young insects pass the winter in their holes, protected, generally, by a stone which covers them. As soon as they feel the warmth of spring they quit these hiding places, and construct others in a warm aspect, where they find the insects on which they feed, and here they take up their abode and undergo metamorphosis: here, too, is the scene of their loves, and it is here the females lay their eggs.

In the two first states, that is, under the form of larva and pupa, they are mute; but when they assume the adult state, and become perfect insects, they acquire the power of song. As soon as they have quitted the covering of the pupa, they are white, soft, and incapable of producing sounds; soon, however, their colour deepens, their elytra become firm and sonorous, and they stridulate. The male alone possesses the power of stridulation; he makes use of it to attract and please the female. Placing himself at the entrance of his habitation, he sings strongly and briskly, incessantly repeating his song, which is loud, sharp, short, and monotonous. When a female, attracted by his music, approaches, he advances towards her, touches her with his antennæ, and modifies his accents; his song becomes softer and less loud, and is interrupted by a short sharp sound, occurring at frequent intervals of equal length.

The crickets then take several little turns about the habitation of the male, from which they do not go far. He precedes his mate, walking with short steps, if I may be allowed the expression, *en rampant*.

Crickets, when at liberty, are very timid, and are not easily surprised whilst engaged in singing, or in the execution of the other functions of their lives. On the least noise, or at sight of a strange object, they are immediately silent and run into their holes; and one is surprised, in passing through a country abounding with these insects, to hear their songs cease as you advance. But if you confine a male and female in a box, they soon become familiar, and an opportunity is afforded of observing their amours and listening to their song. It is a good plan to shut up two males with one female; for the jealousy between the former makes them redouble their ardour. They at first keep at some distance, and call the female with loud songs; when they meet they fight, seizing each other with their strong jaws. Mostly one of them falls a victim, and is devoured. These insects can live a long time without food; which would seem likely to be the case with animals whose instinct leads them to lay in wait for, and not to pursue, their prey. They may frequently be observed passing their antennæ between their mandibles, pressing each joint slightly with their teeth; this is probably to clean them. They also frequently clean the velvety appendages of the abdomen, passing them between the spines of their hind legs.

In captivity, the manner in which they sing may be readily observed. The male cricket begins by stretching out his legs, placing his breast against the ground, at the same time slightly elevating the abdomen; in this attitude he raises his elytra and rubs them briskly against each other. The noise produced is louder and stronger in proportion to the rapidity of the motion and degree of pressure. To prove that the sound is the result of this movement, it is sufficient to cut off one of the elytra; we shall then see the cricket execute the stridulatory movement without producing any sound.

On attentively examining an elytron of one of these insects, it is found to consist of a thin, dry, transparent membrane, which produces a distinct sound on being rubbed. It is composed of two plane surfaces, comprising together a right angle, the edges of which are formed by four straight longitudinal

and parallel nervures. One of these surfaces is placed on the back of the insect, and may be called the back-cover (*couvredos*); the other passes along the side, and may be conveniently termed the side-cover (*couvre-flanc*). The back-cover is divided into numerous compartments by other (regularly-curved) nervures, forming two principal sets: the first of which is composed of four nervures or cords, and rests on the middle of another nervure, which I have named the bow (*l'archet*); the second is formed of three nervures which take their rise at a remarkable point of the internal border which I call the brush (*la brosse*). These two sets are separated by a nervure which touches at its lower extremity an oval space surrounded by another nervure. The ends of the elytra are reticulated. In order to have a good view of the bow, we must look at it with a magnifying glass from below; we shall then see a large nervure, thicker in the middle than at the extremities, running from the internal border towards the base of the elytron, spreading a little across on its return, and terminating towards the origin of the elytron. This nervure projects and is striated, or cut transversely like a file. Below its origin at the internal border the brush is seen, formed of a bundle of short stiff hairs, and above a space which is of a firmer consistence, and more transparent than the rest of the elytron, and somewhat triangular in form: to this I have given the name of treble-string (*la chanterelle*). Now if we imagine the two elytra crossed and rubbed against each other, we shall perceive that the bow of the upper passes over the treble-string of the lower one, and that the striæ rubbing against the border would excite vibrations there, which would be communicated to the whole of the elytra, and produce sounds. By a reciprocal action the bow vibrates itself, and causes the elytron to which it is attached to vibrate also; so that stridulation is the result of the simultaneous vibration of the two elytra. The use of the nervures that cross the elytra is obvious: they divide their surfaces into a great number of variously-formed compartments, which have each a particular vibration and a separate sound; the combination of all these little sounds produces the general sound or stridulation. Besides this use they strengthen the membrane of the elytron, and prevent its being bent, and thereby contribute to the preservation of the instrument.

The musical instrument of the cricket may therefore not inaptly be compared to a tabor (*tambour de basque*) divided into a great number of compartments by cords fastened to the skin, which is crossed by a large knotted cord: the manner of playing on which we must suppose to be by passing over this latter a plate of some sonorous metal.

When the insect crosses his wings rapidly, and passes the whole length of the bow over the treble-string, he makes that loud and lively stridulation which we hear so frequently, and this is the song with which he calls the female; but when he rubs the brush against the internal border of the elytron by a slight vibratory movement, he produces that sweet and soft sound by which he expresses his satisfaction.

By raising the elytra and rubbing them against each other by means of a pin, the sound may be artificially produced on a living insect, or even on a dead one, provided its joints retain their pliability. We can also cause the bow to sound by passing a pin along its striæ. The sounds obtained by these means are not so loud as those which are made by the cricket when alive and at liberty, but are quite sufficient to enable one to recognise the stridulation.

The elytra of the female do not present the same peculiarities in structure as those of the male: they are not so complicated, in fact are simply reticulated; consequently they are not susceptible of the production of sounds.

On attentively examining the fore legs of the cricket, male or female, we perceive on their external surface below the knee a long white shining plate, that covers a little cavity which is lined with a thin skin of a dull white colour. The functions of this organ, which may be designated by the name of mirror (*miroir*), are unknown to me.

In the larva and pupa state this organ is wanting; yet there is a sensible depression, which may be considered its rudiment, at the spot where it is found in the perfect insect. I therefore conclude that the functions for which it is required are only performed in the adult state.

I am also unacquainted with the uses of the hollow velvety appendages which terminate the abdomen in both sexes.

The house-cricket exactly resembles the field-cricket. The musical instrument of both is the same, and their songs are also similar.

Besides these two species, another is found in the province of Gex, the wood-cricket (*Gryllus sylvestris*), which does not appear at the same time as the field-cricket. Its larvæ are seen in the spring, and the perfect insect from near the end of August to the beginning of winter. Some individuals would appear to survive this rigorous season, as they have been found under stones in the month of February. I have not observed that it inhabits a burrow; I have always found it under stones, or on grass under trees at the foot of mountains. Placed in a box with the female the actions of this insect resemble those of the field-cricket. The male approaches the female frequently, extends his legs, places his breast against the ground and elevates the abdomen; in this position he raises the elytra and rubs them with rapidity against each other. A feeble monotonous noise results very different from the short, sharp sound produced by the field-cricket on a like occasion.

The wood-cricket is small, and its elytra only cover half the abdomen: and what is very remarkable, the back-covers differ in colour and consistence in the same insect: the lower or left is white, soft and transparent, while the right is hard and of a brown colour. Their nervures are the same in number, and disposed in the same manner, but are only slightly elevated on the inferior, whilst they are strong and project considerably on the superior. This difference leads me to believe this insect is not capable of producing sounds if it crosses its elytra in any other than the natural manner, that is to say, if it places the right below and the left above. The elytra of the field-cricket are perfectly symmetrical, and produce a sound whichever way they are crossed.

In the wood-cricket, the musical instrument is composed of the bow, and of two sets of nervures, placed one under the other, separated by another nervure, which cuts them almost at a right angle. There are four nervures in the first, and six in the second; but I have not observed the brush at the origin of the bow, near the transparent triangular part, which I have called the treble-string in the field-cricket; the internal border of the elytron would appear to supply its place. It might be that the glass, which was the only instrument I used in my observations, did not magnify sufficiently to enable me to distinguish parts so minute, as it was with difficulty that I could

with its aid satisfy myself that the bow was striated. We should expect the song of the wood-cricket to be feeble and monotonous, on account of the elytra consisting of a softish and scarcely sonorous membrane, and the simple form of the musical instrument, and also from the absence of the brush: and in fact the sounds produced by this insect are less song-like than those of the field-cricket.

The female has no instrument on her elytra, and is consequently mute. Both sexes are furnished with the velvety appendages at the extremity of the abdomen, and mirrors on their fore-legs.

Another species, the mole-cricket (*Gryllotalpa vulgaris*), is very common in the province of Gex, and does considerable injury in the gardens. I have never heard them sing when at liberty or in a state of captivity, but I have produced the stridulatory sound both on a living and dead insect, by slightly raising the elytra and rubbing them against each other.

The elytra of the mole-cricket are perfectly symmetrical. There is on the back-cover a musical instrument analogous to that possessed by the before-mentioned insects: they have the striated bow, the treble-string, and a single large nervure which descends from the inferior origin of the bow in an oblique direction towards the extremity of the elytron: I have not observed the brush. This instrument being more simple than that of the field-cricket, is not capable of producing such varied sounds. Latreille says he heard the song of this insect only in the evening or during the night, and that it is soft and pleasing. It is only the male that sings. The elytra of the female are simple like those of the female field-cricket, and consequently incapable of producing sounds. The mole-cricket possesses the velvety appendages at the extremity of the abdomen, but I have not observed any thing resembling the mirrors on the legs of the other crickets, though from analogy I was led to look for them.

In order to speak of all the crickets I have found in the country in which I reside, I should mention *Xya variegata*, Illig., a very small species which lives in the fine sand of the islands in the Rhone below Cologne. It is met with in the spring. It is generally found on the sand; but is often seen emerging from the sand, in which it buries itself and hollows out galleries either for the purpose of concealment, or to seek

its prey. This little insect leaps with surprising agility by means of its posterior thighs, which are much thickened. This character, and the form of the posterior tarsi, which are composed of two parallel pieces, which are without articulation, and each terminated by a small hook, distinguishes *X. variegata* from the mole-crickets, which in the other parts of the body it closely resembles. The elytra of this little insect appear to be smooth, and present under the magnifying glass two slender longitudinal nervures on the side-cover, and a slight impression near the inner border towards their extremity. There is nothing like a musical instrument distinguishable. I am inclined to believe these insects mute, not only because I have never heard them stridulate, but also because I have never seen them make the same movement with their elytra or legs that the crickets, grasshoppers, and locusts do when they wish to produce sounds with their instruments.

GRASSHOPPERS (*Locusta*, LATR.)

The grasshoppers form another family of sound-producing *Orthoptera*, whose musical instrument has considerable analogy with that of the crickets. It is placed like theirs at the base of the elytra, and the insects play it by rubbing these organs briskly one on the other. But the two instruments are not symmetrical, and the insect remains mute if he crosses them in an unnatural order. The left elytron should be above and the right below. These organs vary in the different genera; and they even differ slightly in species of the same genus. Amongst the long-winged grasshoppers, the males alone are provided with them, but the females of those with short elytra which compose the genus *Ephippiger* of Latreille, possess the faculty of song as well as the males.

The males sing to call the females, and to please them. Three or four are sometimes seen collected together on the branches of the same shrub, where they perform concerts in company, which although they may not seem very harmonious to us, doubtless do so to the grasshoppers themselves. They appear to take great delight in this music, and to emulate each other in singing. In these concerts it has been observed that the musical instruments are not all equally perfect; that some give out clear and acute sounds, whilst others produce

dull and harsh ones : this may be caused by some injury which the membrane of the drum (*tambour*) has received, or from some defect in the bow, the teeth of which would be worn by long and frequent use.

If we detach the elytra of a long-winged grasshopper, we shall find the musical instrument placed upon the back-cover, very near the origin, where the elytra are dilated at the inner border. In looking at the right elytron from above, we see an oblong transparent hyaline space, which is of a hard consistence, and sonorous, to which the name of drum (*tambour*) may be given. It is surrounded by a border, which is thickest at the interior margin, to which I have given the name of treble-string. The drum is surrounded by a band of a nearly similar consistence, but hardly so transparent, and slightly convex at the lower part, on which two nervures are perceptible. On the top of the left elytron viewed from below, a dilatation is seen analogous to that of the right, but not so transparent. Its consistence appears to resemble that of the other portion of the elytron. What is most remarkable about it is a thick nervure, striated like a file, which crosses it in a nearly parallel direction to its upper border, which I have named the bow. Underneath the right elytron, along the upper border of the drum, we may distinguish, with the assistance of a glass, another little bow, which appeared to me little calculated to produce sounds, and which we will designate the false-bow (*faux-archet*). I was not able to excite a sound by rubbing it on the elytra. It may be, however, that during the movements which the grasshopper makes when singing, this bow is rubbed on the dorsal part of the metathorax, or on the border of the wing, and that it contributes in this way to stridulation; but I have not observed any thing confirmatory of such a conjecture.

The musical instruments of the long-winged grasshoppers, such as *L. verrucivora*, *viridissima*, *lilifolia*, *grisea*, &c., nearly resemble those that have just been described; and, as we have already observed, the males alone are provided with them; the females being without, are mute.

The saddled grasshopper (*Ephippiger*) possesses a remarkable property, which is not observable in any of the stridulant insects hereinbefore mentioned, nor in those which I shall have occasion hereafter to examine: it is, that the females have

musical organs, and sing almost as loud as the males. Probably the same peculiarity obtains in all the species of the genus *Ephippiger* of Latreille, which is composed of insects having short wing-cases with convex scales. The type of the genus, which is the only species I have examined, is without wings, and has its extremely-short elytra entirely concealed by the projection of the prothorax. It would perhaps be more correct to say that they have neither wings nor elytra, for these latter appear to be nothing more than the musical instruments.

The saddled grasshopper is a very noisy insect: it is generally seen on bushes. Its song, which nearly resembles that of the other grasshoppers, may be compared to that produced by passing the nail up and down a fine-toothed comb, stopping a short time between each turn. This simple, regular, and uniform song distinguishes this species from *L. viridissima*; which insect moves the bow on the drum with rapidity, and many times in succession; after having done this, it makes a short stop, and begins a new couplet like the first, and of the same length.

In *Ephippiger* the musical instruments are not symmetrical, and those of the male and female are different; but in both sexes it is necessary, in order to produce sounds, that the right should be below and the left uppermost.

The musical organ of the male is composed of a thin transparent smooth membrane, of an oval form, enclosed within a nervure by which it is surrounded. This membrane, situated on the right elytron, forms the drum, the internal border of which answers to the treble-string; the bow, which is placed under the left elytron, is formed of a strong transverse nervure, striated like a file, and coloured brown. The border of the elytron is scaly and sonorous, of a yellowish colour, and covered with rugosities. The drum in the female is situated on the right elytron: it is a circular cavity, of a hard consistence, and sonorous. It is traversed breadthways by a large nervure, which is striated like a file; other smaller nervures extend over the surface above and below, but these do not present any remarkable appearance. The left or superior elytron is rather less convex than the inferior, and somewhat differs from it in consistence: it is reticulated by the same number of nervures. The inner border performs the office of treble-string. The exterior border of the elytron is folded

down; its substance is less membranous than that of the instruments, and it is covered with rugosities. The bow of the female is placed on the right elytron contiguous to the drum, while the situation of that of the male is on the left. On considering the form of the instruments we have just described, it evidently would appear that the insect, in order to produce sounds, must rub its elytra one on the other. During this movement the bow passes over the treble-string and excites vibrations, which are transmitted to the other instruments, and stridulation is the result. The elytra are concealed under the prothorax; and the insect, when using them, commences by raising the prothorax, in order to allow of their playing more freely, and this he accomplishes by depressing his head and slightly bending the abdomen. The organs of the male are rather more developed than those of the female, and consequently produce stronger sounds.

I have often found in woods and on hedges a grasshopper, the name of which is unknown to me, but which apparently belongs to the genus *Anisoptera* of Latreille. The male alone possesses elytra, which are very short, though rather longer than those of *Ephippiger*. The female may be almost said to be without them, for they are so small as to be recognised with difficulty; she is mute, and is attracted by the song of the male, whose sonorous organs resemble those of the same sex in *Ephippiger*. In these the drum may be distinguished, situated on the right elytron (the position of which is always under the left); the treble-string formed by the inner border of the drum, and the bow placed under the left elytron. This insect plays on his instrument in the same way as the other grasshoppers, by rubbing the elytra one on the other.

All the grasshoppers I have seen are provided with an organ, which is peculiar to this family of insects, and which merits attention. It is situated along the prothorax above the coxæ of the fore-legs. In order to see it to advantage, it is necessary to raise the lateral borders of the prothorax: we shall then see two cavities in the thorax, somewhat resembling the Phrygian cap in shape. These cavities are lined with a soft hyaline and smooth membrane; from near the top a tube of the same colour and consistence takes its rise, which is inserted into the thigh and continued to the knee. The cap and tube are readily detached, and separated entirely from the

animal. If we attentively examine the fore-foot, we shall perceive on each side immediately below the knee, a transparent protuberance, coloured in some species and white in others, covering a cavity in which the extremity of the tube terminates. This transparent plate presents an analogy to that part in the crickets to which I have given the name of mirror. This prothoracic cavity is found in both sexes: the larvæ and pupæ possess it: hence we may infer this organ is useful to the insect in all the stages of its existence. But what its functions are, I do not know. We cannot consider it a stigma, since it has no communication with the tracheæ; it remains constantly open, and does not appear to be under the animal's control, which is not the case with the other thoracic stigmata, which are formed of two moveable lids resembling eyes with the eye-balls removed. In order to satisfy myself that this cavity was not the opening of a stigma, I plunged a grasshopper head-foremost into water, and held it there till it was drowned. The cavity remained motionless, and did not appear affected by the contact of the liquid, whilst bubbles were seen at the orifices of the four thoracic stigmata. This experiment, repeated many times and always with the same results, leads me to conclude the great prothoracic cavity is not a respiratory opening; and what makes the correctness of this conjecture more probable, is the possibility of removing the part in question, together with its tube, from the insect without injury.

To be continued.

ART. XII. — *Monographia Chalciditum.* BY FRANCIS
WALKER.

(Continued from page 55.)

“ ——— the green myriads in the peopled grass.”

GENUS ENCYRTUS—*continued.*

Fem.—Corpus breve, crassum, convexum, punctatum, parum nitens: caput transversum, breve, juxta thoraci latum; frons abrupte declivis: antennæ clavatæ, pubescentes, corporis dimidii longitudine; articulus 1^{us}. fusiformis, dilatatus; 2^{us}. longi-cyathiformis;

3^{us}. et sequentes subcyathiformis, breves, usque ad 8^{um}. latentes et curtantes; clava ovata, plana, articulo 8°. multo latior et plus duplo longior: thorax ovatus: mesothoracis scutum transversum; paraptera supra fere convenientia; scutellum brevis-obconicum; metathoracis scutellum semicirculum fingens: abdomen subquadratum, læve, nitens, fere glabrum, thorace paullo brevius vix latius, subtus convexum, apice rotundatum: segmenta ventralia occulta: oviductus non exertus: alæ amplæ.

Sp. 68. En. sylvius. Fem. *Cupreus ferrugineo varius, antennæ fuscæ albo cinctæ apice nigræ, pedes fusco-fulvi, femora sæpissime ænea, proalæ fusco fasciatæ.*

Encyrtus sylvius. *Dalman, Kongl. Vetens. Acad. Handl. för år, 1820; Nees ab Ess. Hym. Ich. affn. Monogr. II. 205.*

Caput ferrugineum, apud os nigrum; vertex postice fuscus: trophi ferrugini: oculi et ocelli obscure rufi: antennis articulus 1^{us}. niger; 2^{us}. et sequentes ad 6^{um}. pallide fusci; 7^{us}. et 8^{us}. albidii; clava nigra: thorax æneo-cupreus; metathorax nigro-cupreus; pectoris laminæ ferrugineæ; abdomen nigro-cupreum, subtus et basi cupreum: pedes pubescentes; coxæ et femora ænea; trochanteres et genua ferruginea; tibiæ fuscæ; tarsi fulvi, apice fusci; propedum femora et tibiæ apice basi et subtus fulva; mesopedum femora et tibiæ ferruginea: alæ sublimpidæ, corpore longiores; squamulæ et nervi fusca, hi apud stigma obscuriores: proalæ cuique apud stigma fascia brevis lunata fusca. (Corp. long. lin. $\frac{2}{3}$ —1; alar. lin. $1\frac{1}{3}$ — $1\frac{3}{4}$.)

Var. β.—Metatibiæ fulvo fasciatæ.

Var. γ.—Caput cupreum: pectoris laminæ nigro-cupreæ: abdomen subtus purpureo-cupreum.

Var. δ.—Pedes fulvi; propedum femora extus et tibiæ basi fusca; meso- et metatarsi flavi, apice fusci; metapedum femora et tibiæ pallide fusca.

September; Isle of Wight. Found on lime-trees, in Galway, by Mr. Haliday.

Mas.—Corpus sublineare, crassum, convexum, punctatum, pubescens: caput transversum, breve, subquadratum, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ pilosæ, corpore paullo breviores, ad articulum 8^{um}. filiformes; articulus 1^{us}. gracilis, fusiformis; 2^{us}. cyathiformis; 3^{us}. et sequentes longi, lineares, usque ad 8^{um}. paullulum curtantes; clava fusiformis, articulo 8°. paullo latior et plus duplo

longior: thorax ovatus: mesothoracis scutum transversum; parap-
tera fere convenientia; scutellum rhombiforme: abdomen ovatum,
planum, læve, fere glabrum, thorace paullo longius, apice hirtum:
pedes pubescentes.

Fem.—Corpus quam *mari* latius: antennæ clavatæ, corporis dimidio
longiores; articulus 2^{us}. longi-cyathiformis; 3^{us}. et sequentes
subcyathiformes, usque ad 8^{am}. curtantes et latescentes; clava
brevis, oblique truncata, articulo 8^o. longior et paullo latior:
thorax et abdomen brevi-ovata: oviductus occultus.

Sp. 69. En. Swederi. Mas. *Ater, antennæ fulvæ apice fuscæ,
pedes fulvi, metapedes nigri, alæ limpidæ.* Fem. *Ferru-
gineus, antennæ apice fuscæ, alæ fusco variæ.*

Encyrtus Swederi. Fem. *Dalman, Kongl. Vetens. Acad. Handl.
för är, 1820; Nees ab Ess. Hym.
Ich. affin. Monogr. II. 224.*

Encyrtus hirticornis. Mas. *Dalman, Kongl. Vetens. Acad. Handl.
för är, 1820; Nees ab Ess. Hym.
Ich. affin. Monogr. II. 223.*

Encyrtis Vitis. . . . *Curtis, Brit. Ent. 395.*

Mas.—*Ater, obscurus: oculi et ocelli picei: antennæ fulvæ;
articulus 2^{us}. supra fuscus; clava fusca: abdomen nitens: pedes
fulvi; femora supra nigro vittata; tarsi apice fusci; metapedum
femora et tibiæ nigra: alæ limpidæ; squamulæ et nervi fusca.*

Fem.—*Ferrugineus, obscurus: oculi et ocelli picei: antennæ apice
fuscæ: abdomen nitens: metapedes supra fusci; mesotibiæ basi
fuscæ; pro- et metatarsi apice hi basi quoque fusci: alæ sub-
limpidæ; proalæ fusco variæ; squamulæ et nervi fulva, hi apice
fusci. (Corp. long. lin. 1 $\frac{1}{4}$; alar. lin. 2.)*

Reared in July from the *coccus* of the vine, at Lambeth, by Mr.
Samouelle. Found near Paris, by the Comte de Castelneau.

Sp. 70. En. scutellaris. Fem. *Ater, scutellum basi flavum,
antennæ piceæ, pedes picei, proalæ fuscæ basi limpidæ.*

Pteromalus scutellatus. *Swederus, Kongl. Vetens. Acad. Handl.
för är, 1795.*

Encyrtus scutellaris. *Dalman, Kongl. Vetens. Acad. Handl.
för är, 1820; Nees ab Ess. Hym.
Ich. affin. Monogr. II. 221; Boyer
de Fonscolombe, Ann. des Sciences
Nat. XXVI. 304.*

Ater, obscurus: oculi et ocelli obscure rufi: antennæ piceæ, basi et apice pallidiores: mesothoracis scutellum basi læte flavum: abdomen nitens: pedes picei; genua fulva; tarsi fulvi, apice fusci: proalæ fuscæ, basi limpidæ; maculæ 2 costales nigro-fuscæ; nervi fusci; metalæ limpidæ. (Corp. long. lin. $1\frac{1}{3}$; alar. lin. $2\frac{1}{4}$.)

Reared from the *coccus* of *Corylus Avellana*, by Mr. Curtis. Found near Paris by the Comte de Castelneau.

Mas.—Corpus sublineare, crassum, convexum, parce pubescens, scite punctatum: caput transversum, breve, subquadratum, thorace paullo latius; frons abrupte declivis: oculi mediocres, non extantes: antennæ filiformes, pubescentes, corporis dimidio paullo longiores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. brevis; 3^{us}. et sequentes ad 8^{um}. lineares, subæquales; clava fusiformis, articulo 8^o. paullo latior et fere duplo longior: thorax ovatus, altus, postice abrupte declivis: mesothoracis scutum latitudine fere longius; paraptera vix convenientia; scutellum rhombiforme: abdomen sublineare, planum, scitissime punctatum, fere glabrum, thorace paullo brevius et angustius.

Sp. 71. En. obscurus. *Mas.* *Ater*, tarsi picei, proalæ fusco-fasciatæ.

Encyrtus obscurus. *Dalman*, *Kongl. Vetens. Acad. Handl. för är*, 1820; *Nees ab Ess. Hym. Ich. affin. Monogr.* II. 209.

Ater, subnitens: oculi et ocelli picei: antennæ nigræ: abdomen nitens: pedes nigri; pro- et mesotarsi picei: proalæ subfuscæ, basi limpidæ, fusco fasciatæ, ad costam nigro bimaculatæ; nervi fusci; metalæ limpidæ. (Corp. long. lin. 1; alar. lin. 2.)

May, near London. Found on the white-thorn, in Putney Common, by Mr. Haliday.

Fem.—Corpus crassum, breve, punctatum, obscurum, pubescens: caput transversum, breve, convexum, juxta thoraci latum: antennæ clavatæ, breves, corporis dimidio fere breviores; articulus 1^{us}. fusiformis, vix dilatatus; 2^{us}. subcyathiformis; 3^{us}. et sequentes parvi, usque ad 8^{um}. latescentes; clava ovata, plana, articulo 8^o. multo latior et plus duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; parapsidum suturæ non conspicuæ; paraptera supra non convenientia; scutellum brevi-obconicum: abdomen subrotundum, planum, læve, nitens, fere glabrum, thorace brevius et paullo latius; segmenta subtus per

medium carinam fingentia apice apertam; ventralia occulta: oviductus non exertus: alæ amplæ.

Mas.—Antennæ moniliformes, verticillato-pilosæ, corpore breviores; articulus 1^{us}. fusiformis; 2^{us}. brevis, subrotundus; 3^{us}. et sequentes ad 8^{um}. sublineares, discreti; clava fusiformis, pubescens, articulo 8^o. angustior et multo longior: abdomen paullo longius quam latum, thorace brevius et angustius.

Sp. 72. En. sericeus. Mas et Fem. *Cyaneo-iridis albo-pubescens, abdomen cupreum, antennæ mari fulvæ fem. fuscæ, pedes fusci, femora viridi-cyanea, alæ limpidæ.*

Encyrtus sericeus. Dalman, *Kongl. Vetens. Acad. Handl. för år, 1820; Nees ab Ess. Hym. Ich. affn. Monogr. II. 217.*

Fem.—Obscure viridis, albo-pubescens, subtus cyaneus nitens fere glaber: oculi et ocelli obscure rufi: antennæ nigro-fuscæ; articuli 1^o. ad 6^{um}. apice, 7^{us}. et 8^{us}. omnino flavi; clava apice flava: humeri albidi: abdomen cupreo-iride: pedes nigro-fusci; coxæ et femora viridi-cyanea; trochanteres ferruginei; femora apice et tibiæ apice basi que albida; tarsi fusci; mesopedum tibiæ pallide fuscæ, tarsi flavi apice fusci: alæ limpidæ, corpore longiores; squamulæ et nervi fusca. (Corp. long. lin. $\frac{1}{2}$ — $\frac{5}{4}$; alar. lin. $\frac{5}{4}$ — $1\frac{1}{4}$.)

Var. β.—Abdomen cupreum: mesotarsi fusci, basi flavi.

Var. γ.—Abdomen cupreum, basi et apice iride.

Var. δ.—Antennis articuli 7^{us}. et 8^{us}. fusci.

Mas.—Cyaneo-iridis, parum nitens: antennæ fulvæ; articuli 1^{us}. basi 2^{us}. que omnino fusci: abdomen iride-cupreum. (Corp. long. lin. $\frac{1}{2}$ — $\frac{5}{4}$; alar. lin. $\frac{3}{4}$ — $1\frac{1}{4}$.)

Var. β.—Mesothoracis scutelli discus cupreus: mesofemora pallide fusca, basi et apice flava.

July to October; lime-trees, oak-trees, &c. near London; North Wales. Found in Ireland, Scotland, &c. by Mr. Haliday; on elm-trees, at Paris, by the Comte de Castelneau.

Mas.—Corpus breve, latum, obscurum, pubescens, scite punctatum: caput transversum, breve, convexum, thorace vix latius; vertex latus; frons abrupte declivis: oculi mediocres: antennæ filiformes, pilosæ, corpore vix longiores; articulus 1^{us}. fusiformis, vix dilatatus; 2^{us}. brevis; 3^{us}. et sequentes ad 8^{um}. longi, lineares, subæquales; clava fusiformis, articulo 8^o. multo longior: thorax

ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen brevi-ovatum, planum, thorace brevius non latius: pedes graciles: alæ amplæ.

Fem.—Antennæ capitatæ, corporis dimidio vix longiores; articulus 2^{us}. longi-cyathiformis; 3^{us}. et sequentes transversi, cyathiformes, brevissimi, usque ad 8^{um}. latescentes; clava subrotunda, articulo 8^o. multo latior et plus triplo longior: abdomen subrotundum, planum, subtus carinatum, thorace paullo latius et multo brevius: oviductus occultus.

Sp. 73. En. Pappus. Mas et Fem. *Niger, thoracis latera fulva, abdomen nigro-fuscum, antennæ fuscæ fem. apice nigræ, pedes fusci, alæ limpidæ.*

Mas.—Niger: os flavum: oculi et ocelli picci: antennæ fuscæ; articulus 1^{us}. basi subtus fulvus: thoracis latera fulva: abdomen nigro-fuscum: pedes pallide fusci, subtus fulvi: alæ limpidæ; squamulæ et nervi fusca.

Fem.—Antennæ fuscæ; articulus 1^{us}. et 2^{us}. nigri, apice fusci; clava nigra: pedes fusci: alarum nervi fulvi. (Corp. long. lin. $\frac{1}{5}$ — $\frac{1}{2}$; alar. lin. $\frac{2}{5}$ —1.)

Var. β.—*Mas*, pedes fulvi, subtus flavi.

July; on grass beneath trees, near London. Found at Holywood, near Belfast, by Mr. Haliday.

Fem.—Corpus breve, latum, subquadratum, punctatum, pubescens, obscurum: caput transversum, convexus, juxta thoraci latum: thorax quadratus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: abdomen subrotundum, thorace brevius vix latius: oviductus occultus: antennæ clavatæ, corporis longitudine; articulus 1^{us}. fusiformis, vix dilatatus; 2^{us}. longissime cyathiformis; 3^{us}. et sequentes transversi, parvi, subcyathiformes, usque ad 8^{um}. latescentes; clava sublinearis, apice obtusa, articulo 8^o. latior et triplo longior: pedes graciles: alæ amplæ.

Sp. 74. En. hederaceus. Fem. *Niger flavo marginatus, abdomen nigro-fuscum, antennæ fuscæ, pedes fulvi, alæ limpidæ.*

Encyrtus hederaceus. Westwood, Lond. and Edinb. Phil. Mag. Third Series. X. 63, 441.

Niger, albo pubescens, subtus pallide flavus: caput fuscum, antice læte flavum: oculi et ocelli obscure rufi: antennæ fuscæ;

articulus 1^{us}. basi et 2^{us}. apice fulvi: thorax antice et utrinque flavus: abdomen nigro-fuscum; latera pallide flava: pedes fulvi; meso- et metatarsi flavi, apice fulvi: alæ limpidæ; squamulæ et nervi flava. (Corp. long. lin. $\frac{1}{5}$; alar. lin. $\frac{2}{3}$.)

July; on grass beneath trees near London. Found at Holywood, near Belfast, by Mr. Haliday.

Sp. 75. En. punctipes, Mas et Fem. *Nigro-piceus*, caput flavum, antennæ mari fulvæ fem. albidæ fusco cinctæ apice nigrae, pedes albidus fusco cincti, alæ limpidæ.

Encyrtus punctipes. Dalman, *Kongl. Vetens. Acad. Handl. för är*, 1820; *Nees ab Ess. Hym. Ich. affn. Monogr.* II. 201.

Fem.—Caput flavum; vertex læte ferrugineus, postice fuscus: oculi et ocelli obscure rufi: antennis articulus 1^{us}. ater, apice et extus albidus; 2^{us}. niger, apice albidus; 3^{us}. et sequentes ad 6^{um}. fusci, subtus albidus; 7^{us}. et 8^{us}. albidus; clava atra, apice albida: thorax nigro-piceus, albo pubescens: abdomen nigrum, nitens; fascia utrinque abbreviata, pallide flava: corpus subtus fuscum; thoracis latera et prothorax albida: pedes pallide flavi; tibiæ fusco quadricinctæ; tarsi apice fusci: alæ limpidæ; squamulæ et nervi fulvi, hi apud stigma obscuriores. (Corp. long. lin. $\frac{1}{4}$ — $\frac{1}{2}$; alar. lin. $\frac{1}{2}$ —1.)

Mas.—Antennæ pallide fulvæ, subfiliformes, extrorsum crassiores, corpore non breviores: articulus 1^{us}. fusiformis, dilatatus, pallide flavus, apice supra fuscus; 2^{us}. cyathiformis, flavus, basi fuscus; 3^{us}. et sequentes lati, quadrati, usque ad 8^{um}. paullulum crescentes; clava fusiformis, articulo 8^o. duplo longior vix latior.

Var. β.—*Fem.* mesothorax ferrugineus: abdomen nigrum, utrinque et apice flavum.

Var. γ.—*Fem.* *Var. β* similis: antennis articuli 3^o. ad 5^{um}. nigri.

Var. δ.—*Fem.* piceus: caput antice fulvum: antennæ pallide fusca: abdomen nigro-fuscum: pedes pallide flavi; tibiæ fusco bivittatæ; tarsi apice fulvi.

May to October; on lime-trees, near London; North Wales; Hampshire. Found at Holywood, near Belfast, by Mr. Haliday.

Fem.—Corpus breve, latum, crassum, obscurum, punctatum, brevissime pubescens: caput transversum, breve, convexum, juxta thoraci latum; frons abrupte declivis; oculi magni, extantes:

thorax oblongo-quadratus, fere planus, duplo quam latus longior : mesothoracis paraptera supra non convenientia : scutellum subrhombiforme, breve, latum : abdomen subrotundum, planum, thorace brevius vix latius : oviductus non exertus : antennæ clavatæ, corporis dimidio vix longiores ; articulus 1^{us}. subtus valde dilatatus ; 2^{us}. longi-cyathiformis ; 3^{us}. et sequentes brevissimi, subrotundi, usque ad 8^{um}. latescentes ; clava subrotunda, plana, articulo 8^o. multo latior et plus triplo longior : pedes graciles : alæ amplæ.

Sp. 76. En. fulvifrons. (Haliday MSS.) Fem. *Ferrugineus nigro-varius*, abdomen nigrum, antennæ nigro-fusce albo cinctæ, pedes flavo-fusci, alæ limpidæ.

Caput flavum ; vertex ferrugineus : oculi et ocelli obscure rufi : antennis articulus 1^{us}. niger, basi et apice flavus ; 2^{us}. niger, apice flavus ; 3^{us}. et sequentes ad 6^{um}. nigro-fusci ; 7^{us}. et 8^{us}. albidii ; clava atra, apice flava : thorax niger : mesothorax ferrugineus, albo pubescens, scutum antice nigrum : abdomen nigrum, utrinque et apice flavum : corpus subtus pallide flavum : pedes flavi ; femora et tibiæ fusco late fasciata ; tarsi apice fusci ; protarsi fulvi : alæ limpidæ ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{3}$ — $\frac{1}{2}$; alar. lin. $\frac{2}{3}$ —1.)

Var. β.—Mesothoracis scutum postice nigrum, scutellum nigro cinctum et per medium vittatum : abdomen nigrum, apice fulvum.

Var. γ.—*Var. β* similis : mesothoracis scutum fusco-vittatum.

Var. δ.—*Var. γ* similis : mesothoracis discus nigro-fuscus.

Var. ε.—*Var. δ* similis : caput inter oculos fusco fasciatum : abdomen omnino nigrum.

July ; near London. Found at Holywood, near Belfast, by Mr. Haliday ; and at Paris by the Comte de Castelleau.

Fem.—Corpus breve, latum, crassum, obscurum, punctatum, brevissime pubescens : caput transversum, breve, convexum, juxta thoraci latum ; frons abrupte declivis : antennæ clavatæ, corporis dimidio vix longiores ; articulus 1^{us}. fusiformis, non dilatatus ; 2^{us}. longi-cyathiformis ; 3^{us}. et sequentes brevissimi, usque ad 8^{um}. latescentes ; clava brevi-ovata, plana, articulo 8^o. multo latior et plus duplo longior : thorax oblongo-quadratus, fere planus, duplo longior quam latus, mesothoracis paraptera supra non convenientia ; scutellum subrhombiforme, breve, latum : abdomen subrotundum, planum, thorace multo brevius vix latius : oviductus exertus : pedes graciles : alæ amplæ.

Sp. 77. En. apicalis. Fem. *Fulvus aut niger, antennæ flavæ aut nigræ apice albæ, pedes flavi aut fusci, alæ fusco fasciatæ.*

Encyrtus apicalis. Dalman, *Konigl. Vetens. Acad. Handl. för är*, 1820; *Nees ab Ess. Hym. Ich. affin. Monogr. II. 220.*

Nigro-fuscus: caput obscure fulvum; frons et vertex læte ferruginea: oculi et ocelli obscure rufi: antennæ fuscæ; articulus 1^{us}. fulvus; clava albida: thoracis latera fulva: abdomen basi utrinque fuscum, apice pilosum: oviductus flavus, abdominis dimidio brevior; vaginæ flavæ, parce et breviter pubescentes: pedes flavi; coxæ fuscæ; pro- et metapedum femora et tibiæ, necnon mesotibiæ fusco late cinctæ; tarsi apice fusci: alæ albæ, apice sublimpidæ; proalæ cuique per medium fascia lata sublunata fusca; squamulæ et nervi fulva, hi apud stigma fusci incrassati. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

Var. β.—Scutellum obscure ferrugineum.

Var. γ.—Antennis articulus 1^{us}. fuscus, apice fulvus.

Var. δ.—Caput utrinque et postice fuscum: antennis articuli 1^o. ad 8^{um}. nigro-fusci: thorax supra niger: abdomen nigro-piceum, nitens: pro- et metapedum femora et tibiæ necnon mesotibiæ fusca.

Var. ε.—Caput flavum; vertex læte flavo-ferrugineus: antennis articulus 1^{us}. flavus; 2^{us}. apice flavus; 3^{us}. et sequentes ad 8^{um}. pallide fusci: thoracis latera flava: mesothoracis scutum postice flavo marginatum et utrinque maculatum: pedes læte flavi; coxæ, meso- et metatibiæ fuscæ.

Var. ζ.—*Var. ε* similis: prothorax flavus: mesothoracis scutum flavum, antice fuscum: abdominis segmentum 1^{um}. flavum.

Var. η.—*Var. ε* similis: abdomen basi fulvum.

Var. θ.—Caput flavum: antennæ flavæ; articuli 2^{us}. basi, 3^{us}. 4^{us}. et 5^{us}. pallide fusci: thorax ferrugineus, utrinque et subtus flavus: mesothoracis scutum flavum; discus ferrugineo vittatus: abdomen basi et apice flavum: pedes læte flavi; metatibiæ basi fusco cinctæ.

May, June; on grass beneath trees, near London. Found at Holywood, near Belfast, by Mr. Haliday. Reared from *Coccus Platani Sylvarum* at Paris, by the Comte de Castelleau.

Fem.—Corpus angustum, sublineare, obscurum, scite punctatum, pubescens: caput transversum, breve, convexum, thorace paullo

angustius; vertex latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, corpore paullo breviores; articulus 1^{us}. fusiformis, subtus valde dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes longi, sublineares, usque ad 8^{um}. latescentes et curvantes; clava fusiformis, articulo 8°. latior et plus duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: abdomen longi-ovatum, planum, subtus carinatum, thorace paullo longius et angustius: oviductus occultus.

Sp. 78. En. Bohemanni. Fem. *Nigro-piceus aut fulvus, antennæ fusæ apice flavæ, pedes fuscii aut flavi, alæ limpideæ.*

Encyrtus Bohemanni. Westwood, *Lond. and Edinb. Phil. Mag. Third Series.* X. 63, 441.

Nigro-piceus, albo pubescens, subtus pallide flavus: oculi et ocelli obscure rufi: antennæ fusæ; articulus 1^{us}. niger, basi et apice flavus; 2^{us}. nigro-fuscus, apice flavus; 7^{us}. et 8^{us}. fulvi; clava pallide flava, basi fulva: abdomen fuscum: pedes fuscii: alæ limpideæ; squamulæ et nervi pallide fusca. (Corp. long. lin. $\frac{1}{3}$ — $\frac{1}{2}$; alar. lin. $\frac{2}{3}$ —1.)

Var. β.—Antennis clava omnino flava: pedes fulvi, supra fusco vittati.

Var. γ.—Caput læte fulvum, subtus flavum: antennis clava omnino flava: thorax piceus, utrinque flavus: abdomen fulvum, subtus flavum: pedes fulvi, subtus flavi; mesopedes flavi, tarsi apice fulvi: alarum squamulæ et nervi fulva.

Var. δ.—*Var. γ* similis: abdomen fuscum, subtus fulvum.

Var. ε.—*Var. γ* similis: scutellum apice fulvum.

Var. ζ.—*Var. γ* similis: thorax læte fulvus, subtus flavus: pedes læte flavi, tarsi apice fulvi; protarsi omnino fulvi.

July; on grass beneath trees, near London.

Fem.—Corpus crassum, nitens, scitissime punctatum, fere glabrum: caput transversum, juxta thoraci latum; vertex angustus; frons convexa, antice abrupte declivis: oculi magni, non extantes: antennæ clavatæ, pubescentes, corporis dimidio paullo longiores; articulus 1^{us}. validus, fusiformis, non dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, subquadrati, approximati, usque ad 8^{um}. latescentes; clava longi-ovata, articulo 8°. fere triplo longior et paullo latior: thorax ovatus, planus: mesothoracis

scutum transversum; paraptera supra convenientia; scutellum rhombiforme: abdomen ovatum, planum, thorace paullo brevius.

Sp. 79. En. Cedrenus. Fem. *Fulvus, antennæ fulvæ albo cinctæ apice nigræ, pedes fulvi, alæ subfuscæ albo varicæ.*

Fulvus: oculi et ocelli rufi: antennæ fulvæ; articuli 6^{us}, 7^{us}, et 8^{us} albidii; clava nigra: metathorax fuscus: abdomen pallide fulvum: pedes fulvi; tarsi pallidiores: alæ subfuscæ: hic et illuc fere limpidae; proalæ cuique apud stigma fascia alba; squamulæ et nervi fulva, hi apice fusci. (Corp. long. lin. $\frac{2}{3}$; alar. lin. $1\frac{1}{2}$.)

July; south of France.

Fem.—Corpus angustum, nitens, scite punctatum, vix pubescens: caput mediocre, transversum, subquadratum, convexum, thoracis latitudine; vertex mediocris; frons abrupte declivis; oculi mediocres: thorax ovatus, planus, postice subquadratus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen planum, ovatum, thorace vix longius: oviductus occultus: alæ angustæ.

Sp. 80. En. Myrlea. Fem. *Viridis cupreo varius, abdomen nigro-cupreum, pedes nigri, tarsi flavi, proalæ fusco-bifasciatæ.*

Viridis: oculi et ocelli obscure rufi: thorax cupreo-variis: abdomen nigro-cupreum, basi cupreo-viride micans: pedes nigri; genua fulva; tibiæ nigro-fuscæ; tarsi flavi, apice fusci: alæ limpidae; proalæ cuique fascia lata apud stigma necnon apex fuscæ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{5}{4}$; alar. lin. 1.)

July; south of France.

Fem.—Corpus breve, latum, subtrigonum, pubescens, nitens, scitissime punctatum: caput transversum, subhemisphæricum, supra planum, thorace angustius; vertex latus; frons antice producta, aciem quasi fingens, subtus retracta: oculi mediocres, non extantes: antennæ clavatæ, graciles, corporis dimidio paullo breviores; articulus 1^{us} fusiformis, crassus; 2^{us} longi-cyathiformis; 3^{us} et sequentes transversii, minimi, usque ad 8^{um} latescentes; clava longi-ovata, articulo 8^o multo latior et quintuplo longior: thorax planus, vix quam latus longior: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi rhombiforme: abdomen longi-obconicum, planum, læve, thorace longius et paullo angustius, apice acuminatum: oviductus exertus; vaginæ breves, pubescentes: pedes validi, pubescentes.

Sp. 81. En. nubilipennis. (Curtis's Guide.) Fem. *Cyaneo-
viridis, abdomen nigro-cupreum, antennæ flavæ nigro-cinctæ,
pedes flavi, femora nigra, proalæ fuscæ albo varicæ.*

Encyrtus Dalmanni? Westwood, Lond. and Edinb. Phil. Mag.
Third Series. X. 63, 440.

Cyaneo-viridis: caput læte viride: oculi et ocelli obscure rufi:
antennæ flavæ; articulus 1^{us}. niger; 2^{us}. fuscus, apice flavus;
3^{us}. 4^{us}. et 5^{us}. supra fulvi; clava basi nigra, apice fulva: abdo-
men nigro-cupreum: oviductus vaginæ nigro-fuscæ, apice flavæ:
pedes nigri; tarsi flavi, apice fuscii; pro- et mesotibiæ flavæ, basi
nigræ: alæ limpidae, apice subfuscæ; proalæ cuique discus
obscure fuscus maculis 3 limpidis, 1^a. parva apud stigma, 2^a.
magna ad alæ apicem propior et in discum descendens, 3^a. ad
alæ marginem posticum 2^o. compar; squamulæ et nervi fusca, hi
apud stigma nigri. (Corp. long. lin. $\frac{1}{3}$; alar. lin. $\frac{2}{3}$.)

Var. β .—Mesothoracis scutum postice purpureo-cyaneum: abdo-
minis latera viridia.

July; on grass in woods, near London.

Fem.—Præcedenti similis at corpus multo longius: thorax et abdo-
men ovata.

Sp. 82. En. Zetterstedtii. Fem. *Viridis cupreo-varius, ab-
domen nigro-cupreum, antennæ nigræ flavo cinctæ, pedes flavi,
femora nigra, proalæ fusco varicæ.*

Encyrtus Zetterstedtii. Westwood, Lond. and Edinb. Phil.
Mag. Third Series. X. 63, 440.

Læte viridis: oculi et ocelli picei: antennæ nigræ; articuli 7^{us}. et
8^{us}. pallide flavi; clava fusca: thoracis discus cupreo-varius:
mesothoracis scutellum apice viridi-cyaneum: abdomen nigro-
cupreum: oviductus vix exertus: pedes nigri: tibiæ flavæ, basi
nigræ; tarsi flavi, apice fuscii; metatibiæ nigræ, apice flavæ:
alæ limpidae; proalæ cuique fasciæ 3 connexæ et apex fusca, ad
costam obscuriores; squamulæ et nervi fusca, hi apud stigma
nigri. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{5}{4}$.)

Found with *E. nubilipennis*.

Fem.—Corpus parvum, breve, compactum, scitissime punctatum,
pubescens, nitens: caput fere planum, juxta thoraci latum, antice
convexum, longitudine vix latius; vertex angustus; frons pro-
ducta: oculi magni, non extantes: antennæ clavatae, corporis

dimidio vix longiores; articulus 1^{us}. maxime dilatatus et extus productus; 2^{us}. parvus; 3^{us}. et sequentes ad 8^{um}. lati, brevissimi, cyathiformes, pubescentes; clava ovata, magna, articulo 8^o. latior et plus triplo longior: thorax quasi conicus, fere planus, postice quadratus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen brevi-ovatum, planum, apice acuminatum, thorace paullo latius et brevius; segmenta 1^{um}. et 2^{um}. magna: oviductus occultus: pedes validi: alæ angustæ.

Sp. 83. En. corniger. (Haliday MSS.) Fem. *Nigro-cyaneus*, caput læte viride, abdomen nigro-cupreum, antennæ nigræ, pedes nigro-fusci, tarsi flavi, proalæ fuscæ apice limpidæ.

Nigro-cyaneus: caput læte viridi micans: oculi et ocelli obscure rufi: antennæ nigræ: abdomen nigro-cupreum: pedes fusci; coxæ et femora nigra; tarsi flavi, apice fusci; genua fulva; pro- et mesotibiæ apice flavæ; metatibiæ nigro-fuscæ; mesofemora fusca: proalæ obscure fuscæ, apice limpidæ; squamulæ et nervi fusca; metalæ limpidæ. (Corp. long. lin. $\frac{1}{4}$ — $\frac{1}{3}$; alar. lin. $\frac{1}{2}$ — $\frac{1}{2}$.)

Found in the Isle of Man, by Mr. Haliday. July; Forest of Fontainebleau.

Fem.—Corpus longum, angustum, nitens, pubescens, scitissime punctatum: caput transversum, supra planum, juxta thoraci latum; vertex latus; frons antice producta et quasi aciem fingens, subtus abrupte retracta: oculi mediocres: antennæ maxime incrassatæ, pubescentes; articulus 1^{us}. latissimus, apice hispinosus; cæteri quasi clavam fingentes fusiformem; 2^{us}. angustus; 3^{us}. et sequentes transversi, brevissimi, subcyathiformes, usque ad 8^{um}. latescentes; clava conica, articulo 8^o. latior et flagelli dimidio longior: thorax ovatus, planus: prothorax supra conspicuus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen longi-ovatum, planum, thorace angustius vix longius, apice angustum et acuminatum: oviductus exertus: pedes validi: alæ angustæ. (Cerapterocerus, Westwood.)

Sp. 84. En. mirabilis. Fem. *Cyaneo-viridis*, abdomen nigro-cupreum, antennæ nigræ, pedes flavi, femora nigra, proalis discus fuscus radios emittens concolores.

Cerapterocerus mirabilis. Westwood, *Loudon's Mag. Nat. Hist.* VI. 495.

Læte cyaneo-viridis: oculi et ocelli picei: antennæ nigræ: abdomen nigro-cupreum: oviductus vaginæ nigræ, pubescentes, breves:

pedes nigri; tibiæ flavæ, basi nigro-fuscæ; tarsi flavi, apice fusci; metatibiæ nigræ, apice flavæ: propedes flavi; femora supra et tibiæ basi pallide fusca: alæ limpidæ; proalæ cuique discus fuscus radios 6 emittens latos alæ marginem attingentes, vittæ quoque 2 basales radiis connexæ et macula parva apud costam fuscæ; squamulæ et nervi fusca, hi apud stigma nigri. (Corp. long. lin. $\frac{2}{5}$ — $\frac{3}{4}$; alar. lin. $\frac{5}{4}$ —1.)

Var. β.—Caput viride: thorax æneo-viridis.

May; on grass beneath oaks, near London.

Fem.—Corpus longum, angustum, depressum, læve, nitens, glabrum: caput oblongum, brevi-ovatum, planum, thorace latius; vertex sat latus: oculi mediocres, non extantes: antennæ clavatæ, crassæ, pubescentes, corporis dimidio paullo longiores; articulus 1^{us}. dilatatus; 2^{us}. cyathiformis; 3^{us}. et sequentes transversi, brevissimi, usque ad 8^{um}. latescentes; clava ovata, articulo 8°. vix latior sed plus triplo longior: thorax longi-conicus, supra planus: segmenta in unum confusa: abdomen longi-ovatum, depressum, thorace paullo latius non longius, apice acuminatum et hirtum: oviductus occultus: pedes graciles; metafemora lata; mesotarsi vix incrassati: alæ nullæ. (Ectroma, *Westwood*.)

Sp. 85. En. fulvescens. Fem. *Piceus, apterus, antennæ nigræ, pedes flavi, metafemora nigra.*

Ectroma fulvescens. *Westwood, Lond. and Edinb. Phil. Mag. and Journ. of Science. Third Series. III. 344.*

Piceus: oculi et ocelli obscure rufi: antennæ —: pedes flavi; ungues fusci; metafemora nigra. (Corp. long. lin. $\frac{2}{3}$.)

July; on grass beneath trees, near London.

Mas.—Corpus breve, crassum, convexum, punctatum, obscurum, pubescens: caput transversum, breve, subquadratum, thorace vix angustius; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ submoniliformes, latæ, pubescentes, corpore vix breviores; articulus 1^{us}. fusiformis; 2^{us}. brevis; 3^{us}. angustus; 4^{us}. et sequentes ad 8^m. lati, oblongo-subquadrati; clava fusiformis, articulo 8°. duplo longior non latior: thorax ovatus, altus: mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: abdomen longi-obconicum, compressum, planum, nitens, læve, thorace brevius et angustius, apice hirtum: sexualia vix exerta: pedes graciles; mesotarsi vix incrassati.

Fem.?—Antennæ clavatæ, corporis dimidio breviores; articulus 1^{us}. subtus dilatatus; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes subcyathiformes, brevissimi, usque ad 8^{um}. latescentes; clava breviovata, articulo 8°. latior et plus duplo longior: thorax quam *mari* latior: abdomen brevi-ovatum, planum, subtus carinatum, thorace brevius et paullo latius: oviductus occultus: mesotarsi dilatati.

Sp. 86. En. Gabestus. Mas et Fem. *Ater*, abdomen nigro-cupreum, antennæ *mari nigro-fuscæ*, fem. *nigræ*, pedes nigro-fusci, tarsi flavi, alæ *mari limpidæ*, fem. *subfuscæ*.

Mas.—*Ater*: oculi et ocelli picei: antennæ nigro-fuscæ: abdomen nigro-cupreum: pedes nigri; genua et tarsi fusca; mesopedum tibiæ fuscæ apice flavæ, tarsi flavi apice fusci: alæ limpidæ; squamulæ fuscæ; nervi fulvi.

Fem.—Antennæ nigræ: tarsi fulvi, apice fusci: mesopedum femora nigro-fusca, tibiæ flavæ basi fuscæ: alæ subfuscæ; nervi fusci. (Corp. long. lin. $\frac{1}{3}$ — $\frac{1}{2}$; alar. lin. $\frac{2}{3}$ — $\frac{5}{4}$.)

Var. β.—*Mas*, protibiæ nigro-fuscæ: metatarsi fulvi apice fusci.

Found at Holywood, near Belfast, by Mr. Haliday.

Mas.—Præcedenti similis: antennæ filiformes, verticillato pilosæ, juxta corpori longi; articulus 1^{us}. fusiformis; 2^{us}. subrotundus; 3^{us}. et sequentes longi-ovati, subæquales; clava fusiformis, acuminata, articulo 8°. multo longior: sexualia subexerta.

Sp. 87. En. Barca. Mas. *Ater*, abdomen nigro-æneum, antennæ fulvæ basi nigro-fuscæ, pedes nigro-fusci, tarsi flavi, alæ limpidæ.

Ater: oculi et ocelli picei: antennæ fulvæ; articuli 1^{us}. et 2^{us}. nigro-fusci: abdomen nigro-æneum: sexualia flava: coxæ et femora nigra; pro- et mesofemora apice flava; propedum tibiæ fuscæ subtus flavæ, tarsi fulvi; mesopedum tibiæ nigro-fuscæ apice et basi flavæ, tarsi flavi apice fulvi; metapedum tibiæ nigro-fuscæ, tarsi fulvi: alæ limpidæ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{1}{4}$ — $\frac{1}{3}$; alar. lin. $\frac{1}{2}$ — $\frac{2}{3}$.)

September; Isle of Wight. Found at Holywood, near Belfast, by Mr. Haliday.

Mas.—Corpus breve, latum, pubescens, scite punctatum, parum nitens: caput transversum, breve, convexum, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ

filiformes, pilosæ, corpore paullo longiores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. cyathiformis; 3^{us}. et sequentes longi, sublineares, æquales; clava fusiformis, articulo 8°. fere duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen brevi-ovatum, subquadratum, planum, thorace brevius vix angustius: pedes graciles.

Sp. 88. En. Elpis. Mas. *Ater*, antennæ nigræ, pedes nigro-fusci, tarsi fulvi, alæ limpidæ.

Ater: oculi et ocelli obscure rufi: antennæ nigræ: abdomen nitens, læve, fere glabrum: pedes fusci; femora nigro-fusca; genua, tibiæ apice et tarsi fulva, hi apice fusci: alæ limpidæ; squamulæ fusæ; nervi fulvi. Corp. long. lin. $\frac{1}{4}$ — $\frac{1}{3}$; alar. lin. $\frac{1}{2}$ — $\frac{2}{3}$.)

Fem.?—*Mari* latior: antennæ subclavatæ, graciles, corporis dimidio longiores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, subquadrati, usque ad 8^{um}. minime latescentes; clava fusiformis, articulo 8°. paullo latior et triplo fere longior: abdomen rotundatum, thorace multo brevius et paullo latius: oviductus occultus.

Pedes nigri; tarsi fulvi, apice fusci; pro- et mesotibiæ fusæ; mesotarsi flavi, apice fulvi.

Var. β.—Antennæ nigro-fusæ.

August; on grass in fields, near London.

Mas.—Corpus breve, sat latum, nitens, pubescens, scitissime punctatum: caput breve, transversum, subquadratum, juxta thoraci latum; vertex latus; frons impressa, abrupte declivis: oculi mediocres, extantes: antennæ filiformes, graciles, corpore vix longiores; articulus 1^{us}. longi-fusiformis, gracilis; 2^{us}. brevis, subcyathiformis; 3^{us}. et sequentes longi, lineares, hirti, usque ad 8^{um}. paullulum curtantes; clava fusiformis, articulo 8°. fere duplo longior: thorax ovatus, planus: mesothoracis scutum quam longum paullo latius; paraptera non convenientia; scutellum brevi-obconicum, apice obtusum: abdomen obconicum, planum, apice acuminatum, thorace brevius vix angustius: sexualia vix exerta; pedes graciles: alæ amplæ.

Fem.—Caput quam *mari* longius, vix thoracis latitudine; frons convexa: oculi non extantes: abdomen ovatum, supra planum, subtus carinatum, thorace paullo latius vix longius: oviductus occultus: antennæ clavatæ, graciles, corporis dimidio longiores; articulus 2^{us}. longi-cyathiformis; 3^{us}. et sequentes breves, sub-

quadrati, usque ad 8^{um}. latescentes; clava fusiformis, articulo 8° latior et fere triplo longior.

Sp. 89. En. Scythis. Mas et Fem. *Viridis cupreo et æneo varius, abdomen cupreum, antennæ fulvæ, pedes flavi, metapedes fuscæ aut nigri, alæ limpidæ.*

Mas.—Læte aureo-viridis: oculi et ocelli obscure rufi: antennæ fulvæ; articulus 1^{us}. læte flavus: abdomen cupreum: pedes flavi; tarsi fulvi; metapedum femora et tibiæ fusca, apice et basi flava: alæ limpidæ; squamulæ et nervi fulva.

Fem.—Viridis: caput obscure cupreum: antennæ fulvæ; articulus 1^{us}. nigro-viridis, apice fulvus; 2^{us}. supra fuscus: mesothoracis scutellum viridi-cupreum: abdomen cupreum, basi viridi micans: pedes flavi; metapedum femora nigro-fusca, tibiæ basi fuscæ: alæ sublimpidæ, quam *mari* breviores et angustiores. (Corp. long. lin. $\frac{1}{4}$ — $\frac{1}{2}$; alar. lin. $\frac{1}{2}$ —1.)

Var. β.—*Mas*, thorax viridis: antennis articulus 1^{us}. apice fuscus: femora et metatibiæ nigra, apice et basi flava; mesotibiæ basi fuscæ.

Var. γ.—*Mas*, *Var. β* similis: tibiæ flavæ, apice fuscæ.

Var. δ.—*Mas*, *Var. β* similis: mesothoracis scutum cyaneo-viride.

Var. ε.—*Fem.* thorax viridi-æneus.

Var. ζ.—*Fem.* protibiæ supra basi pallide fuscæ; mesotibiæ basi fusco-cinctæ; metatibiæ fuscæ, apice flavæ.

Var. η.—*Fem.* *Var. ζ* similis: thorax æneus.

Var. θ.—*Fem.* caput viride.

Var. ι.—*Fem.* caput et thorax omnino viridia.

June to October; on heath, near London; Isle of Wight; Forest of Fontainebleau. Found at Holywood, near Belfast, by Mr. Haliday.

Fem.—Corpus angustum, sublineare, pubescens, scitissime punctatum, parum nitens: caput transversum, breve, convexum, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, graciles, corporis dimidio multo longiores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. longi-cyathiformis; 3^{us}. et sequentes subquadrati, usque ad 8^{um}. latescentes; clava fusiformis, articulo 8°. paullo latior et plus triplo longior: thorax ovatus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen ovatum, planum, thorace paullo brevius vix latius: oviductus occultus.

ART. XIII.—*Of the Management of Bees in Cashmere.*^a

EVERY farmer in Cashmere has several bee-hives in his house, and in some houses I have counted as many as ten. A provision is made for these in building the house, by leaving appropriate cavities in the walls, which somewhat differ in size, but agree in their general form, each being cylindrical, and extending quite through the wall. The tube thus formed is lined by a plastering of clay mortar, about an inch in thickness, and the mortar is worked up with the chaff or husk of rice, or with the down of thistles, which latter is employed also for clay mortar in general, being the first application of this substance to the use of man which I have yet witnessed. The dimensions of an hive are, on an average, about fourteen inches in diameter, and when closed at both ends about twenty or twenty-two inches in length. That end of the cylinder nearest the apartment is closed by a round platter of red pottery-ware, a little convex in the middle, but with the edges made flush with the wall by a luting of clay mortar; and the other extremity is shut by a similar dish, having a circular hole about a third of an inch in diameter in its centre. It does not appear that there is any particular rule for the height of these hives from the ground, as they are sometimes confined to the walls of the lower or basement story, generally appropriated to cattle in the farm-houses of Cashmere; at others, are inserted into those of the first floor; and are frequently seen in both situations in the same house, as well as in the walls of its out-buildings. So little difference exists betwixt the practices ordinarily pursued in Cashmere and in Europe, in respect to hiving new swarms, as not to call for notice; but that adopted here for preserving the old swarm, when the honey is taken, well deserves imitation by other bee-farmers. Although the season for taking the honey had passed when I visited Cashmere in the beginning of November, the cottagers indulged my wish of seeing the process by which this was effected, with little injury to the bees, and with perfect safety to the individuals concerned in its management, and which was as follows:—Having in readiness a wisp of dry rice-straw, and a small quantity of burning charcoal in an earthen dish, the master of the house, with a few strokes of the point of a sickle, disengaged

^a Extracted from Moorcroft's Travels in Cashmere, Journal of the Geographical Society.

the inner platter of the tube, bringing into view the combs suspended from the roof of the hive, and almost wholly covered with bees, none of which, however, offered to resent the aggression, or to enter the room. Having placed the straw upon the charcoal, and holding the dish close to the mouth of the hive, he blew the smoke strongly against the combs, but removed the straw the instant it took fire, to prevent it burning the bees, and quenched the flame before he employed it again. Almost stifled by the smoke, the bees hurried through the outer door with such rapidity that the hive was cleared of its inhabitants within a few minutes; when the farmer, introducing the sickle, cut down the combs nearest to him, which were received into a dish previously slidden underneath them, and left undisturbed about one-third of the combs, which were almost close to the outer door. He then replaced the inner platter, and brushing off hastily a few bees which clung to the combs, though apparently in a state of stupefaction, threw them out of the house. Observing many other bees lying motionless on the floor of the hive, I inquired whether they were dead or only stupified, and was answered that they would recover; however, I was not wholly satisfied that this recovery would take place: preparations for continuing my journey at a very early hour on the following morning having unluckily prevented my examining the spot where they had been thrown, until poultry had for some time been feeding near it. The expelled bees returned as soon as the cavity was freed from smoke, without stinging a single individual; and the whole business was completed within ten minutes, without, as was asserted, any perceptible loss. The honey was light-coloured, and of a taste as pure and sweet as that of Narbonne. It possessed less of the cloying quality generally attending this substance than any other I recollect to have met with; and I could not learn that the farmers had any suspicion of its ever being intoxicating or poisonous, as is the case occasionally with that made by the Bhoura (*apis initalis*), or large wild-bee, in the northern mountains of Gurwhal, from feeding, as it is reported, on the flower of the monkshood. I was directed more particularly to inquiry upon this subject, by having observed this plant in flower in the valley of Runga, a few miles to the eastward of the bee-district, and think it probable that it extends to these mountains. The peasantry of

Cashmere are unacquainted with the employment of honey as the basis of a fermented liquor, but eat it raw, or mixed with articles of common food, whilst the most wealthy substitute it for sugar in preserving fruits. It is customary to take the hive every year, and the end of September or beginning of October is found the best season for this operation; a little time still remaining for the bees to add to the portion left for their support during five months. This amounts to about one-third of the whole produce, and would appear to suffice, as swarms seldom die, and the Cashmerees substitute no other article for food. It is stated that an old swarm yields more honey than a young one, and that families seldom die except of old age. I was informed, that it was no uncommon circumstance to preserve the same community for ten and even for fifteen years; but this was held to be of very rare occurrence. In consequence of the bees being thus literally domesticated, they acquire a mildness of conduct far more decided than those of Europe; and it is possible that the confidence thus gained, subduing their natural irascibility, may generate an increase of industry, or, at least, an increase of produce in relation to the number and size of the individuals of each community. It is also clear, that the situation of the hive keeps many of the natural enemies of the bees at a distance. The bee of Cashmere is a little smaller than that of Europe, though a little larger than the domesticated bee of Kumaon and of Gurwhal. The Bhoura, the rock-bee of Gurwhal, or the bee of the southern mountains, is, on the other hand, greatly larger than the domesticated bee of Europe, and greatly exceeds it also in the number of individuals in each community, and in the size and weight of its combs. But its honey is sometimes contaminated by an intoxicating quality, and the temper of the insect is so irritable as to be brought into a dangerous activity by a slight show of aggression. The former quality is suspected, upon probable grounds, to be caused by the secretion of the aconite eaten by this bee; and its irritability of disposition to be owing partly to the exposed situation of the combs, suspended from the lower surface of a ledge of rock, and partly to the occasional attempts of bears to carry them off. Both these detractions from the merits of this bee are merely the result of localities; and, under due precautions, it is presumed that its irascibility might be so far

subdued as to render it just as safe an inhabitant of a wall-hive as the smaller variety of bee. In a portion of the Punjab, near the hills, this bee is also met with; and I have seen the under surface of the principal branches of a large peepul-tree studded with so many colonies, individually of such great strength, as to deter the neighbouring peasantry from attempting to deprive them of their stores, notwithstanding it was conjectured that there were several hundred weight of combs on the tree. The largest of these assemblages of combs, the probable accumulation of several seasons, was of such a size as I think it not prudent to cite; but, from the specimens I have seen of the produce of this bee, I conceive their domestication, if introduced into Europe, would prove a most valuable acquisition to this branch of farming, although I must confess myself unable to devise any safe and easy plan for transporting such a colony.

ART. XIV. — *Proceedings of the Entomological Society of France.*

SITTING OF THE 7TH DECEMBER, 1836.

M. DUPONCHEL in the Chair.

THE following donations were announced:—

THE ROYAL ACADEMY OF SCIENCES AT STOCKHOLM. The Proceedings of that Academy during the year 1835; *also*, An account of the works on Natural History, published during the year 1835.

M. GRAELS. Inauguration of the Society of Arts and Natural Sciences at Barcelona.

DON SALVADOR LOPEZ Y RAMOS. A Memoir of the Agricultural Instruments used in Spain; *also*, A Memoir of Insects injurious to the Vine.

M. BRULLÉ. An account of the Scientific Expedition to the Morea: the Entomological part, with plates.

M. DAHLBOM. Some Swedish Journals, containing extracts from the Annals of the Society.

THE SECRETARY read a copy of the letter which he sent to M. Lefebvre, the late secretary, on the occasion of his resigning that important office.

M. FEISTHAMEL announced to the Society the death of M. Picard, a naturalist, who had been employed by an association of scientific men, most of them members of that society, to collect objects of natural history on the coast of Guinea. The youthful and unfortunate naturalist had survived only a few days after arriving in the country which he was about to explore.

After this communication the Society proceeded to the election of a Secretary in the place of M. LEFEBVRE, and M. BRULLÉ was chosen for that office, and M. PIERRET was chosen Assistant Secretary in the place of M. BRULLÉ.

M. SERVILLE addressed the Society to the following effect. He expressed his wish that the Society should adopt towards M. Lefebvre, on his resignation of the secretaryship, a course altogether unprecedented. He considered it right that one who had really founded a society, one who had long meditated its establishment, and had finally triumphed over every obstacle, should receive from that society a mark of gratitude entirely at variance with its ordinary regulations; and he would therefore propose that the name of M. Lefebvre be added to the list of Honorary Members, although that list was already full: he thought the position in which the Society stood with regard to M. Lefebvre fully justified the proceeding, however irregular. This proposition, after full discussion, was eventually abandoned, and the Society came to the resolution of abiding strictly by its laws; it was then agreed that the regret of the Society at not being empowered by its laws to make M. Lefebvre an Honorary Member should be expressed to that gentleman, but that on the earliest occasion that offered, M. Serville's proposition would be adopted.

A notice by M. PIERRET on two new species of Lepidoptera; *and*

A notice by M. FEISTHAMEL on the female of *Pachypus exaratus*, were then read.

M. GUERIN remarked, that he had observed on a *Cactus*, in the Conservatory of the Museum of Natural History, a great quantity of the cochineal insect, and many males amongst them,—a circumstance which appeared very extraordinary at this time of the year. M. Guerin also remarked that he had figured the male in the "*Iconographie du Règne Animal*," from a specimen he had received in spirits.

SITTING OF THE 21ST DECEMBER, 1836.

M. DUPONCHEL in the Chair.

The following donations were announced:—

Mr. NEWMAN. Nos. XVI. and XVII. of the Entomological Magazine.

MM. CASTELNAU and GORY. Histoire Naturelle et Iconographie des Insectes Coléoptères, 8^{me}, 9^{me}, et 10^{me} livraisons.

M. WALCKENAER. Histoire Naturelle des Insectes Aptères, tom. 1^{er}. avec trois livraisons de planches.

M. WALCKENAER presented to the Society a lump of amber, of extraordinary size, and containing many insects of various orders, besides one Arachnidan, already described by M. Walckenaer, under the name of *Atta fossilis*. The author of this communication requested the Society would appoint two of its members to describe in the *Annales* such of these insects as might be considered new. MM. SERVILLE and CHEVROLAT undertook the task; and, in consequence of M. Audouin's remarking that it would be important to ascertain whether the specimen in question was really Amber or Gum Copal, M. BROGNIART was proposed as likely to assist in the inquiry, and was accordingly added to the committee.

On the subject of M. GUERIN'S communication at the previous sitting, on the cochineal insect, M. AUDOUIN, under whose care they were placed, rose, and spoke as follows:—

“ We have accomplished propagating the *Coccus Cacti* of Linnæus ever since the year 1833. Frequently previously to that date, namely in 1817, 18, 20, 28, and 31, attempts were made, but invariably without success. M. Peloie, our principal gardiner in the conservatories of the Museum, having in 1833 learned that M. Lot, a florist in Paris, possessed a plant of the Nopal infested with *Cocci*, obtained some from him, and conveyed them to the *Jardin-du-roi*. From that period they have continued to increase, and now three plants are entirely covered with them. From that period I have studied them incessantly. Before publishing the result of these researches I think it best to place before the Society some specimens, which will illustrate various obscure points in the history of these curious insects. I have been able to trace many successive generations. Having observed the females at the moment of oviposition, I have recognised in that operation

many instances of analogy to circumstances attending the reproduction of *Aphides* at a certain period of the year. The female *Coccus*, whose abdomen is vastly distended, produces successively hundreds of little ones, which proceed from her body, not as eggs but, as hexapod and very active insects. At the time of their birth the young are excessively small, and of a bright red colour: they soon scatter themselves over the surface of the Nopal, and after having chosen a convenient place, they fix themselves, and acquire in time the size of little peas. It is, however, the females only that acquire this size, and it is these alone that are an article of commerce. The males are exceedingly different in form; they possess wings, which the females are entirely without; and their size is so diminutive that for a long time they totally escaped observation. Indeed in their adult state they scarcely attain the size possessed by the females at the time of their birth: measured with nicety, they are a millimeter in length, whilst the females measure a centimeter. Their body is red, without any down, and their wings are semi-transparent, and covered with a kind of whitish powder. About the time of coition these are very active, and wander incessantly over the surface of the Nopal: their activity is increased by exposure to the sun's rays: the males are at this moment particularly abundant in the conservatories of the Museum, and a great number of young females are observable in the act of plunging their beaks into the stalks of the Nopal, in order to fix themselves. All the females, even the smallest, are covered with an abundant cottony down, which is a secretion from the surface of the skin, and which I have made my particular study."

M. AUDOUIN then explained the economy of the larva of an insect which forms galleries in the shoots of the pear-tree; and he exhibited to the Society the stem of an espalier-pear-tree, aged four or five years, which he had obtained from a large garden in the Rue de Varrenes, under the management of M. Derviliers. This skilful horticulturist having observed many pear-trees with longitudinal fissures in the bark,—which, although they appeared superficial, and injurious to the bark only, yet were a certain indication of disease, and rarely failed to cause the death of the tree,—consulted M. Audouin as to the cause of this phenomenon. The investigation he had made speedily convinced him that this malady,

instead of being caused by an uncongenial soil, or an insalubrious atmosphere, as had been previously supposed, was actually the work of an insect. Having raised the bark along the fissures, he found below them three longitudinal furrows excavated between the wood and the bark, but almost entirely in the latter: these furrows extended two feet: commencing some inches below the top of the stem, they extended to within four or five inches of the ground; but their length was really greater, on account of the number of flexuosities which they presented in their course, which, if accurately measured, would add at least a third. Three deviations made by the larva, and which occasion three long zigzag lines, occasionally crossing each other, are evidently for the purpose of enabling it to find in its course, and before it reaches the foot of the tree, a sufficient quantity of nutritive matter. M. Audouin having traced these grooves, found they originated in a spot from whence a branch had been cut the previous year. At this spot he found a small circular interval between the bark and the wood: the eggs whence the larvæ proceeded had been laid on the new bark, — and it is indeed a spot most favourable for their reception. On this account there would be an obvious advantage in covering the sore, as soon as made, with the ointment of *Saint-fiacre*: it would protect the trees not only from the insect in question, but from many which deposit their eggs on the dry wood, and are thus easily introduced into the bark. M. Audouin exhibited and described the larvæ which had excavated the furrows in question; they belong, without doubt, to a coleopterous insect, and probably to one of the family of *Serricornes*. Further observations, and the advantageous results arising from the treatment of the infested trees, will be laid before the Society.

M. GUÉRIN addressed the Society on the subject of *Scleroderma*, a genus of *Hymenoptera*. Notwithstanding all his researches in the various works on Entomology, he has been unable to recognise this genus, which is by Latreille attributed to Klug, but of which there was no satisfactory description in the works of that illustrious entomologist.

M. GUÉRIN called the attention of the Society to some articles written by Mr. Westwood for the British Cyclopædia; also to the publication of the posthumous works of Mr. Say, in the Boston Journal.

The following papers were read:—

Notice of a new Orthopterous genus, of the family *Mantidæ*, by M. SERVILLE.

Essay illustrative of the history of Entomological Societies, by M. DE CASTELNAU.

Description of a new species of *Geometridæ*, of the genus *Crocallis*, by M. DONZEL.

Notes on the economy of the larva of *Bryophila Algæ*, by M. GUÉNÉE.

Description of a new species of *Argynnis*, by M. LEFEBVRE; at the close of which the author made some observations on the development and variation of the black spots on those species of *Satyrus* which he had named *Leucomelaniens*; he concluded, from their numerous variations, that the position of these, forms a character by which to distinguish the sexes: he further communicated to the Society, that he had observed in his own garden, during the past summer, a great number of *Satyrus Galathea*.

SITTING OF THE 4TH OF JANUARY, 1837.

M. DUPONCHEL in the Chair.

The following donations were announced:—

Recueil de la Société d'Agriculture, &c. de Rouen, Nos. XV. XVI. and XVII.

M. GIRALDÈS. Anatomical studies, or researches on the organization of the eye, considered in reference to man and certain animals.

M. WESMAEL. A Monograph of the *Braconides* of Belgium; also a Monograph of the *Odyneri* of Belgium; also a Notice of *Ichneumon gynandromorphus*; also Observations on the species of the genus *Sphécodes*.

M. AMYOT then communicated to the Society various details contained in the Memoirs of the Agricultural Society of Vienna, on the subject of the injury done to the forests by certain insects. The government having inquired of this Society the best means of entirely preventing, or at any rate of arresting, the progress of this devastation, it obtained a reply, that one of the members being occupied at that time in an extensive work on this very subject, it was necessary to await the result of his researches.

M. AUDOUIN related the chief results obtained in some researches which he had made for several years relative to the *Scolyti*, which do so much mischief in our forests, woods, and public walks. M. Audouin said it afforded him pleasure to announce that MM. Wesmael and Spence, with whom he had much communication concerning these insects, and in company with whom he had examined their ravages, particularly at Brussels, in the spring of 1836, wholly coincided with the view which he took of the principal facts connected with their history. He considered the injury to be caused by the perfect insect as well as by the larva. It was an error to suppose that the perfect *Scolyti* took no nourishment, and employed themselves solely in propagating their kind; they were at this period of their existence peculiarly voracious, and attacked by swarms the trunks of trees, in order to extract from them a nutritious juice: they perforate the exterior bark with their mandibles, and, having entered, form for themselves little galleries of various depths, which enter the external layer of the wood of the trees: now this external layer contains a great quantity of viscous sap, or *cambium*; the *Scolyti* soon, however, quit these galleries, and leave a round hole where they make their exit. Hence results much evil to the trees; partly from the loss of sap from the holes, especially in the spring, when it is flowing freely; and partly because the water, either from rain or melted snow, is admitted, which, once introduced, finds its way under the bark, and produces a disorganization of the tissue to the extent of several inches. Thus it is easy with a little skill to distinguish at once those trees which are suffering from this cause; they may be recognised by black spots in the bark,—not very apparent, it is true, but, when the bark is removed, very obviously depicted on the wood in oval patches as black as ink, and often covered with a liquid of the same colour. Now it is curious to observe, that these diseased trees, thus rendered sickly, as M. Audouin has assured himself, by the attacks of the perfect *Scolyti*, are the very trees which the following year will be selected by the female *Scolyti* to deposit therein innumerable eggs, whence issue hosts of larvæ, which, burrowing in every direction, consign the tree to inevitable death. Nevertheless, it not unfrequently happens, that those trees which have been simply perforated by the perfect *Scolyti* for nutriment, and which have not been sought

by the females on the following year, not only survive, but recover, at the end of two or three years; their pristine vigour. Trees also which have been attacked by a few females only, have, in some instances, appeared to revive. It often also happens to the elm, that trees to which the perfect *Scolyti* have yet done no injury in seeking for food, are nevertheless attacked by females, and eggs are deposited upon them; but, when this is the case, it is always observable, that the tree is suffering from some other cause,—either a canker, or some wound which had facilitated the introduction of rain-water. In other instances the elms had been attacked by the larvæ of *Xyleutes cossus*, of which the number is sometimes very considerable. M. Audouin remarked, that these various causes induced the same result, namely, sickness to the tree, and consequent non-ascension or slow circulation of the sap; this state of sickness is indispensable to the laying of the eggs of the *Scolytus*, and it appears of little consequence to the parent how it has been superinduced. This fact has undoubtedly imposed on those persons who have asserted, that none but those trees which were either dead or inevitably dying were ever attacked by the *Scolyti*. Those who assert this are certainly in error; for it is without doubt ascertained that, in the greater number of cases, the tree, notwithstanding its diseased state, would have recovered had it not been for the subsequent oviposition by the female *Scolyti*. With regard to *Scolytus pygmaeus*, which produces such devastation among the oaks, M. Audouin observed that this insect, besides perforating in the perfect state the bark of the oak-trees, often also attacks, and this with the only aim of obtaining proper food, the young shoots of the year while they are still green, cutting them at their base. Some species of oak are much more liable than others to be attacked in this particular way, and the tree itself suffers much from the continued injury. We may observe in the botanical garden of the *Jardin-du-roi*, a Portugal oak, (*Quercus Lusitanica*), which is regularly stripped of its young shoots towards the middle or end of June. Its trunk and branches are still very healthy; its bark is very hard and rough; and it seems that the *Scolyti*, which are of the species *pygmaeus*, find it difficult to pierce; hitherto, therefore, they have not deposited their eggs in this tree, but have confined themselves to the sap of the young shoots. M. Audouin gave it as his

opinion, that the *Scolyti* which annually attacked this *Quercus Lusitanica* proceeded from the timber-yards in the neighbourhood of the Museum of Natural History.

M. FEISTHAMEL observed that, interesting as were the remarks of M. Audouin, yet he thought that the mortality of the trees ought not to be attributed so much to the *Scolyti* as to the dryness of the summer; the *Scolyti* appeared to him but a secondary cause: he believed that these insects attacked none but those trees which were already diseased; thus in the year 1835, the previous summer having been excessively dry, the forest of Vincennes had sustained great injury from the presence of the *Scolyti*, whose increase had, he believed, been principally caused by the excessive drought. In support of this opinion, M. Feisthamel added, that in the Forest of Vincennes the mortality only took place in those spots where there was a deficiency of vegetable mould; whence the roots, being near the surface of the soil, could not reach a bed sufficiently moist; the trees have thus literally perished from the great drought. Out of the fifty thousand trees which were obliged to be felled, a very few had been growing in good soil. M. Feisthamel further announced, that he should shortly offer to the Society a more detailed statement on this interesting subject; and he combated the opinion of M. Audouin, that the injury may be remedied by removing the trees which had been attacked: he believed that the *Scolytus*, happily, was not the cause of all the evil attributed to it, since it appeared that, although the trees attacked by it and cut down in 1835, in the Forest of Vincennes, were not removed, yet in 1836 no single tree had perished. During this year they had only felled a number of trees little greater than the number that annually perish. From these facts M. Feisthamel concluded that it was drought, and not the *Scolyti*, which occasioned the great loss of forest-trees.

The Society then elected their officers for the current year, as under:—

M. AUDOUIN	President.
M. BOISDUVAL	Vice-President.
M. BRULLÉ	Secretary.
M. PIERRET	Assistant-Secretary.
M. AUBÉ	Treasurer.
M. SERVILE	Curator.

SITTING OF THE 18TH OF JANUARY, 1837.

M. BOISDUVAL in the Chair.

The following donations were announced:—

M. GRAËLLS. Statutes of the Royal Academy of Arts and Sciences at Barcelona.

M. GUERIN communicated to the Society that he had received from the Isle of Cuba, by the hands of M. Poey, a species of *Porcellio* nearly related to *Porcellio rudis*, of the neighbourhood of Paris, but still quite distinct from that insect; and he proposed to call it *Porcellio Poeyi*. “For a long time,” said M. Guerin, “the inhabitants of the Isle of Cuba have assured me that they find at Havannah the *Porcellio* which is so common in our houses; they were so persuaded of its identity with ours, that they have never sent it me. Not agreeing in this opinion, I pressed its being transmitted to me, thinking it would prove a different species; and if not, we should at least be furnished, by its presence in both countries, with an interesting fact in entomological geography. At last I have received a considerable number of this insect, and find they belong, like ours, to the subgenus *Porcellio* of Latreille; at first they appear exceedingly like the *Porcellio rudis* of our houses, but on a closer comparison I find they differ strikingly in the form of the head and antennæ, in the proportion of the abdominal setæ, and especially in the six anterior feet, which are furnished below with brushes formed of clavated spines, a peculiarity which is not observable in any of our species. This complicated formation of the feet may possibly serve to facilitate their progress on smooth and perpendicular surfaces, and seems, in some way, to explain their frequent appearance in the houses of Havannah.” M. Guerin announced that he had received at the same time a bottle containing twenty thousand specimens of the *Aphodius marginellus* of Fabricius.

M. GERVAIS communicated to the Society a portion of the result of his researches into the semi-metamorphosis in *Myriapoda*; he stated, that in *Iulus* the variations bear not only on the number of segments of the body and number of legs, but also on the eyes, which are far less numerous in the young than in the adult *Iulus*, and the appearance of which takes place in a very regular manner. The *Lithobii* also undergo a semi-metamorphosis: the number of the segments of the body, that

of the legs, and also that of the joints of their antennæ, varies; it is now ascertained that the number of their eyes varies also. One individual, having but seven pair of legs, possessed but two eyes on each side of its head; now it is well known that in the adult *Lithobius* the eyes are numerous, grouped together, and easy to distinguish. M. Gervais referred to M. Savigny's work on Egypt, in which a *Lithobius* was figured, which had but four eyes on each side of its head, like the true *Scolopendræ*; he thought that M. Savigny must have possessed an individual whose eyes were not yet perfectly developed, but which still was further advanced towards maturity than an individual with two eyes only; and he was confirmed in this opinion by the fact, that the *Lithobius* figured by M. Savigny had but twenty joints to its antennæ, whilst other known species had more than thirty joints when arrived at the perfect state.

The following papers were read:—

A Memoir on the Stridulation of Insects, by M. GOUREAU.

Observations on the Causes of the Appearance of *Cebrio*, by M. GRAËLLS.

M. le Comte de Perrochel, of the Château de Saint Aubin, M. Leprieur, jun. of Dieuze, and M. Lequien, of Paris, were admitted members of the Society.

SITTING OF THE 1ST OF FEBRUARY, 1837.

M. AUDOUIN in the Chair.

A letter from M. GUERIN was read, containing his resignation of membership in the Society; on the subject of this letter it was determined, that it should be re-read at the following sitting, and that the members should be apprised of it before deliberating on its contents.

M. GERVAIS, in addition to his observations at the last sitting on the metamorphosis of the *Myriapoda*, reported that he had since had an opportunity of examining the young of *Geophilus*. A young individual of this species which he had procured at Paris, and which was but a line in length, possessed but six pair of legs; the joints of the antennæ were already fourteen in number, and the last segment of the body possessed the two setæ which are characteristic of the genus. M. Gervais is preparing a figure and description of this little animal.

M. AUDOUIN submitted to the Society some *Crustacea* which he had received from M. Bravais, and which were very remarkable on account of their similarity to certain bivalve shells; many *Crustacea* possessing this character, as *Cythere*, *Cypris*, *Lynceus*, and *Limnadia*, were already known, but here the resemblance was much more complete, for the cross striæ of the shell were readily to be traced, and its size was at least a centimeter; nevertheless, the class to which these animals belonged could not be mistaken. These *Crustacea*, M. Audouin considered, ought to constitute a new genus, allied to *Lynceus*, and would connect this genus with *Limnadia*: they will form the subject of a future paper. They were found in a little pond of brackish water at Arzen, near Oran, on the coast of Africa; in the same pond *Dytisci* were captured.

M. AUDOUIN then exhibited to the Society some *Crustacea*, very nearly related to the above, which he had received from M. Deshayes. These *Crustacea*, which equal in size those of Arzea, have been found in different provinces of the Russian Empire; and a naturalist of that country, M. Krynecki, has recently published a description of them in the "*Bulletin de la Société des Naturalistes de Moscou*," under the name of *Limnadia tetracera*. M. Audouin entered minutely into the structure of these *Crustacea*, and clearly demonstrated that they could not be placed in the genus *Limnadia*, that they approached much more nearly to *Lynceus*, and indeed that they belonged to the same genus as the *Crustacea* previously exhibited from Arzen: to this new genus he proposed the name *Cyzicus*, a genus composed at present of but two species, *C. Bravaisii* and *C. tetracerus*. M. Audouin then remarked on the widely separated habitats of the two species, Russia and the Coast of Africa; and observed that it was by no means a solitary instance of genera, at present composed of very few species, being found dispersed over far distant regions of the globe; even confining himself to the *Entomostraca*, he would cite the genus *Limnadia*, which, till lately composed of a single species, a native of France, was now enriched by a second, very similar to the first, which had been found by M. Desgardin in the Island of Maurice, situated within the tropics. Reverting to the *Entomostraca* of Arzen and of Russia, M. Audouin observed that he had found among them both males and females; this fact he considered of great

importance in the history of these animals, for in many genera, and particularly in *Limnadia*, we had hitherto been unable to distinguish the sexes, and had consequently considered them hermaphrodites; in the specimens before him, from Arzen and Russia, there was not the least doubt of the existence of distinct sexes. The males were invariably without eggs, and were furnished moreover at the anterior part of their body with two pair of appendages, terminating in points, and with stout claws, with which they, without doubt, seized the females, and held them during the act of copulation. The females are without these organs, and are provided with ovaries filled with eggs. M. Audouin terminated his address by submitting to the Society some minute *Crustacea* of the genus *Lynceus*, probably the *L. brachyurus* of Muller. They had been forwarded to him by M. Waga, the distinguished professor of Natural History at Warsaw. Although but three millimeters in length, they were considered as giant *Entomostracea*, compared with *Daphnea* and *Cypris*; yet were dwarfs in comparison with *Limnadia* and *Cyzicus*. The *Lyncei* also possessed distinct sexes. M. Audouin will recur to these peculiarities in a memoir which he is preparing on various animals.

The following papers were read:—

Description of the *Libellulina* of the neighbourhood of Aix, by M. BOYER de FONSCOLOMBE.

Description of a new species of the genus *Adena*, by M. PIERRET.

Memoir on two *Tineæ* which attack the olive, by M. BOYER de FONSCOLOMBE.

M. AHRENS, of Augsburg, was admitted a member of the Society.

SITTING OF THE 15TH OF FEBRUARY, 1837.

M. AUDOUIN in the Chair.

The following donations were announced:—

M. DUPONT. His Monograph of the *Trachyderides*, extracted from the Magazine of Zoology.

MM. CASTELNEAU and GORY. The 11th number of their Natural History, and Iconography of *Coleoptera*.

The SECRETARY read a second time the letter from M. GUERIN, resigning his membership in the Society. On this subject Col. FEISTHAMEL, Vice-President of the Society during the

preceding year, denied those allegations contained in the letter which referred to him. The Society came unanimously to the conclusion, that the charges in M. Guerin's letter were wholly unfounded. M. Guerin's resignation of membership was accepted.

M. FEISTHAMEL communicated to the Society some particulars respecting the death of M. Picard, which he had announced at the last sitting. Most of its members having been personally acquainted with M. Picard, and considering that this young traveller had fallen a victim to his devotion to the science of Entomology, the Society engaged M. Feisthamel to draw up a necrological notice on this subject.

M. AUDOUIN communicated to the Society that M. DE THEIS being charged with the Consulship of Wallachia, he would not be able, for a considerable time, to be present at their sittings; but he offered to the Society his services in the country in which he was about to reside.

M. AMYOT acquainted the Society with the publication of the translation of a Chinese work on the mode of cultivating the Silkworm; this translation, he said, had been made by direction of the Minister of Trade, and copies would be distributed to the various public societies. M. Amyot hoped the President would apply for a copy.

M. AUDOUIN presented to the Society two specimens of a remarkable *Crustacea*, which much resembled the *Argulus foliaceus* of Jurine, but differed from that insect in wanting the breathing apparatus attached to the anterior feet, and also in its size, exceeding a centimeter and a half in length. This *Crustacea* had been found in Cayenne, by M. Lacordaire; it is parasitical on a fish called *Aymara*, much esteemed as an article of food, and found in all the rivers of that country. M. Audouin described the insect, and considered it the type of a new genus, to which he proposed the name *Dolops*. The species he wished to dedicate to M. Lacordaire, and therefore called it *Dolops Lacordairei*.

M. DUPONCHEL read the Report of the Committee chosen at the preceding sitting, to draw up regulations on the subject of the library, and the duties of the curator. The consideration of this Report was deferred till the next sitting.

M. DUPONCHEL, in his own name and that of M. PIERRET, read a report on a paper by M. Desjardins on a species of

Alucita. The conclusions contained in the report were adopted, and the Society resolved that it should be printed in the *Annales* at the conclusion of M. Desjardin's paper.

M. SERVILLE read, in his own name and that of M. BRULLÉ, a report on another paper by M. Desjardins, on a new species of *Hemiptera*, of the family *Hydrocorisæ*. The Society also adopted this report, and ordered its being printed at the conclusion of M. Desjardin's paper.

M. LE COMTE DEJEAN of Paris, M. DAYÈRE of Paris, and Dr. GREVILLE of Edinburgh, were severally admitted members of the Society.

SITTING OF THE 1ST OF MARCH, 1837.

M. AUDOUIN in the Chair.

The following donations were announced:—

M. LEVRAULT. *Annales Françaises et étrangères d'Anatomie et de Physiologie comparées*, par MM. Laurent et Bazin, 1^{re}. Livraison.

M. VILLA. *De Quibusdam Coleopteris Italix novis aut rarioribus*, by M. Arogona.

M. LE COMTE DEJEAN. The first four numbers of his new Catalogue.

M. BOISDUVAL announced to the Society the death of M. Charding, an entomologist of Lyons. The Society requested the Secretary to write to M. Donzel, to solicit that gentleman to prepare a necrological notice on M. Charding. The Secretary announced to the Society that it had lost another of its members, M. Robert, residing at La Chenée, near Liege.

M. AUBÉ read a letter which had been addressed to him by M. Pâris, a member of the Society, on the subject of *Dytiscus latissimus*, which that entomologist had received in great quantities from ponds in the neighbourhood of Epernay. This fact, added to the record of its capture last year in Sologne, proves that this species of *Dytiscus* is more widely spread over France than has hitherto been supposed.

The COUNT DEJEAN observed, that it was an interesting fact that females of *Dytiscus latissimus* had been found with smooth elytra.

M. BUQUET, on the part of M. Trobert, presented to the Society drawings of insects supposed to be new; these were

the other sex of the *Goliathus*, lately described by M. Buquet under the name of *G. Grallii*, and which had been taken on the Island of Fernando Po, and two *Calosomata* from the Cape de Verd Islands. M. Buquet assured the Society that he would carefully examine the specimens themselves previously to recording them as new in the publications of the Society.

Before passing to the reading of the papers which were in the hands of the Secretary, the Society deliberated on the report received at its last sitting, on the subject of some altered regulations which appeared requisite, in consequence of the removal of its library, which had hitherto been deposited at the residence of the Curator. The Society adopted the course proposed in the Report, and entrusted the Council with drawing up some regulations for the management of the library, a copy of which should be placed in the room where the sittings were held, in order to prevent the possibility of any misunderstanding of the duties of the librarian.

The following papers were read:—

A description of two new Lepidoptera of the family *Noctuidæ*, by M. GUENÉE.

A notice on the metamorphosis of a species of *Agrilus*, by M. AUBÉ.

Observations on certain organs in different genera of Insects, by M. DOYÈRE.

M. FALDERMANN, of St. Petersburg, and M. OLNHAUSEN, of Augsburg, were admitted members of the Society.

SITTING OF THE 15TH OF MARCH, 1837.

M. AUDOUIN in the Chair.

The following donation was announced:—

M. PERCHERON. Bibliothèque Entomologique.

M. GUYOT called the attention of the Society to a *Dytiscus* which connected the species *circumcinctus* and *dubius*. The specimen was a female, with smooth elytra, or at least very slightly striated, and not in any degree comparable to the deeply sulcated appearance which females usually present. The only individuals which M. Guyot had seen appeared to him perfectly mature, although the elytra were still soft.

M. AUDOUIN noticed the existence of a pamphlet which had been published many years since, at Perpignan, by M. Farines,

on the *Pyralis pilleriana* of Hubner, an insect particularly injurious to the vine.

M. AUDOUIN laid before the Society the prospectus of a new Society just established in Paris, which had called itself the *Société Séricicole*, and the object of which was to study the best mode of breeding and rearing the silkworm, and of harvesting and applying the silk which it produces.

M. AUDOUIN noticed to the Society the pamphlet of M. Felix Duval, printed at Montpellier, on insects injurious to the vine, and of which the Spanish work of M. Lopez y Ramos seemed to be nothing more than a literal translation. The plates in the two works appeared identical, with the exception that the figures were placed a little differently, and in the Spanish work a very few new ones were added.

M. AUDOUIN, in conclusion, described the very rare folio work of Cyrillo; it contained twelve plates, and described the insects found in the vicinity of Naples: he stated he had lately added this book to his library.

M. DOYÈRE acquainted the Society with the observations which he had lately laid before the Philomatic Society, on the subject of the organs of perforation possessed by insects, and particularly of the oviposition of the female *Cicada*. Reaumur had often occupied himself with this subject, and all subsequent authors had been quite content to follow him implicitly; but M. Doyère thought this interesting mechanism deserved a fresh investigation; and he believed it possible to assemble the various facts under a general theory, at variance with all that M. Reaumur had proposed. He would take for example the female *Cicada*; in this insect the ovipositor is formed of three pieces or stalks, closely arranged together. According to the received opinion, the two lateral pieces or files played along the centre piece, which had no other object than directing the motions of the others, and preventing them from spreading; the perforation resulting from the motion of these files on the wood. M. Doyère had observed—

1st, That the teeth of these pretended files are too blunt, and appeared to him ill calculated for this employment.

2dly, That from considerations entirely mechanical, and *à priori*, the instrument, according to Reaumur's theory, would require a sufficient fulcrum, having no other than the body of the insect borne on its legs; and being consequently

reduced, for its maximum limit of action, to the weight of its own body, a power entirely insufficient in all insects armed with either stings or pointed ovipositors. This consideration alone is sufficient, independently of all anatomical researches, to make us acknowledge the necessity of solutions entirely different from those which are now received.

3dly, That, moreover, the longitudinal movement of the files is impossible; indeed, had not Reaumur neglected internal anatomy, he must have observed that the two lateral pieces to which he assigns the principal part in the act of perforation, are, in reality, fixed by one of their edges to the penultimate segment of the abdomen, and that the only piece of the three which is really moveable is the central one, which is attached to the extremity of a powerful lever, moved by two large powerful masses of muscle.

In consequence of this fact, and others which would occupy too much space here, M. Doyère is led to the following conclusions:—

1st, That the only movement which the lateral pieces can perform is a rotatory movement, the object of which is to force the central piece from the groove in which it lays embedded when at rest.

2dly, That the lateral pieces, erroneously termed files, only act in the process of perforation as grappnels; spreading by the action of the central piece, they fix themselves firmly in the wood by their teeth, at their extremity, and thus form the point of resistance wanted in Reaumur's theory.

Finally, that the middle piece is in reality the instrument used for perforation, and acts at the same time as a means of spreading the grappnels, and fixing their teeth in the fibres of the wood; and as a punch or perforator, after it has passed the extremity of the grappnels, for perforating deeply into the substance of the wood itself.

M. Doyère said, that in this theory the entire mechanism, power, and fulcrum, are contained in the penultimate segment of the abdomen, which is consequently sufficient for its functions, independently of the other parts of the body. He deferred, till another opportunity, laying before the Society a variety of observations which he had made on the stings of *Hymenoptera*, the rostrum of *Hemiptera*, and the ovipositor of many female *Orthoptera*.

The following papers were read:—

Note on the Peculiarities presented in the Changes of Skin in *Charaxes Jasius*, by M. Duponchel.

Descriptions of three new Lepidoptera from Sicily and Spain, *Cleophana Elisaldei*, *Anthocaris Damone*, and *Acontia Graellsii*, by M. Feisthamel.

ART. XV.—*Notes of an Irish Insect-Hunter.*

CHAPTERS I.—IV.

[In which the Noter arriveth at Dublin; mingleth in the election; crosseth the country from east to west; traverseth on foot among the Cunnemara mountains—but saith nothing about insects.]

AT twelve hours' notice we were ready. Passing all the wonders of the route from London to Birmingham by night-coach,—thence, *viâ* rail, just opened, to Liverpool, in precise time to scramble on board the Post-office steam-packet for Dublin,—suffice it to say, that, after a tolerably blowing night, on regaining the deck I found we were just entering Kingstown harbour, in the teeth of a brisk wind, on as fine a fresh morning as ever converted the sea into the irregularly moving surface of a molten mirror, ploughed up and shattered, as the prow met each wave in the particular track in which we were dashing, like mingled quicksilver and liquid emerald, on the spray of which were reflected ten thousand broken rainbows.

I have not seen the Bay of Naples, or of Constantinople; nor had I ever heard the Bay of Kingstown described,—therefore I was not prepared for this magnificent introduction to the sister-isle. The far out-stretching mountain-promontory of Howth-hill forms its northern boundary; the bold and picturesque termination of the Wicklow range, its southern. They are the respective horns of something more than a crescent, and, each armed with its lighthouse, seem to invite you in and offer protection, which the enormous artificial works render perfect. An 800-ton vessel may unload alongside the quay at any time; and the largest merchantman or man-of-war may take refuge within the pier immediately after flood.

Never having visited a foreign country, I cannot say that my feelings on landing were the same as if I were setting foot for the first time on any other shore. Nor will I give the slightest countenance to any consideration of Ireland, as a thing separate and apart from ourselves. I have always had for that country a place in my affections—a kindly interest and regard, like as for a sister, from whom the mistaken partiality and caprice of a parent had kept me asunder and in ignorance of from childhood. I loved her,—not, perhaps, with the glow of earliest acquaintance, and the attachment that springs from daily interchange of kindness and full community of feeling and pursuit,—but with that spontaneous, undefined emotion, not unmingled with a degree of curiosity and excitement, that is sure to be awakened, in the heart not barbarized, the more strongly towards an unknown but rightful claimant, when neglected and oppressed. There might be untoward features of person or character to account for our parent's conduct, but this does not satisfy or stifle the call of natural affection. . . . There is abundance that is characteristic on first landing in Ireland.

You have secured your carpet-bag or portmanteau,—mounted with the throng the steps of the paddle-box,—escaped over the plank on to the adjoining steamer, and finally gained the broad flight of steps leading up to the quay. Now beware of those ragged urchins that, jabbering like monkeys, instantly seize on such portable luggage as you have about you, and seem as if they would tear it to pieces like rats. A tremendous thwack across the shoulders of one of them, from a man who saw we were annoyed by their officiousness and clamour, instantly scattered the crew. We pitied the poor little fellow that received the blow, but were glad to get quit of their excess of civility. About two or three minutes brings you to the train, waiting for the steam-packet passengers.

Rail-road travelling, to me, is the most tedious of all kinds of locomotion. The time is undoubtedly shortened; but that by which you measure time, namely, the succession of ideas, is retarded by the paramount monotony in at least equal proportion. It is a singular paradox, that in proportion to the paucity and slowness of your ideas will time *on hand* appear tedious in passing, but rapidly *to have passed* on retrospection, because there is nothing to occupy space, nothing but a vacuum

to look back upon; and, on the contrary, in proportion to the rapidity and volume of your ideas, and events therewith connected, will time *in hand* appear to pass quickly, and the retrospect to fill an age. This is the true *rationale* of occupation being a cure for *ennui*. And if, on this principle, we apply the Rule of Three *Inverse* to rail-road travelling, I believe we shall find the advantage of *seeming* quickness, that is, *less tedium*, on the side of the post-road and horses, and still more in favour of the pedestrian! That between Kingston and Dublin is, however, the very worst piece of rail-road I know of anywhere. They were changing the granite for wooden sleepers, as more durable, with less jar. There are several stoppings at stations in this short distance, so that they were half an hour performing the five miles; which, after a night's sea-sickness, and the prospect of breakfast at the end of it, is intolerable for a rail-road.

On alighting at the terminus, you are surrounded by a similar set of ragged boys, with the addition of a posse of the owners or conductors of that most national of all vehicles,—the Irish car. Being strangers to the ways, and manners, and style of appearances here, we avoided the whole set of cars, (though there was a choice most varied in all respects but one,) for the sake of respectability; and fixed upon one of the most promising of the lads who were pressing their services upon us, to carry our baggage and show us the way. Catch an Irishman at fault if you can. Man and boy, they are replete with information, and never confess their ignorance of any thing. Our little *avant courier* answered with the most unhesitating assurance our inquiries as to his knowledge of the house we had the direction of; and, briskly trotting on before, made inquiry *for himself* of every similar urchin he met with on the way. We reached our destination in safety, and were comfortably seated at breakfast in the centre of the Irish metropolis thirty-six hours after we had left our own home in London.

I am not going to inflict a description of the Irish capital. Our “concern” was not with the great cities and flourishing part of that country. It was the people rather than the places that we wished to see for ourselves. It was the state of the peasantry in the most remote and destitute districts, that we were anxious to witness, if practicable. Our chief interest and

sympathy was with wild, uncivilized, *catholic* Ireland. Still, as strangers, we must not entirely pass over Dublin, lest it should be taken for indifference or deficiency of notice. Sackville-street is the great lion of Dublin, and Sackville-street is the only thing in all Ireland with which we were disappointed. This arose from the very common cause of extravagant anticipations. I fancied, from what I had heard, that all the public buildings in Dublin were congregated together in this one street; and having often seen it described as one of the "finest streets in Europe," I expected to find it all palace and architecture. We were disappointed, therefore, to find ourselves actually in Sackville-street without being actually overpowered by its grandeur, or even quite sure of its identity; and when we came to the conclusion that it must be Sackville-street, the existence of plain matter-of-fact shops operated against its dignity, by obtruding ideas of pounds, shillings and pence, and brought it down to our own ordinary level of good business streets. There is nothing great in Sackville-street except its width,—said to be one hundred and seventy yards. It is very inferior to our Portland-place in aristocratic air, and to many streets of Edinburgh in point of architecture. Large hotels, some of which were the town residences of members of the nobility before the union of the two Parliaments, occupy a considerable portion of the street. Nelson's column is placed in the centre, and, from the bridge, esteemed the best point of view, appears directly opposite the post-office, which, having no building to correspond with its projecting pediment, had, to my eye, an ugly, lop-sided effect. Whether the best taste is displayed by placing a column or pillar in the centre rather than at one end of a street, may be questioned, on comparison with our Duke of York's column, Waterloo-place. In the former situation it is necessarily more or less of an obstruction, breaks the unity of the view, and loses the fine effect of a long avenue.

But, apart from exaggerated expectation, Sackville-street is a fine street, and Dublin a fine city. There are other streets that vie with Sackville-street, except in width. The line along the river is as broad, or broader, and contains far more of architecture and interest. The view from Carlisle-bridge, as an architectural one, is said to be unrivalled in Europe, the eye being met by a fine building whichever way you turn,—

the Custom-house—the Post-office, with Nelson's pillar—the Four Courts—and the Bank. The last-mentioned building, formerly designed for the Parliament-house, is beautiful and unique. We have nothing in London to compare with the separate or combined elegance of its several fronts; and the Custom-house transcends ours in about the proportion that the Thames does the Liffey. There are squares too, not so splendid but larger, and in better taste than ours; and one or two business establishments that excel any we have to show,—not in plate-glass and gas-lights,—but in size and appearance of substantial respectability. On the other hand, we saw misery and wretchedness enough; but still, I suppose, did not happen upon the worst parts of Dublin, often described in such harrowing terms; for, except in the somewhat greater proportion of the shoeless and stockingless, which is only national, we saw nothing but what there is unfortunately parallel enough to in our own metropolis, in each particular of filth, destitution, and density of population. Things which we see plainly abroad, at home and beneath our eyes too frequently pass unnoticed; and perhaps there is a *habit* of looking for misery in Ireland. I believe there are thousands, both of visitors and residents, in this vast metropolis of London, who may think too that they are well acquainted with its every feature, and yet have no idea of the extent of its pauper population, nor of the appalling state of filth, disease, and squalid misery, of many of its quarters. Of course, we visited Phoenix Park, which far exceeds in extent and variety any of ours: and the Zoological-gardens, which form one of its attractions, though not large or very numerous stocked, are interesting and prettily laid out.

Travellers who wish to see things as they really are, should not take letters of introduction. This is a particularly good rule for those who cannot obtain them. The next least evil to none at all, is as many as you can possibly get, and to persons of all ranks and parties, professions, opinions, and manner of occupation in life. You can scarcely help receiving a bias from the channel in which you are thrown, more particularly when connected with kindness and hospitality. Letters of introduction act as a groove or tram-road, confining you to a certain course or direction. We had but two; one to J. Tardy, Esq. of Mount-pleasant, near Dublin, the esteemed

entomologist, whom we found upon inquiry to have been some time deceased; the other, to a resident gentleman, from whom we received the greatest kindness, and the most useful practical information as to getting along.

The election for Dublin city was at its highest point of interest. The poll here is open for five days: this was the fourth. O'Connell and Hutton, the popular candidates, in spite of the whole corporate opposition brought to bear against them, had headed the poll yesterday. They had increased their majority to-day. To-morrow the poll would close. Excitement and party-feeling was at its height. In the Tory papers of the day, we read long accounts of the disturbed and disorganized state of the populace, of the dreadful outrages committed, of the bands of hired ruffians prowling about in lawless array, armed with bludgeons, insulting every one having the appearance of respectability, and endangering the lives of the peaceable and the stranger, if in any way suspected of a Protestant bias. Our friend happening to be of liberal opinions, proposed going down to the Court-house, for the chance of hearing O'Connell speak at the announcement of the poll. I was delighted with the opportunity of making myself acquainted with a genuine Irish mob; and should certainly like to have witnessed the learned Agitator address a native street-audience in his own capital. In this we were disappointed. He did not speak that evening, probably reserving himself for his expected final triumph of the morrow. But we were most amply repaid in hearing Henry Grattan, Counsellor O'Dwyer, and Tom Reynolds, "second only to Dan." I never witnessed any thing finer, either in manner or effect, than the speech of the first-named gentleman. I believe he could have done any thing with his audience. He seemed most thoroughly to understand them. His stentorian voice is particularly well adapted for out-door occasions. Its rich volume almost seemed to fill the arch of heaven, and commanded attention, which the measured slowness of his delivery enabled the dullest capacity to keep up. His language was of the simplest order, yet full of vigour and animation, with that happy mixture of half wit, half eloquence, so nationally characteristic, and so truly irresistible. When he paused, which was not unfrequent, the applause was boundless and unrestrainable. His tall, graceful, commanding figure, and high intellectual expression, contrasted

singularly enough with his ragamuffin audience, and greatly added to the effect. On looking from one to the other, one would have thought there could have been nothing in common between the speaker and his auditory,—nothing in him that they could understand,—nothing in them to appeal to. But he possessed the true art of oratory, by which the great models of antiquity performed those wonders. He did not descend to the level of his hearers, by pandering to their base passions and inflaming their low desires, but he brought them up to his own elevation, and carried them along with him to the highest pitch of excitement and enthusiasm. He appealed to those common feelings of humanity, of love, of home, of kindred, of country, of right, of truth, of religion, which, after all, are more readily awakened in the unsophisticated, though poor and destitute, than in the learned, the pampered, and the rich. He was full of the happiest turns and allusions. There is a rich vein to be worked upon in every human being, however ignorant, humble, or depressed. There are universal feelings of right and wrong, an inherent sense of justice and injustice, which no tyranny or persecution can ultimately destroy. They may be stifled or kept down in one generation, but they are born again with the next,—eternal in their nature. All children of one common Parent, there is no law of entail or primogeniture in the feelings of humanity, or the powers of the mind.

But did we escape alive and unharmed out of the mob? An Irish election mob, in the Irish capital, under the excitement and triumph of the popular cause?—vociferating the most violent language, dealing terror and destruction around them, and defying the civil power,—of course? Nothing of the kind. I have learnt the meaning and the power of “peaceful agitation.” We had worked ourselves as near the platform as possible, into the very centre of the crowd, and were within hearing of the cheers of the rival mob of the opposing candidates. Occasionally there was an irresistible pressure from that quarter, and we were borne backwards *en masse*. But there was none of that rude struggling by, and terrific elbowing, and brutal violence of a London mob. Every one seemed as anxious to keep his neighbour as himself in his place, and to prevent the weakly and females from being borne down in the crowd; and on the returning tide gave preference to those who had occupied fore-

most places before. During one of the great pressures a tall, good-humoured looking Irishman, after eyeing me awhile, and perceiving I was somewhat inconvenienced, firmly planted himself against the dead, or rather living weight, and gained me space. "You're used to liberty," says he, "your honour, in your own country, and you're come to spake up for it here." He stuck by me, and begged I would not be alarmed while he was near, till the crowd dispersed, which they did in the most quiet and orderly manner, on the last speaker's waving his hand, to signify all was done, and bid them go home. From some experience, I unhesitatingly pronounce the London mob to be a set of uncivilised, savage, and ruffianly barbarians, as compared with the traduced Irish.

A trait of characteristic civility we met with in the driver of the car which took us to Phœnix Park, that contrasts finely with the usual demeanour of our cabman or coachee. Though I tried to drive a bargain with him for his fare, as soon as he found, with the tact of the lower Irish, that we were strangers to Dublin, his heart opened, he became extremely communicative, and voluntarily drove us a considerable round, for the purpose of pointing out the fine streets and public buildings; and at the entrance of an inclosed square where the band were playing, he stopped of his own accord for us to get out and listen to the performances, without restriction to time. We might as easily have escaped another way as not.

Our object being to penetrate into the wildest and least frequented parts of the island, we cut the north entirely out of our map; but even in Dublin we found the greatest ignorance of the means of communication, and readiest mode of access to the west. In the best maps there are no roads marked beyond Castlebar and Westport, in county Mayo, and none in the western parts of Galway at all. We therefore found this region generally looked upon as an undiscovered and inaccessible country. Now, for the information of all future travellers, there is a rapid and well-appointed mail leaves Dublin, every evening, for Westport, on the coast of the Atlantic opposite. This we did not learn of, and therefore took the Galway coach, which we understood had a branch to Tuam, as the nearest approach.

The scene on starting, at six o'clock in the morning, is in no way different to that at a similar hour in London. The

Irish coachmen are, if any thing, more punctual and impatient, and a cloak or umbrella is not admitted to be possession of a place; on booking which, along with the receipt, you are furnished with a printed set of salutary advices and rules of behaviour, conceived in the usual quaint style. Just out of Dublin you meet the various mails coming in. The road is pretty and diversified, and ornamented with numerous seats and villas. In about six miles you reach Lucan, with its commanding and picturesque church, its spas, and commodious Spahouse. This is the grand resort of the pleasure-seeking, holiday-making folk, in Spring and Summer, to eat strawberries, drink the waters, and enjoy the scenery. The Liffey accompanies the road thus far, which it crosses at a village a little beyond, in a fine broad rapid.

The celebrated Maynooth is the first stage on this road. It consists principally of one long dull street. The College is a low unimposing building, without any architectural pretension, but apparently very extensive. It is frowningly overhung by the massive grey ruin of an old abbey or cathedral, by far the most striking object. We pass Kill-cock, Blackwater-Bridge, Clonard-Bridge, Tyrel's-Pass, and Kilbeggan; accompanied the greater part of the way, on one side or the other, by the grand canal, which forms a direct communication, by means of the Shannon, between Dublin and Limerick, and on which boats of tolerable speed regularly ply. It would afford an interesting mode of reaching the latter city, for the traveller who had time at command.

At Kilbeggan we had the first specimen of an Irish market-day, a sight too novel and curious to be passed by unrecorded. The street was literally filled with a phalanx of women, or rather of women's caps,—for that the wearers were beneath was a matter to be inferred, rather than actually ascertained by observation,—until the living mass opened to make way for the coach, and immediately closed again behind it. The scene was full of humour, and the effect to an English eye was droll and graphic in the extreme. The next town, Moat, is one of considerable size, with a good wide street, and some respectable residences.

A little out of Moat, turn the rise of the road, and—all hail to the glorious Shannon! Not romantic in this part of its course,—not wild with rock, and rich with wooded bank,—but

sweeping with broad brimful course, and calm majestic flow, over the long level Bog of Allen, far as the eye could reach. The town of Athlone is seen occupying a considerable site on both banks. This is an old military-looking place, imposing enough at a distance, but narrow, dirty, and disagreeable. It is approached by the customary long, low suburb of miserable mud cabins, which sometimes extends a mile or more in continuation of the principal streets of the larger towns. The Shannon is crossed by a wretched and narrow bridge,—made still narrower by two mills being built upon it,—consisting of some eighteen or twenty irregularly built arches. Here, likewise, it was market day,—and the bridge was crammed with women, or their upper representatives as before noted, so thick and immovable that there seemed to be a regular block, and no other alternative than that of the sheep-dogs, viz. running over their heads. How they got out of the way, or where they squeezed into, I cannot imagine. It was not without difficulty and danger that the coach made its way amongst them over the bridge, and up the steep crooked street opposite into the market-place, each equally crowded. With all this bustle, and the number and size of the shops, it had every appearance of being a place of considerable traffic. There are extensive barracks and fortifications on the Connaught side, which province you enter on leaving Athlone.

The country between Athlone and Ballinasloe offers nothing remarkable. It is a continuation of the same dreary flat;—bog on both sides of the road, a boundless waste,—relieved only by the slight cultivation on its edges. Ballinasloe is a good town for its size, and is the centre of communication for this part of the island. Coaches branch off to different places, and the mails here exchange their bags. The main street is of handsome width, and contains many good houses, besides a comfortable hotel where the coach stops. We were booked for the Tuam branch. The road continues over the same uninteresting level, through the villages of Ahascragh, Castle-Blakeney, and Mount-Bellew, where Mr. Bellew resides. This is one of those estates that so strikingly exhibit the difference between the kind and resident landlord and the reckless absentee. Here every thing looks smiling and happy, — the cottages comfortable and well glazed,—and their occupiers visibly under the hand of improvement. A large tract of bog has been

reclaimed within these few years, and converted into a well-planted and handsome estate,—most profitable, unquestionably, to the owner,—a source of employment to the tenantry,—and an ornament to the face of the country. Moilogh and Killereen complete the journey to Tuam.

Now let me record our first impressions on being thus introduced at once into the very heart of Ireland. The general aspect of the centre of the island,—through which we had travelled,—is one vast flat. So insignificant are the elevations throughout the whole of this line of country, that chemical lights, displayed for the purpose, on the Nephin-Bog Mountains, in the extreme west of the county Mayo, were visible from the high ground about Dublin, being a distance of one hundred and ten Irish, or about one hundred and forty English miles, in a straight line right across the island,—thus proving that no eminence sufficient to obstruct the view existed between. The road itself is as good as an average of the same length on any line in England, and is intersected by numerous cross-roads running up into the country in every direction. Towns and villages are larger and more numerous than with us in merely country districts; and the country itself is every where thickly inhabited. The deficiency of timber, the absence of hedges, and the general poverty of the agriculture, leave a bare and sometimes desolate appearance. There are no large substantial farm-houses, with their corn-fields and cattle, and few plantations to decorate and enliven the landscape. The only cultivation throughout large districts is just about the cabins, in small patches, reclaimed by hand-labour from the edges of the bog, stretching far and wide behind, and is of the very commonest order,—a little patch of barley, a few straggling oats, a little flax, or the potatoe patch.

The cabins alongside or in sight of this road were not, upon the whole, so very miserable, mostly better than mere mud walls, and more or less glazed. Besides pigs, fowls, and geese in abundance, goats, tied two and two, were very common at the doors. The inclosures were generally loose stone walls, or earth; but the common entrances were sound mortared pillars, with iron gates. If I were asked to express, in a word, one of the most characteristic differences of feature between the country here and our own favourite districts, I should say the English rural *lane*, which does not exist in Ireland.

A stranger passing through would suppose every little roadside hamlet to be a place of immense resort, for at least six out of seven of the cabins or cottages, including hovels the most mean-looking and miserable, have a board of invitation to the traveller hung out, and variously expressed:—"Lodgings, *by* Margaret Connor," or "Mary O'Donnell," and "Beds to let." The *order*, too, in which the invitation to good cheer was frequently written on the sign-boards of the little roadside inns, viz. "Licensed to sell spirituous liquors—Entertainment;" the latter word often underneath, in the way of an after-thought or *notâ bene*, indicated, I thought, too plainly the national preference for the liquid excitements over the solid enjoyments of life,—a regard for drinking as the more constant and serious business,—the rest only an occasional occupation or light *amusement*. . . . It strikes me now that I do not remember to have noticed a single instance of incorrect spelling on any of the sign-boards or other notifications, of which we have such ludicrous specimens in the rustic districts, and even in the larger towns, of England and Wales.

There was plenty of dirt and rags to be seen; but, on the whole, we found the population cleaner and better clad than, from all accounts, we had expected. The men generally wore a grey coat or jerkin, and were mostly provided with hats, shoes, and stockings. Among the women, at least six days in the week, shoes and stockings can scarcely be said to exist. The matrons wear caps,—the girls neither caps nor bonnets; but the cloak!—"how it strikes a stranger!"—that Protean article of dress! what would an Irish country girl be without her cloak! Besides its own proper duty, it performs the part of shawl, hood, bonnet, cap, veil, umbrella, parasol, gown, *ad infrâ*,—I dare not give the English any further,—according as it is variously worn, sometimes most gracefully, and always picturesque. The colour of the cloak is generally either blue or scarlet, according to the district, and is made to display a degree of native taste with which we were equally surprised and delighted. When we had further opportunities of observing the fine tall figures, and becoming manner of the country lasses, thronging the hills and cross-roads on Sunday, all neat and tidy, with this cloak so variously worn,—their long black hair carefully parted over the forehead, and flowing behind, except when the wearer owned a gay party-coloured handker-

chief, or a comb with which she restrained its rich luxuriance, —I could not help inwardly condemning the man or woman that first invented the cap or the boddice, as utterly destitute of feeling and good taste.

The ecclesiastical buildings form a striking feature, the more so from the total absence of every other description of architecture. I have never passed through any line of country where the churches presented such attractive and beautiful objects. The towns and villages, as before remarked, are larger and more numerous than with us; and every one of them has its Protestant, and its one or two Catholic edifices. The former, in particular, though sometimes small, are always neat and in good keeping,—extremely varied, but chaste in their designs and elevation,—universally in picturesque situations, where such could be commanded,—and not unfrequently on an eminence, or in a planted inclosure, a little out of the respective town or village. They were wholly unexpected, and gave rise to many a pleasing recollection; and as I gazed with admiration on the light and elegant spire, pointing direct towards the clear blue heaven, in token of the purity and exalted nature of its true and living purpose,—or the more massively turretted church, inclosed in a garden with park-like gates, and an avenue, and well-kept gravel-walk, seeming to breathe an atmosphere of peace, and happiness, and good-will to men,—I thought of many a familiar and sweet secluded spot; and perhaps there is more to remind one of home scenes and wanderings in this than in any other feature.

We visited the new Catholic Cathedral of Tuam before breakfast. Many were at their devotions at this early hour. It is a magnificent specimen of modern gothic architecture, and when the tower is finished, will be a finely conspicuous object for many miles round. The altar is a tasteful and costly piece of workmanship, built entirely of rich and variegated marble. This is the building that occasioned so much acrimony and paper-bitterness, on account of the names of some members of our noble Protestant families being found in the subscription list. I pity the narrow policy that would confine the worship of God to our own particular views, or to any one form or system; or that would not aid a brother to perform that sacred duty in the way that *his* conscience dictates, or that *he* has been taught to think best. Not but that, with the strong

and enlightened conviction of having found the more excellent way, we are at liberty and bound to *persuade*; but having used our best endeavours, we must leave every man to the result of his own conviction, and should respect it as much as our own. No man, or set of men, have any right to assume that they, and they only, are in the right, and possess the key of light and of truth. It is truly astonishing and deplorable to observe how this *really* popish principle of our own infallibility pervades every sect and denomination, and seems, as it were, to be one that is engrafted in the very constitution of the human mind. True Christianity is utterly opposed to any such assumption, and to every species of narrowness and sectarianism, in its whole spirit and tendency. Its distinguishing character is breadth, and universality, in its perfect adaptation to the wants of every member of the human family, wherever situate, and under whatever condition or circumstance in life. . . . I was glad to find the Protestant and titular Archbishops of Tuam, who reside close together, were on friendly terms; which example extended itself to the population, and is generally the case where either one party or the other greatly preponderate. The proportion here is about one Protestant to one hundred Catholics. The city of Tuam is irregular and dirty, without any recommendation either in itself or the surrounding country.

From the first stage out of Tuam the character of the scenery begins to change. Beyond the flat, dreary bog-level you catch the first glimpse of the Nephin chain of mountains, and peering behind and above them all the peak of Croagh-Patrick, or "the Reek," is seen still at a distance of forty miles. Along the road the edges only of the bog continue to be cultivated, principally in patches of potatoes and barley, with an increased proportion, as you approach westward, of that most elegant of all crops—the flax. The villages of Roundfort and Holymount are the next stages. A little before reaching the latter place is a handsome building, which, on inquiry, we found to be an agricultural school, belonging to an English Company, but about to be given up and sold for want of support. We could not very distinctly learn the causes of failure, but gathered that it was the difficulty of obtaining scholars, from the inaptness of the Irish to learn *upon system*, rather than any defect or mismanagement on the part of the Company. It is a great

pity such an institution should not succeed, where there are millions of acres lying waste, and a population comparatively unemployed. The same labour that is now frittered away in shreds and patches, if employed with system, and directed by capital, would bring a vast quantity of land into the finest cultivation, and afford a most profitable investment. Instead of going out to South Australia, or the Canadas, why not colonize Ireland? . . . There is a beautiful seat of Lord Lucan's on entering Holymount, which is a neat little place, with its massive Catholic and light elegant-spired Protestant church.

Far over the bog, on the right, may be descried the ruins of the once flourishing Abbey and Monastery of Mayo. Though the name of the county remains, the town has long since ceased to exist. It was an English monastery, and once numbered one thousand five hundred students. This is said to be where Alfred the Great was educated, and likewise the place of his burial. The natives still show his tomb.

The road as you advance begins to assume a more picturesque character, occasionally winding among hills, bare, but affording relief to the eye, after the long dreary waste upon which it had been gazing. Lough Mask is on the left hand. From the stage at Belcarragh the majestic Reek presents a most striking and extraordinary appearance. The great Nephin range seems to have dispersed itself, and for some miles the gigantic Reek stands alone, right across the road, a perfect pyramid, regular as if hewn, and only differing from those of Egypt in being a thousand times greater. It continues to preserve more or less of this singular form, but loses its direct bearing with the road, and perfect regularity of outline, by the projection of its shoulders, and clefts and hollows becoming visible on nearer approach.

We passed through this part of the country on a Sunday. It was striking and beautiful to observe these simple peasantry winding down the hills into the roads, all decent and orderly, to mass. The men mostly tolerably well-clad; the women and girls—more erring on the side of scantiness—in their own costume, as before described. There were many arch faces among the latter, prettily shaded by a branch or two which some carried to screen them from the sun. It was uncommonly amusing to observe many of them, on reaching the main road from across the fields and paths, stop by the banks to put on

their shoes and stockings, which they had before carried in their hands, or underneath their cloaks; whether this plan was adopted to protect their feet from the dust, or for the sake of *show*,—having walked free and unencumbered, for *comfort and economy*, until they joined the larger throng in the public road,—we must leave till we can inquire next time of their swains and admirers. Round the chapels by the way-side groups of both sexes were kneeling, with a fervour of devotion and reality that one could not doubt. We may say what we like against the Catholic religion, against the tyranny it usurps and the ignorance it fosters,—I am assuredly no Catholic in principle; I own allegiance spiritual to no man, and to no power on earth,—but there is a zeal, an earnestness, a fervency of piety to be seen in the poor Catholic, to our shame be it spoken, that we rarely discern in the more enlightened but too often cold and formal sectarian. With the Catholic, religion seems to be a part of his very being, a portion of his daily life, the breath of his existence; while with the Protestant, and highly-professing Dissenter, it is but too frequently only an occasional and often a very irksome duty. We may deplore the delusions to which we think the poor Catholic a victim, and pity, from the bottom of our hearts, what we believe to be his ignorance and his superstition; but,—

“ Despise him not,—his greatest crime
 May, in his Maker’s eye sublime,
 In spite of all thy pride, be less
 Than e’en *thy* daily waywardness.”

The next town, Castlebar, would not disgrace any part of England. It consists of a large open square or green, inclosed with post and chain, and one or two broad lateral streets. There is a handsome Court-house, several good hotels, and many excellent residences. A number of respectable persons were gathered to receive the mail, in expectation of its bearing the news of the final close of the Dublin election. The interest this had excited all along the road was intense; men and women, boys and girls, running out of the cottages to greet the mail as it passed, and inquire. On alighting at Castlebar I was presently surrounded, and acted my brief and important part, answering a thousand questions, by which as many things were settled in no time, in the rapid Irish manner, to their

great satisfaction, till summoned off by the repeated sound of the coachman's whip. Next to the Dublin, the most intense inquiries were made respecting the Middlesex election, then pending. I left them with the impression on my mind, hastily received, but irresistible from the nature of their remarks and their demeanour, that these people were not ignorant and factious, but enlightened and ardent lovers of liberty. I had little expected to find that eyes were fixed upon our metropolitan proceedings, and that our exertions were responded to and watched with the deepest interest and sympathy, at a small town in a remote corner of Ireland, where I before had supposed the people sank in the greatest ignorance and apathy.

Just out of Castlebar there are several sweet pretty cottages, commanding as fine views of secluded lake and mountain as can well be conceived. Lough Dan lies for some miles along a bottom on the right of the road, backed by the wildest mountains. The country is here thinly inhabited and ill cultivated, and the cabins very poor. We are neighbouring the mighty Reek apace. The road had been gradually rising for some time. One more turn, and the whole of Clew Bay is spread out like a map, dotted with its numberless islands; and beyond through the opening, between Cleir Island and Achill Head, is seen the broad Atlantic. We reached Westport about mid-day. The distance is 124 Irish, or near 160 English miles from Dublin.

Whether it was the circumstance of finding myself in a civilized country, where I had expected the discomforts and inconveniencies of a wild, uncultured, unvisited people, and a different language; or the feeling of ease and perfect security, where I had anticipated difficulty, and even personal danger; or the fineness of the weather; or the excitement of travel and novelty; or the effect of mere good humour, and thorough determination to be pleased and judge favourably, without which talisman no one should ever leave his own home and fire-side,—I do not know; but somehow or other the town of Westport pleased me more than any place I ever remember. We had the whole afternoon before us. So after ordering dinner at Mrs. Robinson's,—we had no idea that dinners were to be got in this part of Ireland,—we employed it in surveying the town and neighbourhood. And first let me do justice to Lord Sligo's park and domain, which is liberally thrown open

as a promenade and pleasure-ground to the inhabitants and visitors of Westport. The gates of the park terminate the principal street; you ring and enter. There are, perhaps, finer domains in England,—one or two; but “The Domain” is every thing to the inhabitants of Westport, and they seem most fully to appreciate it. A long winding drive conducts you over a bridge before the house, which is a plain structure without pretensions, at this time under repair, in consequence of the shortly-expected return home of the noble owner. You can diverge at various points into more private walks. The timber in the park is some of the finest to be met with any where in Ireland. At the western extremity you come upon water, defended by a low wall. The water is partly out: there is a tide-mark; there is sea-weed; there is shipping at a little distance; you can no longer doubt,—it is the shore of the Atlantic on which you are standing, an estuary of which comes up here, and forms the boundary of his Lordship’s domain. Turn a little, cross that bridge, and the blue expanse of an ornamental fresh-water lake meets the eye. There are long drives and fine avenues at every point. After exploring some of these we took a more private walk along the bank of the stream that feeds the lake. It was one of those pellucid streams that reveal their unequal depth, in which every pebble may be counted; and the poor frightened fish, unused to the sight of a stranger, try in vain to conceal themselves. At a little distance it is drawn into silver sheen by a gentle ledge of rock, which just allows the water to slide down with a soft murmur, without disturbing its translucency. But what is that object peering over-head from behind the mass of foliage, and looking down upon you like a giant? It is the pointed summit of the Reek, so near and so lofty that it seems as it were to take the arch of the sky, and almost bend over you. Its base is hidden, and its real bulk disguised, by the depth and breadth of the impenetrable mass of foliage from the midst of which it appears to spring, like an enormous ornamental pyramid, scarcely out of keeping with the height and vastness of the intercepting forest. Clear of intervening objects, and it occupies one-third of the horizon. On a little elevation, in a sequestered part of the grounds, stands the Protestant church, quiet and unpretending. We met several parties, and many well-dressed promenaders of both sexes, in the park. Others

were sitting on the grass, in retired and picturesque situations, reading, or otherwise enjoying themselves, in a most rational and agreeable way.

Westport is a regularly built town. The principal street consists of Mrs. Robinson's hotel,—so highly spoken of by Inglis, as scarcely second to any in the kingdom for the excellency of its accommodation, — occupying a considerable frontage on one side; the Catholic chapel, a substantial and handsome stone edifice, on the other, with many very respectable private residences. It is wide enough to admit of the river being conducted through it in a straight course, banked in and planted with a mall of ash, elm, and alder. The trunk of each tree is bastioned round, and there is a good carriage road before the houses, on each side of the river. The whole had a singular and somewhat continental appearance. About the centre the river is crossed by a stone bridge, leading up the steep declivity of one of the business streets of the town. The Market-house, alternately used as a school and chapel as well, occupies the centre side of a pentagon, with a street out of the opposite angle, appropriately enough called Shop Street, and another street out of each of the two lateral angles. The usual long rows of low mud cabins terminate one or two of the streets, and stretch far into the country, making up a considerable population; but being of good width, and on a steep ascent, they were kept tolerably clean and looked healthy. There seemed to be a kind of stocking-market going on, from the assemblies of women, each with some half dozen pair under her arm or in her lap; and we observed a greater proportion of the population comfortably furnished in this respect than in the more interior towns. There was even a considerable sprinkling of English straw bonnets and veils, contrasting prettily with the almost bare and fullblown busts of some of the native beauties. Westport has a good quay, extensive granaries, and considerable shipping, on the side where the estuary comes up; and there are several large linen factories in the neighbourhood.

We walked a mile or two out of the town, and then, by way of exploring the country, struck into one of the cross roads, that seemed to lead up into the heart of the bare and barren mountains. From below they were apparently devoid of cultivation, and without an inhabitant. To our astonishment we

found the hills full of people. At every turn and cover in the least sheltered, or where a hollow retained a scratch of earth that could be cultivated, were one, two, or three cabins, with their respective patches of corn, flax, or potatoes. The latter crop is every where grown for the family use, and forms the staple, and, with a little occasional goats' milk, their sole subsistence. The flax is turned to some little profit, for every cottage has its wheel. The barley is made into whiskey. If any other grain is grown it is seldom touched by the family, but with the pig, if one can be kept, sooner or later goes to pay the rent. We found these poor people harmless and well-behaved; all understood English; and though we cannot say that some inquisitive faces were not to be seen at the cabin doors as the strangers passed by, we were never rudely stared at.

Six o'clock next morning found us seated in a car bound for Louisburg, a place I have not been able to discover in any map or book whatever, though of some size; a specimen, therefore, of an unadulterated Irish town. It is ten Irish miles still further west, and near the extreme point of this part of the coast. The road winds between the southern bank of the deep estuary, at the head of which Westport stands, and the foot of the majestic Reek rising abruptly on the left. It was one of those enchanting mornings that bathe every object in a flood of the purest radiance. From its jutting promontaries, deep indentations, and numerous islands, the estuary appeared more like a chain of inland lakes. Just round the edges of the water, and in the deep hollows of the mountain, still hung the mist of the morning, and threw up, in stronger relief, the polished surfaces of the seeming lakes, and other bright points of the landscape, like the dead border sometimes left in burnished gold and silver. Above all was cloudless azure, save a light and delicate fringe drifting off fantastically in the way of the wind, where the extreme point of the Reek pierced the sky. This is not a mail road, be it known, and an Irish country car has not always the luxury of springs; therefore sundry irresistible jerks, which multiplied in number and intensity as we proceeded, reminded us occasionally of things more home and material than sea and sky, and the truly magnificent views, notwithstanding, of Achill Head, Cleir Island, and the wide ocean beyond. But we were in luck's way for seeing the people as well as the country. It was Westport

fair that day, and the road was alive with company. The hills poured out their hundreds singly and in groups, all bearing or driving their little market-store: a single sheep, or two neatly tethered with a hay-band; here and there a cow, or a colt or two; a few with pigs; some with a bundle of flax under their arm; and baskets and panniers of potatoes in abundance. If all the other roads were thronged like this, there would be many thousand people, and no small amount of property, at the fair. It was an uncommonly interesting sight. We could not help exceedingly admiring many of the faces and figures that we met. There was nothing low or degraded in the countenances of the men; and the women, in their picturesque costume, bare-foot, but some with gay scarlet cloaks, and now and then a smart cap and trappings,—bonnets were very rare,—presented many a remarkably fine study. There was an attention to little matters of attire and cleanliness, and a taste displayed that we little expected to meet with in this remote district, and was therefore the more pleasing; and I mention these circumstances because, however trifling, there are no surer indications of the tone of character, and state of civilization of a people, than the attentions paid to dress and personal appearance. Further on the road came several troops, who were probably the later and more lazy buyers. Many of them were well mounted, most of them double, men and their helpmates. A few of the latter, mounted alone, were astride, but which was somehow managed with the greatest decency. . . . The ascent of the Reek is a “station” among the Catholics, and we saw several pilgrims on the road.

We did not expect to find Louisburg otherwise than a very poor place. Still it has its Catholic and its Protestant church; and it was gratifying to learn that both the people and their respective pastors were living together in the greatest harmony. The minister, as the Protestant clergyman is called, has a good house, and was spoken of with much respect. We ordered breakfast at the only half-hotel, half-shop, of the place, and while it was getting ready walked a mile or so towards the beach, accompanied by a civil man who offered his services. We had rather thought of visiting Cleir Island, which is best accomplished from this point. It is a high mountain, cut off from the main land, or rather the extensive summit of a lofty mountain which the sea has surrounded, and presents a

remarkably bold feature in the scenery for many miles round. However, we were satisfied with the close view we had of it here, not thinking it would afford us any further novelty, either in itself or the character of its inhabitants, different from the main land. While we were discussing the tea and eggs, in the little back room, unfloored, but not otherwise uncomfortable, our landlord seemed to be driving a pretty good trade in the general line in the shop. After due inquiry we determined to make for Clifden that day. This journey was to be performed on foot, for no longer was even an Irish car of any practicable service. The distance, from the best information we could obtain,—and the landlord and his family, and the neighbours who had gathered round, seemed most anxious to afford all in their power,—we calculated to be about twenty (Irish) miles; but none of them had ever been there, and by their account there was no kind of accommodation to be met with, not even a potato to be begged or bought on the way. This was not strictly correct. We finally engaged the man whom we had before picked up, and who reckoned he knew the mountains thoroughly, as guide and burden-bearer. We started in high spirits, our landlord accompanying us some little way, and parted with the warm Irish blessing of “God send you safe home!”

Our guide was a Joyce, and a John Joyce too, but not “the Joyce” of Inglis. He hailed a little ragged boy at some distance, and charging him with a message that he would be back “after to-morrow,” dispatched him to his cabin-home far up among the hills, to communicate the intelligence of his long and hazardous undertaking, or—his luck. Our course struck at once into a defile, in the heart of the most bare and solitary mountains, winding behind the Reek; bog on each side to the base of their enormous ridges, and totally uninhabited. Not a living thing, bird or even insect, was to be seen. One lone woman, bare-foot, bare-head, and wrapped in an ancient cloak, was all we met with, and she rather added to the strange and indescribable solitude. She evidently possessed a superior mind, or the wrecks of one. Her figure was gaunt, but far above the common, and with her wild eye, and long hair floating in the wind, she was as near the personification of a weird sister, as can well be conceived. There was something mysterious about her history. Our guide, who knew her well, said she

was the neglected daughter of a gentleman of rank, early abandoned, and for long had lived solely among the mountains, wandering about from one to another. She did not beg, but accepted a trifle with evident gratitude. About three hours brought us in sight of the two lonely lakes, Doiloch and Fynloch. On the tongue between them is the solitary fishing-box of the Marquis of Sligo, called Delphi. We wished to see this spot, of which we had heard much, or might have lessened our distance three or four miles, by not bearing so much to the left or eastward. It is a perfect oasis in the desert. Here we rested awhile, and Mrs. Brown, of the lodge, presented us with copious draughts of refreshing milk, and offered us her best accommodation, if we would remain there the night, or stay for a day or two. But we had the Cunnemara mountains before us. The Ma'am-Turk range, and the Twelve Pins of Bunarola were now in sight. About two miles further brought us down to the Killery, at the little village, or rather hut settlement of Bundurragh. The Killery, or Killeries as it is usually written, is a narrow arm of the sea, stretching very far inland, in the manner of a Norwegian Fiord, and so completely landlocked by lofty mountains as to have the appearance and character of a chain of inland lakes. Without a previous knowledge of the country, you would scarcely have deemed it possible that you were coming down upon the salt water; but we had presently evidence enough of the fact. They call it a ferry here, *but the tide was out*; and the ferry-boat, with the two or three fishing-boats belonging to the village, were all safely housed in a little creek, protected by a ledge of rock, over which the ebb was running a rapid. A council of war was held by the old ferryman and his son, with the collected strength of the village; and the conclusion arrived at was, that neither of the boats could be got over the bar till the returning flood, though ten shillings was the remuneration offered,—a revenue to these poor people. It would evidently be two to three hours before the tide could come up sufficiently to float over the bar. From information here we found we had still sixteen miles to make on the other side—nearly double what we had calculated upon—to Clifden, the nearest place where there was any decent accommodation. We had already walked twelve instead of seven, and sixteen *Irish* miles more, in a strange and difficult country, after four o'clock,—which was the earliest

we could calculate upon getting over if we waited for the tide,—with the possibility of being benighted after all, was not the most comfortable thing to think of. What was to be done? To stay there was impossible; to go back, mortifying. The hand of sickness had visited even this remote corner of the globe. A severe epidemic had recently proved very fatal, and two-thirds of the poor families were still lying under its effects. An English lady and gentleman were spoken of as having visited them a few days before, and been very kind. In our dilemma a brawny old man at last said that we might possibly get at a boat—which he called by some particular name that I could not catch—in a direction he pointed, down the Killery. We seized the suggestion. He accompanied us over a rough promontory, and after scrambling about a mile along a most wretched and fatiguing beach, extremely wet and slippery, we reached a rude kind of fishing-boat. The old man brought the owner and his crew out of some invisible place; and *manned* by one stout girl, and three miserably ragged men, he pushed us off with his blessing. The girl was bow oar, and with her broad bare feet on the stretching-board, pulled away most manfully. She had an open expressive countenance, and an air of strength and command about her almost majestic, and might have sat for a full-length of Boadicea with great effect. Our wild convoy,—the deep repose of every thing around,—the loveliness and magnificence of the scenery,—the buried solitude which sank into a feeling almost oppressive, as we gained the centre of the Killery, and mountain after mountain rose in gloomy grandeur, and seemed to inclose us in nature's interminable and everlasting barriers,—combined with a sense of our utter insignificance *here*, so blasting to the self-consideration and importance of our city lives and actions, where *we* appear to be the secret springs and movements of every thing around,—all came over our spirits like a spell, not unmingled with awe. . . . On landing we had to clamber up the rocks on the opposite shore, but shortly fell in with a new line of road recently cut through this mountainous district. At a place called Lahee, further up the Killery, where this road crosses it by means of a ferry, “the Joyce” of Inglis’s tour still resides.

As a general rule, wherever there are two roads in a country, an old one and a new one, if you are encumbered with a

vehicle, you take the new one as a matter of course; but if you are a pedestrian, and "free to choose," by all means take the old one. The old road is generally the nearer line between one place and another, and embraces the most abrupt and finest points of view. The new road is as level as possible, avoiding or cutting through hills, filling up valleys, and utterly regardless or abhorrent of every thing picturesque and romantic. This remark has no reference to the present road, which was cut where there had never been a road thought of before, and was grand and varied in the highest degree; but it has redoubled reference to a choice between a mountain track and any road at all, which may have something to do with our history presently.

Land and water, lake and mountain, are so strangely intermingled in this wild country, the sea-bays penetrate so deep, and are so completely land-locked, that on leaving behind one shore and gaining a further elevation, it is impossible to conjecture whether you will next drop down upon an arm of the sea, or a fresh-water lake. They are to be met with here within half a mile of each other. Keil-loch is one of the largest and most solitary of the latter. Huge masses of naked rock, strewn about and piled in the wildest disorder, form its mountain boundaries, perfectly inaccessible, except by the road you enter. Though totally destitute of any thing like foliage to relieve the dreary nakedness of its shores,—except here and there a stunted birch, rooting itself with difficulty in some fissure of the rock,—they were not without their beauty. Never saw I such varied, such surpassing heaths. One solitary cottage we met with in this desolate region, and entered to ascertain if it could furnish a drop of milk, and to inquire the distance. It was not of the very worst order, having two apartments,—was glazed, and possessed a little crockery inside. It was tenanted by a woman and her two grown up daughters. One of them was squatted by the turf fire, and moved not on our entrance. The other, under her mother's directions, with much alacrity, and even politeness of manner, supplied us with bowls of delicious goat's milk. We doubt whether the girls understood our English, from their not joining in it; but, if so, it is the only instance we met with. For, though they currently converse together in Irish, and universally break out into that language when earnest or angry,

we never encountered any approach to that reluctance or difficulty among the most isolated of these people, which is often the case in Wales and Scotland. The mother conversed freely. She said we were still twelve miles from Clifden, but five might be saved by a short cut about three miles further on.

Our guide was an intelligent man for his station in life. We had much conversation with him on the light in which strangers — ourselves, for instance — were looked upon on coming amongst them; the general feeling towards England and the English government; the state of education; the terms between the Catholics and Protestants in this part of the country; and the opinion respecting O'Connell. I had several times expressed my surprise at the readiness with which our English was understood and answered even by children. He said that schools were now formed almost everywhere, in which English was universally taught; that, had we carried our proposed visit to Cleir Island into execution, we should have found the people just as civilized, and just as good English spoken; that, though they had hitherto no great attachment to England, they could not but look upon good English coming among them as friends; that there were no heartburnings between Catholics and Protestants here; and they fancied O'Connell was doing quite as much for himself as for them. Our guide himself was a Catholic.

At length we reached the point where we were to take the short cut. We here met a man on horseback. He said we could not possibly reach Clifden, on foot as we were, that night, for he was more than two hours out of it. We spoke of the short cut. He advised us against attempting it. Our guide reckoned he knew the direction perfectly, and could find the way readily enough when once put into it. The temptation of saving five Irish miles, and reaching our destination at last, was too strong; and the horseman then pointed out some land-marks for our guidance, as far as the eye could reach. So up the face of the mountain we went, glad to escape the road; and our spirits rose as we ascended above it, and saw it winding its weary length far away and round. So far all well. The ascent was glorious. Nothing could exceed the magnificence of the views that burst upon us. Awful mountains, as desolate as could be conceived, rose one above another, on one side; on the other, Cleir Island, the Claggan,

and Achill-head, stood forth in the sea, like the everlasting piers and buttresses of a world. At our feet lay a glorious scene of gilded lake and sea, and dark mountain-promontory thrown into long shadow and high relief by the setting sun. We turned one mountain, and dropped down into a pleasant valley where were several cots or cabins, and the people, men and maidens, were winding yarn in the open air. They were the picture of untainted pristine simplicity, and looked very happy. One of the men left his work, and accompanied us some distance through an intricate piece of ground, and, pointing out our course as far as we could see, under a ledge of rock on the face of the opposite chain of mountains, said it was a long long way beyond that. I remarked we should reach that point well enough in good day-light, and should probably from thence see the remainder of our course. He shook his head doubtingly.—Gentle reader! art thou familiar with mountains? Let me advise thee never to trust thyself to a trackless and unknown pass across them, for the sake of shortening distance and saving time, without plenty of day-light before thee. We boldly pressed forward. And now, that thou mayest fully sympathize with us, let me inform thee here, just at this point, who *we* are. Our sole company, besides the guide, consisted of myself and my wife, throughout these adventures. We had now turned the range of remarkable mountains called the Twelve Pins, and were crossing the Ma'am. How deceitful is the distance and nature of mountains! The ledge of rock we were to make for, seemed, from where it was first pointed out, an easy distance and almost straight line. We found wide intervening valleys, by the descents into which we frequently lost our mark, and, when we reached it at length, the sun shot his last horizontal ray, and sank into the ocean. From this point I had calculated on seeing our destination, or at least the line of country to secure it; but after clambering for some time amongst alternate rock and bog until we had rounded it, only the dull sweep of another interminable mountain-reach presented itself to the eye. I was aware that the summits of these vast ridges were often a long undulating level, swelling higher and higher to their crest, which I hoped one after another of them would prove to be, and gain us the view downwards, on the other side of the mountain, with our long-expected haven in the distance. What was our dismay, when—instead of

the wide ocean, which I knew we must come in sight of again, and had most anxiously looked out for—the last of these only revealed to us another tremendous valley, and another ridge, more rocky and still loftier than before! The day-light was now fading fast. It lasts long on the mountain elevations, but fails the more rapidly on descending into the hollows. Knowing full well how wide a slight deviation in the bearing may lead in unknown mountainous regions, I questioned our guide closely whether he really was sure of his direction, for every track and indication had long been lost. A suspicion even crossed me of the possibility of his treachery, and of his entangling us among these horrid mountains till night-fall, with evil design. I measured him with my eye, and again put some searching questions, by which I became thoroughly satisfied that the poor fellow was at least as much alarmed as we were; and was himself almost knocked up with the length of this day's march, and the increased fatigue of our pack upon his shoulders. We again pressed forward with renewed vigour; and, in descending, we all came at once upon the brink of a precipice, so dim and sudden, that we were only just able to see our danger, and check our career. We had to go a considerable way along, before we could effect a descent; the darkness increasing with the depth at every step we took. I again became assured that our guide knew something of the nature of mountain regions, by the admirable certainty with which he made the only spot where the wild stream at the bottom of this ravine could be crossed, and the best point for climbing its opposite precipitous side. That which we had come down appeared, on looking back,—perhaps aided by the darkness,—absolutely perpendicular, and indescribably black and awful. The clambering had to be effected one by one, and we could no longer see each other at the distance of a few yards. Our guide still pressing forward with all his might to save what day-light remained, we had, though with a feeling bordering on self-immolation, to hail him repeatedly to keep in sight. Most arduously was the summit of this ridge gained; and, when we had attained it, we could perceive nothing but the most inhospitable wilderness of enormous rocks, more like the very nucleus of these savage mountains, than any nearer to human habitations. After groping amongst them some time for an exit, I believe we

had all given ourselves up for the night. I had begun to look out for a rock that would afford the most shelter, and for myself would not have cared. But my companion was toiling a few paces behind; and she, as I afterwards found, had already calculated her strength to keep walking about till dawn, rather than sit down or recline anywhere in the damp and cold, now heavily falling around, and had made up her mind to it. A night upon the mountains may be something to talk about; it is another thing to endure. And when we have needlessly exposed ourselves to peril of any kind, thoughts of distant home, and children, and friends, will rise up with painful retribution. We had not spoken a word for some time, but kept moving on. We turned one more enormous projecting rock, and suddenly, behold, down, far down in the very depths of the silent gloom, was the gleam of distant lights! "Thank God!" fervently exclaimed our guide. . . .

ART. XVI.—*Entomological Notes.* By EDWARD NEWMAN.

(Continued from Vol. III. p. 501.)

CLASS.—COLEOPTERA.

NATURAL ORDER.—CETONITES, *Newman.*

GENUS.—CETONIA, *Fabricius.*

Ceto. Numisma. *Æneo-nigra, subtus latior: prothorace, elytrisque punctis, calceo equi simillimis, impressis: capite, prothoracisque marginibus maculaque singulo angulo posteriori, elytrorum lineis interruptis numerosis, abdominis lateribus, podiceque toto, vestimento cinereo tectis.* (Corp. long. .9 unc.; lat. .5 unc.)

Black, with a tint of metallic green; this tint is more observable on the under than the upper side: the thorax and elytra are impressed with numerous marks, bearing, especially on the elytra, an exact resemblance of a horse-shoe; this mark is not peculiar to this species, various others, as *C. aurata*, *C. affinis*, *C. obscura*, &c. possessing it, though in a less obvious degree. There is, on

various parts of the insect, more particularly the head, the margins and a nearly round spot at each posterior angle of the prothorax, various scattered and irregular markings on the elytra, the portion of the abdominal segments adjoining the elytra, and the entire anal plate, are covered with a close coating of grey or cinereous scales.

The country of this insect is unknown to me. Mr. Walker presented it to the cabinet of the Entomological Club.

Ceto. stillata. *Nigra; parcè punctata; vestimento flavente tecta: prothoracis marginibus, maculisque sex; scutelli apice; elytrorum maculis sexdecem; abdominisque lateribus, albidis.* (Corp. long. .5; lat. .275.)

Black, covered with a close coating of yellow scales: elytra with several series of somewhat crescent-shaped impressions: the margins of the prothorax, and six spots arranged in two longitudinal lines on its disk, the apex of the scutellum, and eight spots on each elytron, are of a dirty white colour.

Inhabits the East Indies. Presented by Mr. Walker to the cabinet of the Entomological Club.

Ceto. fictilis. *Brunnea; vestimento sordido passim tecta: elytris lineis 5 tenuibus glaberrimis elevatis; marginibus suturalibus postice sulcatis; apice productis, subaculeatis.* (Corp. long. .6 unc.; lat. .35 unc.)

Brown, with occasional patches of a darker hue approaching to black: spots, composed of a close coating of brown scales, are scattered over the prothorax and elytra, without much apparent regularity: on each elytron are five very slender shining longitudinal lines; a pair near the suture; a second pair at a short distance, and a single one further on the disk: the posterior portion of the sutural margin of each elytron is distinctly grooved, and terminates in a produced point.

Inhabits Java. Presented by Mr. Bennett to the cabinet of the Entomological Club.

GENUS.—TRICHIUS.

Tric. Deltoides. *Niger: prothoracis margine, deltaque disci, niveis: elytra, flavo, ferrugineo nigroque signata: podex albus, margine plagaque medianâ nigris.* (Corp. long. .5 unc.; lat. .3 unc.)

Black; head black, palpi rust-coloured: prothorax black, with a margin of pure silvery white, and a triangle, with its base towards the head and its apex towards the elytra, of the same colour: elytra rust-coloured, with an obscure yellow mark near the base and a distinct one on the disk of each, the latter somewhat resembling the letter T, of a dull yellow margined with black: the podex is white, with its margin and a quadrate central spot black; this spot is at the lowest point connected with the black margin; beneath black, the sides having white stripes: the legs are rust-coloured, with the femora darker.

Inhabits Mexico. Presented by Mr. Walker to the cabinet of the Entomological Club.

Tric. bistriga. *Nigerrimus, pilosus: utrumque elytron, lineis duabus tenuibus testaceis, obliquè transversis, alterâque sub-suturali, signatum.* (Corp. long. .4 unc.; lat. .225 unc.)

Black; shining; partially covered, more particularly beneath, with a long grey pilosity: each elytron is marked with two slender obliquely transverse testaceous lines, and another longitudinal line of the same colour runs on each side of the suture.

Inhabits the United States of North America. Presented by Mr. Walker to the cabinet of the Entomological Club.

NATURAL ORDER.—CARABITES, *Newman.*

GENUS.—EUTOMA, *Newman.*

Caput, cum mandibulis, latitudine longior; oculis vix prominentibus: antennæ vix capitis longitudine, sub clypeo, ad mandibularum basin, insertæ; 11-articulatæ, moniliformes, extus sensim crassiores; articulo ultimo longiori: clypeus dentibus duobus acutis duobusque obtusis armatus; labrum sub clypeo occultum; mandibulæ validæ, porrectæ, subtrigonæ, extus subrotundatæ, intus tridentatæ: maxillarum, lacinia extus subincurva intus dense pilosa, apice ungue instructa; galea biarticulata, articulo basali brevi, apicali cylindrico quintuplò longiori; maxilpalpi 4-articulati, articulis 1^o. ad 3^{um}. brevibus, 4^o. majori, latiori, securiformi: labium profunde emarginatum, dente medio valido; labipalpi breves, 3-articulati, articulo ultimo omninò majori, latiori, securiformi: prothorax capite vix latior antice truncatus capitem recipiens, postice rotundatus, sed ultrà productus, constrictus, quasi petiolatus: elytra linearia, thorace capiteque paullò angustiora: pedes breves; protibiæ validæ, subdilatatæ; extus dentibus duobus validis, intus spinâ medianâ denteque apicali valido armatæ.

Euto. tinctilatus. *Nigrum, nitidum: caput profunde bisulcatum, sulcis longitudinalibus antice furcatis: elytra lævigata nigra, lateribus læte cyaneis; singulo, puncto profundo versus apicem impresso.* (Corp. long. .75 unc.; lat. .15 unc.)

Black; shining: the sides of the elytra are beautifully tinged with blue: the figure is linear, and the habit that of a *Clivina*: the head is marked in front by two very deep longitudinal impressions, which are anteriorly forked, and posteriorly terminate on the crown: the clypeus is armed with two strong teeth, and between these are two lesser ones: the prothorax is perfectly smooth, square in front, receiving the head; behind rounded, but still continued and prolonged into a cylindrical peduncle: the thorax has a longitudinal dorsal impressed line, and, together with the elytra, is margined by a distinct lateral carina; the elytra are smooth and shining, each is impressed with a deep fovea dorsally, near the apex: the legs are short, the fore tibiæ being armed with two strong and sharp external teeth, as well as one internal spine, and one apical sharp internal tooth.

This insect, which is evidently one of the *Scaritidæ*, inhabits New Holland, and is a form of very rare occurrence in that island. It was presented by Mr. Walker to the cabinet of the Entomological Club.

NATURAL ORDER.—CERAMBYCITES, *Newman.*

GENUS.—TRICHEOPS,^a *Newman.*

Caput porrectum latitudine longior: antennæ 11-articulatæ, corpore paullo longiores; articulus 1^{us}. longus, apice crassior; 2^{us}. brevissimus, 3^{us}. primo brevior; 4^{us}. adhuc brevior; cæteris longioribus et, apicali breviori excepto, subæqualibus: oculi trifariam divisi; pone antennam, ad verticem tendit portio superior; infra antennam, clypeum versus porrigit mediana; subtus capitem pandit inferior: prothorax latitudine longior, lateribus paullo post medium uni-spinosis: elytra linearia, apice suturali acuminatâ: pedes elongati, femoribus simplicibus.

Tric. ephippiger. *Flava; oculis mandibularumque apicibus nigris: antennarum articulis 1°. 2°. 5°. apice, 7°. 9°. fuscis, elytrorum plagâ maximâ basali cinereo-fuscâ marginibus saturatioribus: cæteris læte flavis: prothorax tuberculis 6 dorsalibus instructus.* (Corp. long. .65 unc.; lat. .15 unc.)

^a Τριχη, trifariam; οφ, oculus.

Head yellow, elongate, porrected; mandibles acute, black at the tip; antennæ 11-jointed, the basal joint is very long, and the second very short, these two are entirely brown; the third and fourth are much longer than the second, but shorter than the first, these are entirely yellow; the fifth and remaining joints are longer, and of nearly uniform length; the fifth has the basal half yellow, the apical half brown; the sixth is entirely yellow, the seventh brown, the eighth yellow, ninth brown, the tenth yellow, and the eleventh and last pale brown. The eyes are black, and of a very remarkable figure; they are divided into three distinct lobes or branches; the upper lobe stretches behind the antennæ, towards the top of the head; the middle lobe comes forwards below the antennæ, towards the clypeus; and the lower lobe, which is all but divided from the other two, extends downwards and forwards nearly to the labium. The prothorax is elongate, and entirely yellow; near its anterior margin an indentation completely encircles it; rather behind the middle is a single spine on each side, and dorsally, it has six small tubercles, of which four are disposed in pairs anteriorly, and the other two stand one on each side of the disk, about two-thirds of the distance from the anterior towards the posterior margin; the other parts of the insects are entirely of a bright yellow, with the exception of a large saddle-like brown mark on the anterior part of the elytra, and occupying nearly half of them; the margins of this mark are very dark-coloured and distinct; the elytra are linear with the external apex rounded, the internal spined.

Inhabits New Holland. Presented by Mr. Imeson, who captured it, to the cabinet of the Entomological Club.

GENUS.—URACANTHUS? *Hope.*

Urac. bivitta. *Brunneus; caput obscurum, leviter griseo-tomentosum; prothorax obscurus, dorso transverse corrugatus, ad latera strigâ haud marginem anteriorem attingente, maculisque 2^{obus}. griseo-tomentosis, signatus: elytra griseo-tomentosa, singulo lineâ longitudinali glaberrimâ.* (Corp. long. .9 unc.; lat. .15 unc.)

Brown; head rather darker, and sparingly covered with grey hairs; prothorax also darker, wrinkled transversely on its upper surface, and having some small glabrous tubercles in a cluster near the centre of its disk; towards each side is a longitudinal patch covered with a grey pilosity, and which reaches the posterior but not the anterior margin of the prothorax; below this patch, on

each side, are two small pilose dots: the elytra, and the entire under surface, are covered with the same griseous pilosity, but each elytron has a longitudinal band, perfectly glabrous, extending from its humeral angle to its external spined apex.

Inhabits New Holland. In the cabinet of the Entomological Club.

NATURAL ORDER.—ANTHRIBITES, *Newman*.

GENUS.—PACHYURA? *Hope*.

Pach. monilis. *Grisea, supra tuberculis confertis nigris obtecta; utroque elytro lineis 4 longitudinalibus nigerrimo griseoque alternè coloratis: pedes grisei, tarsi nigerrimis.* (Corp. long. rostro haud incluso, .55 unc. ; lat. .25 unc.)

Grey: the head, prothorax, and elytra being entirely covered with minute black shining tubercles: the prothorax has a deep longitudinal impression, extending from near the centre to its posterior margin; the elytra have four equidistant longitudinal lines, each composed of a series of black and grey spots, alternating regularly: the legs are grey, with the exception of the tarsi, which are excessively black. The femora are stout, and entirely without spines.

Inhabits New Holland. Taken by Mr. Imeson, and presented by that gentleman to the cabinet of the Entomological Club. With my slight knowledge of exotic forms, I feel fearful of advancing an opinion at variance with that of so eminently skilful an entomologist as Mr. Hope; but I confess that it appears to me extremely probable that the species of his genus, *Pachyura*, will turn out to be nothing more than female *Isacanthæ*, the femoral spines being not unfrequently a sexual character; be this as it may, the *present* species is abundantly distinct from the one which he has so carefully described in the Zoological Transactions, Vol. I. pp. 102, 103.

NATURAL ORDER.—CURCULIONITES, *Newman*.

GENUS.—BARYNOTUS, *Germar*.

Sp. 1. *Bary. terricola.* “*Curculio fusco-cinereus, tomentosus elytris obsolete striato-punctatis, plantis nigris.*”

Curculio tomentosus. *Marsham; Entomologia Britannica*, p. 270, whence the above specific character is copied.

Sp. 2. *Bary. mercurialis*. “*Curculio squamosus obscure auratus coleoptris apices versus lineis tribus elevatis.*”

Curculio mercurialis. *Fabricius*; *Systema Eleutheratorum*, Tom. II. p. 530.

Curculio Æcidii. . . . *Marsham*; *Entomologia Britannica*, p. 307.

With the exception of *Marsham* no one mentioned the species above noticed as *Barynotus terricola*, until Mr. Stephens, in his “*Systematic Catalogue of British Insects*,” we here find, at Vol. I. p. 171, the following references, under the head *Barynotus mercurialis*.

“*Curculio mercurialis*. . . . *Fabricius*, *E. ii.* 530.”

“*Curculio Æcidii*. *Marsham*; 307.”

“♀ *Curculio tomentosus*. *Marsham*; 270.”

Thus implying that *C. tomentosus* being the female of a described species, the name must fall. Subsequent captures have, however, proved that there exist both sexes of both species; and a careful examination and comparison proves them to be perfectly distinct, in which I believe Mr. Stephens now fully agrees with me. As regards the name it unfortunately happens that *Fabricius* had previously given it to a species very similar in size and habit which inhabits Guinea; I therefore suppose I am warranted in proposing a new one, indicative of its mode of life, being always found crawling on the ground, or concealed under stones, &c. in mountainous districts.

Both species have the elytra punctate-striate, but while in *B. terricola* the interstices are smooth, in *B. mercurialis* the 3d, 5th, and 7th are very conspicuously elevated, and the 6th, 8th, and 9th are also elevated, though in a minor degree.

CLASS.—HEMIPTERA.

NATURAL ORDER.—CIMICITES, *Newman*.

GENUS.—COREUS.

Coreus crudus. *Sordide ochraceus*; *punctis minutis numerosis impressus*; *subtus pedibusque dilutior, tenue rufo-tinctus*; *antennarum apicibus fuscis*; *proalarum apicibus striatis*. (Corp. long. .57 unc.)

The colour of this insect is a dull ochreous yellow, rendered still darker by the numerous black impressed dots which nearly cover

the upper surface; the under surface and legs are paler, and slightly tinged with red; the eyes are black, the tips of the antennæ are dusky; the transparent portion of the fore wings is longitudinally striated. In habit this insect somewhat resembles *Coreus quadratus* of authors; the head, antennæ, and prothorax are very similar, but the abdomen is so much narrower that it is entirely covered by the wings, and the head, though pointed, is not produced into a spine, as in that species; it also exceeds *C. quadratus* in length, being in this respect fully equal to *C. scapha*.

A pair of this species were taken at Norbury Park, near Mickleham, in September, 1836, by Mr. B. Standish, and presented by him to the cabinet of the Entomological Club.

CLASS.—NEUROPTERA.

NATURAL ORDER.—PERLITES, *Newman*.

GENUS.—PTERONARCYS, *Newman*.

Caput transversum; porrectum; cum oculis, thorace angustior: oculi rotundati, laterales, distantes; antennæ ad orem sitæ; filiformes; basi ad apicem pedetentim attenuantes, multi-articulatæ: instrumenta cibaria, fere membranacea, mollia; desiccando corrugant; labrum transversum, lineare, sub clypeo fere reconditum: mandibulæ membranacæ, obtusæ: maxillarum lacinia vix membranacea, brevis, acuta; galea exarticulata, apice obtusa, laciniâ paullò longior; maxipalpi galeâ duplo longiores, 5-articulati; articulus 1^{us}. brevis, 2^{us}., 3^{us}., 4^{us}.que, longiores, extus valdè crassiores, 5^{us}. cylindricus, incurvus: labium quadratum, anticè posticèque truncatum, antice paullò angustior, lateribus subrectis; palpiger ferè quadratus, lateribus rectis; labipalpi maxipalpis breviores, 3-articulati, articuli longitudine subæquales, 1^{us}. 2^{us}.que extus crassiores, 3^{us}. cylindricus incurvus; ligula trifida, divisiones laterales acutæ, subpalpiformes, mediana obtusa rotundata: prothorax ferè quadratus, longitudine paullò latior, capite paullò latior, marginibus leviter elevatis: alæ amplissimæ, sexuum amborum pariter *volantis* repandæ, pariterque *sedentis* abdominem tegentes; proalarum nervuræ, quæ e disco ad marginem apicalem extendunt, etiam regionis posterioris nervuræ, etiam metalarum nervuræ apicales, nervuris numerosis transversis intersectæ: cætera *Perlæ*. Hoc genus e *Perla* facilè distinguebis, magnitudine majori, alisque reticulatis: ordinis *principes* includit: species nunc confirmatæ tantum tres; Americam Borealem incolant.

Sp. 1. *Pter. regalis*. Fem. *Fusca*; *caput, prothorax, mesothorax et metathorax lineâ communi longitudinali flavâ signata*; *abdominis segmenta postice flava*; *alis hyalinis fusco tinctis*; *pedibus fuscis genubus concoloribus*. (Corp. long. 1 unc.; alarum dilat. 3.35 lin.)

Brown: head transversely wrinkled between the eyes, and having a yellow mark on the crown, extending forwards towards the clypeus: prothorax with impressed lines, and a deep fovea on each side, and having a yellow line passing longitudinally down its centre; mesothorax with deeply impressed indentations, and distinct yellow markings along its centre and on each side; metathorax anteriorly with a transverse yellow spot, and posteriorly with an arrow-head pointing forwards \blacktriangle of the same colour; the margins of the abdominal segments are also yellow: the fore wings are hyaline, but have throughout a dingy tinge of brown, which tinge is darker along the subcostal nervure, and terminating in a still darker spot beyond the middle.

Inhabits Canada. In the cabinet of the Entomological Club.

Sp. 2. *Pter. biloba*. Fem. *Fusca*; *caput, prothorax et mesothorax concoloria*; *metathorax linea longitudinali flava*; *alis hyalinis fusco-variegatis*; *pedibus fuscis, genubus concoloribus*; *protelum subtus lobis duobus conicis auctum*. (Corp. long. .9 unc.; alar. dilat. 2.9 unc.)

Brown, the head not wrinkled between the eyes, and without any yellow markings; prothorax with variously impressed lines, having also a faint yellow spot on its anterior and posterior margins, and these are connected by a still fainter longitudinal line: mesothorax shining, without indentation or coloured markings; metathorax shining, with a longitudinal yellow line; abdomen uniformly brown; base of the caudal setæ yellow; beneath the eleventh segment is furnished with two flat obtuse processes, which are parallel with the abdomen, and point toward its extremity. The wings are hyaline and glossy, with a slight tint of brown, with three very conspicuous subcostal brown spots on the fore and one on the hind wings; the costal and subcostal nervures have a yellowish tint, and the other nervures are dark brown; the legs are dark brown, and the knees of the same colour.

Inhabits the United States of North America. Taken by Mr. Foster at Trenton Falls, and presented to the cabinet of the Entomological Club.

Sp. 3. Pter. Proteus. Mas et Fem. *Fusca*; *caput, prothorax et mesothorax lineâ longitudinali interruptâ signata sunt*; *alis hyalinis, fusco variegatis*; *pedibus fuscis, genubus flavis: protelum subtus inerme.* (Corp. long. .85 unc.; alar. dilat. 2.75 unc.)

Of this supposed species I have before me four specimens, no two of which agree in the yellow markings on the head and prothorax; it is therefore a task of much difficulty to attempt a detailed description. I must also observe, with respect to considering *P. Proteus* as distinct from *P. biloba*, that I do not ground the specific distinction on colour, which throughout the group is remarkably instable, but on the possession, or want of, the two unusual appendages beneath the abdomen already described. Of *P. Proteus* I certainly possess both sexes, and I have besides one male, which I refer to *P. bibola*, but as it agrees with that insect in colour only, and not in the abdominal structure, I have refrained from describing it. Returning to the present species, I can do little more than anglicise my technical description. Brown; the head, prothorax, and metathorax variously marked with yellow, the markings seeming to be referrible to a longitudinal line passing centrally through each of these segments; the wings are less transparent than in the preceding species, and are more distinctly and deeply variegated with brown, yet the markings occupy the same situations; the legs are brown, with yellow knees, and the abdomen is without the two lobes described in the former species. In conclusion I may add, that should ulterior observations prove the necessity of uniting the two species, I shall be rather gratified than otherwise by such a result, as I consider the creation of imaginary species, and consequent unnecessary addition to the host of names already before us, extremely ill-judged.

Inhabits North America. Taken at Trenton Falls, by Mr. E. Doubleday, and presented to the Cabinet of the Entomological Club.

GENUS.—PERLA, *Geoffroy*.

Perla abnormis *Fusca*; *ferè concolor*; *alæ fuscescentes, supernè apicibus reticulatæ.* (Corp. long. .9; alar. dilat. 2.5.)

Brown, with scarcely any different shade of colour; wings deeply tinged with brown, and the upper portion of the tips of both fore

and hind wings have various transverse nervures, forming a decided although small portion completely reticulated.

Inhabits North America. Taken by Mr. Foster, at Trenton Falls, and presented to the Cabinet of the Entomological Club.

Perla Xanthenes. Lutea, alarum nervuris vix conspicuis; antennis, pedibusque concoloribus: oculis ocellisque nigerrimis: prothorax quadratus, postice valde angustior. (Corp. long. ad. .75 unc.; alar. dilat. ad 1.75 unc.)

Pale yellow; the nervures of the wings very indistinct, and with the antennæ and legs of the same colour; the eyes and ocelli alone are black; the prothorax is quadrate, but considerably narrower posteriorly.

Inhabits ———. Two specimens in the British Museum.

GENUS.—ISOGENUS, *Newman.*

Isog. frontalis. Fusca, capite antice inter antennis, postice ad verticem, lineaque prothoracis longitudinali flavis: proaxe hyalinæ, fusco-tinctæ, nubeculâ costali ultra medium, vix conspicuâ fuscâ. (Corp. long. .775 unc.; alar. dilat. 1.425 unc.)

Perla bicaudata. Kirby. Fauna Boreali-Americana, part Insects, p. 252.

Inhabits the United States of North America. Taken by Mr. Foster at Trenton Falls, and presented to the Cabinet of the Entomological Club.

NATURAL ORDER. ——— ?

GENUS.—MANTOIDA, *Newman.*

Caput transversum pronum; cum oculis, thorace duplò latior: oculi magni, laterales, rotundati; antennæ filiformes, corporis dimidio longiores, multi-articulatæ; articulo basali magno, 2º. parvo, 3º. elongato, cæteris brevissimis; ante medium leviter incrassatæ ante apicem pedetentim attenuantes apice ipso paullo incrassato et, ni fallor, cheliformi, sed, dira calamitate, unicæ antennæ apex (unica tantum erat!) examinando fractus et perditus: labrum elonga-

tum, membranaceum, apice rotundatum: mandibulæ validæ, corneæ, fere trigonæ, extus convexæ, intus concavæ; apice acuto, dente parvo contiguo; basi intus dente acuto: maxillarum lacinia tenuis, marginibus reflexis, apice gracilis sed rotundatus, extus subconcauus intus prope basin, dente magno setoso instructus; galea mihi invisâ; maxipalpi 5-articulati, articulus 1^{us}. brevissimus fere reconditus, cæteri elongati subæquales cylindrici, 5^{us}. incurvus: labium fere quadratum, lateribus concavis; palpiger fere quadratum, medio emarginatum; labipalpi 3-articulati, articulis cylindricis subæqualibus, 3^{us}. incurvus; ligula quadripartita, lobi laterales subcylindrici, subpalpiformes, apicibus acutis; lobi interni breviores obtusiores, hirsutiores: prothorax angustus, capite duplo longior: corpus lineare, apice acuto ante apicem setis duabus brevibus 7-articulatis instructum: alæ hyalinæ, reticulatæ, angustæ, sublineares, apice rotundatæ, area supracostali vix ullâ: pedes diversi; propedes quasi *Mantidis*, coxæ elongatæ; femora, presertim basi, crassa, coxis vix longiora, subtus spinarum validarum triplici serie armata; tibiæ femoribus breviores, tenuiores, apice spinâ magnâ incurvâ definientes, subtus spinarum validarum unica serie armata; tarsi ante tibiarum apicem inserti, 5-articulati; articulus 1^{us}. elongatus, cæteris omninò longior, 2^{us}. brevis 3^{us}. 4^{us}. que adhuc breviores, 4^{us}. 2^{um}. longitudine æquans; propedum structura manifestè raptoria, femorum spinis spinæ tibiarum donec sejungeram firme clausi erant; mesopedes metapedesque simplices.

Mant. nitida. *Brunnea, glabra; antennæ nigræ, ante apicem albidæ; caput et prothorax linea communi longitudinali flavidâ signata; alis glaberrimis.* (Long. corp. .65; alar. dilat. 1.25 unc.)

Brown, shining; the antennæ are black, with a whitish space before their extremity; the tips of the mandibles and palpi are black; there is a continuous longitudinal yellowish line commencing near the antennæ, and passing over the head and along the prothorax; the other parts of the body are of a uniform glossy brown; the wings are very transparent, yet slightly tinged with brown, and are excessively glossy; the legs are paler than the body, and unicolorous, with the exception of the first joint of the fore tarsi, the basal half of which is nearly white, the apical half black. In habit and structure approaching *Mantispa*.

Inhabits Para, in South America. In the cabinet of Mr. Hanson, to whom I am indebted for the loan of the specimen.

NATURAL ORDER.—————?

GENUS.—MEROPE, *Newman*.

Caput corpore valdè angustiore, pronum, antice elongatum, os sub pectore inclinatum: antennæ dimidio corporis vix breviores, multi-articulatæ, ante medium incrassatæ, apice tenues, ante oculos insertæ, basi fere attingentes; articuli hirsuti, longitudine subæquales: oculi elongati, reniformes, ad verticem, quasi *Dipterorum* conniventes, et infra antennis approximantes: instrumenta cibaria elongata et rostrum, quasi *Panorpæ*, formantes; labrum elongatum apice acutissimum; cætera haud examinavi: alæ haud plicatæ, reticulatæ, amplissimæ, quasi *Hemerobii*, apice rotundatæ, magnitudine subæquales: tarsi 5-articulati: abdomen obesum apice acutum.

Mero. tuber. *Fuscescens*: antennæ, caput et prothorax saturatiora; abdomen, pedes et alæ dilutiora; oculi nigri; proalarum margo posterior prope basin tubere parvo instructa. (Corp. long. .35 unc.; alar. dilat. 1.05 unc.)

Head narrow, elongate, bent under the breast as in *Panorpa*; eyes very long, kidney-shaped, meeting on the crown of the head as in *Diptera*: wings ample, not folded, and in shape resembling those of *Hemerobius*; the fore-wings have a small knob on the posterior margin, near the base; the colour is dingy brown; the antennæ (which are much like those of a *Bombyx*,) head, and prothorax, being darker; the abdomen, legs, and wings, lighter; the eyes are quite black: in habit, between *Panorpa* and *Hemerobius*.

Inhabits the United States of North America. Taken at Trenton Falls by Mr. E. Doubleday, and presented to the Cabinet of the Entomological Club.

NATURAL ORDER.—————?

GENUS.—ITHONE, *Newman*.

Caput porrectum, fere rotundatum, corpore duplò angustiore; antennæ setaceæ, corpore paullò breviores, basi approximantes, multi-articulatæ; articulo basali magno, rotundato, cæteris valde minoribus, subæqualibus; oculi mediocres, rotundati: labrum obtusum, setosum, medio submarginatum; mandibulæ elongatæ,

apice acutæ, paullo incurvæ, haud dentatæ: maxillarum lacinia obtusa, apice membranacea, intus pilosa; galea tenuis, laciniâ vix brevior; maxipalpi 5-articulati articulo 1°. 2°.que brevissimis, cæteris longioribus subæqualibus; maxilla extus setis rigidis instructa; labium membranaceum, exemplario meo rugosum quasi desiccatum; labipalpi 3-articulati, articuli breves, subæquales: prothorax transversus brevis, capite latior; mesothorax fere quadratum, metathorax latitudine brevior; abdomen breve, obesum, hirsutum: alæ amplæ, longitudinaliter sinuatæ, quasi plicatiles, magnitudine subæquales: tarsi 5-articulati.

Itho. fusca. *Fusca, setosa, subtus dilutior et paullo flavescens; alæ fuscæ, nervuræ longitudinales setis tectæ, transversæ nisi supracostales nudæ.* (Corp. long. .55 unc.; alar. dilat. 1.65 unc.)

Entirely brown on the upper surface, but paler beneath, and in some parts approaching to yellow: the wings brown and scarcely transparent, ample, and somewhat folded longitudinally; the nervures are numerous, all the longitudinal ones, and also those above the costa, are clothed with hairs, while the transverse nervures are quite naked: in size and in habit, this insect is intermediate between *Chauliodes* and *Sialis*.

Inhabits — Presented by Mr. Walker to the Cabinet of the Entomological Club.

ART. XVII.—*Brecon Beacon.*—*Craig-Pwllch-Dŷ.*

TO THE EDITOR OF THE ENTOMOLOGICAL MAGAZINE.

SIR, — As you were so good as to give my former specimen a place in your Cabinet, I have ventured to send you two more; but should much prefer your not amputating the two last feet, (*joints of the tarsi?*) as they constitute one of the characters of my new *species*, or rather variety. Possibly, being so much immersed in *Latin*, you were unable to make out the *English* metre.

Crickhowell, 27th July, 1837.

A. S. K.

BRECON BEACON.

(See *Entomological Magazine*, No. XVII. p. 88, &c.)

THERE may be Peaks more lofty ;—the broad mass
 Of Snowdon holds in undisputed sway
 Lordship o'er Cambria's mountains,—in array
 Of rival grandeur 'thwart Llanberis' Pass,
 The Glydder rear their alpine forms, and they,
 With David and Llewellyn in their train,
 To Cader-Idris yield divided reign :
 Onward the impulse of new scenes obey,
 Range that wild realm of wonders undismay'd,
 And where Plinlimmon spreads his vast domain,—
 Sire of our noblest streams,—due tribute pay ;—
 Still have I watch'd the change of light and shade
 Upon thy Beacon—Brecon, and the roll
 Of cloud-like ocean, and the day-light fade
 Behind thy mitred summit,—with control
 Of feeling less subdued—and awe, and wonder unallay'd !

Again,

CRAIG-PWLLCH-DÛ.^a

I've seen full many a wild and noble Fall
 That England, Scotland, Ireland's guide-books show,—
 The Tees, the Clyde, the Shannon may be all
 Of liquid grandeur and majestic flow,
 O'er bed of rock or ledge sublimely thrown,
 That high-road tourists claim as all their own ;—
 I've worshipp'd at thy fall, O Foyers,—knelt
 At scenes amid the Grampians, such as are
 Beyond the pencil and the pen how far !
 Oft have I track'd my native hills alone,
 To search their hidden wonders, and have felt
 My part in Nature's universal dower ;—
 Yet ne'er have loftier charms more inly dwelt,
 Nor touch'd a deeper chord or sense in me,
 Of lonely beauty's magic breathing power,
 Than thine—unsketch'd, unsung, unsullied—Craig-Pwllch-Dù !

^a Lest your readers should not understand our vernacular, and so spoil the rhythm of the last line, I beg to subjoin the *Walker* thereof. The name of this solitary waterfall is pronounced exactly as if spelt *Cray-Poolth-Dec*,—"Pool of the Black Rock,"—Radnorshire, South Wales.

ART. XVIII.—*Proceedings of the Entomological Society of London.*

SITTING OF THE 2D OF OCTOBER, 1837.

J. F. STEPHENS, Esq. President, in the Chair.

THE following donations were announced, and thanks ordered to be given to the several donors:—

THE IMPERIAL SOCIETY OF NATURALISTS OF MOSCOW. The Bulletin of that Society for 1837, Parts I. II. and III.

THE AUTHOR. Neue Schmetterlinge, by Dr. Klug, Part I.

THE EDITOR OF THE ATHENÆUM. That Periodical for September.

THE EDITOR OF THE MAGAZINE OF NATURAL HISTORY. No. X. of the New Series.

MR. CHILDREN. Directions for collecting Zoological, Botanical, and Geological Specimens.

THE EDITOR OF THE ENTOMOLOGICAL MAGAZINE. No. XXI. of that work.

MR. WESTWOOD exhibited portions of the leaves and stems of the common Hollyhock, which had been perforated by the larvæ of two small beetles, *Apion radiolus* and *Altica fuscipes*; he observed that the former of these burrowed into the younger and more tender parts of the stem, thus causing very considerable injury to the embryo leaves and flowers. The fact that the Hollyhock was an exotic plant, and was thus evidently attacked by British insects, was one of much interest, as proving that insects will accommodate themselves to other food than that on which they appear originally to have fed: but when it was recollected that the exotic Hollyhock and the indigenous *Malva sylvestris*, the common Mallow, on which *A. radiolus* was usually found, belonged to the same natural order of plants, this would appear but a slight deviation from its usual economy.

A paper was presented by Mr. SELLS, detailing a variety of daily observations made on *Athalia centifolia*, the black of the Turnip. No facts in its history, or means for its destruction, besides those repeatedly before the public, were adduced or proposed.

MR. WESTWOOD detailed the remarks made at the late scientific meeting at Liverpool, by Messrs. MacLeay, &c. on the

disease to which the common house-fly appears subject, and which is exhibited by a dilatation of the abdomen, and the appearance of something like a fungus between the segments; Mr. MacLeay, at the Liverpool meeting, expressed his conviction that the disease was occasioned by, or was in itself, a plant, at present undescribed, growing on the insect, and not *plethora*, as had been suggested by Mr. Kirby; Mr. MacLeay considered it a highly interesting fact that we had now positive evidence in each kingdom, the animal and vegetable, of individuals which lived parasitically on those of the other: plants living on plants, animals on animals, and animals on plants, had long been known to us; but we had now, for the first time, an instance of a plant living on an animal. In reply to Mr. MacLeay's observations, Professor Lindley had remarked, that a disease called "Muscadine," which had for many years existed among the silkworms in the south of France, and had occupied the attention of the *Académie des Sciences*, was supposed to proceed from a parasitic plant; he thought the vegetable parasite of the fly was a species of *Botrytis*. Mr. Westwood, after adverting to these observations, presented drawings of the plant in question, which he considered to be very similar to the *Botrytis Bassiana*, the supposed parasite of the silkworm; this *Botrytis* was said to consume the fatty parts of the silkworm, and to leave the remainder transparent, and brittle like glass: this, however, was not the case with that of the fly. Mr. Shuckard observed that he has noticed many genera of *Diptera*, and especially *Scatophaga*, attacked by the same disease. The President said he had observed it also in the Hymenopterous genus *Diodontus*.

Mr. SAUNDERS exhibited a small case of Indian insects.

Mr. WESTWOOD exhibited a turnip which had been attacked by several large grubs; these had completely riddled the turnip before the attack was perceptible exteriorly. Mr. Westwood proceeded to detail the operations of these grubs, when Mr. Yarrell observed that they were the larvæ of *Agrotis Segetum*, whose ravages had been fully described.

Mr. SELLS read an elaborate diary of the numbers of the larvæ of the bots of Horses, which had been brought to him during the past summer, stating the dates and daily numbers. After he had finished this detail he remarked, that he considered Mr. Bracy Clark in error, in supposing that these

larvæ subsisted on the contents of the horse's stomach; it was his (Mr. Sell's) opinion that their food consisted of the fluids of the vascular surface of the stomach itself; an opinion which was strengthened by a fact communicated to him by an old veterinary surgeon, in which a bot had actually eaten a hole through the parietes of a horse's stomach, by which hole a portion of its contents had escaped. He also believed Mr. Clark was entirely in error in supposing that the presence of bots was in any way beneficial to horses; where very few in number, they might probably be harmless, but where numerous, he considered them excessively injurious. Mr. Westwood expressed his surprise that Mr. Clark should have supposed that *Æstrus Equi*, &c. fed on vegetable, while he well knew that other closely allied species, as *Æ. Ovis*, *Bovis*, &c. fed on animal matter; the affinity of these species ought to have led him to conclude that they were not likely to subsist on such different kinds of food.

SITTING OF THE 6TH NOVEMBER, 1837.

J. F. STEPHENS, Esq. President, in the Chair.

The following donations were received, and thanks ordered to be given to the several donors:—

Rev. W. KIRBY. Fauna Boreali-Americana. (Part IV. Insects.) Edited by himself.

The EDITOR. Magazine of Natural History. New Series. No. XI.

The UNITED SERVICE CLUB. Catalogue of its Library and Museum.

The EDITOR. Athenæum for October.

Messrs. VILLA, of Milan. Conulli de Coleopteris novis ac rarioribus minusve cognitis Provinciæ Norvarni.

The EDITOR. Naturalist for October.

LEEDS PHILOSOPHICAL AND LITERARY SOCIETY. The Annual Report of that Society.

The AUTHOR. Yarrell's British Birds, Nos. II. III.

Mr. W. W. SAUNDERS exhibited a box of insects from Mr. Sydney Smith Saunders, a member of the Society, now resident in Albania. It contained many interesting specimens.

Mr. BAINBRIDGE communicated a paper, giving an account of the detection of *Ptinus Hololeucus*, in the warehouse of an

extensive brush-maker in the north of the city; and exhibited specimens.

A letter from Mr. HOUSE was read, detailing the method by which he had succeeded in rearing a Hybrid, between *Smerinthus Ocellatus* and *S. Populi*, accompanied by two specimens. The upper wings were those of the latter, the under ones those of the former species; and these characters were constant throughout all the specimens reared. The antennæ were half-pectinated, and the new insects exhibited a singular mingling of the characters, not only of their two parents, but of the two sexes likewise.

A Paper by Mr. WESTWOOD, on *Amblythyreus rhombiventris*, a new exotic Hemipterous insect, was read.

Some remarks from Mr. CHILDREN, on the autumnal disease of Flies, supposed by Mr. MacLeay to be of the nature of a Fungus, in contravention of that opinion, were read.

A Paper by Mr. ASHTON, illustrated with drawings, on the wings of Hemipterous Insects, and the curious apparatus, of two distinct constructions, by which their wings are united together in flight, as in *Hymenoptera*,—by which the last-named order was deprived of the sole right to their title,—was communicated.

A Letter from Mr. RADDON was read, with specimens of a small Moth, found to be extremely destructive in granaries at Bristol, and begging the communication of a remedy. The letter stated that turpentine was of no use, for the knots and other most resinous parts of the skirting and floors appeared to be the favourite morsels of these infesters. The application of Kyan's Patent was suggested by Mr. Waterhouse.

A communication from the EARL OF DERBY, with a feather of a Harpy Eagle, in his possession, infested with a species of *Pediculus*. They were seen, when alive, running in and out of the quill of the feather, by a very minute hole they had made near its root.

SITTING OF THE 4TH DECEMBER, 1837.

J. F. STEPHENS, Esq. President, in the Chair.

The following donations were announced:—

Rev. F. W. HOPE. Der Naturforscher, 27 Vols.

The EDITOR. Athenæum for November.

The IMPERIAL SOCIETY OF NATURALISTS OF MOSCOW. The Bulletin of that Society, No. IV., 1837; *also*, its Rules.

An example of a Caterpillar from New Zealand, attacked by a fungus, arising from behind the head, and protruding more than twice the length of the caterpillar, with a drawing of the same, was exhibited. Mr. Westwood stated, that through the kindness of Dr. Buckland, who exhibited several similar specimens at the last meeting of the Linnæan Society, he had been allowed to dissect one of them, and found the whole of the interior of the caterpillar filled with a white hard substance, something like almonds, except a tortuous dark line running through it, which he supposed to be the alimentary canal.

Mr. F. SMITH exhibited a doubly-stylopized specimen of *Halictus nitidiusculus*.

Mr. WESTWOOD presented, and explained, three printed Tracts, with Illustrations by M. Wesmael, on monstrosities in certain insects. One of these was the imago of *Limenitis Populi*, bearing the head of the caterpillar, which gave rise to an argument as to whether one or more segments of the larva went to form the head of the perfect insect. Mr. Shuckard, supported by the observations of Mr. Smith and Mr. Newman, maintained the latter opinion. Mr. Westwood could see no proofs of it whatever.

The first part of an Essay by the Rev. F. W. HOPE, on insects used for the food of man, was read. It went through the orders *Coleoptera* and *Orthoptera*, detailing a vast variety of authority for the use of insectal food, from Scripture downwards; and recommended the encouragement of the use of locusts for food by the governments of those countries liable to be periodically overrun with these pests, as the best remedy against their devastations.

Mr. WESTWOOD read a translation from Kollar's work on insects injurious to vegetation, describing the operations and peculiar economy of *Platygaster Boscii*, an insect which attacks the pear blossom.

ART. XIX.—*Notice of some new Genera and Species of Brachelytra.* By Rev. A. MATTHEWS, M.A.

CONSIDERING the extent, the interesting economy, and the variety of organization of this section, it is strange that it has not excited more attention among entomologists than appears to have been afforded it. However, it is to be hoped that the extraordinary and novel forms which it presents, such as in the genera *Pseudopsis* and *Diglossa*, which have been recently so ably described,^a will invite a more scientific research into their structure and habits. That much is still to be done, must be apparent to all who have examined this class with even the least attention; and it is soon seen that the more they are investigated, the more curious and interesting the research will prove.

In the early part of the last spring I devoted much time to collecting and investigating these insects, which abound in this neighbourhood; and having discovered several apparently undescribed species, and among them two new genera, I venture to ask space in your next number for this notice of them.

It happened, whilst engaged in setting an insect, which at the time I fancied belonged to *Conura*, or some other genus of *Tachyporidæ*, that I observed two curious spinous processes issuing from its mouth; I was immediately struck with the strong resemblance which these seemed to bear to the labial appendages of *Diglossa*, figured in the eighteenth number of the Entomological Magazine, which I had just then received. This led me to a closer examination of the insect; and having dissected the mouth, I found that the spines proceeded from the extremity of a soft retractile organ, which proved to be the labium. My further attention being excited by this dissection, I afterwards found several species distinctly bearing the same generic characters, and I have ventured to name them *Centroglossa*.

I can hardly persuade myself that a genus consisting of several, evidently different species, and in itself so strongly characterised as this is, can hitherto have escaped the notice of entomologists; but as I have fruitlessly endeavoured to discover

^a Entomological Magazine, Vol. II. p. 313; Vol. IV. p. 253.

it in those works to which I have access, or by the friends to whom I have referred, I am advised to adopt the present mode of publishing a description of it.

Of this genus four species are clearly distinct, as will subsequently appear; and two more, I apprehend, are sufficiently so to warrant their separation, but from their rarity it is difficult at present to speak with certainty respecting them. Their locality, with one exception, which will be immediately noticed, is in damp decaying vegetable matter; they are very lively and active, in many points closely resembling each other; they are all clothed with a short sericeous pubescence, which in the living insect is very brilliant. In all of them there is an isolated seta placed near the middle of the intermediate tibiæ: in colour they are so much alike, that it becomes a difficult task clearly to point out their distinctions by descriptions. The locality of one species (*C. elongata*) before alluded to, differs from its congeners; the only spot in which I have met with it being a bank of clay on the edge of a stagnant pool, where it burrows like the *Heteroceri*, and can rarely be seen on the surface.

The other genus, which I have called *Deinopsis*, is nearly allied to the foregoing. Its habits, its locality, the rapidity of its motions, and the pubescence with which it is clothed, are precisely similar; indeed its whole appearance bears the strongest resemblance to them; but when the separated parts, especially those of the head, are examined, a difference so great is immediately seen as to make a separation unavoidable. Of this genus I have met with only one species. The following valuable observations, accompanied by the dissections given in the cuts, were sent me by my friend Mr. Westwood, for which I beg to offer him my best thanks.

“In *Centroglossa* the mandibles, which are acute, are slightly hooked at the tips, and without any teeth on the inner margin, being only slightly serrated below the middle, are furnished on the inside with a large flat transparent appendage, thickened along the centre, with the inner margin straight, and discovered, under a very high-power lens, to be exceedingly finely serrated; the back of this, at the tip, is rounded, the opposite angle being acute. In some of the *Brachelytra* we find a minute appendage attached to the inner edge of the mandible, of which this is evidently the analogue; but in this

genus it is so much enlarged as to appear more like a supplemental mandible, being more than one-third of the size of the real mandible. The maxillæ are singular, the two terminal lobes being greatly elongate, the external very slender, with a few setæ at the tip; the internal curved, and acute at the tip, horny, with the inner margin finely denticulated, from the middle to the tip. The maxillary palpi appear only two-jointed, but by carefully examining the maxilla, the minute basal joint is discovered; the terminal fourth joint, which in many of the *Brachelytra* is minute and conical, is here entirely evanescent. The mentum is transverse, rather narrowed in front, with the anterior margin straight, the angles produced into two long filaments, sparingly clothed with long setæ; two very long setæ also arise near the centre of the front margin. The labium is membranaceous, apparently capable of retraction, and oblong in its form, seeming to be divided by a suture across the middle, its anterior angles produced into two very long and setaceous filaments, longer than the mandibles. The labial palpi are entirely evanescent. The four anterior tarsi are only four-jointed; the two posterior five-jointed; the ungues very long, slender, and slightly curved, with a curved seta on the underside. The antennæ have the basal joint small and rounded, the second elongate.

“ In *Deinopsis* the mandibles are very acute, and incurved at the tip, with two strong and acute teeth on the inside, beneath the apex. The internal lobe of *Centroglossa* is here replaced by a large appendage, extending from the base above the lowest of the teeth of the mandible, and armed along its inner margin with very acute and deflexed teeth, forming, in conjunction with the toothed mandible, a most effective instrument for laceration. The maxillæ also participate in this character; the inner lobe, although very slender, being exceedingly acute at the tip, with several sharp teeth on the inside, beyond the middle, and extending to the tip; the long and slender outer lobe is also furnished at its apex with a series of acute and strong bristles. The maxillary palpi are similar in their general structure to those of *Centroglossa*. The mentum is large, transverse, broadest at the base, with the anterior margin nearly straight, the anterior angles being slightly porrected. The labium is membranous, somewhat quadrate, rather narrowed in front, with a deep notch in the centre of

the anterior margin, within which, on each side, arises a long and curved bristle: the extremity of each lobe formed by this notch is furnished with a very minute appendage, composed distinctly of two joints, the terminal one being very minute and slender: the labial palpi are entirely evanescent. The legs are of a curious structure; the anterior tibiæ are furnished with three short spines or calcaria at the tips, and another on the outside beyond the middle; the tarsi in all the legs appear only to be three-jointed, the two basal joints being moderately short, and the third longer than the two preceding together; its extremity is armed with several very long erect bristles, as well as with several others accompanying the claws, which are long, slender, and toothed in the centre. The antennæ have the two basal joints longer than the rest.

“ It is not without some scruple that I have brought myself to adopt the nomenclature of the parts of the *instrumenta labialia*, given above, more especially some in *Deinopsis*; there are appendages which might, perhaps, be considered as the true analogues of the labial palpi. The structure of the labium, and its various parts, notwithstanding all that has been written upon it, still requires a philosophical investigation, in order to prove the real representatives of each portion throughout the great variation of form which exists even in the mouth of Coleopterous insects alone, setting aside the other mandibulated and all the haustellated orders. By a comparative examination, however, of the mouth of these two genera with the other genera of *Brachelytra*, I think we cannot fail to trace the true analogues of these parts. In *Hygronoma dimidiata*, (Erichson, Kafer der Mark Brandenb. *Homalota dimidiata*, Curtis, Pl. 514,) the labial palpi are present, but the labium or lip, as the latter author indifferently terms it, is ‘terminated by a transverse oval lobe, with two divaricating obtuse spines at the centre.’ In *Callicerus Spencii*, (Curtis, Pl. 443, ♂ *Homalota callicera*, Erichson, ♀ *Callicerus hybridus*, Hali.) the lip is also furnished ‘with two small lobes in the centre.’ But, in *Dinarda dentata*, (*Lomechusa dentata*, Curtis, Pl. 410,) which is most nearly allied to those insects, the lip is ‘small, narrow, and bifid, each lobe producing a small glandular appendage.’ In all these insects, however, the labial palpi are present. But, in Mr. Haliday’s remarkable genus, *Diglossa*, (Ent. Mag. XVIII. p. 253,) we find a much nearer affinity to these two

genera; here the maxillæ are exactly formed as in *Centroglossa*; the lower parts of the mouth are also evidently similar, although, from the labium being retracted, Mr. Haliday was compelled to pass it with a mark of doubt, adding, that the palpi are 'represented by two parallel spines, so long as to pass beyond the extremity of the mandibles,' and which were the only parts of the labium which he had seen. The Oxytelideous form of the body in *Diglossa*, and especially the structure of the tarsi, separate it widely from *Centroglossa*."

To the above observations of Mr. Westwood, I must add, that the labium in *Centroglossa* is not only retractile, but also capable of considerable expansion; for, in some specimens which I have dissected, the anterior margin of that organ, (which, as may be seen in Fig. *b. 2*, usually falls into a deep notch, forming the two lobes,) was nearly straight; and in this case the long filaments proceed more or less from the opposite corners of the mouth, extending nearly their whole length beyond it, and divaricating considerably.

Mr. Westwood then goes on to say, "In addition to this genus, Dr. Erichson has just published the characters of several new genera of '*Aleocharini*,' closely allied to these; and, as his work is as yet in very few hands, it may be serviceable to give his short Latin characters of these genera, as they will, in all probability, occur in our own country.

"*SILUSA*.—*Maxillæ* malis inæqualibus, interiore elongatâ, cornæâ, apice uncinnatâ, intus subserratâ: *ligula* elongata, angustata, integra paraglossis nullis: *palpi labiales* exarticulati, setacei: *tarsi* antici 4-postici 5-articulati, omnes articulis primis æqualibus.

One species.—*S. rubiginosa*. ($1\frac{5}{4}$ line long.)

"*PRONOMEA*. — *Maxillæ* malis æqualibus, elongatis, interiore cornæâ, apice uncinnatâ: *ligula* bifida, minuta, sub mento occulta, paraglossæ nullæ: *palpi labiales* exarticulati, setacei: *tarsi* antici 4-, postici 5-articulati, postici articulo primo elongato.

One species.—*P. rostrata*. (Length $1\frac{1}{2}$ lin.)

"*GYMNUSA*, (Karsten.)—*Maxillæ* malis æqualibus, elongatis, interiore cornæâ, apice uncinnatâ, intus serratâ: *ligula* bifida, laciniis porrectis, elongatis, setaceis, palpis æqualibus, paraglossæ nullæ: *palpi labiales* setacei, 3-articulati, articulo 1^{mo}.

longissimo, reliquis duobus minutis: *tarsi* omnes 5-articulati, postici articulo ultimo elongato.

One species.—*G. brevicollis*, Paykull, Gyll. (*carnivora*, Grav.; *excusa*, Grav.)

“MYLLENA.—*Maxillæ* malis æqualibus, elongatis, anteriore corneâ, apice uncinnatâ, intus serratâ: *ligula* brevis, integra, paraglossæ nullæ: *palpi labiales* exarticulati, setacei: *tarsi* antici 4-postici 5-articulati, postici articulo 1^{mo}. subelongato, anteriores brevissimi.

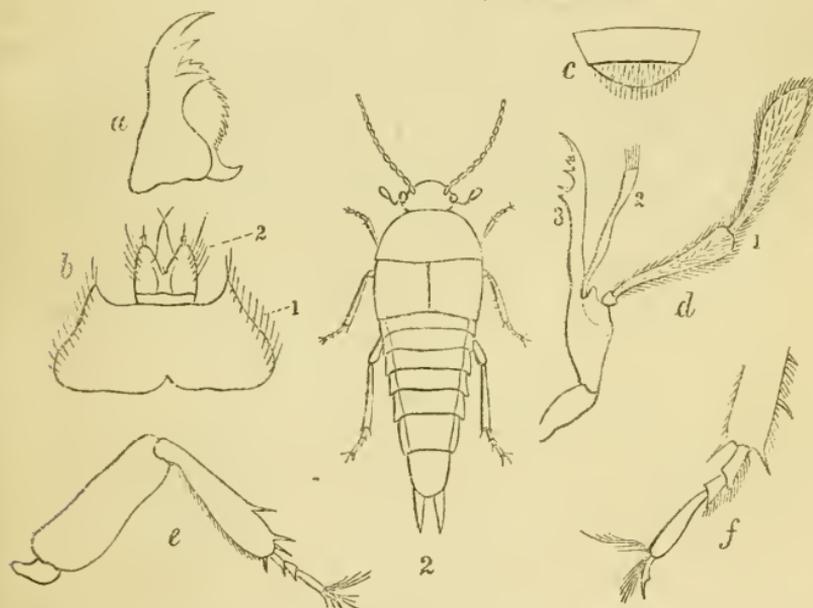
Three species.—1. *M. dubia*, Grav. (*Gymnusa dubia*, Steph.)

2. *M. intermedia*, new species.

3. *M. minuta*, Grav. Gyll.

I will now proceed to describe the insects which have been the subject of the foregoing observations.

GENUS.—DEINOPSIS, *Matthews*.



Antennæ 11-jointed, basal joint long and curved, second also long, from this to the apical short, apical conic, acute: maxillary palpi (Fig. *d* 1) 3-jointed, basal joint minute, the two others long, the last being clavate: mentum (Fig. *b* 1) large, transverse, broadest at the base, with the anterior angles produced and very acute: labium (Fig. *b* 2) membranous, quadrate, narrowed in front, with a deep notch in the anterior margin, each lobe furnished at its extremity with a minute bi-articulate appendage, and on its inner margin with a long curved bristle: labrum (Fig. *c*) small, rounded: mandibles (Fig. *a*) robust, very acute, and incurved at the tip, with two strong sharp teeth on the inside above the middle.

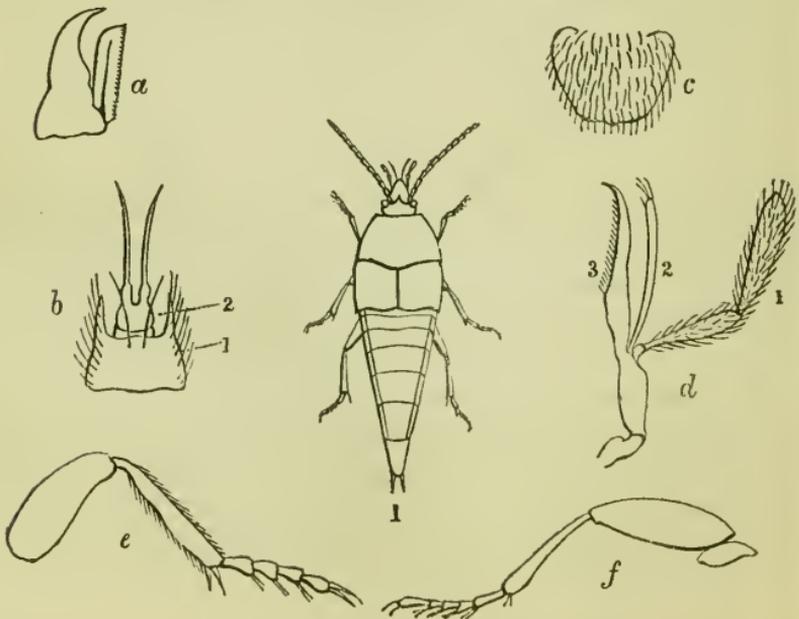
furnished with a large appendage arising at the base of the mandible, and extending to more than two-thirds its whole length, armed along its inner edge with very sharp deflexed teeth: the inner lobe of the maxillæ (Fig. *d* 3) slender, very acute at the tip, with several sharp teeth above the middle: the outer lobe (Fig. *d* 2) very slender, furnished at its apex with a series of strong bristles: head nutant, produced in front: eyes moderate: legs rather short and strong: tarsi (Figs. *e* & *f*) 3-jointed, the two basal joints rather short, and the terminal as long as both the others together, furnished at its extremity with an *erect* tuft of long bristles, and another tuft covering the claws, which are long and slender, with a tooth in the middle: thorax and elytra transverse: scutellum broad, short and rounded, covered by the posterior margin of the thorax: abdomen conic, obtuse, with two very large and strong styles at the apex.

Sp. 1. *Dei. fuscatus*, (Fig. 2.)

Deep black, thickly clothed with a short sericeous pubescence: head large and broad: thorax transverse, narrowed in front, with the anterior angles rounded, and the posterior acute: elytra very short, with the posterior margin obliquely truncate towards the suture: abdomen obtuse, all the segments except the last deeply margined, with their posterior angles produced: legs, palpi, and antennæ black: tarsi and knees testaceous. (Long. corp. 2 lin.)

Taken at Weston; first in 1835, and subsequently at the end of May and beginning of June 1836-7.

GENUS.—CENTROGLOSSA, *Matthews*.



Antennæ 11-jointed, filiform, with the basal joint robust, subclavate, second twice as long as the third, from this to the eleventh equal, eleventh longest, acute or obliquely truncate at the apex: maxillary palpi (Fig. *d* 1) long, 3-jointed, basal joint minute, and the terminal conic, acute: labium (Fig. *b* 2) oblong, membranous, and retractile, furnished at the anterior angles with two very long filaments: mentum (Fig. *b* 1) quadrate, a little narrowed in front, with two long bristles near the middle of the anterior margin, and the angles produced into two long obtuse filaments, sparingly clothed with long setæ: labrum (Fig. *c*) somewhat oval, anteriorly truncate: mandibles (Fig. *a*) robust, acute at the tip, and furnished on the inside with a large, flat, transparent appendage, with its inner margin straight and very finely serrated, with the tip acute in front and rounded behind: the external lobe of the maxillæ (Fig. *d* 2) very slender, with a few setæ at the tip: the internal lobe (Fig. *d* 3) long, acute at the tip, horny, with the inner edge finely denticulated from the middle: head produced in front, rostriform, with the clypeus terminating in an acute point between the antennæ: eyes small: thorax transverse or quadrate: scutellum short, concealed by the thorax: abdomen attenuated, with the apex generally acute: legs rather long, with the four anterior tarsi only 4-jointed (Fig. *e*), and the posterior (Fig. *f*) 5-jointed.

A. With the thorax much broader than the abdomen.

Sp. 1. Cen. Conuroides. (Fig. 1.)

Rather broad, black, covered with a short sericeous pubescence: mouth testaceous: thorax convex, narrowed anteriorly, the posterior margin sinuated, with the angles acute: elytra deeply notched at the posterior angles: abdomen nearly three times as long as the elytra, strongly margined, and considerably attenuated, with the apical half of the terminal and penultimate segments fuscous, the penultimate delicately edged with white: legs piceous: antennæ and palpi black, with the basal joint of each testaceous. (Long. corp. $1\frac{5}{4}$ lin.)

Taken near Weston; February and March, 1837.

Sp. 2. Cen. attenuata.

Black, head broad at the eyes, and very much pointed towards the mouth, which is testaceous: thorax not narrowed in front, with the anterior angles rather acute: elytra not broader than the thorax, slightly notched at the posterior angles: abdomen rapidly

attenuated towards the apex, black, with the whole of the apical, and the lower half of the penultimate segments, rufo-testaceous: legs fuscous: antennæ and palpi entirely black, the former fine, and longer than in any other species of the genus. (Long. corp. $1\frac{2}{3}$ lin.)

Taken at Weston, always in company with *D. fuscatus*.

Sp. 3. *Cen. minuta*.

Black, mouth testaceous: thorax short, convex: elytra longer than the thorax: abdomen broad and short, deeply margined, with the penultimate segment edged with white, and the last fuscous; legs piceous: palpi and antennæ black, with the basal joint testaceous. (Long. corp. $\frac{3}{4}$ lin.)

I have considerable doubt whether the insects of this small species are any thing more than very minute specimens of *C. Conuroides*, with which they are generally found; but if this is the case, it is very remarkable that no intermediate size should occur. They differ principally in having the thorax narrower, and the abdomen broader in proportion.

B. *With the thorax not broader than the abdomen, the latter very much elongated and obtuse.*

Sp. 4. *Cen. elongata*.

Narrow, elongate, fuscous black, clothed with a griseous pubescence: mouth testaceous: thorax nearly quadrate, fuscous, with the margins lighter: elytra not broader than the thorax, very deeply notched at the posterior angles, fuscous, becoming paler posteriorly: abdomen nearly four times as long as the elytra, strongly margined and scarcely attenuated, the penultimate segment delicately edged with white: legs long, rufo-piceous: antennæ fuscous, with the basal and three apical joints testaceous: palpi testaceous, with the terminal joint dusky. (Long. corp. $1\frac{7}{8}$ lin.)

Taken at Weston; end of May and June, 1836-7.

Sp. 5. *Cen. brevicornis*.

Elongate, rufous, head darker than the thorax: elytra short, transverse, obliquely truncate towards the suture: abdomen nearly four times as long as the elytra, very little attenuated, with the apex obtuse, dusky, with the posterior edge of each segment lighter: legs and palpi pale: antennæ short, dusky, with the basal and apical joint testaceous. (Long. corp. $1\frac{3}{4}$ lin.)

Taken at Weston; July, 1837.

Sp. 6. *Cen. gracilis*.

Elongate, almost filiform: black, clothed with a griseous pubescence: head nearly as broad as the thorax; mouth testaceous: thorax quadrate: elytra transverse, very obliquely truncate towards the suture: abdomen four times as long as the elytra, strongly margined and slightly attenuated, with the posterior part of the two last segments fuscous, and the penultimate delicately edged with white: legs and palpi fuscous-black, with the joints lighter: antennæ very short, with the articulations equal, black. (Long. corp. $1\frac{1}{2}$ lin.)

Taken from moss, near Weston; February and March, 1837.

GENUS.—MEGACRONUS, *Stephens*.Sp. *Meg. elegans*.

Slender, rufo-piceous, very shining: head dusky, with the mouth, and a broad streak from thence to the eyes, testaceous: thorax immaculate, rufo-testaceous; elytra dusky, with the shoulders and apex broadly rufous, with a single punctured stria near the middle, terminating in a fovea at the apex: abdomen nearly twice as long as the elytra, with the apical and posterior margin of the other segments rufous, the extreme edge of the penultimate white: legs testaceous: antennæ dusky, with the basal joint alone testaceous. (Long. corp. $1\frac{3}{4}$ lin.)

Taken at Weston; 1834.

GENUS.—MYCETOPORUS, *Mannerheim*.Sp. *Myc. brevicornis*.

Head rufous, dusky towards the eyes: thorax narrow in front, bright orange, very shining, with a few scattered punctures: elytra rufo-testaceous, with a dusky spot at the scutellum, and a single deeply punctured stria near the exterior margin: abdomen coarsely punctured, black, with the posterior margin of the segments broadly rufous, and the extreme edge of the penultimate white: legs testaceous: antennæ robust and exceedingly short, dusky, with the base testaceous. (Long. corp. 2 lin.)

Taken at Weston; July, 1836.

GENUS.—TACHYPORUS, *Gravenhorst*.Sp. *Tac. formosus*.

Head and thorax bright yellow, very shining: eyes black: elytra punctured, bright yellow, with the base narrowly black: abdomen

pilose, black, with the margins of the segments broadly red, the latter colour gradually increasing in breadth to the penultimate, which is entirely red, the whole of the apical segment deep black; legs and antennæ yellow, with the apex of the latter dusky. (Long. corp. 2 lin.)

Taken at Weston; February and March, 1837.

GENUS.—CYPHA, *Kirby*.

Sp. Cyp. biguttata.

Black, shining, sparingly punctured, clothed with a golden pubescence: head immaculate: thorax very shining, with the margins yellow: elytra finely punctured, with a large bright red spot on each posteriorly towards the suture: abdomen with the two apical entirely, and the hinder margins of the other segments, rufotestaceous, the extreme edge of the penultimate white: legs rufous: antennæ and palpi yellow: antennæ and legs, especially the tarsi, hairy. (Long. corp. $\frac{7}{8}$ lin.)

Taken at Weston; March, 1837.

GENUS.—OXYTELUS, *Gravenhorst*.

Sp. Oxy. biarcuatus.

Black, shining, head as broad as the thorax, sparingly punctured, with an impressed line between the eyes, and a transverse one at the back: mouth rufous: thorax with the sides rounded, the margins entire, disk smooth, with two arcuated coarsely punctured longitudinal foveæ in the centre, the sides depressed and deeply punctured: elytra convex, coarsely punctured throughout, rufous, with the suture dusky: abdomen ovate, black, with the apex rufous: legs testaceous: antennæ dusky, with the basal joint red. (Long. corp. 2 lin.)

Taken near Weston; 1836.

I have lately taken an insect, which I very much wished to have included in this communication; it belongs, I believe, to a genus of *Pselaphidæ*, described under the name of *Batrisus*, by Aubé; but at present I have no means of satisfying myself on this point.

Weston, Nov. 27, 1837.

A. MATTHEWS.

ART. XX.—*Communications on the Natural History of North America.* By EDWARD DOUBLEDAY.

Philadelphia, 4th of September, 1837.—Mr. Peale informs me that this is a bad year for insects; but still that in a few spots they have been plentiful; and I learn also from Mr. Lea that where hundreds of butterflies might be taken last year, few can now be seen; I hear, also, that further south I should have obtained more *Papiliones*, but far fewer *Nuctuæ* and *Geometræ*, therefore, though I have not many butterflies, I am not disposed to grumble. Mr. Peale says the south will well repay me; he collected in New Granada fifteen hundred species of *Lepidoptera*, some of which are very fine.

Philadelphia is certainly a fine city; its broad straight streets crossing at right angles, its large square, the banks and public offices, and even occasional private residences of fine white marble,—the marble steps to most private residences, the extensive stores, the rows of trees, &c. &c. all strike a stranger very forcibly; I was particularly pleased with the markets, some nearly a mile in length, under cover. You see here a profusion of every kind of melons, water-melons, squashes, peaches, pears, apples, tomatos (as big as one's fist, sometimes much bigger), capsicums; the fruit of the egg-plant, especially the purple one, far larger than ostrich's eggs; plums, cucumbers, sweet potatoes, Lima beans (a delicious vegetable), but no broad or Windsor beans, cabbages, &c. &c. Of fish there is a great variety.

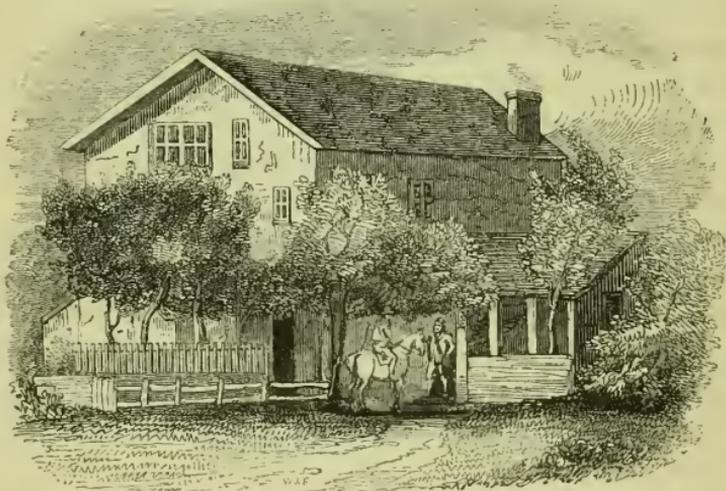
I have visited Peale's Museum. I consider the animals generally badly stuffed, but there are some very fine things: however, the skeleton of the Mammoth is the wonder; nothing that I have ever seen approaches it; an elephant's skeleton by its side is as nothing to it.

On Saturday I went to Wilmington, to see J. Wigglesworth, and look over his museum. He has one room of Wax-work, and two of Natural History. He tells me that he walked hundreds of miles to collect the quantities of *Phalæna Cecropia* which he has sent to England; he found the cocoons, and then reared the perfect insects; he works most indefatigably to obtain insects for us. He employs a number of children in the

same pursuit; when these bring him a quantity of beetles, they receive a handful of raisins in exchange.^a

I have walked up the Brandywine to a friend's house; the scenery is rocky and wooded, and very beautiful, though not equal to Trenton. I saw numbers of Humming-birds, Cat-birds fighting for elderberries, Sandpipers, &c. I took a few *Coleoptera*; I consider this a much better place for collecting, and it being four degrees more southerly, of course it should be so.

As I came up the Delaware this morning I saw many little white Egrets on the muddy banks, and thousands of Red-winged Starlings. To-morrow I leave for Pittsburgh. My box, containing the Trenton insects, will go by the Mediator; also a parcel, containing some Indian affairs, a sketch of the house at Trenton, &c. &c.



Louisville, 18th September, 1837.—On the 5th instant I left Philadelphia by rail-road to Harrisburg; thence onward to the mountains by canal; then over the mountains by rail-roads, sometimes whirled along by locomotives, at others dragged up the smaller slopes by horses, and up the steeper inclined planes by stationary engines, and lowered on the opposite sides by endless ropes; till we reached Holidaysberg, where we again took the canal boat to Pittsburgh. The rain, which

^a The immense number of individuals sent by Mr. Wigglesworth, as recorded in this Number, is thus accounted for. The Cocoons of the *Phalaena Cecropia*, &c. are deposited in the collection of the Entomological Club.

was very heavy as we crossed the mountains, had swelled the rivers to such a degree that we had to wait at one lock for five hours, the towing-path being eight feet under water.

When we approached Pittsburgh we found them repairing the banks of the canal: in order to accomplish this they had let off the water so low, that there were two boats jammed together aground, which we, of course, could not pass. Some of the passengers who lived in Pittsburgh walked off home at once. I waited awhile, but at last thought I too would go, especially as our provisions were short on board. The captain asked me to send carriages down, for the other passengers and luggage.

As you pass through Chester and Lancaster counties, you have views over as fine, rich, cultivated valleys as ever the eyes of man saw. From hence farm-house follows farm-house in endless succession. The wheat-harvest was over, but the corn was still in its glory. The orchards were weighed down with fruit; the rich pastures of the wide valleys spread out between the hills were green, as in the "Emerald Isle." Above was a clear blue sky, and a most glorious sun. I could fancy that the spirit of Penn was hovering over that goodly landscape, enjoying the prospect, and rejoicing in the full success of his plans; surely if we may "unbodied choose a sanctuary," the soul of that great man must sometimes visit those lovely regions. The Alleghanies are clothed with wood, not lofty, but beautiful, and sometimes romantic, especially by moonlight. There are few houses excepting where there are some small salt, coal, and iron works. One scene particularly struck me. The river was wide, and formed an angle, close to which was a very high and steep mountain, casting its dark shadow on the water, while the other hills were beautifully lighted by the moon. At the foot of the mountain, in its deepest shade, was a salt work; its large fires reflected in the calm water, and its columns of steam rising high into the moon-beams; around the fires we could just discern the forms of something like human beings—they might be Cyclops for aught we could tell.

Pittsburgh itself stands on a point of land where the Alleghany and Monongahela join to form the Ohio. On either side are high hills, so the smoke is not soon blown away, and this town is consequently as bad as London. The houses,

the smoke, the bad smells, reminded me of Stratford. I was glad to get out of it into a purer air, so went on board the Burlington, a fine boat, for Cincinnati. Oh the glorious Ohio!! For a thousand miles it rolls onward to the "Father of Waters,"^b between banks, preserving throughout one uniform character. High wooded bluffs are opposed to level plains; if on your right hand is a bluff, on your left is a flat, and *vice versa*. Yet the eye tires not in beholding them. Frequently the flats are cultivated, and I have no doubt that—

" Another age will see the golden ear
Embrown the slope "

of many of the bluffs, but others are too precipitous to admit the plough. Long, long may it be ere the Ohio loses its beautiful woods.

We staid some time at Wheeling, so I had an opportunity of setting foot in "Old Virginny." Wheeling is as smoky as all places, where there are many iron-works, must of course be. There is a pretty island opposite, on which a city is laid out, not built. I crossed to the island to look at the few houses, and at one of the finest elm-trees I ever saw. It was a huge tree, and beautiful in form; umbrageous. As we proceeded down the river, the boat often stopped for wood: on these occasions we ran on shore to see if we could find an orchard, or a peach tree; if we found none handy, we had to buy of the children who brought fruit to the boat for sale. Portsmouth was the last place we touched at previously to reaching Cincinnati. It is a flourishing town, at the end of the Cleveland and Ohio canal. Here I strolled away to see some iron-works. The next day we reached the "Queen of the West."^c

Of all places I have yet seen, no inland town stands in so fine a situation as Cincinnati. It seems as if nature had formed the site expressly for such a city. The hills retire as if to allow space for it to acquire its destined size. The semi-circle of hills afford the finest possible views of the city and surrounding country. You have before you the fine city, with its broad streets and beautiful churches; the matchless river, with its innumerable steam-boats; the villages of Covington and Newport, and the green wooded hills and beautiful pastures of Kentucky. When I stood on these hills, with this

^b Mississippi.—Ed.

^c Cincinnati.—Ed.

magnificent prospect before me, and above me the sun, such a sun! in the clear and cloudless sky, I felt—

“What I can ne'er express yet cannot all conceal.”

I spent the time I was at Cincinnati very agreeably. I was just preparing to leave for Springfield, &c. when behold—Robert Foster arrived at the hotel; we had written to each other, but our letters had miscarried. We are now going to Shawnee Town, and thence to Deborah Prichard's, at Wau-borough, in the Illinois.

Louisville, the next place of much importance, is a large town, not so clean as Cincinnati, fewer churches, far worse markets, and far dirtier streets. The brand of slavery is upon it, though not to a vast extent. In fact, the Kentuckians want to get rid of slavery. The Unitarians have a very pretty church at Louisville, as also the Catholics; there is a fine town-hall now building.

I have taken more Coleoptera here in three walks than I had previously done in three weeks, but they are only just coming out; on the sea coast, at Wilmington, for instance, they are earlier. Many butterflies are also out. The land here needs no manure; it is easily ploughed, and requires little other labour. The pastures are the richest and most verdant that I ever saw. The whole country, where it has not been ploughed, is like an English park, excepting that the trees are much finer. You see on all sides fine hills clothed with gigantic trees, valleys with rich meadows, green as emeralds, but studded with patches of *Lobelia*, especially the fine blue one, *Delphinium*, *Aster*, &c.; the fences are hidden by tall *Helianthus*, *Rudbeckia*, *Solidago*, &c.; in the middle are *Gleditsias*, *Acacias*, *Planes*, *Walnuts*, &c. *Catalpas* and *Tulip-trees* stand in clusters of five or six, or it may be singly; these are clothed to their very summits with *Bignonia radicans*, wild vines, &c. The banks of the streams are now, in places, masses of flowers; the corn is just browning, and drooping its ripening ears. I never saw such beautiful scenery: more romantic I have seen; but, as for calm tranquil beauty, I never saw the like. Such a sky! Such a sun! Such sunsets! You in England do not know what these things are.

October 22, 1837.—The map will show our course from Louisville to Shawnee Town. The character of the Ohio continues the same throughout its entire course. Shawnee

Town was in great degree washed away by a flood some few years since. There is not a couple of acres of corn round the town, although the soil is beautifully rich; it appears to have been cleared here and there. The woods here are magnificent, but, of all the trees I saw, the deciduous *Cypresses* please me the most. We had to wait here till noon the next day to take the stage to Albion. It was a little cramped-up affair of a coach, into which we had to get with four other persons; but, fortunately, there were a few hills to walk up, which kept me in good humour. There was a great deal of wood till we reached Carmi, at night, where we forded the Little Wabash. Here we supped, went to bed, and were called up at two o'clock in the morning to continue our journey. There were rather more farms than on the previous day's journey. Being moonlight, we could see something of the country. We breakfasted in a log hut at Graysville, near the old village of Bon Pas. The owner of the hut, who came out with Morris Birkbeck and his wife, was a servant in Birkbeck's family. We reached Albion to dinner, calling at once on J. Clark, and afterwards walked to Wanborough. D. Prichard's house does not answer Stuart's description, as being like an English villa; but it stands pleasantly, and is, for that country, a very good house. We were very hospitably received, and had our luggage fetched from Albion. The following day we walked to Birkbeck's farm. The house is two-thirds pulled down: much of the land is so entirely overgrown with brambles, that you could scarcely suppose it had ever been cultivated: every thing about the place is going backwards.

On the following day we visited Sydney Spring. I like his farm and himself vastly; he is the most rational and enterprising man we saw there. We next visited W. Clark's; it is a fine farm on a lovely prairie, and he lives in a good handsome brick house. W. Clark was himself from home, but his family received us in a very pleasant way. After staying here about a week, we started for St. Louis. Sydney Spring drove us as far as Maysville, where we were to take the stage for Salem. From Albion to Maysville much of the road is through a very fine prairie, but by far too large. On first leaving Wanborough, we passed through a good deal of woodland, of apparently poor quality. We had to cross the Little Wabash at a ford, and go a long way through the swampy

flats by its side. It was a most wretched journey; I do not think we made more than two miles an hour. The mud was composed of decayed vegetable matter, smelling dreadfully bad. There was only a track between the tall trees. Sometimes we were up to the axles of the wheels in mud; and once I really thought we were set fast. Of course we walked wherever we could, though Sydney Spring rode because he could not possibly walk by the horse's side. We went a little into the woods at times.

At length we emerged from these wooded swamps, and our eyes rested on a vast prairie, blue, gold, white and purple, with *Asters*, *Solidagos*, *Rudbeckias*, and an infinity of other flowers. Here and there was wood, but this decreased as we proceeded, till at last we could scarcely see a tree,—nothing but boundless extent of slightly undulating land, browned in the distance by the tall panicles of the prairie-grass, but around us a perfect mass of innumerable flowers of every possible hue. There was no road, but just a track cut by water-courses, now dry; sometimes these would be so uneven, that the body of the waggon made an angle of about 60° with the horizon, making it very difficult for ourselves to keep our seats, and not very easy for the horses to get us along. We reached Maysville just in time for the stage to Salem, so we proceeded at once, parting from Sydney Spring with real regret: I much wished to have known more of him.

We reached Salem sometime after midnight, having travelled most of the way over wide prairies. From Salem we took another stage to St. Louis, by way of Carlisle, Belleville, &c.; the last of these is a flourishing town. This day we got no dinner, there being a great Baptist preaching near the place where the stage stopped, and all the people being gone to it. We came in sight of the "Father of Waters" just after sunset; the noble but swampy woods prevented our seeing him till we had reached his banks. It was a grand sunset, with masses of gloomy electrical clouds. St. Louis looks well from the river, there being a good approach from the water, and some good buildings near the landing. It must, however, be unhealthy, as it is backed by a swamp and much stagnant water, and there is a large swamp on the opposite shore. The Catholic church is a fine building, lately erected. There is a good hotel (the National) kept by a Yankee.

We went across the Mississippi, and afterwards ascended the stream to Alton, in the Illinois, a rising place, destined perhaps some day to be a rival to St. Louis. It is now divided into three towns, Lower Alton, close to the river, Middle Town, a little further off, and Upper Alton, distant about three miles from the first. There seems a great deal of business doing here, and building lots sell very high; near the water, the ground is worth 250 dollars per foot frontage. There is a high conical bluff near the town, from which we obtained a splendid view of the river and adjacent country. At our feet was the town; in front and on both sides the broad and calm river, on the right bounded by high bluffs and making a considerable bend, the bluffs of the eastern bank being visible over the low swampy woods of the western shore; far down to the west are the islands of the mouth of the Missouri, clothed with beautiful woods. The woods are most noble, and are now just assuming their autumnal tints. I was much pleased with the town. There are three churches in Lower, and two in Upper Alton.

In returning to St. Louis, we had a fine view of the confluence of the two rivers. Only think of the grandeur of a continent in which two mighty rivers, each more than a mile in width, unite, 1,300 miles from the sea, and flow on, swallowing up other vast floods, like Pharaoh's lean kine, without growing any larger.

ART. XXI.—*Proceedings of the Entomological Club.*

SITTING OF THE 18TH OF OCTOBER, 1837.

Mr. BENNETT in the Chair.

THE following donations were announced, and the thanks of the Club voted to the respective donors:—

Mr. HENRY DOUBLEDAY, of Epping. Various British *Lepidoptera*.

Mr. J. WIGGLESWORTH, of Wilmington, State of Delaware, North America. A large number of *Insects* of all classes, collected by himself in Delaware State. The collection consists principally of the larger *Lepidoptera*, of *Libellulites*, and of *Coleoptera*; the last were sent over with spirits in a dozen bottles: the number of species is only ninety-one, being much

less than might be expected, considering the immense number of individuals, and among them are but few Longicorn or Lamellicorn beetles, the majority consisting of *Carabites*, *Silphites*, and *Passali*. The larger Lepidoptera are principally true *Phalenæ*, and, being bred specimens, are remarkably fine and perfect. This collection was transmitted through the hands of Mr. H. Doubleday.

Mr. WALTON, of Byard's Lodge, near Knaresboro'. Various British Apions, &c.

Rupert Kirk, Esq. of Sydney, New South Wales, and William Imeson, Esq. of Woodside, near Sydney, were balloted for, and elected Honorary Corresponding Members of the Entomological Club.

SITTING OF THE 21ST OF DECEMBER, 1837.

Mr. BOWERBANK in the Chair.

The following donations were announced, and the thanks of the Club voted to the respective donors:—

Mr. WILLIAM CHRISTY, of London. Various insects collected by himself in Jersey.

Mr. SHUCKARD, of London. A fine specimen of *Catadromus*, and various other insects from Van Dieman's Land.

Mr. WOOD, of Campsall Hall. The 14th and 15th numbers of *The Naturalist*.

Mr. FREDERICK CHRISTY, of London. Various British Lepidoptera.

Mr. STEPHENS, of London. A fine British specimen of *Acontia solaris*.

Mr. INGALL, of London. Various rare insects from the West Indies.

Mr. NEWMAN, of London. About three hundred Coleoptera from New Holland.

Mr. BENNETT, of London. *Hesperia Peniscus*, and other British Lepidoptera.

Mr. HENRY DOUBLEDAY, of Epping. A series of British specimens of *Cantharis vesicatorius*, the blister fly of medicine. The Curator stated, on the authority of Mr. Doubleday, that this insect, formerly so rare, and apparently scarcely credited as British, had occurred in such profusion during the past summer in the neighbourhood of Colchester, that in some instances it was considered necessary to thresh the ash trees with poles,

in order to free them from the countless swarms of this insect, which threatened entirely to strip the trees of their foliage. Mr. Doubleday also presented some leaves of the ash, showing the mode in which they were undergoing the process of being devoured. Similar swarms of the Blister-fly have occurred during the past summer in other parts of Essex, also at Ipswich and other parts of Suffolk, also in the Isle of Wight, in which island a medical man has prepared blisters of the fly; but with this exception, its commercial importance appears to have been entirely unknown. Mr. Doubleday also presented three fine specimens of *Platyrhinus latirostris*, taken by Mr. Hewitson in the neighbourhood of Bristol.

Mr. ALLIS, of York. A pair of *Cucullia solidaginis*, taken in the north of England: transmitted through the hands of Mr. Alexander Christy.

Mr. EDWARD DOUBLEDAY. A collection of insects made by himself at Trenton Falls, in the State of New York, North America, containing two hundred and fifty-three species of Coleoptera, and other classes in proportion; also a second collection made in the States of Kentucky, Ohio, and Illinois.

Mr. FOSTER. A collection of insects made principally in Ohio, Kentucky, and Illinois.

Mr. EVELEIGH, of Manchester. A series of *Cucullia solidaginis*, *Saperda scalaris*, &c.

Mr. BURLINGHAM, of Worcester. Various British Lepidoptera.

Mr. BATE, of New Cross, Deptford. A rare and beautiful *Curculio*, from Brazil.

Mr. DOUGLAS, of London. Various British Lepidoptera.

Dr. STANGER. A Crustaceous insect taken on the Scotch coast.

Mr. LAMBERT, of London. Various British Lepidoptera.

Mr. BOWERBANK, of London. Various South American and Australian insects.

Mr. Jeffrey LUCAS, of Hitchin. A pair of *Callidium violaceum*, taken by himself at Ampthill; transmitted through the hands of Mr. Bennett.

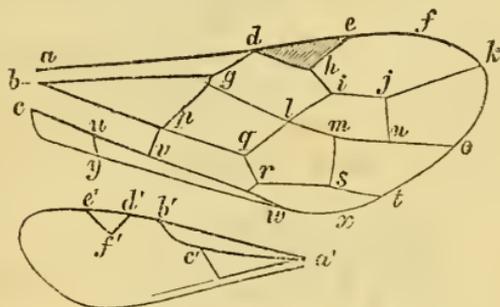
The LINNÆAN SOCIETY of London. A selection from the duplicates of a collection of Australian insects sent over by Alexander MacLeay, Esq.

Dr. LIPPOLD. Various insects collected by himself in the Island of Madeira.

APRIL, 1838.

ART. XXII.—*Essay on the Classification of Parasitic Hymenoptera.* By A. H. HALIDAY, M. A.*Tabula Orismologica alarum ad Ichneumonidas imprimis applicata.*

ALÆ ANTICÆ.

STIGMA, *Auctt.* [*d e h*]
carpus, Jur. Lacord.

AREOLÆ,

basilares,

costalis, *Lacord.* [*a d g b*]*brachialis* 1^a. *St. F.**mediastina, N. ab E.*brachiales, *N. ab E.*anterior, *s.*præbrachialis, } [*b g p*]*brachialis* 2^a. *St. F.**humeralis externa, Gr.**humeralis* 1^a. *Wesm.**subcostalis, Lacord.*posterior, *s.*pobrachialis, } [*b p v c*]*brachialis* 3^a. *St. F.**humeralis intermedia, Gr.**humeralis* 2^a. *Wesm.**mediana, Lacord.*axillares, [*c w y*]*brachialis* 4^a. *St. F.**humeralis interna, Gr.**humeralis* 3^a. *Wesm.**submediastina, Lacord.*RADIX, *Gr.* { *Ossiculi, Jur.—Fid. Chabrier.*NERVI ——— *Auctt.**neuræ, K.*

excurrentes,

basilares,

costalis, *N. ab E.; Lacord.* [*a d*]*radius, Jur.* { *ulna, nobis.* [*b' d'*]*brachialis* 1^{us}. *St. F.*subcostalis, *N. ab E.; Lacord.* [*b g d*]*cubitus, Jur.* { *abscissa, [c' b']**brachialis* 2^{us}. *St. F.*brachiales, *Jur.; N. ab E.*anterior, *s.*præbrachialis, } [*b g*]*intermedius* 1^{us}. *St. F.**humeralis* 2^{us}. *Wesm.**medianus, Lacord.*posterior, *s.* } [*c w*]pobrachialis, } [*c w*]*intermedius* 2^{us}. *St. F.**humeralis* 3^{us}. *Wesm.**submedianus, Lacord.*axillaris, [*c y w*]*analis, Lacord.*

AREOLÆ—(continued.)

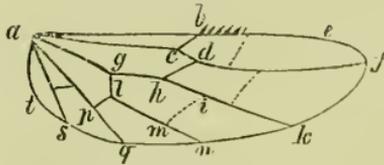
- exteriore,
radialis, *Auctt.* [*e h k*] [*d' e' f'*]
cubitales, *Auctt.*
1^a. [*d i l g*]
2^a. [*i j n t*]
3^a. [*j k o n*]
discoidales, *Auctt.*
anterior, *s.* } [*g l q p*]
prædiscoidalis, }
disc. externa, *N. ab E.; Wesm.*
posterior, *s.* } [*p q r v*]
podiscoidalis, }
disc. interna, *N. ab E.; Wesm.*
exterior, [*l m s q*]
intermedia, *Gr.*
inferior, *Wesm.*
externomedia, [*m o t s*]
analis, *Wesm.* [*r t x w*]

posticæ,
limbi,
St. F.

NERVI—(continued.)

- exteriore,
nervuli, *Lacord.*
metacarpus, [*e f k*]
radius, *N. ab E.—Nob. olim.*
costalis, *Wesm.*
radius, *St. F.* [*h i j k*] $\left\{ \begin{array}{l} \text{abscissa,} \\ 1^a. \text{ [} h i \text{]} \\ 2^a. \text{ [} i j \text{]} \\ 3^a. \text{ [} j k \text{]} \end{array} \right.$
Id. Wesm.; Lacord.
cubitus, *Nob. olim.*
ramus radialis, } *N. ab E.*
stigmaticus, }
cubitus, *St. F.* [*g o*]
Id. Wesm.; Lacord.
subulnaris, *Nob. olim.*
analis, [*r t*]
parallelus, *Wesm.—Nob. olim.*
recurrentes *s. transversi,*
brachiales, [*g p, p v*]
axillares, [*u y*]
intercubitales, *Wesm.* [*i l, j n*]
discoidales,
interior *s. anterior,* [*l q*]
exterior, [*m s*]
posterior, [*q r*]

ALÆ POSTICÆ.



AREOLÆ,

- costalis, *Lacord.* [*a b c*]
humeralis 1^a. *Wesm.*
præbrachialis, [*a c h g*]
humeralis 2^a. *Wesm.*
pobrachialis, [*a g p*]
humeralis 3^a. *Wesm.*
axillares, [*a q l*]
radiales, *Wesm.* [*b e f d*]
cubitales, *Wesm.* [*d f k h*]
discoidalis, *Wesm.* [*g i m l*]
externo-media, [*i k n m*]
analis, *Wesm.* [*l n q p*]

NERVI,

- excurrentes,
costalis, [*a b*]
subcostalis, [*a c b*]
humeralis 1^{us}. *Wesm.*
præbrachialis, [*a g h*]
humeralis 2^{us}. *Wesm.*
pobrachialis, [*a q*]
humeralis 3^{us}. *Wesm.*
axillaris, [*a s*]
metacarpus, [*b e f*]
radius, *Wesm.* [*c d f*]
cubitus, *Wesm.* [*h k*]
analis, [*l n*]
parallelus, *Wesm.*
recurrentes,
discoidalis, [*i m*]
&c. &c.
Hamuli, *K.* [*b*]

Tabula Orismologica partium externarum thoracis ad Ichneumonidas applicata.

Prothorax...	{	prætergum . . .	collare, <i>Auctt.</i>	opercula, <i>Chabr.</i>		
		antepectus, <i>K.</i>	{ prosternum, <i>K.</i> acetabula pedum, <i>K.</i>	collum,		
Mesothorax	{	meditergum . . .	scutum, <i>Aud.</i>	{ plaga media. scutum, <i>MacL.</i>		
			dorsolum, <i>K.</i>	{ sulci humerales. suturae parapsidum, <i>MacL.</i>		
		scutellum, <i>Aud.</i> . . .	squamulæ, <i>Auctt.</i> tegulæ, <i>K.</i> pteropegæ, <i>K.</i>	{	plagæ humerales. parapsides, <i>MacL.</i>	
					plaga media. scutellum, <i>Auctt.</i> vasculum, <i>Chabr.</i> <i>Frena, K.</i>	
		medipectus, <i>K.</i>	{	mesopleuræ	{ episterna, <i>Aud.</i> spiracula.	
				mesosternum, <i>K.</i> acetabula pedum, <i>K.</i>	{ epimera, <i>Aud.</i>	
		Metathorax	{	potergum	scutum, <i>Aud.</i>	{ plaga media. postfrena, <i>K.</i>
					postdorsolum, <i>K.</i>	{ paraptera, <i>MacL.</i>
					postscutellum, <i>St. F.</i> pteropegæ, <i>K.</i>	{ spiracula. ^a
				propodeon, <i>Newman.</i> segn. median, <i>Latr.</i> metathorax, <i>St. F.</i> metath. scutellum, &c. <i>MacL.</i> segn. 1 ^{um} . abdom. <i>Aud.</i> metapnystega, <i>K.</i>	{	spiracula.
foramen petioli.						
episterna. epimera.						
postpectus, <i>K.</i>	{	metapleuræ	{ episterna. epimera.			
	{	metasternum, <i>K.</i> acetabulæ pedum, <i>K.</i>				

ADNOTATIONES.

De Alis.

Alarum regiones secundum situm in volando spectatæ nuncupantur anterior *alæ anticæ* (*a f k*)—posterior (*c x*)—interior (*a c*)—exterior (*k x*): nervi costalis et subcostalis conjuncti in *Ichneumonidis* unici speciem facile produnt qui Gravenhorstio radius, Wesmaelio autem humeralis 1^{us}. appellatur: nervus recurrens dictus simpliciter discoidalem anteriorem designat, interstitialis appellatur hic quum ipsos incurrit limites areolæ cubitales 1^æ. et 2^æ.—rejectus quoties 1^æ. inseritur,—ejectus si 2^æ.: nervus analis pari modo interstitialis dicitur qui ex ipsis limitibus areolæ prædiscoidalis et podiscoidalis exoritur: areola radialis alarum posticarum petiolata dicitur quæ a præbrachiali omnino distat—

^a Deficiunt in Hymenopteris pedunculiventribus.

contigua quæ hujus attingit apicem angulis utriusque vertice tantum oppositis; si vero latius (ut in *Ichneumonidis* genuinis) sessilis audit.

De Thorace.

Parapsidum suturæ quæ MacLeayio audiunt, apophysium scuti internarum (musculos comprimentium) decursum signant: paraptera eidem scutelli sunt depressiones laterales: vera paraptera *Hymenopterorum* teste Audovino in squamulis agnoscenda latent: scutum illud quod in tabula propodeon audit, in *Hymenopteris* pedunculiventribus connatum cum epimeris posticis, absque dubio pro parte metathoracis accipi debet, nec extant in hoc segmento spiracula nisi propodeonis.

De Familiis Ichneumonidarum.

Methodi iniquitatem e computatione palporum petitæ jam multis nominibus infirmatam redarguit quam maxime examen *Alysiarum*; neque præstat discrimen e longitudine comparativa palporum maxillarium atque labialium Clm°. Peletierio illatum: viam accuratiorem Wesmaelii disquisitiones pandere videntur, quibus edoctus familiarum conspectum jam schemate emendato profero.

<i>Abdominis segmentum 3^{um}. dorsale</i>	}	in 2°. inosculans.	}	difformes, alis posticis exare-	}	1. EVANIADÆ. ^b	
				olatis			
				Abdomen apici infero meta-	}	2. ICHNEUMONIDÆ.	
				thoracis annexum: alæ posticæ areolis 2 brachia libus: prothorax brevis .			
		cum 2°. connatum juncturâ	}	rigida,	}	3. AGRIOTYPIDÆ.	
				alæ anticæ areola discoïdali exteriori			completa
					flexili	effusa	}
						}	5. APHIDIIDÆ.

FAM. IV.—BRACONIDÆ.

Abdomen metathoracis parti posticæ et inferæ annexum prope pedes posticos, segmentis 2°. et 3°. connatis junctura immobili: prothorax brevis: alæ anticæ nervis costali et subcostali conjunctis, areola discoïdali exteriori effusa: alæ posticæ areolis brachialibus 2 sæpius completis: metamorphosis folliculo induta.

Adnot.—Fabrica partium in hac familia variat magis quam inter *Ichneumonidas* proprie dictos. Genera et subgenera maxime notabilia sunt:—

^b Ambigitur annon hæc familia in duas saltem solvenda sit.

AGATHIS alis posticis nervo anali auctis, *Agathis* et *Euryzona*^c præterea ore rostriformi.

MICROGASTER antennarum articulis numero determinato.

BRACON terebra sæpe longissima, *Lasiophorus*^d autem fronte cornuta tibiisque hirsutis.

NEONEURUS^c areola radiali appendiculata, prædiscoidali autem effusa.

PROTEROPS ocello altero antennis interjecto, fronte quasi nulla.

Leiothron terebra incurva.

Streblocera antennis difformibus geniculatis.

Ganychorus alis pro sexu disparibus.

Helcon fronte mucronata, femoribus posticis dentatis.

Heterospilus et *Hecabolus* alis posticis stigmatibus auctis in sexu altero.

SIGALPHUS abdomine cataphracto,—*Chelonus* porro feminâ pupam adultam fœtâ! auctore Dufourio.

ALYSIA denique mandibulis patulis recurvis, *Chasmodon* etiam corpore aptero.

GEN. XII.—ALYSIA, Latreille.

Mandibulæ distantes, apice recurvæ 3-, vel 4-dentatæ; occiput immarginatum: alæ anticæ areola præ-discoidali remota: abdomen segmentis 2º. et 3º. in unum omnino coalitis, (modo non semper.)

*ALYSIA *Latr. Hist. Nat. XIII. Gen. Cr. Ins. IV. 14.*

Id. *Lamarck, Anim. s. Vert. IV.*

Id. *Leach. Encycl. Edin. IX.*

CECHENUS *Illiger, Fna. Etr. præf.—Oken Com.*

BRACONIDÆ EXODONTES. *Wesm. Brac. Belg.*

Bassus spp. *Panz. Kr. Rev.—Spinola.*

Cryptus spp. *Fabr. S. Piez.*

Ichneumon spp. *Scopoli — Panzer — Thunberg — Gmelin, &c.*

Adnot.—Nervi recurrentis discoidalis in alis posticis incrementum character proprius est his tribus Generibus,—ROGAS,—OPIUS,—ALYSIA,—nec tamen cunctis spp. communis.—*Cælinii N. ab Ë.* cum *Dacnisis* prope conveniunt nec in Genus proprium me iudice

^c Subgenus Australianum,

^d E. g. *Bracon lanceolator*, F.

^e Genus Europæum.

distrahendi sunt.—*Perilitus conjungeus* N. ab E. utrique sat affinis *Chorebis* nostris haud male consociandus videtur.—*Sigalphos* Ncesianos e sectione 2^a. quorum relationem ad *Alysi*as ipse Clm^o. auctor animadvertit, nos *Wesmaelium* secuti ad EXODONTES potius accimus, quam ad CRYPTOCASTRES qua ille.

Tabula Synoptica Subgenerum.

Apteræ				1. CHASMODON.
Alatæ, {	tres			2. ALYSIA.
<i>Areolæ,</i> {				
<i>cuticula-</i> {	duæ ; {	cataphractum, rugosum, fornicatum		3. ÆNONE.
<i>les.</i> {	<i>abdo-</i> {			
	<i>men.</i> {	annulatum, {	villosi	5. CHOREBUS.
		<i>oculi.</i> {	subglabri, {	
			<i>Stigma</i> {	attenuatum s.
				subnullum
				breve determi-
				natum
				6. CÆLINIUS.

Subgen. I.—CHASMODON.^f

Alæ nullæ : thorax angustus.

*Bassus, Fam. II. B. N. ab E. Berl. Mag.
 Alysia, sect. VI. . N. ab E. Act. Acad.
 Id. N. ab E. Monogr.

Sp. 1. *Aptera, Al. Chasm. ferruginea capite anoque fuscis, fem. terebra exerta.*

Bassus apterus N. ab E. Berl. M. VI. 207. No. 12.
 Alysia aptera . N. ab E. Monogr. I. 264. No. 41.

Long. $\frac{5}{4}$ — $1\frac{1}{2}$ lin.—Caput oblatum fuscum nitidum mandibulis tridentatis clypeo palpisque ferrugineis: oculi vage pubescentes: palpi maxillares articulis 6, labiales 4: antennæ ferrugineæ apice fusæ, articulis 17—21, 4^o. longissimo, fem. corpus æquantem, mari longiores graciliores: thorax ferrugineus, capite multo angustior, compresso-cylindricus, scuti sulcis humeralibus ordinariis crenato-punctatis postice concurrentibus, pleuris sulco rugoso, metathorace punctato-rugoso subcarinato apice truncato, fuscescente: abdomen ferrugineum apice fuscum, fem. ovatum thorace latius, ventre compresso oblique truncato, mari paulo angustius, subdepressum; segmento 1^o. obconico subtiliter striolato basi sub-carinato:

^f Χάσμα ὀδόντων, i. e. Mandibularum hiatus.

terebra e truncatura ventris imâ longiûs exerta abdominis apicem superans: pedes ferruginei: alæ nullæ, modo apicula membranacea sub squamulis decumbens.

Var. β. — *Mas* fuscus thoracis dorso antice abdominisque basi dilutiûs, capite nigro, antennarum basi ore pedibusque rufo-ferrugineis.

Habitat Angliam, *F. Walker.*—Hiberniam et Scotiam in gramine nemorum autumno minus frequens. (*Al. ferruginea, nob. olim.*)^g
Adnot. Ob antennarum structuram *Alysiarum* sectioni 11^æ. quodammodo accedit.

Subgen. II.—ALYSIA.

Alæ anticæ areolis cubitalibus tribus.

- ALYSIA *St. F. Enc. Meth.* IX. 432.
Id. *Curtis, B. E.* 141.
Alysia, sect. I.—IV. *N. ab E. Act. Acad.* IX.
Id. *N. ab E. Monogr.* I.
Bracon spp. . . . *Jurine.—Fallen.*

Caput oblatum thorace plerumque latius lateribus pone oculos protuberantibus, oculis parvis glabris s. raro pubescentibus, vertice postice declivi sæpius excavato et canaliculato, cum occipite concavo confuso, facie transversa latissima, clypeo brevissimo obtuse trigono aut fere semicirculari, infra marginem faciei rectum descendente: labrum transversum obtuse trigonum, epipharyngis apicula brevi prostante: mandibulæ oblongæ vel quadratæ, prismatico-compressæ, apice fornicato-recurvæ, tri-, vel rarissime sub-quadri-dentatæ, basi longe lateque distantes, etiamsi claudantur apice dissitæ, basi in sinu membranaceo genarum evertendæ rictu latissimo: palpi maxillares 6-, labiales 4-articulati spp. longe plurimis, nonnullis tamen ab ista regula multum aberrantes: thorax ovatus convexus: propodeonis *spiracula* orbiculata, plerisque minima in sculptura hujus fere latentia; in sectione 15^a. et 16^a. magis conspicua; in *A. manducatore* vero maxima: abdomen subsessile aut subpetiolatum, segmenti 1ⁱ. tuberculis mediis aut anticis, 2^o. et 3^o. plane coalitis rarissime lineolâ discretis: alæ anticæ areola radiali oblonga, cubitalibus tribus, 1^a. nonnunquam cum 2^a. confusa, aut cum præ-discoïdali: alæ posticæ nervo disci recurrente sæpius auctæ.

^g Curtis, Catal. Ed. 1^a.

Adnot.—Subgeneris præsentis spp. pleræque ab *Opiis* nonnisi capitis orisque structura dignoscendæ sunt.

Larvæ Alysiarum cognitæ *Dipterorum* larvas parasitice incolunt.

Synopsis Sectionum.

- Areola cubitalis 2^a. completa,
 limite inferiore anterioris longitudinem æquante aut superante;—*cubitalis* 1^a.
 cum præ-discoidali confusa, Sect. i. No. 2, 3.
 completa;—*antennarum articulus* 4^{us}.
 tertio longior;—*meso-pleuræ sulco infero*
 impunctato, Sect. viii. No. 27.
 crenato s. rugoso, Sect. ix. No. 28, 29.
 tertio non longior;—*abdomen segmento* 2^o.
 scabro bipartito Sect. ii. No. 4.
 lævi integro;—*metathoracis scutum*
 transversum carinatum, Sect. iii. No. 5.
 planiusculum;—*meso-pluræ sulco infero*
 impunctato s. obsolete, Sect. vii. No. 24—26.
 crenato s. rugoso;—*nervus analis*
 interstitialis, Sect. iv. No. 6.
 areolæ podiscoidalis apici insertus;—*radius*
 ultra medium stigmatis breviusculi, Sect. v. No. 7—20.
 ante medium stigmatis elongati, Sect. vi. No. 21—23.
- limite anteriore interioris longitudinem superante;—*cubitalis* 1^a.
 cum prædiscoidali confusa, Sect. x. No. 30.
 completa;—*antennarum articulus* 4^{us}.
 tertio longior, tum alæ posticæ areola pobrachi- }
 ali minuta, } Sect. xi. No. 31—43.
 { tertio non longior,
 vel
 alæ posticæ areola pobrachiali præbrachialem dimidiante;—*stigma*
 elongatum
 lineare;—*nervus analis*
 vix nisi interstitialis, Sect. xii. No. 44—48.
 areolæ podiscoidalis apici medio insertus, Sect. xiv. No. 51.
 cuneiforme, Sect. xiii. No. 49, 50.
 obsolete, Sect. xv. No. 52—59.
 Areola cubitalis 1^a. cum 2^a. confusa, Sect. xvi. No. 60, 61.

Div. I.

Areola cubitalis 2^a. limite anteriori interioris longitudinem non superante. (No. 2—28.)

SECTIO I.—SYNCHORI.

Areola cubitalis 1^a. cum præ-discoidali confusa: *metathoracis scutum carinatum*: *antennæ articulo* 3^o. superante 4^{um}.: *palpi breves anomali*.

Sp. 2. *Fucicola*. *Al. &c. atra pedibus fuscis; fem. terebra*
abdominis longitudine.

Long. 1; alar. $1\frac{1}{3}$ —2 lin. — Caput atrum nitidum mandibulis rufo-
piceis: palpi breves fuscii, maxillares articulis 4,—labiales 3:
antennæ *fem.* corporis vix longitudine, (articulis 17,) *mari* paulo
longiores (19): thorax ater nitidus foveola antescutellari nullo, pleu-
ris sulco obsolete ruguloso, metathorace brevi inæquali ruguloso,
areis dorsalibus lævigatis: abdomen obovatum atrum nitidum,
segmento 1°. obconico striato: pedes fusco-testacei femoribus
tibiisque (harum basi demta) fuscis: alæ (fig. 9.) obscure hyalinæ
squamulis nigro-piceis, stigmatе fusco: stigma tenue; areola radi-
alis anguste lanceolata ab alæ apice remota; cubitalis 2^a. parva;
podisoidalıs incompleta; nervus analis interstitialis: alæ posticæ
angustissimæ nervo recurrente et areola pobrachiali oblitteratis.

Habitat per littora Hiberniæ æstate in fucis exsiccatis non infrequens.

Sp. 3. *Fuscipes*. *Al. &c. atra pedibus fuscis; fem. terebra*
subexerta.

Stephanus minutus . . . *N. ab E. Berl. Mag. V. 5. No. 3.*

Alysia fuscipes . . . *N. ab E. Monogr. I. 254. No. 24.*

Præcedenti similis, brevior, antennis brevioribus, abdomine sub-
orbiculato depresso, terebra vix manifesta: palpi brevissimi
maxillares 3,—labiales 2.—Long. $\frac{2}{3}$; alar. $1\frac{1}{2}$ lin.

Habitat cum præcedente minus frequens; — prope Londinum legit
F. Walker.

SECTIO II.—TRACHIONI.

Abdomen segmento 2°. *scabriculo bipartito: pleuræ sulco crenato;*
antennæ articulo 3°. et 4°. subæqualibus: palpi articulis 6 et 4.

Sp. 4. *Aurora*. *Al. &c. testacea capite metathorace abdomi-*
nisque basi nigris; mas stigmatе nigro; fem. stigmatе testaceo,
terebra subexerta.

Statura elongata linearis, *Alysiis* insolita, *Colastis* quibusdam spp.
non valde discrepans.—Long. $1\frac{1}{3}$ — $1\frac{5}{4}$; alar. $2\frac{5}{4}$ — $3\frac{1}{2}$ lin.—Caput
nigrum nitidum mandibulis testaceis, palpis pallidioribus: antennæ
graciles corpore longiores, fuscæ basi testacæ (articulis 30—34):
thorax testaceus sulcis humeralibus in fossulam antescutellarem

conniventibus, pleuris fuscis, metathorace scabro nigricante: abdomen lineari-clavatum depressum, testaceum, segmento 1°. breviusculo basi parum attenuato, ruguloso, basi aut toto fusco s. nigricante, 2°. punctulato apice lævigato, striâ transversâ impressâ in medio fere bipartito, sequentibus basi punctulatis, postremis in *mare* fuscis: terebra vix conspicua: pedes toti testacei: alæ (fig. 5) hyalinæ squamulis testaceis, stigmatē *mari* nigro, *fem.* testaceo s. luteo: stigma oblongum basi subobtusum radium ultra medium excipiens, areola radialis acuta alæ vix apicem attingens, cubitalis 2^a. limite interiore anteriorem superante, angulo posteriore baseos producto; podiscoidalis apice obliquo non perfecte clausa; nervus recurrens parum rejectus.

Var. β.—Mesothoracis dorso fusco-testaceo.

Var. γ.—*Mas.* Nigra antennarum scapo subtus mandibulis pedibus et abdomine testaceis, segmento 1°. nigricante. Varietates intermediae etiam obviae sunt.

Habitat—prope Londinum et Vindisoram mensibus Maio-Julio lecta, *F. Walker*;—in Hibernia australiore Augusto.

SECTIO III.—HETERODONTES.

Antennæ articulo 3°. *superante* 4^{um}.: *abdomen segmento* 2°. *lævi*: *metathoracis scutum carinatum*: *nervus analis interstitialis*: *palpi articulis* 6 et 4.

Sp. 5. Contracta. Al. &c. nigra antennarum basi ore pedibusque ferrugineis; mas alis abbreviatis; fem. terebra recondita.

Long. 1 lin. superque, alar. *fem.* 2½, *maris* 1½ lin.—Caput solito minus incrassatum, oculis prominulis, nigrum subnitidum facie rugulosa, mandibulis clypeo palpisque ferrugineis: mandibulæ angustæ denticulis lateralibus minimis, intermedia acute producto: antennæ *fem.* corpus æquantes, ferrugineæ apice fuscae, articulis 21, 3°. elongato, *maris* fuscae basi angustius rufo-ferrugineæ: thorax niger late rugosus scuto et scutello mediis subnitidis, scuti sulcis tribus, lateralibus abbreviatis, metathoracis scuto a latere inspecto denticuli speciem exhibente: abdomen depressum spathulatum, *fem.* latius, nigrum nitidum, segmento 1°. sublineari intricatim rugoso: terebra vix manifesta: pedes *fem.* ferruginei, *mari* subrufi coxis posticis basi subinfuscatis: alæ (fig. 12) *fem.* corporis longitudine, hyalinæ squamulis pallide ochraceis, stigmatē

fuscescente : stigma anguste lanceolatum medio radium excipiens ; areola radialis apicem alæ attingens ; podiscoidalis angusta obsoleta ; nervus recurrens parum rejectus ; analis interstitialis : alæ posticæ angustæ : alæ (fig. 13) *maris* thoracis longitudine, stigmatem multo majore nervisque incrassatis intensius fuscis, areolis contractis deformibus.

Var. β.—*Fem.* thoracis dorso antico fusco-castaneo.

Var. γ.—*Fem.* alis abbreviatis.

Habitat Angliam. *F. Walker*,—*T. G. Rudd.*—In nemoribus umbræ Hiberniæ autumnopassim sat frequens:—*feminae* brevipennes et *mares* rarius obvii.

SECTIO IV.—LEIOTERI.

Antennæ articulo 3^o. superante 4^{um}. : abdomen segmento 2^o. lævi : metathoracis scutum planiusculum : pleuræ sulco crenato : nervus analis interstitialis : palpi articulis 6 et 4.

Sp. 6. *Circe. Al. &c. fusca capite antice abdominisque segmento 2^o. basi ferrugineis, antennæ basi pedibusque pallidioribus ; fem. terebra exerta brevissima.*

Long. $1\frac{1}{3}$; alar. $2\frac{2}{3}$ lin.—Caput nitidum ferrugineum margine occipitis et vertice medio aut fere toto fuscis, mandibulis pallidioribus : palpi longi pallidi : antennæ graciles corpore longiores, articulis 30—34, basi late pallide ferrugineæ apice fuscae, articulo 3^o. prælongo : thorax fusco-castaneus nitidus prothorace ferrugineo, sulcis humeralibus fundo punctulatis cum foveola parva antescutellari conniventibus, metathorace punctato-ruguloso fusco : abdomen depressum clavatum subpetiolatum, fuscum, segmento 1^o. *mari* fere lineari, *fem.* anguste obconico, substriato, tuberculis inconspicuis, reliquis lævissimis, 2^o. antice ferrugineo s. castaneo, *fem.* postremis ventreque pallidis : terebra abdominis apicem paulo superans : pedes graciles pallide ferruginei : alæ (fig. 6) hyalinæ squamulis silaceis, nervis stigmatemque dilute fuscis, exterioribus decoloribus : stigma oblongum radium in triente secunda ($\frac{2}{3}$) excipiens ; areola radialis alæ apicem attingens ; cubitalis 2^æ. limes interior subsinuatus anteriore sesquialongior ; nervus recurrens vix rejectus : alæ posticæ areola pabrachiale $\frac{1}{2}$ præbrachialis non attingente.

Habitat prope Londinum lecta rarissime. *F. Walker.*

3½—7 lin.—Caput latissimum atrum nitidum facie punctato-rugulosa, mandibulis maximis, basi aut apice vel totis piceo-rufis, palpis piceis: antennæ nigræ infra basin sæpius rufescentes, *maris* corpore longiores subsetacæ (articulis 33—50), *fem.* capite thoraceque longiores (22—35), flagelli validi pubescentis articulis plurimis brevibus turbinatis: thorax ater nitidus sulcis humeralibus fundo punctatis et lineola obsolete intermedia abbreviatis, fossula antescutellari oblonga, pleuris magna parte rugosis sulco ordinario lato rugoso, metathorace brevi subtruncato, reticulato-rugoso, medio subcarinato: abdomen obovatum atrum nitidum segmento 1°. longitudinaliter rugoso, medio obtuse carinato: terebra exerta modo abdominis apicem non superans, modo tria ultima segmenta longitudine æquiparans, valida nigra: pedes validi piceo-rufi, tarsis late fuscis villosulis: alæ (fig. 1) hyalinæ subinfumatae squamulis piceo-rufis, radice picea, stigmatate fusco: stigma solito crassius, attenuato-trigonum: areola radialis lanceolata: cubitales 2^æ. limes interior anteriore longior: alæ posticæ latæ (fig. 28).

Var. β.—*Fem.* abdominis segmento 2°. rufo apice nigro, pedibus clariùs rufescentibus, alis hyalinis.—Long. 2½; alar. 5 lin.—Terebra quam maxime exerta.

Habitat passim per Europam in floribus umbelliferarum libenter apricans; *feminæ* in quisquiliis et cadaveribus versantur *Muscidarum* majorum larvis infestæ: larva (*ll* infra descr.) in eorundem pupis folliculum exilem flavescens sibi nectit, imago exibat vere et æstate.—*Bouchè Naturg. Ins.* 147.

Var. β.—Exemplar unicum prope Londinum lectum misit *F. Walker*.

Sp. 8. *Rufidens.* *Al. &c. atra pubescens mandibulis et tibi- arum basi piceis; mas stigmatate elliptico atro; fem. terebra ½ abdominis longitudine.*

Alysia rufidens. *N. ab E. Monogr. I. 241, No. 4.*

Long. 1½—1¾; alar. 2½—3 lin.—Caput atrum pubescens facie opaca subtilissime scabricula, mandibulis piceo-rufis, palpis fuscis: antennæ filiformes nigræ, articulis 22—24, *fem.* corpore breviores, *mari* vix breviores: thorax ater pubescens scuti sulcis 3, latera- libus abbreviatis, metathorace subtiliter punctato-ruguloso: abdo- men atrum nitidum segmento 1°. subtiliter striato basi subcarinato: terebra abdomine duplo brevior: pedes nigro-fusci trochanterum et femorum apicibus tibiis basi anticis totis piceis, *maris* dilutius colorati: alæ (fig. 2) hyalinæ squamulis stigmatateque fusco-piceis,

nervis nigro-fuscis: stigma oblongum haud ita longe ab apice radium excipiens: areola radialis ante alæ apicem clausa, radii apice lenissime inflexo; cubitales 2^æ. limes interior sesquolongior: alæ *maris* angustiores stigmatate crassiore atro radii abscissam 1^{am}. obruente; areola cubitali 1^a. angustissima.

Habitat.—Angliam mense Septembre, *F. Walker*: in littoribus Hiberniæ borealis *femina* non infrequens autumno, larvis ut suspicor infesta *Tephritidis Sonchi s. sp.* cognate cujus puparia candida in pappo seminum *Asteris Tripolii* reperiuntur implicita.—(*Al. spectabilis*, nobis olim.)

***Nervus recurrens vix nisi interstitialis; areola radialis alæ apicem propius attingens.*

Antennæ plerumque longiores quam proxime præcedentibus: nervus analis ex apice fere medio areolæ podiscoidalis sæpius exit, qui illis angulum posticum modo non appetit.

Sp. 9. *Truncator.* *Al. &c. fem. atra antennarum scapo mandibulis pedibusque ferrugineis, terebra* $\frac{1}{3}$ *abdominis longitudine.*

**Bassus truncator.* *N. ab E. Berl. Mag. VI. 204, No 4.*
Alysia id. ——— Monogr. I. 243, No. 7.

Long. vix 2 lin.—*Atra nitida mandibulis obtuse dentatis rufo-ferrugineis, palpis ferrugineis, facie læviuscula subnitida: antennæ corporis fere longitudine sat validæ, articulis 31, 1^o. ferrugineo superne fusco, 2^o. ferrugineo: terebra exerta abdominis dimidio brevior: alæ hyalinæ squamulis ferrugineis, stigmatate fusco-ferrugineo: areola radialis alæ apicem vix attingens: cubitalis 2^æ. limes interior anteriore longior, angulo baseos posteriore valde producto.*

Habitat in Anglia, legit *J. Curtis*, et mecum communicavit.—
(*Al. agarici, Curt. Catal. Ed. 1^a. 558. 6.*)

Sp. 10. *Loripes.* *Al. &c. fem. atra mandibulis pedibusque piceis, femoribus posticis sinuatis, terebra* $\frac{1}{2}$ *abdominis longitudine.*

Long. 2; alar. 4 lin.—*Atra nitida: thorax sulcis humeralibus tenuibus punctulatis cum foveola antescutellari conniventibus: pedes picei femorum margine infero tibiisque fusco-testaceis: femora postica valida compressa basi sinuata: alæ hyalinæ squa-*

mulis et stigmatate fusco-piceis: stigma angustum, haud ita longe ab apice radium excipiens: areolæ cubitales 2^a. limes interior paulo longior.

Habitat.—Exemplar unicum (antennis mutilatum), prope Vindisoram Junio mense lectum dedit *F. Walker*.

Sp. 11. Similis. *Al. &c. atra mandibulis pedibusque piceis, alis hyalinis: fem. terebra exerta brevi.*

**Bassus similis*, *N. ab E. Berl. M. VI. 203, No. 2.?*

Alysia similis. ——— *Monogr. I. 240, No. 3.?*

Long. 1 $\frac{1}{2}$; alar. 3 lin.—*Atra nitens mandibulis piceo-rufis: antennæ corpore breviores, sat validæ, articulis 25: terebra exerta $\frac{1}{4}$ abdominis longitudine: pedes picei coxis femorum margine supero anticis basi tantum tarsisque nigricantibus: alæ hyalinæ squamulis nigro-piceis, stigmatate fusco: stigma quam proximis paulo crassius, apice in tumescentiam metacarpi exiens, radium prope medium excipit: areola radialis alæ apicem vix attingit.*

Habitat prope Londinum, semel lecta in societate *A. manducatoris*.

Adnot.—*Al. similis*, *N. ab E. l l* discrepat statura majore et terebra longiore, hæreo propterea de synonymo; characteres quidem reliqui in nostrum accuratissime quadrant.

Sp. 12. *Atra. Al. &c. atra pubescens mandibulis pedibusque piceis alis hyalinis; mas stigmatate atro; fem. stigmatate fusco-testaceo, terebra $\frac{2}{3}$ abdominis longitudine.*

Long. 1 $\frac{1}{2}$; alar. 3 $\frac{1}{2}$ lin.—*Antennæ feminae corpore paulo breviores articulis 29—31, mari longiores (35): thorax sulcis humeralibus subtilissimis punctulatis cum fossula lineari præ scutello conniventibus: abdomen nigrum nitidum ano pallide piceo: pedes rufopicei coxis femorum margine supero tarsisque nigricantibus, mari dilutius colorati: alæ (fig. 3) hyalinæ squamulis dilute piceis, stigmatate fem. fusco-testaceo, maris atro: hujus præterea areola cubitalis 1^a. angustior; 2^a. minor; radialis vix alæ apicem attingens; nervusque recurrens quasi rejectus.*

Habitat Hiberniam borealem: nonnisi rarissime lecta.

Adnot.—Sequenti certo proxima, *fem.* vix nisi thoracis sculptura et pubescentia densiore, alarum quoque levi discrimine (an constanti?) discrepans; *mas*, *A. rufidenti mari* non dissimilis antennis longioribus et alarum characterem (fig. 3) se effert.

Sp. 13. Mandibulator. *Al. &c. atra mandibulis pedibusque piceis, alis hyalinis stigmatе fusco, fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Bassus mandibulator . . . *N. ab E. Berl. M. VI. 204, No. 3.*

Alysia mandibulator, *Var. a.* ————— *Monogr. I. 242, No. 6.*

Long. 2; alar. $3\frac{2}{5}$ lin.—*Atra nitens mandibulis rufo-piceis: antennæ fem. corpore vix paulo longiores, articulis 34: thorax sulcis humeralibus modo solito abbreviatis: pedes picei coxis femorum margine supero tibiis posticis apice tarsisque nigricantibus: alæ hyalinæ squamulis fusco-piceis, stigmatе fusco.*

Habitat in Anglia, semel lecta mense Septembre, F. Walker.

Sp. 14. Fuscipennis. *Al. &c. atra mandibulis et tibiarum basi piceis, alis fuliginosis, fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Alysia mandibulator, *Var. β.* *N. ab E. Monogr. I. 243, No. 6.*

Long. $1\frac{2}{3}$ —2; alar. $3\frac{1}{5}$ — $4\frac{1}{5}$ lin.—*Atra nitidissima facie vix punctulata, mandibulis piceis, palpis fuscis: antennæ fem. corporis longitudine, (articulis 28—30), maris longiores (40): metathorax obsoletius rugulosus: abdomen segmento 1°. obsolete ruguloso vel apice lævigato: terebra abdomine paulo brevior: pedes nigropicei trochanterum apice et tibiarum basi dilutius: alæ fuliginosæ squamulis nigro-piceis, stigmatе atro.*

Var. β.—*Abdomine piceo segmento 1°. rufescente læviusculo, pedibus totis dilutius piceis.*

Habitat Angliam mense Septembre, F. Walker. Hiberniam non nisi rarissime.

Sp. 15. Tipulæ. *Al. &c. nigra antennarum scapo mandibulis pedibusque testaceis; mas alarum stigmatе fusco; fem. stigmatе fusco-testaceo, ano piceo-pallido, terebra $\frac{2}{3}$ abdominis longitudine.*

**Ichneumon tipulæ. Scopoli, Ent. Carn. 288, No. 761.*

Var. β.—*Abdominis segmento 2°. basi rufo-piceo, mas et fem.*

Var. γ.—*Fem. abdominis segmento 2°. et sequentibus rufis piceo-cingulatis.*

Bassus abominator. *N. ab E. Berl. Mag.* VI. 205. No. 7.
Alysia id. . . . ———— *Monogr.* I. 245. No. 11.

Long. $1\frac{5}{4}$ —2; alar. $3\frac{2}{3}$ — $4\frac{1}{2}$ lin.—Nigra nitida mandibulis testaceis, palpis ferrugineis: antennæ *fem.* corporis longitudine sat validæ (articulis 34), *maris* multo longiores subsetaceæ (43), articulis 2 baseos testaceis: terebra abdominis dimidio longior: pedes testacei tarsis obscurioribus, coxis posticis basi obsolete fuscomaculatis: alæ hyalinæ squamulis ferrugineis, stigmatè *maris* fusco, *fem.* sordide testaceo: areola podiscoidalis apice æquiangularis, nervum analem exacte medio excipiens.

Habitat passim per Europam, autumno frequens; *feminæ* circa fungos versantur *Mycetophilorum* larvis infestæ.

Sp. 16. *Sophia.* *Al. &c. fem. nigra antennarum basi late mandibulis pedibus et alarum stigmatè ferrugineis, abdominis segmenti 2^o. et sequentibus testaceis, terebra brevi exerta.*

Long. $1\frac{5}{4}$; alar. 4 lin.—Nigra nitida clypeo fusco, mandibulis ferrugineis, palpis pallidioribus: antennæ corpore paulo longiores (articulis 38), flavo-ferrugineæ apice fuscæ: abdomen segmentis posterioribus testaceis, 2^o. obscuriare, extremis pallidioribus: terebra nigra exerta segmentorum 2 s. 3 ultimorum longitudine: pedes flavo-ferruginei coxis pallidioribus: alæ hyalinæ squamulis stigmatèque flavo-ferrugineis.

Habitat Hiberniam borealem, in nemore quodam lecta semel.

‡Sp. 17. *Frigida.* *Al. &c. fem. nigra antennarum basi mandibulis abdominis segmento 2^o. pedibusque ferrugineis, posticorum tibiis apice tarsisque fuscis, terebra abdominis longitudine.*

Long. $1\frac{3}{4}$; alar. 4 lin.—Nigra nitida brevis: caput crassum facie subnitida vage punctulata, mandibulis ferrugineis, palpis pallidioribus: antennæ corpore fere sesquolongiores graciles (articulis 37), fuscæ articulis duobus aut tribus baseos ferrugineis: abdominis segmentum 2^{um}. ferrugineum apice et sequentia fusca: terebra abdomine parum brevior: pedes ferruginei tarsis anterioribus brevibus apice, posticis totis tibiisque iisdem apice, fuscis: alæ hyalinæ squamulis ferrugineis, stigmatè fusco: areola radialis elongata; cubitalis 2^a. apice parum attenuata.

Habitat in Finmarchia mense Julio lecta, *F. Walker.*

Sp. 18. *Incongrua.* *Al. &c. fem. atra antennarum scapo et mandibulis ferrugineis pedibus flavo-ferrugineis, posticorum tibiis apice tarsisque fuscis, terebra $\frac{2}{3}$ abdominis subpetiolati longitudine.*

Alysia incongrua. *N. ab E. Monogr.* I. 244. No. 10?

Long. $2\frac{1}{4}$; alar. 5 lin.—*Atra nitens*, mandibulis et antennarum articulis 1°. et 2°. ferrugineis: antennæ corporis longitudine (articulis 29, paucis deficientibus): metathorax reticulato-rugosus: abdomen subcompressum segmento 1°. sublineari apicis latitudine duplo longiore, longitudinaliter ruguloso: alæ hyalinæ squamulis flavo-ferrugineis stigmatate fusco.

Adnot.—Abdominis segmentum 1^{um}. solito longius non commemoravit *Neesius*; an itaque dubium de synonymo?

Habitat Angliam, semel lecta.

Sp. 19. *Lucia*. *Al. &c. mas nigra antennarum scapo mandibulis abdominisque subpetiolati segmento 2°. antice ferrugineis, pedibus flavis posticorum tibiis apice tarsisque fuscis.*

Long. $1\frac{4}{5}$; alar. $4\frac{1}{2}$ lin.—*Nigra nitida*, &c.: abdominis segmento 2°. basi obscuriùs ferrugineo, 1°. lineari longiusculo: palpi pedesque pallide flavo-ferruginei, &c.: alæ hyalinæ squamulis flavo-ferrugineis, stigmatate nigro: areola cubitalis 2^a. quam proximis paulo longior?

Habitat, prope Edinoburgum; lecta Septembre ineunte.

Adnot.—Sp. præc. simillima forsitan *mas* ejusdem.

Sp. 20. *Lucicola*. *Al. &c. nigra antennarum scapo mandibulis pedibus abdominisque petiolati segmento 2°. et sequentibus rufo-testaceis, tibiis posticis apice tarsisque iisdem fuscis; fem. terebra $\frac{1}{2}$ abdominis longitudine.*

Long. 2; alar. $4\frac{1}{4}$ lin.—*Nigra nitida* mandibulis rufis, palpibus ferrugineis: antennæ fem. corpore paulo longiores (articulis 32), maris sesquilongiores (38), articulis 2 baseos rufo-testaceis: abdomen fem. subcompressum, rufo-testaceum, segmento 1°. nigro, lineari-elongato reliquis conjunctim parum brevior, striato: terebra abdominis dimidio longior: pedes testacei coxis pallidioribus, &c.: alæ hyalinæ squamulis pallide ferrugineis, stigmatate subfusco: areola cubitalis 2^a. apice attenuata.

Habitat Angliam, *F. Walker*; Hiberniam rariùs, circa fungos lecta.

SECTIO VI.—TANYCARPI.

Antennæ articulo 3°. 4^{um}. superante: abdomen segmento 2°. lævi: metathoracis scutum planiusculum: pleuræ sulco crenato: nervus analis areolæ podiscoidalis apici insertus: stigma elongatum, radium ante medium excipiens.

Sect. V^a. sat conformes, sculpturâ paulo subtiliore: abdomen segmento 1^o. subelongato: areola radialis apicem alæ attingens: nervus recurrens interstitialis.

Sp. 21. *Rufinotata*. *Al. &c. nigra ore antennarum scapo pedibusque ferrugineis, tibiis posticis apice tarsisque iisdem fuscis, abdominis segmento 2^o. et sequentibus rufis; fem. terebra abdominis longitudine.*

Long. $1\frac{3}{4}$ —2; alar. $3\frac{1}{2}$ —4 lin.—Caput nigrum nitidum facie lævi subnitida, clypeo mandibulis et antennarum articulis 2 prioribus rufo-ferrugineis, palpis ferrugineis: antennæ *fem.* corpore parum longiores (articulis 35), *maris* adhuc longiores (39): thorax niger nitidus, sculptura præcedentium, metathoracis areis dorsalibus basi lævigatis: abdomen rufum aut piceo-rufum, segmento 1^o. nigro, obconico-attenuato ruguloso: alæ (fig. 10), hyalinæ squamulis ferrugineis, stigmatate fusco: stigma lineari-lanceolatum, radium paulo ante medium excipiens: areola cubitalis 2^a. apice attenuata: podiscoidalis apice postico producta.

Habitat Angliam, *F. Walker*. Hiberniam in fungis autumno minus frequens: nomen triviale MS. in *Mus. Clm. Curtisii*, jampridem extans adoptavi.

Sp. 22. *Ancilla*. *Al. &c. piceo-nigra antennarum basi ore pedibusque flavescens, abdominis basi rufescente; mas stigmatate fusco; fem. stigmatate flavescens, terebra $\frac{2}{3}$ abdominis longitudine.*

Long. 1; alar. $2\frac{1}{2}$ lin.—Caput piceo-nigrum nitidum clypeo et mandibulis ferrugineis, palpis pallidis: antennæ (articulis 22—25) *fem.* corpore vix, *maris* paulo longiores, fuscæ articulis duobus primis et 3ⁱ. basi flavo-ferrugineis: thorax nigro-piceus nitidus, foveola antescutellari minima, pleuris sulco tenui crenulato: abdomen fusco-piceum segmento 1^o. et 2ⁱ. basi *mari* rufo-testaceis, *feminæ* fusco-testaceis, rarius concoloribus, segmento 1^o. longiusculo subtiliter ruguloso: pedes dilute flavo-ferruginei tibiatarum posticarum et tarsorum vix summo apice obscuriore: alæ hyalinæ squamulis dilute ochreis, stigmatate *feminæ* concolore, *mari* fusco, nervis pallide-fuscis: stigma et areolæ fere quales præcedenti: alæ posticæ angustiores nervo recurrente obsoleto.

Habitat Angliam, *F. Walker*. Hiberniam in nemoribus umbrosis æstate et autumno, *mares feminis* frequentiores.

Sp. 23. *Gracilicornis*. *Al. &c. nigra antennarum scapo ore pedibusque flavo-ferrugineis, posticorum tibiis apice tarsisque fuscis, abdomine subpetiolato, alarum stigmatate lineari-longissimo; fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Bassus gracilicornis. *N. ab E. Berl. Mag. VI. 206. No. 10.*

Alysia id. . . . ——— *Monogr. I. 247. 14.*

Long. $1\frac{2}{3}$ —2; alar. $3\frac{2}{3}$ — $4\frac{5}{4}$ lin.—*Nigra nitida facie subtiliter punctulata, clypeo mandibulis et antennarum articulis 2 baseos ferrugineis, palpis pallidioribus: antennæ graciles mari corpore fere duplo longiores (articulis 39—42), fem. vix sesquilingiores (33—37): thorax sculptura ordinaria, metathoracis basi nonnunquam lævigata: abdomen segmento 1°. lineari-elongato, fem. apice parum dilatato, subtilissime ruguloso: pedes graciles dilute flavo-ferruginei coxis pallidioribus, tarsis anterioribus apice posticis totis tibiisque iisdem apice fuscis: alæ (fig. 11) hyalinæ squamulis pallide ferrugineis, nervis tenuibus, stigmatate fusco-testaceo: stigma lineare longissimum, radium in triente 1^a. excipiens: areola radialis in alæ apicem effusa: cubitalis 2^a. apice attenuata.*

Habitat in nemoribus Hiberniæ borealis æstate et autumno minùs frequens.

SECTIO IX.—MICROMELI.

Antennæ articulo 3°. 4^{um}. superante: abdomen segmento 2°. lævi: metathoracis scutum planiusculum: pleuræ sulco impunctato s. obsoleto: palpi articulis 6 et 3.

Sect. V^æ. affinis: sculptura subtilior, antennarum et palporum labialium articuli pauciores: statura porro minor.

Sp. 24. *Fuliginosa*. *Al. &c. mas atra mandibulis pedibusque fusco-testaceis, alis infumatis, stigmatate mediocri.*

Statura sequentis a cujus mare discrepat præsertim stigmatate crassiores forma, quod illi (permultis jam collatis) semper tenuius: antennæ articulis 27: alæ infumatae: stigma determinatum quale in Sectione V.

Habitat in agro Cantiano; mense Junio mihi semel lecta.

Sp. 25. *Pumilio*. *Al. &c. atra mandibulis pedibusque fusco-testaceis, femoribus tibiisque apice obscurioribus, alis hyalinis stigmatate tenui; fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Bassus pumilio. *N. ab E. Berl. Mag. VI. 205. No. 6.*

Alysia id. . . . ——— *Monogr. I. 244. No. 9.*

Long. 1; alar. $2\frac{1}{2}$ lin.—*Atra nitida* mandibulis rufo-piceis: antennæ *feminæ* corporis vix longitudine (articulis 19), *maris* multo longiores et graciliores (25), articulo tertio elongato: thorax sulcis humeralibus vix inchoatis, fossula antescutellari, pleuris sulco tenuissimo impunctato, metathorace obsolete ruguloso: abdomen oblongo-ovatum, terebra longius, segmento 1°. obconico subtilissime striatulo: pedes fusco-testacei, *feminæ* femoribus tibiisque apice, coxisque obscurioribus, *maris* graciliores longiores: alæ (fig. 7) hyalinæ squamulis fusco-piceis stigmatate fusco: stigma attenuatum apice vix determinatum: alæ posticæ angustæ areola pobrachiali præbrachialis dimidium vix attingente.

Habitat Angliam, *F. Walker*, *T. G. Rudd*. Hiberniam in pratis humidis æstate frequens.—(*Al. jumeti*, nob. olim.)

Sp. 26. *Angustula*. *Al. &c. atra* mandibulis pedibusque fusco-piceis, alarum stigmatate nullo; fem. terebra abdominis longitudine.

Long. $\frac{5}{4}$; alar. $1\frac{1}{2}$ —2 lin.—Præcedenti simillima minor: antennæ *feminæ* corpore paulo breviores (articulis 17), *maris* multo longiores et graciliores (22): thorax pleuris lævissimis, metathorace læviusculo: abdomen subcompressum: terebra sursum curvata abdominis longitudine: alæ (fig. 8) hyalinæ, areolis ut in illa fere, sed stigma obsoletum: areola podiscoidalis apice incompleta, nervus analis vix nisi interstitialis: alæ posticæ angustissimæ, areola pobrachiali parva, nervo recurrente obsoleto.

Habitat locis iisdem cum præcedente at minûs frequens; ex Angliamisit *F. Walker*, *T. G. Rudd*.

SECTIO X.—PHÆNICEI.

Antennæ articulo 4°. 3^{um}. superante: pleuræ sulco impunctato: palpi articulis 5 et 4.

Species unica mihi cognita Novi Orbis incola.

‡Sp. 26. *Astarte*. *Al. &c. picea* thorace abdominisque basi rufis, alis fuscis; fem. terebra $\frac{2}{3}$ abdominis longitudine.

Long. $1\frac{3}{4}$; alar. 4 lin.—Caput nigro-piceum nitidum clypeo mandibulis palpisque piceo-rufis: mandibulæ quadridentatæ denticulis superis minimis: palpi breviusculi, maxillares articulis quinque, 1°. 2°. 3°. subæqualibus, 4°. 5°. que conjunctim 3°. brevioribus, 5°. brevissimo, labiales quatuor, 1°. 2°. subæqualibus, 3°. 4°. brevissimis: antennæ nigro-piceæ, fem. corporis longitudine articulis 32, flagello sat valido piloso apice attenuato, articulo 4°. parum elongato; mari

longiores et graciliores, articulis 40, scapo subtus rufescente: thorax rufus nitidus, scuti sulcis tenuibus impunctatis postice connexis, metathorace subcarinato: abdomen nigro-piceum, segmento primo obconico medio subcarinato, rufo; *mari* depressum segmento 2°. insuper basi rufescente; *fem.* subcompressum terebrâ parum longius: pedes pilosi picei trochanteribus apice albidis, pedibus anticis intus coxisque anterioribus rufescentibus: alæ pubescentes, parum diaphanæ, fuscæ squamulis rufis: stigma oblongum, radium ultra medium excipit: areola radialis alæ apicem attingens: cubitalis secunda limite antico brevi, angulo baseos posteriore producto: nervus recurrens interstitialis: analis cum brachiali anteriore recta continuus: alæ posticæ areola pobrachiali parva $\frac{1}{3}$ præbrachialis attingente.

Habitat insulam S^u. Vicentii. *F. Walker* mecum communicavit. Varietatem (alio loco tractandam) e Brazilia reportavit *C. Darwin*, sylvis Bahiæ Augusto mense lectam.

SECTIO IX.—EUCARPI.

Antennæ articulo 4°. 3^{um}. *superante*; *pleuræ sulco crenato*: *palpi articulis* 6 et 4: *metathoracis scutum subcarinatum*: *abdomen segmento* 1°. *longiusculo*; *terebra exerta*: *areola radialis ante alæ apicem clausa*.

Sectio præsens inter V^{am}. et XI^{am}. media quasi intercedit.

Sp. 27. Maritima. *Al. &c. nigro-anea albido-pubescentis mandibulis piceis, antennarum basi pedibusque fusco-testaceis, alis fusco-maculatis*; *fem. terebra* $\frac{2}{3}$ *abdominis depressi longitudine*.

Long. 1 $\frac{1}{3}$ —2; alar. 3—4 lin.—Caput nigro-æneum albido-pubescentis margine frontis facieque subtiliter rugulosis, mandibulis piceo-rufis, palpis fuscis: antennæ filiformes, *mari* corporis longitudine (articulis 29), *fem.* breviores (25), basi late fusco-testaceæ, articulo 4°. insigniter elongato: thorax nigro-æneus albido-pubescentis, scuti sulcis crenato-punctatis, postice distantibus intervallo rugoso fossula oblonga interjecta, metathorace rugoso areis dorsalibus lævigatis: abdomen nigrum nitidum depressum *femine* apice rotundatum segmento 1°. elongato-obconico, striato, medio carinato: pedes fusco-testacei coxis nigricantibus: alæ (fig. 14) dilute flavicantes brunneo-nebulosæ, squamulis ferrugineis, stigmate fusco: stigma crassiusculum semi-ovatum: nervus recurrens late rejectus: analis pone medium apicem areolæ podiscoïdalis: alæ posticæ areola pobrachiali $\frac{1}{2}$ anterioris fere attingente.

Habitat sub fucis marcentibus in littoribus Hiberniæ borealis rarissime;—Hantoniensibus, *F. Walker*; Eboracensibus, *T. G. Rudd*;—qui plura exemplaria mecum benevole communicavit, nomine triviali MS., quo usus sum.

Sp. 28. *Nephele*. *Al. &c. fem. nigra mandibulis piceis, pedibus fusco-testaceis, alis angustis infumatis, terebra abdominis fere longitudine.*

Long. 1; alar. $2\frac{1}{2}$ lin.—*Nigra nitida mandibulis rufo-piceis, oculis subtilissime pubescentibus: antennæ corporis longitudine, filiformes (articulis 20), fuscæ basi subtus piceæ: thorax scuti sulcis antice inchoatis, foveola parva antescutellari, metathorace punctato-rugoso: abdomen subcompressum terebra parum longius, segmento 1°. elongato sublineari longitudinaliter ruguloso: alæ angustæ infumatæ squamulis fusco-piceis, stigmatæ fusco: areolæ fere quales sp. præc. modo stigma angustius, nervus recurrens haud æque rejectus, analis vix nisi interstitialis: alæ posticæ areola pobra-chiali minore.*

Habitat Ebrides insulas; Augusto mense lecta.

DIVISIO II.

Areola cubitalis 2^a. limite anteriore longitudinem interioris superante, vel areola cubitalis 1^a. cum 2^a. confusa.

SECTIO X.—ATELECHORI.

Areola cubitalis 1^a. cum prædiscoidali confusa: antennæ articulo 4°. 3^{um}. superante: palpi articulis 6 et 4.

Statura et sculptura fere quales in Sectione XI^a. Nervus analis interstitialis; areola podiscoidalis obsoleta: alæ posticæ angustissimæ areola pobrachiali et nervo recurrente obsoletis.

Sp. 29. *Cephalotes*. *Al. &c. piceo-nigra ore antennarum scapo pedibusque ferruginosis; fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Var. a.—Minor thoracis sulcis humeralibus abbreviatis, foveola antescutellari minima vel obsoleta.

Alysia minuta, Var. γ. N. ab E. Monogr. I. 252.

Var. β.—Major thoracis sulcis humeralibus in fossulam antescutellarem concurrentibus.

Var. γ.—Minor *fem.* fusco-picea abdominis basi testacea, ore antennarum basi pedibusque flavo-ferrugineis.

Long. 1 — $1\frac{1}{4}$; alar. $2\frac{1}{2}$ — 3 lin.—*Picea-nigra nitida mandibulis palpisque ferrugineis: antennæ feminæ corpore longiores aut vix*

longiores, articulis 19—25, fuscæ articulis 2 baseos ferrugineis, *maris* multo longiores graciliores: thorax collari dilutius piceo, pleuris sulco rugoso, metathorace ruguloso dorso læviusculo: abdomen terebra longius, segmento primo obconico subtilissime ruguloso concolore aut rufescente: pedes sordide ferruginei: alæ (fig. 18) obscure hyalinæ, squamulis fusco-piceis, stigmatè fusco: stigma attenuatum subobsoletum: areola radialis alæ apicem attingens: cubitalis 2^a. elongata angusta.

Var. β.—Long. $1\frac{5}{4}$; alar. 4 lin.—Faciès punctulata: metathorax totus punctato-rugulosus: abdomen totum piceo-nigrum.

Var. γ.—Long. 1; alar. $2\frac{1}{2}$ lin.—Præcedentibus gracilior, fusco-picea nitida ore ferrugineo: antennæ corpore sesquilongiores (articulis 19), fuscæ basi late flavo-ferrugineæ: thorax puncto antescutellari impresso, pleuris sulco tenuissimo crenulato, metathorace læviusculo: abdomen segmento 1^o. fusco-testaceo: pedes longi graciles flavo-ferruginei: alæ hyalinæ.—An distincta species?

Habitat Angliam, *F. Walker, T. G. Rudd*; Hiberniam, sub fucis exsiccatis frequens; nemoribus minus frequens. *Var. β.* rarior:

Var. γ. rarissima.

SECTIO XI.—EUCHORI.

Antennæ articulo 4^o. 3^{um}. superante: areolæ cubitales completæ: nervus analis vix nisi interstitialis: alæ posticæ areola pobrachiali perexigua. (Fig. 29.)

Antennæ plerumque longæ graciles articulo 4^o. elongato, 5^o. etiam 3^{um}. superante: sculptura quam in Sect. V^a. subtilior, thoracis sulcis humeralibus modo abbreviatis modo continuis, metathorace abdominisque segmento 1^o. obsoletius rugulosus: caput facie convexa læviuscula, clypeo quam illis paulo majore: stigma oblongum, radium ultra medium excipiens, vel magis attenuatum et indeterminatum.

Adnot.—*Al. florimela*, No. 44. Antennarum articulo 4^o. subelongato ad characterem harum accedere videtur, sed in reliquis cum Sectione XII^a. propius convenit.

* *Areola radialis ab alæ apice remota.*

Sp. 30. Pullata. *Al. &c. atra mandibulis pedibusque piceis; femina terebrâ subexerta.*

Long. 2; alar. 4 lin.—Caput atrum nitidum mandibulis piceis, palpis fuscis: antennæ *fem.* corporis longitudine (articulis 34),

mari longiores (38): thorax ater nitidus, scuti sulcis fundo crenulatis postice acute concurrentibus, metathorace ruguloso: abdomen nigrum nitidum depressum, segmento 1°. ruguloso: terebra abdominis apicem non superans: pedes rufo-picei (antici clariùs), coxis femorum margine supero tarsisque nigricantibus: alæ subhyalinæ squamulis ferrugineis, nervis stigmatæque fuscis: stigma oblongum: nervus recurrens interstitialis: areola radialis lanceolata: cubitalis 2^a. limes anterior interiore vix paulo longior.

Habitat Angliam, *T. G. Rudd*; in agro Cantiano mihi semel lecta Junio mense, in Hibernia boreali iterum.

**Areola radialis apicem alæ attingens.*

Nervus recurrens parum rejectus, nonnisi paucis interstitialis: terebra exerta.

† *Alæ posticæ areolâ radiali unica, anticæ podiscali plerumque distincta lineari.*

Sp. 31. *Picinervis*. *Al. &c. aeneo-nigra antennarum basi mandibulis pedibusque fusco-ferrugineis, alis fuscans, nervis transversis obscurioribus; fem. terebra abdominis longitudine.*

Long. $1\frac{1}{2}$ — $1\frac{5}{4}$; alar. 3—4 lin.—Nigra submetallico-nitens: caput facie punctulata subcarinata, mandibulis rufo-ferrugineis, palpis fusco-ferrugineis: antennæ graciles, basi subtus piceæ aut ferrugineæ, *fem.* corpore longiores (articulis 27), *mari* plusquam sesquilingiores (30—32): thorax scuti sulcis crenato-punctatis postice arcu connexis fossula lineari interjecta, metathorace ruguloso arcis dorsalibus lævigatis: abdomen depressum terebra parum longius, segmento 1°. elongato obconico subtilissime striolato: pedes graciles fusco-ferruginei coxis basi fuscis: alæ fuscane squamulis ochreis, nervo intercubitali 2°. distinctiùs nigro-limbato: stigma sat conspicuum: areola cubitalis 2^a. longa: alæ posticæ areola pabrachiali minima.

Habitat Angliam, *F. Walker, T. G. Rudd*: Hiberniam locis humidis umbrosis non infrequens.

Sp. 32. *Ruficeps*. *Al. &c. piceo-nigra capite rufo, vertice medio fusco, pedibus testaceis, alis hyalinis: fem. terebra abdominis subcompressi longitudine.*

**Bassus ruficeps*. *N. ab E. Berl. Mag. VI. 205. No. 8.*

Alysia id. . . . ——— *Monogr. I. 246. No. 12.*

Id. gracilis. *Curtis, Brit. Ent. 141. No. 5.*

Var. β.—*Mas* alis flavescens apice quasi aveniis.

Var. γ.—Capite thoracisque dorso antico rufis, verticis macula fusca.

Alysia pallida. *Curtis, Brit. Ent.* 141. No. 6.

Var. δ.—*Mas* rufa antennarum apice et abdominis segmentis posterioribus fusciscentibus.

Bassus testaceus. *N. ab E. Berl. Mag.* VI. 206. No. 9.

Alysia testacea. ——— *Monogr.* I. 246. No. 13.

Var. ε.—*Mas* piceo-nigra antennarum basi ore pedibusque testaceis.

Long. $1\frac{1}{5}$ —2; alar. $2\frac{1}{2}$ —5 lin.—Caput piceo-rufum nitidum vertice late nigricante, facie punctulata: antennæ corpore longiores, articulis (22—32) 1°. et 2°. rufis, 4°. prælongo: thorax piceo-niger nitidus, sulcis humeralibus antice fundo punctatis, postice levioribus cum fossula profundiore præ scutello conniventibus, metathoracis scutello transversim subcarinato, (quod in præsentia sectione hujus fere proprium): abdomen piceo-nigrum fem. subcompressum: terebra ciliata: pedes testacei s. ferruginei tarsis apice fuscis: alæ (fig. 16) hyalinæ squamulis fusco-ferrugineis, stigmate nervisque fuscis: stigma oblongum crassius quam plerisque ex hac sectione; alæ posticæ areola pobrachiali non tam exigua.

Var. β.—*Mas* alis levissime flavescens, stigmate nigro, nervis exterioribus decoloribus vix distinguendis.

Var. γ.—Colore rufo in thoracem magis minusve effuso in utroque sexu.

Var. δ.—Capite toto dilutius, thorace abdominisque segmento 1°. obscurius, rufis, thoracis suturis et pleuris medio fusciscentibus.

Var. ε.—Capite concolore; a spp. cætt. carinula poscutellari et alarum stigmate latiore distinguenda.

Habitat Europam passim frequens Dipterorum larvis coprophagis infesta, *Var. ε* exemplar unicum (casu infausto attritum) misit *T. G. Rudd*, exclusum e pupa *Loncheæ vaginalis* in ligno putrido adulta, cujus autem larvæ etiam in fimetis versantur frequentiores.

Sp. 33. *Eugenia.* *Al. &c. ferruginea verticis medio thorace fere toto abdominisque segmento 1°. nigro-piceis, antennis longissimis; fem. terebra exerta brevi.*

Long. 2; alar. 4 lin.—Caput ferrugineum nitidum vertice medio fusco: antennæ maris corpore duplo longiores, (articulis 49,) basi late ferrugineæ articulo 4°. parum elongato, 3°. et 5°. subæqualibus (fem. mutilatæ): thorax picco-niger nitidus prothorace et

pleuris antice ferrugineis, scuti sulcis abbreviatis, foveola parva: abdomen ferrugineum, segmento 1°. piceo-nigro, *maris* lateribus et apice subinfuscatum: terebra exerta $\frac{1}{4}$ abdominis longitudine: pedes rufo-ferruginei: alæ obscure hyalinæ squamulis ferrugineis, stigmate *mari* fusco, *fem.* luteo: stigma tenuius quam No. 32.

Var. β.—Long. $1\frac{1}{2}$; alar. 3 lin.—*Fem.* caput fere totum piceo-nigrum: antennæ corpore vix sesquolongiores, (articulis 41,) basi late ferrugineæ: thorax collari tantum ferrugineo: abdomen apice et lateribus infuscatum: alæ infumatæ stigmate fusco.

Habitat Hiberniam borealem rarissime.—*Var. β* exemplar prope Londinum lectum misit *F. Walker*.

Sp. 34. *Pratellæ. Al. &c. fem. piceo-nigra ore antennarum basi pedibusque ferrugineis, alis hyalinis, terebra abdominis longitudinem superante.*

Alysia pratellæ. Curtis, Brit. Ent. 141, No. 4.

Long. 2; alar. $4\frac{1}{2}$ lin. — Caput latissimum, nigro-piceum nitidum clypeo et mandibulis rufo-ferrugineis, palpis ferrugineis: antennæ graciles corpore sesqui-longiores fuscae basi ferrugineæ, articulis 33—35, 4°. longo: thorax sulcis humeralibus tenuissimis postice cum fossula conniventibus: terebra abdomine subcompresso sesquilogior: pedes ferruginei: alæ hyalinæ squamulis ferrugineis, stigmate fusco: stigma angustum.

Var. β. — Fusco-castanea thoracis dorso antice abdominisque segmento 1°. dilutiûs, alarum stigmate &c. ferrugineis.

Habitat Angliam, *F. Walker*.—in *Agarico eduli* lecta agro Hantoniensi, *Curt. l. l.*—prope Edinoburgum Septembre ineunte.

Sp. 35. *Eunice. Al. &c. fem. atra mandibulis pedibusque fusco-ferrugineis, alis fuscis, terebra abdominis longitudinem superante.*

Long. 2; alar. $4\frac{1}{2}$ lin. — Caput atrum facie punctulata, oculis vage pilosis, mandibulis ferrugineis, palpis subfuscis: antennæ corporis longitudine, basi subtus fuscae, articulis 25, 4°. perparum elongato, 3°. fere 5^{um}. superante: thorax ater, sulcis inchoatis, foveola brevi: terebra abdomine subcompresso sesquilogior: alæ fuscane squamulis ochraceis: stigma tenue: alæ posticæ areola pobrachiali perexigua.

Habitat Hiberniam borealem rarissime.

Sp. 36. *Flavipes*. *Picea ore antennarum basi pedibusque flavo-ferrugineis, alis hyalinis; fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Long. $1\frac{1}{4}$ — $1\frac{3}{4}$; alar. $2\frac{5}{4}$ — $3\frac{3}{4}$ lin. — Caput nigro-piceum nitidum mandibulis et clypeo ferrugineis, palpis flavescentibus: antennæ corpore longiores, basi late ferrugineæ s. flavicantes, articulis 29—32: thorax nigro-piceus nitidus, scuti sulcis postice evanescentibus: abdomen depressum segmento 1°. obconico-dilatato: pedes toti flavo-ferruginei: alæ hyalinæ squamulis flavicantibus, stigmatibus fusco aut ferrugineo: stigma distinctum radii abscissam 1^{am}. fere obruens.

Var. β.—Litura biloba præ scutello et cingulo in basi segmenti 2^{di}. ochraceis.

Habitat in nemoribus Hiberniæ nec infrequens, æstate et autumnis.

Sp. 37. *Nina*. *Al. &c. fem. atra mandibulis pedibusque fusco-ferrugineis, alis fuscis, terebra $\frac{2}{3}$ abdominis longitudine.*

Statura præcedentis. Long. $1\frac{1}{2}$; alar. 3 lin.—Antennæ corporis longitudine basi subtus fuscae articulis 22: thorax sulcis abbreviatis foveola parva: abdominis forma eadem.

Habitat Ebudes insulas Augusto mense lecta.

Sp. 38. *Conspurator*. *Al. &c. nigra mandibulis antennarum scapo pedibusque fusco-ferrugineis, alis obscure hyalinis, fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Long. $1\frac{1}{4}$ — $2\frac{1}{4}$; alar. 3—5 lin. — Caput nigrum mandibulis fusco-ferrugineis, palpis pallidioribus: antennæ fem. corpore parum longiores, articulis 24—30, 1°. et 2°. fusco-ferrugineis; mari longiores graciliores, (—32): thorax sulcis subtiliter crenato-punctatis ante scutellum acute concurrentibus: abdomen segmento 1°. quam No. 36, parum longiore et apice minus dilatato: terebra ciliata abdomine parum brevior: alæ subhyalinæ squamulis fusco-ferrugineis, stigmatibus fusco: radii abscissa 1°. a stigmate tenuissimo extricata: areola cubitalis 2°. angulo baseos anteriore sæpius subobtusio.

Habitat Angliam, Hiberniam, passim frequens; fem. in fimo equino versantur.

Adnot.—Discrimen inter hanc speciem et binas proxime præcedentes examini adhuc subjiciendum.

Sp. 39. *Livida*. *Al. &c. nigro-picea antennarum basi ore pedibusque ferrugineis, abdominis segmento 2^o. et sequentibus fusco-castaneis, antennis longissimis, stigmatate tenuissimo; fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Long. $1\frac{1}{3}$; alar. $2\frac{1}{2}$ —3 lin.—Antennæ *mari* corpore duplo longiores, *fem.* paulo breviores, fuscae basi ferruginæ, articulis 28—31, 4^o. parum elongato, 3^o. et 5^o. subsæqualibus: thorax nigro-piceus prothorace ferrugineo, scuti sulcis modo inchoatis et foveola minima: abdomen depressum rufo-castaneum vel ferruginosum, segmento 1^o. nigricante, *mari* apice fuscum: alæ hyalinæ squamulis flavo-ferrugineis, stigmatate tenuissimo fusco: alæ posticæ angustæ nervo recurrente inconspicuo.

Habitat Angliam, *F. Walker.*—*T. G. Rudd.*—Hiberniam, autumnio rarior.

Sp. 40. *Tabida*. *Al. &c. fusca ore antennarum basi abdominis segmento 1^o. pedibusque ferrugineis, stigmatate subnullo; fem. terebra $\frac{2}{3}$ abdominis longitudine.*

Alysia tabida. *N. ab E. Monogr. I. 252, No. 21.*

Long. 1; alar. $2\frac{1}{2}$ lin.—Caput fusco-piceum nitidum ore ferrugineo: antennæ, *fem.* corpore fere sesquilongiores, fuscae basi late ferruginæ, articulis 19—21, plurimis elongatis, 4^o. prælongo; *mari* paulo longiores, (20—22): thorax fusco-piceus aut fusco-castaneus prothorace ferrugineo, foveola antescutellari minima punctiformi: abdomen fusco-castaneum segmento 1^o. rufo-ferrugineo, bicarinato: terebra abdomine parum brevior: alæ hyalinæ squamulis ferrugineis, nervis stigmatateque dilute fuscis: stigma tenuissimum et areolæ fere quales *A. cephalotes* areolæ cubitalis 1^{mæ}. finibus restitutis: areola podiscalis obsoleta: alæ posticæ angustæ, areola pobrachiali minutissima.

Habitat Angliam, *F. Walker.*—Hiberniam borealem autumnio rarissime lecta. (*Al. picea* nob. olim.)

Sp. 41. *Maria*. *Al. &c. fem. atra mandibulis et tibiærum basi piceis, alis albo-hyalinis, areola cubitali 2^a. breviuscula; terebra $\frac{1}{3}$ abdominis longitudine.*

Long. $1\frac{1}{4}$; alar. $2\frac{1}{2}$ —3 lin.—Caput atrum nitidum mandibulis piceorufis: antennæ corporis vix longitudine, sat validæ, basi subtus piceæ, articulis 19—21: thorax sulcis humeralibus punctulatis præ scutello acute concurrentibus, pleuris sulco tenui crenato:

pedes nigro-picei tibiis basi dilutiùs: alæ albo-hyaline squamulis fusco-piceis stigmatè fusco: areola cubitalis 2^a. pro hac sectione breviuscula, limite anteriore interiorem perpaulo superante; nervus recurrens interstitialis: alæ posticæ areola pobrachiali mediocri.

Habitat Angliam, *F. Walker.* — Hiberniam borealem nonnisi rarissime.

Sp. 42. *Galatea.* *Al. &c. fem. nigra mandibulis pedibusque piceis, tibiis basi pallidioribus, alis albo-hyalinis, areola cubitali 2^a. elongata; fem. terebra exerta brevi.*

Long. 1 $\frac{1}{6}$; alar. 2 $\frac{3}{4}$ lin. — Nigra aut picea nitida mandibulis piceorufis: antennæ corporis vix longitudine, articulis 21: thorax sulcis humeralibus vix inchoatis, foveola antescutellari minima punctiformi, pleuris sulco punctulato subobsoleto: terebra exerta $\frac{1}{3}$ abdominis longitudine: pedes fusco-picei femorum anticorum et trochanterum apice tibiisque pallidioribus: alæ (fig. 17,) albo-hyalinæ squamulis fusco-piceis, stigmatè dilute fusco: stigma quam sp. præc. angustius; areola cubitalis 2^a. linearis, limite anteriore interiorem duplo superante: nervus areolam præ-discoïdalem a cubitali 1^a. sejungens fere hyalinus; nervus recurrens interstitialis.

Habitat, in Salice argentea litoribus arenosis prope Eblanam lecta æstate ineunte.

†† *Alæ posticæ areolis radialibus 2.*

Sp. 43. *Punctigera.* *Al. &c. fem. fusco-castanea capite fusco, antennarum scapo mandibulis pedibusque ferrugineis, abdominis segmento 1^o. rufo-castaneo, alis obscuris, terebra $\frac{2}{3}$ abdominis longitudine.*

Long. 1 $\frac{1}{2}$; alar. 2 $\frac{3}{4}$ lin. — Caput nitidum fuscum mandibulis palpisque ferrugineis: antennæ corporis vix longitudine, articulis 19, fuscæ pubescentes, articulis 1^o. et 2^o. ferrugineis, 4^o. vix elongato: thorax fusco-castaneus nitidus, sulcis humeralibus abbreviatis punctoque antescutellari, pleuris sulco tenui crenulato: abdomen fusco-castaneum, segmento 1^o. sub-bicarinato, terebra vix duplo longius: alæ (fig. 27,) obscuræ squamulis ferrugineis stigmatè pallide fusco: stigma oblongum: areola podiscoïdalis minuta subobsoleta; nervus recurrens interstitialis: alæ posticæ (fig. 30.) areolis radialibus nervo obscuro distinctis.

Habitat Hiberniam borealem, — unicum exemplar pridem mihi lectum asservatur in *Mus. Clm. Curtisii.*

SECTIO XII.—BRACHYCENTRI.

Antennæ longæ graciles multi-articulatæ articulo 4°. 3^{um}. non aut vix quidem superante: alæ anticæ stigmatē lineari elongato, nervis recurrente et anali vix nisi interstitialibus: alæ posticæ areola pobrachiali præbrachialis dimidium saltem attingente; abdomen depressum, segmento 1°. gracili lineari tuberculis mediis: terebra brevissima aut fere recondita: palpi articulis 6 et 4.

Sculptura ordinaria, thoracis sulcis humeralibus abbreviatis et foveola antescutellari, metathorace abdominisque segmento 1°. rugulosis.

Sp. 44. Florimela. *Al. &c. nigra antennarum scapo mandibulis pedibusque ferrugineis, posticorum tibiis apice tarsisque fuscis, abdominis segmento 2°. basi piceo, radio stigma medium petente; fem. terebra subexerta.*

Long. 2; alar. 4 lin. — Caput nigrum nitidum facie punctulata, mandibulis ferrugineis, palpis pallidioribus: antennæ graciles; fem. corpore duplo longiores articulis 50, 1°. et 2°. rufo-ferrugineis, 4°. longitudinem 3ⁱ. perpaulo superante (quod in hac sectione singulare): thorax niger nitidus pleuris sulco rugoso: abdomen segmento 1°. nigro, reliquis rufo-piceis cingulis nigris, aut nigris 2°. basi piceo: terebra vix manifesta: alæ (fig. 20) hyalinæ squamulis ferrugineis stigmatē fusco: stigma quam sequentibus brevius apice attenuatum, radium prope medium excipiens: areola radialis ante alæ apicem clausa: cubitalis 2°. mediocris angulo posteriore baseos producta: alæ posticæ areola pobrachiali præbrachialis dimidium vix superante.

Habitat prope Londinum, æstate lecta. *F. Walker.*

Sp. 45. Apii. *Al. &c. nigra antennarum scapo mandibulis pedibusque ferrugineis, posticorum tibiis apice tarsisque obscurioribus, abdominis segmento 2°. basi piceo, radio basin stigmatē linearis longissimi fusci accedente; fem. terebra subexerta.*

Alysia apii. *Curtis, Brit. Ent.* 141. No. 7, et fig.

Long. 1 $\frac{3}{4}$; alar. 3 $\frac{2}{5}$ —4 $\frac{1}{3}$ lin. — Caput nigrum nitidum facie confertim punctulata, mandibulis ferrugineis, palpis pallidioribus: antennæ gracillimæ articulis circiter 50, corpore duplo longiores, articulis 1°. et 2°. ferrugineis, 3°. et 4°. subæquali: thorax niger nitidus

pleuris fovea obsoleta impunctata: abdomen segmento 1°. nigro, reliquis concoloribus 2°. basi piceo, aut piceis illo rufescente: terebra vix manifesta: (fig. 21) pedes postici tibiis apice, tarsisque fuscis aut vix paulo obscurioribus: alæ fumato-hyalinæ squamulis fusco-ferrugineis, stigmatē fusco: stigma attenuatum longissimum, areolæ radialis medium superans, radium intra quadrantem primam excipiens: areola radialis in alæ apicem effusa, cubitalis 2^a. longa apice æquilata: alæ posticæ areola pobrachiali $\frac{2}{3}$ præbrachialis attingente, hac solito breviorē.

Habitat Angliam (*J. Curtis*): Hiberniam borealem rarior. *E. pupis* Dipteri cujusdam in parenchymate foliorum *Apii graveolentis* autumno adultis prodibat mense Junio anni insequentis.—*Curt. l. l.*

Sp. 46. *Isabella*. *Al. &c. mas nigra antennarum basi mandibulis pedibusque ferrugineis, abdominis segmento 2°. basi piceo, radio stigmatis linearis ochracei basin accedente.*

Præcedenti sat similis, antennis et stigmatē brevioribus discrepans.—Long. $1\frac{1}{2}$; alar. $3\frac{1}{4}$ lin.—Antennæ corpore sesquilingiores articulis 40, 1°. et 2°. ferrugineis sequentibus subfuscis 3°. 4^{um}. perpaulo superante: tibiæ posticæ apice vix obscuriores: alæ hyalinæ squamulis ferrugineis, stigmatē pallide ochraceo: areolæ quales sequenti.

Habitat prope Londinum lecta, *F. Walker*.

Sp. 47. *Flaviventris*. *Al. &c. fem. nigra mandibulis antennarum basi pedibus abdominisque segmento 2°. et sequentibus flavis, his fusco-cingulatis, radio stigmatis linearis flavescens basin accedente, terebra exerta brevissima.*

Long. $\frac{4}{5}$; alar. $2\frac{1}{3}$ lin.—Nigra nitida, &c.: antennæ gracillimæ corpore sesquilingiores, articulus 27—30, 3°. 4^{um}. paulo superante, fuscae basi flavicantes: thorax foveola antescutellari minima: abdomen flavum segmento 1°. nigro, posterioribus fusco-cingulatis: terebra abdominis apicem superans: alæ hyalinæ squamulis flavicantibus, stigmatē ochraceo: stigma lineare, areolæ radialis medium vix attingens, radium in quadrante 1^a. excipiens; areola radialis in alæ apicem effusa: cubitalis 2^a. vix apice attenuata.

Habitat in Anglia, rarissime ut videtur, mecum communicavit *F. Walker*.

Adnot.—*Al. rufiventris*, *N. ab E. Monogr. I. 253. No. 23*, vix nisi colore rufo distinguenda ex illius descriptione videtur.

Sp. 48. Perdita. *Al. &c. mas nigra antennarum scapo mandibulis pedibusque ferrugineis, radio stigmatis linearis longissimi basin imam petente.*

Long. 2; alar. 4 lin.—Caput nigrum nitidum mandibulis palpisque ferrugineis: antennæ corpore fere sesquolongiores, articulis 36, 1°. ferrugineo supra fusco, 2°. ferrugineo, 3°. longissimo: thorax niger nitidus, pleuris lævissimis? pedes ferruginei, posticorum tibiis apice tarsisque vix paulo obscurioribus: alæ (fig. 22) fumato-hyalinæ squamulis ferrugineis, stigmatate fusco: stigma tenuissimum, areolæ radialis in alæ apicem effusæ medium longe superans: radii insertio qualis *Opio abnormi*, *Wesm.* (*Ent. Mag.* IV. 204): areola cubitalis 2^a. elongata linearis: alæ posticæ areola pobrachiali præbrachialis dimidium attingente, nervo recurrente manifesto (qui præcedentibus inconspicuus.)

Habitat Ebudes insulas; Augusto mense lecta.

SECTIO XIII.—MACROCARPI.

Antennæ articulo 4°. 3^{um}. non superante: stigma elongatum cuneiforme: nervus analis vix nisi interstitialis: abdomen feminæ compressum terebra exerta recurva.

Statura ut in Sectione XV^a. a quibus vix nisi alis distinguendæ sunt.

Sp. 49. Speculum. *Al. &c. mas nigra antennarum basi ore pedibus abdominisque segmento 1°. rufis, stigmatate maximo atro.*

Long. $\frac{5}{4}$; alar. $1\frac{5}{4}$ lin.—Nigra nitida mandibulis rufis: antennæ corporis longitudine, articulis 16—18, duobus primis rufis: thorax dorso lævissimus, pleuris sulculo punctulato, metathorace ruguloso: abdomen angustum subdepressum segmento 1°. rufo, 2°. basi piceo-rufescente, reliquis nigro-piceis: pedes rufi femorum et tibiarum apicibus sæpe infuscatis: alæ (fig. 19) hyalinæ squamulis ferrugineis stigmatate atro: stigma maximum, areolâ cubitali 2^a. fere majus, radii abscissam 1^{am}. obruens: areola radialis alæ apicem non attingit: cubitalis 2^a. apice attenuata, angulo baseos posteriore producto: areolæ posteriores angustæ et nervorum insertio characteristicæ vix determinata.

Habitat Hiberniam borealem rarissime; prope Londinum lecta mense Julio; *F. Walker.*

Sp. 50. Venusta. *Al. &c. fem. nigro-picea antennarum basi ore pedibus abdominisque segmento 1°. rufo-ferrugineis, stigmatate tenuissimo fusco-pallido, terebra brevi exerta.*

Long. $\frac{5}{4}$ —1; alar. $1\frac{1}{2}$ —2 lin.—Antennæ corpore breviores, articulis 14—17, extremis ovatis, fuscae articulis duobus primis rufo-ferrugineis: thorax qualis præcedenti: abdomen ut in Sect. XV^a. efformatum, piceum segmento 1°. rufo: pedes rufo-ferruginei: alæ (fig. 24) hyalinæ squamulis piceis, stigmatate fusco-pallido: stigma quam sp. præc. multo tenuius, apice vix determinatum: areola cubitalis 2^a. nec apice pariter attenuata: radii abscissa 1^a. extricata brevissima: areola radialis alæ apicem attingens: nervus recurrens evectus.

Habitat in Anglia rarius lecta; *F. Walker.*

Adnot.—Præcedentis forte *femina* etsi discrimen alarum pro sexu insolitum.

SECTIO XIV.—LEPTOCARPI.

Antennæ articulo 3°. 4^{um}. non superante: alæ anticæ stigmatate lineari elongato, nervo anali areolæ podiscoidalis apiei medio inserto: abdomen feminae compressum, terebra exerta recurva.

Sectio XV^a. conformes, vix nisi alarum characteribus discrepantes: stigma lineare, in medium usque areolæ radialis extensum: areola cubitalis 1^a. prædiscoidali æqualis: nervus recurrens parum evectus: alæ posticæ areola pobrachiali præbrachialis dimidium superante: metathorax totus rugulosus: abdominis forma eadem.

Sp. 51. Pumila. *Al. &c. piceo-nigra abdominis segmento 1°. rufescente, antennarum basi ore pedibusque ferrugineis; mas stigmatate nigro-fusco; fem. stigmatate fusco-testaceo, terebra brevi exerta.*

Alysia pumila. N. ab E. Monogr. I. 251, No. 19.

Var. β.—Abdominis segmento 1°. concolore.

Var. γ.—Pedibus fuscis tibiis tarsisque basi pallidioribus.

Long. $1\frac{1}{2}$; alar. 3 lin.—Antennæ *fem.* corporis longitudine aut eo longiores, articulis 17—24, duobus primis (nonnunquam 3°. etiam), rufo-ferrugineis: thorax foveola antescutellari parvula, pleuris sulco crenato-punctato, metathorace ruguloso: abdomen nigropiceum, segmento 1°. concolore, 2°. basi sæpius fuscescente,—vel

segmento 1°. rufo-piceo aut rufo-ferrugineo, sequentibus fusco-piceis: pedes ferruginei, *mari* sæpius rufo-ferruginei: alæ subhyalinæ squamulis ferrugineis, stigmatate *maris* nigro-fusco, *feminæ* ferrugineo aut fuscescente: stigma *mari* latius, in quodam exemplari areolæ cubitalis 2^æ. fere latitudinem æmulans; *fem.* angustius (fig. 23); latitudine vero variabili, quo fines hujus sectionis et sequentis mox solvuntur.

Var. γ.—Minor.—Long. vix 1 lin.—Nigra nitida antennis concoloribus, pedibus fuscis trochanterum apice tibiis basi tarsis latius ferrugineis: stigma tenuissimum nigricans.—*Al. maculipedi* mox describendæ simillima.

Habitat Angliam;—*F. Walker*; *T. G. Rudd*;—Hiberniam rarius.

SECTIO XV.—ACARPI.

Antennæ articulo 3°. 4^{um}. non superante: stigma nullum: nervus recurrens evectus: abdomen fem. compressum: terebra exerta recurva: palpi articulis 6 et 4.

Caput harum quam in Sect. V^a. et XI^a. minûs oblatum, vertice pone ocellos nonnil explanato, facie reclinata lævi convexa, clypeo quam illis majore fornicato, sub-semicirculari apice truncato: mandibulæ parvulæ: antennæ sæpius pauci-articulatæ tum *feminis* validæ et submoniliformes: thorax brevis, sulcis humeralibus vix inchoatis, fossula antescutellari parva aut nulla, pleuris sulco crenato s. punctato, metathorace a basi fere descendente, magis minusve ruguloso, epimeris plerunque lævigatis; sculptura in minoribus plerunque obsoletiore: abdomen *maris* subdepressum spathulatum: *feminæ* plerunque valde compressum, segmento 1°. sublineari, basi parum attenuato, ruguloso, ascendente, 2°. maximo, reliquis brevibus carinato-compressis, postremis in arcum deflexis: abdomen a latere conspectum subtrigonum: venter carinatus: terebra subventre exerta, sursum curvata, propter structuram abdominis longiûs exerenda, longitudine externa ideo pro situ variabili: alæ stigmatate nullo, metacarpo in quibusdam incrassato at non determinate: areola radialis alæ apicem attingens; cubitalis 1^a. prædiscoidali minor; nervus recurrens evectus; nervus analis areolæ podiscoidalis apici fere medio insertus: alæ posticæ areola pabrachiali $\frac{1}{2}$ præbrachialis attingente aut superante.

Specierum (perpaucis exceptis) discrimen difficile: circa fungos autumnno versantur fere gregarie.

Sp. 52. *Ruficornis*. *Al. &c. nigra ore antennarum basi pedibus abdominis segmento 2°. et sequentibus rufo-ferrugineis; mas segmentis posterioribus fuscis; fem. abdomine subcompresso cingulis fuscis, terebra brevissima.*

Alysia ruficornis. *N. ab E. Monogr. I. 248. No. 16.*

Long. $1\frac{1}{2}$ — $1\frac{5}{4}$; alar. $3\frac{1}{2}$ lin.—Caput pone oculos dilatatum, nigrum nitidum clypeo fusco, mandibulis rufis: antennæ *fem.* corpore breviores sat validæ, articulis 21—23, rufo-ferrugineæ extrorsum fuscescentes; *mari* corporis longitudine graciliores: thorax niger nitidus, dorso lævissimus, metathorace toto cum epimeris intricatim ruguloso: abdomen *fem.* quam sequentibus multo minûs compressum, segmento 1°. obconico-attenuato, nigro-piceo, intricatim ruguloso, sequentibus rufo-ferrugineis aut rufo-castaneis fusco-cingulatis, ventre toto rufo: terebra abdominis apicem perpaulo superans: alæ obscure hyalinæ squamulis ferrugineis, nervis fusco-ferrugineis.

Habitat in lucis Angliæ nec infrequens; in Hibernia nondum mihi obvia.

Sp. 53. *Fulvicornis*. *Al. &c. fem. piceo-nigra antennis totis mandibulis pedibusque ferrugineis, terebra brevissima.*

Long. $1\frac{1}{2}$; alar. 3 lin.—Antennæ corporis longitudine validæ submoniliformes pubescentes, totæ ferrugineæ, articulis 23, 3°. longissimo: metathorax totus punctato-rugosus: abdomen fusco-piceum segmento 2°. basi dilutiûs: alæ angustulæ, obscure hyalinæ squamulis ferrugineis: alarum margo longe ciliatus; areolæ exteriores elongatæ, cubitalis exterior mediâ fere quadruplo longior.

Habitat Hiberniam borealem, Augusto exeunte mihi lecta exemplar in *Mus. Clm. Curtisii* nunc asservatur.

Sp. 54. *Compressa*. *Al. &c. nigro-picea ore antennarum basi pedibus abdominisque segmento 1°. rufo-ferrugineis, capite deplanato, thorace compresso, fem. terebra brevissima.*

Long. $\frac{2}{3}$ —1 lin.; alar. $1\frac{1}{2}$ —2 lin.—Caput deplanatum et sub antennis productum, facie reclinata fere horizontali: antennæ articulis 16 s. 17, fuscæ articulis 1°. et 2°. rufescentibus, *mari* corporis fere longitudine, *fem.* capite thoraceque parum longiores: thorax compressus, capite duplo angustior, puncto antesentellari nullo: abdomen fusco-piceum segmento 1°. rufescente: pedes rufo-ferruginei, tibiis *maris* apice nonnunquam fuscescentibus: alæ angustæ

obscure hyalinæ squamulis ferrugineis: areolæ exteriores elongatæ, cubitalis exterior 2^a. quadruplo longior.

Habitat Angliam rarius lecta, *F. Walker*. (Al. compressa, *Curt. Catal. Ed. 1^a.*)

Sp. 55. *Concinna*. Al. &c. atra alis albis nigro-nerveosis; mas pedibus fuscis, tibiis basi pallidioribus; fem. pedibus rufo-testaceis, coxis fuscis, terebra exerta abdomine brevior.

Long. 1 $\frac{1}{4}$; alar. 2 $\frac{5}{4}$ lin. — Corpus validum atrum nitidum: caput pone oculos parum dilatatum, mandibulis piceo-rufis: antennæ fem. corpore breviores validæ, articulis 18, mari longiores et graciliores, (24): thorax sulco abbreviato ante-scutellum impresso: terebra in quiete $\frac{1}{3}$ abdominis æquiparans: pedes maris fusco- aut nigro-picei, trochanterum apice tibiisque basi rufescentibus; fem. sæpius rufo-testacei coxis nigricantibus: alæ albissimæ squamulis piceis, nervis nigris: nervi maris validiores, metacarpus incrassatus, cubitus ultra apicem areolæ mediæ statim decolor, limites areolæ 1^a. subtiliores.

Habitat Angliam, *J. Curtis*, — *F. Walker*, — *T. G. Rudd*. — Hiberniam minus frequens. (Al. concinna, *Curtis, Catal. Ed. 1^a.*)

Adnot. — Hactenus omnia in proclivi erant, nisi de specie præcedente velis dubitare; quæ vero supersunt forsitan omnes ut meræ varietates sub Al. brevicorni *N. ab E.* instruendæ forent.

Sp. 56. Al. &c. nigra antennarum basi ore pedibusque ferrugineis, sulco abbreviato ante scutellum impresso; fem. terebra exerta abdomine brevior.

Long. 1 $\frac{1}{2}$ —1 $\frac{3}{4}$; alar. 3—4 lin. — Antennæ fem. vix corporis longitudine validæ, articulis 22—28, fuscæ articulis 2 primis ferrugineis, mari longiores et graciliores: abdomen nigro-piceum segmento 2^o. antice fuscescente, 1^o. basi summa nonnunquam rufescente: terebra in quiete $\frac{1}{3}$ abdominis æquiparat: alæ latæ hyalinæ (fig. 25) squamulis ferrugineis, nervis distinctis fuscis, metacarpo crassiusculo.

Variat minor, gracilior, thoracis foveola antescutellari jam minima, antennis feminæ gracilioribus et longioribus, articulis 20, &c. abdominis segmento 1^{mo}. sæpius rufo-piceo aut rufo-ferrugineo. — Hinc transitus patet in sequentem.

Habitat Angliam, Scotiam, Hiberniam, sat frequens.

Sp. 57. *Fuscicornis*. *Al. &c. picea abdominis segmento 1^{mo}. rufescente, antennis basi ore pedibusque ferrugineis, puncto antescutellari nullo s. subnullo; fem. terebra exerta abdomine brevior.*

Long. $\frac{2}{3}$; alar. $1\frac{1}{2}$ lin.—*Variat et major.*—Antennæ *feminæ* corpore breviores, articulis 13 aut pluribus: thorax dorso lævissimus, rarius puncti impressi vestigio ante scutellum: terebra $\frac{1}{3}$ — $\frac{2}{3}$ abdominis longitudine: alæ angustæ hyalinæ squamulis ferrugineis, nervis pallide fuscis: areolæ exteriores elongatæ, posteriores attenuatæ.

Var. β.—Rufo-castanea capite anoque fuscis, ore pedibusque ferrugineis.

Habitat Angliam, Scotiam, Hiberniam, Ebudes insulas—frequens.

Sp. 58. *Jaculans*. *Al. &c. fem. nigro-picea abdominis segmento 1^o. rufescente, antennis basi ore pedibusque ferrugineis, puncto antescutellari subnullo, terebra exerta abdomine sesquilingiore.*

Præcedenti simillima: antennæ corporis longitudine vel eo fere longiores, articulis 18—23: terebra corpore paulo brevior: areolæ exteriores alarum maxime elongatæ.

Habitat Hiberniam borealem nonnisi rarissime.

Sp. 59. *Maculipes*. *Al. &c. atra alis hyalinis, pedibus fuscis tibiis tarsisque basi pallidioribus; fem. terebra exerta abdomine brevior.*

Simillima sp. 57^æ.—Long. vix 1; alar. 2 lin.—Antennæ *fem.* breves validæ, articulis 15—18: thorax puncto antescutellari impresso: pedes fuscii trochanterum apice tibiis tarsisque basi pallescentibus: alæ hyalinæ squamulis piceis, nervis distinctis nigro-fuscis: areola radialis alæ apicem vix attingit.

Habitat Angliam, *F. Walker*,—*T. G. Rudd.*—Hiberniam minus frequens. (*Al. maculipes. Curtis, Catal. Ed. 1^a.*)

Adnot.—Ab *Al. concinna* non multum abludunt hujus exemplaria quædam metacarpo crassiusculo atro; alia etiam cum *Al. pumila var. γ.* propius congregiuntur; sed uti dictum jam supra, species pleræque in hac sectione editæ pro meris varietatibus potius reputandæ videntur; forsitan et in reliquis species non omnes pro genuinis constarent si copia par exemplarium adfuisset.

SECTIO XVI.—TANYCHORI.

Areola cubitalis 1^a. cum 2^a. confusa : stigma nullum : antennæ articulo 4^o. 3^{um}. non superante : abdomen fem. compressum : terebra exerta recurva : palpi articulis 6 et 4.

Cum proxime præcedentibus in omnibus conveniunt, areolæ cubitalis 1^æ. et 2^æ. finibus modo oblitteratis et radio basi arcuato distinguendæ.

Sp. 60. Concolor. *Al. &c. nigra mandibulis piceis, pedibus fuscis, tibiis basi pallidioribus; fem. terebra exerta abdomine brevior.*

Bassus concolor. *N. ab E. Berl. Mag. VI. 213. No. 23.*

Alysia concolor. *N. ab E. Monogr. I. 254. No. 25.*

Long. $\frac{1}{2}$; alar. $2\frac{2}{3}$ lin. — Antennæ fem. corpore breviores aut paulo longiores validæ, articulis 13—18; maris longiores et graciliores; (—23): thorax dorso lævissimus, vel puncto antescutellari minimo, pleuris sulco crenato aut punctis majoribus serie impressis, metathorace magis minusve ruguloso epimeris lævigatis: terebra exerta $\frac{1}{3}$ — $\frac{1}{2}$ abdominis longitudine: pedes fuscii trochanterum apice, tibiis tarsisque basi rufescentibus: alæ (fig. 26.) hyalinæ squamulis piceis, nervis nigricantibus.

Habitat Angliam, *F. Walker*,—*T. G. Rudd*.—Hiberniam non infrequens.

Sp. 61. Distracta. *Al. &c. nigra abdominis segmento 1^o. piceo aut rufescente, ore antennarum basi pedibusque ferrugineis; fem. terebra exerta abdomine brevior.*

Alysia distracta. *N. ab E. Monogr. I. 256, No. 26.*

Simillima præcedenti et ut opinor ejusdem mera varietas. Metathorax nonnunquam lævis linea media tantum punctulata: alæ hyalinæ squamulis ferrugineis, nervis dilute fuscis.

Var. β.—Rufo-castanea capite anoque fuscis, ore pedibusque ferrugineis.

Habitat cum præcedente nonnisi rarissime.

PLATE XVII.—WINGS OF ALYSIÆ.

<i>Anterior wing of</i>	
Fig. 1.	<i>A. manducator.</i>
2.	<i>rufidens.</i>
3.	<i>atra, mas.</i>
4.	<i>tipulæ.</i>
5.	<i>aurora.</i>
6.	<i>circe.</i>
7.	<i>pumilio.</i>
8.	<i>angustula.</i>
9.	<i>fucicola.</i>
10.	<i>rufinotata.</i>
11.	<i>gracilicornis.</i>
12.	<i>contracta, fem.</i>
13.	<i>ditto, mas.</i>
14.	<i>maritima.</i>
15.	<i>pullato.</i>
16.	<i>ruficeps.</i>

<i>Anterior wing of</i>	
Fig. 17.	<i>A. galatea.</i>
18.	<i>cephalotes.</i>
19.	<i>speculum.</i>
20.	<i>florimela.</i>
21.	<i>apii.</i>
22.	<i>perdita.</i>
23.	<i>pumila.</i>
24.	<i>venusta.</i>
25.	
26.	<i>concolor.</i>
27.	<i>punctigera.</i>

<i>Posterior wing of</i>	
28.	<i>A. manducator.</i>
29.	<i>picinervis.</i>
30.	<i>punctigera.</i>

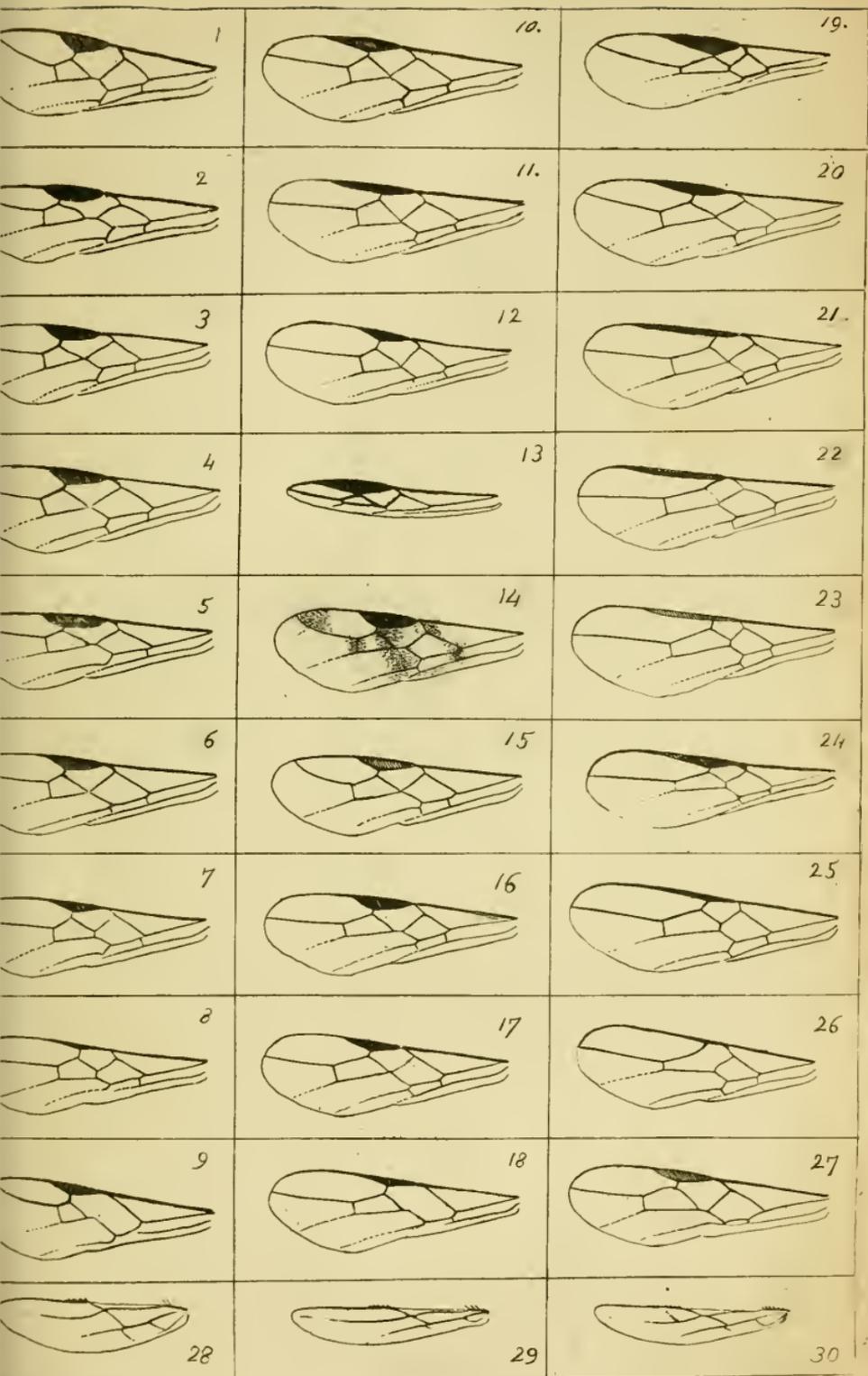
ART. XXIII.—*Mr. Davis's Journal, up to December 20, 1837.*

At Sea, Lat. 37° 35'. Nov. 15, 1837.

WE left Cowes on Monday, the 6th, in the afternoon, with light breezes from the S. E.; passed the Needles in the evening, and the next morning were off Portland. On Wednesday we were off the Lizard, but the wind, which had been scant all down, became more west; we were therefore unable to make much way. A goldfinch rested a little while on the rigging on Tuesday, and this day a linnet and a starling; the former was captured, and died soon after; the latter, after several attempts to take it, fell into the sea. On the 9th, with our course towards Ireland, porpoises and gulls were in sight; the weather drizzly.

10th.—Still cloudy, and wind west; standing for the Bay of Biscay; fairly out at sea; no gulls to-day. 11th.—Wind fair; weather cleared up; vessel sails well, and passes every thing we have seen. Warmer considerably. Observation being taken, find we are in Lat. 46° 16' 3'', Long. 11° 41'.

12th.—A delightful day, clear and warm. The waters of the Atlantic are intensely blue, almost approaching black, and the effect produced by the surges, as the foam subsides, is very beautiful, the concussion of the waves producing lighter patches of a bright green. There was a most glorious sunset, and the



H. H. fecit

full moon rose in such majesty as I never before witnessed ; it was indescribably beautiful. Late in the evening we still walked the deck, admiring the scene.

Tuesday, 14th.—By observation, in Lat. $40^{\circ} 4'$, Long. about 14° , in a direct course for Madeira : and the prospect of putting a letter on shore has led me to write this :—of course I keep up my journal daily. This has been quite an eventful day ; early in the morning, a whale was observed spouting away to leeward of us—this was before I was up ; then we had a shoal of porpoises round the bows ; subsequently the stormy petrels flew about the stern : they are very pretty birds—their flight graceful ; they skim the crested waves, and appear to be incessantly on the wing. I hope to get more opportunities for observing them ; they staid but a little while. Small patches of rainbows were visible on the clouds on the horizon very early : these the captain calls sun-dogs ; their canine qualifications I do not understand. In the evening there was a fine lunar rainbow, and at ten o'clock a splendid aurora. You will probably remember a luminous arch of red vapour, visible in February, near London ; the phenomenon was of this kind. It was most vivid in the N.E. about forty degrees above the horizon, and extended, with varying intensity, far to the N.W. tinting all the clouds in the distance. The stars were distinctly visible through it. The colour was deep crimson. It continued visible nearly an hour, the moon shining brightly, and the breeze strong from the N.N.E. As the clouds came over, it gradually disappeared, but was again seen about midnight in a more defined form, consisting of several luminous arches.

Thursday, 16th.—We had two lunar rainbows last night, both of which I was fortunate enough to see. The first occurred about half-past nine o'clock, nearly due west, forming a segment of a circle with the horizon ; it was very well defined, and the colours could all be detected, though some of them were faint. The whole internal part of the bow was beautifully clear, and rather luminous ; above it, dark and cloudy. It remained visible about fifteen minutes—some portions of it, the more westerly, much longer ; and about a quarter past ten o'clock there was a second, not nearly so well defined, nor so vivid. The moon approaching the last quarter, having been at full last Sunday : a fine N.E. breeze, and cloudy in the N. and W.

Friday, 17th.—Madeira in sight on our larboard bow, distant about fifteen miles. We are to westward of the island, and it is not the captain's intention to put in; so we shall be deprived of the expected opportunity of sending our letters, for which this was begun.

Nov. 27, 1837. Lat. 10° 14' 21" N.

The captain thinks we may see some homeward-bound vessels in a day or two. We have run twenty-three degrees of latitude since the 17th—not bad work. Beautiful breezes. Flying-fish now swarm; the little fellows start out of the water in lots, rise but very little, and then start in a straight line. It appears to me, that they drop from their inability to get on: some *get along* much farther than others—I should say, occasionally twice the ship's length; but, as their course is always at an angle from the ship, it is difficult to tell. Sometimes they meet a wave, and, if the crest touches them, they appear to have power to continue their flight; this arises, probably, from their getting another *wet*: they certainly have no means for rising beyond what the first impulse gives them. We have taken two or three. The dolphin is their inveterate enemy. We caught one of these gentry a day or two since during a slight calm, while under San Antonio, one of the Cape de Verds; it was small, but the changing hues of the scales, while pulling out of the water, were exquisitely beautiful. To-day a shark has been seen. Porpoises are frequent: their gambols are very amusing; they spring from the water several feet, describe a curve, and dip their noses in again, with a jaunty flap of their tail, quite refreshing. The sea is beautifully luminous at night; the foam of the sea is saturated with stars of all magnitudes—they sparkle as brightly as Aldebaran: some have a halo round them, others are more like nebulæ. What a countless host must inhabit the sea! I got up some of the water to examine it, but my microscope is not powerful enough to scrutinize the wretches, nor have we a lamp to throw light on it. The weather is rather warmish, the thermometer having been steady at 80°, day and night, in the cabin: we are gradually liquefying. The heavens, at night, are beautiful; Venus casts a reflection on the sea almost equal to that of the new moon. In a few days we shall see stars new to us: the sun now sets a long way to our right. Mother Carey's chickens occasionally visit us,—but we cannot catch them.

Dec. 11, 1837. *At Sea. Lat. 5° 10' S. Long. 30° 16' W.*

I have commenced the study of navigation, to beguile time; and am now a dab hand, and can find the ship's place, and all that;—better do something than be idle. The weather has been excessively hot; the greatest heat was on the 2d of December—88° in the shade in the cuddy all day; the result was a tropical thunder-storm about four o'clock next morning; lightning and thunder incessant, following with a rapidity to which we are unaccustomed in Old England; torrents of rain, and sudden squalls of wind, laying the vessel down nicely:—these noises, combined with the loud voice of the captain, and the wild song of the sailors taking-in sail, was singularly effective. There was a glorious sunset the preceding evening; and previously, while the sun, with unclouded brilliancy, was full 6° above the horizon, we had the pleasure of seeing both the new moon and Venus distinctly shining at the same time. The whole circle of the moon was dimly visible.

A fine *Libellula* also visited us to-day; it resembled our common *Æschna*: I could not catch the fellow, though I offered a reward: the nearest land is the coast of Africa, full five hundred miles off. Its resemblance to our English species led me, at first, to think it might have come in the water-casks, but the water was taken in from the filterer of the St. Katharine's Docks, except a little additional at Cowes; this, however, had been long exhausted, and the casks emptied. The captain says he has frequently taken moths, &c.; and that he has some at home, in glass cases, with labels attached with the latitude and longitude where taken. We also hooked a 5-foot shark, but the hook and line were too weak, and the rapacious fellow broke away with the hook in his jaw. On the 7th, the sailors performed their usual ceremonies on crossing the Line; our captain would allow no interference with the passengers: it is a ridiculous affair, "more honoured in the breach than the observance." One of the passengers volunteered to submit to the shaving, which, otherwise, was inflicted only on their messmates. I think he repented his folly, for he was well punished by the crew, and laughed at by his fellow-passengers. For several days while near the Line we had calms; one day we proceeded only four miles; in fact, on Nov. 29 we were in Lat. 5° N. and only crossed the line on the evening of the 8th. Since

then we have enjoyed the regular S. E. trade, under the steady breezes of which we are now getting along. Warm sunny days, refreshing moonlight nights, and all the attendants of fine weather. Unhappily, we have some restless, discontented spirits on board.

Dec. 14. Lat. 10° 58' S. Long. 34° 59' W.

Our worthy captain is making for Bahia, where I presume we shall get ashore to-morrow or next day.

Bahia. Dec. 20, 1837.

“ We little thought, when we set out,
Of running such a rig.”—*John Gilpin.*

Here we are! What would our friend Doubleday say if he had strolled, as I have done, the last two or three days, under the tamarinds, cocoa-nuts, mangoes, oranges, bananas, and hosts of other trees too numerous to mention? How he would have shouted, as I have done, at the splendid Papilios and Hymenopterous tribes which flit around! Their variety is charming, from the little skip and jump style of the little *Hesperidæ*, to the wide circling flight of some of the larger *Morphos*. I have managed to save a few, caught with my hands, for I have neither forceps nor net left out. Coleoptera I have yet seen none. The city is besieged, and we are now and then amused with a few shots from the fort to the blockading squadron. On Sunday, while at anchor here, a flight of Neuropterous insects, something like *Nemoura*, hovered round the poop; they had long dark wings, nearly as long again as the body, so that they could not run fast: when they were caught, they bit off their wings, and ran with great rapidity. I captured several, but at first lost all their wings; I then nipped them hard at first, and thus kept them on. On close examination of those which lost their wings, I found they were bitten off close to the side, leaving four processes like abbreviated elytra. On taking down the awning next morning, lots of the insects ran out, all wingless, and the wings fell down *in profusion* on the deck; these must have performed the amputation without any apparent necessity. At night we had a swarm of what they call here the winged ant; they were in sufficient abundance almost to put out the lights; I do not think it is a true ant. I also took a few *Ichneumons*. As to the rest, you

will see what they are when you get them. I fear we shall be here some time, and it will be mortifying not to get some insects. Miss W. is going to try to manufacture a net in some way, and to-morrow we will try what it will do. The sea-mushroom abounds in this bay; they are reputed to annoy swimmers, but with what truth I know not; they float past the ship at a considerable inclination, something like forty-five degrees.

ART. XXIV. — *Notice of the Capture of Vanessa Antiopa, in the Neighbourhood of London.* By the Rev. H. STUART TAYLOR.

DEAR SIR,—ON the 31st day of August, this year, the specimen of *Vanessa Antiopa*, of which the accompanying is an exact draught, was taken by my pupil, Edward Pemberton. It is a female; measures $3\frac{5}{16}$ inches; and though much lacerated in both hinder and one fore wing, was a fine strong creature. It was captured about one o'clock, in an angle of a field which is on the west or south-west side of a wood called "Turner's Wood," near to "Caen Wood," Hampstead, and the property of Lord Mansfield.

The wind was cold, and pretty rapid from the east. The insect came before Mr. Pemberton, in a downward flight, suddenly, and appeared rather to fall than fly into the branches of a bramble. He instantly covered the bramble with his net, and the insect was driven into it by shaking the bush.

A few days before, I had, twice in the day, observed a Butterfly which I could not make out—large and black to all appearance—flying over the highest part of the wood, as if it were moving in an accustomed haunt. I have now no doubt that it was an *Antiopa*, probably this very specimen.

I am,

Yours truly,

H. STUART TAYLOR.

London, Nov. 16th, 1837.

ART. XXV. — *Additional Notes on the Genus Apion.* By
JOHN WALTON.

MY DEAR SIR,—Will you correct, in your next Number, a few typographical errors in my Notes upon the Genera *Sitona*, &c. published in Vol. IV. page 1. At page 16, line 31, for *sometimes* read *somewhat*; at page 18, line 38, for *important* read *unimportant*; in the annexed list of insects place stars before Numbers 1 to 6, in the Genus *Phyllobius*; and put a number 6 before *Apion Rumicis*; and for 6 *A. affine* read 7 *A. affine*; also put a number 24 before *A. bifoveolatum*.

I have a few additional notes upon the said genera, which I shall feel obliged if you will publish at the same time.—*Sitona puncticollis*.—On the 13th of August last, in a field of *Trifolium pratense*, near Scarbro', by sweeping, I captured forty-six specimens of every variety, all of which I have deposited at the Entomological Society's cabinet, for examination. I detected a pair or two *in copulâ*, of what I considered in my former communication as varieties, and known by the name of *Sitona canina*. Having arranged to leave the following morning, I regretted I had not an opportunity of identifying more of the sexes, as the specimens were very fine and plentiful. After mounting the above, and examining the same from time to time, the habit of the varieties appeared to me distinct, and could be easily separated from the true *puncticollis*. The capture from the same plant, at the same moment, may be considered a presumptive evidence of their identity; yet I think with others, it is not a demonstrative one. With these impressions I instituted a more rigorous comparative examination into the sculpture: with this view I detached the scales from a great number of specimens of all the varieties; and I now think there is a sufficient difference, both in the habit and sculpture, at all events to justify a separation; and I regret that I did not, in my list of this genus, retain the name of *Sitona canina*, with an indication of doubt, in deference to the opinion of others. I have two distinct new species, which appear to me undescribed, one of which I have named *S. Meliloti*, having taken it from the *Trifolium officinale*, or Melilot Trefoil, in company with *Apion Meliloti*. The other new species, of which I have only one example, I obtained

from a dealer at York, of the name of Chapman. Mr. Waterhouse has another in his cabinet, which, when described, will make fourteen species of the Genus *Sitona*. *Polydrusus fulvicornis* is not a species; I should now expunge it from my list.

Phyllobius maculicornis is not confined to the north, as I supposed; I took it at Birch Wood on the 8th of June, and again at Mickleham on the 11th of the same month: it has been long confounded in the London cabinets with *P. argentatus*; the latter is generally found upon trees, and the former amongst grass.

Apion Rumicis, *A. hæmatodes*, and *A. rubens*, I beat out of the *Teucrium Scorodonia*, or Wood Germander, towards the end of July, in this neighbourhood—the two first in plenty; and on Oliver Mount, near Scarbro', in August following, I again met with the two former species, always on the same plant; thus identifying, in two distinct localities, the connexion of these insects with the said plant. These I particularly wanted, on account of the great affinity of the first to *Apion Spartii* and *A. affine*, and of the second to *A. sanguineum*. Having collected an extensive series of *A. Rumicis* from the places above mentioned, and already possessing another long series of *A. affine*, I found them to vary in size: some of the *A. Rumicis* are as large as the smallest of *A. affine*, but the latter is generally a larger insect than the former. The form of the thorax in both species is subject to variation, being more or less inclined to become sub-cylindrical, and more or less globose or sub-globose. When these two species approximate in size, they appear so much alike that nothing but a close examination of the sculpture can separate them; the punctures are coarser and deeper upon the thorax of *A. affine* than on *A. Rumicis*. I now feel confident that *A. Spartii*, of Kirby, is identical with his *A. Rumicis*, and that one of the names must certainly fall.

A. hæmatodes is closely allied to *A. sanguineum*, but the latter is generally larger, the legs stouter, and the sculpture deeper and coarser than its congener.

Apion simile.—I captured a female of this species on the 10th of May, at Birch Wood, and again very plentifully both sexes upon the common birch tree near Knaresboro, and also in other distant places, invariably upon the same, the latter end

of June and the beginning of August. *Apion Betulæ* would have been a more appropriate name.

Apion bifoveolatum, and its synonyme *A. elongatum*, must be expunged from my list: it is precisely the same insect as *A. Meliloti*, of Kirby. In the months of July, August, and September last I captured some hundreds of this very rare insect from the Melilot-Trefoil, or *Trifolium officinale*.

Apion confluens.—On the 11th of June last, at Mickleham, I captured this rare species in great plenty, by sweeping the meadows in the park behind the church.

Apion picicornis, and *A. difforme*.—On the 1st of October following, by brushing the herbage at the sides of the hedges in the last-mentioned park, I obtained plenty of the first, and about forty specimens of *A. difforme*, of both sexes; the latter gave me an opportunity of detecting an error in my last communication. Amongst several species of this genus, given to me by an eminent entomologist of London, I had one named *Apion ruficrus*, with the anterior coxæ and trochanters densely black; and it agreed well with two others which I had previously taken at Chigwell, in Essex. In the absence of the sexes of *A. difforme*, which I did not then possess, they appeared to me a good species, and I wrote from memory on their analogy to the female of the latter species, whereas they were actually the same; I now find there is not a distinct species, in any of the London cabinets that I have seen, with the name of *A. ruficrus*. Mr. Stephens has given it in his systematic catalogue as an uncertain or doubtful species; the fact is, it is not a species.

When *A. Spartii*, *A. bifoveolatum*, and *A. ruficrus* are expunged from the list, it will contain sixty-six species, whereof five are undescribed, viz. *A. rubens*, *A. sanguineum*,^a *A. stolidum*, *A. picicornis*, and *A. puncticollis*; these five, with three new ones in the cabinets of Mr. Curtis, my own, and Mr. Waterhouse, will shortly be described by the latter gentleman, which will add as many as I have struck out, so that it will remain for the present at sixty-nine species. There are still three or four doubtful ones, and I hope at some future period to confirm them. Mr. Spence, of Hull, very politely allowed me to search his father's cabinet for *A. glabratum*, but I was unsuccessful; his insects are all numbered and without

^a See Gyllenhal's *Insecta Suecica*, IV. p. 543.

names, and the book of reference was in the possession of his father, then abroad. All the species of the genus seem to be gregarious, and when we discover their "metropolis" they are taken by hundreds. The specific characters of this extensive and very interesting genus of insects are so very clear and distinct from each other, with the exception of about two species, that it will ever give the greatest satisfaction to the student of Entomology.

I am, my dear Sir,
Yours truly,

JOHN WALTON.

*Byard's Lodge, Knaresbro', Yorkshire,
8th February, 1838.*

ART. XXVI.—*Lines written on visiting the Neighbourhood of
Boxhill, Surrey, June 1837.*

THE wealth and dignities of state,
The little things that men call great,
Lack always power to impart
Aught that can interest the heart.

The charms that mind delights to trace
Are those that glow in nature's face,
The only beauties that withstand
The touch of time's destroying hand.

I love thee, Nature, as a child
Loves the dear mother that beguil'd
Its many tedious hours of pain,
And sooth'd it into health again.

I love thee on the mountain wild,
The verdant valley, or the mild
Cool margin of some silv'ry stream,
Whose waters in the sunlight gleam.

I love at noon the twilight shade
The gently waving trees have made,—
To sit, and let my spirit roam,
And visit nature in her home.

Or on the scented turf to lie
 And watch the meteor birds flit by ;—
 The friends that from some other clime
 Have come, to share our summer time ;—

And see the insects crawl, or fly
 Like spirits to their native sky ;
 Th' embodied sense of joy they seem,
 When dancing in the solar beam.

O 'tis a sense surpassing ease,
 To feel the kiss o' the cooling breeze ;
 That like a spirit of love is sent,
 From heav'n to earth with th' intent,

That it might with its gentle wing,
 Refresh and fan each weary thing ;
 For if the meanest feel a pain,
 There's balm to give it health again.

It's whisp'ring now, thro' yonder grove,
 To every flower its tale of love ;
 Each, as it passes, looks more bright,
 And all are trembling with delight.

It woos the rose, whose fragrant breath
 Defies the mighty pow'r of death ;
 And wand'ring on thro' blooming fields,
 Receives the tribute each flow'r yields.

The Sun, that long on earth and ocean
 Has gaz'd with an intense devotion—
 To whom again earth has confess'd
 The glowing feelings of her breast,—

Now, like a lover, when each sense
 Is satiate with joy intense,
 He gently sinks down to his rest,
 On downy clouds far in the west.

And Night being envious that the day
 Had held so long o'er earth its sway,
 Then hastens onward, and lets fall
 Her sable mantle over all.

While stars, her wakeful watchmen, keep
 Their vigils o'er a world asleep ;
 Till, struggling with the morn, their strife
 Awakes earth up to love and life.

Thus love rules all : it is the heart
 Whence all the streams of life depart ;
 The never-failing fountain-head,
 From which all other springs are fed.

The universe contains no place
 That has been left without its grace ;
 And beauty 's o'er the picture laid
 In countless tints of light and shade.

I'll never, Nature, bid farewell
 To thee ; thou in my brain shalt dwell,
 Till mind shall have outgrown its clay,
 And left its garment to decay.

J. W. D.

ART. XXVII. — *Lucanidarum novarum exoticarum Descriptiones, cum Monographia Generum Nigidii et Figuli.*—Auctore
 J. O. WESTWOOD, F. L. S. &c.

FAMILIA.—LUCANIDÆ.

GENUS.—XIPHODONTUS, *Westwood.*

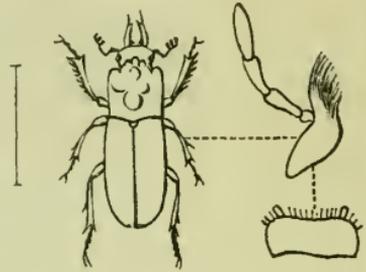
Genus novum Figulo et præsertim Nigidio affine at structura mandibularum, thoracis, et scutelli distinctum, necnon corpore magis convexo.

Corpus oblongum, convexum, thorace tuberculato : caput parvum transversum, extra oculos in laminam parvam productum oculos (4) dividentem : mandibulæ *maris* porrectæ suberectæ, capite longiores, fere rectæ, dente parvo sub apicem armatæ ; *fem.* capite breviores, planæ subtrigonæ, margine externo dente obtuso armatæ : maxillæ parvæ, sub mento occultæ, lobis membranaceis ciliatis, palpi maxillares mediocres, articulis terminalibus haud mento occultis : mentum transversum lateribus rotundatis margine antico fere recto : palpi labiales breves, apice articuli 3ⁱ. ultra mentum solo apparente : antennæ geniculatæ, articulis 3^{us}. ultimis ut in

genere Dorco : thorax capite multo major subquadratus, convexus, longitudinaliter in medio et transverse subimpressus ; in *mare* subcucullatus (c.) margine antico supra caput producto, 4-tuberculato, tuberculo antico magis prominente, in *fem.* margine antico fere recto, tuberculis 3^{is}. alteris subelevatis : elytra convexa, thoracis latitudine et illo duplo longiora : scutellum breve rotundatum : tibiæ anticæ 7-dentatæ.

Species typicalis. XIPHODONTUS ANTILOPE. *Westwood.*

X. niger. *Subnitidus, capite thoraceque (præsertim in fem.) rude punctatis, hoc impressione lata subprofunda ad partem posticam, elytrorum singulo striis longitudinalibus circitèr 14, opacis, interstitiis irregulariter punctatis, apice sublævi.* (Long. corp. lin. $5\frac{1}{3}$.)



Habitat in Africa Australiori. — In Mus. nostr. *Mas et fem.* Communic. *Dom. Templeton.*

GENUS CERATOGNATHUS, *Westwood.*

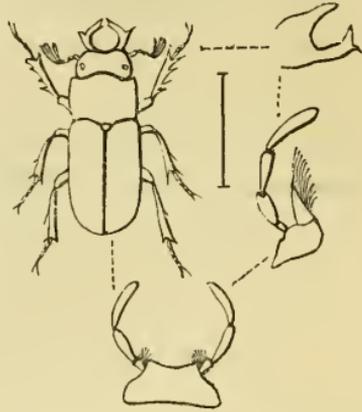
Genus novum Cerucho et Platycero affine : ex his differt præsertim mandibulis et antennis. Hæc genera forsân generibus Syndeso et Hexaphyllo conjungit, his structura mandibularum et lamellarum apicalium antennarum congruens.

Corpus oblongum convexum : caput *maris* inagnum, transversum, *fem.* parvum, oculi 2 laterales integri : mandibulæ *maris* capitis longitudine, graciles, arcuatæ, apice compressæ 3-dentatæ, versus basin ramo erecto dentiformi armatæ ; *fem.* parvæ subtrigonæ acutæ dente ante apicem interne armatæ : maxillæ minutæ lobo interno fere oblitterato ; externo conico valde ciliato : palpi maxillares elongati exserti : mentum *maris* transversum, basi latius, margine antico fere recto truncato ; *fem.* subtriangulare : palpi labiales elongati (maxillaribus breviores) in *mare* ad angulos anticostanti menti inserti, in *fem.* fere conjunctim ad apicem trianguli : antennæ subgeniculatæ, articulo primo longo, tribus ultimis in *mare* in lamellas elongatas productis ; in *fem.* sub-perfoliatis : thorax *maris* transverso-quadratus lateribus fere rectis subserratis ; *fem.* antice attenuatus : elytra latitudine partis posticæ thoracis, convexa, postice rotundata : scutellum parvum triangulare, angulo postico rotundato :

tibiæ anticæ externe serratæ et 4-dentatæ, dentibus 2^{as}. basalibus minoribus.

Species typicalis. CERATOGNATHUS NIGER. *Westwood.*

Cera. niger. Totus niger subopacus, undique punctis circularibus notatus, elytris costis nonnullis obsoletioribus longitudinalibus. (Long. corp. maris cum mandibulis, lin. 6; fem. lin. 4.)



Habitat in Terra Van Diemenii. — In Mus. nostr. Communic. Dom. Ewing et Lewis, M. E. S.

GENUS.—FIGULUS, *MacLeay.*

SECTIO I.

Elytra spatium interstitiale leve exhibentia, mentum tuberculo centrali armatum.

Sp. 1. Fig. ebenus. *Niger nitidus, capite postice fortiter punctato, thorace antice 1-tuberculato, in medio longitudinaliter canaliculato, elytra stria unica suturali, altera laterali, et tribus dorsalibus punctatis, mento cornu medio armato. (Long. corp. lin. 8.)*

Habitat in insula Madagascar.

Figulus Ebenus. *Klug, MSS. Westwood, in Ann. Sc. Nat. N. Ser. Vol. I. p. 120, Pl. 7, fig. 4, 4a—4e.*

An Figulus anthracinus, Klug, Col. Madag. p. 85? — In Mus. D. Hope.

Sp. 2. Fig. nigrita. *Niger nitidus, tuberculo utrinque ad marginem internum et anticum oculorum, fronte depressa, antice punctatissima, capite postice rude punctato, thorace lævi, lateribus sub lente punctatissimis dorso canalicula punctata impresso, margine antico in medio vix uni-tuberculato: elytris lævibus striasuturali altera laterali, et tribus dorsalibus punctatis, his apicem haud attingentibus. (Long. corp. lin. 6½.)*

Habitat in Senegallia.—In Mus. nostr.

Sp. 3. Fig. sublævis. *Ater nitidus, elytris lævibus, singulis punctorum impressorum linea denticulata cinctis et lineolis punctatis duobus inæqualibus sublateralibus munitis quarum breviori tertiam partem longitudinis elytrorum vix attingit, thorace in medio canaliculato, canalicula punctata.* (Long. corp. lin. $7\frac{1}{2}$.)

Habitat Oware, Africae, in truncis arborum emortuarum.

Lucanus sublævis. *Palisot de Beauvois, Ins. Afr. et Amer. P. 3, Pl. 1, fig. 4.*

SECTIO II.

Elytra regulariter striata, mentum in medio inerme.

Sp. 4. Fig. striatus. *Niger nitidus, mandibulis apice 1-dentatis, fronte concava vix punctata, tuberculo utrinque ad angulum antico-internum oculorum, thorace antice submucronato, lateribus punctatissimis, dorso canaliculato, canali abbreviata punctata, elytris lævibus, singulo 10-punctato-striato, apice punctatis, tibiis anticis extus 7-dentatis.* (Long. corp. lin. 6.)

Habitat in insula Mauritio.—In Mus. nostr.

Lucanus striatus. *Olivier, Entomol. I. 19, Tom. IV. fig. 14. Fabr. Syst. Eleuth. II. 253.*

Obs.—Fabricius, who appears to have been acquainted with this species from the works of Olivier only, gives "India" as its habitat. My specimens, sent me from Mauritius, by M. Julien Desjardins, agree with Olivier's description.

Sp. 5. Fig. confusus. "*Ater nitidus, mandibulis apice 3-dentatis, clypeo concavo, obscure punctato, thorace quadrato antice uni-dentato, lateribus punctatis elytris punctato-striatis apice punctatis; maris tibiis anticis extus 8-dentatis; fem.? minor, tibiis anticis extus 6-dentatis.*" MacLeay. Descriptio accuratior requiritur.

Habitat in India orientali.

Figulus striatus. *MacLeay, Horæ Entomol. p. 109.*

Obs.—The Rev. F. W. Hope, in his Coleopterist's Manual, p. 79, has made some observations, apparently with the view of showing

that, from the geographical station and peculiarities of the islands of Mauritius and Bourbon, the *Lucanus striatus* of Olivier may not unnaturally extend in its range to India. I have no hesitation, however, in regarding Mr. MacLeay's Indian *Figulus* as distinct from the Mauritian species.

Sp. 6. Fig. regularis. *Niger nitidus*, capite postice inter oculos tuberculis duobus punctatis, alterisque duobus minoribus versus basin mandibularum, mandibulis 3—4-dentatis, mento rude punctato utrinque impresso, thorace lateribus punctato, serieque longitudinali punctorum in medio, hoc haud impresso, margine antico 1-sub-tuberculato, elytris 10-striato-punctatis, tibiis anticis 8-dentatis. (Long. corp. lin. $7\frac{1}{2}$.)

Habitat in Nova Hollandia.—In Mus. D. Hope. Westw. in Ann. Sc. Nat. 2d Ser. Vol. I. p. 120.

Sp. 7. Fig. trilobus. *Niger nitidus*, capite rude punctato in medio impresso, tuberculo utrinque versus basin mandibularum; mandibulis 1—2-dentatis, mento in medio impresso, thorace lateribus punctatis, in medio canalicula longitudinali abbreviata impresso, margine antico tri-tuberculato, elytris valde punctatis, singulo lineis 8 elevatis lævibus notato, tibiis anticis extus 8-dentatis. Affinis F. regulari, at differt præsertim thorace canaliculato antice 3-tuberculato notisque aliis. (Long. corp. lin. $8\frac{1}{2}$.)

Habitat in Nova Hollandia.—In the Collection of the Entomological Club.

Sp. 8. Fig. subcastaneus. *Parvus nitidus, piceus*; thoracis et elytrorum lateribus magis castaneis, his regulariter punctato-striatis. (Long. corp. lin. $4\frac{1}{2}$.)

Habitat in insula Java.—In Mus. Doin. Hope.

Nitidus piceus, thorace et elytris, præsertim ad latera, subcastaneis, fem. corpus parvum parallelum: caput fere thoracis latitudine, lateribus obliquis, septo (oculos omnino dividente) magno, plano; tuberculo inter oculos et basin mandibularum, clypeo valde depresso; capite pone oculos in collum contracto: mentum magnum fere quadratum lateribus rotundatis, palpos labiales (nisi articulum 3^{um}.) abscondens: mandibulæ parvæ acutæ intus dente versus apicem armatæ: thorax fere quadratus, marginibus lateralibus fere

rectis, lateribus punctatis, disco lævi, canalicula media longitudinali punctata excepta: scutellum parvum longitudinale: elytra elongata subdepressa, apice rotundata, singulo striis 7 vel 8 longitudinalibus impressis, e punctis formatis, ante apicem desinentibus, hoc punctato: tibiæ anticæ externe 6-spinosæ, spinis duabus apicalibus majoribus.

Obs.—Hæc species e forma generis *Figuli* paullo recedit, corpore minus depresso, mento magno palpos fere obtegente et colore subcastaneo. Cum genere *Dorco* characteribus nonnullis congruit at corpore elongato oculisque septo divisis, distincta.

Sp. 9. Fig.? punctatus. *Mandibulis inermibus, niger capite thoraceque punctatis, elytris striatis.*

Lucanus punctatus. *Fabr. Syst. Eleuth.* II. 253.

Habitat in Sumatra.

Paullo minor *Platycero* rufipedi (caraboidi v.) De genere dubito, at statura coloribusque ad genus *Figulum* pertinere videtur.

GENUS.—NIGIDIUS, *MacLeay.*

Species typicalis, NIGIDIUS CORNUTUS, *MacLeay.*

Sp. 1. Nigi. cornutus. *Ater nitidus, mandibulis 3-dentatis, clypeo punctato antice mucronato, elytris inter strias elevatas triplici punctorum impressorum ordine instructis, apicibus punctatis, tibiis anticis 7-dentatis; maris mandibularum margine supero et externo in ramum cornutum producto; fem. mandibulis brevioribus haud cornu supero instructis.*

Habitat in Australasia.

Nigidius cornutus. *MacLeay, Horæ Entomol.* I. 108. Pl. 1. fig. 6. (Partes oris.)

In Mus. Brit. et *MacLeay.*

Sp. 2. Nigi. lævicollis. *Niger nitidus, capite supra depresso, punctato, thoracis dorso lævi lateribus punctatis, margine antico inermi angulisque anticis haud incisus.* (Long. corp. lin. 9.)

Habitat in Manilla.—In Mus. D. Cuming.

N. auriculato multo major et pro magnitudine latior et magis planus : caput thoracis latitudine angulis pone oculos exsertis reflexis subacutis ; inter oculos latum, depressum, punctatum : mandibulæ punctatæ, dextra 2-, sinistra 3-dentata, margine laterali supra in cornu magnum curvatum producto cum lobo parvo rotundato in medio ejus marginis antici : thorax transverso-quadratus, tenuissime marginatus, dorso lævissimo, margine antico simplici tuberculo minutissimo in medio vix apparente, lateribus punctatis : elytra breviora, apice rotundata, singulo striis 8 elevatis simplicibus, spatio inter strias in ordine triplici punctato (punctis lateralibus minutis, mediis vero multo majoribus) ; apice ipso lævi punctato : tibiæ anticæ extus 6-dentata.

Sp. 3. Nigi. auriculatus. *Capitis lateribus valde emarginatis et postice in cornua 2 oblique truncata (latitudine thoracis), productis : thorace antice subtrilobato, in medio lineis duobus longitudinalibus punctatis, lateribus præsertim postice punctatis, spatioque utrinque disci ante medium punctato, angulis anticis incisus.* (Long. corp. lin. $7\frac{1}{2}$.—fig. e, Guérini, lin. 9. An recte?)

Habitat in Senegallia.—In Mus. Dom. Gory et Hope.

Platycerus auriculatus. Guér. *Icon. R. An. Ins.* Pl. 27. fig. 4.
Figulus vervex . . . Dej. *Cat.* (secundum specimen in Mus. D. Hope.)

Obs.—Figura Guérini, capitis *N. auriculati* formam ejus exacte exhibet, inde distinctio ejus specifica, e figura Klugii subtus citati, optime apparet.

Sp. 4. Nigi. integer. *Thorace in medio serie duplici punctorum magnorum longitudinaliter impresso, lateribus late punctatis cum impressione disci utrinque ante medium, margine antico subtrilobato angulisque anticis integris.* (Long. corp. lin. 6.)

Habitat in Senegallia.—In Mus. nostr. Communic. Dom. Hope.

Caput antice quam in *N. auriculato* antice minus producto, lateribus mediocriter emarginatis, cornubus lateralibus partis posticæ multo minus prominentibus, haud latitudine thoracis.

Var.—Mandibulis brevibus externe in cornu arcuatum elevatis, capite postice dilatato, thoraceque dorso sulcato lævi lateribus

excavato-punctatis, elytris sulcatis, sulcis crenatis; niger immaculatus: thorace in medio serie duplici punctorum magnorum longitudinaliter impresso, antice subtrilobato, impressione nulla disci inter medium et angulos anticos, capite postice vix thoracis latitudine angulisque anticis thoracis haud incis. (Long. corp. lin. $6\frac{1}{4}$.)

Habitat Isle de Prince.

Nigidus auriculatus. *Klug, in Erman Reise am die Erde Natur. Hist. Atlas, 39. Tab. XV. fig. 10.*

Sp. 5. *Nigi. Bubalus.* “*Niger mandibulis bifidis, altera parte porrecta sublunata, interioris 3-dentata, altera majori deflexa arcuata integra.*”

“*Habitat* in Georgia”^a (America).—“*Mus. D. Drury.*”

Lucanus Bubalus. *Swederus, Act. Holm. 1787. p. 187. Pl. 8. fig. A B C.*

“*Descr.*—*Corpus Luc. Caraboidi* duplo majus, totum nigrum: caput supra medio gibbum,^b lateribus depressum, angulis thoracem spectantibus subacutis: clypeus scaber subquadratus, antice retusus et emarginatus, penicillus brunneus: mandibulæ singulæ duabus partibus divisæ quarum altera pars minor porrecta, horizontalis sublunaris, a latere interiori dentibus tribus obtusis armatæ, altera deflexa subfiliformis arcuata inflexa integra: thorax submarginatus antice flexuoso-retusus subtrilobus, dorso glaber, disco oblongo, profunde excavatorum notatus, lateribus punctatus, postice flexuosus: scutellum parvum triangulare punctatum: elytra postice rotundata, integra, sulcata, sulcis profundis punctatis, in singulo 8 vel 9.”

Sp. 6. *Nigi. Madagascariensis.*

(*Figulus Madagascariensis*, Gory, MSS. in Musæo suo.)

Habitat in Madagascar.

^a The correctness of this locality appears from the following entry, which I find in Mr. Drury's own Manuscript Catalogue of his Collection:—“*Lucanus. 30. Bubalus, Swed. MSS. Georgia. Mr. Abbot. 1785.*”

^b The descriptions and figures of the head and mandibles clearly show that, by some accident, the head had been turned upside down, its gibbous under-side being described as the upper side, and the curved-upward branch of the mandibles being described as deflexed.

Sp. 7. Nigi. ? forcipatus.

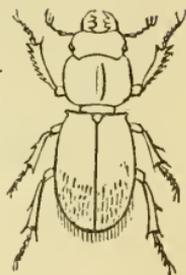
(*Lucanus forcipatus*, Eschscholtz. *Figulus forcipatus*, Dej. Cat. Edit. 2^{da}. p. 175.)

Habitat in Insula Philippin.

Descriptiones speciorum duarum ultimarum nondum editæ.

GENUS.—DORCUS, *MacLeay*.

Dorc. cancroides. *Niger nitidus, capite (basi excepto) impunctato, elytris obovatis punctatissimis, lateribus apiceque brunneis, setosis, thorace subcanaliculato.* (Long. corp. lin. $7\frac{1}{2}$.)



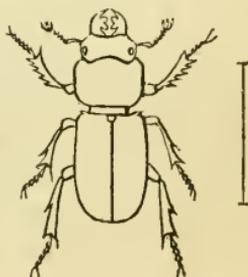
Habitat in Terra Van Diemenii.—In Mus. Soc. Linn. Lond. (olim Banks.)

Lucanus cancroides. *Olivier, Ent. I. 18. 12. tom. 4. fig. 11. Fab. Ent. Syst. II. 239. 12*. Syst. Eleuth. II. 252. 18.*

Mas.—Caput fere thoracis latitudine, antice vix transverse impressum submarginatum, impunctatum, nisi ad basin, ubi puncta nonnulla sub lente distinguuntur, opacum, postice tamen magis nitidum: mandibulæ ut in *D. obtusato* nostro formatæ: thorax nitidus niger, punctis numerosissimis minutis (oculo nudo vix conspicuis) tectus, transverso-quadratus, angulis posticis obtusis, in medio parum canaliculatus et ad marginem anticum tuberculo minuto instructus: elytra obovata in medio thorace vix latior, nigra subnitida, lateribus apiceque brunneis setis pallidis sparsis; punctatissima, punctis nonnullis lineas longitudinales subregulares formantibus: tibiæ anticæ externe 7-dentatæ, dentibus 4 basalibus multo minoribus.

(Descriptio ex individuo Banksiano, Olivierio ipso descripto, derivata.)

Dorc. obtusatus. *Fusco-niger, punctatissimus, thorace maris transverso-quadrato, angulis posticis obtusis, elytrorum lateribus parallelis, tibiis anticis 4-dentatis.* (Long. corp. lin. $5\frac{1}{2}$ — $7\frac{1}{2}$.)



Habitat in Terra Van Diemenii.—In Mus. nostr. Communic. *Dom. Ewing et Lewis.*

Caput *maris* fere thoracis latitudine, *fem.* minus et angustius, nigrum subnitidum, punctatissimum, antice emarginatum, angulis ante oculos prominulis: mandibulæ *maris* capitis longitudine, curvatæ, apice in dentem parvum obtusum producto, denteque magno interno plano difformi armatæ; *fem.* multo breviores subacutæ dente parvo interno obtuso: thorax niger subconvexus, *maris* major transversus lateribus parallelis, *fem.* lateribus rotundatis; punctatissimus, disco linea nulla longitudinali impressus: elytra nigra punctatissima, punctis nonnullis in lineas longitudinales dispositis (vix striato-punctatis) *maris* latitudine thoracis; *fem.* thorace latioribus, lateribus fere parallelis, apice rotundato: tibiæ anticæ 4-dentatæ.

Obs.—*D. Cancroidi* valde affinis at forma elytrorum thoraceque lævi abunde distinctus.

ART. XXVIII.—*Verses read before the Literary Society of Epping.*

“Tenet insanabile multos cacoethes scribendi.”

THE ADIEU.

THE anxious mother, when her child
 Its life's short path has trod,
 'Mid many a tear and accent wild,
 Resigns it to her God:
 Its little hands, long press'd in her's,
 No more their grasp renew;
 Its little breast no longer stirs—
 How woful *her à Dieu!*

Or if the boy desert his home,
 And seek a trackless road
 To wealth and fame, o'er ocean's foam,
 Still, still she prays to God—
 To guard him on the weltering wave,
 When farthest from her view,
 From peril and from death to save—
 How pray'rful *her à Dieu!*

And, oh! the wife, whose husband flies,
 At some stern leader's nod,
 To face the cannon's mouth—her cries,
 Her prayers are *unto God*;
 That in the battle's fierce array,
 When hosts the shock renew,
 HE will each danger turn away,—
 How fervent *her à Dieu!*

And lovers seated, ah, how blest!
 Upon the flowery sod—
 Their mutual love at length confess'd,
 Each commends each *to God*.
 They part—their voices tuned by love,
 Their vows again renew;
 Calling to witness Him above.—
 How ardent *their à Dieu!*

Adieu is ever on the tongue:
 Its point we seldom scan;
 It oft in agony has rung,
 And oft in mirth has ran
 From mouth to mouth—in Pleasure's hour,
 And 'neath Affliction's rod;
 But let us ne'er forget the power
 Of Him invoked—'TIS GOD.

ART. XXIX.—*Communications on the Natural History of North America.* BY EDWARD DOUBLEDAY.

[IT appears necessary, for the sake of more easy reference, to divide this article into chapters, and also to take a rapid view of the journey, as far as hitherto accomplished. The first chapter or portion of the narrative is published at p. 487,^a of Vol. IV. of this Magazine; it records the arrival of Messrs. Doubleday and Foster at New York, and a short stay at Hudson. The second portion, published at p. 21, Vol. V.^b relates solely to Mr. Doubleday's stay at Trenton Falls:

^a No. XX.

^b No. XXI.

Mr. Foster, during that period, being at Mount Pleasant, in Ohio. In the third part, (see p. 199, Vol. V.^c) the journey is continued thus—Philadelphia, Wilmington, Philadelphia; then over the Alleghany mountains to Pittsburgh; thence down the Ohio to Wheeling, Cincinnati, Louisville, and Shawnee Town; thence over land by Carmi, Wanborough, &c. to St. Louis, on the Mississippi, and up that river to Alton.—EDITOR.]

CHAPTER IV.

[From Alton up the Illinois River, &c. to Chicago, on Lake Michigan; then through Lakes Michigan, Huron, St. Clair, and Erie, to Buffalo, Niagara, and thence to Trenton Falls.]

Leaving Alton, we ascended the Mississippi in a steamer, and met with sundry flocks of parrots, a sight truly novel and delightful to me; they look most beautiful. After the junction with the Missouri, there was little of interest till we entered the Illinois river. This is a clear lake-like stream, with generally low wooded banks, for the first 150 miles. The woods were very beautiful, especially as they were now assuming their autumnal tints. The water was really covered with ducks and geese; there were numbers of wood ducks (*Dendronessa sponsa*) on the trees and also in the water; falcons, ospreys, and harrriers were sailing over head, and king-fishers were skimming along the banks.

As we proceeded up the river, there began occasionally to appear a little bit of prairie, or *pe-rairie*, as it is here pronounced: though its banks are wooded in general, yet the wood extends a short distance from the water, sometimes less than half a mile. The trees are very fine. We passed various rising towns, as Peoria, finely situated on the west bank, and another town of equal importance, on high ground, on the east bank. We of course passed a few cities which we could not see, for the trees were not yet cut; some were more conspicuous, containing one, or perhaps two, log huts. Before dusk we reached Peru, a place which will undoubtedly be of importance some day, being situated at the termination of the canal from Chicago. This canal is now in progress, but it will probably be three or four years before it is complete.

From Peru we took the stage to Chicago, a distance of about a hundred miles, mostly over prairies. Our first stopping place was Ottawa; and here the true Yankee spirit begins to appear, a spirit that I greatly admire. After lodging at a town on the road, where there are ranges of solid stone stores and dwellings rising up, we proceeded, *viâ* Plainfield, to Chicago. Plainfield is a nice neat place, with school-house and churches—quite Yankee: near to it is a fine prairie, abounding with prairie-hens, (ruffed grouse, *Tetrao cupido* of Wilson,) geese, &c. We also saw some tall sand-hill cranes,^d immense fellows.

A young man who travelled with us from Ottawa was full of information as to sporting in the West—wolf-hunting, fox-hunting, grouse-shooting, duck-shooting, fishing, &c. I longed to stay a few days at the nice neat little inn at Plainfield, and have a ramble over the prairie. The grey foxes (*Canis Virginianus* of Dr. Richardson) of the prairies, when hunted, climb the trees:—think of treeing a fox instead of earthing him! I fancy the neighbourhood of Plainfield is the best part of Illinois State, unless it be the neighbourhood of Rock River, which I have not seen. The district, which Stuart praises so much, is less healthy. We had to ford several rivers between Ottawa and Chicago, but only one so deep as to have the water in the coach. As you approach Chicago, the prairie becomes a swamp. For many miles round Chicago there is no land that can be cultivated, except at a very heavy expense, more than could possibly be repaid: although the weather was dry, we sometimes sank into the soil up to the axles of the wheels. The musk-rats^e had made their nests right in the road, or rather track, for there was no road. I was right glad to reach Chicago, for travelling over these prairies gets very tedious.

Chicago is a considerable place, but as yet contains very few fine buildings. It has few of those noble ranges of stores, with their brick fronts and granite pillars, which you see in some of the rising towns; but these, of course, will come in time. Situated as this town is, at the most southern point of Lake Michigan, and connected, as it will soon be, with the Mississippi, it must rise to be a very important place.

^d *Grus Americana*, *Bona*. we believe: there appears to be but this one species of large crane in America.—ED.

^e Or Musk-squash—*Fiber Zibethicus*, *Cuv.*—ED.

What a vast inland navigation has this continent! You leave New York for Albany, 145 miles up the Hudson; you then take the canal, 363 miles, to Buffalo; thence, by the lakes, to Chicago, 947 miles; from Chicago the canal will extend about 100 miles; then you proceed down the Illinois River to St. Louis, 264 miles; from St. Louis you may go 1,218 miles down to New Orleans by the Mississippi, or to Pittsburg, 1,145 miles, up the Ohio. You may go up the Mississippi 700 or 800 miles; and, in spring and summer, 1,500 miles up the Missouri to Yellow Stone River. I say nothing of the tributaries of the Ohio, Missouri, and Mississippi, many of them navigable from 300 to 700 miles. What idea can we islanders form of such a country as this! After surveying Chicago, we spent a very pleasant evening with an old acquaintance of mine, P. Nicholls; at night we went on board the boat.

The next day was stormy; the waves on the lake were twenty to twenty-five feet, and short; the vessel pitched most awfully. I felt somewhat sickish, and R. Foster was quite laid up. At last the wind got so high that we had to lie to. The following day we anchored off Melwakee: large boats cannot get up to the town, which is already of considerable size, and makes a good appearance from the lake. From Melwakee we sailed for Green Bay; but here our captain's knowledge was at fault; he took us first to Great Traverse Bay, which is as though, in going from St. Paul's to Somerset House, you should go by way of Aldgate Pump. However, at last, we got safely to Navarino, at the bottom of Green Bay, and there I felt myself really in a foreign land.

Green Bay is about ninety miles deep; the water, like that of Lake Michigan, is a pure lovely green. At the very bottom of the bay stands the town of Navarino. There are many good "frame" houses, two good hotels, churches, &c.; also a very good landing-place, which presented a most amusing scene to us. There were piles of timber, bales of goods, barrels of flour; there were Yankees, Irish, French Canadians, Ditto improved by a mixture of Indian blood, Negroes, Mulattoes, groups of Indians,—some in half-European costume, others enveloped in a blanket; some had their faces as red as vermilion could possibly make them; some had ear-bobs all round the margin of their ears. A man had a sort of fife, which he was playing,

much to the edification of about a dozen Indians, who were seated on a pile of planks; while one with a painted face, and wrapped in a blanket, was listening with the most complete calmness—he looked a perfect Stoic. In front of the landing lay our steamer and two or three schooners; and numbers of light birch-bark canoes were paddled about by the Indians, who were watching the ducks which swarmed in the bay.

Along the shore were the huts of the Indians, built mostly of birch bark, *i. e.* composed of poles covered with birch bark, and occasionally repaired by a “panther’s”^f skin, *Felis concolor*. Their canoes were lying on the shore, and their children were rolling on the ground and playing with the dogs. On the opposite shore stands Fort Howard, near which are some very pretty houses. The shores of the bay are often rocky, but not very high. The woods are most beautiful. There were the dark green cedars near the shore; there were the tall towering pines; the hemlocks, almost black; and there was every possible shade of yellow, brown, and red, in the dying foliage of the oaks, birches, and other deciduous trees; while the pale green of the larches, and sometimes of the poplars, completed the varied colouring of an American forest in autumn. Sometimes these colours are in masses; sometimes all intermixed. As, in descending the Ohio, the eye never seems to tire of contemplating the landscape, although it consists of but two elementary parts, high bluffs and opposing flats; so now, although you only see a variety of colouring—red, yellow, brown, green, and nearly black, mingled, or collected in larger or smaller masses—I was never tired of gazing on them with admiration as we passed along the shore.

In going out, we received a visit at the mouth of the bay from the passengers of a schooner which lay becalmed there, and two or three of them afterwards came on board; among these was General Brookes, who commanded the 23d American regiment at Lundy-lane, and was employed along the frontier during the greater part of that war; he is a very pleasant man. He gave me many particulars of that battle, and one remarkable instance of the fury with which it was contested. On the morning following the battle, thirty-seven Americans and as many English were found dead in pairs, having bayoneted one another. We had also on board five Indians, the best

^f Better known in this country as the *puma*.—ED.

educated that I have yet met with: one, in particular, was a well-informed, pleasing young man, a priest among them. I learned from him that their settlement contains about six hundred; that they have a school, a public library, &c.; that they are going to exchange some land they now occupy for some in the neighbourhood of Green Bay; that they are episcopalians in religion, &c. We had also on board the captain of the boat in which Miss Martineau visited the island of Machinan, and a young man who acted as her guide over the island. I was sorry not to be able to avail myself of his kind offer to guide me, having only time to climb up to the fort to enjoy the glorious view over the two lakes and their shores and islands.

The *old* fort of Michilimacinac was on the main land. The Indians assembled there under pretence of ball-playing, and threw the ball into the fort; they then got the gate open under pretence of seeking the ball: they entered, murdered the garrison, and destroyed the fort. The British then built the old fort of Machinan. The Americans have now a tolerable force there, of which the British obtained possession during the late war, but afterwards surrendered it to the Americans. It would be the Gibraltar of these lakes. At this fort we took on board Major Forsyth, who had been stationed here at the Sault de St. Marie.

Machinan is a small island, and the town also is small; the houses are old and French built; many of them are deserted and decaying. It is a most wonderful place for fish; its white-fish are really extremely delicious; and they take cat-fish one hundred and seventy pounds in weight, while in Ontario the heaviest cat-fish weigh only forty pounds. The French here are a lazy worthless set, and so are the Canadians. I felt quite disposed to have staid two or three days at Machinan, and, having hired a birch-bark canoe, and a guide, crossed, partly by land and partly by water, carrying the canoe overland, and just visited Lake Superior; but I learned from Major Forsyth, to whom General Brookes introduced me as soon as we reached Machinan, that there had been a heavy fall of snow on the 12th, and that it was too late in the season to undertake the journey. Major Forsyth had himself suffered much in getting to Machinan.

During the present year, there has been an immense deal of

fishing done in Lake Superior; in fact, the fishery here promises to be a very great and important trade. Hitherto the trade on the Lake has been principally in fur, but the Company's schooner has this year realized a large amount, and there is no doubt that next year the fishery will be well attended to. The climate is very cold; even the potato this year has failed.

Leaving Machinan, we entered Lake Huron. I have little to note, except the extreme beauty of its clear green waters, and the countless thousands of its geese, ducks, terns, gulls, and divers; the glaucous gull, or at any rate one without the black feather, was very abundant. There is a vast variety of ducks, and amongst them, the surf duck, *Oidemia perspicillata*, is not at all rare.

We left Lake Huron by the River St. Clair, as a matter of course. I was awakened at five in the morning by our stopping on the Canada side for wood; it was a cold night, so I had slept in the cabin instead of in my state-room on the upper deck. I got up to look about, but it was dark, or nearly so; there was the clamour of ducks and geese innumerable, and the yell of Indians to be heard, and there was a glorious sky above us. I paced the upper deck till sun-rise, whilst the wooded banks of the river St. Clair rose more and more distinctly on my view. There is nothing very peculiar in them; but the river is most beautifully clear. As we entered the Lake St. Clair, the flocks of geese and ducks still increased; there were broad black patches of them on the water, looking like islands.

Along the shore there soon began to be more signs of cultivation. The settlers here are mostly French. The land was curiously laid out by these people: every man must have a little bit of the shore of the river or lake to himself; so they laid out the ground in little lots of a few yards only—I believe twenty rods—and running back one, two, and even three miles; so every farm is about the form of a long straight drive to some of our old English mansions. The French make but poor settlers in a new country. When they first settled in Indiana, they used to assemble together to clear the timber; three or four would begin at once to chop all round the trunk of a huge sycamore, or some such tree; when it began to totter, away then all ran, and fortunate was that day in which no one got

hurt by a falling tree ; on these occasions the saints were especially thanked, and the evening was spent in rejoicing. Even to this day, they leave all their manure in their yards and stables, and when its accumulation is troublesome, they move the buildings, and erect new ones elsewhere ; yet the land is exhausted for want of manure.

We reached Detroit about ten o'clock, and lay there nearly all day. It is a much larger town than I had anticipated. A rail-road is to be made from hence, across the country, to Lake Michigan. I never saw such beautiful fur caps and robes as at Detroit. I longed to buy some buffalo-robes for my friends in England, but thought the incumbrance of them would be too great. No person here rides out in wet or cold weather without a buffalo-skin wrapped round his feet and body. The land, for some miles round Detroit, is poor. Many of the streets in the town have planked side-walks.

From Detroit we proceeded onwards, touching at Huron, Cleveland, &c. all more or less flourishing towns, but Cleveland the most so by far, being, at the termination of the canal, from Portsmouth, on the Ohio, to Lake Erie, a distance of about three hundred and ten miles. These towns show clearly the wonderful spirit of the Yankees. Cleveland is really a fine town ; broad streets, noble stores, good and well-kept hotels, one of which, the "American House," is certainly splendid ; I could not help contrasting it with the vile and filthy hotels at Cincinnati. There is, at present, a war going on at Cleveland, between the inhabitants of one side the river and those of the other, which has once broken out into violence ; it only wants a Boileau, to make a good thing of it.

At Erie there is a light-house, which is lighted by gas from a mineral spring close by : sufficient gas accumulates during the day to furnish the supply needed for the night.

After leaving Cleveland, little occurred worthy of notice on our voyage to Buffalo ; as you approach the Pennsylvania shore, you see more of hills, the spurs of the Alleghanies. There are many very nice farms, and good thriving ports, though in some cases the harbours are not very good. It was early in the morning when we reached Buffalo. All impatience once more to behold Niagara, I took the earliest conveyance for that place, and, in my hurry, nearly forgot some of my luggage, and afterwards my dinner. How the Falls grow on you !

Every view I take of them makes them appear more wondrous, and the whirlpool is scarcely less so; the rapids below the Falls are also very fine.

After leaving Niagara, I again visited Trenton, and staid four days; on leaving, Mr. Moore would not take a cent from me; I was sorry for this, because it will make me hesitate about staying with him so freely another time. You would have laughed to have seen me helping to put the corn in the cribs, to get in his haricot beans, and to fan his wheat; or riding home with him on a load of straw. It is thus that I get on pleasantly through the country—pleasantly to myself and pleasing others too; whilst Professor Daubeny, of Oxford, (who accompanied me to Trenton,) with a servant to wait on him, is full of troubles and vexations I never dreamed of.

CHAPTER V.

[Written at New York, and containing observations on the whole of the previous Journey.—ED.]

New York, Nov. 14, 1837.—I have sent the skin of an Opossum, caught at Wanborough. I could not skin the tail the usual way, and I learn that it is impossible. I was much amused with seeing this one "*possum*," *i. e.* sham dead; when the dogs had caught him, he lay with his mouth open quite still, and even allowed some of the party to blow smoke down his throat without moving in the least; but, on being left alone, he soon woke up. Opossums are easily caught, if you can only once get a sight of them; a slight blow will make them *possum*, and then you may carry them anywhere.

The insects in the boxes will speak for themselves; but I will now make a few general observations on the Entomology of this country, as far as I have at present observed it.

I will first tell you, that I have paid more attention to *Lepidoptera* and *Coleoptera* than to the other classes, consequently the boxes will show an unfair proportion of these two classes. I will first speak of the immediate vicinity of Trenton Falls.

Coleoptera, with the exception of some few species, are by no means numerous, as I have before said; you may, throughout the summer, go into the woods, and turn over logs and stones for a whole day, and not obtain twenty beetles. Beating is of very little use. Sweeping is somewhat better;

but you can nowhere, that I have been, meet with the hosts of *Curculionites*, *Elaterites*, and *Alticites*, that we find in England. Some few *Malacodermes*, one or two *Alticæ*, a *Cryptocephalus*, and a few *Notoxi*, will be all to repay you for the labour of many hours. From May till September you will find multitudes of Coleopterous larvæ in rotten stumps, on the huge trunks of fallen trees; but, of the perfect insects you rarely find many. Perhaps, in the trunk of a pine or a hemlock, you may see a *Buprestis divaricata* just putting his head out of a hole, or find some *Elaterites*, or *Melandryæ*, or some fungus-eaters, in tolerable abundance. I cannot imagine what becomes of all the larvæ; I suppose they turn to beetles; I know some of them do so, for they become "horn-bugs," *i. e.* *Prioni*; of these you see few larvæ, in proportion to the number of perfect insects. They are much esteemed as a bait for trout. Although *Coleoptera* are thus generally rare, some few kinds appear in profusion. Whilst of most species there are but one or two individuals to be found, some appear in countless thousands; this was the case with two species of *Melolonthites*: the first of these (*Rhizotrogus ferrvens*) answers to our common English cockchafer, *M. Vulgaris*; the second (*Dichelonyx linearis*) to our *Hoplia*, or *Anisoplia*. These fairly strip the beeches and maples, especially the young brush-wood, where the woods were a little open, beyond the High Falls. The *Melolonthites* are called "dor-bugs."

This season the "Lightning-bugs" (*Lampyrites*) have not been very common. I think you will find that those I have sent belong to three species: the one most highly coloured gives a reddish light; the others much paler. The flashing light which they emit I have already described. When the insect has settled on a branch, a bright light shows you where he is, but in a moment all is dark; but if you look very carefully, you will observe a very pale phosphorescence, and then you may capture him. These Lightning-bugs delight in swamps, and swamps are not very well suited for running about by night: this may account for the small number sent. I used to delight to sit in the old porch, with my worthy host Mr. Moore,[§] or my friend Goodhere, and watch their bright scintillations in front of the house.

§ In a former letter Mr. Goodhere is spoken of as the owner of the house: this was incorrect.

I expected to have found many *Cetoniites* in the flowers, but met with one only, *Cetonia fulgida*; the others are from rotten wood. When the *Viburnæ* were out, there were *Lep-turæ*, *Pachytæ*, *Clyti*, and *Mordellæ* on them; with these exceptions, I found very few beetles on flowers.

In *Orthoptera* there are countless myriads of grasshoppers in some sandy situations, but they were all in the larva and pupa state, till just as I left Mr. Moore's. There is one large species, very common, with a yellow margin to its under wings; when flying it looks exactly like *Vanessa Antiopa*: it has a habit of hovering in the air like a kestrel. I saw another species at Troy and Little Falls, which, as it flies, repeatedly cries "click, click." The hot rocks about Little Falls seem a great place for grasshoppers, but the number of species appears to be but small. The *Forficulæ* (earwigs) seem altogether unknown here (at Trenton), but I found one near Cincinnati, and I took a specimen of *Labia minor* at William Clark's farm, at Wanborough. There are *Blattæ* (cockroaches) beneath the rotten bark, and *Achetæ* in profusion under stones, but they were all larvæ. The absence of earwigs, as well as of snails and slugs, is a happy thing for the gardener.

As to *Neuroptera*, Trenton is by no means a good locality for them, there being no stagnant water. I saw one or two *Æschnæ*, but could not get them; also one species of *Libellula*, with clouded wings, and one or two species of *Sympetrum*. I only saw one *Calepteryx* over the river, and this I could not get. In the box first sent you will find one or two large things like *Perla*, (*Pteronarcys Proteus*), and one or two smaller ones (*Isogenus frontalis*); also two allied genera which fly to the candle (*Chauliodes pectinicornis* and *Merope tuber*). You will also see in the box two or three *Panorpites*, one of them (*Bittacus*——?) so like a *Pedicia* or *Tipula*, that, while flying, I quite supposed it to be one. I took it in a dark shady wood. The *Phryganites* are not numerous. On the 31st of October I walked along the rocks up to the fourth fall. I could not venture beyond, as a shelving ledge of limestone, about four inches wide and covered with ice, offered too slippery a footing. It was a glorious day,—the sun bright and calm. The frost had spread a white mantle over the trees within reach of the spray: from the "Shower-bath-rock"

hung long icicles, which you might have taken for stalactites. Yet had the sun power to awaken into life some little *Philopotomi*, which were running about on the rocks. I saw in one place there was a great bustle amongst them; eight or ten were huddled together, and were apparently very contentious and quarrelsome; the object of their strife I found to be an apterous female: I carefully searched for more, but found only four or five, there being at least ten males to one female.

With the exception of these, a few flies, and one moth, very much resembling our *Geometra dilulata*, all living things were gone. The blue-birds, the tanagers, the robins, the sweet little wood-thrushes, and the whole tribe of warblers were gone; and, excepting two or three blue jays, I do not know that I saw a live bird at Trenton during my four days' stay: but it was most delightful to revisit my old haunts and my old friends.

Now for the *Lepidoptera*. In the spring, butterflies are not numerous; a few wasted specimens of *Vanessa Antiopa*, *Atalanta*, *G. aureum*, and a few fresher ones of *M. Euphrosyne* and *Lycæna Phlæas*, are about all that you see. In summer, one or two *Hesperia*, and a small butterfly allied to *Melitæa*. You see, perhaps, a *Pontia* or two, and one *Polyommatus*, very like *P. Argiolus* in colour and habit. Still later in the season I met with two species of *Argynnis*, and one of *Limenitis*, also one *Thecla*. But I forgot *Papilio Turnus*, which was very common at the flowers of the lilac. How delighted I was when I saw the first of these sail majestically by the house! I seized my nets, and, after a considerable chace, captured him. *Sesiæ* and *Macroglossæ* we also captured at the lilac bloom; they are called "Lady-birds."

As soon as it was dark of an evening the house presented a sight which I should think was rarely witnessed before, either in an American or English inn. I hope you have, ere this, got a sketch of the house which I sent you; the low part, to the right of the sketch, [see p. 200,] contains the bar-room and my sitting-room, separated only by an entry, where is the old Dutch porch in which I have spent so many happy hours. Now when I say the bar-room, do not suppose it is a bit like the bar-room of an English country inn,—a place for people to smoke and get drunk in,—no such thing; the bar-room is as quiet a place as your room, where the Club cabinet is. It is

about twenty feet square, with a counter on one side, and a neat glass case at the back, containing, of course, sundry decanters, &c.; and besides this, a little cabinet, with a glass door, containing specimens of the brilliant crystals found in the neighbourhood. There you will also see two little vases, in which the wild flowers of the woods mingle with their brothers from the garden, and often exceed them in beauty. There is a beautiful stream of water always flowing from a little pillar on the counter, and near this is a desk. On one of the walls is Mitchell's map of the United States, supported by two fine paintings by Italian artists; two or three other paintings and prints decorate the walls, and you will sometimes see a solitary chair in the middle of the room; but there is no sitting and smoking and drinking allowed here.

My sitting room was of similar size, and decorated with sundry good prints, also the usual allowance of chairs and tables; it had four windows—two in front, and two at the back looking towards the woods. At night Mr. Goodhere and I lighted up both these rooms, the bar-room windows in front, and mine towards the woods. Sometimes we merely threw up, sometimes took out the sashes. In addition to this, Mr. Moore lighted up the window of his own private room up stairs, looking towards the woods; and I am indebted to him and Mrs. Moore for the capture of some of my finest specimens. Some nights they really swarmed, other nights they were very scarce, and this without reference to the weather. As to the proportion which the species bear to each other in number, my boxes will speak; I have not time.

There is one remark I have to make as to the *Geometrites* in England: we beat many hundreds out of the brushwood, and some few *Boarmiæ* on the trunks of trees. Here it is the reverse; every thing sits on the trunks of the hemlocks, birches, and maples; scarcely any can be beaten out. Even the species so exactly like our *procellata* sits on trunks. But those little pure white beauties, and one or two others, were occasionally beaten out. In going through the woods you will often see a tall hemlock blown down, with a vast mass of earth still adhering to its roots as they lay upturned. Here you may be sure to find many *Geometrites*, but as they all fly off at once, you are not so sure of catching them. *Tortrices* and *Tineæ* are scarce; I saw very few. The *Crambi* seem just

like ours, and these are abundant. There are some very interesting things allied to *Polypogon* and *Botys*.

Diptera are not numerous, with the exception of some few kinds; I nowhere found the swarms of small *Diptera* which we so frequently meet with in England: musquitoes rarely came to the house, but there were many in the wet woods.

In *Hemiptera*, the *Cimicites* and *Cicadites* were abundant; but owing to so many of them being in the larva state, up to the time of my leaving Trenton for the west, I did not get so many of them as I could have wished; there were also two things which combined to lessen my collection in this and some other classes: the abundance of nocturnal *Lepidoptera*, and the scarcity of *Coleoptera*. At night I sometimes, with the aid of my friends, obtained so many moths, that it took me four or five hours the next morning to spread them. Then I had to take others off the boards, ticket them, and put them away; this took much time: then the scarcity of *Coleoptera* often made me spend the whole morning in searching for them, most laboriously, and to very little purpose.

Hymenoptera. These I collected very carefully. There was by the side of one of Mr. Moore's fields a sloping bank, covered with raspberry bushes; when these were in flower this was a grand place for bees, and the fossorial *Hymenoptera*, though I took but few of the finer kinds of the latter. Bees were not nearly so numerous as R. Foster afterwards found them in Ohio; however, there are among them some very interesting things. Of *Tenthredinites* I rarely lost an individual. I expected to have taken many *Ichneumonites*, but was disappointed; there are, nevertheless, some fine species about Trenton. Of *Chalcidites* I found scarcely any.

You know I left Trenton towards the end of August, to proceed towards the west. In one respect I erred; the main body of butterflies had not appeared at Trenton, but when I reached a warmer latitude many species were over. As I did not intend to spend much time in any one place, I did not go prepared to do much in collecting; however, when I arrived at Cincinnati, I could not help staying a day or two for this purpose. My first excursion was to the Kentucky shore of the Ohio. I crossed the ferry, and strolled along the shore to where Mr. Bullock once lived; then I turned off by a little brook into the woods. The trees were large: one hundred feet

high, and eighteen feet in circumference, was the size of the majority. There was no brush-wood; but in the open spaces there grew a great abundance of *Veronica praxalta*; I am not sure that is the right specific name: on its flowers were swarms of *D. Archippus*, and some few *Cynthia Huntera*, but I was determined now to collect *Coleoptera*. On the flowers were innumerable *Telephori*, or some nearly allied genus. Almost all the insects I took at Cincinnati were captured in this one walk. I hunted well the rotten logs and stumps, and altogether took a good number of *Coleoptera*. The *Galeritæ* and *Passali* I found in the stumps, under the bark, but the greater part of these were immature; they were very plentiful. September, here, is evidently the great *Coleoptera* and butterfly month. An old rotten plane-tree, which had apparently fallen about two years, furnished me with the smaller *Coleoptera*, also a very considerable variety of wood and fungus feeders, as *Anthribites*, &c. Two or three days afterwards I visited the same spot again, with much less success. I took a walk to the north of the town with T. G. Lea, the brother of J. Lea, the great American conchologist—*par nobile fratrum* in real truth, if kindness, private worth, and scientific knowledge make any noble. We were rather more occupied with plants than insects. In this walk I found hundreds of *Lyttæ atrata* on *Acneida cannabina*; they had completely stripped it of leaves. It is wonderful in what profusion some species are found in this country, though, generally speaking, there are few individuals compared with the number of species.

We next collected at Wanborough. Here the prairies had clothed themselves with flowery robes; hundreds of species of all colours were mingled; it was a waving mass of flowers: still, insects were not numerous, except some few butterflies. In England, at the same season, every branch of *Aster* is covered with *Eristalides*, *Syrphi*, and *Helophili*: here scarcely one of these was to be seen. There were a few fine *Hymenoptera* on the *Solidagines*; also a beautiful *Clytus*,^h and a small *Cetonia*,ⁱ not very plentiful, though we afterwards found the latter common in the neighbourhood of Lower Alton. I imagine that the nearly annual burning of the grass of these prairies diminishes the number of insects, or altogether destroys them. I think

^h *Clytus Marus*, Say.

ⁱ *Cetonia sepulchralis*, Fabr.

the remark has been made before, in reference to Van Dieman's Land.^k

At Alton, on the Mississippi, we took a good many things. There were numbers of *Altica* on sumachs, near the town, and *Cetonia* on the flowers of the *Solidagines*; on these I also took one specimen of a curious Coleopterous insect, which I first imagined to be Dipterous; secondly, I supposed it to be a *Stylops*; and at last, on a more close examination, I conclude that it is Coleopterous (*Myodes stylopides*). On the shores of Lake Michigan I took a few insects, and a few at Niagara.

A few words more on butterflies. *Papilio Philenor*, and *P. Sinon* were not uncommon, neither was *D. Archippus*. *Philenor* is easy to catch, alighting often on flowers, and still oftener on the mud in the roads, or rather cart tracks. In these situations, the different species of *Colias* absolutely swarmed: I am certain I have sometimes seen hundreds on the mud within a few square yards. This was particularly the case as we travelled from Shawnee town to Carmi, but then I could not catch them. I however caught a good many at Wanborough; one, a plainly yellow one, is very hard to take, it flies like our English *Rhamni*, and rarely settles on the mud. I only found a very small *Terias* (*Terias Delia*), in plenty at Alton, and these only on the high bluff which overlooks the town, and the "Father of Waters." The *Noctuae* taken at Wanborough, were all, or nearly so, caught at the lights. In summer, I think Mrs. Prichard's would be a fine situation for them.

I may add to what I have already said about the songs of birds; that I do not think the woods here so musical as our own; we have however few birds equal to the *ferruginous thrush*, and the *rose-breasted grosbeak*. And now for my long promised list of birds round Trenton. There are two or three species of *hawks* which I could not get hold of; first, a large hawk, called there *hen-hawk* (*Buteo borealis*),^l looking very like our *common buzzard*, as it flies. One day, I saw a bird of this species seated on the top of a tall hemlock, and a *king-bird* watching him; I had often seen this before, but was never more amused than at this time. The moment he left

^k In a paper communicated to the Entomological Magazine, by William Swainson, Esq.; and printed in Vol. II. p. 503.

the tree, the king-bird attacked him; when he again settled, the king-bird perched close by his side. Now and then he would dart furiously at his head, which the hawk would drop to avoid the blow; then he would perch again, and wait till the hawk moved—the instant he flew, the king-bird was after him, flying up above him, and then darting down upon him. I watched them for a long time, and was then forced to leave them. There are two smaller hawks, whose cry resembles our *sparrow-hawk*.

The only owl I have got hold of, is the *Strix Virginiana*. I saw at Niagara a *Strix cinerea*, perched on a tall tree. There are also at Trenton one or two other owls, which I have seen on the wing in the evening. *Strix Asio* is found there, according to Mr. Goodhere.

Sturnella Ludoviciana, (Meadow lark,) common in the low meadows at Trenton village.

Icterus Baltimore.—Not common. A pair had a nest about half-way to Trenton, in a very conspicuous spot in an orchard. The males get on a high tree and sing—not much of a note—as though they were talking to themselves; they look most lovely as they fly.

Icterus pecoris.—Very common now, in flocks of thirty or forty, wherever any cattle are feeding.

Icterus Agripennis.—A most common bird in the low meadows, but rare near the house; common at Trenton, Norway, &c. They are most amusing birds, especially when singing; they flutter their wings, set up the feathers on their heads, and labour away as hard as they can, repeating a few short notes; but I cannot think there is much resemblance between their song, and the words given in Nuttall. Now they are all in autumn plumage, and puzzled me at first. I have seen no species of the genus *Quiscalus* here, but have elsewhere seen many individuals of *Q. versicolor*.

Crow (Corvus Americanus. Wagler).—Different in flight, as well as in habit, from our own. Very plentiful—eat the fresh planted corn, carry off chicken, &c.; in fact, do all that our *crows* and *rooks* do together; seldom form broad flocks like our rooks.

Blue jay (Garrulus cristatus).—Very common. Come after the fresh planted corn. Often scream most terribly, sometimes much like the cat-bird.

Black-headed titmouse (Parus atricapillus).—Was very common when I first went to Trenton. The birds seem to disappear from the houses and open fields in summer, and have now reappeared in swarms. I may be wrong, but think the note of this bird more like our *cole tit's*, than the *marsh tit's*. It is certainly not the same as our *Parus palustris*.

Bombycilla Carolinensis.—Cedar birds, or cherry birds, swarm. They are as tame and bold as possible; they steal the currants by wholesale, also cherries, peas, &c. They are the most affectionate birds possible. The people in this country, when talking together (that is, intimate friends), often put one arm over the other's shoulder; or if sitting together, have hold of one another's hands. I have seen two senators standing, the one having his arm over his friend's neck, his friend at the same time having *his* arm round the other's waist; or you will see one person sitting down, and another talking to him, standing all the while, and stroking back his friend's hair, or doing something of that kind. Well! the cherry birds have learned the ways of the people. They sit all in a row on a branch, and as they cannot put *arms* around each other's necks, they lay their heads together in the most fond and loving manner. You may see them rub their heads together, and then fairly rest one on the other's shoulder, &c. I would not hurt a cherry bird, if they cleared every cherry and currant out of my garden.

King-birds and *pewees* are very common.

The *American redstart*, (*Setophaga ruticilla*) is not very common at Trenton, but I have seen several in the low bushes in the less rocky parts of the creek, and near the house. They keep mostly in the bushes, and sing very prettily.

Muscicapa cœrulea, I think I have seen once or twice, but it is no easy matter to decide upon birds at a distance. There are several other small birds I cannot make out, and amongst them some *Vireos*. I know only *Vireo olivaceus* for certain, but am convinced I have seen others.

Turdus rufus, one of the sweetest songsters of this country, but rare at Trenton.

Cat-bird (Turdus felivox).—Very common. Often saw its nest; put itself in very odd postures while singing.

Turdus migratorius.—Common, and very tame.

Turdus minor and *Wilsoni.*—The note of the latter the most

singular I ever heard; I can liken it to no sound that I know besides.

Seiurus Aurocapillus.—Very common in the low moist parts of the woods; nest most beautiful. There is a singular mixture, in the habits and looks of this bird, of the thrush, wag-tail, and pipit. I think I have also seen *Seiurus aquaticus*.

Sylvia æstiva.—Very common. If I am not mistaken, I have seen both *S. maculosa* and *pardalina*. The latter is not rare at Trenton, especially a good way down the creek, where the banks are low.

Sylvia Blackburniana, icterocephala, varia, and pinus—Not uncommon in the spring.

Sylvia Canadensis.—Rare, even in spring; none to be seen now, nor of the four previously mentioned species.

Vermivora Chrysoptera.—Only seen for a fortnight in the spring. I have seen other *Sylvia*, but cannot precisely name the species. I suppose the *wren* I have seen, is *Troglodytes fulvus*; at any rate the tail is longer than ours; there were plenty along the creeks, and often near the house.

Of *Blue birds* there were plenty. I do not see that Nuttall mentions the dull brown colour of the young—I have seen none all over so, but about two or three weeks since they were all party-coloured—I suppose the young flew whilst I was away, so that I did not see them in their complete nestling dress. *Scarlet Tanagers* were not at all numerous.

Fringilla cyanea.—Several pairs about, but not often near the house.

Fringilla melodia (Song sparrow).—Very common and tame. Called here “*chip birds*,” from their note; used to come to be fed with crumbs at the porch, and would fly off with them to their young ones. I used to wonder how they could cry “chip,” with their mouth full of biscuit; afterwards they came with their young to be fed.

Fringilla socialis.—Very common, and one or two other *Fringillidæ* I could not make out.

The pretty little *yellow birds* (*Fringilla tristis*), are as common, or more so, than the goldfinch in Britain, but are now changing their colour. They eat peas by wholesale—their note is very pretty; in fact, they take the place of our goldfinch.

Common Carolina Cuckoo (*Coccyzus Americanus*).—Very

common, and possibly the other species, but I did not distinguish it.

Golden-winged woodpeckers.—Very common.

Picus pileatus.—Not common.

Picus erythrocephalus.—Very common on the Utica and Trenton roads.

Picus villosus, and *Carolinus.*—Not very common.

The little *Picus pubescens* comes about the house. Just before I left, Mr. Goodhere and myself watched one picking the larva of a *Selandria* off the leaves; he would hang to a twig or a leaf, back downwards, and then throw himself to another, &c.

Sittæ Carolinensis and *Canadensis*, are not at all numerous.

Humming birds are still about.

CHAPTER VI.

[Philadelphia, Wilmington, Baltimore, Washington, Richmond, Raleigh, Columbia, Charlestown.—ED.]

Washington, 22d November, 1838—All the way from New York to Philadelphia, the snow covered the ground. It was very foggy going down the Delaware river: we twice struck other vessels. The second might have been a serious affair; we stove in her bows, and one man was knocked overboard: I doubt not but they got the vessel safe to shore, but she leaked very fast. The steam-boat took us to Wilmington. Proceeding from Wilmington by railroad towards Baltimore, we crossed the Susquehanna in a steam-boat. The creeks afterwards are crossed by long bridges. The country here appears poor; the corn was still out in many of the fields. Here the *arbor vitæ*, or “cedars,” as they are called, give place to the red cedars, of which there are entire woods. The numerous scattered ones in the fields, and the little clumps near the houses, have a singular effect, from their tall conical form. The woods contain a dense undergrowth of *Kalmiæ* and *Rhododendra*. On this railroad, the rate of travelling is sometimes thirty miles an hour. The railroad enters Baltimore through the suburb called Jones’s Fall, the part which suffered so much from the flood this spring.

After seeing Philadelphia, I was disappointed with Baltimore. The Quaker city, with its white marble banks, colleges, mint, and private houses, quite eclipses the monumental city. Still in Baltimore, are one or two good streets, a huge hotel, and many good private houses. The New York fashion of large marble steps and massive iron railings, seems here carried to excess. Lottery offices swarm, and negroes are tolerably plentiful. The Catholic Church, in a Moorish style of building, is very fine. The Unitarian Church, with its inscription $\tau\omega\ \mu\omega\nu\varphi\ \Theta\epsilon\omega$, is a neat building.

There are nearly fifty churches in Baltimore. The pillar to Washington is very fine, something like that to the Duke of York in Waterloo-place, but more handsome, and of beautifully white marble. In the south, it is customary for a slave to come into your room of a morning, to bring your shoes, brush your coat, &c. In Virginia, they give you a fire in cold weather, without any extra charge. At Baltimore, we first met with the former custom. About seven, a negro came in with my shoes, and a whisk of broom corn, used as a clothes brush throughout the United States. I was not aware of this plan, but soon got used to it, and liked it well enough.

We spent a very pleasant day with a gentleman resident here: he is very fond of flowers. I learn that our English plants die here in the winter, and this not from the cold, but from the power of the sun on them in frosty weather. Farther northward, where they are covered by the snow, they succeed better.

We left Baltimore on the morning of the 19th November, by railroad for Washington. Country poor; red cedars, *Kalmiæ*, *Magnolia glauca*, and *Bignonia radicans* abundant. We reached the federal city about twelve, and of course took up our abode at Gadsby's, 200 yards from the Capitol, and rather more than a mile from the residence of the President. There are now few people here of note: Gadsby's seems deserted. We strolled about the city, and found it much larger than I had anticipated, but still there are few good houses; much building is however going on, and contemplated.

The next morning we visited the Capitol, a truly noble building, standing in a large plot of ground, rather more than thirty acres, laid out as pleasure ground, with fountains, trees, lawns, gravel-walks, &c. The south-west front has a fine

portico, approached by a long flight of steps, beneath which is a beautiful fountain: the wings are plain. The other front has columns throughout its entire length, both centre and wings; the portico is very fine, the capitals of the columns are most beautifully worked. On each side of the door is a statue, one representing Mars, the other Peace. One part of the building I do not like, *namely*, the huge dome in the centre, it appears quite too large: it covers about $1\frac{1}{2}$ acre; it is 280 feet high, and there is a beautiful view of the city and surrounding country from its summit. We had letters to Colonel Burch, who is principal clerk; he showed us every part of the building, with the exception of the library, which we could not enter, as the librarian was out. There are upwards of a hundred rooms for committees, &c. &c. The rotunda is truly fine. There are paintings round the walls, of General Burgoyne's surrender, Lord Cornwallis's surrender, the signing of the Declaration of Independence, and General Washington resigning his commission. In the centre is a bronze statue of Jefferson. The senate-room, and that of the representatives, are fine semicircular rooms; I think the latter is most splendid, as well as the largest. These republicans quite outshine us.

At night, we went to Colonel Burch's, and spent a most agreeable evening. I was exceedingly delighted with an old negro fiddler, playing to amuse the children. He had been a slave to Mrs. B.'s father, and though his freedom had been given him, he would not leave the family; in fact, they now support him. After tea, all the young folks had disappeared; and as the notes of the fiddle told us what was going forward, we went down into the yard, and there were the young folks dancing in the open air, with no light but that of the stars shining brightly above; the old man was fiddling away most zealously. Our candles showed us the negroes standing around the happy young people, and the still happier old fiddler. The whole scene was quite new to me, and I looked on with the greatest pleasure. The old man afterwards came into the drawing-room, and played us some nigger tunes, as "Jim Crow," "Possum up a gum-tree," &c. Heraclitus would have laughed to have heard and seen the old man. He appeared most sincerely attached to the family; the children called him "Uncle," a term commonly applied to old house

slaves, who, I believe, are rarely ill-treated, and mostly very kindly cared for.

The next day we visited Mount Vernon. We left Washington just after breakfast; crossed the Potomac on a long bridge, with a drawbridge at each end, and proceeded along a tolerably good road, but through a rather poor country, to Alexandria. Between this town and Mount Vernon the country is rather better; there is here and there a good farm, but the soil appears much exhausted. The blue-birds, and some others, have not yet left: do the blue-birds, or any vireos winter here? As we entered the Mount Vernon estate, a ragged negro child opened the gate for us: there is a long road through a wood of pines, junipers, red cedars, oaks, &c. with here and there a Persimmon, and an undergrowth of *Kalmia*, *Rhododendra*, &c. This road brings you to the buildings at the side of the house; you enter by a gate the lawn at the back of the house, which a little resembles an old English farm-house. On your right hand, as you look from the back door, is the garden, a walled one, with a greenhouse, which is sadly out of repair, having been partly accidentally burnt, and never repaired; it contains a sago-palm, a lemon, &c., which were there in Washington's life-time: the garden is overrun with weeds. Many of the outbuildings are tumbling down, and the house itself is much dilapidated.

In front a plot is laid out as a flower-garden, in the old English style; little round and star-shaped beds, with box edgings and gravel paths between them. I got some seeds of an old honey locust, *Gleditsia Triacanthos*, *Magnolia grandiflora*, and a species of holly, from this place: every thing here is as the general left it. After passing the house a lane leads you by the side of a sort of kitchen garden to the orchard, where is the general's tomb, or rather the family burying place: this has lately been enclosed by a plain brick wall, with iron gates, over which is a tablet bearing this inscription:—

WITHIN THIS ENCLOSURE
REST
THE REMAINS OF
GENERAL GEORGE WASHINGTON.

Within the enclosure is a mound, covering a brick vault, with a plain square front, having an iron door below and a tablet above: on the tablet are engraved two verses from the New Testament, John xi. 25, 26. On entering the house we saw in the hall a key of the Bastile, in a glass case, and several prints, the property of Washington. The rooms are plain and old-fashioned, but the furniture is new; this I regretted. I left Mount Vernon with mixed feelings of sorrow and pleasure: I was pleased to have seen such a place, grieved to have seen it as it is.

Having returned to Washington, we next day visited the residence of the President, the state offices, &c. I was principally interested with the original Declaration of Independence, Washington's Commission, the original Treaties with Foreign Powers, &c.

Charleston, South Carolina, 3d December, 1837.—Between nine and ten P. M. on the 22d of November, somewhat less than thirty, but more than twenty persons might have been seen, had it not been too dark, proceeding in one omnibus, of the usual London size, from Gadby's Hotel, at Washington, to the wharf, where laid the steamer which was to convey them down the Potomac. 'Twas a dark, thundery night, illumined now and then by a flash of lightning. After much confusion, arising from some passengers not being able to find seats, and consequently tumbling backwards, of which *some* a certain Δ was *one*, after much shaking and much jolting, the omnibus arrived in perfect safety at the wharf, the wind blowing, the lightning flashing, and the thunder roaring. At three A. M. we started, and landed at eight, on the banks of the Potomac, about nine miles from Fredericksburgh; and then we took a stage to that city, and thence, by rail-road, we proceeded to Richmond. The country is generally poor. We stayed an hour or two at Richmond, and then took the stage for Petersburg, which we reached at night.

The houses in Virginia certainly have an English look; they seem much out of repair. The country is going to ruin, and is only supported by *breeding* negroes!! for the Alabama and Texas markets, and by tobacco-growing; but for this latter the land is getting too poor, and Ohio is taking the trade out of their hands. From Petersburg we took the rail-road for Gaston, on the Roanoke, and thence proceeded by stage to

Raleigh, the capital of North Carolina, and thence to Cheraw, just within the state of South Carolina. The soil appears principally to consist of white sand, on which grow pines; from these turpentine is obtained, by cutting a notch in the bark, and 'scraping it off' as it exudes. Here and there are swampy places, where grow *Magnoliæ*, *Lauri*, *Smilaces*, with their blue, scarlet, and black berries, *Sarraceniæ*, with their pitcher-shaped leaves, &c. In the pine barrens there are, besides pines, several species of oak, *Styraciflua liquidambar*, &c. Among the plants *Yucca filamentosa* is the finest that I saw.

We stayed to rest at Cheraw, at a tolerable inn, kept by an old man, who is a cripple, hand and foot, from the gout, and possessed of a most irritable temper. When in a passion he storms at his slaves and all around him, but when calm is a pleasant man, and full of information. For five years he has been confined to his chair. It amused me to see him fed. A negress put a napkin under his chin, and then put the morsels of meat or bread into the old man's mouth, and held him the cup to drink from. When he was being fed I thought of Gil Blas' master, whom Dr. Sangrado got rid of so quickly, and who left him so valuable a legacy. The old man had a son about fifteen years old, who reminded me of "Young Dropsy," as Sam Weller calls him.

Near the river at Cheraw is a strip of rich land, but elsewhere there is nothing but pine-barrens. From the appearance of what remains of the crop, I judge that this good land produces 600 to 1000 lbs. of cotton per acre with the seeds, or 200 to 330 lbs. when cleared. 1000 lbs. is here reckoned a good crop, but in Alabama they get 1700 to 1800 lbs. The fields there look as if covered with snow; those at Cheraw look very pretty, with the white bunches of cotton hanging from the expanded pods. There is a great difference in the aspect of vegetation here, and the leaves are not all fallen. From Cheraw to Colombia is a continuation of pine-barrens: towns are scarce: we got our meals by the wayside; once at a coloured man's, who gave us a very good dinner. We had meals at very irregular times; one morning we breakfasted at four, and another at ten. The entire country was the worst I ever saw, nothing but pine-barrens and swamps. *Melia aziderach* and *Bignonia catalpa* are common in the cleared lands,

and especially by the road side. Persimmons were in plenty. I saw few birds; one or two scarlet cardinals, a few blue-birds, a shrike, a species of heron, a large flock of cow-buntings, a flight of meadow-larks, some sparrows, and one Carolina wren.

Colombia is the capital of this state, and were it not for the miserable sandy barren soil, would be pleasantly situated; it has a college, court-house, state-house, and a church or so. Columbia, Cheraw, and Camden, are great places for the shipping of cotton, down the rivers to Charleston, &c.; but now, the streams being very low, they are compelled to send the cotton to Charleston in waggons. The legislature were sitting, so we went to see them, and were surprised to see the Speaker of the Lower House in a blue silk robe, trimmed with ermine. The streets of Colombia are about a foot deep in loose sand; they are planted with rows of *Catalpa*, and China-tree, *Melia*: one wide street has a road down the middle, as well as by the foot-paths. In the afternoon we walked by the bank of the rivers, and saw some butterflies still out. I also saw a large black and white moth, *Bombyx Proserpina* of Abbott; it is apparently a *Pecilocampa*: I could not catch it. Here we first saw *Cacti* wild on the sands: *Tillandsia* was in plenty on the trees. The river here is very beautiful, running over a very rocky bed, and being fringed with fine swamp oaks, pines, persimmons, sweet gums, &c. interwoven with various species of *Smilax*, *Bignonia radicans*, wild vines, &c. One species of *Yucca* grows to the height of ten or twelve feet in the gardens here.

From Colombia to Branchville there was but little to interest us. Branchville is merely a small town on the Charleston and Augusta rail-road. We here took the rail, and after traveling about sixty miles through swamps and pine-barrens, reached this city. There are some splendid live oaks close by the city, clothed with a drapery of grey *Tillandsia*, giving them a most singular and beautiful appearance. I do admire this plant, although it indicates a fever country: from the branches of the tall pine trees, or the twisted limbs of the live oaks, its long grey tassels hung from two to four feet in length, sometimes in a large mass, sometimes in long slender waving tresses, contrasting beautifully with the dark green leaves.

December 4.—And now for the city of Charleston, a city of

cotton-planting nabobs of cotton merchants, and dealers in rice, of carrion crows,¹ and Turkey buzzards; here am I, on the 4th of December, walking about in a horse-hair cap and green spectacles, to save my eyes from the glare of the sun; the thermometer 72 degrees in the shade, 102 degrees in the sun, quite away from any reflected heat; it is no doubt much higher in the streets, for on merely closing the case, so as to throw the reflection of the white satin lining on the bulb, it instantly rose two degrees. The power of the sun is intense, and much exposure to it brings on lassitude, in any one unaccustomed to it. The intensity of light is wonderful: yesterday, fifteen minutes after sun-set, I very distinctly saw the dark part of the moon. Twilight is very short here; whilst it lasts there are abundance of bats flying about. But I must attempt to describe this city, a task which I like not; I prefer the works of nature—

“ God made the country, and man made the town.”

Charleston stands on a narrow point of land, in a deep bay: when the tide is down, the accumulation of mud from the rivers, &c. smells most dreadfully. As you walk about the city, the first thing that strikes you is its total unlikeness to any American city in the north, especially in its private houses; these are mostly turned endwise to the street, are built of wood, grievously in want of paint, and have a garden in front. By this interesting arrangement the front of one house looks directly on the back of another. There are some good brick houses, but good men are as scarce as in the time of Juvenal. On the chimneys you see some half dozen Turkey buzzards digesting their dinners; others, with a few carrion crows who have not yet dined, on the look-out for a meal. The streets are narrow and irregular; the houses old; the pavements bad, but improving. The streets abound with negroes, mostly slaves, here called “servants” or “boys.” I have heard a quarrel between two negroesses, in which one told the other, in a tone of ineffable contempt, she did not care what *black* people said. The lady so speaking boasted of a slight admixture of white blood, not above a quarter, but of this the negroes are

¹ The carrion crow of America is the *Fulur atratus*, Wilson; the Turkey buzzard is the *Fulur aura*, Wilson.

excessively proud. At the lower end of this street is the College, a desolate looking place.

Dr. Holbrook, a resident here, has a number of live snakes; among them is the most lovely rattle-snake I ever saw, he rattles so prettily! He has one pretty little species, about the size of the English snake; also a great water-snake, a garter-snake, &c. &c. This gentleman, and a Mr. Trenholm, have shown us great kindness and attention. We spent this evening with Dr. Bachman, a relation of Audubon's; he has been showing us some drawings of butterflies from Florida, quite tropical in their forms; some of them I do not at all know by sight. I quite long to get farther south, but we are afraid of the Indians as yet. I have great hopes of success in Florida, where I mean to work hard.

“ Hope springs exulting in the human breast;
Man never is, but always to be, blest.”

Dr. Bachman has recently published a paper, describing the hares of this country; he has six species, also the shrews, of which he has figured some new species. Mr. Cooper has lately published a paper on the mice, which is also partly by Dr. Bachman. The doctor informs me that he believes fifteen of Audubon's new species of birds are only young, or in different stages of plumage; he also says that he considers Bonaparte's *Sylvia Palmarum* is the young of *S. petechia*.

CHAPTER VII.

[Savannah; St. Augustine; Jacksonville.]

Jacksonville, December 15, 1837. — We took the steam-boat to this place. We had a grand run to Savannah, which we reached at five o'clock in the evening: we saw little of the low sandy shores of South Carolina, and found scarcely any thing of interest, until we got into the mouth of the Savannah River. Here the tall palmettoes on the flat islands, and the rice-swamps, with their stacks of rice, and the threshing-floors in the open air, where the negroes were at work, and the dense flocks of Bob-o-links, in myriads thicker than the leaves in Vallombrosa, or the pigeons described by Audubon, and the

numerous sea-birds, especially a species of cormorant, of which there were scarcely less than a hundred perched on a little beacon, attracted my attention. I was getting into a less English country than I had hitherto seen. I was particularly struck with the palmettoes; and as to the Bob-o-links, I never saw such countless myriads of any birds. We landed at Savannah, just to see the town. It is an old place, quite different from any northern town; the houses are of red brick, the streets narrow, and every thing bears an air of comparative antiquity. There is a square, with an obelisk in the centre, and a market-place of tolerable size: market was over; little remained except pine-apples and oranges. Near the river, at the edge of the bluff on which the town stands, there is a long walk, with several rows of trees, chiefly China-trees (*Melia azederach*). In spring this must be delightful.

The next morning we ran aground; and, whilst lying there, were attacked by an army of punkies, which led to considerable loss of blood on our side, and much loss of life on the side of the punkies. In Pennsylvania, these animals are called gnats; in the east, midges. We reached this place soon after dark.

On the 14th of December, Dr. W—— A——, myself, and the Doctor's dog, Boxer,—half Newfoundland, half hound,—embarked on board a schooner, the property of the doctor and his friend, on an expedition to the village of Mandarin, and the mouth of the Black Creek. I had provided myself with powder, shot, a gun, and a bottle of alcohol. When all were on board, the schooner left the wharf, and got to the bend of the river, about half a mile distant, when the breeze, for a time, died entirely away; however, we reached Mandarin at four, and Black Creek at six o'clock. Soon after we left Jacksonville, we saw two porpoises; then a booby, and two or three cormorants; also a few ducks and gulls; these were all the birds we saw in our upward voyage.

The banks of the rivers are sometimes low, at others they offer low bluffs, fifteen to twenty feet in height, with a steep sandy bank towards the stream. The banks are sometimes grassy, sometimes covered with shrubs, intermingled with tall deciduous cypresses. The bluffs are crowned with live oaks or pines. The term "pine-barren" is very properly applied to the lands covered with pines; the word "hummock," to the bluff clothed with live oak, intermingled with *Magnolia*

grandiflora, *Styraciflua liquidambar*, hickory, and the various *Lauri*. The swamps contain a great variety of *Andromeda*, with *Erythrina*, *Wisteria speciosa*, &c.: the trees are chiefly deciduous cypresses. The river varies in width from one to four, and, in one instance, nearly six miles. Some of the bluffs present the finest situations for houses I ever saw. Think of a little village in a dense grove of live oaks, festooned with *Tillandsia*, with a garden filled with orange, lemon, and citron trees, and enclosed in an impervious fence of *Magnolia*, palmettoes, yuccas, &c.; the river in front being as clear and smooth as glass.

Mandarin is a small village, consisting of about eight houses, situated on one side of a long point, projecting nearly half way across the river. There are some fine orange-gardens growing up, but in February 1835 all these were destroyed by frost; now the old stumps have sent up suckers, two, three, and four from a root; these are already so large that I can span but few of them at four feet from the ground; they are about fourteen feet high, and bearing fruit, yet they did not shoot at all for six months after the frost. This will give you some idea of the climate; yet the soil seems little else than pure sand.

From Mandarin we went to a place, about twelve miles up the river, belonging to Dr. W.; but it was dark, and having performed the object of our voyage, we commenced our return. At Mandarin the wind entirely left us, so we lay there all night. Five of us were stowed away in a little cabin six feet long, ditto wide, and five feet high. Next morning I went on shore after a pair of bald eagles, but could not get them: their flight is very singular, when they turn not at all graceful, at other times particularly so. They already have a nest further up the river. A day or two back I saw an osprey drop like a stone into the water, and drag out a fish; I followed him to where he alighted, but the palmettoes rustled so with my pushing through them that he was frightened and flew off.

January 8, 1838.—I have just returned from St. Augustine. I was rowed up the river as far as Picolata, a military post and hospital; being unable to procure a conveyance further, I slung a few things, as a shirt, &c. at my back, a shot-belt under one arm, a powder-flask under the other, and a gun in my hand, and started for St. Augustine, a distance of about eighteen miles, on foot. I sauntered along through the pine-barrens, looking

at the few remaining flowers and birds; I shot a woodpecker that had his stomach full of the berries of *Myrica arifera*; I had also to keep an eye to the road, which was occasionally swampy, and here and there about eighteen inches deep in water for a good way. One part is loose sand, up to your ankles; then comes mud of the same depth; then a little bit of hard road: there are a great many patches of water, some of them wide, and nearly up to your knees—good clear water, with sandy bottom. It was so hot, that though I walked but a moderate pace, doing the eighteen miles in six hours, I was wet with perspiration. I rested about half way, under a huge pine, for half an hour, and thought of England; it was the 21st of December, the shortest day, and Club-meeting at Bowerbank's, the house where I last met the members of the Club. I knew they were talking of me.

About an hour before sun-set, I reached St. Augustine, the oldest city on the Atlantic coast of the United States. I crossed a long bridge, at the end of which was a guard-house; then walked on by the side of a hedge of *Yucca gloriosa*, and entered the town by a narrow passage, between a stone wall on one side, and a wooden fence on the other; indeed, so narrow, that I doubt whether I should not have been compelled to retreat had a cart met me. It terminated in a square, open on one side to the water. On the right hand was the Episcopalian church, on the left, the Catholic; between them was the court-house, and in the centre, a stone inscribed "Plaza de la Constitution." I walked on, and asked a negro for Livingstone's hotel; having reached it, I with difficulty found a negro woman, who showed me to a room.

St. Augustine is, of all the towns I have seen here, the most singular: narrow streets, old stone houses, with balconies or latticed verandahs, all looking more or less ruinous—every tenth house is absolutely in ruins, and every fifth or sixth is a grog-shop. All around is sand or salt-marsh; yet the climate makes amends for these disagreeables. The peas are now in perfection in the gardens; the *Palma Christis* are untouched by frost; lettuces, raddishes, &c. abundant; rose-trees in full bloom; mocking-birds in the orange-trees: the air is damp, but such a sun! making Christmas a warm, lovely summer-day. Since we have been in Florida, it has been much like the fine

autumnal weather we sometimes have in England in September and October, but warmer. I staid four days at St. Augustine, and then returned to Jacksonville, staying a day at Picolata on the way.

ART. XXX.—*On the Structure of the Scales on the Wings of Lepidopterous Insects.* By JAMES SCOTT BOWERBANK, M. E. S., &c.

HAVING for many years been in the habit of using the scales from the wings of various insects as a means of testing the defining power of the object-glasses of microscopes, and in particular those from *Morpho Menelaus*, I had long been induced to suspect that, with a higher power than we could at that time command, the delicate longitudinal and cross striæ of these scales might, probably, be demonstrated to be a series of tubes, destined to serve, in each scale, the same office that the canals, which are seen ramifying in every direction in the wings of Hemipterous and other similar insects, perform for those parts. Having lately been furnished, by Mr. Ross, with an object-glass of his construction, possessing the requisite increase of magnifying power, combined with the most perfect and beautiful definition, I was induced to recommence my observations on the scales of *Morpho Menelaus*.

It has usually been the custom, when mounting the scales from the wings of this insect for microscopic observation, to breathe upon the slip of glass, so as slightly to moisten its surface; then to lay the wing gently upon it, and press it lightly once or twice with the tip of the finger, in order to disengage a few of the scales with as little injury to them as possible; and, finally, to cover them with a thin slip of talc. By this means, it will be evident that they will probably present themselves in as perfect and unbroken a state as it is possible to procure them, and with their under-sides towards the observer. Having frequently examined them when mounted in this manner, and found that, even with the greatest degree of care and the gentlest treatment, some of the striæ were crushed and displaced, and the scales thereby spoiled as a microscopic test-object; and having often seen the remains of

the disturbed striæ projecting like fine threads beyond the margin of the scale; I was led to form the opinion that they must be a series of minute tubes.

With this accidental clue to a mode of dissecting them, I proceeded to mount some of the scales in a manner quite the reverse to that before mentioned. Instead of applying the wing to the glass, I breathed upon the talc, and applied the wing to it; and in lieu of the gentle pressure heretofore used, I repeatedly tapped with my finger upon the wing, with a considerable degree of force; and then having applied the talc to the glass slip, I rubbed it backwards and forwards several times, so as to injure the scales between them as much as possible without totally destroying them. Upon submitting them to a power of 800 linear, I found that the result was such as I had anticipated, scarcely one of the beautiful broad blue striated scales remaining uninjured, the striæ were torn from the surface of the scale, and some of them doubled back upon the undisturbed portion of it, while others, either singly or two or three side by side, appeared projecting beyond the margin of the scale in all directions. In some cases the cross striæ remained uninjured, binding the longitudinal ones two or three together; in other places they were broken, and their remains appeared projecting from the sides of the straggling single striæ, severed from each other by their fracture. In nearly the whole of these cases a thin pellucid membrane of uniform colour and texture remained unbroken beneath the disturbed striæ. Upon comparing the appearance of this membrane with that of the spaces between the striæ, where they had neither been detached nor disturbed, it was at once apparent that there was less colour visible in it than was to be seen between the striæ on the more perfect part of the scale; and upon closely examining those striæ which were detached, and which projected from the scale, it was distinctly to be perceived, wherever two or three were together, that in addition to the attachment by means of the cross striæ, they were connected by an exceedingly thin transparent membrane, of a pale yellow colour. From the whole of these circumstances, it became apparent that the scales consisted of at least two distinct layers; the uppermost formed of numerous longitudinal and cross striæ, covered or connected by a thin membrane more or less coloured, and the under one composed of a somewhat thicker and stronger membrane of

uniform texture, and without striæ. Having seen thus much in this delicate and nearly pellucid scale, it naturally occurred to me that I might at least confirm, if I did not add fresh facts to those already acquired, if I selected as my next subject for examination a description of scale whose striation was of a bolder character, and which at the same time was possessed of a greater degree of colour; and I accordingly fixed upon *Papilio Paris* as possessing, in an eminent degree, both of the requisite qualities. I proceeded in the preparation of this subject in a manner precisely similar to the former, and in this case the results were in every respect most satisfactory. In the first scale examined, a fracture of the striæ, and of the upper dark-brown and almost opaque membrane, had taken place at about one-third of the length of the scale above the base, which extended nearly three-fourths across its greatest breadth, in one direction, and to the base of the scale in another. A portion of the disrupted striæ and upper membrane was doubled backwards, the plait or fold forming a diagonal across the direction of the longitudinal striæ, by which means the striæ thus doubled back were laid over the others, nearly at right angles to them, and a small portion of the fractured ends projected beyond the margin of the scale. The portion thus doubled back rendered that part of the scale beneath it nearly impervious to the light, while that from which it had been lifted became beautifully transparent; it scarcely possessed any colour, and, at the same time, was without any indication of striæ; thus confirming, in a very happy manner, the observations previously made upon the scales of *Morpho Menelaus*. Upon mounting the scales of the same insect in a similar manner to that last described, upon a second slip of glass, another case presented itself which threw still further light upon the true structure of these minute and beautiful little objects. In this instance a piece of the upper dark-brown layer of the scale, being about half its length and one-third of its width, was removed, leaving the part thus denuded nearly without colour, while the surrounding uninjured portion of the scales was of a blackish-brown tint, and nearly impervious to the light, but distinctly exhibiting the striation. Upon one-half of the pellucid space thus produced the striæ were preserved uninjured, and in their natural situation, while from the remaining space they had been totally removed, leaving the

under and nearly pellucid layer of the scale uninjured, and without the slightest vestige or even impression of the striæ; thus proving, in the most satisfactory manner, the existence of three distinct layers: for had the upper and coloured layer, as I at first suspected to be the case in the scale of *M. Menelaus*, been merely a thin membrane connecting the striæ, it could not possibly have been removed from, comparatively speaking, so large a surface, without disturbing them to a considerable extent. In numerous other instances, also, I observed that the upper coloured layer was partially removed, without at all injuring or disarranging the striæ beneath. Having thus satisfied myself with regard to the structure of this portion of the scale, I next endeavoured to ascertain whether the striæ were merely solid cartilaginous filaments, for the purpose of giving additional strength to these thin and beautiful tissues, or whether it was probable that they were a series of minute tubes, similar in their structure and purposes to the canals, which serve the double office of giving strength to, and, at the same time, conveying the blood through the wings of Hemipterous and other similarly constructed insects.

In this investigation, let me assure the reader, that the observer has infinitely greater difficulties to encounter than he has in merely ascertaining the existence of distinct coats or layers in the scale, and it will convey some idea of the nature of these difficulties, when I state, that upon carefully measuring one of the dark-brown scales from the wing of *Papilio Paris*, I found that its greatest breadth was but $\frac{1}{345}$ of an inch. The quill by which it had been attached to the wing was $\frac{1}{5000}$ of an inch in diameter; the distance of the striæ from each other, $\frac{1}{15151}$ of an inch; and the diameter of the longitudinal striæ themselves, $\frac{1}{27777}$ of an inch.

It is usually the case, that the whole surface of the scales, from the wings of Lepidopterous insects, appears covered by numerous parallel striæ, running in a longitudinal direction, with occasionally shorter ones at right angles, which connect the longer ones with each other. These when viewed with a power of 1000 linear, exhibit precisely the same appearance as the well-known canals in the wings of *Chrysopa perla*, and other such insects. The junctions between the larger and the smaller striæ upon the scales, present the same appearances as the junctions between the larger and the smaller canals in these

wings, and like them, in every instance that I have seen, the longitudinal striæ terminate in marginal striæ or canals. These marginal canals may be distinctly traced to pass from the base of the scale down each side of the quill, until they are lost sight of near its point. In one instance, I observed two of these fine filaments or canals projecting from one side of the quill at a short distance from its point, and appearing as if they had been drawn from the wing in the act of separating the scale from it. At the first glance, these striæ or canals, passing down the sides of the quill, might be supposed to indicate the thickness of the sides of that organ, and this misconception is especially favoured by the quill being really hollow for a part of its length, while near the point it is solid; but the striæ or canals being continued into the solid part, as well as down its sides, the error into which we are liable to fall is quickly detected, and the fact of their being truly a continuation of the marginal striæ or canals, may not only be proved by their continuation into the solid part of the termination of the quill, but they may likewise be readily and distinctly traced out of the quill round the base of the scale, and throughout the whole length of its sides to its apex.

The violence to which the scales were subjected had in many instances broken the quills into short lengths, which, under favourable circumstances, assumed the appearance of so many rings, the central orifice occupying about one-third of its diameter, and as the diameter of the quill has before been stated to be $\frac{1}{5000}$ of an inch, we may therefore estimate the thickness of its sides to be about $\frac{1}{15000}$ of an inch.

The detached striæ were likewise frequently broken up into short lengths, but I could not find any of them either sufficiently short or in such a position as to enable me, by the like means, to determine whether they possessed an orifice of similar comparative dimensions to that in the quill; but supposing that to be the case, the diameter of the longitudinal striæ being $\frac{1}{27777}$ of an inch, the internal diameter of these minute tubes, supposing them to be such, may then be estimated at about $\frac{1}{83331}$ of an inch.

THE

ENTOMOLOGICAL MAGAZINE.

APRIL, 1838.

ART. XXXI.—*Notes on Madeira.* By WILLIAM CHRISTY,
JUN., F.L.S. &c.

Nov. 10, 1837.—*Ship Julia*, 45° N. Lat. 8° 3' W. Long.

Bay of Biscay.—Certainly this is not a very entomological locality, but here we lie with the water as smooth as a millpond. So far, we have seen nothing to break the monotony of our passage;—not a single piece of gulf-weed, a dolphin, or Portuguese man of war, has been observed. Though wet, and apparently cold, the thermometer on deck does not fall below 58°.

13th.—Yesterday was rather a cloudy day, but very fine in the evening; the thermometer, at 7 P.M. being 62°. For nearly an hour our attention was rivetted on a superb Aurora Borealis, which covered nearly one half the sky with a deep crimson, and contrasted strongly with the brilliant moonlight.^a There was, however, no appearance of meteors during the night. At nine o'clock this morning the thermometer on deck stood at 64°.

14th.—This evening, about eight o'clock, we were called on deck to witness the rare phenomenon of a lunar rainbow. The moon and stars are most brilliant. Venus is like a little sun. We have almost lost the Great Bear, which can no longer support its Virgilian character of "Metuens æquore tangi." About ten o'clock we were again roused to behold the Aurora Borealis in one of its sublimest forms. Half the heaven was

^a It was observed at the same time in London in the N.W.

covered with clouds of an intense crimson, the reflection of which upon the waves appeared a sea of blood. Upon the deep red ground were vertical columns and streamers of bright yellow light, like vast comets. These did not much alter their position, although they varied from time to time in intensity. No meteors were seen during the night.

16th.—A most lovely morning. To our great joy, on coming on deck, land was announced right ahead. By the time we had breakfasted it was distinctly visible, and we have now a good view of the fine mountainous island of Porto Santo, about fifteen miles distant, and have just got a glimpse of one of the peaks of Madeira, through a momentary break in the clouds which cover that part of the horizon.

17th.—We made the north end of Madeira last evening, and during the night stood off and on, and this morning had a splendid view of Funchal. Although sunny, it was a showery morning, and the atmospheric changes caused the prospect to vary every moment. The clouds rested on the mountains, but occasionally lifted and gave us a view of peaks in the interior, towering into the sky. A thin misty veil hung over the terrific gorges for which Madeira is so celebrated, and served to increase their sublimity. Right at the mouth of the largest and wildest of these ravines was planted the base of a splendid rainbow. After gazing on nothing but blue waves so long, it appeared quite fairy land to us. What a change since this day fortnight! Then we were shivering below at Gravesend, now we are roasting on deck, with the thermometer at 75° in the shade.

19th.—*Caminho do Meiro.*—*Funchal.*—Owing to some irregularity in the ship's papers, we were nearly being consigned to a six weeks' quarantine in the lazaretto, but luckily are now comfortably settled in this locality; at this moment (6 A.M.) I am writing, half dressed, at the open window, with the thermometer at 62°, and the bananas, sugar-canes, and other tropical trees waving in a fine cool mountain breeze in the cottage gardens below me. Our situation is most lovely:—one of our windows looks full upon the bay, the other right into one of the principal ravines, the opposite bank of which is occupied by a few thatched cottages, the gardens of which exhibit many sorts of tropical trees and plants; as they are not divided by walls, they have a very picturesque effect. The ledges of the

perpendicular red rocks are covered with immense cacti, and crowned with orange and other trees, through which the quintas (or country villas) peep out delightfully. All the monasteries here are suppressed, and the convents so far so, that no new nuns are permitted to enter. The English church is pleasantly situate on the edge of the town, in a beautiful garden full of curious trees, shrubs, and flowers; the walls of a narrow passage leading from the street are covered with Heliotrope, at least eight feet high, the scent of which is quite overpowering. The interior is fine; the dome is supported on handsome pillars, and the pews are of polished mahogany, beautifully kept. We made an excursion to the Gorgulho, a rocky promontory about two miles from the town; it is unquestionably a lava stream projected into the sea. Passing along the edge of the cliffs, which are very fine, we found many rare plants. Whilst there we got a few shells, and hope to do more on future visits. We have yet seen very few insects; indeed it is a bad season for them. A few British species of Lepidoptera are all we have observed. We have taken a few Diptera, and have seen some grasshoppers with pink under-wings. By the fragments I see on the shore, I think there are some good Crustacea here. I got a few specimens of a small hermit or soldier crab, which I think quite different to our British one. The shrimp here is a totally distinct species from any of ours; but as I have only seen it in its edible capacity at table, I cannot accurately describe it. Our house, like all here, is overrun with millions of villanous little ants, which exempt nothing from their tormenting presence.

27th.—To our great surprise, yesterday morning, the mountains, to within three thousand feet of the sea level, were covered with snow. To-day it is all melted, and we have just returned from a delightful ramble up the ravine behind our house. Thickets of myrtles and brambles intermingled, cover the green slopes. The haresfoot fern waves in profusion from the same rocks that afford support to our English ivy; and many other of our commonest plants are intermixed with those we cultivate as rarities in our greenhouses. The different species of house-leeks have a very curious appearance before reaching their flowering state; their enormous flat green rosettes contrasting strongly with the dark red rocks on which they grow. The only path through the greater part of the ravine is along the

Levada,^b which led us at length to a lovely waterfall of about 80 feet perpendicular, precipitating itself through a narrow chasm in the rock completely clothed with luxuriant ferns. Here we took a few insects. Kestrels were very abundant at this spot.

30th.—Rambled through the vineyards near home. In one spot a broken rocky bank was quite red with the magnificent spikes of *Aloë arborea*, which is now naturalized to a considerable extent in the coast region of Madeira. Following the road up the mountain to an elevation of two thousand feet, although very fine below, we were quite enveloped in clouds; however, we got some good plants; and among other things, what appeared at a distance huge bunches of nettles, turned out on inspection the well-known plant of our greenhouses, commonly called “Balm of Gilead,” so much esteemed for its aromatic smell. It has been raining heavily, and I am now (8½ P.M.) sitting at the open window, with the thermometer at 65°. The streets in the town are so steep, and the roads throughout the island so bad, as entirely to preclude the use of wheel carriages; and, consequently, the only modes of conveyance are, in palanquins or on horseback; the former is adopted generally by the ladies. The people of the Island are a dirty, ignorant set; but we have not yet had much opportunity of studying their habits.

Dec. 8th.—We attended service this morning in the convent of Santa Clara. We had the satisfaction of seeing the nuns through the grate, but had not much reason to be proud of our new acquaintances, as they are mostly old and ugly, and their singing is detestable. We afterwards visited the garden of a Portuguese gentleman, which contains many fine trees, particularly a date, the largest in the island, but unfortunately a male, and not therefore producing fruit.

^b The “Levadas” are the channels by which water is brought down from the mountains to irrigate the vineyards on the slopes above the sea. They usually commence at some waterfall high up the ravine, and are carried along the steep face of the rock, at a very slight descent, till they emerge on the face of the hill, where they are mostly bordered by a good path, and form a delightful promenade; but in the ravines they are usually about two feet wide, with an outside wall of masonry, varying from one to two feet in thickness, the top of which forms the only path. Thus when carried along the face of perpendicular, and sometimes overhanging rocks, at a great elevation, it requires a firm foot and steady head to traverse them.

19th.—After the storm of yesterday, the bay is quite coffee-coloured, from the immense quantities of mud discharged into it by the ravines. We had a delightful ride this morning to the westward of Funchal, towards the little town of Camera de Lobos. We ascended one of the four singular round hills, so conspicuous on that side the town; and established to our own satisfaction the opinion we had previously formed, that they were a series of small craters which had opened at the base of the mountain, to which the immense chasm of the Cural dos Freiros formed the main vent. The temperature was extremely pleasant, although the sirocco (here called L'Este) was blowing.

21st.—Shortest day. I was up before sun-rise this morning at the open window, enjoying L'Este; for, odd enough, to invalids and strangers it is most agreeable, while the natives and residents shrink from it with dismay. It is not now feared so much as in summer, when it resembles the blast from the mouth of a furnace, and the higher you ascend into the mountains, the more insupportable it becomes; at that season it frequently brings with it particles of sand from the African coast, a distance of 400 miles. Now (4 P. M.) the thermometer at my window stands at 73° ; at noon it was 76° , and yesterday 77° .

24th.—Christmas eve, $4\frac{1}{2}$ P. M.; thermometer 64° . What a different climate from England! Great preparations are making for the celebration of this festival. I see nothing but baskets of most lovely flowers—roses, jonquils, hibiscus, salvias, branches of evergreens, &c. passing my window for the decorations of the churches. The grand national Christmas dish here (equivalent to our roast beef) is pork, dressed with garlick! All classes make a point of eating this precious compound. For a week past, pig-killing has been the chief business transacted; all night have we been serenaded with that most touching of all music, elicited from the “unclean beast,” by the threatened application of the knife to his jugular. The very streets run with blood, and the whole city stinks of garlick from one end to the other.

25th.—A most lovely morning. Thermometer, at 9 A. M. 66° . We attended the midnight mass last night in the cathedral. It was an imposing sight. The gorgeously ornamented altar and shrines glittering with the glare of innumerable tapers, and the thousands of worshippers, formed a magnificent

spectacle ; but as to devotion, there was no trace of it. In all parts groups were occupied in hearing and telling news ; friends greeting friends ; jokes bandied about : all made it much more like a fair than one of the most solemn festivals of the church. We attended the English church this morning, and were not a little disappointed at not seeing the Catholic Vicar-General, now acting as Bishop of Funchal. For two years it has been his custom to come on Christmas-day to the English church, where he conducts himself with the greatest propriety, even stays the subsequent administration of the communion, and makes a handsome donation at the offertory. He was this day prevented, by having to preach himself ; he is a very worthy man, and much esteemed by all. At dinner, we did not forget our friends in " Old England."

27th.—To-day we have been to the Ribeiro Frio, on the other side of the island. We started at 8 A. M. on horseback, ten in party, including two ladies, with five attendants on foot. To the elevation of 2000 feet the road is paved, and comparatively good, though excessively steep ; the next 1000 feet is horrible,—first over a soft red soil, in which the rain has worn holes big enough to bury man and horse—and then over loose rocks, sufficiently large to fill up the holes we had passed. We now emerged on a considerable plain, covered with turf, and affording a good place for a gallop. But the descent into the Ribeiro was the worst. The road was like nothing but the dry bed of a torrent—full of rocks, and in some places not far from perpendicular ; it runs zigzag close to the edge of the precipice, which cannot be less than 1000 feet. The Ribeiro Frio is a deep narrow ravine, beautifully wooded with fine evergreen trees exclusively, and encircled at its head with some of the finest peaks I ever saw. They are called the *Torinhas*, and stand up like so many obelisks or spires—more like the *Coolin Hills* in *Skye*, than anything I have seen. Our guides have come all the distance (fifteen miles from Funchal) on foot, all carrying some burthen, and do not seem the least fatigued with these horrible roads ; the only assistance they had was hanging on by our horses tails in very steep places. On reaching the bottom of the ravine, the thermometer sank to 56°, and the guides kindled a large fire, which they seemed thoroughly to enjoy. After a substantial lunch we separated, and strolled in different directions. Some

of us climbed a considerable height up the side of the ravine, and then followed a Levada, along which we found many good plants. There were complete hedges of Balm of Gilead in full bloom, and that beautiful plant, *Geranium anemonifolium* was still lingering in flower. The Levada at length passed through a portella, or narrow cleft in the mountain, not more than six feet wide; and a scene of extreme beauty burst upon us. We were now in the Ribeiro Meyo Metade, which is on a larger scale than the Ribeiro Frio, and runs down to the sea, the town of Fayal being situate at its mouth. Its sides are absolutely perpendicular, but clothed with fine wood; from where we stood we looked right down on the magnificent old Vinhaticos and Tils, springing from the face of the precipice. We were reluctantly compelled to retrace our steps, as some of the party were apprehensive of a storm in crossing the ridge; we therefore urged our horses quickly up the zig-zag. When we reached the plain, the gulf we had left was entirely filled with vapour, and presented an extraordinary and awful appearance. On the plain there were but few clouds, but they lay on all the peaks around. We galloped across it, gallantly headed by one of the ladies; got well over the bad part of the road, and once more found ourselves on the fair-weather side of the mountain: it was now so hot we were glad to doff our cloaks, &c. The view of Funchal from this part (2000 feet elevation) is most beautiful. Although built on so steep a declivity, it appeared quite flat beneath our feet. The Desertas had an extraordinary appearance: there was a slight haze over the sea, not sufficient to affect the clearness of objects, but effectually destroying the distinction of sea and sky. Those islands therefore, glowing in the beams of the setting sun, looked far up in the sky; and the strong line of surf breaking on their shores seemed like a stratum of white cloud, which, by its contrast, threw them up with the greatest distinctness. The birds we have seen, except canaries, do not differ from our British ones.

31st. *Brig Vernon*.—Our anchor is up, and we are under sail with a favourable wind for Teneriffe, of which I hope to give you some account in my next communication.

ART. XXXII.—*Observations on the Lamellicorns of Olivier.*
By the Rev. F. W. HOPE, M. A. F. R. S. &c.

GENUS I.—LUCANUS.

THALEROPHAGOUS RECTOCERA of MACLEAY.

LAMELLICORNS of LATREILLE.

LUCANIDÆ of LEACH.

<i>Species.</i>	<i>Country.</i>	<i>Modern Arrang. of Authors.</i>
1. Alces	E. Indies	Lucanus, <i>Linnaeus</i> .
2. Cervus	Europe	_____
3. Capra	France	_____
4. Elaphus	N. America	_____
5. Bison	S. America	Lucanus? <i>Linnaeus</i> .
6. Gazella	Siam	Lucanus, <i>Linnaeus</i> .
7. Lama	E. Indies	Dorcus, <i>MacLeay</i> .
8. Capreolus	N. America	Lucanus, <i>Linnaeus</i> .
9. Suturalis	Japan?	_____
10. Femoratus.	Cayenne	Leptynopterus, <i>Hope</i> . ✓
11. Parallelipipedus	Europe	Dorcus, <i>MacLeay</i> .
12. Cancroides	N. Holland	Lucanus, <i>Linnaeus</i> .
13. Striatus	Mauritius	Figulus, <i>MacLeay</i> .
14. Caraboides	England	Platycerus, <i>Latreille</i> .
15. Giraffa	E. Indies	Lucanus, <i>Linnaeus</i> .
16. Rhinoceros	E. Indies?	_____
17. Bicolor	Sumatra	_____
18. Camelus	E. Indies	_____
19. Saiga	S. America	Leptynopterus, <i>Hope</i> . ✓
20. Zebra	E. Indies?	Lucanus, <i>Linnaeus</i> .
21. Interruptus	Cayenne	Passalus, <i>Fabricius</i> .

GENUS II.—LETHRUS.

1. Cephalotes	Tartary	Lethrus, <i>Fabricius</i> .
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GENUS III.—SCARABÆUS.

PETALOCERA of MACLEAY.

LAMELLICORNS of LATREILLE.

1. Hercules	S. America	Dynastes, <i>MacLeay</i> .
2. Alcides	Antilles	Dynastes, <i>MacLeay</i> .
3. Perseus	S. America	Dynastes, <i>MacLeay</i> .
4. Tityus	Carolina	Dynastes, <i>MacLeay</i> .
5. Actæon	Surinam	Megasoma, <i>Kirby</i> .
6. Elephas	S. America	Megasoma, <i>Kirby</i> .
7. Typhon	Bahia	Megasoma, <i>Kirby</i> .
8. Sinson	S. America	Megasoma, <i>Kirby</i> .

<i>Species.</i>	<i>Country.</i>	<i>Modern Arrang. of Authors.</i>
9. Centaurus	Guinea	Xylotrupes, <i>Hope.</i>
10. Gedeon	Sumatra	
11. Chorinæus	Cayenne	Megaceras, <i>Kirby.</i>
12. Philoctetes	Surinam	Megaceras?
13. Phorbanta	E. Indies	Xylotrupes, <i>Hope.</i>
14. Oromedon	China	
15. Chiron	Java	Chalcosoma, <i>Hope.</i>
16. Milo	Brazils	
17. Dichotomus	E. Indies	Xylotrupes, <i>Hope.</i>
18. Claviger	Cayenne	Golofa, <i>Hope.</i>
19. Hastatus	S. America	
20. Enema	Brazils	Enema, <i>Kirby.</i>
21. Endimion	Brazils?	Dicastes, <i>Kirby.</i>
22. Alæus	Cayenne	Strategus, <i>Kirby.</i>
23. Antæus	Brazils	
24. Syphax	S. America	
25. Titanus	Antilles	
26. Ægeon	S. America	Golofa, <i>Hope.</i>
27. Ajax	S. America?	Strategus, <i>Kirby.</i>
28. Ænobarbus	Jamaica	Strategus, <i>Kirby.</i>
29. Sylvanus	Brazils	Cœlosis, <i>Kirby.</i>
30. Maimon	N. America	Strategus, <i>Kirby.</i>
31. Geryon	E. Indies	Xylotrupes, <i>Hope?</i>
32. Truncatus	N. Holland	Cheiroplatys, <i>Kirby.</i>
33. Bilobus	Brazils	Cœlosis, <i>Kirby.</i>
34. Barbarossa	N. Holland	Oryctes, <i>Illiger.</i>
35. 4-spinosus	E. Indies	Oryctes, <i>Illiger.</i>
36. Rhonoceros	E. Indies	Oryctes, <i>Illiger.</i>
37. Militaris	Cayenne	Xylotrupes, <i>Hope?</i>
38. Boas	Senegal	Oryctes, <i>Illiger.</i>
39. Augias	Ceylon	Oryctes, <i>Illiger.</i>
40. Monoceros	Senegal	
41. Nasicornis	Europe	
42. Tarandus	Mauritius	Oryctes, <i>Illiger.</i>
43. Satyrus	N. America	Xyloryctes, <i>Hope.</i>
44. Jamaciensis	Jamaica	Xyloryctes, <i>Hope.</i>
45. Silenus	Italy	Oryctes, <i>Illiger.</i>
46. Didymus	Cayenne	Phileurus, <i>Latreille.</i>
47. Valgus	Cayenne	Phileurus, <i>Latreille.</i>
48. Cadmus	Brazils	Trigonophlyctes, <i>Hope.</i>
49. Arcis	P. B. S.	Cetonia, <i>Fabricius.</i>
50. Juvencus	Cayenne	Xylotrupes, <i>Hope.</i>
51. Zoilus	Cayenne	
52. Retusus	P. B. S.	Temnorhynchus, <i>Hope.</i>
53. Orion	Senegal	Oryctes, <i>Illiger.</i>
54. Cylindricus	England	Sinodendron, <i>Latreille.</i>
55. Longimanus	E. Indies	Eucheirus, <i>Kirby.</i>
56. Melampus	E. Indies?	Xylotrupes, <i>Hope?</i>
57. Syrictus	P. B. S.	Syrictus, <i>Kirby.</i>
58. Hylax	P. B. S.	Monochelus, <i>Illiger.</i>
59. Crassipes	P. B. S.	
60. Punctatus	S. France	Pentodon, <i>Kirby.</i>
61. Coronatus	Java	Temnorhynchus, <i>Hope.</i>
62. Laborator	S. America	Chalepus, <i>MacLeay.</i>
63. Piceus	E. Indies	Syrictus, <i>Kirby.</i>
64. Dispar	Siberia	Typhæus, <i>Leach.</i>
65. Typhæus	England	Typhæus, <i>Leach.</i>
66. Momus	Africa	
67. Cyclops	E. Indies?	Bolboceras, <i>Kirby.</i>
68. Coryphæus	P. B. S.	

<i>Species.</i>	<i>Country.</i>	<i>Modern Arrang. of Authors.</i>
69. 4-dentatus	Bombay	Bolboceras, Kirby.
70. Lazarus	N. America	_____
71. Mobilicornis	England	_____
72. Stercorarius	Europe	Geotrupes, Latreille.
73. Vernalis	England	_____
74. Hemisphericus	Barbary	_____
75. Splendidus	N. America	_____
76. Cephus	N. America	Bolboceras, Kirby.
77. Testaceus	England	_____
98. Stercorator	Brazils	Oxyomus, Eschscholtz.
102. Marginellus	E. Indies	Oxyomus? Eschscholtz.
106. Asper	France	Psammodius, Gyllenhal.
109. Porcatus	England	Psammodius, Gyllenhal.
111. Antenor	Senegal	Heliocopris, Hope.
112. Hamadryas	P. B. S.	_____
113. Bucephalus	E. Indies	_____
114. Midas	E. Indies	_____
115. Molossus	China	Catharsius, Hope.
116. Janus	S. America	Copris, Fabricius.
117. Lancifer	Brazils	Phanæus, MacLeay.
118. Bellicosus	Cayenne	Phanæus, MacLeay.
119. Faunus	Cayenne	Phanæus, MacLeay.
120. Nemestrinus	P. B. S.	Copris, Fabricius.
121. Iacchus	P. B. S.	_____
122. Phidias	Goree	_____
123. Boreus	Cayenne	Dicholomius, Hope.
124. Bebebul	N. America	Phanæus, MacLeay.
125. Mimas	Surinam	Phanæus, MacLeay.
126. Jasius	Cayenne	Phanæus, MacLeay.
127. Festinus	Surinam	Sternaspis, Hope.
128. Splendidulus	S. America	Phanæus, MacLeay.
129. CEdipus	P. B. S.	Copris, Fabricius.
130. Paniscus	Barbary	_____
131. Hispanus	Spain	_____
132. Lunaris	England	_____
133. Emarginatus	France	_____
134. Anceus	P. B. S.?	Heliocopris, Hope?
135. Capucinus	Coromandel	Copris, Fabricius.
136. Pithecus	Ceylon	Copris, Fabricius.
137. Sabæus	Coromandel	_____
138. Tullius	E. Indies	_____
139. Pactolus	Madras	Onthophagus, Latreille.
140. Bison	S. France	Bubas, Megevic.
141. Dorcas	Madagascar	Onthophagus, Latreille.
142. Bonasus	Tranquebar	_____
143. Fricator	E. Indies	Copris, Fabricius.
144. Sinon	Goree	_____
145. Ammon	N. America	_____
146. Seneculus	Coromandel	Onthophagus, Latreille.
147. Calla	Bombay	_____
148. Sagittarius	E. Indies	Onthophagus, Latreille.
149. Vitulus	Germany	Onthophagus, Latreille.
150. Amyntas	France	Onthophagus, Latreille.
151. Vacca	England	Onthophagus, Latreille.
152. Lemur	Germany	_____
153. 2-fasciatus*	Coromandel	_____
154. Bidens	Senegal	_____
155. Aeneus	Coromandel	_____
156. 2-tuberculatus	Senegal	_____
157. Gigas	Eyabu, Africa	Heliocopris, Hope.

<i>Species.</i>	<i>Country.</i>	<i>Modern. Arrang. of Authors.</i>
158. Achates	Senegal	Catharsius, <i>Hope?</i>
159. Eridanus	Brazils	Holocephalus, <i>Hope.</i>
160. Carolinus	N. America	Holocephalus, <i>Hope.</i>
161. Carnifex	Carolina	Phanæus, <i>MacLeay.</i>
162. Sphinx	S. France	Onitis, <i>Latreille.</i>
163. Mœris	Tuscany	Onitis, <i>Latreille.</i>
164. Aygulus	P. B. S.	Onitis, <i>Latreille.</i>
165. Inuus	S. Leone	Onitis, <i>Latreille.</i>
166. Nisus	Cayenne?	Copris, <i>Fabricius.</i>
167. Tridens	S. America	Phanæus, <i>MacLeay.</i>
168. Marayas	Madagascar	Onthophagus, <i>Latreille.</i>
169. Undatus	Madagascar	Onthophagus, <i>Latreille.</i>
170. Apelles	P. B. S.	Onitis, <i>Fabricius.</i>
171. Sulcator	Cayennne	Copris, <i>Fabricius.</i>
172. 4-punctatus	Madagascar	Onthophagus, <i>Latreille.</i>
173. Tages	France	Onthophagus, <i>Latreille.</i>
174. Taurus	England	—————
175. Capra	Germany	—————
176. Nutans	England	—————
177. Nuchicornis	England	Onthophagus, <i>Latreille.</i>
178. Cænobita	Germany	—————
179. Ferrugineus	Senegal	Copris, <i>Fabricius?</i>
180. Spinifer	Coromandel	Onthophagus, <i>Latreille.</i>
181. Thoracicus	Senegal	—————
182. Furcatus	Italy	—————
183. Sacer	Europe	Scarabæus, <i>MacLeay.</i>
184. Variolosus	France	—————
185. Laticollis	Germany	—————
186. Bacchus	P. B. S.	Circellium, <i>Latreille.</i>
187. Æsculapius	P. B. S.	Pachysoma, <i>Kirby.</i>
188. Gibbosus	S. America	Hyboma, <i>Serville.</i>
189. Icarus	S. America	Hyboma, <i>Serville.</i>
190. Cupreus	Senegal	Anachalcos, <i>Hope.</i>
191. Menalcas	Volga	Onitis, <i>Latreille.</i>
192. Unguiculatus	Senegal	—————
193. Hesperus	S. America	Copris, <i>Fabricius.</i>
194. Smaragdulus	S. America	Coprobium, <i>Latreille.</i>
195. Nitens	Senegal	Gymnopleurus, <i>Illiger.</i>
196. Sinuatus	China	—————
197. Lævis	Carolina	Coprobium, <i>Latreille.</i>
198. Pilularius	Spain	Gymnopleurus, <i>Illiger.</i>
199. Flagellatus	France	—————
200. Kæniger	E. Indies	—————
201. Schaëfferi	France	Sisyphus, <i>Latreille.</i>
202. Longipes	E. Indies?	—————
203. Obliquus	Senegal	Onthophagus, <i>Latreille.</i>
204. 3-angularis	Cayenne	Coprobium, <i>Latreille.</i>
205. 6-punctatus	Cayenne	—————
206. Miliaris	E. Indies	Gymnopleurus, <i>Illiger.</i>
207. Fulgidus	Goree	Gymnopleurus, <i>Illiger.</i>
208. Granulatus	E. Indies	Epirinus, <i>De Jean.</i>
209. Cinctus	China	Oniticellus, <i>Ziegler.</i>
210. Flavipes	France	—————
211. Pallens	Senegal	—————
212. Discoideus	Goree	Onthophagus, <i>Latreille.</i>
213. Violaceus	S. Domingo	Coprobium, <i>Latreille.</i>
214. Schreberi	Germany	Onthophagus, <i>Latreille.</i>
215. 4-guttatus	Surinam	Coprobium? <i>Latreille.</i>
216. Melanocephalus	Guadaloupe	Chæribium, <i>Serville.</i>
217. Novæ Hollandiæ	N. Holland	Tesserodon, <i>Hope.</i>

<i>Species.</i>	<i>Country.</i>	<i>Modern Arrang. of Authors.</i>
218. 2-pustulatus	N. Holland	Tesseracton, <i>Hope.</i>
219. 4-pustulatus	N. Holland	Onthophagus? <i>Latreille?</i>
220. Ovatus	England	Onthophagus, <i>Latreille.</i>
221. Atlas	E. Indies	Chalcosoma, <i>Hope.</i>
222. Laniger	S. America	Megasoma, <i>Kirby?</i>
223. Agenor	Colombia	Xylotrupes, <i>Hope?</i>
224. Itys	Africa	Oryctes, <i>Illiger.</i>
225. Codrus	Surinam	Xylotrupes, <i>Hope?</i>
226. Xantus	P. B. S.	Temnorhynchus? <i>Hope.</i>
227. Corydon	P. B. S.	Xylotrupes, <i>Hope?</i>
228. Diadema	E. Indies	Xylotrupes?
229. Longimanus	Asia	Eucheirus, <i>Kirby.</i>
230. Unicolor	Spain	Aphodius, <i>Fabricius.</i>
231. 2-punctatus	Russia	
232. Fidius	E. Indies	Copris, <i>Fabricius.</i>
233. Rhadamistus	E. Indies	Scaptodera, <i>Hope.</i>
234. Peleus	Senegal	Onthophagus, <i>Latreille.</i>
235. Ion	Spain	Onitis, <i>Fabricius.</i>
236. Bias	P. B. S.	Copris, <i>Fabricius.</i>
237. Palerno	P. B. S.	Gymnopleurus, <i>Illiger.</i>
238. Astyanax	S. America?	Copris? <i>Fabricius.</i>
239. Muricatus	P. B. S.	Sisyphus, <i>Latreille.</i>
240. Cærulescens	Goree	Gymnopleurus, <i>Illiger.</i>
241. Iphis	Senegal	Onthophagus, <i>Latreille.</i>

GENUS IV.—TROX.

1. Horridus	P. B. S.	Phoberus, <i>MacLeay.</i>
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GENUS I.—LUCANUS.

Sp. 3. *Capra*. This species appears to be the same as *Luc. Capreolus* of Fabricius.

Sp. 4. *Elaphus*. In the *Systema Eleutheratorum*, the Fabrician name is *Elephas*, and not *Elaphus*,—probably an error of the press.

Sp. 8. *Capreolus*. Olivier makes use of the name of *Capreolus* instead of *Dama*, and in a note states his opinion that the latter insect is the same as *Luc. Capreolus* of Linnæus.

Sp. 9. *Suturalis*. There is a specimen of this insect in the Leyden collection; and, if I remember rightly, Monsieur De Haan informed me that its locality was Japan.

Sp. 10. *Femoratus*. The *Lucanidæ* of South America are numerous. The above species, with several others closely allied to it, ought to be formed into a new genus. In my MSS. I have given it the provisional name of *Leptynopterus*, as characteristic of the *Lucanidæ* of the new world, as several species from the base of the elytra to the apex are gradually

attenuated, evincing their South American relationship to *Pholidotus*.

Sp. 12. *Cancroides*. For the present, I have attached the generic name of *Lucanus* to this species; it appears, however, according to my views, to afford sufficient characters for a subgenus.^a

Sp. 16. *Rhinoceros*. I cannot help suspecting that this insect is an Asiatic species, as it closely approaches several East Indian individuals.

Sp. 17 and 18. *Bicolor* and *Camelus*. On the authority of M. Westermann of Copenhagen, I give the East Indies as the true locality of the above insects. It is not improbable that they are the same species; the former may be considered as the immature state of *Luc. Camelus*. There are some specimens in the original collection of Sir Stamford Raffles, (now belonging to the Zoological Society,) which accord well with Olivier's figures.

Sp. 20. *Zebra*. No locality is given to this species by Olivier; from the figure it appears to be an immature insect. I give the East Indies as its locality, with some doubts.

GENUS II.—SCARABÆUS.

Sp. 2. *Sc. Alcides*. Fabricius and Olivier, in their respective works, report this insect as inhabiting the East Indies; they are both in error, as it is found in South America; and, like *Sc. Perseus*, is only a variety of *Dynastes Hercules*.

Sp. 6. *Elephas*. Now a *Megasoma* of Mr. Kirby. Olivier mentions Guinea as its native country: it is evidently an insect of the new world, and certainly not one of the old.

Sp. 7. *Typhon*. This, like the preceding species, is also a *Megasoma*. It inhabits Bahia, from which country I have twice received it; apparently, from the numbers I have seen, it must be very abundant. Olivier does not give its locality.

Sp. 9. *Centaurus*. Now a *Xylotrupes*, Hope. Olivier asserts that this insect inhabits the East Indies, as well as Africa. I have received it from Guinea, and cannot help thinking the former locality is erroneous.

Sp. 10. *Gedeon*. Probably *Gideon*; the former being a misprint.

^a Mr. Westwood has described and figured this species as *Dorcus Cancroides*, at p. 267 of this Volume of the Entomological Magazine.—EDITOR.

Sp. 11. *Chorinæus*. According to Olivier, the *Sc. Jason* of Fabricius, is the same insect as *Sc. Chorinæus*.

Sp. 13. *Phorbânta*. This insect is only a variety of *Xylotrupes Gideon*: the locality of Senegal ought to be changed to that of the East Indies.

Sp. 15. *Chiron*. Now a *Chalcosoma*, Hope. Olivier does not mention where this insect was taken; all the known species belonging to the above genus are from the East Indies. M. De Haan, of Leyden, considers it as the female of *Atlas*, Fab.

Sp. 16. *Melo*. This insect was originally described from Francillon's cabinet. It is reported to be found in the Brazils. In my late Manual, I attributed it to the genus *Megaceras* of Kirby, with a doubt attached to it: from an examination of the trophi, which differ from the genus *Megaceras*, I constitute this species as the type of an allied genus.

Sp. 17. *Dichotomus*. This magnificent insect, for a long time, in England, was considered exceedingly rare; of late, several have been imported from the East; it occurs in Java, Japan, at Singapore, and other parts of India.

Sp. 18. *Claviger*. Now of the genus *Golopha*, Hope. In the first part of the second volume of the Entomological Transactions, will be found the characters detailed, as well as an enumeration of the species belonging thereto.

Sp. 21. *Endimion*. Now the type of Mr. Kirby's genus *Dicastes*. This insect is probably a Brazilian species, and was originally described from Mr. Marsham's cabinet. The bulk of the exotic Coleoptera of that collection passed, at the sale, into the hands of Messrs. Kirby, MacLeay, and Haworth. Some few lots are incorporated among my insects.

Sp. 22. *Alæus*. Evidently of the genus *Strategus*, Kirby. The female of this insect (according to Olivier) was described by Fabricius, under the name of *Sc. Validus*.

Sp. 23. *Antæus*. Olivier mentions that this insect was described by him from the "cabinet de M. le Vaillant." Is this collection still to be met with in Paris?

Sp. 26. *Ægeon*. Olivier gives the East Indies as the country of this insect; it is, however, a form peculiar to the new world. M. Latreille, in Humboldt and Bonpland's voyage, states that it is found at Chiloe, near Quito, "sur des bouses de vache," which substantiates my opinion expressed in the late Manual.

Sp. 27. *Ajax*. Although Olivier does not give the country this insect inhabits, there can be little doubt of its occurrence in the Brazils. Most likely a *Strategus* of Kirby.

Sp. 34. *Barbarossa*. Under this name, more than one species will be found in our English cabinets. It is singular that the male has not yet been published, and appears to be unknown to the continental Entomologists.

Sp. 35. *Quadri-spinosus*. The insect named by Mr. Kirby as *quadri-spinosus*, appears to be of a different genus to the Fabrician species; the *former* is a Brazilian, the *latter* an Asiatic insect, and belonging to the genus *Oryctes* of Illiger. The same specific name was the cause of the mistake which is printed in my late Manual.

Sp. 37. *Militaris*. I am totally unacquainted with Olivier's species named *Militaris*; I therefore give it for the present as a *Xylotrupes*. From the figure, I should say it was a Brazilian insect.

Sp. 39. *Augias*. I esteem this insect only as a variety of *Oryctes Rhinoceros*, Fab. Apparently it was first described from Dufresne's cabinet. His collection was purchased by the Scotch, and forms the nucleus of the Entomological collection at the Museum in Edinburgh.

Sp. 40. *Monoceros*. This insect is most likely the female of *Oryctes Boas*.

Sp. 48. *Cadmus*. Now the type of Mr. Kirby's genus *Henodon*. Olivier mentions Senegal as its true locality; I have some doubts however respecting its original country.^b

Sp. 49. *Arcas*. This insect appears to unite the *Cetoniadæ* and the genus *Syrichtus* of Kirby.

Sp. 50. *Juvenus*. This insect may be considered as the type of a new subgenus.

Sp. 51. *Zoilus*. Now probably a *Xylotrupes*? There are several species of *Xylotrupidæ* which require further subdivision. The above insect approaches in its characters to *Calosis*, Kirby, but is evidently generically distinct.

Sp. 56. *Melampus*. From Olivier's figure, I can only consider this insect as the female of a *Xylotrupes*. In appearance

^b Since writing the above, I find that Mr. Kirby's insect named as the type of *Henodon*, and marked with a query as Olivier's species *Cadmus*, is certainly another subgenus; the characters of both will be detailed among the new genera.

it resembles an African type, but may possibly be an East Indian form.

Sp. 58. *Hylax*. This insect, which I obtained from Lee's cabinet, was named by Fabricius *Sc. Crassipes* of Olivier. It appears to be only the matured insect of *Sc. Hylax*, which is now generally considered as a *Monochelus* of Illiger. The Baron De Jean has I think very improperly placed between *Monochelus* and *Pachycnema* several genera which cannot possibly connect them.

Sp. 59. *Crassipes*. I have given the generic name of *Monochelus* to the above insect, although it undoubtedly ought to be the type of a subgenus.

Sp. 65. *Typhæus*. Dr. Leach makes this insect the type of the genus, and adds the name of *Vulgaris* for a specific name.

Sp. 66. *Momus*. Olivier mentions equinoctial Africa, and particularly Sierra Leone, as the true locality of the above-named insect: modern Entomologists consider it a Sicilian species.

Sp. 67. *Cyclops*. No locality is mentioned by Olivier; it is probable that *Cyclops* is an East Indian species, as it approximates very nearly to some insects in my possession from that country: Central India may be considered as the metropolis of these curiously formed *Geotrupidæ*.

Sp. 76. *Cephus*, now a *Bolboceras* of Kirby, is evidently the same species described by Fabricius, under the name of *Farctus*.

Sp. 78. *Fossor*. As the *Aphodii* are very numerous, and require much accurate investigation before they are divided into subgenera, I omit them purposely in the Tables, and pass on to the 98th species, and afterwards to the 111th.

Sp. 98. *Stercorator*. According to Eschscholtz, this is of the genus *Oxyomus*: I am not aware that it has been characterized; it appears to represent, in the new world, what *Psammодиус* does in the old.

Sp. 111. *Antenor*. Now an *Heliocopris* of Hope. There are several interesting insects belonging to this subgenus; they would form a valuable Monograph, if well delineated. The figures of Olivier cannot be depended upon.

Sp. 114. *Midas*. This species is found in the East Indies, and not in America, as mentioned by Olivier. It is abundant at Bombay, at Madras, and Calcutta.

Sp. 116. *Janus*. Apparently this insect is a *Copris*. I am only acquainted with Olivier's figure, which corresponds with Jablonsky's *Scarabæus Berbiceus*, so named from being found *aux Berbices*.

Sp. 123. *Boreus*. This form of *Copris* appears to be peculiar to the New World; it occurs in North as well as South America. I propose the name of *Dichotomius*,^c to include all insects allied to *Cop. Boreus*, Olivier. The following characters may be deemed sufficient, particularly as the type is well known.

“Caput cornutum, clypeo bidentato, seu fortiter inciso: thorax, antice retusus, (angulis anticis porrectis acutis), tricornis, cornu intermedio lato obtuso submarginato, lateralibus divergentibus subretusis: elytra septem striis insculpta: corpus infra ciliatum: pedes femoribus supra depressis et infra subconnexis: tibiis compressis postice dilatatis et subtrigonis.”

The *Copridæ* of the new world appear to have but seven striæ on their elytra; those of the old continent have eight. I have not yet examined all the species in my collection. *Copris Sabæus*, and its allied species, belong to the typical *Copris* of the old world. The following insects belonging to *Dichotomius* will be found in my collection, viz. *Dichot. Brasiliensis*, *crassus*, *neglectus*, *gagates*, *politus*, and others.

Sp. 125. *Momas*. A *Phanæus* of MacLeay. The characters of the subgenera composing the family *Phanæidæ*, are detailed in the *Horæ Entomologicæ*.

Sp. 128. *Splendidulus*. Olivier asserts that this insect is marked in the Royal collection at Paris, as inhabiting the Island of Madagascar; it is evidently a South American species.

Sp. 130. *Paniscus*. Olivier states his opinion, that this insect is probably only a variety of *Copris Hispanus*, in which I am inclined to agree with him.

Sp. 134. *Anceus*. No locality is given by Olivier to this species; it was first described from the cabinet of M. Gigot D'Orcy. I think it not unlikely that it may be an African insect, and from the Cape of Good Hope, as some species from that quarter closely resemble *Anceus*.

Sp. 136. *Pithecius*. This species appears to be common to

^c From *διχοτομία*, a division into two parts.

Africa and Asia: I have received it from the banks of the Gambia, from Arabia, from Bombay, and the Island of Ceylon. Is it in our power to explain the wide range which some insects enjoy? In hazarding an opinion respecting this interesting subject, I am inclined to think that the *Copridæ* may have followed the route which the caravans take, in the passage from Egypt to India, attracted no doubt by the droppings of animals. Several insects of both Continents will be found to be the same; and where this is not the case, the representatives of each will frequently correspond in size and colour. It may be possible that *Pithecius* was originally a species from Ceylon, and was transported with elephants to the Indian continent, and so made its way to the Arabian deserts; as to Coprophagous insects being carried by driftwood, I own I am sceptical. Xylobious species may be imported into various countries by the above means, borne along in the direction the currents take. It is singular that the insects said to be thrown on the coast of Ireland are not specified by name; and I know of none of the Coleoptera which can be considered of real migratory habits, compared with the Orthoptera and Lepidoptera; for the present, therefore, I consider such exotics to belong to the latter Orders.

Sp. 137. *Sabæus*. This species, like the former, is common to the two continents above mentioned.

Sp. 139. *Pactolus*. This rich golden insect is mentioned by Fabricius, as well as Olivier, as inhabiting the Brazils; both writers are in error, as it is undoubtedly an East Indian species, and abundant at Bombay and Bengal.

Sp. 145. *Ammon*. This insect was rightly stated by Fabricius to inhabit North America. Olivier, without adding his reasons, gives the East Indies as its locality; apparently, he must have mistaken the species, as the former writer is correct.

Sp. 148. *Sagittarius*. Fabricius is right in regarding this as an East Indian species, and Olivier wrong, in making it an inhabitant of the Cape of Good Hope.

Sp. 149. *Vitulus*. This insect is the same as that described by Fabricius, under the name of *Camelus*.

Sp. 150. *Amyntas*. This species is undoubtedly the same as *Copris Alcis*, Fab., and is abundant in southern Europe.

Sp. 154. *Bidens*. It seems probable that this insect may be the female of *Copris thoracicus*, Fab.

Sp. 159. *Eridanus*. I consider this insect as the type of a subgenus, to which I have given the name of *Holocephalus*, (from ὄλος and κεφαλή,) from the clypeus being entire. It is a form peculiar to the New World, and is allied to the genus *Dichotomius* in some of its leading characters. The following details may be stated, and are sufficiently ample for recognising a well known form.

“ *Holocephalus*, Hope. Type of the genus *Copris Eridanus*, Olivier.

“ Caput cornigerum clypeo integro, antice rotundato: thorax antice excavatus retusus, angulis anticis subporrectis foveaque laterali utrinque excavata: corpus crassum gibbum, elytris 7 striis fortiter insculptis: pedes femoribus robustis, tibiis antice attenuatis postice dilatatis trigonis.”

To this subgenus belong *Copris Carolinus* and *Monachus* of Fabricius, *Copris Nasutus* and *Rhinoceros* of Hope; all of them inhabiting the new world. It may here be noted, that Olivier erroneously gives but six striæ to *Copris Monachus*, Fab.; the whole of these *Copridæ* certainly possess seven, without including the sutural.

Sp. 167. *Tridens*. There can be little doubt that this insect is a *Phanæus*. Fabricius gives Africa as the country where it is found. Olivier, adopting that opinion, mentioned equinoctial Africa. I am opposed to both of the above authorities, and substitute South America as its true locality.

Sp. 171. *Sulcator*. This insect is evidently the same as *Copris Nisus* of Fabricius.

Sp. 179. *Ferrugineus*. In the Parisian collections, this insect bears the name of *Copris Egina*, De Jean.

Sp. 184. *Variolosus*. *Scarabæus Semipunctatus*, Fab. is the same species as *Sc. Variolosus*, Olivier.

Sp. 187. *Æsculapius*. No locality is attached to this species by Olivier. It will be found to be from the Cape of Good Hope.

Sp. 193. *Hesperus*. This beautiful insect appears to combine the characters of *Phanæus* and *Copris*. Olivier gives Madras as its locality; it is, however, a South American insect, and very abundant in the Brazils.

Sp. 197. *Lavis*. Now a *Coprobrius* of Latreille, and the same insect which Fabricius has named *Ateuchus volvens*.

Sp. 202. *Longipes*. This insect was named *Ministris* by Fabricius, and belongs at present to the genus *Sisyphus* of Latreille. It occurs at Bombay abundantly, and does not range as far as the Cape of Good Hope. I think it necessary here to warn collectors how they may be deceived as to the localities of insects, when they purchase of dealers. Many English ships touch at the Cape; the sailors, in want of ready money, frequently part with their East Indian collections at Cape Town to the shopkeeper; and I have repeatedly known Indian species sold by them as Cape insects. My friend, Colonel Whithill, lately purchased a large collection in that country; among them were many Indian, Brazilian, and even European species, imported by the trading naturalists into that country. I regret to state also, that little reliance can be placed on the accuracy of the Brazilian dealers, who occasionally import into the new world, New Holland insects. Some of the finest Australian species in my possession, I have obtained from Brazilian boxes, (by purchase,) which were sent to England as insects of South America.^d

Sp. 207. *Fulgidus*. This insect appears to be the same species as *Gym. Leii*, which I ascertained, being in possession of nearly all the Coleoptera of that ancient cabinet.

Sp. 208. *Granulatus*. Now of the genus *Epirinus*, De Jean. In my MSS. I have given to the species allied to the above insect the generic name of *Anisopus*.^e As it is doubtful if the characters are published by the above author, I defer adding them at present. The locality is not given in Olivier; it is probably from the Cape; and, according to Mr. Westermann, *Sc. granulatus*, Oliv., is the same insect as *Ateuchus scabratus*, Fab.

Sp. 213. *Violaceus*. Now a *Coprobis* of Latreille, and evidently the same insect as *Cop. Leucopygon*, of Klug.

Sp. 217. *Novæ Hollandiæ*. Now the type of the genus *Tesserodon*, Hope. Vide the late Manual for the generic details.

Spp. 218, 219. *Bi-pustulatus*, and *4-pustulatus*. It is likely that both the above insects belong to the genus *Tesserodon*. This point I hope to ascertain, by comparing several New

^d Mr. Shuckhard also, in corroboration of the Brazilian dealers importing insects of other countries, has lately received a species of *Anthia*, originally from Africa, along with other Chilian insects.

^e A genus of *Longicornis* is published under this name.—EDITOR.

Holland species lately received from that country with the Banksian specimens.

Sp. 223. *Agenor*. I merely give the locality of this insect, which was omitted by Olivier. It occurs in South America, in Colombia.

Sp. 224. *Itys*. I am unacquainted with this species. I give it as a *Copris*, with a doubt.

Sp. 226. *Xanthus*. Apparently this insect belongs to my genus *Temnorhynchus*; if so, the locality will most likely be the Cape of Good Hope, or its vicinity.

Sp. 228. *Diadema*. Some Entomologists think, that *Mel. Diadema*, Oliv. is only the female of *Xyloryctes Dædalus*, Fab. As the insect was originally described from the "cabinet de M. Gigot D'Orcy," some information may yet be obtained respecting it from the Parisian cabinets.

Sp. 232. *Fidius*. Olivier gives South America as the locality of this insect: I am inclined to consider it as an East Indian species. If, however, *Copris Fidius* is the same species as *Copris Plutus*, Fab. (which seems very doubtful), it will turn out to be an African, and not an Asiatic insect.

Sp. 234. *Peleus*. Probably an *Onthophagus*. From the description, it seems to be the insect which is known in Paris under the name of *Coprobas fornicatus*. The latter insect is the *Onthophagus Greenii* of Mr. Kirby's century. Vide Linnean Transactions, Vol. XII. page 397.

Sp. 235. *Ion*. Now an *Onitis* of Fabricius. *Onitis Vandelli*, Fab., is the same as Olivier's *Sc. Ion*.

Sp. 236. *Bias*. Probably a *Copris*; the locality mentioned by Olivier is the Cape of Good Hope. From the division of the clypeus, and projected anterior angles of the thorax, I should suppose it a *Dichotomius*, and therefore it would inhabit South America.

Sp. 238. *Astyanax*. From what country Olivier received the above insect is not mentioned. It approaches in form some of the South American *Copridæ*. Of its real locality I am totally ignorant.

Sp. 239. *Muricatus*. Olivier mentions South America as the native country of this insect. M. Gory, in his excellent Monograph on the species of this genus, has very properly changed the locality to that of the Cape of Good Hope. I am not aware of the genus *Sisyphus* inhabiting the new world.

GENUS IV.—TROX.

Sp. 1. *Horridus*. This is now the type of Mr. William Sharpe MacLeay's genus *Phoberus*; and as the rest of the *Trogidæ* present no remarkable characters for subdivision, I proceed to the investigation of the *Melolonthidæ* in my next communication.

F. W. H.

To be continued.

ART. XXXII.*—*Proceedings of the Entomological Club.*

SITTING OF THE 15TH OF MARCH, 1838.

Mr. NEWMAN in the Chair.

Mr. BENNETT exhibited a specimen of *Vanessa Antiopa*, taken by Mr. Ward, at Hampstead.

The following donations were announced:—

Mr. EDWARD PEMBERTON. Some Coleoptera, from Nevis, in the West Indies.

Mr. W. CHRISTY. Various insects collected in Madeira and Teneriffe.

Rev. F. W. HOPE. A fine specimen of *Scarabæus Centaurus*, a pair of *Dicheros Curera*, &c.

Mr. INGALL. Various North American Coleoptera.

Rev. H. STUART TAYLOR. Various insects of different classes, from Nevis, in the West Indies; also several fine Coleopterous insects, from Germany.

Mr. RADDON, of Bristol. Various British Lepidoptera.

Mr. WESTWOOD. Various exotic Coleoptera, &c.

The Annual Meeting of the Club was fixed for the 16th of May.

ART. XXXIII.—*Proceedings of the Entomological Society of London.*

SITTING OF THE 1ST OF JANUARY, 1838.

J. F. STEPHENS, Esq. President, in the Chair.

The following donations were announced, and thanks ordered to be given to the several donors:—

The EDITOR. Magazine of Natural History, New Series, No. XII.

The EDITOR. Athenæum for December 1837.

The EDITOR. Entomological Magazine, No. XXI.

The EDITOR. Naturalist, for November and December, 1837.

The AUTHOR. Parts I. and II. of a Memoir on the Temperature of Insects, by George Newport.

The Rev. F. W. HOPE exhibited five cases, being part of a very fine and extensive collection of insects, principally from Mysore and Ceylon.

Mr. HANSON exhibited three boxes filled with insects, principally Coleoptera and Lepidoptera, being part of the collection now making in North America, by their Corresponding Members, Messrs. Doubleday and Foster, for the Entomological Club.

Mr. WESTWOOD exhibited a sample of Cayenne Pepper, attacked by *Annobia*; also a small portion of peat, to which were attached particles of what appeared to be the elytra of insects, obtained from a depth of about fifty feet, near the foundation of one of the bridges in Bristol; both communicated by Mr. Raddon.

Mr. SPENCE made a communication on the vast numbers of the wire-worms, and of *Agnotis segetum*, that had been destroyed from a field of turnips by the hand-picking of children, and thus a valuable crop saved at a trifling expense.

Mr. SHIPSTER exhibited a nest of the "trap-door" spider, received from South Australia, in which the door was of a semi-circular form, and so nicely constructed, that the roots of grass were still undisturbed in the lid.

Mr. WESTWOOD read a paper, by himself, on the production and natural history of *Hybrids*, in reference more particularly to those specimens reared by Mr. House, and exhibited at the November Meeting, accompanied by a drawing illustrative of both upper and under sides. A detailed account of all the most remarkable instances of these occurrences was contained in the paper; and the argument respecting the proper identity of species, or their intermixture, by which possible new ones might be indefinitely created, was gone into at length by the author. His conclusion was in favour of the true isolation of species, which view was strongly supported both by the Rev.

F. W. Hope and Mr. Yarrell, in a variety of analogous reasoning, and the citation of a number of facts among the higher animals.

The first part of a paper by Mr. NEWPORT, being an inquiry into the proper office of the antennæ of insects, was read.

ANNIVERSARY SITTING, 22D OF JANUARY, 1838.

J. F. STEPHENS, Esq. President, in the Chair.

After the reading and confirmation of the Minutes of the last Meeting, the customary business was proceeded in, of the election of officers for the year ensuing. J. F. STEPHENS, Esq. was re-chosen President; W. YARRELL, Esq. Treasurer; J. O. WESTWOOD, Esq. Secretary; and the same gentleman, with W. E. SHUCKHARD, Esq. Joint Honorary Curators. The following gentlemen were then elected into the Council, *viz.* Messrs. ASHTON, BOWERBANK, WALKER, and DARWIN, in the room of four Members recommended to be removed, according to the Bye-laws.

The TREASURER presented his Report, as signed by the Auditors; from which it appeared, that the income of the Society for the past year had been nearly 200*l.*, which was expended in printing the Transactions, the purchase of cabinets, and the general current charges.

The PRESIDENT then rose and spoke as follows:—

“GENTLEMEN,—Upon the occasion of this, our Fourth Anniversary, the pleasing task devolves upon me of addressing a few words to you from this chair, relative to the state and progress of this Society,—an association, I heartily rejoice to see, advancing towards maturity with more rapid strides than my most sanguine expectations anticipated at the period of its formation: the majority of the most celebrated Entomologists, both of the continent and of this country, having already enrolled their names in its service. Our meetings are generally well attended; a considerable number of highly valuable, instructive, and practical memoirs have been communicated to us, and interesting discussions have ensued; and I hail it as a favourable omen, that our sitting of the 1st instant consisted of so numerous an assemblage of members. It is, however, with feelings of regret I have to observe, that her most gracious Majesty has been advised to withdraw her patronage, so

condescendingly bestowed upon us while a subject, shortly after the origin of the Society—arising, I believe, solely from a point of etiquette, in consequence of the Society not being incorporated, and, as such, not recognisable by the executive.

“Although during the past year the increase of our members has not been so considerable as in the immediately preceding one, the numbers, I have pleasure in stating, are progressively augmenting, nineteen having been elected since our last Anniversary. In 1836, the Society consisted of 184 members, and at present of 194; notwithstanding five *resignations* have been tendered and accepted, and four *deaths* have occurred. Amongst the latter, with deep regret I lament that it falls to my lot to record that of my much esteemed, affable, and cordial friend, Sir Patrick Walker; a gentleman with whom I have been intimately acquainted upwards of a quarter of a century—with whom I have passed many pleasant and instructive hours, and with whom I have taken several delightful entomological excursions. As a naturalist, he was perhaps not generally known in the south; but as a most zealous promoter of the science of Zoology in all its branches, especially of Entomology, he was deservedly respected in his native city, Edinburgh. ‘In truth,’ as was well observed upon the occasion of the Masonic meeting held there in honour of his memory, ‘he was, in every sense of the word, a servant of the public, devoting his long and useful life to whatever tended to the comfort or advantage of his fellow-subjects; while, in private life, he was adorned with every quality which was desirable or enviable.’ He was one of the original members of the Wernerian Society of Edinburgh, and he had amassed a large and valuable collection of insects, exotic as well as British; I am not, however, aware of its destination. The other individuals, of whose aid the Society has also been deprived by a similar visitation, are, Mr. J. O. Pritchard and Mr. G. Trusted, of London; and M. Robert, of Liege.

“The *Donations* to our library have again been very considerable, and some highly useful and valuable works have been presented, not only from private individuals unconnected with the Society, but from various public bodies, both of this country and of the continent; the number of distinct publications added within the year amounts to fifty-seven, amongst which the *Naturforscher*, in twenty-seven volumes, presented

to the Society by my valued friend and predecessor, in addition to numerous other works from the same liberal and spirited donor, may be especially noticed, as being a periodical of great practical utility, and also one of rare occurrence in so complete a state.

“ With regard to our *Collection of Insects*, it is with unusual satisfaction I announce that, from the prosperous state of our finances, as you have heard from the Report of our worthy Treasurer, we shall be enabled to command the services of a paid assistant to those gentlemen who have so kindly and so liberally undertaken gratuitously to superintend its arrangement; and as we are now in possession of several excellent cabinets, I hope, before the recurrence of another anniversary, the entire collection will be so far arranged as to be available to the student; for I speak advisedly when I add, that several individuals have hitherto declined joining our Society, and one has actually tendered his resignation, in consequence of our collection, extensive though it is, remaining in an unarranged condition. I need not, therefore, impress upon our valuable Curators the boon they will confer upon the Society, by expediting as much as in their power the labours they have so handsomely undertaken to perform; though, at the same time, knowing the various difficulties they have to encounter, we cannot expect their progress will be very rapid, from the very limited time they can afford to devote to the subject; at all events, I feel that the thanks of the Society are justly due to them for the exertions they have already made in furtherance of the task voluntarily imposed upon themselves; and let us hope that they will merit a reiteration of the same, from their increased exertions on our behalf during the present year.

“ The design and objects of this Society have already been repeatedly alluded to by my predecessors; nevertheless, I cannot avoid reverting to the fact, that one of its immediate, and, as it appears to me, most momentous objects, is the *publication* of the labours of its members; and I am, therefore, happy to announce that the Fourth Part of our Transactions is now upon the table ready for distribution; and I feel assured that several of the papers will reflect great credit upon the writers, from their *practical utility*, and tend considerably to advance the views contemplated by the Society.

“ Amongst the latter, the Prize Essays established by the

Society may be referred to for their *practical importance* to the Agriculturist: the Essay proposed for the past year, was an investigation into the habits, &c. of the 'Nigger,' or black caterpillar of the Turnip-fly (*Athalia centifoliæ*), towards the prosecution of which the Agricultural Society of Saffron Walden joined us, by proposing an additional five guineas for the successful essayist. At present, I regret to observe, one essay alone, but apparently a very valuable one, has been sent in; and this day terminates the period for the reception of such papers. As this paucity of essays may probably arise from the late period of the year the notice for their subject was promulgated, would it not be advisable in future, that a longer time should elapse between the announcement of the proposed Essay and that fixed upon for its reception? In the present instance, I am fully aware, the delay originated, unavoidably in a great measure, from the negotiations between the Saffron Walden Association and this Society.

“ Surrounded as I am by individuals fully competent to judge of the vast and almost boundless extent of the subjects comprehended within the scope of the Society's investigation, it may not be thought useless to suggest to them the adoption of the most simple methods of carrying their inquiries forward. Most of you, doubtless, have experienced, at one time or other, the vexatious loss of time consequent upon being compelled to wade through voluminous works for the purpose of ascertaining whether any account or description of the insect, then under your investigation, was therein contained; and after the most laborious research, have been frequently disappointed in your endeavours to extract the wished-for information, arising from the diffused and miscellaneous character of such publications; and, as I trust that our Transactions will eventually become voluminous, would it not be advisable for the working members of the Society to confine their labours, as far as practicable, to *groups*, in preference to the mere description of new and isolated *species*? thereby gradually laying the foundation of a valuable series of Essays, by preparing a succession of monographs of such groups of insects as are but little known, and of which the descriptions, so far as they have appeared, lie scattered over numerous bulky volumes. I would, however, except from this rule all notices or descriptions of new species, regarding which any important fact of economy, physiology,

structure, &c. may present itself; but in this case, as well as in the previous instances of monographs, I would recommend that an occasional abstract of the species described in the preceding volumes of our Transactions should be prepared in an arranged form, as an index to their contents, and as a guide to the student; and that this arranged index should be occasionally continued, and the previous abstracts incorporated: indeed the necessity of rendering the results of our exertions accessible cannot be too much insisted upon. The astounding number of works relating to Entomology, enumerated in Percheron's *Bibliographie Entomologique*, is sufficient evidence of the drudgery required by the investigator into the ascertainment of new species, &c.; but numerous as are the works recorded by that author, there appear to be so many serious omissions, that I cannot do better than reiterate the suggestion of my predecessor, that a Manuscript Catalogue should be formed as an Addendum to the above-mentioned work.

With respect to the various papers which have been presented to the Society, and have contributed towards our instruction or entertainment at our meetings during the past year, I have no particular remarks to make, only observing, in general terms, that the most valuable of them will *shortly* appear in your Transactions; and, I have great satisfaction in saying, it is the intention of your Council to publish our fasciculi at shorter intervals than has hitherto been the practice."

The speech was received with general applause, and the usual votes of thanks were then passed.

SITTING OF THE 5TH OF FEBRUARY, 1838.

J. F. STEPHENS, Esq. President, in the Chair.

The following donations were announced, and thanks ordered to be given to the several donors:—

Rev. F. W. HOPE. Catalogue of Hemiptera in his collection, *also* his Coleopterists' Manual.

The EDITOR. Athenæum for January.

The EDITOR. Magazine of Natural History for February.

Mr. NEWMAN. Entomological Magazine, No. XXII.

THE AUTHOR. *Synonymia Insectorum. Genera et Species. Curculionidum*: à C. J. Schœnherr.

MR. WALKER. Sixty-one species of minute British *Hymenoptera*.

MR. SHIPSTER exhibited a series of insects, principally Coleoptera, obtained from turpentine.

REV. F. W. HOPE exhibited a selected portion of a collection made in India by Mr. Downes, Assistant-Surgeon in the Indian Army. It contained specimens of groups, previously supposed by the Rev. F. W. Hope and Mr. Westwood to have been indigenous to Africa and North America respectively.

A larva, found by the Rev. L. JENNINGS in the lock of his desk, was exhibited. It appeared not to be accidentally located there, but to have chosen this singular nidus.

The second part of a Paper on the Antennæ of Insects, by Mr. NEWPORT, was read. After detailing a variety of facts and experiments, to show that the antennæ were not the organs of smell, the conclusion arrived at by the author was, that, although in some insects they are made use of as tactors, their main office is connected with the sense of hearing, throughout the insect tribes. The Rev. F. W. Hope confirmed the observations and opinion of Mr. Newport, and drew a comparison between the joints of the antennæ and the articulations of a telescope; and, from some strong analogies between the senses of seeing and hearing, he thought the antennæ might act as a sort of ear-trumpet, the seat of their sense of hearing being in or near the basal joint of the antennæ in insects.

SITTING OF THE 5TH MARCH, 1838.

J. F. STEPHENS, Esq., President, in the Chair.

Donations were announced as follows, viz:—

The AUTHOR. Yarrell's British Birds, Nos. 4 and 5.

MR. N. WOOD. Naturalist, No. 15.

The EDITOR. Magazine of Natural History for March.

ZOOLOGICAL SOCIETY OF LONDON. Proceedings of that Society, January to August, 1837.

The CONDUCTORS. Annals of Natural History, No. 1. (New Series).

The EDITOR. Athenæum for February.

The EDITOR. Arboretum et Fruticetum Britannicum, Nos. 55 and 57.

The ENTOMOLOGICAL SOCIETY OF FRANCE. Annales of that Society, Part III. 1837.

The IMPERIAL SOCIETY OF NATURALISTS OF MOSCOW. Bulletin of that Society, Part V. 1837.

The AUTHOR. Description de quelques Coléoptères Nouveaux, par B. Zoubkoff.

A letter from Mr. Templeton addressed to the Secretary was read, describing at great length and minuteness, a new Strep-sipterous insect, reared by the writer from a *Spheax* at Rio Janeiro, and for which he proposed the name of *Xenos Westwoodii*. The description was accompanied by detailed drawings.

The Rev. F. W. HOPE took occasion to remark on the little attention that had hitherto been paid to the geographical distribution of insects, even among the best authors. In hopes of drawing attention to the subject, he had prepared a number of Charts of the World, on Mercator's plan, of elephant size; and he was anxious to induce various Entomologists to take up one or more Orders according to their particular study, and work them out.

A description by Mr. WESTWOOD of a new *Paussus*, in Mr. Downes' collection, exhibited at the last Meeting, was communicated, with drawings. The Rev. F. W. Hope expressed an opinion that it was only the other sex of a species before described.

The first part of a Paper entitled Rough Notes on the Habits and Manners of some of the British *Brachelytra*, by Mr. HOLME, was read.

Mr. W. W. SAUNDERS exhibited a splendid specimen of *Urania*, taken at sea in the Mozambique Channel.

Mr. RADDON produced a piece of what he believed to be GumCopal—having obtained it as such from an eminent house in the trade at Bristol—containing several insects imbedded in its substance. He was induced to bring it to the Society for the sake of information, from a statement of the Rev. F. W. Hope's, that it was not in Copal, but always in Animé that insects were found. The Rev. F. W. Hope, after examining the specimen, had no hesitation in pronouncing it to be Animé of the third or fourth year's growth, and not Copal. The forms of the insects themselves likewise indicated African or

Eastern origin, from which part of the world Animé was alone imported ; whereas Copal was solely a South American production. The two substances were often confounded together in commerce. Mr. Raddon likewise made some remarks on rearing *Acherontia Atropos*. He had had great numbers of the larvæ brought to him during the past season, but in the common temperature of his room had succeeded in rearing scarcely one per cent. ; whereas a friend of his had reared eight out of twenty, by placing them in a pinery. The object he had in view was, by rearing from the egg, to trace the history of the insect in its earliest stages, which did not appear to be known.^a

Mr. BAINBRIDGE exhibited specimens both of *Coleoptera* and *Lepidoptera*, perfectly cleaned from grease by Petroleum without injury. Mr. Shuckard said the method was not new, but was first discovered by Treischkte, and had moreover been published in an English periodical.



ART. XXXIV.—*Note of the Mode of removing the Grease from Insects by the application of Naphtha Petrolei.* By W. E. SHUCKARD.

DEAR SIR,—At the last meeting of the Entomological Society, Mr. Bainbridge brought before the notice of the members the successful use of the Naphtha Petrolei in extracting the grease from injured insects. This was mentioned without stating any authority for its discovery ; and consequently those unacquainted with its history, would necessarily ascribe the entire merit of it to Mr. Bainbridge. I could not be silent under these circumstances ; and without intending any thing invidious towards Mr. Bainbridge (as appeared to be thought by the tone in which several of the members replied to my observation), I named the original discoverer of this invaluable recipe, which was published at the end of the Preface to Treitschke's Compendium for Butterfly Collectors, in 1834, and attributed to Mr. Dobner of Meinengen. The English Entomologists are constantly complaining that foreigners do not do us justice ; it is, therefore, very bad taste to do that

^a Mr. Raddon also called the attention of the Society to the very remarkable but indubitably ascertained fact, that this insect has been known to emit its squeaking note while yet in the pupa state.—EDITOR.

ourselves which we censure in them; and it was principally upon this account that I rose to claim the discovery for the rightful individual. In the observations in which I was replied to, Mr. Bainbridge was thanked for divulging the *secret*. This, Sir, is the chief cause of my sending you the present note, as it was a pointed insinuation, that I wished to monopolize a valuable discovery. So far from this being the case, allow me to say, that it was through my intervention only that Mr. Bainbridge knew any thing about the matter; for, after reading it, I named it to Mr. Courtenay, requesting him to try its efficacy; which he did, and found it fully answer. He mentioned it to Mr. Desvignes, who acquainted Mr. Bainbridge with it. So soon as I found that it was completely successful, knowing how serviceable it would be to my brother Entomologists in this country, who had long tried many things in vain to obtain this object, I sent you, amongst others, a notice of it, before the publication of your last Number, that it might become generally known to English Entomologists. This, perhaps, you will do me the favour to corroborate in a note, and thus free me from the suspicion of wishing to conceal what would be so extensively useful; which is rendered the less probable from my not possessing a collection of *Lepidoptera*, which are the insects most injuriously affected by greasing, from which cause it was that I could not experiment upon the utility of the process myself.

Yours, very truly,

W. E. SHUCKARD.^a

ART. XXXV.—*Note on Œstrus Equi; the Bot of Horses.*

By BRACY CLARK.

IT would have been ill-natured not to have been pleased with the various choice dishes served up in your last Number: although some of them might not be exactly entomological, they were very interesting, as usual, and graphically descriptive of their respective objects.

But in penetrating farther into the Number, I was led to observe the unexpected honour of my name being inserted,

^a We have pleasure in corroborating Mr. Shuckard's statement, although we consider his assertion amply sufficient.—EDITOR.

with a free accusation of my "being in error;" which imputation precedes, instead of following, as it should properly do, the cogent proofs of error which are adduced. However, *humanum est errare*; and we are none of us exempt from the humiliating imputation of "being in error," therefore it were idle to be in a passion about it: having written much on this subject, errors have undoubtedly crept in, although they do not at present occur to the sagacity of my critics. The notions now broached as new, existed *inter vulgos* half a century ago, and it was my business, and the especial object in my "Essay on the Bots of Horses," to remove them. I thought I had succeeded; and all the naturalists of eminence during forty years have coincided with me, as far as they have condescended to acquaint me with their views on the subject.

It seems, however, that we are to go back to the old absurdity of the larvæ of *Æstri*, without teeth, or any instruments of any kind whatever, gnawing through the horse's stomach. And now, having performed this notable feat, what have they accomplished? Why, gnawed away their own standing, to effect their own destruction; for, falling, through the hole they have made, into the cavity of the abdomen, they must there inevitably perish. Now, suppose any one were to tell you that a caterpillar, without teeth or jaws, gnawed from under himself the leaf on which he stood, and very wisely tumbled himself on the ground, and perished miserably! Nature, or, more properly speaking, an All-wise Providence, does not commit such errors as these, but gives to all her creatures their food in due season, and a safe standing while they are eating it. Surely Linnæus was right when he declared he could find no distinctive characters between the genus *Homo*, and the genus *Simia*—"by their *acts* shall ye know them:" whilst some are devotedly labouring to clear the stream of knowledge from all its impurities, others, with quadrumanous activity, busy themselves with scratching back those very impurities again into the current.

But I believe I can trace this nonsense to a preparation of Mr. Coleman's, at that stupid Veterinary College, which preparation I saw a few years after publishing my work. It exhibits a mass of bots adhering to a piece of a horse's stomach: some of the bots are deeply sunk into the substance, some are only half immersed in it, and some are bodily and

completely passed through it. On seeing the preparation, I was at first staggered, but on consideration I found a solution of this ridiculous anomaly. The piece of stomach has been allowed to become putrid, as its loose flocculent texture sufficiently shows; and then the bots, which possess a hardish body when contracted, while living, have been, either purposely or accidentally, by being rolled up in the substance, forced, some a quarter, some half, and some entirely through it. Such is a preparation which has misled some thousands: a second edition of my "Essay" may ere long appear, when the affair will have a more lengthened exposure.

The critic alluded to makes me to say, that these larvæ feed on the "vegetable contents of the horse's stomach;" this shows he knows nothing of the matter, for I have expressly stated that they feed on chyle, which chyle is often tinged of a green colour, from its impurity;—and pray what is the fluid to which he alludes, but chyle?

The opinion that bots are not salutiferous, is worth nothing at all, without some proofs to support it. I have given many in support of a contrary opinion.

BRACY CLARK.

REGENT'S PARK,
January 16, 1838.

ART. XXXVI.—*Magazine of Natural History*. Edited by
EDWARD CHARLESWORTH, Esq.

No. 13, Art. 5.—*On Coptosoma; an anomalous genus of Heteropterous Insects*. By J. O. Westwood, Esq. F.L.S. &c.

The remarkable point in this insect, is the construction of its fore wings; these are very much elongated, and when at rest folded transversely, a peculiarity which has been as yet discovered in no other group of insects.

No. 14, Art. 1.—*Notes by Mr. Turpin, on a species of Acarus, presented to the Academy at the sitting of the 30th of October, by Mr. Robertson, to whom it had been forwarded by Mr. Cross*.

The writer of this paper appears to have been the dupe of Cross's hoax, about the *creating* of animals; a subject which, like Murphy's Weather Almanack, has been a perfect *bonne bouche* for the literary vulgar. We do not say that M. Turpin is a convert to this Promethean legerdemain, but that he deems it a fit subject to treat with argument and respectful inquiry. Cross is really a clever fellow, and he must enjoy with infinite gusto the wonderings of such men as Buckland and Turpin. After treating the subject with such gravity, the learned author should certainly have concluded by naming the new creation *Crossia Bucklandi* of Turpin.

No. 15.—*New Locality for Polyommatus Arion, recorded by the Rev. W. T. Bree.*

My son took nine or ten specimens of this butterfly on the 14th, 15th, and 16th July last, in a rough, grassy pasture field, near Barnwell Wold, near Oundle, in Northamptonshire: they were in a rather faded condition. *Pamphila Paniscus*, and *Nemeobius Lucina* were also flying in abundance.

ART. XXXVII.—*The Transactions of the Entomological Society of London. Vol. II., Part I. London, 1837.*

1. *Some Account of the Habits of an East Indian species of Butterfly, belonging to the genus Thecla.* By J. O. Westwood, F.L.S., Sec. E.S., &c.

The larvæ of this butterfly dwell in the interior of the pomegranate, seven or eight in a single fruit. They feed on the seeds and inner parts. Before the fall of the fruit is occasioned by this attack, the larvæ eat a hole in the shell, through which they crawl to the fruit stalk, and spin a web, uniting the fruit and its stalk, of sufficient strength to prevent the fall of the former; after the fruit is thus secured, the larvæ re-enter it, in order to undergo their metamorphosis. The pupæ are attached to the inner walls of the pomegranate by the tail,

and also by a girt round the middle. Immediately on escaping from the puparium, and before the wings are expanded, the butterfly leaves the pomegranate, through the hole it had made while yet in the larva state. The butterfly is *Thecla Isocrates*, of Fabricius. On an anatomical examination of the perfect insect, Mr. Westwood found the protarsi of the males exarticulate.

2. *Description of a new Coleopterous genus, belonging to the tribe Prionida, termed Torneutes.* By G. C. Reich, M.D., for M.L.S. Lond., for M.E.S. &c.

Head exserted porrected, as broad as the prothorax: antennæ filiform, 12-jointed as long as the head and prothorax: labrum quadrate: mandibles porrected, as long as the head, curved at the apex and 3-toothed: lacinia of the maxillæ small and rounded, galea somewhat larger, also rounded; maxipalpi 4-jointed, the first joint small and slender, the rest longer, stout exteriorly, and of nearly equal length; labium transverse, very short, labipalpi 3-jointed, the first joint short, the others elongate subclavate: prothorax subquadrate, rather longer than broad; elytra linear, thrice the length of the prothorax, rounded at the apex: legs short.

Sp. *Pallidipennis*. Black shining: elytra glabrous, testaceous, with two slightly elevated lines on each. Length 3 inches, breadth 3.75 inch. Inhabits the province of Entre Rios, South America.

3. *Account of the Poma Sodomitica, or Dead Sea Apples.* By Walter Elliott, Esq. M. E. S.

The *Mala insana, Poma Sodomitica*, or Apples of the Dead Sea, beautiful and tempting to the eye, but crumbling to dust and bitter ashes at the touch, have been the subject of much controversy. Some authors even deny their existence, considering them merely the creations of Eastern imagination; others, however, treat their existence as a fact beyond all dispute. Mr. Elliott's memorandum is to this effect:—"Among the trees in the forests beyond Jordan was one called *Sajar el Fush*, on which we found what we conceived to be the true Dead Sea Apple, described by Strabo. The Arabs told us to bite it,

and laughed when they saw our mouths full of dry dust. It is about the shape and size of a small fig, of a dark reddish purple colour, with rows of small thorns at the upper end. The interior was filled with a snuff-coloured, spongy substance, crumbling into dust when crushed. Those less mature were green, and spongy within, and on the surface unctuous to the touch. They were generally perforated with a small round hole. This fact, together with their containing no seeds, and the mode of their attachment, indicate them to be the work of an insect. The Arabs speak of another, yellowish excrescence of the same tree, called *Afs*, which I believe to be merely an immature stage of the same production." Some insects came out of the apples on their way to England, and were found among the cotton in which they were packed. Mr. Westwood has figured and described a Hymenopterous insect, under the name *Pimpla Sodomitica*, which he supposes parasitical on *Cynips insana*, the gall-making insect which produces these apples.

4. *Descriptions of several new Species of Exotic Hemipterous Insects.* By J. O. Westwood, F.L.S. &c.

Family PENTATOMIDÆ. *Eumetopia fissiceps*, distinguished by the head bearing two singularly curved porrected processes, one before each eye, and also a square central process projected over the mouth; altogether a very remarkable formation; it inhabits South America. *Oncoscelis Australasica*, distinguished from *Aspongopus* De Laporte by the possession of tarsal pulvilli, and the insertion of the antennæ; and from *Rhaphigaster*, *Edessa*, &c. by the simple sternum and abdomen. *Cyclogaster pallidus*, of which the simple sternum, rounded and depressed form, and very short antennæ and rostrum, distinguish it from *Tesseratomas*, *Apongopus*, and others of the *Scutati*, whose antennæ have but four joints. *Family* CAPSIDÆ. *Eucerochoris nigriceps*, remarkably distinguished from other Linnæan *Cimices* by the extraordinary length of its slender antennæ, almost thrice as long as the body. *Family* REDUVIIDÆ. *Enicocephalus basalis*, *fulvescens*, *tasmanicus*, and *flavicollis*. In this remarkable genus the pro-, meso-, and metathorax are perfectly separate from each other, transverse, and singularly formed.

5. *Remarks on the Turnip-Fly.* By Henry Le Keux, Esq.

On examining the leaf of a turnip against the light with a magnifying glass, I perceived a *larva* between the upper and under surfaces, which eventually proved to be that of the *Altica nemorum*, or little beetle, commonly known by the name of the Turnip-fly. On removing the earth from the root of the plant from which this leaf was taken, I found both *larvæ* and *pupæ*. I have previously attempted to breed the *Altica*, by keeping a number in a small box covered with gauze wire, and dropping in fresh pieces of turnip leaf daily; in this manner I kept them alive from July till February: but it appears it is essential that the leaf should be in a growing state, otherwise the egg shrivels up and dries with the leaf. Still being unacquainted with the origin of the *larvæ*, I captured ten *pairs*, and enclosed them in a glass tube, with a turnip leaf, and water to keep it fresh; by this means I could examine them with a glass without disturbing them. Next day I found five smooth, oval-shaped eggs attached to the under side of the leaf, and very nearly of the same colour. The leaf was removed and placed in water, and a fresh one supplied, which, on the following day, had three eggs on it. I found great difficulty in preserving the leaves sufficiently long for the eggs to hatch; but I provided against this by placing fresh leaves by the side of the old ones. The eggs hatched in ten days, and the *larva* immediately began to eat its way into the leaf, and form a burrow by feeding between the upper and lower surface; this burrow is scarcely obvious until it has become dry. The *larva* is full fed, and goes into the earth at the end of sixteen days, to the depth of an inch and a half, always under the shelter of the turnip leaves. I believe the time passed in the chrysalis state to be about a fortnight, although I have been unable to ascertain this with accuracy. The perfect insect appears to fly only in warm sunshine, or when the thermometer stands as high as 70° in the shade. They pair in May, June, July, and August. In the winter they live in crevices of timber, bark of trees, and in loose dry banks; from these hiding-places they emerge, even in winter, on the occurrence of a warm day. In cold weather they are torpid and inactive. All remedies at present suggested for destroying or driving away the fly are ineffectual. If Swede turnips are

sown with *white stone turnips*, the fly will attack the latter and leave the former; thus the Swedes will be preserved. In addition to the *Altica*, wire-worms, by eating the roots, and ants, by carrying away the seed, are very injurious to the turnip crop.

6. *Description of a new Crustaceous Animal.* By Robert Templeton, Esq. R. A.

This animal, the *Cyclops Anomalocera Patersonii* of Templeton, has these distinguishing characters: — Antennæ 4, the superior about $\frac{2}{3}$ the length of the body, and dissimilar in the male, that on the left being tapering, spiny, and many-jointed; that on the right is inflated about the middle: the superior antennæ of the female are alike, and resemble the left superior antennæ of the male: the inferior antennæ are short, palpiform, remote at their base, and three-jointed, the first joint sending inwards and upwards a minute, elongate, club-shaped appendage: the eye of the female is sessile, of the male stalked: the swimming feet are four pairs. The animal was taken in crossing the ferry at the mouth of Larne Lough, county Antrim, in May; in fifteen minutes, above three hundred were captured; though kept in salt water, all died during the night: they swim with a lively and constant motion, and jirk themselves out of the way when pursued.

7. *Notes respecting the Variety of the Silk-Worm which spin White Silk.* By W. Sells, Esq. M. E. S.

June 7th the eggs began to hatch, August 4th the worms began to spin, 27th the moths appeared, and between September 14th and 29th they died; the silk is perfectly white; the cocoons larger than those of the common kind, more variable in figure, and wound with greater difficulty.

8. *On the Golofa Beetle of Venezuela, and its allied species.* By the Rev. F. W. Hope, M. A. F. R. S. &c.

Characters of the genus *Golofa* of Hope. Labrum distinct, notched, ciliated: mandibles strong, falcate, beneath keeled, internally pilose at the base: maxillæ elongate, the apical lobe attenuated, internally toothed and ciliated: maxillary feelers

4-jointed, the first and third joints are nearly equal, the second rather longer, the fourth elongate and attenuated: labipalpi 3-jointed, the first and second joints being very short, the third longer and obovate: antennæ 10-jointed, and formed similarly to those of the genus *Megasoma* of Kirby: the body is oblong; the head of the male has a recurved serrated horn: the fore feet of the male are very long and curved: the last joint of the tarsi pilose on the outer side. Of this remarkable and very beautiful genus Mr. Hope mentions seven species:—*Porteri*, Hope; *Incas*, Hope; *Claviger*, Fabricius; *Hastatus*, Fabricius; *Ægeon*, Fabricius; *Pizarro*, Hope; and *Guildinii*, Hope.

Characters of *Golofa Porteri*. Rufo-castaneous, antennæ black, with a rufo-piceous club: the horn of the head recurved, very much serrated, and almost as long as the elytra: the prothorax is armed with a simple erect horn, which is pilose anteriorly: scutellum red, with a black margin, and punctured: the elytra are castaneous, thickly punctured, with the suture and margins black: the body below is piceous, thickly covered with a fulvous pubescence: the legs are black, the fore tibiæ are 3-spined, and have a spur at the apex; the hind tibiæ have 2 spurs. The female of this insect is unknown; the male, described above, is 29 lines in length, and 14 in breadth; it was taken at Venezuela, by Sir Robert Kerr Porter, and presented by that gentleman to the United Service Museum.

Characters of *Golofa Incas*. *Male*,—pale, castaneous: antennæ black, with a rufo-piceous club: the horn of the head is black, recurved at the tip, slightly keeled on the back, and slightly toothed: the prothorax is furnished with a short erect horn, acute at the tip, and covered with a fulvous pilosity: the scutellum is black, and thinly punctured: the elytra are punctured, testaceo-castaneous, with a black suture and margins: the body beneath is pitchy black, thickly covered with a fulvous pubescence: the fore tibiæ are 3-spined, and have a spur at the tip; the hind tibiæ have two spurs. *Female*,—head black, with a spine in the middle: prothorax bright, castaneous, with large punctures: elytra castaneous, deeply punctured, with three yellow lines on each: the fore legs are without any fulvous pubescence. This species inhabits Mexico; it is 18 lines in length and 10 in breadth.

Characters of *Golofa Pizarro*. Rufo-castaneous; the horn

of the head is simple and recurved; the horn of the prothorax is erect, and somewhat trilobed at the tip, beneath it is excavated and pilose: body beneath pitchy black, covered with a fulvous pubescence: the femora are piceous: the tibiæ and tarsi nearly black. This species inhabits Mexico, is 16 lines in length, and $7\frac{1}{2}$ in breadth.

Characters of *Golofo Guildinii*. Dark, castaneous: the horn of the head is simple, that of the prothorax is elevated, somewhat trilobed at the tip, excavated and pilose beneath: the body beneath is sparingly covered with pubescence: the legs are nearly black. This species inhabits the island of St. Vincent; it is $16\frac{1}{2}$ lines in length, and 8 in breadth.

9. *Observations and Experiments for excluding the House and other Flies from Apartments by means of Nets.* By the Rev. E. Stanley, now Lord Bishop of Norwich.

In this paper the author merely states that he had employed the nets of worsted, thread, &c. as recommended in a former paper by Mr. Spence, for the purpose of excluding flies, and has found them completely efficacious.

10. *Observations on Succinic Insects.* By the Rev. F. W. Hope, M. A. F. R. S. &c. *Part II. Gums and Resins.*

In commerce the term *gum* is improperly applied to *Copal* and *Animè*, both of which are *resins*. The gums principally imported into England are those of Arabia and Senegal; none of them appear to have been hitherto found containing insects. Resins are insoluble in water, but are generally soluble in alcohol, especially if assisted with heat. *Copal* appears to be a Mexican word for *gum*, and is applied alike to gums and resins; it is said to come from South America, and also from *India* (which I doubt); and the tree producing it in New Spain to be *Hymenœa Courbaril*. It is found in rounded lumps, and is said to contain insects, but I have hitherto found none. *Animè* is a resinous substance, which exudes from the *Vateria Indica*, a gigantic tree of Malabar, as also from some unascertained tree in central India, and from the *Trachylobium Gærtnerianum*, a native of Madagascar. The term *Animè* was first applied by the Portuguese to the gum of a species of

Hymenæa. *Animè* contains lizards of the genus *Hemidactylus*, shells of the genus *Cyclostoma*, 155 genera of insects, plants of the genera *Mimosa*, *Shorea*, and *Hemicyclia*, and occasionally drops of water.

The following new species of insects are described and figured:—*Osorius brunnicornis* (Coleop. Staph.); *Temnoderma testacea* (Coleop. Pselaph.); *Mecynocanthus unicolor*, *Ctenicerus eximius*, and *Elater Wallesii* (Coleop. Elater.); *Tillus 9-maculatus*, and *Stigmatium bifasciatum* (Coleop. Cler.); *Brenthus nasalis*, and *Eumorphus castaneus* (Coleop.); *Calotelea aurantia*, and *Calyzoa staphylinoides* (Hymenop. Proctot.); *Enicocephalus nasalis* (Hemip. Reduv.); and *Cercopis Strongii*, (Hemip.)

11. *Description of Cucullia Solidaginis, together with its Larva.*

By James Francis Stephens, Esq. P. E. S., F. L. S. &c.

The imago has the anterior wings fusco-cinereous, varied with whitish, the usual stigmata are very distinct, and have a double blackish margin; the interior margin, and a streak at the anal angle, black: the larva is long, slender, naked, and pale apple-green coloured, with a row of reddish lunules on each side above the stigmata, and a chain of diamond-shaped reddish blotches down the back: its anterior part is capable of great attenuation and extension, after the manner of a leech; it feeds on the blossoms of the Golden Rod (*Solidago virgaurea*) in September, and the imago appears the following June.

12. *Notice of the Coleopterous Insects observed in the Scilly Islands in July and August, 1836.* By Frederick Holme, Esq. M.A., M.E.S.

Cicindela campestris; 26 Carabites, and amongst them *Calathus fuscus*; *Hygrotus inæqualis* and *affinis*, *Laccophilus interruptus*; *Cercyon* 5 species, *Sphæridium* 3, *Phosphuga atrata*, *Simplocaria semistriata*, *Hister* 2, *Onthophagus* 2, *Typhæus vulgaris*, *Geotrupes* 7, *Aphodius* 7, *Ægialia globosa*, *Serica brunnea*, *Melolontha vulgaris*, *Amphimalla solstitialis*, *Phyllopertha horticola*, *Cetonia aurata*, *Ptilinus pectinicornis*, *Leiophlæus nubilus*, *Otiorynchus* 5, *Strophosomus cognatus*, *Apion hæmatodes*, *Thyamis tabida*, *Macrocnema marcida* in plenty on *Euphorbiæ* and two others, *Phædon Polygoni*,

Cryptocephalus ochraceus, *Coccinella 11-punctata*, *Phylan gibbus*, *Crypticus quisquilius*, *Phaleria cadaverina*, *Helops striatus*, *Lagria hirta*, *Anthicus humilis*; and 31 Staphylinites, among which is enumerated *Remus sericeus*, an insect described by Mr. Holme as new, with these characters; antennæ not geniculate; the basal joint longest and stoutest, the two next equal, obconic; the 7 next nearly transverse, equal, the terminal longer, acute: palpi with the basal joints nearly equal, obconic; the terminal rather longer, filiform acuminate at the point: head oblong ovate: eyes lateral, small: prothorax rectangular, elongate, thickly punctate: body depressed: abdomen deeply margined: limbs moderate, without teeth: anterior tarsi moderately dilated. The species *sericeus* is $2\frac{1}{2}$ lines in length, dull black with a golden pubescence, and having the mouth and legs reddish.

13. *On the Domestic Habits of a Minute Species of Ant.*
By J. Bostock, Esq. M.D. F.R.S. &c.

These ants were first found in a cupboard wherein stores were occasionally kept, and on a range of shelves adjoining; the wall to which the shelves were attached being heated by the fire of the contiguous house. On removing the shelves and cupboard, the ants were found on the woodwork, where let into the wall, in prodigious quantities: they were of two sizes, the large ones only equalling one-sixth of the small in number: there were also abundance of larvæ. After the wood-work had been cleared of them, and the cavities refilled with mortar, the ants appeared in great quantities on the floor of the kitchen, near the fire; the flag-stones being lifted up, the sand below the boards of the floor, and the timbers on which they rested, actually swarmed with the ants and their larvæ. Some of the beams seeming to be decayed, and exhibiting symptoms of dry rot, the whole floor was removed, and a new one laid down on tiles imbedded in cement: the fire-range was next examined, and found equally infested by these animals; it was re-set in cement. By these means, the ants have been nearly, but not altogether destroyed. The result of a careful and extended inquiry tends to show, that this pest is spread over a district extending from Gray's-inn-lane in the east, to Regent-street in the west, and from the commencement of Somers Town to the Strand: they have also occurred in

Hampstead and Southwark, principally in grocers' and bakers' shops, and in some cases have compelled the occupiers to quit. The only mode of destroying them, suggested, is to lay pieces of meat on the hearth of the kitchen, and when it is covered with them, immersing it in boiling water.

14. *Descriptions of new Exotic Aculeate Hymenoptera.* By W. E. Shuckard, V.P.E.S., Librarian to the Royal Society.

Psamatha of Shuckard, a genus of the family *Mutillidæ*, has the habit of a male *Mellinus*: it differs from others of the family in the peculiarity of its second submarginal cell receiving both the recurrent nervures also in its clypeus, which approaches that of *Cerceris*. It may possibly prove the male of *Diamma*, Westwood, on the same ground that *Thynnus* has been found to be the male of *Myrmecodes*. 1. *Psamatha chalybea* is 6 lines in length, and $11\frac{1}{4}$ in the expansion of its wings: chalybeous, shining, and covered with a grey pubescence; the hinder margin of the prothorax is white; on each side of the abdomen are four white spots; the feet are rufous, and the tarsi piceous. It inhabits New South Wales. 2. *Ceropales picta* is $3\frac{1}{2}$ lines in length, and 6 in the expansion of its wings: it is black, with the mouth, antennæ, scutellum, pro- and mesothorax and legs red; the abdomen has five white bands: it inhabits the Cape of Good Hope. 3. *Ceropales anomalipes* is $5\frac{1}{2}$ lines in length, and $11\frac{1}{2}$ in the expansion of its wings; it is black, covered with a golden pubescence; the abdomen and legs rufo-testaceous; the four anterior femora and tibiæ are short, stout, and somewhat compressed; the hind legs are slender: it is supposed to inhabit Brazil. 4. *Exeirius* of Shuckard seems osculant between the *Pompilidæ* and *Sphegidæ*; it is chiefly remarkable for its long and robust legs. The wings have one elongate marginal, and four submarginal cells; the fourth apical, the second petiolated, receiving the first recurrent nervure near its centre, and the second towards its extremity; the third cell is very much curved. *Exeirius lateritius* is 12 lines in length, and 22 in the expansion of its wings: it is black and pubescent; the head, antennæ, tibiæ, tarsi, and abdomen, with the exception of the base, are deep fulvous: it inhabits New South Wales. 5. *Astata Australasica* of Shuckard is $4\frac{1}{2}$ lines in length: it is black and shining, with a red abdomen: it inhabits

New Holland. 6. *Pison Spinola* is $7\frac{1}{2}$ lines in length: it is black with a cinereous pubescence; the wings are slate-coloured; the second submarginal cell is very small; the metathorax is obliquely striated: it inhabits New South Wales. 7. *Pison punctifrons* is $5\frac{1}{2}$ lines in length; it is black, and covered with an ash-coloured pubescence; the forehead and prothorax (*thorace anteriore*) thickly punctured; the wings are hyaline, with the margins darker: inhabits India or St. Helena. 8. *Pison Westwoodii* is $3\frac{1}{2}$ lines in length; it is black, shining, and slightly punctate; the fore part of the head is clothed with a silvery pilosity; the wings are hyaline and slightly clouded towards the margins; the metathorax is obliquely striated and indistinctly keeled: it inhabits Van Dieman's Land. 9. *Pison auratus* is 6 lines in length; it is black, slightly punctate, and covered with a golden pubescence; the whole of the first and last segments of the abdomen, and the margins of the remainder, as well as the legs, are rufo-testaceous: it is supposed to inhabit the Cape of Good Hope. 10. *Pison rufipes* is $3\frac{1}{4}$ lines in length; it is black; the base of the mandibles, the palpi, and the feet are red; the tegulæ are testaceous; the metathorax is obliquely striated: it inhabits Van Dieman's Land. 11. *Pison argentatus* of Shuckard is 3 lines in length; it is black, and covered with a silvery pubescence: metathorax obliquely striated, striæ distant, the interstices punctured: the wings hyaline, the tegulæ testaceous: it inhabits the Mauritius. 12. *Gorytes Brasiliensis* is $5\frac{1}{4}$ lines in length, it is black and shining; the abdomen has three yellow fasciæ: it inhabits Brazil. 13. *Paragia decipiens* of Shuckard has precisely the habit of a *Vespa*, but differs in having ovate and not reniform eyes, and in the possession of two sub-marginal cells: the specific character is, black, obscure, the abdomen of a dull ochraceous colour: it is 9 lines in length, and 14 in the expansion of its wings: it inhabits New South Wales.

The remainder of the Number is occupied with a Report of the Proceedings of the Society from February 1, 1836, to February 5, 1837; for a report of these we refer the reader to our own Numbers. Mr. Hope's valuable Coleopterist's Manual, his descriptive List of Hemiptera, and Mr. Kirby's Fauna Boreali Americana must be deferred to our next.

ART. XXXVIII.—*Notices of Foreign Entomological Works.*

1. *Deutschlands Insecten herausgegeben von Dr. G. W. F. Panzer, fortgesetzt von Dr. G. A. W. Herrick Schäffer. Heft 111—115.* (*The Insects of Germany, published by Panzer, continued by Herrick Schaeffer. No. 111—115.*)—This continuation of Panzer's useful work is now being published regularly every month. It is much to be regretted that Dr. Herrick-Schaeffer, the present editor, does not keep the insects distinctly separated from the *Arachnides* described and figured by Koch; and to which he has latterly given a very great preponderance, to the prejudice of the entomologist, who, notwithstanding that the literature of entomology is in itself already almost overwhelming, is thus forced to encumber his shelves, and lay out his money, for fasciculi which are of no use or interest whatever to him. To the arachneologist he has been more considerate, having separated the *Arachnides* as a distinct work. That this complaint is not frivolous, a very loose calculation will readily convince. For instance, in the forty-five fasciculi superintended by Dr. Herrick-Schaeffer, there are 1,080 plates; and of these only 426 contain insects, as from No. 119 he has introduced these *Arachnides*, to which class (and to microscopic species that cannot be preserved), many of the fasciculi are exclusively devoted. Should this meet his eye, we think he would do wisely to take the hint, and adopt a similar plan of accommodation for the entomologist; otherwise, the probability is, that many who now take this work, as a continuation to their Panzer—although, unfortunately, the accurate hand of a Sturm is not found in it—will necessarily discontinue it. We much approve of the useful addition that has been made, in the date of the publication at the bottom of the fasciculi, which thus fixes, for new species, a definite epoch.

2. *German Fauna Insectorum Europæ. Fas. 1—19.*—The last fasciculus published of this work is dedicated to the delineation of fossil insects. It contains twenty-five from the coal formations, chiefly those of the seven mountains in the vicinity of Bonn. Germar observes, there are no extraordinary forms amongst them, and that he has detected scarcely any of the

Adephagous tribes, but that they consist chiefly of *Xylophagi*, especially in their larva state; and but very few water-insects. He has figured fifteen Coleopterous, one Orthopterous, two Hemipterous, one Hymenopterous, one Lepidopterous, and five Dipterous species. It is to be regretted that Professor Germar does not always put the time of publication to his fasciculi; for, of the nineteen now published, between the first in 1812, and the last in 1837, none of them are dated, and this may, at some period, produce doubts respecting his priority of nomenclature. Professor Germar, we think, should take care, likewise, that the figures of his work are more artistically executed; for, in this country, it is an expensive publication, and it has hitherto added only to the costliness of entomological literature without embellishing it.

3. *Deutschlands Insecten von Jacob Sturm. Bd. XI. & XII. Nürnberg, 1837. (The Insects of Germany.)*—The venerable Sturm still continues his very useful Fauna; and, in the first of these volumes, he presents us with sixteen plates, containing thirty-seven beautifully-executed figures, and the dissections, of the genera *Tillus*, *Notoxus* (*Opilus*, Steph.), *Trichodes* (*Clerus*, Steph.), *Clerus* (*Thanasimus*, Steph.), *Corynetes*, *Enoplum*, *Lymexylon*, *Hylæcetus*, *Ptilinus*, *Xyletinus*, *Ochina*, and *Anobium*; and the twelfth contains thirty figures, upon fifteen plates, with dissections, of the genera *Dorcatoma*, *Hedobia* (*Ptinus pubescens* and *regalis*), *Gibbium*, *Mezium*, and *Ptinus*. Thus we have two volumes published in the course of last year; and this we hail with satisfaction, as it gives promise of increased energy, which, if it continue, will help to supply many deficiencies that are now constantly obstructing the progress of the student. We are happy to say, also, that we observe no decrease of skill in the delineation of the figures, or in the accuracy of the dissections. The latter, especially, are very useful contributions to the science; for although no system can be founded exclusively upon the trophi, yet they always supply important characters, which, in the course of study, we have constant occasion to consult. The great value, therefore, of a repertory, containing faithful delineations of accurate dissections, is thus incontestably proved, for it is seldom convenient, and sometimes impossible, to make a dissection at the moment it may be wanted.

4. *Herm. Max Schmidt*.—*Dissertatio inauguralis Zoologica de Pselaphis Faunæ Pragensis, cum Anatomia Clavigeri. Pragæ, 1836.*—Mr. Schmidt describes the following new *Pselaphidæ*:—*Tychus dicrous*, *Bythinus Sternbergi* and *regularis*, *Bryaxis Opunticæ* and *Helferi*. In the genus *Claviger* he has made a remarkable discovery, in case it be substantiated, as he has found their eyes, which have hitherto been denied them, and which are simple, and seated between the antennæ at the truncated frons. It is a useful little pamphlet, and should be in the hands of those whom these minute insects interest, as a necessary supplement to Reichenbach, Denny, and Aubé.

5. *Hilfsbuch für Schmetterlings sammler, von Friederich Treitschke. Wien, 1834.* (*The Butterfly Collector's Compendium.*)—Treitschke, having finished his large work upon the European Lepidoptera, has here made an extract from it for young collectors, adapted chiefly for those living in the vicinity of Vienna. What it contains most useful to the English Lepidopterologist, is the mode he mentions of extracting the grease from greasy insects, and which has been already successfully experimented upon in this country, so that we can safely recommend it. It is simply to immerse the insect in *Naphtha Petrolei* (in Treitschke it is called *Naphtha Vitrioli*), until saturated; upon removing it, the spirit speedily evaporates; and although it relaxes the insect sufficiently for resetting, it does not affect its previous posture; although, to be doubly sure, it is perhaps desirable to place the wings under braces until the spirit has entirely escaped.

6. *J. J. Schott. Raupenkalender oder Systematisches Verzeichniss aller Raupen welche in Deutschland bekannt sind. Frankfurt, 1830.* (*Calendar of Caterpillars, or Systematic List of all the Caterpillars that are known in Germany.*)—This work is probably unknown to English entomologists, although published seven years ago. We notice it chiefly for the purpose of suggesting the utility to collectors, of a similar work upon the caterpillars^a of British Lepidoptera, for which there must

^a We observe that Mr. Wood, of Tavistock-street, advertises an Illustration of British Lepidopterous Larvæ, on the same plan as his *Index Entomologicus*, to commence on the completion of that work.

already exist a quantity of materials, only awaiting a skilful hand to put them together. If well executed, and published at a moderate price, we have no doubt it would secure an extensive sale, and become the indispensable manual of every Lepidopterologist.

7. *Monographie des Braconides de Belgique (suite), par C. Wesmael.* 4to. Bruxelles, 1837. — The third group of the “*Braconides Endodontes*,” namely, the “*Areolaires*,” are here described. It contains the genera *Microdus*, *Ischius*, *Agathis*, *Microgaster*, and *Adelius*. There consequently still remains the group of “*Cyclostome*,” and all the “*Bracones Exodontes*,” to complete the division: we therefore fear that, if M. Wesmael does not progress more rapidly, many of his names will be anticipated, and his labours consequently rendered vain. Mere priority of possession of the field ought not to secure the exclusive appropriation of its produce, unless it be diligently and uninterruptedly cultivated. We are constrained to this remark, from his having completed only one small group since the commencement of his work, which was published two years ago; and in the Preface to which he remarks angrily upon Nees von Essenbeck, for having re-published, with additions, his own scattered papers upon the group, in the interval between the reading and publication of M. Wesmael’s “*Monographie*,” whereby many of the names of the latter were superseded. This, at best, is frivolous; for what is there in a name, at least, the name that can be acquired from the description of a few species? The proficient derives more satisfaction from extensive views and profound knowledge, than it is possible to concede to the idle gratification of seeing one’s mutilated name tacked behind the barbarous one of an insect; although we willingly admit that the correct description of new species implies extensive knowledge, that confused synonyms may be avoided, as well as judgment, to give as much and no more than may be absolutely necessary.

8. *Die Kaefer der Mark Brandenburg, von Dr. W. F. Erichson.* 1 Bd. 1 Abth. 8vo. Berlin, 1837. (*The Coleoptera of Mark Brandenburg, by Dr. W. F. Erichson.*) — This is a valuable contribution to the knowledge of European Coleoptera. In it there is proposed a new arrangement of the order, together

with numerous new subdivisions, all founded upon special characters. The distribution we shall briefly give, that as far as regards the collocation of genera we may convey information, and this may perhaps be satisfactory: our space will not allow us to insert the characters upon which the distribution is founded. Dr. Erichson is already very advantageously known to the entomological public, by his inaugural dissertation upon the *Dytiscidæ*, and his papers upon the *Histeridæ*, *Bostrichidæ*, and *Melœ*; and no student can consult the present work without increase of knowledge. It is to be regretted that, in clearing up much confused synonymy, he should unfortunately have added also to it, as will necessarily result from his not having consulted Stephens's Illustrations of British Entomology; and his excuse for not doing so is, that it was not to be found in Berlin. This is unpardonable in the institutions of Prussia, which profess to pay so much attention to science. Nor can the nomenclature of the Berlin Museum be satisfactory whilst so important a book is left unconsulted; especially as there are so many new species therein described. Upon careful comparison, consequently, we shall find that many of Dr. Erichson's new species will necessarily fall, as well as some of his genera. The following is a compendious outline of his system, as far as it is contained in the first volume of his book, which is all yet published:—

Fam. I.—CARABI.

1. *Cicindelæ.*

Cicindela.

2. *True Carabi.*

DIVISION I.

GROUP 1.—*Elaphrini*, including *Elaphrus*, divided into *Fam. 1.* (*Elaphrus*), *Fam. 2.* (*Blethisa*); *Notiophilus*, *Omophron*.

GROUP 2.—*Carabini*, including *Nebria*, *Leistus*, *Cychrus*, *Procrustes*, *Carabus*, *Calosoma*.

DIVISION II.

GROUP 3.—*Licinini*, including *Panagæus*, *Loricera*, *Licinus*, *Badister*.

GROUP 4.—*Brachinini*, including *Masoreus*, *Brachinus*, *Odantha*, *Demetrias*, *Dromius*, *Lebia*, *Cymindis*.

GROUP 5.—*Scaritini*, including *Clivina*, *Dyschirius*.

GROUP 6.—*Harpalini*, including *Anisodactylus*, *Diachromus*, *Erichs.* (*Carabus Germanus*, *Linn.*), *Harpalus*, *Stenolophus* (*Acupalpus*, *Latr.*), *Bradycellus*, *Erichs.* (*Harpalus rufithorax*, *Sahlberg.*)

GROUP 7.—*Pterostichini*, including *Pterostichus* (*Pæcilus*, *Steph.*), *Abax Platysma*, *Stomis*, *Cephalotes* (*Brosicus*, *Steph.*), *Zabrus*, *Amara*.

GROUP 8.—*Chlæniini*, including *Oodes*, *Chlænius*.

GROUP 9.—*Anchomenini*, including *Taphria*, *Calathus*, *Dolichus*, *Pristonychus*, *Sphodrus*, *Anchomenus* (*Platynus*, *Anchomenus*, *Agonum.*)

GROUP 10.—*Trechini*, *Patrobus*, *Trechus*, *Bembidium* (*Tachypus.*)

Fam. II.—DYTISCI.

DIVISION I.

GROUP 1.—*Dytiscini*, including *Cybister*, *Acilius*, *Hydaticus*, *Dytiscus*.

GROUP 2.—*Colymbetini*, including *Colymbetes*, *Ilybius*, *Agabus*, *Laccophilus*, *Noterus*.

GROUP 3.—*Hydroporini*, including *Hyphydrus*, *Hydroporus*.

DIVISION II.

GROUP 4.—*Pelobiini*, including *Pelobius*.

GROUP 5.—*Haliplini*, including *Haliphus*, *Cnemidotus*.

Fam. III.—GYRINI, including *Gyrinus*, *Orectochilus*.

Fam. IV.—HYDROPHILI.

GROUP 1.—*Spercheini*, including *Spercheus*.

GROUP 2.—*Helophorini*, including *Helophorus*, *Hydrochus*, *Ochthebius*, *Hydræna*.

GROUP 3.—*Hydrophilini*, including *Limnebius*, *Laccobius*, *Berosus*, *Hydrophilus* (*Hydröus*), *Hydrobius*, *Cyllidium*, *Erichs.* (*Chætarthria*).

GROUP 4.—*Sphæridiini*, including *Cyclonotum*, *Erichs.* (type, *Hydrobius orbicularis*), *Sphæridium*, *Cercyon*.

Fam. V.—SILPHÆ, including *Necrophorus* and *Silpha*, divided into—*1st Fam.* (*Necrodes*), *2d Fam.* (*Oiceoptoma*), *3d Fam.* (*Silpha*), *4th Fam.* (*Phosphuga*), *Agyrtes*, *Catops* (*Choleva* and *Catops*) *Colon*, *Herbst.* (*Mylæchus*, *Latr.*), *Scydmaenus*.

Fam. VI.—PSELAPHI, including *Tyrus*, *Batrisus*, *Pselaphus*, *Bryaxis*, *Bythinus* (*Bythinus* and *Arcopagus*), *Tychus*, *Euplectus*.

Fam. VII.—STAPHYLINI.

GROUP 1.—*Aleocharini*, including *Myrmedonia*, *Erchs.* (*Aleo. humeralis*, *Grav.*), (includes *Pella*, *Steph.*, *Astilbus*, *Dillwyn*, and *Bolitochara collaris*, *Steph.*), *Autalia*, *Falagria*, *Bolitochara*, *Ocalea*, *Erchs.* (*Oca. castanea*, *n. s.*), *Calodera*, *Tachyusa*, *Erchs.* (*Tach. constricta*) *Phlæopora*, *Erchs.* (*Aleo. reptans*), *Hygronoma*, *Erchs.* (*Homalota dimidiata*), *Homalota* (type, *Aleo. circellaris*, *Grav.*, congen. *Callicerus Spencei*), *Oxypoda*, *Aleochara*, *Oligota*, *Gyrophæna* (*Encephalus complicans*), *Placusa*, *Erchs.* (*Aleo. pumilis*), *Euryusa*, *Erchs.* (*E. sinuata*), *Dinarda*, *Lomechusa*, *Silusa*, *Erchs.* (*S. rubiginosa*), *Pronomæa*, *Erchs.* (*P. rostrata*), *Gymnusa*, *Myllæna*, *Erchs.* (*Aleo. dubia*, *Grav.*)

9. *Die familien der Blattwespen und Holzwespen Deutschlands.* (*The Families of Leaf Wasps (Tenthredines) and Wood Wasps (Sirices) of Germany*, by *Dr. Theodor Hartig*. 8vo. Berlin, 1837.)—This, as far as we have yet been able to examine it, we consider to be a very useful book, and possesses the additional utility of specially attending to the early stages of the insects of which it treats. Amongst the *Tenthredinidæ*, the author has introduced very many new genera; and the value of the work is very much increased by most of the genera being treated monographically, which implies greater and more serviceable details than the ordinary mode of description conveys, and he is only brief where *Klug* has previously described, who can consequently be readily referred to. Considerable attention is paid also to the synonymy, which we are glad to see diligently and honestly cultivated, as it is the only mode of awarding merit to the right individual. We may, perhaps, give the system of arrangement here introduced, in a subsequent number. The work is accompanied with eight plates, giving the larvæ and dissections of the genera.

10. *Prodromus Hymenopterologiæ Scandinavicæ auctore Dr. Gustaf Dahlbom.* 12mo. Lund. 1836.—Of this elaborate work, as yet, the first fasciculus only has come to England; which extends to the genera (*Cimbex*, including *Trichiosoma*, *Abia*, *Zarwa* and *Amasis*,) *Athalia*, *Hylotoma*, *Syphona* (*Schizocera*), *Lophyrus*, *Cladius*, and part of *Priophorus*. We hope Dr. Dahlbom will continue it, and we much wish all his works could be readily procured; we have tried every means possible to obtain them, but without avail, much valuable information, and very many new species, are thereby kept from our knowledge.

11. *Geschichte Systematik und Literatur der Insektenkunde von den ältesten Zeiten bis auf die Gegenwart.* (*History, System, and Literature of Entomology, from the earliest periods to the present time, by Dr. John Nep. Eiselt.* 8vo. Leipzig, 1836.)—This is promising much for a volume of 255 pages, the first 120 of which contain a very superficial and compendious history of the science, and the remaining 135 pages are occupied with a list of books, arranged systematically. That this list cannot be complete, is self-evident, from the small space it occupies; but it is, nevertheless, very useful, from its classification, and enumerates very many writers not contained in Percheron's slovenly and inaccurate *Bibliographie Entomologique*. Entomological literature still awaits a work ably and comprehensively executed.

ART. XXXIX.—*An Essay on the Stridulation of Insects.*
By M. GOUREAU.

(Extracted from the *Annales de la Société Entomologique de France.*)

(Concluded from p. 102.)

LOCUSTS (*Acridium*, LATR.)

THE locusts at first sight appear to resemble grasshoppers in the general form of their bodies, and in their power of leaping, but their musical organ is very different; it is also situated in the elytra, but unless observed whilst the insect is singing, it is difficult to find. In some instances, indeed, it even

escapes an attentive search, whilst amongst the grasshoppers and crickets, a slight examination is sufficient to find the instrument (of music), even when its use is unknown. It is not, therefore, surprising, that there should be more uncertainty about the organ of song in these insects, than in the crickets and grasshoppers.

All the locusts are not equally good musicians, nor have their musical instruments the same degree of perfection. Some are found on the stalks of plants or on the leaves of shrubs, where they make the air resound with their continual singing. Their song is sharp and monotonous, composed of innumerable couplets of eight or ten seconds in length, separated by an interval of two or three seconds. When they have sung in this way for some time, if they do not see a female, they fly off and settle on another stalk, where they recommence their stridulation. If they see the female approach, or become by instinct aware of her presence, they redouble their ardour while she is at a distance, but when she comes near, they lower their tone, and the stridulation assumes a soft and tender character. Other kinds, the voice of which is less loud, are almost always met with on the ground, where they walk with facility, and even run with a tolerable degree of rapidity. They remain there silent till the moment they perceive a female, when they run towards her, but stop at a short distance, and make a faint stridulatory noise, in order to hear which it is necessary to listen attentively.

When a cricket sings, he stands on his four anterior legs, and doubles the hind legs up against the thighs, where they are received into appropriate grooves, then he rubs the thighs rapidly against the elytra. The best musicians execute this movement with rapidity, and for some time together; those who have less taste for singing, pass the thighs two or three times only against the elytra. Amongst these latter, it is not unusual to observe some who put their thighs, one after the other, in motion, or who move them together without producing any sound. From this circumstance it may be conjectured, that there are sounds imperceptible to our ears which make an impression on more delicate organs, as there is a light invisible to us which acts on eyes more sensitive than those which we possess. There are, doubtless, diurnal, crepuscular, and nocturnal insects, which proves the existence of eyes capable of

seeing in every degree of intensity of light. We also meet with insects which produce loud, and some which produce weak, stridulation, and others which execute the stridulatory movement without making any sound which we are able to distinguish, from which we may conclude, that there are ears for every modification of sound, and even some fitted to hear silence, or rather that which to our grosser perceptions appears to be so. It may at first sight seem extraordinary, that there should exist eyes so organized as to see in the dark, and ears which are capable of hearing during silence; but these propositions are, as I conceive, by no means inconsistent with the theories generally adopted respecting the transmission of light and sound, and, what is more to the purpose, they appear to be confirmed by our observations of nature.

The most noisy locust I have found at Cologne inhabits thickets, and is commonly to be met with on shrubs or the stalks of grasses. As I do not know its name, it will be necessary to give a short description. It is about twenty millimetres in length, and of a yellowish-brown colour; the prothorax is deeply indented lengthwise, and divided by three transverse lines; the hind legs have the knees black, and the shanks red: these latter are furnished with a double row of red black-pointed spines; the wings are hyaline, and as long as the elytra and body.

If we separate one of the elytra, it will be seen that the back cover is brown, and reticulated by small nervures, and that the extremity of the side cover is reticulated in the same manner, but that the side cover itself is transparent, and of a hard and sonorous consistence; it is divided into two parts by a strong longitudinal nervure, which is the treble-string (*chante-relle*) accompanied above and below by two slenderer nervures. Each of these two transparent spaces is divided into parts having the form of a parallelogram, by small nervures perpendicular to the treble-string; all these nervures are produced above the membrane of the elytron, and a pin cannot be passed over them without catching them and causing them to vibrate. To this transparent portion the name of drum (*tambour*) may be given, from its analogy to the sonorous organ of the crickets and grasshoppers. Violin (*violon*) will perhaps, however, be a more suitable name for this instrument, as it is more analogous to a violin than a drum.

If we examine the posterior thigh of this locust, we shall perceive that it is much worked. The internal and external surfaces are each formed of a compartment of small shining plates enclosed by a solid and elevated border. Along the internal surface there is a furrow in which the leg is placed, at the will of the insect. By the side of this groove, and against the compartment before mentioned, a small protuberance may be seen extending the whole length of the thigh, and striated like a file; this is the bow (*archet*) of our violin.

It will now be easy to understand how the insect plays on his instrument: he has only to pass the thighs against the elytra, pressing them at the same time: in this movement the bow rubs on the treble-string and excites sonorous vibrations in it, which are propagated over the whole of the elytron, and produce sounds livelier and louder in proportion as the movement is more rapid, and the pressure more considerable. It might have been supposed, that the spines with which the shanks are furnished, might be of some use in assisting to produce sounds; for the inner row is well situated for action on the treble-string. I have not, however, succeeded in satisfying myself that this is the case, and I have failed in obtaining a stridulatory sound from insects, from which that part has been removed. In the crickets and grasshoppers, the two drums contribute to the production of sound: the bow of the one sounds as well as the treble-string of the other. In the locusts the bow is not capable of producing sounds; the violin alone possesses the power.

All the locusts, as I have before observed, are not equally good musicians. Those which appear to me most noisy have the side cover of their elytra formed of a transparent sonorous membrane, divided into large compartments, enclosed by elevated nervures, and their bow is furnished with deep indentations. Such are those above described, *Biguttulum*, &c. On the contrary, the sounds produced by those which have opaque elytra, with small divisions, and slightly produced nervures, and the bow but little or not at all indented, are weak and infrequent. This is the case with the locusts with coloured wings; *Acridium cœruleum*, *Germanicum*, *Italicum*, and another species very common on the sand of the Rhone islands, the wings of which are of a clear sky-blue colour, the body and elytra grey, covered with a bluish powder, and having the elytra crossed

by two bands of a lighter colour. This last makes the least noise of all the sound-producing species I have observed: you can hardly hear the two or three cries he utters in calling the female.

I ought to observe, that the bow of the last named species, seen through a magnifying glass, appears to me to be smooth. If it really is so, the small shining plates folded on each other, the edges of which form a kind of step, probably supply the place of the indentations in the other species, and excite vibrations in the treble string in their passage over it.

The females of all these species seem to have smoother bows, and less perfectly organized violins, than those of the males. I think them mute, as far as regards us: I have never heard them stridulate, though I have often seen them move the thighs, as if they wished to sing.

There are species which have only the rudiments of wings and elytra, and in which nothing analogous to the musical instruments just described can be perceived; the bow in these is also without indentations, which induces me to think they do not possess the power of producing sounds. I have spent some time in the neighbourhood of the mountain where one species was exceedingly abundant, without hearing any stridulation: this has confirmed me in the opinion expressed above.

Stridulation may be excited in a dead locust, the articulations of which have preserved their pliability; but the sound produced is much fainter than that the insect makes when alive, and at liberty. Amongst the species with weak voices, it is not possible to distinguish any sound resulting from the movement of the thigh against the elytron. A sensation however, similar to that which is produced by rubbing a rough surface, is perceptible to the hand when moving the thigh.

This must necessarily produce a sound, but it is too slight for us to hear. The same difference between the natural sounds, and those artificially produced, obtains in all stridulating insects: it probably arises from our not knowing how to manage the instruments, or to use them as the insects themselves do.

Both locusts and grasshoppers make in flying a pretty loud noise, which, however, is in no way connected with the stridulation. This noise is their buzzing, and is produced, as in all insects which possess the property, by the vibrations of the

thorax, and the motion of the wings striking the air during this kind of locomotion. The posterior stigmata of the prothorax do not appear to me to have any thing to do with the production of this sound: these stigmata are remarkable in presenting, in a still more striking manner than those of the grasshoppers, the appearance of an eye deprived of its ball, the movable eyelids of which open and shut at the will of the insect. Those of the prothorax are accompanied by a protuberance somewhat resembling a bud, near one extremity.

Most entomologists are aware of the sub-alary cavity on each side of the first segment of the abdomen, in both the males and females of these insects. Latreille has described it in the *Annales du Muséum d'Histoire Naturelle* (viii). I am only acquainted with the work of this celebrated entomologist through a note in the *Règne Animal* of Cuvier.^a I see by this note, he suspects this organ may contribute to stridulation. Linnæus thought so, and a great number of naturalists have agreed with him herein; M. Burmeister, of Berlin, still entertains this opinion.^b In spite of the opinion of these great authorities, an opinion which I have myself endeavoured to support,^c I must now abandon this view of the subject, the facts I have related compelling me to do so. It may be that I have observed incorrectly; in this case, I shall return with pleasure to the opinions of these illustrious men, when I know them to be confirmed by facts. If the sub-alary cavities called drums by Latreille, contribute to stridulation, they can only act in the manner of a speaking-trumpet, by strengthening the sound: I do not think they originate it.

These organs, whatever their functions may be, deserve attention. The form of the cavities, the thin and transparent membrane composing their envelope, the external auricle which partially covers them, the internal small bones to which they are united and which strengthen them, the canal by which they are perforated in their opaque and scaly part, at the lateral origin of the auricle, cause them to seem complicated organs, probably performing an important part in the economy of life; their functions however are unknown. I have closed these cavities with a thin layer of tallow in the living insect;

^a Cuvier, *Règne Animal*, Vol. V. p. 186.

^b *Revue Entomologique*, Vol. I. p. 186.

^c *Ibid.* Vol. III. p. 101.

and have pierced and torn them in other instances, without killing the insect; but have not observed any thing which would lead to a knowledge of their use. These cavities are not exactly alike in all the locusts. In some species they are true pouches deeply sunk into the abdomen; in others, not so deeply, and the membrane appears to extend to the surface of the body. This membrane does not seem to be fastened underneath, and may be removed without injury, by cutting the scaly edge to which it is fixed. These cavities exist both in the larvæ and pupæ; they are however less developed than in the perfect insects: it would seem that they increase in importance with the age of the animal, and do not attain perfection till its maturity; from which it would appear that these organs do not completely perform the functions required of them till the insect arrives at this latter period of its life. In order to see them well, it is necessary to examine a large species such as the migratory locust (*Acridium migratorium*).

After the preceding remarks, we are naturally led to reflect, that all the stridulatory insects hitherto mentioned, except the mole-cricket, are provided with an organ, of the functions of which we are entirely ignorant. This organ appears under the form of a thin transparent plate, with a plane or concave surface. On the other hand, we cannot doubt that these insects have the power of hearing. If it were not so, the females would not be attracted by the song of the males, and the vocal organ would be useless. The organs of hearing and voice, are essentially connected with each other. It does not seem impossible, therefore, that the organs we have had under consideration, are the ears of Orthoptera. The theory of the transmission of sound is not inconsistent with this hypothesis; for it is admitted that sound is produced by the vibrations of a sonorous body, and that it is transmitted by vibrations of the air excited thereby. In order that these vibrations may convey the perception of sound to an animal, it is requisite that they fall on an elastic membrane, capable of transmitting them to auditory nerves. This condition will be fulfilled, when a microscopic examination shall discover nerves connecting these membranes or organs with the internal ganglionic system.

The sub-alary cavity of the locusts much resembles an ear in form; the cavity seems to be the conch, and the canal

under the auricle naturally suggests the idea of an auditory tube.

The thoracic cavity of the grasshopper may without violence be regarded as the ear. But what is the use of the tube which crosses the femur, and terminates in the small cavities of the tibiæ? Have ears any connexion with legs? So extraordinary a proposition is inconsistent with all analogy; we must however admit it in the case of the cricket, which does not appear to possess any other organ to which we can accord this property.

All that has been said on the subject of the hearing of *Orthoptera*, can only be considered as conjectural, inasmuch as it is not sustained by anatomical considerations, or by direct experiment. But if it should be the means of attracting the attention of entomologists, and inciting them to researches on a point so important in the physiology of insects, it will not have been without utility.

The species of the genus *Tetrix* are without the bow on the inner surface of the femora, nor have they the treble-string on the elytra. One may however distinguish on the very small elytra of some species, a transparent space near their apex; but I have not succeeded in satisfying myself that this part is sonorous; I have not observed any abdominal cavity in these insects; I have therefore concluded they are mute and deaf. However, as the magnifying glass is the only instrument I have used in these researches, it may be that the organs of voice have escaped my observation on account of their minuteness. I have never heard the species of *Tetrix* stridulate when at liberty, and have not succeeded in producing audible sounds, by artificially exciting the thighs, and rubbing them against the elytra, or the borders of the prothorax; and have therefore failed in verifying the assertions of those authors, who say that they possess the power of song.

CICADAS. (*Cicadæ*, LATR.)

We have seen that all the stridulating insects of the order *Orthoptera*, at least all those we have hitherto examined, have their musical instruments situated externally, and that their song is produced by rubbing certain parts against each other. It appears that this is not the case in the sub-order *Homoptera*,

and that the *Cicadæ* have theirs enclosed within the abdomen. Reaumur has given a detailed description of these instruments in the fourth memoir of the fifth volume of his works, accompanied by explanatory figures. All succeeding writers on the subject have followed this illustrious entomologist in his views respecting these organs. I will not repeat what they have said, but content myself with remarking that these instruments are enclosed in an abdominal cavity, divided into two cells by a scaly and triangular partition covered by two cartilaginous plates, somewhat resembling a lid in appearance. Each cell, at its junction with the abdomen, presents anteriorly a white and folded membrane, and lower down a tight thin transparent membrane, with iridescent reflections, which Reaumur has called the mirror.

If that part of the abdomen which corresponds to the cavity is opened from above, on each side another folded membrane is perceived of a hard consistence, and sonorous, which is moved by a powerful muscle, composed of straight and parallel fibres, originating from the scaly partition; this membrane is the timbal (*timbale*). In order to play on such a complicated instrument, Reaumur says the insect successively contracts and relaxes the muscle attached to the drum, which causes it to sound. He thinks that the voice is strengthened in the drum (*tambour*), and that the only use of this part of the vocal organ is to give loudness to the voice. He thinks that the trochanter prevents the operculum being raised too high whilst the insect is singing. Doubts have been expressed respecting the correctness of this simple explanation of the song of the *Cicada*; and some entomologists have considered that the air performs an important part in the formation of the voice, and that it is due, at least in great part, to the emission of a rapid stream of air issuing from the stigmata of the metathorax, which resounds in the organs described above.

I have not been able to make the researches I wished on this subject, because the part of the country in which I reside produces very few *Cicadæ*. The most diligent search only furnished a small species of the genus *Tibicen*, Latr., whose voice is very weak; I could only observe it for a moment whilst it was singing at liberty, and it refused to sing in a tumbler in which I had confined it. The common *Cicada* is not found in this latitude; its range is not further north than Bellegarde.

However, I procured some of these insects in the summer of 1836, on which I made the following observations. When this insect sings in a box, no motion is observable in the wings, nor in any other part of the body; when I held it between the fingers in such a way as left the abdomen free, its voice was as strong as usual; but if I held its body and pressed the opercula against the abdomen, it was dull, faint, and stifled: if, on the contrary, I raised the abdomen, so as to leave the cavities, which are generally covered by the opercula, open, the voice became unusually loud and strong: this led me to conclude, that the opercula perform the office of keys, and serve to modify sounds; but these keys, instead of being movable, as in wind instruments, are fixed: the abdomen is movable. This will explain why the *Cicada*, when at liberty, is constantly moving its abdomen during the time it is singing, alternately elevating and depressing it; by this means it obtains a variety of sounds from the musical instrument, and produces modulations, which, though we are not sensible of them, are assuredly perceptible to the insect himself, and to the female whom it is his object to please. The trochanter acts as a check, as Reaumur thought; but instead of preventing the operculum from being raised too high, it merely prevents its yielding to the pressure of the abdomen during depression; for it is of itself incapable of motion.

Being desirous of seeing what took place in the timbals (*timbales*) during the time the animal was singing, I raised with a penknife that portion of the upper part of the ring which covers one of them, and thus exposed it to sight; immediately the sound became much louder, and I saw a movement in this organ similar to that which Reaumur has indicated, without having himself observed it. The timbal (*timbale*) vibrates and alters in form, passing successively from a convex to a concave form; it is this movement which produces the sound and the song. These vibrations are very apparent when the insect sings loudly; and less so when only a faint sound is produced; and when the song is scarcely audible by us they are imperceptible. It appears to me that Reaumur was well acquainted with the sonorous organ of these insects, and that his Memoir left nothing further to wish for on the subject—nothing at least of importance.

The *Cicadæ* of the genus *Tibicen* have the least sonorous

timbals (*timbales*) of any, and they are only capable of making a very weak song; most probably, but for the discovery that they possessed these organs, nothing would ever have been heard of the voice of these insects.

Reaumur thought that the use of the tambours consisted in strengthening the sound produced by the vibration of the timbals, and that they were an essential part of the sonorous organ; there does not, however, appear to be a good foundation for this opinion; for, from experiments made by M. Solier, (of Marseilles), the *Cicada* sings or cries just as loud when these parts are pierced or torn. The female is provided with these organs, as well as the male, which is another proof that their function has no direct reference to the song; it is an organ possessed by the *Cicada*, of the functions of which we are ignorant. The same observer was led to believe that the air performs an important part in the song of these insects; he has remarked that the stigma of the metathorax opens directly into the thoracic cavity, instead of opening into the trachea; so that it may be said that this cavity, which communicates with the abdominal cavity, is nothing more than a great dilatation of the trachea. He thinks that such an organization cannot exist without an object. His observations, which will shortly be published, will doubtless assist much in clearing up what still remains doubtful respecting the song of the *Cicada*.

OF OTHER SOUND-PRODUCING INSECTS.

I have but little more to say on the subject of stridulation; and if I speak of the sounds produced on certain occasions by some *Coleopterous*, *Hemipterous*, *Hymenopterous*, and *Lepidopterous* insects, it will be merely to indicate them. These sounds are known to all Entomologists, and present nothing particularly interesting, with the exception of that produced by the Death's-head Sphinx, which is of a peculiar nature, and of which the cause is not yet thoroughly understood; the others are all very much alike, and are produced by the friction of certain smooth parts of the body. They do not seem to me to be made by the insect with the intention of attracting the female, or of pleasing her; both sexes produce them, and always under constraint, or when in fear, or suffering pain; at least I have never heard them when the insects have been in a state of entire liberty.

Although the sounds now under consideration are essentially different from those of Orthoptera, I shall continue to give them the name of Stridulation, in order to include in one term the voices of all insects.

Coleoptera.—There are a great many Coleoptera which possess the power of producing sounds. Amongst these we may mention, in the first place, the numerous family of *Cerambycidae*. The noise is made by rubbing the præscutum of the mesothorax against the inner border of the prothorax. This præscutum is smooth in some species—in *Cerambyx heros*, for instance. In others it has a longitudinal and slightly elevated smooth band in the middle, as in *Lamia textor*; it is this smooth part which rubs against the border of the prothorax, and produces the sonorous vibration. In *Crioceris* or *Lema*, stridulation is produced in the same way. Other Coleoptera have their sonorous organ placed at the extremity of the abdomen; *Copris*, *Geotrupes*, *Cychrus* and *Falciger echii* are instances. When these insects draw up the extremity of the abdomen under the wing-cases, the tergum of the last segment, and the lateral borders of the preceding ones, rub against the edge of the elytra, and produce stridulation. The *Necrophori* carry their sonorous organ upon the tergum of the fourth abdominal segment; it is composed of two parallel smooth and elevated lines, which appear to be a prolongation of the suture of the elytra. When insects of this genus draw their abdomen under the wing-cases, these two lines rub against the posterior border, and produce a very distinct sound. In all the before-named insects, stridulation may be artificially produced by moving the head up and down, or forcing the abdomen under the elytra. Besides these, *Hygrobia* and *Pimelia* are said to possess the power of producing sounds, but as I have not heard them, I am not able to say where their sonorous organs are situated.

Hemiptera.—Among Hemiptera I only know one genus, *Reduvius*, the species of which emit a slight sound. When these insects are confined or disturbed, they may be seen to move their heads, alternately raising and depressing them with rapidity; at the same time, a faint monotonous kind of stridulation is heard. It is produced by the friction of the neck, which is formed of a smooth, shining, scaly ring, against the anterior border of the prothorax.

Hymenoptera.—The order Hymenoptera furnishes one

sound-producing genus — *Mutilla*. Although I have only observed it in *Mutilla Europea*, I do not doubt that other species may possess the property. In this instance, the sonorous organ is the smooth and shining scutum of the third segment of the abdomen. When the insect draws up the third segment into the second, the friction of the scutum against the inner border of the second segment, makes a very perceptible noise. This property belongs to both sexes. I believe that *Sphex sabulosa*, Linn., is also a sound-producing insect. At the end of last autumn (1836), I saw one of these insects busied in making a hole in the sand, on the banks of the Rhone; its head was in a cavity, the abdomen protruding perpendicularly, and it worked with great activity. At the same time, I heard a monotonous and continued stridulation, which considerably resembled that of a small *locust*, and somewhat the noise of *Syritta pipiens*. Having approached very close, in order to observe him, I perceived no motion of the wings or any other member: the jaws alone moved: he flew away, but soon returned to the same hole, making the stridulation I had already noticed. I have not since had an opportunity of seeing the insect, so am ignorant of the situation of the sonorous organs. I am inclined to believe there are many sound-producing species yet unknown, and that more attentive observations would enable Entomologists to make further discoveries on this interesting subject.

Lepidoptera.—It now only remains for me to speak of the Death's-head Sphinx, which emits a plaintive noise, a kind of cry, when it is caught, and also when in a state of liberty. Many conjectures have been made respecting the cause of this noise. Reaumur, in the seventh memoir of the second volume of his works, has especially devoted his attention to the subject. He concludes from experiments he made, that the noise is produced by the friction of the proboscis (*trompe*) against the palpi. These experiments should be noticed, in order to show the necessity of great care in the manner of drawing conclusions from one's observations, and the impropriety of trusting to *one* experiment if we wish to avoid errors injurious to science. Reaumur observed a quivering motion in the palpi during stridulation, and that they were pressed against the proboscis, as if to subject themselves to friction: he cut off the palpi, and removed them from the proboscis, so that they could not touch

it; the insect was silent: he then removed one of the palpi, and the cries of the insect were faint, as if its musical instrument was imperfect. From these observations he concluded that stridulation is produced in this Sphinx by the friction of these organs. He was led into error by the insect on which he tried the experiments, whose silence and cries happened to coincide with the opinions adopted by this clear-sighted observer on the subject.

M. Passerini places the sonorous organ in a cavity in the head, continuous with the canal of the truncate proboscis.^d The air entering into and issuing from this cavity, at the will of the animal, produces the sound.

M. Larey attributes the cause of stridulation to the rapid emission of air from two cavities of a peculiar nature in the abdomen.^e

I have not read the works of the two last-named naturalists, and am unacquainted with the reasonings and experiments on which they found their opinion. I have, therefore, only vague indications to direct my researches. In the autumn of 1835, I obtained a Death's-head Sphinx, which having been caught two days and been pierced with a pin, was very weak, and could only utter faint cries, and those but seldom. In order to verify by one experiment the opinions of Reaumur and M. Passerini, I unrolled the trunk, and laying hold of it at its base, with a pair of pincers, so as to hinder the palpi from touching it, and prevent the passage of air through the tube, I raised the insect, which uttered a cry as loud as its weak state would permit. At the same time I attentively observed the palpi, and the white membrane which lines the bottom of the canal in which they repose. I did not see any motion in these parts, nor in any other member of the animal; which appears to me a proof, that the two authors I have quoted above have not ascertained the cause of stridulation. In order to examine M. Larey's theory, I laid bare the portion of the abdomen underneath the two first segments, and, to my great surprise, was not able to discover the two cavities he speaks of. I ought to say the insect was already dead, in which state these organs commonly escape observation. In 1836 I resumed my researches on a living insect in full vigour. I noticed on

^d *Revue Entomologique*, vol. i. p. 173.

^e Cuvier, *Règne Animal*, vol. v. p. 390.

each side of the abdomen, on the first and second segment, a double cavity; the first, that of the first segment, is formed of a smooth transparent membrane, analogous to the drum of the *Cicada*; the second is lined with a soft membrane covered with a silky down; the insect has the power of opening and shutting it at will. When the insect cries it opens, and a long bundle of hair is seen to protrude, which is raised up and expands into a cone-like form: the hairs of which it is composed have a whirling motion; these hairs have their origin in the superior part of the cavity of the first segment, and when they are at rest exactly hide the two cavities, and are concealed themselves. One can hardly, at the first sight, avoid coming to the conclusion that the cavities, the bundles of hair, and the rotatory movement, are all intimately connected with the emission of the cries uttered by this insect. But how is the sound formed? The manner of its formation is not apparent. In order to discover it, I raised the scaly plate of the abdomen, which corresponds to the cavities, and having removed the white and unctuous covering from underneath, laid it bare without injuring it; I then perceived a large white muscle, analogous to those which move the wings of flies; this muscle terminates in the borders of the cavity of the first segment, and most probably performs an important part in the production of sound. On examining the membrane with the magnifying glass, I could not discover any orifice in the cavities which would allow the passage of air; thus M. Larey's opinion on this subject, which supposes a rapid emission of air from these cavities, would appear to be without foundation: his conjecture was occasioned by observing the motion of the hairs of which I have spoken. As I held the cartilaginous plate in my fingers with the inner surface uppermost, in order to examine it, I happened to move it, and immediately heard a slight sound, of which I afterwards produced a repetition a number of times, by moving it as if to break it; I then perceived that this noise was referrible to the cavity of the first segment, which altered in form, becoming convex: I consider, therefore, that, in all probability, the mechanism of stridulation is produced by the muscle, the effect of which is to render the sonorous organ alternately convex and concave. It would appear, therefore, that there is an analogy between the musical instruments of this insect and those of the *Cicada*.

Besides *Acherontia atropos*, another Lepidopterous insect, capable of producing sounds, has been mentioned,—the male of *Chelonia pudica*. I have never possessed one of these insects alive, and have not heard them, therefore cannot say any thing respecting its vocal organs.

From what has been said, it appears that the musical instrument of all the insects I have examined, consists of a thin, hard, transparent membrane, which gives out a perceptible sound when it is artificially excited; that this membrane is put in action by a striated bow, or by a muscle which causes it to vibrate, altering its form at the time of vibration; and that the intervention of a stream of air issuing from the stigmata is not required to explain the cause of stridulation. If the sonorous organs were enclosed in a cavity, and the stigmata opened directly into it, the influence of the air on the production of the sounds might be admitted; but as most of these organs are external, and the others distant from the stigmata, it is not probable that there is any relation between the one and the other. I am therefore led to conclude that insects have not a true voice, but that they possess sound-producing instruments: thus they are not songsters but musicians.—*Translated for the Entomological Magazine, by George Newman, jun.*

ART. XL.—*Entomological Notes.* By EDWARD NEWMAN.

(Continued from p. 181.)

[It will save useless repetition to say, that the insects described in this portion of the notes are contained in the Cabinet of the Entomological Club.—E. NEWMAN.]

CLASS.—DIPTERA.

NATURAL ORDER.—CHRYSOTOXITES, *Newman.*

GENUS.—DIMERASPIS, *Newman.*

Generi *Microdonti* affinis; antennæ geniculatæ, capite ferè duplò longiores, 3-articulatæ, articulus 1^{us}. gracilis, elongatus, cylindricus, 2^{us}. brevis, obconicus, 3^{us}. primo vix longior manifestè crassior, e basi setam emittens: scutellum complanatum rigidum, postice

elongatum apice emarginato : alæ fere *Microdontis*, haud abdomen tegentes.

Dime. podagra. *Pilosa, brunnea, testaceo variegata; alæ fumosæ, ad nervuras transversas obscuriores: femora fusca; metatarsorum planta inflata, valde incrassata, abdomen subtus testaceum.* (Corp. long. .3 unc. ; alar. dilat. .4 unc.)

Inhabits the United States of North America. A single specimen was taken at Wanborough, in the State of Illinois, by Mr. Doubleday.

NATURAL ORDER.—SYRPHITES, *Newman.*

GENUS.—MYOLEPTA, *Newman.*

The antennæ very much resemble those of *Xylota*: the hypostoma is much more porrected, and is notched at the extremity: the abdomen is short, broad, depressed, and nearly naked, totally different from that of *Xylota* or *Syritta*: the wings have the two transverse nervures near the centre perfectly straight, and the fourth subcostal nervure meets the oblique submarginal nervure in an acute point at the apex of the wing.

Myol. luteola. Antennæ bright yellow: head, thorax, and abdomen nigro-æneous, the latter with a large yellow patch on each side of the base: the wings are stained with saffron colour along the costa, and have a dusky cloud half-way between the base and tip: the legs are black: the middle and hind tarsi testaceous; it is $\frac{4}{10}$ of an inch in length, and $\frac{7}{10}$ of an inch in the expansion of its wings.

Musca luteola . . *Gmelin*, 1788. Syst. Nat. V. p. 2879.

Thereva dubia . . *Fabr.* . . 1805. Syst. Ant. p. 221.

Eristalis lateralis. *Fallen*, 1814. Syrph. p. 41.

Xylota lateralis. *Meigen*, 1822. Zwei. Ins. III. p. 224.

This insect occurs in Britain, but is rare.

CLASS.—COLEOPTERA.

NATURAL ORDER.—HELOPITES, *Newman.*

GENUS.—PENTHE, *Newman.*

Caput parvum, fere trigonum, ad oculos sub prothorace reconditum: antennæ ante oculos sitæ prothorace longiores 11-articu-

latæ; articulus 1^{us}. incrassatus, 2^{us}. brevissimus, 3^{us}. elongatus, apicalis acutus, cæteri subæquales: labrum rotundatum: mandibulæ breves, extus convexæ, apice incurvo bifido: maxillarum lacinia brevissima, rotundata, hirsuta; galea deest; maxipalpi elongati, 4-articulati; articulus 1^{us}. brevissimus, 2^{us}. elongatus, apice crassiori, 3^{us}. 2°. brevior 4^{us}. 3°. longior extus crassior; labium fere quadratum lateribus rotundatis, labipalpi brevissimi, 3-articulati; ligula rotundata, apice vix emarginatâ: prothorax transversus, capite triplo latior, longitudine fere triplo latior, antice rotundatus, posticè bisinuatus angulis posticis acutis: elytra prothorace paulò latiora, quintuplo longiora, apicibus suturalibus acutis.

Pent. funerea. *Atra: elytra confusè punctato-striata: scutellum nigrum: antennarum articulus apicalis rufus, articulus 6^{us}. haud abbreviatus.* (Corp. long. .65 unc.; lat. .3 unc.)

Pent. obliquata. *Scutello rufo, antennarum articulo 6°. abbreviato manifestè differt.*

Helops obliquatus. *Fabricius.*

Both species inhabit the United States of North America, and have been taken in various localities by Messrs. Doubleday and Foster.

NATURAL ORDER.—PYROCHROITES, *Newman.*

GENUS.—SCHIZOTUS, *Newman.*

Caput porrectum, exsertum, fere trigonum, postice rotundatum, prothorace angustior, pone oculos utrinque foveâ magnâ profundâ impressum; oculi laterales, distantes, reniformes, ad antennarum basin emarginati; antennæ 11-articulatæ, dimidio corporis longiores, articulus 1^{us}. latitudine duplo longior, 2^{us}. brevissimus 3^{us}. ad 10^{um}. longitudine subæquales, utroque extus incrassato, apice oblique truncato, et ramulum elongatum, linearem, emittente; 11^{us}. simplex, cylindricus, tribus præcedentibus conjunctis longior: instrumenta cibaria haud rite examinavi; fere, ut opinor, *Pyrochroæ*: prothorax complanatus, longitudine paullo latior, lateribus rotundatis: elytra prothorace manifesto latiora, fere linearia pone medium paullo dilatata, apice rotundato: pedes simplices.

Genus *Schizotus* inter genera *Pyrochroam* ac *Pononocerum* stat.

Schi. cervicalis. *Niger prothorax obscure rufus: elytra nigra, margine suturâque testaceis.* (Corp. long. .35 unc.; lat. .115 unc.)

Nota.—Huic generi pertinent, ni fallor, *Pyrochroa flabellata*, Fab. et *P. puncticollis*, Say.

All the species at present known inhabit Canada and the Northern States of the Union. *Cervicalis* and *puncticollis* were taken by Mr. Foster at Trenton Falls.

GENUS.—*POGONOCERUS*, *Fischer*.

Pogo. concolor. *Totus ferrugineus; oculis solis nigris.* (Corp. long. .55 unc.; lat. .175 unc.)

Inhabits North America. Mr. Doubleday took several specimens at Trenton Falls, as also of the following.

Pogo. bicolor. *Ferrugineus; capite, oculis, antennis elytrisque fuscis.* (Corp. long. .5 unc.; lat. .15 unc.)

GENUS.—*PEDILUS*, *Fischer*.

Pedi. fulvipes. *Niger; antennarum articulis 1° et 2° extus testaceis; elytra tota nigra; os pedesque fulva.* (Corp. long. .25 unc.; lat. .075 unc.)

Pedi. rufithorax. *Niger; antennarum articulis 1° et 2° extus testaceis; os ferrugineum; prothorax lætè ruber; elytra et pedes nigra.* (Corp. long. .3 unc.; lat. .1 unc.)

Pedi. imus. *Niger; antennarum basi plus minusve testaceo; os piceum; cætera nigra.* (Corp. long. .35 unc.; lat. .1 unc.)

Pedi. guttula. *Niger; antennarum articulis 1° et 2° extus testaceis; os piceum; prothorax lætè ruber; elytrorum apex guttulâ rotundâ communi albidâ signatus; cætera nigra.* (Corp. long. .25 unc.; lat. .075 unc.)

Pedi. lugubris. *Niger; antennarum articulis 1° et 2° plus minusve testaceis; os ferrugineum; elytrorum apex guttulâ rotundâ communi albidâ signatus.* (Corp. long. .25 unc.; lat. .075 unc.)

The species of this genus appear to inhabit only the northern regions of both Continents, the north of Russia, Siberia, Canada, and the Northern States of the Union. Messrs.

Doubleday and Foster met with the above species very sparingly at Trenton Falls, and none farther to the south.

NATURAL ORDER.—MORDELLITES, *Newman*.

GENUS.—MYODES, *Latreille*.

Myod. stylopides. *Nigra, scabra, parce pilosa; os ferrugineum: elytrorum apices albidii: metalce hyalinæ iridescentes, costâ fuscâ.* (Corp. long. .125 unc.; lat. .05 unc.)

Inhabits North America; Mr. Doubleday took a single specimen at Alton. It differs essentially from the European species, in having the antennæ much less pectinated.

NATURAL ORDER. ————— ?

GENUS.—EMMESA, *Newman*.

Generis *Hypuli* facies at *Melandrycæ* fere structura: maxipalporum articulus 2^{us}. elongatus, 3^{us}. subelongatus, trigonus, 4^{us}. elongato-trigonus, incrassatus: elytra nullo modo striata.

Emme. connectens. *Fuscus, nitidus, punctatus: caput nigrum, antennis palpisque fuscis: prothorax fuscus marginibus anticâ posticâque pallidis: elytra fusca fasciâ latâ medianâ, apicibusque testaceis: subtus fuscus pedibus pallidioribus.* (Corp. long. .275 unc.; lat. .075 unc.)

GENUS.—HYPULUS, *Paykull*.

Hypu. simulator. *Testaceus, pubescens: caput nigrum, antennis oreque testaceis: prothorax testaceus, maculâ anticâ nigrâ: elytra testacea maculâ basali in utrumque elytron elongatâ, fasciâ medianâ bisinuatâ, apicibusque nigris: cætera testacea.* (Corp. long. .2 unc.; lat. .05 unc.)

Both of these species inhabit North America. Mr. Doubleday took a single specimen of each at Trenton Falls.

GENUS.—CEPHALON, *Newman*.

Caput exertum, porrectum, latitudine manifestè longius, posticè restrictum, collo distincto: antennæ breves, capite paullo longiores,

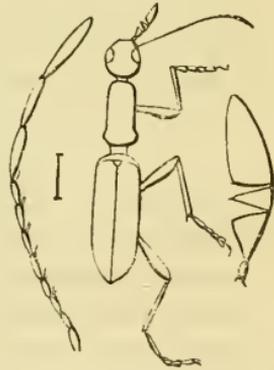
ad orem sitæ, apice crassiores, 11-articulatæ, articulo 3°. elongato, deinde ad 7^{um}. breviores atque extus incrassati, 8^{us}. ad ultimum crassiores: oculi reniformes haud prominentes: labrum transversum, antice convexum; mandibulæ validæ, incurvæ, apice acutæ intus serratæ; maxillarum lacinia elongata, tenuis, apice acuta, basi constricta; galea laciniâ longior apice pilis longis instructa; maxipalpi 3-articulati, articulus 1^{us}. subcylindricus, elongatus, 2^{us}. brevior extus crassior, 3^{us}. securiformis; labium rotundatum, labipalpi breves 2-articulati, ligula in 2 magnos lobos rotundatos divisa: prothorax capite paullo longior antice longè angustior posticè paullo latior, antice posticeque truncatus, elytra elongata, postice attenuata, apicibus rotundatis; pedes elongati heteromeri, unguiculi simplices, pulvinuli ovals.

Ceph. Lepturides. *Testacea, tenuiter tomentosa: oculi nigri capitis vertex, prothoracis latera, metafemorum apices, meso- et metatibiarum apices, tarsi que omnes fusca.* (Corp. long. .5 unc.; lat. .1125 unc.)

It inhabits Canada and the United States of North America. A single specimen was taken by Mr. Doubleday, at Trenton Falls.

GENUS.—MACRATRIA, *Newman.*

Caput exsertum, porrectum, fere globosum, prothorace vix latius: antennæ 11-articulatæ, articuli 1^{us}. ad 8^{um}. mediocres, subæquales, 9^{us}. ad 11^{um}. elongati, incrassati: maxipalpi 4-articulati, articulo 1°. brevi, 2°. magno trigono, 3°. trigono longitudine latiori, 4°. elongato-trigono, latitudine duplò longiori: prothorax linearis, capite ferè duplo longior: elytra linearia, capite ferè triplò longiora.



Macr. linearis. *Olivaceum, fere nigrum, hirsutum, os et palpi testacea: antennarum basi testaceo, apice fusco: pedes testacei, femoribus extus saturatoribus.* (Corp. long. .15 unc.; lat. .025 unc.)

Inhabits the United States of North America. Mr. Foster twice took it in the neighbourhood of Mount Pleasant, in Ohio.

GENUS.—ISCHNOMERA, *Stephens*.

Isch. carinata. *Caput et antennæ fusca: prothorax rufus, foveis 2 magnis impressus: utrumque elytron, marginali, suturali, tribusque intermediis carinis elevatis instructum est; interstitiis minutissimè punctatis: elytra, abdomen et pedes fusca.* (Corp. long. .25 unc.; lat. .06 unc.)

Inhabits the United States of North America. Mr. Doubleday took a single specimen at Trenton Falls.

GENUS.—SYNCHROA, *Newman*.

Generi *Serropalpo* affinis. *Caput porrectum, complanatum, in prothorace fere ad oculos reconditum, prothorace valdè angustius; oculi distantes, reniformes, laterales: antennæ prothorace longiores, articulus 2^{us}. cæteris valdè brevior, 3^{us}. 4^o. paullò longior, 11^{us}. cæteris duplò longior, cæteri subæquales, apicibus paullò incrassatis: maxipalpi 4-articulati, articulis 3 ultimis plerumque apicali, incrassatis: prothorax complanatus, longitudine paullò latior, anticè angustior: elytra elongata, fere linearia, complanata, apicibus rotundatis.*

Sync. punctata. *Brunnea, lanugine griseo parce tecta: undique regulariter punctata: puncti mediocres, distincti, hæc confluentes.* (Corp. long. .5 unc.; lat. .13 unc.)

Inhabits Canada and the United States of North America. Mr. Doubleday sent a single specimen from Trenton Falls.

GENUS.—BOLITOPHAGUS, *Fabricius*.

Boli. silphides. *Griseus, obscurus, lanatus; prothorax capite triplo latior, anticè bituberculatus, marginibus rotundatis serratis: elytra valdè complanata, dorso et posticè tuberculata, marginibus dilatatis apice acutè serratis.* (Corp. long. .375 unc.; lat. .2 unc.)

Inhabits Canada and the United States of North America. Taken by Mr. Doubleday at Trenton Falls.

Boli. Tetraopes. *Brunnea, concolor; clypeus recurvus, lateribus dilatatis: oculi distantes, clypeo fere intersici: prothorax punctatus dorso bifoveato, lateribus dilatatis, serratis; elytra convexa, sulcata, sulcis unicâ serie punctorum profundorum impressis.* (Corp. long. .25 unc.; lat. .125 unc.)

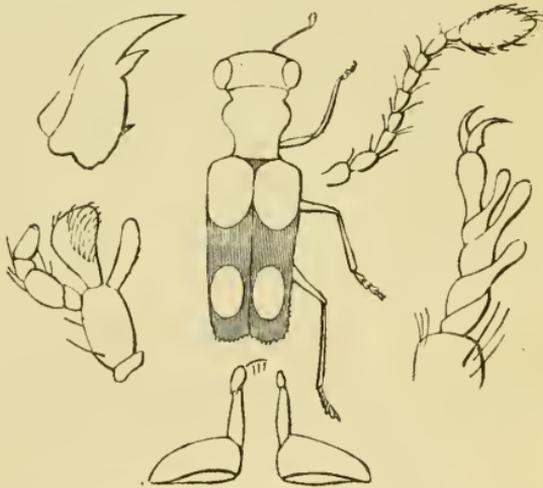
Inhabits Canada and the United States of North America. Taken by Mr. Doubleday at Trenton Falls. I may here observe, that the genus *Bolitophagus*, as at present constituted, is a most lax and ill-defined group.

The seven genera which follow *Myodes* agree in having their tarsi heteromerous; but, as they are not strictly referrible to either of the natural orders which I have attempted to define, I have concluded, that it will be as well to leave them for the present, without any attempt to show their natural relations. I have repeatedly found, that an opinion on this subject, expressed at a time when it has really received no consideration, is wide of the mark, and has not unfrequently to be formally retracted on some subsequent occasion.

NATURAL ORDER.—CLERITES, *Newman*.

GENUS.—HYDROCERA, *Newman*.

Caput transversum, pronum, prothorace manifestè latius; oculi magni laterales, distantes: antennæ minutæ, vix capite longiores, 10-articulatæ, articulus 1^{us}. cæteris longior, crassior, cæteri at 9^{um}. longitudine subæquales, 10^{us}. magnus, ova-



tus, apice ferè acuminatus: labrum transversum; mandibulæ vix incurvæ, apice acutæ, intus dente mediano valido armatæ; maxillarum lacinia minuta fere linearis, apice obtusa; galea lacinia longior, triplo latior, apice rotundata; maxipalpi 4-articulati, articulus 1^{us}. brevis, 2^{us}. duplo longior valdè crassior, 3^{us}. 2^o. brevior ac omnino minor, 4^{us}. brevis, angustus, fere cylindricus, apice truncatus: labium mihi invisum, labipalpi reflexi triarticulati, articulus 1^{us}. minutus, brevis, 2^{us}. duplo longior, 3^{us}. magnus, incrassatus, fere trigonus: prothorax latitudine vix longior, ante marginem anticum subito

constrictus, post medium late constrictus: elytra prothorace latiora, linearia, apice rotundata, tarsi pentameri, articulus 1^{us}. brevis, obliquus, 2^{us}. ad 4^{um}. lobati. Generi *Tillo* certè affinis.

Hydn. serrata. *Nigro-æneum*; *antennis (capitula fusca excepto) elytrorum maculis magnis 4, pedibusque pallide testaceis: caput et prothorax subtilissime punctata: elytra profunde punctata, apice serrata.* (Corp. long. .175 unc.; lat. .06 unc.)

Inhabits the United States of North America. Mr. Foster took two specimens at Mount Pleasant in Ohio. I am indebted to Mr. Westwood for the dissections in the cuts illustrating this and some other genera, and for much valuable information and assistance during the preparation of these notes.

GENUS.—*OPILUS*, Latreille.

Opil. castaneus. *Castaneus, glaberrimus, pilosus; oculi nigri: prothorax remotè et parè punctatus: elytra striato-punctata, utrinque ultra medium, maculâ magnâ laterali brunneâ signata; utroque elytro quoque maculis 3 flavis signato quorum 1^a. basalis 2^a. lateralis, ante medium sita, 3^a. subsuturalis, mediana.* (Corp. long. .3 unc.; lat. .1 unc.)

Inhabits North America. Mr. Foster took a single specimen near Mount Pleasant in Ohio.

NATURAL ORDER.—*LIAMPYRITES*, Newman.

GENUS.—*DIGRAPHA*, Newman.

Caput parvum, sub prothorace fere reconditum; antennæ dimidio corporis longiores; 11-articulatæ, serratæ; articulus 1^{us}. mediocris, extus incrassatus, 2^{us}. fere reconditus minutissimus; cæteri compressi, dilatati, magnitudine subæquales: prothorax parvus, anticè angustus, rotundatus, posticè latus, truncatus, bisinuatus, angulis acutis; elytra complanata, dilatata, carinata, carinæ nervuris numerosis transversis connexæ, prothorace triplo quadruplo latiores; latitudo maximus pone medium; apicibus rotundatis.

Note.—*Lycus reticulatus* of Fabricius belongs to this genus.

Digr. typica. *Caput nigrum; antennæ nigrae, articulo 2^o flavo, prothorax quam D. reticulatæ latior, niger, lateribus latè*

fulvis: *elytra fulca, fascia ante medium sinuata apicibusque late nigris; elytra basi latiora, pone medium angustiora quam D. reticulatæ.* (Corp. long. $\cdot 7$ unc.; elyt. basi lat. $\cdot 175$ unc.; elyt. pone med. lat. $\cdot 325$ unc.)

Digr. discrepans. *Caput et antennæ nigræ; prothorax niger, lateribus fulvis: elytra nigra, maculâ humerali, fasciâque latâ, pone medium fulvis.* (Corp. long. $\cdot 5$ unc.; elyt. basi lat. $\cdot 125$ unc.; elyt. pone med. lat. $\cdot 25$ unc.)

Digr. dorsalis. *Caput et antennæ nigræ; prothorax nigra, lateribus tenuè fulvis: elytra fulca, plaga dorsali communi ante medium fasciaque lata apicali nigris.* (Corp. long. $\cdot 45$ unc.; elyt. basi lat. $\cdot 125$ unc.; pone med. lat. 3^{um} .)

Digr. divisa. *Lyttæ terminali Say. affinis at differt; caput et antennæ nigra: prothorax niger lateribus fulvis: elytra fulca, basi late nigro.* (Corp. long. $\cdot 5$ unc.; elyt. bas. lat. $\cdot 1$ unc.; elyt. pone med. lat. $\cdot 3$ unc.)

GENUS.—CÆNIA, *Newman.*

Caput parvum, sub prothorace reconditum; antennæ 11-articulatæ flabellatæ, articulus 2^{us}. brevissimus, 4^{us}. ad 10^{um}. dilatati, apice limbo elongato aucti: prothorax parvus, antice obtusus, ante medium utrinque dilatatus, posticè bisinuatus, angulis acutissimis: elytra dilatata, complanata, carinata, nervuris numerosis reticulata, prothorace triplò latiora, latitudo maximus pone medium; apicibus rotundatis.

Cæn. scapularis. *Nigrum, obscurum: utrumque elytron maculâ, magnâ humerali fulvâ fere trigonâ signatum.* (Corp. long. $\cdot 275$ unc.; elyt. bas. lat. $\cdot 05$ unc.; elyt. pone med. lat. $\cdot 2$ unc.)

GENUS.—CELETES, *Newman.*

Caput exsertum, prothorace vix angustius, oculi magni, laterales, rotundati; antennæ pectinatæ, dimidio corporis vix breviores; 11-articulatæ, articulus 2^{us}. brevis, fere rotundus, 4^{us}. ad 10^{um}. longitudine subæquales, ramulam e basi emittentes; prothorax fere *Digraphæ*: elytra linearia, pone medium paullo latiora, carinata, reticulata apicibus rotundatis.

Note.—*Lycus Marginellus, Fabr.* is the type of this genus.

GENUS.—EROS, *Newman*.

Caput prothorace vix angustius, sub prothorace haud omnino reconditur; antennæ dimidio corporis manifestè breviores; 11-articulatæ, neque serratæ nec flabellatæ, articulus 2^{us}. brevis, cæteri mediocres, longitudine subæquales: prothorax fere quadratus: antice rotundatus, posticè truncatus, angulis posticis acutis: elytra linearia, carinata, reticulata.

Note.—*Lycus humeralis*, *Fabr.* is the type of this genus.

Eros Præfectus. *Lyttæ humerali Fabricii affinis at differt: prothorax niger, longitudine latior, disco rugoso: elytra nigra, obscura, maculâ humerali sanguineâ, 5-carinata, carinæ 1 suturalis, 1 marginalis, 3 discoidales, interstitiis duplici serie quadrarum minutarum expletis: cætera nigra.* (Corp. long. $\cdot 3$ unc.; lat. $\cdot 1$ unc.)

Eros Lictor. *Prothoracis medium nigrum, nitidum, lateribus flavis: elytra nigra, obscura, concoloria, 6-carinata, carinæ 1 suturalis, 1 marginalis, 4 discoidales, interstitiis duplici serie quadrarum minutarum expletis.* (Corp. long. $\cdot 3$ unc.; lat. $\cdot 1$ unc.)

Eros alatus. *Prothorax fere semicircularis, medio nigro nitido, marginibus omnibus latè fulvis: elytra fusca margine humerali fulva, 6-carinata, carinæ et interstitiæ præcedentis, at minus extantia; femoribus basi flavis: cætera fusca.* (Corp. long. $\cdot 3$ unc.; lat. $\cdot 125$ unc.)

Eros oblitus. *Prothorax fere quadratus, rugosus, medio nigro, lateribus fulvis: elytra nigra, obscura, concoloria, 6-carinata, carinæ præcedentis, interstitiis transversè rugosè rugatis.* (Corp. long. $\cdot 25$ lat.; $\cdot 09$ unc.)

GENUS.—POLLACLASIS, *Newman*.

Caput parvum, sub prothorace reconditum; antennæ dimidio corporis breviores, bipectinatæ, 11-articulatæ; articulus 2^{us}. quam præcedentium major; 3^{us}. ad 10^{um}. longitudine subæquales, ramulis 2 è basi, denteque acuto ex apice emittentes: prothorax semicircularis, posticè bisinuatus: elytra ampla, sublinearia, apicibus rotundatis.

Poll. ovata. *Prothorax punctatus, obscurus, disco nigro, lateribus cum margine antico late fulvis, margine postico tenuissime fulco: elytra rugose punctata, 4-lineata, nigra, obscura, pilis nigris tecta: cætera nigra.* (Corp. long. .3 unc.; lat. .175 unc.)

The above-described species of this somewhat heterogeneous order, were taken by Messrs. Doubleday and Foster in North America in various localities.

GENUS.—RHIPICERA, Latreille.

Rhip. Proserpina. *Tota fusca, concolor: antennæ 11-articulatæ; caput prothoraxque crebre punctata, lanugine aureâ brevissimâ tecta: elytra rugosè atque profundè punctata, punctis confluentibus.* (Corp. long. .75 unc.; lat. .25 unc.)

This insect has 11 joints to the antennæ, and in other respects it does not agree well with Latreille's genus, *Rhipicera*. I should not have hesitated a moment about giving it a new designation, with detailed characters, had I not known that another species of similar conformation has been extracted from raw turpentine by Mr. Raddon, and is about to be characterized in a descriptive list of turpentine insects, by an abler pen than mine. The species above described I believe to be unique; it was presented by Mr. Bracy Clark, who received it from Wanborough, State of Illinois, North America. I have thought it best to name the species, as, not having occurred in turpentine, it cannot be included in Mr. Raddon's list.

NATURAL ORDER.—ELATERITES, Newman.

GENUS.—ONICHODON, Newman.

Caput pronum, in prothorace receptum: antennæ prothorace vix breviores, 11-articulatæ extus pedetentim attenuantes: articulus 1^{us}. elongatus paullò incrassatus, 2^{us}. brevis, cæteri subæquales: os omnino clausum; mandibulæ validæ, corneæ, extus convexæ, pilosæ, apice incurvæ, acutæ, infra apicem dente magno instructæ; maxillarum lacinia submembranacea, subhyalina, rotundata, pilosa; galea minuta linearis, apice pilosa; maxipalpi 4-articulati, articulus 1^{us}. brevis, 2^{us}. 3^{us}.que paullò longiores, subovati, 4^{us}.

trigonus incrassatus; labium subquadratum, ligula apice bifida; labipalpi bi-articulati, brevissimi, ligulam haud superantes: prothorax convexus, anticè angustior truncatus, posticè latior bisinuatatus angulis posticis valdè acutis elongatis; utrinque infra marginem lateralem profundè sulcatum, antennis recipiens: elytra prothorace vix angustiora, convexa, apicem versus attenuata: tarsi pentameri articulo 4º. minuto infra manifestè elongato; unguiculi dente valido instructi.

Onic. Orchesides. *Facies omnino Orchesiæ: brunneum, concolor, tomentosa, obscura, punctata: prothorax posticè trifoveata; forea mediana linearis, laterales punctiformes: elytra striata, striis vagè punctatis, interstitiis rugosis.* (Corp. long. .7 unc.; lat. .2 unc.)

Inhabits Canada and the northern states of the Union. Mr. Doubleday took a single specimen at Trenton Falls.

NATURAL ORDER.—CETONIITES, *Newman.*

GENUS.—DICHEROS, *Gory.*

Dich. Cuvera. *Atra, nitidissima; prothorax utrinque cruentatus: singulo elytro plag maxim albidâ signato: caputya crebrè punctatum: prothorax anticè lateribusque parcè punctatus: elytra 8 seriebus punctorum minorum signata, series juxta suturam cæteris profundior.* (Corp. long. .7 unc.; lat. .3 unc.)

Inhabits the East Indies. Presented by Mr. Hope, who suggested to me the trivial name, and to whom I am indebted for much valuable information, and kind assistance in naming species.

NATURAL ORDER.—MELOLONTHITES, *Newman.*

GENUS.—ANISOPLIA, *Megerle.*

Anis. Orientis. *Caput, prothorax et scutellum rugosè punctata, pilosa, viridi-ænea, plus minusve testaceo variegata: elytra profundè striata, striis rugosè punctatis, ochrea, suturâ, marginibus, utriusque vittâ discoidali elongatâ, alterâque internâ abbreviatâ ad suturam subito curvatâ brunneis: pedes incrassati testacei, tarsis nigris.* (Corp. long. .45 unc.; lat. .2 unc.)

Inhabits the East Indies. Presented by Mr. Walker.

GENUS.—ANOMALA, *Megerle*.

Anom. marginalis. *Viridi-ænea*; *clypeo, scutello, prothoracis elytrorumque marginibus latè testaceis: caput prothorax et scutellum crebrè punctata: elytra crebrè punctata, profundè sulcata.* (Corp. long. .7 unc.; lat. .375 unc.)

Inhabits China.

This species is the *Anom. Auro-limbata* of the Parisian collections, and of the Count Dejean's catalogue; the *Anom. viridis* of Mr. Kirby's cabinet, now in the possession of the Entomological Society; and the *Anom. Confucius* of Mr. Hope's cabinet. I believe it has never previously been described.

NATURAL ORDER.—SILPHITES, *Newman*.GENUS.—NECROPHORUS, *Fabricius*.

Necr. bicolon. *Niger*; *antennarum capitulo ferrugineo: utrumque elytron maculis 6 rufis ornatum, quarum 1^{ma}. lateralis, ante medium sita 2^a. in angulo externo, postico, 3^a. in angulo anali.* (Corp. long. 1 unc.; lat. .325 unc.)

Inhabits North America. Presented by Mr. Bracy Clark.

NATURAL ORDER.—CARABITES, *Newman*.GENUS.—IRICHROA, *Newman*.

Instrumenta cibaria fere Cychri sed non eadem: mandibulæ intus dentibus 2 minutis distantibus instructæ: prothorax fere cordatus, postice restrictus, truncatus, lateribus, carinâ marginali elevatâ instructis: elytra prothorace duplò latiora, convexa, lateribus rotundatis, carinâ marginali elevatâ recurvâ instructis.

Irichroa vidua. *Newman*.

Cychrus unicolor. *Say*.

Cychrus unicolor. *Knoch*.

Cychrus viduus. *Dejean*. et *Say* in litteris.

This beautiful insect possesses a form and character perfectly distinct from the species of *Cychrus* which inhabit the Old World, as much so, in fact, as *Scaphinotus*, and far more so than *Sphæroderus* of Dejean.

GENUS.—FERONIA, Latreille.

*Pæcillus, Bonelli.

Fero. atrata. *Atra, glaberrima; antennarum basi aterrima: prothorax antice lineâ transversâ fere obsoletâ impressus; posticè utrinque bifoveatus, fovea interna elongata, recta, profunda, basi punctata; fovea externa brevis, minor, punctata: elytra profundè striata, nullo modo punctata.* (Corp. long. .55; lat. .2 unc.)

**Elytra bipunctata: genus *Steropus*, Megerle.

Fero. orbata. *Nigra, obscura; prothorax anticè lineâ profundâ, transversâ, impressus; posticè bifoveatus; fovea interna profunda, basi dicaricata, punctata; fovea externa brevior, profunda, punctata: elytra striata, striis manifestè punctatis; stria abbreviata nulla; in striam secundam elytris utrinque 1-punctatis.* (Corp. long. .85 unc.; lat. .275 unc.)

Fero. spoliata. *Nigra, obscura; prothorax antice lineâ transversâ vix ullâ impressus; posticè utrinque foveatus; fovea haud profunda vix punctata; lateribus valdè convexis: elytra striata, striis manifestè punctatis; stria abbreviata fere obsoleta, inter primam et secundam sita; in striam secundam elytris utrinque 1-punctatis: protarsi rufi.* (Corp. long. .6 unc.; lat. .2 unc.)

***Elytra quadripunctata: genus *Platysma*, Sturm?

Fero. Coracina. *Atra; prothorax anticè transversè impressus; posticè utrinque foveatus; fovea magna, rotunda, punctata: elytra profundè striata, interstriis convexis, 3°. utrinque bipunctato; stria abbreviata profunda inter primam et suturam sita: insectum gracile.* (Corp. long. .75 unc.; lat. .225 unc.)

Fero. Monedula. *Atra; prothorax anticè transversè obsoletè impressus; posticè utrinque foveatus; fovea magna, informis, profundè punctata: elytra profundè striata, striis subtilissimè punctatis; stria abbreviata striam primam adjungit: interstriis convexis 3°. utrinque bipunctato: insectum obesum.* (Corp. long. .6 unc.; lat. .23 unc.)

Fero. lachrymosa. *Atra; prothorax anticè lineâ transversâ impressus; posticè utrinque foveatus; fovea recta, angusta, profundissima: elytra profundè striata; stria abbreviata, profunda, inter primam et suturam sita; primam aliquando adjungit; interstitiis convexis, 3°. utrinque bipunctato.* (Corp. long. .575 unc.; lat. .175 unc.)

Fero. moerens. *Atra; prothorax anticè lineâ transversâ impressus; posticè utrinque foveatus; fovea ovata, lata, profunda, rugosè punctata: elytra profundè striata; stria abbreviata profunda, inter primam et suturam sita, primam aliquando adjungit; interstitiis convexis, 3°. utrinque bipunctato.* (Corp. long. .55 unc.; lat. .175 unc.)

Fero. picipes. *Præcedentibus valdè differt: picea, nitida; prothorax cordatus, anticè transversè impressus; posticè valdè angustatus, bifoveatus; fovea recta, profunda, punctata: elytra complanata, striata, stria abbreviata, interrupta, haud benè descripta; striis punctatis, interstitiis ferè planis 3°. utrinque bipunctato.* (Corp. long. .4 unc.; lat. .15 unc.)

****Elytra sexpunctata: genus *Omaeus*, Zeigler.

Fero. relicta. *Nigra; prothorax anticè transversè impressus, postice utrinque foveatus; fovea lata, limitibus vix descriptis, transversè rugatus, vix punctatus: elytra profundè striata, stria abbreviata inter primam et suturam sita; interstitiis convexis, 3°. utrinque tripunctato.* *Insectum gracile.* (Corp. long. .75 unc.; lat. .25 unc.)

*****Elytra haud punctata.

Fero. intersector. *Atra, glaberrima; prothorax anticè bis transversè impressus; posticè utrinque foveatus; fovea profunda, basi prothoracis marginem lateralem versus, curtata: elytra profundè striata; stria abbreviata inter primam et suturam sita; interstitiis convexis, elevatis, nullo modo punctatis: protarsi cruentati; utroque articulo maculâ parvâ nigrâ signato.* (Corp. long. .7 unc.; lat. .26 unc.)

Fero. rostrata. *Nigro-picea, nitida; caput trigonum, magnum, prothorace vix angustius; mandibulæ elongatæ, falciformes: prothorax anticè vix transversè impressus; disco transversè rugato; postice utrinque foveatus; fovea magna, haud benè*

descripta, haud profunda, haud punctata: elytra striata, striis nullo modo punctatis; stria abbreviata interrupta; stria prima basi quoque interrupta. (Corp. long. .7 unc.; lat. .2 unc.)

These species, and 16 others described by the Count Dejean, seem to occur in abundance in the Northern States of America. It is quite possible that some of them may have been previously described by those able American Entomologists, Mr. Say and Dr. Harris; but if so, their descriptions are unnoticed in the "Spécies des Coleoptères."

GENUS.—BROSCUS.

Bros. basalis. Ater, lævigatus, ad elytrorum suturam tenuissimè striatus; antennæ piceæ articulo basali rufò. (Corp. long. .85 unc.; lat. .35 unc.)

Black; the antennæ pitchy with the basal joint red: head smooth, without punctures, and having a transverse impression between the crown of the head and the clypeus: prothorax with a large but shallow fovea dorsally near its anterior margin, from this fovea a slender but indistinct longitudinal impressed line extends nearly to its posterior margin: the prothorax is shining and not punctured: the elytra are smooth, but not shining, the traces of two or three almost obsolete striæ may be discovered on each elytron near the suture.

Inhabits Mexico. Presented by Mr. Walker.

GENUS.—AMPHASIA, *Newman.*

Labium porrectum emarginatum: mandibulæ intus unidentatæ; maxipalporum articulus apicalis elongatus, medio paullò crassiori, apice acuto; labrum profundè emarginatum haud dentatum: labipalporum articulus apicalis globo minimo definit: prothorax longitudine latior, lateribus rotundatis, latitudines antica et postica subæquales, angulis rotundatis: pro- et mesotarsi pariter dilatati.

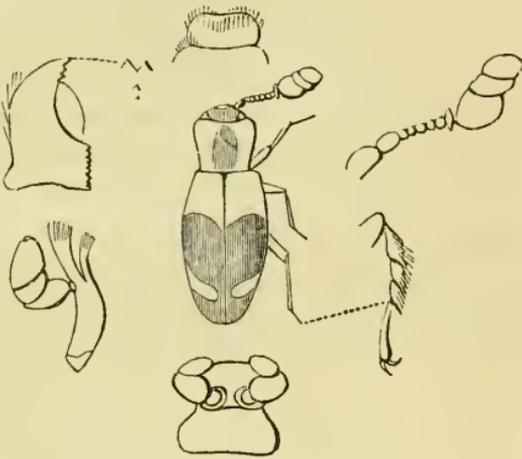
Amph. fulvicollis. Fulca testacea; oculis, elytris abdomineque antice fuscis: caput nitidum haud punctatum, fronte latè bifoveatum: prothoracis discus nitidus, haud punctatus, angulis posticis crebrè punctatis, his quoque foreâ latâ ragâ impressis: elytra profundè striata, interstitiis crebrè punctatis. (Corp. long. .375 unc.; lat. .15 unc.)

A pretty little insect, apparently partaking of the characters of *Harpalus* and *Mazoreus*, but not referable to either genus. Inhabits the United States of North America, but appears rare. A single specimen was taken by Mr. Foster at Trenton Falls.

NATURAL ORDER.—ENDOMYCITES, *Newman*.

GENUS.—PHYMAPHORA, *Newman*.

Caput parvum fere in prothorace reconditum: antennæ prothorace longiores, capitatae, 11-articulatae, articulus 1^{us}. latitudine duplò longior, 2^{us}. brevis, 3^{us}. ad 8^{um}. brevissimi, 8^{us}. precedentibus duplo latior, cætera incrassata, dilatata, capitulam formantia: labrum transversum, medio vix emarginatum;



mandibulæ validæ apice incurvæ, bifidæ, intus sub apicem dentibus duobus minutis instructæ, tunc lobo magno membranæ auctæ, basi serratæ; maxillarum lacinia parva, erecta, linearis, apice pilosa; galea similis at paullò major paullò longior; maxipalpi 4-articulati, articulus 1^{us}. minutus, brevissimus, 2^{us}. incrassatus, cyathiformis, 3^{us}. brevis sed incrassatus, 4^{us}. incrassatus conicus apice ipso truncato; labium transversum, anticè angustius, lateribus rotundatis; labipalpi 3-articulati, articulus 1^{us}. brevissimus, 2^{us}. incrassatus, 3^{us}. subconicus; ligula lata rotundata: prothorax subquadratus anticè paullò latior, lateribus anticè rotundatis: elytra ampla, medio prothorace latiora, lateribus convexis, apice rotundatis: tarsi tetrameri.

Phym. pulchella. *Lætè ferruginea, glabra, nitida; oculis, vertice, elytrorum fasciâ latâ medianâ alterâque apicali nigris: elytra juxta suturam utrinque profundè 1-striata.* (Corp. long. .15 unc.; lat. .05 unc.)

Inhabits the United States of North America. Mr. Doubleday took three specimens at Trenton Falls.

GENUS.—ENDOMYCHIUS, *Weber*.

Endo. perpulcher. *Caput, antennæ, abdomen subtus, et pedes nigra: prothorax rufus: elytra nigra, maculis 4 rufis.* (Corp. long. .15 unc.; lat. .1 unc.)

Inhabits the United States of North America. Mr. Double-day took two specimens at Trenton Falls.

NATURAL ORDER. ————— ?

GENUS.—LANGURIA, *Latreille*.

Lang. gracilis. *Caput et antennæ nigra; facies picea; prothorax parvè punctatus, rufus, vittâ longitudinali nigrâ; elytra striato-punctata, nigro-virescentia; abdomen subtus pedesque nigra.* (Corp. long. .6 unc.; lat. .06 unc.)

Inhabits the United States of North America. A single specimen was taken by Mr. Foster at Mount Pleasant, in Ohio.

NATURAL ORDER.—HISPITES, *ined.*GENUS.—HISPA, *Linneus*.

Hispa Xerene. *Caput et antennæ nigra: prothorax profundè punctatus niger, vittis duabus flavis: elytra striis 8 punctorum profundorum impressa, nigra, utroque vittâ maculâque sub-apicali flavis signato: abdomen et pedes nigra.* (Corp. long. .2 unc.; lat. .1 unc.)

Hispa Philemon. *Caput et antennæ flava, oculis verticisque lineâ longitudinali nigris: prothorax profundè punctatus, flavus vittis 4 nigris: elytra 5-carinata, interstitiis binâ serie punctorum profundorum impressis, nigra apicibus maculisque minutis flavis: abdomen nigrum: pedes lutei.* (Corp. long. .175 unc.; lat. .075 unc.)

Hispa Baucis. *Caput et antennæ nigra: prothorax profundè punctatus, niger, vittis 3 flavis: elytra 5-carinata, interstitiis binâ serie punctorum profundorum impressis, nigra apicibus maculisque minutis flavis: abdomen nigrum: pedes lutei.* (Corp. long. .175 unc.; lat. .075 unc.)

These three *Hispæ* were taken by Messrs. Doubleday and Foster, at Trenton Falls, in North America. *Philemon* and *Baucis* may prove to be the sexes of the same species.

NATURAL ORDER.—CRIOCERITES, *Newman*.

GENUS.—DONACIA, *Fabricius*.

Dona. cincticornis. *Antennæ elongatæ, utroque articulo basi flavo, apice nigro: vertex nitidus: prothorax quadratus, minutissimè punctatus, lineâ dorsali impressus: caput et prothorax nigro-ænea: elytra testacea, nitida, complanata, apice truncata: metafemora elongata, incrassata, bidentata: pedes testacei, femoribus nigro-bivittatis.* (Corp. long. .325 unc.; lat. .1 unc.)

Dona. cataractæ. *Viridi-ænea: antennæ breves, ferrugineæ, articulo basali metallico: vertex nitidus: prothorax anticè latior, lateribus sub-tuberculatis: elytra convexa apice rotundata: pedes ferruginei femoribus apice metallicis.* (Corp. long. .3 unc.; lat. .085 unc.)

Dona. rugifrons. *Viridi-ænea: antennæ ferrugineæ, articulis apice fuscis: vertex rugosus haud nitidus: prothorax fere precedentis: elytra convexa, apice rotundata, utriusque dorsum prope suturam bi-impressum: femora tibiæque basi ferruginea, apice fusca, metallica.* (Corp. long. .275 unc.; lat. .085 unc.)

These three species were taken by Messrs. Doubleday and Foster, at Trenton Falls, in North America.

GENUS.—ORSODACHNA, *Latreille*.

Orso. costata. *Pallidè ochrea; oculis nigerrimis: mandibuli apice nigri: caput punctatum: prothoracis latera subserrata, dorsum rugosè punctatum: scutellum minutè punctatum: elytra profundè punctata, carinâ elevatâ costali instructa.* (Corp. long. .25 unc.; lat. .1 unc.)

Orso. ruficollis. *Caput, elytra et abdomen nigra: os, antennæ et pedes picea: prothorax rufus.* (Corp. long. .25 unc.; lat. .085 unc.)

Orso. inconstans. *Caput, prothorax, elytra et abdomen nigra: os, antennæ et pedes fulva, plus minusve sordida. Variat. Caput nigrum: os fulvum: prothorax, elytra et abdomen sordide testacea.* (Corp. long. .25 unc. ; lat. .1 unc.)

The three preceding species were taken by Messrs. Doubleday and Foster, at Trenton Falls, in North America:

NATURAL ORDER.—LEPTURITES, *Newman.*

GENUS.—ENCYCLOPS, *Newman.*

Caput fere quadratum, prothorace paulò latius; oculi rotundati haud ad antennas emarginati; antennæ ante oculos insertæ, tenues, corpore vix breviores, 11-articulatæ, articulus 1^{us}. incrassatus, 2^{us}. brevissimus, 3^{us}. elongatus, 4^{us}. 3°. 5°.que brevior; 5^{us}. et cæteri elongati; longitudine subæquales: labrum transversum, margine vix excavato; mandibulæ trigonæ, ad apicem acutæ, incurvæ, extus convexæ, intus sinuatæ; maxillarum lacinia linearis, brevis, pilosa; galea laciniâ longior, omnino major, pilosa; maxipalpi 4-articulati, articulus 1^{us}. brevis, 2^{us}. elongatus, 3^{us}. 2°. brevior, 4^{us}. 3°. longior, incrassatus, apice obliquè truncatus; labium latè emarginatum, lateribus gibbosis, palpigeris latera gibbosa; labipalpi 3-articulati, articulus 1^{us}. brevis, 2^{us}. 3^{us}.que longiores, 3^{us}. crassior, apice obliquè truncato; ligula labipalpis vix brevior, in duos magnos lobos divisa: prothorax anticè posticèque ante marginem constrictus, lateribus medio gibbosis: elytra elongata, capite prothoraceque latiora, abdomine longiora, linearia, apicibus rotundatis, spinâ nullâ: pedes elongati: femoribus simplicibus.

Ency. pallipes. *Punctata; supra viridi-cænea, subtus nigra: antennæ nigræ utroque articulo ad basin testaceo: pedes testacei.* (Corp. long. .35 unc. ; lat. .06 unc.)

Inhabits Canada and the United States of North America. Taken at Trenton Falls by Messrs. Doubleday and Foster.

NATURAL ORDER.—CERAMBICITES, *Newman.*

GENUS.—PTERACANTHA, *Newman.*

Generi *Lophonocero* affinis at antennæ nullo modo lanatæ: caput et prothorax ferè *Laphonoceri*: antennæ 11-articulatæ, *maris* corpore

duplò longiores, articulus 1^{us}. et 3^{us}. ad 8^{um}. compressi, apice subdilatati: ceteri gracillimi, ultimo valdè elongato; *feminæ* dimidio corporis vix longiores, serratæ: elytra ampla, pone medium dilatata, margine laterali recurvo, apice truncato, utrinque extùs spinâ acutâ armato: pedes breves, femoribus simplicibus.

Pter. fasciata. *Nigra; prothoracis tuberculis, pro-meso- et metasterni lineâ communi, elytrorumque fasciâ medianâ fulvis: caput prothorax et elytra rugosè punctata; prothoracis lineâ longitudinali medianâ haud marginem posticum attingente, elytrorumque tribus discoidalibus (externo sesquialtero) glaberimis.* (Corp. long. 1·2 unc.; elyt. max. lat. ·475 unc.)

Inhabits Brazil. The female presented by Mr. Walker; the male is in the cabinet of the Rev. F. W. Hope.

GENUS.—OBRIMUM, *Megerle.*

Obri. rubrum. *Rubrum, pilis nigris tectum; caput rufum, oculis antennisque nigris; prothorax ruber, levigatus; elytra rubra, punctata; meso- et metathorax subtus nigra; abdomen subtus rufum; pedes nigri, femoribus medio rufis.* (Corp. long. ·275 unc.; lat. ·1 unc.)

Red, with a black pilosity; head red, eyes and antennæ black: prothorax red, smooth: elytra red, coarsely punctured: meso- and metathorax beneath black: abdomen beneath red: legs black: femora red in the middle, particularly the fore and middle pair.

Inhabits the United States of North America. A single specimen was taken by Mr. Foster, at Mount Pleasant, in Ohio.

GENUS.—CALLIDIUM, *Fabricius.*

Call. antennatum. *Chalybeum; antennæ, præsertim basi, quam in Call. violaceo crassiores: prothorax latior, latè bifoveatus: femora incrassata; tibiæ subincurvæ.* (Corp. long. ·45 unc.; lat. ·2 unc.)

Call. æreum. *Æreo-brunnea, pedibus pallidioribus: prothoracis dorsum obsoletè 4-tuberculatum: elytra rugosè punctata, lineâ elevatâ fere obsoletâ: femorum apicibus subitò valdè incrassatis.* (Corp. long. ·4 unc.; lat. ·15 unc.)

Call. Cylindrides. *Testaceum, oculis nigris: prothorax nitidus, punctatus, complanatus, obsolete 3-foreotus: elytra punctata, nitida, lineis haud conspicuis: femora sensim incrassata: Cylinderae pallidae^a facies.* (Corp. long. .3 unc. ; lat. .075 unc.)

These three species of *Callidium* inhabit North America, and have been taken by Messrs. Foster and Doubleday.

GENUS.—CLYTUS, *Fabricius.*

Clyt. humeralis. *Piceo-niger; os ferrugineum, mandibulis apice nigris; facies flavo bivittata; antennæ ferrugineæ ante apicem fusca: prothorax niger, lateribus ferrugineis, marginibus flavis: scutellum nigrum margine flavâ: elytra nigra humeris ferrugineis; utroque elytro lineis 2 flavis signato; linea prima e scutello prope suturam paulisper descendit, deinde ad marginem externam tendit; secunda e margine externâ ad suturam extendit, inde ad marginem revertitur: pedes ferruginei, femoribus elongatis, incrassatis, extus nigris; metatibie arcuata.* (Corp. long. .5 unc. ; lat. .175 unc.)

Inhabits the United States of North America. Mr. Doubleday took two species at Cincinnati.

Clyt. Apelles. *Prothorax flavido-tomentosa, immaculata; elytris nigris, griseo flavoque signatis; antennis pedibusque nigris, pubescentiâ argenteâ leciter tectis.* (Corp. long. .7 unc. ; lat. .2 unc.)

Head thickly covered with a yellowish pubescence: eyes brown: antennæ black, slightly clothed with a silvery pubescence, and unusually long for this genus: prothorax and scutellum clothed with a thick yellow pubescence, and without spot: elytra black, having a very distinct longitudinal elevated ridge on each near the suture; the upper portion of the space between this ridge and the suture is greyish white, and the lower portion is occupied by a black spot, a grey spot, a black spot, a yellow spot, a black spot, and a silvery apical lunule; between the elevated ridge and the outer margin of each elytron are four yellow markings, the first originates near the scutellum, and proceeds downwards about a third of the entire length of the elytron, where it meets a white line descending obliquely from the shoulder; these two united form a letter V; the second yellow mark originates at the shoulder, and descends along

^a Entom. Magazine, Vol. I. p. 509.

the extreme margin of the elytron half its entire length, then curving inwards it terminates at the ridge; between the second yellow mark and the V mark is a narrow white line, and a second, very short, between the V and the ridge; the third and fourth yellow marks are nearer the apex, are somewhat quadrate, and unite the ridge with the external margin: legs black, with a grey pubescence: abdomen beneath covered with a grey pubescence, and a line of snowy pubescence on each side the entire length of the insect, commencing at the clypeus, passing under the eye along the pro- meso- and metathorax and abdominal segments.

Inhabits Mexico. Presented by Mr. Walker.

GENUS.—SAPERDA, *Fabricius*.

Sape. vitta. *Griseo-tomentosa; capitis, prothoracis, elytrorumque vitta communi lata fusca; elytrorum fascia subapicali fusca: antennæ nigræ; pedes grisei.* (Corp. long. $\cdot 575$ unc.; lat. $\cdot 2$ unc.)

Grey, clothed with a thick pubescence: the eyes and antennæ are black: on the back of the insect is a broad, brown, longitudinal band; it commences on the crown of the head, and extends along the prothorax and elytra to the apex of the latter; the elytra have also a transverse brown band near their apex.

Inhabits the East Indies. Presented by Mr. Walker.

Sape. miles. *Rubra; antennis elongatis, et cum oculis nigris; abdomen subtus pallidum, passim niveo-tomentosum; pedes pallidi, femoribus extus fuscis.* (Corp. long. $\cdot 4$ unc.; lat. $\cdot 15$ unc.)

Face pale, with a brown line down the middle: eyes and antennæ black; a black spot extends from each eye to the prothorax; between these spots the space is light red, interrupted by a black line: the prothorax is red, with a paler central line, and one less conspicuous on each side: the elytra are red and deeply punctured: the under side of the insect is pale, several parts being covered with a dense snowy white pubescence: the legs are pale, the femora having the exterior portion brown.

Inhabits the East Indies. Presented by Mr. Walker.

Sape. cretata. *Brunnea: prothoracis dorsum vittis 2 niveis signatum: utrumque elytron maculis 3 niveis signatum, macula*

antica mediana, elongata, subquadrata; 2 posticæ fere conjunctæ, versus apicem sitæ: latera e capite ad anum vittâ latâ irregulari nivêâ ornata: species perpulchra! (Corp. long. .7 unc.; lat. .225 unc.)

Inhabits the United States of North America. Mr. Foster has sent seven specimens of this beautiful insect, without indicating their precise locality.

GENUS.—CRIODION? *Serville.*

Crio. pictipes. Nigrum; elytra ferruginea, margine, suturâ, maculisque 10 nigris; femora ferruginea, apicibus, maculisque 2 nigris; tibiæ nigræ apicibus ferrugineis; tarsis nigris. (Corp. long. 1.2 unc.; lat. .3 unc.)

Head, antennæ, prothorax, and entire under side of the body black: prothorax very rugose, and deeply punctured: elytra smooth, bright rust-coloured, with the suture and margin black; each elytron has five black spots, the first is placed near the base, is oblong, parallel with the suture, and curved at its upper extremity till it touches the scutellum; the second and third are small, nearly round, and situate on the sides; the fourth is oblong, and near the suture; the fifth is marginal, and near the external spine of the elytra: the femora are rust-coloured, with black tips, and two black spots on each: the tibiæ are basally black, apically rust-coloured: the tarsi are black.

Inhabits Brazil. Presented by Mr. Bennett.

GENUS.—SPHECOMORPHA, *Newman.*

Caput pronum, elongatum, prothorace valdè angustior; oculi fere rotundati, emarginati, antennas recipientes; antennæ prothorace vix longiores, 11-articulatæ, articulus 1^{us}. elongatus, apice crassior, 2^{us}. brevis fere rotundus, 3^{us}. elongatus, tribus sequentibus longitudine æquans, cylindricus, cæteri breves, subæquales: labrum fere quadratum; mandibulæ trigonæ, apice acutæ, vix incurvæ, intus haud dentatæ; maxillarum lacinia brevis, intus densè pilosa; galea linearis, laciniâ duplo longior, densè pilosa; maxipalpi galeâ duplo breviores, 4-articulati, articuli 1^{us}. 4^{us}.que mediocres, 2^{us}. 3^{us}.que brevissimi; labium fere quadratum, apice latè emarginatum; palpiger elongatus lateribus ante medium gibbosis, apice constrictus; labipalpi 4-articulati, articuli 1^{us}. 2^{us}. 3^{us}.que subæquales, 4^{us}. cæteris paullo longior et crassior; ligula vix labipalpis

brevior, in 2 magnos lobos divisa: prothorax fere sphæroides, capitem recipiens: abdomen fere petiolatum ut in Hymenopteris aculeatis: elytra ad basin vix corpore angustiora, sed mox constricta, angustissima, linearia apice divaricata: metalæ amplæ, haud elytris tectæ: pedes mediocres, femoribus haud clavatis. Generi *Molorcho* certè affinis.

Sphe. chalybea. *Chalybeo-nigra*; antennæ, articulo 5^{to}. ferrugineo excepto, fuscæ; elytrorum, plaga humerali alteraque dorsali albidis. (Corp. long. 1 unc.; metalar. dilat. 2 unc.)

Antennæ brown, with the fifth joint ferruginous: head and prothorax black: abdomen black, with a beautiful steel-blue tinge: elytra black, tinged with blue, and having two whitish spots on each; the smaller on the shoulder, the larger, of irregular shape, on the disk near the base: hind wings ample, blue black, iridescent: femora blue black, the hind ones having an elongate ferruginous mark on the inner side near the apex: the hind tibiæ are externally black, internally ferruginous; the other tibiæ and the tarsi are brown.

Inhabits Brazil.

GENUS.—COLLAPTERYX, *Newman*.

Caput pronum, prothorace angustius, clypei margo concava: antennæ breves, dimidio corporis paullò longiores, 11-articulatæ, articulus 1^{us}. elongatus, 2^{us}. brevissimus, 3^{us}. elongatus sed 1^o. brevior, extus paullò incrassatus, 4^{us}. et cæteri pedetentim longitudine decrescentes, fere lineares; instrumenta cibaria fere *Dorcadionis*: prothorax capitem recipiens, lateribus convexis, pone medium unidentatis: elytra ad suturam conjuncta, lateribus convexis, abdominis apicem haud tegentia, pedes breves, femora vix incrassata.

Coll. Blapsides. *Atra, glabra*; caput, prothorax, elytrorum discus et latera præcè punctata; elytrorum, apices læves. (Corp. long. 1 unc.; lat. .425 unc.)

Black, glabrous; the first joint of the antennæ covered with shallow impressions; the face, crown, and prothorax with irregularly scattered but deep punctures; the disk and sides of the elytra, the latter more particularly, are covered with large and deep punctures; the apex of the elytra is smooth: the elytra are united at the suture, and the extremity of the abdomen is uncovered. This insect has the habit of *Blaps*.

Inhabits Mexico. M. Audinet Serville, in his excellent "*Classification de la famille des Longicornes*," does not appear to have noticed this genus, which may be supposed the American representative of *Dorcadion*.

NATURAL ORDER.—CUCUJITES, *Newman*.

GENUS.—HECTARTHURUM, *Newman*.

Generi *Passandræ* affinis, at antennæ omnino dissimiles: caput porrectum, prothorace paullò angustius, complanatum, vertice utrinque posticèque transversè profundè sulcato; oculi parvi, rotundi, laterales, distantes: antennæ prothorace vix breviores, moniliformes 11-articulatæ, articulo 6^o. magno, incrassato, cæteri utrinque pedetentim minoribus, basalis promixis paullò longior, paullò latior, apicalis compressus, paullò elongatus, margine quasi abscisso, haud corneo; utroque articulo punctis 2, 3 aut 4 magnis profundis impresso: labrum sub clypeo reconditum: mandibulæ validæ, extus convexæ, apice acutæ, intus 1-dentatæ, infra dentem lanatæ: maxillarum lacinia (an galea?) apice incurva, intus lanata, maxipalpi laciniâ longiores, 4-articulati, articulus basalis brevissimus, 2^{us}. et 3^{us}. triplo longiores, 4^{us}. ad huc longior, omnes sub-cylindrici: labium et palpi *Passandræ*? mihi invisæ: prothorax complanatus, fere quadratus anticè rotundatus productus, lateribus posticèque marginatus, versus latera utrinque 1-striatus: elytra linearia, complanata, prothorace haud latiora, apice rotundata, lateribus marginatis, utroque elytro striâ profundâ prope suturam alterâque discoidali impresso: pedes brevissimi.

Hect. curtipes. *Piceo-nigrum, glabrum; antennæ piceæ: utroque elytro ante apicem maculâ ovatâ sanguineâ signato: femora rufa; tibiæ rufo-piceæ; tarsi picei.* (Corp. long. .65 unc.; lat. .15 unc.)

Inhabits Gambia. Presented by Mr. Walker.

GENUS.—PASSANDRA, *Dalman*.

Pass. Columbus. *Piceo-brunnea, glaberrima; prothorace, femoribus utriusque elytri vittâ medianâ sordidè sanguineis: prothorax anticè bisinuatus, angulis acutis; disco utrinque obsolete 1-striato; posticè angustior: scutellum minutum, transversum, anticè posticèque depressum: utriusque elytri linedâ ultra medium profundè impressâ.* (Corp. long. 1.2 unc.; lat. .325 unc.)

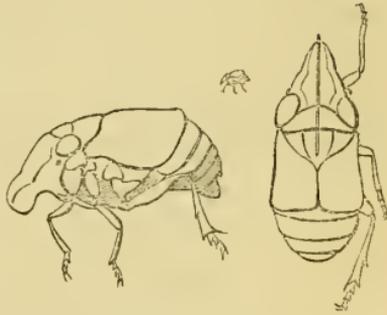
Inhabits the New World, particularly South America, in which its range seems extensive. It is a magnificent insect, and rivals in size *P. Gigas* of Fabricius, on which species the genus appears to have been founded. The above description is not so explicit as I could wish, but I trust that, in conjunction with its habitat, it will be sufficient to identify the species. It is presented by Mr. Walker.

CLASS.—HEMIPTERA.

NATURAL ORDER.—CICADITES, *Newman*.

GENUS.—BRUCHOMORPHA, *Newman*.

Facies generis *Bruchi*. Caput magnum, cum oculis prothorace latius antice elongato, rostriformi, medio longitudinaliter carinato: oculi rotundi, laterales, magni, proalarum humeros ferè attingentes: antennæ sub oculos sitæ, exemplario meo unico læsæ: prothorax angustus transversus lateribus acuminatis: mesothorax trigonus quasi *Coleopterorum* scutellum sed major: proalæ breves, abdominem haud tegentes, corneæ, suturâ rectâ lateribus rectis, apice quadrato, truncato: pedes mediocres simplices, metatibiis medio extus 1 spinosis.



Bruc. oculata. *Nigro-cænea, viridescens, nitida: pedes lutei, femoribus subtus nigro-cæneis; capitis prothoracisque carina longitudinalis testacea: caput prothorax mesothorax et elytra rugosè punctata.* (Corp. long. .1 unc.; lat. .04 unc.)

Inhabits the United States of North America. Mr. Foster took a single specimen at Mount Pleasant, in Ohio.

CLASS.—NEUROPTERA.

NATURAL ORDER.—MYRMELEONITES, *Newman*.

GENUS.—STILBOPTERYX, *Newman*.

Caput transversum, pronum, cum oculis prothorace latius; antennæ capite duplò longiores, multi-articulatæ capitata: os sub pectore

inclinatum; labrum transversum, lateribus rotundatis, medio subemarginatum; mandibulæ validæ, incurvæ, apice acutæ, intus dentibus duobus distantibus armatæ; maxillarum lacinia apice vix acuta, intus pilosa, basi unguiculo elevato instructa; galea fere linearis, lacinia paullò longior, apice trifida; maxipalpi galeâ paullò longiores, 4-articulati, articuli longitudine subæquales; labium subquadratum valdè pilosum; labipalpi ligulâ paullò longiores, 3-articulati articulis cylindricis, longitudine subæqualibus; ligula rotundata, apice emarginata, dente mediano obtuso: prothorax brevis, capite metathoraceque angustior: abdomen elongatum, lineare: alæ lineares, haud abdominem *sedentis* superinjicientes: tarsi 5-articulati.

+ Stil. costalis. *Fusca; alæ nitidæ, hyalinæ, costis apicibusque latè fuscis; qualibet ala maculâ costali albâ ante apicem instructa.* (Corp. long. 1·85 unc.; alar. dilat. 4·85 unc.)

Inhabits New Holland. This magnificent insect is evidently related to *Ascalaphus* and *Myrmeleon*.

NATURAL ORDER.—HEMEROBITES, *Newman*.

GENUS.—DREPANEPTERYX, *Leach*.

Drep. binoculus. *Fuscescens; alis sordidè hyalinis, pilosis, ocello magno, maculis plurimis minoribus fuscis.* (Corp. long. ·225 unc.; alar. dilat. ·6 unc.)

The antennæ, body, legs and wings are brown, the wings being variegated with numerous darker spots, of which the most conspicuous is a nearly round one, encircled by a pale ring, situated in each of the fore wings, near the posterior angle.

Inhabits New Holland. Presented by Mr. Walker.

GENUS.—CHRYSOPA, *Leach*.

Chry. infecta. *Lutea; antennarum basi, capite, corporeque toto rufò infectis: alæ hyalinæ, nervuris longitudinalibus pallidis cæteris fuscis.* (Corp. long. ·55 unc.; alar. dilat. 2·15 unc.)

Antennæ yellow, with a brown hirsuties, with the exception of the two basal joints, which are glabrous, and stained with red; the head and entire upper surface of the body is of the same colour: the longitudinal nervures of the wings are pale yellow, but the

transverse nervures are, some entirely and others partially, dark brown: the under surface and legs are pale.

Inhabits Malabar. Presented by Mr. Walker.

NATURAL ORDER.—PERLITES, *Newman*.

GENUS.—CHLOROPERLA, *Newman*.

Chlo. bifrons. *Fusco-nigra, nitida; alis fusco-tinctis.* (Corp. long. .3 unc.; alar. dilat. .65 unc.)

Dark brown, shining: wings tinged with brown, the nervures being somewhat darker.

Inhabits Scotland. Taken by Mr. Walker at New Lanark.

GENUS.—NEMOURA, *Latreille*.

Nemo. putata. *Fusca, nitida; antennæ moniliformes, alis fere longiores, et cum pedibus, concolores: alæ fusco-tinctæ, brevissimæ, metatibias sedentis haud dimidio exporrigentes.* (Corp. long. .3 unc.; alar. dilat. .55 unc.)

Brown, shining: antennæ moniliform, and much stouter than in the cognate species, also longer, and, together with the legs, of the same brown colour as the body: the wings are tinged with brown, and are remarkably short, scarcely reaching the middle of the hind tibiæ when the insect is at rest.

Inhabits Scotland. Taken by Mr. Walker at New Lanark: will form a genus of future authors.

NATURAL ORDER.—RAPHIDIITES, *Newman*.

GENUS.—MANTISPA, *Latreille*.

Mant. Cora. *Fusca: antennarum basis, facies, prothoracis latera, (lineâ obliquâ interruptâ,) mesothoracis scutellum, tuberculi ad alarum basin, metathoracis scutellum, abdominisque incisuræ flava; pedibus variis.* (Corp. long. .4 unc.; alar. dilat. .85 unc.)

Brown; the first and second joints of the antennæ bright yellow: crown of the head and the eyes brown; the face yellowish: the prothorax is linear, cylindrical, and three times as long as the

head; it is principally pale yellow, but a very distinct dorsal brown line extends its entire length; from this dorsal line a slender line emerges on each side near the head, and passes obliquely towards the mesothorax, it then again ascends and re-joins the dorsal line: the mesothorax is brown, with a yellow scutellum, whence a line of the same colour runs to the base of each fore-wing: in front of each fore-wing the mesothorax is produced into a bright yellow point: the metathorax is brown, with the scutellum and a tubercle at the base of each wing yellow: the sides of the meso- and metathorax are variegated with brown and yellow: the abdomen is brown, with yellow margins to the segments: the wings are shining and transparent, with a distinct dark costal line terminating in the stigma: the fore legs are pale: the femora have externally two small, and internally one large brown spot: the tibiæ are brown: the middle and hind legs are alternately of a pale ochreous yellow, and a dull smoky brown.

Inhabits Malabar. Presented by Mr. Walker.

ART. XLI.—*Communications on the Natural History of North America.* By EDWARD DOUBLEDAY.

(Continued from p. 300.)

[Vicinity of St. John's Bluff, East Florida.]

St. John's Bluff, 16th January, 1838.—On the 2d I strolled along the river to the north: I observed large white and large grey herons, and also small ones of each colour; I suppose them to be *Ardea Herodias*, *A. Egretta*, *A. candidissima*, and *A. ludoviciana*: in the bushes were mocking-birds, and many little *Sylvia* and *Vireos*; in the fields flocks of turtle-doves; and, sailing over my head, bald eagles, vultures of both species, and hawks, (Goshawks, I believe): the kill-deer plovers sprang up from the dry commons, and in the swamps were a few long-legged birds, which I suppose to be *Totani*; swarms of red-winged starlings, and here and there, on the water, a flock of ducks. I shot one or two birds, one a lovely little *Columba passerina*: I am informed this species used to be common in

the orange groves, previously to the great frost of 1835, but since then have been more uncommon. We had one cold day whilst I was at Augustine, (the *Saint* is dropped); the climate is very moist, occasioning rust, mould, and mildew. One evening I found in my room three of those curious *Myriapoda* described by Dr. Heineken in the fifth volume of the Zoological Journal, p. 41, under the name of *Cermatia*. I only secured two of them, and these have lost several legs. At Augustine, with the exception of a beautiful little blue *Cassida*, with yellow antennæ and tarsi, which was very common on both the tall and dwarf palmettoes, I saw but few *Coleoptera*. The common but lovely *Deiopeia* of this country, and *V. Orythya*, were abundant. I took a few insects under bark at Black Creek, and found swarms of scorpions in the same situations. I have taken three species of an *Elater*, resembling, but perfectly distinct from, *E. oculatus*; the ocelli are smaller, and the markings more fulvous.

Black Creek is a singular stream; the water appears black, or rather dark brown, at a distance, but is really clear, and very good. It is perfectly calm, and reflects the trees as clearly as a mirror; this clearness is quite startling at first. The entrance is gloomy; on one side is a cypress swamp, on the other a ruined mill and deserted house; but, higher up, it is very pleasing: tall sassafras, *Magnolia*, and live oaks, verdant as if it were summer, grow quite down to the water's edge, and beneath their stems is an under-growth of dwarf palmettoes and a variety of *Andromeda*. Black Creek formerly swarmed with alligators, but they have been nearly all killed.

On our way to this place, we only reached a place called Dumes's Point the first night. On getting ashore from our boat, we found an old negro hut thatched with palmettoes, which, being dry, made us excellent torches; with these we managed to find a good camping place among the evergreens, with a tall pine-tree or two overhead. We soon, by cutting away the underwood a little, made ample room for a roaring fire, at which we roasted sausages; and being also provided with biscuits, cheese, and a bottle of wine, we supped, drank our wine, talked of the old country and our friends, and laid down to sleep in our Macintoshes, which are excellent in keeping off the damp of the ground. I was awake in the

morning early enough to hear the great owls hooting a farewell to the stars, and the brown thrush welcoming the day. We were soon on board our boat, and proceeding on our way. The woods here swarm with fleas; but, from the time of our landing at New York to our arrival at Jacksonville, I only saw a single one, which was at Shawnee Town. On landing to breakfast the next morning, the first thing that struck me was the overpowering scent of violets, from some little beds of our own *Viola odorata*, in full blossom, before the house. I never smelt them so sweet before, and never loved the little flower so much.

In this neighbourhood is much land that has once been cultivated, but has been allowed to go out of cultivation, and is now covered with *low bush*, chiefly dwarf oaks, *Andromeda*, sweet gum, *Vaccinia*, &c.; beyond are pine-barrens, with here and there hummocks with a tall and varied growth of trees. It appears to be as good an insect country as we have met with in Florida. I have taken a good many *Argynnis Vanilla*, and several of the *Coliades*, which I had previously taken in the west. The other day I saw *Hesperia Proteus*, a beautiful blue *Anax*, an *Æschna*, &c. Between us, we have taken in Florida about five hundred and fifty Coleoptera, comprising not more than ninety species; a good many Lepidoptera, although I think not many of them new; a few Diptera, Hymenoptera, and two *Sympetra*, with the male blue. In a swamp, a little distance from this place, we have taken about twenty-eight species of water-beetles. On our second visit to this spot, R. Foster and I together took about two hundred and fifty specimens of the genera *Trogus*, *Hygrobius*, *Hydroporus*, *Colymbetes*, *Gyrinus*, *Hydaticus*, *Hydrophilus*, *Berosus*, *Hydrobius*, and *Hydrochus*; also a species of *Naucoris*, and one of *Corixa*, very much like our British ones, and also what I suppose to be a *Belostoma*, as long as my little finger. I have taken what I believe to be a new genus among the *Pselaphidæ*, and a species of *Bembidiadæ*, so small that I fancy it must be the smallest yet known. I recollect that Dr. Horsfield brought a very small *Trechus* from Java; this, or mine, must certainly bear the palm for minuteness. Yesterday I found the nest of one of the *Vespidæ* in a very singular place. The tall palmetto, like the palms in general, attains its full thickness before it grows upwards; I was looking at one of these, — a low,

and consequently a young one,—and observed the nest: the leaf, when not fully expanded, curves upwards and outwards from the centre rib; just on the side of this rib was the nest, of rather irregular form, and about the size of an orange, attached by a short footstalk to the leaf. I might, perhaps, compare the nest to a round, not conical, wine-glass, with the foot, and all but about three quarters of an inch of the stem, broken off. There are about fifty cells, which open at the top. I found only three or four of the perfect insects about: I caught three of them. Close to the old nest, a new one was begun; it consisted only of a foot-stalk and three small cells, one having an egg in it. I have preserved both the nests.

January 21, 1838.—It is now quite winter, cold and wet; thermometer at 43°. We shall soon have spring: some of the *Andromedæ*, and the shrubby *Vaccinia*, are opening their pretty white flowers, and the lovely Carolina jasmine is beginning to perfume the air with its large yellow flowers. It is a small climbing plant, or rather shrub, with lanceolate and evergreen leaves, and a large yellow flower about the size and form of a fine *Solpiglossus pictus*, or intermediate between that and *Maurandya Barclayana*; it is a very profuse flower, extremely fragrant. I do not recollect seeing this plant cultivated in England, but I think it would be hardy. *Pinguicula pumila* is out in plenty, and *Viola lanceolata*, a white species with long lanceolate leaves. Higher up the river, the Seville oranges hang over the banks in full bearing. What a paradise I could make of a garden here! The roses thrive beautifully. As to fruits, the orange, lemon, citron, peach, apricot, nectarine, fig, and vine grow admirably. There is scarcely a vegetable but would flourish here. We have green peas now.

There is a kingfisher which keeps close to the house, and amuses me much; he flies chattering along the shore, and alights on a dead tree, in the attitude figured by Nuttall, and sits quiet in that position; then, flying off, hovers over the water like a kestrel. There is also a bald eagle or two about, and I hope to obtain one. I saw a mature and an immature one evidently paired. There are thousands and tens of thousands of cormorants going up and down the river, also ducks, terns, and tropic birds; and I have seen several spoonbills, and some curlews with longer bills than our own. I have seen many scarlet grosbeaks in the woods, and have once

heard the great owl (*S. Virginianus*) hooting. There is a vast quantity of *Cactus* and *Yucca gloriosa* here, and I have seen one enormous plant of *Agave*; but the stories I have heard of hedges of *Agave* are not true; they must refer to *Yucca Draconis*, or *Y. gloriosa*. *Y. filamentosa* is not quite so common: I saw a flower-stem of last year, at Black Creek, about twelve feet high; it was bored by some insect, of which the larvæ were still there, so I secured the part bored. There is a moth here, the caterpillar of which makes a long oval cocoon of bits of stick, and suspends it from a branch: I saw a *Cupressus* at Charlestown covered with them, but I could only pull down a branch which hung over the road; I thus obtained three of the cocoons; I have since obtained two or three more from a species of *Ambrosia*. The caterpillar is nearly white, the thoracic segments look horny, the pupa hangs with its head downward. Dr. Bachman kindly presented me with a specimen of the perfect insect; in form it a little resembles *Zeuzera*, but it has transparent wings.

St. John's Bluff, East Florida. Feb. 13, 1838.—R. Foster and I are still working hard here. There are many minute Diptera now out, and a few *Chalcidites*, but I have only taken twenty-four species of the latter. We have taken several *Eristalides* and *Helophili* on the plum-blossoms, that I can scarcely imagine myself in Florida when I look at them. R. Foster has just taken a large swallow-tailed *Papilio*, different from any thing I know. Dr. Bachman gave me a specimen of the same, which he took at Charlestown, and which is the only one he ever saw. I have now taken at this place rather more than one thousand nine hundred Coleoptera, a great proportion of which are aquatic, and the majority are so small as to require mounting on cards. We had a frost last night; the thermometer was as low as 29°. The orange-trees are a little cut. I now give up all hopes of getting many birds or fish: reptiles I still hope for. I saw a huge snake the other day, but could not get him. I have hitherto seen but one deer, and only one flock of wild turkeys. I yesterday took a fine black *Chænius*, with red legs, more than an inch long; and also some specimens of a bright green species, different from those we took in the north. We have taken a few beautifully blue *Cicindelæ*, quite immaculate.

I long to go up the river to Fort Mellon, or at least to

Black Creek: I want to obtain a huge alligator, but this war has been nearly fatal to them; the soldiers going up and down in the boats shoot them, and there are now very few left of a large size.

St. John's Bluff. Feb. 17, 1838.—Lepidoptera are now beginning to make their appearance more abundantly; also Coleoptera. I am surprised to see the very great resemblance of the smaller insects of this country to those of Britain: I have about twenty-five species of very small *Curculionites*, not one of which but looks perfectly English. It is quite a mistake to suppose that hot climates are incompatible with the existence of minute insects. I have one very pretty *Carabite*, about the size of *Anchomenus albipes*: it is black, with whitish legs: the antennæ have the two basal joints red, the four apical joints snow-white, and the intermediate joints black. We have taken some beautiful black and yellow *Alticeæ*, and one or two fine *Libellulæ*. I have a *Limulus* which, although broken, is three feet four inches in length. I have some larvæ of a moth which feed within the leaves of the *Cacti*; these are about an inch in length. These *Cacti* are a great nuisance; the long thorns penetrate your trowsers, and the smaller prickles get into your skin. The multitudes of *Lianas*, chiefly *Smilax*, are also very troublesome; they creep along the ground and over the bushes;—and woe be to you if you run! one of them is sure to catch your feet; and down you fall, in all probability, on an enormous *Cactus* with spines an inch and a half long. I now keep a sharp look out, and have lately got a cutlass, with which I am about making paths in various directions. We have some most sweet walks in the woods,—winding, and completely arched over. The palmettoes, wild plums, red bays, sassafras, *Andromeda*, *Vaccinii*, *Cacti*, &c. &c. are interlaced with thousands of wild vines of various species, *Smilaces*, &c. The live oaks and *Magnoliæ* are most noble.

Insects promise to be much more abundant here than in the north: you really can form no adequate idea of the great rarity of some species in the northern states. I have been enumerating my captures, and find a much greater number of species than I expected. R. Foster has many species of Coleoptera which I have not, and I also some which he has not. The weather is warmer again; the thermometer 71°. We do not think of leaving this place at present.

ART. XLII.—*Note on Meloë, &c.* By EDWARD NEWMAN.

1. A FEW days ago I had the pleasure of seeing a *Meloë* emerge from the earth of a bank, near Charlton. The aperture whence it issued was speedily filled by the loose crumbling soil. I have before recorded several attempts I made to trace the economy of *Meloë*. The only facts elicited were these:—the female *Meloë* burrows in the earth, makes a large, nearly circular, and smooth cell; deposits therein a globular mass of about a hundred elongate yellow eggs; these are hatched in about fourteen days, and become minute, elongate, hexapod, active larvæ; but in every instance these died for want of suitable nutriment. Mr. E. Doubleday contrived to keep some of these alive for three weeks, feeding them with dead flies, on the legs of which they fastened themselves. Neither Mr. Doubleday nor myself ever detected the least difference between these young larvæ and the little animals often found on the blossoms of *Ranunculus ficaria*, and occasionally on the bodies of several species of wild bees. The female *Meloë* invariably died in the cell which she constructed.

2. I am requested by the Rev. G. T. Rudd to state, that *Remus sericeus*, mentioned at p. 347, in a notice of the Transactions of the Entomological Society, was never taken by him in Yorkshire, as had been stated by error in that work, but on the sea shore at Ryde, in the Isle of Wight. In July and August, 1836, it occurred in the latter locality in great plenty.

3. The same gentleman has taken *Phloëocharis subtilissima* in woods, at Yarm, in Yorkshire; he found it under the bark of limbs of trees which had recently been lopped.

4. In reply to Dr. Bevan's inquiry respecting the existence of any bee which stores honey and yet does not sting, I beg to offer the following note, which has long been in my hands, but whence it is copied I know not:—“Great quantities of wild honey are found in the woods, in the Isthmus of Panama, the bees collecting which do not sting, and are thus robbed without precaution.”

EDWARD NEWMAN.

ENTOMOLOGICAL MAGAZINE.

 OCTOBER, 1838.

ART. XLIII.—*Communications on the Natural History of North America.* By EDWARD DOUBLEDAY.

(Continued from p. 407.)

St. John's Bluff, April 8th, 1838.—The whole country on the St. John's river, as far as I have seen it, is more or less sandy; in many places it is nothing but a loose white sand this is particularly the case at Jacksonville. It may be said to be divided into pine barrens, hummock land, and swamps, to say nothing of the salt marshes about the mouth of the river. The pine barrens are either sand or clay; the latter being, in general, good land. A level or slightly rolling surface of white sand, with tall pine trees not very close together, indeed sometimes very wide apart; in some places a low growth of about one or two feet high of dwarf oaks, scrub palmettos, *Andromeda*, *Ammyrsine buxifolia*, and a few other stunted shrubs, or wire-grass, mixed with various flowers, a large proportion of which are syngenesious; a great abundance of *Smilax* running over the ground;—such is a sandy pine barren. When the soil is more clayey it is richer, and vegetation consequently becomes more luxuriant. These clay pine barrens are principally higher up the river, towards Picolata. Along the shores of the river there is little pine barren, it being nearly all hummock land. These hummocks consist of a thick growth of hard wooded trees, as live, water, and other oaks, sweet gum, *Magnolia*, *Gordonia*; and here, where the water is brackish near the river side, tall palmettos, sixty feet high, with an undergrowth of

Andromedæ, *Vaccinia*, *Myrica*, *Asiminæ*, *Olea Americana*, *Laurus Sassafras*, *Bejaria*, red bay, various plums, dwarf oak, holly, &c. On the ground creeps the beautiful little *Mitchella repens*, with its fragrant snow-white flowers and scarlet berries; and the bushes are interwoven with endless *Smilaces* and vines. The beautiful jessamine *Gelseminum sempervirens*, climbs the tallest oaks, and hangs its golden flowers from their branches, or trails along the ground and over the low bushes; its fragrant flowers have now fallen, but *Bignonia caprifoliata* and *Lonicera sempervirens* adorn the bushes with their scarlet but scentless bloom. The soil of the hummocks is generally good, containing much vegetable matter, but does not suit for orange trees until one or two years after it has been cleared.

Scattered along the shores of the river, and also in the pine barrens, you find swamps of various extent. About four or five miles from hence is a vast swamp extending to near Augustine; it consists entirely of cypresses; these swamps are called cypress swamps, but the major part of the swamps are covered with a thick grove of *Laurus*, *Gordonia pubescens*, and other semi-aquatic trees. A wet, half-swampy spot, where little grows but stunted red bay or sassafras, is called a *bay-gall*. Here and there you find large ponds, which are nearly dry in summer.

Thus much as to the face of the country; now a few words more about insects. When we arrived here in January the principal hunting places for Coleoptera were in the hummocks, under bark, in fungi, &c.: in these localities we found many *Engidæ*, *Diaperidæ*, *Anthribites*, *Cucujites*, *Tenebrionites*, &c. In the ponds we took many *Hydradephaga* and *Philhydrida*, amongst them the most minute species I have ever seen, apparently belonging to the genus *Hydroporus*: three genera of the *Hydradephaga* are not British, and are very singular in form, but in general the genera and many of the species, also the *Berosi*, *Hydrochi*, and *Hydrobii*, closely resemble those found in Britain. In February we obtained many insects by sweeping along the sides of the swamps. There were many *Curculionites*, nearly all small and very English looking; in fact, the *Curculionites* now constitute one-sixth of the Coleoptera we have taken. Some of the *Alticités* are very fine, particularly one striped with black and yellow, and about the size of *Chrysomela cerealis*. There are two or three insects of a genus

allied to *Sarrotrium*, some *Hispæ*, three small and not beautiful species of *Chlamys*, several small *Coccinellites*, and a small Lamellicorn allied to *Psammodius*. If you add to these a few small *Buprestites*, a *Cryptocephalus* or so, an *Anthicus*, a few *Staphylinites*, and a few Longicorns, one small and very singular in form, you will have a tolerable idea of our captures here. I fancied that when the young grass grew up, and a few flowers opened, we should have had better sweeping, but it is not so: there is not now one-fifth of the insects to be swept that there were in February. Since the woods have been getting into leaf I have brushed a good many things off the oaks and *Andromedæ*, the most curious of which is a small Curculionite with enormously long posterior legs: of this I have taken but three. When at Jacksonville, I found several specimens of a minute *Brachinus*, of a rufo-ferruginous colour, with a dark suture; it had fixed its habitation in little bunches of leaves of the *Olea Americana*, which had been spun together at the extremities of the shoots by a *Tortrix* or *Tinea*; it probably feeds on the larva. I have before said that we have taken only one *Cicindela* here; this is of a uniform blue green. We have but few *Carabites*, but R. Foster has taken the loveliest little insect allied to *Drypta* that I have ever seen; it is entirely green-gold and copper. We have a few pretty *Lebice* and a few *Brachinidæ*; only two *Pasimachi*; the first of these was running on the sand, the second under a piece of wood. There are abundance of the elytra of *Pasimachi*, but I *guess* that the Towhee buntings eat many ground Coleoptera, for, go where you will, you hear them scratching like so many chickens, and crying out now and then "To-whee, to-whee." You may also see the sweet little ground doves, with their drooping wings and erect tails, hunting about for seeds and insects. I sadly want to obtain a few of these doves, but do not like to kill them; they look so pretty and gentle, and make such a plaintive noise, that I can never hear them after having shot one, without thinking that they are mourning their dead companion. They are here called mourning doves.

We have captured abundance of two species of *Cetonia*, of one of them more than one hundred specimens, mostly taken close by the house. *Phanæus caruifex* is not common, but I have taken plenty of another species. We have a few *Melolonthites*, a *Geotrupes*, and one coprophagous genus which I do

not know ; also a *Phileurus*, and several *Lamellicorns* of genera with which I am unacquainted. I have at least *two* species of *Passalus*. Of all the plants about here *Cnicus horridulus* is the best for insects ; on this we take all our large butterflies, including eight species of Swallow-tails, various *Hesperia*, *Rhodocera Marcellina*, a great number of bees, several *Cimicites*, *Elaterites*, *Curculionites*, *Buprestites*, *Leptura*, *Crioceris*, and *Chlamys*.

I saw *Papilio Sinon* in plenty in the streets of Wheeling : at this place I have taken five, but they are difficult to catch, flying swiftly through the bushes, and rarely alighting ; they must be taken as they casually pass ; it is no use to follow them. There are some interesting bees and other Hymenoptera now out, but very few *Tenthredinites*, and no *Diptera* worth noticing, with the exception of one fine *Anthrax*. The grasshoppers are coming out, but there appear to be very few species.

St. John's Bluff, June 6th, 1838.—I know you will blame me for not catching fine things, but you do not know how much work it takes to obtain any great number of species. Of one species of *Cicindela* you may catch any quantity you please. When the *Cacti* were in flower we could take abundance of *Trichius piger*, and of a *Leptura* of which I know not the specific name. In one family of butterflies, the *Hesperidæ*, I have had great success ; of these I have at least twenty-two distinct species, but, with the exception of *H. Proteus* and one other, they are by no means brilliant ; some of the specimens of *Proteus* are very fine, but they all lose their tails in the bushes. Of the genus *Thecla* there are eight species ; two of these are very handsome. Of moths I have taken here about two hundred species, besides *Tineites* and *Tortricites* ; but the species are not nearly so numerous as at Trenton Falls : on one or two nights they came indeed by swarms, but on many a warm dark night scarce one came near. Many small Coleoptera came to the lights, especially *Cistelidæ* and *Cerambycidæ* ; the latter are chiefly little fellows, like *Saperda populi*, or about that size ; only one Longicorn is at all fine ; but Robert Foster has taken a splendid pair of *Callichroma* on the flowers of the palmetto. M. Laporte has taken a beautiful new *Rhipicera*, and also a species of *Amphicoma*, or at least something with exactly that appearance ; this genus is supposed to be confined to the Old World.

In Hymenoptera I have taken three specimens of a fine fossorial insect; these are all males; the females I could not obtain; they have black abdomens, with lemon-coloured lateral spots. These fine insects are here known by the name of "horse-guards," not from any supposed resemblance to the useless bipeds mounted on quadrupeds, which are called by this name in your land of liberty, but because they are really horse-guards, flying round the horses to catch the *Tabani* which annoy them. These *Tabani* serve as pabulum for their young, whose residence is in a deep burrow. There being but a single horse here, and he mostly at work in the ship-yard, the horse-guards have extended their tender care to the pigs. You would laugh to see me coursing after a pig, and trying to catch one of these huge creatures as it continued hawking round him; as often as I struck at him with my net, the pig gave a loud grunt, and started off again, scaring away the poor horse-guard, so that after a long and vain chase I was obliged to give it up.

I have just seen a fork-tailed kite. These moonlight nights the mock-birds sing most sweetly, but they do not equal the English nightingales. They enjoy sitting on the roof of a house or out-building. One in this neighbourhood exactly imitates the whip-poor-will and the wood-thrush, which latter bird is far from common here; I have not seen one lately. I much want to obtain the purple grosbeak, which occurs here, also some of the large grey pelicans; these look exceedingly odd, both flying and fishing; I have sent men out after them, but they are too shy.

I have taken a species of *Omophron* very like *limbatum*, and nine specimens of a *Cicindela* that is new to me; above it is nearly black, the elytra having a white apical lunule, and in the female there are three small white dots on each; the labium is white; there is a white lateral downy line on the meso- and metathorax, the abdomen beneath is green, the first and second segments excepted, which are either fulvous or castaneous. It is about the size and figure of *C. Germanica*. This does not run on the shore like several other species, but a few rods inland.^a

We have two species of *Cicada* here; one of them is

^a In case the species described by Mr. Doubleday should be new, (and I know of no North American species answering to the description,) I would

common, the other I have not seen. Of the common one I have only taken seven; this morning I took one, and it immediately began singing in my hand, and I had a good opportunity of observing how it produced the noise. Neither wings nor legs had any thing to do with it; the sound proceeds solely from the cavity of the drum: the abdomen is rather extended at the time, and I found, by pressing it, I could modify the sound so as to produce a note quite different from any which they spontaneously emit. Their principal note is a long *je-ee-ee*, occasionally drawled out to a prodigious length. This is now and then varied by a sharp *chick chick*, and then follows a sound very like the running down of a watch. There is no more music in their note than in the alarum of a common Dutch clock. They are very difficult to obtain, keeping very high in the trees, and their note is so deceptive that one cannot tell where they are. One day I fancied I heard one in an oak over a well in the yard; when I reached the spot I thought it was in the next tree, then in the next, till at last I found it was at least one hundred yards from the house. The larger and more noisy species of *Cicada* I have never heard but once: I was out in the hummock, and just as a storm was coming on they set up such a peal! they were all high up in the noble live oaks; and after blundering about in the hummock for a long time, I returned, having caught nothing but a wetting to the skin, and a few dozen *bêtes rouges*.

Savannah, June 18th, 1838.—After tossing about three days on St. John's bar, with a strong westerly wind, which would not let us get out, we made our escape from Florida on the 16th, and to-day got through the inland passage to this place.

Augusta, June 22d, 1838.—On our passage to Savannah we passed some beautiful islands producing fine live oaks and *Magnoliæ*, and the *Bignoniæ* were in full bloom. North of Altamaha we noticed some islands particularly beautiful, from

propose naming it *Cicindela ventralis*, and have attempted to latinize the characters.

Cici. ventralis. *Elytra subnigra, mas lunula apicali, fem. lunula apicali maculisque 3 minutis medianis albidis: labrum albidum: meso- et metathorax lineâ laterali tomentosâ albidâ: abdomen subtus viride segmentis 1^o. et 2^{do}. fulvis aut castaneis.* (Magnitudo et Statura Cic. Germanicæ.)

Habitat—St. John's Bluff, East Florida, North America.—E. NEWMAN.

the mixture of pines and cedars, with palmettos and other sub-tropical trees. I like Savannah much. The large trees of *Melia azederach*, *Ailanthus glandulosa*, mulberries, and here and there one of a New Zealand *Acacia* (?) with beautifully delicate pinnate leaves, fairly meet in some places over the streets. The Savannah river is a broad, crooked, and now (from a flood) a muddy and rapid stream: on some of its bluffs are most noble trees, particularly water oaks, (the most beautiful of all the American oaks,) tall cypresses, &c.: along the banks are tangled thickets of brushwood and vines, overrun by the pretty Cherokee rose. There is also abundance of a beautiful aquatic plant with heart-shaped leaves and a spike of azure flowers, but I could not obtain any. In the flooded rice fields we saw abundance of large white herons; and on the shore the little egret, the bittern, and the large blue crane were wading among the weeds. Here and there lay a huge alligator, although these animals are seldom so large here as in Florida. As we ascended the stream during our three days' journey, the woods altered very much; after the first thirty miles they are nearly uninterrupted. In the lower parts of the river the woods principally consist of water oaks, cypresses, and other trees common to Georgia and Florida; but as we ascend we find the broad-leaved oaks, planes, (here called sycamores,) elms, beech, limes, and other trees of the western waters. Here a group of large *Magnoliæ* spread wide their magnificent flowers; there an old tree is clothed from its root to its summit with *Bignonia radicans* covered with bloom; all the trees are interwoven with vines and other climbers; the *Catalpæ* were out of bloom. Still higher up, the banks of the stream were fringed with tall willows, resembling the weeping willow in foliage, not in form; and in the swamps were still some noble cypresses, spreading their umbrella-like heads far above the other trees. From the branches the *Tillandsia* grows in abundance, contrasting most beautifully its tresses "all hoar," with the light leaves, "young as joy," of the trees on which it grows. The fringe of wood varies in depth from one to four miles on each side of the river; beyond it are fine plantations. At one very pretty place where we stopped to take in wood, we saw in a garden large myrtles and Cape jessamines covered with bloom.

When we stopped to take in wood I always went ashore

and gathered abundance of beautiful flowers ; on one lofty bluff I gathered *Spigelia Marylandica*, a lovely *Commelina* growing in large bunches, the delicate grassy-leaved rose-coloured *Tradescantia*, various *Coreopses* and *Rudbeckiæ*, several fine papilionaceous plants, and a large yellow tubular flower growing in long spikes, with many others. Having obtained a large handful, I returned to the boat to dry them. This plan I followed regularly, drying my papers at the chimney of the engine. At one place we had a good ramble on shore for above an hour: it was a pretty spot, looking just like an English park, with scattered oaks, mulberries, and *Catalpæ*, with bushes of blackberries loaded with ripe fruits. We rambled more than a mile, saw several dragon-flies new to me, and gathered a great many flowers, and found a mulberry tree of a kind I had not before seen ; the fruit was pale purple, almost rosaceous, and extremely sweet ; another species with scarlet fruit had been ripe some weeks earlier at St. John's Bluff, but were very poor.

Augusta is a fine city, with a good deal of the Northern look about it. I forgot to mention what millions of fire-flies we saw up the river. Yesterday we obtained a few new beetles, the finest of them a large Chrysomelite, something like a *Doryphora*.

Warm Springs, North Carolina, July 8, 1838.—Early in the morning of the 2d inst. we bade adieu to Augusta. We soon got into a broken country, diversified by wooded hills, fields of cotton, corn, oats, and pasture land. Many of the wheat fields were cleared, the wheat having been cut three weeks back. The increased luxuriance of apples and pears indicated the approach of a colder climate. The wild plums, which two months ago were ripe in Florida, were here only now ripening. *Bignonia radicans* is everywhere in flower ; it runs up the stems of the girdled trees, and often surmounts their summits. Numbers of beautiful flowers are in blossom ; one, an *Asclepias*, with an orange-coloured blossom, is very fine, and there are many which I do not know. The fire-flies by night were in profusion. Towards Greenville the road becomes more and more hilly. From Greenville to the Saluda mountain I walked nearly all the way. The road was most delightful, not from the views which it afforded, but from the beauty of the woods and rocks ; they consist principally of oak, chesnut, tulip,

walnut, hickory, plane, maple, beech, birch, locust, *Catalpa*, red bay, dogwood, and sassafras; beneath these grow the most magnificent *Kalmia* and *Rhododendra*. I saw one *Kalmia* which, close to the ground, divided into five branches, each bigger than my knee, and extending twenty or twenty-five feet; it had been covered with flowers. The *Rhododendra* are fully as large; their flowers are generally white. Hearing the murmuring of waters, I plunged down through the bushes, and soon found myself in a more open spot. A small stream ran rippling over the rocks, and above me were chestnuts and oaks one hundred feet high, through the foliage of which a ray of sunlight would occasionally steal—

“ Shedding a glow of such mild hue,
So warm and yet so shadowy too,
As made the very darkness there
More beautiful than light elsewhere.”

From the crevices of the rocks grew immense *Rhododendra*, covered with opening flowers.

From Ashville I walked most of the way to this place; for in this mountainous country the stage scarcely makes four miles an hour. The road runs mostly by the side of the French Broad river, between high and wooded mountains; the river is fringed with roses, *Rhododendra*, *Azaleæ*, and *Chionanthus Virginiaca*. Wild vine and *Bignoniæ* climb up all the trees; the latter, covered with larger and brighter flowers than I ever saw in England, festoons the sides of the river, which roars over broken fragments of rock. There is here a good deal of a species of *Abies*, resembling, but distinct from, *A. Canadensis*: it runs up with a clean, straight, lofty stem, and is said to make excellent timber. The tulip trees just coming into bloom are enormous, often more than three feet in diameter, and reaching to a great height.

ART. XLIV.—*Monographia Chalciditum.* BY FRANCIS
WALKER.

(Continued from p. 118.)

“ ——— the green myriads in the peopled grass.”

GENUS.—ENCYRTUS, *Dalman*, (continued.)

Fem.—Corpus breve, pubescens, subnitens, scite punctatum : caput transversum, breve, convexum ; vertex latus ; frons abrupte declivis : oculi mediocres : antennæ subclavatæ, pubescentes, corporis dimidio vix longiores ; articulus 1^{us}. longus, fusiformis ; 2^{us}. longicyathiformis ; 3^{us}. et sequentes minuti, subæquales, fere quadrati ; clava longissima, fusiformis, flagello paullo brevior : thorax ovatus, supra planus : mesothoracis scutum transversum ; paraptera non convenientia ; scutellum obconicum : abdomen ovatum, planum, subtus carinatum, juxta thoraci longum et latum : oviductus occultus.

Sp. 91. En. *Ilithyia*. *Fem.* *Atrō-virens*, antennæ fuscæ, pedes nigro-fusci, tarsi fulvi, alæ limpidae.

Atrō-virens : oculi et ocelli picei : antennæ fuscæ ; articuli 1^{us}. et 2^{us}. nigro-fusci : abdomen nitens, læve, fere glabrum : pedes nigro-fusci ; genua et tarsi fulva, hi apice fusci ; mesotarsi flavi, apice fusci : alæ limpidae ; squamulae et nervi fulva. (Corp. long. lin. $\frac{1}{3}$; alar. lin. $\frac{2}{3}$.)

July ; near London.

Fem.—Corpus breve, parvum, pubescens, scite punctatum, parum nitens : caput transversum, breve, convexum, thorace paullo latius ; vertex latus ; frons convexa, antice abrupte declivis : oculi mediocres : antennæ subclavatæ, corporis dimidio longiores ; articulus 1^{us}. fusiformis ; 2^{us}. cyathiformis ; 3^{us} et sequentes parvi, transversa, usque ad 8^{um}. latescentes ; clava teliformis, articulo 8^o. latior et plus triplo longior : thorax ovatus, convexus : mesothoracis scutum transversum ; paraptera non convenientia ; scutellum brevi-obconicum : abdomen ovatum, planum, thorace latius vix longius : oviductus occultus : pedes graciles : alæ amplæ.

Sp. 92. En. *Thebe*. *Fem.* *Ater*, abdomen nigro-cupreum, antennæ fuscæ, pedes flavi, femora fusca, alæ limpidae.

Ater : oculi et ocelli picei : antennæ pallide fuscæ : abdomen nigro-cupreum, nitens, læve, fere glabrum : pedes læte flavi ; femora

fusca, apice flava; pro et metatarsi fulvi: alæ limpidæ, latæ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{4}$; alar. lin. $\frac{1}{2}$.)

Var. β.—Femora omnino flava.

Found near London.

Fem.—Corpus breve, latum, obscurum, punctatum, pubescens; caput transversum, juxta thoraci latum, vertex latus; frons abrupte declivis: oculi parvi: antennæ clavatæ?: thorax quadratus, parum convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: abdomen subrotundum, thorace brevius vix latius: oviductus occultus: pedes longi: alæ amplæ.

Sp. 93. En. Dores. Fem. Niger, abdomen nigro-cupreum, antennæ nigro-fusca, pedes fusci fulvo-cincti, alæ limpidæ.

Niger: oculi et ocelli picei: antennæ nigro-fusca: abdomen nigro-cupreum, nitens, læve, fere glabrum: pedes fusci; femora nigro-fusca, apice fulva; tibiæ apice et tarsi basi fulva; protibiæ omnino fulvæ: alæ limpidæ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{1}{4}$; alar. lin. $\frac{1}{2}$.)

September; Isle of Wight.

Fem.—Corpus breve, latum, pubescens, scite punctatum, parum nitens: caput transversum, breve; vertex sat latus; frons abrupte declivis: oculi mediocres: antennæ clavatæ, corporis dimidio longiores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. longicyathiformis; 3^{us}. et sequentes minuti, transversi, usque ad 8^{um}. latescentes; clava longiovata, acuminata, articulo 8^o. latior et triplo longior: thorax breviovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen subrotundum, supra planum, subtus carinatum, thorace brevius vix latius: oviductus exertus: pedes longi: alæ amplæ, corpore longiores.

Sp. 94. En. Cypris. Fem. Niger, antennæ fusca, pedes nigro-fusci, tarsi flavi, alæ limpidæ.

Niger: oculi et ocelli picei: antennæ fusca: abdomen læve, nitens, fere glabrum: oviductus vaginæ fusca, brevissimæ: pedes nigro-fusci; genua flava; tarsi flavi, apice fusci; pro- et mesotibiæ fusca, basi et apice flavæ; protarsi fulvi: alæ limpidæ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{4}$; alar. lin. $\frac{1}{2}$.)

Found near London.

Mas et Fem.—Corpus breve, latum, crassum, punctatum, pubescens, obscurum: caput transversum, thorace vix angustius; vertex latus; frons convexa: oculi magni, non extantes: *mari* antennæ moniliformes, corpore longiores; articulus 1^{us}. fusiformis; 2^{us}. ovatus; 3^{us}. et sequentes ad 8^{um}. longi, subcyathiformes; clava fusiformis, acuminata, articulo 8^o. fere duplo longior: *fem.* antennæ clavatæ, graciles, corporis dimidio longiores; articulus 2^{us}. cyathiformis; 3^{us}. et sequentes parvi, transversi, usque ad 8^{um}. latescentes et protendentes; clava longiovata, apice oblique truncata, articulo 8^o. latior et plus duplo longior: thorax brevis, subquadratus, convexus; mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: *mari* abdomen obconicum, planum, thorace angustius et multo brevius: sexualia subexerta: *fem.* abdomen brevi-obconicum, quam latum vix longius, subtus carinatum: oviductus subexertus: alæ longæ.

Sp. 95. En. fuscicollis. *Mas et Fem. Ater, caput viride, abdomen nigro-æneum, antennæ mari fuscae fem. fulvæ, pedes flavo-fusci, alæ limpidæ.*

Encyrtus fuscicollis. Dalman, *Kongl. Vetens. Acad. Handl. för ür, 1820; Nees ab Ess. Hym. Ich. affin. Monogr. II. 236.*

Encyrtus atricollis. Ditto ditto II. 237.

Ater: caput viride: oculi et ocelli rufi: *mari* antennæ pallide fuscae; articuli 1^{us}. et 2^{us}. obscuriores: *fem.* antennæ fulvæ; articuli 1^{us}. et 2^{us}. fusci, apice fulvi: abdomen nigro-æneum: oviductus vaginæ nigræ, breves: *mari* pedes flavi; tarsi apice fulvi; propedes fulvi, coxæ et femora nigro-fusca hæ apice flava, tibiæ fuscae apice fulvæ; coxæ, meso- et metafemora necnon metatibiæ fusca, apice et basi flava; mesotibiæ basi nigro-fuscae: *fem.* propedes fulvi, coxæ fuscae, femora fusca apice et basi fulva, tibiæ basi fuscae; mesopedes flavi, femora nigro-fusca basi fulva apice flava, tibiæ basi nigro-fuscae, tarsi apice fulvi; metapedes nigri, trochanteres et genua fulva, tibiæ apice flavæ, tarsi flavi apice fulvi: alæ limpidæ; squamulæ et nervi fulva. (Corp. long. lin. 1 $\frac{1}{4}$; alar. lin. $\frac{1}{2}$.)

Var. β.—*Fem.* antennæ fuscae; articuli 1^{us}. et 2^{us}. nigro-fusci.

Var. γ.—*Fem.* profemora fusca apice fulva.

August; on grass in fields, near London. Found in the flowers of *Senecio Jacobea*, at Holywood, near Belfast, by Mr. Haliday.

Nees ab Essenbeck gives the following synonym and quotation :—

“ *Pteromalus cyaneo-cephalus*. *Bouché Naturgeschichte der MS. I. 167. 59.*

“ Larva flavescenti-alba, elliptica, rugosa, capite subrotundo. Habitat gregatim (centeni haud raro), in eadem larva *Ypomeutæ Evonymellæ*. Erucae, his parasitis infestatae, versus metamorphoseos tempus tument liventque, textoque sanarum ad instar, cocco tamen in pupam haud mutantur, sed prius obeunt. Ex quibus quatuor hebdomadam intervallo undique vespæ erumpunt.—*Bouché, l. c.*”

Fem.—Corpus breve, parvum, pubescens, scitissime punctatum, parum nitens: caput hemisphæricum, thorace vix angustius; vertex latus, convexus; frons convexa: oculi mediocres, non exstantes: antennæ subfiliformes, gracillimæ, corpore paullo breviores; articulus 1^{us}. fusiformis; 2^{us}. subrotundus; 3^{us}. et sequentes longi, lineares, hirti, subæquales; clava longifusiformis, acuminata, articulo 8^o. plus duplo longior vix latior: thorax ovatus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum, basi angulatum: abdomen ovatum, planum, juxta thoraci longum, apice angustum et acuminatum: oviductus exertus; vaginæ pubescentes: pedes graciles; mesotarsi vix incrassati: alæ amplæ.

Mas.—Caput quàm *fem.* paullo latius et brevius: antennis articulo 3^o. ad 8^{um}. pilosi, discretiores; clava fusiformis, acuminata, articulo 8^o. multo longior non latior: abdomen ovatum, thorace brevius et paullo angustius: sexualia subexerta.

Sp. 96. En. *Amathus*. Mas et Fem. *Niger, abdomen nigro-cupreum, antennæ mari fulvæ fem. fuscæ, pedes flavo-fusci, alæ limpidæ.*

Fem.—*Niger*: oculi et ocelli picei: antennæ fuscæ; articuli 1^{us}. et 2^{us}. nigro-fusci: abdomen nigro-cupreum, nitens, læve, fere glabrum: oviductus vaginæ fuscæ, breves: pedes flavi; femora nigro-fusca, apice flava; tibiæ basi fuscæ; tarsi apice fulvi; metatibiæ fuscæ; protarsi fulvi: alæ limpidæ, corpore longiores; squamulæ fuscæ; nervi fulvi, apice obscuriores.

Mas.—Antennæ fulvæ; articuli 1^{us}. et 2^{us}. nigro-fusci: sexualia fulva, pedes nigro-fusci; metafemora nigra; genua flava; pro- et mesotibiæ fuscæ, apice flavæ; pro- et metatarsi fulvi; mesotarsi flavi, apice fusci. (Corp. long. lin. $\frac{1}{4}$; alar. lin. $\frac{1}{2}$.)

Found on *Salix Caprea*, at Holywood, near Belfast, by Mr. Haliday.

Fem.—Corpus parvum, angustum, pubescens, scite punctatum, parum nitens: caput subrotundum, juxta thoraci latum; vertex angustus; frons convexa, antice abrupte declivis: oculi magni: antennæ clavatæ, corporis dimidio vix longiores; articulus 1^{us}. gracilis, fusiformis; 2^{us}. cyathiformis; 3^{us}. et sequentes minuti, transversi, usque ad 8^{um}. latescentes; clava fusiformis, articulo 8^o. multo latior et flagello vix brevior: thorax ovatus, parum convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum brevi-obconicum: abdomen ovatum, planum, nitens, læve, fere glabrum, subtus carinatum, apice acuminatum, thorace angustius vix brevius: oviductus occultus: alæ angustæ.

Sp. 97. En. Lambinus. *Fem. Ater, abdomen nigro-æneum, antennæ fuscæ flavo-cinctæ apice nigræ, pedes nigri albocincti, alæ limpidæ.*

Ater: caput nigro-viride: oculi et ocelli picci: antennæ fuscæ; articuli 1^{us}. et 2^{us}. apice flavi; flagellum apice et subtus flavum; clava nigra: abdomen nigro-æneum, basi cyaneum: pedes nigri; femora apice fusca; tibiæ basi et apice albidæ; tarsi albidii, apice fuscii; mesopedes albidii, femora nigro-cincta, genua nigro-maculata, tibiæ basi nigræ, tarsi apice fulvi: alæ limpidæ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{4}$ — $\frac{1}{3}$; alar. lin. $\frac{1}{2}$ — $\frac{2}{3}$.)

May; near London, under a currant-leaf; probably a parasite of *Aphis Ribis*.

Mas.—Corpus angustum, sublineare, nitens, breviter et parce pubescens, scitissime punctatum: caput transversum, brevissimum, supra convexum, thorace angustius; vertex latus; frons abrupte declivis: oculi parvi: antennæ filiformes, graciles, hirtæ, corpore paullo breviores; articulus 1^{us}. fusiformis; 2^{us}. cyathiformis; 3^{us}. et sequentes longi, æquales, sublineares; clava fusiformis, acuminata, articulo 8^o. plus duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen longiovatum, thorace multo longius vix angustius: mesotarsi vix dilatati: alæ angustæ.

Sp. 98. En. Caris. *Mas. Niger, abdomen fuscum, antennæ nigræ, pedes fulvi, proalæ subfuscæ.*

Niger: oculi et ocelli rufi: antennæ nigræ; articulus 1^{us}. nitens: abdomen fuscum, apice nigrum: pedes fulvi; meso- et metatarsi flavii, apice fuscii: proalæ subfuscæ, ciliatæ; squamulæ et nervi pallide fusca. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{3}{4}$.)

Taken by the Rev. G. T. Rudd, in Durham.

Fem.—Corpus parvum, angustum, sublineare : caput transversum, breve, juxta thoraci latum ; vertex parum convexus ; frons plana : antennæ clavatæ, graciles, corporis dimidio longiores ; articulus 1^{us}. gracilis, fusiformis ; 2^{us}. cyathiformis ; 3^{us}. et sequentes minuti, transversi, cyathiformes, usque ad 8^{um}. latescentes ; clava teliformis articulo 8^o. latior et plus duplo longior : thorax planus, ovatus : mesothoracis scutum subquadratum ; paraptera non convenientia ; scutellum breve, fere semicirculum fingens : abdomen ovatum, planum, thorace paullo latius vix brevius : oviductus occultus : pedes graciles : alæ angustæ.

Sp. 99. En. Nadius. Fem. *Fulvo-fuscus, antennæ fulvæ, pedes flavi, alæ limpidæ.*

Fuscus, subtus fulvus : caput fulvum : oculi et ocelli picei : antennæ pallide fulvæ : pedes flavi ; tarsi apice fusci : alæ limpidæ ; squamulæ et nervi flava. (Corp. long. lin. $\frac{1}{6}$; alar. lin. $\frac{1}{3}$.)

Found near London.

Mas. — Corpus sublineare, planum, scitissime punctatum, parce et breviter pubescens, parum nitens : caput parvum, transversum, brevissimum, thorace angustius ; vertex latus ; frons abrupte declivis : oculi parvi, extantes : antennæ filiformes, graciles, pilosæ, corpore fere longiores ; articulus 1^{us}. fusiformis, gracilis ; 2^{us}. cyathiformis ; 3^{us}. et sequentes ad 8^{um}. longi, lineares ; clava fusiformis, articulo 8^o. fere duplo longior : thorax breviovatus : mesothoracis scutum transversum ; paraptera fere convenientia ; scutellum semicirculum fingens, basi angulatum : abdomen brevi-ovatum, depressum, juxta thoraci longum et latum : sexualia conspicua : pedes graciles, sat longi ; mesotarsi vix incrassati : alæ longæ, angustæ, breviter ciliatæ.

Sp. 100. En. Piso. Mas. *Nigro-piceus, caput antice fulvum, antennæ nigro-fuscæ, pedes flavi aut fusco-fulvi, alæ fulvo-tinctæ.*

Nigro-piceus : oculi et ocelli obscure rufi : os fulvum : antennæ nigro-fuscæ : abdomen læve, fere glabrum, basi viridi-cupreum micans ; sexualia flava : pedes flavi ; genua et tarsi apice obscuriora : alæ fulvo-tinctæ ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{1}{4}$ — $\frac{1}{3}$; alar. lin. $\frac{1}{2}$ — $\frac{2}{3}$.)

Var. β.—Capitis frons læte fulva : antennis articuli 1^{us}. basi et apice 2^{us}. que omnino flavi : pedes pallide flavi.

Var. γ.—Antennis articulus 1^{us}. pallidior : pedes fulvi ; femora fusca ; propedes flavi, femora basi fusca, tarsi fulvi.

May, September; near London; North Wales. Found at Holywood, near Belfast, by Mr. Haliday.

Mas. — Corpus mediocre, sublineare, nitens, pubescens, scitissime punctatum: caput brevissimum, thorace vix latius; vertex latus, convexus; frons abrupte declivis: oculi mediocres: antennæ latæ, subserratæ, corpore paullo breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. cyathiformis, brevis; 3^{us}. et sequentes ad 8^{um}. lati, transversi, subcyathiformes; clava fusiformis, articulo 8^o. plus duplo longior et paullo angustior: thorax ovatus, planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen ovatum, planum, juxta thoraci longum et latum: pedes validi; mesotarsi vix dilatati: alæ latæ.

Sp. 101. En. Mysus. *Mas.* *Fulvus aut nigro-piceus, antennæ fulvæ, pedes fulvi aut fuscii, tarsi flavi, alæ limpidæ.*

Fulvus: capitis vertex thoracisque discus picei: antennæ fulvæ; articulus 1^{us}. flavus; 2^{us}. basi fuscus: oculi et ocelli picei: abdomen apice piceum: sexualia fusca: pedes pallide fulvi; tarsi flavi, apice fuscii: alæ limpidæ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{3}$ — $\frac{2}{5}$; alar. lin. $\frac{2}{3}$ — $\frac{5}{4}$.)

Var. β.—Abdomen supra omnino piceum.

Var. γ.—Nigro-piceus: antennæ obscure fulvæ: pedes pallide fuscii; genua flava; tibiæ apice flavæ; tarsi flavi, apice obscuriores.

July, September; on pine trees, near London.

Mas. — Corpus parvum, crassum, pubescens, punctatum, parum nitens: caput breve, juxta thoraci latum; vertex latus, convexus; frons abrupte declivis: oculi mediocres: antennæ serratæ, hirtæ, corpore vix breviores; articulus 1^{us}. validus, fusiformis; 2^{us}. cyathiformis, brevis; 3^{us}. et sequentes ad 8^{um}. latiores, cyathiformes; clava fusiformis, acuminata, articulo 8^o. fere duplo longior: thorax ovatus, altus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen sublineare, compressum, thorace angustius et brevius: pedes validi.

Sp. 102. En. Camirus. *Mas.* *Viridis, abdomen nigro-cupreum, antennæ fulvæ, pedes nigro-fuscii flavo-cincti, alæ albæ.*

Viridis: oculi et ocelli obscure rufi: antennæ obscure fulvæ; articuli 1^{us}. et 2^{us}. fuscii: abdomen nigro-cupreum: pedes nigro-fuscii; genua flava; tarsi fuscii; mesopedum femora fusca, tibiæ fulvæ apice et basi flavæ, tarsi læte flavi apice fuscii; protibiæ

fuscæ: alæ albæ; squamulæ et nervi fulva, hi apice fusci. (Corp. long. lin. $\frac{1}{3}$; alar. lin. $\frac{1}{2}$.)

Var. β.—Mesopedes flavi; femora basi fusca; tarsi apice fusci.

September; on grass in fields, near London.

Fem.—Corpus breve, latum, pubescens, scite punctatum, parum nitens: caput transversum, brevissimum, convexum, thorace fere angustius; vertex latus; frons subimpressa, abrupte declivis: oculi mediocres: antennæ clavatæ, corpore non breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. longicyathiformis; 3^{us}. et sequentes breviores, subquadrati, usque ad 8^{um}. paullulum latescens; clava longiovata, apice obtusa, articulo 8^o. multo latior et plus duplo longior: thorax breviovatus, supra fere planus: mesothoracis scutum transversum; paraptera non convenientia; scutellum breviobconicum: abdomen subtrotundum, planum, thorace brevius non latius, subtus carinatum, apice acuminatum: oviductus occultus.

Sp. 103. En. Aretas. *Fem. Ater, antennæ nigræ, pedes nigro-fusci, tarsi flavi, alæ limpidæ.*

Ater: oculi et ocelli obscure rufi: antennæ nigræ: abdomen nitens, læve, fere glabrum: pedes nigro-fusci; genua et tarsi flava, hi apice fusci; protarsi fulvi: alæ limpidæ; squamulæ et nervi pallide fusca. (Corp. long. lin. $\frac{1}{2}$ — $\frac{3}{4}$; alar. lin. 1—1 $\frac{1}{2}$.)

Var. β.—Antennæ nigro-fuscæ: tibiæ fuscæ; protibiæ flavæ, fusco-cinctæ.

Var. γ.—Thorax viridis.

September; Cumberland.

Mas.—Corpus angustum, punctatum, pubescens, parum nitens: caput breve, transversum, convexum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ filiformes, pubescentes, juxta corpori longæ; articulus 1^{us}. gracilis, fusiformis; 2^{us}. cyathiformis, brevis; 3^{us}. et sequentes ad 8^{um}. longi, lineares, subæquales; clava fusiformis, acuminata, articulo 8^o. fere duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum obconicum: abdomen longiovatum, planum, thorace longius vix angustius.

Sp. 104. En. Telesto. En. Aretas. *Mas.? Niger, antennæ nigræ, pedes nigro-fusci, tarsi fusci, alæ limpidæ.*

Niger: oculi et ocelli obscure rufi: antennæ nigræ: abdomen nitens, læve, fere glabrum: pedes nigro-fusci; genua flava; tarsi fusci; protibiæ fuscae; mesotarsi flavi, apice fusci: alæ limpidæ; squamulæ et nervi pallide fusca. (Corp. long. lin. $\frac{2}{3}$; alar. lin. $1\frac{1}{3}$.)
September; Cumberland.

Fem.—Corpus breve, latum, obscurum, punctatum, pubescens: caput transversum, brevissimum, convexum, vix thorace latius; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ clavatae, corporis dimidio paullo longiores; articulus 1^{us}. fusiformis, crassus; 2^{us}. longicyathiformis; 3^{us}. et sequentes transversi, brevissimi, usque ad 8^{um}. latescentes; clava ovata, articulo 8^o. plus duplo longior: thorax ovatus, convexus: mesothoracis scutum transversum; paraptera non convenientia; scutellum breviobconicum: abdomen breviovatum, planum, apice acuminatum, thorace brevius.

Sp. 105. En. Syllæus. Fem. *Piceus, antennæ fuscae, pedes flavi, alæ limpidæ.*

Piceus: caput antice ferrugineum: oculi et ocelli picei: antennæ pallide fuscae, subtus flavæ: pedes flavi; femora supra fusco-vittata; tibiæ fusco-cinctæ; tarsi apice fusci: alæ sublimpidæ; squamulæ et nervi fulva. (Corp. long. lin. $\frac{1}{6}$; alar. lin. $\frac{1}{3}$.)

Found near London.

Mas.—Corpus breve, parvum, subnitens, scite punctatum, parce hirtum: caput juxta thoraci latum, transversum, convexum; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ fusiformes, pilosæ, corpore paullo breviores; articulus 1^{us}. fusiformis, crassus; 2^{us}. cyathiformis; 3^{us}. et sequentes ad 8^{um}. breves, subquadrati; clava fusiformis, articulo 8^o. multo longior: thorax ovatus, convexus: mesothoracis scutum longitudine vix latius; paraptera non convenientia; scutellum breviobconicum: abdomen ovatum, planum, nitens, læve, glabrum, thorace brevius.

Sp. 106. En. Meon. Mas. *Niger, antennæ fuscae, pedes picei, alæ limpidæ.*

Niger: oculi picei: antennæ pallide fuscae; articuli 1^{us}. et 2^{us}. obscuriores: pedes picei; mesotarsi fusci: alæ limpidæ; squamulæ fuscae; nervi flavi, apice fusci. (Corp. long. lin. $\frac{1}{5}$; alar. lin. $\frac{1}{3}$.)

Found near London.

Mas.—Corpus breve, crassum, convexum, punctatum, paræ hirtum, parum nitens: caput transversum, brevissimum, thorace vix latius; vertex latus; frons abrupte declivis: oculi mediocres, non exstantes: antennæ filiformes, pilosæ, corpore fere longiores; articulus 1^{us}. fusiformis; 2^{us}. cyathiformis; 3^{us}. et sequentes longi, lineares, usque ad 8^{um}. paullulum curtantes; clava fusiformis, articulo 8^o. fere duplo longior: thorax ovatus, altus: mesothoracis scutum transversum; paraptera non convenientia; scutellum subrhombiforme: abdomen breviconicum, planum, nitens, læve, fere glabrum, thorace brevius et paullo angustius.

Sp. 107. En. Thyra. *Mas. Viridis, antennæ fulvæ, pedes fuscæ, mesotarsi flavæ, alæ limpidæ.*

Obscure viridis: oculi et ocelli picei: antennæ fulvæ; articuli 1^{us}. et 2^{us}. fuscæ: metathorax æneus: abdomen nigro-viride: pedes fuscæ; genua fulva; tarsi basi et subtus fulvi; mesopedum genua flava, tarsi flavæ apice fuscæ: alæ limpidæ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{2}{3}$; alar. lin. $1\frac{1}{4}$.)

Var. β.—Abdomen æneum.

July; Forest of Fontainbleau.

Mas.—Corpus parvum, angustum, convexum, scite punctatum, pubescens, nitens: caput transversum, breve, thorace vix latius; vertex latus; frons abrupte declivis: oculi mediocres, non exstantes: antennæ graciles, pilosæ, extrorsum crassiores, corpore fere longiores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. cyathiformis; 3^{us}. et sequentes ad 8^{um}. longi, lineares, subæquales; clava fusiformis, articulo 8^o. paullo latior et multo longior: thorax ovatus: mesothoracis scutum longitudine vix latius; paraptera non convenientia; scutellum obconicum: abdomen breviovatum, planum, læve, fere glabrum, apice hirtum, thorace multo brevius non latius.

Sp. 108. En. Celadus. *Mas. Viridis, abdomen nigro-cupreum, antennæ fusæ, pedes nigri flavo-cincti, alæ limpidæ.*

Viridis, cæruleo minime infectus: caput læte viride: oculi et ocelli picei: antennæ fusæ; articulus 1^{us}. basi et subtus flavus: abdomen nigro-cupreum: pedes nigri; genua fulva; tarsi pallide fuscæ, basi et subtus flavæ; mesopedes flavæ, femora et tibiæ late nigro-cincta: alæ limpidæ; squamulæ et nervi fusca. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{3}{4}$.)

July; Forest of Fontainbleau.

Fem. — Corpus breve, latum, convexum, punctatum, pubescens, parum nitens: caput transversum, subquadratum, sat magnum; vertex angustus; frons abrupte declivis: oculi magni, non extantes: antennæ clavatæ, crassæ, corporis dimidio paullo longiores; articulus 1^{us}. fusiformis, crassus; 2^{us}. longicyathiformis, crassus; 3^{us}. et sequentes transversi, brevissimi, usque ad 8^{um}. latescentes; clava oblique truncata, articulo 8°. fere duplo longior paullo latior: thorax ovatus: mesothoracis scutum transversum; paraptera non convenientia; scutellum breviobconicum: abdomen breviovatum, planum, squameum, nitens, fere glabrum, thorace brevius.

Sp. 109. En. Obodas. *Fem.* *Viridis, thorax antice flavus, antennæ nigræ, pedes flavo-fusci, alæ vix ullæ.*

Obscure viridis: oculi et ocelli picei: antennæ nigræ; articulus 1^{us}. nigro-viridis: prothorax supra et mesothoracis scutum antice pallide flava: abdomen apice cupreo-æneum: pedes pallide fusci; propedum trochanteres et tarsi subtus flavi; mesopedum tibiæ flavæ basi fusæ, tarsi pallide flavi apice fusci; metapedes nigro-fusci, genua fulva, tarsi pallide flavi apice fusci: alæ mutilatæ, brevissimæ, limpidæ. (Corp. long. lin. $\frac{2}{3}$.)

July; Forest of Fontainebleau.

Fem. — Corpus mediocre, sublineare, subconvexum, punctatum, pubescens, parum nitens: caput transversum, subquadratum, juxta thoraci latum; vertex angustius; frons antice convexa: oculi magni, non extantes: antennæ clavatæ, corporis dimidio longiores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. longicyathiformis; 3^{us}. et sequentes transversi, subquadrati, usque ad 8^{um}. latescentes; clava longiovata, articulo 8°. duplo longior paullo latior: thorax ovatus: mesothoracis scutum transversum; paraptera non convenientia; scutellum breviobconicum: abdomen ovatum, planum, læve, fere glabrum, thorace brevius.

Sp. 110. En. Baleus. *Fem.* *Æneo-viridis, antennæ nigræ, pedes fulvo-fusci, alæ vix ullæ.*

Obscure æneo-viridis: caput viridi-æneum, punctis majoribus aspersum: oculi et ocelli obscure rufi: antennæ nigræ; articulus 1^{us}. nigro-viridis: pedes fusci; genua fulva; tarsi fulvi, apice fusci; mesopedes pallidiores: alæ mutilatæ, brevissimæ, limpidæ. (Corp. long. lin. $\frac{3}{4}$.)

July; Forest of Fontainebleau.

Mas. — Corpus parvum, sublineare, convexum, nitens, scite punctatum, parce pubescens: caput transversum, brevissimum, thorace fere angustius; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ filiformes, graciles, pilosæ, corpore vix breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. cyathiformis; 3^{us}. et sequentes ad 8^{um}. longi, lineares, discreti, subæquales; clava fusiformis, articulo 8^o. multo longior: thorax ovatus: mesothoracis scutum transversum; paraptera fere convenientia; scutellum subrotundum: abdomen subquadratum, planum, læve, fere glabrum, thorace paullo brevius vix angustius.

Sp. 111. En. Arene. *Mas. Ater, antennæ fusæ, pedes fulvo-fusci, alæ sublimpidæ.*

Ater: oculi et ocelli picei: antennæ fusæ: pedes fusci; genua fulva; tibiæ apice et subtus fulvæ; tarsi pallide fulvi, apice fusci; mesopedes pallidiores; squamulæ fusæ; nervi fulvi. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

July; south of France.

Mas. — Corpus longum, angustum, convexum, nitens, scite punctatum, parce pubescens: caput transversum, breve, juxta thoraci latum; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: antennæ filiformes, graciles, pubescentes, corpore non breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. cyathiformis; 3^{us}. et sequentes ad 8^{um}. longi, lineares, subæquales; clava fusiformis, articulo 8^o. longior: thorax ovatus: mesothoracis scutum transversum; paraptera non convenientia; scutellum breviobconicum: abdomen longiobconicum, subcompressum, thorace angustius vix brevius: pedes graciles: alæ longæ.

Sp. 112. En. Fadus. *Mas. Viridis, antennæ fusæ, pedes fusci, tarsi flavi, alæ sublimpidæ.*

Læte viridis: oculi et ocelli rufi: antennæ fusæ; articulus 1^{us}. viridis: metathorax æneus: pedes fusci; genua pallide flava; tarsi pallide flavi, apice fusci; protarsi pallide fusci: alæ sublimpidæ; squamulæ fusæ; nervi fulvi, apice obscuriores. (Corp. long. lin. $\frac{3}{4}$; alar. lin. $1\frac{1}{2}$.)

July; south of France.

Fem. — Corpus longum, angustum, gracile, vix convexum, nitens, scite punctatum, parce pubescens: caput transversum, breve, juxta thoraci latum; vertex convexus, latus; frons abrupte

declivis: oculi mediocres, non extantes: antennæ gracillimæ, extrorsum crassiores, corpore vix breviores; articulus 1^{us}. fusiformis, gracilis; 2^{us}. longicyathiformis; 3^{us}. et sequentes longi, sublineares, usque ad 8^{um}. paullulum curtantes et latescentes; clava linearis, apice conica, articulo 8°. plus triplo longior paullo latior: thorax longiovatus: mesothoracis scutum longitudine vix latius; paraptera non convenientia; scutellum breviobconicum: abdomen compressum, planum, thorace angustius non brevis: oviductus exertus, abdominis dimidio longior: pedes longi, graciles.

Sp. 113. En. Sagillus. Fem. *Æneo-viridis*, abdomen cupreum, antennæ fuscæ, pedes læte flavi, femora fusca, alæ limpidæ.

Æneo-viridis: caput antice et subtus viride: os fulvum: oculi et ocelli obscure rufi: antennæ fuscæ; articulus 1^{us}. viridis: mesothoracis scutellum æneum: abdomen cupreum: oviductus flavus; vaginæ fuscæ: pedes læte flavi; coxæ virides; trochanteres fulvi; femora nigro-fusca; tarsi apice pallide fuscii; protibiæ et protarsi obscure fulva, hi apice fuscii; metatibiæ apice fuscæ: alæ limpidæ, mutilatæ? (Corp. long. lin. 1.)

July; south of France.

Mas.—Corpus breve, crassum, coarctatum, convexum, nitens, parce punctatum, brevissime pubescens: caput magnum, transversum, subquadratum, postice concavum, thorace latius; vertex latus; frons convexa, abrupte declivis: oculi sat magni, subrotundi, non extantes: ocelli nulli: antennæ subclavatæ, pubescentes, corpore non breviores; articulus 1^{us}. fusiformis, validus; 2^{us}. cyathiformis, mediocris; 3^{us}. et sequentes longi, lineares, usque ad 8^{um}. paullulum curtantes et latescentes; clava fusiformis, articulo 8°. multo longior et paullo latior: thorax breviconicus, latitudine vix longius: prothorax brevis, latus, sat bene determinatus: mesothoracis scutum brevissimum, prothorace minus; parapsidum suturæ bene determinatæ, postice approximata; paraptera et epimera magna; scutellum maximum, subrotundum, longitudine paullo latius: metathorax brevissimus: abdomen latitudine vix longius, quadratum, læve, fere glabrum, thorace brevius vix latius, apice abrupte acuminatum; segmentum 1^{um}. maximum; 2^{um}. et sequentia minima, supra vix conspicua: pedes validi; mesopedum tibiæ apice dilatata et calcarata, tarsi incrassati; metapedum femora et tibiæ subarcuata: alæ sæpissime nullæ.

Fem.—Antennæ clavata, corporis dimidio vix longiores; articulus 2^{us}. longicyathiformis; 3^{us}. et sequentes minuti, transversii, usque

ad 8^{um}. latescentes et paullulum protrahentes; clava ovata, articulo 8°. latior et plus duplo longior: abdomen thorace latius non longius; segmenta 2^{um}. et sequentiâ brevia: segmenta ventralia conspicua, ad apicem detectiora: oviductus vix exertus.

Sp. 114. En. ineptus. Mas et Fem. *Nigro-æneus*, antennæ fuscae aut fulvæ, pedes nigro-ænei, tarsi fulvi.

Encyrtus ineptus. *Dalman, Kongl. Vetens. Acad. Handl. för är, 1820; II. 367. 54; Pterom. Suec. 76. 54; Nees ab Ess. Hym. Ich. affin. Monogr. II. 255.*

Choreia nigro-ænea. *Westwood, Loudon's Mag. Nat. Hist. VI. 122.*

Crantor *Haliday, Ent. Mag. I. 268.*

Sphenolepis inepta. *Nees ab Ess. Hym. Ich. affin. Monogr. II. 258.*

Choreius ineptus . *Westwood, Lond. and Edinb. Phil. Mag. Third Series. X. 63. 442.*

Mas.—Nigro-æneus: oculi et ocelli picei: antennæ fuscae: pedes nigro-ænei; genua et tibiæ apice fulva; tarsi fulvi, apice fusci; mesopedum femora apice et basi fulva, tibiæ fulvæ basi fuscae.

Fem.—Antennæ fulvæ; articuli 1^{us}. et 2^{us}. fusci; clava picea: mesopedum femora nigro-ænea, tibiæ piceæ apice fulvæ: oviductus fulvus. (Corp. long. lin. $\frac{1}{2}$ — $\frac{5}{4}$.)

Var. β.—*Mas.* Antennæ fulvæ; articuli 1^{us}. et 2^{us}. fusci: meso-tibiæ fuscæ, apice fulvæ.

Found in Durham by the Rev. T. G. Rudd, and at Port Marnock, Ireland, by Mr. Haliday. September; Westmoreland.

ART. XLV.—*Recollections of Five Days in Teneriffè.* By WILLIAM CHRISTY, JUN.

A PARTY having been formed among some of the visitors at Madeira, for the purpose of making a short trip to Teneriffè, a vessel was accordingly chartered. She sailed from Funchal on the evening of Sunday, the 31st December, 1837. The following account of the excursion is taken from the rough

notes of a very hasty journal, and in some degree from recollection; but a subsequent long and serious illness has prevented its being made as complete as it otherwise might have been. Some little assistance has been obtained from that magnificent, but at present incomplete, work, "Histoire Naturelle des Isles Canaries," now publishing in Paris, by MM. Webb et Berthelot.

1838, 1st *January*.—Having had a good run during the night and most part of the day, we were almost in hopes of getting a glimpse of the Peak; but the evening proving slightly hazy, disappointed our expectations.

2d.—This morning, on going upon deck, we could distinctly see Teneriffe, (then about forty miles distant,) but the Peak was effectually veiled in clouds, from base to summit. Before long, however, we were delighted to see its pointed apex peeping above them, though, being covered with snow, it was at first difficult to distinguish it from the white clouds which surrounded it. As morning advanced and the sun gained power, this veil was rolled away, and we had the magnificent spectacle of the stupendous cone, with its snowy covering, glittering in the rays of an almost tropical sun. While at this distance from the island, we were visited by a small insect, (apparently a *Cimex*,)^a which flew off in great numbers. It was our intention (as visiting the Peak was our principal object) to land at Port Orotava, which would have saved us crossing the island, and placed us at once at our proper starting point. Towards evening, however, the wind unfortunately died away, and we were unable to make the port. The view of the Peak by moonlight was very fine; its spectral white form contrasting strongly with the dark sky, and the almost black mass of clouds and mountains below. I must confess that our first impressions of this celebrated mountain were those of disappointment;—it did not appear nearly so lofty as we had expected. It was not till we had seen it for a day, under various lights, and compared it with the different surrounding objects, that we became sensible of its stupendous

^a I may here mention that on my subsequent voyage from Madeira to England, the nearest land being the Azores, ninety miles distant, the same insect flew on board in abundance. Specimens captured on both occasions, with the very few other insects collected in Teneriffe, are deposited in the Cabinet of the Entomological Club.

magnitude. The night was most lovely, and so warm that we all remained on deck till a late hour.

3d.—On coming on deck we found ourselves in a most tantalizing situation. We were becalmed about ten miles from the shore, with a full view of our desired port. The magnificent valley of Taoro, bounded on one side by a precipitous wall of rocks, of immense height, richly adorned with plantations, villas, and towns, and backed by the giant Peak, now clear from base to summit, presented one of the most beautiful pictures I ever beheld. At noon we gave up in despair all attempts to land at Port Orotava, and endeavoured to avail ourselves of a light breeze which just then sprung up, to get round to Santa Cruz. As we crept slowly along, near the shore, we were much pleased with the aspect of the country. It sloped gradually from the base of the mountains to the sea, and appeared in a high state of cultivation, studded with numerous pretty white villages, situated in plantations of trees, among which the tall pillar-like stems and feathery crowns of the date palm were very conspicuous. Several small craters (one of which was remarkably perfect in its form) were scattered about. They are mostly circular, similar to those I have already described near Funchal, in Madeira; and, like them, appear to have poured out nothing but tufa, the decomposition of which has doubtless mainly contributed to the fertility of the soil. The high mountains at the back of this rich district, when examined with the telescope, appeared covered with dense forests, even to their very summits. The trees were apparently evergreen, but the distance was too great to admit of our ascertaining whether they were *Pinus Canariensis*, or some species of *Laurus*. From their form, however, I should be inclined to refer them to the latter. In the evening, in standing out farther to sea, in order to get round the Punta d'Anaga, we had another fine view of the Peak by moonlight.

4th.—This morning we found ourselves much in the same situation as last evening, there having been little or no wind during the night. The Peak was quite clear at the summit, but the lower part was enveloped in clouds. We were off a rather more desolate region than yesterday, the shores being precipitous and rocky, intersected by deep ravines. At length,

about noon, we succeeded in getting round Punta d'Anaga. The south coast is bold, and has some magnificent ravines. Some of the slopes of the cliffs were covered with spots of a singular glaucous hue, which, upon examination with a telescope, were found to be bushes of *Euphorbia Canariensis*, a plant which forms such a striking and peculiar feature in the maritime flora of the Canaries. We proceeded but slowly along the coast, and towards evening, the wind having entirely died away, were obliged to order out the boats to tow us into Santa Cruz, where we ultimately anchored about nine in the evening. It was then quite dark, and we were much interested in watching the numerous fishing-boats scattered over the bay, each with a large fire in the bows of the boat to attract the fish. The tall forms of the boatmen moving between us and the light, which also partially illumined the rocky over-hanging cliffs, and the smooth sea with its ruddy glare, altogether formed a wild and singular scene. We were visited by a custom-house boat, and received permission to land as soon as we pleased in the morning.

5th.—As soon as we had breakfasted, a boat came off from the town, containing Mr. Richardson, an Englishman, who keeps a respectable hotel, I believe the only one in the place. We accompanied him on shore, and were landed on the mole, a small low pier built of dark lava, which is celebrated as the place where Nelson lost his arm in his unsuccessful attempt on the island.^b The city of Santa Cruz looks well from the anchorage; but being small, and built on level ground, has not so striking an aspect as Funchal. In every other respect it is, however, much superior. The houses are generally handsomer and better built, the streets regular, well paved, and furnished with flagged causeways mostly on both sides. The principal square is not so large as the Praza at Funchal, but is infinitely finer, being surrounded by large handsome houses (including the palace of the governor), and still farther ornamented by a lofty obelisk, surmounted by a well-executed marble statue of the Madonna. I was surprised, in passing through it, to observe in the balcony of one of the houses a specimen of that superb Mexican plant, *Poinsettia pulcherrima*,

^b Some of our party who visited the churches in Santa Cruz, saw in one of them some colours taken from the English on this occasion.

so recently introduced into England. Having visited the Custom-house, where our baggage underwent a merely nominal examination, we proceeded to the Fonda Inglesa (Richardson's Hotel), and immediately set about making our arrangements for starting, without loss of time, for Port Orotava. Having engaged horses, &c., we next went to pay our respects to the governor, whom we found to be a very agreeable man. He speaks French well, and kindly offered us every assistance in his power, should we require it. We next presented a few letters of introduction which we had brought to some of the principal English merchants, who were extremely kind and attentive to us, and we could only regret that the shortness of our stay prevented our availing ourselves of the hospitalities they so kindly tendered to us. We were particularly struck, on first landing, with the very superior appearance of the people to that of the natives of Madeira. This was particularly the case with the women. Instead of the miserable beings we had so often seen in Madeira, we now beheld females of splendid stature and carriage, most of them with features decidedly handsome. Their head-dress is very picturesque, consisting of a large white handkerchief or shawl thrown over the back of the head, with the ends hanging down on each side of the face. In many instances, however, the effect is entirely spoiled by the addition of a narrow-brimmed high-crowned straw hat. The females of the higher classes wear the elegant black lace mantilla, so much used in Spain; and nothing can be more graceful or beautiful. Sometimes when attending mass early in the morning, they assume a less picturesque dress, consisting of a mantilla of fine flannel, trimmed and edged with satin. All our preparations being completed, we started about noon, eleven in number, including three ladies, on donkeys. Four of our party, who were not inclined for the fatigue of such an expedition, remained to amuse themselves as well as they could in Santa Cruz during our absence. Each equestrian had an attendant on foot, so that, altogether, we formed quite a formidable cavalcade, which seemed to excite no little sensation amongst the inhabitants of those streets through which we passed. We had also a couple of horses for our baggage. The road, for about a mile and a half out of the town, is most excellent, and would do credit to the environs of many large towns in England; beyond this,

however, it is execrable, being completely covered with loose fragments of lava and scoria. This is, however, no fault of the road, which has been covered with these matters by torrents caused by heavy rains. It will probably be soon remedied, as numerous workmen are employed in repairing the road, and means are taking to open a passage for the water into some of the small ravines. Nothing can be more desolate than the country for some miles after leaving Santa Cruz; with the exception of a few uninclosed fields of maize or lupines by the road side, as far as the eye could reach was a barren lava plain, destitute of trees, and almost of vegetation, if we except scattered bushes of those formal and grotesque-looking plants, *Euphorbia Canariensis* and *Kleinia neriifolia*. Just as we entered on this desolate tract we met a train of ten loaded camels proceeding to Santa Cruz, which appeared perfectly in character with the desert region we were traversing, and gave a truly foreign aspect to the scene. They are chiefly kept at Laguna, and are employed to carry goods between Santa Cruz and that place. The cultivated fields were gay with a pretty little *Calendula*, having yellow flowers with a dark centre, and the crevices in the lava afforded *Asphodelus ramosus*, and a handsome small-flowered *Scilla*. Having gradually ascended through this dismal region for about 1,800 feet, we found ourselves entering the city of Laguna, the ancient capital of the island. It derives its name from a lake which formerly occupied an adjacent part of the extensive plain in which it is built; but which is now almost entirely dried up. Indeed, some of the suburbs of the city now occupy a part of its ancient bed, and are in consequence subject to inconvenient inundation during a wet winter.^c Laguna is a curious old place, and we regretted our time did not allow of our stopping to take a more minute survey of it, especially as our route lay through what were evidently second-rate streets. Every now and then we obtained glimpses, through different openings, of several large and magnificent churches and convents, which attest the former riches and magnificence of the city. We all agreed that the general appearance of the place

^c This was especially the case a few weeks after our visit, when, owing to an almost unprecedented continuance of heavy rain, the waters rose to an alarming height. One of our acquaintance was imprisoned by them for several days in a country house, where he had gone on a shooting excursion.

was much more foreign than that of either Funchal or Santa Cruz. The large sombre old houses, with their latticed balconies and carved doors and window-shutters, give the streets a singular aspect. Our numerous cavalcade seemed to excite a good deal of attention in the streets through which we passed, and the windows and lattices were crowded with the fair inhabitants.

If our own sensations had not reminded us that we had left the dry torrid climate of Santa Cruz, we had ample proof of our having entered a cooler and moister atmosphere, by the abundant and luxuriant vegetation which everywhere covered the walls and roofs of the old buildings. It was composed of ferns, (chiefly *Davallia Canariensis*,) and different species of *Sempervivum*,^d whose fine-spreading green rosettes and showy spikes of golden-yellow flowers, threw a pleasing air of freshness over the mouldering relics of former magnificence. Another sign, too, of the greater coolness of the climate was the way in which the inhabitants, at least the male portion of them, were clothed. The gentlemen all wore the usual large Spanish blue cloak, while the lower orders mostly appeared in a most unpicturesque upper dress, consisting of a common English blanket thrown over the shoulders, with a string run through the upper edge, by which it was drawn round the neck, forming altogether a very singular and ugly costume. The women mostly wore the white mantilla, but too generally disfigured by the straw hat before mentioned. The men wear English coarse wool hats.

Laguna was founded in 1497, by Alonzo Fernandez de Lugo, and in 1531 was raised to the rank of a city, and had various valuable privileges bestowed upon it.^e The present population is estimated at about 10,000, and is said to be increasing. Leaving Laguna we entered on the extensive plain of Rodeos, which gradually slopes towards the sea, some miles distant on the right, while on the left it runs up to the base of the mountains of Cañadas, a range which forms one of the outer buttresses of the Peak. The country is richly cultivated, and undivided by walls or hedges. It reminded us of some of the open parts of Cambridgeshire, and the farming would not have disgraced many parts of England. The soil is

^d *Sempervivum urbicum*, *S. Canariense*, *S. dichotomum*, *Sonchus congestus*, &c. &c.

^e Viera, Noticias, vol. ii. pp. 307, 308.

good, of a deep red colour, and the prevalent, indeed only, crops were wheat and lupines; the latter are a species with blue flowers and a white seed, perhaps *L. Termis*. The young wheat was looking very well, and we were told the harvest would be in July. We understood there was a good deal of game in this extensive district, principally red-legged partridge, with woodcocks and snipes in the more marshy spots. At the extremity of this plain, and almost close to the road, but concealed from it by intervening rising ground, is situated the forest of Agua Garcia, so deservedly praised by Webb and Berthelot, both for its magnificent sylvan scenery and the rare plants it affords. Being prevented from stopping on this occasion, we resolved to visit it on our return, if opportunity offered. A stream of water from the source which gives name to the forest is here carried across the road towards the sea, and serves to irrigate the fertile district between the road and the sea. The aspect of the country now changed, but was still decidedly English. High banks, with shady hedges overrun with brambles, enclosed the road, and although the plants and shrubs were not British, they had nothing sufficiently striking in their appearance to remind us that we were not riding along some lane in our own country. They consisted mostly of *Salix Canariensis*, *Myrica Faya*, *Rubus* —, (I will not venture to guess the species,) entwined with *Rubia fruticosa* and *Periploca lavigata*? There were also a large fern, resembling *Aspidium dilatatum*, (but in quite too young a state for examination,) and a profusion of most delicious violets, which perfumed the air for a considerable distance. The moister banks, too, were ornamented with the fine leaves of *Ranunculus Cortusafolius*, mixed with abundance of those of a species of *Cineraria*, of a fine deep purple beneath. If it at all resembles any of those cultivated in our green-houses, a bank covered with it, in blossom, must be a beautiful object. Where the banks were in some places built up with stone, the crevices were filled with *Asplenium palmatum*, and here and there a plant of *Davallia Canariensis*, though as yet we had seen this fern far more rarely than in Madeira. We crossed several rocky ravines, the precipitous sides of which were fringed with several plants we had not before met with. Among them were *Myrsine Canariensis*, *Viburnum rugosum*, *Prenanthes arborea*? and a very beautiful multifid-leaved species of *Lavandula*.

At Matanza, a village about half way between Laguna and Orotava, we stopped to obtain some rest and refreshment for ourselves and our beasts. The exterior appearance of the posada was not very inviting, but we found it tolerably clean. The view, from a latticed gallery at the back, over the richly-cultivated country and a wide expanse of sea, was very fine. At one end of this gallery was a common filtering stone in a wooden frame. I should not have noticed it, but from observing that the whole exterior of the stone from which the water dripped was covered with a dense mass of the beautiful *Adiantum Capillus Veneris*. I had previously, in Santa Cruz, seen *Polypodium vulgare* similarly situated, and I afterwards noticed that the filters in most houses were usually covered with one or other of these ferns. I much regret that my ignorance of the language, and the haste in which we travelled, prevented my ascertaining if they were thus planted for any purpose, or whether it was merely that the moist surface of the coarse soft stone afforded a peculiarly favourable nidus for the sporules of these ferns accidentally floating about in the atmosphere.

After some little delay we sat down to table, where we found a plentiful provision of fried eggs and bacon, potatoes, good brown bread, walnuts, grapes, *drinkable* wine, and genuine Hollands gin, so that we were enabled to make a very comfortable meal after our long ride. The moist hedges on each side of Matanza afforded us some specimens of that curious and beautiful plant *Canarina Campanula*, but being early in the season, few of the plants were yet in flower. A few miles beyond Matanza the date palm all at once appeared in abundance, and a little valley which we crossed was quite wooded with orchards of them. Many were much disfigured by having most of their leaves cut off; but others retained their crowns entire, and were still farther adorned with bunches of flowers or young fruit; the former white, the latter of a golden yellow. As far as we could gather, from our inquiries respecting the fruit, it is never eaten, but merely given to the pigs. The trees are cultivated for the sake of their leaves, of which we saw large quantities drying by the road-side. They are prepared by tying up the central leaves of the crown till the inner ones are blanched, when they are gathered, dried, and after being platted, or otherwise ornamented, are ready for sale to

be used on Palm Sunday.^f There appears to be a great demand for them, from the number of trees we saw wretchedly disfigured.

As we advanced, the country again became more rocky and open, and we had a fine view of the sea on our right. The road was inclosed by stone walls, which were partially covered by *Rubia fruticosa*, *Periplora lævigata*, a frutescent Solanum-like plant, (*Physalis* sp.?), and a shrubby nettle, much resembling Mr. Lowe's Madeira *Urtica elevata*. The numerous gateways by the road-side, leading to different farms, &c. were almost covered with *Davallia Canariensis*, which beautifully fringed the crucifixes and other sculptures with which some of them are adorned. The waste ground by the road-side abounded with *Arum dracuncululus*, *A. Arisarum*, and *Delphinium Staphysagria*, not yet in bloom, while the rocky banks were covered with a species of *Thymus* or *Satureja*, and the beautiful *Lavandula* before mentioned. A solitary specimen now and then of *Agave Americana*, *Opuntia Tuna*, or *Kleinia neriifolia*, showed us that we were now descending to a milder region. By the time we reached the brink of the great valley, in which the two towns of Orotava are situated, it was quite dusk, and we found the descent of what more resembles a staircase of rocks than a road, rather a difficult matter in the deepening twilight, and with jaded horses. However the whole party reached the bottom in safety. Once on level ground, we found a tolerably good road, and pushed on briskly, aided by the light of a fine moon, which now appeared above the mountains. We passed a large inclosure, which our guides informed us was "el Botanico;" and leaving the road to Villa Orotavo on our left, we soon found ourselves entering the Puerta, and in a few minutes were safely housed in the posada of Senhor Antonio Tinoco. The arrival, after dark, of a party of eleven tired travellers, with their horses and attendants, and without previous notice, at the solitary inn of a small town, not often visited by strangers, was rather a perilous experiment, and it was therefore with no small satisfaction we learned from our lively hostess that all could be accommodated. This, however, was not to be accomplished without some skill

^f After our return from Teneriffe, a vessel arrived at Funchal from the Canaries, whose cargo principally consisted of these leaves. They were carried in the grand procession at the cathedral, on Palm Sunday.

in the art of packing; but we had, on the whole, no reason to complain of our quarters. Having ordered some refreshments, our next care was to provide horses for our expedition to the Peak the following day, which was accomplished in a short time by the zeal of Senhor Tinoco. Some of us then strolled out to take a moonlight view of the town. The only thing worth notice seemed to be a tolerably good square, with some trees and a fountain. The view from it of the snow-clad Peak, glittering in the moonlight, was extremely grand. From a small fort which we entered, having gained the hearts of the guard by the present of a few cigars, we took a survey of the frightful mass of rocks and breakers which here line the coast. There is only one narrow channel through which boats from vessels in the anchorage can gain access to the landing place. The anchorage is by no means safe, being much exposed to winds from almost all quarters. Since the destruction of the Port of Garachico by the eruption of the Peak, in 1706, this part of the island has possessed no harbour, properly so called. Returning to our hotel, we found Senhora Tinoco still "on hospitable cares intent;" but at length a combination of dinner and tea was set before us, to which, in despite of the predominant flavour of garlic in some dishes, we were fully prepared to do ample justice.

Having arranged our baggage for the next day's expedition, and ordered an early breakfast, we were not sorry, after our rough ride of nearly thirty miles, to retire to rest, and, notwithstanding we had very hard couches, were soon asleep.

6th.—We were stirring early, but it was some time before we could get any breakfast, and there was also considerable delay in the arrival of our horses, so that it was nearly nine o'clock before we started. Immediately on leaving the town we entered a most desolate track, similar to that we passed through between Santa Cruz and Laguna, but, if possible, still more sterile and rocky. The only vegetation I observed consisted of a coarse grass, (*Andropogon* sp.?) and a few tufts of a yellow-flowered composite plant, probably a species of *Helenium*. Having crossed this desert we began to ascend through country lanes, shaded by the chestnuts and other fruit-trees in the cottage gardens. The stone walls bore tufts of *Ceterach Maranta* and *C. officinarum*;[§] and the road-side exhibited a very pretty

[§] The Canary *Grammitis* has been described as distinct from *G. Ceterach*, (I believe by Swartz,) under the name of *G. aurea*. It is said to be identical with the

species of *Urtica*, apparently annual, and quite distinct from *U. urens*, with which it was intermixed.

Emerging from the Chestnut region we entered that of Laurels, which, on this side of the Peak, is now almost destroyed. Only a few *trees* remain in some of the gullies; but the forest is springing up again on the side of the mountain, like a plantation of low evergreen shrubs. The species, as far as they can be judged in that state, seem to be *Laurus foetens*, and *L. Canariensis*, mixed with *Myrica Faya*. In the more open spaces we observed a few stunted bushes of *Genista*, as well as abundance of *Cistus Monspehiensis*. There were also two Ferns, much resembling our British *Asplenium adiantum-nigrum*, and *Nephrodium filix-mas*, with a profusion of the most delicious violets. These are generally larger flowered than our violets in England; but I could perceive no other distinction, either in the present instance, or in the Madeira plant described by Lowe as *V. Maderensis*.^h

On this side the mountain the limit of the regions of Laurels and Heaths is not very well defined. With the latter we were much disappointed, the Heaths being none of them nearly so large as many we had seen in Madeira. The average height of the bushes did not exceed six feet, though some, perhaps, might attain nearly double that size. Had they been in blossom, it would a little have relieved the monotony of their appearance. The ground was exceedingly rocky and uneven, the road being a scarcely perceptible track, covered with loose fragments of scoria, &c. so that we were compelled to ride very cautiously. While passing through this region our horses were attacked by a species of *Hippobosca*, differing from any one I have ever seen. In case it prove to be undescribed, I would propose to call it *H. Teydii*, from the ancient native name of the mountain on which alone I have observed it.ⁱ

species found in Madeira, which I confess I am quite unable to distinguish from our English *G. Ceterach*.

^h Webb and Berthelot, in their magnificent work, (*vide* Phytographia Canariensis, p. 110,) mention *V. odorata* as indigenous to Teneriffe, but take no notice of Lowe's plant, although, on some other occasions, they quote his *Prodromus*,^g as at p. 8, where they reduce his *Ranunculus grandifolius* to a sylvan variety of *R. Cortusafolius*, Willd.

ⁱ I have, since my return to England, been informed by one of our party, that he subsequently saw this insect abundantly in some of the higher mountains of Madeira. It is probably, therefore, a described species; or, at any rate, will be found in the *Prodromus Faunæ Maderensis* of Mr. Lowe, whenever that work appears.

Among the heaths a very beautiful *Myosotis* occurred sparingly. It was of very dwarf habit, with large and brilliant flowers, somewhat resembling *M. alpestris*. I have, however, among the Scottish mountains, always observed the latter to grow upon moist rocks, whereas this plant seemed to delight in the most dry and exposed spots. Towards the upper part of the heathy region bushes of *Adenocarpus frankenioides* made their appearance, and continued to increase in size and number, till we entered the region of *Leguminosæ*, at the foot of which it is the prevailing plant.

The surface of the ground was now much less rocky, and was covered with fine pumice, very few of the fragments being larger than a hazel-nut. Having been unsuccessful in our search for pods on the bushes of *Adenocarpus*, we adopted the plan of carefully taking up some of the surface of the loose soil beneath them, which, when afterwards carefully picked over, yielded a pretty good harvest of the seeds. Our path often wound among towering masses of trachytic lava, whose dark rocks were here and there studded with tufts of a moss, not in fruit, but much resembling *Grimmia pulvinata*. Still ascending, we next noticed some bushes of *Cytisus nubigenus*, intermixed with the *Adenocarpus*, warning us that we were approaching the termination of our ascent. This singular leafless broom, called *Retama* by the natives, is, I believe, peculiar to the Peak, where it occupies a very elevated station, being most abundant and luxuriant at the height of nearly ten thousand feet. It nearly covers the extraordinary plateau of the Cañadas, where it forms a very striking feature in the landscape, and even occurs some little distance up the cone itself, reaching, with the exception of *Viola cheiranthifolia* and *Silene nocteolens*, the greatest elevation of any phænogamous plant in the island. All at once, emerging from a narrow rocky defile, we found ourselves in that most extraordinary inclosure or basin, known to the islanders as the Cañadas, but generally called by the English the Pumice-Stone Plain. Certainly, in that part it is any thing but a *plain*, though level when compared with the snowy cone which rises in its centre. Its aspect is most singular, from the uniform drab colour of the pumice which strews its surface, relieved only by isolated masses of dark lava, as well as by the numerous *Retama* bushes which stud it in all directions.

When once within the circuit of the Cañadas, we had no view but of the magnificent snowy cone, which did not, after all, look so difficult to ascend as we had been led to suppose. Indeed, had we come better prepared, some of us would have been inclined to make the attempt, notwithstanding the guides assured us that they would not undertake it for any remuneration. This, however, was more from their excessive dread of cold than from any danger to be apprehended in the ascent. The Peak has been more than once ascended during winter time, but it is extremely difficult to obtain guides at that season, as they do not like passing the night on the mountain, except in fine weather. Most of our party were invalids, with affections of the lungs, and it would not have been prudent to attempt an ascent, which must have been performed on foot, attended with considerable exertion. At the elevation we had attained, we rather expected to have felt, in some degree, the effects of a much rarer atmosphere; but neither in riding or walking over the level surface of the plain was it observed by any one. In climbing, however, an isolated rock, about one hundred feet high, I distinctly felt a difficulty of breathing, and a great sensation of weight, similar to what has been so often described by those who have ascended high mountains. Although in the immediate vicinity of so large a body of ice and snow, we did not find the temperature cold. The thermometer in the shade stood at 50° ,—in the sun at 60° . Under the shade of some of the larger bushes masses of needle-shaped crystals of ice were found, just below the surface of the porous pumice-soil; and in one place at the foot of a large rock, a considerable bed of ice or frozen snow. Having despatched a hearty luncheon, (not forgetting the health of absent friends, in some excellent Teneriffè wine,) some of the party went about to geologize. In the part of the Cañadas which we visited there seems to be but little variety, the surface being pumice, and the only rocks consisting of a trachytic lava, containing, in some cases, masses of very coarse obsidian. Others of us amused ourselves with cutting pieces of the stems of *Cytisus nubigenus*, as relics of the Peak. The Peak having been so often made the subject of barometrical observations, and our journey being so hurried, we did not even bring a barometer with us, and cannot therefore contribute any information on the subject. Few observers seem exactly agreed

as to its real height. Mr. Diston, an English gentleman in Orotava, many years resident in Teneriffe, and who has collected a most valuable mass of statistical and other information respecting the various islands, assured us that he had, by levelling, ascertained the actual height of the Cañadas to be 9,800 feet. This, I believe, is considerably more than the elevation assigned to it by Webb and Berthelot. There seems little doubt but that this extraordinary circus is the ancient crater of this mighty volcano, in the centre of which the present cone has been raised by subsequent eruptions. Our only acquisition in the way of Entomology, besides the *Hippobosca* before mentioned, was the elytron of a large *Carabus*, about the size of our alpine *C. glabratus*, and a small brown *Curculio*? One of our party picked up a recent shell of the genus *Purpura*, which had apparently not been long exposed to the weather. How it came there it is impossible to say, as the height seems too great for it to have been carried up by a bird of prey, and the spot is only visited by occasional travellers like ourselves.

Our guides intimating to us that it was time to start, as we were to return by a rather longer route, we once more mounted, and had a good gallop over the level surface of the plain. In that part of the barrier to which our course was directed there was no apparent outlet, and we began to wonder how we were to get out; but on approaching it we found it was not absolutely perpendicular, presenting a very steep declivity, covered with *Retama* bushes. To this our horses' heads were turned, and by the application of a sound "*argumentum ad posteriorem*" from a good cudgel, away we went. In some places it was so steep that I could hardly keep my seat, but, fortunately, no accident occurred. On reaching the summit, we enjoyed a fine view of the cone and the basin we had just left. This being also the greatest elevation we attained, we had a most extensive view, but which was principally confined to the sea, owing to the shoulders of the mountain hiding the country at its base. A slight haze on the sea prevented our seeing the islands of Palma and Gomera, which should have been visible. The day, however, was most lovely, not a single cloud being visible except a small patch resting on the distant chain of Anagas. The descent through the Leguminous region was exceedingly gradual, and many of the *Retama* bushes, owing to

their more exposed situation, exhibited very grotesque and singular forms. The region of Heaths afforded us some rather finer specimens than those which we had seen in ascending; but still not so fine as many of those in Madeira. All at once we emerged on the edge of a chain of mountains, forming one side of the great valley of Taoro, in which Orotava is situated. Our road lay for a considerable distance along the edge of this magnificent precipice, whose height must be several thousand feet, so that we looked completely down into the valley, glowing in the beams of the setting sun, with its beautiful white towns and villages gleaming out from among the palms and other trees which surrounded them. But even as we gazed, the huge shadow of the Peak was rapidly advancing over this beautiful picture, and ere long it was wrapped in comparative obscurity. At length we reached the spot where our descent into the valley was to commence. A road is cut zig-zag down the almost perpendicular face of the mountain—and such a road! Its steepness was excessive, and although *paved*, it more resembled the dry bed of a mountain-torrent than any thing else I could compare it to. From the shade of the mountain it was almost dark, which added somewhat to the difficulties of the descent. There was, however, sufficient light to collect a few plants from the rocks by the road-side, and I was particularly pleased to find among them the beautiful *Descurainia millefolia*.

When about half way down, at an angle of the road which commanded a view of the valley, our guides suddenly halted, exclaiming “Orazion,” and we heard the bells of Realexo d’Abaxo, far below us, ringing out for the evening prayer. It was really a striking scene! The dark shadows of the mountains above us,—the partially darkened valley,—the perfect stillness around, broken only occasionally by the sounds of the bells in the far depths below,—all conspired to soothe and calm the mind after the excitements of the day. The worshippers below were returning thanks for preservation during the past day, and imploring the protection of Heaven for the coming hours of darkness and repose; and it was impossible not to feel called upon to join with them in acknowledging that we had been safely carried through a day of some peril. Beyond a momentary halt, our guides seemed to take no notice of this summons, as they neither uncovered or assumed any posture of devotion. In this respect it was strikingly different

from a similar occasion in the Spanish settlements in South America, where the effect of this ceremony is so very peculiar and solemn. We could not help observing, both here and in Madeira, that, excepting on the occasion of festivals or processions, the lower orders are remarkably unobservant of the public duties of their religion. The priests continually mix with the people in the streets, but almost always unnoticed by the marks of respect usual in Catholic countries. By the time we reached the bottom, daylight had entirely disappeared; but we had a light almost equal to it, in the beams of a brilliant full moon. The cloudless sky towards the west, instead of being dark blue, was of a most indescribably beautiful rosy purple colour, such as I have never before observed. The clearly defined dark outline of the frowning heights we had just quitted, with the brilliant planet Venus apparently just resting on the highest point, backed by this beautiful sky, had a very fine effect. We were once more on almost perfectly level ground, and our way lay through country lanes, while the air was perfumed with thousands of violets. Several of us rode on in advance of the party and guides, and, headed by one of the ladies, had a most glorious gallop. We swept like a whirlwind through the town of Realexo d'Abaxo, to the astonishment and consternation of the priests and congregation just issuing from the church, more especially as we were preceded by three or four unfortunate bullocks, which we had overtaken on the road. It was about nine o'clock when we reached our hotel, having been in the saddle twelve hours. It would be contrary to the fact to say we were not tired; but certainly most of us were surprised to find ourselves so little so. Nevertheless, after paying our due devotions to Senhora Tinoco's well-spread table, we were not sorry to retire to rest.

7th.—To our great disappointment, we were roused this morning by the sound of torrents of rain, which continued for some hours. Being Sunday, and having two clergymen with us, we thought it would be proper to read prayers, which was accordingly done; and while thus engaged the day cleared up, and it turned out a very fine afternoon. Not having time for a long excursion, we limited ourselves to a walk to the Botanic Garden, and a visit to the celebrated Dragon Tree, in the garden of a gentleman's house at Villa Orotava. The Botanic Garden is really hardly worth a visit, being in a complete state

of desolation and decay. It contains few plants of any interest, either native or exotic. Some rocky ground near it looked well for botanizing, but having a lady under my care I could not explore it. The rocks immediately adjoining the road afforded *Frankenia ericifolia*, Chr. Sm., *Arum arisarum*, *Atriplex* sp., *Alyssum Canariense?* and *Lavandula multifida?* In the hedges near Villa Orotava, we gathered *Periploca laevigata*, *Physalis aristata?* and *Bosea Yercamora*. The town of Villa Orotava seems much superior to the Puerta, both in the fineness of its streets and the greater splendour of its churches and convents. One church in particular struck us much, by the extreme beauty of its highly ornamented façade, some of the niches and sculptures of which were still farther adorned with huge flowering plants of *Sempervivum*. Some of the party who visited the churches while we were seeing the Dragon Tree describe them as being very chaste and elegant, the pulpit, &c. being usually of white marble, and the whole interior free from the tawdry ornaments so often seen in Catholic churches. The far-famed Dragon Tree of Orotava is situated in the garden of a very fine house at present uninhabited, except by a couple of servants. The rooms are very large and lofty, well adapted for a warm climate, though at the time of our visit a fire would have been no uncomfortable thing. But I must not forget the principal object of our visit—the Dragon Tree. This venerable patriarch of the vegetable kingdom is remarkable for its size and antiquity, but is otherwise as uninteresting and unpicturesque an object as can well be imagined. Without a drawing it would be almost impossible to convey any correct idea of its appearance. The beautiful engraving of it, published in London some years ago, from a drawing by Williams, is correct, as far as the tree itself is concerned, (though it has since lost several branches,) but the accessories are quite imaginary. It is there represented as surrounded by luxuriant tropical vegetation; whereas, in reality, it is situated among the cabbages of a neglected kitchen garden, surrounded by a low wall, and overlooked by the houses of a back street. It would certainly have been unpardonable, when so near, not to have visited this celebrated object of curiosity; but we agreed unanimously that there was nothing in its appearance to repay us for a walk of several miles. To most of us, by far the most interesting object in the

garden was a Date Palm, (said to be the largest in the island,) with a clear, perfectly straight stem of nearly one hundred feet, surmounted by a splendid crown, showing a perfect exemption from the before-described injuries inflicted on most of the palms in the neighbourhood. Its great height and consequent difficulty of access render it on this occasion perfectly safe. Having gratified our curiosity, and waited till one or two of our party had sketched the Dragon Tree, we returned to our quarters at Puerta Orotava. We spent a very agreeable evening at the house of an English gentleman who is resident in Teneriffe for his health. On our way from Villa Orotava we observed two very pretty species of wagtails. One of these, (*Motacilla flava?*) was distinguished by the brilliant yellow of its plumage. The other, which was, however, much the most elegant of the two, was of a uniform grey colour, very different to our *M. Alba*, which is mottled with black and white. The only insects we observed were some large dragon-flies, a white *Pontia* resembling *P. Brassicae*, and a species of *Hipparchia*, somewhat like *H. Xiphias*, but considerably smaller. As we walked in Mr. Smith's garden by moonlight, we had a very fine view of the Peak, which looked whiter and more dazzling than ever. We had before observed that the rain of the previous night had been either snow or hail in the higher regions. On some of the lower mountains the snow was lying almost as low as the chestnut zone.

7th.—Our party divided this morning, three of us returning to Santa Cruz, and the remainder going in an opposite direction, for the purpose of visiting Garachico, formerly the best port in the island, but which was destroyed by a lateral eruption of the Peak in 1706. The town has since been rebuilt on the lava stream, which covers the old port and anchorage, but is now a place of little importance. The party describe the road as very interesting, in some parts leading beneath the magnificent cliffs of the sea-shore, and in other places along the edge of the great pine forest at the base of the Peak, of which they had a splendid view. Near St. Juan de la Rambla they noticed some particularly large specimens of *Pinus Canariensis*, and gathered abundance of that rare and beautiful fern, *Cheilanthes pulchella*. But to return to our own movements. On leaving Orotava we had a fine view of the great valley in a direction opposite to that in which we had before seen it

from the heights above Realexo. The prospect from the steep ascent which we had before descended in the dark is really splendid. We had a distant view of the island of Palma, but rather indistinct, the day not being very clear. Great abundance of the beautiful *Canarina Campanula* appeared in the moist hedges, but few plants of it in blossom. On a rocky bank we discovered a few specimens of a curious Orchideus plant, apparently a *Habenaria*, with yellowish green flowers. It will probably prove to be *Orchis tridactylis*, (Webb and Berthelot,) mentioned, though not yet described, in their splendid work. About mid-way between Matanza and Laguna we stopped to visit the forest of Agua Garcia, one of the few remaining relics of the ancient magnificent laurel forests of the island. It lies almost close to the road; but a small intervening hill so effectually conceals it, that few persons merely passing by would suspect its existence. Crossing the hill we came upon a pretty wooded bank, abounding with the sweetest violets, and affording us specimens of several new shrubs and trees, amongst which perhaps the rarest were *Adenocarpus foliolosus*, and the beautiful *Arbutus Canariensis*. The pathway then led us into a little narrow dell, at the entrance of which were the most magnificent specimens of *Erica arborea* I ever saw. The trunks were as large as a man's body, and at least thirty or forty feet high. Advancing farther up the glen we were almost bewildered in a complete forest of enormous ferns, (*Woodwardia radicans* and *Pteris arguta*,) nearly as tall as ourselves, while the rocky sides were clothed with a species of *Boehmeria* and *Viburnum rugosum*, covered with bunches of its beautiful steel-blue berries. The most enormous laurels, principally I believe Tils, (*Persea fœtens*,) surrounded us on every side, and were most curiously fringed, even to their topmost branches, with a profusion of *Davallia Canariensis*, mixed in the lower parts with remarkably fine specimens of *Asplenium palmatum*. Between their giant trunks we saw here and there a moist bank completely clothed with a tapestry of a beautiful *Trichomanes*, somewhat resembling our Irish one—perhaps identical with the Madeira *T. speciosum*, but larger than any specimens I saw in that island. Among the smaller plants we gathered a handsome *Cineraria* (*C. populifolia*?) not in flower, with fine glossy dark green leaves, snow-white beneath; and the interesting and rare *Hippion viscosum*. But

the glory of the forest, next to its noble laurels, consisted in the hollies, (*Ilex Perado*,) which I think were the most perfectly beautiful trees I ever saw. They are of great height, with clear, perfectly straight green stems, regularly branched and clothed with fine large spiny green leaves and clusters of the most vivid scarlet berries. Some of these I gathered, but I fear the species will prove rather too tender for the open air in our climate. Should it be acclimatised, it would prove a most invaluable addition to our hardy evergreens. The shortness of our stay prevented our farther exploring this interesting spot, which certainly surpasses anything I ever saw of forest scenery. In some of the more thinly-wooded parts, the trunks of the trees were clothed with the ivy known in England as "Irish" (*Hedera Canariensis*); and we observed at a distance a tree completely covered to the top with a climber, which we supposed to be a *Convolvulus*. I took a single specimen of a *Chrysomela*, somewhat like our *C. polita*, but saw no other insects. On emerging from the forest we fell in with the individuals of our party who had originally remained in Santa Cruz, and who had ridden out to meet us. They gave us a very brilliant account of masquerades and other festivities in which they had been engaged during our absence; but we thought our time had been equally agreeably employed. We had a very cold ride across the plain of Rodeos, notwithstanding the fineness of the day; but after passing Laguna it became warmer, and by the time we reached Santa Cruz we were glad to refresh ourselves with ices, and to drink iced water with our dinner.

8th.—Immediately after breakfast three of us started to have a morning's botanizing in the ravine which supplies the city with water. The Levada is very different to those in Madeira, being not only much wider, but also covered with flag-stones, so as to form a very good pathway. The rocks below us were covered with gigantic bushes of *Euphorbia Canariensis* and *Kleinia neriifolia*, entwined with *Rubia fruticosus* and *Periploca lœvigata*; and the more earthy spots abounded with two species of *Scilla*—one a small one, with pretty little blue flowers; the other with very large bulbs, like *S. maritima*; and the remains of flower stalks, in some cases two feet high. Another bulbous plant, out of flower, we supposed to be *Pancreatium Canariense*. Among other plants we gathered *Orchis tridactylis*, *Polycarpœa*

carnosa, *Tanacetum Canariense*, *Campylanthus salsoloides*, *Bosea Yercamora*, and a pretty little species of *Tamus*? The more sunny rocks on the ascent from the town to the levada were adorned with the graceful feathery bushes of *Plocama pendula*, and the few corn-fields abounded with a species of *Gladiolus* not in flower. Several pairs of a remarkably handsome small eagle, snow-white, with black tips to the wings, were sailing up and down the glen, and were so fearless as to come repeatedly within pistol-shot. We were much struck with the great abundance of hawks in Teneriffe. In the neighbourhood of the forests a large buzzard is very common, while the common kestrel absolutely swarms. In Santa Cruz they are continually flying about the streets, or sitting on walls and houses like tame pigeons. I obtained a few specimens of land shells, principally *Helices*, among which was the handsome *H. lactea*. The day being very windy, I saw no insects except a very fine *Deilephila*, (*D. lineata*?) which was captured sitting on the ground. Returning to Santa Cruz we dined at the hospitable board of Mr. H——, the principal English merchant there. Opposite his house, and almost close to the sea, is a sort of public walk, called the Alameda, planted with aspen trees, which do not seem to thrive well in so warm a climate, and contrast rather strikingly with some fine bushes of the splendid Barbadoes Flower Fence (*Poinciana pulcherrima*,) which were in full bloom. In the evening the Garachico party arrived, and about nine o'clock we reluctantly left the shores of this interesting island. Before morning we were scudding along under the influence of a violent gale, which came almost immediately we had weighed anchor.

9th.—At two P.M. to-day we had our last view of the Peak, then distant above one hundred miles.

10th.—At twelve to-day we saw Madeira, and before evening were almost close to it; but the weather was so stormy that we were compelled to run for the shelter of the Desertas. At night we observed a fine lunar rainbow.

11th.—Still too stormy to leave our snug berth.

12th.—This morning the weather having moderated a little, we succeeded in landing at the Pontinha, a fort a little to the westward of Funchal, not sorry to get once more on land; but at the same time regretting the termination of a pleasant excursion, and the breaking up of a very agreeable party.

ART. XLVI. — *Descriptions of some Oxyuri.* By FRANCIS WALKER.

GENUS.—PLATYGASTER, *Latreille.*

Fem. — Corpus angustum, subcylindricum, nitens, læve, glabrum : caput transversum, breve, convexum : antennæ graciles, subfiliiformes, corpore paullo breviores ; articulus 1^{us}. longifusiformis, gracilis ; 2^{us}. basi ad apicem latescens ; 3^{us}. 4^{us}. et 5^{us}. angusti ; 6^{us}. minutus ; 7^{us}. et sequentes ad 10^{um}. latiores, lineares, subæquales : thorax ovatus, convexus : prothorax transversus, brevissimus : mesothoracis scutum latitudine vix longius ; parapsidum suturæ sat bene determinatæ ; scutellum subrotundum, non productum : metathorax brevis, transversus, hirtus : petiolus brevis : abdomen longiovatum, convexum, basi hirtum et obsolete striatum, apice acuminatum, thorace multo longius ; segmentum 1^{um}. ejus plus dimidium occupans : oviductus abdominis dimidio paullo brevior : femora subclavata ; tibiæ clavatæ : alæ angustæ.

Sp. 1. Plat. Xeneus. *Fem. Ater, antennæ fuscæ, pedes lutei piceo cincti, alæ albidæ.*

Ater: oculi et ocelli picei : antennæ fuscæ : oviductus flavus : pedes picei ; trochanteres lutei ; femora basi lutea ; tibiæ luteæ, apice piceæ ; tarsi lutei, apice fusci ; protibiæ luteæ, fusco cinctæ : alæ albidæ ; squamulæ piceæ. (Corp. long. lin. $\frac{3}{4}$; alar. lin. $1\frac{1}{6}$.)

Found by Mr. Haliday, in September, at Holywood, near Belfast, Ireland.

GENUS.—INOSTEMMA, *Haliday.*

Fem.—Corpus angustum, cylindricum, nitens, scitissime punctatum, parce hirtum : caput transversum, breve, convexum : antennæ clavatæ, thorace vix longiores ; articulus 1^{us}. fusiformis, validus ; 2^{us}. longiovatus ; 3^{us}. et 4^{us}. lineares, mediocres, subæquales ; 5^{us}. et 6^{us}. minuti ; 7^{us}. et sequentes ad 10^{um}. lati, clavam fingentes fusiformem, 8^{us}. 9°. æqualis 7°. longior 10°. brevior : thorax ovatus, convexus : prothorax transversus, brevissimus : mesothoracis scutum magnum longitudine paullo latius ; parapsidum suturæ non bene determinatæ ; scutellum obconicum : metathorax medioocris, obconicus : petiolus brevissimus, vix ullus : cornu breve, mesothoracis scutelli apicem vix superans : abdomen fusiforme, convexum, glabrum, basi obsolete striatum, thorace multo longius

vix angustius; segmentum 1^{um}. ejus dimidium occupans; 2^{um}. et sequentia subæqualia: pedes simplices, graciles, subæquales: alæ angustæ.

Sp. 1. Ino. Hispo. Fem. *Ater, antennæ nigræ, pedes piceo-nigri, tibiæ basi ferrugineæ, tarsi fusci, alæ albidæ.*

Ater: oculi et ocelli picei: antennæ nigræ: pedes nigri; trochanteres picei; tibiæ piceæ, basi ferrugineæ; tarsi fusci: alæ albidæ; squamulæ piceæ; nervi fusci. (Corp. long. lin. $\frac{4}{5}$; alar. lin. $1\frac{1}{6}$.)

Found by Mr. Haliday, at Holywood, near Belfast, Ireland.

Fem.—Corpus angustum, cylindricum, nitens, scitissime punctatum, fere glabrum: caput transversum, breve, convexum, thoracis latitudine: antennæ clavatæ, thorace paullo longiores; articulus 1^{us}. validus, sublinearis; 2^{us}. et 3^{us}. longiovati; 4^{us}. brevicyathiformis; 5^{us}. et 6^{us}. minuti; 7^{us}. et sequentes clavam fingentes, 9^{us}. longitudine latior, 10^{us}. conicus, 9°. multo longior: thorax breviovatus, convexus: prothorax brevissimus, supra vix conspicuus: mesothoracis scutum magnum, longitudine paullo latius; parapsidum suturæ sat bene determinatæ; scutellum subrotundum: metathorax transversus, brevis: petiolus brevissimus: cornu caput superans: abdomen fusiforme, convexum, læve, apice acuminatum, thorace multo longius paullo angustius; segmentum 1^{um}. ejus plus dimidium occupans: pedes femoribus tibiisque subclavatis: alæ mediocres.

Sp. 2. Ino. Favo. Fem. *Ater, antennæ nigræ, pedes picei fulvo-cincti, alæ limpida.*

Ater: oculi et ocelli picei: antennæ nigræ: pedes picei; tibiæ basi et apice fulvæ; tarsi fulvi, apice fusci: alæ limpida; squamulæ piceæ; nervi fulvi. (Corp. long. lin. 1; alar. lin. $1\frac{1}{4}$.)

Found by Mr. Haliday, at Holywood, near Belfast, Ireland.

Mas.—Corpus sublineare, nitens, scitissime punctatum, fere glabrum: caput transversum, breve, convexum, thorace vix angustius: antennæ moniliformes, corpore breviores; articulus 1^{us}. fusiformis; 2^{us}. cyathiformis; 3^{us}. latus; 4^{us}. et sequentes ad 9^{um}. sublineares, discreti, æquales; 10^{us}. 9°. multo longior: thorax ovatus, convexus: prothorax transversus, brevissimus: mesothoracis scutum longitudine vix latius; parapsidum suturæ sat bene determinatæ; scutellum breviobconicum: metathorax transversus, brevis: abdomen fusiforme, læve, glabrum, fere planum, thorace angustius

et paullo longius; segmentum 1^{um}. ejus plus dimidium occupans: pedes simplices; protibiæ ejusque apice spina subarcuata: alæ sat latæ; nervus brevis.

Fem.—Corpus thorace angustius: antennæ clavatæ, corporis dimidio paullo longiores; articuli 3^{us}. et 4^{us}. mediocres, subæquales; 5^{us}. 6^{us}. et 7^{us}. minuti; 8^{us}. 9^{us}. et 10^{us}. lati, clavam fingentes fusiformem: cornu nullum: abdomen thorace longius, non acuminatum.

Sp. 3. Ino. Boter. Mas et Fem. *Ater, antennæ nigræ, pedes nigri piceo et ferrugineo varii, alæ albidæ.*

Ater: oculi et ocelli picei: antennæ nigræ: *mari* sexualia pallide flava: pedes nigri; genua picea; tarsi picei; *mari* propedum tibiæ apice ferruginæ, tarsi ferruginei: alæ albidæ; squamulæ piceæ; nervi flavi, stigma fuscum. (Corp. long. lin. $\frac{2}{3}$ — $\frac{5}{4}$; alar. lin. $\frac{3}{4}$ — $\frac{1}{5}$.)

Found by Mr. Haliday, in September, at Holywood, near Belfast, Ireland.

Mas.—Corpus breve, sublineare, nitens, scitissime punctatum, fere glabrum: caput transversum, breve, convexum, thoracis latitudine: antennæ clavatæ, graciles, corpore breviores; articulus 1^{us}. sublinearis; 2^{us}. longicyathiformis; 3^{us}. et sequentes ad 7^{um}. minuti; 8^{us}. 9^{us}. et 10^{us}. lati, clavam fingentes fusiformem: thorax ovatus, parum convexus: prothorax transversus, brevissimus: mesothoracis scutum longitudine vix latius; parapsidum suturæ non bene determinatæ; scutellum breviobconicum: metathorax transversus, brevis: petiolus brevissimus: abdomen ovatum, convexum, læve, thorace paullo longius et angustius; segmentum 1^{um}. ejus plus dimidium occupans: pedes simplices, subæquales: alæ mediocres.

Sp. 4. Ino. Europus. Mas. *Ater, antennæ flavæ basi et apice piceæ, pedes piceo-nigri flavo-cincti, alæ albidæ.*

Ater: oculi et ocelli picei: antennæ flavæ; articulus 1^{us}. piceus, apice flavus; 7^{us}. fulvus; 8^{us}. 9^{us}. et 10^{us}. picei: pedes nigri; trochanteres picei; tibiæ piceæ, basi flavæ; tarsi flavi, apice fulvi; propedum femora picea, tibiæ flavæ fulvo cinctæ: alæ albidæ; squamulæ piceæ; nervi flavi, stigma fulvum. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{2}{3}$.)

Found by Mr. Haliday, at Holywood, near Belfast, Ireland.

Fem.—Corpus angustum, convexum, subnitens, scitissime punctatum, parce pubescens: caput transversum, breve, thoracis latitudine; vertex latus: oculi parvi, non extantes: antennæ clavatæ, ad os insertæ, corporis dimidio paullo longiores; articulus 1^{us}. longus, subarcuatus; 2^{us}. longicyathiformis; 3^{us}. et sequentes minuti, brevissimi, usque ad 7^{um}. latescentes; 8^{us}. 9^{us}. et 10^{us}. lati clavam fingentes fusiformem, 10^{us}. conicus 9°. multo longior: thorax ovatus: prothorax transversus, brevissimus: mesothoracis scutum longitudine multo latius; parapsidum suturæ bene determinatæ; scutellum obconicum: metathorax transversus, brevis: petiolus brevissimus: abdomen longiovatum, nitens, læve, glabrum, fere planum, thorace latius et multo longius; segmentum 1^{um}. ejus plus dimidium occupans: oviductus exertus; vaginæ abdomine paullo breviores: pedes longi, graciles, simplices, subæquales: alæ mediocres; proalæ cuique nervus subcostalis brevis capitatus ramulum emittens recte declivem.

Sp. 5. Ino. Ocalea. Fem. *Ater, antennæ nigræ, pedes nigri piceo cincti, alæ sublimpidæ.*

Ater: oculi et ocelli picei: antennæ nigræ: pedes nigri; trochanteres picei; genua picea; tarsi picei: oviductus fulvus; vaginæ piceæ: alæ sublimpidæ; squamulæ piceæ; nervi fusci. (Corp. long. lin. $\frac{1}{2}$; alar. lin. $\frac{3}{4}$.)

Found near London.

GENUS.—TELENOMUS, *Haliday.*

Mas.—Corpus breve, latum, convexum, scitissime punctatum, parce pubescens, vix nitens: caput transversum, breve, thoracis vix latitudine; vertex latus; frons abrupte declivis: oculi mediocres, subrotundi, non extantes: ocelli remoti, vertice triangulum fingentes: antennæ 11-articulatæ, graciles, extrorsum crassiores, corpore multo breviores; articulus 1^{us}. sublinearis, sat validus; 2^{us}. longicyathiformis; 3^{us}. cyathiformis; 4^{us}. et sequentes ad 10^{um}. parvi, subrotundi; 11^{us}. longiovatus, acuminatus, 10°. paullo latior duplo longior: thorax altus, breviovatus: prothorax brevissimus, supra non conspicuus: mesothoracis scutum longitudine multo latius; parapsides scuto in unum confusæ; scutellum magnum, latum, breviobconicum: metathorax brevis, abrupte declivis: petiolus brevissimus: abdomen breviovatum, fere planum, basi scitissime sulcatum, thorace paullo latius vix longius; sègmenta 1^{um}. et 2^{um}. brevia, 3^{um}. magnum: pedes simplices, subæquales; tarsis articuli 1°. ad 4^{um}. curtantes, 5^{us}. 4°. longior; ungues et

pulvilli minuti: alæ angustæ, sat longæ; proalis nervus solitus ante costæ dimidium percurrit abruptus ibique ramulum projiciens longum in alæ discum declivem; metalis nervus unicus simplex costæ dimidio brevior.

Sp. 1. Tel. Theste. Mas. *Ater, antennæ flavæ, pedes flavi, alæ subfulvæ.*

Ater: oculi et ocelli picei: antennæ flavæ: pedes flavi; coxæ basi nigræ; ungues et pulvilli fulvi: alæ subfulvæ; squamulæ piceæ; nervi fulvi. (Corp. long. lin. $\frac{2}{3}$; alar. lin. $1\frac{1}{4}$.)

Found near London.

Mas.—Corpus breve, latum, convexum, scite punctatum, parum nitens, parce pubescens: caput transversum, breve, thoracis latitudine; vertex latus; frons abrupte declivis: oculi mediocres, subrotundi, non extantes: ocelli vertice triangulum fingentes: thorax altus, subrotundus: prothorax brevissimus, supra non conspicuus: mesothoracis scutum longitudine multo latius; parapsidum suturæ vix conspicuæ; scutellum latum, breve, semilunatum: metathorax transversus, brevis, abrupte declivis: petiolus brevissimus: abdomen subrotundum, fere planum, nitens, læve, basi scite sulcatum, thorace vix latius non longius; segmentum 1^{um}. breve, 2^{um}. maximum; 3^{um}. et sequentia breviora: pedes simplices, graciles, subæquales; tarsi longi, articuli 1^o. ad 4^{um}. curtantes, 5^{us}. 4^o. longior; ungues et pulvilli minuti: alæ mediocres; nervus cubitalis longus, simplex, in alæ discum declivis.

Sp. 2. Tel. Arminon. Mas. *Ater, antennæ nigræ, pedes nigri, tarsi fulvi, alæ limpidæ.*

Ater: oculi et ocelli picei: antennæ nigræ: pedes nigri; trochanteres picei; genua ferruginea; tarsi pallide fulvi, apice fuscii: alæ limpidæ; squamulæ piceæ; nervi fulvi. (Corp. long. lin. $\frac{3}{4}$; alar. lin. $1\frac{1}{4}$.)

September; Lyme Regis, Dorsetshire.

Fem.—Corpus angustum, convexum, nitens, sublæve, parce pubescens: caput transversum, breve, thorace paullo latius; vertex latus; frons abrupte declivis: oculi mediocres, subrotundi, non extantes: ocelli remoti, vertice triangulum fingentes: antennæ 12-articulatæ, subfusiformes, graciles, corpore breviores; articulus 1^{us}. longus, sublinearis; 2^{us}. longus, basi ad apicem latescens; 3^{us}. et sequentes ad 8^{um}. minuti, subrotundi; 9^{us}. et sequentes latiores, subæquales; 10^{us}. conicus: thorax ovatus: prothorax

transversus, brevissimus: mesothoracis scutum longitudine vix latius; parapsidum suturæ sat bene determinatæ; scutellum brevi-obconicum: metathorax transversus, brevis: petiolus brevissimus: abdomen basi ad apicem latescens, læve, fere planum; segmentum 2^{um}. dorsum fere totum occupans: pedes simplices, subæquales: alæ angustæ; nervus cubitalis longus rectus in alæ discum declivis, radialis alæ apicem fere attingens.

Sp. 3. Tel. Vibius. Fem. *Ater, antennæ nigræ, pedes nigri, tarsi fusci, alæ fuscæ.*

Ater: oculi et ocelli picei: antennæ nigræ: pedes nigri; trochanteres picei; genua ferruginea; tarsi fusci: alæ fuscæ; squamulæ piceæ; nervi fusci. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

Found near London.

Mas.—Corpus angustum, sublineare, convexum, nitens, læve, parce pubescens: caput transversum, breve, thorace vix latius: antennæ 12-articulatæ, moniliformes, corpore paullo breviores; articulus 1^{us}. gracilis, sublinearis; 2^{us}. longicyathiformis; 3^{us}. 4^{us}. et 5^{us}. mediocres, sublineares; 6^{us}. et sequentes ad 11^{um}. parvi, subrotundi; 12^{us}. ovatus, acuminatus, 11°. multo longior: thorax longiovatus: prothorax transversus, brevis: mesothoracis scutum latitudine multo longius; parapsidum suturæ vix conspicuæ; scutellum obconicum: metathorax transversus, brevis: petiolus brevis: abdomen ovatum, fere planum, thorace multo brevius; segmentum 2^{um}. ejus plus dimidium occupans: pedes simplices, subæquales: alæ angustæ.

Fem.—Antennæ 11-articulatæ, clavatæ, corpore breviores; articulus 2^{us}. longus, basi ad apicem latescens; 3^{us}. et 4^{us}. mediocres, sublineares; 5^{us}. et sequentes subrotundi, usque ad 10^{um}. latescens; 11^{us}. breviconicus, 10°. paullo longior: abdomen longiovatum, acuminatum, thorace brevius.

Sp. 4. Tel. Mentis. Mas et Fem. *Ater, antennæ fuscæ aut piceæ, pedes picei flavo-cincti, alæ sublimpidæ aut subfuscæ.*

Mas.—*Ater*: oculi et ocelli picei: antennæ fuscæ; articulus 1^{us}. piceus; 2^{us}. fulvus: pedes picei; coxæ nigræ; genua flava; tibie apice flavæ; tarsi flavi, apice fulvi: alæ sublimpidæ; squamulæ piceæ; nervi fulvi.

Fem.—Antennæ piceæ: alæ subfuscæ. (Corp. long. lin. $\frac{2}{5}$; alar. lin. $\frac{2}{3}$.)

Found near London.

ART. XLVII.—*On the Comparative Structure of the Scutellum and other Terminal Dorsal Parts of the Thorax of Winged Insects.* By J. O. WESTWOOD, F.L.S., &c.

LINNÆUS, in his definition of insects, (Syst. Nat. I. ii. 533,) thus describes the part of the body intermediate between the head and abdomen:—"TRUNCUS inter caput et abdomen pedatus: *thorace supra dorso, postice scutello, subtus pectore sternoque.*" Thus the term *thorax* appears to have been used as identical with *truncus*, and to comprise on its upper surface the dorsum and scutellum, and on its inferior surface the pectus and sternum; but in his descriptions he applied the term *thorax* either to the entire truncus, or to the prothoracic shield alone, as in the beetles. Fabricius, in his "Philosophia Entomologica," defines the *truncus* as being "inter caput et abdomen, constat *thorace, scutello, pectore, sterno;*" and the *scutellum* thus:—"Thoraci postice adhærens inter alas porrectum, cohæret quidem cum thorace manifeste tamen distinctum. Usus scutelli inter volandum alas expandere videtur." Thus it is evident that Fabricius regarded the thorax (as we now call his truncus) as divisible into a dorsal and ventral portion; his thorax and pectus constituting the dorsal and ventral anterior part, and his scutellum and sternum the dorsal and ventral posterior part. The part which in the beetles occupies the triangular space at the base of the elytra, was considered by him as the scutellum.

But a more philosophical mode of treating the thorax was by degrees introduced by Knoch, Illiger, Latreille, and others: it is, however, to Audouin that we owe the clearest elucidation of its various complicated parts. Bringing to the subject a most philosophical spirit, deeply imbued with the value of comparative anatomy, he perceived that the mass of organization to which the name of thorax had been applied, was, in fact, formed of three distinct segments—prothorax, mesothorax, and metathorax—soldered together, subject to the same general principles which govern other segments, and differing only from them in being the seat of the organs of motion; which, from their various degrees of development, necessarily rendered the extent of development of the different thoracic segments themselves equally variable. On the upper surface of each of

these three segments he traced four distinct pieces—a præscutum, scutum, scutellum, and postscutellum. Now according to these views, (the great value of which has been acknowledged by the most philosophical of our own zoologists, Mr. MacLeay,) that part of the thorax which in coleopterous insects has been generally termed the scutellum, is considered as the scutellum of the mesothorax. In this order it is generally present, of a small or but moderate size, and of a triangular form; its greatest development being in the genus named from this circumstance *Macraspis* by Mr. MacLeay, in which it is often half the size of one of the elytra; but in order to support the enlargement noticed in this genus, I have observed that the dorsum of the metathorax is also produced into a larger triangular plate, with an impression on its upper surface, to receive the mesothoracic scutellum. In some beetles, as in the genus of Lamellicorns, named from this circumstance *Gymnetis* as well as *Macronata*, *Lomaptera* and *Agestrata* Esch,—(*Tetragonos*, Gory and Perch.) the scutellum, although present, is concealed by the prothoracic shield, which is produced over it in the shape of a triangular lobe. In the former of these genera, however, the mesothoracic scutum is so completely united with the scutellum, that no trace can be perceived of their distinction. In some other beetles there appears to be no visible scutellum at the base of the elytral suture, as in the *Coprides* and other *Scarabæi* *exscutellati*; but upon removing the prothorax, the scutellum will be found much more distinct from the scutum than even in the *Cetonicæ* and *Gymnetes*; it is, indeed, present at the base of the elytra, but from their peculiar form it is become perpendicular instead of horizontal. Fabricius states, that “*insecta quæ elytra connata gerunt, nullo gaudent scutello.*” This is not the case; *Platysma niger*, e. g. having a very visible scutellum. Messrs. Kirby and Spence state, that “*in Melœ* there really seems to be no scutellum.” This is also incorrect; the scutellum, although concealed, being very broad, of a bright blue colour, and covering the upper side of the metathorax, which is very slightly developed.

In the HETEROPTERA (*Cimex*, *Notonecta* et *Nepa*, Lin.) the same general formation of the prothorax and mesothoracic scutellum exists, but occasionally the latter is of so large a size that the entire abdomen and wings are completely covered. This occurs in the genus named from this circumstance

Scutellera by Lamarck. In some other species of this genus, or sub-family, the scutellum is transverse, which gives the insects a very singular appearance. (*Canopus punctatus*, Leach, figured in Griffith's Trans. Règn. An. pl. 92.) In the *Ploteres* of Latreille we find, on the contrary, the prothoracic shield produced over and entirely concealing the scutellum of the mesothorax. The same occurs, but rarely, amongst the *Geocorisæ*, as in the *Reduvius spinidorsis* and *dorsalis*, G. R. Gray, (Griff. Trans. Règn. An. pl. 91.)

In the two preceding orders we find the scutellum at its highest state of development. Indeed its existence has been altogether denied in other orders by some authors.^a Now the two former orders, in which its greatest development takes place, are those in which the upper wings serve merely as organs of defence to the lower pair, not being employed in flying; hence we may be warranted in regarding the mesothoracic scutellum as necessary for the support of the upper wings, keeping them in their place both when at rest and expanded; and hence it is, when these upper wings become active instruments of flight, the scutellum becomes less conspicuous; but it is equally true that it still exists in all the other orders.

In the saltatorial Orthoptera the upper surface of the mesothorax is also entirely, or nearly, concealed by the prothorax; but on removing the latter a small elevated scutellum will be perceived at the base of the posterior margin of the front wings.

In some of these (*Tetrix*, Latr.) the prothorax is posteriorly produced into a long appendage concealing the remainder of the thorax as well as the abdomen, which appendage has been mistaken by Fabricius and Curtis for the real mesothoracic scutellum. Serville has described a singular genus of Orthoptera from New Zealand, having the elytra membranous, and entirely concealed by the metathorax, which he describes as being very long, pointed behind with a central line, giving this part the appearance of two elytra soldered together; he describes the prothorax as separated from the mesothorax, and the latter from the metathorax, by a transverse line. From the figure of this insect, however, (published in the plates of the

^a "Glossata nullo gaudent scutello."—*Fabr.* Olivier also was of the same opinion, considering also the Orthoptera and Homoptera to be similarly circumstanced.

“Voyage de l’Astrolabe,”) and from the examination of a specimen now in my collection, it appears clear that the presumed metathorax is the hinder division of the prothorax produced in an extraordinary degree, and covering not only the elytra and wings, but also the real mesothorax and metathorax. I know no instance in which the metathorax is produced so as to conceal the appendages of the mesothorax, or even those of the metathorax. The same enlargement of the prothorax occurs in various singular modes amongst some of the Homoptera.

In the cursorial Orthoptera some singular variations occur in the distribution of the thoracic segments. In *Phasma* the prothorax is short, the mesothorax much longer, and in the Apterous species composed of a single piece, without any traces of scutum or scutellum; and in the winged ones, bearing at its extremity a pair of tegmina, between which a slight impression, indicating the scutellum, can alone be perceived. In *Mantis*, on the contrary, the prothorax is much longer than the mesothorax, the latter and the metathorax being of equal size, each exhibiting an elongated scutellum. But what is the most noticeable is, that whilst we consider the upper surface of the first thoracic segment of *Mantis* as entirely occupied by the prothorax, its under surface is so similar to the joint under surface of the prothorax and mesothorax of *Phasma*, as to induce a belief that the portion of the under surface of the prothorax in *Mantis*, behind the fore legs, cannot be any thing else than mesothoracic. This view is apparently confirmed by the circumstance that the sternum of the prothorax is invariably situated in advance, or at least between, the fore legs, and that there is a distinct piece answering to this description in *Mantis*. It happens, however, that there is also a mesothoracic sternum quite distinct from this posterior pectoral portion of the prothorax. The only way, therefore, in which this structure can be accounted for, is by supposing that the edges of the tergum of the prothorax are deflexed and united behind the prothoracic legs, so as to form, in fact, a cylinder. Now this structure exists in the anomalous genus *Raphidia*, only the margins are not soldered together; but in the still more anomalous genus, (and one still more nearly related to *Mantis*, viz.) *Mantispa*, the same occurs; but the margins are united, the union being distinctly traceable.

The orders Neuroptera, Trichoptera, Lepidoptera, Hymenoptera, and Diptera, have all the wings essentially formed for flying, hence the anterior or prothoracic segment is of the least extent, and the tergum of the thorax at its greatest development. In those groups, however, which have the lower wings of an inferior size, the metathorax which supports them is generally also reduced.

In the Lepidoptera the mesothorax is very large, in order to support the ample anterior wings, the scutellum terminating this part behind, as represented in the figures which I have given of the anatomical details of the Lepidoptera, in Griffith's An. K. pl. 121. The metathorax is distinct, but short and transverse.

Mr. Newman states, (*Ent. Mag.* I. 409,) that in the Lepidoptera, owing to the considerable expansion of the lower wings, the metathorax is very apparent; but in the next page he considers that the first abdominal segment (propodeon) in *Cossus* is the part which Kirby calls the metathorax, "which I think it cannot be, as the *metala*" (by which term he designates the hind wings) "are decidedly not attached to it." If the latter supposition were correct, the entire metathorax, which is sufficiently small, would be reduced to a small size indeed, instead of being very apparent; but this is not the case: the part which Messrs. Kirby and Spence figure as the metathorax (to which, and not to the description of it, Mr. Newman alludes,) being really such, and having the lower wings decidedly attached to it.

In the Hymenoptera no difference exists amongst entomologists as to the scutellum of the mesothorax;—it is that part which immediately follows the large central plate of the thorax (the scutum of the mesothorax), and which in the common wasp is marked by two yellow spots. In some exotic Chalcididæ this part is produced into a long thick spine, entirely concealing the abdomen and wings, whilst in others it is extended into a pair of long horns directed backwards. Entomologists, however, are less agreed as to the analogies of the hinder parts of the hymenopterous thorax. Mr. MacLeay considers them to consist of—

1st, A short transverse piece, which he names the præscutum of the metathorax, and which immediately follows the true scutellum. This M. Audouin considers as the scutum of the

metathorax. In *Leucospis* this part is generally armed with two short spines, and in *Pelopæus spirifex* it is of a yellow colour, whilst the rest of the thorax (except the tegulæ) is black. In *Oxybelus* it is armed with two small pale-coloured membranous-like lobes.

2d, An internal vertical piece, of which the edge only is generally visible, but which in *Pepsis* is much more distinct. In *P. apicalis*, Gray, it is differently coloured from the preceding and following pieces. In some others it is also equally visible, and longitudinally divided in the centre. *Mellinus*, *Gorytes*, and some other allied fossorial genera, appear to have this part developed in its greatest extent, in which it forms what Latreille terms "une sorte de faux écusson, sillonné ou guilloché." In *Oxybelus* the centre of its anterior margin is armed with a spine in addition to the lobes mentioned above. Whether, indeed, this "faux écusson" may not be a portion of the metathoracic scutellum of MacLeay, having only an apparent separation from it, I will not decide. Latreille mentions this as the third segment of the metathorax, in his description of *Oxybelus*. This Mr. MacLeay considers as the scutum of the metathorax; but M. Audouin regards it as composed of two parts, and forming the metathoracic scutellum (external), and postscutellum (internal). Mr. Curtis has described these metathoracic segments as the scutellum.

3d, A piece generally much exceeding all the other dorsal metathoracic pieces in size, and often striated, bearing on each side near the anterior angles a spiracle. This Mr. MacLeay regards as the scutellum of the metathorax; but Messrs. Audouin and Latreille (taking into consideration the oblique direction of the segments of the thorax, when viewed laterally, compared with such Coleoptera as *Copris*, and the existence of the spiracles,) consider this piece as "un hors d'œuvre," and that the scutellum and postscutellum of MacLeay "ne sont autre chose que le premier arceau supérieur de l'abdomen."

4th, A short and generally obscure piece, (which supports the funiculus of Kirby,) termed by MacLeay the postscutellum of the metathorax. M. Audouin, however, considers this piece, like the former, as abdominal, and that it is not distinct from it. In those Hymenoptera, however, which have the metathoracic portion more extensively developed, we find, as might naturally be expected, the divisions of these pieces

clearly visible. This is especially the case in *Chlorion* and *Pelopæus*.

I shall not here enter into further details in support of my rejection of the views of the French entomologists, and of my opinion that the two last-mentioned pieces are thoracic and not abdominal. Indeed my only reason for noticing these controversial opinions in this place, is in consequence of the general similarity of structure which exists between the Hymenopterous and Dipterous thorax; the terminal portion of the thorax of the latter being in like manner considered as portion of the abdomen by the French entomologists, the halteres, consequently, as abdominal appendages, and the winglets of the Diptera as a pair of rudimental lower wings.

Latreille, considering the hinder part of the thorax as abdominal, says of the alulæ—"Par leur position ces appendices auraient plus de rapports avec les ailes inférieures que les balanciers;" adding, however,—"Ils me semblent néanmoins partir d'un point un peu plus élevé que les ailes," *i. e.* the inferior; which, if we regard the terminal portion of the thorax as thoracic, clearly proves them to be appendages of the upper wings.

On examining one of the small Tipulidæ—*Chironomus*, for example—the portion of the thorax to which the fore-wings are attached is very large, the hinder part being elevated into a lobe-like scutellum, corresponding exactly with the mesothoracic scutellum of the Hymenoptera. Behind this is another segment of the metathorax, to which the hind legs are attached, having also attached on each side one of the halteres.

In the Crane Flies (*Tipula oleracea*) we find the same formation, except that the mesothoracic scutellum is not elevated, whilst the metathoracic scutellum (adopting the views of Mr. MacLeay)^b is very conspicuous, nearly square, and almost horizontal. The halteres arise as in the former,^c having a spiracle near the base of each.

^b In the wasp the metathoracic scutellum of MacLeay is generally longitudinally divided by an impressed line. The same occurs in the part under consideration in *Tipula crocata*. From analogy, however, with the large extent of the mesothoracic scutum, I formerly regarded this, from its dimensions, as the metathoracic scutum. (Griff. Tr. An. K. pl. 122, fig. 1—4.) The non- or but slight development of the other divisions, renders the determination of this question very difficult.

^c On following the lateral demarcation of the dorsal pieces of the metathorax, it is evident that the halteres and their spiracles are placed, not upon the con-

In *Ctenophora* the mesothoracic scutellum is more distinct, and the metathoracic scutellum more vertical; these two organs being separated by a distinct transverse piece, which Latreille terms the “tergum du metathorax,” but which in *Tipula oleracea* is reduced to a line so slender that it is scarcely perceivable.

Now the segment bearing the piece which I have termed the metathoracic scutellum, is called by Latreille “le premier segment abdominal,” and bearing the “balanciers”—“ayant chacun près de leur base interne un stigmate; prouvé que ces organes ne sont point des ailes rudimentaires, puisque le metathorax, dont ils devraient par analogie faire partie, n’offre point de spiracules.”—*Latr. Cours d’Ent. ; Atlas*, p. 17.

If, however, this were really “le premier segment abdominal,” it would follow that that part of the body which is generally termed the abdomen would have one joint less than the typical number. It happens, however, unfortunately for this theory, that (contrary to the general but singular rule which prevails amongst insects, by which the perfect insect is deprived of several of the nine abdominal segments which it possessed in the imperfect state,) the *Tipula oleracea*, *Ctenophora*, &c. have, in the perfect state, nine distinct abdominal segments, exclusive of the exerted organs of generation.

From this alone we should be perfectly warranted in regarding the “premier segment abdominal” of Latreille as thoracic, and the halteres as representing the lower wings;^d indeed, any one who will carefully examine a living Dipterous insect, will be convinced that the latter are intimately connected with

tinuation of the sides of the part bearing the large plate, but upon the dilated and deflexed sides of the following narrow piece; hence, from analogy with the Hymenopterous metathorax, the piece bearing the spiracles will be the metathoracic scutellum, and that which bears the posterior scutelliform plate the metathoracic scutum.

^d Mr. Newman, although considering the halteres as representing the lower wings, and attached to the metathorax, (thus rejecting the views of Audouin and Latreille, as to the posterior portion of the thorax being abdominal,) seems to have adopted their views, by believing that the metathoracic postscutellum, and perhaps scutellum, in MacLeay’s figure of *Polistes*, are referable to the propodeon or basal segment of the abdomen. (*Ent. Mag.* Vol. 1. p. 411.) Mr. Haliday has also, still more recently, adopted the views of Latreille and Audouin, by giving the terminal part of the metathorax as the propodeon or basal segment of the abdomen, (*Ent. Mag.* Vol. V. p. 211,) although I had clearly proved the incorrectness of the supposed non-existence of metathoracic spiracles in my Memoir on the Earwig.

the operation of flying. Again, it is contrary to analogy to consider this segment as "le premier segment abdominal," from the appendages attached to it; and which, taking into consideration the various forms adopted by other thoracic appendages, and the want of any such analogous movable appendages attached to the abdominal segments of other insects, must be regarded as thoracic. Moreover, as to the circumstance that this "premier segment abdominal" is furnished with spiracles, (which, were it the metathorax, as is stated, it ought not to possess,) I cannot but think that much too great a stress has been laid upon it; the situation of the respiratory organs being very variable in different groups: thus, in the *Libellula* and *Cimex* there is a pair of metathoracic spiracles, whilst in the Apterous *Phasmidæ* the metathorax is said to have four. (See Latr. Cours d'Ent. 185; and Kirby and Spence, iv. 43.)

Notwithstanding the incorrect view (as it appears to me) which Latreille has taken of the structure of the hinder part of the thorax, he adopted the general opinion, that the conspicuous piece which followed the large thoracic shield was the representative of the true scutellum of the mesothorax.^e Messrs. Kirby and Spence, however, observing that the mesothoracic scutellum of the Hymenoptera is connected at the sides with the base of the upper wings, considered that in the Diptera "the part that has been usually called the scutellum is not at all connected, either by situation or as a point of attachment, with the wing itself, but with the lower valve of the alula, which is with reason thought to be the representative of the secondary wing of the tetrapterous orders." (Vol. iii. p. 559.)

The Dipterous mesothoracic scutellum is supposed by these authors to be represented by "the bilobed piece situated between the wings, and to the side of which they are attached;" and they regard the halteres as additional metathoracic appendages. If, indeed, the alulæ represented the lower wings, the view which Messrs. Kirby and Spence take, relative to the scutellum, would doubtless be correct; but from what has been already advanced, I think we are warranted in considering the

^e If Latreille be correct in regarding the alulæ as lower wings, he is at least incorrect in applying the term mesothoracic scutellum to the hinder conspicuous piece of the Dipterous thorax, which, as Messrs. Kirby and Spence well observe, is connected with the base of the alulæ, and would, in such case, necessarily be a metathoracic piece.

halteres as representatives of the lower wings, and the alulæ as appendages of the upper wings; consequently the part generally termed the scutellum, being attached to the alulæ, will be mesothoracic. Moreover, there is no distinct separation between the Dipterous dorsolum and scutellum of Kirby and Spence, which generally exists.

From these premises, I think we are fully warranted in rejecting the views of Messrs. Audouin, Latreille, and Kirby and Spence; and in considering—

1st, The conspicuous portion of the thorax, immediately following the large thoracic shield in the Diptera, as the mesothoracic scutellum.

2d, The alulæ of the Diptera as portions of the upper wings.

3d, The posterior quadrate portion of the thorax of *Tipula* as portions of the metathorax, and not abdominal.

4th, The halteres as the representatives of the lower wings.

And 5thly, (from the similarity of structure between the Dipterous and Hymenopterous thorax,) That the terminal portion of the thorax, which Latreille regards as “le premier segment abdominal,” is a portion of the metathorax.

But in the greater portion of the Diptera, including the genus *Celyphus*, we find the posterior portion of the thorax in an apparently much less developed state. Examine a blue-bottle, a gad-fly, or, better still, a *Stratiomys* or *Helophilus*, and the thorax appears to consist of only two parts,—one large square piece nearly covering the thorax, and another smaller and semicircular, (and of a yellow colour in the latter genera,) perfectly analogous to what I have termed the mesothoracic scutellum in *Chironomus* and *Tipula*. On looking sideways at the insect, the latter piece is seen to be elevated, and connected with the first abdominal segment by a narrow arch, which is dilated at the sides, and bears the halteres and metathoracic spiracles. On carefully removing the abdomen, however, the metathorax is found to be fully developed.

Mr. Newman states that the basal abdominal segment in *Musca* is so completely ankylosed with the metathorax, as scarcely to admit the possibility of drawing the boundaries of either. The very reverse of this is the case; the metathorax is deflexed and narrowed, and the basal abdominal segment raised and dilated at the sides. It is impossible to confound them, although the greater portion of the metathorax is internal;

the præscutum and scutum being very short and external, but covered above by the mesothoracic scutellum, and the meta-thoracic scutellum and postscutellum (the latter small but distinct) internal.

The student will, perhaps, find some assistance in his investigation of this subject, by examining the highly-magnified figures contained in the four anatomical plates, published in Mr. Griffiths's Translation of the Animal Kingdom, in which, for the purpose of elucidation, I have uniformly represented each of the three thoracic segments in the different orders by a different colour,—the prothorax pink, the mesothorax blue, and the metathorax yellow.

ART. XLVIII.—*Descriptions of some Chalcidites discovered by*
C. DARWIN, Esq. By FRANCIS WALKER.

GENUS.—SMIERA, *Spinola*.

Corpus convexum, punctatum, pubescens, parum nitens: caput transversum, breve, thorace vix angustius; frons foveolata: oculi mediocres, subrotundi, extantes: ocelli approximati, vertice triangulum fingentes: thorax breviovatus: prothorax transversus, brevis: mesothoracis scutum longitudine latius; parapsidum suturæ bene determinatæ; scutellum breviobconicum, apice obtusum, subtus retractum: metathorax brevis, obconicus: petiolus longus, gracilis, abdominis dimidio vix brevior: abdomen fusiforme, subcompressum, glabrum, læve, nitens, thorace paullo brevius multo angustius: propedes et mesopedes simplices, graciles; metapedum coxæ magnæ, femora maxima compressa subtus serrata et sulcata, tibiæ arcuatæ: alæ mediocres.

Sp. 1. *Smi. subpunctata*. Fem. *Flava, nigro-maculata, antennæ fuscæ, abdomen fulvum, pedes flavi, alæ limpide.*

Smiera subpunctata. *Guilding, Ent. Mag. II. 25.*

Flava: oculi et ocelli rufi: mesothoracis scutum nigro basi et apice fasciatum dorso univittatum; parapsides nigro maculatæ; macula parva nigra utrinque ad proalarum squamulas; scutellum apice nigro maculatum: abdomen fulvum, basi flavescens; segmenta dorsalia 2^o. ad 5^{um}. nigro maculata; apex nigra: coxæ extus nigro maculatæ; trochanteres subtus picei; femora apice nigra;

genua nigra; tarsi fulvi: alæ limpidæ; nervi fulvi, basi flavi; stigma fuscum. (Corp. long. lin. $2\frac{1}{4}$; alar. lin. $4\frac{1}{4}$.)

August; Bahia, Brazil.

Fem.—Corpus convexum, pubescens, scite punctatum, parum nitens: caput transversum, breve, thorace vix angustius: oculi mediocres, subovati: ocelli vertice triangulum fingentes: antennæ 13-articulatæ, pubescentes, fere filiformes; articulus 1^{us}. gracilis, linearis; 2^{us}. cyathiformis; 3^{us}. et 4^{us}. minimi; 5^{us}. et sequentes ad 10^{um}. lineares, approximati, subæquales; clava conica, non acuminata, articulo 10^o. duplo longior: thorax breviovatus: prothorax transversus, mediocris: mesothoracis scutum magnum, longitudine paullo latius; parapsidum suturæ bene determinatæ; scutellum magnum, subrotundum: metathorax transversus, parvus: petiolus gracilis, abdominis triente brevior: abdomen longiovatum, nitens, læve, subtus carinatum, apice acuminatum, basi fere glabrum, thorace paullo longius; segmenta 1^{um}. et 2^{um}. sat magna, 3^{um}. et sequentia brevia; 7^{um}. obconicum: pedes et mesopedes simplices, graciles, subæquales; metapedum coxæ magnæ, femora ovata maxima, tibiæ arcuatæ: alæ mediocres; proalis nervus humeralis ulnari duplo longior, cubitalis brevissimus, radialis ulnari paullo longior.

Sp. 2. Smi. Pielus. Fem. *Fulvus, nigro-varius, antennæ piceæ, pedes lutei, alæ sublimpidæ.*

Fulvus: caput ad os luteum: oculi et ocelli rufi: antennæ piceæ; articulus 1^{us}. fulvus: thorax subtus luteus, nigro-bimaculatus; suturæ nigræ: mesothoracis scutum et scutellum nigro-vittata, parapsides nigro-maculatæ: abdomen subtus luteum, apice nigrum; segmenta dorsalia basi ferruginea: pedes lutei; tarsi apice obscuriores; metapedum coxæ nigro-maculatæ, trochanteres nigri, femora apice subtus picea: alæ sublimpidæ; squamulæ fulvæ; nervi fusci, apice picei. (Corp. long. lin. $2\frac{1}{2}$; alar. lin. 4.)

Rio Janeiro, Brazil.

Fem.—Corpus gracile, convexum, punctatum, pubescens, parum nitens: caput transversum, breve, thoracis latitudine; frons abrupte declivis, lævis, nitens: oculi mediocres: ocelli vertice triangulum fingentes: thorax ovatus: prothorax transversus, subquadratus, mediocris: mesothoracis scutum longitudine latius; parapsidum suturæ non bene determinatæ; scutellum subrotundum: metathorax magnus, obconicus: petiolus gracilis, sulcatus, abdominis dimidio longior: abdomen ovato-compressum,

læve, nitens, fere glabrum, thorace brevius et angustius, segmento 1°. fere obtectum: pro- et mesopedes simplices, subæquales; metapedes coxis femoribusque maximis, tibiis arcuatis: alæ mediocres; nervus humeralis ulnari longior.

Sp. 3. Smi. Teleute. Fem. *Atra*, abdomen nigro-piceum ferrugineo varium, antennæ nigræ, pedes nigro-picei, tarsi fulvi, alæ limpidæ.

Atra: oculi et ocelli rufi: antennæ nigræ: abdomen nigro-piceum, subtus et utrinque ferrugineo varium: pedes nigro-picei; coxæ nigræ; trochanteres ferruginei; genua ferruginea; tarsi fulvi; protarsi fusci: alæ limpidæ; squamulæ ferrugineæ; nervi fulvi (Corp. long. lin. $1\frac{1}{4}$; alar. lin. 2.)

Hobart Town, Van Diemen's Land.

GENUS.—CHALCIS, *Fabricius*.

Mas.—Corpus robustum, convexum, punctatum, parum nitens, parce hirtum: caput transversum, breve, thorace vix latius; vertex latus; frons abrupte declivis: oculi mediocres, non extantes: ocelli remoti, vertice triangulum fingentes: antennæ pubescentes, extrorsum crassiores, apice obtusæ, thorace vix longiores: thorax breviovatus: prothorax transversus, brevis, subquadratus: mesothoracis scutum longitudine latius; parapsidum suturæ non bene determinatæ; scutellum breviobconicum, postice retractum: metathorax transversus, brevis: petiolus brevissimus: abdomen ovatum, læve, thorace angustius et paullo brevius: segmentum 1^{um}. glabrum, dorsi plus dimidium occupans: pro- et mesopedes simplices, subæquales; metapedum coxæ magnæ, femora ovata maxima, tibiæ arcuatæ: alæ mediocres; nervus humeralis ulnari duplo longior, radialis ulnari longior, cubitalis brevissimus; stigma minutum.

Fem.—Antennæ subclavatæ, quam *mari* graciliores: abdomen apice acuminatum, thorace non brevius.

Sp. 1. Chal. Phya. Mas et Fem. *Æneo-atra*, paraptera flava, antennæ nigræ apice piceæ, pedes nigro-picei, tarsi flavi, alæ limpidæ.

Mas et Fem.—*Atra*, æneo subnitens: capitis frons pilis albis vestita: oculi et ocelli rufi: antennæ nigræ, apice piceæ: mesothoracis paraptera flava: pedes nigri, pubescentes; genua flava; tibiæ

mari piceæ fem. nigræ, basi et apice flavæ; tarsi flavi, apice picei: alæ limpidæ; squamulæ flavæ; nervi fusci, basi flavi. (Corp. long. lin. $1\frac{1}{2}$ — $1\frac{5}{4}$; alar. lin. $2\frac{1}{2}$ — $2\frac{2}{3}$.)

Sydney, New South Wales.

Fem. — Corpus breve, convexum, punctatum, dense pubescens, parum nitens: caput transversum, breve, thoracis latitudine: oculi mediocres, subovati: ocelli vertice triangulum fingentes: antennæ 13-articulatæ, pubescentes, extrorsum crassiores, corporis dimidio paullo longiores; articulus 1^{us}. gracilis, linearis; 2^{us}. subrotundus; 3^{us}. minimus; 4^{us}. et sequentes transversi, usque ad 10^{um}. curtantes; clava conica, non acuminata: thorax ovatus: prothorax magnus, transversus, subquadratus: mesothoracis scutum longitudine paullo latius; parapsidum suturæ bene determinatæ; scutellum magnum, obconicum: metathorax parvus, transversus: petiolus brevissimus: abdomen ovatum, subcompressum, nitens, læve, basi glabrum, thorace paullo brevius et angustius; segmentum 1^{um}. magnum, 2^{um}. et sequentia brevia: metapedum coxæ magnæ, femora ovata, maxima: alæ mediocres; nervus humeralis ulnari duplo longior, radialis longus, cubitalis brevissimus.

Sp. 2. Chal. Cabira. Fem. *Atra, antennæ nigræ, pedes nigri, tibiæ fulvo-flavæ, tarsi lutei, alæ limpidæ.*

Atra, pilis albis vestita: oculi et ocelli rufi: antennæ nigræ: pedes nigri; tibiæ flavæ, fulvo fasciatæ; tarsi lutei; protarsi fulvi: alæ limpidæ; squamulæ flavæ; nervi fusci, apice picei. (Corp. long. lin. $1\frac{1}{2}$; alar. lin. $2\frac{1}{2}$.)

Charles's Isle, Galapagos.

GENUS.—HOCKERIA, *De Laporte.*

Mas. — Corpus crassum, convexum, punctatum, nitens, parce pubescens: caput transversum, breve, conferte punctatum, thorace paullo latius; frons foveo-lata, abrupte declivis: antennæ filiformes, corporis dimidio longiores: thorax ovatus, parce punctatus: prothorax magnus, transversus, subquadratus: mesothoracis scutum longitudine multo latius; parapsidum suturæ remotæ, bene determinatæ; scutellum brevi-obconicum: metathorax transversus, brevis, carinatus: petiolus vix ullus: abdomen breviovatum, læve, thorace paullo angustius multo brevius, segmento 1^o. fere obtectum: pro- et mesopedes simplices, subæquales.

metapedum coxæ magnæ, femora maxima, tibiæ arcuatæ: alæ mediocres; nervus humeralis ulnari quadruplo longior, radialis et cubitalis vix ulli.

Sp. 1. Hoc. Dexius. Mas. *Atra, antennæ nigræ, pedes rufi, alæ sublimpidæ.*

Atra, subtus pilis albis vestita: oculi et ocelli rufi: antennæ nigræ, fulvo-pubescentes: pedes rufi; coxæ nigræ: alæ sublimpidæ; proalæ apud costam obscuriores; squamulæ rufæ; nervi picei. (Corp. long. lin. $1\frac{1}{2}$; alar. lin. $2\frac{1}{2}$.)

March; King George's Sound, Australia.

Fem. — Corpus convexum, punctatum, pubescens, parum nitens: caput transversum, breve, thoracis latitudine; frons foveolata, abrupte declivis: oculi extantes: antennæ subfiliformes, pubescentes, corporis dimidio longiores: thorax ovatus: prothorax transversus, mediocris, subquadratus: mesothoracis scutum longitudine latius; parapsidum suturæ sat bene determinatæ; scutellum magnum, obconicum, apex bimucronata: metathorax transversus, brevis: petiolus brevissimus: abdomen ovatum, nitens, læve, basi fere glabrum, subtus carinatum, apice acuminatum, thorace paullo brevius et angustius; segmentum 1^{um}. magnum, 2^{um}. et sequentia breviora: pedes pubescentes; tibiæ apice mucronatæ; tarsi graciles; metapedum coxæ magnæ, femora maxima ovato-compressa, tibiæ arcuatæ: alæ mediocres; nervus humeralis ulnari quadruplo longior, radialis longus, cubitalis vix ullus.

Sp. 2. Hoc. Eracon. Fem. *Atra, antennæ nigræ, pedes picei, tarsi rufi, proalæ fusco bifasciatæ.*

Atra, pilis albis vestita: oculi et ocelli rufi: antennæ nigræ: pedes picei; trochanteres rufi; genua rufa; tarsi rufi, apice fusci: alæ sublimpidæ; proalæ fusco bifasciatæ; squamulæ piceæ; nervi fusci, apice picei. (Corp. long. lin. $1\frac{1}{2}$; alar. lin. $2\frac{1}{4}$.)

Hobart Town, Van Diemen's Land.

Fem. — Corpus convexum, punctatum, parce pubescens, parum nitens: caput transversum, breve, thorace vix latius; frons foveolata, abrupte declivis: oculi mediocres, extantes: ocelli vertice triangulum fingentes: antennæ subfiliformes, pubescentes, corporis dimidio longiores: thorax ovatus: prothorax transversus, mediocris, subquadratus: mesothoracis scutum longitudine latius; parapsidum suturæ sat bene determinatæ; scutellum magnum,

brevi-obconicum, apex subproducta bimucronata: metathorax transversus, brevis: petiolus brevissimus: abdomen ovatum, nitens, læve, basi fere glabrum, subtus carinatum, apice attenuatum et acuminatum: thorace paullo angustius vix brevius; segmentum 1^{um}. dorsi dimidium occupans, 2^{um}. et 3^{um}. brevia, 4^{um}. et 5^{um}. brevissima, 6^{um}. et 7^{um}. sat longa: pedes pubescentes; tarsi validi, articuli 1^o. ad 4^{um}. curtantes, 5^{us}. 4^o. paullo longior; metapedum coxæ magnæ, femora ovato-compressa, tibiæ arcuatæ: alæ parvæ; nervus humeralis ulnari quadruplo longior, radialis longus, cubitalis vix ullus.

Sp. 3. Hoc. Nyssa. Fem. *Atra*, abdomen rufum apice nigropiceum, antennæ nigræ, pedes piceo-rufi, proalæ fusco nebulosæ.

Atra, pilis albis vestita: oculi et ocelli rufi: antennæ nigræ: abdomen rufum, apice nigro-piceum: pedes rufi; tarsi fusci; propedum femora picea, tibiæ basi piceæ; mesofemora fusca; metatibiæ basi subtus nigræ: proalæ sublimpidæ, fusco nebulosæ; metalæ limpidæ; nervi fusci, apice picei. (Corp. long. lin. 1 $\frac{5}{4}$; alar. lin. 2.)

Sydney, New South Wales.

GENUS.—CALLIMOME, *Spinola*.

Sp. 1. Call. Daonus. Fem. *Viridis*, cupreo-varius, oviductus vaginæ abdominis dimidio longiores, antennæ nigræ apice fuscæ, pedes flavi, metafemora viridi-cyanea, alæ limpidæ.

Læte viridis, nitens, scite squameus, breviter pubescens: caput thorace latius; frons æneo-varia: os fulvum: oculi et ocelli rufi: antennæ nigræ; apices subtus pubescentes; articuli 1^{us}. et 2^{us}. virides: thoracis latera cupreo-varia: abdomen viridi-cupreum, læve, fere glabrum: oviductus vaginæ nigræ, abdominis dimidio longiores: pedes flavi; tarsi apice fusci; protarsi fulvi; metafemora viridi-cyanea, apice cuprea: alæ limpidæ; squamulæ fulvæ, antice virides, nervi fusci. (Corp. long. lin. 1; alar. lin. 1 $\frac{3}{4}$.)

March; King George's Sound, Australia.

GENUS.—PTEROMALUS, *Swederus*.

Mas.—Corpus angustum, sublineare, nitens, pubescens, squameum: caput breve, convexum, thorace paullo latius; vertex latus; frons

abrupte declivis : oculi mediocres, subrotundi : ocelli vertice triangulum fingentes : antennæ subfiliformes, ad apices angustiores et acuminatæ, corporis dimidio paullo breviores ; articulus 1^{us}. longifusiformis ; 2^{us}. cyathiformis ; 3^{us}. et 4^{us}. minimi ; 5^{us}. et sequentes subquadrati, approximati, latitudine longiores ; clava teliformis, articulo 10°. duplo longior : thorax longiovatus, convexus : prothorax brevissimus : mesothoracis parapsidum suturæ non bene determinatæ, scutellum obconicum : metathorax brevis : abdomen sublineare, ad apicem subdilatum, thorace paullo angustius vix brevius : alæ mediocres ; nervus ulnaris humerali non brevior, cubitalis radiali paullo longior.

Sp. 1. Pter. Eneubulus. Mas. *Viridi-æneus*, abdomen nigro-cupreum, antennæ nigræ, pedes fulvi, femora æneo-viridia, tarsi albidi, alæ sublimpidæ.

Æneus : caput ad os viride : oculi et ocelli rufi : antennæ nigræ ; articuli 1^{us}. et 2^{us}. æneo-virides : metathorax cyaneo-viridis : pectus viride : abdomen nigro-cupreum, subtus nigro-cyaneum : pedes fulvi ; coxæ et femora æneo-viridia ; tibiæ basi piceæ ; tarsi albidi, apice fusci ; propedum tibiæ viridi-fulvæ, tarsi fulvi : alæ sublimpidæ ; squamulæ æneo-piceæ ; nervi fusci. (Corp. long. lin. $1\frac{1}{6}$; alar. lin. $1\frac{5}{4}$.)

Charles's Isle, Galapagos.

GENUS.—EUELMUS, *Dalman*.

Sp. 1. Eup. Amillarus. Fem. *Viridi-ferrugineus*, æneo et albido varius, antennæ fulvæ, pedes piceo-fulvi, femora viridivittata, alæ nullæ.

Caput viridi-aureum : os fulvum : oculi et ocelli rufi : antennæ fulvæ : gula albida : pectus ferrugineum, antice viridi-varium : abdomen æneo-fulvum, basi subtus albidum : pedes fulvi ; coxæ virides ; femora viridi vittata ; tarsi apice fusci ; metapedum tibiæ et tarsi supra picea : alæ nullæ. (Corp. long. lin. $1\frac{1}{4}$.)

Discovered in the beginning of August, by sweeping in forests and open places after the rainy season or winter.

GENUS.—ENCYRTUS, *Dalman*.

Corpus breve, latum, crassum, nitens, pubescens, scite squameum, parce punctatum : caput transversum, convexum, thoraci juxta

latum; vertex latus; frons abrupte declivis: oculi mediocres: antennæ nonnisi articuli 1^{us}. et 2^{us}. ademptæ, hic longicyathiformis, ille fusiformis: thorax breviovatus, convexus: mesothoracis scutum transversum, paraptera non convenientia, scutellum obconicum, epimera brevia glabra: pectus fere glabrum: abdomen obconicum, fere læve, thorace angustius et brevius: oviductus occultus: pedes validi: alæ amplæ.

Sp. 1. En. Odacon. Fem. *Viridis, æneo et purpureo varius, abdomen purpureum, pedes fulvi, metapedes nigro-virides, proalæ fusco bifasciatæ.*

Caput viride, ad os viridi-cyaneum: oculi et ocelli rufi: antennis articulus 1^{us}. fulvus, supra fuscus; 2^{us}. niger: thorax viridis: mesothoracis scutellum et latera æneo-viridia: metathoracis latera cyaneo-purpurea: abdomen purpureum: pro- et mesopedes fulvi, tarsi apice fusci: metapedes nigri, coxæ et femora obscure viridia: alæ albidæ; squamulæ piceæ; nervi flavii; proalis fasciæ 2 connexæ fusæ, una apud stigma, altera ad alæ apicem; metalæ apice subfusæ. (Corp. long. lin. $\frac{5}{8}$; alar. lin. $1\frac{3}{4}$.)

Hobart Town, Van Diemen's Land.

GENUS.—EULOPHUS, *Geoffroy.*

Fem.—Corpus breve, latum, parum nitens, scite squameum, breviter pubescens: caput transversum, breve, thorace paullo angustius; vertex latus, convexus; frons impressa, abrupte declivis: oculi mediocres, subrotundi: ocelli vertice triangulum fingentes: antennæ subfiliformes, corporis dimidio non longiores; articulus 1^{us}. longifusiformis, gracilis; 2^{us}. cyathiformis; 3^{us}. et 4^{us}. minimi; 5^{us}.? et sequentes quadrati, subæquales, latitudine longiores; clava triarticulata, longiconica, articulo præcedente duplo longior: thorax breviovatus: prothorax brevissimus, supra non conspicuus: mesothoracis scutum transversum, parapsidum suturæ non bene determinatæ, paraptera maxima supra convenientia, scutellum rhombiforme: metathorax brevissimus: abdomen subrotundum, sessile, planum, glabrum, scitissime squameum, apice parce hirtum, thorace latius vix longius; segmenta 1^{um}. et 2^{um}. maxima; 3^{um}. breve; 4^{um}. longius; 5^{um}. et sequentia vix conspicua: oviductus occultus: pedes graciles, subæquales: alæ mediocres; nervus ulnaris humerali multo brevior, cubitalis arcuatus, radiali paullo longior, stigma minutum.

Sp. 1. Eul. Megalarus. Fem. *Cupreus*, abdomen fulvum, antennæ fuscae, pedes fulvi, alæ limpidæ.

Obscure cupreus: oculi picei: ocelli rufi: antennæ fuscae; articulus 1^{us}. nigro-cupreus; 2^{us}. flavus: abdomen fulvum; discus subtus cupreus: pedes fulvi; coxæ nigro-cupreæ; tarsi apice fuscii: alæ limpidæ; squamulæ piceæ; nervi fulvi. (Corp. long. lin. 1 $\frac{1}{6}$; alar. lin. 2.)

March; King George's Sound, Australia.

ART. XLIX.—*Notes on various Insects*, by J. B——N; with further explanatory Observations, by W. E. SHUCKARD.

[If our correspondent, when sending to town, will transmit us specimens of the insect he supposes to be *Philanthus*, it will greatly oblige. By favouring us with his address, he will enable us to return him the correct name. See vol. iv. p. 5.—EDITOR.]

SIR,—I have sent you a few scraps; if you think any of them worth insertion in the Entomological Magazine they are at your service, with the greatest pleasure. J. B——N.

On the Habits of the Chrysididæ.—Mr. Shuckard, in his Essay upon the British Chrysididæ, (Ent. Mag. vol. iv. p. 156,) states that their habits are not known with certainty, but that they are supposed to be parasites upon various species of *Odynerus* and solitary bees.^a I think the following statement of facts that have come under my own notice bear out his inference. In the old root of a tree which had been dug out of the earth and left in a waste place near the side of the river Avonllwyd, with a quantity of the soil (a hardish clay) remaining attached to it, I observed it perforated with a quantity of small holes, the work of some solitary bees or wasps. One bee I caught coming out of one of them, and also a *Chrysis bidentata* coming out of an adjoining one; this happened in 1836. In March, 1837, I happened to go by the stump again, when I scraped a little of the earth from the upper surface of it, and thus uncovered six or seven specimens of an ichneumon, half an inch long, and all quite lively. [See Note A.] I could

^a Is there any probability of Mr. Shuckard's promised work upon the Bees of Britain coming out this season? [Mr. Shuckard promises it before the end of the present year.—EDITOR.]

observe no trace of any cells or cocoons that they had come out of. I was sometimes tempted to think they had crept under the loose earth for shelter; it was a cold morning, with several sharp snow storms. In the latter part of last summer I went and broke down some of the earth, and brought home a quantity of the cells I had extracted, with the larvæ included. Happening to break some of the cells in taking them out of the earth, I observed that they had eaten all their food, and had settled themselves for their hibernation, having the head doubled down upon the breast. I put them, when I got home, into two boxes, in one of which (a small oblong oval pill box) one of the larvæ which had been unhoused, as above stated, spun a web of silk, joining three of the cells near it to the side of the box, by which means it formed itself a circular retreat, something like the tubular part attached to a spider's web, in which it remained all the winter. In the beginning of this summer, when I examined them, I found two solitary wasps had liberated themselves from the cells, and two individuals of *Chrysis neglecta*? Shuck.^b [See Note B.] I then opened most of the cells, and found them inhabited by either solitary wasps, or *Chrysis neglecta*, or *bidentata*; they were all fully developed, and had their wings expanded, before I liberated them. Those of *C. bidentata* were alive and equally alert as when they are skipping about in the bright sunshine; those of *C. neglecta* were most of them either dead or almost so; some of the wasps were also dead. There was a quantity of white cottony down within some of the cells in which the wasps dwelt. [See Note C.] I had not any other insect in any of the cells except the three forementioned species. In one place, instead of a cell, I found a number of small green caterpillars perfect in shape and colour, and next them a quantity of oval cocoons, dingy purplish brown, with a white band round the middle, two lines in length, out of several of which I had some minute ichneumons a short time after the wasps were disclosed in the beginning of this summer; so that I suppose the mother wasp had made free with caterpillars that had already been selected

^b My reason for putting a sign of doubt to *Ch. neglecta* is that neither of those mentioned, nor several that I have caught at large, have any sign whatever of the longitudinal elevation on the abdomen, so conspicuous in the majority of this genus: but they agree with Mr. Shuckard's description in size, colour, edentate apex of the abdomen, and open marginal cell.

for the support of a parasite progeny, by which means the young wasp was prevented from coming to maturity. [See Note D.] One curious fact relating to the above must not be omitted. It is well known to Aurelians that some species of moths remain two seasons, or even more, in the pupa state; but I have never seen it mentioned that any of the *Hymenoptera* did so remain quiescent until the return of an additional season. When I examined the cells in the beginning of this summer, as mentioned before, several that I opened had no appearance of changing into pupæ, but remained in the same state exactly as when I brought them home in 1837; some of them, owing to the cells being broken, were tumbled about on the bottom of the box, and having been bruised by it, died in consequence of the injuries they received; but those that remained in the cells are now alive at this day (Aug. 21), and exhibit no change in their appearance whatever. [See Note E.] I had at the same time and place as the above, an oval cocoon, four lines in length by two and a half lines in diameter, covered on the outside with brown flossy silk, which I opened, and found it to contain a living Hymenopterous larva, similar in shape to the others, but rather smaller; the transverse ridge on the back of each segment is considerably higher, and divided longitudinally by two deep incisions into three lobes, along the whole length of the back. [See Note F.]

Glanville Fritillary, (*Melitæa Cinæia*,) is stated in several works upon Entomology to be very scarce in Britain, but in this county (Monmouthshire) it is as common as the peacock (*V. Io*.) In 1832, it was in the early part of the summer the most abundant of any of the coloured butterflies, excepting in some situations the nettle tortoiseshell, (*V. Urticæ*); it has not been so abundant since, but there are plenty to be seen every season.

Hornet's Nest.—The hornet is generally stated to build its nest in the hollows of old trees; the following fact proves that it chooses other situations at times. In August, 1837, I discovered a nest in the perpendicular bank of a river, about eight or nine inches below the surface of the meadow; in the middle of September I visited it again, when I found it wholly deserted. I brought it home. It consisted of only one comb, about three inches long by two and a half inches wide, containing rather more than eighty cells in its perfect state; the

cells varied in depth from nine to ten and a half lines, regular hexagons, three and a half lines internal diameter ; the passage to it was sloping upward, lined with the same substance, and large enough to admit a child's hand ; the external envelope was decaying very fast, and the damp had begun to affect the base of the cells, which probably led to its early desertion. [See Note G.]

Philanthus. (*Fossores*.)—I should be much obliged if you would state in what respect *P. triangulum* varies in the nervures of the wings from the type of the genus, as I have five species of a genus which varies from *Philanthus* only in the nervure between the second and third submarginal cells, which in *P. triangulum*, as figured by Mr. Shuckard, is a little curved and oblique, but in all my specimens are straight and transverse ; all the other nerves are the same, and the cells in the same proportion as figured ; the clypeus is trilobate, the antennæ slightly thickened ; the colour in three species is yellow, banded with black or brown, so much resembling wasps that to a non-entomological observer they would be considered as such ; and before I understood the proper distinction I had arranged them with the wasps. I caught several individuals of the smallest species in flowers. [See Note H.]

Ants' Nest.—In the summer of 1835 I visited a small field enclosed by a wood on all its sides, and having a southern aspect, in search of insects. On rather a steep declivity, at the lower edge of it, I observed several patches of dried cow-dung, very hard, with a few small perforations in them ; they were almost hidden by the grass. I raised a part of one in search of beetles, when, to my surprise, I found that I had uncovered an ants' nest. My opening it to the light of the sun created a terrible confusion among its thronged inhabitants, who commenced scampering in all directions with the pupæ (*vulgo* ants' eggs,) running with them in their jaws, to deposit them in a place of security. In a short time they had cleared away every vestige of their young. I then broke a little more of the external covering, when a similar scene ensued of the same anxious care. The crust of dung was very thin, and was all that was left of it, as all the under part was carried away, and their galleries were scooped out on the surface of the soil.

J. B.—N.

EXPLANATIONS AND OBSERVATIONS ON THE PRECEDING.

Note A.—I have detected several species of *Ichneumon hibernating*, and especially the *Ich. confusorius*.

Note B.—The observation does not show which insects came from the cells, and which from the cocoon, as there appear to have been several cells in this box besides those attached to its side by the spinning larva. I have no doubt the insect is my *Chrysis neglecta*. The doubt, as suggested in the note, from the absence of the central longitudinal elevation upon the second segment, is not of much moment to the identification of the species, if the description otherwise agree. In my description I speak of this as a slight elevation; it is sometimes only to be distinguished by holding it so that the light may fall laterally, when the shade distinctly shows it. It is never (as far as I have seen) smooth, as it is in the *ignita* and its cognates. I have never observed the species without it, although it is sometimes nearly obsolete, consequently an extreme variety may want it. This species, and the *C. bidentata*, I have usually found busy about the trumpet-shaped protuberances formed by *Epipone* (of the catalogues), *Oplopus* (Wesm.) *spinipes*, and generally in sandy situations.

Note C.—It would appear from this that it was a wasp which spun the cocoon, as above, (Note B,) but it does not show for what purpose the cottony down was spun here. Perhaps, however, it was the remains of the cocoon, which the wasp, in its anxiety to emancipate itself, had removed from the sides of the cell. I have often found them scrape the inside of pill boxes into flocks.

Note D.—This is a remarkable observation. Your correspondent's hypothesis does not satisfactorily explain it; for although it accounts for the presence of the "minute ichneumons," it does not show why the "green larvæ" were still remaining. I can only suppose that either the parent wasp which collected the larvæ omitted to lay her egg!!!! or that some accident destroyed it either before or after its development, long before its maturity. It is not probable that it was destroyed by the parasites, for had it been so, the larva would have fully fed prior to its total destruction, and consumed the whole of its provender; their presence—(the cocoons of the

minute ichneumon)—is best explained by your correspondent's supposition; the rest is a mystery!

Note E.—This helps to explain why one year some *Hymenoptera* will abound, and the next they are not to be met with; but these periodical appearances are not regular, the intervals varying much. We know nothing, or next to nothing, yet, as to the laws which regulate the distribution and appearance of insects.

Note F.—This larva is probably the pupa of a *Chrysis*, or *Hedychrum*, most likely the former, and shows that they also spin a cocoon.

Note G.—This is an important communication. It also helps me to allude to Waterhouse's hypothesis—(as was stated in the discussion at the last meeting^a of the Entomological Society, where, however, I did not happen to be, but a friend related it to me subsequently)—as to the necessity that regulates the hexagonal structure of the cells of the hive bee. The female hornet instinctively adopts this shape for the cells, and, as well as the parent wasp, working alone, (for they must both build cells for their young before they commence laying their eggs,) consequently there is no antagonist force moulding them by necessity into this form; the argument deduced from occasional irregularity of figure is of no value, and refers chiefly to the external cells, where, for the smoothness of the external surface, combined with a saving of material, the exact hexagonal form is not adopted. The hexagonal structure in the hornet's and wasp's nest, as well as of the bee, is of ancient notoriety and admiration. It is not on this account that your correspondent's note is useful, nor merely from its showing that the hornet will select other places than hollow trees for building in, which was before known, but it exhibits the instinct of the creature in deserting, even after the expenditure of much time and labour, a habitation that she foresaw would fall about her ears. What a lesson! If by chance the desertion was not forcible, viz. her accidental destruction, she could not, I think,

^a At the last (the October) Meeting of the Entomological Society, Mr. Waterhouse said, that what he had stated at the former meeting, relative to the manner in which the comb was constructed, differed in no wise from what he had previously published on the subject, which I presumed had been the case from its being brought into discussion. I state this merely to show, that although the last meeting is mentioned in the note, the observation refers to the last but one.

have yet had any progeny, for how would she have taken them with her? but in case of her destruction, they would in all probability have died; yet as she seldom leaves the nest when once she has assistants, I therefore think the present is a case of solitary and voluntary desertion.

Note H.—I have no doubt your correspondent has the *Philanthus triangulum*; the nervure he speaks of differs slightly in individuals, yet is never, perhaps, quite so oblique as it is represented in the figure. He, however, puzzles me where he says he has *three species* banded with yellow, and above that, he speaks of *five species*; therefore two must be differently marked, or not marked at all, and as he distinguishes between *individuals* and *species* at the end, where he speaks of *several* individuals of the smallest species, after speaking above of his having five species, I am uncertain whether he uses the terms species and individuals synonymously or not. He either mistakes small differences in colour or markings, for specific, or else he has made some error in the genus; yet the only wings that much approach it are *Mimesa* and *Psen*, but these are sufficiently different, independent of the different form of the abdomen, and it is not likely that we have six species of *Philanthus*, when two only, as yet, are known to inhabit Europe.

W. E. SHUCKARD.

31, ROBERT STREET, CHELSEA,
September 22, 1838.

ART. L.—*Entomological Notes.* By EDWARD NEWMAN.

(Concluded from page 402.)

IN concluding this series of Entomological Notes, I feel disposed to make an observation or two on those which have preceded. *Propomacrus Arbaces*, in Vol. IV. p. 256, has been previously published and figured by Pallas, under the name of *Scarabæus bimucronatus*; the generic name, however, will stand, as it is widely different from any described division of *Scarabæus*. *Mantoida nitida*. Vol. V. p. 179, has, I fear, been published by Perty, in his descriptive list of the Brazilian insects, collected by Spix and Martius. *Libellula prænubila*,

Vol. I. p. 416, I believe to be a variety of the female of *L. 4-maculata*. *Rhipicera Proserpina*, Vol. V. p. 383, is generically identical with *Sandalus* of Knoch: I am uncertain whether the species be new. *Sympetrum basale*, and *flaveolatum*, Vol. I. p. 511, stated to be of rare occurrence, have occurred in the utmost profusion in Epping Forest: *S. flaveolatum* has a reddish male. The species of *Sympetrum* are perfectly distinct. The remainder of the genera and species will, I believe, stand.

CLASS.—HYMENOPTERA.

NATURAL ORDER.—TENTHREDINITES, *Newman*.

GENUS.—ASTICTA, *Newman*.

Proalarum radi-areolæ 2, cubit-areolæ 3, stigma nullum: antennæ 9-articulatæ; articulus 2^{us}. 1^{mo}. duplo longior, 3^{us}. 2^{do}. duplo longior; 4^{us}. 3^o. brevior.

Asti. *Ianthe*, *Newman*.

Fenusa *Ianthe*, *Newman olim*. Vide *Entomological Magazine*, Vol. IV. p. 261.

GENUS.—DRUIDA, *Newman*.

Proalarum radi-areolæ 2, cubit-areolæ 3, stigma distinctum, magnum, semicirculare: caput parvum: antennæ 10-articulatæ; articulus 1^{us}. et 2^{us}. pariter breves, subglobosi, 3^{us}. elongatus, 4^o. paullò longior.

Drui. *parviceps*, *Newman*.

Fenusa *parviceps*, *Newman olim*. Vide *Entomological Magazine*, Vol. IV. p. 261.

GENUS.—SELANDRIA, *Leach*.

Sela. ornata. *Nigra*: abdominis latera pedesque rufescentia: proalarum cost-areola opaca, nigra. (Corp. long. .25 unc. alar. dilat. .5 unc.)

Antennæ, head, and all the upper and under surface black: the sides of the abdomen are pale red: the costal cell of the fore wings is black and opaque, as is also the stigma: the legs are pale red, with black coxæ and fuscous tarsi.

Inhabits England. A single specimen of this insect, taken near London, by Mr. Davis, is in Mr. Bennett's cabinet.

Sela. signata. *Atra, nitida: utrinque ad proalarum basin linea alba versus capitem tendit; metathorax maculis 2 niveis signatus; abdominis latera maculis nonnullis griseis ornata; proalarum cost-areola opaca nigricans; propedes albidii lineâ externâ nigrâ; meso- et metapedes nigricantes.* (Corp. long. .275 unc.; alar. dilat. .6 unc.)

Black and shining: a narrow white line extends from the base of each fore wing nearly to the head: the metathorax is marked with two small, nearly circular, snow-white spots; the upper segments of the abdomen have grey spots, laterally; the costal cell of the fore wings is black and opaque; the fore legs are white, with an external black line; the middle and hind legs are black.

Inhabits England. A single specimen, taken near London, by Mr. Ingall, is in that gentleman's collection.

GENUS.—PHYLLÆCUS, *Newman.*

E. Cepho, cel. *Latreille* differt antennis brevioribus 27-articulatis, versus apicem nullo modo incrassatis.

Vide *Règne An.* V. 277. "Antennis plus grosses vers le bout."

Also *Stephens, M.* VII. 103. "Antennæ gradually thickening, from the base to near the apex."

Id. . . . Id. 114. "*Cephus* differs chiefly from *Janus* in having the antennæ distinctly clavate."

Also,

Kirby & Spence, III. 517. There are fourteen joints in the knob of the antennæ in *Cephus*.

Phyl. Faunus. *Antennæ breves, extus haud crassiores: totus aterrimus tibiis tarsisque ferrugineis.* (Mar. corp. long. .4 unc.; alar. dilat. .55 unc.; fem. corp. long. .6 unc.; alar. dilat. .825 unc.)

Antennæ short, and not thicker towards the tip: the mandibles are clothed with a golden down: the extreme tips of the femora, the entire tibiæ, and the tarsi, with the exception of the black terminal joint, are ferruginous: the other parts of the insect are jet black: the wings are slightly fuscous, and the costa is reddish.

Two specimens of this insect have been taken by Mr. Ingall, and one by Mr. Stephens, all of them in the vicinity of London.

This species approaches very nearly to the genus *Janus* of Stephens; but there appears a little confusion with our authors as to the limits of the said genus, and indeed as to its characters. For instance, Stephens gives the *Cephus femoratus* of Curtis as a species of *Janus*, whereas Curtis has clearly figured that insect with subclavate antennæ, while *Janus bifrons* has these organs filiform: Stephens says the mandibles are bidentate; Curtis figures them as tridentate; and similar discrepancies occur throughout. I have not the species called *femoratus* to refer to; but from what I see of the figure, I cannot imagine it generically distinct from *Cephus*. In the species *Satyrus*, *Faunus*, and one or two others, the antennæ are moderately short, of nearly uniform thickness throughout, and composed of at least 27 joints, whilst in *C. pygmeus*, which appears to possess the typical habit of the genus, the antennæ are longer, subclavate, and have but 19 or 20 joints. *Janus connectens* of Stephens has a somewhat different habit from any of the species of *Cephus* with which I am acquainted; but it seemed to me that the division containing *Faunus*, &c. is equally distinct, and therefore I would submit the propriety of raising these also to the rank of a genus, under the name *Phyllæcus*.

GENUS.—ORYSSUS, Latreille.

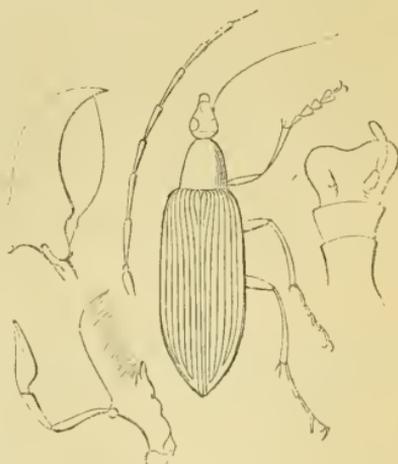
Orys. terminalis. *Niger, rugosus, abdominis segmentis 3 ultimis rufis: antennarum articulis 4 et 5 extus, femora apice extus, tibiæ basi extus nivea; proalæ ante apicem fuscâ transversî latâ fuscâ signatæ.* (Corp. long. .5 unc.; alar. dilat. .775 unc.)

Somewhat resembles *O. coronatus*, a species inhabiting the south of Europe, but differs in the detail of its colouring; the head has a crown of tubercles, is rugosely punctured, and entirely black: the antennæ (a character of the genus) are situated immediately adjoining the mouth at the insertion of the mandibles, and appear as if belonging to the instrumenta cibaria; they are black, with the exception of the exterior portion of the fourth or fifth joints, which is snowy white; the extreme apex of each femur, and about two-thirds of the exterior portion of each tibiæ, is also white: the three segments which terminate the abdomen are red.

Inhabits North America. Taken by Mr. Doubleday, at Trenton Falls.

NATURAL ORDER.—HELOPITES, *Newman*.GENUS.—TANYCHILUS, *Newman*.

Caput porrectum elongatum exsertum prothorace paulò angustius; oculi magni, laterales, ad verticem fere conniventes: antennæ prothorace fere duplo longiores, 11-articulatæ; articulus 1^{us}. cæteris crassior; 2^{us}. brevissimus, cæteri elongati, singulo extus crassiori: labrum fere quadratum ultra clypeum valde porrectum, apice membranaceum; mandibulæ incurvæ, apice acutæ, intus lobo magno membranaceo auctæ; maxillarum lacinia brevis, fere obsoleta, galea elongata, apice incurva, intus pilosa; maxipalpi galeâ longiores, 4-articulati; 1^{us}. brevissimus fere rotundus; 2^{us}. elongatus tenuis cylindricus; 3^{us}. 2°. brevior, extus paullo incrassatus; 4^{us}. 3°. longior crassior versus apicem attenuatus; labii insertio elongatus angustus lateribus incurvis, labium insertione latior, labipalpi breves 3-articulati, articuli longitudine subæquales apicali incrassato; ligula magna, rotundata, apice latè emarginata:^a prothorax antice capite angustior, postice manifestè latior, maximâ latitudine vix longior: elytra prothorace manifeste latiora, parallela, apice acuminata; tarsi heteromeri, unguiculis pectinatis.

* *Species normales*.

Sp. 1. *Tany. striatus*. *Piceus concolor glaberrimus*: clypeus anticè pallidus; elytra profundè striata, striis regulariter punctatis, interstitiis convexis, elevatis; pedes elongati, meso- et metatibicæ, subincurvæ. (Corp. long. .7 unc.; lat. .225 unc.)

Pitchy black, very shining: the anterior margin of the clypeus, and also of the labrum, pale and membranous: the head is punctured, behind the clypeus it is deeply impressed, but on each side before

^a The ligula and palpiger are so closely united that I have not attempted, in the cut, to define the line of demarcation; the labipalpi appear to be inserted into the back of the ligula: the apical joint of the labipalpi is not represented in the cut as sufficiently incrassated.

the eyes, at the insertion of the antennæ, is a very obvious elevation: the eyes are large, and nearly unite on the crown of the head: the prothorax is very glabrous, and sparingly punctured throughout: the elytra are deeply and regularly striated, and the striæ are regularly punctured; there is an abbreviated stria on each side of the suture, at the base of the elytra: the legs are long; the middle and hind tibiæ are slightly curved.

Inhabits New Holland. Taken at Woodside, near Sydney, by Mr. Imeson. It is impossible to say that this and the following species are not named in M. Boisduval's Oceania; but the slovenly characters there given would, in nine cases out of ten, serve for any Coleopterous insect with which I am acquainted, and cannot be called descriptions.

Sp. 2. *Tany. dubius. Niger, nitidus: elytra profunde striata, striis regulariter punctatis, interstitiis convexis, elevatis: pedes elongati, rufi.* (Corp. long. .6 unc.; lat. .2 unc.)

Black, shining: the anterior margin of the labrum is pale and membranous; the anterior margin of the clypeus has not this character: the prothorax is rather more robust than in *T. striatus*, it is also less glabrous and somewhat more coarsely punctured: the elytra are deeply and regularly punctate-striate, but are less glabrous than in *T. striatus*: the legs are red, less elongate, and the tibiæ are not curved.

Inhabits New Holland. Taken at Woodside, near Sydney, by Mr. Imeson.

***Species aberrantes.*

Sp. 3. *Tany. Cistelides. Niger, pilosus, elytris abdomineque sordidè ferrugineis; elytra rugose striato-punctata, interstitiis vix elevatis punctis minoribus seriatim impressis; pedes medioeres, fuscii, femoribus basi tibiisque totis sordide ferrugineis.* (Corp. long. .525 unc.; lat. 2 unc.)

Probably generically distinct from the foregoing, and certainly closely allied to *Cistela*; the labrum is less prominent, and slightly emarginate; the terminal joint of the maxipalpi is less acute. Black, pilose; the elytra and abdomen being dusky ferruginous; the prothorax is rugously punctate, shorter, broader, and less attenuated anteriorly than in the normal species, (see the figure,) it also partially receives the head: the elytra are rugosely striato-punctate, with interstices scarcely elevated, hairy, and impressed

with minute punctures in irregular lines : the legs are rather less elongate than in *T. striatus*, brown, with the basal portion of the femora and the entire tibiæ dusky ferruginous.

Inhabits New Holland. Presented by the Rev. F. W. Hope.

Sp. 4. *Tany. gibbicollis*. *Niger, concolor, pilosus: prothorax gibbosus, crebrè punctatus punctis confluentibus: elytra striata, striæ basim versus interruptæ, punctorum elongatorum compositæ, apicem versus integræ profundæ, interstitiis elevatis, punctis minutis subseriatim impressis: pedes mediocres concolores.* (Corp. long. .5 unc.; lat. .2 unc.)

Inhabits New Holland. Presented by Mr. Imeson.

GENUS.—MELOLONTHA, *Fabricius*.

Melo. nummicudens. *Rufo-picea; undique squamulis subrotundatis argenteis plus minusve tecta.* (Corp. long. 1.2 unc.; lat. .6 unc.)

This insect, which exceeds *Melolontha vulgaris* in size, is of a pitchy red colour, and is clothed more or less thickly in every part with nearly circular silvery scales: towards the apex of the elytra, on the podex, and on nearly the entire under surface of the insect, these scales are more closely crowded together; while on the head, prothorax, anterior portion of the elytra, and legs, they are more sparingly scattered.

Inhabits the East Indies. I have received it from Singapore.

NATURAL ORDER.—CARABITES, *Newman*.

GENUS.—TRIMORPHUS, *Stephens*.

Trim. Erro. *Nigra, prothorace supra elytrisque nigro-æneis nitidis: pedes picei: antennarum articulus 1^{us}. basi et apice 2^{us}. apice tantum albidi: elytra striata.* (Corp. long. .2 unc.; lat. .075 unc.)

The antennæ are long, slender, and nearly black, the apical portion paler and somewhat downy, as usual in the family; the basal joint is elongate, and is nearly white both at its base and apex; the second joint is pale at the apex only: the head is black and smooth: the prothorax is nigro-æneous, obcordate, narrow, and truncated posteriorly, having a deep longitudinal median line,

and a large and deep fovea in each posterior angle: the elytra are nigro-æneous, regularly and somewhat deeply striated: the legs are piceous.

Inhabits England. A single male specimen, taken near London by Mr. Ingall, is in that gentleman's cabinet.

GENUS.—CHLÆNIUS, *Bonelli*.

Chlæ. fulgiceps. *Labrum haud emarginatum: caput nitidum impunctatum, lacte viridi-æneum: prothorax creberrime punctatus, lateribus valde rotundatis, obscure nigro-viridis, marginibus testaceis: elytra nigricantia: pedes testacei.* (Corp. long. .7 unc. ; lat. .3 unc.)

The labrum is unnotched: the head is golden green, extremely brilliant, and without punctures: the disk of the prothorax is thickly punctured, and of a blackish green colour; its lateral margins are rounded and testaceous: the elytra are nearly black and without gloss: the legs are testaceous.

Inhabits North America. Taken in the State of Ohio.

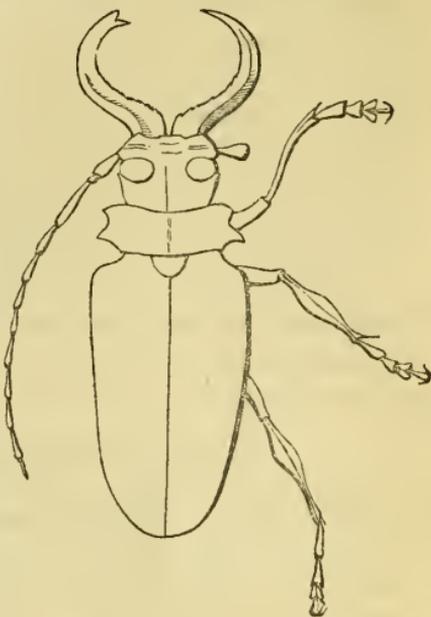
Chlæ. augustus. *Læte prasinus, concolor: antennis pedibusque piceis: labrum haud emarginatum; caput (fronte clypeoque exceptis) punctatum: prothorax complanatus antice angustior: elytris vix angustior, creberrime punctatus.* (Corp. long. .75; lat. .3 unc.)

Of a beautiful uniform green colour, with little or no gloss, the antennæ and legs being pitchy black: the labrum is unnotched: the head is punctured, with the exception of the clypeus, which is perfectly smooth, and also a small space in the middle of the forehead: the prothorax is very flat, considerably narrower anteriorly than posteriorly; it is nearly as wide as the elytra, and is thickly punctured.

Inhabits North America. Taken at Wilmington, in Delaware State. *Chlæ. sericeus* of Say, the only species which resembles *C. augustus* in general appearance, is invariably less, has pale legs, and has a convex prothorax comparatively much narrower, and with the anterior and posterior margins of nearly equal width.

NATURAL ORDER.—CERAMBYCITES, *Newman*.GENUS.—CACOSCELES, *Newman*.

Caput porrectum, prothorace manifeste longius, paullo angustius : antennæ 12-articulatæ corpore vix breviores, versus apicem pedetentim attenuantes, articulus 1^{us}. incrassatus, 2^{us}. brevissimus, 3^{us}. 2^o. septies longior, cæteri breviores, subæquales : oculi magni, laterales, reniformes : mandibulæ validæ, falcatæ, porrectæ, capite manifestè longiores, apice dextera acuta, sinistra bifida : maxillipalpi 4-articulati, articulus 1^{us}. brevis, 2^{us}. duplo longior, 3^{us}. 2^o. brevior, 4^{us}. 3^o. vix longior, compressus, paullo dilatatus : labipalpi 3-articulati, articulus 1^{us}. brevis, 2^{us}. quadruplo longior, 3^{us}. 2^o. brevior : prothorax complanatus, longitudine fere quadruplo latior, lateribus 3-dentatis, dente mediano acuto : scutellum semicirculare : elytra prothorace vix latiora, quintuplo longiora, abdomen tegentia, versus apicem angustiora, apice nullo modo armata : tibiæ supra 1-sulcatæ infra apice 2-spinosæ ; mesotibiæ medio dilatatæ infra lanatæ ; metatibiæ ante medium compressæ et dilatatæ ; tarsi omnes infra lanatæ lineâ medianâ glabrâ : ungues simplices.



Caco. *Cedipus*. *Brunneo-niger* ; *palpis antennis pedibusque piceis*. Charac. essen. vid. supra. (Corp. long. 1·75 unc. cum mandibulis 2·3 unc. ; lat. ·7 unc. Vide *Icon. Mag. Nat.*)

This extraordinary insect is somewhat larger than *Prionus coriarius*, to which it may possibly be considered as allied ; it is also of a somewhat darker colour, being nearly black, with the palpi, antennæ, and legs piceous : the head has a considerable prominence on each side, just before the eyes ; on this prominence the antennæ are situated ; between the bases of these the head is depressed and somewhat wrinkled transversely ; on the crown is a depressed longitudinal polished line : the prothorax is rugose and uneven, and intersected by a depressed median longitudinal polished line ;

the elytra have several raised but ill-defined striæ. The mandibles and legs of this insect present characters which induce me to believe it widely different from any genus hitherto described: the remarkable structure of the mandibles—elongate, curved, keeled above, and terminated, one in an acute point, the other in a bifid apex—is sufficiently shown in the cut: the figure of the legs is more difficult to express by an outline; all the tibiæ have a channel extending on the upper side nearly throughout their length; the protibiæ are curved, and the extremities somewhat incrassated; the mesotibiæ are somewhat twisted, flattened and dilated in the middle, and the metatibiæ have a similar character; but the dilatation is nearer the base of the joint: the entire under surface of both meso- and metatibiæ is clothed with a dense pilosity of a golden brown colour; this pilosity also clothes the tarsi, interrupted only by a longitudinal glabrous line.

Inhabits Algoa Bay, on the coast of Africa. Presented by Mr. Bowerbank.

GENUS.—DISTICHOCERA, *Kirby*.

Dist. fulvipennis. *Antennæ nigræ: caput nigrum, fronte fulco: prothorax niger, lineis 2 dorsalibus, longitudinalibus, latis, fulvis: scutellum nigrum: elytra fulva: abdomen piceum, lanugine argentea vestitum: pedes picei.* (Corp. long. .9 unc.; lat. .3 unc.)

Antennæ black: head black, with the forehead fulvous: prothorax black, with two broad, longitudinal, dorsal, fulvous lines: scutellum black: elytra fulvous: the abdomen piceous, and clothed beneath with a silvery down: the legs are piceous.

Inhabits New Holland. Several specimens were taken at Woodside, near Sydney, by Mr. Imeson, and presented by that gentleman.

GENUS.—PÆCILOSOMA, *Serville*.

Pœc. semirufum. *Chalybeo-nigrum punctum, elytris punctis ferrugineis.* (Corp. long. .9 unc.; lat. .4 unc.)

Entirely opaque, black, slightly tinged with indigo, the elytra only excepted, which are ferruginous: the prothorax has an indistinct tooth on each side, not acute as in *P. flammiger* of Perty; its disk is covered with punctures, except a small space in the centre; the scutellum is black, punctured on each side, but smooth in the middle: the elytra are thickly punctured throughout.

Inhabits Brazil. Presented by Mr. Walker.

Pœc. metallicum. *Nigro-viride, fulgore metallico varium; elytra rugosa, subcarinata: pedes chalybei.* (Corp. long. .65 unc.; lat. .275 unc.)

The same colouring pervades the entire insect—a dark green, tinted with a great variety of metallic and iridescent hues: it is about the size, and has something of the figure and colour of *Melandrya caraboides*: the antennæ are rather more than half the length of the body, and somewhat more slender than in *P. flammiger*, but the proportions of the joints are the same: the head, prothorax, and elytra, are rugose, and thickly punctured; the elytra have also six or seven rather ill-defined, raised, longitudinal lines on each; the space between the suture and the first of these lines is greater than between either two of them.

Inhabits Van Dieman's Land. Presented by Mr. Shuckard.

GENUS.—TRACHYDERES, *Dalman.*

Trac. superbus. *Antennæ coccinæ, nigro-annulatæ: caput nigrum, maculâ frontali coccinâ: prothorax niger, margine postico coccino: elytra læte viridi-ænea: femora basi coccina, apice nigra: tibiæ basi apiceque nigræ, medio coccinæ: tarsi nigri.* (Corp. long. 1.1 unc.; lat. .4 unc.)

Antennæ with the two basal joints black, the remainder of a bright coral red, each having a black ring at the tip: the head black, with a red frontal spot: prothorax black, with the posterior margin bright coral red: the elytra are somewhat rugose and bright golden green, inclining to coppery: the legs are black, with the basal portion of the femora and the median portion of the tibiæ bright red.

This superb insect inhabits Mexico, and was presented by Mr. Walker. It does not closely agree with the genus *Trachyderes* of Dalman, yet too nearly so to admit of subdivision.

GENUS.—CERAMBYX, *Linnæus et Autt. hodie.*

Cera. Brama. *Maximus, brunneus, sericus: caput porrectum; facies profunde depressa; prothorax rugose rugatus, antice et posticè transversè bisulcatus, nullo modo armatus.* (Corp. long. 3 unc.; prothoracis lat. .5 unc.; elyt. lat. .8 unc.; antennarum *maris* valde elongatis.)

Brown and entirely clothed with a silken pubescence, which in some situations, more particularly on the tibiæ and tarsi, displays a

bright golden lustre; the head is porrected, and narrower than the prothorax; the mandibles exerted, curved, very strong, and about half the length of the head; the entire face is deeply sunk, so as to resemble a large fovea; the eyes are elongate, below the antennæ they are considerably dilated, above they are narrowed and nearly approach on the crown of the head, where we find immediately between them a very deep impression; the prothorax is rather narrowed anteriorly, it is irregularly wrinkled, and has two transverse sulci near its anterior, and two near its posterior margin; the inner sulcus of the anterior pair is rugose, diffuse, and ill-defined; the scutellum is small and rounded posteriorly; the elytra are ample, the shoulder prominent, but without spines or tubercles, and the sides are nearly parallel, yet approach towards the apex, where each is rounded, yet terminated interiorly by a minute tooth.

This enormous insect inhabits Hindostan. It has been kindly lent to me by the Rev. F. W. Hope, in whose splendid collection are several specimens.

GENUS.—PACHYDISSUS, *Newman*.

Instrumenta cibaria fere *Cerambycis*: caput porrectum, prothorace angustius: antennæ corpore vix longiores, 11-articulatæ, articulus 1^{us}. mediocris; 2^{us}. brevissimus; 3^{us}. et 4^{us}. apice valdè incrassati, pyriformes, cetera gracilia; prothorax anticè angustior medio utrinque 1-dentatus; elytra linearia, apice 2-spinosa, spina exterior longior.

Pach. sericus. *Totus sericus, brunneus, antennis pedibusque pallidioribus; facies trifariam profundè impressa; prothorax rugosè rugatus; scutellum parvum, rotundatum.* (Corp. long. 1 unc.; lat. .25 unc.)

Entirely covered with a silky pubescence, brown, the antennæ and legs being somewhat paler: the third and fourth joints of the antennæ are remarkably incrassated towards their apex; the face has a deep impression, it extends three ways, laterally on each side towards the eyes, and upwards towards the crown of the head; the prothorax is rugosely wrinkled, and has an obtuse tooth on each side near the middle, also two raised transverse lines adjoining its anterior and posterior margins: the elytra are linear, and terminated by two sharp spines, whereof the exterior is the longest.

Inhabits New Holland. A single specimen, presented by Mr. Imeson, was taken by that gentleman at Woodside, near Sydney.

GENUS.—RHINOTRAGUS, *Germar.*

Rhin. puniceus. *Caput, antennæ, pedes et abdomen nigra; prothorax puniceus maculis 2 nigris; elytra punicea apice nigra.* (Corp. long. .45 unc.; lat. .1 unc.)

Head, antennæ, legs, and abdomen black: prothorax scarlet, with two small round black spots, which in some specimens are so extremely small as readily to escape observation: scutellum black: elytra scarlet, with black tips.

Inhabits Brazil. Presented by Mr. Walker.

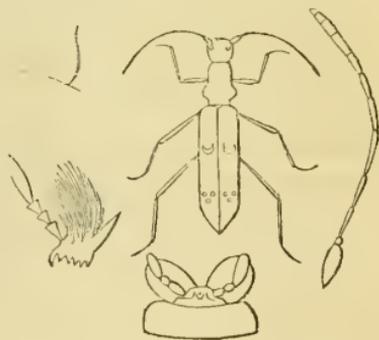
Rhin. anceps. *Niger; prothoracis latera margoque anterior testaceis; elytra albida plagâ medianâ communi apicibusque nigris.* (Corp. long. .55 unc.; lat. .125 unc.)

Head, antennæ, legs, and abdomen black, the latter with a silvery fringe at the margins of the segments: the prothorax is black, with the lateral and anterior margins pale testaceous: the elytra are of a dirty white colour, with an elongate central black mark, common to both; their apex is also black.

Inhabits Brazil. Presented by Mr. Walker.

GENUS.—PEMPSAMACRA, *Newman.*

Caput pronum prothorace paullo angustius: antennæ 12-articulatæ, versus apicem pedetentim incrassatæ; articulus 1^{us}. magnus; 2^{us}. brevis minutus; 3^{us}. 4^{us}.que longiores, graciliores; 5^{us}. 4^o. paullo longior; 6^{us}. ad 10^{um}. subæquales, cæteri breviores: labrum transversum haud emarginatum, sub clypeo fere latet: mandibulæ subincurvæ, apice acutæ, nullo modo dentatæ: maxillarum lacinia brevis acuta, galea lanugine tecta; maxipalpi 4-articulati, articuli 1^{us}.



ad 3^{um}. breves, obconici, subæquales; 4^{us}. elongatus, apice acutus: labium transversum haud emarginatum, ligula in 2 lobos, magnos, rotundatos, divisa: labipalpi 3-articulati; articuli 1^{us}. 2^{us}.que breves; 3^{us}. duplo longior: prothorax fere cylindricus, latitudine manifeste longior, pone medium utrinque tuberculatus: elytra linearia, prothorace vix latiora, apice vix acuta: pedes mediocres, femora extus crassiores.

Pemp. Tillides. *Obscure ferruginea; elytra lunulâ medianâ maculisque versus apicem 3 aureis; antennæ fuscæ, argenteo-annulatæ.* (Corp. long. .425 unc.; lat. .09 unc.)

This insect has very strikingly the habit of a *Tillus*: the head is prone and partially received into the prothorax, which is rather elongate and cylindrical, and has a tubercle on each side, rather nearer the elytra than the head: the elytra are linear, somewhat wider than the prothorax, and somewhat rounded when taken together: all the legs are of moderate length and proportions, and the femora are slightly incrassated externally: the third and fourth joints of the antennæ, taken separately, are each manifestly shorter than the fifth, a character which I have not before observed in any longicorn insect. The colour is an obscure ferruginous, with little variation: on each of the elytra is a small golden lunule near its centre, and three or four spots near the apex, of the same colour: the antennæ have a slight silvery ring on the fifth, sixth, seventh, and eighth joints.

Inhabits New Holland. A single specimen was taken by Mr. Imeson, at Woodside, near Sydney.

GENUS.—RHOPALOPHORA? *Serville.*

Rhop. resplendens. *Caput cyaneum; facies viridi-ænea; antennæ chalybeæ extus nigricantes; prothorax antice lævis, cyaneus, postice rugosè punctatus, viridi-æneus; scutellum viridi-æneum; elytra velutina nigro-viridia, basi suturâque viridi-æneis; pedes cyanei, tarsis nigris.* (Corp. long. .7 unc.; lat. .125 unc.)

The head is metallic glossy blue, with the face golden green; the anterior part of the head is elongated: the antennæ are metallic blue, nearly black towards the extremities: the prothorax is about as wide as the head, and restricted before its anterior and before its posterior margin; the anterior portion is smooth, glabrous, and beautifully blue, the posterior portion is rugosely punctured, glabrous, and golden green: the scutellum is golden green: the elytra are velvety, and of a dark olive green, approaching to black, with the extreme base and the suture glabrous and golden green: the legs are metallic blue, the incrassated portion of the tibiæ being very brilliant: the tarsi are black.

Inhabits Fernando Po. Presented by Mr. Bowerbank, who reared them from larvæ found in timber. I kept four

specimens of this beautiful little *Cerambyx* for several weeks alive in a tumbler, with gauze tied over the top: they usually stood on the gauze, with their backs downwards; and, in walking about, their long and singular hind legs seemed an incumbrance rather than otherwise. Regularly once a day I sprinkled the gauze with water, which they drank with avidity, first ascertaining with the tips of their antennæ the exact position of the drops. As the subject of the use of antennæ has been afresh brought under the notice of entomologists, I will here mention a fact which Mr. Walker has just communicated to me, viz. that he has seen ants seize flies with their antennæ, and detain them securely with their organs. Mr. Taylor likewise has called my attention to the fact, that the antennæ of insects are invariably placed within the area, which may be defined as bounded superiorly by the eyes, inferiorly by the mouth, a situation precisely analogous to that of the nose in all other animals.

GENUS.—TÆNIOTES? *Serville.*

Tæn. lineatus. *Nigerrimus, lineis 4 longitudinalibus albidis, quarum 2 conniventibus, dorsalibus, 2 lateralibus; linea quoque obliqua albida infra oculos; prothorax inermis.* (Corp. long. 1·05 unc.; lat. ·3 unc.)

Glossy black, with four white or slightly yellow lines, which extend the entire length of the insect; two of these closely approximate, sometimes even appearing united; they commence between the antennæ, and pass over the crown of the head, along the prothorax, and down the suture of the elytra, terminating just before the extreme tip; the other two are situated laterally, one commences at each eye, passing thence along the head, prothorax, and margin of the elytra to the tip: beneath each eye is a short oblique line of the same colour: small circular white spots occur occasionally on the disk of the elytra: the scutellum is whitish: the antennæ are nearly black at the base, and fuscous beyond the fourth joint.

Inhabits Mexico. Presented by Mr. Walker. Appears allied to *Cerambyx ocellatus* of Fabricius, which M. Serville gives as the type of his genus *Tæniotes*; but the prothorax is without lateral spines, and the eyes are very small, characters at variance with M. Serville's descriptions.

GENUS.—EUSPHERIUM, *Newman*.

Caput pronum, prothorace vix angustius: palpi subæquales; articulis apicalibus paullò elongatis cylindricis: antennæ corpore vix longiores, 11-articulatæ; articulus 2^{us}. brevissimus rugosus; 3^{us}. elongatus, cetera longitudine regulariter decrescentia: prothorax longitudine paullo latior, lateribus pone medium acutè 1-dentatis: elytra convexa, humeris prominentibus, longitudine vix angustiora: pedes breves tibiis subdilatis.

Eusp. purpureum. *Lætè purpureum nitidum, ore, antennarum apice, pedibusque nigricantibus; undique pilis nigris subelongatis obsitum.*

This pretty little insect has more the habit of a *Chrysomela* or *Eumolpus* than that of a *Longicorn*; it is a short robust insect, of an uniform purple colour, glossy, and beset in all parts with longish black hairs: the mouth, antennæ, and legs are nearly black: the prothorax is uneven, having four tubercles of unequal size, and placed irregularly; on each side it is produced into a sharp and very conspicuous tooth: the elytra are irregularly but deeply punctured; the shoulders are very prominent and square; each elytron has a distinct elevation on its disk, about one-third of the distance between its base and apex: the legs are short, and the tibiæ are a little dilated.

Inhabits Brazil. Presented by Mr. Walker.

GENUS.—LAMIA, *Fabricius*.

Lamia Sannio. *Nigra, lanugine cinerascenti tecta, maculis numerosis strigisque nonnullis nunc miniatis nunc aterrimis irrorata.* (Corp. long. 1·2 unc.; lat. ·4 unc.)

Black, but completely clothed with a grey pilosity; this again is sprinkled with hundreds of red and black spots, which singular admixture of colours entirely pervades the head, prothorax, elytra, abdomen, and legs: the scutellum is margined with black: the elytra have various black lines, resulting from the combination of black spots; the first of these commences at the base of each elytron, between the shoulder and scutellum, and, descending a short distance, turns towards the suture; two others commence on the exterior margin, and ascend to the disk of the elytron; a fourth commences nearer to the apex, and ascends towards the middle of the suture in a zigzag direction: the margins of the abdominal segments are red.

Inhabits New Holland. Presented by Mr. Ingall.

CLASS.—HEMIPTERA.

NATURAL ORDER.—CIMICITES, *Newman*.

GENUS.—PENTATOMA.

Pent. fumipennis. *Rufo-fusca: proalæ apicibus fuscæ; metalcæ infumatæ; abdominis incisuris lateralibus 4 apiceque flavidis.* (Corp. long. .4 unc.; alar. dilat. 1 unc.)

In size and habit this species, in a great measure, resembles *P. baccharum* and *P. dissimilis*: the angles of the prothorax are very obtuse: the head, prothorax, mesothorax, and the coriaceous portion of the fore wings are deep reddish brown, minutely punctured, and each puncture is black; the membranaceous portion of the fore wing is opaque and brown; the hind wings are smoke-coloured: the abdomen is nearly black above, with the extreme margins, four marginal markings, and the anal segment somewhat yellow: the legs and under surface are pale.

Inhabits England. I took the only specimen I possess at Angmering, in Sussex. Mr. Stephens has two specimens taken within the metropolitan district.

CLASS.—NEUROPTERA.

NATURAL ORDER.—PERLITES, *Newman*.GENUS.—ISOGENUS, *Newman*.

Isog. infuscatus. *Fuscus: alæ opacæ, nigricantes, costis omnibus flavis.* (Corp. long. .55 unc.; alar. dilat. 1.6 unc.)

The head is entirely brown, and wider than the prothorax, in which however it is deeply immersed: the prothorax is much wider anteriorly than posteriorly; it is dark brown, with the exception of a very slender pale anterior margin; the disks of the pro- and mesothorax are brown, their lateral margins inclining to yellow: the wings are entirely opaque and nearly black, with the exception of the costa, which in all the wings is yellow.

Inhabits the East Indies. This singularly coloured insect is in the cabinet of the Rev. F. W. Hope.

GENUS.—CHLOROPERLA, *Newman*.

Chlo. transmarina. *Pallidè fusca; prothoracæ fuscus, lineâ medianâ longitudinali flavidâ; caput flavidum, oculis maculisque duobus fuscis; proalæ hyalinæ, basi flavidæ nervuris fuscis; metalarum nervuræ tantum apice fuscæ.* (Corp. long. .3 unc.; alar. dilat. 1 unc.)

Of a pale fuscous colour, with a distinct yellowish median line on the prothorax: the head is yellowish, with two elongate fuscous spots, which extend to the margin of the prothorax, in this respect differing from the common British species *C. virescens* of Pictet, to which it is very closely related; in *C. virescens* these spots are of a nearly circular form: the wings are hyaline, very shining, and tinged with yellow at the base, with scarcely any admixture of green; the nervures of the fore wings, and those of the apex of the hind wings, are brown.

Inhabits Canada, &c. Taken by Messrs. Doubleday and Foster, at Trenton Falls. The difference between this and the British cognate species, considered independently of the widely-removed localities, is quite insufficient for the establishment of a species.

GENUS.—*SIALIS*, Latreille.

Sialis infumatus. *Nigra, alis vix hyalinis, nigro-punctatis, basi præcipue infuscatis*. (Corp. long. .3 unc.; alar. dilat. .8 unc.)

This species differs principally from *Sialis lutarius* in the dark shade, approaching to black at the base of the fore wings: the entire body is black, including the antennæ and legs, and the wings are scarcely transparent, and thickly sprinkled with minute black dots.

Inhabits North America. A single specimen taken by Mr. Doubleday at Trenton Falls.

ART. LI.—*On the Genus Cerapterus of Swederus.*

By J. O. WESTWOOD, F.L.S.

THIS extraordinary genus of Coleopterous insects was established sixty years ago (1788) by Swederus, who described a single species, *C. latipes*. To these Donovan added another from New Holland, *C. MacLeaii*, and I described a third in my Monograph on the *Paussidæ*, under the name of *C. Horsfieldii*; without, however, being quite certain of its specific difference from *C. latipes*. In the last part of the Transactions of the Entomological Society, I figured an Australian species from the collection of M. Gory, which, judging from the acknowledged inaccuracy of Donovan in minute points of organization, I regarded, but doubtingly, as identical with

C. MacLeayi. Mr. MacLeay, himself the possessor of the individuals described by Swederus and Donovan, has in the first portion of the *Annulosa* of Dr. Smith's work, published a memoir upon this genus, (adding another species,) upon which I shall take the liberty to make a few remarks.

Of the characters given by Mr. MacLeay of the genus, we find the tarsi described as tetramerous and *filiform*. In M. Gory's insect they are decidedly pentamerous, which is the typical structure of the family; and the figures given by Mr. MacLeay represent the basal joints as broad and pulvillose. The other characters which he has given of the genus appear almost verbally extracted from those given by me in the *Linn. Trans.*, although he is pleased to remark upon the extreme inaccuracy of previous writers upon the genus.

Mr. MacLeay has divided the genus (which, in accordance with his new system of nomenclature, must be called *Cerapterinus*;) into two subgenera, the characters of which may thus be contrasted:—

Subgenus CERAPTERUS, <i>Swed.</i>	Subgenus ARTHROPTERUS, ^a <i>MacLeay.</i>
Caput thorace angustius, collo brevi, oculis mediocribus:	Caput thorace haud angustius, collo conspicuo, oculis magnis.
Thorax latior quam longus lateribus dilatatis rotundatis:	Thorax longior quam latus subquadratus.
Scutellum mediocre:	Scutellum minimum.
Elytra abdomine vix breviora apice subrotundata:	Elytra angusta parallela apice truncata abdomine breviora.
Tibiæ lateribus parallelis apice truncatis haud bispinosis:	Tibiæ lateribus haud parallelis apice bispinosis.
Tarsi intra tibiarum apices excavatos retractiles.	Tarsi intra tibiarum apices excavatos haud retractiles.
Tropical, Asia and Africa.	New Holland.

In the first of these subgenera are placed *C. latipes*, *Horsfieldii*, and *Smithii*, MACL.; and in the second *MacLeayi*, and M. Gory's species, of which Mr. J. Curtis possesses a specimen, noticed by Mr. MacLeay. It will be seen that these two subgenera are founded, not upon the variations of the trophi, (which are not described,) but almost entirely upon mere outline.

In the other *Paussidæ*, I have, however, clearly shown that external outline is valueless as a character, whilst the variation in the trophi led to the establishment of the genus *Platyrho-*

^a Upon what character can Mr. MacLeay, (who speaks so harshly of names proposed by others,) have established this name?

palus. The armature of the tibiæ is a more tangible character, but Mr. MacLeay has either shown that he deemed it as of no value, or has dreaded the establishment of a third subgenus for the reception of *C. Smithii*, which differs from all the other species in this respect. In like manner M. Gory's species will not enter into the subgenus *Arthropterus*, as described by MacLeay, so that its characters must be modified, and which will render the following distribution of the species necessary:

Subgen. I.—CERAPTERUS.

Thorax latissimus lateribus rotundatis: antennæ latissimæ lateribus serratis, articulo ultimo maximo: elytra abdomen tegentia: tibiæ spina nulla interna.

Habitat Asia.

Sp. 1. The original *C. latipes* of Swederus, which Mr. MacLeay characterizes thus:—" *C. piceus*, elytris maculâ apicali flavescente subrotunda antice quadridentata postice lobata, antennis rufis, articulo ultimo in tuberculum ad basim elevato:" and

Sp. 2. The species which I doubtfully described as *C. latipes*, suggesting that if distinct it should receive the name of *C. Horsfieldii*. Mr. MacLeay, however, although stating this, gives the reference to my name, *C. Horsfieldii*, with a mark of interrogation. Mr. MacLeay's character of this species is, "*C. piceus*, thorace antice emarginato, elytris maculâ apicali flavescente haud rotundata literam Y quodammodo simulante."

Subgen. II.—ORTHOPTERUS, *Westwood*.

Thorax latus (capite haud duplo latior): antennæ longiores sublatae planæ lateribus subrectis, articulo ultimo mediocri: elytra abdomen tegentia: tibiæ spino apicali intus instructæ.

Habitat Africa.

Sp. 3. *O. Smithii*, *Westw.* *C. nigro-piceus, subnitidus: elytris maculâ fulvâ, thorace latioribus et fere quintuplo longioribus.* (Long. corp. lin. $7\frac{1}{2}$.)

Habitat South Africa, within the tropic of Capricorn.

Cer. Smithii, *MacLeay*, *Illustr. Ann. So. Africa*, p. 74, pl. 4, fig. superior sinistra. (Mr. MacLeay's figures are not numbered.)

Subgen. III.—ARTHROPTERUS, *MacLeay*.

Caput thorace haud angustius : thorax subquadratus : antennæ sublatae, articulo ultimo mediocri : elytra angusta, abdomine breviora : tibiæ apice bispinosæ :^b angulo externo acutissimo.

Habitat New Holland.

Sp. 4. *A. MacLeaii*, *Donov.* *A. rufo-brunneus* : *thorace subconvexo postice angustiore, angulis anticis rotundatis : disco medio vix canaliculato.*

A. MacLeaii, *MacLeay* op. cit. p. 75.

Subgen. IV.—PHYMATOPTERUS, *Westwood*.

Depressiusculus : *caput thorace angustius : thorax cordato-truncatus medio longitudinaliter impressus : antennæ latae : elytra oblongo-quadrata angulo externo apicali tuberculo munita : tibiæ latae, interne spinis duabus armatae anguloque externo rotundato : tarsi distincte 5-articulati.*

Habitat New Holland.

Sp. 5. *P. piceus*. *Piceus nitidus, antennis pedibusque rufopiceis, punctis minutissimis irregularibus.* (Long. corp. lin. 5.)

Syn. *Cerapterus MacLeaii*, *Westw.* in *Trans. Ent. Soc.* Vol. II. p. 95. pl. X. fig. 17.

In the collections of Messrs. Gory^c and J. Curtis.

Mr. MacLeay states that his brother had recently captured *Cerapterus MacLeaii* in the nests of ants; and moreover remarks, that when alive they had the power of exploding, after

^b Mr. MacLeay employs the term "bispinose," by which I presume we are to infer that the tibiæ have one internal spur and one external spine—at least they are so represented in the figure of *A. MacLeaii*; but the figure of the leg of *C. Smithii* has also one spur and one external spine, and yet it is described as "having only one spine at the extremity of the tibia."

^c In addition to M. Gory's specimen, Donovan notices that another species of *Cerapterus* was communicated by M. Fichtel to the Royal Museum of Vienna, making at least two specimens of the genus in continental collections. It is possible, however, that the insect mentioned by Donovan may be that described by Kollar under the name of *Paussus bifasciatus*. (See *Trans. Ent. Soc.* Vol. II. p. 90.) The singular structure of the antennæ of this species will probably render the establishment of another subgenus requisite.

the manner of the *Brachini*; the former of which circumstances was also observed by M. Verreaux in the *Paussi* of the Cape; and I noticed in my Monograph, that a correspondent of M. Dupont had observed the crepitating powers of *P. excavatus*, Westw.

In proposing the separation of these four subgenera from *Cerapterus*, I have no hesitation in regarding them as of equal value. If the genus is to be dismembered as proposed by Mr. MacLeay, it appears to me to be necessary, in order to preserve an uniformity of value in the characters, that *C. Smithii* and *C. piceus* should be regarded as equally distinct with *C. MacLeaii*.

As to the circular progression of the *Paussidæ*, neither previously nor at the present time do I conceive it established. Mr. MacLeay proposes commencing with the true *Paussi*, thence to *Platyrhopalus*; *P. Mellii* leading to *Cerapterus latipes*, and *Cerapterus MacLeaii* to *Pentaplatarthrus*, from which he returns to *Paussus*.^d It is necessary, however, in order to maintain this circularity, that the other genera placed in the family must be got rid of, "since, if inserted in the above circular series, they appear to interrupt it."

The genera *Hylotorus* and *Trochoideus* are accordingly removed from the family; and I presume that my new genus *Lebioderus* will be similarly dealt with by Mr. MacLeay; because, although evidently intermediate between *Platyrhopalus* and *Cerapterus*, it interferes with the passage between *Platyrhopalus Mellii*, and *Cerapterus latipes*. *Hylotorus*, moreover, has so entirely the habit of the family, that, without more decisive proof to the contrary, it ought evidently to be retained in the family. As to the relations of *Trochoideus*, suggested by Mr. MacLeay, with *Myrmecoxenus* and other genera, such as *Cryptophagus*, it will be seen by my characters and figures given of it in the Trans. Ent. Soc. Vol. II. p. 96, that it has no relation therewith, but is, on the contrary, closely allied to *Endomychus*.

Mr. MacLeay's observations upon the relations of the family, appear to me to be entirely unfounded. He says that I seem to have been "the first to suspect the affinity of *Cryptophagus*

^d It will be seen that I pointed out this succession of the genera in my Monograph (p. 616), commencing with *Pentaplatarthrus*, thence to the *Paussi* and *Platyrhopali*, which I regarded as evidently leading to the *Cerapteri*, considering *Pentaplatarthrus* intermediate between *Paussus* and *Cerapterus* (p. 618).

to the *Paussidæ*, but that I have not expressed myself very clearly on the subject." It would have been extraordinary indeed if I had done so, because I never entertained such an opinion. I have said, repeatedly, that I considered the *Paussidæ* most nearly allied to the aberrant *Cucujidæ*, such as *Catogenus*, *Clinidium*, &c. ; and I have seen no sufficient grounds for altering this opinion ; for as to the relation of the *Paussidæ* with the *Pselaphidæ*, which Mr. MacLeay notices, nothing appears to me more unnatural. *Claviger* is found in ants' nests, and is anomalous in its antennæ, &c ; and *Paussus* agrees with it in both these respects ; but no two groups can be more widely apart. It would have been quite as natural to assert the relation of the *Paussidæ* with the *Ozænæ* ; for the latter crepitate, their bodies are polished, and their elytra are furnished with tubercles at the outer posterior angles, as in the *Paussi*.

In conclusion, as I know that I have the support of every entomologist, in having "vented a great deal of virtuous indignation" at the little care with which the Linnæan cabinet of insects has been preserved, I can but regret that Mr. MacLeay should have considered my observations upon the subject as uncalled for.^d

ART. LII.—*Description of some new Genera of Coleoptera in the Author's Collection.* By W. E. SHUCKARD, Vice-President of the Entomological Society, and Librarian of the Royal Society.

THE following descriptions of some new genera of Coleoptera which I possess, I forward, hoping they may be acceptable. Although adverse to scattered descriptions in general, I was unwilling to let the fine *Eurhamphus* step into the world alone ; and I could not resist describing this, as my talented young friend, W. Spry, Esq., had favoured me with the accompanying beautiful drawing of it, which I am sure you will consider an embellishment to the Magazine.

^d Mr. MacLeay erroneously gives to my observations an extension which they will not bear. It is not to the "*Paussi* presented to Latreille" by Mr. MacLeay, sen. that I alluded, but expressly to the single Linnæan specimen of *Paussus microcephalus* which has disappeared from the Linnæan Cabinet.

FAMILY.—CURCULIONIDÆ.

LEGIO II.—MECORHYNCHI. DIVISIO I.—ERIRHINIDES.

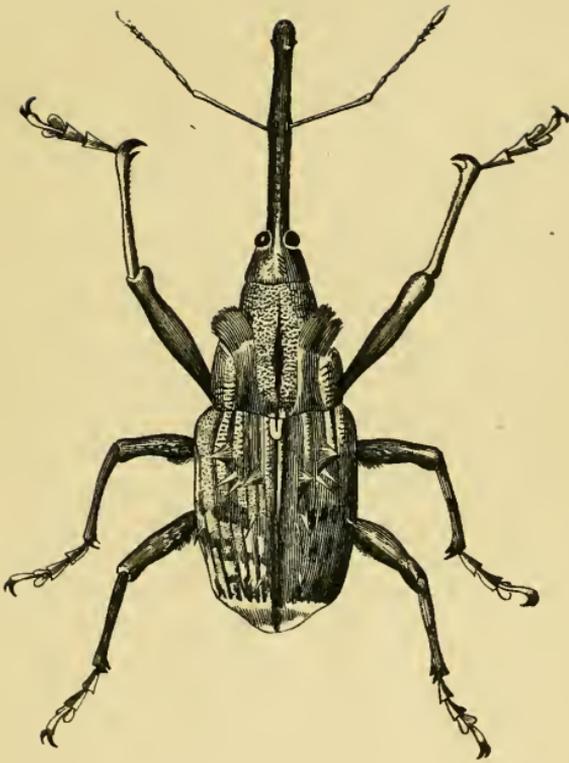
COHORS 1^a.—SCUTELLATI.GENUS.—EURHAMPIUS, *Shuck.*

Antennæ very slender, 12-jointed, as long as the entire rostrum, in the middle of which they are inserted; the scape nearly as long as the flagellum; the funiculus 7-jointed, with the first the longest, the rest gradually decreasing in length to the clava, and each nodose at the apex; the clava oblong-ovate acuminate: rostrum longer than the head and thorax, porrect, cylindrical; the scrobes^a linear, and extending nearly to the lower margin of the eyes: eyes ovate, convex, behind which the head is constricted, depressed upon the forehead, and swollen beneath: thorax obconic, considerably attenuated anteriorly, constricted in a broad band behind the head, and slightly rounded laterally behind this constriction, submarginate above in front, broadly so beneath, and sub-bisinate behind: scutellum ovate rounded: elytra subovate, nearly twice the length of the thorax, and covering the pygidium; the humeral angles produced and obtuse; convex in the centre which is common to both, and a gibbosity towards the apex of each separately: legs long, the anterior pair the longest, and approximate at the base; femora clavate, edentate, and nodose at the apex; tibiæ slender, cylindrical, curved at the extremity (especially the anterior pair), where they are armed with a strong and acute hook, and furnished within this, at the insertion of the tarsi, with a fascicle of hair: tarsi dilated, the three first points clothed beneath with a pulvillus, which has a longitudinal central channel; the two basal joints triangular, the penultimate deeply bilobed, and the terminal one the longest, slender, and armed with two simple claws.

Named from ἐν intensive, and ῥαμφὸς, *a beak*, in allusion to the length of the rostrum.

Sp. 1. *Eurhamp. fasciculatus. Shuck.* (See pl. 18.) *Murinus, nitidus, fasciculis brunneis niveisque conspersis, necnon squamis albidis pulverulentis lituris maculisque brunneis commixtis; elytris longitudinaliter striatis.* (Length 2¼ inches.)

^a Schönherr uses this term technically to designate the furrow that receives the scape of the antennæ; it does not occur in Kirby and Spence.



Subrugose, of a mouse-coloured greenish grey, loosely powdered with white scales; the rostrum irregularly and minutely denticulated above throughout its whole length, the two apical teeth and the two between the insertion of the antennæ considerably the largest, the former recurved: the thorax with a large compressed fascicle of brown hair (skirted behind by a few white ones) on each side just before the middle, from the base of which an irregular brown stripe, (composed of minute scales,) which gradually widens as it extends posteriorly to the margin of the thorax, and irregularly encircles the fascicle in front; a deep longitudinal denuded black channel proceeds from the constriction of the neck to the base of the scutellum, which is quite white: the thorax beneath black and shining, and transversely wrinkled: at the base of the anterior coxæ there is a large white irregular spot placed laterally upon the antepectus, and a large brown one between the intermediate and posterior pairs: the elytra are less distinctly speckled with white than the thorax, longitudinally striated, these striæ converging in pairs at the apex, the interstices convex, and thus forming a series of ten costæ upon each elytron, the internal ones most distinctly marked; upon the second, third, and fourth from the suture on each side there is a small fascicle of brown hair, that upon the fourth being in advance of the others, and at about one-fourth of the length of the elytra, and placed obliquely with reference to that upon the second costa, whilst that upon the third is more distant from the latter, and with it parallel to the suture; closely behind that upon the fourth, and in front of that upon the third, there is a more delicate but longer fascicle of white hair; and behind the latter, at equal distances, are two others, parallel to the last of which, and upon the next (the fourth) costa, one other; there is also the vestige of another white fascicle projecting from the side at rather more than one-half the length of the elytra, and placed upon the ninth costa from the suture: there is an indication of three brown fasciæ, marked obliquely, and extending internally to the suture, the first commencing from the side, at about half the length of the elytra; these as well as other brown marks mottle the surface, their positive course being but absolutely indicated; the sutural costæ and the base of the third are much more elevated than the rest, and there is a large deep depression just within the humeral angle, and a protuberant gibbosity within the inner angle of the convergent striæ, towards the apex of the elytra: the legs are black, sparingly covered with white scales, and having a longitudinal brush of pale hair at the base beneath of the intermediate and posterior femora: the inner

edge of the posterior tibiæ pilose, and the margins of the three dilated joints of the tarsi of a silvery white.

This fine insect is from New Zealand. I have seen a specimen in Mr. Curtis's possession, from Van Dieman's Land, which, from its great resemblance, is possibly identical; but if so, it must be of the opposite sex, as its rostrum is not denticulated, and it is barely more than half the size of mine.

FAMILY.—BOSTRICHIDÆ.

GENUS.—TESSEROCERUS, *Sanders*.^b

Sp. 2. Tess. ustulatus. *Shuck. Cylindricus, rufus, capite elytrorumque apicibus nigris.* (Length $4\frac{1}{2}$ lines.)

Rufous, with the head black, face densely covered with long rufous hair, vertex bald: thorax smooth and shining, having a small cordiform space scratched longitudinally just before the base in the centre, in the middle of which there is a deeper impressed line that advances forward, and meets a delicately indicated elevation, which extends to the occiput: each of the elytra with four costæ, the three first contiguous and parallel to the suture, and having a crenato-striated narrow interstice between them; the fourth remote, being placed on the margin of the elytron; between the latter and the third the interstice is nearly as wide as the space occupied by the three contiguous costæ combined, and is quite smooth, the external boundary of the third costa, being shown by a faint line only, each of the costæ at the apex of the elytra is very slightly produced: the legs, with the knees, black, and the tibiæ transversely sulcated, the anterior pair internally, and the others externally.

I much doubt if this be distinct from the type, although the colour differs; yet, as my friend J. S. Sanders, Esq. has not noticed the longitudinal elevation and impressed line upon the thorax, it may perhaps be different; mine, also, has not the two minute contiguous pilose patches at the base of the thorax, in lieu of which it has a cordiform longitudinally scratched space, down the emargination of which the impressed line passes; this, however, may be denuded. He also speaks of the fourth costa as being obsolete: the fourth upon mine is even more strongly marked than the others, and is placed upon the extreme

^b Trans. Ent. Soc. . Vol. I. pt. 3, p. 155; Pl. 14. f. 6.

margin of the elytra. Should his, therefore, have the indication of a costa upon the space between this and the third, it will be another reason for treating them as different. I have observed in mine, that the concave fringed lobes projecting upwards from the geniculation of the antennæ, cover in repose the bald vertex on each side like a scalp; and when this is the case, as nothing more of those organs is seen than the flagellum, the insect exactly resembles a *Platypus*. These are probably males: the next described is most likely the female, and perhaps of this species, although it possesses peculiarities which, until it shall be proved to be identical, will justify its separation. With respect to the transverse sulci of the tibiæ, Mr. Sanders's description would imply that they were all upon the same side of the limbs; but my description shows how they exist here as well as in the other *Platypi*.

Sp. 3. Tess. productus. *Shuck. Cylindricus, rufo-testaceus, pilosus, capite elytrorumque apicibus nigris, quorum apicum costa marginalis producta et incurva est.* (Length $3\frac{1}{2}$ lines.)

Shorter and more robust than the preceding; reddish, testaceous: the head, knees, and extremity of the elytra black; the whole head and thorax covered with long black hair, upon the former very thick, and upon the latter loose: the antennæ produced beyond the geniculation in merely a short penicillated spine: the thorax sculptured as in the former, with an abbreviated piceous longitudinal line in the centre behind: the sculpture of the elytra the same as in the former, but the costæ considerably more produced beyond the apical truncation, and projecting over it in fornicate laminæ; the marginal even still more produced, and forming a long, incurved, compressed mucro.

The comparison of the descriptions will show sufficient differences to warrant my treating these insects for the present as distinct, although I am strongly inclined to think this the female of the former.

FAM.—LONGICORNES, *Serville*.

TRIBUS 2^{us}.—CERAMBYCINI, *Serville*.

GENUS.—STEPHANOPS, *Shuckard*.

Head as long as the thorax, a little constricted behind the eyes, the anterior half produced in front of them into a long snout: labrum

linear, transverse, ciliated anteriorly: mandibles moderate, forcipate: eyes large, deeply emarginate in front, occupying the whole of the sides of the head, and subcontiguous both above and beneath: antennæ 11-jointed, longer than the body, very slender; the first joint rather the longest, and clavate; the second very minute; the remainder cylindrical, subequal, and the three first of these slightly nodose at their extremity, and all covered with a close pubescence: thorax scarcely longer than the head, cylindrical, or but slightly attenuated in front: legs moderately long and slender; femora clavate, and of about the same length as the tibiæ, which are exceedingly slender; the first joint of the intermediate and posterior tarsi much longer than the rest united, and the third or penultimate, which is bilobate and spongy beneath, the smallest: elytra linear, nearly twice the length of the head and thorax combined.

The name is from *στέφανος*, a coronet, and *ὠψ*, an eye, in allusion to the eyes encircling the head.

Sp. 1. *Steph. nasutus*. *Shuck.* *Fuscus, capite et thorace fusco-nigris.* (Length 10 lin.; lat. $1\frac{1}{4}$ lin.)

Entirely fuscous, excepting the head and thorax, which are much darker; it is slightly covered with a very short yellowish pubescence, easily abraded, and opaque, excepting where rubbed, and at the apex of the rostrum, which is glabrous, and has a few scattered punctures: the thorax is delicately transversely wrinkled beneath, and between the posterior pair of legs there is a deep central longitudinal channel, which extends forwards half way towards the intermediate coxæ.

This remarkably slender and cylindrical insect is from Van Dieman's Land. It will not enter into any of Serville's genera, but comes into the first division of the second subtribe of his *Cerambycini*.

TRIBUS 3^{us}.—LAMIARÆ, *Serville*.

GENUS.—MORIMUS, *Serville*.

Sp. *Mor. luctuosus*. *Shuck.* *Niger, opacus, rugosus, singularis elytris seriebus binis tuberculorum instructis.* (Length $8\frac{1}{2}$ lines.)

Of an opaque dirty black: antennæ approximate at the base, and not quite so long as the body, covered at the extremity with

a delicate brown pubescence: thorax coarsely rugose, with a prominent acute spine on each side, about the middle: elytra obsoletely rugose, interspersed with a few deep punctures, and having two abbreviated rows of obtuse and compressed tubercles at equal distances from the suture and from each other, and parallel; the first tubercle of the inner row forming an acute spine; this series terminating just beyond the middle of the elytra, and the external one continuing a little farther: the tibiae covered with a brown silky down.

From Van Dieman's land. This singular insect closely resembles in habit an *Amycterus*, with the antennæ of a Longicorn. I do not hesitate placing it in Serville's genus *Morimus*, although the antennæ are approximate, which would perhaps, in his opinion, require its being formed into a distinct genus.

TRIBE.—MORDELLONÆ, *Latreille*.

GENUS.—PELECOTOMA, *Fisch*.

Sp. *Pelecot. Fischerii*. *Shuck*. *Castaneum, aureo-tomentosum, albido lineatum et maculatum; elytris conniventibus*. (Length 9 lines.)

Entirely of a pale chestnut; covered on the head, thorax, extreme base of the elytra, and beneath, with a dirty grey down which becomes of a bright golden tinge at one-third of the length of the elytra, at the base of which there are three indistinct longitudinal parallel white lines, terminating about the middle; just beyond which, there is a broad whitish band, interrupted at the suture; and beyond this an elongate cordiform whitish mark, common to both the elytra, which are narrowly margined both at the suture (where they are united) and externally: the edges of the abdominal segments quite white.—A female, from the Brazils.

Obs.—I have much pleasure in dedicating this fine insect to the distinguished entomologist who is the author of the genus. I have no doubt of its being different from the *Pelecot. Leachii*. (*Latr. Dict. d'Hist. Nat. tom. xxv. p. 135.*) than which also it is larger. According to the descriptions, it would most resemble the *Pelecot. Latreillii* of *St. Farg. et Serv. in the Ency. Met. tom. x. p. 32, No. 2*; but the distinctions of size, and the disposition of the white markings, induce me to think it different from that also.

Sp. Pelecot. bioculatum. *Shuck.* *Castaneum, fusco-tomentosum; elytris conniventibus, singulo oculo parvo albido signato.* (Length $7\frac{1}{4}$ lines.)

Entirely of a pale chestnut, and covered with fuscous pubescence, and at about two-thirds of the length of each elytron (which are narrowly marginated, both at the suture and externally) there is a central small irregular white spot: the base only of the lateral margins of the segments of the abdomen white.—A male, from the Brazils.

Obs.—This insect is too different from the former to admit of my considering it the male of that species. I expect they would both enter into De Jean's genus *Trigonodera*; but I do not know upon what other characters than the conjunction of the elytra he may have formed it, as he has not yet published any description.

GENUS.—NEPHRITES, *Shuckard.*

Head unequal, produced behind, and a little constricted immediately behind the eyes: antennæ 11-jointed, pectinated, subgeniculated, inserted in front of the lower lobe of the eyes; the scape robust, obconic; the second joint minute and transverse; the third longer than the second, subobconic; the fourth robust, and produced beneath into a broad tooth, forming the base of the pectination of the rest, and which gradually increases to the terminal one, where this produced portion is the longest: eyes reniform, the emargination very profound, and leaving but a narrow fillet to connect the two lobes, the superior of which is small, and the inferior large: labrum membranaceous, transverse, convex, rounded in front, where it is fringed with setæ: mandibles large, forcipate, triangular, acute, and hooked at the apex, just within which they have a large triangular tooth: maxillary palpi with the first and third joints equal, and the smallest; the second rather shorter, and less than the fourth, which is ovate: thorax forming a truncated triangle, rounded laterally and constricted in front into a neck: scutellum oblong quadrate, the posterior angles rounded, with a deep triangular notch in front and subemarginate behind: elytra abbreviated produced at the shoulders, divergent, and attenuated towards the apex, where they are rounded, and a little more than one-third as long as the body: wings ample, a little longer than the body: legs—? one posterior only left, which is slender; the trochanter obsolete, no calcaria, and the claws simple, having only a small

tooth towards the base within: abdomen robust, suddenly acuminate at the apex, where it is compressed laterally, and having an elongate recurved cylindrical spine proceeding from the much compressed penultimate ventral segment.

Obs.—I have named this genus in allusion to its reniform eyes.

Sp. 1. *Neph. nitidus*. *Shuck.* *Ater, nitidus, punctulatus, elytris maculâ humerali castaneâ.* (Length $3\frac{3}{4}$ lines.)

Atrous, shining, much punctured: the thorax with two small round tubercles in the centre in front, and a central longitudinal channel: the elytra with the humeral angles of a chestnut brown.

Obs.—This remarkable insect, which is from Van Dieman's land, appears to connect *Rhipiphorus* and *Sitaris* very closely together. The combination of characters is singular—viz. the abbreviated and attenuated elytra, deeply emarginated eyes, pectinated antennæ, obsolete trochanters, deficient calcaria, and unidentate, simple claws. The amplitude of its wings would almost indicate that it is very volatile: the neuration of these organs is very different to that of *Sitaris*.

You must excuse the inverted order in which these descriptions have been sent you; this has been done for the sake of placing the figured insect first.

Believe me yours very truly,

W. E. SHUCKARD.

31, Robert-street, Chelsea.

ART. LIII.—*Proceedings of the Entomological Society of London.*

(*Extracted from the Athenæum.*)

SITTING OF THE 2D OF APRIL, 1838.

J. F. STEPHENS, Esq. in the Chair.

MR. BARKER communicated a method of driving away the minute ant which had recently become so troublesome in houses in the neighbourhood of London.

MR. BAINBRIDGE exhibited a singular monstrous individual of *Clivina fossor*.

Notes were read from Dr. BUCKLAND and the Rev. M. E. BERKELEY on the vegetable nature of various excrescences occasionally observed upon insects; the disease to which the house-fly is subject in autumn being, according to Mr. Berkeley, caused by the presence of a minute fungus, and not being a plethoric kind of disease, as supposed by some writers. Mr. Westwood communicated various observations recently made on this subject, and upon the analogous parasitism of insects upon the bodies of insects; stating the occurrence of one of the *Strepsiptera* in *Ammophila sabulosa*, one of the sand-wasps. A large larva of one of the Lamellicorn beetles was also exhibited, from the collection of the Rev. F. W. Hope, from which a fungus nearly two inches long had been produced.

The following memoirs were read:—

1. On the destruction of the black caterpillar of the turnips by poultry. By Mr. Sells.
2. Monograph on the genus *Holoptilus*. By Mr. Westwood.
3. Conclusion of a memoir on the different species of insects employed in various parts of the world as food. By the Rev. F. W. Hope.

SITTING OF THE 7TH MAY, 1838.

J. F. STEPHENS, Esq. in the Chair.

Mr. SELLS exhibited specimens of the rare *Copris lunaris*, and of the curious cocoon in which it passes the pupa state.

Mr. ASHTON presented a figure of a specimen of *Notonecta furcata*, infested by a minute parasite, which attaches itself to its legs.

Mr. ALDOUS presented his highly magnified figure of the head of a flea, as represented under the solar microscope; exhibited all the parts of the mouth, respecting which so much uncertainty has prevailed.

Various other exhibitions were made by members, and a discussion took place as to the nature of the food of the bot of the horse; Mr. Sells maintaining, that it was nourished by fluids from the vascular structure of the horse's stomach, in opposition to the opinion of Mr. Bracy Clark, that they fed upon chyme or chyle.

The Rev. F. W. HOPE communicated a table of the genera and species of insects infested by *Filaria*, and other parasitic worms.

The commencement of a monograph on the Coleopterous genus *Popillia*, by Mr. Newman, was read.

SITTING OF THE 5TH JUNE, 1838.

J. F. STEPHENS, Esq. in the Chair.

Donations of entomological books and of insects were announced, including a valuable collection of British *Chalcididæ*, by Mr. Walker, and a specimen of *Stylops Dalii*, by Mr. Thwaites, by whom a number of this remarkable parasite had been recently captured.

Mr. JOHNSTONE presented a plate illustrating the natural history of the cane-fly, *Delphax saccharivora*.

Mr. WESTWOOD exhibited drawings of several remarkable exotic insects, as well as others illustrative of the natural history of the *Nematus gallicola*, *Balaninus salicivorus*, and *Eulophus nemati*, all of which had been traced by him through their different states. He also exhibited a living specimen of the rare *Lyda inanita*, together with the remarkable nest of its larva, which consists of portions of rose leaves arranged in a spiral coil, forming a tube which the insect bears about with it.

Mr. SHUCKARD mentioned the occurrence of *Strepsiptera* in the bodies of a wasp from North America, and an *Ammophila* from Gambia.

Rev. F. W. HOPE made some observations on a case in which a brood of insects had been discharged from a tumour in the jaw of an old and infirm person in Lincolnshire.

Collections of insects from Sierra Leone and India were exhibited by Dr. CANTER and Mr. STRACHAN.

The commencement of a memoir by Mr. Babington was read, containing descriptions of the *Dytiscidæ* collected by Mr. Darwin during his voyage.

SITTING OF THE 2D JULY, 1838.

J. F. STEPHENS, Esq. in the Chair.

Several specimens were exhibited from the collection of the Rev. F. W. Hope, which presented instances of insectal and vegetable parasitism. From one of these individuals, a species of the South American genus *Acanthocephalus*, numerous very long and slender filaments, much longer than the entire insects,

and beautifully feathered, had vegetated, and which probably belonged to the genus *Trichia*. In another specimen, one of the large Brazilian *Curculionidae*, a Dipterous larva had protruded itself between the thorax and the head.

Mr. WESTWOOD noticed a remarkable modification in the habits of the caterpillars of a small moth; which at first burrows in the leaves of the common lilac, but after it has attained sufficient strength, it rolls back the leaves, fastening them in a curl with silken thread.

The following memoirs were read:—

1. Further notes on the habits of *Stylops Dalii*. By Mr. Thwaites.

2. Conclusion of a monograph on the genus *Popillia*. By Mr. Newman.

3. Description of a remarkable specimen of *Dytiscus marginalis*, in which part of the external marks of sex were obliterated, and partly replaced by those of the opposite sex. By Mr. Westwood. Mr. YARRELL also noticed several somewhat analogous instances occurring in the Crustaceous animals.

SITTING OF THE 6TH AUGUST, 1838.

W. E. SHUCKARD, Esq. in the Chair.

A considerable variety of interesting insects was exhibited by different members, including a fine collection from the Himalaya mountains, by Mr. W. W. Saunders.

Mr. BOWERBANK exhibited a living specimen of the curious genus *Cermatia*, from Ceylon.

Mr. STEPHENS exhibited a curious monstrosity occurring in *Eryx niger*.

Communications were made relative to the growth of the real Cochineal insect, in the hot-houses at Claremont, by Mr. Sells; the capture, in vast numbers, of the common Spanish blister-fly near Southampton, by Dr. Hairly; and the injuries committed by a small beetle on Arabic MSS. brought home by Burckhardt, in the Cambridge library, by Mr. Holme; who also announced the capture of a pair of the rare *Onthophagus taurus*, of which only a single specimen had hitherto been found in this country.

A letter was read from Mr. Spence, relative to the causes

which had produced the total failure of the apple crop during the present season.

It was announced, that a new Part of the Transactions, and Mr. George Newport's Prize Essay on the Saw-fly of the Turnip, were ready for delivery to the members.

SITTING OF THE 3D SEPTEMBER, 1838.

G. R. WATERHOUSE, Esq. in the Chair.

Mr. WESTWOOD exhibited a specimen of *Claviger foveolatus*, a minute but highly remarkable beetle, not previously known as an inhabitant of this country, which he had captured during the preceding week in an ant's nest in Oxfordshire; likewise a series of various insects which attack barley in granaries, together with the nests of various species of bees and wasps; whereupon Mr. Waterhouse made some observations as to the theoretical principles which lead to the hexagonal form of the cell of the hive bee.

A memoir upon the modifications to which the typical organs of the Diptera are subject, by Mr. Westwood, was read.

SITTING OF THE 1ST OCTOBER, 1838.

J. F. STEPHENS, Esq. in the Chair.

Mr. H. STUART TAYLOR presented specimens of the different sexes of a species of wasp, and of *Rhipiphorus paradoxus*, a singular beetle, which is parasitic in their nest.

An extended discussion took place, in which several of the members joined, relative to the hexagonal formation of the cells of bees and wasps, in reference to Mr. Waterhouse's theory on the subject.

The following memoirs were read:—

1. Notes upon the egg-cases of Blattæ, and their parasites. By Mr. Sells.
 2. A few words in reply to Mr. MacLeay's remarks upon the metamorphosis of the *Crustacea*. By Mr. Westwood.
 3. Observations on the habits of the *Æstridæ*. By Mr. Sells.
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ART. LIV.—*Varieties.*1. *Species of Encyrtus.*

Sp. 90. En. Erylus. Fem. *Cupreus, antennæ piceæ, tibiæ flavæ basi piceæ, tarsi flavi, alæ limpidæ.*

Obscure cupreus: oculi et ocelli picei: antennæ piceæ; articuli 1^{us} et 2^{us}. cuprei: pedes nigro-cuprei; trochanteres picei; tibiæ flavæ, basi piceæ; tarsi flavi, apice fulvi; metatibiæ nigro-cupreæ; protarsi fulvi: alæ limpidæ; squamulæ piceæ; nervi flavi. (Corp. long. lin. $\frac{2}{3}$; alas. lin. 1.)

Found near London.

This description should precede that of *E. Ilithyia*, at p. 418 of the present volume.

FRANCIS WALKER.

2. *Note on Dryinus, &c.*

Antennæ	{	remote from the mouth			EMBOLEMUS.				
		near the mouth.	{	slightly concave front.	{	impressed.	winged	DRYINUS.	
							apterous	DICONDYLUS.	
		occiput.	{	convex.	{	Fem. fore unguis.	chelate inner.	connate with	} CHELOGYNUS.
								one joint of tarsus.	
								connate with two joints of tarsus.	
deeply notched	{	simple	} APHELOPUS.						
						LABEO.			

Chelogyne.—Antennæ near the mouth; in *fem.* 1st joint shorter or scarcely longer than 3d. Palpi long, pendulous: front convex: occiput slightly concave: collar conspicuous, narrowed before: metathorax long, sloping gradually: abdomen depressed: wings perfect: fore feet of the *fem.* with joints; 2d and 3d short; 4th elongate, free; 5th shorter, connate with the inner claw. E. G. *collaris, ephippiger, fulviventris, lucidus, longicornis, flavicornis, ruficornis, frontalis, infectus, scapularis, Ilus, Misor, Daos, Alorus.*

Antæon.—Antennæ near the mouth, short; the scape elongate in the *fem.*; proportionately, but less so, in the *male*: collar very short, deflected: metathorax obliquely truncated: abdomen at the base ascending from the petiole: wings perfect: fore feet of the *fem.* with 2d, 3d, and 4th joints short, 5th longer, the two last connate with the inner claw. E. G. *Jurinianus, brachycerus, brevicornis, cursor, Sisyrthus, Lyde, nanus, Otiartes,—inclytus?*

A. H. HALIDAY.

3. *Note on the Genus Epyris*.—Having erroneously described and drawn another species under the name of *Epyris niger*, I wish to correct the mistake; which I am now enabled to do, through the liberality of the Rev. G. T. Rudd, who has supplied me with a beautiful series of specimens of the latter.

GENUS.—EPYRIS, *Westwood*.

Caput thoracis latitudine: oculi villosi: mandibulæ apice oblique truncatæ denticulatæ: palpi maxillares 6-, labiales 3-articulati: antennæ filiformes 13-articulatæ in utroque sexu: ungues acuti simplices: alæ anticæ areolis brachialibus conterminis, radiali oblonga in alæ apice incompleta, cubitalibus et discoidalibus oblitteratis.

Sp. 1. *Ep. niger*. *Metathorace truncato, dorso tri-carinato et cancellato; abdomine convexo; nervis costalibus conjunctis*. Mas et fem. (Long. $1\frac{3}{4}$ lin.)

Epyris niger, *Westwood*.

Sp. 2. *Ep. subcyaneus*. *Metathorace dorso reguloso, apice rotundato; abdomine depresso; nervis costalibus disjunctis, areola præ-brachiali à stigmatè remota*. Mas. (Long. $2\frac{1}{4}$ lin.)

Epyris niger, *Ent. Mag.* Vol. IV. p. 432, pl. 16, fig. 16.

A. H. HALIDAY.

4. *Addenda to the Genus Alysia*. (Vide p. 228, sp. 24, *fuliginosa*.)

Fem.—Alæ subhyalinæ: antennæ 24-articulatæ: terebra $\frac{2}{3}$ abdominis longitudine.

Obs.—Palpi labiales in hac specie 4-articulati; quamobrem, et stigmati latitudine perspectâ, inter sectiones 5^{um}. et 7^{um}. media intercedit.

Habitat et Hiberniam borealem: rarissime lecta mensibus Julio et Augusto.

(Vide p. 241, Sp. 48, *perdita*.)

Fem.—Abdominis segmentum 1^{um}. apice magis dilatatum: terebra abdomine paulo longior. Hæc itaque à *Brachycentris* segreganda videtur in sectionem propriam.

Habitat Finmarchiam; Julio mense lecta, *F. Walker*.

A. H. HALIDAY.

5. *On the supposed Agency of Worms in forming Bogs.*—In cutting the turf, what are properly called bog-holes are often made; and at the bottom of these, which to me have proved really interesting excavations, a small portion of bog stuff is generally left, upon which the water soon accumulates, so as to make a number of little standing pools, dangerous alike to the sportsman and the four-footed inhabitants of the moor.—These holes, if left untouched, are filled up, in the course of time, by a substance intimately resembling the bog around, except in firmness and consistency; which qualities are only derived, as it would seem, from age and pressure. I have often carefully examined these holes in their different stages; sometimes unwittingly, when the opportunity presented itself, by my slipping into a cavern apparently well covered; at other times taking a more leisurely survey. In the earlier stages there appear to be little worms constantly at work, who throw up cylindrical cells, reaching to the surface of the water, if this be not in the first instance too deep. These cells, composed of bog stuff, are from one to three or four inches in height, and thick in proportion, the largest being the size of a quill. The lesser tubes stand separate; the larger are united, so as to form bundles of aggregated tubes. The animal within is jointed like a *Conferva*, transparent, and of a beautiful red colour. When the water from the pools is evaporated by the heat of the sun, the worms retreat as low as possible into their cells, but the cylinders are still erect, and present an appearance which is striking even to the casual observer. Whether these little animals are the primary cause of the growth of the bog, or not, I am very far from being competent to decide; at the same time, I cannot help comparing their labours with those of the *Corallines*. If these have been able to form islands, why should not our little friends lay the foundations of the turf bogs? You must, however, observe, that I admit the necessity of bog-mould, or vegetable earth, as essential to their first operations; and must do so until they have been found at work upon any other basis.—*Letters from the Irish Highlands.*

6. *Ticks in Panama.*—A great pest in the isthmus of Panama are what are called *ganapatas*, or ticks, which, in half an hour's walk, in summer, will completely cover the person, and are taken from their hold with some trouble. A smaller, but

even more insidious enemy, is the peoito (*pulga*) de la Savaña, or Savannah flea, not larger than a grain of sand, of a deep vermilion colour, and very numerous. They attack the softer parts of the flesh, and occasion a very painful itching. Common fleas, niguas or chijos, and mosquitoes, are in the usual abundance.

LLOYD.

7. *Mosquitoes in Anegada.*—Of all the insects, the mosquitoes (a species of *Simulia* or *Atractodes*) are the most troublesome in Anegada; indeed the torments which they cause the inhabitants and the casual visitor are unceasing. They swarm not only during the day, but they are increased at night by the “Gallon-nipper,” a species of a larger description than the common mosquito, and also more venomous. During the last twelve years Anegada had not been visited by so large a swarm of these insects as during the late summer of 1831; indeed, I was several times obliged to return from my surveying to the settlements, not being able to proceed in consequence of their painful stings. It is only possible by making continual smoke around the habitations to get rid of them in some measure. They had mostly disappeared since 1819, without any reason being alleged for it; but returned in 1831 in larger swarms than ever. These insects are not only a scourge to man, but the poor beasts suffer likewise; and I have been told, by different persons, that they have known the wild goats return to the settlements in order to seek protection. The sheep suffer the most from their bites, which cause inflammation, cramps, and even death amongst them.

Of other venomous insects, there are the *Scolopendra Morsitans* (*Scorpio Americana*), black and blue spiders, the bite of the latter of which is dangerous, causing sudden inflammation. It is curious that there are no black worms or gongolos (*Julus fuscus*) to be met with, though there are great numbers in the other Virgin Islands. Persons who brought some over from Spanish Town, out of curiosity, told me they died in a short time without propagating. It is certainly a remarkable fact, that as the distance between Virgin Goda and Anegada is so trifling, and the *Julus fuscus* in such large quantities on the first island, that there should be none in the latter. Can the air be the reason of it, or the exhalation of the ground peculiar to Anegada?

If the latter be the reason, it must be attributed to the calcareous nature of the soil.

8. *Crustacea in Anegada*.—The species of Crustacea are numerous, and afford a considerable addition to the sustenance of the inhabitants. The number of *Astasis*, *Scyllarius*, and *Cancer*, which may be caught in the reefs, and during night, on the rocky shores on the north side, is considerable.

SCHEMBURGG.

9. *Honey in Madagascar*.—In Madagascar they have six sorts of honey, called in the language of the country *tentele*: bees' honey, called *voatentele*; honey from certain green flies, called *sih*; and two sorts of honey from ants; one sort is from winged ants, and is gathered from the hollow trees, the other sort from ants of a larger size, without wings, who make their honey in *vontatames*, or great heaps of earth, pointed at the top, and pierced round with holes, full of these ants; all which sorts of honey are exceedingly sweet. There is still another sort of honey, or rather sugar, being harder and sweeter, called *tentele sacondre*; honey-flies, called *sacondre*, lay this on the leaves of particular shrubs, and are transformed afterwards into small yellow, green, or red lumps. Many, with great reason, have held this honey, or sugar, to be the Arabian *tabaxir*, not the *sacarmambu*, or sugar of bamboo canes, whose juice is no better than insipid starch. There is yet another sort of honey, esteemed poisonous, being made by bees which suck the flowers of a particular tree that produces a strong poison. This tree is found in one part of the province of Anossi, or Carcanossi, and is called *caracgrac*.—*Univ. Hist.* vol. xi. p. 420.

10. *Insect worshipped by the Hottentots*.—The Hottentots adore, and honour with the highest veneration, a small winged insect, with two horns, with a green back and belly, speckled with red and white. Upon the arrival of this animal, which is regarded as the lord of the universe, the inhabitants, believing all past offences purged and buried in oblivion, resolve, as a new people, on a reform of life, believing the immortality of the soul. The person, of either sex, on whom this insect accidentally settles, is ever afterwards distinguished and respected as sacred, and a favourite of this deity, &c.

11. *Continuation of Extracts from Mr. Davis's Journal.*—*February 18th, 1838.*—At sea, lat. 35° S.; long. $14^{\circ} 30'$ E.—A beautiful summer's morning, and a dead calm. An immense quantity of "whale's food" passed us in shoals of two or three feet wide, with intervals of a yard or more between the shoals. When near the ship's side we could see innumerable brown spots, but in the distance they imparted a ferruginous tint to the sea, so that it appeared as if there were long red-brown streaks in the water. A bucketful being drawn up, we found the water teeming with life. I presume the animals were *Medusæ*; they were lumps of a pure white jelly, of about three-quarters of an inch in length, and one-third of an inch in breadth, having at one extremity a small mammiform protuberance, which in some specimens tapered off to a mere thread. They possessed a strong pulsation, or muscular contraction, which continued for five or six minutes, when they usually became dry. In each was a brown speck, which I supposed to be the head and stomach. I took a tea-cupful of the water containing them, and placed it in the sunshine, when the brown spots and filaments were alone visible; yet in the shadows of these animals seen at the bottom of the cup, the entire outline of each was clearly defined, and appeared variously adorned with transverse rings; their figure, as represented in these shadows, was very much that of cowrie shells: the effect was extremely pleasing. I could distinguish the mode in which they propelled themselves through the water; this was done by contracting the entire body, and then by suddenly releasing the anterior portion from its contracted state, this part darted forward, the remainder moved, or rather appeared to be dragged after it: the perfectly transparent always preceding, and the portion containing the brown spot following more slowly. Under a glass I could discover nothing like muscular tissue; but the clearly defined shadows of lines, &c., of course proved the presence of somewhat solid muscular and partially opaque spots, as compared with those which were perfectly transparent and shadowless. I subsequently examined them under a high power, and found below the brown part or stomach two transparent sacs, which were connected by filaments with a variety of tubes under and around them; in those tubes I observed a regular pulsation—they alternately dilated and

expanded: in different parts of the body I observed globules floating, more particularly round the external parts.

February 24th.—This morning, about 10 A.M., we passed through another large shoal of Medusæ; they did not tinge the water as before, neither were they distributed in lines, but formed reticulated masses. On examination, I found them to be composed of masses of animals, not so fully developed as those I before examined; they were agglutinated together in a double series; they appeared to possess no power of motion in the sea, but were propelled by the waves: when put into a basin of water, and placed in the sunshine, there was a slight movement among them, but no activity. In the water their bodies resembled films of dissolved isinglass, but when taken out they were mere lumps of jelly.

March 10th.—We have been constantly attended by the oceanic birds, but have never been able to take any until this date, when, during a calm, we hooked eight Albatrosses, in every variety of plumage, from the uniform ashy brown of the young birds, with pale lilac beaks, to the black and white of the adult birds, with yellow beaks. On examination we found them infested with three species of parasites, all of which I shall send you for the Club cabinet.

We took in a good deal of water at Rio, and as long as this remained we were troubled with mosquitoes. I have caught these blood-suckers coming out of my filterer at five or six in the afternoon. Their bite is as bad, but not worse, than that of our English *Culex*; they are black, having the legs prettily annulated with white; when resting they frequently throw out the hind legs.

Adelaide, April 24th, 1838.—We arrived safely in Holdford Bay on the 16th of this month. I went on shore at midnight with a naval officer, and accompanied him with the mail to this place. The country and climate are delightful. The expectations I had formed were moderate, I am therefore more than surprised at the rapid progress making here: houses are springing up in every direction. There are all the elements of a flourishing community here.

A. H. DAVIS.

INDEX GENERUM, &c.

- ACARUS**, 338.
Adieu, 268.
 Agency of worms in forming bogs, 520.
Altica nemorum, 342.
Alysia, 213, 519.
 America, North, communications on the Natural History of, by E. Doubleday, 21, 199, 269, 402, 409.
Amphasia, 388.
Anegada, Mosquitoes in, 521; Crustacea in, 522.
Anisoplia, 384.
Anomala, 385.
Antæon, 518.
 Ants, habits of, 347; nest, noticed by J. B—n, 480.
Apion, 8, 254.
 Apples of the Dead Sea, 340.
Arthropterus, 503.
Astata, 348.
Asticta, 484.

Barynotus, 173.
 Bees in Cashmere, management of, 119.
 Bogs formed by the agency of Worms, 520.
Bolitophagus, 378.
Bowerbank, J. S., structure of the scales on the wings of Lepidopterous Insects, 300.
Brachelytra, notice on some new genera and species of, by the Rev. A. Matthews, 188.
Brecon Beacon, 181.
Broscus, 388.
Bruchomorpha, 399.

Cacosceles, 491.
Cænia, 381.
Callidium, 393.
 Capture of *Vanissa Antiopa*, by Rev. H. S. Taylor, 253; of *Polygonmatus Arion*, by W. T. Bree, 339.
 Cashmere, bees in, management of, 119.
Celetes, 381.
Centroglossa, 194.
Cephaloon, 376.
Cerambyx, 493.
Cerapterus, notes on, by J. O. Westwood, 500, 502.
Ceratognathus, 260.
Ceropales, 348.

Cetonia, 168.
Chalcidites, taken by C. Darwin, described by Francis Walker, 469.
Chalciditum, Monographia, by Francis Walker, 35, 102, 417.
Chalcis, 471.
Charlesworth, E., Magazine of Natural History, 338.
Chlænius, 490.
Chelogyne, 518.
Chloroperla, 401, 499.
Christy, W., notes of Madeira, 305; recollections of five days in Teneriffe, 431.
Chrysididæ, notes on, by J. B—n, 477.
Chrysopa, 400.
Clark, B., notes on *Æstrus Equi*, 336.
Club, Entomological proceedings of, 87, 206, 326.
Clytus, 394.
Coleoptera of the Scilly Islands, 346; new genera of, described by W. E. Shuckard, 505.
Collapteryx, 397.
 Communications on the Natural History of North America, by E. Doubleday, 21, 199, 269, 402, 409.
Coptosoma, 338.
Coreus, 174.
Craig-Pwllch-Dù, 181.
Crionion, 396.
Crustacea in Anegada, 522.
Cucullia, 346.
Cyclops, 343.
Cypha, 198.

Darwin, C. Chalcidites taken by, described by Francis Walker, 469.
Davis's, A. H., Journal, 248, 523.
Deinopsis, 193.
 Descriptions of some Oxyuri, by Francis Walker, 453; of some Chalcidites taken by C. Darwin, by Francis Walker, 469; of some new genera of Coleoptera, by W. E. Shuckard, 505.
Deutschlands Insecten von Herrick Schäffer, 350; von Jacob Sturm, 351.
Dicheros Cuvera, 384.
Dichotomius, 321.
Die Kafer der Mark Branderburg, by W. F. Erichson, 353.
Distichocera, 492.

- Die familien der Blattwespen, by T. Hartig, 356.
- Digrapha, 380.
- Dimeraspis, 372.
- Donocia, 391.
- Dorcus, 267.
- Doubleday, E., communications on the Natural History of North America, 21, 199, 269, 402, 409.
- Douglas, J. W. Random Thoughts, 62; lines on visiting Boxhill, 257.
- Drepanopteryx, 400.
- Druida, 481.
- Eiselt's History, &c. of Entomology, 357.
- Emmesa, 376.
- Encyclops, 392.
- Encyrtus, 35, 102, 518.
- Endomychus, 390.
- Enicocephalus, 341.
- Entomological Society of London, proceedings of, 56, 79, 183, 326, 513; transactions of, 339; of France, 82, 122; club, 87, 206, 326; notes by E. Newman, 168, 372, 483; works, notice of, 350.
- Epyris, 519.
- Erichson's Kaefer der Mark Brandenburg, 353.
- Eros, 382.
- Essay on the Stridulation of Insects, by M. Goureau, 89, 357; on the Classification of Parasitic Hymenoptera, by A. H. Haliday, 209.
- Eucerochoris, 341.
- Eumetopia, 341.
- Eurhamphus, 505.
- Eusphærium, 498.
- Eutoma, 170.
- Exeirus, 348.
- Fauna Insectorum Europæ, by Germar, 350.
- Feronia, 386.
- Figulus, 261.
- Flies, 345.
- Germar's Fauna Insectorum Europæ, 350.
- Geschichte Systematik und Literatur der Insektenkunde, by J. N. Eiselt, 357.
- Golofa, 343.
- Gorytes, 349.
- Goureau, M., Essay on the Stridulation of Insects, 89, 357.
- Grease in Insects removed by Naphtha Petrolei, 335.
- Gymnusa, 192.
- Haliday, A. H., essay on Parasitic Hymenoptera, 209; note on Dryinus, 518; note on Epyris, 519; addenda to Alysia, 519.
- Hartig's Tenthredines and Sirices, 356.
- Hectarthrum, 398.
- Hedychrum, note on by W. C. Hewitson, 77.
- Herm. Max Schmidt, 352.
- Hewitson, W. C., note on Hedychrum, 77.
- Hispa, 390.
- Hockeria, 472.
- Holocephalus, 323.
- Honey in Madagascar, 522.
- Hope, Rev. F. W., observations on the Lamellicorns of Olivier, 312.
- Hornets' nest, note on by J. B—n, 479.
- Hottentots, insects worshipped by, 522.
- Hülfsbuch für Schmetterlings, by F. Treitschke, 352.
- Hydnocera, 379.
- Hymenoptera, parasitic, essay on, by A. H. Haliday, 209; aculeate, 348.
- Hypulus, 376.
- Inostemma, 453.
- Insect Hunter, wanderings of, 66; Irish, notes of, 140.
- Insects worshipped by Hottentots, 522.
- Irichroa, 385.
- Irish Insect Hunter, notes of, 140.
- Ischnomera, 378.
- Isogenus, 178, 499.
- Ithone, 180.
- J. B—n, notes on various insects, 477.
- Journal of Mr. Davis, 248, 523.
- Lamellicorns of Olivier, observations on, by Rev. F. W. Hope, 312.
- Lamia, 498.
- Languria, 390.
- Lethrus, 312.
- Lines written on visiting Boxhill, 257.
- Lucanidarum novarum exoticarum descriptiones, by J. O. Westwood, 259.
- Lucanus, 312, 316.
- Madagascar, honey in, 522.
- Madeira, notes on, by W. Christy, 305.
- Macratia, 377.
- Magazine of Natural History, by E. Charlesworth, 338.
- Management of bees in Cashmere, 119.
- Mantispa, 401.
- Mantoida, 178.
- Matthews, Rev. A., notice of some new genera and species of Brachelytra, 188.
- Megacronus, 197.
- Melitæa Cinxia, note on, by J. B—n, 479.
- Melolontha, 489.
- Merope, 180.
- Monographia Chalciditum, by F. Walker, 35, 102, 417.

- Monographic des Braconides, by C. Wesmael, 353.
- Morimus, 510.
- Musquitoes in Aneгада, 521.
- Mycetoporus, 197.
- Myllæna, 193.
- Myodes, 376.
- Myolepta, 373.
- Necrophorus, 385.
- Nemoicus, 6.
- Nemoura, 401.
- Nephrites, 512.
- Newman, E., Entomological notes, 168, 372, 483.
- Nigidius, 264.
- Notes on the genera Sitona, Polydrusus, Phyllobius, and Apion, by J. Walton, 1; on Hedychrum, by W. C. Hewitson, 77; of an Irish Insect Hunter, 140; Entomological, by E. Newman, 168, 372, 483; on Apion, by John Walton, 254; on Madeira, by W. Christy, 305; on removing the grease from insects, by W. E. Shuckard, 335; on *Cestrus Equi*, by B. Clark, 337; on various insects, by J. B—n, 477; on the genus *Cerapterus*, by J. O. Westwood, 500.
- Notice of some new genera and species of Brachelytra, by Rev. A. Matthews, 188; of the capture of *Vanessa Antiope*, by Rev. H. S. Taylor, 253; of foreign entomological works, 350.
- Obrium, 393.
- Observations on the Lamellicorns of Olivier, by Rev. F. W. Hope, 312; on Notes on various Insects, by W. E. Shuckard, 477.
- Cestrus Equi*, note on, by B. Clark, 337.
- Olivier's Lamellicorns, observations on, by Rev. F. W. Hope, 312.
- Oncoscelis, 341.
- Onichodon, 383.
- Opilus, 380.
- Orsodachna, 391.
- Orthopterus, 502.
- Oryssus, 486.
- Oxytelus, 198.
- Oxyuri, descriptions of, by Francis Walker, 453.
- Pachydissus, 494.
- Pachyura, 173.
- Pæcilosoma, 492.
- Panama, ticks in, 520.
- Paragia, 349.
- Passandra, 398.
- Pedilus, 375.
- Pelecotoma, 511.
- Pempsamacra, 495.
- Penthe, 373.
- Pentatoma, 499.
- Perla, 177.
- Philanthus, five species noticed by J. B—n, 480.
- Phyllobius, 6.
- Phyllæcus, 485.
- Phymaphora, 389.
- Phymatopterus, 503.
- Pison, 349.
- Platygaster, 453.
- Pogonocerus, 375.
- Pollaclasis, 382.
- Polydrusus, 5.
- Polyommatus Arion, capture of, 339.
- Poma Sodomitica, or Dead Sea apples, 340.
- Proceedings of the Entomological Society of London, 56, 79, 183, 326, 513.
- of France, 82, 122.
- Club, 87, 206, 326.
- Pronomæa, 192.
- Psamatha, 348.
- Pteracantha, 392.
- Pteronarcys, 175.
- Random Thoughts, by J. W. Douglas, 62.
- Raupenkalender, by J. J. Schott, 352.
- Recollections of Five Days in Teneriffe, by William Christy, jun. 431.
- Remus, 347.
- Rhinotragus, 495.
- Rhipicera, 383.
- Rhopalophora, 496.
- Saperda, 395.
- Scales on the wings of Lepidoptera, structure of, by J. S. Bowerbank, 300.
- Scarabæus, 312, 317.
- Schaffer's Deutschlands insecten, 350.
- Schizotus, 374.
- Schmidt's Dissertatio inauguralis de Psalaphis, 352.
- Schott's Raupenkalender, 352.
- Scutellum of winged insects, structure of, described by J. O. Westwood, 459.
- Selandria, 484.
- Shuckard, W. E., on the removal of grease from insects, 335—observations on J. B—n's notes, 477.
- descriptions of new Coleoptera, 505.
- Sialis, 500.
- Silkworms, 343.
- Silusa, 192.
- Sitona, 2.
- Smiera, 469.
- Society, Entomological, of London, proceedings of, 56, 79, 183, 326, 513.
- of France, 82, 122.
- Sphæcomorpha, 396.
- Stephanops, 509.

- Stilbopteryx, 399.
 Stridulation of Insects, essay on, by
 M. Goureau, 89, 357.
 Structure of the scales on the wings of
 Lepidoptera, by J. S. Bowerbank, 300.
 ——— of the thorax in winged insects,
 by J. O. Westwood, 459.
 Sturm's Deutschlands insecten, 351.
 Succinic Insects, 345.
 Synchrona, 378.

 Tachyporus, 197.
 Tæniotes, 497.
 Tanychilus, 487.
 Taylor, H. S., notice of the capture of
 Vanessa Antiopa, 253.
 Telenomus, 456.
 Teneriffe, recollections of five days in, by
 William Christy, jun. 431.
 Tesserocerus, 508.
 Thecla, curious habit of, 339.
 Thorax of winged insects described by
 J. O. Westwood, 459.
 Ticks in Panama, 520.
 Torneutes, 340.
 Trachyderes, 493.
 Transactions of the Entomological Society
 of London, 339.
 Treitschke's Hülfsbuch für Schmetter-
 lings, 352.
 Trichocops, 170.

 Trichius, 169.
 Trimorphus, 489.
 Trox, 316, 326.
 Turnip fly, 342.

 Uracanthus, 172.

 Vanessa Antiopa, capture of, 253.
 Varieties, 518.
 Verses, 268.

 Walker, F., Monographia Chalciditum,
 35, 102, 417; descriptions of Oxyuri,
 453; of the Chalcidites taken by C.
 Darwin, 469; note on Encyrtus, 518.
 Walton, J., notes on the genera Sitona,
 Phyllobius, Polydrusus, and Apion, 1;
 additional notes on Apion, 254.
 Wanderings of an Insect Hunter, 66.
 Wesmael's Monographie des Braconides,
 353.
 Westwood, J. O., Lucanidarum nova-
 rum exoticarum descriptiones, 259;
 on the comparative structure of the
 scutellum and other terminal dorsal
 parts of the thorax in winged insects,
 459; on the genus Cerapterus, 500.
 Worms, agency of, in forming bogs, 520.

 Xiphodontus, 259.

LIST OF THE GENERA AND SPECIES

DESCRIBED IN THIS VOLUME.

CYRTUS *Dalm.*
reus Walk.
hria Walk.
harus Walk.
reas Walk.
catellus Dalm.
s Walk.
us Walk.
rbas Walk.
ope Walk.
res Walk.
iades Walk.
æus Walk.
cilus Walk.
as Walk.
ntes Walk.
sus Walk.
irus Walk.
irus Walk.
ces Walk.
res Walk.
s Walk.
eus Walk.
bus Walk.
es Walk.
ritus Walk.
cornis Dalm.
ales Walk.
anus Walk.
is Walk.
lbomii West.
nus Walk.
inius Dalm.
llatus Dalm.
us Dalm.
leri Dalm.
ellaris Dalm.
urus Dalm.
eus Dalm.
us Walk.
raceus West.
tipes Dalm.
frons Walk.
ilis Dalm.
emanni West.
enus Walk.
lea Walk.
lipennis Walk.
erstedtii West.
iger Walk.
bilis West.
scens West.
estus Walk.
a Walk.
s Walk.
his Walk.

fictilis Newm.
 TRICHIUS *Fab.*
Deltoides Newm.
bistriga Newm.
 EUTOMA *Newm.*
tinctilatus Newm.
 TRICHEOPS *Newm.*
ephippiger Newm.
 URACANTHUS *Hope.*
bivitta Newm.
 PACHYURA *Hope.*
monilis Newm.
 BARYNOTUS *Germ.*
terricola Newm.
 COREUS *Auct.*
crudus Newm.
 PTERONARCYS *Newm.*
regalis Newm.
biloba Newm.
Proteus Newm.
 PERLA *Geoff.*
abnormis Newm.
Xanthenes Newm.
 ISOGENUS *Newm.*
frontalis Newm.
 MANTOIDA *Newm.*
nitida Newm.
 MEROPE *Newm.*
tuber Newm.
 ITHONE *Newm.*
fusca Newm.

DEINOPSIS *Matt.*
fuscatus Matt.
 CENTROGLOSSA *Matt.*
Conuroides Matt.
attenuata Matt.
minuta Matt.
elongata Matt.
brevicornis Matt.
gracilis Matt.
 MEGACRONUS *Sieph.*
elegans Matt.
 MYCETOPORUS *Man.*
brevicornis Matt.
 TACHYPORUS *Grav.*
formosus Matt.
 CYPHA *Kirby.*
biguttata Matt.
 OXYTELUS *Grav.*
biarcuatus Matt.

ALYSIA *Latr.*
 CHASMODON *Hal.*
Aptera Hal.
 ALYSIA *Latr.*
fucicola Hal.
fuscipes Nees ab Ess.
Aurora Hal.
contracta Hal.

Circe Hal.
Manducator Panz.
rufidens Nees ab Ess.
runcator Nees ab Ess.
loripes Hal.
similis Nees ab Ess.
atra Hal.
Mandibulator Nees ab Ess.
fuscipennis Hal.
Tipulæ Scop.
Sophia Hal.
frigida Hal.
incongrua Hal.
Lucia Hal.
Lucicola Hal.
rufinotata Hal.
Ancilla Hal.
gracilicornis Nees ab Ess.
fuliginosa Hal.
Pumilio Nees ab Ess.
angustula, Hal.
Astarte Hal.
maritima Hal.
Nephele Hal.
cephalotes Hal.
pullata Hal.
picinervis Hal.
ruficeps Hal.
Eugenia Hal.
pratellæ Curt.
Eunice Hal.
flavipes Hal.
Nina Hal.
conspureator Hal.
livida Hal.
tabida Nees ab Ess.
Maria Hal.
Galatea Hal.
punctigera Hal.
Florimela Hal.
Apii Curt.
Isabella Hal.
flaviventris Hal.
Perdita Hal.
Speculum Hal.
venusta Hal.
pumila Nees ab Ess.
ruficornis Nees ab Ess.
fulvicornis Hal.
compressa Hal.
concinna Hal.
brevicornis Nees ab Ess.
fuscicornis Hal.
jaculans Hal.
maculipes Hal.
concolor Nees ab Ess.
distracta Nees ad Ess.

ebenus Klug.
nigrita West.
sublævis Beau.
striatus Oliv.
confusus West.
regularis West.
trilobus West.
subcastaneus West.
punctatus Fab.
NIGIDIUS MacL.
cornutus MacL.
lævicollis West.
auriculatus Guer.
integer West.
Bubalus Swed.
DORCUS MacL.
cancroides Oliv.
obtusatus West.

DICHOTOMIUS Hope.
HOLOCEPHALUS Hope.

DIMERASPIS Newm.
podagra Newm.
MYOLEPTA Newm.
luteola Gmel.
PENTHE Newm.
funerea Newm.
SCHIZOTUS Newm.
cervicalis Newm.
POGONOCERUS Fisch.
concolor Newm.
bicolor Newm.
PEDILUS Fisch.
fulvipes Newm.
rufithorax Newm.
imus Newm.
guttula Newm.
lugubris Newm.
MYODES Latr.
stylopides Newm.
EMMESA Newm.
connectens Newm.
HYPULUS Payk.
simulator Newm.
CEPHALOON Newm.
Lepturides Newm.
MACRATRIA Newm.
linearis Newm.
ISCHNOMERA Steph.
carinata Newm.
SYNCHROA Newm.
punctata Newm.
BOLITOPHAGUS Fab.
Silphides Newm.
Tetraopes Newm.
HYDROCERA Newm.
serrata Newm.
Opilus Latr.
castaneus Newm.
DIGRAPHA Newm.
typica Newm.
discrepans Newm.

XIPHODONTUS West.

niger West.

CERATOGNATHUS West.

niger West.

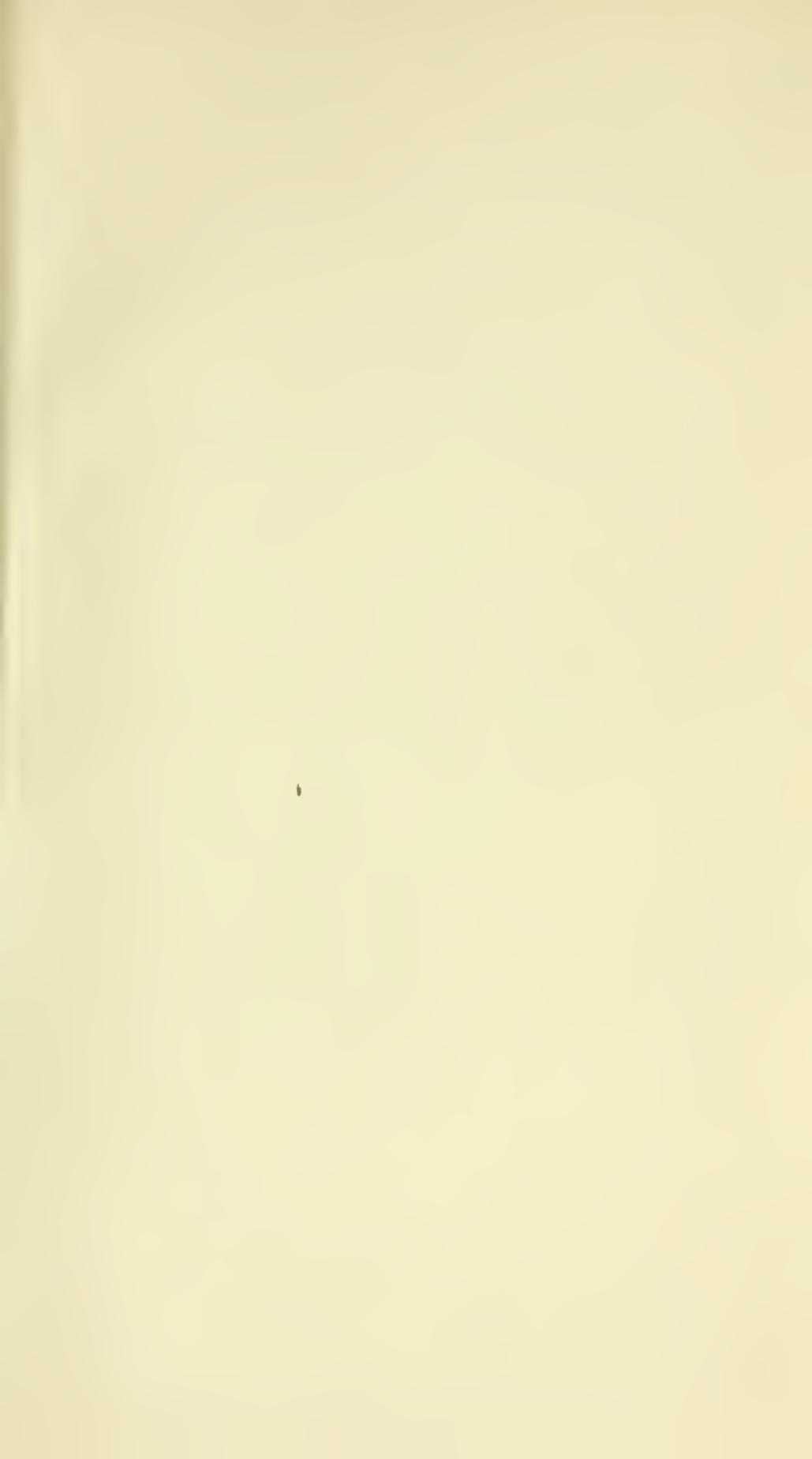
FIGULUS MacL.

rsalis *Newm.*
 risa *Newm.*
 ENIA *Newm.*
 apularis *Newm.*
 ELETES *Newm.*
 ROS *Newm.*
 ræfectus *Newm.*
 ictor *Newm.*
 atus *Newm.*
 litus *Newm.*
 OLLACLASIS *Newm.*
 ata *Newm.*
 HIPICERA *Latr.*
 roserpina *Newm.*
 NICHODON *Newm.*
 rchesides *Newm.*
 ICHEROS *Gory.*
 rvera *Newm.*
 NISOPLIA *Meg.*
 rrientis *Newm.*
 NOMALA *Meg.*
 arginalis *Newm.*
 ECROPHORUS *Fab.*
 colon *Newm.*
 RICHROA *Newm.*
 ERONIA *Latr.*
 rata *Newm.*
 bata *Newm.*
 oliata *Newm.*
 oracina *Newm.*
 onedula *Newm.*
 chrymosa *Newm.*
 cerens *Newm.*
 cipes *Newm.*
 licta *Newm.*
 terfactor *Newm.*
 strata *Newm.*
 ROSCUS *Auct.*
 isalis *Newm.*
 MPHASIA *Newm.*
 lvicollis *Newm.*
 HYMAPHORA *Newm.*
 elchella *Newm.*
 NDOMYCHUS *Weber.*
 rpulcher *Newm.*
 ANGURIA *Latr.*
 acilis *Newm.*
 ISPA *Lin.*
 erene *Newm.*
 aucis *Newm.*
 hilemon *Newm.*
 ONACIA *Fab.*
 ncticornis *Newm.*
 taractæ *Newm.*
 gifrons *Newm.*
 RSODACHNA *Latr.*
 stata *Newm.*
 ficollis *Newm.*
 constans *Newm.*
 NCYCLOPS *Newm.*
 allipes *Newm.*
 TERACANTHA *Newm.*
 sciata *Newm.*

OBRIMUM *Meg.*
 rubrum *Newm.*
 CALLIDIUM *Fab.*
 antennatum *Newm.*
 æreum *Newm.*
 Cylindrides *Newm.*
 CLYTUS *Fab.*
 humeralis *Newm.*
 Apelles *Newm.*
 SAPERDA *Fab.*
 Vitta *Newm.*
 miles *Newm.*
 cretata *Newm.*
 CRIODION *Serv.*
 pictipes *Newm.*
 SPHECOMORPHA *Newm.*
 chalybea *Newm.*
 COLLAPTERYX *Newm.*
 Blapsides *Newm.*
 HECTARTHURUM *Newm.*
 curtipes *Newm.*
 PASSANDRA *Dalm.*
 Columbus *Newm.*
 BRUCHOMORPHA *Newm.*
 oculata *Newm.*
 STILBOPTERYX *Newm.*
 costalis *Newm.*
 DREPANEPTERYX *Leach.*
 binoculus *Newm.*
 CHRYSOPA *Leach.*
 infecta *Newm.*
 CHLOROPERLA *Newm.*
 bifrons *Newm.*
 NEMOURA *Latr.*
 putata *Newm.*
 MANTISPA *Latr.*
 Cora *Newm.*

ENCYRTUS *Dalm.*
 Hithyia *Walk.*
 Thebe *Walk.*
 Dores *Walk.*
 Cypris *Walk.*
 fuscicollis *Dalm.*
 Amathus *Walk.*
 Lambinus *Walk.*
 Caris *Walk.*
 Nadius *Walk.*
 Piso *Walk.*
 Mysus *Walk.*
 Camirus *Walk.*
 Aretas *Walk.*
 Telesto *Walk.*
 Syllæus *Walk.*
 Meon *Walk.*
 Thyra *Walk.*
 Celadus *Walk.*
 Obodas *Walk.*
 Baleus *Walk.*
 Arene *Walk.*
 Fadus *Walk.*
 Sagillus *Walk.*
 ineptus *Dalm.*

- PLATYGASTER *Latr.*
Xeneus Walk.
 PNOSTEMMA *Hal.*
Hispo Walk.
Favo Walk.
Boter Walk.
Europus Walk.
Alaea Walk.
 LENOMUS *Hal.*
Alste Walk.
 ARMINON *Walk.*
Vibius Walk.
Mentes Walk.
-
- SMIERA *Spinola.*
subpunctata Guild.
Pielus Walk.
Teleute Walk.
 CHALCIS *Fab.*
Phya Walk.
Cabira Walk.
 HOCKERIA *De Lap.*
Dexius Walk.
Eracon Walk.
Nyssa Walk.
 CALLIMOME *Spin.*
Daonus
 PTEROMALUS *Swed.*
Heubulus Walk.
 UPELMUS *Dalm.*
Amillarum Walk.
 ENCYRTUS *Dalm.*
dacon Walk.
 ULOPHUS *Geof.*
legalarum Walk.
-
- STICTA *Newm.*
Anthe Newm.
 BRUIDA *Newm.*
Irviceps Newm.
 FLANDRIA *Leach.*
Liata Newm.
finata Newm.
 HYLLOECUS *Newm.*
Fiduus Newm.
 OXYSSUS *Latr.*
terminalis Newm.
 TANYCHILUS *Newm.*
striatus Newm.
lubius Newm.
Cistelides Newm.
gibbicollis Newm.
 MELOLONTHA *Fabr.*
nummicudens Newm.
 TRIMORPHUS *Steph.*
Erro Newm.
 CHLÆNIUS *Bonel.*
fulgiceps Newm.
angustus Newm.
 CACOSCELES *Newm.*
Edipus Newm.
 DISTICHOCERA *Kirb.*
ulvipennis Newm.
- PŒCILOSOMA *Serv.*
semirufum Newm.
metallicum Newm.
 TRACHYDERES *Dalm.*
superbus Newm.
 CĒRAMBYX *Lin.*
Brama Newm.
 PACHYDISSUS *Newm.*
sericus Newm.
 RHINOTRAGUS *Germ.*
puniceus Newm.
anceps Newm.
 PEMPSAMACRA *Newm.*
Tillides Newm.
 RHOPALOPHORA *Serv.*
resplendens Newm.
 TĒNIOTES *Serv.*
lineatus Newm.
 EUSPHÆRIUM *Newm.*
purpureum Newm.
 LAMIA *Fab.*
Sannio Newm.
 PENTATOMA *Oliv.*
fumipennis Newm.
 ISOGENUS *Newm.*
infuscatus Newm.
 CHLOROPERLA *Newm.*
transmarina Newm.
 SIALIS *Latr.*
infumatus Newm.
-
- CERAPTERUS *Swed.*
Iatipes Swed.
Horsfieldii West.
 ORTHOPTERUS *West.*
Smithii MacL.
 ARTHROPTERUS *MacL.*
MacLeaii Dons.
 PHYMATOPTERUS *West.*
piceus West.
 EURAMPHUS *Shuc.*
fasciculatus Shuc.
 TESSAROCERUS *Sand.*
ustulatus Shuc.
productus Shuc.
 STEPHANOPS *Shuc.*
nasutus Shuc.
 MORIMUS *Serv.*
luctuosus Shuc.
 PELECOTOMA *Fisch.*
Fischerii Shuc.
bioculatum Shuc.
 NEPHRITES *Shuc.*
nitidus Shuc.
-
- ENCYRTUS *Dalm.*
Erylus Walk.
 CHELOGYNUS *Hal.*
 ANTEON *Hal.*
 EPYRIS *West.*
niger West.
subcyaneus Hal.





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