INSECTA

BY

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A. *Works in progress.*

L'Abeille. Mémoires d'Entomologie par M. S. A. de Marseul, avec la collaboration de plusieurs membres distingués de la Société Entomologique de France. Tome iv. livr. 2–6 : 1867.

The first two livraisons (published in the year 1867) were reported on almost entirely in the 'Record' for 1866. Allard's monograph of the European *Alticides* is completed in livr. 4 of tome iv.; but the editor there indicates that this memoir, with the monograph of the *Galerucides* s. str. by Joannis, will constitute tome iii. of the 'Abeille,' for which he gives a titlepage. Livraisons 5 & 6 consist entirely of analyses of works published elsewhere, especially in Russia, with reprints of the descriptions of new species. The journals here laid under contribution are the 'Entomologische Zeitung' of Stettin, 1863–1865, the 'Bull. Soc. Nat. de Moscou,' 1862–1865, and the 'Horæ Soc. Ent. Rossicæ,' 1863–1865.

Ratzeburg, I. T. C. Die Waldverderbniss, oder dauernder Schade, welcher durch Insektenfrass, &c., an lebenden Waldbäumen entsteht. Band i. Berlin, 1866, 4to, pp. x & 298; 34 plates.

In this great work, which, as far as the Insecta are concerned, stands to the 'Forstinsekten' much in the same relation as the ledger of a merchant to his journal, Ratzeburg treats of the injury done to forest-trees by the attacks of animals, the subject being arranged under the heads of the different species of trees. The first volume, published in 1866, is devoted to the Coniferæ, the species referred to being *Pinus sylvestris* and *P. abies*. In the introductory chapter a general view is taken of the subject, chiefly as a guide to the forester in watching for the first appearance of mischief.

The species enumerated as inhabiting *Pinus sylvestris* are as follows :—

I. In or on the leaves, flowers, or fruit:—

Tenthredo cingulata, campestris, erythrocephala, pallida*, pini*, pratensis*, rufa, socia*; *Bombyx dispar, monacha*, pini*, pinivora*; *Geometra lituraria, piniaria**; *Noctua piniperda*, quadra*; *Sphinx pinaster*; *Gryllus verrucivorus* &c.; *Chrysomela pinicola*; *Curculio atomarius, coryli, incanus, indigena, mollis, notatus*; *Melolontha fullo, hippocastani, solstitialis, vulgaris*; *Tipula brachyptera, pini.*

II. In or on buds, shoots, or branches:—

*Tinea sylvestrella**; *Tortrix buoliana*, dorsana, duplana, margarotana, pinivorana, resinana, turionana, viburnana*?; *Anobium molle*; *Bostrichus bidens, laricis, pityographus*; *Buprestis* 4-*punctata*; *Curculio carbonarius, notatus, phlegmaticus, pini*, violaceus*; *Hylesinus angustatus, ater, minimus, minor, opacus, piniperda**.

III. In or on the stems:—

Sirex juvencus, spectrum (?); *Bombyx cossus*; *Bostrichus laricis, lichtensteinii, lineatus, stenographus, typographus*; *Curculio piniphilus, notatus*; *Hylesinus minor, palliatus, piniperda.*

IV. In or on the roots:—

Noctua valligera, segetum (?); *Gryllus gryllotalpa, Curculio notatus, pini**; *Hylesinus ater, piniperda**; *Melolontha solstitialis, fullo, vulgaris.*

The list of the enemies of *Pinus abies* is equally formidable. It includes:—

I. In or on leaves, flowers, or fruits:—

Tenthredo abietum, hypotrophica*, &c.; *Bombyx antiqua*, dispar, monacha**; *Geometra piniaria*; *Noctua piniperda, pisi**; *Tinea abietella**; *Tortrix hercyniana*, histrionana*, nanana*, &c., *ratzeburgiana, hartigiana, strobilana*; *Anobium abietinum, abietis*; *Curculio atomarius, mollis*; *Melolontha hippocastani, vulgaris.*

II. In or on buds, shoots, or twigs:—

Tinea abietella, bergiella, judeichella; *Tortrix dorsana**; *Chermes abietis**; *Coccus racemosus*; *Bostrichus abietis, chalcographus*; *Buprestis* 4-*punctata*; *Curculio atomarius, pini, violaceus*; *Hylesinus polygraphus.*

III. In or on the stems:—

Sirex gigas, juvencus, spectrum; *Anobium emarginatum, molle*; *Bostrichus autographus, laricis, lineatus, pityographus, pusillus, typographus*, &c.; *Cerambyx luridus*, &c.; *Curculio gyllenhalii, hercyniæ*; *Hylesinus decumanus, micans, palliatus, polygraphus*, &c.

IV. In or on the roots:—

Gryllus gryllotalpa; *Noctua segetum*, valligera*; *Curculio ater, ovatus, pini*; *Elater marginatus*; *Hylesinus cunicularius*; *Melolontha hippocastani, vulgaris.*

In the above lists the species which receive detailed notice are marked with an asterisk. The plates and numerous woodcuts printed in the text show the effects produced upon the growth of the trees by the attacks of these insects, and of the other enemies of the forests, by means of figures of entire trees in the natural and distorted state, sections of wood, diseased portions, &c. The last plate is a plan of the Glücksburg forest-district, showing the extent and degree of the so-called "Raupenfrass," or the ravages of the *Bombyx*-larvæ.

B. *Separate Works.*

Figuier, L. Les Insectes. 8vo, pp. 616. Paris, 1867.

This appears to be a well-executed popular treatise on insects, and is illustrated by an immense number of woodcuts, generally of very good quality. An English translation of it has lately appeared, under the title of "The Insect World."

Girard, Maurice. Les Métamorphoses des Insectes. Paris, 1867.

This little work, which the Recorder has not seen, contains an account of the transformations of insects and a description of many other points in general entomology. It has been exceedingly popular in France.

Goureau, C. Les Insectes nuisibles à l'Homme, aux animaux et à l'économie domestiques. Paris, 1866, pp. 258.

In this little volume, which appears to be a publication of the Société des Sciences de l'Yonne, Goureau gives a semipopular account of the various insects which are to be regarded as injurious to man himself, to domestic animals, and to manufactured articles, whether of animal or vegetable origin. The author justly remarks that these insects have received less attention than those which affect our cultivated plants; but this is perfectly natural, because, as a general rule, however troublesome they may be, the injury which they do us is of far less importance.

Martens, E. von. Die preussische Expedition nach Ost-Asien. Zoologische Abtheilung, Band i. Berlin, 1865, pp. 192.

This portion of the zoology of the Prussian scientific expedition to Eastern Asia contains general remarks on the zoology of the countries visited, and is of considerable interest as regards the geographical distribution of animals. The insects occupy a comparatively small portion of its contents.

Möller, L. Die Abhängigkeit der Insecten von ihrer Umgebung. Leipzig, 1867, pp. vi & 107.

In this little work (an inaugural dissertation read before the philosophical Faculty of the University of Leipzig) the author brings together a series of valuable observations on the dependence of insects upon surrounding conditions. He indicates the influence of climate upon the distribution of insects, the effects of the nature of the soil upon their well-being (both directly as furnishing more or less favourable places of residence, or breeding-localities, and indirectly as favouring or limiting the growth of certain plants in particular places), the relations between insects and plants, and between them and other animals or animal products, and, finally, the effects of human traffic or industry in modifying the results of natural conditions. In a concluding section Möller briefly sketches the part played by insects in the

œconomy of nature. His observations have been chiefly made in the district of Mühlhausen, of which a geognostic map is appended to this little volume. There does not appear to be any very striking novelty in the author's views; but in the present state of science the subject which he has taken up is one of great importance, and he has done good service by bringing together so much valuable information.

C. *Papers published in Journals &c.*

a. *Descriptive and Zoological.*

Anonymous (N.). Entomologisches von der Pariser Welt-Ausstellung. Horæ Soc. Entom. Rossicæ, tome v. pp. 23–28.

Contains a notice of a few matters interesting to entomologists in the Paris Exhibition of 1867.

Bail, —. Ueber Epidemieen der Insecten durch Pilze. Stettiner entom. Zeitung, 1867, pp. 455–462.

On epidemics of Insects produced by fungi.

Beal, W. J. Agency of Insects in fertilizing Plants. American Naturalist, vol. i. pp. 254–260 & 403–408.

A short account of the observations of Darwin and others upon this subject.

Becker, A. Reise in die Kirgisensteppe, nach Astrachan und an das caspische Meer. Bull. Soc. Nat. de Moscou, xxxix. pt. 2. pp. 163–207.

The contents of this paper are chiefly botanical; but it includes some lists of insects at pp. 202–207.

——. Noch einige Mittheilungen über Astrachaner und Sareptaër Pflanzen und Insekten. Ibid. xl. pt. 1. pp. 104–116.

Bilimek, Dominik. Fauna der Grotte Cacahuamilpa in Mexiko. Verhandl. zool.-bot. Ges. in Wien, Band xvii. pp. 901–908.

Dohrn, Anton. *Eugereon boeckingi* und die Genealogie der Arthropoden. Stettiner entom. Zeitung, 1867, pp. 145–153, pl. 1.

In this paper Dohrn indicates the general characters of *Eugereon boeckingi*, a remarkable fossil insect from the Upper Carboniferous formation. It seems to present characters intermediate between the Pseudo-Neuroptera and the Rhynchota; and from its consideration the author takes occasion to remark upon Häckel's views as to the genealogy of the Arthropoda. The paper is throughout in favour of the Darwinian theory.

Forel, A. Notes sur quelques Insectes nuisibles au Colza dans le Canton de Vaud. Bull. Soc. Vaudoise des Sci. Nat. vol. ix. pp. 72–84: March 1866.

Frauenfeld, G. von. Zoologische Miscellen. XI. Verhandl. zool.-bot. Gesellsch. Wien, xvii. pp. 425–502, pl. 12.

This contains an elaborate memoir on the occurrence of Insects at sea, a notice of the fauna and flora of New Caledonia, with some entomological notes, and descriptions of some new Diptera.

——. Zoologische Miscellen. XII. Ibid. pp. 775–784.

Notices of the larvæ of three species of Coleoptera, a description of a new *Hormomyia*, and a note upon some insects of various orders which appeared in unusual abundance in 1867.

——. Zoologische Miscellen. XIII. Ibid. pp. 793–804.

Notices and descriptions of species of *Aleurodes* and *Thrips*, and of some *Psyllidæ*.

Fritsch, Gustav. Das Insektenleben Süd-Afrika's. Eine biologische Skizze. Berliner entom. Zeitschrift, 1867, pp. 247–277.

Girard, Maurice. Discours prononcé le 9 Janvier en prenant les fonctions de Président de la Société Entomologique de France pour l'année 1867, suivi de Notes et Renseignements, et de la Table des Travaux d'Entomologie appliquée publiés par les Membres de cette Société depuis sa fondation. Annales Soc. Ent. Fr. 4e sér. tome vii. pp. 1–32.

In this address Girard directs attention to the importance of œconomic entomology, and gives a list of all the works relating to this subject published by members of the French Entomological Society, both in its 'Annales' and elsewhere.

Kaltenbach, J. H. Les Insectes Phytophages d'Allemagne, leurs mœurs et leur propagation. Archives Cosmologiques, 1867, pp. 65–80, 131–144, 163–176, 199–208, & 261–281.

This is a translation of the first portion of Kaltenbach's valuable memoir (noticed in 'Record,' 1864, p. 331). It extends only as far as the genus *Anthyllis* in the alphabetically arranged list of plants.

Kawall, J. H. Miscellanea Entomologica. Stettiner entom. Zeitung, 1867, pp. 117–124.

Contains notes on the habits of Insects of various orders (Coleoptera, Lepidoptera, Hymenoptera, Diptera, and Rhynchota).

Kiesenwetter, H. von. Entomologische Beiträge zur Beurtheilung der Darwin'schen Lehre von der Entstehung der Arten. Berliner ent. Zeitschrift, 1867, pp. 327–349.

This is a most interesting argument in favour of the Darwinian hypothesis from an entomological point of view.

Künstler, G. A. Zusammenstellung und Erörterungen über die im Laufe der Jahre 1866 und 1867 eingegangenen Berichte über Land- und Forstwirthschaftsschäden durch

Insecten. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 913–962.

In this memoir Künstler gives an elaborate analysis of the contents of 62 reports on insects injurious to agricultural productions and forest-trees in the Austrian dominions sent in during the years 1866 and 1867. The principal details will be referred to in their proper places.

Laboulbène, A. Sur la Préparation des Insectes de la taille la plus exiguë, et sur la conservation des Collections Entomologiques. Annales Soc. Ent. Fr. 4e série, tome vi. pp. 581–596, pl. 8.

This paper contains some useful hints on the management and preservation of Entomological Collections, and especially on the preparation of minute insects. Some of the processes are illustrated with figures (pl. 8. figs. 10–24).

Löw, Franz. Zoologische Notizen. Zweite serie. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 745–752.

Contains notices of species of *Aleurodes, Heliothrips, Lyda, Cicindela,* and *Meloë,* and notes on the inhabitants of Swallows' nests, and on winter Insects.

Packard, A. S. On certain Entomological Speculations. A Review. Proc. Ent. Soc. Philad. vi. pp. 209–218: 1867.

In opposition to a paper by B. D. Walsh bearing the same title (see 'Record,' 1864, p. 332).

——. Insects and their Allies. Amer. Naturalist, i. pp. 73–84.

A popular account of the general structure and development of insects contrasted with other groups of Arthropoda.

Perty, M. Einige Insekten-Missbildungen. Mittheil. naturf. Gesellsch. in Bern, 1867, pp. 298–309, with a plate.

Contains notices of monstrosities of various insects, chiefly Beetles; several are figured in the accompanying plate.

Spruce, R. Notes on some Insect- and other Migrations observed in Equatorial America. Journ. Linn. Soc. ix. pp. 346–367.

This paper contains some general remarks on the physical characters and vegetation of the Amazon valley, with observations on some migrations of Insects observed by the author. These observations relate almost exclusively to Butterflies and Ants.

Villa, Antonio. Riflessioni sugli Insetti, e nuove osservazioni sui medesimi durante l'eclisse del 6 Marzo 1867. Atti Soc. Ital. Sci. Nat. vol. x. pp. 155–162.

Notice of the behaviour of Insects of various kinds during the solar eclipse of 6th March 1867.

Wallace, A. R. Mimicry and other protective Resemblances

among animals. Westminster Review, New Series, vol. xxxii. pp. 1–43.

In this admirable memoir the author brings together an immense number of facts demonstrating the occurrence of mimetic resemblances in animals of various groups either to each other or to other natural objects. The entomological portion of this evidence is by far the strongest and most interesting; but, from the brevity with which it is put forward, no satisfactory analysis of the author's statements is possible here. In most cases the author regards the resemblances described by him as serving for the protection of the Insects; and the whole subject is, of course, treated from a Darwinian point of view.

Walsh, B. D. On the Insects, Coleopterous, Hymenopterous, and Dipterous, inhabiting the Galls of certain species of Willow. Proc. Ent. Soc. Philad. vol. vi. pp. 223–288: 1866–1867.

This paper contains descriptions of numerous new species, and remarks upon various points in the structure of Insects.

b. *Anatomical and Physiological.*

Dujardin, F. Mémoire sur les yeux simples ou stemmates des Animaux articulés. Annales Sci. Nat. 5^{me} sér. tome vii. pp. 104–112.

Landois, H. Die Ton- und Stimmapparate der Insecten in anatomisch-physiologischer und akustischer Beziehung. Zeitschrift für wiss. Zoologie, Band xvii. pp. 105–184, pls. 10, 11.

An elaborate memoir on the sounds emitted by Insects of various orders, and on the means by which they are produced. Brief notices of the species referred to will be given under the separate orders.

Landois, H., & Thelen, W. Der Tracheenverschluss bei den Insecten. Ibid. pp. 187–214, pl. 12.

A description of the means by which the tracheæ of Insects are closed. The apparatus consists in general, according to the authors, of the following parts:—A chitinous bow occupying and extending one side of the trachea, a chitinous band occupying the other side, and one or more cones or levers appended to the latter, and acted upon by a muscle in such a way as to press the band towards the bow. The authors also notice the effects of partially stopping the access of air to the tracheæ. The apparatus above mentioned is described in various forms as presented by Insects of different orders, and is figured from the following species:—*Meloë proscarabæus, Melolontha vulgaris, Hydrophilus piceus, Lamia textor, Lucanus cervus, Pieris rapæ,*

Vanessa urticæ, Bombus terrestris, Musca vomitoria, Pulex canis, Pentatoma baccarum, and *Periplaneta orientalis.*

Leydig, F. Der Eierstoek und die Samentasche der Insecten. Zugleich ein Beitrag zur Lehre von der Befruehtung. Nova Aeta Acad. Nat. Cur. xxxiii. pp. 88, pls. 5: 1866.

The ovary and seminal receptacle in Insects. Likewise a contribution to the theory of fecundation.

Plateau, F. Sur la force museulaire des Inseetes. See Arch. Cosmol. 1867, pp. 88–95.

Schultze, Max. Ueber die Endorgane des Sehnerven im Auge der Gliederthiere. Archiv für mikr. Anat. Band iii. pp. 404–408.

Martens (Preuss. Exp. n. Ost-Asien) indicates the general entomological results of the Prussian expedition. He notices the general character of the insects of Madeira (pp. 11, 12), remarks briefly upon the habits of *Halobates* (p. 32), indicates some of the more remarkable features of the insect-fauna of Rio Janeiro (p. 36), and dwells at somewhat greater length upon the entomology of Japan (pp. 128, 129). In the latter country he noticed the European *Vanessa atalanta.* The most abundant Butterflies were species of *Pieris, Colias,* and *Lycæna.* The Japanese names for Butterflies and their larvæ are mentioned. Martens also notiees the *Cicadæ* and Orthoptera, whieh are numerous; for the latter the Japanese have several distinetive names. The Coleoptera were not so noticeable; but the Japanese books eontain many figures of these insects, with distinctive names. The notices of insects of other orders are very brief. In a further notice of Japanese insects (pp. 135–137) Martens notiees some of those which are injurious or troublesome to the human inhabitants, of which he gives the Japanese names. The useful inseets of Japan are the Silkworms, of which the author notices the existence of 2 speeies, but he had no opportunity of observing their eultivation.

Morawitz (Horæ Soc. Ent. Ross. iii. pp. 42–48) discusses the rules to be observed in forming names from the names of persons. The question, as he puts it, is as to whether the genitive termination should be in *i* or in *ii,* the former having been adopted by him and objected to by Schaum as contrary to the spirit of the Latin language. Kraatz and Kiesenwetter have also expressed a similar opinion. Morawitz quotes from Zumpt to show that, in the best period of Latinity, nouns ending in *ius* and *ium* formed the genitive in *i,* at least with the poets, and that it is very probable that, even where written *ii,* they were pronounced *i.* As a general rule, the question seems to be of little consequence, euphony being the main object to be attained in the ormation of the genitive, at the same time that, as Morawitz justly points

out, it is essential that the whole name of the person in whose honour the species is named should be retained in its original spelling. This would be masked by a strict latinization of the name, as Morawitz has indicated by describing a species of *Akis* in honour of Kraatz, under the name of *A. cratii*, whilst at the same time he states that he shall place it in his collection as *A. kraatzi*. This applies also, as a general rule, to names which, from their terminations, are declinable as Latin words, but, curiously enough, not to the name originally objected to by Schaum, namely, *wulffiusi*, which is manifestly wrong. The termination *ius* here is evidently a latinization inherited from some learned ancestor, and must be treated accordingly. Morawitz points out the absurdity of declining some names which he cites, especially showing how from Tatum we might make *tati*; and the same thing has actually been done by an American entomologist, who describes a species of *Cermatia* under the name of *C. linceci*, thus ascribing a neuter gender to Dr. Lincecum by way of conferring honour upon him.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 425–464) publishes an elaborate note upon "Das Insektenleben zur See," giving a list of species captured at sea or on board the 'Novara' during her voyage round the world, arranged in systematic order and in a tabular form, showing the sections of the passage in which the different species were noticed, and the number of specimens observed of each form. This list is followed by a series of notes upon the species, which includes descriptions of some new forms. The number of species is about 180; they include examples of all the orders. Frauenfeld remarks that, from the consideration of the mode of occurrence of these Insects on board ship, we may arrange them under three categories:—1. *Voluntary wanderers*, which occasionally visit a ship when they fall in with it; 2. *Involuntary wanderers*, which are accidentally brought on board and remain in the ship for a longer or shorter time; and, 3. Actual inhabitants of the ship and its cargo. The second of these categories includes the greatest number of species, as, indeed, it is possible that almost any insect may be accidentally carried away on shipboard. The true insect inhabitants of ships known to Frauenfeld are only *Blatta americana* and its parasite *Evania appendigaster*. This paper is of importance in connexion with the interesting question of the dissemination of species by means of commerce.

G. Fritsch (Berl. ent. Zeitschr. 1867, pp. 247–277) records his general observations on the Insect-fauna of South Africa. He remarks that the Spiders, Orthoptera, and Ants (true Ants and Termites) constitute the most striking representatives of the Arthropoda in that part of the world, and that the Lepidoptera and Coleoptera occupy only a second rank. His general observations are illustrated by a multitude of details upon Insects of various orders, but these are for the most part too cursorily treated to allow of any special analysis.

F. Löw (Verh. zool.-bot. Ges. in Wien xvii. pp. 749–751) publishes a note

on the Insects found in the last year's nests of Swallows (*Hirundo rustica* and *Chelidon urbica*) in Carinthia. The most remarkable portions of these contents consisted of a great number of pupæ of small Muscidæ mostly empty or occupied by a parasitic Chalcidite, numerous pupæ of *Ornithomyia avicularia* (Latr.), and in one nest (of *H. rustica*) from 160 to 180 specimens of *Pulex hirundinis* (Kohl) generally *in copulâ*. A young specimen of *Acanthia lectularia* occurred in one nest, but nothing that could be interpreted as *A. hirundinis*.

F. Löw publishes (Verh. zool.-bot. Ges. in Wien, xvii. pp. 751–752) a note on the species of Insects found on the snow in Carinthia (elevation 2700–3400 feet) by R. Kaiser, in the winters of 1858, 1861, and 1862. The number of species is small, but they included a new *Homalota* (*H. glacialis*, Mill.); 2 species of *Nabis* occurred, and *Achorutes murorum* in great quantities.

Peteau and Sélys-Longchamps remark upon the European facies of the fauna of Chili, in connexion with some observations made on this subject by Fauvel (see Record, 1866, p. 310). Ann. Soc. Ent. Belg. x., Comptes Rendus, p. x.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. p. 485) notices the statements of Deplanche and Vieillard as to the Insects of New Caledonia. The information is very meagre.

Becker (Bull. Soc. Nat. Mosc. xxxix. 2. pp. 202–207, and xl. 1. pp. 106–116) publishes lists of the species of Insects observed by him near Astrachan and Sarepta, on the Kirghis Steppes, and on the island of Birutschi.

J. Milde, in a paper on the animals of Meran (Jahres-Bericht der Schles. Ges. vaterl. Cultur, xliv. pp. 57–58), gives a brief notice of some of the Insects of the neighbourhood of that place.

Bellier de la Chavignerie remarks on the general results of an entomological excursion to the environs of Florence. Bull. Soc. Ent. Fr. 1867, p. lxxxiv.

A. S. Packard has published in the American Naturalist (i. pp. 110–111, 162–164, 220–224, 277–279, 327–329, 391–392) a series of articles on the Insects occurring in the Eastern States at various periods of the year. The later portions are particularly devoted to injurious Insects.

Bilimek has described the fauna of the Cave of Cacahuamilpa in Mexico, including several new species of Insects belonging to various orders. The only species described as blind is a *Lepisma*. Verh. zool.-bot. Ges. in Wien, xvii. pp. 901–905.

Wallace discusses the question of the purpose and origin of the brilliant colouring of many larvæ, especially of Lepidoptera, and suggests that those which present bright colours may be distasteful to birds, and easily recognized by their striking appearance. Pascoe, Weir, M'Lachlan, and Bates remarked upon points connected with this question, the last-named entomologist suggesting the inquiry whether brightly coloured larvæ were subject or not to the attacks of Ichneumonidæ. Proc. Ent. Soc. 1867, pp. lxxx–lxxxi. See also *l. c.* p. lxxxv. See also, on the question whether difference of colour in larvæ indicates difference of sex, a discussion by Westwood, Smith, Stainton, and Bond, *l. c.* p. xci.

Becker (*l. c.* p. 114) discusses the question of the sensibility of Insects to the passing of a pin through them. He describes a *Malachius æneus*, when

pinned, as continuing for a quarter of an hour to feed upon a *Dasytes ater*. He infers that the pain experienced must be very slight.

Hildebrand states that the intervention of Insects is necessary for the fecundation of *Corydalis cava*. International Botan. Congr. London, 1866; Arch. Cosmol. 1867, pp. 197–198.

Bail (Stett. ent. Zeit. 1867, pp. 455–462) gives an account of his observations on epidemic diseases produced in Insects by the growth of parasitic fungi, instancing particularly an epidemic of the common *Scatophaga stercoraria* about Danzig in 1866, and another which attacked various Caterpillars. His observations are published in full in the 'Osterprogramm der Realschule zu St. Johann in Danzig;' and he remarks upon the importance of the study of the conditions of these diseases, as possibly throwing light upon the causes of epidemics in Man and the higher animals.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 783–784) notices certain Insects of various orders which made their appearance in unusual abundance in 1867. The Insects noticed, besides *Meligethes æneus* and *Anisoplia austriaca*, are 3 species of Sawflies and *Pontia brassicæ*.

Künstler publishes (Verh. zool.-bot. Ges. in Wien, xvii. pp. 913–962) an elaborate report on injurious Insects of various orders observed in different parts of the Austrian empire in 1866 and 1867. The following statement (*l. c.* p. 914) shows the plants injured and the Insects observed upon them:—

Cereals:—*Zabrus gibbus, Anisoplia austriaca, Oxythyrea stictica, Agriotes segetis, Malachius æneus, Omophlus lepturoides, Sitophilus granarius, Caloptenus italicus, Orthopteron* sp., *Chlorops strigula, Chironomus stercorariis, Agrotis segetum.*

Pulse:—*Oxythyrea stictica.*

Coleworts:—*Athalia spinarum.*

Rape:—*Meligethes æneus, Athalia spinarum.*

Flax:—*Athalia spinarum, Plusia gamma.*

Vines:—*Otiorhynchus ligustici.*

Fruit trees:—*Cheimatobia brumata, Hibernia defoliaria, Amphidasys pomonaria.*

Meadows:—*Penthophora morio.*

Pines:—*Gastropacha pini.*

Leveillé mentions a case of serious injury, including paralysis of one side, supposed to be caused by the bite of an Insect, probably a Beetle. Bull. Soc. Ent. Fr. 1867, p. lxxviii.

A. Forel (Bull. Soc. Vaud. Sci. Nat. ix. pp. 72–84) has given a notice of the Insects attacking the Colza plant in the Canton de Vaud, indicating them successively in order of the vegetation of the plant. The first are the *Alticæ* (*oleracea, rapæ, nemorum, nigro-æneа, exoleta, brassicæ*, and *atricilla*), followed by *Athalia centifoliæ*, which reappears in August and September. In October and November the larvæ of *Baridius cærulescens* are to be found in excrescences upon the collar of the plant; and the characters of these larvæ are described by the author. They quit the plant in April and May, to become pupæ in the ground. *Meligethes viridescens, æneus*, and *lumbaris*, and *Epurea æstiva* attack the parts of fructification. *Cetonia hirta* is also mentioned by the author in a note as occasionally injurious. The fruit, when formed, is attacked by the larvæ of *Ceuthorhynchus napi* and *syrites*, *Ypso-*

lophus xylostei (Fab.), and *Cecidomyia brassicæ* (Winn.). The last is checked by 2 species of *Platygaster*, *P. boscii* and *P. niger*? (Nees).

Taschenberg criticises the processes recommended by Kreuzberg for the destruction of injurious Insects. The use of sulphurous and muriatic acids in vapour are rejected as themselves injurious to vegetation. The employment of carbon is expensive; and the smoke of coal-tar, recommended for the removal of the Cockchafer, would be troublesome to the neighbours. Zeitschr. ges. Naturw. xxvii. pp. 458–459.

E. S. Morse describes a new method of fitting up boxes for Insects. He uses instead of cork two sheets of stout paper stretched upon a frame. Amer. Nat. i. p. 156.

D. Sharp discusses the question of variation in Insects, and attempts to define the three generally admitted kinds of variation, namely, "races, varieties, and aberrations." Ent. M. Mag. iv. pp. 70, 71.

J. W. Dunning discusses the question of the admissibility to the right of priority of the names of species described in works privately printed and not published, with especial reference to the Australian Buprestidæ described in a pamphlet of this kind by F. W. Hope, the names given in which have been adopted by E. Saunders, to the suppression of those attached to the same insects by later authors. Dunning maintains that printing for private distribution cannot be regarded as equivalent to publication. The opposite side of the argument is taken by Westwood; but Dunning's is supported by several other entomologists. Proc. Ent. Soc. 1867, pp. cix, cx.

COLEOPTERA.

A. *Works in progress.*

Harold, E. von. Coleopterologische Hefte. I. & II. Munich, 1867.

Under this title Von Harold has commenced a journal to be devoted exclusively to Coleoptera, and to appear at irregular intervals. Two parts were published in 1867. The editor promises a general catalogue of Coleoptera.

Schaum, H., & Kiesenwetter, H. von. Naturgeschichte der Insecten Deutschlands. Erste Abtheilung, Coleoptera; Band i. Zweite Hälfte; Lieferung 1. Berlin, 1868 (published in 1867), pp. 144.

The second part of the first volume of this admirable work has been commenced as above indicated. It contains the *Dyticidæ* and *Gyrinidæ*, the former to a great extent worked up by the late Dr. Schaum before his last illness, and completed by Kiesenwetter; the latter entirely Kiesenwetter's work.

Parfitt, E. Natural History of Devon. Part 2. Coleoptera. Exeter, 1867.

This work, which is a catalogue of the Coleoptera of Devonshire, includes about 1000 species. The Recorder has not seen it. In the Ent. Monthly Mag. it is said to be full of errors.

Physis, Recueil d'Histoire Naturelle par M. James Thomson. Première Partie. Paris: 1st August 1867.

Under this title J. Thomson has commenced a publication which, it may be presumed, will be chiefly devoted to the reception of his memoirs on Coleoptera. It will be published at irregular intervals. The first part contains two papers on Longicorn Beetles and the description of a species of *Chelonarium*.

Thomson, C. G. Skandinaviens Coleoptera. Tom. viii. pp. 409 & lxxv (1866), and tom. ix. pp. 407 (1867).

The eighth volume of this excellent work forms really the conclusion of the original design of the author, including the description of the Scandinavian Longicornia, Phytophaga, and Aphidiphaga, together with a complete systematic index to the eight volumes. The ninth volume constitutes a supplement to the first half of the work, containing, besides remarks on species and genera, a series of synoptical tables of the entire classification. In these, which are entirely in Latin, the whole of the families, tribes, genera, and species are tabulated, the tables of the species consisting for the most part of the characters of generic subdivisions adopted in the body of the work, but brought together here in a manner which will assist greatly in making use of the latter. This volume includes the characters of various genera and species detected in Scandinavia since the publication of the first four volumes; some of these are described as new.

B. *Separate Works.*

Ferrari, Count J. A. Die forst- und baumzucht-schädlichen Borkenkäfer (*Tomicides*, Lac.) aus der Familie der Holzverderber (*Scolytides*, Lac.), mit besonderer Berücksichtigung vorzüglich der Europäischen Formen, und der Sammlung des k.-k. Zoologischen Kabinetes in Wien. Vienna, 1867, pp. 96.

The nature of this work is sufficiently indicated by its title. Its contents will be analyzed in their proper place.

Fermouze, Armand. De la Cantharide officinale, *Cantharis vesicatoria*. Thèse de Pharmacie soutenue le 20 Juillet 1867. 4to, pp. 53, with 5 plates.

This thesis, which the Recorder has not seen, is noticed by Guérin in his 'Revue et Magasin de Zoologie,' 1867, p. 452.

Silbermann, —, & Wencker, —. Catalogue des Coléoptères de l'Alsace et des Voges. (Strasbourg), 1866.

The Recorder has not seen this work, which contains descriptions of some new species referred to by Von Heyden, Berl. ent. Zeitschrift, 1867, pp. 379 *et seq.*

Wollaston, T. V. Coleoptera Hesperidum, being an enume-

ration of the Coleopterous Insects of the Cape Verde Archipelago. London, Van Voorst, 1867, pp. xxxix and 285.

In this work Wollaston has worthily continued his researches upon the Coleopterous fauna of the Atlantic islands, and brought out, from a rather more imperfect material than that at his command in treating of the Canarian and Madeiran Archipelagos, some very interesting results. The subject is treated in the same way as in his 'Coleoptera Atlantidum,' and summed up in a similar manner, with a table of geographical distribution. An appendix contains a few additions to the 'Coleoptera Atlantidum.'

C. *Papers published in Journals &c.*

* *Descriptive.*

Abeille de Perrin. Notes Entomologiques. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 65–71.

Allard, Ernest. Monographie des Alticides, Tribu de la Famille des Phytophages. (Conclusion.) L'Abeille, tome iii. pp. 418–508: 1867.

Aubé, C. Note sur l'*Hydroporus opatrinus*, Germ. et ses congénères. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 256-258: October 15, 1867.

Baly, J. S. New Genera and Species of Gallerucidæ. Trans. Ent. Soc. London, 3rd series, vol. ii. pp. 471–478 : 1866.

——. *Phytophaga Malayana*; a Revision of the Phytophagous Beetles of the Malay Archipelago, with descriptions of the New Species collected by Mr. A. R. Wallace. (Continued.) Trans. Ent. Soc. London, 3rd series, vol. iv. pp. 77–300, plates 4–5*: August 1867.

This portion contains the *Eumolpidæ* and *Chrysomelidæ*.

Bates, H. W. New Genera of Longicorn Coleoptera from the River Amazons. Ent. Monthly Mag. vol. iv. pp. 22–28: June and July 1867.

——. New Species of Insects from the Province of Canterbury, New Zealand, collected by R. W. Fereday, Esq. Ent. Monthly Mag. vol. iv. pp. 52–56 & 78–80: August and September 1867.

All Coleoptera, except a species of *Chrysophanus*.

Becker, J. F. von. Om lysorganet hos *Lampyris splendidula*. Œfvers. af Finska Vet.-Soc. Förhandl. viii. pp. 15–21. [On the luminous organ of *Lamp. splendidula*.]

Bertolini, S. de. I Carabici del Trentino ordinati in Sistema. Atti Istit. Veneto, tom. xii. pp. 751–819.

A list of the *Cicindelidæ* and *Carabidæ* of the district of Trent, with synonyms and remarks on distribution &c.

Bethe, —. Zwei neue deutsche Staphylinen. Stettiner entom. Zeitung, 1867, pp. 307–309.

Bischoff-Ehinger, A. Entomologische Reise von Vogogna nach Macugnaga und dem Monte Moro nach Saas. Mittheil. schweiz. entom. Gesellsch. Band ii. pp. 193–215.

An interesting account of the routes followed, with a tabulated list of species of Coleoptera new to the fauna of the district.

Blanchard, E. Remarks on M. Reiset's paper on the Cockchafer. Comptes Rendus, lxv. p. 1138.

Brendel, Emil. Descriptions of some new species of Pselaphidæ. Proc. Ent. Soc. Philad. vol. vi. pp. 189–194.

Brisout de Barneville, H. Nouveau tableau des *Acalles* avec la description de deux nouvelles espèces et celle de l'*Orchestes quedenfeltii*, Gerhard. Annales Soc. Ent. France, 4e série, tome vii. pp. 57–64.

Capiomont, G. Révision de la Tribu des *Hypérides*, Lacordaire, et en particulier des Genres *Hypera*, Germ., *Limobius*, Schönh., et *Coniatus* (Germ.), Schönh., renfermant la description de plusieurs genres nouveaux et de 85 espèces nouvelles. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 417–456, plates 11 and 12 (December 11, 1867, & April 1868).

Castelnau, Count F. de. Notes on Australian Coleoptera. Trans. Roy. Soc. Victoria, vol. viii. pp. 30–38: 1867.

Relates to *Cicindelidæ*.

——. Note sur un nouveau genre de Dynastide (*Alcidosoma*). Revue et Magasin de Zoologie, 1867, pp. 113–115.

Chaudoir, — de. Descriptions de Carabiques nouveaux. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 259–262: October 15, 1867.

Chevreul, —. Remarks on M. Blanchard's observations, and on M. Reiset's paper on the Cockchafer. Comptes Rendus, lxv. pp. 1138–1140.

Chevrolat, Auguste. Coléoptères de l'île de Cuba. (Suite.) 7me Mémoire. Annales Soc. Entom. de France, 4e série, tome vii. pp. 571–616: April 1868.

Contains the revision of the Cuban species of Buprestidæ, Throscidæ, Eucnemidæ, and Elateridæ.

Cornelius, C. Entwickelungs-Geschichte der *Galleruca calmariensis*, Linné, *G. lythri*, Gyll. Stettiner entom. Zeitung, 1867, pp. 213–214.

——. Zur Naturgeschichte des *Lucanus cervus*, Linné. Stettiner entom. Zeitung, 1867, pp. 435–437.

Cotty, Ernest. Relation de quelques chasses de Coléoptères

rares d'Algérie. Mém. Soc. Linn. du Nord de la France, 1866, pp. 158–179 : 1867.

Crotch, G. R., & Sharp, D. Additions to the Catalogue of British Coleoptera, with descriptions of New Species. Trans. Ent. Soc. London, 3rd series, vol. v. pp. 435–451 : May 1867.

This is the paper referred to in 'Record,' 1866, p. 278.

Crotch, G. R. On the Coleoptera of the Azores. Proc. Zoological Society, 1867, pp. 359–391, plate 23.

In this paper Crotch has treated the Azorean Coleoptera somewhat in the same way that Wollaston has done with those of the more southern groups of Atlantic islands. His general results will be noticed below.

Desbrochers des Loges, —. Description d'un *Apion* nouveau suivie de la diagnose de plusieurs autres espèces du même genre. Mittheil. schweiz. entom. Gesellsch. Band ii. pp. 216–218 : February 1867.

Deyrolle, Achille. Monographie de la Tribu des Zophosites. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 73–248, pls. 1–4 : October 15, 1867.

A posthumous memoir, edited by E. Deyrolle.

Dohrn, C. A. Gratias. Stettiner entom. Zeitung, 1867, pp. 437–445.

Contains remarks on the synonymy of some Longicornia.

Eichhoff, W. Neue amerikanische Borkenkäfer-Gattungen und Arten. Berliner entom. Zeitschrift, 1867, pp. 399–402.

——. Neue südeuropäische Borkenkäfer. Ibid. pp. 403–404.

Eichhoff, W. (See Kraatz.)

Fairmaire, Léon. Descriptions de six nouvelles espèces du genre *Ichthyurus* (*Théléphorides*). Stettiner entom. Zeitung, 1867, pp. 114–117.

——. Essai sur les Coléoptères de Barbarie. Cinquième partie. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 387–416 : December 11, 1867.

——. Révision des Coléoptères du Chili. (Suite.) Ibid. pp. 617–630 : April 1868.

Contains a list of the Chilian Buprestidæ with descriptions of several new species.

Ferrari, J. A. Nachträge, Berichtigungen und Aufklärungen über zweifelhaft gebliebene Arten in "Die forst- und baumzucht-schädlichen Borkenkäfer." Coleopt. Hefte, ii. pp. 104–115.

This paper contains some corrections and additional remarks upon the author's work on the Tomicides.

Frauenfeld, G. von. Ueber die diessjährigen Verwüstungen des Rapsglanzkäfers in Böhmen und Mähren. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 561–564.

——. (See "Insecta.")

Gautier des Cottes, —. Des Catalogues en général et du dernier "Catalogue des Coléoptères du Bassin Méditerranéen et des lieux adjacents par M. l'Abbé de Marseul" en particulier. Mittheil. schweiz. entom. Gesellsch. Band ii. pp. 158–162: November 1866.

——. Suite de mon Travail précédent sur le genre *Calathus* devant servir de Préface à la Monographie du dit genre. Ibid. pp. 163–169 (November 1866), and pp. 187–193 (February 1867).

In continuation of a former paper (see 'Record,' 1866, p. 283). This paper contains notes upon several known and descriptions of some new species.

——. Monographie du genre *Calathus*. Ibid. pp. 235–260 (August 1867), and 261–286 (October 1867).

A monograph of the species of *Calathus* inhabiting Europe and the basin of the Mediterranean.

Gerhardt, J. (See Kraatz.)

Gernet, C. von. Beiträge zur Käferlarvenkunde. Erster Beitrag. Horæ Soc. Entom. Rossicæ, tome v. pp. 7–22, pls. 1 & 2: 1867.

Gerstaecker, A. Beitrag zur Insekten-Fauna von Zanzibar, nach dem während der Expedition des Baron v. d. Decken gesammelten Material zusammengestellt. Archiv für Naturg. 1867, pp. 1–49.

——. Bemerkungen über einige Paussiden. Stettiner entom. Zeitung, 1867, pp. 429–434.

Girard, M. Sur l'emploi des poulaillers roulants pour combattre les ravages des larves de Hannetons. Ann. Soc. Ent. France, 4e série, tom. vi. pp. 571–576.

Harold, E. von. Zur Kenntniss der Gattung *Canthidium* und ihrer nächsten Verwandten. Coleopt. Hefte, i. pp. 1–61: March 1867.

——. Zur Synonymie zweier *Gymnopleurus*-Arten. Ibid. pp. 73–75.

——. Diagnosen neuer Coprophagen. Ibid. pp. 76–83.

——. Die Arten der Gattung *Caccobius*. Ibid. ii. pp. 1–16.

——. Beiträge zur Kenntniss der Gattung *Onthophagus*. Ibid. pp. 23–59: 1867.

HAROLD, E. VON. Nachtrag zur Bearbeitung der Gattung *Canthidium*. Coleopt. Hefte, ii. pp. 60–93.
Includes descriptions of many new species.

——. Diagnosen neuer Coprophagen. Ibid. pp. 94–100: 1867.

——. Notiz über einige Germar'sche Typen. Berliner entom. Zeitschrift, 1867, p. 244.
Synonymic remarks on some *Coprides* described by Germar.

——. Die chilensischen Aphodiden. Ibid. pp. 278–282.

HEYDEN, L. VON. Exotische Xenos-Arten. Berliner entom. Zeitschr. 1867, p. 398.

——. (See KRAATZ.)

HORN, G. H. Notes on the Habits of a few California Coleoptera. Proc. Ent. Soc. Phil. vol. vi. pp. 289–293.

——. Description of a new *Pseudomorpha* from California, with notes on the *Pseudomorphidæ*. Trans. Amer. Entom. Soc. vol. i. pp. 151–154: August 1867.

——. On *Amphizoa insolens*, Leconte. Ibid. pp. 154–158: August 1867.

——. Notes on the *Zopheri* of the United States. Ibid. pp. 159–162: August 1867.

——. Descriptions of new genera and species of Western Scarabæidæ, with notes on others already known. Ibid. pp. 163–169: August 1867.

KIESENWETTER, H. VON. Beiträge zur Käferfauna Spaniens. (Zweites Stück.) *Melyridæ* (Fortsetzung), *Ptinidæ*. Berliner ent. Zeitschrift, 1867, pp. 109–134, taf. 2. (See 'Record,' 1866, p. 284.)
In this portion Kiesenwetter gives the results of his investigations of the Spanish *Dasytini* and *Ptinidæ*. It is followed (*l. c.* p. 135) by a note on *Ptinus coarcticollis* (Sturm).

——. Revision der Dasytidengattung *Dolichosoma*. Ibid. pp. 136–140.

KIRSCH, THEODOR. Beiträge zur Käferfauna von Bogotá. Drittes Stück. (See 'Record,' 1865 and 1866.) Berliner entom. Zeitschrift, 1867, pp. 215–243.
Contains descriptions of *Brenthidæ* and Adelognathous *Curculionidæ*.

KRAATZ, G. Beiträge zur Kenntniss der deutschen Käferfauna. Erstes bis fünftes Stück. Berliner entom. Zeitschrift, 1867, pp. 375–393.
These papers consist of synonymic materials obtained by Kraatz from various German entomologists preparatory to the formation of a Catalogue of German Beetles. The contributions in the portion here published are by L. von Heyden (pp. 377–

383), Kraatz himself (pp. 384–388), Scriba (pp. 389, 390), Eichhoff (p. 391), and J. Gerhardt (pp. 392, 393).

Künstler, G. A. (See "Insecta.")

Lacordaire. (See Roelofs.)

Leconte, John L. On the systematic value of Rhynchophorous Coleoptera. Reprinted in Ann. & Mag. N. H. 3rd ser. xx. pp. 291–294.

Letzner, K. Ueber *Coccinella* (*Adalia*, Muls.) *undecimnotata*, Schneid. und ihre Stände. Jahres-Bericht. schles. Ges. vaterl. Cultur, xliv. pp. 161–169.

Mäklin, F. W. Om Strepsiptera och deras förekommande i Finland. Œfvers. af Finska Vet.-Soc. Förhandl. viii. pp. 84–92. [On the Strepsiptera and their occurrence in Finland.]

——. Monographie der Gattung *Strongylium*, Kirby, Lacordaire, und der damit zunächst verwandten Formen. Acta Soc. Sci. Fennicæ, Tomus viii. pp. 217–518, plates 1–4: 1867.

This paper contains a monograph of the genus *Strongylium* and of some of the allied genera.

Marmottan, —. Excursion Entomologique annuelle dans les Vosges et L'Alsace en 1866. Annales Soc. Ent. de France, 4e série, tome vii. pp. 669–680.

An account of an excursion into Alsace and the Vosges at the end of June 1866, relating chiefly to captures of Coleoptera, with notices of a few Lepidoptera.

Marseul, S. A. de. Description d'espèces nouvelles de Buprestides, et d'un Histéride du genre *Carcinops*. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 47–56: June 12, 1867.

Miller, L. Ein Beitrag zur unterirdischen Käferfauna. *Adelops croaticus*, n. sp. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 551–552.

Morawitz, A. Ueber die in Russland und den angränzenden Ländern vorkommenden *Akis*-Arten. Horæ Soc. Entom. Rossicæ, tome iii. pp. 3–48.

This paper includes a discussion of the rules which should be adopted in the formation of personal specific names (see p. 202).

Motschulsky, V. Enumeration des espèces de Coléoptères rapportées de ses Voyages. 5e article. Bull. Soc. Nat. de Moscou, tome xxxix. part 2. pp. 225–290, pl. 6, and tome xl. part 1. pp. 39–103.

A synopsis of the *Latridii*, with diagnoses of the known species and descriptions of new ones. Of the 30 figures contained in the plate, only the first eleven are referred to in the text.

Murray, Andrew. List of Coleoptera received from Old Calabar, on the west coast of Africa. Annals & Mag. Nat. Hist. 3rd ser. vol. xix. pp. 167–180, 334–340, and vol. xx. pp. 20–23, 83–95, & 314–323.

Pascoe, F. P. Characters of some new genera of the Coleopterous family *Cerambycidæ*. Annals & Mag. Nat. Hist. 3rd ser. vol. xix. pp. 307–319: May 1867.

——. Diagnostic characters of some new genera and species of *Prionidæ*. Ibid. pp. 410–413: June 1867.

——. *Longicornia Malayana*; or, a descriptive Catalogue of the species of the three Longicorn families *Lamiidæ*, *Cerambycidæ*, and *Prionidæ*, collected by Mr. A. R. Wallace in the Malay Archipelago. (Continued.) Trans. Ent. Soc. London, 3rd series, vol. iii. pp. 337–464, plates 14–15: June 1867.

——. Supplement to the List of Australian Longicornia. Journ. Linn. Soc. Zool. vol. ix. pp. 300–308.

Pelikan, A. von. Ueber Getreide-Verwüstungen im Banate durch *Anisoplia*. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 693–696.

Piochard de la Brûlerie, —. Nouvelles espèces de Coléoptères de la famille des Carabiques, d'Espagne, et des îles Baléares. Bull. Soc. Ent. France, 1867, pp. lxxix, lxxx.

——. Rapport sur l'excursion faite en Espagne par la Société Entomologique de France pendant les mois d'Avril, Mai et Juin 1865. Ann. Soc. Ent. France 4e sér. tome vi. pp. 501–544.

An interesting account of the excursion, with notes on the Coleoptera met with.

Puton, Auguste. Note sur le genre *Xyloterus*, Erichson. Annales Soc. Entom. de France, 4e série, tome vii. pp. 631–634: April 1868.

Putzeys, Julius. Note sur les *Notiophilus*. Mém. Soc. Roy. Sci. Liége, 2e série, tome i. pp. 153–169: 1866.

——. Etude sur les *Amara* de la Collection de M. le Baron Chaudoir. Ibid. pp. 171–283: 1866.

——. Révision générale des Clivinides. Annales de la Soc. Ent. de Belgique, tome x. pp. 1–242: 1866.

——. Additions aux *Amara*. Stettiner entom. Zeitung, 1867, pp. 169–178.

Reiche, L. Quelques Remarques sur la Monographie du genre *Anthaxia*, publiée par M. de Marseul, &c. Ann. Soc. Ent. France, 4e sér. tome vi. pp. 577–580.

Reiset, J. Mémoire sur les dommages causés à l'agriculture

par le hanneton et sa larve; mesures à prendre pour la destruction de cet Insecte. Comptes Rendus, lxv. pp. 1125–1138.

Roelofs, W. Notice sur un nouveau genre de Cureulionides d'Australie. Annales de la Soc. Ent. de Belgique, tome x. pp. 243–248, pl. 1: 1866.

This paper is followed by a note by Professor Lacordaire.

——. Description d'un nouveau genre de Curculionides de Monte-Video. Ibid. pp. 251, 252.

Rye, E. C. Notes on the unnamed species in Mr. Waterhouse's Catalogue of British Coleoptera. Ent. Monthly Mag. vol. iii. pp. 231–235.

——. Coleoptera.—New British species, corrections of nomenclature, &c., noticed since the publication of the Entomologist's Annual, 1867. Entom. Annual, 1868, pp. 54–80.

In this article the author, as usual, furnishes us with a summary of all the work done during the year on British Coleoptera. It is of far less extent than that for the year 1866, the total number of notices being only 55.

Saunders, Edward. Descriptions of six new species of *Buprestidæ* belonging to the Tribe *Chalcophorides*, Lacordaire. Trans. Ent. Soc. London, 3rd series, vol. v. pp. 429–434, pl. 22: May 1867.

——. Notes on rare and descriptions of new species of *Buprestidæ* collected by Mr. James Lamb in Penang. Ibid. pp. 509–521, pl. 25: December 1867.

Schaufuss, L. W. Monographie der Scydmæniden Central- und Südamerika's. Nova Acta Acad. Nat. Cur. tom. xxxiii. pp. 103, pls. 4: 1866.

A valuable memoir, containing some general remarks on the history and literature of the family, and on the geographical distribution of the species, besides the systematic description of the species from Central and South America.

——. Beitrag zur Gruppe der *Malacodermata*. Stettiner entom. Zeitung, 1867, pp. 81–85.

Consists of descriptions of new species.

——. Entomologische Notizen. I. Nachtrag zur Monographie der Sphodrinen. Coleopt. Hefte, i. pp. 62–67: 1867.

——. Entomologische Notizen. Ibid. ii. pp. 17–22: 1867.

On some Rhynchophorous Beetles from Spain.

Schiödte, J. C. De Metamorphosi Eleutheratorum Observationes. Bidrag til Insekternes Udviklingshistorie. (Continued.) Naturhist. Tidsskrift, 3rd series, vol. iv. pp. 415–552, pls. 12–22.

This paper is in continuation of one in the third volume of the same journal (see 'Record,' 1865, p. 405, where, by an oversight, the volume stands as viii.). Its contents relate exclusively to the larvæ of Geodephagous Beetles. At the commencement is an elaborate tabular analysis of the *generic* larval characters, and at the close a few pupæ are briefly described.

Scriba, W. Fünf neue *Leptusa*-Arten. Coleopt. Hefte, i. pp. 68–72 : March 1867.

——. Die Käfer im Grossherzogthum Hessen und seiner nächsten Umgebung. (Fortsetzung.) Zwölfter Bericht der Oberhessischen Gesellsch. für Natur- und Heilkunde, pp. 1–51 : 1867.

This concludes Scriba's catalogue of the Hessian Beetles. It is to be followed by a supplementary part.

——. (See Kraatz.)

Seidlitz, Georg. Einige entomologische Excursionen in den Castilischen Gebirgen im Sommer 1865. Berliner entom. Zeitschrift, 1867, pp. 167–191.

Contains an account of the author's Spanish travels in search of Coleoptera, with remarks on the species met with and descriptions of numerous new species.

——. Zur Coleopterenfauna Europa's. Ibid. pp. 431–434.

Contains chiefly synonymic observations.

Sharp, D. On the British species of *Agathidium*. Trans. Ent. Soc. London, 3rd series, vol. ii. pp. 445–452 : 1866.

——. (See Crotch.)

Solsky, S. Matériaux pour servir l'étude des Insectes de la Russie. I. Notes sur quelques Coléoptères nouveaux ou peu connus. Horæ Soc. Entom. Rossicæ, tome iv. pp. 79–96 : 1866.

——. Matériaux pour servir à l'étude des Insectes de la Russie. II. Insectes nouveaux et remarques sur des espèces connues. Ibid. pp. 179–185 : 1866.

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On *Cicindela sex-guttata* (Fab.).

——. Verzeichniss der von Dr. Gundlach auf der Insel Cuba

gesammelten Chrysomelinen. Archiv für Naturg. 1867, pp. 283–328.

A continuation of the paper commenced in the volume of the 'Archiv' for 1866.

Thomson, James. D'une Classification nouvelle de la famille des Cérambycides (Insectes Coléoptères). Physis, tome i. pp. 1–10: August 1, 1867.

——. Révision de la sous-tribu des Dorcadionites (Famille des Cérambycides, insectes Coléoptères). Physis, tome i. pp. 10–84: August 1, 1867.

Tournier, H. De quelques nouveaux Coléoptères d'Europe et d'Algérie. Annales Soc. Entom. de France, 4e série, tome vii. pp. 561–570, pl. 13: April 1868.

Villa, A. & G. B. Sui Coleotteri del Biellese indicati da Eugenio Sella. Atti Soc. Ital. di Sci. Nat. vol. ix. pp. 218–223: June 1866.

Notes on the Coleoptera of the country round Biella, containing remarks on Sella's list of the Beetles of that district, indications of species since detected there, and some strictures on the Stettin Catalogue of European Coleoptera. The latter consist chiefly of objections to the citation of species which have been transferred to new genera under the names of the authors who have effected this transfer, several of Villa's species having thus been ascribed to Heer and other writers.

Vollenhoven, S. C. Snellen van. Beschrijving van eenige nieuwe Soorten van Coleoptera uit Oost-Indie. Tijdschrift voor Entomologie, 2de ser. Deel i. pp. 222–229, pls. 11 & 12: 1866.

Wankowiez, J. Notices sur divers Coléoptères. Ann. Soc. Ent. France, 4e série, tome vii. pp. 249–255: October 15, 1867.

Contains descriptions of 3 new species of Beetles from Lithuania (*Bitoma, Ipidia,* and *Quedius*), and a note on the varieties of *Oxyporus maxillosus*.

Waterhouse, C. O. On some new Lamellicorn Beetles belonging to the family *Melolonthidæ*. Ent. Monthly Mag. vol. iv. pp. 141–146: November & December 1867.

——. Note on a genus of Dynastid-Lamellicorns, belonging to the family *Pimelopidæ*. Trans. Ent. Soc. London, 3rd series, vol. v. pp. 531–533, pl. 27: December 1867.

Wttewaal, J. Twee Waarnemingen van wijlen Dr. J. Wttewaal, medegedeeld door Snellen van Vollenhoven. Tijdschrift voor Entom. 2de serie, Deel ii. pp. 21–30, pl. 1.

This paper contains two notices by the late Dr. Wttewaal,

the first of which relates to the pupa of *Pyrochroa rubens*, the second to a Lepidopterous insect.

† *Anatomical and Physiological.*

Landois, H., & Thelen W. Zur Entwickelungsgeschichte der facettirten Augen von *Tenebrio molitor*, L. Zeitschrift für wiss. Zoologie, Band xvii. pp. 34–43, pl. 5.

An elaborate description of the development of the facetted eyes of the perfect Beetle in the larva of *Tenebrio molitor*.

In his 'Coleoptera Hesperidum,' devoted to the Coleopterous insects of the Cape Verde group of islands, Wollaston embodies the results of his own investigations and of those of John Gray, F. W. Hutton, A. Fry, and H. Dohrn. Of the nine larger islands composing the Cape Verde archipelago, only six have been examined for Coleoptera, the three others, situated nearest to the African coast, not having been visited by the author or his friends. These are known as the "Salt Islands;" and although it is probable they will present some interesting peculiarities, their investigation could hardly lead to any change in the general results at which Wollaston has arrived. The total number of species ascertained by Wollaston is 278, distributed as follows in the primary groups adopted by him :—

Heteromera	49
Brachelytra	42
Necrophaga	39
Geodephaga	39
Rhynchophora	27
Priocerata	18
Cordylocerata	16
Phytophaga	14
Pseudotrimera	14
Philhydrida	13
Hydradephaga	7
Eucerata	0
	278

Thus the numerical proportions of the groups are in general nearly the same as in the more northern groups of islands, except that the Heteromera and Rhynchophora have changed places—a circumstance which the author regards as in accordance with the nature of the species of these groups, the Heteromera being better suited than the Rhynchophora for the present condition, at all events, of the arid Cape Verde islands. The number of species ascertained to exist in each island is stated by the author as follows :—

S. Antonio	114
S. Vicente	132

S. Nicolão	27
S. Iago	130
Fogo	93
Brava	61

The dominant forms are the Heteromerous genera *Oxycara* and *Trichosternum*, representatives of which occur everywhere beneath stones and rubbish from the sea-level to the summits. These exist in numerous forms, described by Wollaston as species, resembling the species of the genus *Hegeter*, so abundant in the Canaries, very closely. *Trichosternum* in like manner represents the Madeiran genus *Hadrus*; and the relations of these forms seem to have suggested to Wollaston's mind the possibility (which, however, he finally denies) that the Cape Verde genera may be "geographical phases" of their more northern relatives. Other dominant forms are *Opatrum* and a new Rhynchophorous genus (*Dinas*) allied to the Canarian *Herpysticus*. Wollaston notices as eminently characteristic, though not strictly "dominant," *Microptinus echinatus*, sp. n., *Cratognathus labiatus* (Erichs.), species of *Scymnus*, *Ammidium ciliatum* (Erichs.), *Aphanarthrum hesperidum*, sp. n., *Litargus 3-fasciatus* (Woll.), and *Sunius nigromaculatus* (Motsch.).

At the same time that the general character of the Coleopterous fauna is decidedly in accordance with that prevailing in the more northern groups, certain genera which may be regarded as highly characteristic of the latter are absent in the Cape Verde islands, especially *Tarphius*, *Laparocerus*, and *Atlantis*. *Calathus*, *Trechus*, *Acalles*, and *Helops* are also noticed by Wollaston as being in a less degree characteristic Northern Atlantic forms absent in the Cape Verde archipelago.

Upon the question of the right of many of the so-called species to hold specific rank Wollaston appears to entertain some doubt; and here, as in his 'Coleoptera Atlantidum,' he indicates that many forms described under specific names are so nearly allied to others existing either in other islands of the group, in the more northern archipelagos, or in Europe, that if they had occurred upon a continuous region he would have hesitated long before regarding them as distinct; and he states that, in his opinion, if subsidences so great as those necessary for breaking up an ancient Atlantic continent into a few scattered islands may be admitted to have taken place, it requires "no stretch of the imagination to conclude that a very large majority of such insular departures from a central form as those which we now meet with would have resulted from them as a matter of course, and would have been rapidly matured from their respective types." Of the 169 genera hitherto detected in the Cape Verdes, 123 are found in the more northern archipelagos, whilst of the 278 "species" here recorded, only 107 are common to the two sets of islands. Taking the genera, again,

the similarity of the Cape Verde islands to the Canaries and Madeiras (combined) is greater than that between the two latter archipelagos; and the whole evidence points overwhelmingly, as Wollaston remarks, to the conclusion that these islands are "the outposts of a single gigantic province which has been rent asunder, and is now principally submerged."

Crotch, in his memoir on the Azorean Coleoptera (Proc. Zool. Soc. 1867, pp. 359–391), enumerates in all 213 species of Beetles as known to occur in those islands; but of these 12 are cosmopolitan forms, reducing the number to 201. Of these only 30 are regarded by the author as belonging to the Atlantic fauna, thus leaving 171 European species. The great proportion of these to the whole may undoubtedly be due, as Crotch suggests, to the fact that the collections have been made for the most part in the lower and more cultivated districts, and that an investigation of the districts more remote from the coasts and the towns would furnish a larger number of Atlantic forms; but the results of the present investigations seem to show that the European species will probably always bear a larger proportion to the Atlantic ones than in the more southern groups. But of the 171 European species enumerated, Crotch believes that only 70 are truly indigenous, the remaining 101 having probably been introduced by colonists.

In comparing the Coleopterous fauna of the Azores with those of the Madeiras and the Canaries, Crotch finds the closest relationship with the former group of islands. The Azores and Madeira have 140 species in common; but of these, 123 occur also in Europe, out of which 97 likewise inhabit the Canaries. Only 8 are peculiar to the Azores and Madeira, and 8 more are common to these islands and the Canaries; these constitute the truly Atlantic species, among which a *Paramecosoma*, an *Homalium*, and a *Phlœophagus* are regarded by the author as "autochthonous."

The Azores and Canaries have 114 species in common, only 2 of which are peculiar to the two groups of islands. Two species are common to the Azores and the Salvages; 3 species, namely, *Æolus melliculus*, *Monocrepidius posticus*, and *Tæniotes scalaris*, occur in America; and a fourth, *Heteroderes azoricus*, is probably derived by modification from an American species. *Staphylinus hesperus* (a new species) has a close ally at the Cape of Good Hope, and *Elastrus dolosus* finds its congeners only in Madagascar, and in external form closely resembles some Elaters from the Cape of Good Hope.

The proportions of the families, as compared with those occurring in the Madeiras and Canaries, are shown by Crotch in the following table:—

	Azores.	Mad. et Can.
Brachelytra	47	215
Necrophaga	38	219
Rhynchophora . . .	27	282
Geodephaga	27	188
Priocerata	16	135
Cordylocerata . . .	16	64
Heteromera	15	172
Philhydrida	8	29
Pseudotrimera . . .	7	30
Eucerata	5	22
Hydradephaga* . . .	4	29
Phytophaga	3	64

Gerstäcker has commenced (Arch. für Naturg. xxxi. pp. 1–49) a memoir on the Coleoptera of Zanzibar, chiefly from materials collected by Von der Decken and Kersten. He remarks that the relationship of the Coleoptera of the district in which these Insects were collected (the nature of which he describes), is rather with those inhabiting Caffraria and Port Natal than with the Beetle-fauna of Abyssinia and Mozambique. The part here cited extends to the Lamellicornia, and includes 91 species, 58 of which are described as new.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 428–429 and 435–439) publishes a list of Coleoptera observed on board the 'Novara.' Most of them are forms which, from their habits, would naturally be introduced with stores of various kinds.

Scriba has completed his catalogue of the Coleoptera of the grand duchy of Hesse and the neighbourhood. Bericht xii. der Oberh. Gesellsch. für Nat.- und Heilkunde, pp. 1–51.

A. Murray has resumed his descriptive list of the Coleoptera of Old Calabar (Ann. & Mag. N. H. 3rd ser. xix. and xx.). The portions published last year relate to the groups from the *Nitidulidæ* to the *Malacodermata*.

Ernest Cotty publishes (Mém. Soc. Linn. du Nord de Fr. 1866, pp. 158–179) some general notes on his experience of collecting Beetles in Algeria. The species particularly referred to will be cited hereafter.

Seidlitz publishes (Berl. ent. Zeitschr. 1867, pp. 167–178) an account of excursions in the mountains of Castile, with notes on species observed by him.

Bischoff-Ehinger publishes (Mitth. schw. ent. Gesellsch. ii. pp. 193–215) an account of two Alpine excursions made by him,—the first, in company with Imhoff, from Vogogna to Macugnaga; the second, with Stierlin, from the Monto Moro to Saas. At the end of the paper he gives a tabulated list of Coleoptera collected, with observations as to the altitude and situations in which the species were found.

Reports on Coleoptera collected in various parts of Germany are published by Rottenberg (Berl. ent. Zeits. 1867, pp. 408–415), H. Fuss (*l. c.* pp. 415, 416), F. Stein & Kellner (*l. c.* p. 417).

Abeille de Perrin (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 70, 71) gives a list of rare Coleoptera taken in Provence.

* Omitted by the author in his Table.

H. S. Gorham publishes notes on Coleoptera collected at Southend (Ent. M. Mag. iv. p. 110), and R. Hislop a list of Beetles taken in Morayshire (*l. c.* pp. 110–112).

Rye publishes (Ent. M. Mag. iv. pp. 164, 165) a list of Coleoptera captured at Putney. He also notices various Coleoptera captured by him at West Wickham (*l. c.* pp. 64–66), Wimbledon (*l. c.* iii. p. 214), and in Coombe Wood, Surrey (*l. c.* iv. pp. 83–85).

D. Sharp publishes a list of Coleoptera collected by him in the south of Scotland in the spring of 1867, with indications of those new to the Scotch Insect-fauna. Ent. M. Mag. iv. pp. 107–109.

V. C. de Rivaz notices his finding a great quantity of Beetles of various groups collected on the sand of a small bay between Ramsgate and Margate. Ent. M. Mag. iv. pp. 17, 18.

E. C. Rye (Ent. M. Mag. iii. pp. 231–235) has published a series of notes on the identification of the species of Coleoptera left without names by Waterhouse in his catalogue of British Beetles.

Goureau (Insectes nuisibles &c.) refers to various species of this order which he regards as injurious to man, to the domestic animals, and to manufactured articles. Several species of *Dytiscus* are described as destroying the spawn and young fry of freshwater fishes, *Tenebrio molitor* as feeding on flour and meal, *Clerus apiarius* and *alvearius* as injurious in bee-hives, *Ptinus fur* and the *Anthreni* as destructive of dried animal matters, several species of *Anobium* and *Ptilinus* as injurious to woodwork, species of *Dermestes* as feeding on animal matters, *Cantharis vesicatoria* because its emanations may prove injurious, *Lixus paraplecticus* as being supposed by Linné the cause of the poisonous effects of *Phellandrium aquaticum*, *Sitophilus oryzæ* as injuring rice in stores, *Callidium sanguineum* and *variabile* as feeding upon wood, *Gracilia pygmæa* as living in osiers, and *Necydalis rufa* as destroying woodwork. Curiously enough, the common grain-Weevil (*Sitophilus granarius*) is altogether omitted, as well as a few other species which have at least an equal right with some of those described to figure in such a work as this.

Landois, in his memoir on the sounds produced by Insects (Zeitschr. für wiss. Zool. xvii. pp. 123–134) discusses those emitted by various species of Beetles. The Longicorn Beetles (pp. 124–126), as is well known, produce their peculiar sound by the friction of the sharp inner posterior edge of the prothorax over a transversely ribbed antescutellar process of the mesothorax. These fine ribs or ridges occur in all Longicornia, although the sound produced by many of them (even *Prionus coriarius*) is not perceptible by the human ear. Landois gives the following measurements of the ridges in a large and a small species :—

	Cerambyx heros.	*Grammoptera ruficornis.*
Length of ridged space	3·4 millim.	0·375 millim.
Breadth of ridged space	3 „	0·25 „
Number of ridges	238	113
Thickness of each ridge	0·014 „	0·0033 „

In *Necrophorus* (pp. 127–129, pl. 10. figs. 6 & 7) the fifth ab-

dominal segment, which is very large above, shows in the middle two narrow longitudinal raised bands, rather wider apart in front than behind. These are formed by a great number of fine ribs (from 126–150). The truncated elytra have a sharp ridge on the hinder margin beneath, near the suture; and when the fifth abdominal segment is moved up and down by muscular action, the friction of the elytral ridge over the riblets of the longitudinal ridges of the abdomen produces the sound emitted by these Insects. In *Geotrupes* (pp. 129, 130, pl. 10. fig. 8) the sound-producing apparatus is appended to the hinder coxæ. On the underside of these coxæ there is a raised band, divided by transverse lines into a great number of fine ribs. Upon these the sharp hinder margin of the third abdominal segment is rubbed, and the friction produces a grating sound. The number of ribs on each of the coxal ridges is about 100; the thickness of the ribs in *G. vernalis* is 0·02 millim. and in *G. sylvaticus* 0·025 millim. Landois describes (pp. 130, 131) the jumping of the Elateridæ and the sharp little sound caused by the snapping of the prosternal process into the cavity of the mesosternum; also the ticking of *Anobium* (pp. 131, 132), the mode of production of which has been a good deal discussed of late by some English entomologists. He describes the Insects as fixing themselves firmly on all their six feet, and then tapping against the neighbouring wood by a series of hammering movements of the whole body backwards and forwards. The ticking is caused by the contact of the mandibles with the wood. The humming noise produced by the Cockchafers (*Melolontha*) during flight is produced by a peculiar arrangement of the closure of the tracheæ, described by the author in another paper (see p. 201). To this apparatus a sort of tongue is appended in the Cockchafers; and this, being set in motion by the rapid passage of the air during flight, gives rise to the well-known humming noise.

Mocquerys has indicated that the derivation, and consequently the adulteration, of wool may be ascertained by the remains of Beetles contained in it. An anonymous writer gives a list of the species (48) found in Russian wool, derived from a case exhibited by Mocquerys in the Paris Exhibition of 1867. (Horæ Soc. Ent. Ross. v. p. 26.)

Lindemann (Bull. Soc. Nat. Mosc. xxxix. pt. 2. pp. 314–315) announces as a remarkable discovery that "some pupæ of Beetles, in becoming transformed into Beetles, strip off their pupa-skin!" Dohrn remarks upon this announcement (Stett. ent. Zeit. 1867, pp. 316–318).

Cicindelidæ.

Castelnau publishes (Trans. Roy. Soc. Vict. viii. pp. 30–38) some notes on Australian Cicindelidæ, in which he calls attention to the absence of those Insects in the southern parts of Australia, and indicates their distribution in other regions of that continent. A *Megacephala* has occurred in Western Queensland; *Tetracha* occurs in the north and east, *Distipsidera* in Queens-

land; and *Cicindela* is numerously represented on the eastern coast. Several new species are described by the author. The author also remarks upon the Cicindelidæ of New Zealand, and describes the larvæ of *C. tuberculata* and *C. parryi*.

Cicindela. The natural history of the American species of this genus is briefly noticed in Amer. Nat. i. pp. 552–534, where also 6 of the common species are figured.

Schiödte (Naturh. Tidsskr. 3rd ser. iv.) describes and figures the larvæ of the following species:—*C. hybrida* (Linn.), p. 440, pl. 12. figs. 1–6, and *C. campestris*, p. 444, and the pupa of *C. campestris*, p. 543, pl. 12. fig. 7.

Ernest Cotty (Mém. Soc. Linn. Nord Fr. 1866, pp. 159–163) notices the habits of *Megacephala euphratica* (Oliv.) and *Cicindela littorea* (Forsk.). The former is found in salt marshes, where it lives in holes about two feet deep, from which it issues in the morning and evening twilight during the hottest months of the year.

Cicindela fischeri (Adams). Note by Löw on its occurrence in Austria (Verh. zool.-bot. Ges. in Wien, xvii. p. 748).

Cicindela campestris. A black variety noticed by T. Chapman, Ent. M. Mag. iii. p. 251.

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 305, fig. 1) describes and figures a specimen of *Cicindela campestris*, with the elytra abbreviated and divaricated at the suture.

Cicindela sexguttata. Suffrian (Stett. ent. Zeit. 1867, pp. 445–449) discusses the variations of this species, and indicates that *C. patruela* (Dej., Lec.) is a variety corresponding to the var. *connata* of the European *C. campestris*.

New species:—

Megacephala howittii, Castelnau, Trans. Roy. Soc. Vict. viii. p. 31, Cooper's Creek, Australia.

Tetracha waterhousii, Castelnau, *l. c.* p. 32, Central Australia; *T. bostockii*, Cast. *l. c.* p. 36, and *T. hopei*, Cast. *l. c.* p. 37, West Australia.

Distipsidera strangei, Castelnau, *l. c.* p. 33, Australia.

Cicindela feredayi, Bates, Ent. M. Mag. iv. p. 53, New Zealand.

Cicindela coquerelii, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 387, Morocco.

Cicindela. Castelnau (*l. c.*) describes the following Australian species of this genus:—*C. masteri*, p. 33, New South Wales; *C. wilcoxii*, p. 34, Clarence River; *C. circumcincta*, ibid., East Australia and New Caledonia; *C. dunedensis*, p. 35, New Zealand; *C. macleayi*, p. 37, West Australia.

Myrmecoptera nobilitata, Gerstäcker, Arch. f. Naturg. xxxi. p. 9, Zanzibar.

Carabidæ.

Schiödte (Naturh. Tidsskr. 3rd ser. iv.) describes and figures the larvæ of the following species of this family:—*Omophron limbatum* (Linn.), p. 445, pl. 12. figs. 8–17, and the pupa, p. 545, pl. 13. fig. 1; *Elaphrus cupreus* (Duft.), p. 449, pl. 13. figs. 2–8; *E. riparius* (Linn.), p. 452, pl. 13. figs. 9–11; *Notiophilus biguttatus* (Fab.), pp. 452–456, pl. 13. figs. 12–17, and pupa, p. 545, pl. 13. fig. 18; *N. aquaticus* (Fab.), p. 456, pl. 13. fig. 19; *Leistus rufomarginatus* (Duft.), pp. 456–460, pl. 15. figs. 1–6; *L. rufescens* (Fab.), p. 460,

pl. 15. figs. 7–9, and pupa, p. 545, pl. 15. fig. 10; *L. spinilabris* (Fab.), p. 461, pl. 15. figs. 11, 12; *Nebria brevicollis* (Fab.), p. 461, pl. 14. figs. 1–7, and pupa, p. 545, pl. 15. fig. 14; *N. livida*, p. 465, pl. 15. fig. 13; *Loricera pilicornis* (Fab.), p. 465, pl. 14. figs. 8–16, and pupa, p. 544, pl. 20. fig. 1; *Cychrus rostratus* (Linn.), p. 469, pl. 18. figs. 1–9; *Calosoma*, *Procrustes*, and *Carabus*, tabular synopsis of larvæ, pp. 473–479; *Calosoma sericeum* (Fab.), p. 480, pl. 16. figs. 15–18; *C. inquisitor* (Linn.), p. 482; *Procrustes coriaceus* (Linn.), p. 483, pl. 16. figs. 1–4; *Carabus intricatus* (Linn.), p. 485, pl. 17. figs. 1–4; *C. violaceus* (Linn.), p. 486, pl. 17. figs. 5–8, and pupa, p. 544, pl. 16. fig. 5; *C. glabratus* (Fab.), p. 488, pl. 16. figs. 6–8; *C. nemoralis* (O. F. Müll.), p. 490, pl. 16. figs. 9–11; *C. cancellatus* (Ill.), p. 491, pl. 17. figs. 9–12; *C. rossii* (Dej.), p. 493; *C. granulatus* (Linn.), p. 493, pl. 17. figs. 13–15; *C. clathratus* (Linn.), p. 494, pl. 16. figs. 12–14; *Scarites lævigatus* (Fab.), p. 496, pl. 18. figs. 10–16; *Scarites*, sp., p. 500; *Dyschirius thoracicus* (Fab.), p. 500, pl. 18. figs. 17–23; *Broscus cephalotes* (Linn.), p. 504, pl. 19. figs. 1–8, and pupa, p. 545, pl. 20. fig. 2; *Pterostichus nigrita* (Fab.), p. 507, pl. 19. figs. 9–16, and pupa, p. 545, fig. 17; *P. melanarius* (Ill.), p. 511; *P. oblongopunctatus* (Fab.), p. 512; *Anchomenus marginatus* (Linn.), p. 512, pl. 20. figs. 11–14; *A. mœstus* (Duft.), p. 514, pl. 20. fig. 16; *A. angusticollis* (Fab.), p. 514, pl. 20. fig. 15; *Patrobus excavatus* (Payk.), p. 514, pl. 21. figs. 1–5, and pupa, p. 545, fig. 6; *Bembidium bipunctatum* (Linn.), p. 518, pl. 20. figs. 17–22; *B. pallidipenne* (Ill.), p. 521, pl. 20. fig. 23; *Chlænius vestitus* (Fab.), p. 522, pl. 20. figs. 3–9; *C. nigricornis* (Fab.), p. 525, pl. 20. fig. 10; *Amara convexiuscula* (Manh.), p. 526, pl. 21. figs. 7–11, and pupa, p. 545, fig. 12; *A. spinipes* (Linn.), p. 530; *A. apricaria* (Fab.), ibid.; *A. livida* (Fab.), ibid.; *A. familiaris* (Duft.), p. 531; *A. patricia* (Duft.), ibid.; *Harpalus æneus* (Fab.), p. 531, pl. 22. figs. 1–3; *H. ruficornis* (Fab.), p. 535, pl. 22. figs. 4–11; *Stenolophus anglicus* (Voet), p. 535, pl. 22. figs. 12–18; *Bradycellus pubescens* (Payk.), p. 539, pl. 22. figs. 19–23.

G. H. Horn (Trans. Amer. Ent. Soc. i. pp. 152–154) discusses the characters and position of the genus *Pseudomorpha* and its allies, noticing particularly the resemblance to the Dytiscidæ to be found in the form and position of the posterior coxæ. He considers that these Insects form a distinct family (*Pseudomorphidæ*), and "a link from the Carabidæ through the Amphizoidæ to the Dytiscidæ, with undoubted tendencies towards the Gyrinidæ." His views are indicated in the following table of the Adephagous families :—

I. Legs cursorial.
  A. Metasternum attaining the abdomen; hind coxæ separated.
    1. Antennæ inserted on the front..... *Cicindelidæ*.
    2. Antennæ inserted under the margin of the front.. *Carabidæ*.
  B. Metasternum not attaining the abdomen; hind coxæ contiguous.
    1. Metasternal parapleuræ attaining the abdomen.. *Pseudomorphidæ*.
    2. Metasternal parapleuræ not attaining the abdomen. *Amphizoidæ*.

II. Legs natatorial.
  A. Eyes 2; antennæ filiform ..... *Dytiscidæ*.
  B. Eyes 4; antennæ irregular ..... *Gyrinidæ*.

Gautier des Cottes remarks (Mitth. schweiz. ent. Gesellsch. ii. pp. 158–161) upon various species of this family omitted or classed as varieties in De Marseul's last catalogue, which he criticises severely.

A note by Putzeys, with remarks by Weyers, on some Carabidæ newly discovered in Belgium, is published in the Ann. Soc. Ent. Belg. x. Comptes Rendus, pp. vii–viii. The most noticeable is the Swedish *Bembidium nigricorne* (Gyll.). Weyers adds four more species, *l. c.* p. xii.

Roelofs publishes a list of the Carabidæ collected in September 1865 on the shores of the Zuiderzee. The list includes only 34 species (Tijdschr. voor Ent. 2nd ser. ii. pp. 31–32).

Carabides.

Notiophilus. Putzeys publishes (Mém. Soc. Roy. Liége, 2e sér. i. pp. 153–166) a note upon the European species of this genus, followed by a synoptical table and short characters of the species contained in Chaudoir's collection, and a list of all the described species, with indications of their synonymy. Of the European forms he describes the variations of the following species:—*N. aquaticus* (Linn.), *N. palustris* (Duft.), *N. rufipes* (Curt.), *N. biguttatus* (Fab.), *N. 4-punctatus* (Dej.), *N. punctulatus* (Wesm.), and *N. geminatus* (Dej.); to these must be added, as distinct species, *N. strigifrons* (Baudi) and *N. laticollis* (Chaud.).

Perty (Mitth. naturf. Ges. in Bern, 1867) describes:—a specimen of *Procerus scabrosus* (Fab.) with a tubercular outgrowth at the end of the right anterior femur (p. 305); one of *Carabus granulatus* (ibid. and fig. 2) with greatly abbreviated elytra, and another (p. 307 and fig. 3) with the antennæ entirely absent; one of *C. morbillosus* (ibid.) with a vesicular inflation of the right elytron; and one of *C. auratus* (ibid. and fig. 4) with the left antennæ cleft in its apical portion.

Carabus schönherri (Fisch.) and *C. zakharschevskii* (Motsch.), as European species, noticed by Kraatz, Berl. ent. Zeitschr. 1867, p. 406. The variety of the latter which occurs at Samara is *C. tschlegovii* (Mann.), according to Chaudoir.

Damaster. Notes on this genus by Lewis, Ent. M. Mag. iii. p. 189, & iv. p. 18.

Calosoma curtisii. Notes on the habits of this species are published by C. A. Wilson. The insect is always found near cattle, and is believed by Wilson to lay its eggs under dry cow-dung. Proc. Ent. Soc. 1867, pp. lxxii–lxxiii.

Horn notices (Proc. Ent. Soc. Phil. vi. p. 290) that the *Cychri* of California emit an acrid fluid from the anus, but without any explosion.

Metrius contractus (Esch.). Habits noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 290.

Carabus aumonti (Luc.). Ernest Cotty gives an account of his unsuccessful search for this species in Western Algeria. Mém. Soc. Linn. du Nord Fr. 1866, pp. 163–165.

Carabus cancellatus. On the habits of the larva. Lucas, Bull. Soc. Ent. Fr. 1867, pp. lxiii–lxiv.

Procerus tauricus (Pall.). Gernet describes and figures the larva of this species. Horæ Soc. Ent. Ross. v. p. 8, pl. 1. fig. 1.

New species:—

Notiophilus acuticollis, Putzeys, *l. c.* p. 164, North China; *N. longipennis*, Putz. ibid., Armenia; *N. hardyi*, Putz. *l. c.* p. 165, Newfoundland.

Nebria pazii, Seidlitz, Berl. ent. Zeitschr. 1867, p. 178, Sierra de Bejar.

Leistus megaloderus, Chaudoir, Ann. Soc. Ent. Fr. 4e sér. vii. p. 260, Greece; *L. caucasicus*, Chaud. *l. c.* p. 261, Caucasus; *L. barnevillei*, Chaud. ibid., Asturias; *L. ovipennis*, Chaud. *l. c.* p. 262, Mount Cenis.

Carabus microderus, Chaudoir, *l. c.* p. 259, Anatolia; *C. rumelicus*, Chaudoir, ibid., Roumelia.

Carabus deckeni, Gerstäcker, Arch. f. Naturg. xxxi. p. 10, Zanzibar.

Calosoma tegulatum, Wollaston, Col. Hesp. p. 4 (= *C. maderæ*, Woll. *nec* Fab.), Cape Verde Islands.

Damaster auricollis, C. O. Waterhouse, Trans. Ent. Soc. Lond. 3rd ser. v. p. 529, pl. 27. fig. 1, Japan.

Brachinides.

Casnonia olivieri (Buq.) has been taken near Bone about sugar-canes.—*Pheropsophus* (*Brachinus*) *hispanicus* (Dej.) = *B. litigiosus* (Dej.) and not *B. africanus* (see Record, 1866, p. 299). Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 389.

Xenothorax, g. n., Wollaston, Col. Hesp. p. 15. Allied to *Lebia*; prothorax short, hexagonal; palpi very long and slender; tarsi slender, filiform, joint 4 simple; claws minute, unarmed; eyes very large. Sp. *X. hexagonus*, sp. n., Woll. *l. c.* p. 16, Cape Verde Islands.

New species:—

Tarus alutaceus, Wollaston, *l. c.* p. 8, *T. dohrnii*, Woll. ibid., and *T. anchomenoides*, Woll. *l. c.* p. 9, Cape Verde Islands.

Dromius attenuatus, Wollaston, *l. c.* p. 9, Cape Verde Islands.

Dromius ramburii, Piochard de la Brûlerie, Bull. Soc. Ent. Fr. 1867, p. lxxix, Spain.

Metabletus nitidulus, Piochard de la Brûlerie, *l. c.* p. lxxix, Spain.

Metabletus grayii, Wollaston, *l. c.* p. 11, Cape Verde Islands.

Blechrus strigicollis, Wollaston, *l. c.* p. 12, Cape Verde Islands.

Amblystomus lineatus, Wollaston, *l. c.* p. 14, Cape Verde Islands.

Masoreus spinipes, Wollaston, *l. c.* p. 16, and *M. ascendens*, Woll. *l. c.* p. 18, Cape Verde Islands.

Coptodera antipodum, Bates, Ent. M. Mag. iv. p. 78, New Zealand.

Mastax parreyssii (Chaud. MS.), Tournier, Ann. Soc. Ent. Fr. 4e sér. vii. p. 561, pl. 13. fig. 1, Algeria, Egypt.

Acanthogenius sculpturatus, Gerstäcker, Arch. für Naturg. xxxi. p. 14, Zanzibar.

Pheropsophus kersteni, Gerstäcker, *l. c.* p. 15, Zanzibar.

Drypta setigera, Gerstäcker, *l. c.* p. 15, Zanzibar.

Galerita procera and *G. angustipennis*, Gerstäcker, *l. c.* p. 16, Zanzibar.

Lasiocera assimilis, Gerstäcker, *l. c.* xxxi. p. 17, Zanzibar.

Tetragonoderus simplicissimus, Gerstäcker, *l. c.* p. 17, Zanzibar.

Lebia hypoxantha, Gerstäcker, *l. c.* p. 18, *L. deplanata* and *L. calycina*, Gerst. *l. c.* p. 19, Zanzibar.

Anthiides.

Anthia duparqueti, sp. n., Lucas, Bull. Soc. Ent. Fr. 1867, p. xciii, Cape Negro.

Anthia hexasticta, sp. n., Gerstäcker, Arch. für Naturg. xxxi. p. 10, and *A. cavernosa*, sp. n., Gerst. *l. c.* p. 11, Zanzibar.

Polyhirma. Gerstäcker (*l. c.*) describes the following new species from Zanzibar:—*P. spatulata*, p. 11; *P. bihamata*, p. 12; *P. lagenula* and *quadriplagiata*, p. 13.

Graphipterus rolphii, sp. n., Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 390, Morocco.

Scaritides.

Putzeys has published (Ann. Soc. Ent. Belg. x. pp. 1–242) a revision of the genera and species of this group, with the exception of those forming his sections *Pasimachides* and *Scaritides*. He remarks upon the distinctive characters of the six sections into which he divides the group, but describes a new species of *Molobrus*, belonging to the first of the above-named sections, and characterizes the genus *Passalidius* (Chaud.), which, with *Acanthoscelis*, he places between his *Scaritides* and *Scaptérides*. His genus *Bohemannia* he regards as following the *Scaptérides*. The whole of the described species of the four sections (*Scaptérides*, *Oxystomides*, *Clivinides*, and *Ardistomides*) here treated of are enumerated, and in most cases characterized with more or less detail. The new species described are numerous, and several new genera are characterized.

New genera :—

Thlibops, g. n., Putzeys, *l. c.* p. 9. Allied to *Scapterus*; paraglossæ broad at apex; last joint of labial palpi twice as long as penultimate; joint 2 of max. palpi very stout; clypeus with a large tooth on each side. Sp. *T. dohrni* and *crenatus* (Chaud.) and *longicollis* (Putz.).

Camptidius, g. n., Putzeys, *l. c.* p. 22. Allied to *Camptodontus*; antennæ moniliform from joint 5; penultimate joint of max. palpi shorter than the last; anterior tibiæ with long teeth. Sp. *C. ophthalmicus*, sp. n., Putz. *l. c.* p. 22, Amazons.

Sparostes, g. n., Putzeys, *l. c.* p. 27. Allied to *Cryptomma*; joints 2–4 of max. palpi nearly equal in length; clypeus truncate; eyes rather prominent. Sp. *S. brevicollis*, sp. n., Putz. *l. c.* p. 27, North China; *S. striatulus*, sp. n., Putz. *l. c.* p. 29, Siam.

Nyctosyles, g. n., Putzeys, *l. c.* p. 30. Allied to *Dyschirius*; tooth of mentum broad, subrotundate at apex, lateral lobes rounded; ligula truncate; paraglossæ acuminate; prothorax margined at base. Sp. *D. quadraticollis* and *planicollis* (Reiche); *N. laticollis* (Dej.), Putz. *l. c.* p. 31, Cayenne and Amazons.

Brachypelus, g. n., Putzeys, *l. c.* p. 31. Allied to *Dyschirius*; lateral lobes of mentum angulated; ligula subacuminate; labial palpi with last joint ovate, acuminate at apex, half the length of the penultimate; joint 3 of max. palpi minute; prothorax margined at base. Sp. *B. obesus*, sp. n., Putz. *l. c.* p. 31, Madagascar.

Oxydrepanus, g. n. (Chaud. MS.), Putzeys, *l. c.* p. 103. Allied to *Dyschirius*; last joint of palpi produced into a long point; anterior tarsi with joint 1 as long as the rest together and joint 2 as long as 3 and 4 together. Sp. *D. rufus* (Putz.); *O. luridus*, Putz. *l. c.* p. 104, Surinam; *O. micans* (Dohrn, MS.), Putz. *l. c.* p. 105, Surinam; *O. minimus*, Putz. ibid., Santarem; *O. brasiliensis* (Sahlb. MS.), Putz. ibid., Brazil; *O. ovalis*, Putz. *l. c.* p. 106, New Granada; *O. mexicanus* (Chaud. MS.), Putz. ibid., Mexico.

Coryza, g. n., Putzeys, *l. c.* p. 194. Allied to *Clivina*; palpi short, joint 2 of maxillaries stouter than the rest; joints 2–4 of antennæ elongate, triangular; pronotum rounded; elytra oblong; intermediate tibiæ not spurred; joint 1 of tarsi clavate, as long as the rest together, 2–4 transverse. Sp. *C. maculata* (Nietn.); *C. nietneri*, sp. n., Putz. *l. c.* p. 196, India (=*maculata*, Putz. *olim*); and *C. cariniceps*, sp. n. (Chaud. MS.), Putz. ibid., North India.

Ancus, g. n., Putzeys, *l. c.* p. 197. Allied to *Clivina*; central tooth of mentum small; joint 2 of max. palpi oval, much inflated; antennæ short, joint 2 longer than 3; pronotum quadrate, with a large punctured impression on each side; elytra cylindrical; anterior tibiæ strongly digitate, intermediate with a strong spur; joint 1 of tarsi longer than 2–4 united. Sp. *C. bicornuta* (Putz.); *A. sulcicollis*, *depressifrons*, and *heteromorphus*, sp. n., Putz. *l. c.* p. 198, Amazons; and *A. excavaticeps*, sp. n. (Chaud. MS.), Putz. *l. c.* p. 199, Siam.

Holoprizus, g. n., Putzeys, *l. c.* p. 232. Allied to *Schizogenius*; lateral lobes of mentum narrow, acutely ovate; last joint of palpi acute, joint 3 of maxillaries short; antennæ moniliform from joint 6, joint 2 twice as long as 3; joint 1 of tarsi very long, clavate. Sp. *H. serratus*, sp. n., Putz. *l. c.* p. 233, Amazons.

New species :—

Molobrus rodriguezi, Putzeys, *l. c.* p. 4, Guatemala.

Listropus iridescens, Putzeys, *l. c.* p. 11, Amazons; *L. micans* (Chaud. MS.), Putz. *l. c.* p. 12, Brazil.

Stratiotes batesi (Chaud. MS.), Putzeys, *l. c.* p. 13, *S. minor*, Putz. *l. c.* p. 14, *S. sulcicollis*, Putz. ibid., and *S. sulculatus*, Putz. *l. c.* p. 15, Amazons.

Camptodontus. Of this genus Putzeys (*l. c.*) describes the following new species :—*C. longicollis*, p. 16, *C. longipennis*, p. 17, *C. forcipatus*, p. 18, and *C. amazonum*, p. 21, from the Amazons; *C. obliteratus*, p. 19, Surinam; *C. crenatus*, p. 20, Pampas; and *C. interstitialis*, p. 21, Brazil.

Scolyptus affinis (Chaud. MS.), Putzeys, *l. c.* p. 24, and *S. vorax*, Putz. ibid., from the White Nile; *S. crassicollis*, Putz. *l. c.* p. 25, origin not stated.

Climax serratipennis, Putzeys, *l. c.* p. 29, Amazons.

Dyschirius. Of this genus Putzeys (*l. c.*) describes the following new species :—(Subg. Reicheia, Saulcy) *R. subterranea*, p. 40, Algeria: (subg. Dyschirius) *D. melancholicus*, p. 41, Dauria; *D. acutus*, p. 48, Tarsous; *D. planiusculus*, p. 50, Mexico; *D. morio*, p. 52, Georgia; *D. schaumii*, p. 55, Egypt; *D. longipennis*, p. 55, Algeria; *D. protensus*, p. 57, Hyères; *D. peyroni*, p. 58, Tarsous; *D. clypeatus*, p. 59, Sicily; *D. nanus*, p. 60, Odessa; *D. ovipennis* (Chaud. MS.), p. 68, Olonne; *D. crenulatus*, p. 70, Kasan; *D. attenuatus*, p. 71, Algeria; *D. fossifrons* (Chaud. MS.), Kiachta; *D. caspius* (Motsch. MS.), p. 78, Caspian; *D. dentipes*, p. 80, Algeria; *D. remotepunctatus*, p. 83, Holland; *D. angusticollis*, p. 83, Algeria; *D. frontalis*, p. 86, Al-

geria; *D. recurvus*, p. 87, south of Russia; *D. syriacus*, ibid., Syria; *D. indicus*, p. 91, North India; *D. orientalis*, p. 92, Hong Kong; *D. exaratus* (Schaum, MS.), p. 96, Egypt; *D. interpunctatus*, p. 97, North India; *D. hispidulus*, p. 98, Siam; *D. minarum*, ibid., Minas-Geraës; *D. pampicola*, p. 99, Pampas; *D. tournieri*, p. 234, Jura (at 6400 feet).

Dyschirius auriculatus, Wollaston, Col. Hesp. p. 7, Cape Verde Islands.

Clivina. Putzeys (*l. c.*) describes the following new species of this genus:—*C. calida*, p. 109, from the White Nile; *C. westwoodi* (= *C. castanea*, Putz. *olim*), p. 109, East Indies; *C. sulcigera* (Chaud. MS.), p. 110, Siam; *C. transcaucasica*, p. 113; *C. euphratica*, p. 117; *C. sculptilis*, p. 119, Natal; *C. hydropica*, p. 121, North India; *C. angularis*, p. 122, East Indies; *C. capitata* (Chaud. MS.), ibid., East Indies; *C. divaricata*, ibid., Deccan; *C. advena*, p. 123, East Indies; *C. siamica*, p. 124, Siam; *C. transversa*, p. 125, Siam; *C. brevior*, p. 126, Rangoon; *C. helferi*, ibid., India; *C. wallacei*, p. 127, Celebes; *C. goniostoma*, p. 128, Egypt; *C. lacustris*, p. 129, Lake N'Gami; *C. consobrina*, p. 130, Senegal; *C. lata*, p. 131, Rangoon; *C. agona*, ibid., Siam; *C. marginicollis*, p. 133, origin not stated; *C. placida*, p. 134, Celebes; *C. stigmatica*, ibid., Celebes; *C. erythropyga* (Schaum, MS.), p. 135, Assouam; *C. ludoviciana* (Chaud. MS.), p. 138, Louisiana; *C. planulata*, p. 140, Mexico; *C. quadrata*, p. 141, Columbia; *C. taurina*, p. 146, Rio Negro; *C. recurvidens* (Chaud. MS.), p. 149, Brazil; *C. fossifrons*, ibid., Bahia; *C. lucida*, p. 150, Mexico; *C. distigma* (Chaud. MS.), Mexico; *C. inæqualis*, ibid., Amazons; *C. bicolor*, p. 152, Pampas; *C. cruciata* (Chaud. MS.), ibid., Mexico; *C. macularis*, p. 153, Santa Fé; *C. latiuscula*, p. 154, Amazons; *C. breviuscula*, ibid., Montevideo; *C. sulcipennis*, p. 156, United States; *C. torrida*, ibid., Amazons; *C. biguttata* (Chaud. MS.), p. 157, Cuba and Louisiana; *C. brevicollis*, p. 158, origin unknown (American); *C. transversicollis*, p. 159, Bahia; *C. bituberculata* (Chaud. MS.), p. 161, Mexico; *C. burmeisteri*, ibid., La Plata; *C. dilutipennis* (Chaud. MS.), p. 162, Mexico; *C. obscuripennis*, p. 163, Caraccas; *C. punctifrons* (Chaud. MS.), p. 164, Brazil; *C. læta*, p. 165, Montevideo; *C. pampicola*, p. 166, Pampas; *C. lætipes*, p. 168, Minas Geraës; *C. oblita* (Chaud. MS.), ibid., New Granada; *C. tridentata*, ibid., Surinam; *C. nitidula*, p. 169, Montevideo; *C. batesi*, ibid., Amazons; *C. stygica*, p. 170, Amazons; *C. adstricta*, p. 171, Mexico; *C. cruralis*, p. 172, Amazons; *C. spinipes*, p. 174, Guatemala; *C. carbonaria*, ibid., Bolivia; *C. parvidens* (Chaud. MS.), ibid., Mexico; *C. platensis*, p. 175, *C. vespertina*, p. 176, and *C. parvula*, ibid., Montevideo; *C. punctiventris*, p. 177, Amazons; *C. antennaria*, ibid., Brazil and Cayenne; *C. puncticollis*, p. 178, Amazons; *C. microdon*, p. 183, Melbourne; *C. obliquata*, p. 188, South Australia; *C. angustula* (Chaud. MS.), p. 190, Melbourne; *C. deplanata*, ibid., Melbourne; *C. biplagiata*, p. 191, Australia.

Ardistomis. Of this genus Putzeys (*l. c.*) describes the following new species:—*A. profundestriata*, p. 201, Amazons; *A. convexa* (Chaud. MS.), p. 202, Mexico; *A. atripennis*, ibid., Guadeloupe; *A. posticalis*, p. 203, Amazons; *A. brevis*, p. 204, Amazons; *A. arechavaletæ*, ibid., Montevideo; *A. curta*, p. 205, Saint Catherine; *A. rotundipennis*, p. 206, Central America; *A. venustula*, p. 207, Amazons; *A. hæmorrhœa* (Chaud. MS.), ibid., Minas Geraës; *A. elongatula*, p. 208, Cuba; *A. batesi*, p. 209, Amazons; *A. rugosa*, p. 210, Saint Catherine; *A. striga* (Motsch. MS.), p. 211, Panama; *A. œnea*, p. 212, Minas Geraës; *A. glabrata*, p. 213, Montevideo; *A. propinqua*, p. 214, Mexico.

Aspidoglossa. The following new species of this genus are described by Putzeys (*l. c.*):—*A. ruficollis* (Chaud. MS.), p. 215, Amazons; *A. latiuscula*, p. 217, Minas Geraës; *A. distincta* (Chaud. MS.), ibid., Yucatan (=*mexicana*, Putz. Mon.); *A. agnata* (Chaud. MS.), p. 218, Amazons; *A. curta* (Chaud. MS.), p. 220, Nicaragua; *A. collaris*, p. 221, Minas Geraës.

Schizogenius. Of this genus Putzeys describes (*l. c.*) the following new species:—*S. truquii*, p. 224, Mexico; *S. quadripunctatus*, p. 225, Parana; *S. arechavaletæ*, p. 227, Montevideo; *S. sallei*, p. 228, Texas; *S. sellatus*, ibid., Caraccas; *S. clivinoides*, p. 229, Pampas; *S. basalis*, p. 230, Montevideo; *S. angusticollis*, p. 231, Montevideo.

Chlæniides.

Psydrus piceus (Lec.). Habits noticed by Horn (Proc. Ent. Soc. Phil. vi. p. 290). This insect emits a fluid from the anus, with a slight explosion.

Loricera pilicornis (Fab.). Gernet describes and figures the larva of this species, Horæ Soc. Ent. Ross. v. p. 10, pl. 1. fig. 2.

Metaglymma, g. n., Bates, Ent. M. Mag. iv. p. 78. Allied to *Broscus*; tooth of mentum bifid at apex; paraglossæ horny and adherent; penultimate joint of max. palpi short; elytra punctate-sulcate; tibiæ with projecting apical tooth; mesothoracic epimera very wide. Sp. *M. monilifer*, sp. n., Bates, *l. c.* p. 79, New Zealand.

Chlænius pretiosus (Rosenh.) is not a *Dinodes*. Seidlitz, Berl. ent. Zeits. 1867, p. 431.

Chlænius uncosignatus, sp. n., Wollaston, Col. Hesp. p. 18, and *C. consanguineus*, sp. n., Woll. *l. c.* p. 20, Cape Verde Islands.

Chlænius soricinus, sp. n., Gerstäcker, Arch. f. Naturg. xxxi. p. 21, Zanzibar.

Oodes lucidus, sp. n., Gerstäcker, *l. c.* p. 21, Zanzibar.

Broscus insularis, sp. n., Piochard de la Brûlerie, Bull. Soc. Ent. Fr. 1867, p. lxxix, Majorca.

Craspedophorus eustalactus, sp. n., Gerstäcker, *l. c.* p. 20, Zanzibar.

Harpalides.

Wollaston (Col. Hesp. p. 13, note) remarks that, in his opinion, *Amblystomus* belongs to the Brachinides, its alliance being with *Metabletus* and *Blechrus*.

Schiödte (Naturh. Tidsskr. 3rd ser. iv. p. 168) notices the occurrence of three Danish species of this group, namely, *Anisodactylus pseudoæneus*, *Diachromus germanus*, and *Stenolophus anglicus*.

New species:—

Anisodactylus (*Anisotarsus*?) *amplicollis*, Gerstäcker, Arch. für Naturg. xxxi. p. 22, Zanzibar.

Hypolithus pavoninus and *H. aruschensis*, Gerstäcker, *l. c.* p. 23, Zanzibar.

Harpalus cratognathoides, Gerstäcker, *l. c.* p. 24, Zanzibar.

Harpalus paivanus, Wollaston, Col. Hesp. p. 23, and *H. serienotatus*, Woll. *l. c.* p. 24, Cape Verde Islands.

Dichirotrichus? *lineatopictus*, Wollaston, *l. c.* p. 25, S. Iago (Cape Verdes).

Acinopus pilipes, Piochard de la Brûlerie, Bull. Soc. Ent. Fr. 1867, p. lxxix, Majorca.

Stenolophus (*Acupalpus*) *cantabricus*, Pioch. de la Brûl. *l. c.* p. lxxx, Spain.

Stenolophus subrelucens, Wollaston, *l. c.* p. 26, Cape Verde Islands.

Feroniides.

Putzeys has published (Mém. Soc. Roy. Liége, 2e sér. i. pp. 171–283) an important paper on the species of Amaroid Carabidæ in the collection of Baron Chaudoir. Of this a preliminary abstract was published by him in 1865 (see Record, 1865, pp. 404 & 421); and the table of genera there given is reproduced in the extended memoir. The total number of species here cited is 177, of which 44 are new:—

Amara prætermissa (Sahlb.) = *similata* (Gyll.); *A. subconvexa* (Putz.) is described, p. 177; *A. obsoleta* (Dej.) and *adamantina* (Kolen.) = *ovata* (Fab.); *A. assimilis* (Chaud.) = *vulgaris* (Panz.); *A. persica* (Chaud.) = *trivialis* (Gyll.); *A. perplexa* (Dej.) = var. *familiaris* (Duft.); *Celia ruficornis* (Dej.) = *ingenua* (Duft.); *C. fusca* (Dej.) and *cursitans* (Zimm.) are regarded as distinct, and their characters indicated (*l. c.* p. 187); *C. modesta* (Dej.) = *municipalis* (Duft.), to which also belong *A. obscuricornis* and *C. viridescens* and *ruthenica* (Motsch.); *A. inæqualis* (Kirby) = *C. interstitialis* or *patruelis* (Dej.); *C. microcephala* (Motsch.) probably = *rupicola* (Zimm.); *C. monticola* (Zimm.) = *quenselii* (Schönh.); *C. remota* (Zimm.) and *indistincta* (Mann.) = *remotestriata* (Dej.), as also probably *C. gibba* (Lec.); *C. contempta* (Lec.) = *musculus* (Say); *C. granaria* (Dej.) = *infima* (Duft.); *A. lapponica* (Dej.) = *Acrodon brunneus* (Duft.); *Leiocnemis* (Zimm.) is a heterogeneous assemblage. Of the 12 species enumerated by him the author separates 5 to form a new genus intermediate between *Leiocnemis* and *Curtonotus*, under the name of *Leirides* (see Record, 1865, p. 422). Of the remainder, *L. elongata* (Sturm.) = *sabulosa* (Dej.), leaving 6 of Zimmermann's species in the genus, to which Putzeys adds 21 (12 new, including those described in 1865); *L. polita* (Chaud.) and *barnevillii* (Fairm.) = *sabulosa* (Dej.); *A. confinis* (Dej.) = *avida* (Say); *A. corsica* (Reiche) = *montana* (Dej.); *Curtonotus altaicus* (Motsch.) = *fodinæ* (Mann.); *C. caucasicus* (Motsch.) = *aulicus* (Panz.); *C. uralensis* (Motsch.) = *gebleri* (Dej.); *Leirus volgensis* (Chaud.) = *Curt. desertus* (Krin.); *C. dauricus* (Motsch.) = *torridus* (Ill.); *L. borealis* (Chaud.) = *brunnipennis* (Dej.); *L. longicollis* (Motsch.) = *hyperboreus* (Dej.). This paper is concluded by an alphabetical list of the described Amaroid Carabidæ.

Putzeys (Stett. ent. Zeit. 1867, pp. 169–178) remarks on some species belonging to the group of the *Amarides*, namely, *Leiocnemis fervida* (Coq.), *L. montana* (Dej.), and *Leirides alpicola* (Dej.). He also gives a description of *Celia harpalina* (Lec.) and tables of the known species of *Celia* and *Leiocnemis*. Some new species are also described.

Calathus. Gautier des Cottes, in his monograph of the European and Mediterranean species of this genus (Mitth. schw. ent. Ges. ii. pp. 235–286), describes in all 50 species; but as some of these are referred in a note as synonyms to other species (*vide infrà*), the total number admitted by him at the close of his work is 47. The following notes may be given from his synonymy:—*C. octoseriatus* (Gaut.) = *ovalis* (Dej.); *C. cisteloides* (Ill.) = *latus* (Linn.); *C. latus* (Curt.) = *punctipennis* (Germ.); *C. minutus* (Gaut.) = *luctuosus* (Dej.); *C. uniseriatus* (Vuillefr.) = *angularis* (Chevr.); *C. ambiguus* (Payk.) includes *fuscus* (Fab. &c.), *rufipes* (Fab.) ?, *tardus* (Fab.) ?, *rufangulus* (Marsh. &c), and *dilutus* (Chaud.); *C. thoracicus* (Dej.) = *solieri* (Bossi); *C. distinguendus* (Chaud.) and *C. lugens* (Vuillefr.) = *latus* (Linn.); *C. angustatus*

(Ramb.) probably=*fulvipes* (Gyll.); *C. asturiensis* and *liotrachelus* (Vuillefr.) =*fulvipes* (Gyll.); *C. depressus* (Gaut.) and *grenatensis* (Vuillefr.)= *ambiguus* (Payk.); *C. rotundicollis* (Dej.) and *rotundatus* (J. Duv.)=*piceus* (Marsh.). See also notes on various species of the genus by the same author (*l. c.* pp. 163–169 and 187–193).

Fairmaire (Ann. Soc. Ent. Fr. 4e sér. vii. p. 389) records *Pseudotrechus mutilatus* (Rosenh.) as an inhabitant of Morocco. The same author (*l. c.* p. 391) gives a list of the known species of *Amara* found in Algeria.

Letzner (Jahresber. schles. Ges. vaterl. Cultur, xliv. p. 169) briefly notices the results of an excursion to the Riesengebirge, referring chiefly to Carabideous Beetles, and particularly to *Anchomenus ericeti* (Panz.), which he found in considerable numbers, and of which he here indicates numerous colour-varieties.

Perty (Mitth. naturf. Ges. in Bern, 1867) describes an example of *Molops terricola* (Fab.) with the left elytron stunted and altered in sculpture (p. 304), and one of *Percosia patricia* (Creutz.), with the right antennæ much abbreviated, and having only one misshapen piece in place of the last 9 joints (p. 306).

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 307, fig. 5) describes and figures a monstrous specimen of *Calathus fulvipes*, having the right anterior tibia short, with an indication of a fissure, and bearing three tarsi.

H. Fuss notices an example of *Amara consularis* with a double claw-joint. Berl. ent. Zeit. 1867, p. 407.

Sphodrus leucophthalmus. Larva described and figured by Gernet (Horæ Soc. Ent. Ross. v. p. 12, pl. 1. fig. 3).

A. Skácel notices the injury done to wheat by the larva of *Zabrus gibbus* (Verh. naturf. Ver. in Brünn, v. Sitzungsb. p. 31). See also Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 915–922.

Crotch (Proc. Zool. Soc. 1867, p. 385) describes *Anchomenus aptinoides* (Tarn.), from the Azores.

New genera :—

Morphnos, g. n., Schaufuss, Col. Hefte, i. p. 65. Allied to *Æchmites*; tooth of mentum emarginate in the middle; head large; last joint of palpi subcylindric; posterior trochanters recurvo-acuminate; tarsi in both sexes (?) naked; claws simple.—Sp. *M. antipodus*, sp. n., Schauf. ibid., from South Australia.

Sphallax, g. n., Bates, Ent. M. Mag. iv. p. 55. Alliance doubtful; Bates regards it as probably the type of a new subfamily; head and thorax narrow, head ovate, thorax cordate; mandibles moderate, curved, acute; mentum with a bifid tooth, lateral lobes spined; ligula elongate, lanceolate, detached from paraglossæ; palpi short, last joints longer than penultimates, obtusely pointed; joint 2 of antennæ minute, 3 longest; tibiæ sulcate above and beneath, anterior deeply notched; anterior tarsi in ♂ with 3 dilated, triangular joints, with a dense brush of hairs beneath.—Sp. *S. peryphoides*, sp. n., Bates, *l. c.* p. 56, New Zealand.

Zabroscelis, g. n., Putzeys, Mém. Soc. Roy. Liége, 2e sér. i. p. 268. Allied to *Zabrus*; posterior tibiæ in ♂ pubescent within; prosternum in ♀ (?) with an oval pit.—Sp. *Z. ditomoides*, sp. n., Putz. *l. c.* p. 269, Cyprus.

New species :—

Feronia puncticeps, C. G. Thomson, Skand. Col. ix. p. 35, and *F. pauciseta*, Thoms. *l. c.* p. 36 (=*F. cuprea*, tom. i. p. 231), Scandinavia.

Feronia (*Orthomus*) *balearica*, Piochard de la Brûlerie, Bull. Soc. Ent. Fr. 1867, p. lxxx, Majorca.

Pterostichus profundecrenatus, Wollaston, Col. Hesp. p. 21, Cape Verde Islands.

Amara. The following new species of this genus are described by Putzeys (*l. c.*):—*A. cupreolata*, p. 180, United States; *A. proxima*, p. 183 (=*intermedia*, Chaud. nec Motsch.), Georgia; *A. protensa*, p. 183, Hudson's Bay Territory; *A. sallei*, p. 185, Mexico.

Celia acutangula (Chaud. MS.), Putzeys, *l. c.* p. 194, United States. *C. texana* (Chaud. MS.), Putz. *l. c.* p. 196, Texas.

Leiocnemis. Of this genus Putzeys (*l. c.*) describes the following new species:—*L. euphratica* (Chaud. MS.), p. 202, Mesopotamia; *L. indica* (Chaud. MS.), p. 216, North India; *L. syriaca* (Chaud. MS.), ibid., Syria; *L. subdepressa*, p. 222, Caucasus; *L. planipennis*, p. 223, Caucasus.

Leiocnemis perezi, Putzeys, Stett. ent. Zeit. 1867, p. 174, Madrid; *L. collina*, Putz. *l. c.* p. 176, Bône; *L. meridionalis*, Putz. ibid., Cette.

Amara (*Leiocnemis*) *putzeisii*, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 391, *A.* (*L.*) *chlorotica*, Fairm. *l. c.* p. 392, and *A.* (*L.*) *henonii*, Fairm. *l. c.* p. 393, from Algeria.

Amathitis subplanata, Putzeys, Mém. Soc. Roy. Liége, 2e sér. i. p. 225, Siberia; *A. songarica* (Chaud. MS.), Putz. *l. c.* p. 226, Tsungaria (=*Bradytus latus*, Motsch.); *A. cordata*, Putz. *l. c.* p. 228 (=*B. cordicollis*, Chaud.), Eastern Siberia.

Leirides, g. n., Putzeys, *l. c.* p. 228 (see Record, 1865, p. 422).—Sp. *L. helopioides* (Heer), *nobilis* (Duft.), *spectabilis* (Schaum), *cardui*, *puncticollis*, *pyrenæus*, *cuniculinus*, and *alpicola* (Dej.); and *L. calathoides*, sp. n. (Motsch. MS.), Putzeys, *l. c.* p. 229, Caucasus.

Leirides frigidus (Chaud. MS.), Putzeys, Stett. ent. Zeit. 1867, p. 177, south of France.

Curtonotus. Putzeys, Mém. Soc. Roy. Liége, 2e sér. i., describes the following new species of this genus:—*C. convexicollis* (Chaud. MS.), p. 232, Siberia; *C. nitens*, p. 234, North China; *C. fulvipes* (Chaud. MS.), p. 235, Missouri; *C. transversicollis*, p. 236, Russian America; *C. adstrictus*, p. 238, United States; *C. bistriatus* (Chaud. MS.), p. 240, Lenkoran; *C. reflexus* (Chaud. MS.), p. 241, Newfoundland; *C. contractus*, ibid., Siberia; *C. substriatus* (Reiche, MS.), p. 242, Mexico; *C. somnolentus*, p. 243, Oonalaschka; *C. castaneus* (Chaud. MS.), p. 244, Kirghise Desert; *C. holmbergi*, p. 250, Russian America; *C. striolatus*, p. 251 (=*rufimanus*, Motsch. nec Kirby), Kamtschatka; *C. caligatus* (Eschsch. MS.), p. 252, Kamtschatka; *C. cognatus*, p. 253, Norway; *C. pedestris*, p. 254, Udskoe Ochotsk; *C. tristis*, p. 255, North Canada; *C. canadensis*, p. 256, North Canada; *C. conoideus*, ibid., origin not stated; *C. dejeani*, p. 258, Kamtschatka; [*C. cribratus* (Chaud. MS.), p. 259, Central Siberia.

Bradytus lævistriatus (Chaud. MS.), Putzeys, *l. c.* p. 262, United States; *B. simplicidens* (Moraw.), Putz. *l. c.* p. 264, Japan.

Percosia infuscata, Putzeys, *l. c.* p. 267, Siberia and Songaria.

Antisphodrus obtusangulus, Schaufuss, Col. Hefte, i. p. 66, Mount Ararat.

Calathus algiricus (Reiche), Gautier des Cottes, Mitth. schw. ent. Ges. ii. p. 164, Algeria; *C. syriacus* (Reiche), Gaut. des Cottes, *l. c.* p. 165, Syria; *C. numidicus* (Reiche), Gaut. des Cottes, *l. c.* p. 167, Algeria; *C. hispanicus* (Chevr.), Gaut. des Cottes, *l. c.* p. 168, Spain; *C. bipunctatus* (Chaud.), Gaut. des Cottes, *l. c.* 188, Galicia; *C. chevrolatii*, Gaut. des Cottes, *l. c.* p. 189, Spain and Switzerland. [Of these species *hispanicus* is subsequently (p. 282) referred by the author to *bæticus* (Ramb.), *bipunctatus* to *fulvipes* (Gyll.), and *chevrolatii* (p. 283) to *ambiguus* (Payk.).] In his "Monograph of the genus *Calathus*," Gautier des Cottes further describes the following as new species:—*C. tappesi*, *l. c.* p. 261, Madrid; *C. lævicollis* (Chaud.), *l. c.* p. 266, origin not stated; *C. atticus*, *l. c.* p. 269, Greece; *C. bellieri*, *l. c.* p. 284, Florence; and *C. vuillefroyi*, *l. c.* p. 285, Spain.

Bembidiides.

Tachys atomarius, sp. n., Wollaston, Col. Hesp. p. 28, Cape Verde Islands.

Bembidium hesperidum, sp. n., Wollaston, *l. c.* p. 31, Cape Verde Islands.

Bembidium hesperus, sp. n., Crotch, Proc. Zool. Soc. 1867, p. 385, Azores.

Bembidium unistriatum, sp. n., Bilimek, Verh. zool.-bot. Ges. in Wien, xvii. p. 002, Cave of Cacahuamilpa in Mexico.

Bembidium ibericum, sp. n., Piochard de la Brûlerie, Bull. Soc. Ent. Fr. 1867, p. lxxx, Spain.

Bembidium (*Peryphus*) *maorinum*, sp. n., Bates, Ent. M. Mag. iv. p. 56, and *B.* (*P.*) *charile*, Bates, *l. c.* p. 79, New Zealand.

Pseudomorphides.

G. H. Horn (Trans. Amer. Ent. Soc. i. p. 153), after discussing the position of this group (see p. 225), gives the following Table of the 5 genera which he refers to it:—

I. Head horizontal; mouth anterior; antennæ filiform.
  A. Without antennal grooves ..... Pseudomorpha.
  B. With antennal grooves.
    1. Mentum entire; ventral segments 4 .... Hydroporomorpha.
    2. Mentum emarginate; ventral segments 6.
      a. Posterior angles of prothorax distinct .. Sphallomorpha.
      b. Posterior angles of prothorax rounded.. Silphomorpha.
II. Head deflexed, front very convex; mouth inferior; antennæ clavate. Adelotopus.

Pseudomorpha cronkhitei, sp. n., Horn, *l. c.* p. 151, from California.

Amphizoides.

Amphizoa insolens (Lec.). G. H. Horn (Proc. Ent. Soc. Phil. vi. pp. 289–290) describes the habits of this species, which he says is as strictly subaquatic as any of the Parnidæ. It lives especially in stony creeks, and crowded together upon the stones in some numbers. The insects run badly on dry land, but move readily under water even in strong currents; they are almost unable to swim. Horn remarks on the resemblance between *Amphizoa* and the Tenebrionid genus *Nyctopetus*.

G. H. Horn (Trans. Amer. Ent. Soc. i. pp. 154–158) describes the structure of *Amphizoa insolens* (Lec.) in great detail, and illustrates his description with good outline woodcuts of the insect and its various parts. Horn's opinion as to its systematic position has already been indicated (see p. 225).

Dytiscidæ.

The German species of this family are described in the part of the 'Naturgeschichte der Insecten Deutschlands' published at the end of 1867. This portion was very nearly completed by the late Professor Schaum before he was seized by his last illness; it has been completed by Kiesenwetter. The arrangement is that adopted by Erichson in his 'Käfer der Mark Brandenburg.'

Reiche calls attention to the presence, in most females of *Dytiscus latissimus*, of a membranous lamina, covering the last two abdominal segments. He supposes that the individuals thus furnished have not laid their eggs. Bull. Soc. Ent. Fr. 1867, p. iii. (See also under *Papilionides.*) See also a further note by F. de Saulcy, *l. c.* p. x.

Aubé discusses (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 256–258) the characters and synonymy of *Hydroporus opatrinus* (Germ.) and its allies, which he settles as follows:—1. *H. opatrinus* (Germ.), incl. *hispanicus* (Rosenh.), *lareyniei* (Fairm.), and *coarcticollis* (Reiche); 2. *H. mœstus* (Fairm.) = *opatrinus* (Aubé & Fairm. et Laboulb.); and 3. *H. vestitus* (Fairm.).

Murray remarks that his *Agabus hydroporoides* is a *Celina*. He gives a list of 6 known species of the genus. Ann. & Mag. N. H. 3rd ser. xix. p. 179.

Haliplus lineolatus? (Mann.). Larva described and figured by Gernet (Horæ Soc. Ent. Ross. v. p. 16, pl. 2. fig. 4).

Agabus uliginosus. Perty (Mitth. naturf. Ges. in Bern, 1867, p. 307 and fig. 5) describes and figures an example having the right hind tibia singularly deformed, and bearing two tarsi.

Oxynoptilus, g. n., Schaum, Nat. Ins. Deutchl. i. 2. p. 22. Allied to *Hyphydrus*; posterior tarsi with equal moveable claws; prosternum dilated at apex, metasternum broad in front; intermediate legs very distant; elytra cuspidate at apex. Sp. *H. cuspidatus* (Kunze).

New species:—

Agabus godmanni, Crotch, Proc. Zool. Soc. 1867, p. 385, pl. 23. fig. 3, Azores.

Hydroporus glabellus, C. G. Thomson, Skand. Col. ix. p. 80, Scandinavia.

Hydroporus fuscipennis, Schaum, *l. c.* p. 64=*H. piceus* (Sturm *nec* Steph.) =*puberulus* (Mann.); *H. kraatzii*, Schaum, *l. c.* p. 66.

Hydaticus punctipennis, C. G. Thomson, *l. c.* p. 87, and *H. lævipennis*, Thoms. *l. c.* p. 88 (=*H. transversalis*, auct.), Scandinavia.

Eriglenus unguicularis, C. G. Thomson, *l. c.* p. 101, Ringsjön and Lund.

Gaurodytes clypealis, C. G. Thomson, *l. c.* p. 107, Scania; *G. biguttulus*, Thoms. *l. c.* p. 110, North Scandinavia.

Laccophilus vermiculosus, Gerstäcker, Arch. f. Naturg. xxxi. p. 25, Zanzibar.

Hyphydrus crassus, Wollaston, Col. Hesp. p. 33, Cape Verde Islands.

Copelatus formosus, Wollaston, *l. c.* p. 34, Cape Verde Islands (S. Iago).

Haliplus schaumii, Solsky, Horæ Soc. Ent. Ross. v. p. 29, Koslow (East Russia).

Gyrinidæ.

The German species of this family are described by Kiesenwetter (Nat. Ins. Deutschl. i. 2. pp. 127–144).

Orectochilus schistaceus, sp. n., Gerstäcker, Arch. f. Naturg. xxxi. p. 25, Zanzibar.

Palpicornia.

Wollaston (Col. Hesp. p. 40, note) remarks upon the characters of *Berosus*, in which he says the antennæ are only 7-jointed; he also regards *Sternolophus* (Sol.) as only a section of *Hydrous* (*l. c.* p. 46, note).

An example of *Sphæridium hæmorrhoum* (Gyll.), with the thorax half the usual length and abrupt in front, is described by Perty, Mitth. naturf. Ges. in Bern, 1867, p. 306.

Paracymus, g. n., C. G. Thomson, Skand. Col. ix. p. 120. Allied to *Hydrobius*; posterior femora smooth; prosternum with an elevated median line; sutural stria of elytra abbreviated anteriorly. Sp. *Hydr. æneus* (Germ.).

Hydroxenus, g. n., Wollaston, Col. Hesp. p. 40. Allied to *Laccobius* and *Berosus*; antennæ 7-jointed (as in *Berosus* according to Wollaston); tibiæ robust, setulose externally, posterior subarcuate. Sp. *H. subpictus*, sp. n., Woll. *l. c.* p. 41, and *H. minor*, sp. n., Woll. *l. c.* p. 42, Cape Verde Islands (S. Iago).

New species :—

Hydrobius phalacroides, Wollaston, *l. c.* p. 47, Cape Verde Islands.

Cercyon fimicola, Wollaston, *l. c.* p. 48, and *C. putricola*, Woll. *l. c.* p. 49, Cape Verde Islands.

Cercyon figuratum, Gerstäcker, Arch. f. Naturg. xxxi. p. 26, Zanzibar.

Cryptopleurum sulcatum, Wollaston, *l. c.* p. 49, Cape Verde Islands.

Cryptopleurum vaucherii, Tournier, Ann. Soc. Ent. Fr. 4e sér. vii. p. 566, Geneva.

Staphylinidæ.

Stein records the discovery in Brazil by Hensel of a small species of this family which lives upon the skin of living opossums, running to and fro with great agility, in the manner of the *Nycteribiæ*. Berl. ent. Zeitsch. 1867, p. 211.

Aleocharides.

Zonoptilus (Motsch.). This genus is characterized in detail by Solsky (Horæ Soc. Ent. Ross. iv. p. 85), who also fully describes the species *Z. penniger* (Motsch.), *l. c.* p. 86, and a new species, and characterizes *Coprophilus sellula* (Schm.), which he refers to the same genus.

Fairmaire redescribes *Myrmedonia festiva* (Saulcy) and *Proteinus olivieri* (Saulcy), from Bone in Algeria. Ann. Soc. Ent. Fr. 4e sér. vii. pp. 393, 394.

Abeille de Perrin remarks (Ann. Soc. Ent. Fr. 4e sér. vii. p. 69) that the *Myrmedonia aptera* (Peyr.), recorded in the catalogues of European Coleoptera, is founded on the first word in Peyron's description of *M. erichsonii*!

Rye (Ent. M. Mag. iii. p. 189) affirms the identity of *Thiasophila inquilina* (Märk.) with *Eurynsa kirbii* (Jans.), and notices the habit of the insects.

Myrmedonia plicata (Erichs.). Its occurrence in Britain noticed by Janson, Proc. Ent. Soc. 1868, p. 125.

New genera :—

Nematoscelis, g. n., Wollaston, Col. Hesp. p. 231. Allied to *Oligota*; paraglossæ 0; last joint of max. palpi scarcely shorter than penultimate; legs

elongate, slender, joint 1 of posterior tarsi elongate. Sp. *N. filipes*, sp. n., Woll. *l. c.* p. 232, Cape Verde Islands.

Ityocara, g. n., C. G. Thomson, Skand. Col. ix. p. 239. Allied to *Ilyobates* and *Calodera*; segment 5 of abdomen without a transverse impression; cheeks margined. Sp. *Cal. rubens* (Erichs.).

Bæoglena, g. n., C. G. Thomson, *l. c.* p. 248. Allied to *Bessopora*; abdomen narrowed to apex, with black setæ; max. palpi long, penultimate joint linear, more than twice as long as scape of antennæ. Sp. *Oxypoda præcox* (Erichs.).

New species:—

Leptusa. Scriba (Col. Hefte, i.) describes 5 new species of this genus, namely:—*L. rugosipennis*, p. 68, Tuscan Apennines; *L. pallida*, p. 69, *L. lævigata*, p. 70, and *L. nigra*, ibid., La Preste in the Pyrenées orientales; and *L. brucki*, p. 71, Tuscan Apennines.

Gyrophæna poweri, G. R. Crotch, Trans. Ent. Soc. Lond. 3rd ser. v. p. 439, near London.

Gyrophæna bihamata, C. G. Thomson, *l. c.* p. 230, and *G. puncticollis*, Thoms., *l. c.* p. 232, Scania.

Autalia puncticollis, C. G. Thomson, Skand. Col. ix. p. 204, Scandinavia.

Baryodma succicola, C. G. Thomson, *l. c.* p. 216, Lund.

Homalota subputrescens, Wollaston, Col. Hesp. p. 223, *H. exsecrabilis*, Woll. *l. c.* p. 225, *H. glareosa*, Woll. *l. c.* p. 226, and *H. carbunculus*, Woll. ibid., Cape Verde Islands.

Homalota appulsa, Scriba, Berl. ent. Zeitschr. 1867, p. 389, and *H. eichhoffi*, Scriba, *l. c.* p. 390, Germany.

Oxypoda hydropathica, Wollaston, *l. c.* p. 227, Cape Verde Islands.

Oxypoda metatarsalis, C. G. Thomson, *l. c.* p. 246, Malmö.

Ocyusa longitarsis, C. G. Thomson, *l. c.* p. 242, Scania.

Oligota contempta, Wollaston, *l. c.* p. 231, Cape Verde Islands.

Aleochara comma, Wollaston, *l. c.* p. 229, and *A. 4-punctata*, Woll. *l. c.* p. 230, Cape Verde Islands.

Xenomma melanocephala, Crotch, Proc. Zool. Soc. 1867, p. 390, Azores.

Myllæna fuscula, Wollaston, *l. c.* p. 233, Cape Verde Islands (S. Iago).

Pycnarœa nigripes, C. G. Thomson, *l. c.* p. 251, Scania.

Bessobia fungivora, C. G. Thomson, *l. c.* p. 260, Lund.

Liogluta aquatilis, C. G. Thomson, *l. c.* p. 264, and *L. microptera*, Thoms. *l. c.* p. 266, Scania.

Atheta opacula, C. G. Thomson, *l. c.* p. 272, *A. breviceps*, Thoms. *l. c.* p. 273, *A. glabricula*, Thoms. *l. c.* p. 280, Scania; *A. mortuorum*, Thoms. *l. c.* p. 281, near Ystad; *A. dadopora*, Thoms. *l. c.* p. 283, Scania.

Zonoptilus piceus, Solsky, Horæ Soc. Ent. Ross. iv. p. 88, Sarepta.

Tachyporides.

Phlœonomus punctipennis, sp. n., C. G. Thomson, Skand. Col. ix. p. 317, and *P. abietinus*, sp. n., Thoms. *l. c.* p. 318 (=*P. pusillus*).

Staphylinides.

A. Fauvel communicates (Bull. Soc. Ent. Fr. 1867, pp. liii–lvi) a note on the synonymy of various European species of *Staphylinus* and *Ocypus*, and the description of a new species of the latter genus. His synonymic remarks

are as follows:—*Ocypus etruscus* (Gaut.)=*S. tricinctus* (Gené); *S. ventralis* (Gené)=*Quedius truncicola* (Fairm.); *S. cingulus* (Comolli)=*S. fulvipes* (Scop.); *S. brachypterus* (Brullé) is an *Ocypus* peculiar to the Canaries; *O. brachypterus* (Kraatz, Fairm., Redt. non Brullé)=*O. micropterus* (Redt.), which is probably identical with *O. olens*; *Ocypus alpestris* (Erichs.), *similis* (Fab.), and *cyaneus* (Payk.) are tabulated *l. c.* p. lvi.

Philonthus varius (Gyll.), with a thin excrescence on the prothorax, described by Perty, Mitth. naturf. Ges. in Bern, 1867, p. 306.

New species:—

Tanygnathus varicornis, Wollaston, Col. Hesp. p. 234, Cape Verde Islands.

Quedius polystigma, Wankowiez, Ann. Soc. Ent. Fr. 4e sér. vii. p. 253, Minsk.

Staphylinus hesperus, Crotch, Proc. Zool. Soc. 1867, p. 391, Azores.

Staphylinus cerdo, Gerstäcker, Arch. f. Naturg. xxxi. p. 27, Zanzibar.

Ocypus baudii, Fauvel, Bull. Soc. Ent. Fr. 1867, p. lv, Valais, Bernina.

Philonthus linki, Solsky, Horæ Soc. Ent. Ross. iv. p. 81, Samara.

Philonthus rubiginosus, Solsky, Horæ Soc. Ent. Ross. v. p. 30, Egypt.

Philonthus addendus, Sharp, Trans. Ent. Soc. Lond. 3rd ser. v. p. 440 (?=*temporalis*, Muls.), near Edinburgh.

Philonthus marginipennis, Wollaston, Col. Hesp. p. 236, and *P. sinuatus*, Woll. *l. c.* p. 239, Cape Verde Islands.

Philonthus nigriventris, C. G. Thomson, Skand. Col. ix. p. 147, Scania.

Philonthus cordicollis, Gerstäcker, *l. c.* p. 28, Zanzibar.

Microsaurus 4-punctatus, C. G. Thomson, *l. c.* p. 159, *M. temporalis*, Thomson, *l. c.* p. 161, *M. fageti*, Thoms. ibid., *M. puncticollis*, Thoms. *l. c.* p. 164, Scandinavia.

Platyprosopus bagdadensis, Stierlin, Mitth. schw. ent. Ges. ii. p. 218, Bagdad.

Philothalpus deyrollei, Solsky, Horæ Soc. Ent. Ross. iv. p. 105, Mexico.

Pæderides.

Gautier des Cottes (Mitth. schweiz. ent. Gesellsch. ii. p. 161) remarks upon the suppression of his *Pæderus longicollis* by De Marseul in his last Catalogue.

New species:—

Scopæus crassipes, Wollaston, Col. Hesp. p. 242, and *S. filiformis*, Woll. *l. c.* p. 243, Cape Verde Islands.

Pæderus erichsoni, Wollaston, *l. c.* p. 247 (=*P. angolensis*, Erichs.?), Cape Verde Islands (S. Iago).

Pæderus rufitarsis, Solsky, Horæ Soc. Ent. Ross. iv. p. 106, Mexico.

Pæderus tumidicollis, Gerstäcker, Arch. f. Naturg. xxxi. p. 28, and *P. pedestris*, Gerst. *l. c.* p. 29, Zanzibar.

Lathrobium jansoni, G. R. Crotch, Trans. Ent. Soc. Lond. 3rd ser. v. p. 441, England.

Lathrobium gracile, Solsky, *l. c.* p. 82, Sarepta.

Lathrobium sareptanum, Stierlin, Mitth. schw. ent. Ges. ii. p. 219, Sarepta.

Achenium pallidipenne, Stierlin, *l. c.* p. 220, Sarepta.

Medon lætus, C. G. Thomson, Skand. Col. ix. p. 186, Scandinavia.

Pinophilides.

Palaminus decussatus, sp. n., Wollaston, Col. Hesp. p. 250, Cape Verde Islands.

Pinophilus fossor, sp. n., Wollaston, *l. c.* p. 252, Cape Verde Islands (S. Iago).

Œdichirus stilicinus, sp. n., Gerstäcker, Arch. f. Naturg. xxxi. p. 30, Zanzibar.

Stenides.

Stenus siculus, sp. n., Stierlin, Mitth. schw. ent. Ges. ii. p. 221, Sicily.

Stenus pulchripes, sp. n., Solsky, Horæ Soc. Ent. Ross. v. p. 31, Sarepta.

Stenus shepherdi, sp. n., G. R. Crotch, Trans. Ent. Soc. Lond. 3rd ser. v. p. 441, Hammersmith; *S. annulatus*, sp. n., G. R. Crotch, *l. c.* p. 442, England.

Oxytelides.

Oxyporus maxillosus (Fab.). Wankowiez (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 254 and 255) discusses the variations of this species, to which he refers *O. mannerheimii* (Gyll.).

Platystethus brevipennis (Baudi) occurs at Odessa, and is probably identical with *P. rufospinus* (Hochh.) according to Solsky, Horæ Soc. Ent. Ross. iv. p. 84.

Oxytelus flavipes (Steph.) of Murray's "Catalogue of Scottish Coleoptera" proves to be *O. maritimus* (Thoms.). *O. flavipes* is not represented in Stephens's Cabinet; but the Scotch species can hardly be identified with it. McNab, Ent. M. Mag. iv. p. 112.

New species :—

Oxytelus depauperatus, Wollaston, Col. Hesp. p. 254, Cape Verde Islands.

Oxytelus eppelsheimii, Bethe, Stett. ent. Zeit. 1867, p. 307, Bavaria.

Euæsthetus mariæ, Bethe, *l. c.* p. 308, Bavaria.

Trogophlœus dilutus, Wollaston, *l. c.* p. 255, Cape Verde Islands.

Bledius crenulatus, Stierlin, Mitth. schw. ent. Ges. ii. p. 222, Sarepta.

Piestides.

Lispinus singularis, sp. n., Gerstäcker, Arch. f. Naturg. xxxi. p. 30, Zanzibar.

Pselaphidæ.

Brendel (Proc. Ent. Soc. Phil. vi. p. 191) describes a *Bryaxis intermedia*, which he regards as a climatic variety of *B. abdominalis*, intermediate between *B. abdominalis* and *B. floridana*, the latter being probably also a variety. He also gives (*l. c.* p. 194) comparative characters of the females of 9 North American species, and remarks (p. 193) that *B. clavata* is a truly distinct species.

New species :—

Fustiger fuchsii, Brendel, Proc. Ent. Soc. Phil. vi. p. 190, Tennessee.

Ctenistes monilicornis, Brendel, *l. c.* p. 190, Washington.

Batrisus puncticollis, Tournier, Ann. Soc. Ent. Fr. 4e sér. vii. p. 561, pl. 13. fig. 2 (antenna), Geneva.

Euplectus tuberculosus, Tournier, *l. c.* p. 563, pl. 13. fig. 4, Geneva.

Trimium latipenne, Tournier, *l. c.* p. 564, pl. 13. fig. 6 (thorax and elytra), Geneva; *T. chevrieri*, Tourn. *l. c.* p. 565, pl. 13. fig. 7 (thorax and elytra), Geneva.

Bryaxis aubei, Tournier, *l. c.* p. 563, pl. 13. fig. 3 (abdomen and post. tibia), Sicily.

Bryaxis perforata, Brendel, *l. c.* p. 192, New York; *B. atlantica*, Brendel, *l. c.* p. 193, South Carolina and Louisiana; *B. ulkei*, Brend. ibid., Washington.

Bryaxis gemmula, Wollaston, Col. Hesp. p. 221, Cape Verde Islands.

Paussidæ.

Gerstäcker remarks (Stett. ent. Zeit. 1867, p. 431) upon the distinctive characters of *Paussus chevrolatii* (Westw.), especially those presented by the prothorax. He also indicates (*l. c.* p. 431) that *P. curtisii* (Westw.) probably = *P. shuckardi* (Westw.), and remarks that *P. granulatus* (Westw.) most probably belongs to the genus *Hylotorus* (Dalm.), of which *P. bucephalus* (Gyll.) is the type (*l. c.* pp. 431–434).

Cerapterus macleayii. C. A. Wilson communicates notes on the habits of this species, which is found under dry cow-dung in South Australia. Proc. Ent. Soc. 1867, pp. lxxi–lxxii.

Paussus procerus, sp. n., Gerstäcker, Stett. ent. Zeit. 1867, p. 429, and *P. lætus*, sp. n., Gerst. *l. c.* p. 430, Abyssinia.

Scydmænidæ.

Schaufuss (Nova Acta, &c. xxxiii.) gives a general sketch of the history, literature, and geographical distribution of the insects of this family, as introductory to a monograph of the species inhabiting Central and South America. The total number of species described is 68, namely, of *Scydmænus* 44 (42 new), of *Eumicrus* 23 (20 new), and of *Cephennium* 1 (new). He remarks that, with the exception of *Mastigus*, all known *Scydmænidæ* may be divided into two great sections, namely, those in which the fourth joint of the maxillary palpi is subulate, forming the genus *Scydmænus*, and those in which the fourth joint of the maxillary palpi is somewhat obtuse and forms a more or less elongated spindle with the third, this being either long and fusiform (in *Eumicrus*) or short and oviform (in *Cephennium*).

Scydmænus. Schaufuss (*l. c.*) describes the following new American species of this genus:—*S. trigeminus*, p. 37, tab. 1. fig. 1, *S. hirsutus* (Chevr. MS.), p. 41, *S. galericulatus*, p. 51, *S. terminatus*, p. 56, *S. simplicitus*, p. 57, *S. bifoveolatus*, p. 65, *S. chevrolatii* (Pil. MS.), p. 69, tab. 2. fig. 8, and *S. spinipes* (Chevr. MS.), p. 73, tab. 2. fig. 12, from Mexico; *S. cavifrons*, p. 38, *S. biimpressus*, p. 39, *S. pustulatus*, p. 46, *S. elegans*, p. 52, and *S. subimpressus*, p. 55, from Brazil; *S. gibbulus*, p. 39, *S. corpulentus*, p. 43, *S. nanulus*, p. 44, *S. antennatus*, p. 46, *S. grandicollis*, p. 50, *S. festivus*, p. 66, *S. batesii*, p. 71, tab. 2. fig. 11, *S. bonvouloirii*, p. 73, tab. 2. fig. 13, from the Amazons; *S. ellipticus*, p. 40, tab. 1. fig. 2, *S. hirtipes*, p. 53, *S. trifoveatus*, p. 57, tab. 1. fig. 5, *S. asserculatus*, p. 68, from New Granada; *S. longipalpis*, p. 45, *S. piliferus*, p. 49, *S. suturalis*, p. 53, from Venezuela; *S. humeralis*, p. 54, tab. 1. fig. 4, from New Granada and Venezuela; *S. plicatulus*, p. 42, from New Granada and Mexico; *S. validicornis*, p. 48, from Columbia; *S. campestris*, p. 47, tab. 1. fig. 3, *S. absconditus*, p. 61, *S. latitarsus*, p. 62, *S. longiceps*,

p. 67, and *S. nodicornis*, p. 70, tab. 2. fig. 9, from Chili; *S. breviceps*, p. 58, tab. 1. fig. 6, *S. gundlachii*, p. 59, *S. globulicollis*, p. 64, *S. patens*, p. 66, tab. 2. fig. 7, *S. dentipes* (Gundl. MS.), p. 71, tab. 2. fig. 10, from Cuba; *S. testaceus*, p. 49, Porto Rico and St. Thomas.

Eumicrus. Of this genus Schaufuss (*l. c.*) describes the following new American species:—*E. mexicanus*, p. 78, *E. speculator*, p. 79, *E. bisphæricus*, p. 82, and *E. commilitonis*, p. 84, from Mexico; *E. rubens*, p. 80, Columbia; *E. brunneus*, p. 89, from Columbia and Mexico; *E. latus*, p. 87, tab. 4. fig. 18, and *E. dux*, p. 91, tab. 4. fig. 19, from Caraccas; *E. idoneus*, p. 91, from Venezuela; *E. deplanatus*, p. 81, tab. 3. fig. 17, Caraccas and Venezuela; *E. impressicollis*, p. 83, and *E. subnudus*, p. 86, from Brazil; *E. annulicornis*, p. 77, tab. 3. fig. 15, *E. minutissimus*, p. 77, tab. 3. fig. 16, *E. venustus*, p. 80, *E. semipunctatus*, p. 81, *E. sphæricollis*, p. 85, from the Amazons; *E. flaveolus*, p. 84, from Chili; *E. pubescens*, p. 76, tab. 3. fig. 14, and *E. brevicornis*, p. 93, from Cuba.

Cephennium spinicolle, Schaufuss, *l. c.* p. 95, tab. 4. fig. 20, New Granada.

Cephennium australe, Wollaston, Col. Hesp. App. p. 277, Madeira.

Silphidæ.

C. G. Thomson (Skand. Col. ix. p. 340) refers the genus *Eucinctus* to this group, where he makes it constitute a tribe of his family *Catopidæ*, as shown in the following table:—

A. Posterior coxæ very large, laminated, concealing the femora; antennæ not clavate ..... *Eucinetina.*

B. Posterior coxæ simple; posterior femora free.

a. Antennæ rather long, club 5-jointed, interrupted .. *Catopina.*

b. Antennæ not reaching base of thorax, club not interrupted. *Mylæchina.*

He characterizes the genus *Eucinetus* and the species *E. hæmorrhoidalis* (Germ.), which has been detected in various parts of Scandinavia.

Catopsimorphus fairmairii (Delarouzé) = *C. formicetorum* (Peyr.), according to Abeille de Perrin (Ann. Soc. Ent. Fr. 4e sér. vii, p. 69).

Necrophorus. Grenier refers *N. gallicus* (J. Duv.) and *N. microcephalus* (Thoms.) as varieties to *N. fossor* and *ruspator* respectively. Bull. Soc. Ent. Fr. 1867, p. x.

Silpha lævigata (Fab.). Girard notices the destruction of snails by this species and its larvæ (Bull. Soc. Ent. Fr. 1867, p. lxv). It is assisted by *S. obscura* (Linn.).

New genera:—

Nargus, g. n., C. G. Thomson, Skand. Col. ix. p. 349. Allied to *Catops*; mandibles denticulate; clypeus separated by a fine suture; antennæ obsoletely clavate, joint 2 longer than 3; tibiæ finely spinulose; joints 1–4 of anterior tarsi dilated in ♂. Sp. *Catops velox* (Erichs.) = *scitulus* (Thoms.).

Demochrus, g. n., C. G. Thomson, *l. c.* p. 350. Allied to preceding; joint 5 of antennæ larger than the contiguous ones; tibiæ with small spines. Sp. *C. anisotomoides* (Spence).

Nemadus, g. n., C. G. Thomson, *l. c.* p. 351. Allied to *Ptomaphagus*; elytra not truncated at apex. Sp. *Catops colonoides* (Kraatz).

New species:—

Catops flavicornis, C. G. Thomson, Skand. Col. ix. p. 346, Scania.

Choleva spelæa, Bilimek, Verh. zool.-bot. Ges. in Wien, xvii. p. 902, Mexico (Cave of Cacahuamilpa).

Adelops croaticus. L. Miller, Verh. zool.-bot. Ges. in Wien, xvii. p. 551, from the Cave of Ozalj in Croatia.

Anisotomidæ.

Agathidium. D. Sharp has published (Trans. Ent. Soc. Lond. 3rd ser. vol. ii. pp. 445–452) a revision of the British species of this genus, in which he includes *Cyphoceble* (Thoms.). He rejects the names given by Stephens to 3 species, *A. ruficolle* (Marsh.) = *Amphicyllis globus* (Payk.), and *A. affine* (Marsh.) and *rufipes* (Steph.) as being insufficiently described, the former identical with *A. lævigatum* (Erichs.), and the latter unrecognizable and not represented by any specimens (probably = *A. atrum*, Payk.). The total number of species cited and characterized is 11, of which 3 are now described in more detail.

Agathidium convexum, Sharp, *l. c.* p. 449, Scotland; *A. clypeatum*, Sharp, *l. c.* p. 448, Mickleham and Northumberland; and *A. rhinoceros*, Sharp, *l. c.* p. 451, Perthshire.

Corylophidæ.

Arthrolips testudinalis, sp. n., Wollaston, Col. Hesp. p. 51, Cape Verde Islands (S. Iago).

Trichopterygidæ.

Bæocrara (Thoms.). Matthews states that *B. littoralis* (Thoms.) is a true *Trichopteryx*. The specific name cannot be retained, as Motschulsky described a *Trichopteryx littoralis*; and Matthews adopts Mulsant's name of *variolosum*, as having the priority over Sharp's *thomsoni*. Ent. M. Mag. iv. pp. 18–19.

Ptilium concolor, sp. n., Sharp, Trans. Ent. Soc. Lond. 3rd ser. v. p. 435, Yetholme.

Histeridæ.

De Marseul states that his *Teretrius quercus* = *Paromalus rothi* (Rosenh.), but that it is a true *Teretrius*. Bull. Soc. Ent. Fr. 1867, p. xviii.

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 305, fig. 8) describes and figures a specimen of *Hister unicolor*, with an alteration in the sculpture of the elytra.

Ernest Cotty notices the mode in which he obtained *Margarinotus scaber* (Fab.) and *Saprinus cruciatus* (Payk.) in the neighbourhood of Algiers. The former was found under old sheepskins, and Cotty procured numerous specimens by placing these skins in suitable situations. Mém. Soc. Linn. du Nord de Fr. 1866, pp. 165–167.

Hypocaccus, g. n., C. G. Thomson, Skand. Col. ix. p. 400. Allied to *Saprinus*; forehead separated from clypeus by an elevated line; anterior tibiæ almost destitute of spurs; elytra not margined at apex. Sp. *Saprinus* 4-*striatus*, *rugifrons*, *metallicus*, *conjungens*, and *rufipes* (Thoms.).

New species :—

Hister arenicola, C. G. Thomson, Skand. Col. ix. p. 394, Scania.

Platysoma marginata and *P. 10-striata*, C. G. Thomson, *l. c.* p. 397 (= *P. frontalis*, auct.); and *P. pullum*, Gerstäcker, Arch. f. Naturg. xxxi. p 31, Zanzibar.

Carcinops garbiglietti, Marseul, Ann. Soc. Ent. Fr. 4e sér. vii. p. 55, Brazil.

Teretrius corticalis, Wollaston, Col. Hesp. p. 81, Cape Verde Islands (S. Iago).

Saprinus paivæ, Wollaston, *l. c.* p. 85, and *S. geminatus*, Woll. *l. c.* p. 86, Cape Verde Islands.

Paromalus digitatus, Wollaston, *l. c.* p. 88, Cape Verde Islands.

*Paratropus** *testudo*, Gerstäcker, *l. c.* p. 32, Zanzibar.

Phalacridæ.

Olibrus bicolor. According to Kawall (Stett. ent. Zeit. 1867, p. 118) the larva of this species lives among the seeds of the Dandelion, upon which it feeds.

Phalacrus aterrimus, sp. n., Wollaston, Col. Hesp. p. 55, Cape Verde Islands.

Olibrus gemma, sp. n., Wollaston, *l. c.* p. 56, and *O. notatus*, sp. n., Woll. ibid., Cape Verde Islands.

Lithocrus pallidus, sp. n., Wollaston, *l. c.* p. 57, Cape Verde Islands (S. Iago).

Nitidulidæ.

A. Murray has continued his list of the species of this family from Old Calabar (Ann. & Mag. N. H. 3rd ser. xix. pp. 167–179), in which he refers especially to the following genera :—

Prometopia (Erichs.), of which he gives the geographical range of 13 species, 2 only previously described (*l. c.* p. 168).

Axyra (Erichs.), with which *Galaor* (J. Thoms.) is identical, and which, according to Murray, stands between *Psilotus* and *Ischæna* (*l. c.* pp. 169–170). In connexion with this genus Murray discusses the means by which the true Nitidulidæ may be broken up into subordinate groups (see also p. 173), and suggests that instead of the two groups admitted by Lacordaire we should adopt three, namely *Nitidulini*, *Strongylini*, and *Lorditini*. Six species of the genus are known to Murray, 2 of which are here described as new. The characters of *Axyra brunnea* (Erichs.) and *A.* (*Galaor*) *perforata* (J. Thoms.) are also discussed by Murray (*l. c.* p. 171). The subgenus *Axyrodes* is proposed by Murray for two South American species of the genus.

Psilotus (Erichs.). Murray remarks (*l. c.* pp. 170–171) upon the figure of the labium of this genus given by Lacordaire, which, he says, represents that organ in a *Colastus*. He figures the labium in the latter genus and in *Psilotus* (*l. c.* p. 171, figs. A, B).

Pherocopis (J. Thoms.) is only a subgenus of *Platychora* (Erichs.). Its species are African; those of the typical subgenus live in South America (*l. c.* pp. 174–175).

* This name is substituted for *Phylloscelis* (Mars.), preoccupied in Rhynchota.

Lordites (Erichs.) The geographical range of the species of this genus, from Africa to the Philippine Islands, is indicated by Murray (*l. c.* p. 175). *Lordites procerus* (Erichs.) = *Lasiodactylus brunneus* (Perty). *Silpha limbata* (Fab.) belongs to this genus.

Æthina and *Amphicrossus* (Erichs.), their species discussed by Murray (*l. c.* pp. 176 & 178).

Cryptarcha (Shuck.). Murray describes a new species forming the type of a subgenus, which he proposes to name *Arhina* (*l. c.* p. 178).

Forel enumerates (Bull. Soc. Vaud. Sci. Nat. ix. p. 79) *Meligethes viridescens, æneus*, and *lombaris*, and *Epurea æstiva* among the insects injurious to the Colza plant in the Canton de Vaud (see also p. 205).

Meligethes æneus. Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 561–564) records the occurrence of this species in great quantities in 1867 upon the Rape-plants in Bohemia and Moravia. It is said to have done much injury to the crops, in conjunction with the larvæ of *Ceuthorhynchus sulcicollis* and *Baridius chloris*. See also Künstler, ibid. pp. 940–943.

Taracta, g. n., Murray, Ann. & Mag. Nat. Hist. 3rd ser. xix. p. 172. Allied to *Axyra*; first 3 joints of all the tarsi dilated; mentum broad; mandibles bidentate; labrum nearly entire; antennæ slender, club large, with its first joint long; lateral margins of prothorax slightly reflexed. Sp. *T. fryi*, sp. n., Murray, *l. c.* p. 174 (cum fig.), Old Calabar.

New species :—

Prometopia binotata, Murray, Ann. & Mag. Nat. Hist. 3rd ser. xix. p. 168 (cum fig.), Old Calabar.

Axyra elongata and *papillosa*, Murray, *l. c.* p. 171, Old Calabar.

Lordites circumflexus, Murray, *l. c.* p. 175 (cum fig.), Old Calabar.

Æthina tumida, Murray, *l. c.* p. 177 (*cum fig.*), Old Calabar.

Amphicrossus concolor, Murray, *l. c.* p. 177, and *A. fuscus*, Murray, *l. c.* p. 178, Old Calabar.

Arhina strongyloides (subg. *Cryptarcha*), Murray, *l. c.* p. 179, Old Calabar.

Cychramus henonii, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 395, Bone.

Ipidia integra, Wankowiez, Ann. Soc. Ent. Fr. 4e sér. vii. p. 252, Minsk.

Cybocephalus nitens, Wollaston, Col. Hesp. p. 50, Cape Verde Islands.

Trogositidæ.

Murray describes *Gymnocheila squamosa* (G. R. Gray), Ann. & Mag. N. H. 3rd ser. xix. p. 335, and remarks on *Hectarthrum gigas* (Fab.) and *curtipes* (Newm.), *l. c.* pp. 338, 339. He also gives the character of *H. quadrilineatum* (Smith).

Nosodes serrata (Lec.). Horn notices the habits of this species. Proc. Ent. Soc. Phil. vi. p. 290.

New species :—

Alindria alutacea, Murray, Ann. & Mag. N. H. 3rd ser. xix. p. 334, Old Calabar.

Peltis crenata, Murray, *l. c.* p. 336, and *P. ciliata*, Murray, *l. c.* p. 337, Old Calabar.

Bothrideres spleniatus, Murray, *l. c.* p. 337, Old Calabar.

Hectarthrum smithii, Murray, *l. c.* p. 339, and *H. simplex*, Murray, *l. c.* p. 340, Old Calabar.

Colydiidæ.

Rhagodera, G. H. Horn (Proc. Ent. Soc. Phil. vi. pp. 294–296) characterizes this genus and the species *R. tuberculata* (Mann.), and describes a new species.

Anchomma costatum (Lec.). Habits noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 290.

Synchita mediolanensis (Villa) is cited as probably a British species by Rye, Ent. Ann. 1868, p. 65.

New species :—

Synchyta impressa, Wollaston, Col. Hesp. p. 61, and *S. crenicollis*, Woll. *l. c.* p. 62, Cape Verde Islands (S. Iago).

Ditoma lyctiformis, Wollaston, *l. c.* p. 63, and *D. linearis*, Woll. *l. c.* p. 64, Cape Verde Islands (S. Iago).

Ditoma? jelskii, Wankowiez, Ann. Soc. Ent. Fr. 4e sér. vii. p. 249, Minsk. (Probably the type of a new genus, for which the author proposes the name of *Lado*.)

Tarphius wollastoni, Crotch, Proc. Zool. Soc. 1867, p. 386, pl. 23. fig. 1, Azores.

Rhagodera costata, Horn, Proc. Ent. Soc. Phil. vi. p. 295, Arizona.

Cucujidæ.

Brontes planatus (Linn.) is figured as British by Rye, Ent. Ann. 1868, Front. fig. 6.

Cheilopoma, g. n., Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 20. Palpi subcylindrical; clypeus very large, triangular, nearly concealing the mandibles; joint 1 of antennæ pear-shaped, shorter than 2, last joint twice as long as any of the rest; first joint of tarsi smallest. Sp. *C. castaneum*, sp. n., Murray, *l. c.* p. 20 (*cum fig.*), Old Calabar.

New species :—

Læmophlœus politissimus, Wollaston, Col. Hesp. p. 67, Cape Verde Islands.

Silvanus inarmatus, Wollaston, *l. c.* p. 69, Cape Verde Islands (S. Iago).

Silvanus signatus, Frauenfield, Verh. zool.-bot. Ges. in Wien, xvii. p. 438, pl. 12. fig. 28, on board the 'Novara,' near Shanghai.

Æraphilus ruthenus, Solsky, Horæ Soc. Ent. Ross. iv. p. 180, Sarepta.

Cryptophagidæ.

Latridii. Motschulsky (Bull. Soc. Nat. Mosc. xxxix. 2. pp. 225–229) characterizes this group, and remarks upon its constituent genera as follows:— Of the genera referred by Lacordaire to his Latridii, *Langelandia*, *Monotoma*, *Dasycerus*, and *Myrmecoxenus* are to be excluded. *Langelandia* forms a distinct family; *Monotoma* constitutes a separate tribe, following the *Pycnomerides* among the *Colydiidæ*. *Dasycerus* goes at the end of the *Trichopterygidæ*, and *Myrmecoxenus* among the *Cucujidæ*. *Derodontus* (Leconte) goes with *Phloiophilus* (Waterh.). *Lathridius museorum* (Ziegl.) is a species of *Geoxenus* (Motsch.), belonging to the *Cucujidæ*, and *L. unicolor* (Ziegl.) is a species of *Cerylon*. Motschulsky regards the Latridii as most nearly allied to the *Trichopterygidæ*. He gives the following table of the genera:—

I. Elytra soldered; prothorax dilated; antennæ of 10, club of 2 joints.
Metophthalmus[1], Mots.

II. Elytra free.
A. Club of antennæ of 3 joints.
1. Surface smooth, or scarcely pubescent.
a. Elytra convex, attenuated behind; prothorax quadrangular, rather narrow, with longitudinal keels .... *Lathridius* (Herbst).
b. Elytra depressed; prothorax without raised keels.
* Prothorax in front without salient lobes.
Permidius, g. n.
† Prothorax in front with the angles lobed.
Isidius, g. n.
c. Elytra elliptical and somewhat convex; prothorax elongated and constricted behind..... *Aridius*, g. n.
2. Surface strongly pubescent.
a. Prothorax more or less angular at the sides, with a transverse impression near the base ..... *Melanophthalma*, g. n.
b. Prothorax rounded at the sides, which are usually crenulated.
* Joints 9 and 10 of antennæ transverse.
Migneauxia (Duval).
† Joints 9 and 10 of antennæ elongated.
Corticaria (Marsh.).

B. Club of antennæ of 2 joints.
1. Surface nearly smooth; striæ of elytra very fine.
Cortilena, g. n.
2. Surface smooth; elytra with 1 stria close to the suture.
a. Antennæ 10-jointed in ♂, 11-jointed in ♀.
Tocalium, g. n.
b Antennæ of 11 joints in both sexes .. *Calyptobium* (Villa).
c. Antennæ 9-jointed in ♂, 10-jointed in ♀.
Holoparamecus (Curt.).

Motschulsky (*l. c.* pl. 6) figures *Lathridius lardarius* (De G.), fig. 1 (thorax); antenna of *Corticaria*, fig. 10, *Myrmecoxenus vaporariorum*, fig. 11.

Frauenfeld describes the larva and pupa of *Mycetophagus quadripustulatus* (Linn.), found by him in *Boletus sulphureus*, Verh. zool.-bot. Ges. in Wien, xvii. p. 781.

Loberus impressus (Lec.) and *Litargus 4-spilotus* (Lec.) are referred to by Walsh as inquilines of Willow-galls. Proc. Ent. Soc. Phil. vi. p. 265.

Lathridius carbonarius (Chevr.) is recorded as British by Rye, Ent. Ann. 1868, p. 78.

Diplocœlus fagi (Guér.) is recorded as British by Rye, Ent. Ann. 1868, p. 66.

New genera:—

Cortilena, g. n., Motschulsky, Bull. Soc. Nat. Mosc. xl. 1. p. 95. (See table above.) Sp. *Corticaria picta* (Lec.), *C. pallens* (Motsch.), *C. simplex* (Lec.); *Cortilena nigripennis*, sp. n., Motsch. *l. c.* p. 96, Mobile.

Tocalium, g. n., Motschulsky, *l. c.* p. 97. (See table above.) Sp. *T. orientale* and *T. externum*, sp. n., Motsch. *l. c.* p. 97, East Indies.

[1] Including *Bonvouloiria* (J. Duval).

Permidius, g. n., Motschulsky, Bull. Soc. Nat. Mosc. xxxix. 2. p. 243. (See table, p. 247.) Known sp. *Lathridius anthracinus* (Mann.), *exaratus* (Fald.), *mannerheimii* (Kolen.), *cordaticollis* (Aubé), *minutus* (Linn.), *hirtus* (Schüp.), *rugosus* (Herbst), *consimilis* (Mann.), *assimilis* (Mann.), *parallelocollis* (Mann.), *scitus* (Motsch.), *brasiliensis* (Mann.), *rugipennis* (Mann.), *planatus* (Motsch.), *dubius* (Motsch.), *minutissimus* (Motsch.), *transversus* (Oliv.), *crenatus* (Leconte), *brevicornis* (Schüp.), *carbonarius* (Chevr.), *elegans* (Aubé), *filiformis* (Dahlb.), *parallelus* (Schüp.), *filum* (Aubé), *reflexus* (Lec.), *cordicollis* (Mann.), *pulicarius* (Melsh.), and *nanulus* (Mann.). N. sp. *P. flavicornis*, Motsch. *l. c.* p. 245, Cape of Good Hope; *P. basalis*, Motsch. *l. c.* p. 246, Cape of Good Hope; *P. aterrimus*, Motsch. *l. c.* p. 253, Niagara; *P. hexagonalis*, Motsch. *l. c.* p. 254, Carniolia; *P. inflaticeps*, Motsch. *l. c.* p. 255, pl. 6. fig. 5, Crimea.

Isidius, g. n., Motschulsky, *l. c.* p. 257. (See table, p. 247.) Known sp. *Lathridius gemellatus* (Mann.), *quadricollis* (Mann.), *sobrinus* (Mann.), *protensicollis* (Mann.). N. sp. *Isidius recticollis*, Motsch. *l. c.* p. 258, pl. 6. fig. 6, Japan and Kurile Islands; *I. kamtschaticus*, Motsch. *l. c.* p. 259, Kamtschatka.

Aridius, g. n., Motschulsky, *l. c.* p. 260. (See table, p. 247.) Known sp. *L. nodifer* (Westw.), *nervosus* (Motsch.), *carinatus* (Gyll.), *incisus* (Mann.), *ceylanicus* (Motsch.), *limbatus* (Först.), *carinulatus* (Motsch.), *monticola* (Mann.), *constrictus* (Gyll.), *sculptilis* (Lec.), *elongatus* (Curt.), *clathratus* (Dahlb.), *anatolicus* (Motsch.), *concinnus* (Schüp.), *exilis* (Dej.), *ruficollis* (Marsh.), *collaris* (Mann.), *liliputanus* (Villa), *tantillus* (Mann.). N. sp. *A. nodulosus*, Motsch. *l. c.* p. 261, pl. 6. fig. 7, England; *A. seminiveus*, Motsch. *l. c.* p. 265, Havannah; *A. maritimus*, Motsch. *l. c.* p. 266, Alexandria; *A. atripennis*, Motsch. *l. c.* p. 267, Pennsylvania.

Melanophthalma, g. n., Motschulsky, *l. c.* p. 269, pl. 6. fig. 8 (antenna). (See table, p. 247.) Known sp. *Corticaria obtusa* (Lec.), *brevicollis* (Chevrier), *transversalis* (Schüp.), *regularis* (Lec.), *herbivagans* (Lec.), *rufula* (Lec.), *hortensis* (Motsch.), *pumila* (Mels.), *crocata* (Motsch.), *fuscotestacea* (Motsch.), *curticollis* (Mann.), *angulosa* (Motsch.), *morsa* (Lec.), *distinguenda* (Chevrier), *umbripennis* (Motsch.), *sericea* (Motsch.), *parvicollis* (Mann.), *corpulenta* (Motsch.), *gibbosa* (Herbst), *Lathr. cylindricollis* (Motsch.). Sp. n. *M. maura*, Motsch. *l.c.* p. 271, Styria and South Russia; *M. algirina*, Motsch. *l. c.* p. 273, pl. 6. fig. 9, Algeria, Egypt, and Corsica; *M. helvola*, Motsch. *l. c.* p. 275, Pennsylvania; *M. pilosella*, Motsch. *l. c.* p. 276, Columbia; *M. complanata*, Motsch. *l. c.* p. 277, Brazil; *M. angulicollis*, Motsch. *l. c.* p. 278, East Indies; *M. hexagona*, Motsch. *l. c.* p. 279, East Indies; *M. retroculis*, Motsch. *l. c.* p. 280, East Indies; *M. subangulata*, Motsch. *l. c.* p. 281, New Orleans and Alabama; *M. inermis*, Motsch. *l. c.* p. 283, New Orleans; *M. inculta*, Motsch. ibid., Georgia (U.S.); *M. basicollis*, Motsch. *l. c.* p. 285, Panama; *M. picina*, Motsch. ibid., Cape of Good Hope; *M. russula*, Motsch. *l. c.* p. 286, Panama; *M. rutila*, Motsch. *l. c.* p. 288, Egypt; *M. cylindronota*, Motsch. ibid., California; and *M. flavicula*, Motsch. *l. c.* p. 290, Havannah.

New species:—

Cryptophagus sericeus, Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 21, Old Calabar.

Metophthalmus creticollis, Wollaston, Col. Hesp. p. 76, Cape Verde Islands.

Corticaria. Of this genus Motschulsky (Bull. Soc. Nat. Mosc. xl. 1) indicates 122 species, of which the following are described as new:—*C. pilosa*,

p. 48, Alexandria; *C. villosa*, ibid., Mesopotamia; *C. setosa*, p. 49, Sea of Azoff; *C. capensis*, p. 51, Cape of Good Hope; *C. validipes*, p. 54, Russia; *C. ciliata*, p. 55, Madeira; *C. striatopunctata*, p. 56, Pennsylvania; *C. adustipennis*, p. 57, Cape of Good Hope; *C. quadricollis*, p. 59, Cape of Good Hope; *C. debilis*, p. 61, Pennsylvania; *C. limbicollis*, p. 64, East Siberia; *C. salpingoides*, p. 65, California; *C. boreophila*, ibid., East Siberia and Kamtschatka; *C. flavifrons*, p. 66, Madeira; *C. attenuata*, p. 67, Madeira; *C. cylindripennis*, p. 68, Bavaria; *C. punctatissima*, p. 69, Crimea; *C. borealis* (Wollast. MS.), p. 70, England; *C. subpicea*, ibid., Crimea; *C. abietorum*, p. 71, St. Petersburg; *C. depressiuscula*, p. 72, North America; *C. ferruginosa*, p. 73, Georgia (U.S.); *C. pharaonis*, p. 74, Egypt; *C. transversicollis*, p. 76, Alexandria; *C. unicarinulata*, ibid., Madeira, Germany, and Georgia; *C. tenuicornis*, p. 77, Cape of Good Hope; *C. stigmosa*, p. 79, Styria; *C. psammeticha*, p. 80, Egypt; *C. ovipennis*, p. 81, Pennsylvania; *C. subrugosa*, p. 82, Egypt; *C. pilitecta*, p. 83, Egypt; *C. carinulata*, p. 84, Egypt; *C. rectangula*, p. 87, New Orleans; *C. pullula*, p. 89, Mobile; *C. amplipennis*, p. 91, Panama; *C. sericella*, p. 93, Mobile; *C. planiuscula*, p. 94, Mobile.

Corticaria immatura, Wollaston, *l. c.* p. 74, *C. bicolor*, Woll. *l. c.* p. 75, and *C. obliterata*, Woll. ibid., Cape Verde Islands.

Holoparamecus bipartitus, Wollaston, *l. c.* p. 73, Cape Verde Islands.

Holoparamecus brasiliensis, Motschulsky, *l. c.* p. 99, Brazil; *H. populi*, Motsch. ibid., Europe; and *H. longipennis*, Motsch. *l. c.* p. 100, Egypt.

Calyptobium attenuatum, Motschulsky, *l. c.* p. 101, East Indies; *C. obtusicorne*, Motsch. ibid., Austria; *C. clavipes*, Motsch. *l. c.* p. 102, East Indies; and *C. tuberculum*, Motsch. ibid., Egypt.

Paramecosoma langii, Solsky, Horæ Soc. Ent. Ross. iv. p. 90, Koslow.

Atomaria wollastoni, Sharp, Trans. Ent. Soc. Lond. 3rd ser. v. p. 435, near Edinburgh.

Metophthalmus lacteolus, Motschulsky, Bull. Soc. Nat. Mosc. xxxix. 2. p. 231, pl. 6. fig. 4, Crimea; *M. americanus*, Motsch. *l. c.* p. 233, Mobile.

Lathridius. Motschulsky (*l. c.*) describes the following as new species of this genus:—*L. pini*, p. 236, pl. 6. fig. 3, Russia and England; *L. dilaticollis*, ibid. pl. 6. fig. 2, St. Petersburg; *L. subbrevis*, p. 237, East Siberia; *L. ægyptiacus*, p. 240, Egypt; *L. trilobatus*, ibid., North America; *L. indicus*, p. 241, East Indies; *L. undulatus*, p. 242, England and South Russia; *L. lapponum*, p. 243, Lapland.

Mineauxia (sic) *villigera*, Motschulsky, Bull. Soc. Nat. Mosc. xl. 1. p. 40, Crimea and Caucasus.

Dermestidæ.

Tiresias serra. The larva found in old fungi on *Pinus abies*. Kawall, Stett. ent. Zeit. 1867, p. 123.

Dermestes subcostatus, sp. n., Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 22, Old Calabar.

Attagenus ensicornis, sp. n., Wollaston, Col. Hesp. p. 80, Cape Verde Islands.

Byrrhidæ.

Anthrenus museorum. Lucas remarks upon the transformations of this species, and especially upon the persistence of the spines on the head and in the vicinity of the stigmata in the pupa. Bull. Soc. Ent. Fr. 1867, pp. xxv, xxvi.

Limnichus fragilicornis, sp. n., Wollaston, Col. Hesp. p. 80, Cape Verde Islands (S. Antão).

Chelonarium le contei, sp. n. (Dej.), Thomson, Physis, i. p. 84, North America.

Lucanidæ.

Cornelius remarks (Stett. ent. Zeit. 1867, pp. 435–437) upon the occurrence of unusual numbers of *Lucanus cervus* in the neighbourhood of Elberfeld, and thinks that, as in the case of the Cockchafer, this excessive abundance may be a periodical phenomenon. He mentions the retention of life by the head and fore part of these insects when all the rest of the body has been torn away, and also the disproportion of the sexes, the ♀ ♀ being to the males as 6 to 1.

Abeille de Perrin remarks upon variations in the number of lamellæ in the antennæ of *Lucanus cervus* (Ann. Soc. Ent. Fr. 4e sér. vii. p. 70).

Ceratognathus alboguttatus, sp. n., Bates, Ent. M. Mag. iv. p. 54, New Zealand.

Scarabæidæ.

Coprides.

Von Harold (Col. Hefte, i. pp. 1–8) discusses the grouping and characters of the smaller Coprides allied to *Chœridium* and *Canthidium*, and indicates the following as natural subdivisions of this group :—

I. Scatonomidæ. Body oblong, smooth; forehead unarmed; upper part of eye elongate-oval, minute; posterior tibiæ simple; posterior tarsi with broad, shortly triangular joints; claws minute or deficient; prosternum without pits. Genera :—

A. Anterior tibiæ with teeth at the apex and not on the lateral margin. *Scatonomus.*

B. Anterior tibiæ with lateral teeth ..... *Onthocharis.*

II. Chœridiidæ. Body oblong, ovate or rotundato-ovate; upper part of eye usually minute, oblong-oval, sometimes larger (*Uroxys*); anterior tibiæ in ♂ scalpriform at apex, in ♀ scalpriform or obliquely truncate; posterior tibiæ simple or transversely carinate; joints of posterior tarsi elongate; claws normal; prosternum usually foveolate. Genera :—

A. Forehead transversely keeled.

1. Posterior tibiæ simple ..... *Caccobius.*
2. Posterior tibiæ with transverse keels ..... *Scatimus.*

B. Forehead unarmed or tuberculate, not keeled.

1. Eyes rather large; sides of thorax longitudinally foveolate. *Uroxys.*
2. Eyes minute; thorax with round foveoles.
   a. Anterior tibiæ scalpriform in both sexes; joint 1 of posterior tarsi dilated at apex; mesosternum distinct. *Chœridium.*
   b. Anterior tibiæ scalpriform in ♂, obliquely truncate in ♀; joint 1 of posterior tarsi elongate, scarcely dilated; mesosternum very short ..... *Canthidium.*

III. Copridæ (*genuini*). Body oblong-ovate, ovate or subquadrate, more or less hairy beneath; upper part of eye oval, rather large; anterior tibiæ obliquely truncate at apex; posterior simple, denticulate or transversely carinate; claws distinct. (Genera *Ontherus*, *Pinotus*, *Copris*, &c.)

The genera *Coptorrhina*, *Sarophorus*, *Macroderes*, and *Pedaria*, referred to

the *Scatonomidæ* by Lacordaire, belong to the *Ateuchides*, as also probably *Odontoloma* (Boh.), unknown to the author. The South American *Pedariæ* are nearly allied to *Chœridium*, and should form a distinct genus beside it.

Of the genus *Canthidium* (Erichs.), as above restricted, Von Harold describes 61 species, of which 50 are new; *C. lentum* and *thalassinum* (Erichs.) are unknown to him, and he reprints their diagnoses (*l. c.*) p. 60. Other known species referred to this genus by the author are:—*Copris sulcata* (Perty), *C. decorata* (Perty)=*Canthon scapularis* (Cast.), *Coprobius thalassinus* (Sturm) changed to *Canthidium smaragdinum*, *Chœridium punctato-striatum* (Sturm) changed to *lucidum*, *Scarabæus melanocephalus* (Oliv.), *Onthophagus onitoides* (Perty), *Chœridium nitidum* (Blanch.)*, *Copris ruficollis* (Germ.)=*Onth. cruentus* (Perty), *Chœridium collare* (Cast.), and *Ateuchus chrysis* (Fab.).

In a supplementary paper (Col. Hefte, ii. p. 61) Von Harold describes *C. lentum* (Erichs.), and mentions that *Chœridium viride* and *virescens* (Luc.) are very nearly allied to *C. sulcatum* (Perty). He also gives additional notes on the following species:—*C. smaragdinum, obscurum, auricolle, kiesenwetteri, kraatzi, lævigatum, versicolor, dispar, lucidum* (Harold), *onitoides* (Perty) with which *Chœrid. trituberculatum* (Luc.) is identical; *C. lugubre* (Harold)=*breve* (Germ.); *C. mœstum* (Har.); *C. lebasi* and *globulum* (Har.); *C.* (*Ateuchus*) *humerale* (Germ.); *C. collare* (Cast.); *C. aterrimum, picipes* (Har.); *C. muticum* (Boh.); *C. rutilum* (Har.).

Of *Caccobius* (Thoms.), with which the uncharacterized genus *Histeridium* (Motsch.) is identical, Von Harold describes (Col. Hefte, ii. pp. 1–16) 14 species, 7 of which are new. The known species are *Scarabæus schreberi* (Fab.), *Onthophagus mundus* (Ménétr.), *O. histeroides* (Ménétr.)=*anthracinus* (Fald.)=*nigellus* (Kiesenw.), *Ateuchus aterrimus* (Fab.), *O. fuliginosus* (Roth) =*tigreanus* (Harold), *Copris vulcanus* (Fab.), and *O. nigritulus* (Klug).

Onthophagus. Von Harold has published (Col. Hefte, ii. pp. 23–59) a revision of the species of this genus, which he regards as including the genera *Chalcoderus, Psilax, Monapus*, and *Phalops* (Erichs.). He describes a good many new species, and remarks on the known species and their alliances. The following synonymic indications may be cited:—*O. laminatus* (MacL.)=*capella* (Kirby); *O. erichsoni* (Hope) belongs to the group named *Psilax* by Erichson; *O. flavolineatus* (Blanch.)=*posticus* (Erichs.); *O. cupreoviridis* (Blanch)=*anisocerus* (Erichs.); *O. furcatus* (MacL.)=*cereus* (Hope)=*auritus* (Erichs.); *O. rubrimaculatus* (MacL.)=*quadripustulatus* (Fab.); *Scarab. bipustulatus* (Fab.) is described, p. 34; *O. capella* (Boisd.)=*australis* (Guér.); *O. collaris* (Fahr.)=*loricatus* (Klug); *O. aulicus* (Fahr.)=*lanista* (Cast.); *O. worsissa* (Roth) includes 2 species, namely *O. tuberculicollis* (Cast.) and *worsissa* (Roth), characterized by Von Harold (pp. 40, 41); *Scarab. tridens* (Fab.) is an *Onthophagus* here described (p. 46). At pp. 45, 46, Von Harold gives a list of the Abyssinian species of this genus, of which he enumerates 19.

Von Harold (Col. Hefte, i. pp. 73–75) remarks upon and explains the confusion that has arisen with regard to two species of *Gymnopleurus* described respectively by Wiedemann and MacLeay under the name of *G. mundus*. Wiedemann's species, from the East Indies, was the first described; it was subsequently described by Castelnau under the name of *G. capicola* (Hope). For

* Vide infrà sub sp. nov. p. 253.

this species the author retains the name of *G. mundus* (Wied.). *G. mundus* (MacLeay), from the Cape of Good Hope, no doubt identical with *G. capicola* (Hope, MS.),= *G. fastiditus* (Dej. Cat.), and under this denomination it is briefly described by Von Harold (*l. c.* p. 74).

Von Harold gives the following indications of the synonymy of some of Germar's species from the inspection of the types (Berl. ent. Zeitschr. 1867, p. 244):—*Copris gracilicornis*= *Onthoph. spinifex* (Fab.); *C. analis* is an *Onthophagus*; *C. inhiata, crinicollis, bicuspis, semicænea*, and *semicuprea* belong to *Copris* (subg. *Pinotus*, Erichs.); *C. pauperata* is a *Chœridium*; *C. brevis*= *Canthidium lugubre* (Har.); *C. ruficollis* is a *Canthidium* and = *Onth. cruentus* (Perty); *Ateuchus humeralis* is a *Canthidium*; *A. lituratus* and *bispinus* belong to *Canthon*, as also *A. probus* (= *C. praticola*, Lec.) and *cinctellus*; *A. vividus* is a *Chœridium*.

Hensel found a small species of *Onthocharis* living on a large *Bulimus* in Brazil. The beetle fed upon the mucous secretion of the mollusk, and was frequently drawn within the shell by its contraction. Stein, Berl. ent. Zeitschr. 1867, p. 212.

New species:—

Ateuchus erichsoni (Westerm.), Harold, Col. Hefte, ii. p. 94, East Indies.

Gymnopleurus melanarius (Dej.), Harold, Col. Hefte, i. p. 76, Sumatra.

Gymnopleurus æruginosus (Koll.), Harold, Col. Hefte, i. p. 94, Egypt and Kordofan.

Deltochilum burmeisteri, Harold, *l. c.* p. 76, Quito; *D. erodioides*, Harold, *l. c.* p. 77, Peru.

Epilissus silphoides, Harold, *l. c.* p. 77, Brazil.

Megathopa columbica, Harold, *l. c.* p. 78, Columbia.

Canthon. Von Harold (*l. c.*) describes the following new species of this genus:—*C. prasinus* (Dej.) and *muticus*, p. 78, Brazil; *C. modestus*, p. 78, Columbia; *C. seminulum*, p. 79, Bahia; *C. ochropus*, ibid., Mexico; *C. angustatus*, ibid., Costa Rica; and *C. subhyalinus* (Schauf.), ibid., New Granada.

Uroxys coarctata (Dej.), Harold, Col. Hefte, i. p. 94, Columbia; *U. atorrina*, Harold, *l. c.* p. 95, Brazil.

Scatonomus insignis, Harold, *l. c.* p. 80, Brazil.

Onthocharis chalcea, Harold, *l. c.* p. 80, Brazil.

Chœridium puncticolle, Harold, Col. Hefte, ii. p. 95, and *C. mutilatum*, Harold, ibid., Brazil.

Deltorhinum (g. n.) *batesi*, Harold, *l. c.* p. 96, Ega.

Onthocharis germari, Harold, *l. c.* p. 96, Rio Janeiro.

Ontherus kirschii, Harold, *l. c.* p. 96, Bogota; *O. brevipennis*, Harold, *l. c.* p. 97, New Granada.

Pinotus. Harold (*l. c.*) describes the following new species of this genus:—*P. mutans*, p. 97, Uruguay; *P. sericeus*, ibid., *P. satanas* (Buq.), p. 98, *P. protectus*, ibid., and *P. achamas* (Buq.), p. 99, Columbia; *P. irinus* (Dej.), p. 97, Cayenne; *P. depressicollis*, p. 98, and *P. fissus* (Germ.), p. 99, Brazil; and *P. andicola*, p. 98.

Canthidium. Von Harold (Col. Hefte, i.) describes the following new species of this genus:—*C. obscurum*, p. 18, Columbia; *C. dispar*, p. 19 (= *Chœrid. congener*, Dej.), Brazil; *C. foveolatum*, p. 21, Brazil, Columbia, and ?Mexico; *C. kraatzi*, p. 24, *C. lævigatum*, p. 25, *C. kiesenwetteri*, p. 26,

C. auricolle, p. 27, and *C. marseuli*, p. 28, Brazil; *C. apicatum*, p. 30, Buenos Ayres; *C. cuprinum*, p. 33, Corrientes; *C. glabricolle* (Dej.), p. 34, and *C. globulum*, p. 36, Brazil; *C. bituberculatum*, p. 36, Buenos Ayres; *C. mœstum*, p. 37, Brazil or Columbia; *C. lebasi* (Dej.), p. 38, Columbia; *C. lugubre*, p. 39, Brazil; *C. puncticolle*, ibid., Brazil and Mexico; *C. aterrimum*, p. 40, *C. flavipes*, p. 42, *C. clypeale*, p. 43, and *C. haagi*, p. 46, Brazil; *C. picipes*, p. 47, Columbia; *C. inerme*, p. 48, *C. politum*, p. 49, *C. difficile*, p. 50, Brazil*; *C. nanum*, p. 51, *C. gemmingeri*, p. 52, Columbia; *C. lætum*, p. 53, Mexico; *C. rutilum*, p. 54, *C. rufipes*, p. 57, and *C. versicolor*, p. 58, Brazil. Von Harold also describes (Col. Hefte, ii.):—*C. deyrollei*, p. 63, *C. dohrni*, p. 64, and *C. gerstäckeri*, p. 66, from Southern Cayenne and the Lower Amazons; *C. puncticeps*, p. 68, Montevideo; *C. gracilipes*, p. 69, Cayenne; *C. nobile*, p. 70, South Brazil; *C. taurinum*, p. 71, San João el Rey; *C. quadridens*, p. 73, Upper Amazons; *C. basale*, ibid., Tapajos; *C. batesi*, p. 74, Amazons and Tapajos; *C. æneolum*, p. 76, Tapajos, Para, and Cayenne; *C. paranum*, p. 77, Para; *C. rufinum*, p. 79, Columbia and Upper Amazons; *C. bovinum*, p. 81, Brazil; *C. aureolum*, p. 83 (= *C. nitidum*, Har. C. H. i. nec Blanch.); *C. abbreviatum*, p. 87, Sta. Catharina; *C. stâli*, p. 89, Brazil; *C. metallicum*, p. 90, Tapajos and Para; and *C. discolor*, p. 91, Amazons.

Onthophagus. Von Harold (Col. Hefte, ii.) describes the following new species of this genus:—*O. pentacanthus*, p. 24 (=*4-dentatus*, Hope, nec Fab.), Adelaide; *O. ferox*, p. 26, West and South Australia; *O. atrox*, p. 27, New South Wales; *O. capitosus*, p. 30, North-east Australia; *O. consentaneus*, p. 33 (=*granulatus*, MacLeay, nec Boh.), North-east Australia; *O. haagi*, p. 36, West Australia; *O. nodulifer*, p. 37, North-east Australia; *O. gerstäckeri*, p. 42, Abyssinia; *O. schaufussi*, p. 43, Abyssinia; *O. stenocerus*†, p. 48 (= *gracilicornis*, Fahr. nec Germar), *O. lutulentus*†, ibid. (= *lugubris*, Fahr. nec Roth); *O. virescens*†, ibid. (=*nitidulus*, Klug, Monatsb. 1855, nec Symb. Phys.); *O. bubalus* (Klug, MS.), p. 49, Cape; *O. urus* (Ill. MS.), p. 49, Cape; *O. sticticus*, p. 50, Egypt and Arabia; *O. quadraticeps*, p. 52, Orange State; *O. leucopygus*, p. 53, South Africa; *O. dregei* (Dej.), p. 54, Cape; *O. wittei*, p. 56, South Africa; *O. batesi*, p. 58, from the mouths of the Niger.

Caccobius. Von Harold (Col. Hefte, ii.) describes the following new species of this genus:—*C. denticollis*, p. 5, *C. rufipennis*, p. 8, *C. indicus*, p. 12, from India; *C. punctatissimus*, p. 13, Senegal?; *C. signatipennis*, p. 14, Senegal; and *C. dorsalis*, p. 16, Senegal.

Caccobius jessoensis, Harold, Col. Hefte, i. p. 100, Jesso.

Saprosites. Of this genus Von Harold describes (*l. c.*) the following five new species:—*S. dentipes*, p. 80, *S. puncticollis* and *S. breviusculus*, p. 81, Brazil; *S. meditans* and *parallelus*, p. 81, Columbia.

Aphodiides.

Harold (Berl. ent. Zeitschr. 1867, pp. 278-282) enumerates the Aphodiides of Chili, of which he recognizes 13 species, namely, *Aphodius granarius* (Linn.), *rugosiceps* (Har.), *fulviventris* (Fairm.), *Atœnius derbesis* (Sol.), *stercorator* (Fab.), *gracilis* (Mels.), *chilensis* (Sol.), *Pleurophorus cœcus* (Panz.)=*angustus* (Phil.), *Psammodius nanus* (De G.)=*parvulus* (Chevr.), and

* = *Onthoph. trinodosus* (Boh.); see Col. Hefte, ii. p. 88.

† These species are not described, but merely the change of name indicated.

4 new species. He proposes the following classification of these insects into subordinate groups, in anticipation of a general revision of the Aphodiides, to be published in the 'Coleopterologische Hefte':—

I. Posterior tibiæ with very short apical spurs ..... *Pseudaphodidæ.*
II. Posterior tibiæ with spurs of normal length.
A. Mandibles exposed.
1. Pygidium concealed ..... *Ægialidæ.*
2. Pygidium free ..... *Chironidæ.*
B. Mandibles concealed.
1. Posterior tibiæ transversely carinated..... *Aphodidæ.*
2. Posterior tibiæ simple, without carinæ.
a. Head rough, granulose ..... *Psammodidæ.*
b. Head smooth or rugose-punctate..... *Atænidæ.*

Atænius, g. n., Harold, Col. Hefte, ii. p. 100. Allied to *Euparia*. Pygidium free; posterior tibiæ simple, straight; metasternum not abbreviated. Sp. *A. opacus*, sp. n., Harold, *l. c.* p. 100, Brazil; *A. scutellaris*, Harold, Col. Hefte, i. p. 82, Brazil; *A. opatrinus*, Harold, ibid., Bahia; *A. capitosus* (Chevr. MS.), Harold, *l. c.* p. 83, Columbia and Mexico; *A. perforatus* (Reiche, MS.), Harold, ibid., Columbia; *A. hispidus*, Harold, ibid., Venezuela and Caraccas; and *A. picinus*, Har. Berl. ent. Zeits. 1867, p. 291, Chili.

Aphodius haagi, Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 108, near Astrachan (a mere indication of colour and size).

Aphodius paivanus, Wollaston, Col. Hesp. p. 90, and *A. rendallii*, Woll. *l. c.* p. 91, Cape Verde Islands.

Aphodius gracilipes, Harold, Berl. ent. Zeitschr. 1867, p. 279, and *A. flaveolus*, Harold, *l. c.* p. 280, Chili.

Psammodius cruentus, Harold, *l. c.* p. 292, Chili.

Rhyssemus rugatus, Wollaston, *l. c.* p. 92, Cape Verde Islands.

Euparia costulata, Harold, Col. Hefte, i. p. 82, Brazil; and *E. argentina*, Har. idid. ii. p. 99, San Luis, Mendoza.

Orphnides.

Phœochrous? behrensii, sp. n., Horn, Trans. Amer. Ent. Soc. i. p. 163, California.

Trogides.

Trox (*Omorgus*) *baccatus*, Gerstäcker, Arch. f. Naturg. xxxi. p. 49, Zanzibar.

Trox nobilis, sp. n., Wollaston, Col. Hesp. p. 93, Cape Verde Islands (Fogo).

Glaphyrides.

Lichnanthe canina, sp. n., Horn, Trans. Amer. Ent. Soc. i. p. 164, Oregon.

Melolonthides.

J. Reiset has given (Comptes Rendus, lxv. pp. 1125–1138) a detailed account of the natural history of *Melolontha vulgaris*, with tables of the depths at which this insect is to be met with in its various states under different conditions of temperature, season, &c. He suggests late ploughing in fields much infested with the larvæ, as these rise towards the surface with the increase of temperature. Reiset's paper is accompanied by some remarks by Blanchard and Chevreul (*l. c.* pp. 1138–1140).

Melolontha vulgaris. Kawall (Stett. ent. Zeit. 1867, p. 119) notices a peculiar variety of this species.

Rhizotrogus suturalis (Luc). Ernest Cotty describes the mode in which he collected this and other species in Algeria. Mém. Soc. Linn. du Nord Fr. 1866, pp. 167-168.

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 305, fig. 9) describes and figures a monstrous *Melol. vulgaris*, var. *hippocastani*, having the left intermediate leg reduced almost to half the normal length, and the tarsus with only three joints; and one of *Rhizotrogus ater*, with the left hind tarsus abbreviated (p. 306).

Girard (Ann. Soc. Ent. Fr. 4e sér. vi. pp. 571-576) describes and recommends the moveable fowl-houses invented by Giot, for the purpose of conveying poultry into the fields to destroy the larvæ of *Melolontha*.

New genera :—

Acratus, g. n., Horn, Trans. Amer. Ent. Soc. i. p. 165. Allied to *Chnaunanthus*; palpi long, last joint fusiform; antennæ 10-jointed; pygidium exposed. Sp. *A. flavipennis*, sp. n., Horn, *l. c.* p. 166, Arizona.

Plectrodes, g. n. Horn, Trans. Amer. Ent. Soc. i. p. 166. Allied to *Hypotrichia* (Lec.); tarsal claws dissimilar, the anterior with a long subbasal tooth; maxillary palpi long, last joint large, ovate, curved, deeply channelled outside. Sp. *P. pubescens*, sp. n., Horn, *l. c.* p. 167, California.

Cyphochilus, g. n., C. O. Waterhouse, Ent. M. Mag. iv. p. 141. Allied to *Leucopholis*; maxillæ short, truncate at apex, divided into three unequal lobes; labrum unequally divided by a notch; mentum bitruncate, the truncatures unequal; clypeus distinctly separated. Known sp. *Mel. candidus* (Oliv.) and *L. niveosquamosa* (Blanch.). New sp. *C. tricolor*, C. O. Wat. *l. c.* p. 142, Siam; *C. farinosus* (Reiche, MS.), C. O. Wat. *l. c.* p. 143, North China; and *C. apicalis*, C. O. Wat. *l. c.* p. 144, China.

New species : —

Exopholis lacordairei, C. O. Waterhouse, *l. c.* p. 146, Borneo.

Pachydema decipiens, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 396, Morocco.

Rhizotrogus. Fairmaire (Ann. Soc. Ent. Fr. 4e sér. vii.) describes the following new species of this genus from Morocco and Algeria :—*R.* (*Geotrogus*) *olcesii*, p. 396; *R. asperiventris*, p. 397; *R. nitidiventris* and *R. politus*, p. 398; and *R. tenuispina*, p. 399.

Dasydera cooperi, Horn, *l. c.* p. 164, California.

Coniopholis elephas, Gerstäcker, *l. c.* p. 40, and *C. melolonthoides*, Gerst. *l. c.* p. 41, Zanzibar.

Hypopholis conspurcata, Gerstäcker, *l. c.* p. 42, Zanzibar.

Schizonycha rorida, Gerstäcker, *l. c.* p. 43, Zanzibar.

Trochalus chrysomelinus, Gerstäcker, *l. c.* p. 43, *T. corinthia* and *T. sulcipennis*, Gerst. *l. c.* p. 44, Zanzibar.

Serica aberrans, Gerstäcker, *l. c.* p. 45, Zanzibar.

Rutelides.

Anisoplia austriaca (Herbst) occurred in 1867 in great quantities in the Banat, and inflicted much injury on the wheat-crops. Pelikan, Verh. zool.-bot. Ges. in Wien, xvii. pp. 693-696. See also Künstler, *l. c.* pp. 922-924.

Anomala (*Heteroplia*) *ancilla*, Gerstäcker, Arch. f. Naturg. xxxi. p. 45, *A. kersteni*, Gerst. *l. c.* p. 46, and *A. tendinosa*, Gerst. *l. c.* p. 47, Zanzibar.

Adoretus cephalotes, Gerstäcker, *l. c.* p. 47, and *A. jipensis*, Gerst. *l. c.* p. 48, Zanzibar.

Adoretus kœchlini, sp. n., Marseul, L'Abeille, iii. p. lxxx, Algeria.

Cotalpa ursina, sp. n., Horn, Trans. Amer. Ent. Soc. i. p. 168, California &c.

Dynastides.

Dipelicus (Hope). C. O. Waterhouse (Trans. Ent. Soc. Lond. v. pp. 531–533) recharacterizes this genus, which, he states, is closely allied to *Horonotus*, and indicates the characters of both sexes of *D. cantori* (Hope), *l. c.* p. 532, pl. 27. figs. 2 & 3, and of the male of *D.* (*Geotrupes*) *geryon* (Fab.), *l. c.* p. 533, pl. 27. fig. 4.

Alcidosoma, g. n. Castelnau, Rev. et Mag. de Zool. 1867, p. 113. Allied to *Chalcosoma*; tooth of interior of femora wanting; horn of anterior margin of pronotum wanting in ♂; coloration of *Megalosoma*. Sp. *A. siamensis*, sp. n., Cast. *l. c.* p. 114, pl. 14. figs. 1 & 2.

Stypotrupes candezei, sp. n., Vollenhoven, Tijdschr. v. Ent. 2nd ser. i. p. 222, pl. 11. figs. 1–4, Celebes.

Syrichthus clathratus, sp. n., Gerstäcker, Arch. f. Naturg. xxxi. p. 40, Zanzibar.

Cetoniides.

Oxythyrea stictica. The occurrence of this species near Manchester noticed by J. Hardy, Ent. M. Mag. iii. p. 280. Injurious to agriculture, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 924, 925.

New genera:—

Trymodera, g. n., Gerstäcker, Arch. für Naturg. xxxi. p. 34. Allied to *Plæsiorrhina*; pronotum small, declivous in front, sinuated behind; scapulæ very short; mesosternal process passing the coxæ, truncated at apex, subcompressed; legs slender, anterior and posterior tibiæ unidentate. Sp. *T. aterrima*, sp. n., Gerst. *l. c.* p. 34, Zanzibar.

Plectrone, g. n., Wallace, Proc. Ent. Soc. 1867, p. xciv. Allied to *Chalcothea*; differs in the form of the thorax and elytra, and in the remarkably spurred hind tibiæ of the ♂. Sp. *Macronota nigrocærulea* (Waterh.) and *M. tristis* (Westw.).

(*Sternoplus*, g. n., Wallace, *l. c.* p. xcvii. Type *Cetonia schaumii* (White). Not characterized.)

Euremina, g. n. (West.), Wallace, *l. c.* p. xcvii. Allied to *Macroma*; habitus of *Cremastocheilus* and of some *Cnemidæ*. Sp. *E. agnella*, sp. n. (Westw.), Wall. *l. c.* p. xcvii, Penang.

New species:—

Heterorhina. Diagnoses of the following new Malasian species, by A. R. Wallace, are published in Proc. Ent. Soc. Lond. 1867, p. xciii:—*H. florensis*, *malayana*, *nigrotestacea*, *borneensis*, *mitrata*, and *modesta*.

Clinteria bowringii, *malayensis*, and *flora*, Wallace, *l. c.* p. xciii, Malasia (diagnoses).

Agestrata parryi, Wallace, *l. c.* p. xciii, Borneo (diagn.).

Lomaptera. Wallace (*l. c.*) gives diagnoses of the following Malasian

species:—*L. striata, timoriensis, agni, esmeralda, ceramensis, cambodiensis, coneinna, australis, inermis.*

Macronota. Wallace (*l. c.*) gives diagnoses of the following Malasian species:—*M. celebensis, castanea, nigerrima, vidua, guttulata, variegata, cervina, corticalis, thoracica, mouhotii, carbonaria, marmorata, annæ,* and *antennata.*

Schizorhina aruana, bouruensis, Wallace, *l. c.* p. xcv, Aru, Bouru (diagn.).

Anacamptorhina fulgida, Wallace, *l. c.* p. xcv, New Guinea (diagn.).

Euryomia. Wallace (*l. c.*) gives the diagnoses of the following new Malasian species:—*E. rustica, raja, trivittata, cincta, bella, celebensis, æthiessida, papua, lateralis, perviridis, tenera, aspera, molucearum, vernalis, bowringii, sinuata, labecula, incerta, fulvipicta, cretata, aromatica, penanga.*

Cetonia. Wallace (*l. c.*) gives the diagnoses of the following new Malasian species:—*C. ciocolatina, inanis, celebica, dubia, obtusa, arrogans, porcina, solorensis, crassipes, C.? megaspilota, C.? irrorata.*

Euremina agnella, Wallace, *l. c.* p. xcvii, Penang (diagn.).

Plæsiorrhina specularis, Gerstäcker, Arch. für Naturg. xxxi. p. 33, Zanzibar.

Heteroclita (?) *corpulenta,* Gerstäcker, *l. c.* p. 35, Zanzibar.

Discopeltis lateralis, Gerstäcker, *l. c.* p. 36, Zanzibar.

Oxythyrea lucidicollis, Gerstäcker, *l. c.* p. 37, Zanzibar.

Cetonia (*Pachnoda*) *ephippiata,* Gerstäcker, *l. c.* p. 38, Zanzibar.

Cœnochilus appendiculatus, Gerstäcker, *l. c.* p. 39, Zanzibar.

Buprestidæ.

Chevrolat, in his revision of the Coleoptera of Cuba (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 573–588) enumerates 30 species of this family, 11 of which are new. The known species described are:—

Chalcophora virginica (Drury)=*mariana* (Linn.)=*virginiensis* (Herbst); *Pelecopselaphus lanieri* (Chevr.); *Psiloptera aurifera* (Oliv.)=*amethystipes* (Lap. & Gory); *P. torquata* (Dalm.); *Dicerca tuberculata* (Chevr.)=*dumolini* (Lap. & Gory)+*scobina* (Chevr.), *consobrina* (Mels.); *Buprestis* (*Ancylochira lineata* (Fab.), var. *maculipennis* (Lap. & Gory); *B.* (*A.*) *decora* (Oliv.) =*salisburiensis* (Herbst); *B.* (*A.*?) *chalcoptera* (J. Duv.); *Cinyra multipunctata* (Oliv.); *Melanophila notata* (Lap. & Gory); *M. longipes* (Gory)= *immaculata* (Gory)=*appendiculata* (Lap. & Gory); *Anthaxia subsinuata* (Lap. & Gory); *Polycesta cubæ* (Chevr.); *P. angulosa* (J. Duv.); *Acmæodera pulcherrima* (J. Duv.); *A. cubæcola* (J. Duv.); *Actenodes auronotata* (Lap. & Gory), var. *sobrina* (Mann.); *Chrysobothris lepida* (J. Duv.); *C. impressa* (Fab.)=*fraterna* (Mann.)=*serripennis* (Lap. & Gory).

Anthaxia. Reiche (Ann. Soc. Ent. Fr. 4e sér. vi. pp. 577–580) remarks upon the synonymy of some of the species described in Marseul's Monograph of the *Buprestidæ*. *A. divina* (Reiche)=*diadema* (Fab.) if not distinct; *A. sponsa* (Kies.)=*anatolica* (Chevr.); *A. viminalis* (Cast.)=*scutellaris* (Gené); *A. chlorocephala* (Luc.)=*umbellatarum* (Fab.); *Bup. deaurata* (Gmel.) has the priority over *auricolor* (Herbst); *A. semicuprea* (Küst.) is a distinct species. Reiche adds that *Buprestis* (*Perotis*) *unicolor* (Oliv.) has the priority over *tarsata* (Herbst).

Fairmaire (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 617–620) gives a list of 53 species of this family as inhabiting Chili, from which the following syno-

nymic indications may be derived:—*Psiloptera verrucifera* (Fairm.)=*prolongata* (L. & G.); *Anthaxia marginicollis* (Sol.)=*verecunda* (Erichs.).

Fairmaire also describes (*l. c.* pp. 621–629) several known species, namely:—*Psiloptera fastidiosa* (Fairm.), *Hypoprasis harpagon* (Fairm.), *Anthaxia subæqualis* (Fairm.), *Stigmodera cyanicollis* and *S. consobrina* Fairm.), and *S. chiliensis* (Guér.), and *Chrysobothris bothrideres* (Fairm.), and cites the characters of 4 species described by Philippi in the Stett. ent. Zeitung for 1860.

The following synonyms of Mendozan species described by Fairmaire are also given by him (*l. c.* p. 630):—*Psiloptera cupreo-fossa* (Fairm.)=*plagiata* (L. & G.); *P. germainii* (Fairm.)=*Cæculus americanus* (L. & G.); and *Tyndaris attenuatus* (Fairm.)=*Ptosima irrorata* (L. & G.)

Psiloptera xerces (Mars.)=*chlorana* (Lap.) according to Abeille de Perrin (Ann. Soc. Ent. Fr. 4e sér. vii. p. 69).

Dicerca ænea and *berolinensis*. Short notes on the larvæ by Kawall, Stett. ent. Zeit. 1867, p. 124.

Chrysochroa ephippigera (White) is referred by E. Saunders to *C. ocellata* (Fab.) as a variety (Trans. Ent. Soc. Lond. 3rd ser. v. p. 509, figured, pl. 25. fig. 1).

Corœbus bifasciatus (Oliv.). Abeille de Perrin describes the habits and transformations of this species, which is said by him to be injurious to oak trees (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 66, 67).

Lampra conspersa (Fab.). Gernet describes and figures the larva of this species. Horæ Soc. Ent. Ross. v. p. 17, pl. 2. fig. 5.

Agrilus biguttatus (Fab.). Larva noticed by Kawall, Stett. ent. Zeit. 1867, p. 123.

Chrysobothris chrysostigma. Larva and habits noticed by Kawall, Stett. ent. Zeit. 1867, p. 123.

Gyascutus obliteratus (Lec.). Habits noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 290.

Sphenoptera beckeri (Dohrn). Dohrn publishes further remarks upon the characters of this species, described by him in 1866. Stett. ent. Zeit. 1867, p. 144.

Acmæodera pulchra (Fab.). Ernest Cotty gives an account of his obtaining an abundance of this species from an old felled poplar trunk in Algeria. Mém. Soc. Linn. du Nord de Fr. 1866, pp. 168–169.

H. Fuss notices an example of *Conognathus variabilis* with 2 tarsi on the right intermediate tibia. Berl. ent. Zeits. 1867, p. 407.

Xenopsis, g. n., E. Saunders, Trans. Ent. Soc. Lond. 3rd ser. vol. v. p. 514. Allied to *Castalia*; eyes large; antennary cavities minute; elytra subtruncate at apex; tarsi dilated, joint 1 pyriform, 2 shorter, 3 and 4 very short. Sp. *X. lævis*, sp. n., Saund. *l. c.* p. 514, pl. 25. fig. 9, Penang.

New species:—

Chrysochroa similis, E. Saunders, Trans. Ent. Soc. Lond. 3rd ser. v. p. 429, pl. 22. fig. 3, Penang; *C. deyrollii*, E. Saund. *l. c.* p. 430, pl. 22. fig. 4, India; *C. parryi*, E. Saund. *l. c.* p. 430, pl. 22. fig. 5, Ceylon; *C. andamanensis*, E. Saund. *l. c.* p. 431, pl. 22. fig. 6, Andaman Islands.

Steraspis aurovittata (Hope, MS.), E. Saunders, *l. c.* p. 432, pl. 22. fig. 1, Sierra Leone.

Cyphogastra auripennis, E. Saunders, *l. c.* p. 432, pl. 22. fig. 2, Guam.
Chrysodema lambii, E. Saunders, *l. c.* p. 510, pl. 25. fig. 2, Penang.
Iridotœnia obscura, E. Saunders, *l. c.* p. 511, pl. 25. fig. 3, Penang.
Pœcilonota nigrofasciata, E. Saunders, *l. c.* p. 511, Penang.
Melobasis purpuriceps, E. Saunders, *l. c.* p. 512, pl. 25. fig. 6, Penang.
Buprestis marseuli, Garbiglietti, L'Abeille, iii. p. lxvii, Egypt.
Psiloptera costata, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 622, Chili.
Psiloptera straba, Chevrolat, *l. c.* p. 575, Cuba.
Anthaxia ruginosa, Fairmaire, *l. c.* p. 624, Chili.
Anthaxia gerneti, Morawitz, Horæ Soc. Ent. Ross. iv. p. 35, near the Aral Lake.
Philanthaxia aureoviridis, E. Saunders, *l. c.* p. 513, Penang.
Stigmodera errata, Fairmaire, *l. c.* p. 627 (=*S. chiliensis*, Fairm. nec Guér.), and *S. monozona*, Fairm. ibid., Chili.
Castalia auromaculata, E. Saunders, *l. c.* p. 513, pl. 25. fig. 4, Penang.
Halecia verecunda, Chevrolat, Ann. Soc. Ent. Fr. 4e sér. vii. p. 573, and *H.*? *quadricolor*, Chevrolat, *l. c.* p. 574, Cuba.
Cinyra costulifera, Chevrolat, *l. c.* p. 579, and *C. sulcicollis*, Chevr. *l. c.* p. 580, Cuba.
Acmœodera marginenotata, Chevrolat, *l. c.* p. 583, Cuba.
Acmœodera. Marseul describes the following new species of this genus (Ann. Soc. Ent. Fr. 4e sér. vii.):—*A. bisseptem-guttata* (Laferté), p. 48, Columbia; *A. soudana*, p. 49, Soudan; *A. triangularis*, ibid., *A. stellata*, p. 50, *A. semi-marmorata* (Deyr.), p. 52, *A. apice-rubra* (Deyr.), p. 53, Lake N'Gami; *A. bellivestis*, p. 51, *A. subprasina*, p. 54, Abyssinia.
Ptosima chinensis, Marseul, *l. c.* p. 54, North China.
Sphenoptera solskyi, Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 108, near Astrachan.
Chrysobothris tumida, Chevrolat, *l. c.* p. 585, Cuba.
Chrysobothris. Of this genus, E. Saunders (*l. c.*) describes the following new species from Penang:—*C. longula*, p. 515; *C. discicollis*, ibid. pl. 25. fig. 7; *C. foveiceps*, p. 516, pl. 25. fig. 8; and *C. similis*, p. 517.
Corœbus pascoei, E. Saunders, *l. c.* p. 518, pl. 25. fig. 5, and *C. analis*, E. Saund. *l. c.* p. 518, Penang.
Agrilus pauciguttatus, E. Saunders, *l. c.* p. 519, and *A. cupricauda*, E. Saund. *l. c.* p. 520, Penang.
Agrilus denticornis, Chevrolat, *l. c.* p. 586, Cuba.
Taphrocerus lœsicollis, Chevrolat, *l.c.* p. 587, and *T. timidus*, Chevr. ibid., Cuba.
Leiopleura compactilis, Chevrolat, *l. c.* p. 588, Cuba.

Eucnemidæ.

Chevrolat (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 588–596) describes 14 species of this family from Cuba, 7 of which are new. The known species are as follows:—*Drapetes nigripennis* (J. Duv.); *D. tunicatus* (Bonv.); *D. bicolor* (Cast.) =*cyanipennis* (J. Duv.); *D. azureus* (J. Duv.); *Dendrocharis* (*Galba*) *bombycina* (Guér.); *Hylochares lanieri* (Guér.); and *Nematodes* (*Metabletus*) *lepricuri* (Cast.).

New species:—

Fornax repulsus, Chevrolat, Ann. Soc. Ent. Fr. 4e sér. vii. p. 591, and *F. luridus* (Dej.), Chevr. ibid., Cuba.

Microrhagus pyrrhopus, Chevrolat, *l. c.* p. 592, Cuba.
Dromæolus ischiodontoides*, Chevrolat, *l. c.* p. 592, Cuba.
Adelothyreus quadrimaculatus*, Chevrolat, *l. c.* p. 593, Cuba.
Nematodes (Emathion) rugicollis, Chevrolat, *l. c.* p. 594, and *N. (Sphærocephalus) simulans*, Chevr. *l. c.* p. 595, Cuba.

Elateridæ.

Chevrolat (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 596–614) describes 49 Cuban species of this family, of which only 5 are new. The known species are:—*Adelocera subcostata* (Cand.); *Calais primaria* (Cand.); *C. patricia* (Cand.); *Hemirhipus fascicularis* (Fab.); *Anoplischius depressipennis* (Cand.); *A. pyronotus* (Cand.); *A. venustus* (Dej., J. Duv.) = *seminiger* (Cand.); *A. sagranianus* (J. Duv.) = *lineipennis* (Cand.); *A. ruficeps* (Cand.); *Dicrepidius ramicornis* (Pal. B.); *Ischiodontus antennatus* (Cand.); *I. striatus* (Cand.); *I. oblitus* (Dej., Cand.); *Eudactylus schaumii* (Cand.); *E. cyanipennis* (Dej., Cand.); *Monocrepidius pinguis* (Cand.); *M. lividus* (De G.); *M. bifoveatus* (Pal. B.); *M. memorabilis* and *stricturus* (Cand.); *Æolus dorsalis* (Say); *Æ. elegans* (Fab.); *Æ. binotatus* and *discicollis* (Cand.); *Æ. angulatus* (Fab.); *Heteroderes amplicollis* (Gyll.); *Anchastus rufiventris* (Chevr., Cand.); *A. rufescens* (Dej., Cand.); *Megapenthes sturmii* (Germ.); *M. opaculus* and *tæniatus* (Cand.); *Horistonotus badius* and *asthenicus* (Cand.) *Esthesopus pœdicus* (Cand.); *E. hepaticus* (Erichs.); *Pyrophorus noctilucus* (Linn.); *P. hesperus*, *lychnus*, and *lychniferus* (Cand.); *P. havaniensis* (Lap.) = *coruscus* (Dej., Germ., Cand.); *Ludius havaniensis* (Cand.); *Glyphonyx gundlachii* (Cand.); *G. fusculus* (Erichs.); and *G. recticollis* (Say)=*pumilus* (Erichs., Cand.).

Cardiophorus exaratus (Erichs.). Abeille de Perrin describes the habits of this species, as observed by him near Marseilles. The males are more numerous than the females, and during the day scarcely any of the latter are to be seen; in the evening the females come out, and copulation takes place, when two or three males are often found united with one female. (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 65-66.)

Agriotes gilvellus (Ziegl.). Perty (Mitth. naturf. Ges. in Bern, 1867, p. 306, fig. 7) describes and figures an example with a vesicular tubercle in each elytron.

Agriotes lineatus, &c. On the injury done by these insects to corn-crops, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. p. 925.

New species:—

Elater coccinatus, Rye, Ent. M. Mag. iii. p. 249, Britain.
Elastrus dolosus (Janson, MS.), Crotch, Proc. Zool. Soc. 1867, p. 386, pl. 23. fig. 8, Azores.
Dima perezii, Seidlitz, Berl. ent. Zeitsch. 1867, p. 178 (= *Celox dima*, Schauf.), Sierra Guadarrama.
Meristhus setarius, Chevrolat, Ann. Soc. Ent. Fr. 4e sér. vii. p. 596, Cuba.
Hemirhipus viduus, Chevrolat, *l. c.* p. 598, Cuba.
Monocrepidius sericatus, Chevrolat, *l. c.* p. 604, Cuba.
Horistonotus crux-nigra, Chevrolat, *l. c.* p. 610, Cuba.
Silesis scabriusculus, Chevrolat, *l. c.* p. 614, Cuba.

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* New genera, to be described by H. de Bonvouloir.

Cebrionidæ.

Ernest Cotty notices the occurrence of an undetermined species of *Cebrio* in the nest of a Bee-eater at Lalla-Maghrnia in Algeria. Mém. Soc. Linn. du Nord de Fr. 1866, p. 170.

Cebrio. Fairmaire (Ann. Soc. Ent. Fr. 4e sér. vii.) describes the following new species of this genus from Barbary and Algeria:—*C. luctuosus*, p. 400; *C. reichei* and *C. pilifrons*, p. 401; *C. costicollis* and *C. impressifrons*, p. 402; and *C. scutellaris*, p. 403.

Dascyllidæ.

C. G. Thomson (Skand. Col. ix. p. 340) refers *Eucinetus* to his family *Catopidæ* (see p. 242).

Cyphon coarctatus and *fuscicornis* are ♂ and ♀ of the same species, according to Kiesenwetter, Berl. ent. Zeits. 1867, p. 407.

Malacodermata.

Lycides.

Eros affinis (Payk.) is figured from a British specimen by Rye, Ent. Ann. 1868, front. fig. 6.

Lampyrides.

Phosphænus hemipterus. Larva noticed by Kawall, Stett. ent. Zeit. 1867, p. 124.

J. von Becker publishes (Œfvers. Finska Vet.-Soc. Förh. viii. pp. 15–21) some observations on the luminous organ of *Lampyris splendidula.*

Luciola bimyxata, sp. n., Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 321, Old Calabar.

Lampyris pharos, sp. n., Murray, *l. c.* p. 322, fig. 3 (p. 323), Old Calabar.

Telephorides.

Telephorus rufus. An example with abbreviated and deformed elytra is described by Perty, Mitth. naturf. Ges. in Bern, 1867, p. 306.

Desor records the occurrence of living larvæ of *Telephorus fuscus* on the snow near Grattes after a strong wind (see Record, 1866, p. 339). Bull. Soc. Sci. Nat. Bâle, vii. p. 514.

Telephorus darwinianus, sp. n., Sharp, Trans. Ent. Soc. Lond. 3rd ser. v. p. 436, Aberlady; *T. scoticus*, sp. n., Sharp, *l. c.* p. 437, Perthshire.

Ichthyurus. Fairmaire (Stett. ent. Zeit. 1867) describes six new species of this genus:—*I. semperi*, p. 114, Luzon; *I. forficuloides*, p. 115, Sarawak; *I. dohrnii*, ibid., Luzon; *I. scripticollis*, p. 116, Luzon; *I. bicaudatus*, ibid., Ceylon; and *I. inermis*, ibid., Ceylon.

Drilides.

Drilus. Schaufuss (Stett. ent. Zeit. 1867) describes the following new species of this genus:—*D. posticus*, p. 82, *D. bicolor*, p. 83, and *D. rectus*, p. 84, Syria; *D. frontalis*, ibid., Asia Minor; and *D. amabilis*, p. 85, Minorca.

Malacogaster nigripes, sp. n., Schaufuss, *l. c.* p. 85, Spain.

Melyrides.

Henicopus. The true home of this genus, according to Kiesenwetter (Berl.

Ent. Zeits. 1867, p. 109), is Spain, which possesses 22 of the 23 known European species, whilst 19, or perhaps 20, of these are peculiar to the Iberian peninsula. The occurrence of *H. calcaratus* near Rome is supposed by Kiesenwetter to be erroneously reported; and he assumes that *H. armatus* will be found in Spain, from its distribution in France and North Africa. Of the 19 exclusively Iberian species (incl. *H. calcaratus*) Kiesenwetter here gives a list, with diagnoses of the species described by Jacquelin Duval in the second part of his 'Glanures Entomologiques,' remarks upon other species, and descriptions of two new ones. *H. brachialis* (Duv.)=*praticola* (Waltl).

Dasytes. Of this genus Kiesenwetter (*l. c.* pp. 114–118) enumerates seven Spanish species, and characterizes, of known species, *D. nigropunctatus* (Küst.) = *asperulus* (Graells), *D. terminalis* (J. Duv.) = *Dasytes X* (Waltl) and his own *D. croceipes.* Of the 7 species 3 are new.

Dolichosoma. Of this genus Kiesenwetter enumerates 3 Spanish species (*l. c.* p. 119).

Lobonyx æneus. On the mode of occurrence of this species in Spain, see Kiesenwetter, *l. c.* p. 119.

Haplocnemus. Kiesenwetter (*l. c.* pp. 119–124) enumerates 12 Spanish species, 2 of which are described as new. The following known species are characterized:—*H. tumidus, cylindricus, albipilis, limbipennis,* and *pellucens* (Kies.), *montivagus* and *consobrinus* (Rosenh.).

Danacea. Kiesenwetter (*l. c.* pp. 125–127) enumerates 3 Spanish species of this genus, and describes *D. atripes* (Graells) and *D. nana* (Kiesenw.). The third species is new.

Amauronia hispana (Kiesenw.) is described by Kiesenwetter, *l. c.* p. 126.

Dolichosoma. Kiesenwetter (*l. c.* pp. 136–140) publishes a revision of the species of this genus, and indicates the occurrence among them of well-marked subordinate groups, which he distinguishes as subgenera, under the names of *Dolichosoma* (*lineare,* Rossi, *simile,* Br., *filum,* Fairm.), *Dolichophron* (*hartungii,* Woll., and 1 new species), and *Psilothrix* (*severum,* Kies., *femorale,* Moraw., *protensum,* Gené, *melanostoma,* Br., *smaragdinum,* Luc., *illustre,* Woll., *nobile,* Ill., and 1 new species). Kiesenwetter further indicates the division of the species of *Psilothrix* into 3 groups.

Charopus glaber (Kiesenw.) = *Troglops marginalis* (Waltl), according to Kiesenwetter, *l. c.* p. 134.

Attalus miniatocollis (Tarn.) described and figured by Crotch, Proc. Zool. Soc. 1867, p. 387, pl. 23. fig. 5.

According to Abeille de Perrin (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 69–70), *Axinotarsus semilimbatus* (Fairm.) = *Malachius limbifer* (Kies.), and *Anthocomus lateplagiatus* (Fairm.) is a distinct species, allied to *A. terminatus* (Ménétr.).

Malachius æneus devours the larva of *Meligethes æneus,* according to Schmid, Zeitschr. ges. Naturw. xxx. p. 549. Said to injure corn-crops in Austria, by Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 926–928.

New species :—

Pecteropus milleri, Wollaston, Col. Hesp. p. 97, Cape Verde Islands (S. Vicente).

Anthocomus sellatus, Solsky, Horæ Soc. Ent. Ross. iv. p. 91, Sarepta.

Hedybius cæruleus, Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 321, Old Calabar.

Henicopus perezi, Kiesenwetter, Berl. ent. Zeits. 1867, p. 111, Madrid; *H. privignus*, Kiesenw. *l. c.* p. 113, taf. 1. fig. 1, Sierra de Jaen.

Dasytes oculatus, Kiesenwetter, *l. c.* p. 115, Sierra de Jaen; *D. ærosus*, Kiesenw. *l. c.* p. 116, Pyrenees; and *D. subfasciatus*, Kiesenw. *l. c.* p. 118, Escorial.

Dasytes callosus, Solsky, *l. c.* p. 32, Samara.

Dasytiscus posticus, Solsky, *l. c.* p. 34; and *D. scutellaris*, Solsky, ibid., Algeria.

Dolichosoma (*Psilothrix*) *splendidum*, Schaufuss, Stett. ent. Zeit. 1867, p. 81, Mallorca; *D.* (*P.*) *ultramarinum*, Schauf. *l. c.* p. 82, Rhodes.

Dolichosoma cylindromorphum, Kiesenwetter, Berl. ent. Zeitschr. 1867, p. 138, pl. 1. fig. 8, Syria; *D. pharaonum*, Kiesenw. *l. c.* p. 139, pl. 1. fig. 9, Egypt.

Haplocnemus barnevillei, Kiesenwetter, *l. c.* p. 121, Spain; *H. aubei*, Kiesenw. *l. c.* p. 122, Spain.

Danacea lata, Kiesenwetter, *l. c.* p. 125, Andalusia.

Amauronia elegans, Kiesenwetter, *l. c.* p. 127, Spain.

Cleridæ.

Erymanthus horridus (Westw.). Murray identifies Thomson's *E. vesuvioides* with this species. Ann. & Mag. N. H. 3rd ser. xx. p. 319.

Apteroclerus, g. n., Wollaston, Col. Hesp. p. 98. Allied to *Dozocolletus* (Chevr.); last joint of antennæ scarcely longer than penultimate; prothorax transversely subquadrate, obtusely rounded at posterior angles. Sp. *A. fusiformis*, sp. n., Woll. *l. c.* p. 99, Cape Verde Islands (S. Vicente).

Microclerus, g. n., Wollaston, *l. c.* p. 99. Allied to *Thanasimus*, but prothorax and buccal organs nearly as in preceding genus. Sp. *M. dohrnii* and *M. euphorbiæ*, sp. n., Woll. *l. c.* p. 101, Cape Verde Islands.

Thanasimodes, g. n., Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 319. Allied to *Thanasimus*; last joint of max. palpi securiform; prothorax subquadrate, its angles rounded; elytra long, posterior femora not reaching their apex. Sp. *T. metallicus*, sp. n., Murr. *l. c.* p. 320, fig. 2, Old Calabar.

Lymexylonidæ.

Murray (Ann. & Mag. N. H. 3rd ser. xx. pp. 317–318) discusses the systematic position of this family, which he regards as most nearly related to the group of genera including *Serropalpus, Phloiotroia*, &c. among the Heteromera.

Melittomma, g. n., Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 314. Allied to *Hylocœtus* and *Atractocerus*; eyes very large; ocellus wanting; antennæ imbricated in ♂, subserrate in ♀; thorax elongate. Sp. *Hyl. brasiliensis* (Cast.); *M. castaneum*, sp. n., Murray, *l. c.* p. 316 (*cum figg.*), Old Calabar.

Ptinidæ.

Ptinus. Kiesenwetter remarks (Berl. ent. Zeitschr. 1867, p. 127) that the Portuguese species of this genus described by Illiger have been greatly mistaken by later writers. He indicates that *P. lusitanicus* (Charp.)=*dilophus* (Ill.), pl. 1. fig. 2; *P. dilophus* (Boield.)=*lusitanus* (Ill.), and *P. lusitanus* (Boield.) is a ♀ of the same species; *P. alpinus* (Boield.)=*irroratus* (Kiesenw.); *P. germanicus* (Oliv. &c.)=*palliatus* (Perr.); *P. agricultor* (Rosenh.)

=*abbreviatus* (Boield.); *P. solitarius* (Rosenh.)=*obesus* (Luc.); *P. ruber* (Rosenh.) and *P. cisti* (Chevr.)=*spitzyi* (Boield.); *P. sycophanta* (Ill.) and *P. raptor* (Sturm)=*bidens* (Oliv.). Kiesenwetter also figures *P. coarcticollis* (Sturm), pl. 1. fig. 7.

Niptus globulus (Boield.) is distinct from *P. globulus* (Ill.), Kies. *l. c.* pl. 1. fig. 5.

Stein refers to the observations of Hensel upon the damage done to tobacco by *Pseudochina serricornis* (Fab.)=*Xyletinus testaceus* (Sturm). Berl. ent. Zeitschr. 1867, p. 211.

Kraatz remarks that *Xylet. testaceus* (Redt.) is distinct from the above-mentioned species (*l. c.* note).

F. Smith describes the ticking of *Anobium tessellatum*. Ent. M. Mag. iii. p. 279.

New species:—

Ptinus quercus, Kiesenwetter, Berl. ent. Zeits. 1867, p. 129, pl. 1. fig. 3, Pyrenees; *P. hirticornis*, Kiesenw. *l. c.* p. 130, pl. 1. fig. 4, Andalusia and Madrid.

Niptus constrictus, Kiesenwetter, *l. c.* p. 134, pl. 1. fig. 6, Sierra de Cordoba.

Microptinus echinatus, Wollaston, Col. Hesp. p. 103, Cape Verde Islands.

Sphæricus tuberculicollis, Wollaston, *l. c.* p. 105, Cape Verde Islands (S. Iago).

Piarus lowei, Wollaston, *l. c.* p. 106, Cape Verde Islands (Fogo).

Notiomimus lineatus, Wollaston, *l. c.* p. 108, Cape Verde Islands (S. Vicente).

Xyletinus tenebricosus, Solsky, Horæ Soc. Ent. Ross. v. p. 35, Koslow (East Russia).

Pseudochina obscura, Solsky, *l. c.* p. 36, Sarepta.

Bostrichidæ.

Apate. Murray (Ann. & Mag. N. H. 3rd ser. xx. p. 84) remarks upon the confusion existing with regard to the species of this genus, and characterizes the following known African species:—*A. terebrans* (Pall.), p. 84; *A. muricata* (Fab.), p. 85 (*cum fig.*); and *A. monacha* (Oliv.), p. 87. Murray also describes and figures *Bostrichus productus* (Imh.), *l. c.* p. 90.

Apate luctuosa (Oliv.)=*capucina* (Linn.), according to Abeille de Perrin, Ann. Soc. Ent. Fr. 4e sér. vii. p. 70.

New species:—

Apate degenera, Murray, Ann. & Mag. N. H. 3rd ser. xx. p. 87, Old Calabar.

Bostrichus protrudens, Murray, *l. c.* p. 88 (*cum figg.*), *B. brevicornutus*, Murr. *l. c.* p. 91 (*cum figg.*), and *B. brunneus*, Murr. *l. c.* p. 92, Old Calabar.

Bostrychus grayanus, Wollaston, Col. Hesp. p. 109, Cape Verde Islands (S. Iago).

Sinoxylon pubescens, Murray, *l. c.* p. 93, *S. fumatum*, Murr. *l. c.* p. 94, and *S. nitidipenne*, Murr. ibid., Old Calabar.

Cissidæ.

Cis punctulatus occurs at Rannoch. T. Blackburn, Ent. M. Mag. iv. p. 17.

Lyctus æqualis, Wollaston, Col. Hesp. p. 111, *L. jatrophæ*, Woll. *l. c.* p. 112, and *L. obsitus*, Woll. ibid., Cape Verde Islands.

MELASOMATA.

Zophosides.

ACHILLE DEYROLLE'S posthumous monograph of the Zophosides (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 73–248) greatly enlarges our knowledge of the insects of this subfamily. It contains descriptions of a great number of new species; and the simple genus *Zophosis*, hitherto admitted in it, is here replaced by eight, as shown in the following table (p. 81). The types of all the new genera except one are described as new. There is a confusion in the naming of the genera, which will be noticed below :—

I. Claws equal.
  A. Posterior angles of prothorax salient, embracing the shoulders of the elytra.
    * Joint 1 of anterior tarsi nearly equal to the corresponding spur; joints 2–4 transverse.
      a. Mentum entire ..... 1. HOLOGENOSIS.
      b. Mentum emarginate ..... 2. ZOPHOSIS.
    † Joint 1 of anterior tarsi much longer than the corresponding spur; joints 2–4 elongate ..... 3. CHEIROSIS.
  B. Posterior angles of prothorax not embracing the base of the elytra; elytra fulvous or brown, with white spots .... 4. CALOSIS.

II. Claws unequal.
  A. Epipleural ridge entire.
    * Antennæ smooth.
      a. Body shortly oval; eyes moderately prominent above. 5. ANISOSIS [1].
      b. Body oblong-oval; eyes very prominent above. 6. OPHTHALMOSIS.
    † Antennæ beset with hairs; elytra suddenly narrowed at the extremity like a tail ..... 7. UROSIS [2].
  B. Epipleural ridge indistinct for the greater part of its length; elytra cordate, villose at the sides ..... 8. CARDIOSIS.

Zophosis. A. Deyrolle (*l. c.*) figures the following known species of this genus:—*Z. quadrilineata* (Oliv.), pl. 1. fig. 7; *Z. angolensis* (Erichs.), pl. 1. fig. 5; *Z. testudinaria* (Fab.), pl. 1. fig. 2; *Z. submetallica* (Sol.), pl. 1. fig. 6 (details of mouth); *Z. muricata* (Fab.), pl. 2. fig. 8.

New genera and species :—

Hologenosis, g. n., A. Deyrolle, *l. c.* p. 82. (See table above.) Sp. *H. laceratus* (Chevr.), sp. n., A. Deyr. *l. c.* p. 83, pl. 1. fig. 1, Cape of Good Hope.

Cheirosis, g. n., A. Deyrolle, *l. c.* p. 220. (See table above.) Sp. *C. ovata* (Fald.), pl. 2. fig. 12.

Calosis, g. n., A. Deyrolle, *l. c.* p. 222. (See table above.) Sp. *C. amabilis* (Boh.), sp. n., A. Deyr. *l. c.* p. 224, pl. 3. figs. 14, 15, South Africa.

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[1] *Onychosis* in the body of the paper.
[2] *Anisosis* in the body of the paper.

Onychosis, g. n., A. Deyrolle, *l. c.* p. 226. (*Anisosis* in table, p. 265.) Sp. *O. gracilipes* (Melly), sp. n., A. Deyr. *l. c.* p. 228, pl. 2. fig. 13 (♀, *Z. gibbus*, Melly), Benguela, Natal.

Ophthalmosis, g. n., A. Deyrolle, *l. c.* p. 229. (See table, p. 265.) Sp. *O. longipes*, sp. n., A. Deyr. *l. c.* p. 231, pl. 3. fig. 16, Guinea.

Anisosis, g. n., A. Deyrolle, *l. c.* p. 232. (*Urosis* in table, p. 265.) Sp. *A. caudatus*, sp. n., A. Deyr. *l. c.* p. 234, pl. 4. fig. 17, Benguela.

Cardiosis, g. n., A. Deyrolle, *l. c.* p. 235. (See table, p. 265.) Sp. *C. moufleti*, sp. n., A. Deyr. *l. c.* p. 238, pl. 4. fig. 18, Cape Negro.

Zophosis. The following new species of this genus are described by A. Deyrolle (*l. c.*):—*Z. bocandei*, p. 107, Senegambia; *Z. osmanlis*, p. 114, Syria; *Z. orientalis*, p. 115, Syria, Dauria; *Z. truquii*, p. 116, Smyrna; *Z. faldermanni*, ibid., Persia; *Z. puella*, p. 120, Senegal; *Z. madagascariensis*, p. 121; *Z. praocioides*, p. 122, Zanzibar; *Z. caffer* (Eckl. & Zeyh.), p. 124, Cape of Good Hope; *Z. inexplicita* (Dej.), p. 125, Caffraria; *Z. dregei*, p. 127, Cape of Good Hope; *Z. angusticostis*, p. 130, Lake N'Gami; *Z. solieri*, p. 132, Lake N'Gami; *Z. gracilicornis*, p. 135, Cape of Good Hope; *Z. burkei*, p. 136, South Africa; *Z. chevrolatii*, p. 139, Cape of Good Hope; *Z. similis*, p. 140, Lake N'Gami; *Z. murrayi*, p. 141, Lake N'Gami; *Z. montrouzieri*, p. 142, Lake N'Gami; *Z. subœnea*, p. 143, Lake N'Gami; *Z. subcordata*, p. 144, Lake N'Gami; *Z. rotundata*, p. 145, Lake N'Gami; *Z. mellyi*, p. 146, South Africa; *Z. difficilis*, p. 147, Lake N'Gami; *Z. obsoleta* (Winth.), p. 148, South Africa; *Z. castelnaudi*, p. 149, Lake N'Gami; *Z. lævigata*, p. 150, Cape of Good Hope; *Z. emilia*, p. 151, Caffraria; *Z. sinuatocollis*, p. 152, Lake N'Gami; *Z. balyi*, p. 153, Cape of Good Hope; *Z. dejeanii*, p. 154, Cape of Good Hope; *Z. candezei*, p. 155, Cape of Good Hope; *Z. impunctticollis*, p. 156, Cape of Good Hope; *Z. haagii*, p. 157, Cape of Good Hope; *Z. distincta*, p. 158, Natal; *Z. plicata*, p. 161, Cape of Good Hope; *Z. racinei*, p. 161, Cape of Good Hope; *Z. glabricollis*, p. 162, Cape of Good Hope; *Z. mniszechii*, p. 163, Lake N'Gami; *Z. sexcostata*, p. 165, West Africa; *Z. migneauxii*, p. 171, Arabia; *Z. armeniaca*, p. 172, Armenia; *Z. humberti*, p. 177, Cape?; *Z. miliaris*, p. 179, Cape?; *Z. parallela*, p. 180, pl. 1. fig. 3, and pl. 2. fig. 10 (details), South Africa?; *Z. nigrocæneus*, p. 181, Cape; *Z. crypticoides*, p. 182, pl. 1. fig. 4, Caffraria; *Z. mæklini*, p. 186, Egypt; *Z. bohemanni*, p. 188, Egypt; *Z. sulcata* (Klug), p. 189, Egypt and Arabia; *Z. plicatipennis*, p. 190, Nubia; *Z. approximata* (Dej.), p. 195, Algeria; *Z. ghiliani*, p. 196, origin unknown; *Z. posticalis*, p. 199, Egypt; *Z. dilatata* (Erichs.), p. 208, Egypt, Syria, &c.; *Z. orbiculata* (Latr.), p. 209, Syria; *Z. marseuli*, p. 210, Algeria; *Z. lethierryi*, p. 211, Algeria; *Z. wollastonii*, p. 212, Caucasus; *Z. zuberi*, p. 213, Algeria; *Z. rotundata* (Sol.), p. 215, Egypt, Arabia; *Z. orbicularis* (Boh.), p. 216, pl. 2. fig. 9, Natal, Cape Negro; *Z. acuminata*, p. 217, Natal; *Z. benguelensis*, p. 218, Benguela; *Z. elongata*, p. 219, pl. 2. fig. 11, Benguela.

Adesmiides.

Lucas remarks on the white coloration of certain species of *Adesmia* and *Leucolæphus*, and on the variability of *Adesmia langii* (Guér.). Bull. Soc. Ent. Fr. 1867, p. lxxii.

Tentyriides.

Horn (Proc. Ent. Soc. Phil. vi. pp. 293–294) discusses the characters of

Usechus lacerta (Motsch.), which he refers to the subfamily *Tentyriidæ*, in the immediate vicinity of the *Zopherini*. He considers it to form the type of a new tribe, which he introduces into Leconte's classification as follows:—

Tibial spurs very minute.
Anterior coxæ widely separated.
Eyes transverse, finely granulated ..... *Zopherini.*
Eyes rounded, coarsely granulated ..... *Usechini.*
Anterior coxæ narrowly separated; antennæ 11-jointed..... *Stenosiini.*
Anterior coxæ contiguous; antennæ 10-jointed ..... *Dacoderini.*

Psammocryptus minutus (Tausch.) lives in society in human ordure. Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 109.

Auchmobius infaustus (Lec.) and *Craniotus pubescens* (Lec.), noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 291.

Oxycara. Wollaston (Col. Hesp.) describes the following new species of this genus from the Cape Verde Islands:—*O. ebenina*, p. 172, S. Vicente; *O. castanea*, ibid. (=*hegeteroides*, Woll. nec Erichs.), S. Vicente; *O. lævis*, p. 174, S. Nicolão; *O. cribrata*, p. 175, S. Iago; *O. similis*, ibid., Fogo; *O. irrorata*, p. 176, Brava; *O. curta*, p. 177, Fogo.

Zopherides.

G. H. Horn (Trans. Amer. Ent. Soc. i. pp. 150–162) gives descriptions of the species of *Zopherus* (Gray) inhabiting the United States. He enumerates six, of which he gives a table (*l. c.* p. 162); three of them are described a new.

Zopherus guttulatus, sp. n., Horn, *l. c.* p. 160, Texas; *Z. opacus*, sp. n., Horn, *l. c.* p. 161, Nevada; and *Z. gracilis*, sp. n., Horn, *l. c.* p. 162, Arizona.

Adelostomides.

Dacoderus striaticeps (Lec.) and *Arœoschizus costipennis* (Lec.), noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 291.

Akisides.

Morawitz, in the introductory remarks to a revision of the species of *Akis* inhabiting Russia (Horæ Soc. Ent. Ross. iii. pp. 1–48), refers to numerous errors and imperfections in Kraatz's 'Revision der Tenebrioniden der alten Welt.' He indicates that Kraatz has neglected the sexual distinction furnished by the difference in the punctation of the abdomen in ♂ and ♀ of most, if not all, the *Akisides*, as pointed out by Solier, and remarks on the relation of the ribs on the elytra of many species to the pleuræ. With regard to extra-Russian species, Morawitz indicates that *Pimelia grossa* (Oliv.)= *Tenebrio grossus* (Linn.)=*P. grossa* (Fab.), and is from Africa according to Olivier, from Barbary according to Fabricius, and probably identical with *Morica octocostata* (Sol.), which in this case must bear the Linnean name; *Akis salzei* (Sol.)=*A. discoidea* (Quens.) var.; *A. otoës* (Fisch.)=*subterranea* (Dahl); *A. barbara* (Sol.) is probably distinct from *A. spinosa* (Linn.); and *A. terricola* (Ménétr.)=*spinosa* (Linn.). Morawitz finally discusses the genera *Cyphogenia* (Sol.) and *Sarothropus* (Kraatz), and their characters, and arrives at the conclusion that they cannot be maintained. Accordingly, in treating of the Russian species, he unites all under the genus *Akis*, employing

the names *Sarothropus* and *Cyphogenia* for subgeneric groups. Thus group I. Sarothropus includes *A. depressa* (Zubk.) = *gibba* (Ménétr.); group II. Lechriomus *A. limbata* (Fisch.), *A. lucifuga* (Adams) = *A. aurita* (Ménétr., Kr. nec Pall.), and a new species; group III. Cyphogenia *A. funesta* (Fald.)+*rugipennis* and *sepulchralis* (Fald., Kr.), *A. chinensis* (Fald.); *A. gibba* (Fisch.)=*angustata* and *zablotzkii* (Zubk.), *A. aurita* (Pall.)=*truncata* (Gebl.)=*C. zablotzkii* (Kr.).

Akis bienerti, sp. n., Morawitz, *l. c.* p. 27, Herat; *A. cratii* *, sp. n., Morawitz, *l. c.* p. 40 (=*aurita*, Ménétr. = *C. truncata*, Kraatz nec Gebl.), Kisil-Kum Steppe and Lake Indersk.

Scaurides.

Scaurus variolosus, sp. n., Wollaston, Col. Hesp. p. 178, Cape Verde Islands (Fogo).

Blaptides.

Eleodes. The Californian species, when disturbed, elevate the hinder part of the body until they stand almost vertically. When handled, they emit an offensive oily fluid from the anus, which stains the fingers. Horn, Proc. Ent. Soc. Phil. vi. p. 292.

Blaps similis (Fab.). An example with the right hind tibia doubled and the accessory tibia furnished with 2 tarsi is noticed by H. Fuss, Berl. ent. Zeits. 1867, p. 407.

Asidides.

Asida rolphii, sp. n., Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 404, Morocco; *A. obsoleta*, sp. n., Fairm. *l. c.* p. 405, Algeria; *A. olcesii*, sp. n., Fairm. ibid., Morocco; *A. abrupta*, sp. n., Fairm. *l. c.* p. 406, Constantine.

Pimeliides.

Pimelia insignis, sp. n., Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 407, Mogador.

Molurides.

Sepidium uncinatum and *wagneri* (Erichs.). Ernest Cotty notices the mode of occurrence of these species in Algeria. Mém. Soc. Linn. du Nord de Fr. 1866, p. 171.

Sepidium tuberculatum (Klug). Perty (Mitth. naturf. Ges. in Bern, 1867, p. 307, and fig. 10) describes and figures an example with the left antenna cleft.

Pedinides.

Cenoscelis, g. n., Wollaston, Col. Hesp. p. 179. Allied to *Platyscelis* (?); last joint of labial palpi very broad, subhorizontal, elongate oval, flattened and tabular above, convex beneath; joint 1 of posterior tarsi very long, linear. Sp. *C. tibialis*, sp. n., Woll. *l. c.* p. 180, Cape Verde Islands.

Opatrides.

Melanocoma, g. n., Wollaston, Col. Hesp. p. 181. Allied to *Trichosternum*; prosternal lobe horizontal, thickened and a little produced behind; abdo-

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* See p. 203.

minal lobe rotundato-quadrate. Sp. *M. vestita*, sp. n., Woll. *l. c.* p. 182, Cape Verde Islands (Fogo).

Trichosternum nicolense, sp. n., Wollaston, *l. c.* p. 186, and *T. granulosum*, sp. n., Woll. ibid., Cape Verde Islands.

Opatrum clavipes, sp. n., Wollaston, *l. c.* p. 188, Cape Verde Islands.

Trachyscelides.

Anemia crassa, sp. n., Wollaston, Col. Hesp. p. 196, and *A. denticulata*, sp. n., Woll. *l. c.* p. 197, Cape Verde Islands.

Phaleriides.

Phaleria parallela, sp. n., Wollaston, Col. Hesp. p. 201, Cape Verde Islands.

Diaperides.

Frauenfeld notices the larvæ of *Bolitophagus agaricola* (Fab.) and *Diaperis boleti* (Linn.). Verh. zool.-bot. Ges. in Wien, xvii. p. 780.

Ulomides.

Hypophlœus ficicola, sp. n., Wollaston, Col. Hesp. p. 205, and *H. longicollis*, sp. n., Woll. *l. c.* p. 206, Cape Verde Islands (S. Iago).

Diaclina suffusa, sp. n., Wollaston, *l. c.* p. 207, Cape Verde Islands (S. Iago).

Tenebrionides.

Kraatz remarks (Berl. ent. Zeitschr. 1867, p. 394) on the European species of *Tenebrio* and *Menephilus*. He regards *T. transversalis* (Duft.) as =*picipes* (Herbst), with which *noctivagus* (Muls.) is also identical, thus reducing the European species to 4 (*T. opacus*, Duft., *obscurus*, Fab., *molitor*, Linn., and *picipes*, Herbst); *M. loripes* (Ill.) is the ♂ of *M. curvipes* (Fab.).

Cnodalonides.

Xanthothopeia, g. n., Mäklin, Acta Soc. Sci. Fenn. viii. p. 223. Allied to *Titæna*; mesosternum concave, not declivous or excised in front. Sp. *X. rufipennis*, sp. n., Mäklin, *l. c.* p. 223, Caffraria (=*Stenochia rufipennis*, Mus. Berol.).

Camarimena vicina, sp. n., Mäklin, *l. c.* p. 222, Burmah.

Helopides.

Apocrypha anthicoides (Esch.) and *Cononotus sericans* (Lec.). Noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 292.

Helops azoricus, sp. n., Crotch, Proc. Zool. Soc. 1867, p. 390, Azores.

Strongyliides.

Mäklin (Acta Soc. Sci. Fenn. viii.) adopts the genus *Strongylium* in the extent given to it by Lacordaire. He characterizes the genus *Camarimena* (Motsch.) and 3 known species belonging to it (namely, *Str. variabile*, Walk., *Str. parabolicum*, Walk.= *C. ovicauda*, Motsch., and *Str. læviusculum*, Walk.), but regards it as belonging rather to the *Cnodalonides*, with a new genus (*Xanthothopeia*) here proposed by him. The genus *Strongylium* includes 266 species, by far the greater part of which are described as new. Of these no fewer than 189 are inhabitants of

America; *Africa* possesses 28, and the Asiatic continent and islands 43; whilst only 2 species are found in Australia, and 3 in the islands near New Caledonia. The genus *Oploptera* (Chevr.) receives the name of *Otocerus* (p. 484), the former being properly *Hoploptera*, which is already preoccupied for a genus of Birds. Details of the following known genera are figured (pl. 1) :— *Strongylium*, figs. 1–5 and 15; *Otocerus* (= *Oplopter*, Chevr.), figs. 7, 8; and *Phymatosoma*, figs. 13, 14.

Anomœarthrum, subg. n., Mäklin, *l. c.* p. 482. Intermediate between *Strongylium* and *Otocerus*; antennæ very long, slender, slightly compressed, joint 3 about half the length of 4, remainder elongate, inner apical angles not produced. Sp. *A. debile*, sp. n., Mäkl. *l. c.* p. 482, Ceylon; *A. gracile*, sp. n., Mäkl. *l. c.* p. 483, pl. 3. fig. 25, and pl. 1. fig. 6 (antenna), Caffraria.

Epiplecta, g. n., Mäklin, *l. c.* p. 498. Allied to *Strongylium*; antennæ not elongated, robust, joint 3 obconic, much narrower than 4, which is longer than broad, gradually dilated to apex, 5–10 broader than long, compressed. Sp. *E. maculata*, sp. n., Mäkl. *l. c.* p. 499, pl. 4. fig. 27, and pl. 1. fig. 9 (antenna), Cayenne (= ? *Stenochia rugipennis*, Dej.).

Aspidosternum, g. n., Mäklin, *l. c.* p. 500. Allied to *Strongylium*; antennæ robust, joint 3 nearly twice as long as 4, 4–9 subquadrate, a little longer than broad, 10 slightly dilated towards apex, 11 much longer than broad; prosternum very wide between coxæ, dilated and truncate behind. Sp. *Tenebrio cyaneus* (Fab.) = *Helops metallicus* (Fab.).

Cœlolophus, g. n., Mäklin, *l. c.* p. 502. Allied to preceding; antennæ slender, joint 3 about one-half as long again as 4, 8–11 slightly elongate. Sp. *C. schaumii*, sp. n., Mäkl. *l. c.* p. 502, pl. 1. fig. 10 (antenna), and *C. bicarinatus*, sp. n., Mäkl. *l. c.* p. 503, pl. 4. fig. 28, Ceylon.

Elasmocera, g. n., Mäklin, *l. c.* p. 504. Allied to preceding; antennæ somewhat robust, joint 3 shorter than 4, 5–7 wider, 8–11 strongly dilated and compressed. Sp. *E. dentipes*, sp. n., Mäkl. *l. c.* p. 505, pl. 4. fig. 29, and pl. 1. fig. 11 (antenna), Brazil.

Lophocnemis, g. n., Mäklin, *l. c.* p. 505. Allied to preceding; antennæ long, joint 3 one-half longer than 4, 4–6 slightly elongate, 7 dilated at apex, 8–10 much wider and compressed, 11 compressed, longer than broad; femora subclavate, excavated beneath near apex; posterior tibiæ crested before middle. Sp. *L. amabilis*, sp. n., Mäkl. *l. c.* p. 506, pl. 4. fig. 30, and pl. 1. figs. 12 & 16 (antenna and post. leg), Philippine Islands.

Otocerus (= *Oploptera*, Chevr.). Of this genus Mäklin (*l. c.*) describes the following new species :—*O. flavipennis* (Buq., Dej.), p. 486, *O. quinquelineatus*, p. 487; *O. flavolineatus*, p. 488, *O. semiviridis*, ibid., *O. nigriventris*, p. 489, *O. rufescens*, p. 490, *O. squalidus*, p. 491, *O. blanchardi*, ibid., *O. lucasi*, p. 492, *O. scapularis*, p. 493, and *O. quadriimpressus*, p. 494, pl. 3. fig. 26, from Brazil; *O. validicornis*, p. 495, and *O. superbus*, ibid., Cayenne; and *O. versicolor*, p. 496, Brazil and Cayenne.

Phymatosoma vesiculosum, Mäklin, *l. c.* p. 508, pl. 4. fig. 31, and pl. 1. fig. 14 (antenna), Java; *P. tuberosum*, Mäkl. *l. c.* p. 509, Borneo.

Strongylium. Of this genus Mäklin (*l. c.* pp. 225–479) describes 266 species, of which 218 are described as new, or under the MS. names of other authors. The citation of all these names would be of little service, as every one working upon these insects will be compelled to consult Mäklin's memoir.

The geographical distribution of the species is indicated above. The following species are figured:—*S. sallei*, pl. 2. fig. 17; *S. dohrnii*, fig. 18; *S. gigas*, fig. 19; *S. angusticolle*, fig. 20; *S. ambiguum*, fig. 21; *S. conicicolle*, pl. 3. fig. 22; *S. westermanni*, fig. 23; and *S. gravidum*, fig. 24.

Cistelidæ.

Prionychus ater. Transformations noticed by Kawall, Stett. ent. Zeit. 1867, p. 124.

Mycetochares bipustulata. Kawall (ibid.) also notices this species.

Omophlus lepturoides (Fab.), injurious to corn-crops. See Künstler, Verh. zool.-bot. Ges. in Wien, xvii. p. 928.

Heliotaurus rolphii, sp. n., Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 408, Morocco.

Melandryidæ.

Dircæa revelierii (Muls.)=*mollis* (Graells), and *Conopalpus gypsiventris* (Graells)=*carinirostris* (Schönh.), according to Seidlitz, Berl. ent. Zeits. 1867, p. 431.

Melandrya canaliculata. Larva found in rotten hazels. Kawall, Stett. ent. Zeit. 1867, p. 124.

Pedilidæ.

Pseudoscraptia, g. n., Wollaston, Col. Hesp. p. 214. Allied to *Scraptia*? eyes deeply emarginate in front; scutellum rather large; abdomen of 6 (?) segments; joint 1 of posterior tarsi very long, last joint shorter than penultimate. Sp. *P. dimidiata*, sp. n., Woll. *l. c.* p. 215, Cape Verde Islands (S. Antão).

Xylophilus gravidicornis, sp. n., Wollaston, *l. c.* p. 216, Cape Verde Islands (S. Iago).

Anthicidæ.

Anthicus salinus, sp. n., G. R. Crotch, Trans. Ent. Soc. Lond. 3rd ser. v. p. 439, Lymington and Gravesend.

Anthicus reductus, sp. n., Wollaston, Col. Hesp. p. 221, Cape Verde Islands (S. Iago).

Anthicus thyreocephalus, sp. n., Solsky, Horæ Soc. Ent. Ross. iv. p. 93, Sarepta.

Pyrochroidæ.

Snellen van Vollenhoven publishes a posthumous note by J. Wttewaal on the pupa of *Pyrochroa rubens*. Tijdschr. v. Ent. 2de ser. ii. pp. 20–22, pl. 1. fig. 1–6.

Pyrochroa pectinicornis. Larva noticed by Kawall, Stett. ent. Zeit. 1867, p. 123.

Mordellidæ.

Mordella duodecimpunctata (Rossi). Kawall notices the lava, found in rotten birches. Stett. ent. Zeit. 1867, p. 123.

Anaspis brevicornis, sp. n., Wollaston, Col. Hesp. p. 213, Cape Verde Islands (Fogo).

Silaria ochracea, sp. n., Stierlin, Mitth. schw. ent. Ges. ii. p. 223, Sarepta.

Stylopidæ.

Mäklin (Œfvers. Finska Vet.-Soc. Förh. viii. pp. 84–92), in recording

the occurrence of a Stylopized *Andrena* in Finland, gives a general account of the history of the Strepsiptera, and discusses their position in the system. He takes no notice of Gerstäcker's opinion on the latter subject.

L. von Heyden publishes (Berl. ent. Zeitschr. 1867, p. 398) some observations on the occurrence of species of *Xenos* in exotic Hymenoptera. He has detected larvæ in *Eumenes tinctor* (Christ.), *E. fenestralis* (Sauss.), and *Odynerus chloroticus* (Spin.), and possesses two specimens of a *Xenos* bred from the abdomen of the North American *Sphex ichneumoneus* (Linn.). The latter are not well enough preserved to allow them to be described, but they are about one-half larger than *X. peckii* (Germ.), which lives in *Polistes fuscata*.

F. Smith (Proc. Ent. Soc. 1867, p. lxxxviii) notices the occurrence of a species of *Xenos* (?), parasitic on *Paragia decipiens* (Shuck.), in South Australia.

G. A. J. Rothney (Ent. M. Mag. iii. p. 235) notices a case of a male *Stylops* emerging from an *Andrena* five months after the death of the latter.

Meloidæ.

Cantharis vesicatoria. Fermouze has published an inaugural thesis (see p. 207) on this Insect, in which he briefly describes its natural history, and enters at greater length upon its pharmaceutical history and properties. He also notices the Insects and Acari which live in the Cantharides in the shops. Of the latter he enumerates *Tyroglyphus longior* (Gerv.), *T. siculus*, sp. n., *Glyciphagus cursor* (Gerv.), *G. spinipes* (Koch), and *Cheyletus eruditus* (Lat.). In his plate 1 he represents the insect with its young larva and some of the Coleoptera which feed upon the dried Cantharides. The remaining plates are devoted to the Acarina.

On the synonymy of *Mylabris fuesslini*, see Bull. Soc. Ent. Fr. 1867, pp. lxi–lxii.

F. Löw notices the occurrence of the minute young larvæ of *Meloë* upon *Andrena nitida* (K.), and also, on the authority of Bauer, on hairy flies (*Merodon, Microdon, Volucella*, &c.). Verh. zool.-bot. Ges. in Wien, xvii. p. 749.

Phodaga alticeps (Lec.). Habits noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 293. Horn (*l. c.* p. 296) indicates the differences between the ♂ and ♀ of this species, and figures the head and legs of the ♂.

The vesicant Beetles (*Lytta, Epicanta*, &c.) of California live chiefly on species of *Astrogalus*. *Lytta vulnerata* occurs on composite plants. Horn, Proc. Ent. Soc. Phil. vi. p. 292.

Cysteodemus armatus (Lec.). Habits noticed by Horn, Proc. Ent. Soc. Phil. vi. p. 292.

Tegrodera erosa (Lec.). Habits noticed by Horn, ibid.

Mylabris 20-*punctata* (Linn.). Perty describes an example with the left antenna abbreviated and deformed. Mitth. naturf. Ges. in Bern, 1867, p. 306.

Curculionidæ.

Seidlitz (Berl. ent. Zeits. 1867, pp. 431–434) indicates the following synonyms among described species of this family:—*Cneorhinus gracilis* (C. Bris.) = *dispar* (Graells); *C. baudueyi* (C. Bris.) = *carinirostris* (Boh.); *Stropho-*

somus fagi (Chevr.)=var. *coryli* (Fab.); *Brachyderes alboguttatus* (Chevr.) =*gracilis* (Schönh.); *Metallites punctulatus* (C. Bris.)=*Homapterus affinis* (Chevr.); *Myllocerus hispanus* (Chevr.)=*Peritelus gougeleti* (Seidl.); *Chloëbius sulcirostris* (Hochh.)=*psittacinus* (Schönh.); *Pissodes strobili* (Redt.) *validirostris* (Gyll.); and *Bradybatus fallax* (Gerst.)=*Anthonomus elongatulus* (Schönh.).

Brachyderides.

Strophosomus. Seidlitz (Berl. ent. Zeitschr. 1867, p. 179) remarks that the knowledge of the species of this genus has again become confused, partly in consequence of Thomson (in his Skand. Col.) having described the true *S. coryli* (Fab.) as *obesus* (Marsh.) and *vice versâ*, and partly from errors in Chevrolat's revision of the species (Mag. de Zool. 1865). He accordingly gives a tabular synopsis of the European species (*l. c.* pp. 180–182), of which he admits 17, including 5 new ones here described. *S. fagi* (Chevr.) is indicated (p. 183, note) as doubtfully distinct from *S. erinaceus* (Chevr.), of which a detailed description is given.

Sciaphilus. Seidlitz (*l. c.* p. 432) refers *Chiloneus siculus* and *ionicus* to this genus, in which they form, with *S. contrarius* and *muricatus*, a natural group. *Eudipnus* (Thoms.) forms a subordinate group of this genus.

Schaufuss remarks (Col. Hefte, ii. p. 21) that *Metallites cristatus* (Graëlls) = *Sciaphila carinula* (Oliv.), and describes the structure of its funiculus.

Amomphus cottyi (Luc.). Ernest Cotty records his search for this species in Algeria. Mém. Soc. Linn. du Nord de Fr. 1866, p. 173.

Sitones lineellus (Gyll.), its occurrence in Northumberland noticed by T. J. Bold, Ent. M. Mag. iv. p. 82.

Sitones meliloti (Walt.). Habits noticed by Bold, Ent. M. Mag. iv. p. 82.

New genera :—

Dinas, g. n., Wollaston, Col. Hesp. p. 132. Allied to *Foucartia* and *Platytarsus*; femora toothed beneath; rostrum short, subparallel, flattish above, scrobes deep, curved, obliquely drawn far in front of anterior margin of eye. Sp. *D. rugicollis*, Woll. *l. c.* p. 133, *D. elliptipennis*, Woll. *l. c.* p. 134, *D. angustula*, Woll. *l. c.* p. 135, *D. obsita*, Woll. *l. c.* p. 136, and *D. sitonæformis*, Woll. *l. c.* p. 137, Cape Verde Islands.

Asynonychus, g. n., Crotch, Proc. Zool. Soc. 1867, p. 388. Allied to *Brachyderes*; claws free; anterior tibiæ serrate. Sp. *A. godmanni*, sp. n., Crotch, *l. c.* p. 389, pl. 23. fig. 9, Azores.

Neocnemis, g. n., Crotch, *l. c.* p. 389. Allied to *Strophosomus*; tibiæ with a strong spine within at apex; corbeilles not well defined, ciliate at the edge. Sp. *N. occidentalis*, sp. n., Crotch, *l. c.* p. 389, pl. 23. fig. 7, Azores.

Hypsometopus, g. n. (Jek.), Kirsch, Berl. ent. Zeitschr. 1867, p. 222. Rostrum longer than head, narrowed in middle, dilated in front, scrobes almost superior, broad, suddenly curved down, remote from the eyes; antennæ terminal, scape thickened at apex, joints 1 & 2 of scape elongate, 3 & 4 very short, obconic; femora with a minute tooth, corbulæ open, not cavernous, Sp. *H. inquinatus* (Schönh.), Kirsch, *l. c.* p. 223, Bogotá (=*H. sus*, Jek.).

Menetypus, g. n., Kirsch, *l. c.* p. 233. Allied to *Hadromerus*; rostrum as long as head, a little narrower, quadrangular, flat above; scape slender; funiculus with joints 1 & 2 obconic, 3–7 globose, 7 largest; club oval, acute, triarticulate. Sp. *M. hadromeroides*, sp. n., Kirsch, *l. c.* p. 234, Bogotá.

Bothriodontes, g. n., Kirsch, *l. c.* p. 241. Allied to *Synthlibonotus*; rostrum one half longer than head, narrower, quadrangular, slightly dilated towards apex, a small oblong pit on each side before the eyes acutely incised on each side when looked at vertically. Sp. *B. squalidus*, sp. n., Kirsch, *l. c.* p. 243, Bogotá.

Chamælops, g. n., Kirsch, *l. c.* p. 235. Allied to *Platyomus*; rostrum short, attenuate at apex; funiculus slender, joints elongato-obconic, 2 longest; eyes oblong. Sp. *C. munitus*, sp. n., Kirsch, *l. c.* p. 236, Bogotá.

Prepodellus, g. n., Kirsch, *l. c.* p. 239. Allied to *Exophthalmus*; rostrum obtuse-angled behind, dilated before insertion of antennæ, not emarginate at apex; scrobes remote from eyes; antennæ subterminal; joints 1 & 2 of funiculus shortly obconic, remainder globose; last segment of abdomen transverse. Sp. *P. nigriclavis*, sp. n., Kirsch, *l. c.* p. 240, and *P. ruficornis*, sp. n., Kirsch, ibid., Bogotá.

New species:—

Cneorhinus setarius, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 408, Morocco.

Strophosomus. Seidlitz (Berl. ent. Zeitschr. 1867) describes the following new species of this genus:—*S. picticollis*, p. 183, *S. constrictus*, ibid., Andalusia; *S. alticola*, p. 184, Sierra Nevada; *S. monachus*, ibid., Granada; and *S. albolineatus* (Beck. MS.), ibid. note, Sarepta.

Sciaphilus hampei, Seidlitz, *l. c.* p. 432, Transsylvania; *S. rasus*, Seidl. *l. c.* p. 433, Dalmatia.

Brachyderes scutellaris, Seidlitz, *l. c.* p. 185, Cordova.

Sitones ononidis, Sharp, Trans. Ent. Soc. Lond. 3rd ser. v. p. 438, Herne Bay.

Thylacites rolphii, Fairmaire, *l. c.* p. 409, Morocco.

Thylacites longipilis, Seidlitz, *l. c.* p. 186, Western Spain; *T. pusillus*, Seidl. ibid., Sierra Nevada.

Amphideritus rugicollis, Kirsch, Berl. ent. Zeitschr. 1867, p. 223, and *A. squamosus*, Kirsch, *l. c.* p. 224, Bogotá.

Mimographus. Kirsch (*l. c.*) describes the following new species of this genus from Bogotá:—*M. amandus* (Buq. MS.), p. 225; *M. jekelii*, p. 226; *M. viridanus*, ibid.; *M. lugens*, p. 227; *M. mœstus*, ibid.; *M. argutulus* (Buq. MS.), p. 228; *M. ardesiacus* (Jek. MS.), p. 229; *M. micans*, ibid.; *M. rufipes*, p. 230; *M. suturalis*, ibid.; *M. dentipes*, p. 231.

Hadromerus ruficrus, Kirsch, *l. c.* p. 232, and *H. impressicollis*, Kirsch, *l. c.* p. 233, Bogotá.

Compsus deplanatus, Kirsch, *l. c.* p. 237, and *C. bituberosus*, Kirsch, ibid., Bogotá.

Exophthalmus crassicornis, Kirsch, *l. c.* p. 238, Bogotá.

Otiorhynchides.

Schaufuss remarks (Col. Hefte, ii. pp. 21–22) that *Otiorhynchus echinatus* and *foveicollis* were described by Hochhuth in the Moscow Bulletin, and that the same author described an *O. elongatus* in 1847. Schaufuss proposes the name of *O. francolinus* for Stierlin's *O. elongatus* (*l. c.* p. 22).

Laparocerus azoricus (Drouet). This species is described and figured by Crotch, Proc. Zool. Soc. 1867, p. 388, pl. 23. fig. 6.

Omias. Gautier des Cottes (Mitth. schweiz. ent. Gesellsch. ii. pp. 161–162) remarks upon several errors in respect of species of this genus in De Marseul's last Catalogue.

Otiorhynchus ligustici (Linn.) noticed as injurious to the vine, by Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 948–950.

Otiorhynchus gastonis and *O. henonii*, spp. nn., Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 410, Algeria.

Misomermus canaliculatus, sp. n., Schaufuss, Col. Hefte, ii. p. 20, Mallorca.

Phyllobius hirtus and *P. irroratus*, spp. nn., Seidlitz, Berl. ent. Zeitschr. 1867, p. 187, Andalusia.

Rhytirhinides.

Gronops pallidulus, Wollaston, Col. Hesp. p. 131, Cape Verde Islands (S. Vicente).

Molytides.

Liosomus robustus, sp. n., Seidlitz, Berl. ent. Zeitschr. 1867, p. 187, Andalusia.

Scythropides.

Scythropus dentipes, sp. n., Seidlitz, Berl. ent. Zeitschr. 1867, p. 185, Andalusia.

Hyperides.

Capiomont has published (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 417–560) a monographic revision of this group. He restores the genus *Macrotarsus* (Schönh.) placed among the Cylindrorhinides by Lacordaire. He describes the structure of the insects composing this group at great length, indicates the species of which the larvæ have been observed, and discusses the views of various authors as to their classification and affinities. The *Hyperides* are divided by Capiomont into 2 subtribes, characterized as follows:—

1. *Cépurides.* Metathoracic episterna broad, much dilated at their anterior extremity (⅓ total length); mesothoracic epimera large.

2. *Hypérides vrais.* Metathoracic episterna narrow, not much dilated anteriorly (less than ⅓ total length); mesothoracic epimera but slightly developed.

The *Cépurides* include the following genera:—

I. Joint 7 of funiculus not confounded with the club; suture of elytra not gibbous before the middle.

A. Pronotum tapezoidal..... 1. *Cepurus* (Schönh.).

B. Pronotum not trapezoidal, usually transverse.

1. Tibiæ of moderate length.

a. Rostrum not twice as long as thick, cylindrical.

* Last abdominal segment in ♂ as long as 2 preceding together. 2. *Cephalalges* (Schönh.).

† Last abdominal segment in ♂ shorter than 2 preceding together. 3. *Isorhinus*, g. n.

b. Rostrum at least twice as long as broad, widened at the tip.

* Joint 2 of antennæ longer than 1.
4. *Chloropholus*, g. n.
† Joint 2 of antennæ never longer than 1.
a. Pronotum strongly transverse, much rounded at the sides, declivous in front..... 5. *Larinosomus*, g. n.
β. Pronotum a little wider than long, not declivous in front, scarcely rounded at the sides.
6. *Phelypera*, g. n.
2. Tibiæ very long ..... 7. *Eurychirus* (Wat.).
II. Joint 7 of funiculus confounded with the club, which seems to consist of 5 joints; suture gibbous before the middle.
8. *Tylopterus*, g. n.

Of the genera of *Hypérides vrais*, Capiomont gives the following synoptical table (*l. c.* pp. 474–475):—

I. Antennæ subterminal; rostrum clearly canaliculate above throughout its length ..... 1. *Alophus* (Schönh.).
II. Antennæ submedian or median; rostrum never canaliculate above throughout.
A. Rostrum somewhat suddenly dilated at extremity; pterygia slightly indicated..... 2. *Lepidophorus* (Kirby).
B. Rostrum never suddenly dilated at extremity; no pterygia.
1. Branches of mesothoracic epimera forming at their union a very open angle.
a. Joints of posterior tarsi compressed, fringed at the edges, not spongy beneath ..... 3. *Macrotarsus* (Schönh.).
b. Joints of posterior tarsi never compressed, always spongy beneath.
* Eyes rounded, scape of antennæ passing their upper margin.
4. *Bubalocephalus*, g. n.
† Eyes oval or oblong, scape of antennæ never attaining their upper margin ..... 5. *Hypera* (Germ.).
2. Branches of mesothoracic epimera forming at their union nearly a right angle.
a. Eyes oval or oblong.
* Funiculus of 7 joints ..... 6. *Phytonomus* (Schönh.).
† Funiculus of 6 joints..... 7. *Limobius* (Schönh.).
b. Eyes rounded..... 8. *Coniatus* (Germ.).

The genus *Alophus* is considered by Capiomont to belong rather to the *Barynotides*; its species are not described by him. *Phytonomus* he thinks rather an unnatural assemblage; and *Hypera* (the last here treated in detail) is divided by him into 4 subgenera, which he names *Pachypera*, *Hypera* (prop.), *Brachypera*, and *Pseudhypera*. The plates (11 & 12) accompanying this memoir contain details of the various genera.

Phytonomus polygoni. The larva feeds on the knots of carnations, &c. Kawall, Stett. ent. Zeit. 1867, p. 123.

New genera:—

Isorhinus, g. n., Capiomont, *l. c.* p. 443. (See table, p. 275.) Sp. *Phytonomus confusus* (Chevr., Schönh.); *I. fusco-maculatus*, sp. n. (Chevr.), Cap. *l. c.* p. 444, Bolivia and Yucatan; *I. chevrolati*, sp. n., Cap. *l. c.* p. 445, Mexico.

Chloropholus, g. n. (Dej.), Capiomont, *l. c.* p. 446. (See table above.) Sp.

Coniatus nigro-punctatus and *rubro-vittatus* (Gory); *C. trifasciatus*, sp. n., Cap. *l. c.* p. 449, Madagascar; *C. lacordairei*, sp. n., Cap. *l. c.* p. 450, Cochin China.

Larinosomus, g. n., Capiomont, *l. c.* p. 451. (See table, p. 276.) Sp. *L. nebulosus* (Dej.), Cap. *l. c.* p. 453, pl. 12. fig. 13, *L. propinquus*, Cap. *l. c.* p. 454, *L. nigrosparsus* (Chevr.), Cap. *l. c.* p. 455, Brazil; *L. scutellaris* (Chevr.), Cap. *l. c.* p. 456, Patagonia; *L. analis*, Cap. *l. c.* p. 457, Cayenne.

Phelypera, g. n. (Jekel), Capiomont, *l. c.* p. 458. (See table, p. 276.) Sp. *Phyton schuppeli* and *distigma* (Schönh.). N. sp. *P. cervina* (Dej.), Cap. *l. c.* p. 460, Monte Video; *P. mœsta* (Chevr.), Cap. *l. c.* p. 461, Brazil; *P. griseofasciata* (Dej.), Cap. *l. c.* p. 462, Brazil; *P. dorsonotata* (Buq., Dej.), Cap. *l. c.* p. 463, Brazil; *P. oblita*, Cap. *l. c.* p. 464, Brazil; and *P. sparsuta*, Cap. *l. c.* p. 466, Brazil.

Tylopterus, g. n., Capiomont, *l. c.* p. 468. (See table, p. 276.) Sp. *Curc. melanocephalus* (De G.) and *Phyton. germari* (Schönh.). N. sp. *T. camelus*, Cap. *l. c.* p. 470, pl. 12. fig. 15, Cayenne; and *T. ochraceus*, Cap. *l. c.* p. 471, Brazil.

Bubalocephalus, g. n., Capiomont, *l. c.* p. 485. (See table, p. 276.) Sp. *B. rotundicollis* (Schönh.), Cap. *l. c.* p. 486, Andalusia; and *B. kiesenwetteri*, Capiomont, *l. c.* p. 488, Sierra Nevada.

Acroteriasis, g. n., Roelofs, Ann. Soc. Ent. Belg. x. p. 244. Allied to *Gonipterus*, but with the 4th joint of the tarsi wanting, the 3rd forming a round palette. N. sp. *A. haagii*, Roel. *l. c.* p. 245, pl. 1. fig. 1, Queensland; *A. subnitidus*, Roel. ibid. pl. 1. fig. 2, Australia; *A. nubilus*, Roel. *l. c.* p. 246, pl. 1. fig. 3, North and West Australia; and *A. emarginatus*, Roel. *l. c.* p. 247, pl. 1. fig. 4, West Australia. [Lacordaire (*l. c.* pp. 249–250) remarks upon this genus and its position, and indicates the occurrence of tarsi of similar character among his *Diabathrariides* and *Erirhinides*.]

New species:—

Hypera. Capiomont (*l. c.*) describes the following new species of this genus:—(Subg. Pachypera, type *Phyt. spissus*, Schönh.) *H. kraatzi*, p. 495, Hungary; *H. arvernica*, p. 499, Auvergne; *H. pyrenæa*, p. 502, Bagnères de Bigorre: (subg. Hypera, type *H. oxalis*, Hbst.) *H. orientalis*, p. 509, Greece &c.; *H. mniszechi*, p. 516, Altai; *H. marmorata*, p. 520, Hungary; *H. aubei*, p. 521, Pyrenees; *H. vicina* (Dej.), p. 522, Barbary, Algeria; *H. insularis*, p. 527, Cyprus; *H. pantherina*, p. 534, Persia?; *H. segnis*, p. 537, Tyrol; *H. tristis*, p. 542, Pyrenees; *H. bonvouloiri*, p. 549, South of France; *H. brucki*, p. 551, Tuscany; *H. lucasi*, p. 554, Morocco; and *H. obscura*, p. 556, Lozère.

Macrotarsus notatus (Schönh.), Capiomont, *l. c.* p. 483, Altai Mountains, South Russia.

Cleonides.

Cleonus pustulosus, *C. cristulatus*, and *C. margaritiferus*. Ernest Cotty notices the mode of occurrence of these species in Algeria. Mém. Soc. Linn. du Nord de Fr. 1866, pp. 174–175.

Lixus salsolæ, sp. n., Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 113, Sarepta.

Lixus creteopictus, sp. n., Wollaston, Col. Hesp. p. 129, Cape Verde Islands (S. Iago).

Erirhinides.

Geranorhinus. Schaufuss (Col. Hefte, ii. pp. 17–20) discusses the confusion which has arisen with regard to a Spanish species of this genus usually denominated *G. rufinasus* (Chevr.), and which Lacordaire declared to be identical with *Tychius suturalis* (Motsch.). The insect was described by Chevrolat under the name of *G. rufirostris*. Motschulsky has described a *Cœliosomus rufinasus* from the East Indies, and in connexion with his *Tychius fasciatus* from Birmah mentions an allied species found in Egypt on the flowers of the Tamarisk, and which he had distributed under the MS. name of *Sibines suturella*. This statement no doubt gave rise to Chevrolat's remark that a second species of *Geranorhinus* from Egypt had been described by Motschulsky under the name of *Tychius suturalis*. Lacordaire's assertion that the two species are identical seems to be quite erroneous. Schaufuss indicates that the characters of the funiculus of the antennæ in the Spanish species do not agree with those given by Lacordaire, but rather resemble those of *Hydronomus*. The funicular characters of the Egyptian species are unknown, unless Lacordaire described from an example of it, which seems not improbable. In this case the species *G. suturalis* (Lac.) would be characterized by a long second joint of the funiculus, and *G. rufirostris* (Chevr.) by having only the first joint of the funiculus elongated. A third species, allied to the latter, is described by Schaufuss.

Geranorhinus rufirostris (Chevr.). Seidlitz also indicates the characters of this species, and remarks especially upon those in which it differs from Lacordaire's generic description. (Berl. ent. Zeitschr. 1867, p. 188.) *G. rufirostris* (Seidl. nec Chevr.) = *G. elegans*, Seidlitz, *l. c.* p. 434.

Halophagus halimocnemis (Beck.) belongs to *Philernus*, according to Seidlitz (*l. c.* p. 434).

Erirhinus ephippiatus (Say), bred by Walsh from the cabbage-gall of a willow. Proc. Ent. Soc. Phil. vi. p. 268.

Geranorhinus brannanii, sp. n., Schaufuss, Col. Hefte, ii. p. 20, Balearic Islands (Palma).

Dorytomus silbermanni, Wencker, Cat. Col. Alsace, p. 129, France and Frankfort. (Descr. quoted by Heyden, Berl. ent. Zeitschr. 1867, p. 379.)

Mecinus heydeni, Wencker, Cat. Col. Alsace, p. 130, Haguenau and Frankfort. (Descr. quoted by Heyden, Berl. ent. Zeitschr. 1867, p. 379.)

Apionides.

Apion. Of the following species described by him, Desbrochers des Loges gives diagnoses in Mitth. schw. ent. Ges. ii. pp. 217, 218. *A. robusticorne* and *A. obtusum*, originally described in Bull. Acad. Hippone, 1866, pp. 44 & 47; and *A. tibiale* and *A. conspicuum* described in the Rendu-compte des Assises Sci. du Bourbonnais, 1867.

Apion lanuginosum, sp. n., Walsh, Proc. Ent. Soc. Phil. vi. p. 269, inquiline in willow-galls.

Apion 4-spinosum, sp. n., Wollaston, Col. Hesp. p. 127, Cape Verde Islands (Fogo).

Apion sareptanum, sp. n., Desbrochers des Loges, Mitth. schw. ent. Ges. ii. p. 216, Sarepta.

Attelabides.

Chalcocybebus, g. n., Vollenhoven, Tijdschr. v. Ent. 2de ser. i. p. 224.

Allied to *Cybebus*; antennæ long, scape cylindrical, funiculus 7-jointed, the joints cup-shaped, club elongated, of 3 joints, last joint longer than two preceding together. Sp. *C. nitens*, sp. n., Voll. *l. c.* p. 225, pl. 12. fig. 2, Waigiou; *C. alboguttatus*, sp. n., Voll. *l. c.* p. 226, Salwatty.

Auletes euphorbiæ, sp. n., Wollaston, Col. Hesp. p. 126, Cape Verde Islands.

Anthonomides.

Brisout de Barneville describes *Orchestes quedenfeldtii* (Gerh.). Ann. Soc. Ent. Fr. 4e sér. vii. p. 63.

Orchestes quinquemaculatus, sp. n., Chevrolat, L'Abeille, iii. p. lxvi, Mayenne.

Anthonomus sycophanta, sp. n., Walsh, Proc. Ent. Soc. Phil. vi. p. 265, and *A. tessellatus*, sp.n., Walsh, *l. c.* p. 267, inquiline in willow-galls.

Cionides.

Nanophyes. Wollaston (Col. Hesp. p. 125, note) remarks on the antennal characters of this genus.

Nanophyes oliverii (Desbr.) is described by Fairmaire. Ann. Soc. Ent. Fr. 4e sér. vii. p. 411.

Nanophyes longipes, sp. n., Wollaston, Col. Hesp. p. 125, Cape Verde Islands (S. Iago).

Nanophyes. Tournier (Ann. Soc. Ent. Fr. 4e sér. vii.) describes the following new species of this genus:—*N. difficilis*, p. 567, Sicily; *N. helveticus*, ibid., pl. 13. fig. 8, Geneva; *N. bilineatus*, p. 568, *N. setulosus*, p. 569, *N. maculatus*, ibid., and *N. minutissimus*, p. 570, Algeria.

Gymnetrides.

Brisout de Barneville (Ann. Soc. Ent. Fr. 4e sér. vii. p. 64) mentions having found *Gymnetron rostellum* near Paris, under tufts of *Potentilla anserina*, and states that *G. variabilis* (Rosenh.) = *G. sanguinipes* (Chevr.); so that the species described by him under the former name is distinct. He proposes for it the name of *algiricus*.

Gymnetron pirazzolii, sp. n., Stierlin, Mitth. schw. ent. Ges. ii. p. 225, Domodossola.

Cryptorhynchides.

Brisout de Barneville publishes (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 57–63) a corrected table of the European species of *Acalles* (see 'Record,' 1866, p. 280). He also notices a variety of *A. pyrenæus* (*l. c.* p. 64).

Acalles drouetii, sp. n., Crotch, P. Z. S. 1867, p. 387, pl. 23. fig. 4, Azores.

Acalles croaticus, sp. n., Brisout, *l. c.* p. 62, Croatia; *A. reinosa*, Brisout, ibid., Spain.

Cryptorhynchus lapathi. Goureau notices the mode of life of this species, which is destructive to young poplars. Bull. Soc. Ent. Fr. 1867, p. lxxxv.

Camptorhinus simplex, sp. n., Seidlitz, Berl. ent. Zeitschr. 1867, p. 189, Andalusia.

Zygopides.

Arachnopus persona, Vollenhoven, Tijdschr. v. Ent. 5de ser. i. p. 226, pl. 12. fig. 3, Waigiou; *A. geometricus*, Voll. *l. c.* p. 227, pl. 12. fig. 4, Tondano; *A. frenatus*, Voll. *l. c.* p. 228, pl. 12. fig. 5, Salwatty.

Ceuthorhynchides.

Cœliodes punctiger. Kawall (Stett. ent. Zeit. 1867, pp. 117–118) describes the metamorphoses of this species, the larva of which lives in the receptacle of the dandelion (*Taraxacum officinale*).

Marmoropus besseri (Schönh.). Letzner describes the habits and transformations of this species. Jahresb. schles. Ges. vaterl. Cult. xliv. pp. 170–172.

Ceuthorhynchus. Rye (Ent. M. Mag. iv. pp. 66, 67) notices the species inhabiting *Sisymbrium officinale.* See also a note by Hislop (*l. c.* p. 112).

Ceutorhynchus versicolor, sp. n., Brisout, Cat. Col. Alsace, p. 131, Alsace, Frankfort; *C. euphorbiæ,* sp. n., Bris. *l. c.* p. 132, Alsace, Frankfort. These species are also recorded as British by Rye, Ent. Ann. 1868, pp. 71, 72.

Ceuthorhynchus barnevillei, sp. n., Grenier, Bull. Soc. Ent. Fr. 1866, p. lxv, Pyrenees.

Baridiides.

Baridius sulcipennis, sp. n. (Bris.), Heyden, Berl. ent. Zeitsch. 1867, p. 380, Frankfort; *B. fallax* sp. n. (Bris.), Heyden, ibid., Frankfort.

Calandrides.

Protocerius lætus, sp. n., Vollenhoven, Tijdschr. v. Ent. 2de ser. i. p. 228, pl. 12. fig. 1. Celebes.

Sitophilus granarius. On mischief done by this species, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 928–930.

Cossonides.

Georhynchus, g. n., Roelofs, Ann. Soc. Ent. Belg. x. p. 251. Affinities uncertain; rostrum slightly constricted in the middle; scrobes entire, arched; antennæ short, robust, median, scape very short, funiculus of six joints, 1 longest and stoutest, club scarcely articulated; eyes very low, transversely oval; scutellum scarcely visible; legs compressed; tarsi narrow, joint 4 longer than 1, not bifid at apex, with two weak parallel claws in anterior, and a a single stronger claw in the intermediate tarsi; segments 1 and 2 of abdomen soldered together. Sp. *G. mortetii,* sp. n., Roel. *l. c.* p. 252, Montevideo.

New species :—

Rhyncholus euphorbiarum, Wollaston, Col. Hesp. p. 119, Cape Verde Islands (S. Antão).

Phlœophagus obesulus, Wollaston, *l. c.* p. 120, Cape Verde Islands (S. Vicente).

Phlœophagus variabilis, Crotch, Proc. Zool. Soc. 1867, p. 387, Azores.

Pentatemnus affinis, Wollaston, *l. c.* p. 122, Cape Verde Islands (S. Vicente).

Mesites hesperus, Wollaston, *l. c.* p. 123, Cape Verde Islands.

Scolytidæ.

Tomicides. Ferrari (Forst- und baumzuchtschädlichen Borkenkäfer) has published a valuable summary of the genera and European* species of this group, which he limits in accordance

* Some new exotic species are described, and known species are referred by the author to their genera in his system.

with the views of Lacordaire, and in which he recognizes 22 genera, 6 of which are new. These genera (tabulated pp. 4 & 5) are as follows:—

Crypturgus (Erichs.), 3 sp., 1 new; *Hypothenemus* (Westw.), 1 sp.; *Aphanarthrum* (Woll.); *Triotemnus* (Woll.); *Liparthrum* (Woll.); *Trypodendron* (Steph.), 2 sp.; *Xyloteres* (Erichs.), 1 sp.; *Cryphalus* (Erichs.), with *Ernophorus* (Thoms.) as a subgenus, 10 sp., 4 new; *Hypoborus* (Erichs.), 4 sp., 1 new; *Xyleborus* (Eichh.), 8 sp.; *Dryocœtes* (Eichh.), 10 sp.; *Pityophthorus* (Eichh.), 6 sp.; *Thamnurgus* (Eichh.), 3 sp.; *Tomicus* (Latr.), 8 sp., under 3 subgenera, *Cumatotomicus*, *Cyrtotomicus*, and *Onthotomicus* (Ferr.) founded on differences in the antennal club; *Amphicranus* (Erichs.); *Corthylus* (Erichs.), 10 new exotic species, under the subgenera *Corthylus*, *Microcorthylus*, and *Pseudocorthylus*; and 6 new genera. The genus *Phlœotrogus* (Motsch.) is placed, with a number of species (chiefly exotic) described by various authors, as *incertæ sedis*. A supplement contains descriptions of two or three new species, and notes on some of those referred to in the body of the memoir, concluding with a systematic catalogue of the recognized European species.

Ferrari (Col. Hefte, ii. pp. 104–115) has the following remarks upon genera and species belonging to this group:—*Monarthrum* (Kirsch) is not sufficiently characterized to allow of its identification with any of the genera accepted by Ferrari; it probably = *Corthylus* (Erichs.); *Crypturgus numidicus* (Ferr.) has been regarded by Eichhoff as = *cinereus*, but Ferrari believes it is distinct; *Cryphalus abietis* (Ratz.) and *tiliæ* (Gyll.) are considered by the author to be identical; the male of *Dryocœtes autographus* (Ratz.) is unknown, which necessitates an alteration in the table of genera, at p. 27; the descriptions of *Bostrichus duplicatus*, *xylographus*, and *tachygraphus* (Sahlb.) are reprinted by the author (*l. c.* pp. 108–110); *B. duplicatus* = *Cyrtotomicus rectangulus* (Eichh.); *B. xylographus* probably = *B.* (*Pityographus*) *exsculptus* (Ratz.); and *B. tachygraphus* seems to be most nearly allied to *Xyleborus pfeili* (Ratz.). The paper concludes with a list of errata, and with a corrected list of the species of Tomicides recognized by the author.

Ferrari remarks (Berl. ent. Zeitschr. 1867, p. 405) that he has omitted the genus *Monarthrum* (Kirsch) in his work on the Tomicides, but that from the characters given it is impossible to say whether this genus coincides with one of those proposed by him, especially with *Cosmocorynus* ♀. The name *Monarthrum* should, he thinks, be changed, as it refers to a character common to several genera.

Xyloterus. A. Puton (Ann. Soc. Ent. Fr. 4ᵉ sér. vii. pp. 631–634), in noticing the occurrence of *Xyloterus quercus* (Eichh.) in France, tabulates and describes the 3 known species of the genus.

Eichhoff characterizes *Cryphalus cinereus* (Herbst) and *C. pusillus* (Gyll.), and remarks that he is not convinced that *C. numidicus* (Ferr.) is distinct from the former. Berl. ent. Zeitschr. 1867, p. 404.

Tomicus dispar (Fab.) is figured as British by Rye, Ent. Ann. 1868, Front. figs 7 & 8 (♂ ♀).

Janson notices the deficiency of ♂ ♂ of *Tomicus villosus* although ♀ ♀ are abundant. Proc. Ent. Soc. 1867, p. xci.

According to Rye (Ent. M. Mag. iii. p. 250) *Xyloterus quercus* (Eichh.) is identical with *Bostrichus waringii* (Curt.)

Giraud notices the habits of *Bostrichus kaltenbachii* (Bach), which lives in the interior of the stem of *Teucrium scorodonia*. His observations are confirmed by Fallou and Laboulbène. Bull. Soc. Ent. Fr. 1867, pp. lviii & lix.

J. Chappell notices the larva of *Scolytus intricatus* as feeding in the smaller branches of the oak. Ent. M. Mag. iii. p. 216.

Tomicus monographus. A note on this beetle and its destructiveness is communicated by F. Moore to the Entomological Society. Proc. Ent. Soc. 1867, pp. lxxv–lxxvi.

New genera :—

Anisandrus, g. n., Ferrari, Borkenkäfer, p. 24. Allied to *Xyleborus*; joint 1 of labial palpi only ciliated at the apex; antennal club with a very faintly indicated suture. Sp. *Apate dispar* (Fab.) and *Bost. dactyliperda* (Fab.).

Xylocleptes, g. n., Ferrari, *l. c.* p. 37. Allied to *Tomicus* (=*Bostrichus* Erichs., Eichh.); joint 2 of labial palpi smaller than 1; antennal club subconcentrically imbricato-annulate; maxillary lobe with a few setiform hairs. Sp. *Tom. bispinus* (Duft.); *X. granulatus*, sp. n. (Moritz, MS.), Ferr. *l. c.* p. 40, Venezuela; *X. carbonarius*, sp. n. (Chevr. MS.), Ferr. *l. c.* p. 41, Cuba.

Corthylomimus, g. n., Ferrari, *l. c.* p. 48 = *Corthylus* (Lec. *nec* Erichs.). Funiculus 1-jointed, long; club globular, hollowed on the inner surface, very large, with sinuous sutures. Sp. *Bost. fasciatus* (Say), *Corthylus scutellaris* (Lec.). The type of *Corthylus* (Erichs.) is *Bost. compressicornis* (Fab.).

Cosmocorynus, g. n., Ferrari, *l. c.* p. 62. Funiculus 1-jointed, very short, club large, 3-jointed, joint 2 with a long setiform curved process springing from its apical margin. Sp. *C. cristatus*, sp. n., Ferr. *l. c.* p. 64, Venezuela.

Brachyspartus, g. n., Ferrari, *l. c.* p. 65. Funiculus 1-jointed, club large, compressed, acuminate, 2-jointed, suture straight. Sp. *B. moritzi*, sp. n., Ferr. *l. c.* p. 68, Venezuela.

Morizus, g. n., Ferrari, *l. c.* p. 69. Funiculus 1-jointed, very short, club subovoid, subquadriarticulate. Sp. *M. excisus*, sp. n., Ferr. *l. c.* p. 71, Venezuela. Probably also *Tom. liminaris* (Harris) and *Bostr. unidentatus* (Fab.).

Scolytodes, g. n., Ferrari, *l. c.* p. 77. Eyes coarsely facetted; head free, perpendicular, distinctly rostrated; funiculus multiarticulate, club small, roundish, compressed; pronotum and prosternum separated by a suture; abdomen slightly curved upwards; anterior tibiæ at apex externally with two strong teeth. Sp. *S. lævigatus* (Klug, MS.), Ferr. *l. c.* p. 77, Columbia.

Gymnochilus, g. n., Eichhoff, Berl. ent. Zeitschr. 1867, p. 399. Head rather prominent; labrum transverse; funiculus 7-jointed; club compact; joints 1–3 of tarsi simple. Sp. *G. zonatus*, sp. n., Eichhoff, *l. c.* p. 399, Columbia.

Hexacolus, g. n., Eichhoff, *l. c.* p. 399. Head globose; funiculus 6-jointed; club subannulate; joints 1–3 of tarsi simple. Sp. *H. glaber*, sp. n., Eichhoff, *l. c.* p. 400, Cuba.

New species :—

Xyleborus. Eichhoff (Berl. ent. Zeitschr. 1867) describes the following new American species :—*X. adelographus*, p. 400, Brazil; *X. fuscatus*, ibid., Columbia; *X. celsus*, ibid., North America; *X. impressus*, ibid., Massachusetts; *X. affinis*, p. 401, North America, Cuba; *X. inermis*, ibid., Cuba; *X. confusus*, ibid., Chili, Venezuela. (Eichhoff also describes a species from Carolina, to which he gives the name of *X. pini*, Say??)

Tomicus. The following new North-American species are described by Eichhoff (*l. c.*):—*T. præmorsus*, p. 401; *T. præfrictus*, ibid.; *T. grandicollis*, p. 402; *T. avulsus*, ibid.; *T. decretus*, ibid.; *T. hirsutus*, ibid. (Sitka); and *T. cælatus*, ibid. (Pennsylvania, North Carolina).

Tomicus trypanœoides, Wollaston, Col. Hesp. p. 114, Cape Verde Islands.

Tomicus proximus, Eichhoff, *l. c.* p. 403, South Europe.

Corthylus (Erichs., Ferr.). Ferrari (*l. c.*) describes the following new species of this genus, from Venezuela:—(subg. Corthylus) *C. validus*, pp. 54 & 55; *C. bicolor*, pp. 54 & 56; *C. signatus*, pp. 54 & 56; *C. lobatus*, pp. 54 & 57; *C. dimidiatus*, pp. 54 & 57: (subg. Microcorthylus) *M. parvulus*, pp. 53 & 58: (subg. Pseudocorthylus) *P. castaneus*, pp. 55 & 59; *P. letzneri*, ibid.; *P. redtenbacheri*, pp. 55 & 60; and *P. glabratus*, ibid.

Crypturgus numidicus, Ferrari, Borkenkäfer, p. 6, Algeria and Southern Europe.—*Crypturgus cedri*, Eichhoff, *l. c.* p. 403, Corsica.

Cryphalus hampei, Ferrari, *l. c.* pp. 11 & 12, France and Siebenbürgen; *C.* (*Ernophorus*) *thomsoni*, Ferr. *l. c.* pp. 12 & 14 (= *E. fagi*, Thoms.), Europe; *C. obscurus*, Ferr. *l. c.* p. 17, Cuba; *C. intermedius*, Ferr. *l. c.* p. 79, Germany.

Cryphalus mucronifer, Wollaston, *l. c.* p. 116, Cape Verde Islands.

Hypoborus? *hispidus*, Ferrari, *l. c.* p. 19, Cuba; *H.*? *setosus* (Eichh. MS.), Ferr. *l. c.* p. 81, Schleswig?—*Hypoborus*? *setosus*, Eichhoff, *l. c.* p. 391, Schleswig-Holstein.

Dryocœtes? *eichhoffi*, Ferrari, *l. c.* p. 29, Greece.

Hylesinus putonii, Eichhoff, *l. c.* p. 403, Madrid.

Aphanarthrum hesperidum, Wollaston, *l. c.* p. 117, Cape Verde Islands.

Liparthrum loweanum, Wollaston, *l. c.* p. 118, Cape Verde Islands.

Brenthidæ.

Cyriodontus, g. n., Kirsch, Berl. ent. Zeitschr. 1867, p. 216. Allied to *Orychodes*; head as long as broad; rostrum elongate, basal part much narrower than head; antennæ inserted before middle of rostrum. Sp. *Arrhenodes lineatus* (Schönh.).

Automolus, g. n., Kirsch, *l. c.* p. 218. Allied to *Orychodes*; head longer than broad; eyes small; rostrum elongate, basal part cylindrico-conical ♂, very short ♀, anterior part longer, quadrangular ♂, cylindrical and filiform ♀; antennæ inserted before the middle (♂) or at the base (♀) of the rostrum, joints 2-4 small; anterior tibiæ dilated and dentate in middle. Sp. *A. pictus* (Dej.), Kirsch, *l. c.* p. 218, Bogotá.

Arrhenodes goudoti, sp. n., Kirsch, *l. c.* p. 215, and *A. trilineatus*, sp. n., Kirsch, ibid., Bogotá.

Cleoderes bivittatus, sp. n., Kirsch, *l. c.* p. 219, Bogotá.

Brenthus armillatus, sp. n. (Chevr.), Kirsch, *l. c.* p. 219, and *B. unidentatus*, Kirsch, *l. c.* p. 221, Bogotá.

Anthribidæ.

Brachytarsus constrictus, sp. n., Stierlin, Mitth. schw. ent. Ges. ii. p. 224, Sarepta.

Bruchidæ.

Bruchus breweri, sp. n., Crotch, Proc. Zool. Soc. 1867, p. 389, and *B. azoricus*, sp. n., Crotch, *l. c.* p. 390, Azores.

Bruchus calcaratus, sp. n., Wollaston, Col. Hesp. p. 140, and *B. amplicornis*, sp. n., Woll. *l. c.* p. 141, Cape Verde Islands.

Bruchus musculus, sp. n., Solsky, Horæ Soc. Ent. Ross. iv. p. 95, Sarepta.

Longicornia.

J. Thomson (Physis, i. pp. 1–10) notices Schiödte's proposed classification of the Longicorn Beetles (See 'Record,' 1864, pp. 417, 418). He makes the curious mistake of supposing that Schiödte proposes to name the Arachnida, Myriopoda, and Insecta respectively Digitigrada, Unguligrada, and Plantigrada, instead of merely indicating an analogy derived from their mode of progression. The characters derived from the footstalks of the labial palpi by Schiödte are said by Thomson to be erroneous with regard to the Vesperini and Asemini, which agree in this respect with the true Cerambycini. Hence he is led to propose the following classification into Tribes and Subtribes :—Tribe I. Lamitæ; Tribe II. Cerambycitæ veræ, with subtribes 1. *Lepturitæ*, 2. *Cerambycitæ veræ*, 3. *Asemitæ*; Tribe III. Prionitæ, with subtribes 1. *Spondylitæ* and 2. *Prionitæ veræ*.

According to Hensel, a large Beetle, probably of this group, cuts off twigs of the thickness of a man's finger by seizing them with its mandibles, and swinging round in circles. Stein, Berl. ent. Zeitschr. 1867, p. 212.

C. G. Thomson (Skand. Col. viii. pp. 3–102) treats of the Scandinavian species of this group of Beetles. He follows generally the arrangement sketched in his first volume, except that subtribes are admitted in some of the tribes: the tribe *Obriina* is transferred from the Lepturitæ to the Cerambycidæ, *Gracilia* being separated from it to stand under the *Callidiina*, and the arrangement of the Necydaliform genera is quite altered. These insects are divided by Thomson (*l. c.* pp. 43–48) between the Cerambycidæ and Lepturitæ,—the genera *Molorchus* (Fab.), incl. *umbellatarum* (Linn.), and *Cænoptera* (Thoms.), incl. *minor* (Linn.), forming the tribe *Molorchina* in the former family; whilst *Necydalis* (Linn.), limited to *N. major* (Linn.), constitutes by itself the tribe *Necydalina* of the family Lepturitæ.

Pascoe publishes (Journ. Linn. Soc. Zool. ix. pp. 300–308), a supplement to his list of Australian Longicornia. (See 'Record,' 1866, p. 287.)

Lamiides.

Pascoe has continued his descriptions of the Malayan Longicorns collected by Wallace (Trans. Ent. Soc. 3rd ser. iii. pp. 337–464). In this portion he reaches the *Tmesisterninæ*, the last subfamily but one in his arrangement of these insects. The following known species and genera are characterized :—

(Saperdinæ) *Serixia prolata* (Pasc.), p. 338; *S. cephalotes* (Pasc.), p. 339; *S. longicornis* (Pasc.), ibid.; *S. literata* (Pasc.), p. 340; *S. ornata* (Pasc.), p. 341; *Xyaste nigripes* (Pasc.), p. 346: (Astatheinæ) *Astathes*

nitens (Fab.), p. 350; *A. daldorfii* (Fab.), ibid.; *A. posticalis* (Thoms.), p. 351; *A. terminata* (Pasc.), ibid.; *A. fulgida* (Fab.), p. 353; *A. velata* (Thoms.), ibid.; *A. splendida* (Fab.), ibid.; *A. purpurea* (Pasc.), p. 354; *Eustathes* (Newm.), p. 354; *Tropimetopa simulator* (Pasc.), p. 357; *Chreonoma* (*Astathes*) *nigriventris* (Thoms.), p. 360: (PHYTŒCIINÆ) *Glenea novemguttata* (Lap.), p. 366; *G. blandina* (Pasc.), p. 369; *G. pulchella* (Hope), p. 370; *G. juno* (Thoms.), p. 372; *G. voluptuosa* (Thoms.), p. 373; *G. picta* (Fab.), p. 373 [pl. 17. fig. 6]; *G. elegans* (Oliv.), p. 374; *G. nympha* (Thoms.), p. 375; *G. delia* (Thoms.), ibid.; *G. heptagona* (Thoms.), p. 376; *G. bimaculicollis* (Thoms.), p. 377; *G. amboynica* (Thoms.), ibid.; *G. cyanipennis* (Thoms.), p. 378; *G. lefebvrii* (Guér.) = *festiva* (Boisd.) = *antica* (Thoms.), p. 378; *G. galathea* (Thoms.). p. 379; *G. collaris* (Pasc.), p. 380; *G. manto* (Pasc.), ibid.; *G. funerula* (Thoms.), p. 381; *G. anticepunctata* (Thoms.), p. 382; *G. oudetera* (Thoms.), p. 383; *G. numerifera* (Thoms.), p. 385; *G. extensa* (Pasc.), ibid.; *G. acuta* (Fab.), p. 386; *G. ochraceovittata* (Thoms.), ibid.; *G. boisduvalii* (Thoms.), p. 388; *G. saperdoides* (Thoms.), p. 389; *G. vittifera* (Boisd.), p. 390; *G. illuminata* (Thoms.), p. 392; *G. alysson* (Pasc.), p. 393; *G. jubœa* (Pasc.), p. 394; *G. albolineata* (Thoms.), p. 395; *G. lugubris* (Thoms.), ibid.; *G. interrupta* (Thoms.), p. 397; *G. mathematica* (Thoms.), p. 398; *G. algebraica* (Thoms.), ibid.; *G. scalaris* (Thoms.) = *cunila* (Pasc.), p. 400; *G. exculta* (Newm.) = *viridipustulata* (Thoms.), p. 401; *G. venusta* (Guér.) = *viridicincta* (Boisd.), p. 402; *G. viridinotata* (Blanch.), ibid.; *G. basalis* (Thoms.), p. 403; *G. despecta* (Pasc.) = *guttigera* (Thoms.), ibid.; *G. detrita* (Pasc.) = *maculipennis* (Thoms.), p. 404; *G. grisea, arouensis*, and *fulvomaculata* (Thoms.), p. 407; *G. vesta* (Pasc.), p. 411; *G. citrina* (Thoms.) = *anthyllis* (Pasc.), p. 411; *G. miles* (Newm.) = *sanguinaria* (Thoms.), p. 412; *Nupserha fricator* (Dalm.), p. 414; *Oberea curialis* (Pasc.), p. 421; *O. rubetra* (Pasc.), p. 422; *O. clara* (Pasc.), p. 426; *O. umbrosa* (Pasc.), p. 431; *O. annulicornis* (Pasc.), ibid.; *O. ophidiana* (Pasc.), p. 433; *O. tenuata* (Pasc.), p. 435: (TMESISTERNINÆ) *Trigonoptera maculata* (Perr.), p. 442; *T. bimaculata* (Thoms.), ibid.; *Trachelophora curvicollis* (Perr.), p. 452; *Anapansa armata* (Thoms.), ibid.; *Mulciber linnæi* (Thoms.), p. 453; *Tmesisternus politus* (Blanch.), p. 461; *T. tersus* (Pasc.) = *Ichth. 4-fasciatus* (Thoms.), ibid.; and *T. trivittatus* (Guér.) = *bicinctus* (Boisd.), p. 464.

Dorcadionites. J. THOMSON (Physis, i. pp. 10–84) publishes a revision of the known species of his subtribe *Dorcadionites*, from which, as laid down in his 'Systema Cerambycidarum,' he now excludes the genus *Cyrtinus* (Lec.), as nearly allied to *Psenocerus* (Lec.), whilst he adds to the group the genus *Brimus* (Pasc.). Several new species are described, and full descriptions are given of the species of which diagnoses were published in the 'Syst. Ceramb.'

The following synonymic indications may be given from this paper:—*Dorcadion navaricum, monticola, meridionale, pyrenæum*, and *mendax* = *fuliginator* (Linn.); *D. donzeli* (Muls.) = *molitor* (Oliv.); *D. interruptum* (Muls.) = *divisum* (Germ.); and *D. thracicum* (Küst.) = *ferrugineipes* (Ménétr.); *Parmena hirsuta, solieri, pilosa*, and *dahlii* = *pubescens* (Dalm.); *Auxa amplicollis* (Pasc.) = *armata* (Coq.); *Dioxippe* (Thoms.) = *Aconodes* (Pasc.); *Parmena hemisphærica* (Blanch.) = *Microcleptes aranea* (Newm.); *Cerambyx*

fasciatus (De V.), and *balteata* (Fab.)=*Parmena balteus* (Linn.); *Phryssoma hipporhinus* (White) = *gigantea* (Guér.); *Phantasis denticulata* (Thoms.)= *crispa* (Linn.); *Lepromoris* (Pasc.) = *Leprosoma* (Thoms.); *L. asperatum* (Thoms.)=*gibbum* (Brullé); *Dorcadion inclusum* (Ferr.) = *labyrinthicum* (Thoms.), both in 1864; *D. scopolii, ovatum, germanicum, ungaricum, vittigerum, etruscum,* and *smyrnense*=*lineatum* (Fab.); *D. cretaceum* (Ferr.)= *niveispersum* (Thoms.), both in 1864; *Collapteryx* (Newm.) = *Moneilema* (Say); *Moneilema albo-tessellatum* (Thoms.)=*albo-pictum* (White).

Dorcadion segovianum (Chevr.)=*dejeanii* (Chevr.), and *D. nigrolineatum, alternatum,* and *albicans* (Chevr.)=*hispanicum* (Muls.), according to Seidlitz, Berl. ent. Zeits. 1867, p. 434.

Calamobius and *Hippopsis.* On the distinctness of these genera see Pascoe, Proc. Ent. Soc. 1865, p. 126.

Sysspilotus macleayi (Pasc.)=*Menyllus maculicornis* (Pasc.), according to Pascoe, Journ. Linn. Soc. Zool. ix. p. 300, note.

Agapanthia kirbyi (Schönh.). Abeille de Perrin (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 68, 69) remarks upon the synonymy of this species, with which he identifies *A. verbasci* (Meg.), *latipennis* (Muls.), and *zawadszkyi* (Fairm.).

Saperda inornata (Say) is referred to by Walsh as the cause of a pseudo-gall on *Salix longifolia* and *Populus angulata.* Proc. Ent. Soc. Phil. vi. p. 264.

Saperda scalaris. Larva noticed by Kawall, Stett. ent. Zeit. 1867, p. 123.

Monohammus sutor (Linn.). Larva described and figured by Gernet (Horæ Soc. Ent. Ross. v. p. 19, pl. 2. fig. 6).

Dorcadion rufipes (Fab.). Perty (Mitth. naturf. Ges. in Bern, 1867, p. 308) describes an example of this species with the left hind tarsus cleft.

New genera:—

Of his subfamily *Astatheinæ,* Pascoe enumerates 29 Malasian species, which he refers to 7 genera, 4 of which are new, as shown in the following table (Trans. Ent. Soc. iii. p. 348):—

I. Metasternum produced anteriorly.
  A. Metasternal process received in a notch.
    1. Elytra rounded at apex ..... 1. *Eustathes* (Newm.).
    2. Elytra spined at apex ..... 2. *Tropimetopa* (Thoms.).
  B. Metasternal process lying on mesosternum 3. *Astathes* (Newm.).
II. Metasternum not produced anteriorly.
  A. Scape not longer than joint 3,
    1. Elytra rounded at apex ..... 4. *Chreonoma,* g. n.
    2. Elytra spined at apex ..... 5. *Ochrocesis,* g. n.
  B. Scape longer than joint 3.
    1. Prothorax tumid at sides ..... 6. *Cyanastus,* g. n.
    2. Prothorax nearly cylindrical ..... 7. *Momisis,* g. n.

Of the *Phytœciinæ* the Malayan species recorded by Pascoe are very numerous (163), principally belonging to the great genera *Glenea* and *Oberea.* Of the 10 genera admitted among them by Pascoe, 7 are new, as indicated in the following table (*l. c.* p. 363):—

I. Abdominal segments of unequal length.
  A. Elytra abruptly deflexed at sides.
    1. Scape robust.
      a. Posterior tibiæ rounded ..... 1. *Glenea* (Newm.).
      b. Posterior tibiæ compressed..... 2. *Chlorisanis*, g. n.
    2. Scape slender ..... 3. *Cryllis*, g. n.
  B. Elytra rounded at sides.
    1. Tarsi nearly equal in length.
      a. Apices of elytra bimucronate..... 4. *Daphisia*, g. n.
      b. Apices of elytra rounded..... 5. *Tephrocoma*, g. n.
    2. Posterior tarsi very long..... 6. *Ossonis*, g. n.
II. Abdominal segments nearly equal.
  A. Elytra carinately deflexed at sides.
    1. Antennary tubers remote and divergent.
      a. Prothorax abruptly constricted at sides 7. *Dystus*, g. n.
      b. Prothorax subcylindric ..... 8. *Nupserha* (Thoms.).
    2. Antennary tubers approximate ..... 9. *Scytasis*, g. n.
  B. Elytra scarcely deflexed at sides .....10. *Oberea* (Muls.).

Of his *Tmesisterninæ*, Pascoe admits 16 Malayan genera, 6 of which are new. Their characters are shown in the following table (*l. c.* p. 440) :—

I. Head vertical.
  A. Mesosternum of normal breadth.
    1. Prosternal process received in a notch .. 1. *Hestima*, g. n.
    2. Prosternal process free.
      a. Eyes roughly granulate.
        * Prothorax toothed at sides ..... 2. *Amblymora*, g. n.
        † Prothorax not toothed at sides.
          α. Pro- and mesosterna vertical on their opposing faces. 3. *Orinœme*, g. n.
          β. Pro- and mesosterna rounded on their opposing faces.
            a. Scape shortly ovate ..... 4. *Rhadia*, g. n.
            b. Scape subcylindrical ..... 5. *Atelais*, g. n.
      b. Eyes finely granulate.
        * Pro- and mesosterna rounded on their opposing faces. 6. *Anapansa* (Thoms.).
        † Prosternum depressed, mesosternum elevated. 7. *Trachelophora* (Perr.).
        ‡ Pro- and mesosterna elevated..... 8. *Mulciber* (Thoms.).
  B. Mesosternum very broad ..... 9. *Arsysia*, g. n.
II. Head porrect.
  A. Prothorax laterally margined.
    1. Apex of prothorax emarginate (♂) ....10. *Elais* (Thoms.).
    2. Apex of prothorax truncate in ♂ and ♀.
      a. Prothorax with a large submarginal spine.
        * Femora sublinear.
          α. Head with an infraocular process (♂). 11. *Pascoëa* (White).
          β. Head normal.....12. *Sphingnotus* (Pasc.).
        † Femora clavate .....13. *Polyxo* (Thoms.).

b. Prothorax with no submarginal spine.

* Joint 3 of antennæ scarcely longer than scape.

14. *Mneside* (Thoms.).

† Joint 3 of antennæ much longer than scape.

15. *Arrhenotus* (Pasc.).

B. Prothorax without a lateral margin.....16. *Tmesisternus* (Latr.).

Nicotelea, g. n., Pascoe, Trans. Ent. Soc. 3rd ser. iii. p. 364, note. Allied to *Glenea*; head quadrate in front; antennæ robust, short, joints cylindrical; prothorax tumid at sides, disk irregular; elytra flattened above, not keeled, truncate at apex; legs robust; pro- and mesosterna simple. Type *Lamia nigricornis* (Fab.).

Blepisanis, g. n., Pascoe, *l. c.* p. 365, note. Allied to *Glenea*; antennæ gradually thickened towards apex; abdominal segments nearly equal, interfemoral process small. Type *Saperda bohemani*.

Thermistis, g. n., Pascoe, *l. c.* p. 438, note. Allied to *Glenea*; sides of prothorax angulato-spinose; antennæ distinctly jointed. Type *Lamia croceocincta* (W. W. Saund.).

Mythergates, g. n., Thomson, Physis, i. p. 19. Allied to *Belodera* (Thoms.); antennæ 11-jointed, pilose beneath, joint 1 short, stout, 3 scarcely longer than 2; prothorax elongate, 4-spinose; elytra elongate, widened at the shoulders, bispinose at base, divaricate at apex; pro- and mesosternal appendages laminiform; anterior acetabula slightly angulated externally. Sp. *Centrura divaricata* (Coq.).

Omoscylon, g. n., Thomson, *l. c.* p. 74. Allied to *Dorcadion*, apterous; antennæ extending a little beyond middle of body, 11-jointed, 3 longer than the rest; prothorax elongate, cylindrical, unarmed; elytra subcylindrical, elongate, coalescent, not shouldered or carinated on the sides; sternal appendages laminiform; legs very stout. Sp. *Moneilema subrugosum* (Bland), *M. crassum* (Lec.), and *M. inæquale* (Say).

New species:—

Amblymora (g. n., see p. 287) *instabilis*, Pascoe, *l. c.* p. 455 [pl. 18. fig. 3], Aru, Batchian; *A. fumosa*, Pasc. ibid., Morty, Gilolo; *A. consputa*, Pasc. *l. c.* p. 456, Dorey, Salwatty; *A. marmorea*, Pasc. ibid., Kaioa; and *A. conferta*, Pasc. ibid., Tondano.

Arsysia (g. n. = *Trigonoptera*, Perr., changed on account of *Trygonoptera*, Müll. & Henle, see p. 287). *A. nervosa*, Pascoe, *l. c.* p. 443, Timor; *A. flavipicta*, Pasc. ibid. [pl. 18. fig. 1], Batchian; *A. sordida*, Pasc. *l. c.* p. 444, Mysol; *A. tessellata*, Pasc. *l. c.* p. 445, Ceram.

Astathes. Of this genus Pascoe (*l. c.*) describes the following new Malasian species:—*A. unicolor*, p. 349, *A. flaviventris*, p. 352, Sarawak; *A. coccinea*, p. 35, note, Labuan; *A. contentiosa*, p. 352, Singapore; and *A. pulchella*, p. 354, Sumatra and Malacca.

Atelais (g. n., see p. 287) *illæsa*, Pascoe, *l. c.* p. 457 [pl. 18. fig. 2], *A. despoliata* and *A. evicta*, Pasc. *l. c.* p. 458, Batchian; *A. patruelis*, Pasc. ibid., Morty; *A. porcina*, Pasc. *l. c.* p. 459, Morty; and *A. seriata*, Pasc. ibid., Mysol.

Athemistus bituberculatus (Howitt), Pascoe, Journ. Linn. Soc. ix. p. 306, and *A. æthiops* (Howitt), Pasc. *l. c.* p. 307, Victoria; *A. howittii*, Pasc. *l. c.*

p. 306, New South Wales and Queensland; *A. punctícollis*, Pasc. *l. c.* p. 307, Gippsland.

Atyporis intercalaris, Pascoe, Journ. Linn. Soc. ix. p. 301, Cape York.

Bacchisa (g. n.*) *coronata*, Pascoe, Trans. Ent. Soc. 3rd ser. iii. p. 342, pl. 15. fig. 11, Flores.

Chlorisanis (g. n., see p. 287) *viridis*, Pascoe, *l. c.* p. 413 [pl. 16. fig. 7], Sarawak.

Chreonoma (g. n., see p. 286). Of this genus Pascoe (*l. c.*) describes the following new Malasian species:—*C. venusta*, p. 358 [pl. 16. fig. 1], *C. seclusa*, p. 359, Batchian; *C. flavicincta*, p. 359, Saylee; *C. bimaculata*, ibid., Waigiou; *C. melanura*, p. 360, *C. albicornis*, p. 361, Singapore; *C. vernula*, p. 360, Morty; *C. annulicornis*, p. 361, Tondano; and *C. tabida*, ibid., Sarawak.

Cryllis (g. n., see p. 287) *clytoides*, Pascoe, *l. c.* p. 417, pl. 15. fig. 9, Singapore.

Cyanastus (g. n., see p. 286) *aulicus*, Pascoe, *l. c.* p. 356 [pl. 16. fig. 2], Macassar; *C. simius*, Pasc. *l. c.* p. 356, Menado.

Daphisia (g. n., see p. 287) *pulchella*, Pascoe, *l. c.* p. 410, pl. 15. fig. 6, Singapore.

Dorcadion. Thomson (Physis, i.) describes the following as new species of this genus:—*D. rugosum* (Kind. MS.), p. 46, Siberia; *D. pluto*, p. 47, Siberia; *D. senegalense* (Buq. MS.), p. 54, Senegal; *D. gallipolitanum*, p. 59, Gallipoli; *D. micans*, p. 61, Armenia; *D. byzantinum*, p. 69, Greece; *D. grammophilum*, p. 70, Armenia.

Dystus (g. n., see p. 287) *notator*, Pascoe, *l. c.* p. 416 [pl. 16. fig. 6], Sumatra and Singapore.

Eustathes semiusta, Pascoe, *l. c.* p. 355, Amboyna.

Glaucytes suturalis, Pascoe, Journ. Linn. Soc. ix. p. 308, Cape York.

Glenea. Pascoe (Ent. Trans. 3rd ser. iii.) describes the following new Malasian species:—*G. coris*, p. 366, *G. myrsine*, p. 367, *G. cleome*, p. 368, *G. mesoleuca*, p. 379 [pl. 17. fig. 4], *G. ianthe*, p. 383, *G. egeria*, p. 384, *G. irene*, p. 392, *G. anona*, p. 393, *G. discoidalis*, p. 399, *G. palliata*, p. 400, and *G. myrrhis*, p. 404, Singapore; *G. adelia*, p. 367, *G. areca*, p. 369, *G. laudata*, p. 370 (=*viridi-notata*, Thoms. nec Blanch.), *G. fatalis*, p. 382, *G. calypso*, ibid. [pl. 17. fig. 3], *G. aspasia*, p. 384 [pl. 17. fig. 2], *G. melia*, p. 385, *G. sejuncta*, p. 387, *G. camelina*, p. 392, *G. analytica*, p. 399, *G. eclectica*, ibid., *G. ircsine*, p. 406, *G. medea*, p. 410 [pl. 17. fig. 5], Sarawak; *G. elate*, p. 368, *G. iridescens*, p. 371, and *G. sospita*, p. 409 [pl. 17 fig. 8], Malacca; *G. camilla*, p. 370, Sumatra; *G. nicanor*, p. 371, Macassar; *G. honora*, p. 373, Penang; *G. thomsoni*, p. 376 [pl. 17. fig. 1], and *G. cyrilla*, p. 377, Batchian; *G. atropa*, p. 387, *G. attalea*, p. 396, and *G. cærulcata*, ibid., Ceram; *G. sophronia*, p. 388, *G. venenata*, p. 405, *G. stella*, p. 408, and *G. miniacea*, p. 412, Dorey; *G. myrsia*, p. 389, and *G. corypha*, p. 397, Amboyna; *G. acasta*, p. 390, Java; *G. telmissa*, p. 391, *G. iphia*, ibid., *G. cinna*, p. 400 [pl. 17. fig. 7], and *G. olyra*, p. 401, Tondano; *G. latania*, p. 394, and *G. tringaria*, p. 412, Menado; *G. lachrymosa*, p. 406 [pl. 17. fig. 9], Menado and Macassar; *G. hyphænc*, p. 397, Morty; *G. melissa*, p. 408, Dorey and Mysol; *G. mansueta*, p. 409, Mysol; *G. vanessa*, p. 408 [pl. 17. fig. 10], Waigiou; *G. glechoma*, p. 409, Matabello; *G. concinnata*, p. 403, Sarawak, Mysol, Dorey, &c.; and *G. luctuosa*, p. 381, Aru and Salwatty.

* See 'Record,' 1866, p. 385.

Glenea. Pascoe also describes the following as new species:—*G. lusoria* and *G. maura*, *l. c.* p. 405, note, Philippine Islands; and *G. lenita*, p. 410, note, India.

Hathliodes costulatus, Pascoe, Journ. Linn. Soc. ix. p. 305, Champion Bay.

Hebesecis basalis, Pascoe, Journ. Linn. Soc. ix. p. 301, Queensland.

Hestima (g. n., see p. 287) *floccosa*, Pascoe, Ent. Trans. 3rd ser. iii. p. 446 [pl. 18. fig. 7], Kaioa, Batchian, &c.; *H. sybroides*, Pasc. ibid., Dorey; *H. stellata*, Pasc. ibid., Ceram, Bouru; *H. trigeminata*, Pasc. *l. c.* p. 447, Waigiou, Aru; *H. bisignifera*, Pasc. ibid., Batchian.

Lychrosis afflictus, Pascoe, Journ. Linn. Soc. ix. p. 305, Cape York.

Microcleptes blanchardii, Thomson, *l. c.* p. 21, *M. globulosus*, Thoms. *l. c.* p. 22, and *M. sphæroides*, Thoms. ibid., Chili.

Microtragus pascoei, Thomson, *l. c.* p. 36=*M. amycteroides* (Pasc.) nec *Phryssoma amycteroides* (White), Queensland.

Momisis (g. n., see p. 286) *ægrota*, Pascoe, Ent. Trans. 3rd ser. iii. p. 362 [pl. 16. fig. 4], Flores.

Moneilema infamiæ, Thomson, *l. c.* p. 79, *M. perforatum* (Chevr. MS.), Thoms. *l. c.* p. 80, *M. mortuale*, Thoms. ibid., and *M. sinistrum*, Thoms. *l. c.* p. 81, from Mexico.

Mulciber biguttatus, Pascoe, *l. c.* p. 453, Singapore; *M. pullatus*, Pasc. *l. c.* p. 454, Batchian.

Oberea. Of this genus Pascoe (*l. c.*) describes the following new Malasian species:—*O. brevicollis*, p. 420, *O. prolixa*, p. 424, *O. insoluta*, ibid., *O. neptis*, p. 425, *O. consentanea*, p. 426, *O. compta*, p. 429, *O. anguina*, p. 433, and *O. acicularis*, p. 435, Sarawak; *O. macilenta*, p. 421, *O. lusciosa*, p. 422, *O. necydaloides*, p. 428, Singapore; *O. gracillima*, p. 422 [pl. 16. fig. 9], and *O. mutata*, p. 425, Sumatra; *O. lyncea*, p. 423, *O. insperans*, p. 431, *O. variicornis*, p. 432, and *O. delicata*, p. 436, Tondano; *O. morosa*, p. 423, *O. neutralis*, p. 425, *O. lætifica*, p. 430, and *O. insensilis*, p. 436, Menado; *O. protensa*, p. 426, Sula; *O. sceleresa*, p. 427, Bouru; *O. institoria*, p. 428, Amboyna; *O. famelica*, p. 429, *O. seroula*, p. 434, and *O. tenera*, p. 436, Macassar; *O. deflua*, p. 430, Aru; *O. pictipes*, p. 434, Java; *O. semimaura*, p. 437, Batchian; *O. nefasta*, p. 427, Mysol, Dorey; *O. macrocera*, p. 429, and *O. strigosa*, p. 438, Sumatra and Singapore; *O. limbata*, p. 433, Singapore and Sarawak; *O. mundula*, p. 432, Waigiou and Salwatty; *O. prædita*, p. 434, Sumatra, Sarawak, and Singapore; *O. commoda*, p. 437, Batchian and Kaioa; and *O. fractiosa*, ibid., Ceram and Salwatty.

Ochrocesis (g. n., see p. 286) *evanida*, Pascoe, *l. c.* p. 357 [pl. 16. fig. 3], Sarawak.

Orinœme (g. n., see p. 287) *chalybeata*, Pascoe, *l. c.* p. 448 [pl. 18. fig. 5], Ternate, Saylee; *O. acutipennis*, Pasc. *l. c.* p. 449, Batchian, Gilolo; *O. rufitarsis*, Pasc. ibid., Dorey; *O. puncticollis*, Pasc. ibid., Ceram; and *O lineigera*, Pasc. *l. c.* p. 450, Mysol, Bouru, New Guinea.

Ossonis (g. n., see p. 287) *clytomima*, Pascoe, *l. c.* p. 418, pl. 15. fig. 10, Sarawak.

Penthea macularia, Pascoe, Journ. Linn. Soc. ix. p. 303, North Australia.

Phœapate denticollis, Pascoe, Journ. Linn. Soc. ix. p. 306, Queensland.

Phantasis proserpina, Thomson, *l. c.* p. 29, Damaraland.

Pogonocherus bidentatus, Thomson, Skand. Col. viii. p. 85 (=*L. hispida*, Gyll.).

Rhadia (g. n., see p. 287) *pusio*, Pascoe, Ent. Trans. 3rd ser. iii. p. 451 [pl. 18. fig. 6], Dorey.

Rhytiphora argus, Pascoe, Journ. Linn. Soc. ix. p. 302, Queensland; *R. intertincta*, Pasc. ibid., South Australia.

Scytasis (g. n., see p. 287) *nitida*, Pascoe, Ent. Trans. 3rd ser. iii. p. 415 [pl. 16. fig. 8], *S. punctigera*, Pasc. ibid., and *S. oxyura*, Pasc. *l. c.* p. 416, Sarawak.

Serixia. Of this genus Pascoe (*l. c.*) describes the following Malasian species:—*S. marginata*, p. 337, *S. fulvida*, p. 341, Batchian; *S. aurulenta*, p. 337, *S. lychnura*, p. 338, Sarawak; *S. optabilis*, p. 337, Ceram; *S. præusta*, p. 340, Mysol; *S. quadrina*, ibid., Morty.

Sodus venosus, Pascoe, Journ. Linn. Soc. ix. p. 304, Cape York.

Symphyletes anaglyptus, Pascoe, Journ. Linn. Soc. ix. p. 303, and *S. capreolus*, Pasc. *l. c.* p. 304, Queensland.

Tephrocoma (g. n., see p. 287) *livia*, Pascoe, Ent. Trans. 3rd ser. iii. p. 419 [pl. 16. fig. 5], Ceram.

Tmesisternus equestris, Pascoe, *l. c.* p. 462, Dorey, Saylee; *T. schaumii*, Pasc. ibid., Key; *T. glaucus*, Pasc. *l. c.* p. 463, Amboyna, Ceram; and *T. restrictus*, Pasc. *l. c.* p. 464, Mysol, Waigiou.

Xyaste (Pasc.). Of this genus Pascoe (*l. c.*) describes the following new Malasian species:—*X. semiusta*, p. 343, pl. 15. fig. 4, Sumatra; *X. paradoxa*, p. 343, *X. subminiacea*, p. 344, Singapore; *X. invida*, p. 343, *X. torrida*, p. 344, *X. fumosa*, p. 347, Sarawak; *X. finita*, p. 345, Kaioa; *X. palliata*, ibid., Saylee; *X. cupida*, ibid., Batchian; and *X. trigonalis*, p. 346, Morty.

Lepturides.

Abeille de Perrin remarks that *Leptura 4-fasciata* (Fab.) seems to be identical with the Linnean species *Strangalia 4-fasciata*, and that it is probably owing to some confusion that it figures in the catalogues as a distinct species of *Anoplodera* (Ann. Soc. Ent. Fr. 4^{e} sér. vii. p. 70).

Strangalia quadrifasciata. Kawall notices the deposition of the eggs of this species in clefts of the bark of a dry piece of Alder. Stett. ent. Zeit. 1867, p. 118.

Leptura calcarata. Perty (Mitth. naturf. Ges. in Bern, 1867, p. 305, fig. 12) describes and figures a specimen of this species having the left anterior leg greatly thickened or widened and with only 3 tarsal joints.

Rhagium grandiceps, sp. n., Thomson, Skand. Col. viii. p. 50 (=*mordax*, Gyll.).

Toxotus lacordairii, sp. n., Pascoe, Proc. Ent. Soc. 1867, p. lxxxiv, Greece.

Cerambycides.

Diotima. Pascoe (Ann. & Mag. N. H. 3rd ser. xix. p. 310, note) remarks on species of this genus.

Necydalis and *Molorchus.* Pascoe (*l. c.* p. 311, note) discusses these genera of Linnæus and Fabricius, and concludes that as the characters of *Molorchus* given by Fabricius agree with *N. major* (Linn.), and not with *N. minor*, whilst Linnæus first *applied* the name of *Necydalis* to the latter, these species should be regarded as respectively the types of the two genera. [Pascoe says that Linnæus first characterized *Necydalis* in the 12th edition of the 'Systema Naturæ,' where the greater part of the species are heteromerous; but in reality the genus was characterized in the 10th edition, and in such a

manner as not to include the heteromerous forms, *N. major* and *minor* being the only species referred to it. It is evident that Linnæus added the heteromerous species to his genus *Necydalis* merely because he did not know what else to do with them; and at any rate *Molorchus* (Fab.) = *Necydalis* (Linn. ed. 10).]

Cremys (Pasc.). Pascoe (*l. c.* p. 316) recharacterizes this genus.

Pascoe (*l. c.* p. 319) proposes to change the following generic names employed in this group, but preoccupied elsewhere:—*Trichophorus* (Serv.) to *Crocidastus*; *Petalodes* (Newm.) to *Anatisis*; and *Conothorax* (J. Thoms.) to *Massicus*.

C. A. Dohrn remarks (Stett. ent. Zeit. 1867, pp. 437–445) upon some points in the synonymy of *Clytus hieroglyphicus* and *Cerambyx cerdo* and *heros*. With regard to the latter he is inclined to follow Mulsant's example and to apply the name of *C. cerdo* (Linn.) to *C. heros* (Scop.), and that of *C. scopoli* to *C. cerdo* of authors.

Purpuricenus barbarus and *P. dumerili* (Luc.) are ♂ and ♀ of the same species, according to Ernest Cotty. Cotty also notices the habits of *Hesperophanes affinis* (Luc.) (Mém. Soc. Linn. du Nord de Fr. 1866, p. 176).

Obrium bicolor (Kraatz). Notes on its occurrence near Vienna, by Löw, Verh. zool.-bot. Ges. in Wien, xvii. p. 748.

New genera:—

Chorothyse, g. n., Pascoe, Ann. & Mag. N. H. 3rd ser. xix. p. 307. Allied to *Psebium* (Pasc.); antennæ rather short, 12-jointed, scape very short; elytra short, hollowed out along the sutural margins; posterior tibiæ elongate, curved, compressed; abdomen short, 2 basal segments much longer than the rest.—Sp. *C. vesparia*, sp. n., Pasc. *l. c.* p. 308, South Africa.

Nephithea, g. n., Pascoe, *l. c.* p. 308. Allied to *Psebium*; forehead convex, not grooved, quadrate between the eyes; prothorax subcylindrical, narrowed behind; elytra abbreviated, hollowed out along the sutural margins; wings shorter than abdomen; posterior tibiæ elongate, linear.—Sp. *N. necydaloides*, sp. n., Pasc. *l. c.* p. 309, Natal.

Demomisis, g. n., Pascoe, *l. c.* p. 309. Allied to *Rhagiomorpha*; eyes entire, rounded; antennæ short, scape clavate, joint 3 longer than 4; elytra linear; anterior coxæ exserted, globose, approximate. Sp. *D. filum*, sp. n., Pasc. *l. c.* p. 310, West Australia.

Zorion, g. n., Pascoe, *l. c.* p. 310. Allied to *Molorchus*?; head attenuated behind the eyes; eyes small, deeply emarginate; prothorax constricted at base and apex, narrower behind; femora abruptly clavate.—Sp. *Callidium minutum* (Fab.) and *Obrium guttigerum* (Westw.).

Ossibia, g. n., Pascoe, *l. c.* p. 311. Allied to *Obrium*?; antennæ setaceous; eyes large, contiguous beneath; anterior coxæ globose. Sp. *O. fuscata*, sp. n. (Dej.), Pasc. *l. c.* p. 312, Senegal.

Nida, g. n., Pascoe, *l. c.* p. 312. Allied to *Rhopalophora*; joint 4 of antennæ shorter than 3 & 5; prothorax elongate, subcylindrical; mesothorax elongate; mesosternum narrow. Sp. *N. flavovittata*, sp. n., Pasc. *l. c.* p. 312, Pegu.

Nyphasia, g. n., Pascoe, *l. c.* p. 313. Allied to *Cordylomera*; interfemoral process broad, rounded in front; prothorax irregular, its sides unarmed; femora petiolate-clavate, constricted at apex. Sp. *N. torrida*, sp. n., Pasc. *l. c.* p. 313, Ceylon.

Idothalia, g. n., Pascoe, *l. c.* p. 314. Allied to *Callichroma*; antennæ short, gradually thickened, serrate, joints 4 & 5 obconic, last ovate or triangular; prothorax tuberculate at the sides; anterior and intermediate tibiæ with two minute apical spines. Sp. *I. femorata*, sp. n., Pasc. *l. c.* p. 314, Philippine Islands; *I. pyrrha*, sp. n., Pasc. ibid., Pegu.

Bixorestes, g. n., Pascoe, *l. c.* p. 315. Allied to *Clytus*; prothorax depressed, its sides angulated; antennæ subincrassate, linear, joints unarmed. Sp. *Clytus doctus* (White), and probably *Cerambyx interruptus* (Oliv.).

Thranodes, g. n., Pascoe, *l. c.* p. 315. Allied to *Clytus*; head tricarinate in front; antennæ short, claviform; prothorax globose; elytra flattened, not covering the abdomen. Type *Clytus stenothyreus* (Pasc.).

Thoris, g. n., Pascoe, *l. c.* p. 317. Allied to *Callirhoë*; prothorax oblong, irregular, tuberculate at the sides; femora petiolate-clavate; tarsi short, nearly equal in length. Sp. *T. eburifera*, sp. n., Pasc. *l. c.* p. 317, Queensland.

Brototyche, g. n., Pascoe, *l. c.* p. 317. Allied to *Anoplistes*; prothorax subquadrate, unarmed at the sides; anterior coxæ approximate; prosternum narrow, keeled; interfemoral process concealed by posterior coxæ. Sp. *B. adamsii*, sp. n., Pasc. *l. c.* p. 318, Chosan (Japan).

Thephantes, g. n., Pascoe, *l. c.* p. 318. Allied to *Phacodes*; antennæ thickened in the middle; prothorax ovate, somewhat depressed; femora abruptly clavate; posterior tarsi with joint 1 triangular. Sp. *T. clavatus*, sp. n., Pasc. *l. c.* p. 319, Australia.

Zoodes, g. n., Pascoe, *l. c.* p. 319. Allied to *Stromatium*; scape short, pyriform; prothorax convex, transverse, narrower behind, not excavated laterally. Sp. *Stromatium*? *maculatum* (White).

Streptoblabis, g. n., Bates, Ent. M. Mag. iv. p. 23. (*Trachyderinæ*.) Body oblong, depressed, dilated behind; head small; eyes finely facetted, deeply emarginate; mandibles curved upwards at apex; terminal joints of palpi ovate, truncate; antennæ shorter than body, stout, joint 1 thick, clavate, remainder from 3 sulcated, dilated at apex, inner angles produced; thorax unarmed; elytra with a sutural tooth; prosternum narrow, tuberculate at apex; femora clavate, toothed beneath. Sp. *S. hispoides*, sp. n., Bates, *l. c.* p. 23, Ega.

Æchmutes, g. n. (Pasc. MS.), Bates, *l. c.* p. 23. Allied to *Rhinotragus* and *Erythroplatys*; dilated behind; muzzle elongated; outer lobe of maxillæ much elongated; eyes nearly approximate in front; antennæ short, middle joints much dilated, with their angles produced inwards, joints 2 & 4 with a fringe of strong bristles outside; elytra undulato-truncate at apex, spined at each end of the truncature. Sp. *Æ. lycoides*, sp. n., Bates, *l. c.* p. 23, Ega.

Pandrosos, g. n., Bates, *l. c.* p. 23. Allied to *Rhinotragus*; slender, linear; muzzle shorter and wider; eyes widely separate in front; antennæ filiform, thickening towards apex and subserrated. Sp. *R. exilis* (White).

Argyrodines, g. n., Bates, *l. c.* p. 24. Allied to *Cosmisoma*; external maxillary lobe and last joint of palpi much elongated; thorax constricted in front and behind, the middle portion forming a tumid mass on each side; elytra constricted in the middle; legs short, posterior longest. Sp. *A. pulchella*, sp. n., Bates, *l. c.* p. 24, Ega.

Chlorethe, g. n., Bates, *l. c.* p. 24. Allied to *Orthostoma*; outer lobe of maxillæ short and broad; joints 3–5 of antennæ thickened; femora simple;

tibiæ compressed, bicalcarate at apex; tarsi slender, joint 1 in posterior sublinear. Sp. *C. ingæ*, sp. n., Bates, *l. c.* p. 24, Ega.

Microspiloma, g. n., Bates, *l. c.* p. 24. Allied to *Heterops*; muzzle elongate; palpi truncated; joints 3 & 5 of antennæ dilated, coarsely setose, unarmed; thorax spined; elytra cylindrical, unarmed at apex, with white spots; mesosternum with a large smooth median tubercle. Sp. *M. dorilis*, sp. n., Bates, *l. c.* p. 25, Ega.

Atharsus, g. n., Bates, *l. c.* p. 25. Allied to *Sphærion*; antenniferous tubercles obsolete; joints 3 & 5 of antennæ with short apical spines; legs short, setose; elytra unarmed. Sp. *A. nigricauda*, sp. n., Bates, *l. c.* p. 25, Tapajos.

Terpnissa, g. n., Bates, *l. c.* p. 25. Allied to *Sphærion*; joints 3–5 of antennæ spined at apex; legs elongate, femora clavate; prosternum very narrow; elytra with a spine near apex. Sp. *T. listropternia*, sp. n., Bates, *l. c.* p. 25, Tapajos.

Phrynocris, g. n., Bates, *l. c.* p. 26. Allied to *Achryson*; muzzle short; antenniferous tubercles prominent; joint 1 of antennæ with a tubercle near apex beneath; thorax subquadrate, spined at the sides; elytra spined at apex. Sp. *P. notabilis*, sp. n., Bates, *l. c.* p. 26, Ega.

Zathecus, g. n., Bates, *l. c.* p. 26. Allied to preceding; thorax unarmed; elytra with 2 spines at apex; femora abruptly clavate. Sp. *Z. graphites*, sp. n., Bates, *l. c.* p. 26, Ega.

Arœotis, g. n., Bates, *l. c.* p. 26. Allied to *Obrium*; lower lobe of eyes very large; thorax elongate; sides with a minute tubercle behind middle; elytra rounded at apex; legs long, femora clavate, posterior elongated. Sp. *A. fragilis*, sp. n., Bates, *l. c.* p. 26, Tapajos.

Pyrgotes, g. n., Bates, *l. c.* p. 27. Allied to *Piezocera* and *Hemilissa*; head and thorax narrow, the latter elongated, with an obtuse lateral and a dorsal prominence far behind middle; antennæ very stout, joints dilated, bicarinated, with apical angles acute; legs short, tibiæ compressed, wide at apex. Sp. *P. æneus*, sp. n., Bates, *l. c.* p. 27, Ega.

Dodecosis, g. n., Bates, *l. c.* p. 27. Allied to *Gracilia*; antenniferous tubercles very large, acutely toothed; palpi very short, truncated at apex; antennæ very long, distinctly 12-jointed, 3 shorter than 4; thorax unarmed; prosternum very narrow. Sp. *D. saperdina*, sp. n., Bates, *l. c.* p. 27, Tapajos.

Niophis, g. n., Bates, *l. c.* p. 27. Allied to *Gracilia*; palpi moderate, subsecuriform; antenniferous tubercles not prominent; antennæ stout, very long, fringed; elytra terminating in a long spine. Sp. *N. coptorhina*, sp. n., Bates, *l. c.* p. 28, Santarem, Tapajos.

Atenizus, g. n., Bates, *l. c.* p. 28. Allied to *Smodicum*; palpi elongated; head with a distinct neck, with a large tubercle on the vertex; thorax ovate, unarmed; anterior and middle coxæ exserted, contiguous. Sp. *A. laticeps*, sp. n., Bates, *l. c.* p. 28, Pará and Santarem.

Callidium pilicolle, sp. n., Thomson, Skand. Col. viii. p. 29 (= *clavipes*, Gyll.).

Strongylurus ceresioides, sp. n., Pascoe, Journ. Linn. Soc. ix. p. 308, Tasmania.

Molorchus mulsanti, sp. n., Stierlin, Mitth. schw. ent. Ges. ii. p. 30, Sicily.

Prionides.

Pascoe (Ann. Mag. N. H. 3rd ser. xix. p. 413, note) remarks on the characters of *Notophysis* (Serv.), and also (*l. c.* p. 411, note) that the generic

names *Chiasmus* and *Hephialtes* (J. Thoms.) are preoccupied. The former he proposes to name *Chiasmetes*. *Cacosceles* (Newm.) is too near *Cacoscelis* (Chevr.).

Tragosoma depsarium. Habits briefly noticed by Kawall, Stett. ent. Zei 1867, p. 124.

Macrodontia cervicornis. Lucas describes the supposed pupa of this species. Bull. Soc. Ent. Fr. 1867, p. lxxxii.

Prionus coriarius. Pelikan notices a malformation of this species having the left anterior tibia doubled; the second tibia bears a two-jointed tarsus without claws. Sitzungsb. zool.-bot. Ges. in Wien, 1867, p. 116.

Prionus coriarius. Perty (Mitth. naturf. Ges. in Bern, 1867, p. 308, fig. 11) describes and figures a ♀ of this species with two small and deformed legs on the right side, and a spine at the base of one of these, which he regards as the rudiment of a third limb.

New genera:—

Sarmydus, g. n., Pascoe, Ann. Mag. N. H. 3rd ser. xix. p. 410. Allied to *Dorycera*; antennæ compressed, joint 3 longer and broader than scape; prothorax transverse, laterally spinose; femora and tibiæ compressed; prosternum produced. Sp. *S. antennatus*, sp. n., Pascoe, *l. c.* p. 410, Sarawak.

Xaurus, g. n., Pascoe, *l. c.* p. 410. Allied to *Tragosoma*; head not much produced below the antennæ; antennæ short, joint 3 shorter than scape; prothorax irregular, spined at the sides; metathoracic parapleura oblong-quadrate. Sp. *X. depsarius*, sp. n., Pascoe, *l. c.* p. 410, Morty.

Nepiodes, g. n., Pascoe, *l. c.* p. 410. Allied to *Ægosoma*; mandibles elongate; scape very short; eyes large, approximate above; prothorax transversely subquadrate, unarmed. Sp. *N. cognatus*, sp. n., Pascoe, *l. c.* p. 410, Sarawak.

Zarax, g. n., Pascoe, *l. c.* p. 410. Allied to *Macrotoma*; palpi very short; antennæ incrassate, short, unarmed, scape very short; tarsi very short, channelled beneath.—Sp. *Z. curypodioides*, sp. n., Pascoe, *l. c.* p. 410, Sarawak.

Omotagus, g. n., Pascoe, *l. c.* p. 410. Allied to *Hystatus*; tarsi linear, joints 1–3 biscopuliferous at apex beneath; mandibles with two large teeth. Sp. *O. lacordairii*, sp. n., Pascoe, *l. c.* p. 410, Dorey.

Elaptus, g. n., Pascoe, *l. c.* p. 413. Allied to *Sarmydus* (Pasc.); antennæ longer than body, joints 3 & 4 equal; eyes large; prothorax transverse, lateral keel slightly angulated behind the middle; femora short; tibiæ not dentate; abdominal segments equal in length. Sp. *E. simulator*, sp. n., Pasc. *l. c.* p. 413, Cape York.

Cantharoplatys, subg. n., Westwood, Proc. Ent. Soc. 1865, p. 133. Allied to *Cantharocnemis*; body more depressed; mandibles much stouter, armed with a subbasal tooth; antennæ short; elytra cicatricose, lateral angles very prominent. Sp. *C. felderi*, sp. n., Westw. *l. c.* p. 134, White Nile.

Cantharoctenus, subg. n., Westwood, *l. c.* p. 134. Allied to *Cantharocnemis*; prothorax more cylindrical; antennæ twice as long, 18-jointed, joints doubly pectinated. Sp. *C. burchellii*, sp. n., Westw. *l. c.* p. 134, Damara land.

New species:—

Prionus gerrardi, Pascoe, *l. c.* p. 411, Madagascar; *P. tetanicus*, Pasc. *l. c.* p. 412, Chosan (Japan).

Hoplideres lævicollis, Pascoe, *l. c.* p. 412, Madagascar.
Ægosoma lacertosum, Pascoe, *l. c.* p. 413, Silhet.
Cantharocnemis livingstonii, Westwood, Proc. Ent. Soc. 1865, p. 133, Zambesi.

Phytophaga.

The Scandinavian forms of this group are described by C. G. Thomson (Skand. Col. viii. pp. 103–324). He follows closely the general arrangement adopted in his synopsis published in vol. i. of the same work, but makes some alterations both in the sequence and number of the genera, many of the generic groups proposed by Foudras and others being admitted, especially among the Halticides.

Criocerides.

C. G. Thomson (Skand. Col. viii.) suppresses the genus *Plateumaris* proposed by him for *Don. nigra* (Fab.), and restores that species to *Donacia*.
Rhæbus beckeri (Suffr.). Notes by Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 109.

New species:—

Donacia platysterna, Thomson, Skand. Col. viii. p. 118, Scania; *D. geniculata*, Thoms. *l. c.* p. 123 (= *sericea*, Gyll. ex parte), Sweden; *D. lævicollis*, Thoms. *l. c.* p. 125 (= *sericea*, Gyll. ex parte), Sweden.
Lema milleriana, Wollaston, Col. Hesp. p. 142, and *L. clarkiana*, Woll. *l. c.* p. 143, Cape Verde Islands.
Crioceris luridotestacea, Wollaston, *l. c.* p. 144, Cape Verde Islands (S. Vicente).
Rhæbus sagroides, Solsky, Horæ Soc. Ent. Ross. iv. p. 181, Astrachan.
Rhæbus beckeri, Suffrian, Stett. ent. Zeit. 1867, p. 143, Astrachan.

Chrysomelides.

Baly has published the continuation of his "Phytophaga Malayana" (Trans. Ent. Soc. 3rd ser. iv. pp. 77–300), the first part of which appeared in 1865 (see 'Record,' 1865, pp. 393 & 510). The species here described belong chiefly to the *Eumolpides*; but a few *Chrysomelides* (s. str.) are also noticed. The species characterized in Baly's pamphlet published in 1864 (see 'Record,' 1864, p. 336) are here fully described, and in some cases figured, along with several species of other authors, as indicated below:—

Aoria (*Adoxus*) *bowringii* (Baly), pl. 4. fig. 1; *Stasimus rugosus* (Baly), pl. 4. fig. 2; *Piomera brachialis* (Baly), pl. 4. fig. 3; *Metaxis sellata* (Baly), pl. 4. fig. 4; *Apolepis aspera* (Baly), pl. 4. fig. 7; *Lepina inconspicua* (Baly), pl. 4. fig. 6; *Bromius evanescens* (Baly), pl. 5. fig. 3; *Chrysochus pulcher* (Baly), pl. 5. fig. 4; *Scelodonta curculionoides* (Westw.), pl. 5. fig. 8; *Chrysopida* (*Colaspis*) *attelaboides* (Erichs.) = *adonis* (Baly), pl. 5*. fig. 4; *Rhyparida* (*Pyropida*) *sumptuosa* (Baly), pl. 5*. fig. 2; *Dermorhytis* (*Crypt.*) *ænea* (Wied.), pl. 5*. fig. 7; *Chalcolampra* 10-*pustulata* (Baly), pl. 5*. fig. 3;

Æscrnia whitei (Baly), pl. 5*. fig. 6; and *Stethomela variabilis* (Baly), pl. 5*. fig. 8.

Suffrian (Arch. f. Naturg. 1867) remarks upon the characters and synonymy of the following known species of this group: — Chrysomela *semilutea* (Stål), *insulana* (J. Duv.), *nydia* (Stål), *testaceipes* (Stål), *sexguttata* (Chevr.), *cubana* (Stål), *apicicornis* (Chevr.), *poeyi* (Chevr.), *cruentipennis* (J. Duv.), and *splendida* (Chevr.) = *splendicans* (Stål).

Fairmaire (Ann. Soc. Ent. Fr. 4e sér. vii.) notices the following species of this group from Algeria:—*Clythra* (*Labidostomis*) *trifoveolata* (Desbr.), *Cryptocephalus nigridorsum* (Chevr.), p. 412; *C. lineellus* (Suffr.), p. 414; *Stylosomus tamaricis* (H.-Sch.) and *S. minutissimus* (Germ.), pp. 414, 415.

Labidostomis lineola (Redt.) = *decipiens* (Fald.), according to Abeille de Perrin, Ann. Soc. Ent. F. 4e sér. vii. p. 70.

Cryptocephalus nigridorsum (Chev.) = var. *alboscutellatus* (Suffr.) according to Seidlitz, Berl. ent. Zeits. 1867, p. 434.

Guérin-Méneville notices the copulation of *Timarcha* as early as February. Bull. Soc. Ent. Fr. 1867, p. ii.

Gabriel Tappes publishes a note on the development of the *Cryptocephali*. L'Abeille, iii. pp. lxxxii–lxxxiv.

Lina lapponica. Found only on birches. Kawall, Stett. ent. Zeit. 1867, p. 124.

Paria sex-notata (Say). Bred by Walsh from the cabbage-gall of the willow. Proc. Ent. Soc. Phil. vi. p. 270.

New genera:—

Stethotes, g. n., Baly, Trans. Ent. Soc. 3rd ser. iv. p. 254. Allied to *Nodostoma*; thorax not bordered laterally, its sides nearly perpendicular. Known sp. *Pyropida elegantula* (Baly), pl. 5*. fig. 2, *P. nigrocærulea* (Baly), and *P. lateralis* (Baly). New sp. *S. apicicornis*, Baly, *l. c.* p. 256, Aru Islands; *S. consimilis*, Baly, *l. c.* p. 257, Batchian, Bouru; *S. longicollis*, Baly, ibid., Java; *S. tarsata*, Baly, *l. c.* p. 258, *S. nigritula*, Baly, ibid., and *S. atra*, Baly, *l. c.* p. 259, Dorey.

Aulacia, g. n., Baly, *l. c.* p. 268. Allied to *Colaspoides*; thorax transverse, as wide as elytra, which are attenuate behind, irregularly punctate-striate. New sp. *A. diversa*, Baly, *l. c.* p. 268, Singapore; *A. fulviceps*, Baly, ibid., *A. femorata*, Baly, *l. c.* p. 269, and *A. bipustulata*, Baly, ibid., Sarawak.

New species:—

Colasposoma. Baly (*l. c.*) describes 7 new species of this genus, namely:—*C. cumingii*, p. 271, Philippine Islands; *C. distinctum* and *C. nitidum*, p. 272, Coup; *C. mutabile*, p. 273, Java, Borneo, Malacca, Timor; *C. nigriventre*, ibid., Pulo Penang; *C. propinquum*, p. 274, Borneo; and *C. rugulosum*, p. 275, Malacca.

Cryptocephalus astracanicus, Suffrian, Stett. ent. Zeit. 1867, p. 310, Astrachan.

Cryptocephalus pallidicornis, Suffrian, Zeitschr. ges. Naturwiss. xxvii. p. 113, Illinois.

Cryptocephalus erosus, Seidlitz, Berl. ent. Zeitschr. 1867, p. 189, Spain; *C. podager*, Seidl. *l. c.* p. 190, Sierra Guadarrama; *C. limbifer*, Seidl. ibid., Sierra Nevada.

Cryptocephalus tamaricis, Solsky, Horæ Soc. Ent. Ross. iv. p. 183, Astrachan.

Cryptocephalus longicornis (scr. *longicornes*), Thomson, Skand. Col. viii. p. 311, Œland.

Cryptocephalus pallidocinctus, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 412, Algeria; *C. discicollis*, Fairm. *l. c.* p. 413, Algeria.

Stylosomus bipartitus, Fairmaire, *l. c.* p. 414, Algeria.

Lozopleurus lætus, Baly, *l. c.* p. 77, pl. 3. fig. 7, Key Island, Batchian.

Aulexis wallacei, Baly, *l. c.* p. 81, pl. 4. fig. 5, Sarawak, Singapore, Penang, Tondano; and *A. varians*, Baly, *l. c.* p. 82, Sarawak.

Demotina. Baly (*l. c.*) describes the following new Malasian species:—*D. serraticollis*, p. 85, Penang; *D. nigricollis*, ibid., Celebes; *D. murina*, p. 86, Java; *D. bivittata*, ibid., and *D. ornata*, p. 90, pl. 4. fig. 8, Ceram; *D. grisea*, p. 87, Sarawak; *D. wallacei*, ibid., *D. parvula*, p. 89, and *D. rufopicea*, p. 90, Menado; *D. pauperata*, p. 88, Dorey; and *D. jansoni*, p. 89, Waigiou.

Aulacolepis decorata, Baly, *l. c.* p. 93, pl. 5, fig. 8, Sumatra.

Pachnephorus clypeatus, Baly, *l. c.* p. 94, Gilolo; *P. vitticollis*, Baly, *l. c.* p. 95, pl. 5. fig. 2, Batchian; and *P. convexicollis*, Baly, ibid., Macassar.

Bromius cupreatus, Baly, *l. c.* p. 98, Singapore.

Corynodes. Baly (*l. c.*) describes the following new Malasian species:—*C. monstrosus*, p. 100, pl. 5. figs. 5 & 6 (=*tuberculatus*, Clark), *C. aureipennis*, p. 102, *C. cæruleatus*, p. 122, *C. igneipennis*, ibid., and *C. trilobatus*, p. 129, pl. 5. fig. 7, Pulo-Penang; *C. viridanus*, p. 105, and *C. lorquinii*, p. 118, Celebes; *C. cupreatus*, p. 107, Macassar; and *C. propinquus*, p. 113, Waigiou.

Scelodonta granulosa, Baly, *l. c.* p. 158, Sarawak and Celebes.

Chrysopida insignis, Baly, *l. c.* p. 161, and *C. murina*, Baly, *l. c.* p. 162, Philippine Islands.

Colaspis nigricornis, Suffrian, *l. c.* p. 325, Cuba; *C. deleta*, Suffr. *l. c.* p. 327, Costa Rica.

Colaspoides. Baly (*l. c.*) describes the following new Malasian species of this genus:—*C. simillima*, p. 130, and *C. laportei*, p. 148, Malacca and Singapore; *C. varians*, p. 135, Java; *C. regularis*, p. 136, *C. modesta*, ibid., *C. biplagiata*, p. 137, *C. robusta*, p. 139, *C. fuscoænea*, p. 140, *C. viridimarginata*, p. 142, *C. insignis*, ibid., *C. cærulipes*, p. 144, *C. tuberculata*, p. 150, and *C. violacea*, p. 151, Borneo and Sarawak; *C. inornata*, p. 137, Penang; *C. cuprea*, p. 138, and *C. cognata*, p. 149, Pulo-Penang; *C. micans*, p. 140, and *C. viridana*, p. 146, Celebes; *C. puncticeps*, p. 141, *C. elegans*, p. 143, *C. picea*, p. 151, *C. parvula*, p. 152, and *C. quadripartita*, ibid., Singapore; *C. cærulescens*, p. 145, Malacca; *C. rafflesii*, p. 147, Sumatra; and *C. philippinensis*, p. 148, Manilla.

Rhyparida. The following new species are described by Baly (*l. c.*):—*R. puncticollis*, p. 169, Menado and Tondano; *R. confusa*, p. 187, Ceram, Gilolo, Batchian; *R. instabilis*, ibid., Dorey and Mysol; *R. labiata*, p. 171, *R. purpurea*, p. 174, *R. fraternalis*, ibid., *R. cupreata*, p. 177, *R. mœsta*, p. 178, *R. picea*, p. 179, *R. amabilis*, p. 193, and *R. parvula*, p. 208, New Guinea; *R. basalis*, p. 168, *R. impressicollis*, p. 176, *R. frontalis*, p. 181, *R. variabilis*, p. 182, *R. obsoleta*, p. 185, and *R. picta*, p. 200, Dorey; *R. aruensis*, p. 186, Aru Islands; *R. inconspicua*, p. 194, *R. sulcicollis*, p. 199, and *R. nucea*, p. 204, Sulu Islands; *R. semipunctata*, p. 169, *R. separata*, p. 191, *R. opacicollis*, p. 195 (=*impuncticollis*, Baly *olim*), and *R. brunnea*, p. 196, Batchian; *R.*

scutellata, p. 175, *R. intermedia*, p. 188, *R. bipustulata*, p. 199, and *R. elevata*, p. 205, Waigiou; *R. submetallica*, p. 176, *R. distincta*, p. 192, and *R. diversa*, ibid., Tondano; *R. tibialis*, p. 183, *R. approximata*, p. 184, *R. suspecta*, p. 190, and *R. laterivittata*, p. 207, Mysol; *R. fulvipes*, p. 189, and *R. placida*, p. 190, Ké Island; *R. fulvescens*, p. 194, Gilolo; *R. angulicollis*, p. 211, Ceram; *R. lorquinii*, p. 166, pl. 5*. fig. 1, and *R. celebensis*, p. 210, Celebes; *R. laticollis*, p. 178, *R. tumifrons*, p. 198, and *R. pinguis*, p. 209, Borneo; *R. wallacei*, p. 200, Sarawak; *R. amboinensis*, p. 204, Amboyna; *R. javanensis*, p. 196, *R. obliterata*, p. 197, and *R. horsfieldii*, p. 202, Java; *R. ovalis*, p. 209, Sumatra; and *R. lateralis*, p. 210, Manilla.

Nodostoma. Baly (*l. c.*) describes the following new Malasian species of this genus:—*N. trivittatum*, p. 213, *N. apicale*, ibid., *N. proximum*, p. 214, *N. wallacei*, p. 216, *N. laterale*, p. 218, *N. humerale*, p. 219, *N. placidum*, 221, *N. piceomaculatum*, p. 222, *N. armiatum*, p. 226, *N. piceum*, p. 227, *N. bipustulatum*, ibid., *N. cupripenne*, p. 231, *N. cupreatum*, ibid., *N. aureocupreum*, p. 232, *N. collare*, p. 234, *N. nitidum*, p. 237, and *N. tibiale*, p. 245, Borneo and Sarawak; *N. javanense*, p. 224, and *N. basale*, p. 238, Java; *N. viride*, p. 236, and *N. imperiale*, p. 240, Sumatra; *N. lateripunctatum*, p. 230, and *N. anthracinum*, p. 247, Singapore; *N. æneipenne*, p. 235, *N. æneomicans*, p. 237, *N. nigrum*, p. 248, *N. nigritum*, ibid., *N. purpureipenne*, p. 249, and *N. frontale*, p. 253, Malacca; *N. elegantulum*, p. 216, *N. gratum*, p. 224, *N. strigicolle*, p. 240, and *N. castaneum*, p. 246, Celebes; *N. fulvipes*, p. 228, New Guinea and Sulu Islands; *N. pictum*, p. 225, and *N. affine*, p. 243, Aru Islands; *N. tuberculatum*, p. 229, and *N. nigroæneum*, p. 239, Tondano; *N. piceipes*, 241, Salwatty; *N. pulchellum*, p. 242, New Guinea, Waigiou; *N. pallidipes*, p. 250, Dorey; *N. amboinense*, ibid., Amboyna; *N. viridiornatum*, p. 251, Batchian; and *N. diversipes*, p. 253, Mysol.

Nodina (Motsch.). Baly (*l. c.*) describes the following new species:—*N. gigas*, p. 260, and *N. fulvipes*, ibid., Borneo; *N. separata*, p. 261, Sarawak; *N. minuta*, ibid., Sulu Islands; and *N. ceramensis*, p. 262, Ceram.

Geloptera eximia, Baly, *l. c.* p. 266, and *G. purpurata*, Baly, *l. c.* p. 267, Celebes.

Dermorhytis. Baly (*l. c.*) describes the following new species of this genus:—*D. philippinensis*, p. 263, Philippine Islands; *D. apicalis*, p. 264, Borneo; and *D. picipes*, p. 265, Java.

Timarcha lomnickii, L. Miller, Verh. zool.-bot. Ges. in Wien, xvii. p. 503, Galicia.

Chrysomela optica, Suffrian, Arch. Naturg. 1867, p. 293, *C. rubropustulata*, Suffr. *l. c.* p. 295, *C. hexaspila*, Suffr. *l. c.* p. 296, *C. amarella*, Suffr. *l. c.* p. 298, Cuba.

Chrysomela seriatopora, Fairmaire, Ann. Soc. Ent. Fr. 4^{e} sér. vii. p. 415, Algeria.

Phyllodecta cavifrons, Thomson, Skand. Col. viii. p. 278, Sweden.

Paropsis ioptera, Baly, *l. c.* p. 279, Dorey and Mysol; *P. nigripicta*, Baly, ibid., Aru Islands, New Guinea; *P. wallacei*, Baly, *l. c.* p. 280, Dorey; and *P. 5-maculata*, Baly, ibid., Batchian.

Phyllocharis viridiænea, Baly, *l. c.* p. 286, Ceram; *P. abdominalis*, Baly, ibid., Dorey.

Stethomela consimilis, Baly, *l. c.* p. 291, Amboyna, Ceram; *S. grandis*, Baly, *l. c.* p. 292, Dorey; *S. quadripustulata*, Baly, *l. c.* p. 294, Mysol.

Chalcomela intermedia, Baly, *l. c.* p. 296, Mysol, Ceram; *C. rubripustulata*, Baly, *l. c.* p. 297, New Guinea; *C. nigripennis*, Baly, ibid., Waigiou.

Plagiodera marginata, Baly, *l. c.* p. 299, New Guinea; *P. pallida*, Baly, ibid., Amboyna.

Gallerucides.

Allard has concluded his monograph of the European *Halticides* (L'Abeille, iii. pp. 321–508). The portion requiring to be noticed here includes the genus *Dibolia* (Latr.), 16 sp., 1 new, and *Psylliodes* (Lat.), 50 sp., 3 new. A supplement contains some notices of species belonging to genera treated of in earlier parts of the work.

Suffrian (Arch. f. Naturg. 1867) remarks upon the characters and synonymy of the following known species of this group:—Galleruca *opacipennis* (J. Duv.); Diabrotica *innuba* (Fab.), *bivittata* (Fab.), *pulchella* (Dej.), *thoracica* (Fab.); Cerotoma *denticornis* (Fab.); Luperus *malachioides* (Chevr.); and Blepharida *irrorata* (Chevr.).

Galleruca calmariensis (Linn.). Cornelius describes the development of this species, Stett. ent. Zeit. 1867, pp. 213–214.

Haltica alternata (Ill.), var., bred by Walsh from the gall *Salicis brassicoides*. Proc. Ent. Soc. Phil. vi. p. 270.

Galleruca albicornis (Wiedem.). Perty describes an example wanting the left anterior femur (Mitth. naturf. Ges. in Bern, 1867, p. 307).

On the species of *Haltica* injurious to the Colza plant in the Canton de Vaud, see Forel, Bull. Soc. Vaud. Sci. Nat. ix. pp. 72–73. (See p. 198.)

New genera:—

Argosomus, g. n., Wollaston, Col. Hesp. p. 152. Allied to *Sphæroderma*; head and prothorax narrower; eyes and antennæ more approximated; base of elytra broader than prothorax, sinuated; tarsi not dilated at base. Sp. *A. epilachnoides* and *A. obscuripennis*, sp. n., Woll. *l. c.* p. 153, Cape Verde Islands.

Syphaxia, g. n., Baly, Trans. Ent. Soc. Lond. 3rd ser. ii. p. 471. Allied to *Monocesta*; claws unarmed; body short, very convex. Sp. *M. spectanda* (Clark).

Chorina, g. n., Baly, *l. c.* p. 471. Allied to preceding; body elongate, parallel-sided; claws simple. Sp. *Monocesta cincta* and *obliquenotata* (Clark).

New species:—

Adimonia œlandica (Gyll. MS.), Thomson, Skand. Col. viii. p. 147, Œland.

Cœlomera liturata, Suffrian, Arch. f. Naturg. 1867, p. 300, Cuba.

Galleruca venustula (Mus. Berol.), Suffrian, *l. c.* p. 303, Cuba.

Galeruca suturalis, Thomson, *l. c.* p. 151, Scandinavia.

Galeruca turcica, Stierlin, Mitth. Schw. ent. Ges. ii. p. 226, Bagdad.

Diabrotica annulata, Suffrian, *l. c.* p. 307, *D. impressa*, Suffr. *l. c.* p. 309, *D. relicta* (Klug), Suffr. *l. c.* p. 310, *D. loricata* (Klug), Suffr. *l. c.* p. 311, *D. cyanospila*, Suffr. *l. c.* p. 313, *D. semicyanea*, Suffr. *l. c.* p. 314, Cuba.

Luperus placidus (Mus. Berol.), Suffrian, *l. c.* p. 320, Cuba.

Luperus aeutipennis, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 415, Morocco.

Cerotoma. Baly (*l. c.*) describes the following new species of this genus:—*C. de gandei*, p. 472, Ecuador; *C. heteroeera*, p. 472, *C. congener*, p. 473, *C. limbifera*, p. 475, *C. contubernalis*, ibid., *C. pulchra*, p. 476, *C. perplexa*, ibid., and *C. alternata*, p. 477, Amazons; *C. exeavata*, p. 474, *C. amazona*, p. 475, and *C. erichsoni*, p. 478, Nauta; *C. transversofaseiata*, p. 474, San Paulo; *C. deyrollei*, p. 477, Columbia; *C. quadripustulata*, p. 477, Guatemala, Mexico; and *C. salvinii*, p. 478, Panama.

Calomicrus tæniatus, Wollaston, Col. Hesp. p. 145, Cape Verde Islands.

Haltiea dohrniana, Wollaston, *l. c.* p. 146, *H. læviceps*, Woll. *l. c.* p. 147, *H. subatra*, Woll. *l. c.* p. 148, *H. lævissima*, Woll. *l. c.* p. 149, and *H. signatifrons*, Woll. *l. c.* p. 150, Cape Verde Islands.

Longitarsus stenocyphon, Wollaston, *l. c.* p. 150, and *L. laxicornis*, Woll. *l. c.* p. 151, Cape Verde Islands.

Dibolia phœnicia, Allard, L'Abeille, iii. p. 424, Syria.

Psylliodes persica, Allard, *l. c.* p. 457, Bagdad; *P. lauticollis*, Allard, *l. c.* p. 468, south of France; *P. sauleyi*, Allard, *l. c.* p. 469, Syria.

Psylliodes sicula, Stierlin, *l. c.* p. 228, Sicily.

Psyllodes cytisi, Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 113, Sarepta.

Plectroseelis sehäflini, Stierlin, *l. c.* p. 31, Sicily.

Phyllotreta dilatata, Thomson, *l. c.* p. 192, Scania.

Plectroseelis lævicollis, Thomson, *l. c.* p. 229 (=*H. dentipes*, Gyll., var. *d*), Småland.

Aphthona pulcherrima, Allard, *l. c.* p. 489, Algeria; *A. sardea*, Allard, *l. c.* p. 490, Sardinia; *A. viridula*, Allard, *l. c.* p. 491, Syria.

Thyamis nebulosa, Allard, *l. c.* p. 495, Corsica.

Graptodera hampei, Allard, *l. c.* p. 499, Crimea.

Balanomorpha nitens, Allard, *l. c.* p. 501, Algeria.

Cassidides.

Cassida salsolæ (Beck.)=*desertorum* (Gebl.), according to Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 109.

Cassida kœchlini, sp. n., Marseul, L'Abeille, iii. p. 68, Sahara.

Coccinellidæ.

The Scandinavian members of this family are described by C. G. Thomson (Skand. Col. viii. pp. 325–396). He divides the group into two tribes, *Rhizobiina* and *Coccinellina*, the latter including the subtribes *Coccinellides*, *Cynegetides*, *Chilocorides*, and *Scymnides*. Several of the genera of modern authors are accepted by Thomson.

Coccinella lyncea (Muls.)=var. 12-*pustulata* (Fab.), according to Seidlitz, Berl. ent. Zeits. 1867, p. 434.

Coccinella 24-*punctata*. The larva feeds on the leaves of carnations &c. Kawall, Stett. ent. Zeit. 1867, p. 123.

Letzner (Jahresber. schles. Ges. vaterl. Cultur, xliv. pp. 161–169) gives a detailed description of *Coccinella undecimnotata* (Schneid.) in all its stages, and of the variations of the imago.

New species:—

Coccinella artemisiæ, Wollaston, Col. Hesp. p. 158, Cape Verde Islands.

Micraspis tetradyma, Fairmaire, Ann. Soc. Ent. Fr. 4e sér. vii. p. 416, Morocco.

Rhizobius nigriventris, Thomson, Skand. Col. viii. p. 331, Gothland and Œland.

Scymnus epistemoides, Wollaston, *l. c.* p. 270, Porto Santo.

Scymnus carbonarius, Wollaston, *l. c.* p. 159, *S. pallidulus*, Woll. *l. c.* p. 160, *S. nigropictus*, Woll. ibid., *S. posticus*, Woll. *l. c.* p. 161, *S. floricola*, Woll. *l. c.* p. 162, *S. fractus*, Woll. *l. c.* p. 163, *S. picturatus*, Woll. *l. c.* p. 164; *S. maritimus*, Woll. *l. c.* p. 165, *S. inconspicuus*, Woll. *l. c.* p. 166, and *S. depressiusculus*, Woll. *l. c.* p. 167, Cape Verde Islands.

HYMENOPTERA.

A. *Separate Work.*

Saussure, H. de, and Sichel, J. Reise der Oesterreichischen Fregatte Novara um die Erde. Zoologie, Band ii. Hymenoptera. With a Supplement by J. Sichel. Vienna, 1867, pp. 156, with 4 plates.

In this part of the Zoology of the 'Novara' the authors describe the Aculeate Hymenoptera (exclusive of the Ants) collected on that voyage. Saussure treats of the Vespidæ and Fossoria, and Sichel (pp. 141–156) of the Bees. The latter also describes a new species of *Bembex*.

B. *Papers published in Journals &c.*

Buckley, S. B. Descriptions of new species of North-American Formicidæ. Proc. Entom. Soc. Philad. vol. vi. pp. 152–172 and 335–350: 1867.

The author has employed several names, such as *Formica atra* and *Myrmica rubra*, which had been used by previous authors. He has also treated *Atta* in part as a subgenus of *Myrmica* and *Œcodoma* and in part as an independent genus—a proceeding which is not very intelligible.

Chevrier, Frédéric. Hyménoptères nouveaux ou rares du Bassin du Léman. Mittheil. schweiz. entom. Gesellsch. Band ii. pp. 229–235: August 1867.

Cornelius, —. Zweite Notiz über Eichengallen (*Cynips terminalis*, Fab.). Stettiner entom. Zeitung, 1867, pp. 63–64.

Cresson, E. T. Notes on the Pompilidæ of North America. Trans. Amer. Ent. Soc. vol. i. pp. 85–150.

Frauenfeld, G. von. (See "Insecta.")

Gerstäcker, A. Die Arten der Gattung *Nysson*, Latr. Abhandl. naturf. Gesellsch. Halle, x. pp. 71–122: 1867.

——. Ueber die Gattung *Oxybelus*, Latr., und die bei Berlin vorkommenden Arten derselben. Zeitschrift für die ge-

sammten Naturwissenschaften, Band xxx. pp. 1–96: July 1867.

Besides the portion strictly relating to the genus *Oxybelus*, this paper contains some general remarks on the classification of Hymenoptera and on the inequality in the facets of the eyes of Insects.

Hagens, — von. Ueber Ameisen mit gemischten Colonien. Berliner entom. Zeitschrift, 1867, pp. 101–108.

Haimhoffen, Gustav von. Ueber die Eichengalle von *Cynips coriaria*, Hart. Verhandl. zool.-bot. Ges. in Wien, Band xvii. pp. 527–530.

Healy, Charles. Observations on the œconomy of the Saw-fly (*Phyllotoma aceris*, M'L.) that mines the leaves of Maple. Ent. Monthly Mag. vol. iv. pp. 105–107.

Jaennicke, F. Zur Hymenopteren-Fauna der Umgegend von Frankfurt a. M. Berliner entom. Zeitschrift, 1867, pp. 141–155.

Contains a list of species, with indications of localities and degrees of abundance or rarity, and descriptions of three new species of Ichneumonidæ.

Lincecum, G. On the Cutting-Ant of Texas, *Œcodoma texana*, Buckley. Proc. Acad. Nat. Sci. Philad. 1867, pp. 24–31.

——. The Tarantula-killers of Texas. American Naturalist, vol. i. pp. 137–141.

A notice of *Pompilus formosus* (Say).

Lowe, John. Observations on Dzierzon's Theory of Reproduction in the Honey Bee. Trans. Ent. Soc. Lond. 3rd ser. vol. v. pp. 547–560: 1867.

Lucas, H. Quelques remarques sur le *Philanthus apivorus*, Hyménoptère fouisseur de la tribu des Crabroniens et de la famille des Cercérites. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 289–296: October 15, 1867.

——. Quelques remarques sur les nids des *Polybia scutellaris* and *liliacea*, Hyménoptères sociaux de la tribu des Vespides. Ibid. pp. 365–370, pl. 9: December 11, 1867.

M'Lachlan, R. Additions to the British *Tenthredinidæ*. Ent. Monthly Mag. vol. iv. pp. 102–105: October 1867.

Marshall, T. A. Description of a new genus and species of British Hymenoptera, allied to *Pezomachus*. Ent. Monthly Mag. iii. pp. 193–194: February 1867.

——. Descriptions of British Hymenoptera (*Proctotrupidæ*) new to science &c. Ibid. pp. 223–226: March 1867.

Marshall, T. A. On some British *Cynipidæ*. Ent. Monthly Mag. vol. iv. pp. 6–8, 101–102, 124–126, and 146–148.

Morawitz, F. Ueber einige Andrenidæ aus der Umgegend von St. Petersburg. Horæ Soc. Entom. Rossicæ, tom. iii. pp. 61–79: 1865.

Contains a list of the Andrenidæ hitherto detected in the neighbourhood of St. Petersburg, with indications of the localities in which they have been captured, and descriptions of the peculiarly northern ones. Two new species are described. The species not found in Finland and Lapland are marked with an asterisk.

——. Bemerkungen über einige vom Prof. Eversmann beschriebene Andrenidæ, nebst Zusätzen. Horæ Soc. Entom. Rossicæ, tom. iv. pp. 1–28: 1866.

——. Uebersicht der im Gouvernement von Saratow und um St. Petersburg vorkommenden *Odynerus*-Arten. Horæ Soc. Entom. Rossicæ, tom. iv. pp. 109–144: 1867.

——. Ein Beitrag zur Hymenopteren-Fauna des Ober-Engadins. Ibid. tom. v. pp. 39–71: 1867.

Contains a general notice of the Aculeate Hymenoptera of the Upper Engadine, with a list of the Bees occurring in the vicinity of St. Moritz, and descriptions of some new species.

Norton, Edward. Catalogue of the described *Tenthredinidæ* and *Uroceridæ* of North America. Trans. Amer. Entom. Soc. i. pp. 31–84 and 193–324: 1867.

This is the first part of a descriptive and synonymic catalogue of the Securiferous Hymenoptera of North America, and includes the species of the subfamilies *Cimbicides* and *Hylotomides* and a considerable portion of the *Tenthredinides*. The West-Indian species are included.

Packard, A. S. Revision of the Fossorial Hymenoptera of North America. I. Crabronidæ and Nyssonidæ. Proc. Ent. Soc. Philad. vol. vi. pp. 353–445: 1867.

The conclusion of the paper cited in last year's 'Record' (p. 414).

—— The Home of the Bees. American Naturalist, vol. i. pp. 364–378, pl. 10.

A semipopular general account of the habits of Bees.

Perkins, G. A. The Cockroach and its Enemy. American Naturalist, vol. i. pp. 293–296.

A notice of the habits of *Ampulex sibirica* (Fab.).

Radoszkowsky, O. Description d'un genre nouveau, *Pseudomelecta*, et de quelques espèces du genre *Eumenes*. Horæ Soc. Entom. Rossicæ, tom. iii. pp. 53–60, pl. 1: 1865.

Radoszkowsky, O. Enumération des espèces de Chrysides de Russie. Ibid. pp. 295–310, pls. 2–6: 1866.

Reinhard, H. Beiträge zur Kenntniss einiger Braconiden-Gattungen. Viertes Stück (see 'Record,' 1865, p. 532). Berliner entom. Zeitschrift, 1867, pp. 351–374.

Rondani, Camillo. De speciebus duabus Dipterorum generis Asphondyliæ, et de duobus earum parasitis. Annuario Soc. Nat. in Modena, tom. ii. pp. 37–40: 1867.

Saussure, H. de. Mutillarum novarum species aliquot. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 351–364, pl. 8: 1867.

Schenck, —. Zusätze zu dem Verzeichnisse der Nassauischen Hymenoptera aculeata. Berl. entom. Zeitschr. 1867, p. 156.

Smith, F. Descriptions of new species of *Cryptoceridæ*. Trans. Ent. Soc. Lond. 3rd scr. vol. v. pp. 523–528, pl. 26: 1867.

——. Observations on the study of Gall-flies (*Cynipidæ*). Entom. Monthly Mag. vol. iii. pp. 181–183.

——. A Revision of the British Species of the genus *Bombus*. Entomologist, vol. iii. pp. 240–243, 255–260, 267–269, 281–288, 293–298.

These papers contain a revision of the synonymy of the British species of *Bombus* and *Apathus*. The last also includes a notice of the species of *Colletes*, being really the commencement of the following article.

——. A Revision of the Characters and Synonymes of British Bees. Entomologist, vol. iii. pp. 305–310, 320–325, and 336–338.

This is a continuation of the articles on the British species of *Bombus* by the same author.

——. Notes on aculeate Hymenoptera observed in 1866. Entomologist, vol. iii. pp. 193–199.

——. Notes on Hymenoptera. Entomologists' Annual, 1868, pp. 81–96.

Taschenberg, E. L. Die drei ersten Sectionen der Gattung *Ichneumon*, Gr. (unter Durchsicht der Typen aus Gravenhorst's Sammlung). Zeitschrift für die gesammten Naturwiss. Band xxvii. pp. 228–318: 1866.

In this paper Taschenberg passes in review the species of Gravenhorst's first three sections of his genus *Ichneumon*. He indicates the equivalents of the species in the writings of modern authors, and accompanies these notices with additional characters, completing Gravenhorst's descriptions. At the end of his paper Taschenberg gives a list of the species, with their synonyms, arranged under Wesmael's genera. His results are

obtained from the examination of the types of Gravenhorst's collection.

Vollenhoven, S. C. Snellen van. De Inlandsche Bladwespen in hare Gedaantewisseling en Levenswijze beschreven. Twaalfde Stuk. Tijdschrift voor Entom. 2de serie, Deel i. pp. 189–208, pls. 7–9: 1866.

A continuation of Vollenhoven's descriptions of Dutch Tenthredinidæ, and of their natural history.

Walker, Francis. Characters of a new genus and species of Chalcidites. Trans. Ent. Soc. Lond. 3rd ser. vol. ii. pp. 441–442: 1866.

Wullschlegel, J. Ueber Vorkommen und Lebensweise der Halmwespe, *Cephus pygmæus*. Mittheil. schweiz. entom. Gesellsch. Band ii. pp. 153–158, with a note by Stierlin.

C. *Anatomical and Physiological papers.*

Kleine, G. Ueber das Gesetz der Entwicklung der Geschlechter bei den Insecten. Zeitschrift für wiss. Zoologie, Band xxii. pp. 533–538. Reprinted from the Bienenzeitung, No. 11, 1867.

This paper is in opposition to the views of Landois, and maintains the parthenogenetic production of Drone-bees, and consequently the determination of the sex of the larvæ of insects whilst still in the egg.

Landois, H. Note sur la loi du développement sexuel des Insectes. Comptes Rendus, tome lxiv. pp. 222–224. Translated in Ann. & Mag. N. H. 3rd ser. vol. xix. p. 224.

Relates to the development of the sexes in Bees.

——. Ueber das Gesetz der Entwicklung der Geschlechter bei den Insecten. Zeitschrift für wiss. Zoologie, Band xvii. pp. 375–379.

An account of Landois's observations on the development of the Honey-Bee, previously published in the Comptes Rendus. Landois maintains that the sex is not determined in the ovum, but during development, by difference in the quality or quantity of the food.

Siebold, C. T. von. Zusatz zu Landois' vorläufiger Mittheilung. Zeitschrift für wiss. Zoologie, Band xvii. pp. 525–532. Translated in Ann. & Mag. N. H. 4th ser. vol. ii. pp. 205–212.

In this paper Siebold discusses the theory of the production of sex in insects proposed by Landois, and maintains, chiefly from general considerations, that the sex is inherent in the egg when deposited by the female insect, and not dependent on the food of the larva.

Gerstäcker, in the introduction to his memoir on the genus *Oxybelus* (Zeitschr. für die ges. Naturw. xxx. pp. 1, 2), remarks upon the general classification of the Hymenoptera, and indicates their division into two main groups, *Hymenoptera apocrita* or *genuina* and *Hym. symphyta* or *phytophaga*. These sections, which the Recorder has always regarded as the natural main divisions of the order Hymenoptera, are characterized, according to Gerstäcker, by the transfer to the thorax in the former of the first abdominal segment, and its retention in the abdomen in the latter, so that in the *Hym. apocrita* we can never distinguish more than 8 dorsal half segments, whilst 9 are recognizable in the *Hym. symphyta*. The characters of the larvæ, which thoroughly bear out this mode of division, are too well known to need mention.

Landois (Zeitschr. für wiss. Zool. xvii. pp. 163–167) notices the sounds emitted by many Insects of this order, and the apparatus by which they are produced. In the Hive-Bee (*Apis mellifica*) a sound is produced by the vibration of the wings during flight; but the true voice of the Insect is produced by the band-like margins of the stigmata, both thoracic and abdominal. These form elongated apertures. This structure occurs also in the other Bees, Wasps, &c. In the *Bombi* the metathoracic stigmata are also sound-organs, having the same structure as in the Hive-Bee. The abdominal stigmata are here the chief producers of sound (pl. 11. fig. 19), and they present a rather complicated construction. Each stigma is an oval aperture surrounded by a chitinous ring; it is situated beneath a hemispherical cup divided by a slit into two nearly equal parts, and is furnished with a double chitinous membrane stretched between the stigma and the lower half of the cup. It is by the vibration of these parts that the well-known sound of the *Bombi* is produced.

Morawitz (Horæ Soc. Ent. Ross. v. pp. 39–45) gives a general account of the Aculeate Hymenoptera of the neighbourhood of St. Moritz in the Upper Engadine, followed by a list of the Bees of the district, which constitute the most numerous and interesting group there. The Vespidæ, especially the social forms, are very numerous in individuals; but the Fossores are not strongly represented either in individuals or species. Of Heterogyna the author notices only *Mutilla europæa* and 2 species of *Sapyga*, one of them *S. pedestris* (Gerst.). Of Anthophila 56 species were detected, 37 of which are distributed nearly all over Europe.

Jaennicke has published (Berl. ent. Zeitschr. 1867, pp. 141–155) a list of the Hymenoptera collected by him during the last three years in the neighbourhood of Frankfort on the Main. He enumerates 496 species, and describes three new Ichneumonidæ.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 429–430 and 440–442) gives a list of species of this Order taken by him on board the 'Novara' during her voyage. It includes only 9 species, 6 of which are Ants. The only permanent ship-inhabiting species is *Evania appendigaster*.

Schenck (Berl. ent. Zeits. 1867, p. 156) adds a few notes to his Catalogue of the Aculeate Hymenoptera of Nassau.

Smith (Ent. Annual, pp. 81–86) remarks on the comparative rarity of Hymenoptera during the last two years, and suggests that in many cases, besides the influence of the weather and the destruction caused by various enemies, the disappearance of species from old-established haunts may be accounted for by migration. He cites several instances in support of this view. A species of the Acarina (*Heteropus ventricosa*, Newport) is very destructive in the nests of some species; Smith indicates its habits and states that the ova retain their vitality for years and become developed as soon as they come in contact with the larvæ of Hymenoptera (*l. c.* pp. 84–86). Smith suggests the name of *Newportia* for the genus containing this Acarine parasite, as *Heteropus* had been previously employed by seven different authors. Smith notices the capture of various rare species, and remarks upon some other points, which will be referred to hereafter.

Smith publishes notes on various species of Aculeate Hymenoptera from his observations made in 1866. Entomologist, iii. pp. 193–199.

Anthophila.

Sichel (Reise der Novara, Zool. ii. Hym. pp. 143–156) publishes a list of the Bees collected on the voyage of the 'Novara,' and describes numerous new species. *Lamprocolletes* (*Andrena*) *chalybeatus* (Erichs.) ♂ is described, p. 144, as also ♀ *Ceratina maculata* (Smith), p. 152. *Apis fasciata* (Latr.) occurs in Chili, together with examples of *A. mellifica* showing a tendency towards *A. fasciata*.

Morawitz publishes (Horæ Soc. Ent. Ross. v. pp. 45–71) a list of the species of this group captured by him in the Upper Engadine, 56 in number. He describes in detail the following known species:—*Dufourea alpina* (Moraw.), *Panurginus montanus* (Giraud), *Prosopis angustata* (Schenck), *P. annulata* (Linn.) = *dilatata* and *borealis* (Nyl.) = *patellata* (Eversm.), and *P. rinki* (Gorski) = *distans* (Eversm.) = *annularis* (Schenck). He also gives notes upon the characters and synonymy of *Andrena shawella* (K.) = *nana* (Nyl.) = *nylanderi* (Moraw.), *Halictus fulvicornis* (K.) = *albipes* (Schenck), *H. morio* (Fab.), *Anthidium punctatum* (Lat.) = *minus* (Nyl.), *A. strigatum* (Panz.) = *minusculum* (Nyl.), *Megachile analis* (Nyl.), *Osmia nigriventris* (Zett.), *O. tuberculata* (Nyl.), *O. angustula* (Zett.), *O. rhinoceros* (Giraud), *Heriades nigricornis* (Nyl.) = *Chelostoma inerme* (Eversm.) = probably *H. rapunculi* (St. F.), *Nomada robertjeotiana* (Panz.), var., *Cœlioxys conica* (Linn.), *C. simplex* (Nyl.), *C. mandibularis* (Nyl.), *Stelis signata* (Lat.), and *S. pusilla* (Spin.) = *Heriades breviuscula* (Nyl.) = *Stelis pygmæa* (Sch.).

Morawitz publishes (Horæ Soc. Ent. Ross. iv. pp. 1–28) an important contribution to the knowledge of the Russian Andre-

nides, in the shape of a revision of the species catalogued and described by Eversmann in 1852 as occurring between the Volga and the Ural. Eversmann's new species are described in detail from the types, and the synonymy of some of these, and of species erroneously determined by Eversmann, is indicated. The following may serve as an analysis of the general results:—

Andrena fuscosa (Eversm.) probably=*holomelana* (St. F.), *A. ovina*=*pratensis* (Nyl.)=*leucothorax* (H.-Sch.); *A. gwynana*=*bicolor* (Fab.); [*A. compta* (Eversm.) collides with *A. comptâ* (St. F.);] *A. cunicularia* belongs to *Colletes*; *A. fulvitarsis* ♀ + *ambigua* ♂=*atriceps* (Kirby), of which *tibialis* (Kirby) is the ♀; *A. limbata* is a good species; *A. aberrans* also; *A. hirticeps*=♂ *afzeliella* (K.); *A. longula*=var. *fulvago* (Chr.); *A. armata*=*helvola* (Linn.); *A. xanthothorax*=*Colletes succincta* (Linn.); *A. brevitarsis* is the ♀ of a *Nomia*; *A. coitanea* (Eversm.) differs from *coitana* (K.); *A. fallax* (Ev.)=*chrysosceles* (Schenck), which is distinct from *chrysosceles* (K.), and *A. fallax* (Sch.) is distinct from *fallax* (Ev.); *A. pilosa*=♂ *gwynana* (K.); *A. campestris*=*Halictus sex-notatus* (K.); *A. microstigma* belongs to *Cilissa*; *A. senilis* is a *Colletes*; *A. floricola*=*punctulata* (Sch.); *A. labrosa* belongs to *Systropha*; *A. interrupta*=*afzeliella* (K.); *A. candens*=var. *convexiuscula* (K.); *A. incisa* is a distinct species; *A. tricincta* and *quadricincta* belong to *Cilissa*; *A. smithella*=var. *helvola* (Linn.); *A. afzeliella* is a *Cilissa*; *A. scita* is a distinct species; *A. strangulata*=var. *zonalis* (K.); *A. rosæ*=*schrankella* (Nyl., Sch. nec Kirby) for which Morawitz proposes the name of *A. schencki* (*l. c.* p. 18); *Hylæus quadricinctus*=*quadristrigatus* (Lat.); *H. arbustorum*=*sexcinctus* (Fab.)=*quadricinctus* (Oliv.), of which *scabiosæ* (Rossi)=*zebrus* (Walck.) is a variety; *H. tomentosus*=*quadricinctus* (Fab.); *H. rubellus*=var. ♀ *cylindricus* (Fab.)=*elegans* (St. F.)=probably *rufiventris* (Gir.); *H. abdominalis*+*albipes*=*cylindricus* (Fab.); *H. mucoreus* is a distinct species; *Colletes hylæiformis* probably=*nasuta* (Sm.); *C. floralis* is distinct, as also *Panurginus labiatus*; *Rophites bispinosa*=*Halictoides dentiventris* (Nyl.). Morawitz notices the following additional known species from the government of Saratov:—*Andrena nitida* (K.), *Halictus zonulus* (Sm.), *H. parvulus* (Fab.)=*A. pulchella* (Jur.), *Camptopœum frontale* (Fab.)=*Panurgus nasutus* (Spin.)=*P. fasciatus* (Giraud) and *Nomia diversipes* (St. F.).

Morawitz (Horæ Soc. Ent. Ross. ii. pp. 61–79) gives a list of 24 species of *Andrenides* found in the vicinity of St. Petersburg, 2 of which are described as new. Of the others he gives descriptions of the following:—*Andrena ruficrus* (Nyl.); *A. fucata* (Sm.); *A. lapponica* (Zett.)=*varians* (Nyl.); *A. nigriceps* (Kirby)=*fulva* (Nyl.); *A. simillima* (Sm.); *A. argentata* (Sm.); *A. tarsata* (Nyl.); *Halictus sexnotatulus* (Nyl.), *H. rufitarsis* (Zett.); and *H. nitidiusculus* (Kirby).

Bombus. Smith has published (Entomologist, vol. iii.) a series of articles on the British species of this genus. In the first and second he gives a general account of the habits of these insects, their enemies, &c. (*l. c.* pp. 240–243 & 255–258), together with a list of the British species of *Bombus* and *Apathus*, and an exposition of the species described by Kirby, with their modern equivalents, according to Smith's views (*l. c.* pp. 258–260). The remaining articles contain a statement of the synonymy of the species, with remarks chiefly on their occurrence and natural history. 1. *B. muscorum* in-

cludes *senilis* (Fab.); 2. *B. senilis* (Smith nec Fab.) = *cognatus* (Steph.); 3. *B. smithianus* (White) is distinct from *arcticus* (Dahlb.); 10. *B. cullumanus* (Kirby) is regarded as a distinct species and *A. donovanella* (Kirby) as probably its ♀; 13. *B. soroensis* (Fab.) includes *B. collinus* (Smith); 16. *B. lucorum* (Linn.) includes *B. sporadicus* (Nyl.) and *B. ericetorum* (Curt.).

Smith (Entomologist, iii.) has published a revision of the British species of the genera *Colletes* (*l. c.* pp. 296–298), *Prosopis* (*l. c.* pp. 305–310), and *Sphecodes* (*l. c.* pp. 320–325 & 336–338). He notices the general habits of the Insects, and gives the synonymy of the species, with remarks on their distribution &c. The following synonymic indications may be cited from it:—*Prosopis dilatata* and *annularis* are identical; *P. armillata* (Nyl.) probably = *P. punctulatissima* (Smith); *Melitta annulata* (Kirby) = *P. communis*. *P. varipes* (Smith) is entirely unnoticed; is it to be suppressed? and if so to what species does it belong? *P. bifasciata* (Jur.) is described as British on the authority of a specimen taken by Leach. Under the genus *Sphecodes* (*l. c.* pp. 321–325) Smith discusses Sichel's results as to the species of this genus, in which he does not concur. Smith here, as in his catalogue of British Bees, accepts 5 species, the differential characters of which he indicates. These species are:—1. *S. gibbus*; 2. *S. rufiventris* = *Tiphia rufiventris* (Panz.) = *Dichroa analis* (Ill.) = *S. rufescens* (Smith olim); 3. *S. subquadratus*; 4. *S. ephippius* = *S. maculatus* (St. F.); and 5. *S. fuscipennis*.

Packard publishes (Amer. Nat. i. pp. 364–378) a general account of the habits of Bees, illustrated chiefly from North American species. He notices the tropical *Trigoniæ* and *Meliponæ*, the *Bombi*, of which more than 40 North American species are known, *Xylocopa virginica*, *Ceratina dupla*, *Megachile centuncularis*, and species of *Osmia*, and describes their parasites &c. The accompanying plate (pl. 10) contains figures of cells of the Humble-Bee (figs. 1 & 2), of *X. virginica* with its larva and nest (figs. 3–5), of the larva and pupa of *Anthrax sinuosa* (figs. 6 & 7), of a *Megachile* and its cells (figs. 8 & 9), of the larva and cells of *Ceratina dupla* (figs. 10 & 11), of the cells of *Osmia lignivora* (fig. 12), *O. simillima* (figs. 13 & 14), and of a mass of "bee-bread" formed by *O. lignaria* (fig. 15).

Smith remarks that in his opinion all Bees pass the winter either in the perfect or in the larval states. In proof of the power of the larva to resist cold, he states that he has frozen larvæ of *Anthophora* so that they could be snapped in two, yet they retained their vitality. (Entomologist, iii. p. 196.)

Megachile argentata. On the habits of this species, see Smith, Entomologist, iii. p. 195. Smith also notes that he observed *M. centuncularis* cutting the scarlet petals of Geraniums to line its nest (*l. c.* p. 196).

F. Smith notices some nests of *Megachile willughbiella* and other species of *Megachile*. Proc. Ent. Soc. 1867, p. cvi.

Ceratina cærulea. Smith remarks on the habits of this species. Entomologist, iii. p. 197.

Packard (Amer. Nat. i. p. 162) notices the habits of some species of Bees, especially *Xylocopa* and *Ceratina*, from the observations of James Angus.

Smith (Ent. Annual, 1868, pp. 89–90) notices the occurrence of stylopized specimens of *Halictus abdominalis* and *H. obovatus*, and remarks upon the general phenomenon of stylopization. The same author also notices (*l. c.* pp. 90–92) some peculiarities in the habits of the *Bombi*.

Goureau (Insectes nuisibles, pp. 102–111) notices the *Bombi* (*B. mus-*

corum, hortorum, terrestris, and *lapidarius*) as also the Hive-Bee (*Apis mellifica*) as noxious to man on account of their stings. He describes the appearance and habits of the above-mentioned species.

J. Lowe (Ent. Trans. 3rd ser. v. pp. 547–560) publishes some observations, on the theory of the reproduction of the Honey-Bee, propounded by Dzierzon and supported by Siebold. He states that queens of the Ligurian and Egyptian races (*Apis ligustica* and *fasciata*) when fertilized by drones of the common English type (*A. mellifica*) produced drones which betrayed their mixed parentage in their characters, as ought not to have been the case if the drone-eggs are deposited without fecundation, as supposed by Dzierzon.

H. Landois (Zeits. f. wiss. Zool. xvii. pp. 375–379, and Comptes Rendus, lxiv. pp. 222–224) records some experiments on the transfer of eggs from worker- to drone-cells and *vice versâ*. The insects produced were workers or drones according to the cells in which they were reared, whence the author concludes that the difference of sex in Bees depends solely on their nourishment.

Taschenberg (Zeitschr. ges. Naturw. xxix. p. 87) states that the life of a worker Bee during the busiest season is only about six weeks.

New genera:—

Rhopalictus, g. n., Sichel, Reise der Novara, Hym. p. 146. Allied to *Halictus*; ♂ abdomen clavate. Sp. *Corynura flavofasciata* (Spin.).

Pseudomelecta, g. n., Radoszkowsky, Horæ Soc. Ent. Ross. iii. p. 55, pl. 1. fig. 1 (details). Allied to *Melecta*; marginal cell oval, rounded and separated from the margin at its apex; scutellum somewhat raised, with two tubercles at its anterior margin, terminated at its inferior margin by two teeth. Sp. *M. diacantha* (Eversm.), *l. c.* pl. 1. fig. 2; *P. baerii*, sp. n., Radoszk. *l. c.* p. 56, pl. 1. fig. 3, Orenbourg.

New species:—

Megachile. Sichel (*l. c.*) describes the following new species of this genus:—*M. metathoracica*, p. 148, Batavia; *M. heteroptera*, p. 149, Timor, Nicobar; *M. dubia*, p. 150, Chili; *M. semirufa*, ibid., Chili; *M. ephippiata*, p. 151, Sambelong.

Lithurgus albo-fimbriatus, Sichel, *l. c.* p. 151, Tahiti.

Anthophora maderæ, Sichel, *l. c.* p. 152, Madeira; *A. flavipes*, Sich. *l. c.* p. 153, Chili.

Xylocopa albo-fasciata, Sichel, *l. c.* p. 154, Ceylon.

Osmia loti, Morawitz, Horæ Soc. Ent. Ross. v. p. 66, Engadine.

Andrena ornata, Morawitz, Horæ Soc. Ent. Ross. iv. p. 5, *A. figurata*, Moraw. *l. c.* p. 10, *A. scabrosa*, Moraw. *l. c.* p. 12, and *A. punctatissima*, Moraw. *l. c.* p. 14, from Saratov; *A. mutabilis*, Moraw. *l. c.* p. 18 (= *rufiventris* and *analis*, Eversm.), Eastern Europe and Bokhara.

Halictus mandibularis, Morawitz, *l. c.* p. 23, Saratov.

Halictus? *humeralis*, Sichel, *l. c.* p. 145, *H. apicatus*, Sich. ibid., *H.* (*Augochlora*, Sm.) *chrysurus*, Sich. *l. c.* p. 146, Chili.

Halictus pallipes, Morawitz, Horæ Soc. Ent. Ross. iii. p. 72, and *H. gracilis*, Moraw. *l. c.* p. 77, St. Petersburg.

Halictoides paradoxus, Morawitz, Horæ Soc. Ent. Ross. v. p. 46, Engadine.

Prosopis alpina, Morawitz, *l. c.* p. 50, *P. nivalis*, Moraw. *l. c.* p. 52, and *P. gracilicornis*, Moraw. *l. c.* p. 56, Engadine.

Prosopis vicina, Sichel, *l. c.* p. 143, New Zealand, Tasmania; *P.? decolor*, Sichel, ibid., Chili.

Dufourea alpina, Morawitz, *l. c.* p. 78, note, Switzerland.

Vespidæ.

Morawitz has published (Horæ Soc. Ent. Ross. iv. pp. 109–144) an elaborate revision of the species of *Odynerus* occurring in the Government of Saratov and round St. Petersburg. The number of species recorded from Saratov is 29, several of which are described as new; those inhabiting the St. Petersburg district are 13 in number.

Eumenes. Radoszkowsky (Horæ Soc. Ent. Ross. iii. pp. 57–60) gives a list of the Russian species of this genus, with synonyms, and describes and figures *E. tabida* (Eversm.), *l. c.* p. 58, pl. 1. fig. 4, and *E. fulva* (Eversm.), *l. c.* p. 59, pl. 1. fig. 5.

Polybia (*Myrapetra*) *scutellaris* (White). H. Lucas (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 365–368) describes the nest of this species, of which he mentions two specimens, one measuring 54 centims. in length and 1·35 metre in circumference, the other 72 centims. in length and 1·20 metre in circumference. With regard to the mode of construction of the nest he agrees with Saussure. The species is called *Camuati* in Montevideo; it collects a blackish honey, which is eaten and said to be good. The nest is said by the natives to be constructed of the dung of the Tapir.

Polybia (*Polistes*) *liliacea* (Fab.). H. Lucas also describes and figures the nest of this species (*l. c.* pp. 369, 370, pl. 9), which is abundant at Cayenne. The specimen described is 1·20 metre in length and 1·16 metre in circumference; it is of an oblong compressed form, suspended from a branch, and contains 27 horizontal combs.

Saussure (Reise der Novara, Zool. Hym.) figures *Polybia surinamensis* (Sauss.) with its nest, pl. 1. fig. 16.

Erber notices the habits of *Vespa alsatica*, especially with regard to the construction of its nest. Sitzungsber. zool.-bot. Ges. in Wien, 1867, p. 107.

F. Smith notices some singular positions selected by *Odynerus quadratus* for the reception of its nest; and Westwood remarks on the same subject in connexion with an unknown species of Bee. Proc. Ent. Soc. 1867, p. xc.

F. Smith notices the occurrence of a doubtful species of *Polistes* at Penzance. (Proc. Ent. Soc. 1867, p. cviii). Bates also remarks upon this insect and the habits of *Polistes* (ibid.). Smith considers the insect to be a variety either of *P. biguttatus* or *P. versicolor*. He seems inclined to think it truly indigenous. (Ent. Annual, 1868, pp. 87, 88, and 96.)

Stone remarks on the scarcity of Wasps near Brighthampton in 1865 (Proc. Ent. Soc. 1865, p. 113). Smith adds that these insects were also scarce at Bournemouth, and Baly that they were abundant at Aberdeen (ibid.). According to Stone, earwigs, woodlice, and ants assisted in the destruction of the nests.

On the hybernation of Wasps, remarks by Guérin-Méneville, Laboulbène, and Künckel. Bull. Soc. Ent. Fr. 1866, p. lxi.

Goureau (Insectes nuisibles, pp. 92–102) indicates that all the Aculeate Hymenoptera may be regarded as noxious on account of the effect produced

by their stings, but describes the Wasps especially as superadding to this general bad quality other injurious habits, particularly the destruction of fruit and of Bees. He describes the appearance and habits of *Vespa crabro*, *V. vulgaris*, *V. germanica*, and *Polistes gallica*.

Labus, g. n., Saussure, Zool. Novara, ii. Hym. p. 3. Allied to *Elimus*; pronotum very small, wide and spinous in front; peduncle long, thin, slightly dilated only at the apex; second cubital cell not pedunculate, narrowed towards radial, first recurrent vein coincident with hinder margin of second cubital cell. Sp. *L. spiniger*, sp. n., Sauss. *l. c.* p. 4, pl. 1. fig. 1, Java; *L. humbertianus*, sp. n., Sauss. *l. c.* p. 4, pl. 1. fig. 2 (wing), Ceylon.

New species :—

Zethus (*Calligaster*) *ceylonicus*, Saussure, *l. c.* p. 5, Ceylon.

Eumenes novaræ, Saussure, *l. c.* p. 6, pl. 1. fig. 3, Rio Janeiro; *E. humbertianus*, Sauss. ibid., Ceylon.

Rhynchium tahitense, Saussure, *l. c.* p. 7, pl. 1. fig. 4, Tahiti; *R. erythrinum*, Sauss. ibid., Cape of Good Hope.

Eumenes baerii, Radoszkowsky, *l. c.* p. 59, pl. 1. fig. 6, Bakou (Caspian).

Odynerus. Saussure (*l. c.*) describes the following new species of this genus :—(subg. Odynerus=*Leionotus*, Sauss.) *O. citreo-cinctus*, p. 10, pl. 1. fig. 5, Sidney; *O. fistulosus*, p. 11, Ceylon; *O. decipiens*, ibid. pl. 1. fig. 6, Sydney; *O. javanus*, p. 12, pl. 1. fig. 7, Java; *O. ceylonicus*, ibid., and *O. humbertianus*, p. 13, Ceylon; *O. araucanus*, p. 14, pl. 1. fig. 8, Chili; *O. frauenfeldi*, p. 15, pl. 1. fig. 9, Shanghai; *O. macilentus*, p. 16, pl. 1. fig. 10, Sydney; and *O. ibericus*, p. 17, pl. 1. fig. 11, Gibraltar.

Odynerus. Morawitz (Horæ Soc. Ent. Ross. iv.) describes the following new species of this genus from the Government of Saratov :—(Ancistrocerus, Wesm.) *O. transitorius*, p. 117 : (Leionotus, Sauss.) *O. magnificus*, p. 119; *O. superbus*, p. 121; *O. angustus*, p. 122; *O. opacus*, p. 124; *O. beckeri*, p. 127; *O. proximus*, p. 128; *O. ballioni*, p. 129; *O. difficilis*, p. 132; *O. membranaceus*, p. 135: (Epipona, Kirby) *O. serripes*, p. 137; *O. similimus*, p. 138; *O. bembeciformis*, p. 139; and *O. crabroniformis*, p. 141.

Odynerus limbiferus (*Leionotus*), Morawitz, *l. c.* p. 136, note, Dalmatia; *O. sibiricus* (*Epipona*), Morawitz, *l. c.* p. 144, note, Siberia.

Alastor lateritius, Saussure, *l. c.* p. 17, and *A. cruentatus*, Sauss. *l. c.* p. 18, pl. 1. fig. 12, Australia.

Vespa peruana, Saussure, *l. c.* p. 18, Quito.

Polistes novaræ, Saussure, *l. c.* p. 19, pl. 1. figs. 13, 14, Nicobar Islands and Australia; *P. dubius*, Sauss. *l. c.* p. 20, pl. 1. fig. 15, Manilla.

Polybia plebeja, Saussure, *l. c.* p. 21, Mexico.

Nectarinia möbiana, Saussure, *l. c.* p. 22, Surinam.

Pompilidæ.

Cresson has published (Trans. Amer. Ent. Soc. i. pp. 85–150) a revision of the North-American genera and species of this group, containing a list of known genera and species, with synonymy, data as to geographical distribution, &c., and, in some cases, descriptions; also descriptions of numerous new species :—

Pompilus 5-notatus (Say)=*biguttatus* (Fab.); *P. marginatus* and *petiolatus* (Say) are identical; *P. plebejus* (Dahlb.) and *P. trifasciatus* (Pal. B.)=

americanus (Pal. B.); *P. sordidus* (Smith)=*fuscipennis* (St. F.); *P. juxtus* (Cress.)=var. *coruscus* (Smith); *P. pallidicornis* (Smith)=*unifasciatus* (Say); *P. ignipennis* (Cress.)=*flammipennis* (Smith); *Agenia fulvipes* (Dahlb.)=*P. mellipes* (Say).

Pompilus formosus (Say). Lincecum notices the habits of this species, which destroys the great *Mygale hentzii* (the "Tarantula" of Texas) for the purpose of storing its nests. The insect is figured. (Amer. Nat. i. pp. 137–141.)

New species :—

Ferreola dimidiatipennis, Saussure, Reise der Novara, Zool. ii. Hym. p. 46, Ceylon; *F. zebrata*, Sauss. *l. c.* p. 48, pl. 3. fig. 29, Sydney; *F. tricolor*, Sauss. *l. c.* p. 48 (=? *pedestris*, Smith), Singapore; *F. miranda*, Sauss. *l. c.* p. 49, pl. 3. fig. 30, Ceylon.

Homonotus lucidulus, Saussure, *l. c.* p. 50, pl. 3. fig. 31, Ceylon.

Entypus cephalotes, Saussure, *l. c.* p. 50, pl. 3. fig. 32, La Plata.

Agenia. Saussure (*l. c.*) describes the following new species of this genus: —*A. micromegas*, p. 51, pl. 3. fig. 33, *A. alaris*, p. 52, *A. bipennis*, ibid., Ceylon; *A. fusiformis*, p. 53, pl. 3. fig. 34, Sydney; *A. frauenfeldiana*, p. 53, pl. 3. fig. 35, Java; *A. concolor*, p. 54, Ceylon; *A. novaræ*, ibid. pl. 3. fig. 36, Sydney; *A. insularis*, p. 55, *A. nana*, ibid., *A. obsoleta*, p. 56, pl. 3. fig. 37, and *A. plebeja*, p. 57, Ceylon.

Pogonius lunulatus, Saussure, *l. c.* p. 58, pl. 3. fig. 38, Sydney.

Pompilus ardens, Saussure, *l. c.* p. 59, Cape of Good Hope; *P. ignobilis*, Sauss. *l. c.* p. 60, Ceylon; *P. subsericeus*, Sauss. *l. c.* p. 60, pl. 3. fig. 39, Shanghai; and *P. bilunulatus*, Sauss. *l. c.* p. 61, Rio Janeiro.

Pompilus. Cresson (Trans. Amer. Ent. Soc. i.) describes the following North-American and West-Indian species of this genus:—(subg. Pompilus) *P. maurus*, p. 88; *P. ingenuus*, p. 89; *P. hyacinthinus*, p. 90; *P. brevicornis*, ibid.; *P. subviolaceus*, p. 91; *P. humilis*, ibid.; *P. cylindricus*, p. 92, fig. 4 (wing); *P. virginiensis*, ibid.; *P. argenteus*, p. 93; *P. unicus*, p. 95; *P. semirufus*, p. 100; *P. divisus*, ibid.; *P. cinctipes*, p. 102 (= *Ceropales apicalis*, Say nec Vanderl.); *P. navus*, p. 105; *P.*? *mariæ*, p. 108, fig. 6; *P.*? *legatus*, p. 109: (subg. Priocnemis) *P.* (*P.*) *magnus*, p. 111; *P.* (*P.*) *fulvicornis*, p. 112; *P.* (*P.*) *fortis*, p. 113; *P.* (*P.*) *subopacus*, p. 114; *P.* (*P.*) *fulgifrons*, ibid.; *P.* (*P.*) *pomilius*, p. 116; *P.* (*P.*) *germanus*, ibid.; *P.* (*P.*) *validus*, ibid.; *P.* (*P.*) *scitulus*, p. 118; *P.* (*P.*) *nothus*, ibid.; *P.* (*P.*) *imperus*, ibid.; *P.* (*P.*) *parcus*, p. 119 (=*terminatus*, Cress. nec Say); *P.* (*P.*) *sartorianus*, p. 120; *P.* (*P.*) *cincticornis*, ibid.: (subg. Agenia) *P.* (*A.*) *cupidus*, p. 122; *P.* (*A.*) *pulchripennis*, p. 123; *P.* (*A.*) *brevis*, ibid., fig. 9 (wing); *P.* (*A.*) *dakota*, p. 124; *P.* (*A.*) *nigropilosus*, ibid.; *P.* (*A.*) *albopilosus*, p. 125; *P.* (*A.*) *bombycinus*, ibid.; *P.* (*A.*) *varipes*, p. 126; *P.* (*A.*) *pulchrinus*, ibid.; *P.* (*A.*) *agilis*, ibid.; *P.* (*A.*) *petiolatus*, p. 127; *P.* (*A.*) *iridipennis*, ibid.; *P.* (*A.*) *calcaratus*, p. 128; *P.* (*A.*) *congruus*, p. 129, fig. 10 (wing); *P.* (*A.*) *longulus*, ibid.; *P.* (*A.*) *acceptus*, p. 130, fig. 11 (wing); *P.* (*A.*) *mexicanus*, ibid.; *P.* (*A.*) *subvirescens*, p. 131; *P.* (*A.*) *azureus*, ibid.

Planiceps niger, Cresson, *l. c.* p. 136, Connecticut, Georgia; *P. cubensis*, Cress. ibid., Cuba.

Priocnemis fulgidipennis, Saussure, *l. c.* p. 61; *P. consanguineus*, Sauss. *l. c.* p. 62, pl. 3. fig. 40, and *P. humbertianus*, Sauss. *l. c.* p. 63, pl. 3. fig. 41, Ceylon; *P. tinctor*, Sauss. *l. c.* p. 63, Cape of Good Hope.

Mygnimia ceylonica, Saussure, *l. c.* p. 64, Ceylon; *M. aviculus*, Sauss. ibid., pl. 2. fig. 28, Java.

Mygnimia mexicana, Cresson, *l. c.* p. 143, Mexico; *M. panamensis*, Cress. *l. c.* p. 150, Panama.

Pepsis dubitata, Cresson, *l. c.* p. 144, Georgia.

Pepsis australis, Saussure, *l. c.* p. 65, pl. 3. fig. 42, Australia.

Ceropales nigripes, Cresson, *l. c.* p. 139, Dakota; *C. robinsonii*, Cress. *l. c.* p. 140, fig. 15, Virginia.

Trigonalys pulchellus, Cresson, Proc. Ent. Soc. Phil. vi. p. 351, Virginia; *T.* (*Lycogaster*) *costalis*, Cresson, *l. c.* p. 352, Massachusetts.

Crabronidæ.

Packard (Proc. Ent. Soc. Phil. vi. pp. 353–445) concludes his revision of the North American species of Crabronidæ and Nyssonidæ. This portion includes the Crabronine genera *Thyreopus* with 14 species (tabulated on p. 355), *Blepharipus* with 5 sp. (tabulated on p. 372), and *Rhopalum* with 3 sp.; and of the *Pemphredoninæ*, *Stigmus* with 4 species, *Cemonus*, *Pemphredon*, and *Diodontus* with 1 species each, *Passalœcus* with 2 sp., *Psen* with 6 sp. (tabulated on p. 398), and *Mimesa* with 10 sp. (tabulated on p. 404). His Nyssonidæ include the subfamilies *Trypoxyloninæ*, with the genus *Trypoxylon*, 7 sp. (tabulated p. 413) and 3 unknown to author; *Mellininæ*, with genera *Mellinus*, 2 sp., and *Alyson*, 3 sp.; *Nyssoninæ*, with genera *Gorytes* with 14 sp. (tabulated pp. 423–424) and 6 unknown to author, *Oxybelus* with 8 sp. (tabulated p. 434), *Nysson* with 4 sp., *Stizus* with 3 sp., and *Larra* with 6 species (5 unknown to author). Many of the species are described as new, and will be noticed hereafter.

Nysson. Gerstäcker (Abhandl. naturf. Gesellsch. in Halle, x. pp. 71–126) publishes a revision of the species of this genus, which he preludes with a critical history of the works of former authors who have written on this subject. He discusses the genera *Synneurus* and *Brachystegus* founded by Costa at the expense of the genus *Nysson*, and characterized by peculiarities in the venation of the wings, and the subgenus *Paranysson* separated by Guérin on the ground of the presence of strong spines on the hinder tibiæ, and shows, by the investigation of various species, that the characters adduced by these authors for the establishment of their proposed new groups are insufficient for that purpose, some of them perhaps individual peculiarities. The total number of supposed species described by authors is 32; but these are reduced by the suppression of synonyms to 16, to which Gerstäcker now adds 7, raising the total number of species recognized by him to 23. In characterizing the genus, Gerstäcker calls particular attention (pp. 86, 87) to the presence of two rings in the trochanters of the first and second pairs of legs, this to a certain extent forming an exception to the accepted division of the Hymenoptera into *Ditrocha* nnd *Monotrocha*. He finds the same structure in other genera of Fossorial Hymenoptera, namely, *Gorytes*, *Hoplisus*, *Bembex*, *Stizus*, *Philanthus*, *Trypoxylon*, *Cemonus*, and *Oxybelus*; in the last the structure is

particularly distinct in the intermediate legs. The second ring is wanting in the Bees, and in various genera of Fossoria, but present in several Vespidæ. The distinction founded on the single or double trochanter holds good as far as the hind legs are concerned.

The species of *Nysson* described by Gerstäcker are treated of by him in geographical groups, commencing with the European species, 11 in number. Asia and Australia furnish each a single species; of the remainder, 8 are American, 1 African, and 1 of unknown origin.

Oxybelus. Gerstäcker (Zeitschr. ges. Naturw. xxx.) discusses the early history of this genus, which he characterizes at enormous length, the description of its generic peculiarities occupying no fewer than 29 pages. It is to be remarked, however, that this description includes many remarks comparing the structure of the different parts in this and other forms of Aculeate Hymenoptera. With reference to the inequality of the facets in the eyes of *Oxybelus* (the central facets are larger than those of the periphery) Gerstäcker takes occasion to notice the occurrence of a similar character in insects of other orders (*l. c.* pp. 10–15). Gerstäcker discusses the alliances of *Oxybelus* (*l. c.* pp. 40–46), and thinks that it should be placed, at least provisionally, in a group by itself, which would most closely approach the thin-petiolated *Crabronides*, such as *Blepharipus*, *Thyreopus* and *Rhopalum*. Its true place would be between the *Cercerides*, ending with *Palarus* and the *Crabronides*, commencing with *Ceratocolus*. After referring to the difficulty of determining the species of this genus and discussing the characters by means of which they are to be distinguished (*l. c.* pp. 47–52), Gerstäcker proceeds to the description of the species hitherto detected in the neighbourhood of Berlin, of which he recognizes 16, tabulated on pp. 53–55. These are afterwards fully described, with a detailed and dated synonymy; and a few new species from other parts of Europe are described in notes. The species of the neighbourhood of Berlin are as follows:—

O. lineatus (Fab.)=*bellicosus* (Oliv.), pp. 55–59; *O.* 14-*notatus* (Jur.)=*bellus* and *bellicosus* (Dahlb.)=*furcatus* (St. F.) pp. 62–65; *O. mucronatus* (Fab.)=*argentatus* (Curt.)=*ferox* (Shuck.), pp. 67–70; *O. nigripes* (Oliv.)=*trispinosus* (Dahlb. &c. *nec* Fab.), pp. 71–75; *O. bipunctatus* (Oliv.)=*nigro-æneus* (Shuck.)=*hæmorrhoidalis* (Dahlb.)=*laciniatus* (Schill.), pp. 77–80; *O. latro* (Oliv.) ♀+♂ *armiger* (Oliv.), pp. 80–84; *O. uniglumis* (Linn.)=*trispinosa* (Fab.)=*punctata* (Fab.)=*tridens* (Fab.)=10-*maculata* (Don.)=*pygmæus* (Oliv.), pp. 85–89; *O. variegatus* (Wesm.)=? *hæmorrhoidalis* (Oliv.), pp. 94, 95; and 8 new species.

Pelopeus. Saussure (Reise der Novara, Zool. Hym. pp. 28–29) discusses the yellow-spotted American species of this genus, which he reduces to 6 (tabulated p. 29). The species are as follows, with their varieties or "nascent species":—

1. *P. cæmentarius* (Drury); named vars. *flavipes* (Fab.), *architectus* (Le P.), *lunatus* (Fab.), *flavipunctata* (Christ.), and *jamaicensis* (Fab.).
2. *P. servillii* (Le P.).
3. *P. vindex* (Le P.); named vars. *chilensis* (Spin.), *annulatus* (Cress.).
4. *P. histrio* (Le P.); named vars. *fistularis* (Dahlb.), *bimaculatus* (Le P.).
5. *P. fasciatus* (Le P.)=*argentifrons* (Cress.).
6. *P. lucæ*, sp. n.

Lucas records some observations made near Lion-sur-Mer on *Philanthus apivorus* (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 289–296). He found this insect in great abundance burrowing in the sand-dunes, and watched the females engaged in bringing in the Bees (*Apis mellifica*), which they store for the nourishment of their progeny. The burrows are from 30 to 32 centimetres in depth (=nearly 1 foot) and curved in the middle. The Bees, from 5 to 7 in number, are generally arranged one over the other; they are not killed, but stupefied by the sting of the *Philanthus*; and examples taken from the burrows exhibited signs of life for a fortnight. Lucas found in the burrows the remains of the cocoons of the *Philanthus*.

Lucas also remarks (*l. c.* p. 293, note) that *Cerceris variabilis* provisions its larvæ with *Halictus abdominalis* and *ovatus*; *Psammophila arenaria* employs the larvæ of *Xylophasia lithoxylea* for the same purpose; and *Mellinus arvensis* stores up *Scatophaga scybalaria* and *Pollenia rudis* for its progeny.

Philanthus apivorus. Goureau (Insectes nuisibles, pp. 89–92) describes this species and its habits.

Saussure (Reise der Novara, Zool. Hym.) figures *Trypoxylon excavatum* (Smith), pl. 4. fig. 40.

Perkins notices the habits of *Ampulex sibirica* (Fab.) and especially its destruction of Cockroaches. Amer. Nat. i. pp. 293–296.

Ammophila sabulosa. Kawall publishes some notes on the habits of this insect (Stett. ent. Zeit. 1867, pp. 121 122).

The 'American Naturalist' contains a notice of the action of species of *Tachytes* in fecundating plants. The observation was made by T. Chambers, who noticed the adhesion of the pollen of an *Asclepias* to the hairs on the insect's feet. A foot with the adherent pollen is figured. (Amer. Nat. i. pp. 105–107.)

New species:—

Blepharipus harrisii, Packard, *l. c.* p. 376 (=*Crabro pusillus*, Harr.), Massachusetts; *B. minimus*, Pack. *l. c.* p. 377, Maine.

Rhopalum pedicellatum, Packard, *l. c.* p. 380, and *R. rufigaster*, Pack. *l. c.* p. 382, North America.

Stigmus americanus, Packard, *l. c.* p. 386, Illinois.

Diodontus americanus, Packard, *l. c.* p. 393, Maine.

Psen niger, Packard, *l. c.* p. 399, Virginia; *P. elongatus*, Pack. *l. c.* p. 400, Illinois; *P. chalcifrons*, Pack. *l. c.* p. 401, Illinois; and *P. fuscipes*, Pack. *l. c.* p. 402, Massachusetts.

Mimesa cressonii, Packard, *l. c.* p. 405, New Jersey, New York; *M. basirufa*, Pack. *l. c.* p. 406, Maine; *M. denticulata*, Pack. ibid., Illinois, New York; *M. monticola*, Pack. *l. c.* p. 407, New Hampshire; *M. pauper*, Pack. *l. c.* p. 409, Illinois; and *M. cingulata*, Pack. *l. c.* p. 410, Maine.

Trypoxylon rubrocinctum, Packard, *l. c.* p. 416, Delaware, Virginia; and *T. tridentatum*, Pack. *l. c.* p. 417, New York, New Jersey.

Trypoxylon. Of this genus Saussure (*l. c.*) describes the following new species:—*T. palliditarse*, p. 77, Brazil; *T. texense*, ibid., Texas; *T. mexicanum*, p. 78, pl. 4. fig. 45, Mexico; *T. xantianum*, ibid., and *T. californicum*, ibid., California; *T. columbianum*, p. 80, pl. 4. fig. 46, Caraccas; *T. bahiæ*, ibid., Bahia; *T. aztecum*, ibid., Mexico; *T. niveitarse*, p. 81, Brazil; *T. lactitarse*, ibid., Mexico; *T. luteitarse*, p. 82, pl. 4. fig. 47, Mexico; *T. pennsylvanicum*, p. 82, *T. chichimecum*, p. 83, pl. 4. fig. 48, *T. toltecum*, p. 83, Mexico; *T. errans*, p. 84, Mauritius? or Brazil?; *T. brasilianum*, p. 84, Bahia; and *T. brevipenne*, p. 85, pl. 4. fig. 50, Guinea.

Trypoxylon scutatus, Chevrier, Mitth. schw. ent. Ges. ii. p. 231, Geneva.

Nysson. Gerstäcker (*l. c.*) describes the following new species:—*N. militaris*, p. 103, Rhodes and Naxos; *N. tridens*, p. 106, Brandenburg; *N. mysticus*, p. 112, Swan River; *N. opulentus*, p. 114, North America; *N. foveiscutis*, p. 116, Brazil; *N. chrysozonus*, p. 117, Montevideo; *N. luteipennis*, p. 120, Brazil.

Gorytes. Packard (*l. c.*) describes the following new North-American species of this genus:—*G. nebulosus*, p. 424; *G. rufo-luteus*, p. 425; *G. ephippiatus*, p. 426; *G. rugosus*, p. 427; *G. canaliculatus*, p. 428; *G. denticulatus*, p. 430; and *G. moneduloides*, p. 431.

Oxybelus. Gerstäcker (*l. c.*) describes the following new species of this genus:—*O. elegantulus*, p. 59, *O. pulchellus*, p. 65, *O. ambiguus*, p. 75, *O. incomptus*, p. 76, *O. monachus*, p. 84, *O. sericatus*, p. 89 (= ♀ *trispinosus*, St. F.), *O. fallax*, p. 91, and *O. latidens*, p. 92, from the neighbourhood of Berlin; *O. spectabilis*, p. 83, note, Andalusia; and *O. analis*, p. 93, note (= ♀ *tridens*, St. F.), Austria.

Oxybelus mucronatus, Packard, *l. c.* p. 436, Pennsylvania, Illinois.

Thyreopus lactarius, Chevrier, Mitth. schw. ent. Ges. ii. p. 229, Lake Leman.

Thyreopus. Packard (*l. c.*) describes the following new North-American species of this genus:—*T. coloradensis*, p. 356 (= *latipes*, Cress. *nec* Smith); *T. cribrellifer*, p. 358; *T. signifer*, p. 361; *T. discifer*, p. 363; *T. tumidus*, p. 364; *T. cingulatus*, p. 366; *T. monticola*, p. 367; and *T. vernalis*, p. 369.

Bembex emarginata, Sichel, Reise der Novara, Zool. Hym. p. 141, Chili.

Pison tahitense, Saussure, *l. c.* p. 65, Tahiti.

Tachytes. The following new species are described by Saussure (*l. c.*):—*T. ibericus*, p. 68, Gibraltar; *T. australis*, ibid., Sydney; *T. novaræ*, p. 69, Nicobar Islands; *T. depressus*, ibid., New Zealand; *T. columbianus*, p. 70, Caraccas; *T. imperialis*, p. 71, Chili; *T. capensis*, ibid., Cape of Good Hope; *T. trigonalis*, p. 72, Java.

Larrada insularis, Saussure, *l. c.* p. 73, pl. 4. fig. 43, Nicobar Islands; *L. nigripes*, Sauss. *l. c.* p. 74, Tasmania; *L. americana*, Sauss. ibid., Venezuela, Brazil.

Harpactus (*Clytemnestra*) *chilensis*, Saussure, *l. c.* p. 76, pl. 4. fig. 44, Chili.

Dasyproctus ceylonicus, Saussure, *l. c.* p. 85, pl. 4. fig. 51, Ceylon.

Trachypus mexicanus, Saussure, *l. c.* p. 86, Tampico; *T. surinamensis*, Sauss. ibid.

Cerceris. Saussure (*l. c.*) describes the following new species of this genus:—*C. simulans*, p. 87, pl. 4. fig. 53, *C. semipetiolata*, p. 88, *C. zapoteca*, p. 89, *C. trepaneca*, p. 90, *C. acolhua*, ibid., *C. tolteca*, p. 91, *C. maximiliani*, ibid., *C.*

subpetiolata, p. 95, *C. azteca*, p. 97, *C. imperialis*, p. 98, pl. 4. fig. 56, *C. otomia*, p. 99, *C. mexicana*, p. 101, pl. 4. fig. 59, and *C. huastecæ*, p. 102, pl. 4. fig. 60, Mexico; *C. texensis*, p. 89, and *C. occidentalis*, p. 100, pl. 4. fig. 57, Texas; *C. pygmea* [sic], p. 91, Shanghai; *C. maritima*, ibid., Mauritius; *C. novaræ*, p. 92, pl. 4. fig. 54, *C. humbertiana*, p. 97, *C. emortualis*, p. 98, pl. 4. fig. 55, Ceylon; *C. natalensis*, p. 96, Natal.

Podium egregium, Saussure, *l. c.* p. 35, Uruguay; *P. romandinum*, Sauss. ibid. pl. 2. fig. 19, Brazil.

Chlorion zonatum, Saussure, *l. c.* p. 36, pl. 2. fig. 20, Guinea.

Sphex. Saussure (*l. c.*) describes the following new species of this genus:—*S. longiventris*, p. 37, pl. 2. fig. 21, Guinea; *S. aztecus*, p. 38, pl. 2. fig. 22, Mexico; *S. brasilianus*, p. 39, Rio Janeiro; *S. hirsutus*, p. 40, Mexico; *S. chichimecus*, ibid., Mexico; *S. trepanecus*, p. 41, pl. 2. fig. 23, Mexico; *S. lucæ*, p. 41, California.

Harpactopus australis, Saussure, *l. c.* p. 42, pl. 2. fig. 24, Australia.

Ampulex sinensis, Saussure, *l. c.* p. 43, pl. 2. fig. 25, and *A. novaræ*, Sauss. *l. c.* p. 44, pl. 2. fig. 26, Hong Kong; *A. surinamensis*, Sauss. ibid., Surinam.

Ampulex fasciata (Jurine), Chevrier, Mitth. schw. ent. Ges. ii. p. 232, near Geneva.

Ammophila superciliaris, Saussure, Reise der Novara, Zool. Hym. p. 24, Manilla; *A. longiventris*, Sauss. ibid., and *A. humbertiana*, Sauss. p. 25, Ceylon; *A. mexicana*, Sauss. ibid., Mexico.

Pelopœus. Saussure (*l. c.*) describes the following new species of this genus:—*P. californicus*, p. 26, California; *P. aztecus*, ibid., Mexico; *P. tahitensis*, p. 27, pl. 2. fig. 17, Tahiti; and *P. lucæ*, p. 30, California.

Trigonopsis intermedius, Saussure, *l. c.* p. 33, pl. 2. fig. 18, Brazil.

Scoliidæ.

Saussure (Reise der Novara, Zool. Hym.) figures *Scolia* (*Discolia*) *sinensis* (Sauss.), pl. 4. fig. 61, and *Elis* (*Dielis*) *cyanea* (Sauss.), pl. 4. fig. 62.

Elis (*Dielis*) *nana*, sp. n., Saussure, *l. c.* p. 105, Brazil.

Mutillidæ.

Thynnides. Saussure (Reise der Novara, Zool. Hym. pp. 108–110) gives a synopsis of the genera belonging to this group, some of which are afterwards fully characterized in treating of the species collected on the 'Novara's' voyage. The synoptical tables are as follows:—

Legion I. ♂. First cubital cell not divided at apex: first transverso-cubital vein entire; mandibles tridentate. ♀ unknown.

1. Both recurrent veins received by 2nd cubital cell.
   Tachypterus (Guér.).
2. First recurrent vein received by 2nd cubital cell; second interstitial.
   Oncorhinus (Shuck.).
3. Recurrent veins received by 2nd and 3rd cubital cells.
   Anthobosca (Guér.).

Legion II. ♂. First cubital cell divided at apex by a branch of the trans-

verso-cubital vein (or appendiculate); recurrent veins received by 2nd and 3rd cubital cells; mandibles bidentate. ♀. Thorax transversely tripartite.

MALES.

I. Hypopygium dentate or aculeate at apex.

A. First cubital cell separated from anterior discoidal cell.

1. Hypopygium narrow, briefly dentate or trilobate at apex (clypeus ovate, submarginate, or excised at apex). American.
ELAPHROPTERA (Guér.).

2. Hypopygium produced into a distinct spine (clypeus produced and truncate at apex). Australasian.

* Hypopygium small, concealed, produced into a strong, compressed spine, much curved at apex, commencing beneath 7th dorsal segment..... RHAGIGASTER (Guér.).

† Hypopygium large, trigonal, produced beyond 7th segment, produced at apex into a small spine.

a. Abdomen variable; maxillary palpi with 6 nearly equal joints.
THYNNUS (Fab.).

b. Abdomen attenuate at base; maxillary palpi with joints 1–3 minute, 4–6 very long..... TACHYNOMYIA (Guér.).

B. First cubital cell confluent with anterior discoidal cell.
ISWARA (Westw.).

II. Hypopygium unarmed.

A. Maxillary palpi with 6 nearly equal joints.

1. Hypopygium rather prominent, narrow, truncate at apex (clypeus ovate, subexcised at apex). American.
ELAPHROPTERA (Guér.).

2. Hypopygium broader, subtrigonal or subquadrate, blunt or truncate at apex. Australasian ..... ZELEBORIA, g. n.[1]

B. Maxillary palpi with joints 1–3 short, 4–6 very long. American.
ÆLURUS (Klug).

FEMALES (known at present).

I. Body rather stout; abdomen thick, pygidium narrowed, deflexed, or compressed; metathorax oblique, tranversely compressed, sublamellar; claws furcate.

A. Segment 2 of abdomen tranversely keeled.
THYNNUS.

B. Segment 2 of abdomen transversely wrinkled.
ELAPHROPTERA.

II. Body slender, elongate, and narrow; abdomen cylindric; thorax flattened above; metanotum longitudinal; anus rounded, normal.

A. Head quadrate, sulcate on each side behind the eyes; abdomen depressed ..... RHAGIGASTER. DIAMMA.

B. Head not sulcate behind the eyes; abdomen cylindrical; claws simple..... ÆLURUS. (EIRONE.)

The following genera are founded on the ♀, the ♂ being unknown:—

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[1] *Zeleboria* includes, of known species, *Thynnus xanthorhei* (Smith), *carinatus* (Smith), *depressus* (Westw.), *odyneroides* (Westw.), &c.

Eirone (Westw.): form of *Ælurus*; joints of palpi 4:4; mandibles with 2 teeth.

Enteles (Westw.): form of *Thynnus*; joints of palpi 4:6; mandibles with a simple point.

Diamma (Westw.): form nearly of *Rhagigaster*; joints of palpi 4:6; mandibles with 4 teeth on inner margin.

Ariphron (Erichs.): head much broader than thorax, which has a *processus alæformis* on each side; claws simple; maxillary palpi with 6 normal joints.

Details of the following genera are figured by Saussure (*l. c.* pl. 4):—*Rhagigaster*, figs. 66 and 67; *Thynnus*, figs. 68 and 69; *Elaphroptera*, fig. 71; and *Ælurus*, fig. 73.

Saussure, in describing some new species of *Mutilla* (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 351–364), tabulates the contents of that genus, and indicates the positions of various species described by him in the Entomology of the 'Novara's' voyage.

Lucas notices the characters of *Mutilla gloriosa* (Sauss.). Bull. Soc. Ent. Fr. 1867, p. xcii.

New species:—

Mutilla. Saussure (Ann. Soc. Ent. Fr. 4e sér. vii.) describes 12 new species of this genus, namely:—*M. egregia*, p. 351, pl. 8. fig. 1, *M. humbertiana*, p. 353, pl. 8. fig. 2, *M. soror*, p. 354, pl. 8. fig. 3, *M. intermedia*, p. 354, *M. bicincta*, p. 355, pl. 8. fig. 4, *M. ocellata*, p. 356, pl. 8. fig. 5, and *M. hexaops*, p. 356, pl. 8. fig. 6, from Ceylon; *M. sumichrasti*, p. 357, pl. 8. figs. 7, 8, *M. sichcliana*, p. 360, pl. 8. fig. 10, and *M. holotricha*, p. 361, pl. 8. fig. 11, from Mexico; *M. gloriosa*, p. 359, pl. 8. fig. 9, Lower California; and *M. clarazi-ana*, p. 362, Bahia Blanca.

Mutilla. Saussure (Reise der Novara, Zool. Hym.) describes the following new species:—*M. novaræ*, p. 106, pl. 4. fig. 63, Hong Kong; *M. maculo-fasciata*, p. 107, Ceylon, Timor, and Luzon; and *M. capensis*, p. 107, pl. 4. fig. 64, Cape of Good Hope.

Tachypterus australis, Saussure, *l. c.* p. 109, pl. 2. fig. 27, Sydney.

Rhagigaster novaræ, Saussure, *l. c.* p. 112, New Zealand; *R. bidens*, Sauss. ibid., Sydney; *R. pugionatus*, Sauss. *l. c.* p. 113, Tasmania; *R. aculeatus*, Sauss. ibid., Sydney.

Thynnus. The following new species of this genus are described by Saussure (*l. c.*):—*T.* (*Agriomyia*?) *zelebori*, p. 117, Sydney; *T. bidens*, p. 118, pl. 4. fig. 68 (hypop.), Australia; *T.* (*Thynnoides*) *novaræ*, p. 119, Sydney; *T.* (*Agriomyia*) *tasmaniensis*, p. 119, Tasmania; *T.* (*A.*) *frauenfeldianus*, p. 120, Sydney; *T. cælebs*, p. 122, Sydney; *T. viduus*, p. 123, pl. 4. fig. 70 (abdomen), Sydney; and *T. 4-carinatus*, p. 124, Sydney.

Tachynomyia cælebs, Saussure, *l. c.* p. 125, and *T. nitens*, Sauss. ibid. pl. 4. fig. 65, Australia.

Elaphroptera relicta, Saussure, *l. c.* p. 126, Chili; *E. claraziana*, Sauss. *l. c.* p. 127, La Plata; *E. chilensis*, Sauss. *l. c.* p. 128, Chili; and *E. spinolæ*, Sauss. *l. c.* p. 129 (= *T. tricolor*, Spin.), Chili.

Zeleboria (g. n., see table) *fusiformis*, Saussure, *l. c.* p. 132, and *Z. imitatrix*, Sauss. ibid. pl. 4. fig. 72 (maxilla), Australia.

Formicidæ.

Hagens (Berl. ent. Zeitschr. 1867, pp. 101–108) discusses the relations of the ants forming mixed colonies. He distinguishes here two categories, namely, "Robber-ants" and "Guest-ants." The "Guest-ants" live in their three sexes in the colonies of other species. Under this category, Hagens refers to:—*Stenamma westwoodii* (Westw.), found in nests of *F. rufa* and *congerens*; *Tomognathus sublævis* (Nyl.), ☿ only known, and found in colonies of *Leptothorax acervorum* and *muscorum*; and *Asemorhoptrum lippulum* (Nyl.) ☿, found usually with *Lasius fuliginosus*, also with *Formica sanguinea* and *Lasius brunneus*. The author met, near Elberfeld, with ☿ and wingless ♀ of this species forming a colony, and also captured the ♂; *Myrmecina latreillii* (Curt.) ☿ found with *F. rufa*, and also in independent colonies. Other species are met with occasionally in large ants' nests. Hagens notices his having found, in a colony of *F. rufa*, ☿ ☿ of *Myrmica lævinodis, scabrinodis, lobicornis, Leptothorax acervorum* and *Tetramorium cæspitum*, and a wingless ♀ of *L. fuliginosus*.

Under the head of "Robber-ants," or those which carry off larvæ and pupæ from strange colonies, and employ the ☿ produced from these as slaves, Hagens notices the habits and natural history of the following species:—*Formica sanguinea* (Lat.), *Polyergus rufescens* (Lat.), *Strongylognathus testaceus* (Schenck), and *Myrmica atratula* (Schenck). The *Strongylognathus* appears rather to take up its abode with *Tetramorium cæspitum*, and, from the author's account of its habits, cannot be regarded as a robber; he seems inclined to think that *Strongylognathus* is a monstrous development of *Tetramorium*. In the case of *Myrmica atratula*, also, the phenomenon is one only of cohabitation.

Goureau (Insectes nuisibles, pp. 74–89) describes the following species of ants as troublesome or mischievous, especially when they intrude into houses:—*Formica ligniperda, fuliginosa, cunicularia*, and *nigra*, and *Myrmica cæspitum unifasciata*, and *fugax*. He also notices as destroyers of ants:—*Myrmeleon formicarium, Dysdera erythrina*, and *Microphantus formicivorus*.

Smith (Ent. Annual, 1868, pp. 93–95) remarks upon the habits of some species of ants, and, especially, gives a list of the species found by Rothney in a single nest of *F. sanguinea*.

Bond calls attention to the description of an immense swarm of ants at Coburg, at the end of August 1865. The swarm produced the appearance of smoke, issuing from the church of St. Maurice, in that city. Proc. Ent. Soc. 1865, p. 114.

Fritsch (Berl. ent. Zeitschr. 1867, pp. 259–260) notices the habits of the South-African ants, some of which are very troublesome in houses.

Newman notices an ant, said to be found in decayed pine-stumps in Scotland, resembling *F. herculanea*, but thought by Smith to be identical with a North-American species. Proc. Ent. Soc. 1867, pp. lxxvi–lxxvii, also Entomologist, iii. p. 224.

Œcodoma texana (Buckl.). G. Lincecum publishes an account of his observations on the habits of this species, the Cutting-Ant of Texas. Proc. Acad. Nat. Sci. Phil. 1867, pp. 24–31.

Buckley redescribes his species *Œcodoma texana* ("Cutting-Ant") and *Myrmica* (*Monomorium*) *molifaciens*. Proc. Ent. Soc. Phil. vi. pp. 347 & 348.

Fallou and Giraud notice the occurrence in Paris, on the 21st July, 1867,

of an extraordinary abundance of ants. The species, according to Giraud, was *F. aliena* (Först.). Bull. Soc. Ent. Fr. 1867, pp. lvii–lviii.

The Prussian Government has issued a decree against the destruction of Ants and their pupæ in the forests, on the ground of their keeping caterpillars in check. Arch. Cosmol. 1867, p. 190.

New species :—

Formica. S. B. Buckley (Proc. Ent. Soc. Phil. vi.) describes the following as new North-American species of this genus:—*F. nova anglæ* (sic), p. 153, Maine; *F. nortonii*, ibid., *F. americana*, p. 154, *F. connecticutensis*, ibid., Connecticut; *F. gnava*, p. 156, Texas, New York, Connecticut; *F. occidentalis*, p. 157, *F. monticola*, ibid., and *F. gracilis*, p. 158, Western New York; *F. parva*, p. 159, *F. atra*, ibid., *F. virginiana*, ibid., *F. arenicola*, p. 160, Washington; *F. politurata*, ibid., Michigan; *F. septentrionale*, p. 161, Michigan and Illinois; *F. floridana*, ibid., Florida; *F. tejonia*, ibid., California; *F. tenuissima*, p. 162, *F. perminuta*, ibid., *F. picea*, p. 163, *F. lincecumii*, ibid., *F. festinata*, p. 164, *F. insana* ("Crazy Ant"), p. 165, *F. masonia*, ibid., *F. saxicola*, p. 166, *F. discolor*, ibid., *F. san sabeana*, p. 167, *F. fœtida*, ibid., *F.* (*Tapinoma*) *terricola*, p. 168, *F.* (*T.*) *wichita*, p. 169, *F.* (*Hypochira*) *subspinosa*, ibid., from Texas.

Polyergus texana, Buckley, *l. c.* p. 170, Texas.

Camponotus nutans, Frauenfeld, Verh. zool.-bot. Ges. in Wien, xvii. p. 440, on board the 'Novara;' *C. venustus*, Frauenf. *l. c.* p. 441, on board the 'Novara' at Gibraltar.

Ponera sulcata, Frauenfeld, *l. c.* p. 441, on board the 'Novara' near Gibraltar.

Ponera. Buckley (*l. c.*) describes the following new species of this genus:—*P. texana*, p. 170, *P. amplinoda*, p. 171, *P. elongata*, p. 172, and *P.* (*Ectatomma*) *lincecumii*, ibid., Texas; and *P. pennsylvanica*, p. 171, Pennsylvania.

Odontomachus texana, Buckley, *l. c.* p. 335, Texas.

Myrmica. Buckley describes the following as new North-American species of this genus:—*M. rubra*, p. 335, Texas; *M. subrubra*, p. 336, Washington; *M. californica*, ibid., California; *M. nova eboracensis*, p. 337, New York; *M.* (*Monomarium*, sic) *diversa*, ibid., *M.* (*M.*) *minima*, p. 338, and *M.* (*M.*) *cœca* (sic), p. 339, Texas; *M.* (*M.*) *marylandica*, ibid., Washington and Maryland; *M.* (*M.*) *montana*, ibid., Texas; *M.* (*M.*) *lineolata*, p. 340, origin not stated; *M.* (*M.*) *columbiana*, ibid., Washington; *M.* (*M.*) *aquia*, p. 341, Virginia and New York; *M.* (*M.*) *saxicola*, ibid., Texas; *M.* (*M.*) *atra*, p. 342, Georgetown, D.C.; *M.* (*Tetmamorium*, sic) *exigua*, ibid., Washington; *M.* (*Diplorhoptrum*) *scabrata*, p. 343, Connecticut; *M.* (*Atta*) *sabeana*, ibid., and *M.* (*A.*) *sublanuginosa*, ibid., Texas.

Atta. Buckley (*l. c.*) describes 5 new North-American species of this genus, namely:—*A. lincecumii*, p. 344, *A. picea*, ibid., *A. brazoensis*, p. 345, and *A. coloradensis*, p. 346, Texas; *A. pennsylvanica*, p. 345.

Œcodoma virginiana, Buckley, *l. c.* p. 346, Virginia; *Œ. pilosa*, Buckl. *l. c.* p. 348, *Œ. tardigrada*, Buckl. *l. c.* p. 349, *Œ.* (*Atta*) *arborea*, Buckl. ibid., and *Œ.* (*Atta*) *bicolor*, Buckl. *l. c.* p. 350, Texas.

Cryptocerus conspersus, Smith, Ent. Trans. 3rd ser. v. p. 523, pl. 26. fig. 1, Amazons; *C. exiguus*, Smith, *l. c.* p. 524, pl. 26. fig. 4, *C. scutulatus*, Smith, *l. c.* p. 524, pl. 26. fig. 3, and *C. angulosus*, Smith, *l. c.* p. 525, pl. 26. fig. 7, Mexico,

Meranoplus fenestratus, Smith, *l. c.* p. 526, pl. 26. fig. 6, *M. diversus*, Smith, *l. c.* p. 527, pl. 26. fig. 2, and *M. dimidiatus*, Smith, ibid. pl. 26. fig. 8, West Australia.

Cataulacus prætextus, Smith, *l. c.* p. 528, pl. 26. fig. 5, Borneo.

Chrysididæ.

Radoszkovsky (Horæ Soc. Ent. Ross. iii. pp. 225–310) publishes a catalogue of the Chrysididæ of Russia, including 58 species, several of which are described as new. The following known species are figured, and in many cases described:—

Omalus pusillus (Fab.), p. 2, fig. 3; *Elampus ambiguus* (Dahlb.), fig. 4; *E. truncatus* (Dahlb.), fig. 5; *E. productus* (Klug), fig. 6; *E. femoralis* (Eversm.), p. 299, fig. 7; *Hedychrum minutum* (St. F.), fig. 8; *H. coriaceum* (Dahlb.), pl. 3. fig. 9; *H. flavipes* (Eversm.), p. 301, fig. 10; *Chrysis sulcata* (Dahlb.), fig. 11; *C. dichroa* (Klug), fig. 12; *C. cylindrica* (Eversm.), p. 302, pl. 3. fig. 13; *C. cyanura* (Klug), fig. 16; *C. sinuosa* (Dahlb.), pl. 4. fig. 17; *C. elegans* (St. F.), fig. 18; *C. indigotea* (Duf.), fig. 20; *C. cœrulans* (Fab.), fig. 19; *C. soluta* (Dahlb.), fig. 21; *C. cyanopyga* (Dahlb.), fig. 22; *C. pyrrhina* (Dalm.), fig. 23; *C. rutilans* (Oliv.), fig. 24; *C. analis* (Spin.), pl. 5. fig. 25; *C. scutellaris* (Fab.), fig. 26; *C. schousbœi* (Dahlb.), fig. 27; *C. armena* (Spin.), fig. 28; *C. manicata* (Dahlb.), fig. 29; *C. distinguenda* (Spin.), fig. 30; *C. comparata* (St. F.), fig. 31; *C. amœna* (Eversm.) p. 307, fig. 32; *C. pulchella* (Spin.), pl. 6. fig. 33; *C. zetterstedti* (Dahlb.), fig. 34; *Stilbum calens* (Fab.), fig. 35; *Euchrœus limbatus* (Klug), fig. 36; *E. purpuratus* (Fab.), p. 308, figs. 37–40; *E. quadratus* (Klug), fig. 41; and *Parnopes popovii* (Eversm.), fig. 42.

Chrysis dournovii, sp. n., Radoszkovsky, *l. c.* p. 303, pl. 3. fig. 14, and *C. baeri*, sp. n., Radoszk. ibid. pl. 3. fig. 15, Caucasus.

Ichneumonidæ.

Taschenberg (Zeitschr. für die ges. Naturw. xxvii. pp. 228–318) publishes a revision of the species included by Gravenhorst in the first three sections of his genus *Ichneumon*, from which the following synonymic indications may be cited:—1. *monticola* = *Phygadeuon regius* (Tasch.); 3. *alboguttatus* = var. *multicinctus* (Gr.); 4. *nigritarius*, var. 2 = *Amblyteles pseudonymus* (Wesm.); 5. *tenuicornis* = *Platylabus niger* (Wesm.), and var. 1 = *P. fugator* (Wesm.); 6. *nigrocyaneus* = *Plat. armatus* (Wesm.); 8. *fasciatus* = *comitator* (Grav.); 9. *lineator* var. 3 ♀ = *ferreus* (Grav.), and ♂ = *monostagon* (Grav.); 10. *castigator* = *Amblyteles camelinus* (Wesm.); 11. *bilineatus* = ? *consimilis* (Wesm.), and var. 1 = *lineator*, var. 3 (Gr.) = *ferreus* (Gr.); 12. *æthiops* = var. *nigritarius* (Gr.); 13 *b. albimanus* belongs to *Acolobus* (W.); 14. *corruscator*, var. 2 = *luridus* (Gr.); 15. *tristis* = *Eurylabus tristis* (W.); 16. *rubellus* ♂ = *Ectopius rubellus* (W.); 16. *rubellus* ♀ = var. *Diadromus quadriguttatus* (Wesm.); 17. *rufifrons* belongs to *Phygadeuon*; 18. *clericus* = *Eristicus c.* (W.); 19. *canaliculatus* is a *Cryptus*, probably = *C. leucopsis* (Gr.); 20. *spiniger* belongs to *Æthecerus* (W.); 21. *stimulator* = *Phæogenes s.* (W.), and vars. 1 & 2 = *P. callopus* (W.); 22. *brunnicornis* = *Herpestomus b.* (W.); 23. *brevicornis* is a *Phæogenes* and not = *Heterischnus b.* (W.); 24. *annulator*, var. 2 = probably *fabricator* (Gr.), var., and var. 3 = *nigritarius* (Gr.); 25. *tibiator* is a Cryptide;

26. *pumilus*=*Dicœlotus p.* (W.); 29*b*. *transfuga*=*Phygadeuon cephalotes* (Gr.); 30. *larvatus*=*Eurylabus l.* (W.); 31. *subsericans*=*Amblyt. s.* (W.); 32. *fossorius* is an *Amblyteles*; var. 2=*A. amputatorius* (W.), var.; var. 1=*I. pallipes* (Gr.); 33. *albosignatus* is not=*albosignatus* (W.); 34. *multicolor* ♂ = *ferreus* (Gr.)=*quæsitorius* (Wesm.), ♀=*lineator*, var. 3 (Gr.); var. 1=*bilineatus*, var. 1 (Gr.); 35. *fuscatus*=*computatorius*, var. 2 ♂ (W.); 36. *ferreus* = ♂ *multicolor*; 37. *trucitator*=*Probolus alticola*, var. 1 (W.); 38. *monostagon*=*indagator* (W.); 39. *trilineatus*=*brischkei* (Ratz.); 43. *digrammus*=*albosignatus* (W.); 44. *pedatorius* is a *Platylabus*=*iridipennis* (Gr.); 46. *fabricator*, vars. 1–10 belong to the same species=*fabricator* (Gr., Tasch.); the described typical form is distinct; 47. *dissimilis* ♀=*zephyrus* (W.), and probably belongs to *Phygadeuon*; 48. *marginellus*=*Gnathoryx m.* (W.); 49. *candidatus*=*Dicœlotus c.* (W.); 50. *iridipennis*=*pedatorius* (Gr.); 53. *umbraculosus* = *trilineatus* (Gr.), var.; 54. *luctuosus* 2 forms ♂ =*monostagon*, var. 2 (Gr.), and *semiorbitalis* (=*languidus*, W.), var.; 55*b*. *lacteator*=? *depexus* (W.); 57. *dolorosus*=*Platylabus sollicitus* (W.); 58. *funereus*=*Amblyteles hæreticus* (W.) =*melanogaster*, var. 1 (Gr.), and *fuscipes*+*perileucus* (Gr.); 61. *melanogaster*, var. 1=*Amblyt. hæreticus* (W.); var. 2 is a new species of *Hepiopelmus*; 62. *pratensis*=*Amblyteles uniguttatus*, var. 9 (Gr., W.); 63. *semiorbitalis* =*computatorius* (W.), var.; var. 1=*languidus* (W.); 64. *sicarius* ♂ =*jugatus* (Gr.); 66. *proteus*=*laminatorius* (Gr., W.); 68. *deliratorius* ♂=*oscillator* (W.), ♀=*multiannulatus* (Gr.); 70. *fuscipes* ♂=*Amblyteles funereus* (W.), ♀=*I. fuscipes* (W.); var. 2=*Chasmodes lugens* (W.); 71. *perileucus* ♂= *Amblyteles funereus* (W.) ♀=*edictorius* (Gr.); var. 1=*A. fossorius* (W.), var.; 72. *edictorius*=*Amblyt. divisorius*, var. 3 (W.); 73. *biannulatus*=*comitator*, var. 1.

Reinhard has published (Berl. ent. Zeits. 1867, pp. 351–374) a fourth instalment of his memoirs on genera belonging to the *Braconides*. In this he treats of the genera *Microdus* (Nees), *Chelonus* (Jur.), *Ascogaster* (Wesm.), and *Calyptus* (Hal.).

Microdus. Reinhard (*l. c.* p. 351) characterizes this genus, excluding *Earinus* (Wesm.), and indicates the distinctive characters and constituent species of the latter in a note. The labial palpi in *Microdus* are generally 4-jointed. The species of this genus, 16 in number, are tabulated (*l. c.* pp. 352–353) and briefly characterized by Reinhard; the known species are:—*M. conspicuus* (Wesm.), *linguarius* (Nees), *clausthalianus* (Ratz.), *tumidulus* (Nees), *cingulipes* (Nees), *pumilus* (Ratz.), *calculator* (Fab.)=*abscissus* (Ratz.), *dimidiator* (Nees)=*cingulator* (Ratz.), *lugubrator* (Ratz.), *rufipes* (Nees), *rugulosus* (Nees), and *mediator* (Nees).

Chelonus. Reinhard (*l. c.* pp. 358, 359) remarks on some species of this genus described by Nees & Wesmael. The specimens described, although said to be ♀, prove to be ♂. The synonymy of the species is as follows:—1. *C. sulcatus* (Jur.) ♂=*sulcatus* (Nees), ♀=*fenestratus* ♀ (Nees)=*contractus* (Nees)=? *lugubris* (Wesm.); *C. sulcatus* (Nees) ♂=*annulipes* (Wesm.); 2. *C. parcicornis* (H.-Sch.)=*eurytheca* (Wesm.); 3. *C. microphthalmus* (Wesm.). Reinhard describes the ♂ of 2 new species, the ♀ of which may have been described by Herrich-Schäffer. If this supposition be correct, these 5 species will differ from *Chelonus* by the presence of an anal pit in the ♂, and of only 16 joints in the antennæ of the ♀, and may form a distinct genus.

Ascogaster. Reinhard (*l. c.* p. 361) characterizes this genus, and tabulates

and describes the species, of which he enumerates 17, or 19 including *A. limitatus* (Wesm.) and *bisulcatus* (H.-Sch.), with which he is unacquainted. The known species are as follows:—*A. excisus* (H.-Sch.), *armatus* (Wesm.) =*luteicornis* (H.-Sch.), *instabilis* (Wesm.)=*pallida* (Ruthe)=*femoralis*+*rufiventris* (H.-Sch.), *canifrons* (Wesm.), *rufipes* (Lat.)=*bidentulus* (Wesm.) =*pallipes* (H.-Sch.)=*multiarticulatus* (Ratz.), *rufidens* (Wesm.)=*rufipes* (H.-Sch.)=*lævigator* (Ratz.), *gonocephalus* (Wesm.), *elegans* (Nees), *varipes* (Wesm.)=*atriceps* (Ratz.), *quadridentatus* (Wesm.)=*impressus*+*quadridens* (H.-Sch.)=*similis* (Ratz.), *similis* (Nees)=*brevicornis* (Wesm.)=*monilicornis* (H.-Sch.), *bicarinatus* (H.-Sch.), *ruficeps* (Nees), and *annularis* (Nees).

Calyptus (=*Brachistes*, Wesm.). Reinhard (*l. c.* pp. 369–370) remarks upon the characters by which this genus may be distinguished from *Sigalphus* and *Eubadizon*,—from the former by the margination of the abdomen being confined to the base; from the latter by the first segment being distinctly narrowed towards the base, and scarcely longer than the breadth of its apical margin. Reinhard tabulates 20 species of this genus (*l. c.* pp. 370, 371), 10 of which are described as new. The known species are:—*C. nasutus* (Wesm.), *uncigenis* (Wesm.), *ruficoxis* (Wesm.), *minutus* (Ratz.), *nigricoxis* (Wesm.), *fuscipalpis* (Wesm.), *longicaudis* (Ratz.), *robustus* (Ratz.), *rugosus* (Ratz.), *atricornis* (Ratz.). *Sigalphus fasciatus* (Nees) belongs to this genus, but is unknown to the author. *C. puber* (Hal.) is probably identical with *C. uncigenis*. *C. tibialis* (Hal.) is unknown to Reinhard.

Marshall describes (Ent. M. Mag. iii. pp. 190–191) a short-winged *Cryptus* found by him in the Isle of Wight, which was supposed to be a specimen of *C. incubitor* (Ström) with abnormally reduced wings, or perhaps a new species, for which Desvignes proposed the name of *C. brevipennis*. Marshall describes the wings, which are perfectly symmetrical. He suggests that *Brachypterus means* (Grav.) = *Pterocormus means* (Först.) is probably a similar short-winged form of *Ichn. crassipes* (Linn.).

The habits of *Ophion macrurum* (Linn.) as a parasite of *Telea polyphemus* are described by Trouvelot, who also gives a woodcut of the insect (Amer. Nat. i. p. 89).

Taschenberg communicates some observations on the development of the parasites of *Nœnia typica*. Zeitschr. ges. Naturw. xxvii. p. 188.

F. Smith refers to instances in which Ichneumonidæ with long ovipositors pass those organs through solid wood in search of the larvæ in which they are parasitic. Proc. Ent. Soc. 1867, p. lxxxv.

Platygaster boscii and *P. niger*? (Nees) are noticed by A. Forel as parasitic on *Cecidomyia brassicæ* (Winn.). Bull. Soc. Vaud. Sci. Nat. ix. p. 83.

Pimpla sagax and *Glypta resinanæ* have been bred by Kawall from *Coccyx resinana*. Stett. ent. Zeit. 1867, p. 122.

Oresbius, g. n., Marshall, Ent. M. Mag. iii. p. 193. Allied to *Aptesis*; antennæ unicolorous, twice as long as head and thorax; metathorax not areated. Sp. *O. castaneus*, sp. n., Marsh. *l. c.* p. 194 (fig. p. 193), Perthshire. Also captured by Sharp on Goatfell (Ent. M. Mag. iv. p. 18).

New species:—

Ichneumon cambriensis, Desvignes, Ent. M. Mag. iv. p. 130, Wales.

Phygadeuon reinhardii, Jaennicke, Berl. ent. Zeitschr. 1867, p. 154, and *P. gracile*, Jaenn. *l. c.* p. 155, near Frankfort.

Catoglyptus schenckii, Jaennicke, *l. c.* p. 155, Taunus.

Cœlinius hydrelliæ, Kawall, Stett. ent. Zeit. 1867, p. 121, parasitic on *Hydrellia griseola* (Fall.) in barley.

Hepiopelmus aureosericeus, Taschenberg, Zeitschr. für die ges. Naturw. xxvii. p. 316.

Bracon truncorum, Goureau, Insectes nuisibles, p. 52, parasitic on *Callidium sanguineum*.

Spathius ferrugatus, Goureau, *l. c.* p. 55, parasitic on *Callidium variabile*.

Microdus arcuatus, Reinhard, *l. c.* p. 353, Bautzen and Saxon Switzerland ?; *M. nugax*, Reinh. *l. c.* p. 354, Erzgebirge, Frankfort; *M. fortipes*, Reinh. *l. c.* p. 356, France and Frankfort; *M. brevicaudis*, Reinh. ibid., Gastein.

Chelonus nitens, Reinhard, *l. c.* p. 360 (♀ = *erosus*, H.-Sch. ?); *C. risorius*, Reinh. ibid. (♀ = *subemarginatus*, H.-Sch. ?).

Ascogaster albitarsus, Reinhard, *l. c.* p. 364, Prussia; *A. tersus*, Reinh. *l. c.* p. 366, Frankfort; *A. neesii*, Reinh. *l. c.* p. 368 (= *C. klugii*, Nees, ♂), Germany.

Calyptus. Reinhard (*l. c.*) describes the following 10 new species of this genus:—*C. cruentatus* (Ruthe), p. 371, *C. claviventris* (Ruthe), ibid., *C. nigripes* (Ruthe), *C. parvulus* (Ruthe), *C. corrugatus* (Ruthe), p. 372, *C. vagus* (Ruthe), and *C. augustinus* (Ruthe), p. 373, Berlin; *C. opacus*, p. 374, Vienna; *C. gallicus*, ibid., Paris; and *C. exsertor*, ibid. (Frankfort ?).

Chalcididæ.

The forms of this family parasitic on *Aphides* and on certain Coccidæ are noticed by Giraud, Bull. Soc. Ent. Fr. 1867, pp. lxxvii–lxxviii.

Myrmecopsis, g. n., Walker, Ent. Trans. 3rd ser. ii. p. 441. (*Cleonimoidæ* ?) Apterous; head as broad as thorax; face transversely sulcate; antennæ inserted near mouth, flagelliform, 13-jointed, 1 as long as face, 2 elongate, 3 twice as long as 2, 4–12 short, 13 conical; prothorax transverse, well marked; mesothorax very short; metathorax quadrate; petiole very short; abdomen elliptical, wider than thorax, with only one dorsal segment; tibiæ with small spurs; tarsi 5-jointed (♂). Sp. *M. nigricans*, sp. n., Walker, *l. c.* p. 442, North Australia.

Lopodytes, g. n., Rondani, Ann. Soc. Nat. Mod. ii. p. 39. ♂. antennæ 9-jointed, joint 2 shortest, rest nearly equal, generally pilose above; ♀. antennæ 7-jointed, penultimate larger, subovate, all destitute of hairs; wings with a delicate venule near the costa reaching the middle, and there (in the first pair) obliquely deflexed and dilated at apex. Sp. *L. prunicola*, sp. n., Rond. *l. c.* p. 39, parasitic on *Asphondylia pruniperda*.

Sigmophora, g. n., Rondani, *l. c.* p. 40. Allied to *Eulophus*; antennæ 7-jointed, 2–5 subequal, 6 large, subovate, 7 minute; upper wings with a delicate vein to one-third the length of the costa, there sigmoidally curved and touching the costa, not dilated at free apex; a spurious venule in the middle of the base. Sp. *S. scrophulariella*, sp. n., Rond. *l. c.* p. 40 (= *Eul. verbasci*, Vallot ?), parasitic on *Asphondylia scrophulariæ*.

Proctotrupidæ.

Galesus. Marshall (Ent. M. Mag. iii. p. 224) remarks upon the British species of this genus, of which he recognizes 2, namely, *G. fuscipennis* (Curt.) and *G. clypeatus* (Thoms.) = *cornutus* (Curt.) = ? *claviger* (Hal.). Haliday gives *Psilus cornutus* (Panz.) = *Diapria brunnipes* (Nees); but the latter is not

a *Galesus*, as Nees describes its antennæ as 15- instead of 14-jointed. Marshall describes a new species with aborted wings (*vide infrà*).

Marshall describes both sexes of *Platymischus dilatatus* (Westw.), the ♀ having been previously unknown. He characterizes the genus, and discusses the distinctions between the ♀ and those of allied genera. Ent. M. Mag. iv. pp. 166–167.

Newman records the occurrence of numerous specimens of *Proctotrupes calcar* (Hal.) as parasites upon a *Lithobius forficatus*. Entomologist, iii. pp. 342–344.

Paramesius belytoides, sp. n., Marshall, Ent. M. Mag. iii. p. 223 (fig. p. 224), near London.

Galesus cæcutiens, sp. n., Marshall, *l. c.* p. 225 (fig. p. 224), Surrey and near Edinburgh.

Aneurhynchus nodicornis, sp. n., Marshall, *l. c.* p. 225, Leicestershire.

Cynipidæ.

F. Smith (Ent. M. Mag. iii. pp. 181–183) remarks upon the occurrence of females only among many thousand specimens of species of the genus *Cynips* bred by himself and other entomologists. He refers especially to *C. kollari*, but has also investigated *C. radicis*, *C. folii*, and *C. aptera*, without ever meeting with a male. Smith refers to the supposed discovery of the male of *C. confluens* by Osten-Sacken in America, and remarks that the connexion between this male and the female *C. confluens* is by no means proved.

Neuroterus. Marshall describes the British species of this genus (Ent. M. Mag. iv. pp. 124–126), of which he cites 3, namely:—*N. malpighii* (Hart.) =? *lenticularis* (Oliv.)=? *longipennis* (Fab.), *N. fumipennis*, and *N. politus* (Hart.). The male of *N. fumipennis* is afterwards described by Marshall, with the gall formed by the species (*l. c.* p. 147), where also *N. reaumurii* (Hart.) is cited as British.

Teras terminalis (Fab.) is also described by Marshall (*l. c.* p. 148).

Cynips. Marshall (*l. c.* pp. 6–8) gives a synopsis of the British species of this genus as restricted. He admits 5 species, namely:—*C. folii* (Linn.), *C. lignicola* (Hart.)=*kollari* (Giraud), *C. radicis* (Fab.), *C. fecundatrix* (Hart.), and *C. ramuli* (Linn.). Of the latter the ♂ has been discovered.

J. Giraud publishes (Bull. Soc. Ent. Fr. 1867, pp. xiii–xvi) a notice of *Cynips fecundatrix* (Hart.) bred from a gall on *Quercus pedunculata*, the "Artichoke-gall" of Réaumur.

Taschenberg publishes some remarks upon galls. Zeitschr. ges. Naturw. xxix. pp. 498–499.

Cynips terminalis. Cornelius (Stett. ent. Zeit. 1867, pp. 63–64) notices the great prevalence of the galls of this species in 1866 near Elberfeld, and records some observations upon them.

Haimhoffen describes and figures (Verh. zool.-bot. Ges. in Wien, xvii. pp. 527–530) the gall produced upon the twigs of *Quercus pedunculata* by *Cynips coriaria* (Hart.), and also gives a full description of that insect. *Synergus incrassatus* (Hart.) was produced from the galls as an inquiline; and of other parasites 2 species of *Eulophides* occurred.

Andricus. Marshall notes (*l. c.* pp. 101–102) the British species of this genus, namely:—*A. trilineatus*, *noduli*, and *moniliatus* (Hart.), and a new species, *Andricus hartigii*.

Uroceridæ.

Cephus pygmæus. Wallschlegel communicates (Mitth. Schweiz. ent. Gesellsch. ii. pp. 153–156) a note on the occurrence and natural history of this insect, which, in 1866, inflicted much injury on the crops in the Aargau. Stierlin appends some remarks to this paper (*l. c.* pp. 156–157).

Taschenberg records a case of the boring of lead by *Sirex juvencus.* Zeitschr. ges. Naturw. xxvii. p. 459.

Tenthredinidæ.

E. Norton has commenced (Trans. Amer. Ent. Soc. i. pp. 31–84 & 193–324) a descriptive catalogue of the North-American species of this family. In the preliminary portion he indicates the general classification of the Hymenoptera and the terminology of the Tenthredinidæ, and gives a tabular synopsis of the genera belonging to the Tenthredinidæ and Uroceridæ. Of the former he recognizes 63 generic groups; but 2 of these, formed by sections of Klug's genus *Hylotoma*, do not receive generic names. In the catalogue itself the genera and species are all characterized, and the latter sometimes tabulated.

Snellen van Vollenhoven (Tijdschr. v. Entom. 2de ser. i.) describes and figures all the stages of the following species:—*Macrophya albicincta* (Schr.), pp. 189–195, pl. 7; *Phyllotoma melanopyga* (Klug), pp. 196–201, pl. 8; and a new species of *Nematus.*

Frauenfeld notices (Verh. zool.-bot. Ges. in Wien, xvii. pp. 783–784) 3 species of this family of which the larvæ occurred in great numbers in 1867. One of these fed upon various species of *Iris*; another was *Hylotoma berberidis*; and the third fed upon various species of *Rumex.*

Healy describes (Ent. M. Mag. iv. pp. 105–107) the natural history of a species of *Phyllotoma* (*P. aceris*, M'L., *vide infrà*), the larva of which mines the leaves of the maple, and constructs for itself a small circular case from the upper and lower membranes of the leaf in which to pass the winter and undergo its metamorphosis. The species is identified by M'Lachlan (*l. c.* p. 123) with *P. aceris* (Kalt.) described in his paper on the German phytophagous insects.

F. Löw (Verh. zool.-bot. Ges. in Wien, xvii. pp. 747–748) gives further details on the construction of the larva-sac of *Lyda inanita* (Vill.) in correction of his former statements. He figures a rose-leaf with the sac attached to it, to show the mode in which additions are made.

Athalia centifoliæ. The habits of this species as injurious to the Colza plant in the Canton de Vaud are noticed by A. Forel, Bull. Soc. Vaud. Sci. Nat. ix. pp. 74–75.

Athalia spinarum (Fab.). On this insect as injurious to rape and turnips, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 943–946.

Cræsus septentrionalis. F. Smith & M'Lachlan on the natural history of this species. Proc. Ent. Soc. 1865, p. 129.

M'Lachlan remarks on the rarity or total absence of ♂ sawflies, the ♀ of which are common, instancing *Strongylogaster cingulatus* and *Selandria stramineipes.* Proc. Ent. Soc. 1867, p. xc.

M'Lachlan (Proc. Ent. Soc. 1867, p. xcix) notices a gynandromorphous specimen of *Dolerus madidus* (Klug) and monstrous examples of *Hylotoma fasciata* (St. F.) and *Tenthredo scalaris* (Klug), the last-mentioned insect having 3 wings on the right side.

M'Lachlan (Ent. Mag. iv. pp. 102–105) notices several previously unrecorded British species of this family.

Themos, g. n., Norton, *l. c.* p. 58. Allied to *Hylotoma*; marginal cell not appendiculate, 3 submarginal cells. Sp. *Hyl. olfersii* and *surinamensis* (Klug); *T. hyaline*, sp. n., Norton, *l. c.* p. 58, Pennsylvania.

New species:—

Trichiosoma lanuginosa, Norton, *l. c.* p. 44, California.

Abia kennicotti, Norton, *l. c.* p. 46 (North America); *A. caprifolium*, Norton, ibid., Illinois.

Cephalocera calcar, Norton, *l. c.* p. 51, Mexico.

Sericocera plumicornis, Norton, *l. c.* p. 52, *S. villosus*, Nort. *l. c.* p. 53, and *S. alternator*, Nort. ibid., Mexico.

Schizocerus ebenus, Norton, *l. c.* p. 55, New York; *S. sericeus*, Nort. ibid., Maine, Illinois; *S. privatus*, Nort. *l. c.* p. 56, New Orleans.

Ptilia filiformis, Norton, *l. c.* p. 62, Mexico.

Hylotoma fascialis, Norton, *l. c.* p. 69, and *H. semifuscus*, Norton, ibid., Mexico.

Pristiphora tibialis, Norton, *l. c.* p. 76, Atlantic States; *P. relativus*, Nort. *l. c.* p. 77, Great Slave Lake; *P. idiota*, Nort. ibid., and *P. identidem*, Nort. ibid. Illinois.

Pristiphora sycophanta, Walsh, Proc. Ent. Soc. Phil. vi. p. 263, inquiline in gall *Salicis brassicoidis*.

Phyllotoma aceris, M'Lachlan, Ent. M. Mag. iv. p. 104, Britain (*v. ante*).

Nematus aquilegiæ, Vollenhoven, Tijdsch. v. Entom. 2de ser. i. p. 202, pl. 9, Gelderland.

Nematus. Norton (Trans. Amer. Ent. Soc. i.) describes the following new North-American species of this genus:—*N. concolor*, *labradoris*, *malacus* (p. 196), *fallax*, *winnipeg*, *monela* (p. 198), *luteolus*, *satkatchewan* (p. 200), *violaceipennis* (p. 201), *rufo-fasciatus* (p. 205), *hudsonicus*, *sumptus* (p. 207), *pleuricus* (p. 208), *lateralis* (p. 211), *placentus* (p. 213), *trilineatus* (p. 215), *trivittatus* (p. 218), *aureopectus* (p. 219), and *chloreus* (p. 221).

Nematus. The following species of this genus are described by Walsh (Proc. Ent. Soc. Phil. vi.) as inhabiting galls on various species of willow:—*N. s. pomum*, p. 255; *N. s. desmodioides*, p. 257; *N. s. pisum*, p. 259; *N. inquilinus*, p. 260; *N. hospes*, p. 261; *N. mendicus*, ibid.; and *N. fur*, p. 263.

Perreyia comptus, Norton, *l. c.* p. 223, and *P. capitulum*, Norton, ibid., Mexico.

Euura. Walsh (Proc. Ent. Soc. Phil. vi.) describes the following new species of this genus, from galls on North-American species of willow:—*E. s. gemma*, p. 250; *E. s. ovum*, p. 252; *E. s. nodus*, p. 253; and *E. perturbans*, p. 254.

LEPIDOPTERA.

A. *Works in progress.*

Hewitson, W. C. Exotic Butterflies, being illustrations of new species; with coloured drawings and descriptions. Parts 61–64: January to October 1867.

——. Illustrations of Diurnal Lepidoptera.—Part III. Lycænidæ. London: Van Voorst, 1867. 4to, pp. 77–114, pls. 31–46.

The third part of this work, which appeared in 1867, is entirely occupied by descriptions and figures of species of the genus *Thecla*, of which the author here brings the number to 164.

——. Descriptions of One Hundred new Species of Hesperidæ. Part. I. London: Van Voorst, 1867, pp. 25.

In this part Hewitson publishes short descriptions of 50 species of Hesperiides in order to secure the right of priority. He says himself that he considers these descriptions, "unaided by figures, more than worthless;" and, after this acknowledgment, it may be questionable whether the claim of priority would hold good if any of the species be recognizably described and figured by another author before Hewitson has the opportunity of publishing them in his 'Exotic Butterflies.'

Stainton, H. T. The Natural History of the Tineina. Vol. x. containing *Gelechia*, part 2. 8vo, pp. ix & 304, with 8 plates. London: Van Voorst, 1867.

This volume of Stainton's great work on the Tineina, which completes his first series of ten volumes, is devoted to a second series of 24 species of the genus *Gelechia*, which are described and figured in all their stages in the same way as the species noticed in former volumes. This volume also contains a general account of the genus *Gelechia*.

B. *Separate Works.*

Berce, E. Papillons. Description de tous les Papillons qui se trouvent en France, indiquant l'époque de l'éclosion de chaque espèce, les localités qu'elle fréquente, la plante qui nourrit la Chenille, et le moment où il convient de la chasser, &c. &c. Dessins et gravures par T. Deyrolle. Tome i. Paris, 1867, pp. 251, with 18 coloured plates.

The object of this work, which the Recorder has not seen, is sufficiently indicated in its title as given above. According to a notice in Guérin's 'Magasin de Zoologie,' the work has been well executed by its author, and is especially rich in information as to the habits of the insects and the localities frequented by them. The figures by T. Deyrolle are also spoken of in terms

of high praise. The work is expected to be completed in 4 volumes.

Stainton, H. T. The Tineina of Syria and Asia Minor. 8vo. London: Van Voorst, 1867, pp. vi & 84.

In this little work Stainton brings together the whole literature of the Tineina of Western Asia, and especially of the Levant, describing or reprinting the descriptions of species published by Loew, Mann, Zach, Kindermann, Lederer, Zeller, &c., describing some new species, chiefly collected by O. P. Cambridge, giving lists of the species collected by different travellers, and, finally, a table of geographical distribution, which also furnishes indications of the comparative abundance of the species in the localities where they occur. As a starting-point in the thorough investigation of this department of the natural history of the Levant, this book is of great importance.

Stainton, H. T. British Butterflies and Moths: an Introduction to the study of our Native Lepidoptera. London, Reeve & Co., 1867, pp. xii and 292, with 16 plates.

This little volume is one of the series of Popular Manuals of British Natural History other parts of which have already been noticed in previous 'Records' (see 1866, pp. 251, 278, and 411). Stainton has described the general characters and natural history of the Lepidoptera, illustrating the latter by taking particular examples among British species, characterized the subordinate groups and families in accordance with the system adopted by him in his 'Manual of Lepidoptera,' and, finally, described a considerable proportion of the commoner and more striking species of this order which inhabit Britain. These descriptions, with notes upon the habits of the species, occupy the greater part of the work. They are illustrated by numerous coloured figures, respectably executed by Robinson. There are also two short chapters on collecting Lepidoptera.

C. *Papers published in Journals &c.*

a. *Descriptive &c.*

Allard, Gaston. Notes sur les Insectes de l'Algérie. Ann. Soc. Ent. Fr. 1867, vii. pp. 311–322, pl. 6.

In this paper Allard gives a list of the Lepidoptera captured by him in Algeria, with notes on the mode of occurrence &c. of some of them, and descriptions of several new species.

Ballion, E. Synonymische Bemerkungen über einige Schmetterlinge. Stettiner entom. Zeitung, 1867, pp. 340–341.

Bates, H. W. A Catalogue of Erycinidæ, a family of Diurnal Lepidoptera. Journ. Linn. Soc. vol. ix. Zool. pp. 367–372 (commencement).

Bates, H. W. On a Collection of Butterflies formed by Thomas Belt, Esq., in the interior of the Province of Maranham, Brazil. Trans. Ent. Soc. Lond. 1867, v. pp. 535–546.

In this paper Bates discusses some points in the variation of species of *Heliconius* and *Leptalis*, and describes several new species of Rhopalocera.

——. (See "Coleoptera.")

Butler, A. G. Description of a new genus of Diurnal Lepidoptera, belonging to the family *Satyridæ*. Ann. & Mag. Nat. Hist. 1867, vol. xix. pp. 49–51, pl. 2.

——. Observations on the variation of *Cyllo leda* of Linnæus, and on the different forms of that Insect in the National Collection. Ibid. pp. 51–54.

——. Description of a new genus and one new species of *Satyridæ*. Ibid. pp. 124–127, pl. 3.

——. Descriptions of five new genera and some new species of Satyride Lepidoptera. Ibid. pp. 161–167, pl. 4.

——. Descriptions of some remarkable new species and a new genus of Diurnal Lepidoptera. Annals & Mag. Nat. Hist. 1867, vol. xx. pp. 216–217, pl. 4.

——. Description of a new species of Tiger-Moth in the possession of Mr. T. W. Wood. Ibid. pp. 218–219, pl. 4.

——. Descriptions of new or little-known species of Asiatic Lepidoptera. Ibid. pp. 399–404, pls. 8 & 9.

——. Description of a new genus and species of American *Satyridæ*, from the Collection of Mr. H. W. Bates. Ibid. pp. 404–405, pl. 9.

——. Revision of the group of Lepidopterous Insects hitherto included in the genus *Pronophila* of Westwood. Ibid. pp. 266–268.

——. Description of a new genus of Diurnal Lepidoptera belonging to the family *Erycinidæ*. Proc. Zool. Soc. 1867, pp. 37–39.

——. Descriptions of some new species of *Satyridæ* belonging to the genus *Euptychia*. Ibid. pp. 104–110, pls. 11 & 12.

——. Note on the identity of certain species of *Lycænidæ*. Ibid. pp. 34–36.

——. Remarks upon the Fabrician species of the Satyride genus *Mycalesis*; with Descriptions and Notes on the named varieties. Ibid. pp. 718–721.

——. A Monograph of the genus *Lemonias*, with descriptions of new species in the Collection of the British Museum,

including other forms sometimes placed in that genus. Journ. Linn. Soc. ix. Zool. pp. 213–229, pls. 6 & 7 ; 1867.

Butler, A. G. A Monograph of the genus *Hestia*, containing descriptions of forms not hitherto noticed; with a tabular view of the species of *Danaidæ* and remarks upon their natural affinities. Trans. Ent. Soc. Lond. 1867, v. pp. 467–484.

——. Description of a new genus of Diurnal Lepidoptera belonging to the family *Erycinidæ*, with characters of two new species. Ent. Monthly Mag. vol. iii. pp. 174–176.

——. Corrections of Errors hitherto existing in the nomenclature of several species of the genus *Nymphidium*. Ibid. pp. 221–223.

Contains descriptions of two new species.

——. Description of a new genus and species of Diurnal Lepidoptera. Ibid. iv. pp. 121–122 : November 1867.

——. Remarks on the Nomenclature of the European genera of Satyridæ Lepidoptera. Entomologist, iii. pp. 277–281.

Christoph, H. Beschreibung einiger neuer Schmetterlinge aus der Umgegend von Sarepta. Stettiner entom. Zeitung, 1867, pp. 233–240.

——. Biologische Notizen über einige Schmetterlinge. Ibid. 1867, pp. 240–246.

Cotty, Ernest. Observations à propos du *Bombyx cynthia*. Mém. Soc. Linn. du Nord de la France, 1866, pp. 147–158.

C. Cruger (Stett. ent. Zeit. 1867, pp. 285–306) gives a full analysis of the first three parts of Scott's 'Australian Lepidoptera,' with translations of the descriptions.

Dohrn, C. A. De Phalæna Bombyce. Stettiner entom. Zeitung, 1867, pp. 247–252.

In this paper Dohrn notices the contents of a curious academical dissertation published at Upsal by J. Lyman in 1756. It treats of the history and natural history of the Silkworm; and Dohrn believes that some portions of it are from Linné's hand.

Dronke, F. Note sur la maladie des vers à soie. Revue et Magasin de Zoologie, 1867, pp. 123–128.

Edwards, W. H. On certain North-American species of *Satyrus*. Proc. Ent. Soc. Philad. vol. vi. pp. 195–200.

——. Description of certain species of Diurnal Lepidoptera found within the limits of the United States and British America. No. 5. Ibid. pp. 200–208.

Fallou, J. (See Girard).

Frauenfeld, Georg von. Ueber einen Zerstörer der Baumwollkapseln in Egypten. Verhandl. zool.-bot. Ges. in Wien, Band xvii. pp. 785–792.

——. (See "Insecta.")

Frey, H. Die schweizerischen Microlepidopteren. Dritte Abtheilung. Mittheil. schweiz. entom. Gesellsch. Band ii. pp. 169–186, November 1866; and Vierte Abtheilung, *l. c.* pp. 286–303, October 1867.

A continuation of Frey's Catalogue of the Swiss Microlepidoptera, including the Coleophoridæ, Gracilariidæ, Argyresthidæ, Glyphipterygidæ, and Gelechiidæ. As before, notices of the habits of the larvæ are given.

Gærtner, A. Lepidopterologische Mittheilungen. Verhandl. naturf. Vereines in Brünn, Band v. pp. 36–48 : 1867.

Contains notices of the transformations of various species of Lepidoptera.

——. Die Geometrinen und Mikrolepidopteren des Brünner Faunen-Gebietes. Verhandl. naturf. Ver. in Brünn, Band iv. pp. 48–270 : 1866.

A list of the Geometridæ, Pyralidæ, Tortricidæ, Tineidæ, and Alucitidæ of the neighbourhood of Brünn, with remarks on the habits and descriptions of the larvæ of many species.

Girard, Maurice. Notes sur la sériciculture. Ann. Soc. Ent. France, 4e série, tome vii. pp. 381–386.

——. Note sur l'Aberration *Taraxacoides* (Bellier de la Chavignerie) du *Bombyx castrensis* (Linn.). Annales Soc. Ent. France, 4e série, tome vi. pp. 565–567.

——. Note sur une Aberration de la *Pyrameis atalanta* (Linn.). Ibid. pp. 568–570.

Girard, M., & Fallou, J. Variations des Lépidoptères. [Translation of a portion of M'Lachlan's paper on *Sterrha sacraria* &c., with extensive notes by the translators.] Ann. Soc. Ent. France, 4e sér. tome vii. pp. 323–350.

Grandidier, A. Description de quatre espèces nouvelles de Lépidoptères découvertes sur la côte sud-ouest de Madagascar. Rev. et Mag. de Zool. 1867, pp. 272–275.

Gredler, V. Bericht über Zuchtversuche der *Saturnia cynthia* in Bozen. Corr. Blatt zool.-min. Ver. Regensb. xx. pp. 50–56 : 1866.

Grote, A. R. Notes on the Zygænidæ of Cuba. Part I. Proc. Entom. Soc. Philad. vi. pp. 173–189, pl. 5 : 1867.

——. Notes on the Zygænidæ of Cuba. Part II. Ibid. pp. 297–334, pl. 5 : 1867.

This paper completes Grote's revision of the Cuban Zygænidæ, and includes a supplement containing notes on and descriptions of species included in other families, from the Sphingidæ to the end of the Bombycina. Grote also gives a list of the known species. The synonymy of several of Herrich-Schäffer's species is indicated.

Grote, A. R., & Robinson, C. T. Lepidopterological Contributions. Annals Lyc. Nat. Hist. New York, vol. viii. pp. 351–387, pls. 12–14: December 1866.

Contains remarks on the synonomy of some species, and descriptions of new ones.

——, ——. Descriptions of American Lepidoptera. No. 1. Trans. Amer. Entom. Soc. vol. i. pp. 1–30, pls. 1 & 2.

——, ——. Descriptions of American Lepidoptera. No. 2. Ibid. pp. 171–192, pl. 4.

Guenée, —. Note sur deux espèces Linnéennes du genre *Papilio*. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 305–310: October 15, 1867.

Guérin-Méneville, —. Notes sur les œufs de vers à soie du mûrier qui n'éclosent, dans notre hémisphère, que la deuxième année après leur ponte. Comptes Rendus, lxiv. pp. 661–663.

——. Faits relatifs à l'introduction et à l'acclimatation, en Europe, des vers à soie du chêne. Ibid. p. 694.

——. Sur l'introduction et l'acclimatation des vers à soie du chêne. Comptes Rendus, lxv. pp. 946–947.

Healy, Charles. A Life-history of *Gracilaria syringella*. Ent. Monthly Mag. vol. iv. pp. 148–150.

Herrich-Schäffer. Die neuesten Arbeiten über die Sphinginen. Corr.-Blatt zool.-min. Ver. Regensburg, xx. pp. 59–64.

Contains notices and criticisms of recent works on the Sphingidæ.

——. Schmetterlinge aus Cuba. (Fortsetzung.) Ibid. pp. 103–109, 113–120, and 130–136: 1866.

——. Prodromus systematis Lepidopterorum. (Fortsetzung.) Ibid. xxi. pp. 100–106, 124–128, 138–144, and 161–172: 1867.

Contains the *Pyralidina* and *Equitina* (H.-Sch.).

Hewitson, W. C. Descriptions of new *Hesperidæ*. Trans. Ent. Soc. Lond. 3rd scr. vol. ii. pp. 479–501: 1866.

——. Descriptions of some new species of Diurnal Lepido-

ptera. Trans. Ent. Soc. Lond. 3rd ser. vol. v. pp. 561–566 : December 1867.

Hinterwaldner, J. M. Beitrag zur Lepidopteren-Fauna Tirols. Zeitschr. des Ferdinandeums &c., 3te Folge, Heft xiii. pp. 211–254.

A list of the Macrolepidoptera of Tyrol, with notes on their geographical distribution and rarity.

Hofmann, Ernst. Drei neue Gelechien und ein neuer *Chauliodus*. Stettiner entom. Zeitung, 1867, pp. 200–207.

Hüber, A. F. Ueber die leichteste und ergiebigste Fangart der Nachtschmetterlinge. Horæ Soc. Entom. Rossicæ, tom. iv. pp. 165–178.

In this paper the author recommends the use of honey daubed on trees for attracting the night-flying Lepidoptera, and gives a list of his captures in August and September.

——. Beitrag zur Bereicherung der Lepidopteren-Fauna von St. Petersburg. Ibid. pp. 189–192 : 1867.

Contains a list of 10 species not included in Sievers's Catalogue.

Keferstein, —. Bemerkungen über *Setina*. Stettiner entom. Zeitung, 1867, pp. 278–284.

Klipphausen. (See Von Ziegler.)

Knaggs, H. G. Notes on Collecting, Management, &c. (*Lepidoptera*). Continued. Ent. Monthly Magazine, vol. iii. pp. 202–204.

On the management of the larvæ, and especially on the influence of variation of food upon the colour &c. of the imago.

——. New species of *Scoparia* from New Zealand, collected by R. W. Fereday, Esq. Ibid. iv. pp. 80–81.

——. Notes on new and rare British Lepidoptera (excepting *Tineina*) in 1867. Entom. Annual, 1868, pp. 97–126.

In this paper the author records the additions made in the year 1867 to the list of British Lepidoptera (11 in number), remarks upon various disputed British species, and gives a tabular list of captures of rare species, and of the discovery of the larvæ of British species during the same period.

Lucas, H. Note sur la *Morpho hecuba*, Lépidoptère de la section des Achalinoptères et de la tribu des Morphides. Ann. Soc. Ent. France, 4e sér. vii. pp. 659–664.

Mabille, P. Notices sur les Lépidoptères de la Corse. 1re notice. Ann. Soc. Ent. France, 4e sér. vi. pp. 545–564, pl. 8.

——. Notices sur les Lépidoptères de la Corse, avec une Enumération monographique des Eupithécies de la Corse. 2e notice. Ibid. vii. pp. 635–658, pl. 14.

Maclachlan, Robert. Observations on some remarkable varieties of *Sterrha sacraria*, Linn., with general Notes on Variation in Lepidoptera. Trans. Ent. Soc. Lond. 3rd ser. vol. ii. pp. 453–468, pl. 23; 1866.

Mann, Josef. Schmetterlinge gesammelt im J. 1866 um Josefsthal in der croatischen Militärgrenze. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 63–76, pl. 9.

A list of captures, with descriptions of two new species, and some introductory remarks on the districts in which they were collected.

——. Schmetterlinge gesammelt im Jahre 1867 in der Umgebung von Bozen und Trient in Tyrol. Verhandl. zool.-bot. Ges. in Wien, Band xvii. pp. 829–844.

——. Zehn neue Schmetterlingsarten. Ibid. pp. 845–852.

Maurissen, A. H. Macrolépidoptères observés dans le Duché de Limbourg. Tijdschrift voor Entom. 2de serie, Deel i. pp. 169–188 : 1866.

Millière, P. Iconographie et Description de Chenilles et Lépidoptères inédits. 16e et 17e livraisons. Ann. Soc. Linn. de Lyon, tome xiv. pp. 297–388 : 1867.

Mitchell, J. Remarks on Captain Hutton's paper "On the Reversion and Restoration of the Silkworm." Trans. Ent. Soc. Lond. 3rd ser. vol. ii. pp. 443–444.

Moore, Frederic. On the Lepidopterous Insects of Bengal. Continued (see 'Record,' 1866, p. 439). Proc. Zoological Society, 1867, pp. 44–99, pls. 6 & 7, pp. 612–686, pls. 32 & 33.

These papers contain the conclusion of Moore's catalogue of Bengalese Lepidoptera, with a list of additional species belonging to the families noticed in its former part.

Motschulsky, V. Catalogue des Lépidoptères rapportés des environs du fl. Amour depuis la Schilka jusqu'à Nikolaevsk. Bull. Soc. Nat. Moscou, tome xxxix. pt. 2. pp. 116–119 : 1866.

A list of species, with descriptions of a new *Argynnis* and a new *Fidonia*.

Packard, A. S. View of the Lepidopterous Fauna of Labrador. Proc. Boston Soc. Nat. Hist. vol. xi. pp. 32–63.

——. The Clothes-Moth. American Naturalist, vol. i. pp. 423–427.

Pfützner, Julius. Verzeichniss der in der Umgegend von Berlin vorkommenden Schmetterlinge. Berliner entom. Zeitschrift, 1867, pp. 195–208.

A catalogue of the Macrolepidoptera of the vicinity of Berlin.

Presas, Manuel J. Mariposas. Anuario dela Seccion de Ciencias del Liceo de Matanzas, Ano 1. tomo i. pp. 229–246: 1866.

A general account of the structure, habits, classification, &c. of Lepidoptera, with especial reference to those of Cuba.

Prittwitz, O. von. Lepidopterologisches. Stettiner entom. Zeitung, 1867, pp. 257–277.

Contains a long series of observations on the synonymy, habits, &c. of various Lepidoptera, both European and exotic. A few new species are described.

Rambur, —. Catalogue systématique des Lépidoptères de l'Andalousie. Paris, 1866.

This work, which has been published in livraisons, is referred to by Bellier de la Chavignerie; but the Recorder has not seen it.

Robinson, C. T. (See Grote, A. R.)

Schleich, —. Einige microlepidopterologische Beobachtungen über eine neue *Nepticula*, die Raupe von *Gelechia micella* und über *Gracil. imperialella*. Stettiner entom. Zeitung, 1867, pp. 449–455.

——. Ueber den Fang und die Behandlung der Microlepidopteren. Ibid. pp. 131–141.

Semper, Georg. Beiträge zur Entwicklungsgeschichte einiger Ostasiatischer Schmetterlinge. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 697–702, pl. 23.

Descriptions and remarks founded on the notes made by Carl Semper in the Philippines.

Sievers, J. C. Verzeichniss der Schmetterlinge des St. Petersburger Gouvernements. Horæ Soc. Entom. Rossicæ, tom. iv. pp. 49–77.

——. Beitrag zur Fauna des St. Petersburger Gouvernements für 1865 und 1866. Ibid. v. pp. 3–5: 1867.

Contains a supplementary list of Lepidoptera captured in 1865 and 1866.

Snellen, P. C. T. De inlandsche Soorten van het Geslacht *Eupithecia*, Curtis. Tijdschrift voor Entom. 2de serie, Deel i. pp. 97–168, pls. 3–6: 1866.

——. De Rups van *Depressaria ultimella*, Stainton. Tijdschrift voor Entom. 2de serie, Deel iv. pp. 26–30: 1867.

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In this paper, continued from the 'Annual' for 1867, Stainton prints translations of Von Heyden's notices and descriptions of Tineidæ and Pterophoridæ.

——. New British Tineina. Ibid. pp. 127–133.

——. Observations on Tineina. Ibid. pp. 134–155.

Staudinger, O. Einige neue Lepidopteren (sämmtlich aus der Sammlung des verstorbenen O. Gruner). Stettiner entom. Zeitung, 1867, pp. 100–110.

——. *Gelechia petasitella* und *Phyllobrostis hartmanni*. Ibid. pp. 210–212.

Steudel, —. Ueber das Tödten und Aufspannen der Kleinschmetterlinge. Württ. naturw. Jahreshefte, xxii. pp. 243–252.

Ström, V. Danmarks Sommerfugle i Kort Oversigt. Naturhist. Tidsskrift, 3rd series, vol. iv. pp. 109–140 (1866), and 381–414 (1867).

These are the first portions of a synopsis of the Danish species of Lepidoptera. They carry the classification to the end of the Bombycina.

Timins, Douglas C. A Monograph of the genus *Thais* of the family Papilionidæ. Proc. Ent. Soc. 1867, pp. ci–ciii.

Trouvelot, L. The American Silkworm. American Naturalist, vol. i. pp. 30–38, 85–94, & 145–149.

An account of *Telea polyphemus*.

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Vollenhoven, S. C. Snellen van. Description de deux nouvelles espèces de Lépidoptères. Tijdschrift voor Entom. 2de serie, Deel i. pp. 209–210, pl. 10: 1866.

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In this paper Walker makes some remarks upon subfamilies of Moths, and describes a considerable number of new species from Bogota, some of which are given as types of new genera.

Wallace, Alexander. On some variations observed in *Bombyx cynthia* in 1866. Trans. Ent. Soc. Lond. 3rd ser. vol. v. pp. 485–492.

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This is a second prize-essay, on Silk-producing Moths, published by the Entomological Society of London.

WALLACE, A. R. On the *Pieridæ* of the Indian and Australian Regions. Trans. Ent. Soc. Lond. 3rd series, vol. iv. pp. 301–416, pls. 6–9.

WOCKE, M. F. Zwei neue Arten von *Chauliodus*. Stettiner entom. Zeitung, 1867, pp. 208–209.

WULLSCHLEGEL, J. Ueber die Zucht von Ja-ma-maï im Jahr 1866. Mittheil. schweiz. entom. Gesellsch. Bd. ii. pp. 151–153: November 1866.

ZELLER, P. C. Ueber die europäischen Setina-Arten. Zweiter Artikel. Stettiner entom. Zeitung, 1867, pp. 33–49.

——. Naturgeschichte der *Fidonia fasciolaria*. Ibid. pp. 178–183.

——. Ueber das Entschuppen der Schmetterlingflügel. Ibid. pp. 184–187.

In this paper Zeller describes the process which he adopts for freeing the surface of the wings of Lepidoptera from their scales.

——. "Skandinaviens Fjädermott (*Alucita*, Linn.)" besprochen von P. C. Zeller. Ibid. pp. 321–339.

This paper contains an abstract of Wallengren's paper on the Scandinavian Pterophorina, with remarks upon some parts of it.

——. Einige von Herrn Pickard Cambridge, besonders in Aegypten und Palästina, gesammelte Microlepidoptera. Ibid. pp. 365–387.

——. Einige ostindische Microlepidoptera. Ibid. pp. 387–415, pl. 2.

A notice, with descriptions of new species, of the *Pyralidæ* collected in India by Atkinson. The paper also includes descriptions of 2 new genera of *Tineidæ*, and of 3 species of *Pterophoridæ*.

——. Crambina, Pterophorina, and Alucitina collected in Palestine by the Rev. O. P. Cambridge in 1865. Trans. Ent. Soc. 3rd ser. vol. v. pp. 453–460, pl. 23: 1867.

——. Choreutidæ and Crambina collected in Egypt by the Rev. O. P. Cambridge, January to April 1864. Ibid. pp. 461–466, pl. 24: 1867.

——. The Natural History of *Lycæna medon*, Hufnagel (*Polyommatus agestis*, Ochsenheimer). Ent. Monthly Mag. vol. iv. pp. 73–77.

Ziegler, von, und Klipphausen, —. Ueber die europäischen Arten der Rhopaloceren-Gattung *Melitæa*, Fab. Stettiner entom. Zeitung, 1867, pp. 418–428.

b. *Anatomical and Physiological.*

Balbiani, —. Etudes sur la maladie psorospermique des vers à soie. De la maladie observée dans l'œuf et chez l'embryon. Comptes Rendus, lxiv. pp. 574–578. De la maladie chez les jeunes vers récemment éclos. Ibid. pp. 691–694.

——. Sur la prétendue reproduction par scissiparité des corpuscules ou psorospermies des vers à soie. Ibid. pp. 1045–1049.

Béchamp, A. Sur le corpuscule vibrant de la pébrine, considéré comme organisme producteur d'Alcool. Comptes Rendus, lxiv. pp. 231–232.

——. Faits pour servir à l'histoire de la maladie parasitaire des vers à soie appelée *pébrine*, et spécialement du développement du corpuscule vibrant. Ibid. pp. 873–875.

——. Letter à M. le Président au sujet de la communication faite par M. Pasteur le 29 Avril précédent. Ibid. lxiv. pp. 1042–1043.

——. Nouveaux faits pour servir à l'histoire de la maladie actuelle des vers à soie et de la nature du corpuscule vibrant. Ibid. pp. 1043–1049.

——. Sur la transformation du corpuscule vibrant de la pébrine et sur la nature de la maladie des vers à soie dits *restés petits*. Comptes Rendus, lxiv. pp. 1185–1186.

——. Sur la saccharification du corpuscule vibrant de la pébrine. Comptes Rendus, lxv. pp. 42–43.

Bessels, E. Studien über die Entwicklung der Sexualdrüsen bei den Lepidopteren. Zeitschrift für wiss. Zoologie, Band xvii. pp. 545–564, pls. 32–34.

In this valuable paper the author describes the progress of the development of the sexual glands in the Lepidoptera, from their earliest appearance until the larva is ready to undergo its metamorphosis. The difference of sex seems to be perfectly recognizable in the embryo.

Brouzet,—. Note sur le traitement de la pébrine des vers à soie par une solution faible de nitrate d'argent. Comptes Rendus, lxiv. p. 1186.

Claus, C. Ueber das Männchen von *Psyche helix* (*helicinella*) nebst Bemerkungen über die Parthenogenese der Psychiden. Zeitschr. für wiss. Zool. xvii. pp. 470–479, pl. 28.

Contains a notice of the recorded facts connected with the parthenogenetic reproduction of species of *Psyche* and other

sac-bearing Lepidoptera, with a full account of the male of *Psyche helix* and of its development.

Guenée, —. D'un organe particulier que présente une Chenille de *Lycæna*. Annales Soc. Ent. France, 4e série, tome vii. pp. 665–668, pl. 13.

Pasteur, —. Lettres à M. Dumas sur la nature des corpuscules des vers à soie. Comptes Rendus, tome lxiv. pp. 835–836.

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Vasco, A. Observations sur la disparition de la membrane dans l'œuf du ver à soie. Comptes Rendus, tome lxiv. pp. 1145–1148.

General Notes.

Presas (Anuario del Liceo de Mantanzas, i. pp. 239–246) publishes a general account of the structure, habits, &c. of the Lepidoptera, especially with reference to those of Cuba.

Prittwitz (Stett. ent. Zeit. 1867, p. 275), in describing a new *Callimorpha*, makes some remarks on the affinities of the different members of the group Nocturni.

Prittwitz also remarks (*l. c.* pp. 275–277) upon the fondness displayed by certain moths (e. g. *Acontia solaris* and *Arctia villica*) for the vicinity of human habitations.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 431–432 & 446–449) notices the species of Lepidoptera collected on board the 'Novara' during her voyage. The number of species recorded is 42. The most numerously represented groups are the Geometridæ, Pyralidæ, and Tineidæ; and the author suggests that the predominance of these is due to their possessing less power of flight than the Noctuidæ and Sphingidæ, the latter having less occasion to rest upon the ship, and being able to escape from it more easily, on account of their greater power of wing. A large flight of *Papilio hector* visited the 'Novara' at some distance from Ceylon.

A. S. Packard publishes (Proc. Bost. Soc. N. H. xi. pp. 32–63) a list of the Lepidoptera collected in Labrador, with remarks on many of the known species and descriptions of numerous new ones. He remarks that the Lepidopterous fauna of the coast is of an Arctic character, agreeing closely with that of Greenland, whilst in the interior of the country, which is warmer, the fauna acquires a large intermixture of boreal or Canadian forms.

A catalogue of Eversmann's collection of Lepidoptera lately presented to the Entomological Society of Russia by the Princess Helena Paulowna is published by the Society with the Horæ Soc. Ent. Ross. tom. v.

J. C. Sievers, jun., publishes (Horæ Soc. Ent. Ross. iv. pp. 49–77) a catalogue of the Lepidoptera of the Government of St. Petersburg arranged upon the model of the general catalogue of Staudinger and Wocke. The total number of species cited by him is 1274, namely, of Rhopalocera 97, of Sphinges, Bombyces, and Noctuæ 373, of Geometræ 216, and of Microlepidoptera 586.

Sievers adds 30 newly captured species (Bombyces and Noctuæ 4, Geo-

metræ 2, Microlepidoptera 24) to his list in a supplementary note. Horæ Soc. Ent. Ross. v. pp. 3–5.

Ström has commenced (Naturh. Tidsskr. 3rd ser. vol. iv.) a synopsis of the Danish Lepidoptera. The first portion (*l. c.* pp. 109–140) contains the Rhopalocera and the Sesiidæ, Sphingidæ, and Zygænidæ; a second part (*l. c.* pp. 381–414) the Bombycina. The Heterocera are divided by Ström into the three groups *Closterocera* (Dum.), *Nematocera* (Dum.), and *Microlepidoptera*,—the first group containing the 3 families above-mentioned, and the second the remainder of the larger Lepidoptera.

Maurissen has published (Tijdschr. v. Entom. 2de ser. i. pp. 169–188) a list of the species of Macrolepidoptera found in the Duchy of Limbourg, with notes on comparative rarity, mode and time of occurrence, &c. The list includes 442 species.

J. Pfützner has published a Catalogue of the Lepidoptera of the neighbourhood of Berlin to the end of the Geometridæ. Berl. ent. Zeitschr. 1867, pp. 195–208.

Mann has published a list of the species of Lepidoptera collected by him in South Tyrol from May to July 1867 (Verh. zool.-bot. Ges. in Wien, xvii. pp. 829–841), followed by descriptions of a few new species (*l. c.* pp. 841–844).

F. Buchanan White publishes a list of Lepidoptera collected by him in Switzerland and Italy in 1866. Ent. M. Mag. iv. pp. 57–60.

G. Allard has published (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 311–322) a list of Lepidoptera collected by him in Algeria, with notes on the localities in which they occur and on the habits of some of the species, and descriptions of several new species.

P. Mabille publishes a series of notes upon the Lepidoptera of Corsica (Ann. Soc. Ent. Fr. 4e sér. vi. pp. 545–564, & vii. pp. 635–638). In his first notice he gives an account of an ascent of the Monte Rotondo (*l. c.* pp. 547–551), with notes on the Lepidoptera observed, and a list of Lepidoptera observed in the beginning of August 1866 in the neighbourhood of Corte (*l. c.* pp. 551–556), followed by remarks on the known species and descriptions of some new species. His second notice contains additional notes on the Lepidoptera of Monte Rotondo (*l. c.* p. 636), on those of Monte Renoso (*l. c.* pp. 637–639), on the species collected at Bastia and elsewhere on the coasts (*l. c.* pp. 639–642), and a monographic revision of the *Eupithecicæ* of Corsica (*l. c.* pp. 642–658). Many remarks on the synonymy and food-plants of the species are scattered through the various articles; and the more important of these will be noticed hereafter.

Hinterwaldner has published (Zeitschr. des Ferdinand. 3te Folge, xiii. pp. 211–254) a list of the Macrolepidoptera of the Tyrol, in which the geographical distribution of the species, especially with regard to the altitude at which they occur, and their comparative rarity in the different regions are indicated by means of letters and numbers. In the introductory remarks (pp. 211–222) the author discusses the physical characteristics of the country and their influence upon the diffusion of Lepidoptera, and notices several points of general interest to the entomologist. The total number of species recorded is 904, or, including 13 doubtful species, 917; of these, 63 occur exclusively

in North Tyrol, and 406 in South Tyrol, the remainder being common to the two divisions of the country admitted by the author. From a table showing the number of species occurring at different elevations, the gradual diminution in this respect with increased altitude is very strikingly seen. In Region I. (up to 3000 feet) we have 765 species, in II. (3000–4300 feet) 557 species, in III. (4300–6000 feet) 290, in IV. (6000–7000 feet) 126, and in V. (7000–8000 feet, or the lower snow-region) only 50 species.

F. Moore has continued his catalogue of the Lepidoptera of Bengal (Proc. Zool. Soc. 1867, pp. 44–98 and 612–686). The total number of species contained in his list, chiefly derived from the collections of Messrs. Russell & Atkinson, is 1616, distributed as follows into main groups:—

Papiliones	409
Sphinges	50
Bombyces	387
Noctues	288
Pseudo-deltoides	27
Deltoides	34
Pyrales	73
Geometres	288
Crambices	18
Tortrices	7
Tineines	35

F. J. Atkinson publishes lists of captures at Simla and Jaunpore in May and July 1866. Ent. M. Mag. iv. p. 60.

Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xx. p. 89) notices some Lepidoptera collected in the Fiji Islands and in Queensland.

Birchall publishes a supplement to his list of Irish Lepidoptera. It includes 4 species, namely, *Apamea fibrosa*, *Ennomos tiliasia*, *Ennychia anguinalis*, and *Ephippiphora tetragonaria*. Ent. M. Mag. iii. p. 202.

Additions to Birchall's list of Irish Lepidoptera. Ent. M. Mag. iv. pp. 70–91.

Birchall (Entomologist, iii. pp. 191–193) remarks upon some species omitted from his list of Irish Lepidoptera.

Birchall notices various localities in Ireland and the Lepidoptera occurring in them. Entomologist, iii. pp. 205–209, 235–238, 250–255.

Lists of captures of Lepidoptera in various districts of Britain are published by E. H. Todd on the Cotswolds (Ent. M. Mag. iii. pp. 183 & 210), A. Edmunds in Worcestershire (*l. c.* p. 184, and iv. p. 159), A. E. Hudd near Bristol, on Ivy (*l. c.* p. 186), by H. D'Orville on the Cotswolds (*l. c.* p. 187), by E. N. Bloomfield near Hastings (*l. c.* p. 206), by C. G. Barrett at Haslemere, *Microlepidoptera* (*l. c.* p. 209, and iv. p. 160), by J. Ingram in the Isle of Wight (*l. c.* p. 213), by Carrington near York, on sallows (*l. c.* p. 236), by Blackburn in the Isle of Wight (*l. c.* p. 262), by Llewelyn in South Wales

(*l. c.* p. 263, and iv. p. 16), by J. B. Hodgkinson at Witherslack (Ent. M. Mag. iv. pp. 98, 137, & 154), by Blackburn at West Wickham (*l. c.* p. 41), by Blackburn at Rannoch (*l. c.* pp. 138–139), by J. Sang, *Microlepidoptera*, at Darlington (*l. c.* p. 153), and by W. H. Harwood near Colchester (*l. c.* p. 162).

M'Lachlan, after noticing the variations of *Sterrha sacraria*, discusses the phenomena of variation in the Lepidoptera in general (Trans. Ent. Soc. 3rd ser. ii. pp. 458–468). He indicates that Britain is remarkable for the number of its varieties of Lepidoptera, and points out a considerable number of cases in which the variation of the species seems to be in accordance with fixed and general rules. Thus numerous species (many of which are cited *l. c.* p. 459) become darker or "melanised" in the north of England and in Scotland; and the country about Warrington especially seems to be peculiarly favourable to the production of dark varieties, so that, as M'Lachlan remarks, it is "not difficult to imagine that, should this district suddenly become isolated, these forms would of necessity develop into what we should very fairly call species." These and other examples are employed by M'Lachlan in support of a limited Darwinism. He thinks "that ordinarily varieties have a tendency to revert to what we consider as the type, but that, under certain circumstances, not only will they not so revert, but that the divergence will gradually become wider, until eventually they develop into what is considered as a species." With regard to the variation of larvæ, which M'Lachlan considers to have little to do with that of the imago, he publishes a long and elaborate tabular statement from the observations of Hellins and Buckler, in which the food-plants and the variations of the insects in the larval and perfect states are clearly indicated. From this it would appear that larval variation is more common and extensive in those species which feed upon various plants, although these very insects are exceedingly constant in the imago-state; and M'Lachlan is inclined to regard the variation of the larvæ, especially in those forms (such as many *Eupitheciæ* and other Geometridæ) which feed on flowers, or at all events during the day, as an instance of mimicry destined to screen them from the attacks of birds. In the case of *Eupithecia absinthiata* he has noticed the variation in the colour of the larvæ as being distinctly in accordance with that of the different kinds of flowers on which they were feeding. M'Lachlan also refers to other peculiarities displayed by species of Lepidoptera in different British localities, especially to the fact that many species which produce two broods annually in the south, have only one brood in Scotland, and to the circumstance that in the latter country some species remain for two or three years in the pupa-state.

The portion of M'Lachlan's paper just noticed has been translated into French by Girard and Fallou, who also append some rather voluminous notes to it (Ann. Soc. Ent. Fr. 4ᵉ sér.

vii. pp. 323–350). The greater part of these notes are really objections urged against the Darwinian hypothesis, and relate both to Lepidoptera and to insects of other orders.

Notes by J. Greene & Knaggs on variation in Lepidoptera. Ent. M. Mag. iii. pp. 236–239. Also by Jordan (*l. c.* pp. 251–252), C. S. Gregson (*l. c.* pp. 252–253), and J. Greene (*l. c.* pp. 253–256), with a reply to the latter by Knaggs (*l. c.* p. 256). See also J. A. Forster on the variation in size of bred specimens (*l. c.* p. 278).

On variation in Lepidoptera, by Hodgkinson (Ent. M. Mag. iv. p. 40) and Knaggs (*l. c.* p. 41).

G. S. Saunders notices a nest formed by social caterpillars among the leaves of a Brazilian *Zeyhera*. Proc. Ent. Soc. 1867, p. lxx.

Goossens (Bull. Soc. Ent. Fr. 1867, p. iv) refers to the occurrence of external sexual characters in the caterpillars of Lepidoptera.

Landois's observations on the eyes of caterpillars are noticed by Claparède in the Bibliothèque Universelle, Nov. 1866, Bull. Sci. pp. 272–275, translated in Ann. & Mag. N. H. 3rd ser. xix. pp. 61–63.

Steudel has published (Würt. naturw. Jahreshefte, xxii. pp. 243–252) some instructions in killing and setting the Microlepidoptera.

Fallou notices the application of an apparatus for finely dividing water in the rearing of caterpillars, instancing particularly his successful treatment of larvæ of *Chelonia quenselii*. Guérin also remarks on the advantage of applying moisture in the rearing of caterpillars; he has employed it with success on those of *Papilio alexanor*, *Bombyx cynthia*, &c. Bull. Soc. Ent. Fr. 1866, pp. lv-lvii.

Rhopalocera.

Grandidier (Rev. et Mag. de Zool. 1867, p. 275) gives a list of species detected by him in the southern part of Madagascar and not previously recorded as inhabiting that island:—*Papilio antenor* (Drury), *Anthocharis flavida* (Boisd.), *œna* (Boisd.), *ephya* (Kl.), *evarne* (Kl.), *Idmais dynamene* (Kl.), and *Terias senegalensis* (Boisd.).

W. H. Herbert records (Entomologist, iii. p. 226) the visit of numerous birds and butterflies during a cyclone to a ship 600 miles from the African coast, and 200 from the Cape Verde Islands. The butterflies are said by Newman to be *Diadema bolina* and *Pyrameis cardui*.

Weir remarks that the metallic chrysalids of Butterflies are generally free from the attacks of birds. Proc. Ent. Soc. 1867, p. ci.

T. W. Wood notices the variation in the colours of the chrysalids of Butterflies, which he considers to be due to assimilation to the surrounding objects. Proc. Ent. Soc. 1867, pp. xcix–ci. These views are confirmed by Butler and opposed by Bates, *l. c.* p. ci.

Giraud notices (Bull. Soc. Ent. Fr. 1867, p. lxvi) examples of *Pyrameis atalanta* and *Satyrus mœra* which present different-sized wings on the two sides. Laboulbène and Goossens mention their having seen similar cases (*l. c.* p. lxvii).

Gregson publishes a series of notes on variation in the Lepidoptera, in which he describes varieties of numerous species of Rhopalocera. Entomologist, iii. pp. 209–213, and 263–267.

Papilionides.

Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xxi. pp. 161–172) publishes his systematic revision of this group (*Equitina*, H.-Sch.). He tabulates the genera, 10 in number (*l. c.* p. 162), and gives a list of the species.

Guenée (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 305–310) discusses the synonymy of *Papilio æneas* and *anchises* (Linn.). Two species at least have been described and figured under the name of *P. æneas*, namely:—1. *P. æneas* (Linn., Fab., Herbst) = *æneas* ♀ (Cram., Boisd., Dbld.) = *æneides* ♀ (Esp.); and 2. *P. æneides* (Esp.) = *æneas* ♂ (Cram., God., Boisd.) = *gargasus* (Hübn.). *P. æneas* (Esp.) is probably a small individual of *P. curymas*. The males of the above two species are briefly characterized by Guenée. The female of *P. æneas* is doubtful: according to Felder it is *P. marcius* (Hübn.); but this is regarded by Boisduval as the ♀ of *P. anchises*. The ♀ of *P. æneides* is probably *P. echemon* (Hübn.). Upon *P. anchises* Guenée speaks with less certainty, and he thinks that the ♂ of Linné's species has not been seen since his day. He ascribes this error in part to the citation of Merian's figure by Linné in addition to that of Clerck, the former representing *P. anchisiades*. Boisduval seems to have described the true *anchises*; and Guenée here describes what he believes to be the ♀ of the species.

Papilio antenor (Drury) has been discovered in Madagascar by Grandidier. Lucas, Bull. Soc. Ent. Fr. 1867, pp. xxviii & xlv.

Depuiset publishes a note on the geographical distribution of *Papilio antenor*. He is inclined to think that the supposition of its occurrence in India is erroneous. Bull. Soc. Ent. Fr. 1867, p. xxiii.

G. Semper publishes notes on the natural history of *Papilio pammon* (Linn.) and *P. agamemnon* (Linn.). Verh. zool.-bot. Ges. in Wien, xvii. pp. 697–698.

G. Allard, in his list of Algerian Lepidoptera (Ann. Soc. Ent. Fr. 4e sér. vii. p. 312), notices *P. podalirius* and *machaon*, and states that the variety *feisthamelii* of the former seems to be the type in Algeria.

C. F. Dubois figures a very dark variety of *Papilio machaon*, in which the orange-red spot of the hind wing is wanting. Arch. Cosmol. 1867, p. 160, pl. 8. fig. 1.

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 309) notices a specimen of *Parnassius delius* with indications of gynandromorphism.

Bellier de la Chavignerie notices the fact that some females of *Parnassius mnemosyne* are destitute of the usual corneous sac, and suggests that this organ may have an important part to play in oviposition. Laboulbène, in connexion with this, refers to the corneous sac in *Doritis apollo*. Bull. Soc. Ent. Fr. 1867, p. iii.

S. Ebrard notices the difference of colour in the chrysalids of *Papilio machaon*, which he ascribes to the nature of the object to which the larva attaches itself in order to undergo its change. The chrysalids attached to plants and wood are green, and those fixed to stones &c. gray. He mentions his having obtained a pale green chrysalis of *P. podalirius*; but this was in an earthen pot. Bull. Soc. Ent. Fr. 1867, pp. lxvii–lxviii. (The question of the difference of colour in pupæ was discussed by Giraud, Gervais, Laboulbène, Fallou, and Goossens.)

D. C. Timins (Proc. Ent. Soc. 1867, pp. ci–ciii) notices the species of the genus *Thais*, of which he admits 7, namely :—*T. cassandra* (Boisd.)=*hypsipyle* (Hübn.); *T. hypsipyle* (Boisd.)=*polyxena* (Ochsenh.); *T. caucasica*; *T. cerisyi*; *T. medecicasta*=*rumina* (Hübn.)=*rumina-australis* (Esp.), var. =*honnoratii* (Boisd.); *T. rumina* and 1 new species.

Thais henrietta, sp. n., Timins, Proc. Ent. Soc. 1867, p. cii, Smyrna.

Papilio bairdii, sp. n., Edwards, Proc. Ent. Soc. Phil. vi. p. 200, Arizona.

Papilio godeffroyi, sp. n., G. Semper, Ent. Trans. 3rd ser. ii. p. 469, pl. 34. figs. 1 & 2 (1866), Navigator's Islands.

Papilio xeniades, sp. n., Hewitson, Ent. Trans. 3rd ser. v. p. 561, Ecuador; *P. dares*, Hew. ibid., Nicaragua.

Pierides.

Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xxi. pp. 100, 124, and 138) has continued his Prodromus of a System of Lepidoptera through this subfamily. He discusses the characters of these insects, and tabulates the genera, which he admits, 27 in number, on pp. 103–105. Of these genera 5 appear to be new. The species belonging to this group are catalogued by Herrich-Schäffer (*l. c.* pp. 106, 124–128, and 138–144).

A. R. Wallace (Trans. Ent. Soc. 3rd ser. iv. pp. 301–416) publishes an account of the *Pierides* of the Indian and Australian regions. In the introductory portion of this memoir, he discusses the general geographical distribution of the Insects of this subfamily, in which he recognizes 23 genera. Following Sclater's division of the surface of the globe into six zoological regions, he indicates that the genera of *Pierides* are represented in these in the following proportions :—Neotropical 11, Nearctic 6, Palæarctic 6, Ethiopian 10, Indian 15, and Australian 11. The South-American continent has 3 peculiar genera, the Indian region 2, and the Australian and Palæarctic regions 1 each. *Pieris*, as stated by Wallace, is the only genus universally distributed; but *Colias* is likewise represented in all the six regions, although in warm climates chiefly confined to alpine districts. The whole of the facts connected with the general geographical distribution of the *Pierides* are summed up in an excellent table (p. 303).

Wallace has maintained that the eastern archipelago may be divided into two parts, as evidenced by the distribution of its Birds and Mammals. These two parts are separated by a line passing to the east of the Philippines, curving round the west of Celebes, and afterwards passing between the islands of Baly and Lombock. The islands to the west of this line are regarded as belonging to the Indian region, and those to the east of it to the Australian. Pascoe has stated that this rule does not hold good with regard to the Coleoptera, and especially the Longicorn Beetles. Wallace indicates some points in the geographical distribution of the Coleoptera which seem to confirm his previous

general statement, and at the same time remarks that as so great a proportion of the Coleoptera live, either in the larva or perfect state, in the wood or beneath the bark of trees, the exceptional distribution of the insects of this order in the eastern islands may be accounted for by their transportation from island to island in floating timber &c. In the case of Lepidoptera, this cause of diffusion of species can hardly exist; and although these insects are liable to be carried to great distances by storms and by the monsoons, their chance of establishing themselves in new islands is greatly limited, among other things, by the necessity which so many of them labour under of finding the proper food-plant of their larvæ in their new home. In illustration of this view, Wallace here investigates in detail the *Pierides* of the combined Indian and Australian regions, paying particular attention to the geographical range of the species, which is well represented in a series of tables occupying pp. 402–415. From the author's statements it appears that not only species, but genera and sections of genera are characteristic of the islands on one side or the other of his line of demarcation above referred to; and the facts in general are considered by him to confirm his view that the islands situated to the east of this line belong to the Australian, and not to the Indian region. Wallace further discusses the distribution of the species and the number of peculiar species in the different islands and groups of islands, and remarks that (as also in the case of the true *Papilionides*) Celebes presents a great amount of peculiarity. The *Pierides* of Celebes likewise present a peculiar subfalcate form of the anterior wings. Examples of mimicry are not numerous or striking among the eastern *Pierides*; but Wallace refers to some examples of this phenomenon presented by them (pp. 309–311).

Wallace discusses the generic characters presented by the *Pierides* (pp. 312–314). He adopts the genus *Thyca* (Wallengr.) to which he refers 57 species, and gives the following table (p. 314) showing the distinctive characters of that genus, and of 2 new genera which he has established at the expense of the genus *Pieris* of authors:—

A. One branch of subcostal before end of cell.... THYCA (Wallengr.)
AA. Two branches of subcostal before end of cell.
B. Males with tufts of hairs or bristles at anal valves. TACHYRIS, g. n.
BB. Males with anal valves bare.
C. Males with costa serrated..... PRIONERIS, g. n.
CC. Males with costa smooth..... PIERIS.

The following specific synonyms are indicated by Wallace (and others will be found in the list of species belonging to his new genera):—*Pieris pallene* (Hew.)=*Elodina angulipennis* (Luc.); *Terias zama* (Feld.)= ♀ *T. zita* (Feld.); *T. tondana* (Feld.)=*tominia* (Voll.); *Pieris wallaceana* (Feld.)= ♀ *rachel*

(Boisd.); *P. perithea* (Feld.) = *nabis* (Luc.); *P. descombesii* (Voll.) = *Thyca zebrida* (Hew.); *P. lorquinii* (Feld.) = *Thyca rosenbergii* (Voll.); *Eronia gæa* (Feld.) = *hippia* (Fab.); *Iphias felderi* (Voll.) = *sulphurea* (Wall.); and *Gonepteryx urania* (Butl.) = *Dercas wallichii* (Doubl.). *Pieris* (*Tachyris*) *celestina* (Boisd.) is figured, *l. c.* pl. 8. fig. 6, and *P.* (*T.*) *athama* (Luc.), pl. 9. fig. 1.

Prittwitz (Stett. ent. Zeit. 1867, pp. 266–269) remarks upon *Terias zoë* (Hopffer) and the confusion existing between it and the allied forms *T. drona*, *brigitta*, *pulchella*, and *rahel*, on the geographical distribution of *Colias edusa*, on the variation of *Colias cæsonia*, and on *Pieris monuste* (Hübn.).

Leuconea cratægioides (Lucas) = *Pieris hippia* (Brem.), according to Ballion, Stett. ent. Zeit. 1867, p. 340.

Lucas also notices the identity of his *Leuconea cratægioides* with *Pieris hippia* (Brem.). Bull. Soc. Ent. Fr. 1867, p. v.

G. Allard notices the occurrence of ten species of this subfamily in Algeria (Ann. Soc. Ent. Fr. 4e ser. vii. pp. 312–313) and remarks specially upon the habits of *Anthocharis glauce*, *belemia*, and *levaillantii*.

Anthocharis levaillantii. Lucas publishes some rectificatory notes on his account of this species. Bull. Soc. Ent. Fr. 1867, p. xxiii.

Stainton (Brit. Butt. & Moths, pl. 1) figures *Colias edusa*, fig. 1, and *Anthocharis cardamines*, fig. 2.

Anthocharis bellezina (Boisd.). Millière figures and describes what he regards as a variety of this species (Ann. Soc. Linn. Lyon, xiv. p. 297, pl. 71. fig. 1).

Eronia cleodora (Hübn.) is figured and described by Hewitson, Exot. Butt. 63, June 1867, *Callid.* & *Eronia*, fig. 7.

On the mimicry of *Leptalis theonoë* and *orise* see Bates, Trans. Ent. Soc. 3rd ser. v. p. 536.

On the variation in colour of *Anthocharis cardamines* and allied species, Kirby, Ent. M. Mag. iv. p. 90.

Hellins describes the life-history of *Leucophasia sinapis* (Steph.), Ent. M. Mag. iii. pp. 210, 211; and Buckler the larva of *Colias edusa* (Fab.), Ent. M. Mag. iv. pp. 117–119.

G. Semper notices the colouring and habits of the larva of *Callidryas pyranthe* (Linn.). Verh. zool.-bot. Ges. in Wien, xvii. p. 698.

Colias edusa seen depositing eggs in the middle of August, by J. Ingram. Ent. M. Mag. iv. p. 90. Larva described by Newman, Entomol. iii. p. 330.

According to Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. p. 787) *Pontia brassicæ* occurred in unusual and injurious numbers about Vienna in 1867.

New genera and species:—

Heurema, g. n., Herrich-Schäffer, *l. c.* p. 105. Allied to *Leucophasia*; fore wings with 11 veins; branch 9 springing from 6 far from its origin. Sp. *Terias impura* (Voll.).

Leucidia, g. n., Herrich-Schäffer, *l. c.* p. 105. Allied to the preceding; branch 9 springing from the same point as 6. Sp. *L. elphos* (Feld.) and *buphos* (H.-Sch. MS.).

Pereute, g. n., Herrich-Schäffer, *l. c.* p. 105. Allied to *Euterpe*; vein 9 entirely wanting; both transverse veins nearly straight; P C distinct, inclined towards base. Sp. *E. callinice* (Feld.), *marina* (Doubl.), *charops* and *autodyce* (Boisd.), *telthusa* (Hew.), and *leucodrosyne* (Koll.).

Midea, g. n., Herrich-Schäffer, *l. c.* p. 105. Allied to *Callosune*; P C vertical, vein 9 springing from C or from the same point. Sp. *P. genutia* (Fab.).

Phulia, g. n., Herrich-Schäffer, *l. c.* p. 105. Allied to *Anthocharis*; vein 8 wanting; veins 9 and 10 from the anterior vein of the median cell; and 5 from same point as 6+7 from its anterior right-angled corner; upper transverse vein wanting; P C curved towards base. Sp. *P. nymphella* (Gay).

Tachyris, g. n., Wallace, Trans. Ent. Soc. 3rd ser. iv. p. 361 (see p. 350). Figures showing anal valves of male in 2 species and in 2 species of *Pieris*, p. 362, figs. 1–4. Known sp. *P. hombronii* (Luc.), *cardena* (Hew.)=*hagar* (Voll.), *nerissa* (Fab.)=*zelmira* (Cram.), *lynceola* (Feld.), *lyncida* (Cram.) =*enyo* (Boisd.) = *hippo*, var. (Voll.), *lycaste* (Feld.), *formosana* (Wall.), *andrea* (Esch.), *hippo* (Cram.)=*phryne* (Fab.)=*eleonora* (Boisd.), *enarete* (Boisd.), *scyllaria* (M'L.), *ada* (Cram.) = *cilla* (Feld.), *panda* (God.)=*sulphurea* (Voll.), *nathalia* (Feld.), *paulina* (Cram.)=*leis* (Hübn.)=*neombo* and *albina* (Boisd.)=*galene* and *darada* (Feld.), *rouxii* (Boisd.), *psyche* (Feld.), *galathea* (Feld.), *ega* (Boisd.) + ♀ *melania* (Boisd.), *jacquinotii* (Luc.)=*zoe* (Voll.)=*agave* (Feld.), *acrisa* (Boisd.), *leptis* (Feld.)=*paulina* (Boisd. nec Cram.), *celestina* (Boisd.), *clementina* (Feld.), *athama* (Luc.), *eumelis* (Boisd.), *cycinna* (Hew.)+*ocina* (Hew.), *liberia* (Cram.), *eliada* (Hew.)=*liberia* (Voll. nec Cram.), *placidia* (Stoll), *fatima* (Voll.), *nero* (Fab.)=*thyria* (Horsf.), *domitia* (Feld.), *zarinda* (Boisd.), *zamboanga* (Feld.), *asterope* (Feld.), *ithome* (Feld.), *nephele* (Hew.), *pandione* (Hübn.), *indra* (Moore), *phœbe* (Feld.), *zamora* (Feld.), *lalage* (Doubl.)=*durvasa* (Moore), *polisma* (Hew.), and *illana* (Feld.)=*ægis* (Feld.). New sp. *Tachyris clavis*, Wall. *l. c.* p. 367, Ké Island; *T. abnormis*, Wall. *l. c.* p. 368, pl. 8. fig. 5, New Guinea; *T. urania*, Wall. *l. c.* p. 371, Tondano; *T. amarella*, Wall. *l. c.* p. 373, pl. 9. fig. 2, New Caledonia; *T. cynisca*, Wall. *l. c.* p. 375, Bouru; *T. panthea*, Wall. *l. c.* p. 376, Philippine Islands; *T. corinna*, Wall. *l. c.* p. 377, Waigiou; *T. galba*, Wall. *l. c.* p. 378, North India; and *T. bouruensis*, Wall. *l. c.* p. 379, Bouru. Wallace also gives the name of *T. alope* to *P. amasene* (Boisd. nec Cram.), *l. c.* p. 372, and that of *T. lucasii* to *P. pandione* (Boisd. nec Hübn.), *l. c.* p. 381.

Prioneris, g. n., Wallace, *l. c.* p. 383 (see p. 350). Known sp. *P. thestylis* (Doubl.), *seta* (Moore), *sita* (Feld.), *clemanthe* (Doubl.)=*helferi* (Feld.), *berenice* (Luc.), *cornelia* (Voll.), *philonome* (Boisd.), and *autothisbe* (Hübn.). *Prioneris vollenhovii*, sp. n., Wallace, *l. c.* p. 386, pl. 9. fig. 3, Borneo, Sarawak.

Leptalis othoë, Hewitson, Ent. Trans. 3rd ser. v. p. 562, New Granada; *L. ithomia* Hew. ibid., Ecuador; and *L. avonia*, Hew. *l. c.* p. 563, Quito.

Pontia dione, Wallace, Trans. Ent. Soc. 3rd ser. iv. p. 317, Macassar.

Elodina bouruensis, Wallace, *l. c.* p. 319, Bouru; *E. signata*, Wallace, ibid., New Caledonia.

Terias. Wallace (*l. c.*) describes the following new species of this genus:—*T. australis*, p. 321, Moreton Bay; *T. ingana*, p. 322, Sidney; *T. sinta*, ibid., Moreton Bay; *T. rubella*, p. 323, Calcutta, Darjeeling, China; *T. fimbriata*, ibid., Mussooree; *T. silhetana*, p. 324, Silhet; *T. diversa*, ibid., New Guinea &c., Philippine Islands; *T. celebensis*, p. 327, pl. 6. fig. 1, Macassar, Menado, &c.; and *T. virgo*, p. 328, Aru Islands.

Pieris. Wallace (*l. c.*) describes the following new species:—*P. mentes* p. 332, Lombock, Flores; *P. narses*, p. 333, pl. 6. fig. 3, Moreton Bay; *P. jael*, p. 335, New Guinea &c.; *P. naomi*, p. 336, Lombock, Flores; *P. tamar*,

p. 337, pl. 6. fig. 2, Baly; *P. corva*, p. 339 (=var. *coronis*, Boisd.), Java, Baly; *P. copia*, p. 340, Bengal; *P. amba*, ibid., North India.

Pieris cinerea, Hewitson, Ent. Trans. 3rd ser. v. p. 563, Ecuador.

Pieris figulina, Butler, Ann. Mag. N. H. 3rd ser. xx. p. 399, pl. 8. fig. 1, Singapore and Borneo.

Thyca. Wallace (*l. c.*) describes the following new species of this genus:—*T. pandemia*, p. 346, pl. 6. fig. 4, Borneo; *T. parthenope*, p. 347, pl. 6. fig. 5, Singapore; *T. ninus*, ibid., pl. 7. fig. 1, Malacca; *T. singhapura*, p. 353, pl. 7. fig. 2, Singapore; *T. ennia*, p. 355, pl. 7. fig. 4, Waigiou; *T. philotis*, p. 357, pl. 8. fig. 4, Bouru; *T. echo*, p. 358, pl. 8. fig. 3, Bouru; *T. hippodamia*, p. 359, pl. 8. fig. 1, Aru Islands; and *T. orphne*, p. 361, pl. 8. fig. 2, Malacca. Wallace also gives the name of *Thyca pyramus* to *Pieris thisbe* (Gray nec Cram.), *l. c.* p. 347.

Idmais fulvia, Wallace, *l. c.* p. 392, pl. 9. fig. 5, South India.

Thestias venatrix, Wallace, *l. c.* p. 393, Moulmein; *T. pirenassa*, Wall. *l. c.* p. 395, pl. 9. fig. 4 (=*œnippe*, Boisd. nec Cram.), India.

Iphias borneensis, Wallace, *l. c.* p. 396 (=*glaucippe*, var., Wall. olim).

Anthocharis falloui, G. Allard, Ann. Soc. Ent. Fr. 4e sér. vii. p. 318, pl. 6. fig. 1, Algeria.—*Anthocharis zoë*, Grandidier, Rev. et Mag. de Zool. 1867, p. 272, Madagascar.

Callidryas lucasi, Grandidier, *l. c.* p. 273, Madagascar.

Callidryas fiaduna, Hewitson, Exot. Butt. 63, June 1867, *Callid.* and *Eronia*, figs. 1-4, Madagascar; and *C. etesia*, Hew. *l. c.* figs. 5, 6, Queensland.

Eronia erxia, Hewitson, *l. c.* = *E. cleodora* (Doubld. & Hew. nec Hübner).

Colias behrii, Edwards, Proc. Ent. Soc. Phil. vi. p. 201, Yo Semite Mountains.

Euchloë coliagenes, Butler, Ann. Mag. N. H. 3rd ser. xx. p. 216, pl. 4. figs. 4 & 5, White Nile.

Danaides.

Butler (Trans. Ent. Soc. 3rd ser. v. pp. 472–484) publishes a tabular list of the described species of this group, giving the names of the species and of the authors who originally described them, the dates of the descriptions, the publications in which they appeared, and the localities from which the species have been received. He has experienced some little difficulty in determining the identity or non-identity of the species described nearly simultaneously by C. & R. Felder and by himself, as will be seen from the following general statement of his results. Of the genus *Euplœa*, he records 122 species, including 18 of Felder's species, which he thinks are probably distinct. Of the other species described by Felder, 12 are referred with doubt, and 27 with more certainty, to previously described species; among the latter *E. novaræ* and *E. ledereri* occur, although they are included as distinct species in the general list. Of *Danais*, Butler records 73 species, and 5 of those described by Felder, as synonyms of other species; *Hestia* includes 11 species.

G. Semper publishes notes on the larvæ of *Danais juventa* (Cram.), *D. chrysippus* (Linn.), and *Euplœa dufresnii* (God.). Semper notices that *E.*

megilla (Erichs.) is the ♀ of the last-named species; the ♀ figured by Godart is distinct and =*E. lætifica* (Butl.).

Euplœa eunice. On the synonymy of this species see Prittwitz, Stett. ent. Zeit. 1867, pp. 270–271.

Euplœa superba, sp. n., Vollenhoven, Tijdschr. v. Ent. 2de ser. i. p. 209, pl. 10. fig. 1, Celebes.

Hestia clara, sp. n., Butler, Trans. Ent. Soc. 3rd ser. v. p. 469, Java?

Heliconiides.

Bates (Trans. Ent. Soc. 3rd ser. v. pp. 536–539) notices some points in the variation and distribution of species of *Heliconius* collected in Maranham by T. Belt. The forms referred to are *H. erato* and *doris*, now proved to belong to one species, and *H. melpomene* and *thelxiope*, with intermediate varieties.

C. & R. Felder (Reise der Novara, Zool. ii. Lep. Heft 3) figure the following species of this group, of which they published diagnoses in the Wiener ent. Monatsschrift, vi.:—*Athyrtis mechanitis*, pl. 44. fig. 2; *Melinæa idæ* pl. 45. fig. 10; *Ithomia susiana*, pl. 44. figs. 3, 4; *I. agarista*, pl. 44. fig. 10; *I. panthyale*, pl. 45. fig. 2; *Napeogenes euryanassa*, pl. 45. fig. 1; *Ceratinia excelsa*, pl. 44. fig. 13; *Heliconius ithaca*, pl. 47. fig. 3; *H. aërotome*, pl. 47. fig. 6; *H. cassandra*, pl. 47. figs. 3, 4; and *Eueides heliconioides*, pl. 46. fig. 16.

Prittwitz (Stett. ent. Zeit. 1867, p. 269) remarks upon variations in *Mechanitis meternis* (Hew.), *M. mœnius* (Hew.), and *Heliconia charitonia* (Boisd.).

New species:—

Thyridia ceto, Felder, *l. c.* p. 353, Bogotá.

Melinæa thera (H.-Sch. MS.), Felder, *l. c.* p. 354, origin unknown; *M. phasis* (H.-Sch. MS.), Feld. ibid., Brazil; *M. tachypetis* (Koll. MS.), Feld. *l. c.* p. 355, Mexico; *M. messenina*, Feld. *l. c.* p. 356, pl. 45. fig. 11, Bogotá.

Callithomia hydra (H.-Sch. MS.), Felder, *l. c.* p. 356, Venezuela.

Ithomia. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*I. hulda* (H.-Sch. MS.), p. 356, Venezuela; *I. euchytma* (Moritz, MS.), p. 357, Venezuela, Bogotá; *I. olyras*, p. 358, pl. 44. figs. 5, 6, Bogotá; *I. marica* (Moritz, MS.), ibid., Venezuela; *I. alpho*, p. 359, Venezuela; *I. dircenna*, p. 360, pl. 45. figs. 3, 4, *I. megalopolis*, ibid., pl. 44. fig. 9, *I. donella*, p. 361, pl. 44. figs. 7, 8, Bogotá; *I. quintina*, ibid., pl. 44. figs. 11, 12, Maracaibo; *I. alinda*, p. 362, Venezuela; *I. hemixanthe* (Koll. MS.), p. 363, pl. 45. fig. 1, South Brazil; *I. eulyra* (Moritz, MS.), ibid., *I. asopo* (Moritz, MS.), ibid., Venezuela; and *I. apia*, p. 364, Bogotá.

Ithomia. Hewitson (Exot. Butt. 62, April 1867, *Ithomia*, pl. 25) describes and figures the following new species:—*I. mutilla*, fig. 153, Demerara; *I. morella*, fig. 154, Venezuela; *I. jessica*, fig. 155, *I. acilla*, fig. 156, *I. fenella*, fig. 159, Minas Geraës; *I. orestilla*, fig. 160, New Granada; and *I. yanetta*, fig. 158, origin not stated (fig. 157 is omitted in plate).

Hymenitis libethris, Felder, *l. c.* p. 365, pl. 45. fig. 8, Bogotá.

Napeogenes cranto, Felder, *l. c.* p. 365, pl. 45. figs. 6 & 7, Bogotá.

Oleria philemon (H.-Sch. MS.), Felder, *l. c.* p. 367, Venezuela?; *O. leptalina*, Feld. ibid. pl. 45. fig. 5, Brazil.

Mechanitis numerianus, Felder, *l. c.* p. 368, pl. 45. fig. 9, Bogotá.

Heliconia. Hewitson (Exot. Butt. 63, June 1867, *Helic.* pl. 5) figures and

describes the following new species:—*H. hippola*, fig. 13, origin not stated; *H. hydara*, fig. 14, New Granada; *H. hygiana*, fig. 15, Quito; and *H. himera*, fig. 16, Ecuador.

Heliconia timareta, Hewitson, Trans. Ent. Soc. 3rd ser. v. p. 563, Ecuador.

Heliconius novatus, Bates, Trans. Ent. Soc. 3rd ser. v. p. 539, and *H. paraplesius*, Bates, *l. c.* p. 540, Maranham and Pará.

Heliconius. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*H. cephallenia*, p. 373, Surinam; *H. polychrous* (Koll. MS.), p. 375, pl. 47. fig. 7, Brazil; *H. nattereri*, ibid., pl. 47. fig. 8, Brazil; *H. melete*, p. 376, and *H. lindigii*, p. 377, pl. 47. fig. 1, Bogotá.

Eueides xenophanes, Felder, *l. c.* p. 377, pl. 46. figs. 14 & 15, Bogotá.

Acræides.

C. & R. Felder (Reise der Novara, Zool. ii. Lep. Heft 3) figure the following species:—*Acræa cresia*, pl. 46. figs. 4, 5; *A. callianthe*, pl. 46. figs. 6, 7; *A. trinacria*, pl. 46. figs. 2, 3; and *A. crinome*, pl. 46. fig. 1.

Acræa euryta (Linn.). Hewitson (Exot. Butt. 64, Oct. 1867, *Acræa*, pls. 4 & 5. figs. 21–32) figures 12 forms which he regards as varieties of this species, 8 of the ♂ and 4 of the ♀. *A. vestalis* and *alcinoë* (Feld.) are 2 other varieties of the ♂.

Acræa. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*A. alcinoë*, p. 368, pl. 46. figs. 12 & 13, Island of Bissao; *A. vestalis*, p. 369, pl. 46. figs. 8 & 9, Guinea; *A. caffra*, ibid., pl. 46. figs. 10 & 11, Caffraria; and *A. safie*, p. 370, Abyssinia.

Nymphalides.

C. & R. Felder (Reise der Novara, Zool. ii. Lep. Heft 3) figure the following species of this group, of which they published diagnoses in the Wiener ent. Monatschrift, vi.:—*Cethosia nicobarica*, pl. 48. figs. 7, 8; *Cirrochroa orissa*, pl. 49, figs. 7, 8; *C. fasciata*, pl. 49. figs. 9, 10; *Argynnis diana* (Cram.), pl. 50. figs. 3, 4; *A. nerippe*, pl. 50. figs. 1, 2; *Melitæa leanira*, pl. 50. figs. 13, 14; *Eresia leucodesma*, pl. 50. figs. 11, 12; *E. castilla*, pl. 50. figs. 7–10; *Faunia olympias*, pl. 52. figs. 1, 2; *F. araucana*, pl. 52. figs. 9, 10; *Myscelia leucocyana*, pl. 53. figs. 8, 9; *Batesia hypochlora*, pl. 53. figs. 1, 2; *Catagramma ægina*, pl. 53. figs. 12, 13; *Cyane depuiseti*, pl. 53. figs. 3, 4; *Cyrestis paulinus*, pl. 51. figs. 7, 8; *Zethera aganippe*, pl. 54. fig. 3; *Z. musa*, pl. 54. figs. 6, 7; *Z. hestioides*, pl. 54. figs. 4, 5; *Isodema adelma*, pl. 54. figs. 1, 2; *Heterochroa malea*, pl. 57. fig. 7; *H. justina*, pl. 57. figs. 10, 11; *Neptis epira*, pl. 56. figs. 9, 10; *N. ebusa*, pl. 56. figs. 7, 8; *Athyma urvasi*, pl. 56. fig. 4; *A. jocaste*, pl. 56. figs. 1–3; *Adolias ninus*, pl. 58. figs. 4, 5; *A. panopus*, pl. 58. figs. 2, 3; *Apatura rhea*, pl. 57. fig. 3; *A. griseldis*, pl. 57. fig. 1; *Nymphalis chæronea*, pl. 60. fig. 1; *Siderone thebais*, pl. 60. figs. 6, 7; *Eurytela castelnaui*, pl. 61. figs. 5, 6; *Ergolis tæniata*, pl. 61. figs. 1, 2; *Melanitis melias*, pl. 61. fig. 11; and *M. egialina*, pl. 61. figs. 7, 8.

Melitæa. Von Ziegler und Klipphausen have given a tabular synopsis of the European species of this genus, taking Staudinger's Catalogue of 1861 as the foundation of his work. He accompanies it with a series of remarks on the species (Stett. ent. Zeit. 1867, pp. 418–428). He regards *M. latonigena* (Eversm.) as a distinct species; *M. caucasica* (H.-Sch.) is probably distinct from *didyma*; *M. aurinia* (Rottenburg) is substituted for *artemis* on the

ground of one year's priority; *M. bætica* (Ramb.) differs in certain characters from *M. artemis*, var. *desfontainesi*, to which it is referred by Staudinger; *M. deione* (Hübn.) is probably a local variety of *athalia*; *M. corythalia* (Hübn.)=*M. dictynna* (Esp.); *M. aphœa* (Freyer) is probably a var. of *athalia* and not of *britomartis*. The author also discusses the distinctive characters of *M. athalia*, *aurelia*, and *parthenie*.

Melitæa parthenie (Borkh.). Speyer (Stett. ent. Zeit. 1867, pp. 65–71) discusses the characters of this species, which has been identified with *M. aurelia* (Nick.). From Borkhausen's description Speyer shows that *M. parthenie* is identical with *parthenoides* (Keferst.) and also = *parthenie* of Meyer-Dür and probably of Ochsenheimer. *M. deione* (Hübn.) is probably a southern form of the same species. Specimens of his *M. aphœa* sent to Speyer by Freyer are typical examples of *parthenie*. The author notices the characters and natural history of other allied forms, and cites their occurrence in favour of the Darwinian theory of the origin of species.

Heterochroa arete (Ménétr.) is figured by Hewitson, Exot. Butt. 62, April 1867, *Heter.* fig. 1, and *H. melona* (Hew.), ibid. fig. 2.

Stainton figures *Vanessa atalanta* (Brit. Butt. & Moths, pl. 2. fig. 1).

Precis hara (Moore). Prittwitz (Stett. ent. Zeit. 1867, p. 272) remarks on the characters of this species.

Adolias cocytus (Fab.). Prittwitz (*l. c.* pp. 272–273) describes ♂ and ♀ of this species.

Argynnis leopardina (Lucas) = *Melitæa? maculata* (Brem.) according to Ballion, Stett. ent. Zeit. 1867, p. 340.

According to Pfützner (Berl. ent. Zeitschr. 1867, p. 208) *Melitæa britomartis* (Assm.) is a var. of *M. parthenie* (Borkh.).

Prittwitz (Stett. ent. Zeit. 1867, pp. 269–270) remarks on the characters of *Melitæa palla* (Boisd.), on variations of *M. phaëton* (Drury) and *Agraulis juno*, and on the occurrence of *Apatura druryi* and *Cethosia phœrusa* on the Chanchomaya.

G. Allard notices *Vanessa cardui*, *Melitæa œtherie* and *didyma*, and *Argynnis pandora* among the Butterflies of Algeria (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 314–315).

Lucas records the occurrence of *Limenitis sibylla* in Japan. Bull. Soc. Ent. Fr. 1867, p. v.

Pyrameis cardui. Fereday notices the capture of an example of this species in Canterbury province, N. Z.; and Bates remarks on its variation and distribution. The Australian and New-Zealand specimens form a race distinguished by having ocellated spots on the hind wings; the South-American examples supposed to be *P. cardui* belong to a rosy variety of *P. huntera*. Proc. Ent. Soc. 1867, p. lxxxvii.

Barrett notices the copulation of *Vanessa cardui* in spring. Ent. M. Mag. iv. p. 13.

A. Makowsky notices (Verh. naturf. Ver. in Brünn, iv. Sitzungsb. pp. 61–62) the occurrence of an unusual number of larvæ of *Vanessa cardui* in Moravia in June 1865. They attacked a great variety of Syngenesious plants, and also fed on *Dipsacus fullonum*.

Limenitis sibylla. The habits of the larva and pupa noticed by Barrett, Ent. M. Mag. iv. pp. 13 & 35.

The larvæ of the following species are described by Buckler (Ent. M.

Mag. iv.):—*Limenitis sibylla* (Fab.), pp. 33–35, metamorphosis in detail; *Apatura iris* (Linn.), pp. 85–87; and *Argynnis aglaia* (Linn.), pp. 155, 156.

G. Semper indicates the development and figures the larva of *Doleschallia bisaltide* (Cram.). Verh. zool.-bot. Ges. in Wien, xvii. p. 698, pl. 23. fig. 1.

C. F. Dubois figures a variety of *Melitæa didyma* having large black spots on the lower surface of the wings. Arch. Cosmol. 1867, p. 161, pl. 8. fig. 2.

Melitæa parthenoides. Fallou on variation in this species. Bull. Soc. Ent. Fr. 1866, p. lvi.

Girard notices a variety of *Vanessa atalanta*, Ann. Soc. Ent. Fr. 4e sér. vi. pp. 568–570.

Kriechbaumer describes an hermaphrodite of *Erebia medea* (W. V.). Verh. zool.-bot. Ges. in Wien, xvii. p. 809.

W. F. Evans records 2 malformations of *Vanessa atalanta*; in one the left antenna was only half as long as the right, but had the normal number of joints; in the other the wings on one side were considerably larger than on the other. Proc. Ent. Soc. 1865, p. 115.

Argynnis lathonia. Abnormal specimens noticed by Timins, Proc. Ent. Soc. 1867, p. cviii.

Jordan records an instance of *Vanessa atalanta* flying to a light at half-past ten p.m. Ent. M. Mag. iv. p. 140.

Pseudergolis, g. n., Felder, Reise der Novara, Zool. ii. Lep. p. 404. Allied to *Precis*; antennæ long, scarcely ringed beneath, gradually and narrowly clavate; palpi shorter and stouter; discoidal cells thinly closed; third subcostal branch in anterior wings emitted in the middle of the wing. Sp. *P. avesta*, sp. n., Felder, *l. c.* p. 404, Celebes.

New species:—

Cethosia. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*C. bernsteinii* (Voll. MS.), p. 379, Morotai; *C. damasippe*, ibid. (= *cydippe*, var., Feld. olim), *C. cydalima*, p. 380, pl. 48. figs. 1 & 2, Aru Islands; *C. nietneri*, ibid., pl. 48. figs. 5 & 6, Ceylon; *C. picta*, p. 381, Macassar; *C. amboinensis*, p. 382 (*C. insularis*, Feld. olim, ex parte), Amboyna; *C. eurymena* (Boisd. MS.), p. 384 (=*insularis*, Feld., ex parte), Luzon; *C. mœsta*, p. 383, Halmaheira; *C. javana*, p. 384, Java; *C. hypsina*, p. 385, Malacca; and *C. myrina*, p. 386, pl. 48. figs. 3 & 4, Celebes (= *C. œole*, Feld. nec Moore).

Terinos abisares, Felder, *l. c.* p. 386, Celebes.—*Terinos robertsia*, Butler, Ann. & Mag. N. H. 3rd. ser. xx. p. 399, pl. 8. figs. 2–4, Malacca.

Colœnis telesiphe, Hewitson, Ent. Trans. 3rd ser. v. p. 564, Ecuador.

Cirrhochroa. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*C. thule*, p. 387, pl. 49. figs. 1 & 2, Celebes; *C. hætera*, p. 388, origin unknown; *C. semiramis*, ibid., pl. 49. figs. 3 & 4, Celebes; *C. regina*, p. 389, pl. 49. figs. 5 & 6, Aru Islands; and *C. satyrina*, ibid., Celebes.

Messaras myronides, Felder, *l. c.* p. 390, Halmaheira; *M. wallacei*, Felder, bid., Waigiou; and *M. arias* (Boisd. MS.), Felder, *l. c.* p. 391, Luzon.

Argynnis cnidia, Felder, *l. c.* p. 392, pl. 50. figs. 5 & 6, Himalaya.

Argynnis ruslana, Motschulsky, Bull. Soc. Nat. Mosc. xxxix. 2. p. 117, Amour.

Melitæa amœnula, Felder, *l. c.* p. 392, Himalaya.

Eresia dracœna, Felder, *l. c.* p. 393, *E. jana*, *l. c.* p. 394, and *E. nazaria*, ibid., Bogotá; *E. conferta*, ibid., Bahia.

Synchloë. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*S. paupera*, p. 395, *S. mediatrix*, ibid., and *S. pœcile*, p. 396, Bogotá; and *S. melitæoides*, ibid., Mexico.

Laogona hippalus, Felder, *l. c.* p. 396, pl. 51. figs. 9 & 10, Halmaheira.

Eurema atropos, Felder, *l. c.* p. 397, pl. 51. figs. 5 & 6, Mexico.

Pyrameis abyssinica, Felder, *l. c.* p. 397, Abyssinia.

Junonia. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*J. antigone*, p. 398, Aru; *J. vestina*, ibid., origin unknown; *J. negra*, p. 399, Rio Negro (=*lavinia*, var. *occidentalis*, Feld. olim); *J. zonalis*, ibid., Bogotá, Cuba (=*lavinia*, var. *occidentalis*, Feld. olim); *J. hilaris*, p. 400, Paraguay; *J. incarnata*, ibid., Bogotá; *J. constricta*, ibid., Bogotá; *J. pallens*, p. 401, Venezuela; *J. divaricata*, ibid., Surinam; and *J. infuscata*, ibid., Bahia.

Precis intermedia, Felder, *l. c.* p. 402, India and Eastern Islands; *P. hellanus*, Felder, ibid., Ternate; *P. ibris*, Felder, *l. c.* p. 403, Abyssinia; and *P. milonia*, Felder, ibid., Old Calabar.

Salamis temora, Felder, *l. c.* p. 404, Old Calabar.

Eurhinia elpinice, Felder, *l. c.* p. 404, Java; *E. megalonice*, Felder, ibid., pl. 51. figs. 3 & 4, Celebes; *E. stratonice*, Felder, ibid., Luzon.

Doleschallia australis, Felder, *l. c.* p. 404, pl. 51. figs. 1 & 2, Australia.

Faunia. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*F. persephone*, p. 406, Bogotá; *F. tithonia*, p. 407, pl. 52. figs. 6–8, Bahia; *F. venusia*, ibid., pl. 52. figs. 3–5, Bogotá; and *F. pomona*, ibid., pl. 52. figs. 11 & 12, Bogotá.

Myscelia cyanecula, Felder, *l. c.* p. 408, pl. 53. fig. 5, and *M. cyananthe*, Felder, ibid., pl. 53. figs. 6 & 7, Mexico.

Ageronia epinome (Boisd. MS.), Felder, *l. c.* p. 409, Brazil.

Ectima lirina, Felder, *l. c.* p. 409, Brazil?; and *E. erycinoides*, Felder, ibid., New Granada.

Eubagis pieridoides, Felder, *l. c.* p. 410, Bogotá.

Perisama guérini, Felder, *l. c.* p. 410, pl. 53. figs. 10 & 11, Bogotá.

Pyrrhogyra typhoeus, Felder, *l. c.* p. 411, Bogotá.

Cyrestis strigata, Felder, *l. c.* p. 411, Celebes; *C. formosa*, Feld. *l. c.* p. 412, Andaman Islands; *C. nedymnus*, Feld. *l. c.* p. 413, New Guinea; *C. rudis*, Feld. ibid., Ceram, Amboyna; *C. nivalis*, Feld. *l. c.* p. 414, Malacca.

Diadema polymena, Feld. *l. c.* p. 414, pl. 55. figs. 5 & 6, Aru; *D. tydea*, Feld. *l. c.* p. 415, pl. 55. figs. 1–4, Batchian.

Euripus euplœoides, Feld. *l. c.* p. 415, Malacca; and *E. clytia* (Boisd. MS.), Feld. ibid., pl. 55. fig. 7, Luzon.

Panopœa apaturoides, Feld. *l. c.* p. 416, Madagascar.

Heterochroa. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*H. olbia*, p. 416, Bogotá; *H. æa*, ibid., Brazil; *H. naxia*, p. 417, Bogotá; *H. lemnia*, ibid., Mexico; *H. thessalia*, ibid. (=*ephesa*, Feld. olim), North Brazil; *H. ixia* (Moritz, MS.), p. 418, Venezuela; *H. messana*, ibid., Bogotá; *H. himera*, ibid., Venezuela; *H. æolia*, p. 419, *H. colada*, p. 420, *H. heraclea*, p. 421, *H. attica*, ibid., and *H. bœotia*, p. 422, Bogotá; *H. thesprotia*, p. 419, Surinam, Bogotá; *H. æthalia*, ibid., Bogotá, Venezuela, Ecuador; *H. eubœa*, ibid., Surinam; *H. velia*, p. 423, Bogotá; *H. seriphia*, ibid., Venezuela, Caraccas, Bogotá; *H. massilia*, ibid., Mexico; *H. epidamna*, p. 424, *H. olynthia*, ibid., pl. 57. figs. 8 & 9, and *H. tizona*, ibid., Bogotá.

Heterochroa. The following new species of this genus are described and figured by Hewitson (Exot. Butt. 62, April 1867):—*H. ethelda*, figs. 3 & 4, Quito; *H. gerona*, figs. 5 & 6, Minas Geraës; *H. zina*, figs. 7 & 8, New Granada.

Heterochroa saundersii, Hewitson, Trans. Ent. Soc. 3rd ser. v. p. 564, Ecuador.

Pandita sinoria, Feld. *l. c.* p. 425, Borneo.

Euomma angustatum, Feld. *l. c.* p. 425, Old Calabar.

Neptis affinis, Feld. *l. c.* p. 426, Aru; *N. nirvana*, Feld. ibid., Celebes; *N. magadha*, Feld. *l. c.* p. 427, North India.—*Neptis charon*, Butler, Ann. & Mag. N. H. 3rd ser. xx. p. 400, pl. 9. fig. 1, Singapore.

Phædyma helopolis, Felder, *l. c.* p. 427, Halmaheira; *P. eremita* (Boisd. MS.), Feld. *l. c.* p. 428, Luzon; *P. sarabaita*, Feld. ibid., Celebes; *P. daria*, Feld. ibid., pl. 56. figs. 5 & 6, Celebes.

Athyma jadava, Felder, *l. c.* p. 429, and *A. gandara*, Feld. ibid., Java.

Euryphene guineensis, Felder, *l. c.* p. 430, and *E. calabarensis*, Feld. ibid., Old Calabar.

Romalæosoma zambesia, Felder, *l. c.* p. 430, Zambesi; *R. afzelii*, Feld. ibid., Sierra Leone; *R. campaspe*, Feld. *l. c.* p. 431, Gaboon.

Adolias. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*A. jama*, p. 431, Assam, Malacca, Banca; *A. somadeva*, p. 432, Northern India; *A. eva*, ibid., Assam, Luzon, Java, Celebes; *A. soma*, ibid., India; *A. asoka*, p. 433, pl. 58. fig. 1, Malacca, Borneo; *A. mitra*, ibid., Sumatra, Banca; *A. vikrama*, ibid., Sumatra; and *A. valmikis*, p. 434, Borneo.

Apatura. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*A. panchæa*, p. 434, Java; *A. acca* (Boisd. MS.), p. 435, pl. 57. fig. 2, Mexico; *A. cherubina*, p. 435 (=*laurentia*, Feld. olim nec God.); *A. angelina*, p. 436, pl. 57. fig. 6, origin unknown; *A. moritziana*, ibid., Venezuela; and *A. clothilda*, p. 437, pl. 57. figs. 4 & 5, Bogotá.

Prepona simois, Felder, *l. c.* p. 437, and *P. demophile* (Boisd. MS.), Feld. ibid., Bogotá.

Charaxes. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*C. mandarinus*, p. 437, Shanghai; *C. attalus*, p. 438, Java; *C. bharata*, ibid., Darjeeling; *C. arja*, ibid., Assam; *C. jalysus*, ibid., pl. 59. fig. 5, Malacca; *C. brennus* *, p. 439, pl. 59. figs. 1 & 2, Halmaheira; *C. cimon*, ibid., pl. 58. figs. 6 & 7, Batchian; *C. parmenion*, ibid., Celebes; *C. demonax*, p. 440, Celebes; *C. scylax*, p. 442, Java; *C. hierax*, ibid., *C. hipponax*, p. 443, and *C. pleistoanax*, ibid., Assam; *C. corax*, p. 444, North India; *C. harpax*, ibid., origin unknown; *C. harmodius*, p. 445, Java; *C. aristogiton*, ibid., origin unknown; *C. hansalii*, p. 446, pl. 59. figs. 3 & 4, South-eastern Africa and *C. achæmenes*, ibid., pl. 59. figs. 6 & 7, Port Natal, Zambesi.

Charaxes echo, Butler, Ann. & Mag. N. H. 3rd ser. xx. p. 400, pl. 8. figs. 5, 6, Singapore.

Olina stalachtoides, Bates, Trans. Ent. Soc. 3rd ser. v. p. 540, Maranham and Pará.

[*Paphia*, Westw.] *Nymphalis*. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*N. pyrrhothea*, p. 447, pl. 60. fig. 3, *N. titan*, ibid., pl. 60. fig. 4, *N. centaurus*, ibid., pl. 60. fig. 5 (=*nessus*, God.), and *N. psammis*,

* Identical with *C. latona* (Butl.).

p. 448, Bogotá; *N. memphis*, ibid., Bogotá and Amazons; *N. amenophis* p. 449, Bahia; *N. mæris*, ibid., pl. 60. fig. 2, Bogotá.

Ergolis luzonia, Felder, *l. c.* p. 450, Luzon; *E. obscura*, Feld. ibid., pl. 61. figs. 3, 4, Halmaheira.

Cystineura bogotana, Felder, *l. c.* p. 451, and *C. semifulva*, Felder, ibid., Bogotá.

Melanitis cumœa, Felder, *l. c.* p. 452, pl. 61. figs. 9, 10, Halmaheira.

Cyclogramma bimaculata, Hewitson, *l. c.* p. 565, Mexico.

Morphides.

C. & R. Felder (Reise der Novara, Zool. ii. Lep. Heft 3) figure the following species of this group, the diagnoses of which were previously published by them:—*Pavonia lycomedon*, pl. 65. fig. 3; *P. oileus*, pl. 65. fig. 2; *P. telamonius*, pl. 64. fig. 1; *Morpho iphiclus*, pl. 64. fig. 2, and pl. 65. fig. 1; *M. cypris* (Westw.), pl. 63. figs. 1–3.

Morpho hecuba (Linn.). Lucas describes the ♂ of this species, which is quite different from *P. telemachus* (Cram.), regarded as the ♂ by Doubleday and Hewitson. *P. telemachus* is the ♀ of *Morpho anaxibia* (Esp.). Ann. Soc. Ent. Fr. 4e sér. vii, pp. 659–664.

Lucas describes the ♀ of *Morpho cypris*, Bull. Soc. Ent. Fr. 1867, p. lvii.

New species:—

Opsiphanes didymaon, Felder, *l. c.* p. 453, and *O. bassus*, Feld. ibid., South Brazil.

Pavonia amphimedon, Felder, *l. c.* p. 454, Brazil; *P. memnon*, Feld. ibid., Mexico, Guatemala; *P. epimetheus*, Feld. *l. c.* p. 455, Bogotá.

Morpho. C. & R. Felder describe the following new species of this genus:—*M. scipio*, p. 455, South Brazil; *M. psyche*, p. 456, Brazil; *M. thamyris*, ibid., Brazil; *M. iphitus*, p. 457, origin unknown; *M. achillides*, ibid., South Brazil; *M. granadensis* (Deyr. MS.), p. 458, Bogotá; *M. leontius*, ibid., Bogotá; and *M. briseis*, p. 459, Brazil.

Clerome amathusia, Hewitson, Ent. Trans. 3rd ser. v. p. 566, India.

Clerome gracilis, Butler, Ann. Mag. N. H. 3rd ser. xx. p. 401, pl. 8. fig. 7, Malacca.

Satyrides.

Mycalesis. Butler has published a revision of the Fabrician species referable to this genus, chiefly from the examination of the types in the Banksian collection (Proc. Zool. Soc. 1867, pp. 718–721). He gives the following indications of their synonymy:—1. *P. melusina* (Fab.) = *dorothea* (Cram.) = *M. raesaces* (Hew.); 1*a*. *P. miriam* (Fab.), a var. of preceding; 2. *P. perseus* (Fab.), fig. 2, p. 718 = *P. tabitha* (Fab.), a var. of *P. otrea* (Cram.); 2 *a*. *P. clerimon* (Fab.), also a var. of *P. otrea*; 3. *P. blasius* (Fab.), fig. 4, p. 718 = *M. samba* (Moore); 4. *P. medus* (Fab.) = *doris* (Cram.), a var. of *hesione*; 5. *P. martius* (Fab.), of which *M. moorei* (Feld.) is a var.; 6. *P. terminus* (Fab.), figg. 3, 3*a*, p. 718; 7. *P. sirius* (Fab.), fig. 1, p. 718, of which *M. daidis* (Hew.) and *M. manipa* (Boisd.) are vars.; 7*a*. *P. zachœus* (Fab.) = *sirius* var.; 8. *P. narcissus* (Fab.).

Butler, in characterizing his new genus *Anadebis* (Ann. & Mag. N. H. 3rd ser. xix. p. 50), indicates and figures the distinctive characters of the allied genera *Mycalesis*, *Debis*, and *Orinoma*. He considers that *Amechania* (Hew.)

belongs to the *Satyridæ*, near *Orinoma*. Butler figures *Debis diana* (Butl.), with the neuration and palpus of *Debis* (*l. c.* pl. 2. figs. 2, 2*a*, 2*b*), *Mycalesis gamaliba* (Walk. MS.) with its neuration and palpus (*l. c.* figs. 3, 3*a*, 3*b*), and the neuration and palpus of *Orinoma* (*l. c.* figs. 4, 4*a*).

Butler also remarks (*l. c.* pp. 51–54) upon the variations of *Cyllo leda* (Linn.), of which he gives indications of 41 forms contained in the collection of the British Museum. These include the following described as species:—*Pap. solandra*, *banksia* (Fab.), *Cyllo helena* (Westw.), *Pap. ismene*, *mycena*, *phedima*, *arcensia* (Cram.), *Cyllo taitensis* (Feld.).

Butler (Ann. & Mag. N. H. 3rd ser. xix. p. 161) remarks upon the characters of the genus *Lasiommata* (Westw.) = *Pararge* (Hübn.), which he regards as including several generic types. To *Lasiommata* pr. Butler refers the following species:—*L. ægeria* and *dejanira* (Linn.), *tircis* (God.), *xiphia*, *roxelana*, and *clymene* (Fab.), and *meone* (Cram.). The type of Hübner's genus *Dira* is a true *Lasiommata*. Butler figures *Lasiommata ægeria* and the club of its antenna (pl. 4. figs. 2, 2*a*). He also objects (*l. c.* p. 162 note) to the adoption of the genus *Pararge* as proposed by Ström.

Pronophila (Westw.). Butler (Ann. & Mag. N. H. 3rd ser. xx. pp. 266–268) has subjected the species referred to this group to a revision, which leads him to recognize in them 6 distinct genera, 3 of which are characterized as new. The others are, besides *Pronophila*, *Lasiophila* (Feld.) and *Dædalma* (Hew.). The type of *Pronophila* is *P. thelebe* (Westw. & Hew.).

Butler (Ann. & Mag. N. H. 3rd ser. xix. pl. 3) figures the details of his new genus *Hipparchioides*, and, for comparison therewith, the neuration of the hind wing in *Lasiommata*? (fig. 4) and *Satyrus* (fig. 5), the club of the antennæ in the same genera (figs. 10 & 11) and the plumules of *Lasiommata*?, *Satyrus*, and *Epinephele* (figs. 13–15).

Butler remarks (Entomologist, iii. pp. 277–281) on the nomenclature of the European genera of this group, and proposes some changes. Some of his observations are criticised by Kirby (*l. c.* pp. 291–293); and Butler replies (*l. c.* pp. 319, 320).

Butler remarks that of the two specimens figured by Stephens under the name of *Erebia ligea*, the ♂ = *E. euryale* (Esp.). Ent. M. Mag. iv. p. 151.

Butler (Ann. & Mag. N. H. 3rd ser. xx.) characterizes and figures *Papilio polydecta* (Cram.), *l. c.* p. 402, pl. 9. figs. 5, 6, which he refers to *Mycalesis*, and also *Debis manthara* (Feld.), *l. c.* p. 403, pl. 9. fig. 9, referred to *Lethe* (Hübn.).

C. & R. Felder (Reise der Novara, Zool. ii. Lep. Heft 3) figure the following species previously described by them:—*Antirrhœa philopœmen*, pl. 66. figs. 3, 4; *A. lindigii*, pl. 66. figs. 1, 2; *A. geryon*, pl. 67. figs. 1, 2; *A. hela*, pl. 66. figs. 5, 6; *Clerome leucis*, pl. 62. figs. 5, 6; *Zeuxidia semperi*, pl. 62. figs. 1, 2; *Taygetis calliomma*, pl. 66. fig. 7; *Dædalma dorinda*, pl. 67. figs. 3, 4; *Ptychandra lorquinii*, pl. 68. figs. 1–3; *Mycalesis ita*, pl. 68. figs. 8, 9; *M. tagala*, pl. 67. figs. 7, 8.

Euptychia. Butler figures the following species of this genus described by him in his monograph published in 1866 (see 'Record,' 1866, p. 463):—*E. pagyris*, Proc. Zool. Soc. 1867, pl. 11. fig. 1, *ægrota*, fig. 2, *philippa*, fig. 3, *metagera*, fig. 4, *erycina*, fig. 6, *gemmula*, fig. 7, *ocnus*, fig. 8, *obscura*, fig. 9, *pyracmon*, fig. 10, *junonia*, fig. 11, *argyrospila*, fig. 12, *libyoidea*, fig. 13, *lethe*, pl. 12. fig. 1, *nebulosa*, fig. 2, *westwoodii*, fig. 3, *hiemalis*, fig. 4, *poly-*

phemus, fig. 5, *picea*, fig. 6, *mima*, fig. 7, *similis*, fig. 10, *vastata*, fig. 11, *modesta*, fig. 12, *byses*, fig. 15, and *periphas*, fig. 16.

Stainton (Brit. Butt. and Moths, pl. 1) figures *Arge galathea*, fig. 3, and *Hipparchia tithonus*, fig. 4.

Chionobas aëllo (Esp.), var. A, figured and described by Millière, Ann. Soc. Linn. Lyon, xiv. p. 329, pl. 75. fig. 1.

Satyrus. W. H. Edwards (Proc. Ent. Soc. Phil. vi. pp. 195–200) remarks on the characters and synonymy of several North-American species of this genus. He identifies *S. pegala* (Fab.), and discusses the characters of *S. alope* (Boisd. & Lec.), *S. nephele* (Kirby), and *S. boöpis* (Behr).

G. Allard (Ann. Soc. Ent. Fr. 4_e sér. vii. p. 315) notices 5 Algerian species of this group, namely, *Arge clotho*, var. *atropos*, *A. ines*, *Satyrus abd-el-kader*, *S. semele*, and *Epinephile lycaon*.

Kirby states that the *Cœnonympha mandana* of his manual of European Butterflies = *C. iphis* ♀. Ent. M. Mag. iv. p. 69.

Newman describes the life-history of *Satyrus ægeria* and *S. tithonus*. Entomologist, iii. pp. 217, 218.

New genera:—

Bletogona, g. n., Felder, Reise der Novara, Zool. ii. Lep. p. 465. Allied to *Cyllo*; palpi rather more exceeding head; wings very entire, not angulate, discoidal cell of anterior with the lower angle more projected. Sp. *B. mycalesis*, sp. n., Feld. *l. c.* p. 465, pl. 68. figs. 6, 7, Celebes.

Idioneura, g. n., Felder, *l. c.* p. 474. Allied to *Lymanopoda*; wings elongate, entire, anterior with inner angle not distinguishable, outer margin convex, apex rounded, discoidal cell short, its upper angle not projected, uppermost discocellular venule short, straight, subcostal distant from costal, its second branch rising before the apex of the cell. Sp. *I. erebioides*, sp. n., Feld. *l. c.* p. 474, Bogotan Cordillera.

Homœonympha, g. n., Felder, *l. c.* p. 487. Allied to *Pseudonympha* (Walleng.); antennæ shorter, not ringed, club more ovate; palpi shorter, joint 3 very short; intermediate discocellular venule in anterior wings much longer, sigmoid, lowest one-half shorter, inferior discoidal vein much nearer to median vein. Sp. *H. pusilla*, sp. n., Feld. *l. c.* p. 487, Chili.

Tetraphlebia, g. n., Felder, *l. c.* p. 487. Allied to preceding; antennæ longer, with a narrower club; palpi shorter and more shortly haired; upper discoidal given off close to subcostal. Sp. *T. germainii*, sp. n., Feld. *l. c.* p. 488, Chili.

Faunula, g. n., Felder, *l. c.* p. 488. Allied to preceding; antennæ short, club short and pyriform; palpi very hairy; vertex pilose; second subcostal branch in fore wings distant from cell, lower discoidal vein springing from the middle of the discocellular venule. Sp. *F. leucoglene*, sp. n., Feld. *l. c.* p. 488, Chili.

Stygnus, g. n., Felder, *l. c.* p. 489. Allied to *Tetraphlebia*; anterior wings with upper discoidal vein more distant from subcostal, lowest discocellular venule directed more inwards towards costa; posterior wings with median branch of discoidal vein more approximated to 3rd, upper discocellular venule long, slightly bent, 1st median branch much further from 2nd than this from 3rd. Sp. *S. humilis*, sp. n., Feld. *l. c.* p. 489, Valdivia.

Cosmosatyrus, g. n., Felder, *l. c.* p. 495. Allied to *Satyrus*; antennal club

narrow, much excavated; palpi slender, twice as long as head, densely pilose in front, joint 3 acicular. Sp. *C. leptoneuroides*, sp. n., Feld. *l. c.* p. 495, Chili.

Eumesia, g. n., Felder, *l. c.* p. 504. Of this genus C. & R. Felder make the type of a new family (subfamily), *Eumesiidæ*, intermediate between the *Satyridæ* and *Hesperiidæ*, having the head, palpi, and body of the former, the discoidal cell and general form of the wings of the latter. The subcostal vein of the fore wings has 5 branches; and the fifth branch and terminal portion of the vein reach the outer margin below the apex. Sp. *E. semiargentea*, sp. n., Felder, *l. c.* p. 505, pl. 69. figs. 17, 18, Columbia.

Anadebis, g. n., Butler, Ann. & Mag. N. H. 3rd ser. xix. p. 50. Allied to *Debis*; eyes naked; antennæ scarcely clavate; palpi erect; neuration as in *Debis*. Sp. *Theope himachala* (Moore), pl. 2. fig. 1 (=*Neorina sita*, Feld.).

Hipparchioides, g. n., Butler, *l. c.* p. 125, pl. 3. figs. 3, 6-9, & 12 (details). Allied to *Epinephile*; antennæ with a solid, nearly fusiform club; subcostal vein in hind wings subangulated, cell simple, not pointed at apex, veins regular, nearly equidistant. Sp. *Papilio merope* (Fab.); *Satyrus philerope* (Guér.), pl. 3. fig. 2; *Hipparchia banksia* (Leach); and *Lasiommata mirifica* (Butl.), pl. 3. fig. 1. New sp. *H. duboulayi*, Butler, *l. c.* p. 167, Champion Bay.

Amecera, g. n., Butler, Ann. & Mag. N. H. 3rd ser. xix. p. 162,=*Lasiommata* p. Anterior wings with the posterior margin very slightly waved, not angulated at apex; posterior wings much elongated, scarcely sinuated at the posterior margin, cell shorter than in *Lasiommata*. Sp. *Papilio megæra* (Linn.), pl. 4. fig. 1 (head and club); *P. mæra* (Linn.); *Satyrus lyssa, hiera* (Hübn.); *Pap. tigelius* (Bon.); *Hipparchia eversmannii* (Eversm.); *Sat. shakra* (Koll.), *Las. menava* and *baldiva* (Moore).

Rhaphicera, g. n., Butler, *l. c.* p. 164. (*Lasiommata* p.) Allied to *Arge*; anterior wings elongate triangular, costa subconvex, posterior margin short, convex, inner margin nearly straight, veins scarcely tumid at base, disco-cellular veins oblique; posterior wings pyriform, costa nearly straight, posterior margin denticulate; antennæ long, slender, gradately clavate. Sp. *Las. satricus* (Hew. & Westw.), pl. 4. fig. 3; and *R. moorei*, sp. n., Butl. *l. c.* p. 163, pl. 4. fig. 4 (=*Las. satricus* Moore), Himalayas.

Geitoneura, g. n., Butler, *l. c.* p. 164, pl. 4. fig. 5 (hind wing). (*Lasiommata* p.) Allied to preceding; wings moderate, anterior subtrigonate, costa nearly straight, posterior margin entire, subconvex, inner margin straight, veins tumid at base, first median nervule emitted beyond middle of median vein; posterior pyriform, cell abruptly attenuated from the middle, obliquely truncated at apex; antennæ short, club gradate; eyes naked. Sp. *Sat. klugii* (Guér.) and *P. achanta* (Don.).

Argyrnina, g. n., Butler, *l. c.* p. 165, pl. 4. figs. 6, 6*a* (hind wing and club) (*Lasiommata*, subg. *Xenica* p.) Allied to preceding; wings small, anterior elongate, subtrigonate, with nearly straight margins, veins tumid at base, cell elongate, first median nervule emitted at middle of median vein; posterior pyriform, cell gradually attenuated; antennæ short, club compressed, pyriform; eyes serrate. Sp. *Las. hobartia* and *lathoniella* (Westw.).

Neope, g. n., Butler, *l. c.* p. 166. Allied to *Debis*; wings large, anterior elongate, subtrigonate, costa somewhat convex, hinder margin denticulate, veins scarcely tumid at base; antennal club gradate. Sp. *Las. bhadra* and *pulaha* (Moore); *N. moorei*, sp. n., Butl. *l. c.* p. 166, pl. 4. fig. 7, East Indies; *N. japonica*, sp. n., Butl. *l. c.* p. 167, Japan.

Callerebia, g. n., Butler, Ann. & Mag. N. H. 3rd ser. xx. p. 217. Closely allied to *Erebia*; form and markings of the wings as in *Callisto*; antennæ more slender and less distinctly clavate, and palpi more angulate. Sp. *Erebia scanda* (Koll.), pl. 4. figs. 8 & 9; *E. annada* and *nirmala* (Moore).

Pedaliodes, g. n., Butler, *l. c.* p. 267, fig. 1 (neuration). (*Pronophila* part.) Wings moderate, anterior somewhat irregular, posterior with the margin sinuated; cell in anterior with its apex undulated; 3rd subcostal and 1st discoidal veins approximated near base. Sp. *P. poesia* (Hew.) and 23 others, including *P. dejecta* and *napæa* (Bates). The rest described by Hewitson.

Gyrocheilus, g. n., Butler, *l. c.* p. 267, fig. 3 (neuration). (*Pronophila* part.) Wings moderate; anterior subpyriform, rounded at apex, cell short, discocellular veins angularly placed, forming 2 forks; eyes nearly naked; palpi elongate, cirrate, nearly straight. Sp. *P. patrobas* (Hew.).

Oxeoschistus, g. n., Butler, *l. c.* p. 268. (*Pronophila* part.) Wings large; anterior subfalcate, outer margin more or less waved, cell elongate, bifurcate at apex, lower fork largest, upper fork acuminate; eyes cirrate; palpi elongate, waved, porrect. Sp. *P. puerta, protogenia, pronax, propylea, prochyta* (Hewits.), *irmina* and ? *tauropolis* (Hew. & Westw.), and ? *hilara* (Bates).

Amphidecta, g. n., Butler, *l. c.* p. 404. Allied to *Taygetis*; anterior wings resembling those of *Dædalma*; posterior with the costal margin nearly straight, obliquely cut off at apex, outer margin quadrisinuate, anal angle oblique, inner margin excavated at anal angle; eyes naked; palpi elongate; antennæ very slender, scarcely clavate. Sp. *A. pignerator*, sp. n., Butl. *l. c.* p. 405, pl. 9. fig. 11, Ega.

Aulocera, g. n., Butler, Ent. M. Mag. iv. p. 121. Allied to *Hipparchia*; wings large, black, banded with white; cilia broad; veins of anterior wings less tumid, and discoidal cell of hind wings more regular than in *Hipparchia*; antennal club gradate, slender, with a longitudinal stria beneath. (Neuration and antennal club figured *l. c.* fig. 1, and contrasted with those of *Hip. proserpina*, *l. c.* fig. 2.) Sp. *Sat. brahminus* (Blanch.)=*swaha* (Koll.); *S. saraswati* (Koll.); *S. padma* (Koll.); *S. avatara* (Moore); and *A. scylla*, sp. n., Butler, *l. c.* p. 122, Sylhet.

New species:—

Hætera latona, Felder, *l. c.* p. 459, Bogotá; and *H. hymenæa* (Boisd. MS.), Feld. ibid., Bahia.

Hyades macrops, Felder, *l. c.* p. 460, Halmaheira, Ternate.

Clerome lurida, Felder, *l. c.* p. 460, Mindoro.

Zeuxidia horsfieldii, Felder, *l. c.* p. 460, pl. 62. fig. 4, Java; *Z. wallacei*, Feld. *l. c.* p. 461, pl. 62. fig. 3, Borneo.

Amathusia pylaon, Felder, *l. c.* p. 461, Java; *A. porthaon*, Feld. ibid., Java; *A. portheus*, Feld. ibid., North India.

Discophora bambusæ (Boisd. MS.), Felder, *l. c.* p. 462, Halmaheira; *D. necho*, Feld. ibid., Java; *D. cheops*, Feld. *l. c.* p. 463, Borneo.

Cyllo. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*C. velutina*, p. 463, Celebes; *C. tristis*, p. 464, North India; *C. duryodana*, ibid., Bengal, Assam; *C. obsoleta*, ibid., Celebes, Java; and *C. fulvescens*, p. 465, Halmaheira.

Taygetis larua, Felder, *l. c.* p. 466, *T. inornata*, Feld. ibid., *T. neonympha*, Feld. *l. c.* p. 467, and *T. anophthalma*, Feld. ibid., Bogotá.

Taygetis albinotata, Butler, Ann. Mag. N. H. 3rd ser. xx. p. 216, pl. 4. figs. 6 & 7, Bolivia.

Pronophila. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*P. ochrotænia*, p. 467, *P. cocytia*, p. 468, *P. perperna*, ibid., *P. empusa*, ibid., *P. manis*, p. 469, *P. ereiba*, ibid., Bogotá; *P. satyroides*, ibid., Caraccas; *P. decorata*, p. 470, pl. 67. fig. 11, Bogotá; *P. porphyria*, ibid., Venezuela; *P. apuleja*, p. 471, Venezuela; *P. ocellifera*, ibid., Bogotá; *P. encycla* (Moritz, MS.), p. 472, Venezuela; *P. calisto*, ibid., *P. oculata*, ibid., and *P. mycalesoides*, p. 473, Bogotá.

Lymanopoda lebbæa, Felder, *l. c.* p. 473, *L. lanassa*, Feld. *l. c.* p. 474, and *L. apiculata*, Feld. ibid., Bogotá.

Steroma andensis, Felder, *l. c.* p. 475, and *S. pronophila*, Feld. ibid., Bogotá, Ecuador.

Neonympha. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*N. epinephele*, p. 476, Mexico; *N. eugenia* (Moritz, MS.), ibid., Venezuela; *N. jovita*, p. 477, Bogotá; *N. alcinoë*, ibid., Bogotá and Venezuela; *N. sylvina*, p. 478, Bahia; *N. numeria*, ibid., Bahia; *N. numilia*, ibid., Bogotá; *N. pompilia*, p. 479, Bogotá; *N. peloria*, ibid., Venezuela; *N. manasses*, ibid., Bahia; *N. griphe* (Moritz, MS.), p. 480, Venezuela and Bogotá; *N. laccine* (Moritz, MS.), ibid., Venezuela and Bogotá; *N. innocentia* (Moritz, MS.), p. 481, Venezuela; *N. yphthima*, ibid., Bahia; *N. antonina*, p. 482, Bahia, Amazons, and Cayenne; *N. harpyia*, ibid., Surinam; *N. terentia*, p. 483, Cayenne; *N. sabina*, ibid., Amazons, Cayenne; *N. iris*, ibid., Bogotá; *N. calpurnia*, p. 484, Cayenne; and *N. hilara*, p. 485, Bogotá.

Acrophthalmia leuce, Felder, *l. c.* p. 486, Celebes; *A. chione*, Feld. ibid., pl. 68. figs. 12, 13, Halmaheira.

Yphthima batesii, Felder, *l. c.* p. 486, pl. 68. figs. 10, 11, Madagascar.

Euptychia. Butler (Proc. Zool. Soc. 1867) describes the following new species of this genus:—*E. themis*, p. 104, pl. 12. fig. 13, origin unknown; *E. vestigiata*, p. 105, pl. 12. fig. 17, *E. straminea*, p. 106, pl. 12. fig. 9, *E. angularis*, ibid., pl. 12. fig. 8, and *E. armilla*, p. 108, pl. 12. fig. 21, Minas Geraës; *E. ochracea*, p. 107, pl. 11. fig. 5, Brazil; *E. pronophila*, ibid., pl. 12. fig. 20, Rio Janeiro; *E. liturata*, ibid., pl. 12. fig. 18, and *E. vesper*, p. 108, pl. 12. fig. 19, of unknown origin; and *E. fumata*, p. 109, pl. 12. fig. 14, Rio Grande.

Chionobas nevadensis (Boisd. MS.), Felder, *l. c.* p. 489, pl. 69. figs. 4, 5, California; and *C. pumilus*, Feld. *l. c.* p. 490, pl. 69. figs. 6, 7, Western Himalaya.

Epinephele. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*E. pulchella*, p. 490, pl. 69. fig. 16, *E. pulchra*, p. 491, *E. roxane*, ibid., pl. 69. figs. 12, 13, *E. cœnonympha*, p. 492, pl. 69. figs. 14, 15, Western Himalayas; *E. dryas*, ibid., Chili; *E. valdivia*, p. 493, Valdivia; *E. poliozona*, ibid., Valdivia; and *E. glaucope* (Klug, MS.), ibid., pl. 67. figs. 5, 6, Brazil.

Satyrus hübneri, Felder, *l. c.* p. 494, pl. 69. figs. 8, 9, and *S. pimpla*, Feld. ibid., pl. 69. figs. 10, 11, Western Himalaya.

Lasiommata mæroides, Felder, *l. c.* p. 496, pl. 69. fig. 1, India; and *L. mærula*, Feld. ibid., Western Himalaya.

Debis dyrta, Felder, *l. c.* p. 497, Bengal; *D. manthara*, Feld. ibid., and *D. darena*, Feld. *l. c.* p. 498, pl. 68. figs. 4, 5, Java.

Ptychandra leucogyne, Felder, *l. c.* p. 498, Halmaheira.

Cœlites vicinus, Felder, *l. c.* p. 499, Celebes; *C. euptychiodes*, Feld. ibid., Borneo.

Cœlites humilis, Butler, Ann. & Mag. N. H. 3rd ser. xx. p. 403, pl. 8. fig. 8, and pl. 9. fig. 2, Malacca.

Mycalesis. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*M. borealis*, p. 500, North China; *M. sudra*, ibid., pl. 67. fig. 10, Java (= ♂ *M. nala*, Feld. olim), and *M. gopa*, p. 501, Darjeeling; *M. moorei*, p. 502, pl. 67. fig. 9, Java; *M. nebulosa*, ibid., Guinea; *M. itys*, p. 503, Celebes.

Mycalesis cinerea, Butler, *l. c.* p. 401, pl. 8. fig. 9, Singapore; *M. cepheus*, Butl. *l. c.* p. 402, pl. 9. figs. 3, 4, Penang; *M. nautilus*, Butl. ibid., pl. 9. fig. 7, Malacca, India.

Lethe whitelyi, Butler, *l. c.* p. 403, pl. 9. fig. 8, Nagasaki.

Elymnias lutescens, Butler, *l. c.* p. 404, pl. 9. fig. 10, Borneo, Malacca, Singapore, Penang.

(*Enodia*) *joanna*, sp. n. ?, Butler, Ann. & Mag. N. H. 3rd ser. xix. pl. 4. fig. 8, not described.

Erycinides.

Bates has commenced (Journ. Linn. Soc. ix. Zool. pp. 367–372) a general revision of the species of this group, of which he says there are at present about 630 described. Of these, all, except 34, are natives of Tropical America; the number of species is greatest in the Equatorial district (Bates collected 370 species on the Amazons), and diminishes towards the tropics. Of the 34 species above-mentioned, 30 occur in the Old World and 4 in North America. The latter belong to South-American types. Bates proposes a classification founded upon the venation of the wings, which may be indicated as follows:—

(Subf.) I. Nemeobiinæ; subcostal vein of fore wing with 4 branches (excepting some species of *Mesosemia*). This group includes the Old-World forms and a few South-American genera.

(Subf.) II. Eurygoninæ; subcostal branches varying from 2 to 4; lower radial (discoidal) vein completely connected with the subcostal.

(Subf.) III. Erycininæ; subcostal branches 3; lower radial vein not connected with subcostal.

The portion of Bates's paper published in 1867 contains only the introductory remarks and descriptions of some new species belonging to his first group.

Butler has published (Journ. Linn. Soc. ix. Zool. pp. 213-229) a monographic revision of the genus *Lemonias*, and of some species of allied genera sometimes included in it (*Aricoris*, *Tharops*, *Anatole*, and *Apodemia*). He also notices *Emesis*? *petronius* (Fab.), and *Nymphidium*? *kadenii* (Feld.) as doubtful species of *Lemonias*. Butler likewise notices the following species described by Felder: *L. cæcina* and *martialis* are allied to *L. cerealis* (Hew.), or perhaps species of *Charis*; *L. colchis* belongs to *Apodemia*; *L. sperthias*=*Nymphidium abaris* ♂ (Fab.); *L. chilensis* belongs to *Anatole*;

Desmozona hemixanthe = *Lemonias sosybius*; *Aricoris petavia* = *pherepatte*, var.; and *A. babiana*=*uranus* ♀. The following known species are figured by Butler:—*L. alector* (Hübn.), pl. 6. fig. 1; *L. leucocyana* (Hübn.), pl. 6. figs. 6 & 7; *L. pseudo-crispus* (Westw.), pl. 6. figs. 9 & 10; *L. nepia* (Hew.) ♂, pl. 6. fig. 11; *L. rhesa* (Hew.), ♀, pl. 6. fig. 16; *Tharops ion* (Westw.), pl. 6. figs. 22 & 23; *Aricoris lagus* (Cram.), pl. 7. figs. 2 & 4; *A. irene* (Westw.), pl. 7. fig. 8; *A. epitus* (Cram.), vars., pl. 7. figs. 9 & 10, 12 & 14; *A. serica* (Westw. & Hew.) ♂, pl. 7. fig. 13; *Apodemia colchis* (Feld.), var., pl. 7. fig. 17. He also figures the neuration of the genus *Lemonias* and the palpi of species of the other generic forms.

Nymphidium. Butler (Ent. M. Mag. iii. pp. 222–224) discusses the synonymy of some species of this genus. *N. soranus* and *orestes* are probably distinct. Cramer's figures both represent females. *N. ascolia* (Hew.), probably = *Papilio damon* (Stoll); the specimen figured as *N. platea*, in Genera Diurn. Lepid. = *lysimon* (Stoll); *N. platea* is intermediate between *N. omois* (Hew.) and *N. acherois* (Boisd.); the ♀ of Doubleday's *N. platea* is described by Butler as a new species; the ♀ of *N. belise* (Cram.) = *Pap. irenea* (Cram.), which has been placed in the genus *Pyrrhogyra*.

Butler (Proc. Zool. Soc. 1867, pp. 37–39), in proposing a new genus allied to *Taxila*, discusses the forms included in that genus and in the allied genera *Sospita* and *Dodona*. He figures *Dodona onida* (Hew.), *l. c.* p. 38. fig. 2, and *Sospita tantalus* (Hew.), ibid. fig. 3, to show their general form and venation.

Cremna. Bates (Trans. Ent. Soc. 3rd ser. v. pp. 542–543) gives a list of the known species of this genus. He refers to it *C. ceneus* (Cram.), *C. phryxe* (Feld.), and *C. actoris* (Cram.), and 4 new species; *C. orpheus* (Doubld. & Hew.) is a *Lemonias* or *Anatole*; and *C. thasus* (Cram.) is doubtful, perhaps a *Charis*.

Anteros. Hewitson (Exot. Butt. 63, June 1867) figures *A. carausius* (Westw.), figs. 3, 4, *A. allectus* (Westw.), figs. 5, 6, and *A. otho* (Westw.), figs. 9, 10.

Symmachia (*Cricosoma*) *leopardina* (Feld.) is figured by Hewitson, Exot. Butt. 61, Jan. 1867, *Symm.* fig. 5 (sub nom. *S. hilaria*).

Pseudopheles, g. n., Bates, Trans. Ent. Soc. 3rd ser. v. p. 544. Allied to *Pheles*; upper radial vein in fore wings emitted at end of cell in conjunction with discocellular venule, lower radial midway between subcostal and median veins. Sp. *P. sericina*, sp. n., Bates, *l. c.* p. 544, Maranham, Pará, and Upper Amazons.

Dicallaneura, g. n., Butler, Proc. Zool. Soc. 1867, p. 37. Allied to *Taxila*; wings short, anterior with convex margins, posterior with the costa convex and an obtuse tail; cell in anterior broad, short, much excavated at apex, discocellular veins in posterior oblique. Sp. *Taxila pulchra* (Guér.), and *T. decorata* (Hew.), *l. c.* p. 38. fig. 1.

Metacharis, g. n., Butler, Ent. M. Mag. iii. p. 174. Allied to *Lemonias* and *Charis*; palpi minute; antennæ long and slender, club elongated. Sp. *Hesperia ptolomæus* (Fab.), *Pap. agrius* (Dalm.), *Charis cadmeis* (Hew.). New sp. *M. regalis*, Butler, *l. c.* p. 175, and *M. batesii*, Butl. ibid., Brazil. (Palpi and antennal clubs of *Lemonias*, *Metacharis*, and *Charis* figured on p. 174.)

New species:—

Lemonias. Butler (Journ. Linn. Soc. ix. Zool.), describes the following

new species of this genus:—*L. violacea*, p. 214, pl. 6. figs. 2, 3, Ega; *L. hübneri* (= *aristus*, Doubl., Hew., = *leucocyana*, Westw.), p. 214, pl. 6. figs. 4, 5, Para; *L. bolena*, p. 215, pl. 6. fig. 8, Brazil; *L. nepioides*, p. 217, pl. 6. figs. 12, 13, Tapajos, Para; *L. bubo*, p. 217, pl. 6. figs. 14, 15, origin not stated; *L. cuprea* (=*zeanyer*, Westw.), p. 218, pl. 6. figs. 17, 18, Tapajos, Para; and *L. borsippina*, p. 219, pl. 6. fig. 29, Tapajos.

Aricoris. Butler (*l. c.*) describes the following new species:—*A. amethystina*, p. 220, pl. 7. fig. 7, Santarem; *A. pythioides*, p. 220, pl. 7. fig. 3, Ega; *A. cyanea*, p. 221, pl. 7. figs. 5, 6, Brazil, Tapajos, Santarem; and *A. cruentata*, p. 221, pl. 7. fig. 15, Ega.

Tharops. The following new species are described by Butler (*l. c.*):—*T. coruscans*, p. 222, pl. 6. fig. 19, Para; *T. nitida*, p. 223, pl. 6. figs. 20, 21, Brazil; *T. splendida*, p. 224, pl. 6. figs. 24, 25, Para; and *T. hyalina*, p. 225, pl. 6. fig. 26, Ega, Para?

Anatole egaensis, Butler, *l. c.* p. 225, pl. 6. p. 28, Ega; *A. caliginea*, Butl. *l. c.* p. 226, pl. 7. fig. 16, Mexico; and *A. pulcherrima*, Butl. *l. c.* p. 226, pl. 6. fig. 27, Nauta.

Apodemia stalachtioides, Butler, *l. c.* p. 228, pl. 7. fig. 18, Rio de Janeiro.

Symmachia. Hewitson (Exot. Butt. 61, Jan. 1867) describes and figures the following new species of this genus:—From the Amazons—*S. arcuata*, fig. 1, *S. tigrina* (Bates, MS.), fig. 2, *S. calligrapha* (Bates, MS.), fig. 3, *S. norina* (Bates, MS.), fig. 4, *S. tricolor* (Bates, MS.), fig. 6, *S. calliste* (Bates, MS.), fig. 9, *S. hetærina* (Bates, MS.), fig. 10, and *S. pardalis* (not figured); *S. emesia*, fig. 7, Nicaragua; and *S. ocellata*, fig. 8, Venezuela.

Anteros axiochus, Hewitson, Exot. Butt. 63, June 1867, *Anteros*, figs. 1, 2, Brazil; *A. chrysoprasta* (Bates, MS.), Hew. *l. c.* figs. 7, 8, and *A. bracteata* Hew. *l. c.* figs. 11, 12, Amazons.

Emesis aurelia, Bates, *l. c.* p. 544, Maranham.

Nymphidium sylvarum, Bates, *l. c.* p. 545, Vizeu; *N. chione*, Bates, ibid., Maranham and Pará.

Nymphidium azanoides, Butler, Ent. M. Mag. iii. p. 221, Amazons (=*N. azan*, Doubl.); *N. epiplatea*, Butler, *l. c.* p. 222, Pernambuco.

Nymphidia borealis, Grote and Robinson, Ann. Lyc. New York, viii. p. 351, New York.

Theope janus, Bates, *l. c.* p. 546, Maranham.

Dodona eugenes, Bates, Journ. Linn. Soc. ix. Zool. p. 371, Nepaul and Bhotan.

Alesa. Bates (*l. c.*) describes 4 new species of this genus, namely:—*A. lipara*, p. 371, and *A. thelidrias*, ibid., Tapajos; *A. hemiurga*, p. 372, and *A. telephaë* (Boisd.), ibid., Ega.

Mesosemia sylvina, Bates, *l. c.* p. 372, Lower Amazons.

Cremna beltiana, Bates, Trans. Ent. Soc. 3rd ser. v. p. 541, Maranham; *C. hetercæa*, Bates, *l. c.* p. 542, Upper Amazons; *C. eucharila*, Bates, *l. c.* p. 543, Amazons (=*actoris*, Hübn. nec Cram.); and *C. melampia*, Bates, ibid., Bahia.

Lycænides.

Butler (Proc. Zool. Soc. 1867, pp. 34-36) remarks upon the synonymy of some species of this group. *Myrina jafra* (God.)=*Hesperia freja* (Fab.); *Hypolycæna tmolus* (Feld.) probably = *erylus* (God.); *H. erylus* (Trim.)

= *philippus* (Fab.); *Amblypodia selimnus* (Doubl.) is represented by specimens of the Ceylonese forms of *Iolaus longinus* (Fab.) and *pseudo-longinus* (Doubl.), which Butler regards, in opposition to Hewitson, as distinct species, and of which he gives characters. Butler figures *Myrina freja* (Fab.), *l. c.* p. 36. fig. 1, and its local form (*jaffra*), fig. 2; also *Iolaus pseudo-longinus* (Doubl.), *l. c.* fig. 3.

Thecla. Hewitson (Ill. Diurn. Lepid. part 3) cites 164 species of this genus, of which a large proportion are described as new. He figures the following known species of the genus:—*T. lincus* (Fab.), var., pl. 33. figs. 50, 51; *T. sito* (Boisd.), pl. 45. figs. 193–195; *T. damon* (Cram.), pl. 37. fig. 100; *T. polibetes* (Cram.), pl. 32. fig. 47; *T. ambrax* (Westw.)., pl. 41. fig. 150; *T. crix* (Cram.), pl. 46. figs. 203, 204; *T. tephræus* (Hübn.), pl. 43. figs. 172, 173 (sub nom. *T. faventia*, Hew.); *T. leucophæus* (Hübn.), pl. 39. fig. 125; *T. dindymus* (Cram.), pl. 39. fig. 126; *T. sphinx* (Hübn.), pl. 39. fig. 124; *T. syncellus* (Cram.), pl. 46. figs. 207, 208; and *T. punctum* (H.-Sch.), pl. 40. figs. 132, 133.

Stainton (Brit. Butt. & Moths, pl. 2) figures *Thecla betulæ*, fig. 2, *Chrysophanus phlæas*, fig. 3, and *Polyommatus adonis*, fig. 4.

G. Allard records his capture of 9 species of this group in Algeria (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 313, 314), and notices particularly *Lycæna psittacus* (which he regards as distinct from *L. balkanica*, and believes to feed on *Zizyphus vulgaris*), *L. adonis*, *L. martinii*, *L. melanops*, and *Thecla lynceus*.

Lycæna argus (Linn.). Millière describes and figures a variety of the ♀ of this species. (Ann. Soc. Linn. Lyon, xiv. p. 319, pl. 73. figs. 4–5.)

Thecla rubi. A variety noticed by Piffard. Ent. M. Mag. iv. p. 35.

Lycæna alsus. E. Gedge notices the habits of this species. Its larva feeds in the flower-heads of *Anthyllis vulneraria*. Ent. M. Mag. iii. p. 205.

Lycæna pseudargiolus (Boisd. & Lec.) is described in detail by W. H. Edwards, Proc. Ent. Soc. Phil. vi. p. 204.

Lycæna medon (Hufn.) = *Polyommatus agestis* (Ochs.). Zeller (Ent. M. Mag. iv. pp. 73–77) describes the natural history and development of this species at some length.

Lycæna bætica. Life-history described by Newman, Entomologist, iii. p. 220.

Guenée describes some peculiar organs possessed by the larva of *Lycæna bætica* (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 665–668). On each side of the eleventh segment, close to the ninth spiracle there is a small aperture from which the larva, when disquieted, can protrude a short slightly pyriform organ, furnished at the extremity with a number of fine fleshy filaments like setæ, which when fully extended, radiate from the summit of the organ. On the back of the tenth segment there is a single transverse aperture; and from this a transparent hemispherical vesicle can be protruded. From this vesicle a fluid is exuded in considerable quantity. The author compares these organs with the fork protruded by the larvæ of *Papilio*, but does not attempt any explanation of their functions. They are figured *l. c.* pl. 13. figs. 9–12.

New species:—

Lycæna violacea, Edwards, Proc. Ent. Soc. Phil. vi. p. 201, Eastern States; *L. mertila*, Edwards, *l. c.* p. 206, California.—*Lycæna nigrescens*, A. Dubois, Arch. Cosmol. 1867, p. 259, pl. 12. figs. 1 & 2, Luchon.—*Lycæna martini*,

G. Allard, Ann. Soc. Ent. Fr. 4_e sér. vii. p. 319, pl. 6. fig. 2, Algeria.—*Lycæna lucifera* (Kinderm. MS.), Staudinger, Stett. ent. Zeit. 1867, p. 100, Altai.—*Lycæna hypoleuca*, Prittwitz, Stett. ent. Zeit. 1867, p. 278, New South Wales.

Acroph thalmia? *diophthalma*, Prittwitz, *l. c.* p. 274, Fiji Islands; *A.*? *argentina*, Pritt. ibid., Samoa.

Chrysophanus rubidus, Behr, Proc. Ent. Soc. Phil. vi. p. 208, Oregon.

Chrysophanus feredayi, Bates, Ent. M. Mag. iv. p. 53, New Zealand.

Thecla lorata, Grote & Robinson, Trans. Am. Ent. Soc. i. p. 171, Virginia; *T. henrici*, Grote & Rob. *l. c.* p. 174, Maine to Pennsylvania.

Thecla. Hewitson (Ill. Diurn. Lepid. part 3) describes the following new species of this genus:—*T. laudonia*, p. 77, pl. 45. figs. 191, 192, *T. cosa*, p. 78, pl. 31. fig. 38, *T. torfrida*, ibid., pl. 31. figs. 34, 35, *T. mazurka*, p. 79, pl. 31. fig. 33, *T. atesa*, ibid., pl. 31. figs. 31, 32, Amazons; *T. desdemona*, ibid., pl. 45. fig. 189, 190, Guatemala; *T. monica*, p. 80, pl. 32. figs. 39, 40, Venezuela; *T. undulata*, p. 81, pl. 32. figs. 41, 42, *T. auda*, ibid., pl. 35. figs. 78, 79, *T. sala*, ibid., pl. 35. figs. 71, 72, *T. aholiba*, p. 82, pl. 35. figs. 76, 77, New Granada; *T. ahola*, ibid., pl. 35. figs. 73, 74, Mexico and New Granada; *T. tema*, ibid., pl. 35. fig. 75, Amazons; *T. gigantea*, p. 83, pl. 32. figs. 43, 44, Pará; *T. thara*, ibid., pl. 32. figs. 45, 46, Rio de Janeiro; *T. erybathis*, p. 84, pl. 34. figs. 58, 59, Mexico; *T. phydela*, ibid., pl. 33. figs. 54–56, Rio de Janeiro; *T. gibberosa*, p. 85, pl. 33. figs. 48, 49, New Granada; *T. togarna*, ibid., pl. 33. figs. 52, 53, Venezuela; *T. æthesa* (Boisd. MS.), p. 86, pl. 33. fig. 57, Bahia; *T. pedusa*, p. 87, pl. 34. figs. 60, 61, Amazons; *T. azaria*, ibid., pl. 34. figs. 65, 66, origin not stated; *T. jada*, ibid., pl. 34. figs. 67, 68, Mexico; *T. ellida*, p. 88, pl. 34. figs. 62–64, Venezuela; *T. malina*, ibid., pl. 34. figs. 69, 70, Brazil; *T. thordesa*, p. 89, pl. 35. fig. 80, *T. mulucha*, ibid., pl. 38. fig. 117, Venezuela; *T. ira*, ibid., pl. 35. figs. 81, 82, Mexico; *T. silumena*, p. 90, pl. 45. figs. 196, 197, origin not stated; *T. neora*, ibid., pl. 38. fig. 110, Guatemala; *T. minyia*, p. 91, pl. 38. figs. 115, 116, *T. rocena*, ibid., pl. 37. figs. 96, 97, *T. atena*, p. 92, pl. 36. fig. 93 & pl. 37. fig. 101, *T. sista*, ibid., pl. 37. figs. 98, 99, *T. athymbra*, ibid., pl. 36. figs. 91, 92, from the Amazons; *T. malvina*, p. 93, pl. 37. figs. 102, 103, Rio de Janeiro; *T. janthina*, ibid., pl. 37. figs. 104, 105, Vera Paz; *T. myrtea*, ibid., pl. 38. fig. 112, *T. mutina*, p. 94, pl. 38. figs. 113, 114, *T. mecrida*, ibid., pl. 38. figs. 108, 109, Amazons; *T. spinetorum* (Boisd. MS.), p. 94, pl. 45. figs. 198, 199, California; *T. myrtusa*, p. 95, pl. 38. fig. 111, Amazons; *T. malvania*, ibid., pl. 38. figs. 106, 107, origin not stated; *T. metanira*, ibid., pl. 46. figs. 200, 201, *T. avoca*, p. 96, pl. 37. figs. 94, 95, *T. falerina*, ibid., pl. 43. figs. 168, 169, *T. olbia*, p. 97, pl. 36. figs. 85, 86, and var. (*T. phallica*), pl. 40. fig. 136, *T. comana*, ibid., pl. 36. figs. 86, 87, *T. thalesa*, p. 98, pl. 45. fig. 200, Amazons; *T. thyrea* (Boisd. MS.), p. 99, pl. 36. figs. 83, 84, Cayenne and Amazons; *T. sylea*, ibid., pl. 39. figs. 118, 119, *T. phœnissa*, p. 100, pl. 40. figs. 139, 140, Amazons; *T. elika*, p. 101, pl. 41. figs. 143, 144, Rio Grande; *T. acameda*, ibid., pl. 41. figs. 151, 152, Pará; *T. orgia* (Boisd. MS.), p. 102, pl. 41. figs. 148, 149 & pl. 43. fig. 176, Venezuela and Cayenne; *T. spurina*, ibid., pl. 39. figs. 122, 123, *T. orobia*, p. 103, pl. 40. figs. 134, 135, *T. orobiana*, ibid., pl. 46. figs. 205, 206, Amazons; *T. erema*, p. 104, pl. 44. figs. 179, 180, Guatemala; *T. hebræus* (Boisd. MS.), ibid., pl. 43. figs. 165, 166, Bahia; *T. ericeta*, ibid., pl. 44. figs. 177, 178, Guatemala; *T. aphaca*, p. 105, pl. 36.

fig. 90, Brazil; *T. daraba*, ibid., pl. 36. fig. 89, Amazons; *T. ergina*, ibid., pl. 40. figs. 170, 171, Jamaica; *T. empusa*, p. 106, pl. 42. figs. 158, 159, Amazons; *T. stilbia*, p. 107, pl. 39. fig. 127, origin not stated; *T. syedra*, p. 108, pl. 39. figs. 128, 129, and pl. 41. fig. 145, Amazons; *T. enenia*, ibid., pl. 41. figs. 146, 147, origin not stated; *T. eribœa*, ibid., pl. 42. figs. 154, 155, Amazons; *T. echelta*, p. 109, pl. 44. figs. 187, 188, *T. ophelia*, p. 110, pl. 46. figs. 209, 210, Amazons; *T. ostia*, ibid., pl. 40. figs. 130, 131, Rio de Janeiro; *T. genena*, p. 111, pl. 44. figs. 185, 186, *T. endera*, ibid., pl. 42. figs. 156, 157, *T. emessa*, ibid., pl. 42. figs. 160, 161, Amazons; *T. eliatha*, p. 112, pl. 41. figs. 141, 142, Brazil; *T. perola*, ibid., pl. 40. figs. 137, 138, & pl. 46. figs. 211. 212, Amazons; *T. fidena*, ibid., pl. 44. figs. 183, 184, origin not stated; *T. gadira*, p. 113, pl. 44. figs. 181, 182, Guatemala; *T. stagira*, ibid., pl. 39. figs. 120, 121, and pl. 43. fig. 167, and var. (*T. erenea*), pl. 42. figs. 163, 164, Amazons and Rio de Janeiro; *T. ericusa*, ibid., pl. 42. fig. 162, Brazil; *T. eretria*, p. 114, pl. 42. fig. 153, North China; and *T. dinus* (Boisd. MS.), ibid., pl. 43. figs. 174, 175.

Hesperiides.

C. & R. Felder (Reise der Novara, Zool. ii. Lep. Heft 3) figure the following species previously described by them:—*Tamyris antias*, pl. 70. fig. 4; *Oxynetra semihyalina*, pl. 70. fig. 9, *Chætocneme cerinthus*, pl. 73. fig. 1; *C. corvus*, pl. 73. fig. 2; *Hesperia fortunei*, pl. 72. fig. 11; *H. angiades*, pl. 72. fig. 5; *Isoteinon lamprospilus*, pl. 74. fig. 20, *I. vittatus*, pl. 74. fig. 21; *Carterocephalus exornatus*, pl. 74. figs. 18 & 19; *Phareas priscus*, pl. 73. fig. 6; *Ismene discolor*, pl. 72. fig. 17; *I. doleschallii*, pl. 72. fig. 16; *I. malayana*, pl. 72. fig. 15; *Pterygospidea trichoneura*, pl. 73. figs. 14 & 15, and *P. angulata*, pl. 73. figs. 10 & 11.

Ismene vasutana and *I. jania* (Moore) are figured by Hewitson, Exot. Butt. 62, April 1867, *Ismene*, pl. 2. figs. 8 & 9 and 12 & 13.

Hesperia fischeri (Latr.) is figured by Hewitson, Exot. Butt. 62, April 1867, *Hesp.* pl. 1. figs. 8–10.

Stainton figures *Thymele alveolus* (Brit. Butt. Moths, pl. 2. fig. 5).

G. Allard (Ann. Soc. Ent. Fr. 4e sér. vii. p. 315) cites 4 Algerian species of this group.

Netrocoryne, g. n., Felder, *l. c.* p. 507. Allied to *Thracis*; antennæ longer, very slender, club abrupt, fusiform, hooked; palpi much longer, pilose back and front; veins much more distant, discoidal cells much broader, superior discoidal vein in anterior emitted from angle of cell. Sp. *N. repanda*, sp. n., Feld. *l. c.* p. 507, pl. 70. fig. 10, Moreton Bay.

New species:—

Tamyris strigifera *, Felder, *l. c.* p. 505, pl. 70. figs. 7 & 8, Venezuela, Bogotá; *T. hygieia*, Feld. *l. c.* p. 506, pl. 70. fig. 1, *T. agathon* †, Feld. ibid., pl. 70. figs. 2 & 3, and *T. pardalina*, Feld. *l. c.* p. 507, pl. 70. figs. 5 & 6, Bogotá.

Eudamus. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*E. alector*, p. 508, pl. 71. figs. 2 & 3, and *E. harpagus*, ibid., pl. 70. figs. 11 & 12, Bogotá; *E. sebress*, p. 509, pl. 71. fig. 1, Bahia; *E. tamyroides*,

* Identical with *Pyrrhopyga galgala* (Hew.).
† Identical with *Pyrrhopyga maculosa* (Hew.).

ibid., pl. 70. figs. 13 & 14, Amazons, South Brazil; *E. orcinus*, p. 510, pl. 71. figs. 4 & 5, Bahia; *E. extrusus*, ibid., pl. 72. figs. 13 & 14, Aru; and *E. formosus*, p. 511, pl. 71. figs. 6 & 7, origin unknown.

Pyrrhopyga. Of this genus Hewitson describes the following new species (Ent. Trans. 3rd ser. ii.):—*P. azeta*, p. 479, *P. ahira*, ibid., *P. zonara*, p. 480, *P. aspitha*, p. 481, *P. thelersa*, ibid., *P. pedaia*, ibid., *P. hadora*, p. 482, *P. passova*, ibid., *P. gazera*, ibid., and *P. gortyna*, p. 483, from the Amazons (*P. passova* also from Cayenne); *P. aziza*, p. 483, New Granada; *P. garata*, ibid., Surinam; *P. galgala*, ibid., Venezuela; *P. zereda*, p. 484, Ecuador; *P. maculosa*, p. 485, Bogotá; and *P. oneka*, p. 480, *P. hadassa* and *P. telassa*, p. 484, origin not stated.

Erycides telmela, Hewitson, *l. c.* p. 485, and *E. thrasea*, Hew. ibid., from the Amazons.—*Erycides phoronis*, Hewitson, New Hesp. p. 1, and *E. amystis*, Hew. ibid., New Granada; *E. araxes*, Hew. *l. c.* p. 2, Mexico.

Eudamus. Hewitson (New Hesp. pp. 3–21) describes 37 new species of this genus, in which he includes *Goniurus* and *Goniloba* (Westw.). As the author considers these descriptions "unaided by figures more than worthless," it is manifestly unnecessary to cite them here, as they will again come under our notice when figured, as promised, in the 'Exotic Butterflies.'

Chætocneme caristus, Hewitson, *l. c.* p. 21, Aru; *C. callixenus*, Hew. ibid., Dorey.

Netrocoryne beata and *N. denitza*, Hewitson, *l. c.* p. 22, Australia.

Hesperia eudega, Hewitson, *l.c.* p. 23, Amazons; *H. hyela*, Hew. ibid., Java; *H. hyrmina*, Hew. *l. c.* p. 24, Tondano and Macassar; *H. aroma* and *H. bræsia*, Hew. ibid., Para; and *H. cynaxa*, Hew. *l. c.* p. 25, Mexico.

Hesperia. Hewitson (Ent. Trans. 3rd ser. ii.) describes the following new species of this genus:—*H. ægita*, p. 486, *H. anchora*, p. 487, *H. belistida*, p. 491, *H. bursa*, ibid., *H. calvina*, p. 492, *H. rona*, p. 499, and *H. amana*, ibid., from Para; *H. catina*, p. 492, and *H. noseda*, p. 500, from the Tapajos; *H. coryna*, p. 494, and *H. phaetusa*, 497, from the Amazons; *H. æstria*, p. 486, *H. ceraca*, p. 488, *H. ethoda*, p. 389, *H. lutetia*, p. 495, *H. percea*, p. 496, *H. physcella*, p. 498, from Rio de Janeiro; *H. argentea*, p. 487, Guatemala; *H. chalestra*, p. 488, Minas Geraës; *H. certima*, p. 493, *H. colenda*, ibid., *H. crotona*, ibid., and *H. litana*, p. 494, Venezuela; *H. ovinia*, p. 496, Nicaragua; *H. cunaxa*, p. 488, North America; *H. elia*, p. 489, *H. barea*, p. 490, *H. marsena*, p. 498, *H. ogygia*, p. 500, and *H. phiditia*, p. 501, from Sumatra; *H. attina*, p. 489, India and Java; *H. azona*, p. 490, and *H. tessellata*, p. 494, Macassar; *H. cæsina*, p. 491, Waigiou; *H. sala*, p. 500, Singapore; *H. cathæa*, p. 492, *H. opigena*, p. 495, *H. ophiusa*, p. 497, *H. memuca*, ibid., and *H. almoda*, p. 499, origin not stated.

Hesperia. Hewitson (Exot. Butt. 62, April 1867, *Hesp.* pl. 1) describes and figures the following new species:—*H. adela*, figs. 1–3, Rio de Janeiro; *H. nanea*, figs. 4 & 5, Maranham; and *H. gerasa*, figs. 6 & 7, Maranham. Also (Exot. Butt. 64, Oct. 1867, *Hesp.* pl. 2) *H. cilissa*, figs. 11 & 14, *H. cincia*, figs. 12 & 13, and *H. chiomara*, fig. 19, from the Amazons; *H. cænira*, figs. 15 & 16, and *H. cerymica*, figs. 20 & 21, Old Calabar; and *H. cæsena*, figs. 17 & 18, Brazil.

Hesperia ernesti, Grandidier, Rev. et Mag. de Zool. 1867, p. 274, Madagascar.

Hesperia punctella, Grote & Robinson, Trans. Amer. Ent. Soc. i. p. 1,

Georgia; *H. fusca*, Grote & Rob. *l. c.* p. 2, Georgia and Florida; *H. alternata*, Grote & Rob. *l. c.* p. 3, Georgia.

Hesperia ottoe, Edwards, Proc. Ent. Soc. Phil. vi. p. 207, Kansas; *H. mingo*, Edw. ibid., Virginia; *H. yerka*, Edw. ibid., San Francisco.

Hesperia. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*H. latreillii*, p. 511, pl. 71. fig. 8, Java; *H. celsina*, p. 512, pl. 71. fig. 12, Celebes; *H. ismene*, ibid., pl. 73. figs. 4 & 5, Celebes; *M. callineura*, p. 513, pl. 71. figs. 9 & 10, Java; *H. vulpina*, p. 514, pl. 72. figs. 1 & 2, Bogotá; *H. lindigiana* *, ibid., pl. 72. figs. 3 & 4, Venezuela, Bogotá; *H. boisduvalii*, ibid., pl. 71. fig. 11, Amboyna; *H. ornata*, p. 515, pl. 72. fig. 6, Java; *H. antalcidas*, ibid., pl. 72. fig. 10, Celebes; *H. fractifascia*, p. 516, pl. 71. figs. 15 & 16, Bogotá; *H. viridicans*, ibid., pl. 71. figs. 13 & 14, Bogotá; *H. flavescens*, p. 517, pl. 72. figs. 7–9, Celebes; *H. culepis* †, ibid., pl. 72. fig. 12, Celebes; *H. psittacina*, p. 518, pl. 71. figs. 17 & 18, Bogotá; *H. catargyra*, p. 519, pl. 71. fig. 19, Venezuela; and *H. plumbeola*, ibid., pl. 71. fig. 20, Luzon.

Ancyloxypha gracilis, Felder, *l. c.* p. 520, pl. 74. fig. 28, and *A. melanoneura*, Feld. ibid., pl. 74. figs. 29 & 30, Bogotá.

Carterocephalus. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*C. agathocles*, p. 521, pl. 74. figs. 16 & 17, *C. cypselus*, p. 522, pl. 74. fig. 11, *C. dimidiatus*, ibid., pl. 74. figs. 7 & 8, *C. polycrates*, ibid., pl. 74. figs. 12 & 13, *C. epiphaneus*, p. 523, pl. 74. figs. 9 & 10, and *C. hesperioides*, ibid., pl. 74. figs. 14 & 15, Bogotá.

Leucochitonea unifasciata, Felder, *l. c.* p. 524, pl. 74. fig. 22, Bogotá; *L. stigma*, Feld. ibid., pl. 74. figs. 26 & 27, Santa Martha; *L. sallei*, Feld. p. 525, pl. 74. fig. 25, Mexico; and *L. cronion*, Feld. p. 525, pl. 74. figs. 23 & 24, Brazil.

Ismene septentrionis, Felder, *l. c.* p. 525, pl. 73. fig. 3, Shanghai; *I. subcaudata*, Feld. *l. c.* p. 526, pl. 72. figs. 20 & 21, Java; and *I. gentiana*, Feld. *l. c.* p. 527, pl. 72. figs. 18 & 19, Luzon.

Ismene. Hewitson (Exot. Butt. 61, Jan. 1867) describes and figures the following new species:—*I. pansa*, figs. 1 & 2, Madagascar; *I. myra*, fig. 3, Java; *I. chuza*, fig. 4, Sarawak; *I. saida*, fig. 5, Philippine Islands; and *I. striata*, figs. 6 & 7, China. Also (Exot. Butt. 62, April 1867, *Ismene*, pl. 2) *I. iluska*, figs. 10 & 11, Macassar; and *I. etelka*, figs. 14 & 15, Sarawak.

Pterygospidea. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*P. celebica*, p. 528, pl. 73. fig. 8, Celebes; *P. maculosa*, ibid., pl. 73. fig. 7, Shanghai; *P. helias*, p. 529, pl. 73. figs. 12 & 13, Celebes; *P. crosula*, ibid., pl. 73. fig. 3, Celebes; and *P. syrichthus*, p. 530, pl. 72. figs. 22 & 23, Java.

Helias. C. & R. Felder (*l. c.*) describe the following new species of this genus:—*H. mexicana*, p. 531, pl. 73. fig. 20, Mexico; *H. albiplaga*, ibid., pl. 73. figs. 18 & 19, and *H. hæmatospila*, p. 532, pl. 73. figs. 16 & 17, Venezuela, Bogotá; *H. noctua*, p. 533, pl. 74. figs. 1 & 2, Bogotá: *H. geometrina*, p. 534, pl. 74. fig. 5, Venezuela, Bogotá; *H. satyrus*, ibid., pl. 74. figs. 3 & 4, Bogotá; and *H. satyrina*, p. 535, pl. 74. fig. 6, Venezuela, Bogotá.

Syrichtus alba, Edwards, Proc. Ent. Soc. Phil. vi. p. 206, Arizona.

Sphingidæ.

Grote & Robinson (Ann. Lyc. New York, viii. pp. 353–356) remark on

* Identical with *H. colenda* (Hew.).

† Identical with *H. tessellata* (Hew.).

the synonymy of various Insects of this family. *Sphinx convolvuli* and *S. ligustri* they regard as belonging to different genera, and propose to apply to the former Boisduval's name *Macrosila*. *S. ligustri* they regard as the highest and most typical form of the restricted genus *Sphinx*. A new arrangement of the genera of Sphingini is proposed by the authors. Commencing with *Ceratomia* as most nearly allied to the Smerinthini, followed by *Cerat. serpentinus* (Clemens), for which the authors retain Walker's name *Daremma*, then follow *Syzygia* and *Diludia* (Grote & Rob.), *Pseudosphinx* (Burm.), *Amphonyx* (Poey), *Macrosila* (Boisd.), and *Sphinx*. The generic name *Erinnyis* (Hübn.) is manifestly identical with *Erynnis* (Schrank); and the authors propose to adopt Burmeister's name *Dilophonota* for the genus, as being employed strictly for Hübner's group, whereas *Anceryx* (Boisd.) includes other species. A list of 14 species of this genus is given.

Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xx. pp. 59–64) notices and criticises various recent publications on this family. He refers especially to Grote's remarks on the Sphingidæ of Cuba (see Record, 1866, pp. 437 & 473), but seems to have misunderstood Grote's remarks upon *Enyo gorgon* (Cram.), which he charges that writer with referring to *E. lugubris*. *Erinnyis cinerosa* (Grote)=*stheno* (Hübn.).

Stainton (Brit. Butt. & Moths, pl. 3) figures *Smerinthus tiliæ* (fig. 3), *Macroglossa stellatarum* (fig. 4), and *Sesia bombyliformis* (fig. 5).

Deilephila nerii (Linn.). Kawall records the occurrence of this species in Courland in 1866, and refers to previous indications of its visiting that district. Berl. ent. Zeitschr. 1867, pp. 193, 194.

Deilephila lineata and *Macroglossa fuciformis* are noticed as Algerian species by G. Allard. Ann. Soc. Ent. Fr. 4e sér. vii. p. 315.

Deilephila livornica. The capture of this species in various parts of England noticed by Barrett, Barlow, and Pole, and in Ireland by Pasley. Ent. M. Mag. iv. p. 12.

Landois (Zeitsch. für wiss. Zool. xvii. pp. 159–163) discusses the means by which *Acherontia atropos* produces its characteristic squeaking sound. He returns to the opinion of Réaumur, that the sound is caused by the friction of the palpi against the sides of the trunk, and states that the basal portion of the inner surface of the palpi is naked and covered with exceedingly fine ribs. He notices several other species (*S. convolvuli, ligustri, elpenor, pinastri, euphorbiæ*, and *tiliæ*) as having similar ribs on the inner surface of the palpi; but these are weaker than in *Acherontia atropos*, and the sound produced by their friction is either almost or quite imperceptible by the ear.

Acherontia atropos. Capronnier publishes a note on the sounds produced by this insect. He heard the larva emit a slight, sharp sound when the branch on which it was seated was touched, and on examination came to the conclusion that the sound was produced by the mandibles (?). In support of the opinion that the squeak of the imago proceeds from organs of the head, he mentions that a specimen which emerged with the head imperfect and the organs of the mouth atrophied emitted no sound. Ann. Soc. Ent. Belg. x. Comptes Rendus, pp. xvi, xvii.

Girard notices the production of a musky odour by the males of *Sphinx ligustri* and *convolvuli*. Bull. Soc. Ent. Fr. 1867, p. xlvii.

Acherontia atropos. A specimen with only a single antenna. Westwood, Proc. Ent. Soc. 1865, p. 124.

Taschenberg (Zeitschr. ges. Naturw. xxix. p. 154, pl. 6) describes and figures a supposed monstrosity of a Hawkmoth, having the body and fore wings of *Sphinx ligustri*, and in place of the hind wings both pairs of *S. galii*. According to a later communication from Häckel (*l. c.* p. 498), the specimen is an artificial combination.

Macroglossa stellatarum. The habit of this species of flying along walls &c. is discussed by M'Lachlan, Bond, and Wallace. Proc. Ent. Soc. 1866 and 1867, pp. xlix & lx. Bond considers its object to be the finding of some place of concealment—which is confirmed by Wallace.

Smerinthus ocellatus. Gedge found that the ♀ of this species laid 351 eggs and still retained 38; total 389. Ent. M. Mag. iii. p. 206.

Deilephila dahlii (Tr.). Mabille remarks on the habits of this insect, the larvæ of which feed on species of *Euphorbia*. Ann. Soc. Ent. Fr. 4e sér. vi. p. 557.

A. Gouley records the finding of the larvæ of various species of the genus *Deilephila* upon the leaves of the Fuchsia. Bull. Soc. Ent. Fr. 1866, p. lxvi.

G. Semper (Verh. zool.-bot. Ges. in Wien, xvii. pp. 699, 700) indicates the characters of the larvæ of *Macrosila discistriga* (Walk.), *Panacra vigil* (Guér.), and *P. scapularis* (Walk.), *Pergesa actæus* (Cram.), *Chœrocampa celerio* (Linn.), *C. alecto* (Linn.), *C. clotho* (Drury), and *C. oldenlandiæ* (Fab.). The larva and pupa of the first-named species and those of *C. clotho* are figured (*l. c.* pl. 23. figs. 2 & 3).

New species:—

Chœrocampa lævis, Grote & Robinson, Ann. Lyc. New York, viii. p. 356, pl. 14. fig. 1, Mexico; *C. ceratomioides*, Grote & Rob. *l. c.* p. 358, pl. 14. fig. 2, Mexico.

Minetra tigrina, Vollenhoven, Tijdschr. v. Ent. 2de ser. i. p. 210, pl. 10. fig. 2, Salwatty.

Zygænidæ.

Grote discusses the characters of this family and describes some of the Cuban species (Proc. Ent. Soc. Phil. vi. pp. 173–188). He inclines to place at the head of the subfamily Zygæninæ (Pack.) the narrow species with vitreous wings which simulate the Sesioid type. The basal segment of the abdomen in all the genera is swelled laterally, and in some this swelling is very prominent; the protuberance assumes a valvular form, being separated from the crust of the body beneath, and has been compared by Guérin to the pouches of the Cicadæ. Grote says this character is common to both sexes, and he is inclined to give it importance in the characters of the genera. *Phyllœcia* (Guér.) and *Mastigocera* (Harr.) = *Horama* (Hübn.), which is characterized (*l. c.* p. 180), as is *Eunomia* of the same author (*l. c.* p. 187).

Grote (Proc. Ent. Soc. Phil. vi. pp. 324–327) also discusses the systematic arrangement of the genera of this group.

Burtia rubella (Grote) = *Gundlachia cruenta* (H.-Sch.) is figured by Grote, Proc. Ent. Soc. Phil. vi. pl. 5. fig. 1, as also:—*Horama diffissa* (Grote) = *H. pretellus* (H.-Sch.), *l. c.* pl. 5. fig. 2; *Callicarus pennipes* (Grote) = *Horama*

plumosa (H.-Sch.), *l. c.* pl. 5. fig. 3; *Eunomia insularis* (Grote)=*Glaucopis elegantula* (H.-Sch.), pl. 5. fig. 4; and *Formiculus pygmæus* (Grote), *l. c.* pl. 5. fig. 5. *Heterandra disparilis* (H.-Sch.)=*Euschirrhopterus poeyi* (Grote).

Grote & Robinson (Ann. Lyc. New York, viii. p. 364) remark upon the characters of the genus *Thyris* (Ill.), from which they separate a new genus, *Platythyris*, and propose to establish a family, *Thyridæ*, for *Thyris* and its allies. They remark that *Thyris*, the highest genus, imitates the Sesiidæ, whilst *Platythyris*, the lowest, resembles the lower Castniid genera *Alypia* and *Eudryas*. The two genera are types of subfamilies, the *Thyrini* and *Platythyrini*. *Thyris lugubris* (Boisd.) will probably form a new genus lower still than *Platythyris*.

Syntomina. Of the genera belonging to this group, which he regards as only artificially separated from the *Arctiidæ*, Herrich-Schäffer gives the following table (Corr.-Blatt zool.-min. Ver. Regensb. xx. pp. 107–108) :—

I. Subcostal of hind wings occupying the anterior margin; costal wanting. 1. *Gundlachia.*

II. Subcostal of hind wings distant from the anterior margin, which is not thickened.

1. Subcostal of hind wings continued as a branch.

A. Hind wings with 6 veins, 4 and 5 stalked .... 2. *Automolis.*

B. Hind wings with 6 veins, 4 and 5 from one point. 3. *Naclia.*

C. Hind wings with 5 veins.

a. Veins 4 and 5 from one point ..... 4. *Syntomis.*

b. Veins 4 and 5 separate ..... 5. *Cœnochromia.*

2. Subcostal of hind wings forks into two branches, or veins 6 and 7 separate.

A. Veins 2 and 3 of hind wings forked only near the margin, or reduced to one vein.

a. Vein 5 weak or wanting, often indicated only by the fold.

α. Abdomen pedunculated.

* Hind wing without median cell; fore wing 7: 8+9, 10. 6. *Abrochia.*

† Hind wing with median cell; fore wing 7 : 8, 9, 10. 7. *Pseudosphex.*

β. Abdomen with a broad base.

* Hind tibiæ with only apical spurs; 7 : 8+9, 10. 8. *Hyalopis.*

† Hind tibiæ also with middle spurs.

a. Hind tibiæ spoon-shaped at the end; 4+5, 7 : 8, 9, 10. 9. *Mystrocneme.*

b. Hind tibiæ and tarsi widened by projecting scales.

– Antennæ clavate at apex; 7 : 8+9..10. *Horamia.*

= Antennæ pectinate to the apex; 7 : 8+9, 10. 11. *Copæna.*

c. Hind tibiæ normal.....12. *Glaucopis.*

b. Vein 5 as strong as the rest, springing from the median cell before the fold.

a. Vein 2 of hind wing entirely wanting.

* Veins 3 and 4 from one point; 6 distant from 7 in ♂, stalked in ♀ ..... 13. *Amycles.*

† Veins 3 and 4 distant; 6+7 in both sexes. 14. *Autochloris.*

β. Vein 2+3 with a long stalk ..... 15. *Empyreuma.*

B. Vein 2 further from 3 than 3 from 4 ..... 16. *Saurita.*

a. Vein 5 wanting.

* Abdomen pedunculate; wings limpid; 7 : 8, 9, 10. 17. *Eumenogaster.*

† Abdomen broadly sessile; fore wings 7 : 8+9, 10.

a. Wings limpid, with a dark border.... 18. *Chrysostola.*

b. Wings coloured ..... 19. *Echeta.*

b. Vein 5 as strong as the rest.

a. The four spurs of hind tibiæ small and nearly equal.

* Anus without peculiarity.

a. Veins 2 and 3 of fore wings stalked, 7 in the black margin. 20. *Gnophæla.*

b. Veins 4 and 5 of fore wings stalked, of hind wings at least from one point ..... 21. *Correbia.*

c. Veins 4 and 5 of fore wings separated, or from one point.

— In the fore wings 7 : 8, 9, 10..... 22. *Ctenucha.*

= In the fore wings 7 : 8+9, 10 .... 23. *Charidea.*

d. Veins 2–5 of hind wings at equal distances. 24. *Euclera.*

† Anus of ♀ with a long seta; fore wings 7 : 8, 9, 10. 25. *Cercophora.*

‡ Anus truncated, with a brush of hairs .. 26. *Hæmaterion.*

β. Middle spurs of hind tibiæ twice as long as posterior; veins 3–5 of hind wings from one point ..... 27. *Trichæa.*

Herrich-Schäffer also remarks (*l. c.* pp. 103–105 and 113–117) upon many described species of this family from Cuba. He criticises Walker's catalogue severely.

Stainton (Brit. Butt. & Moths, pl. 3) figures *Procris globulariæ* (fig. 1) and *Anthrocera filipendulæ* (fig. 2).

G. Allard (Ann. Soc. Ent. Fr. 4e sér. vii. p. 316) notices 7 species of this family found by him in Algeria, and remarks especially upon the characters of one which he identifies with *Z. faustina*.

Naclia ancilla (Linn.). On the characters of this species and its occurrence in Britain, see Newman, Entomologist, iii. pp. 238–239.

New genera:—

Scirocastnia, g.n., Grote, Proc. Ent. Soc. Phil. vi. p. 175. Allied to *Alypia*; labial palpi erect, curved, and pressed against the front, pilose, joint 3 obtuse and rather short; wings very ample, angles rounded; fore wings with median veins 1–3 approximate and equidistant at base, and costal veins more aggregated than in *Alypia*; legs stout, spinose, tibial spurs very long on hind legs. Sp. *Ephialtias tribima* (Hübn.).

Euschirrhopterus, g. n., Grote, *l. c.* p. 176. Allied to *Eudryas*; head very large; palpi loosely haired, horizontal, joint 3 minute; abdomen without tufts; legs stout, spinose. Sp. *E. pocyi*, sp. n., Grote, *l. c.* p. 178, Cuba.

Callicarus, g. n., Grote, *l. c.* p. 182. Allied to *Horama* (Hübn.); antennæ subserrate, gradually swelled to tips, which are slender and flexuous; head smaller and prothoracic pieces narrower than in *Horama*. Sp. *Sphinx plumipes* (Drury); *Callicarus pennipes*, sp. n., Grote, *l. c.* p. 182, pl. 5. fig. 3, Cuba; *C. texanus*, sp. n., Grote, *l. c.* p. 184, Texas (=*Euchromia plumipes*, Clemens nec Drury).

Formiculus, g. n., Grote, *l. c.* p. 184. Allied to preceding; antennæ subcapitate, serrated and short; labial palpi 0?; posterior tibiæ without spurs; veins of fore wings straight, equidistant, forming a linear cell below the median cell. Sp. *F. pygmæus*, sp. n., Grote, *l. c.* p. 185, pl. 8. fig. 4, Cuba.

Burtia, g. n., Grote, *l. c.* p. 185. Allied to *Eunomia* (Hübn.); body linear; palpi small, hardly exceeding the front. Sp. *B. rubella*, sp. n., Grote, *l. c.* p. 186, pl. 5. fig. 1, Cuba.

Sphæromachia, g. n., Grote, *l. c.* p. 304. Allied to *Pericopis*; fore wings triangular, apical margin very straight. Sp. *Pericopis cubana* (H.-Sch.).

Platythyris, g. n., Grote & Robinson, Ann. Lyc. New York, viii. p. 361. Allied to *Thyris*; antennæ long, slender, filiform; head not prominent; palpi large, free; prothorax broad and square in front; wings broad, posterior with sinuate margins. Sp. *Thyris vitrina* (Boisd.); *P. fasciata*, sp. n., Grote & Rob. *l. c.* p. 362, pl. 13. figs. 4 & 5, Virginia.

Trichæa, g. n., Herrich-Schäffer, *l. c.* p. 115. (See Table, p. 377). Sp. *T. pilicornis* and *T. seticornis*, spp. nn., H.-Sch. *l. c.* p. 115, Cuba.

New species:—

Zygæna erebus, Staudinger, Stett. ent. Zeit. 1867, p. 101, South Russia.
Setiodes nana, Herrich-Schäffer, *l. c.* p. 106, Cuba.
Gundlachia cruenta, Herrich-Schäffer, *l. c.* p. 108, Cuba.
Horamia pretellus and *H. plumosa*, Herrich-Schäffer, *l. c.* p. 113, Cuba.
Horama diffissa, sp. n., Grote, *l. c.* p. 181, pl. 5. fig. 2, Cuba.
Eunomia insularis, Grote, *l. c.* p. 188, pl. 5. fig. 5, Cuba.
Hippola minima, Grote, *l. c.* p. 298, pl. 5. fig. 6, Cuba.
Apistosia humeralis, Grote, *l. c.* p. 302, Cuba (=*A. judas*, H.-Sch. nec Hübn.).
Melanchroia fumosa, Grote, *l. c.* p. 306, Cuba.
Glaucopis elegantula and *nitidula*, Herrich-Schäffer, *l. c.* p. 114, and *G. eximia*, H.-Sch. *l. c.* p. 115, Cuba.
Correbia subochrea, Herrich-Schäffer, *l. c.* p. 115, Cuba.
Charidea cimicoides, Herrich-Schäffer, *l. c.* p. 116, and *C. bicolor*, H.-Sch. ibid., Cuba.
Charidea bivulnera, Grote & Robinson, *l. c.* p. 365, pl. 13. fig. 2, Mexico.
Syntomis cuprea, Prittwitz, Stett. ent. Zeit. 1867, p. 277, Himalaya.
Echeta albipennis, Herrich-Schäffer, *l. c.* p. 117, Cuba.

Sesiidæ.

Stainton figures *Trochilium formicæforme* (Brit. Butt. & Moths, pl. 3. fig. 6).

Sesia chalcocnemis (Staud.) is a variety of *chrysidiformis* (Lasp.) according to Mabille, Ann. Soc. Ent. Fr. 4e sér. vi. p. 557.

E. G. Meek notices a white-belted variety of *Sesia culiciformis* ♂ taken in copulation with a red-belted ♀. Ent. M. Mag. iv. p. 153.

Sesia miniacea. G. Allard notices this species as found by him in Algeria (Ann. Soc. Ent. Fr. 4e sér. vii. p. 316).

Sesia scoliæformis occurs in Scotland, N. Cooke, Ent. M. Mag. iv. p. 61.

Sesia chrysidiformis (Esp.). Larva described by Buckler, Ent. M. Mag. iv. p. 14.

G. Semper notices the larva of *Sesia hylas* (Linn.). Verh. zool.-bot. Ges. in Wien, xvii. p. 700.

Trochilium hospes, sp. n., Walsh, Proc. Ent. Soc. Phil. vi. p. 270, from willow-galls.

Sesia cubana, sp. n., Herrich-Schäffer, Corr.-Bl. zool.-min. Ver. Regensb. xx. p. 106, Cuba.

Hepialidæ.

Stainton figures *Hepialus velleda* (Brit. Butt. & Moths, pl. 4. fig. 1).

F. Wildner publishes (Verh. naturf. Ver. in Brünn, iv. Sitzungsber. pp. 85–87) a note upon *Pygæra timon* (Hübn.) and its occurrence in the neighbourhood of Brünn.

Bombycidæ.

The Cuban species of this family are noticed by Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xx. pp. 132–134). *Perophora* (Harris) is referred by him to the Saturniides.

Bombycides.

Adelocephala. Grote & Robinson (Trans. Amer. Ent. Soc. i. pp. 7, 8) discuss the characters of this genus, of which they describe 2 new species and figure *A. bicolor* (pl. 1. figs. 3 & 4) = *Dryocampa bicolor* (Harr.).

Citheronia. Grote & Robinson (Ann. Lyc. Nat. Hist. New York, viii. pp. 379–387) discuss the species of this genus, of which they give the synonymy in detail. They figure *C. regalis* (Hübn.), *l. c.* pl. 12. fig. 1, and *C. sepulcralis* (Gr. & Rob.), pl. 12. figs. 2 & 3.

Girard (Ann. Soc. Ent. Fr. 4e sér. vi. pp. 565–567) notices an example of the albino variety of *Bombyx castrensis* described under the name of *taraxacoides* by Bellier de la Chavignerie. His specimen shows a more complete uniformity of tint than those described by the last-mentioned author, but, like them, it is a ♀.

Lasiocampa trifolii. Bond notices a variety of this species. Proc. Ent. Soc. 1867, p. lxx.

E. Ballion describes and figures an hermaphrodite of *Endromis versicolora* (Linn.), in which the right side is male and the left female. The difference of sexual character extends to the body. Horæ Soc. Ent. Ross. iv. p. 33, pl. 1. fig. 2.

Hinterwaldner records a case of parthenogenesis in *Saturnia cynthia.* Zeitschr. des Ferdinand. 3te Folge, xiii. p. 221.

Christoph (Stett. ent. Zeit. 1867, pp. 240–242) describes the development of *Bombyx eversmanni*, which, from the characters and mode of life of the larva, he is led to regard as a distinct species. He thinks that *B. cocles* is also specifically distinct, but that *B. ratamæ* and *terreni* are local varieties of *B. eversmanni.*

G. Semper notices the transformations of the following species:—*Hypsa monycha* (Cram.), *H. plana* (Walk.), *Argina astrea* (Drury), *Phalauna polymena* (Linn.), *Lymantria lunata* (Cram.), and *Taragama ganesa* (Lefebvre). Verh. zool.-bot. Ges. in Wien, xvii. p. 701.

Gastropacha pini. Künstler reports on this species. Verh. zool.-bot. Ges. in Wien, xvii. pp. 955–958.

Goureau (Insectes nuisibles, pp. 111–116) notices and describes *Cnethocampa processionea* and *pityocampa* as injurious on account of the irritation produced in the skin by the hairs of their larvæ. He also describes *Calosoma sycophanta* as one of the chief enemies of these larvæ.

Guérin-Méneville, notes on sericiculture. Rev. et Mag. de Zool. 1867, pp. 219–224, 305–312, 340–352, 383–384, 413–416, and 456–458.

M. Girard communicated to the French Entomological Society a series of notes on sericiculture (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 381–386) relating to the results obtained at Brives by Mdlle. de Lavergne, and at the Jardin d'Acclimatation. The species referred to are *Sericaria mori*, *Attacus arrindia*, *A. cynthia*, *A. yamamaï*, *A. mylitta*, and *A. aurota*. Girard also notices the epidemic observed in larvæ of Lepidoptera in France in 1867.

Guérin-Méneville remarks upon various species of Silkworms (Bull. Soc. Ent. Fr. 1867, pp. xxxi–xxxii). The species referred to are *B. mylitta* and *selene* and a new species of *Lasiocampa* from Senegal (*vide infrà*). Guérin also read a note from Chavannes (*l. c.* pp. xxxii–xxxiv) in support of his notion that the vibratile corpuscles in the diseased Silkworms "are the nucleoli of the blood-corpuscles vitiated by the presence of uric and hippuric acids." This view is disputed by Gervais, Künckel, and Laboulbène.

Vlacovich has published an elaborate memoir on the Silkworm-disease, and especially on the oscillating corpuscles occurring in the affected individuals. Atti Istit. Veneto, xii. pp. 139–170 and 269–298.

Balbiani remarks (Bull. Soc. Ent. Fr. 1867, p. xxviii) upon the Silkworm-disease and the demonstration of its infectious nature. Caterpillars of *Gastropacha neustria* were infected by feeding on leaves which had been moistened with water containing crushed diseased Silkworms, and Clothes-moths were similarly affected when their food was dusted over with the same insects powdered.

Balbiani's experiments on the infectious nature of muscardine are noticed by M'Lachlan, Proc. Ent. Soc. 1867, p. cv.

Balbiani gives an account of his observations on the corpuscles present in diseased Silkworms in Bull. Soc. Ent. Fr. 1867, p. xix.

J. Mitchell, in reference to a statement made by Hutton that the two silk fibres produced from the spinning-tubes of Silkworms are twisted together, states that, on the contrary, every silk-fibre in the cocoon consists of two threads laid side by side and united by a glutinous material. In bleached spun silk the filaments are single, the uniting material having been removed in the process of manufacture. The author also remarks on the form of the silk fibre in different species. Trans. Ent. Soc. 3rd ser. ii. pp. 443–444.

F. Dronke communicates (Rev. et Mag. de Zool. 1867, pp. 123–128) a note on the disease of the common Silkworm, in which he dwells especially on the mineral constituents contained in the mulberry leaves on which these animals are fed, and suggests that the exhaustion of these mineral constituents in the soil, and their consequent diminution in the leaves of the mulberry-trees, may be the cause of the unhealthy condition of the Silkworms. He recommends that experiments should be made with various manures, and indicates the system to be followed according to the morbid symptoms presented by the Silkworms.

Hutton thinks that the Japanese Silkworm producing green cocoons is a hybrid between *B. mori* and *B. sinensis*, and suggests that entomologists should be sent to China to discover, if possible, *B. mori* in its natural state. Proc. Ent. Soc. 1866, p. xlix.

Guérin-Méneville notices some Silkworms' eggs received from the neighbourhood of Quito, belonging to a race which has been hitherto free from disease. He remarks that these eggs, when transported from Peru to Europe, do not hatch until the second spring. Bull. Soc. Ent. Fr. 1867, p. xviii.

Guérin-Méneville notices a Silkworm (*B. mori*) having one side dark and the other white. Bull. Soc. Ent. Fr. 1867, p. li.

Giebel records the production of two males of *Bombyx mori* from a single cocoon. Zeitschr. ges. Naturw. xxx. p. 127.

Bombyx cynthia. A. Wallace records (Trans. Ent. Soc. 3rd ser. v. pp. 485–492) some observations made by him in 1866 on the variations of this species. In that year he bred over 4000 specimens of *B. cynthia*. These emerged between May 30 and August 8. The darkest moths were produced from the cocoons least exposed to the light, and especially from those which still retained their covering of leaves. The earlier specimens were of an olive-green tint, the later ones yellowish, corresponding with the change of colour of the Ailanthus-leaves. The late specimens were small and weak, as also two the larvæ of which were fed on plum and laburnum. The cocoons of a second brood, fed on celery leaves, were dwarfs and deficient in colour. Although several months later in spinning up than the first brood, they emerged earlier. Wallace has some interesting and important remarks on the variation in the time of emergence, induced in many cases by difference of climate and treatment; and he is inclined to think that, from his observations, some light may be thrown on the question of the prior appearance of males or females in Lepidoptera. He says that, in proportion as the individual is finer, the time required for its metamorphosis is longer; thus the females being larger and heavier will be preceded by the males, which are smaller, and have a smaller amount of reproductive material to mature. The variation of *B. cynthia* in size and colour is very great, and dependent on the food-plant, temperature, exposure to light, and the season of the year at which the insects are produced. Wallace discusses the question of the specific distinctness of *B. cynthia*, *ricini*, and *guerinii*. The last-mentioned, he thinks, will prove to be a variety of *B. cynthia*; and from a comparison of the latter with *B. ricini*, he is inclined to consider this also a form of *B. cynthia*. In concluding, Wallace mentions his finding about 20 living pupæ amongst his empty cocoons at the end of the autumn, notices the production of a clicking sound by the eggs during the development of the larvæ, and records the occurrence of free specimens of *B. cynthia* in his neighbourhood.

A. R. Wallace accepts his namesake's theory as to the early development of males, and indicates how, on Darwinian principles, this would explain the predominance of small males. Proc. Ent. Soc. 1867, p. lxxi.

Bombyx cynthia. Notes on the cultivation of this species by Wallace, in Proc. Ent. Soc. 1865, pp. 119–121.—Gredler notices (Corr.-Blatt zool.-min. Ver. Regensb. xx. pp. 50–56) some experiments made in rearing *Bombyx cynthia* in the vicinity of Bozen.—Hutton (Proc. Ent. Soc. 1867, pp. lxxxii–lxxxiv) discusses the question raised by Bree of the identity of *Attacus*

cynthia and *A. ricini*, and maintains that these insects belong to distinct species.—Ernest Cotty publishes some remarks on the naturalization of *Bombyx cynthia* in France. Mém. Soc. Linn. Nord Fr. 1866, pp. 147–158.—René Vion also notices the rearing of this species in the open air at Amiens. Ibid. p. 205.—Notices of the occurrence of *Bombyx cynthia* in Paris, living in freedom, are communicated by Lucas, Girard, Künckel, and Guérin-Méneville. Bull. Ent. Soc. Fr. 1867, pp. xlix–li.—Fallou on the same subject. Ibid. p. lxiv.

Wallace (Trans. Ent. Soc. 3rd ser. v. pp. 355–428) publishes an important memoir on the breeding of *Bombyx yamamaï* in England.—Wullschlegel communicates the results of his experiments in breeding the Ja-ma-maï Silkworm. Mitth. schweiz. ent. Gesellsch. ii. pp. 151–153.—Baumann notices his experiments in breeding *Bombyx yama-maï* at Bamberg. Sitzungsb. zool.-bot. Ges. in Wien, 1867, p. 125.—Baron von Bretton gives an account of the successful introduction of *Bombyx yamamaï* into Moravia. Bull. Soc. Ent. Fr. 1867, pp. xxi–xxii.—Guérin-Méneville (Comptes Rendus, lxv. pp. 946–947) gives a short account of his experiments in the cultivation of *Bombyx yama-maï* and *B. mylitta*.—G. Gascoyne publishes (Entomologist, iii. pp. 333–335) some notes on rearing the larvæ of *Bombyx yama-maï*.

Trouvelot publishes (Amer. Natural. i. pp. 30–38, 85–94, and 145–149) an account of the natural history of *Telea polyphemus* and of his endeavours to rear it as a source of silk. He figures both sexes of the moth (*l. c.* pl. 5 ♀, and 6 ♂), and also the larva, cocoon, and chrysalis.

Westwood notices a Chinese species of *Saturnia* from which "gut" used by anglers is said to be obtained, and explains the process of preparing the gut. Janson says that the gut is procured from the common Silkworm in the south of Europe. Proc. Ent. Soc. 1867, pp. civ–cv.

Psephopaectes, g. n., Grote & Robinson, Trans. Amer. Ent. Soc. i. p. 5. Allied to *Adelocephala*; head depressed; eyes very large, globose; clypeus broad, triangulate; antennæ slender, bipectinate in their basal third (♀); mouth obsolete; thorax long, globose, and elevated; wings narrow and elongate. Sp. *P. simulatilis*, sp. n., Grote & Rob. *l. c.* p. 6, pl. 1. fig. 1, Mexico.

New species:—

Citheronia mexicana, Grote & Robinson, Ann. Lyc. New York, viii. p. 382, pl. 13. fig. 1, Mexico.

Adelocephala grandis, Grote & Robinson, *l. c.* p. 8, pl. 1. fig. 7, Mexico; *A. quadrilineata*, Grote & Rob. *l. c.* p. 11, pl. 1. fig. 2, Mexico.

Lasiocampa parinarii, Guérin, Bull. Soc. Ent. Fr. 1867, p. xxxii, from Senegal.

Anisota walkeri, Grote, Proc. Ent. Soc. Phil. vi. p. 300, note, Brazil (= *Dryocampa rubicunda*, Walk. nec Fab.).

Limacodides.

Grote & Robinson (Ann. Lyc. N. H. New York, viii. p. 373) propose the name of *Packardia* for Packard's genus *Cyrtosia*, the latter name being preoccupied in Diptera.

Limacodes inornata, sp. n., Grote & Robinson, *l. c.* p. 372, Pennsylvania.

Psychides.

Grote (Proc. Ent. Soc. Phil. vi. pp. 331–333) discusses the relations of his genus *Hymenopsyche*, referred by Clemens to *Thyridopteryx* (Steph.).

Claus has discovered the true male of *Psyche helix*, which differs from the female both in the larva-state and in some points in the construction of its case. The larva, pupa and case, as also the perfect ♂ and the details of its wings and antennæ, are described and figured by Claus (Zeitschr. für wiss. Zool. xvii. pp. 470–479, pl. 11); the imago is identical with *Psyche helicinella* (H.-Sch.). In connexion with this discovery Claus also discusses the recorded facts as to parthenogenesis in the *Psychides*.

Fallou records a case of parthenogenesis observed by him in *Psyche nitidella*. Bull. Soc. Ent. Fr. 1867, p. xlvii.

Grenier notices (Bull. Soc. Ent. Fr. 1867, pp. xxxv–xxxvi) his having received from Mexico (Monterey) some cases apparently belonging to a gigantic species of this group. They measure 13–14 centimetres (between 5 and 6 inches) in length, and are composed of little sticks placed transversely. The caterpillars are said to feed upon the rose, arbutus, and poplar, and to attach one end of their case to a branch by a silken band until they have consumed all the leaves within their reach, when they cut the band and go in search of a fresh station. The addition of new sticks to the case is made by the insect without issuing from its shelter, by pushing its head through a hole made just above the last little stick attached.

Goossens remarks (*l. c.* p. xxxvii) that he had a great number of cases and caterpillars from Montevideo, apparently identical with the above.

Guérin-Méneville notices his *Dipyle boucardi* in Bull. Soc. Ent. Fr. 1867, p. xci.

Psyche plumifera. On the habits of this species see Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 111.

New genera:—

Psychocampa, g. n., Grote & Robinson, Ann. Lyc. New York, viii. p. 374. Allied to *Oiketicus* and *Lacosoma*; antennæ short, coarsely bipectinate, reflexed at the apex where the pectinations are one-half shorter; body cylindrical, hairy; anal segment with a long tuft of hair; fore wings long, pointed, falcate, hind wings subquadrate, anal angle prominent but obtuse. Sp. *P. concolor*, sp. n., Grote & Robinson, *l. c.* p. 375, pl. 14. fig. 5, Para.

Pseudohazis, g. n., Grote & Robinson, *l. c.* p. 377. Allied to *Hemileuca*; antennæ long, with broad, dependent, strongly setose pectinations; wings ample, rather long, venules long and straight. Sp. *Saturnia eglanterina* (Boisd.) and *S. hera* (Harr.).

New species:—

Psyche valesiella, Millière, Ann. Soc. Linn. Lyon, xiv. p. 358, pl. 77. figs. 6, 7 (with case), Switzerland.

Fumea græcella, Millière, *l. c.* p. 360, pl. 77. figs. 8, 9 (with case), south of France.—*Fumea ardua*, Mann, *l. c.* p. 845, Franz-Josefs-Höhe and Grossglockner.

Dipyle boucardi, Guérin-Méneville, Rev. et Mag. de Zool. 1867, p. 455, Mexico (description founded only on the case).

Dasychirides.

Stainton figures *Orgyia gonostigma* (Brit. Butt. & Moths, pl. 5. fig. 2).

Orgyia splendida. G. Allard notices the habits of this moth, observed by him in Algeria. (Ann. Soc. Ent. Fr. 4e sér. vii. p. 316).

Orgya (sic) *ramburii*, sp. n., Mabille, Ann. Soc. Ent. Fr. 4e sér. vi. p. 557, pl. 8. figs. 6, & vii. p. 636, Corsica.

Euproctis pygmæa, sp. n., Grote, Proc. Ent. Soc. Phil. vi. p. 320, pl. 5. fig. 11, and *E. fumosa*, sp. n., Grote, *l. c.* p. 321, Cuba.

Liparides.

Stainton figures *Psilura monacha* (Brit. Butt. & Moths, pl. 5. fig. 1).

Liparis rubea (W. V.). Millière describes and figures a rosy variety of this species in all its stages. Ann. Soc. Linn. Lyon, xiv. p. 366, pl. 78. figs. 4–6.

Liparis dispar. M'Lachlan remarks on this species. Proc. Ent. Soc. 1866, p. xlix.

Penthophora morio (Linn.). On the injury done by the larva of this moth to meadows, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 953–955.

Coret notices the occurrence of great quantities of larvæ of *Liparis chrysorrhœa* on elms near Suresnes in 1866; the insects disappeared, and produced few Moths. Bull. Soc. Ent. Fr. 1867, p. lxxiii.

Notodontides.

Grote & Robinson (Trans. Amer. Ent. Soc. i.) characterize and figure the following known species:—*Dasylophia interna* (Pack.), p. 176, pl. 4. fig. 31; *Cœlodasys* (*Heterocampa*) *leptinoides* (Pack.), p. 177, pl. 4. fig. 33; *Heterocampa obliqua* (Pack.), p. 178, pl. 4. figs. 26–27; and *Het.* (*Lochmæa*) *tessella* (Pack.), p. 182, pl. 4. fig. 29.

Stainton (Brit. Butt. & Moths, pl. 4) figures *Notodonta ziczac* (fig. 2), *Diloba cæruleocephala* (fig. 3), *Clostera anachoreta* (fig. 4), and *Pygæra bucephala* (fig. 5).

Grote & Robinson (Ann. Lyc. N. H. New York, viii. p. 373–374) remark that under the name of *Phalœna angulosa* (Smith) Abbot figures 2 distinct species. The ♀ of one of these has since been figured by Herrich-Schäffer as *Notod. georgica*; this name the authors propose to adopt, and the species will then be *Lophodonta georgica* (H.-Sch.) and *L. angulosa* (Pack.).

Trichiura cratægi. An hermaphrodite of this species is noticed by A. Müller, having the right side ♂ and the left ♀ throughout. Ent. M. Mag. iii. p. 213.

Cerura bicuspis. Gedge finds 268 eggs in the ♀ of this species. Ent. M. Mag. iii. p. 206.

Notodonta unicolora (Ménétr.). A. F. Hüber describes the metamorphoses of this species. Horæ Soc. Ent. Ross. iv. pp. 37–40, pl. 1. figs. 3 & 4.

New species:—

Heterocampa brunnea, Grote & Robinson, Trans. Amer. Ent. Soc. i. p. 180, pl. 4. fig. 28, *H. elongata*, Grote & Rob. *l. c.* p. 184, pl. 4. fig. 30, and *H. pulverea*, Grote & Rob. *l. c.* p. 185, pl. 4. fig. 32, Pennsylvania.

Edema insularis, Grote, Proc. Ent. Soc. Phil. vi. p. 321, Cuba.

Harpyia interrupta, Christoph, Stett. ent. Zeit. 1867, p. 233, Sarepta.

Heterandra disparilis, Herrich-Schäffer, Corr.-Blatt zool.-min. Ver. Regensb. xx. p. 134, Cuba.

Platypterygides.

Speyer remarks that the frenula of the hind wings are present in both sexes of *Cilix ruffa* (Linn.) = *spinula* (W. V.). Stett. ent. Zeit. 1867, p. 73.

Arctiidæ.

The Cuban species and genera of this family are remarked upon by Herrich-Schäffer, Corr.-Blatt zool.-min. Ver. Regensb. xx. pp. 130–132.

Grote & Robinson (Ann. Lyc. New York, viii. p. 368) remark that *Arctia celia* (Saund.) = *B. figurata* (Drury), and that *B. cunegunda* (Pal. B.) = *Ecpantheria scribonia* (Hübn.).

Grote (Proc. Ent. Soc. Phil. vi. pp. 332–334) refers to Walsh's views upon species of *Halisidota* and to his theory of phytophagic varieties and species.

Bellier de la Chavignerie notices the characters of *Chelonia dejeanii* (God.) and *C. konewkai* (H.-Sch.). Bull. Soc. Ent. Fr. 1867, pp. iv & v.

Mazæras (Walk.). *Eucharia sacrifica* (Hübn.) is referred to this genus by Butler, Ann. Mag. N. H. 3rd ser. xx. p. 218. Butler also figures *M. conferta* (Walk.), *l. c.* pl. 4. fig. 1.

Stainton figures *Hypercompa dominula* (Brit. Butt. & Moths, pl. 5. fig. 3) and *Arctia villica* (fig. 5).

Chelonia caja. E. Hopley refers to the capricious variation of this species, and particularly notices a ♂ specimen almost destitute of dark markings. Ent. M. Mag. iii. pp. 211–212.

Packard (Proc. Bost. Soc. N. H. xi. pp. 33–35) remarks on the characters of specimens of *Euprepia caja* and *Arctia quenselii* occurring in Labrador, and also indicates the characters of a larva of some unknown species of *Arctia* found on the larch at Square Island.

Chelonia quenselii. Fallou on the rearing of larva of this species, and on variation in *Chelonia caja*. Bull. Soc. Ent. Fr. 1866, pp. lv, lvi.

Callimorpha hera (Boisd.). Fallou notices an experiment in rearing this insect, in which from 12 pupæ from the same brood he obtained 6 moths with the wings and abdomen yellow, and 3 of the red type. Bull. Soc. Ent. Fr. 1866, pp. lxi, lxii.

New species:—

Arctia kindermanni, Staudinger, Stett. ent. Zeit. 1867, p. 102, Ural; *A. gruneri* (Kinderm. MS.), Staud. *l. c.* p. 104, Altai; *A. maculosa*, var. ? *cæcilia* (Kinderm. MS.), Staud. *l. c.* p. 105, Altai.

Arctia mexicana, Grote & Robinson, Ann. Lyc. New York, viii. p. 367, pl. 13. fig. 3, Mexico.

Ecpantheria leucarctioides, Grote & Robinson, *l. c.* p. 369, pl. 14. figs. 3 & 4, Mexico.

Ecpantheria cyaneicornis, Grote, Proc. Ent. Soc. Phil. vi. p. 314, Cuba.

Euhalisidota. Grote (*l. c.*) describes the following new species from Cuba:

—*E. fasciata*, p. 315, pl. 5. figs. 7, 8; *E. scripta*, p. 317, pl. 5. fig. 9; and *E. alternata*, p. 318, pl. 5. fig. 10.

Erithales proxima, Grote, *l. c.* p. 320, Cuba.

Callimorpha venus, Prittwitz, Stett. ent. Zeit. 1867, p. 274, Himalaya.

Mazæras woodii, sp. n., Butler, Ann. Mag. N. H. 3rd ser. xx. p. 218, pl. 4. figs. 2 & 3, Bahia.

Pericopis cubana, Herrich-Schäffer, *l. c.* p. 131, Cuba.

Lithosiidæ.

Setina. Zeller publishes a revision of the European species of this genus in continuation of his former observations (Stett. ent. Zeit. 1867, pp. 33–49). He discusses the characters of the species and of their varieties, and gives diagnoses of them, with the exception of *S. mesomella*, about which he thinks there is nothing doubtful. The species noticed are:—*S. flava* (Brem.) =*ochracea* (Led.), p. 33; *S. irrorella* (Linn.), p. 34, with 3 varieties; *S. freyeri* (Nick.), p. 36, with vars. *signata* (Borkh.) and *andereggii* (H.-Sch.); *S. aurita* (Esp.), p. 45, with var. *ramosa* (Fab.); *S. alpestris* (Zell.), p. 45; *S. kuhlweinii* (Hübn.), p. 46, with 4 varieties; *S. flavicans* (Boisd.), p. 48; *S. roscida* (Hübn.), and *S. melanomos* (Nick.), p. 49. Guenée's views as to the distinctness of *S. aurita* and *ramosa* are discussed at length, pp. 41–45; and in a note on p. 41, Zeller remarks on the sounds produced by the *Lithosiæ* and other moths, with special reference to the observations of Laboulbène, Guenée, and Fallou upon this subject.

Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xx. pp. 118–120) remarks upon the Cuban species of this family.

Kefferstein also remarks upon the species of the genus *Setina* (Stett. ent. Zeit. 1867, pp. 278–284), and comes to a conclusion opposed to that of Zeller. He discusses the characters of the forms admitted as specific by the latter, and regards them all as subordinate. According to him, *S. irrorea* is the type form of the species, and the others, all of which show the characteristic 3 rows of black points on the fore wings and have essentially the same larvæ, are only varieties. *S. freyeri* (Nick.) is a small dusky form of the type; *S. freyeri* (Frey.) is a different variety.

Speyer remarks (Stett. ent. Zeit. 1867, p. 125) that *Lithosia molybdeola* (Guen.) and *complana* (Linn.) are distinguished from the rest of the genus by having a dense patch of elevated scales on the front margin of the lower surface of the fore wings. He indicates the distinctions of the two species.

Grote (Proc. Ent. Soc. Phil. vi. pp. 312–314, note) discusses the species of *Crocota* inhabiting the United States.

Stainton figures *Lithosia complanula* (Brit. Butt. & Moths, pl. 5. fig. 4).

Lithosia carniola. On the habits of the larva, see Guérin-Méneville and Berce. Bull. Soc. Ent. Fr. 1867, pp. lix & lx.

Torycus, g. n. ?, Herrich-Schäffer, Corr.-Blatt zool.-min. Ver. Regensb. xx. p. 119. Allied to *Crocota*; vein 5 of hind wings wanting; fore wings with 12 veins, 8+9 stalked, 11 upon 12. Sp. *T. tricolor*, sp. n., H.-Sch. *l. c.* p. 119, Cuba.

Mrcza? *albulata*, sp. n., Herrich-Schäffer, *l. c.* p. 120, Cuba.

Lithosia laymerisa, sp. n., Grandidier, Rev. et Mag. de Zool. 1867, p. 274, Madagascar.

Crocota pallicornis, sp. n., Grote, Proc. Ent. Soc. Phil. vi. p. 312, Cuba.

Noctuidæ.

Stainton (Brit. Butt. & Moths) figures the following species of this family:—*Thyatira batis* (pl. 6. fig. 1), *Cymatophora flavicornis* (fig. 2), *Bryophila perla* (fig. 3), *Leucania conigera* (fig. 4), *Hydræcia nictitans* (fig. 5), *Heliophobus popularis* (fig. 6), *Mamestra persicariæ* (pl. 7. fig. 1), *Miana literosa* (fig. 2), *Agrotis agathina* (fig. 3), *Triphæna ianthina* (fig. 4), *Noctua plecta* (fig. 5), *Tæniocampa gothica* (fig. 6), *Hoporina croceago* (pl. 8. fig. 1), *Dicycla oo* (fig. 2), *Hecatera serena* (fig. 3), *Phlogophora empyrea* (fig. 4), *Hadena rectilinea* (fig. 5), and *Heliothis marginata* (fig. 6).

Millière (Ann. Soc. Linn. Lyon, xiv.) describes and figures the following species of this family, generally in all stages:—*Omia* (*Heliodes*) *theophila* (Staud.), p. 301, pl. 71. fig. 7 (imago); *Noctua leucogaster* (Frey.), p. 327, pl. 74. figs. 6–8; *Laphygma exigua* (Hübn.), p. 330, pl. 75. figs. 2, 3 (larva and imago); *Grammodes geometrica* (Rossi), p. 333, pl. 75. figs. 4–6; *Luperina rubella* (Dup.), p. 355, pl. 77. figs. 1–5; *Leucania punctosa* (Tr.), p. 361, pl. 77. fig. 10 (larva); *L. putrescens* (Tr.), p. 362, pl. 77. fig. 11 (larva); *Eurhipia adulatrix* (Hübn.), p. 368, pl. 78. figs. 7–11; *Polia flavocincta* (Rœs.), var. *meridionalis* (Boisd.), p. 378, pl. 80. figs. 1, 2 (larva and imago); *P. rufocincta* (Hübn.), p. 380, pl. 80. figs. 3–5.

Moore publishes the following notes on the synonymy of Indian species of this family (Proc. Zool. Soc. 1867, pp. 51–80): *Prodenia glaucistriga* (Walk.) = *ciligera* (Guen.), as also does probably *P. retina* (Boisd.); *P. insignata* (Walk.) = *infecta* (Walk.); *Calogramma picta* (Guen.) = *festiva* (Don.); *Perigea canorufa* and *illecta* (Walk.) = ♂ ♀ *apameoïdes* (Guen.); *Amyna spoliata* (Walk.) = *selenampha* (Guen.); *Agrotis basiclavis* (Walk.) = *Ochropleura flammatra* (Gmel., Guen.); *Micra hemirhoda* and *Anthophila roseifascia* = *Anthophila hæmorrhoida*; *Ingura recurrens* (Walk.) = *Abrostola subapicalis* (Walk.); *Plusia inchoata* (Walk.) = *agramma* (Guen.); *Deva conducens* (Walk.) = *Plusiodonta chalsytoides* (Guen.); *Tegna hyblæella* (Walk.) = *Phycodes hirundinicornis* (Guen.); *Cirrædia variolosa* (Walk.) = *Cosmophila xanthindyma* (Boisd.); *Remigia triangulata* (Walk.) = *Toxocampa costimacula* (Guen.); *Piada* (Walk.) = *Anuga* (Guen.); *Cerbia* (Walk.) = *Pandesma* (Guen.); *Alamis brevipalpis* (Walk.) = *Polydesma boarmoides* (Guen.); *Cocytodes immodesta* (Guen.) = *modesta* (Van der Hoev.); *Calicula exempta* (Walk.) = *Erygia apicalis* (Guen.); *Steiria subfasciata* and *quadristrigata* (Walk.) = *Briada bolinoides* (Walk.), belonging to the genus *Odontodes* (Guen.); *Noctua dioscoreæ* (Fab.), and *Phal. Noct. pomona* (Cram.) = *Ophideres fullonica* (Linn.); *Sericia parvipennis* (Walk.) = *retrahens* (Walk.); *Noctua bubo* (Fab.) = *Patula macrops* (Linn.); *Phal. mygdonia* and *hermonia* (Cram.) = *Argiva hieroglyphica* (Drury); *Nyctipao exterior* (Walk.) = ♀ *obliterans* (Walk.); *Hypopyra mollis* (Guen.) = *Spirama triloba* (Guen.); *Maxula idonea* and *Angerona poecusaria* (Walk.) = *Hypopyra unistrigata* (Guen.); *Remigia colligens* (Walk.) = *Hulodes pahumba* (Guen.); *Sphingomorpha sipyla* (Guen.) = *chlorea* (Cram.); *Sympis subunita* (Guen.), *Cotuza drepanoides* (Walk.), and *Ginea removens* (Walk.) = *Cotuza umminia*; *Remigia perfidiosa* and *Ophisma cumuli-*

fera (Walk.) = *Cotuza deficiens* (Walk.); *Ophisma lætabilis* (Guen.) = *Hemeroblemma peropaca* (Hübn.); *Ophiusa obumbrata* and *umbrosa* (Walk.) = *Naxia onelia* (Guen.); *Poaphila hamata* (Walk.) = *Trigonodes gammoides* (Walk.) referred to *Hypætra*; *Phal. virbia* (Cram.) and *Remigia bifasciata* (Walk.) = *Remigia archesia* (Cram.); *Chalciope lycopodia* (Geyer) = *R. frugalis* (Fab.); *Drepanodes scitaria* and *Anisodes pyriniata* (Walk.) = *Thermesia reticulata* (Walk.); *Thermesia transducta* (Walk.) = *Azazia rubricans* (Boisd.); *Mestleta* (Walk.) = *Selenis* (Guen.); *Selenis niviapex* (Walk.) = *irrecta* (Walk.); *Nysis lata* (Walk.) = *Fascellina chromataria* (Walk.); *Cotuza deficiens* (= *Ophisma deficiens*, Walk.) is figured by Moore, *l. c.* pl. 7. fig. 1, and *Cauna pulchripicta* (Walk.), pl. 6. fig. 10.

According to Grote & Robinson (Trans. Amer. Ent. Soc. i. p. 188) *Archiearis resoluta* (Zell.) = *Anarta brephoides* (Walk.), which, with *Brephos infans* (Möschl.), they refer to *Archiearis* (Hübn.).

Tapinostola? *bondii* (Knaggs). H. Doubleday discusses the question of the identity or non-identity of this species and *Nonagria extrema* (Hübn.), Ent. M. Mag. iii. p. 257.

Hadena fasciuncula (Haw.). Speyer (Stett. ent. Zeit. 1867, p. 126) remarks upon the distinctive characters of this form, which he seems inclined to regard as a species.

Caradrina. Speyer indicates some characters for the distinction of the species belonging to the group of *C. alsines* which may be derived from the antennæ of the ♂. Stett. ent. Zeit. 1867, p. 76.

G. Allard enumerates 14 species of this family taken by him in Algeria. *Catocala conversa* feeds on the evergreen oak. (Ann. Soc. Ent. Fr. 4e sér. vii. p. 317.)

Xylina zinckenii. S. Canning records the capture of a specimen of this species in Britain. Ent. M. Mag. iii. p. 235. H. Doubleday also publishes a note on this insect (ibid.).

Polia nigrocincta (Ochs.), its occurrence in the Isle of Man recorded by N. Greening, Ent. M. Mag. iv. p. 113; in Cornwall by E. Hopley, *l. c.* p. 132. Figured by Knaggs, Ent. Ann. 1868, Front. fig. 1.

Weir notices a specimen of *Xylina petrificata* resembling *X. semibrunnea* in colour. Proc. Ent. Soc. 1865, p. 115.

Hoporina croceago. A Corsican variety described by Mabille, Ann. Soc. Ent. Fr. 4e sér. vii. p. 641.

The larvæ of the following species are described by Newman (Entomologist, iii.):—*Epunda viminalis*, p. 322, *Noctua triangulum*, *brunnea*, and *festiva*, p. 326, *N. plecta*, p. 359, and *Xanthia gilvago*, p. 342; and that of *Agrophila sulphuralis*, by Hellins, *l. c.* p. 360.

The larvæ of the following species are described by Buckler:—*Agrotis lunigera* (Steph.), Ent. M. Mag. iii. p. 188; *Cucullia umbratica* (Linn.), *l. c.* p. 208; *C. scrophulariæ* (W. V.) and *verbasci* (Linn.), Ent. M. Mag. iv. pp. 116–117; *Acronycta auricoma* (W. V.), Ent. M. Mag. iii. p. 261; *Aplecta advena* (W. V.), *l. c.* p. 14; *Hadena genistæ* (Bork.), *adusta* (Esp.), and *thalassina* (Hufn.), *l. c.* pp. 61–64; *Agrophila sulphuralis* (Linn.), *l. c.* pp. 115, 116; *Cirrædia xerampelina* (Hübn.), *l. c.* p. 136; *Miana furuncula* (Haw.), *l. c.* p. 137; and *Xanthia gilvago* (W. V.), *l. c.* p. 156. Also the life-history of *Catocala sponsa* (Linn.), Ent. M. Mag. iii. pp. 276, 277. Hellins also describes the larvæ of *Anchocelis lunosa* (Haw.), Ent. M. Mag. iii. p. 260.

Christoph (Stett. ent. Zeit. 1867, pp. 242–244) describes the larvæ and mode of life of *Mycteroplus puniceago* and *Euterpia laudeti*.

A. Gartner (Verh. nat. Ver. Brünn, v. pp. 36–40) notices the transformations of *Perigrapha i cinctum* (V.).

Prittwitz (Stett. ent. Zeit. 1867, pp. 257–266) publishes notes on several species of this family, referring especially to the habits of the larvæ. As he gives no generic names, *Noctua* may be supplied. The species are:—*N. pallens, croceago, herbida, serena, morpheus, convergens, sigma, occulta, advena, brunnea, nebulosa, cœnobita,* and *glauca*, and *Eriopus pteridis*.

G. Semper (Verh. zool.-bot. Ges. in Wien, xvii. p. 702) notices the transformations of the following species:—*Calogramma picta* (Guér.), larva and pupa figured (pl. 23. fig. 4); *Ophiodes separans* (Walk.), larva and pupa figured (*l. c.* fig. 6); *Achæa melicerta* (Drury), larva and pupa figured (*l. c.* fig. 5), and *Ophiusa arctotœnia* (Guen.).

Mabille notices the habits of the larvæ of *Plusia accentifera* (Lef.) and *Anthophila wimmerii* (Tr.)=*oblitterata* (Ramb.). Ann. Soc. Ent. Fr. 4e ser. vi. p. 559.

Agrotis saucia is double-brooded, according to Jordan and Hellins, Ent. M. Mag. iv. p. 134–135.

Noctua segetum. Sélys-Longchamps publishes a note on the injury inflicted by this insect upon the beetroot in some parts of Belgium. It is accompanied by some remarks by Breyer on the habits of the insect. Ann. Soc. Ent. Belg. x. Comptes Rendus, pp. viii–x.

Agrotis segetum. On the injury done by this insect to corn-crops, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 932–934.

Plusia gamma. On injury done to flax-crops by this insect, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. pp. 946–948.

A. Müller (Entomologist, iii. pp. 213–215) publishes a summary of the evidence connecting the so-called "army worm" with *Heliothis armiger*. He is inclined to think that the larvæ of several species have been confounded under the name of "army worm."

F. Smith notices the "Bugong" moth (probably *Agrotis spina*, Guen.), used as food by the native Australians. Proc. Ent. Soc. 1865, pp. 129–130.

New genera:—

Vespola, g. n., Walker, Journ. Linn. Soc. ix. p. 185. Allied to *Stictoptera* and *Lophoptera*; palpi very long and slender, joint 2 somewhat arcuate, 3 straight, shorter than 2. Sp. *V. cæruleifera*, sp. n., Walk. *l. c.* p. 186, Bogotá.

Tetrisia, g. n., Walker, *l. c.* p. 186. Allied to *Phyllodes*; joint 3 of palpi subclavate, a little longer than 2. Sp. *T. florigera*, sp. n., Walk. *l. c.* p. 187, Bogotá.

Allia, g. n., Walker, *l. c.* p. 188. (*Ommatophorides.*) Palpi erect, joint 3 linear, a little longer than 2; antennæ setulose; apical abdominal tuft very small. Sp. *A. ocellata*, sp. n., Walk. *l. c.* p. 189, Bogotá.

Grymella, g. n., Walker, *l. c.* p. 189. (*Ommatophorides?*) Palpi stout, obliquely ascendant, joint 3 linear, much shorter than 2; antennæ pubescent; apical tuft very small; femora fringed. Sp. *E. hieroglyphica*, sp. n., Walk. *l. c.* p. 190, Bogotá.

Varia, g. n., Walker, *l. c.* p. 190. (*Ophiusides.*) Stout; palpi short, erect,

joint 3 linear, half as long again as 2; antennæ setose; abdomen exceeding posterior wings, its apical tuft small; calcaria very long. Sp. *V. rubiginea*, sp. n., Walk. *l. c.* p. 190, Bogotá.

Batia, g. n., Walker, *l. c.* p. 191. Allied to *Poaphila*; palpi curved, squamose, ascendant, joint 3 lanceolate, much shorter than 2; anterior wings acute, with a subcostal tuft. Sp. *B. squamicosta*, sp. n., Walk. *l. c.* p. 191, Bogotá.

Mandela, g. n., Walker, *l. c.* p. 192. Allied to *Ephyrodes*; wings festooned, anterior scarcely falcate, outer border of posterior not angular. Sp. *M. crocea*, sp. n., Walk. *l. c.* p. 192, Bogotá.

Checupa, g. n., Moore, Proc. Zool. Soc. 1867, p. 60. Allied to *Hadena*; abdomen long, flat, tufted, joints 4–6 produced laterally, 5 prolonged into a horn-like process. Sp. *C. fortissima*, sp. n., Moore, *l. c.* p. 60, pl. 6. fig. 5, Darjeeling.

Tympanistes, g. n., Moore, *l. c.* p. 48. Allied to *Leucania*; abdomen long, cylindrical, with a cavity at the base beneath and a fan-like appendage above it on each side; hind tibiæ with 4 spurs; palpi erect, slender, joint 3 long, cylindrical; fore wings slightly acuminate at apex. Sp. *T. pallida*, sp. n., Moore, *l. c.* p. 49, pl. 6. fig. 1, and *T. testacea*, sp. n., Moore, ibid., pl. 6. fig. 2, Darjeeling. The former species said by Atkinson to make "a clicking noise as it flies."

New species :—

Gonophora indica, Moore, Proc. Zool. Soc. 1867, p. 44, Bengal.

Thyatira albicosta, Moore, *l. c.* p. 45, Bengal.

Osica undulata, Moore, *l. c.* p. 45, Bengal.

Bryophila albistigma, Moore, *l. c.* p. 45, Bengal.

Diphtera (sic) *pallida*, Moore, *l. c.* p. 46, pl. 6. fig. 6, and *D. discibrunnea*, Moore, ibid., pl. 6. fig. 14, Bengal.

Acronycta flavala, Moore, *l. c.* p. 46, and *A. indica*, Moore, *l. c.* p. 47, Bengal.

Amphipyra molybdea, Christoph, Stett. ent. Zeit. 1867, p. 235, Sarepta.

Mythimna cervina, Moore, *l. c.* p. 47, pl. 6. fig. 18, Bengal.

Leucania venalba, Moore, *l. c.* p. 48, Bengal; *L. pulcherrima*, Moore, ibid., pl. 6. fig. 7, Darjeeling.

Nonagria cyrnæa, Mabille, Ann. Soc. Ent. Fr. 4e sér. vi. p. 559, pl. 8. fig. 7, Corsica. Altered to *Sesamia cyrnæa*, *op. cit.* vii. p. 640, where the habits of the larva are noticed. The transformations are figured, *l. c.* pl. 14. fig. 1.

Auchmis sikkimensis, Moore, *l. c.* p. 49, pl. 6. fig. 15, Darjeeling.

Gortyna cuprea, Moore, *l. c.* p. 50, pl. 6. fig. 8, Darjeeling.

Hydræcia naxiaoïdes, Moore, *l. c.* p. 50, Bengal.

Xylophasia flavistigma, Moore, *l. c.* p. 50, and *X. leucostigma*, Moore, *l. c.* p. 51, Bengal.

Dipterygia indica, Moore, *l. c.* p. 51, Darjeeling.

Mamestra. Moore (*l. c.*) describes the following new Bengalese species of this genus:—*M. nigrocuprea*, *suffusa*, and *albomaculata*, p. 52, and *M. albirena* and *sikkima*, p. 53.

Epilecta pulcherrima, Moore, *l. c.* p. 54, pl. 6. fig. 3, Darjeeling.

Caradrina sericea, Speyer, Stett. ent. Zeit. 1867, p. 73, Holland and Cassel.

Agrotis littoralis, Packard, Proc. Bost. Soc. N. H. xi. p. 36 (Caribou Island);

A. umbratus, Pack. *l. c.* p. 37, and *A. okakensis*, Pack. *l. c.* p. 38 (Okak), Labrador.

Agrotis nigrina (Kinderm. MS.), Staudinger, Stett. ent. Zeit. 1867, p. 106, and *A. excellens* (Kind. MS.), Staud. *l. c.* p. 107, Altai.

Orthosia pistacinoides, A. d'Aubuisson, Arch. Cosmol. 1867, p. 260, pl. 12. fig. 3, Toulouse.

Leucania rufostrigata, Packard, *l. c.* p. 36, Labrador (Caribou Island).

Graphiphora. Moore describes as new species from Darjeeling:—*G. cerastioïdes*, *fasciata*, and *basistriga*, *l. c.* p. 54, and *G. rubicilla*, *l. c.* p. 55.

Ochropleura renalis, Moore, *l. c.* p. 55, and *O. spilota*, Moore, ibid., Bengal; *O. triangularis*, Moore, ibid., and *O. costalis*, Moore, *l. c.* p. 56, Darjeeling.

Agriopis lepida, Moore, *l. c.* p. 56, and *A. discalis*, Moore, *l. c.* p. 57, pl. 7. fig. 2, Bengal.

Phlogophora indica, Moore, *l. c.* p. 57, Bengal.

Euplexia albovittata, Moore, *l. c.* p. 57, pl. 6. fig. 16, Bengal; *E. discisignata*, Moore, ibid., pl. 6. fig. 9, and *E. striatovirens*, Moore, *l. c.* p. 58, Darjeeling.

Hadena. Moore (*l. c.*) describes the following new Bengalese species of this genus:—*H. albinota* and *atrovirens*, p. 58; *H. auroviridis*, p. 59, pl. 6. fig. 11; *H. tenebrosa*, p. 59; *H. albidisca*, ibid., pl. 6. fig. 17; and *H. lanceola*, p. 59.

Cucullia tenuis, Moore, *l. c.* p. 60, Darjeeling.

Anarta nigro-lunata, Packard, *l. c.* p. 40 (Okak), and *A. bicycla*, Pack. *l. c.* p. 41 (Atlantic coast), Labrador.

Heliothis phloxiphaga, Grote & Robinson, Trans. Amer. Ent. Soc. i. p. 187, Illinois, Colorado.

Anuga lunulata, Moore, *l. c.* p. 62, Bengal.

Plusia semivitta, Moore, *l. c.* p. 63, pl. 6. fig. 13, Darjeeling.

Hemiceras subochraceum, Walker, Journ. Linn. Soc. ix. p. 184, Bogotá.

Cosmophila aurantiaca, Prittwitz, Stett. ent. Zeit. 1867, p. 277, Himalaya.

Homoptera fimbripes, Walker, *l. c.* p. 185, and *H. paupera*, Walk. ibid., Bogotá.

Nœnia cuprea and *N. chalybeata*, Moore, *l. c.* p. 64, Bengal.

Briada varians, Moore, *l. c.* p. 66, pl. 6. fig. 12, Bengal.

Ercheia tenebrosa, Moore, *l. c.* p. 66, Bengal.

Stictoptera grisea, Moore, *l. c.* p. 67, Darjeeling.

Catocala nepcha, Moore, *l. c.* p. 68, Darjeeling.

Phyllodes fasciata, Moore, *l. c.* p. 69, Bengal.

Lygniodes ciliata, Moore, *l. c.* p. 69, Bengal.

Brujas bigutta, Walker, *l. c.* p. 187, Bogotá.

Letis securivitta, Walker, *l. c.* p. 187, Bogotá.

Syrnia albifimbria, Walker, *l. c.* p. 188, Bogotá.

Sypna curvilinea, Moore, *l. c.* p. 69, pl. 6. fig. 4, *S. rectilinea* and *S. cyanivitta*, Moore, *l. c.* p. 70, Bengal.

Tavia biocularis, Moore, *l. c.* p. 71, and *T. catocaloïdes*, Moore, ibid., pl. 7. fig. 3, Bengal.

Ophiodes cuprea, Moore, *l. c.* p. 74, Bengal.

Athyrma tessellata, Moore, *l. c.* p. 76, Bengal.

Drasteria agricola, Grote & Robinson, *l. c.* p. 189, pl. 4. fig. 34, Massachusetts to Pennsylvania; *D. mundula*, Grote & Rob. p. 191, pl. 4. fig. 35, Pennsylvania.

Thermesia bipustulata, Walker, *l. c.* p. 192, Bogotá.
Hypernaria discistriga, Moore, *l. c.* p. 78, Bengal.
Fascellina viridis, Moore, *l. c.* p. 79, pl. 7. fig. 4, Bengal.
Thyridospila sphæriphora, Moore, *l. c.* p. 79, Bengal.
Phurys obliqua and *P. strigata*, Moore, *l. c.* p. 80, Bengal.
Phurys teligera, Walker, *l. c.* p. 191, Bogotá.
Omia oberthürii, G. Allard, Ann. Soc. Ent. Fr. 4e sér. vii. p. 320, pl. 6. fig. 3, Algeria.

Geometridæ.

A. Gartner publishes (Verh. naturf. Ver. in Brünn, iv. pp. 54–93) a list of the Geometridæ of the district of Brünn, in Moravia, including 226 species, or more than one-third of the species known to inhabit Europe, and more than half of those recorded as indigenous to Germany and Switzerland. The habits and food-plants of most of the species are indicated. Gärtner indicates the characters of the larvæ of the following species:—*Boarmia sociaria* (Hübn.), *Geometra smaragdaria* (Fab.) (life-history), *Lythria purpuraria* (Linn.), *Eupithecia venosata* (Fab.), and *Larentia hydrata* (Treits.). He also notices the pupæ of several species.

Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xx. pp. 135–136) notices some Cuban forms belonging to this group, viz. *Cydimon poeyi* (Gundl.) and the species of *Sematura*.

The following species of this family are figured by Millière, generally in all stages (Ann. Soc. Linn. Lyon, xiv.):—*Acidalia immutata* (Linn.), p. 306, pl. 72. figs. 1–3; *A. caricaria* (H.-Sch.), p. 308, pl. 72. figs. 4–7; *A. imitaria* (Hübn.), p. 310, pl. 72. figs. 8–11; *A. depunctata* (Scop.), p. 314, pl. 72. figs. 12–15; *A. ochrata* (Scop.), p. 337, pl. 76. figs. 1–3; *A. obsoletaria* (Ramb.), p. 339, pl. 76. figs. 4–6; *A. politaria* (Hübn.), p. 342, pl. 76. figs. 7–9; *A. moniliata* (W. V.), p. 344, pl. 76. figs. 10–12; *A. incanaria* (Hübn.), p. 346, pl. 76. figs. 13, 14; *Psamatodes catalaunaria* (Guen.), p. 370, pl. 79. figs. 1–4; *Hibernia ankeraria* (Staud.), p. 324, pl. 74. fig. 1 (imago); *Aspilates citraria* (Hübn.), p. 325, pl. 74. figs. 2–5; *Amphidasys betularia* (Linn.), var. ♀, p. 336, pl. 75. fig. 7 (imago).

Stainton (Brit. Butt. & Moths) figures the following species of this family:—*Rumia cratægata* (pl. 9. fig. 1), *Selenia illustraria* (fig. 2), *Ennomos tiliaria* (fig. 3), *Nyssia zonaria* (fig. 4), *Hemerophila abruptaria* (fig. 5), *Pseudoterpna cytisaria* (pl. 10. fig. 1), *Ephyra omicronaria* (fig. 2), *Asthena luteata* (fig. 3), *Acidalia ornata* (fig. 4), *Bradyepetes amataria* (fig. 5), *Macaria liturata* (fig. 6), *Lozogramma petraria* (fig. 7), *Fidonia limbaria* (pl. 11. fig. 1), *Sterrha sacraria* (fig. 2), *Ligdia adustata* (fig. 3), *Hibernia leucophearia* (fig. 4), *Eupithecia venosata* (fig. 5), and *Melanippe procellata* (fig. 6).

Speyer (Stett. ent. Zeit. 1867, pp. 71–72) discusses the characters and habits of *Nemoria viridata* (Linn.) and *porrinata* (Zell.), and describes the larva of the former. Speyer also remarks (*l. c.* p. 73) that *Zonosoma suppunctaria* (Zell.) seems to be a small reddish variety of *Z. trilinearia*.

Gnophos serotinaria (Hübn.). Speyer remarks on the characters and position of this species. Stett. ent. Zeit. 1867, pp. 416–418.

Acidalia interjectaria and *osseata*. Knaggs discusses the characters of these species. Ent. M. Mag. iv. p. 113, and Ent. Ann. 1868, pp. 103 & 107. See also Doubleday, *l. c.* p. 161, and Entomol. iii. p. 261.

Acidalia mancuniata and *veterata*. Newman regards these supposed species as ♀ and ♂ of *pinguedinata* (Zell.), which he does not consider distinct from *subsericcata* (Harr.). Entomologist, iii. p. 227. See also Knaggs, Ent. Ann. 1868, p. 102.

Larentia lapidaria. Bellier de la Chavignerie remarks upon the synonymy and geographical distribution of the insects passing under this name. Bull. Soc. Ent. Fr. 1867, pp. xxvii–xxviii.

Speyer (Stett. ent. Zeit. 1867, pp. 126–128) remarks upon the characters of *Larentia filigrammaria* (H.-Sch.) and *Eupithecia pulchellata* (Steph.).

Macaria alternata (W. V.)=var. *notata* (Linn.), according to Pfützner, Berl. ent. Zeitschr. 1867, p. 208.

Packard (Proc. Bost. Soc. N. H. xi.) refers to the variations observed in the following species collected in Labrador:—*Scotosia dubitata*, *l. c.* p. 44; *Larentia polata* (Boisd.), *l. c.* p. 45, of which *L. gelata* (Guen.) may be a variety; and *Melanippe gothica* (Guen.), *l. c.* p. 46.

Nyssia hispidaria. A dark variety noticed by H. Vaughan, Ent. M. Mag. iv. p. 16.

Tephrosia laricaria. The progeny of a lead-coloured variety of the ♀ noticed by Llewellyn, Ent. M. Mag. iv. p. 16.

Gnophos ophthalmicata (Led.). Speyer (Stett. ent. Zeit. 1867, pp. 349–357) gives a very detailed description of this species, and of its varieties, which he has received under different names from various districts. Its geographical distribution is very wide, extending from the Altai to Provence. *G. ophthalmicata* may be identical with *G. pullularia* (H.-Sch.), which, however, has been referred by its original describer to *pullata* as a var. *G. pullata* (W. V.), *ambiguata* (Dup.), and *meyeraria* (Lah.) are noticed by Speyer.

Sterrha sacraria. M'Lachlan has recorded some interesting observations on the variation of this species (Trans. Ent. Soc. 3rd ser. ii. pp. 453–458). Six eggs obtained from a typical ♀ produced larvæ, all the moths proceeding from which varied considerably from the characters of their parent. These specimens and the larva are figured by M'Lachlan, *l. c.* pl. 23. M'Lachlan remarks upon the wide distribution of *Sterrha sacraria* (which extends over the whole of the Old World), and indicates the following supposed nearly allied species are probably only varieties:—*S. labdaria* (Cram.), Surinam ?; *S. anthophilaria* (Hübn.), Russia; *S. rosearia* (Tr.), South Russia and Ionian Islands; *S. plectraria* (Guen.), Abyssinia; *S. participata* and *S. peculiata* (Walk.), South Africa.

Mabille, in his revision of the *Eupitheciæ* of Corsica (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 642–658) enumerates 17 species of that genus, 12 of which he describes, generally with an account of the larvæ, food-plant, &c. *E. pumilata* (Hübn.) is described as the type of a new genus. The other species described are:—*E. venosata* (Fab.), *silenicolata* (Mab. *vide infrà*), *insigniata* (Hübn.)=*consignata* (Borkh.), *centaureata* (W. V.), *merinata* (Guen.), *rectangulata* (Linn.)= ? *suberata* (Ramb.), *innotata* (Hübn.), *coccciferata* (Mill.), var. *semitinctaria*, pl. 14. fig. 2, *scopariata* (Ramb.), *oxycedrata* (Ramb.), and a new species.

Snellen has published (Tijdschr. v. Entom. 2de ser. Deel i. pp. 97–168) a memoir on the species of *Eupithecia* inhabiting Holland, of which he enumerates 39. He describes the characters of the genus (which are illustrated on pl. 3), and gives a tabular synopsis, followed by the descriptions, natural

history, and synonymy of the species, which are well figured upon 3 plates. The species figured are :—*E. linariata* (W. V.), pl. 4. fig. 1; *subnotata* (Hübn.), pl. 6. fig. 11; *centaureata* (W. V.), pl. 4. fig. 2; *irriguata* (Hübn.), pl. 4. fig. 8; *abbreviata* (Steph.), pl. 4. figs. 9 & 10; *dodoneata* (Guen.), pl. 4. fig. 11; *sobrinata* (Hübn.), pl. 5. fig. 1; *pumilata* (Hübn.), pl. 4. fig. 7; *piperata* (Steph.), pl. 5. fig. 2; *innotata* (Hübn.), pl. 5. fig. 6; *nanata* (Hübn.), pl. 5. fig. 7; *indigata* (Hübn.), pl. 5. fig. 8; *vulgata* (Haw.), pl. 5. fig. 9; *absynthiata* (Hübn.), pl. 5. fig. 10; *minutata* (Hübn.), pl. 5. fig. 11; *assimilata* (Guen.), pl. 6. fig. 1; *trisignaria* (H.-Sch.), pl. 6. fig. 2; *tripunctaria* (H.-Sch.), pl. 6. fig. 3; *castigata* (Hübn.), pl. 6. fig. 4; *valerianaria* (H.-Sch.), pl. 6. fig. 5; *pygmæata* (Hübn.), pl. 6. fig. 6; *plumbeolata* (Haw.), pl. 6. fig. 7; *tenuiata* (Hübn.), pl. 6. fig. 8; *pusillata* (W. V.), pl. 5. fig. 5; *strobilata* (Borkh.), pl. 5. fig. 3; *togata* (Hübn.), pl. 5. fig. 4; *rectangulata* (Clerck), pl. 6. fig. 9; and *sparsata* (Tr.), pl. 6. fig. 10.

Eumenia mœniata, its occurrence near York noticed by Prest, Ent. M. Mag. iii. p. 186.

Ennomos tiliaria abounds in Ireland, according to Miss Lawless, Ent. M. Mag. iii. p. 187.

Fidonia fasciolaria. The natural history of this species is described by Zeller, Stett. ent. Zeit. 1867, pp. 178–183.

Newman (Entomologist, iii.) describes the larvæ of the following species : —*Phibalapteryx vitalbata*, p. 222, *Emmelesia decolorata*, p. 325, *Selenia tiliaria*, p. 339, *Boarmia rhomboidaria*, p. 340, *Fidonia atomaria*, p. 341, *Ephyra porata*, p. 355, *Pachycnemia hippocastanaria*, p. 355, *Melanthia ocellata*, p. 356, and *Pelurga comitata*, p. 357.

Hellins describes the larva of *Lithostege griseata*, Entomologist, iii. p. 358.

The larvæ of the following species are described by Hellins :—*Acidalia rusticata* (W. V.), Ent. M. Mag. iii. p. 259; *Thera simulata* (Hübn.), *firmata* (Hübn.), and *obeliscata*, *l. c.* pp. 277–278; *Lithostege niveata* (W. V.), *l. c.* iv. p. 115; and *Hyria auroraria* (Hübn.), *l. c.* p. 158. Hellins also describes the life-history of *Acidalia emutaria* (Hübn.), *l. c.* pp. 88, 89; and Buckler the larva of *Tanagra chærophyllata* (Linn.), *l. c.* p. 85.

The same author (Ent. M. Mag. iii. p. 185) notices the distinctive characters of the larvæ of *Nyssia hispidaria* and *Phigalia pilosaria*.

Phorodesma smaragdaria. Larva noticed by Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 114.

Ellopia fasciaria (Linn.). Fallou on rearing this species from the egg, Bull. Soc. Ent. Fr. 1866, p. lxii.

Mabille notices the food-plants of *Ellopia pinicolaria* and *Boarmia bastelicaria* (Bellier). Ann. Soc. Ent. Fr. 4° sér. vi. p. 561.

Lobophora appensata (Eversm.). Herrich-Schäffer (Corr.-Blatt zool.-min. Ver. Regensb. xx. p. 90) states that the insect bred from larvæ feeding on *Actæa spicata* by Hofmann (see 'Record,' 1865, p. 622, and 1866, p. 491) is not *L. viretata* (Hübn.), but this species, which is new to Germany.

Epunda nigra. W. Buckler describes 4 varieties of the larva of this species. Ent. M. Mag. iv. pp. 87–88.

Cidaria silaceata. Prest states that this species produces only a single brood annually in the north of England. Ent. M. Mag. iii. p. 235.

Pericyma albidentaria (Fr.). The larva and mode of life of this species are described by Christoph, Stett. ent. Zeit. 1867, pp. 244–245.

C. G. Barrett records the assembling of several males of *Phorodesma bajularia* over the spot where a ♀ was lying. Ent. M. Mag. iv. p. 160.

Eupithecia minutata. D'Orville (Ent. M. Mag. iii. p. 191) records a case of cannibalism in the larva of this species.

Künstler reports (Verh. zool.-bot. Ges. in Wien, xvii. pp. 950–953) on injury done to orchard trees in 1866 and 1867 by *Cheimatobia brumata*, *Amphidasys pomonaria*, and *Hibernia defoliaria*.

New genera:—

Issa, g. n., Walker, *l. c.* p. 198. Allied to *Pachydia*; palpi slender, applied to front, joint 3 very small; antennæ serrate, setose; abdomen with 2 small ventral subapical tufts. Sp. *I. munda*, sp. n., Walk. *l. c.* p. 198, Bogota.

Tora, g. n., Walker, *l. c.* p. 199. Allied to *Emplocia*; wings ample, anterior acute, outer margin very oblique, posterior with outer margin subtruncate, inner margin oblique. Sp. *T. unilinea*, sp. n., Walk. *l. c.* p. 199, Bogota.

Norsia, g. n., Walker *l. c.* p. 196. Allied to *Auxima*; body slender; palpi stout, joint 2 fringed, 3 lanceolate, porrect, half length of 2; antennæ crenulate; abdomen long, apical tuft small; tibiæ fimbriate; anterior wings very long. Sp. *N. vincta*, sp. n., Walk. *l. c.* p. 197, Bogota.

Gymnoscelis, g. n., Mabille, Ann. Soc. Ent. Fr. 4e sér. vii. p. 656. Allied to *Eupithecia*; posterior tibiæ with only 1 pair of spurs; first branch of subcostal vein soldered to the costal, and describing a strong curve. Sp. *E. pumilata* (Hübn.).

Dalima, g. n., Moore, Proc. Zool. Soc. 1867, p. 614. Allied to *Urapteryx*; antennæ (♂) bipectinate; palpi small, joint 2 pyriform, 3 minute; fore wings falcate, costa straight, very convex at apex, which is acute. Sp. *D. apicata*, sp. n., Moore, *l. c.* p. 615, pl. 32. fig. 4, and *D. schistacearia*, sp. n., Moore, ibid., Bengal.

Agnidra, g. n., Moore, *l. c.* p. 618. *Fascellina* (Walk.), ex parte. Palpi small, erect, joint 2 long, 3 small, conical; antennæ (♂) bipectinate for ¾ their length; intermediate tibiæ with 1, and hind tibiæ with 2 pairs of spurs; fore wings falcate. Sp. *F. specularia* (Walk.), *l. c.* pl. 32. fig. 2, and *F. muscularia* (Walk.); *A. discispilaria*, sp. n., Moore, *l. c.* p. 619, Bengal.

Panisala, g. n., Moore, *l. c.* p. 620. Allied to *Angerona*; palpi small, joint 3 minute; antennæ (♂) broadly pectinated; hind tibiæ thickened in middle, with 4 long spurs; fore wings truncated at apex, costa nearly straight; hind wings subquadrate, outer margin angulate in the middle. Sp. *P. truncataria*, sp. n., Moore, *l. c.* p. 620, Bengal.

Garæus, g. n., Moore, *l. c.* p. 623. Allied to *Ennomos*; antennæ (♂) bipectinate; palpi suberect, joint 3 cylindrical, decumbent; thorax broad; fore wings with costa hollowed in the middle, produced and pointed at apex, outer margin scalloped; hind wings deeply scalloped. Sp. *G. specularis*, sp. n., Moore, *l. c.* p. 623, pl. 32. fig. 3, Darjeeling.

Corotia, g. n., Moore, *l. c.* p. 624. Allied to *Œnochroma*; palpi porrect, densely pilose, joint 2 projecting beyond head, 3 short, cylindrical; antennæ pectinated in ♂; fore wings slightly falcate, costa nearly straight, outer margin sinuous near apex; hind wings rounded. Sp. *C. cervinaria*, sp. n., Moore, *l. c.* p. 625, pl. 32. fig. 10, Darjeeling.

Xandrames, g. n., Moore, *l. c.* p. 634. Allied to *Bargosa*; palpi small, densely pilose, joint 3 minute, conical; antennæ pectinated; hind tibiæ

thickened in middle; abdomen long; wings large; fore wings elongate, trigonal, apex somewhat acute, outer margin nearly straight; hind wings rounded. Sp. *X. dholaria*, sp. n., Moore, *l. c.* p. 634, and *X. albofasciata* sp. n., Moore, p. 635, pl. 32. fig. 5, Darjeeling.

Krananda, g. n., Moore, *l. c.* p. 648. Allied to *Macaria*; palpi porrect, slender, joint 3 small, cylindrical; antennæ minutely serrated in ♂; legs short, hind tibiæ thickened; fore wings falcate, outer margin scalloped, produced in the middle and at the hinder angle; hind wings with apex of fore margin produced. Sp. *K. semihyalina*, sp. n., Moore, *l. c.* p. 648, Bengal.

Vindusara, g. n., Moore, *l. c.* p. 653. Allied to *Abraxas*; antennæ broadly pectinate in ♂; hind tibiæ pilose at the side; fore wings trigonal, posterior angle rounded; hind wings angulated, middle of outer margin produced. Sp. *A. compositata* (Guen.), *l. c.* pl. 32. fig. 6, and *A. metachromata* (Walk.).

Ariehanna, g. n., Moore, *l. c.* p. 658. Allied to *Scotosia*; antennæ bipectinated in ♂; intermediate tibiæ with 1, and hind tibiæ with 2 pairs of spurs; fore wings trigonate, apex angulate, outer margin slightly convex; hind wings slightly scalloped. Sp. *S. plagifera* and *ramosa* (Walk.). N. sp. *A. tramesata*, Moore, *l. c.* p. 658, pl. 32. fig. 2, *A. maculata*, Moore, *l. c.* p. 658, and *A. marmorata*, Moore, *l. c.* p. 659, Bengal.

Gandaritis, g. n., Moore, *l. c.* p. 660. Allied to *Cidaria*; palpi ascending; abdomen long; wings very large; fore wings arched, slightly falcate; hind wings produced. Sp. *G. flavata*, sp. n., Moore, *l. c.* p. 660, Bengal.

New species:—

Urapteryx margaritata, Moore, Proc. Zool. Soc. 1867, p. 612, *U. triangularia*, Moore, ibid., and *U. quadripunctata*, Moore, *l. c.* p. 613, Bengal; and *U. falcataria*, Moore, ibid., Darjeeling.

Chorodna pallidularia, Moore, *l. c.* p. 613, and *C. vulpinaria*, Moore, *l. c.* p. 614, Darjeeling.

Clysia discolor, Walker, Journ. Linn. Soc. ix. p. 195, Bogota.

Chœrodes bogotaria, Walker, *l. c.* p. 195, Bogota.

Chœrodes testaceata, Moore, *l. c.* p. 615, Bengal.

Lagyra megaspila, Moore, *l. c.* p. 616, Bengal.

Cimicodes castanearia, Moore, *l. c.* p. 616, pl. 32. fig. 1, Darjeeling; *C. costalis* and *C. cruentaria*, Moore, ibid., Bengal.

Auzea apicata and *A. torridaria*, Moore, *l. c.* p. 617, Bengal.

Drepanodes argentilinea, Moore, *l. c.* p. 617, *D. quinaria* and *D. fenestraria*, Moore, *l. c.* p. 618, Bengal; and *D. trilinearia*, Moore, ibid., Darjeeling.

Hyperythra trilineata, Moore, *l. c.* p. 619, Bengal.

Angerona pallicostaria, Moore, *l. c.* p. 620, Bengal.

Eurymene inustaria, Moore, *l. c.* p. 620, Bengal.

Odontoptera discospilata, Moore, *l. c.* p. 621, Bengal.

Selenia decorata, Moore, *l. c.* p. 621, pl. 32. fig. 9, Bengal.

Endropia basipuncta, Moore, *l. c.* p. 621, Bengal.

Crocalis (sic) *obliquaria*, *bivittaria*, *lentiginosaria*, and *angularia*, Moore, *l. c.* p. 622, Bengal.

Emmomos viridata, Moore, *l. c.* p. 623, Bengal; and *E. testaecaria*, Moore, ibid., Darjeeling.

Pericallia kentaria, Grote & Robinson, Trans. Amer. Ent. Soc. i. p. 12, pl. 1. figs. 5 & 6, Atlantic States.

Azelina saturata, Walker, *l. c.* p. 196, Bogota (type of a new section in the genus).

Mergana bilineata, Moore, *l. c.* p. 624, Bengal.

Hemerophila. Moore (*l. c.*) describes the following new Indian species:—*H. cuprearia, nigrovittata*, and *interruptaria*, p. 626, and *H. humeraria*, p. 627, Bengal; *H. basistrigaria*, p. 626, and *H. retractaria*, p. 627, pl. 32. fig. 7, Darjeeling.

Cleora decussata, Moore, *l. c.* p. 628, pl. 33. fig. 4, Darjeeling; *C. rufomarginata* and *fimbriata*, Moore, ibid., and *C. megaspilaria, albidentata*, and *pannosaria*, Moore, *l. c.* p. 629, Bengal.

Boarmia obliterata and *perspicuata*, Moore, *l. c.* p. 630, and *B. contiguata*, Moore, *l. c.* p. 631, Bengal.

Boarmia demissaria, Walker, *l. c.* p. 197, Bogota.

Amphidasis hüberaria, Ballion, Horæ Soc. Ent. Ross. iv. p. 29, pl. 1. fig. 1, Western Siberia.

Tephrosia dentilineata, Moore, *l. c.* p. 631, Bengal.

Hypochroma viridaria and *basiflavata*, Moore, *l. c.* p. 632, *H. varicoloraria, tenebrosaria*, and *costistrigaria*, Moore, *l. c.* p. 633, and *H. leopardinata*, Moore, *l. c.* p. 634, Bengal; *H. irroratata*, Moore, *l. c.* p. 632, Bengal and Silhet.

Bargosa fasciata, Moore, *l. c.* p. 634, pl. 32. fig. 8, Bengal.

Geometra dentisignata, Moore, *l. c.* p. 636, Darjeeling; *G. vittata*, Moore, ibid., Bengal.

Thalassodes ophthalmicata and *sinuata*, Moore, *l. c.* p. 637, Bengal.

Comibæna sanguilineata, hyalinata, and *maculata*, Moore, *l. c.* p. 638, and *C. fenestraria*, Moore, *l. c.* p. 639, Bengal; and *C. chalybeata*, Moore, ibid., Darjeeling.

Agathia quinaria, Moore, *l. c.* p. 639, and *A. arcuata*, Moore, *l. c.* p. 640, Bengal.

Anisodes sanguinaria, pallivittata, similaria, and *diffusaria*, Moore, *l. c.* p. 641, and *A.*? *vinaccaria*, Moore, *l. c.* p. 642, Bengal.

Hyria bicolorata, Moore, *l. c.* p. 642, *H. ornata*, and *H.*? *pluristrigata*, Moore, *l. c.* p. 643, Bengal; and *H. trilineata*, Moore, *l. c.* p. 642, Darjeeling.

Acidalia bicaudata, Moore, *l. c.* p. 643, pl. 33. fig. 12, and *A. ærata*, Moore, ibid., Darjeeling; *A. tephrosaria*, Moore, ibid., and *A.*? *gemmifera*, Moore, *l. c.* p. 644, Bengal.—*Acidalia graciliata*, Mann, Verh. zool.-bot. Ges. in Wien, xvii. p. 841, Tyrol.—*Acidalia subtilata*, Christoph, Stett. ent. Zeit. 1867, p. 236, Sarepta.—*Acidalia fulvicosta*, Walker, *l. c.* p. 197, Bogota.—*Acidalia okakaria*, Packard, Proc. Bost. Soc. N. H. xi. p. 43, Labrador.

Timandra subobliquaria, Moore, *l. c.* p. 644, Bengal.

Somatina plurilinearia and *S.*? *pictaria*, Moore, *l. c.* p. 645, Darjeeling.

Argyris insignata, Moore, *l. c.* p. 645, Bengal.

Micronia simpliciata, Moore, *l. c.* p. 646, Bengal.

Micronia metargyria, Walker, *l. c.* p. 198, Bogota.

Erosia cervinaria, Moore, *l. c.* p. 646, Bengal.

Cabera margarita, Moore, *l. c.* p. 647, Bengal.

Macaria perspicuaria, Moore, *l. c.* p. 647, Bengal.

Macaria sex-maculata, Packard, *l. c.* p. 44, Labrador (Square Island).

Scodiona hispanaria, Millière, Ann. Soc. Linn. Lyon, xiv. p. 373, pl. 79. figs. 5–9, Spain.

Fidonia cembraria, Motschulsky, Bull. Soc. Nat. Mosc. xxxix. 2. p. 119, Amour.

Aspilates obliquaria, Moore, *l. c.* p. 649, Bengal.

Caprilia specularia, Moore, *l. c.* p. 649, pl. 33. fig. 11, Assam.

Osicerda costimaculata and *trinotaria*, Moore, *l. c.* p. 650, Bengal.

Rhyparia maculata, Moore, *l. c.* p. 651, Bengal.

Abraxas pardaria, *A. picaria*, and *A.* ? *tenebraria*, Moore, *l. c.* p. 652, Bengal; and *A. irrorata*, Moore, ibid., Darjeeling.

Oporabia macularia, Moore, *l. c.* p. 653, Bengal.

Larentia variegata, Moore, *l. c.* p. 653, Bengal; and *L. ærata*, Moore, *l. c.* p. 654, Darjeeling.

Eupithecia semicirculata and *ferruginaria*, Moore, *l. c.* p. 654, Darjeeling; and *E. costipannaria*, Moore, ibid., Bengal.—*Eupithecia unedonata*, Mabille, Ann. Soc. Ent. Fr. 4e sér. vii. p. 649, pl. 14. fig. 3 (with larva), Corsica.—*Eupithecia silenicolata*, Mabille, Ann. Soc. Ent. Fr. 4e sér. vi. p. 562, pl. 8. fig. 9, Corsica.—*Eupithecia multiflorata*, Millière, *l. c.* p. 302, pl. 71. figs. 8–13, south of France.—*Eupithecia luteata*, Packard, *l. c.* p. 46, Labrador (Caribou Island).—*Eupithecia biornata*, Christoph, Stett. ent. Zeit. 1867, p. 238, Sarepta.

Sauris decussata, Moore, *l. c.* p. 655, pl. 33. fig. 10, Bengal.

Melanippe catenaria, Moore, *l. c.* p. 655, pl. 33. fig. 9, and *M. cupreata*, Moore, ibid., Bengal.

Anticlea cuprearia, Moore, *l. c.* p. 656, Darjeeling.

Coremia mediovittaria, Moore, *l. c.* p. 656, Darjeeling.

Coremia labradorensis, Packard, *l. c.* p. 46 (Caribou Island).

Scotosia vitreata, Moore, *l. c.* p. 656, and *S. venimaculata*, Moore, *l. c.* p. 657, Bengal; *S. lativittaria* and *obliquisignata*, Moore, ibid., Darjeeling.

Psyra similaria, Moore, *l. c.* p. 659, pl. 33. fig. 1, Darjeeling.

Cidaria. Moore (*l. c.*) describes the following new species of this genus:—*C. argentilineata*, p. 660, pl. 33. fig. 5, *C. aurantiaria*, p. 661, pl. 33. fig. 8, *C. signata*, p. 661, *C. viridata*, ibid., *C. subapicaria*, p. 663, and *C. chalybearia*, ibid., Darjeeling; *C. reticulata*, p. 662, *C. cinereata*, ibid., *C. calamistrata*, ibid., pl. 33. fig. 6, *C. trisignata*, p. 663, *C. obscurata*, ibid., pl. 33. fig. 7, *C. cervinaria*, p. 664, and *C. aurata*, ibid., Bengal.

Cidaria. Packard (*l. c.*) describes the following new species from Labrador:—*C. brunneata*, p. 47 (Caribou Island), *C. nubilata*, p. 48, *C. nigro-fasciata*, p. 49 (Caribou Island), *C. strigata*, p. 50 (Caribou Island), and *C. aurata*, p. 51 (Okak and Caribou Island, also in the United States).

Eubolia obvallaria, Mabille, Ann. Soc. Ent. Fr. 4e sér. vi. p. 563, pl. 8. fig. 8, Corsica.

Pyralidæ.

Zeller publishes (Stett. ent. Zeit. 1867, pp. 188–195) a notice of the part of Heinemann's work on German Lepidoptera treating of the Pyralidæ. (See 'Record,' 1865, p. 564.) After some general observations, Zeller makes the following remarks upon particular points:—*Botys ostrinalis*=*purpuralis*, var.; *Botys stachytalis* should be *stachydalis* *; *Psamotis* should be *Psammotis*; *Pa-*

* Zeller did not consult Ahrens's Fauna, in which the species was first described; in it the name stands *stachydalis* in the text and *stachytalis* on the plate, which may account for the different spellings of authors.

raponyx—an unintelligible note as it stands, but meaning that the name should be spelled *Parapoyx*; *Acentropus* is correctly placed; *Thinasotia* stands as *Thisanotia* in Hübner, and should be *Thysanotia*; the two species (*alpinellus* and *cerussellus*) referred to this genus differ in the venation and some other characters of the wings, and Zeller remarks on the number of genera that may be established at the expense of *Crambus* if these characters are to be accepted; *Agriphila deliellus*, the generic distinctness is doubtful; *Pempelia*, *Etiella*, and *Salebria*, characters remarked on; the sinking of *Acrobasis* in *Myelois* seems unnecessary; *Stenoptycha* is already employed = *Euzophera* (Zell.); the larva of *Sten. cinerosella* lives on *Absinthium*; *Homœosoma nimbella* probably includes several species, or else *H. nimbella* and *nebulella* form one species; *Semnia* is the generic name of a Brazilian form—the European genus = *Ematheudes* (Zell.).

A. Gartner (Verh. naturf. Ver. in Brünn, iv. pp. 94–122) publishes a list of the species of this group found in the environs of Brünn, amounting in all to 122, namely Crambina 115 and Pyralidina 7. The former when compared with the European and German species are as 1 : 4 and nearly as 1 : 2, whilst of the latter nearly all (7 : 9) of the German and Swiss species occur in the district of Brünn, but these form only a small proportion of the European species (33). Notes on the habits of most of the species are given, and the larvæ of the following species are more particularly characterized:—*Botys cespitalis* (W. V.), *B. palealis* (W. V.), *Cryptoblabes rutilella* (H.-Sch.), *Alispa angustella* (Hübn.), *Homœosoma hornigii* (Led.), *Ephestia elutella* (Hübn.), and *E. interpunctella* (Hübn.).

Stainton (Brit. Butt. & Moths) figures the following species of this group:—*Pyralis costalis* (pl. 12. fig. 1), *Pyrausta purpuralis* (fig. 2), *Diasemia literalis* (fig. 3), *Cataclysta lemnata* (figs. 4 & 5), *Botys urticata* (fig. 6), *Spilodes cinctalis* (fig. 7), *Acrobasis consociella* (pl. 13. fig. 1), *Cryptoblabes bistriga* (fig. 2), *Pempelia carnella* (fig. 3), *Pempelia formosa* (fig. 4), *Crambus cerussellus* (fig. 5), *C. hamellus* (fig. 6), and *C. pinetellus* (fig. 7).

Moore (Proc. Zool. Soc. 1867, pp. 81–98) gives the following indications of the synonymy of species and genera belonging to this group:—*Neviasca* and *Pradiota* (Walk.) = *Episparis* (Walk.); *Episparis signata* (Walk.) = *varialis* (Walk.); *Pradiota ennomocoides* (Walk.) = *sejunctaria* (Walk.); *Oligostigma tripunctalis* (Walk.) = *crassicornalis* (Led.); *Botys flexissimalis* (Walk.) = *Zebronia perspicualis* (Walk.), referred to *Lepyrodes*; *Z. inscriptalis* (Walk.) = *bistrigalis* (Walk.), referred to *Pycnarmon*; *Synclera retinalis* (Led.) and *Glyphodes univocalis* (Walk.) = *traducalis* (Zell.); *Phakellura gazorialis* (Guen.) = *indica* (Saund.) = *Phak. indicalis* (Moore); *Botys evaxalis* (Walk.) = *Astura punctiferalis* (Guen.); *B. megapteralis* (Walk.) = *unitalis* (Guen.); *Zebronia salomealis* (Walk.) = *B. multilinealis* (Guen.); *Botys monesusalis* and *phanasalis* (Walk.) = *Dysallacta negatalis* (Walk., Led.).

Zeller notices (Stett. ent. Zeit. 1867, pp. 365–385, also Trans. Ent. Soc. 3rd ser. v. pp. 453–466) the species of this family collected by Pickard Cambridge during his travels in the east. Zeller remarks upon the early period of the year at which many of the known species were taken. The number of oriental species noticed is 24, of which 14 are described as new. Four species taken in Corfu are also noticed. Zeller describes (*l. c.* p. 370) a variety of *Crambus cassentiniellus* (Mann) from the Lebanon, and remarks on the peculiarities of the specimens of other species. He proposes to substitute the

name *Euzophera* for *Stenoptycha*=*Melia* (Heinem.), the latter name being preoccupied (*l. c.* p. 377); he likewise proposes the new name *Ematheudes* for *Semnia* (Hein.) in case of that genus being adopted.

Zeller (Stett. ent. Zeit. 1867, p. 390) records the occurrence of *Crambus malacellus* (Dup.) in India, and notices (*l. c.* pp. 397–401) the characters of 5 species of *Nephopteryx* (*N. roborella, illyriella, meliella, metzneri,* and *poteriella*), which agree, in having more or less translucent hind wings, with his new species *N. clientella.*

G. Allard describes and figures a variety (*algiralis*) of *Spilodes palealis* from Algeria (Ann. Soc. Ent. Fr. 4e sér. vii. p. 321, pl. 6. fig. 4).

Botys (*Rhodaria*) *stigmatalis* (Walk.) is described and figured by Grote & Robinson (Trans. Amer. Ent. Soc. i. p. 16, pl. 2. fig. 11).

Scoparia ingratella (Zell.). Its occurrence in England noticed by Knaggs, Ent. M. Mag. iv. p. 61.

Ebulea catalaunalis (Dup.) occurs in England, according to W. C. Boyd, Ent. M. Mag. iv. p. 152. Figured by Knaggs, Ent. Ann. 1868, Front. fig. 4.

Mabille (Ann. Soc. Ent. Fr. 4e sér. vi. pp. 563–564) notices the habits of various species of this family observed by him in Corsica.

Spilodes sticticalis (Linn.). Larva described by Hellins, Ent. M. Mag. iii. p. 260.

The larvæ of *Herminia grisealis* and *Pionea margaritalis* are described by Newman, Entomologist, iii. pp. 223 & 224.

Phakellura gazorialis (Guen.). The larva noticed by G. Semper, Verh. zool.-bot. Ges. in Wien, xvii. p. 702.

J. Angus records the breeding of *Helia americalis* from the nest of a *Bombus.* Amer. Nat. i. p. 157.

Goureau (Insectes nuisibles) describes the characters and habits of several species of this group, namely:—*Aglossa pinguinalis,* as feeding on fatty substances (pp. 116–118); *A. cuprealis* (pp. 118–119), as destructive to dried animal substances; *Galleria cereana* and *alvearia* (pp. 120–124), as injurious to bee-hives; and *Ephestia elutella* (pp. 125 & 126), as feeding on dried fruits, &c.

New genera:—

Magiria, g. n., Zeller, Stett. ent. Zeit. 1867, p. 392. Allied to *Salebria*; antennæ ♂ sinuate above the base, the sinus with long scales; labial palpi ♂ long, covering the forehead above, with joint 2 dilated, spoon-shaped, ♀ cylindrical, porrect. Sp. *M. imparella,* sp. n., Zeller, *l. c.* p. 393, pl. 2. fig. 2, East Indies.

Ceroprepes, g. n., Zeller, *l. c.* p. 401. Allied to *Acrobasis*; antennæ in ♂ pectinated on one side, naked at apex, with a scaly tubercle above the basal joint; labial palpi ascending. Sp. *C. patriciella,* sp. n., Zell. *l. c.* p. 402, pl. 2. fig. 4, East Indies.

Casperia, g. n., Walker, *l. c.* p. 194. Allied to *Mesopia*; palpi reflexed over thorax, joint 2 fringed, 3 fasciculate, scarcely shorter than 2; anterior legs densely fasciculate; anterior wings acute, posterior with outer margin subangulate. Sp. *C. erebipennis,* sp. n., Walk. *l. c.* p. 194, Bogota.

Talapa, g. n., Moore, Proc. Zool. Soc. 1867, p. 82. Allied to *Hypena*; ♀ robust; palpi porrect, compressed, pilose, joint 2 curved upwards and out-

wards; joint 3 two-thirds length of 2; fore wings broad, acute, costa straight. Sp. *T. caliginosalis* = *Remigia caliginosa* (Walk.), pl. 7. fig. 6.

Anoratha, g. n., Moore, *l. c.* p. 82. Allied to *Hypena*; slender; palpi porrect, long, joint 2 straight, three times as long as 3; fore wings more or less falcate, exterior margin slightly angled; hind wings long, rather narrow. Sp. *A. costalis*, sp. n., Moore, *l. c.* p. 82, pl. 7. fig. 10, Darjeeling. (In the references to the figures of this species and *Pycnarmon virgatalis* the numbers are reversed.)

Apsarasa, g. n., Moore, *l. c.* p. 665. (*Gallerides*?) Palpi stout, joint 2 broad, covered with dense hair-like scales, 3 naked; head broad, with a short acute point on the vertex; abdomen long, tufted; legs stout, intermediate tibiæ with two, hind tibiæ with four spurs, spurs unequal; fore wings elongate, rounded at apex; hind wings short, trigonate, outer margin excavated near apex. Sp. *Apatela radians* (Westw.).

Brihaspa, g. n., Moore, *l. c.* p. 666. Allied to *Scirpophaga*; labial palpi slender, smooth, pointed, joint 2 twice as long as 3; head conical; abdomen attenuated, compressed, tufted; hind legs very long; tibiæ with four long spurs; fore wings acute at apex, outer margin convex, oblique; hind wings produced at apex; cilia broad. Sp. *B. atrostigmella*, sp. n., Moore, *l. c.* p. 666, pl. 33. fig. 13, Darjeeling.

Ramila, g. n., Moore, *l. c.* p. 667. Allied to preceding; labial palpi slender, joints 2 and 3 nearly equal; maxillary palpi nearly as long as labial, tufted at apex; legs moderate; fore wings slightly falcate, outer margin straight; hind wings trigonate. Sp. *R. marginella*, sp. n., Moore, *l. c.* p. 667, pl. 33. fig. 16, Darjeeling.

New species:—

Episparis tortuosalis, Moore, *l. c.* p. 81, pl. 7. fig. 5, Bengal.

Hypena. Moore (*l. c.*) describes the following new Bengalese species of this genus:—*H. tenebralis*, *cervinalis*, and *costinotalis*, p. 83, *H. castanealis*, *rectivittalis*, *basistrigalis*, and *divisalis*, p. 84.

Hypena megaspila, Walker, Journ. Linn. Soc. ix. p. 193, Bogota.

Lametia retusa, Walker, *l. c.* p. 193, Bogota.

Herminia hadenalis, *ochracealis*, and *H.*? *albirenalis*, Moore, *l. c.* p. 85, Darjeeling.

Mastygophora? *scopigeralis*, Moore, *l. c.* p. 86, Bengal.

Echana plicalis, Moore, *l. c.* p. 86, pl. 7. fig. 7, Darjeeling.

Locastra cuproviridalis, Moore, *l. c.* p. 87, Darjeeling.

Bertula brevivittalis and *stigmatalis*, Moore, *l. c.* p. 87, Bengal; *B. chalybealis*, Moore, ibid., pl. 7. fig. 8, Darjeeling.

Bocana basalis and *viridalis*, Moore, *l. c.* p. 88, and *B. murinalis*, Moore, *l. c.* p. 89, Bengal; *B. quadrilinealis*, Moore, *l. c.* p. 88, Darjeeling.

Asopia unimacula, Grote & Robinson, Trans. Amer. Ent. Soc. i. p. 14, pl. 2. fig. 8, and *A. anthœcioides*, Grote & Rob. *l. c.* p. 15, pl. 2. fig. 9, Atlantic States.

Botys laticlavia, Grote & Rob. *l. c.* p. 17, pl. 2. fig. 12, *B. cinerosa*, Grote & Rob. *l. c.* p. 18, pl. 2. fig. 13, *B. generosa*, Grote & Rob. *l. c.* p. 20, pl. 2. fig. 10, *B. posticata*, Grote & Rob. *l. c.* p. 22, pl. 2. fig. 25, *B. marculenta*, Grote & Rob. *l. c.* p. 23, pl. 2. fig. 21, and *B. plectilis*, Grote & Rob. *l. c.* p. 27, pl. 2. fig. 17, Pennsylvania; *B. haruspica*, Grote & Rob. *l. c.* p. 19, pl. 2. fig. 14, and *B. gra-*

cilis, Grote & Rob. *l. c.* p. 25, pl. 2. fig. 15, Massachusetts to Pennsylvania; *B. ventralis*, Grote & Rob. *l.c.* p. 21, pl. 2. fig. 23, *B. citrina*, Grote & Rob. *l. c.* p. 23, pl. 2. fig. 20, New York to Pennsylvania; *B. insularis*, Grote & Rob. *l. c.* p. 24, pl. 2. fig. 24, Cuba; *B. coloradensis*, Grote & Rob. *l. c.* p. 25, pl. 2. fig. 18, Colorado; *B. adipaloides*, Grote & Rob. *l. c.* p. 26, pl. 2. fig. 19, Massachusetts to Texas; *B. diffissa*, Grote & Rob. *l. c.* p. 19, pl. 2. fig. 16, Louisiana.

Botys cultralis, Staudinger, Stett. ent. Zeit. 1867, p. 108, Caucasus; *B.* (*Pyrausta*) *trimaculalis*, Staud. *l. c.* p. 109, Amasia.

Botys accolalis, Zeller, Stett. ent. Zeit. 1867, p. 190, Vienna.

Botys plagalis, Moore, *l. c.* p. 96, Darjeeling.

Thalpochares pegani, Becker, Bull. Soc. Nat. Mosc. xl. i. p. 107, near Astrachan.

Lipocosma albolineata, Grote & Robinson, *l. c.* p. 28, pl. 2. fig. 22, Pennsylvania.

Simaethis ægyptiaca, Zeller, Stett. ent. Zeit. 1867, p. 366, and Trans. Ent. Soc. 3rd ser. v. p. 461, pl. 24. fig. 1, Cairo.

Schœnobius niloticus, Zeller, *l. c.* p. 397, and Trans. Ent. Soc. *l.c.* p. 462, pl. 24. fig. 2, Alexandria.

Scopula glacialis, Packard, Proc. Bost. Soc. N. H. xi. p. 52, Labrador (Hopedale).

Pyrausta borealis, Packard, *l. c.* p. 53, Labrador (Square Island).

Hoterodes cinerealis, Moore, *l. c.* p. 94, Darjeeling.

Filodes nigrolinealis and *octomaculalis*, Moore, *l. c.* p. 95, Bengal.

Botyodes flavibasalis, Moore, *l. c.* p. 96, Bengal.

Aglossa argentalis, Moore, *l. c.* p. 89, Darjeeling.

Hydrocampa pulchralis, Moore, *l. c.* p. 90, Darjeeling.

Pycnarmon zebralis, Moore, *l. c.* p. 91, pl. 7. fig. 12, Darjeeling; *P. virgatalis*, Moore, *l. c.* p. 92, pl. 7. fig. 9, Darjeeling.

Glyphodes lacustralis, Moore, *l. c.* p. 93, pl. 7. fig. 11, Bengal.

Scoparia. Knaggs (Ent. M. Mag. iv.) describes the following species of this genus from New Zealand:—*S. feredayi* and *rakaiensis*, p. 80, and *S. ejuncida* and *exilis*, p. 81.

Scoparia ulmella (Dale, MS.), Knaggs, Ent. M. Mag. iii. p. 217 (cum fig.), Dorsetshire.

Eudorea? *frigidella*, Packard, *l. c.* p. 53 (Caribou Island), and *E.*? *albisinuatella*, Pack. ibid. (Okak), Labrador.

Crambus unistriatellus, Packard, *l. c.* p. 54 (Caribou Island), and *C. argillaceellus*, Pack. ibid. (Square Island), Labrador.—*Crambus argentarius*, Staudinger, *l. c.* p. 109, Ural.—*Crambus biarmicus*, Tengström, Horæ Soc. Ent. Ross. iii. p. 49, pl. 2. figs. 1 & 2, North Russia.—*Crambus parallelus*, Zeller, Stett. ent. Zeit. 1867, p. 389, pl. 2. fig. 1, Darjeeling.

Calamotropha hierichuntica, Zeller, *l. c.* p. 368, and Trans. Ent. Soc. *l. c.* p. 4, pl. 23. fig. 1, valley of the Jordan.

Eromene cambridgei, Zeller, *l. c.* p. 370, and Trans. Ent. Soc. *l. c.* p. 463, pl. 24. fig. 3, Minyeh.

Pempelia (*Salebria*) *leucophæella*, Zeller, *l. c.* p. 390, Calcutta.—*Pempelia erberi*, Mann, *l. c.* p. 845, Corfu.—*Pempelia* (*Salebria*) *psammenitella*, Zeller, *l. c.* p. 372, and Trans. Ent. Soc. *l. c.* p. 463, pl. 24. fig. 4, Lower Egypt.

Nephopteryx (?) *scabida*, Zeller, *l. c.* p. 373, and Trans. Ent. Soc. *l. c.* p. 464, pl. 24. fig. 5, and *N.* (*Ceutholopha*) *isidis*, Zell. *l. c.* p. 375, and Trans. Ent.

Soc. *l. c.* p. 464, pl. 24. fig. 6, Egypt.—*Nephopteryx pulvillella*, Zeller, *l. c.* p. 394, pl. 2. fig. 3, East Indies; *N. clientella*, Zell. *l. c.* p. 396, Calcutta.

Anerastia laterculella, Zeller, *l. c.* p. 403, *A. sceletella*, Zell. *l. c.* p. 404, and *A. opificella*, Zell. *l. c.* p. 406, Calcutta.

Myelois aurorella, Christoph, Stett. ent. Zeit. 1867, p. 236, Sarepta.

Myelois monogrammos, Zeller, *l. c.* p. 376, and Trans. Ent. Soc. *l. c.* p. 455, pl. 23. fig. 2, valley of the Jordan and Amasia.

Zophodia remotella, Mann, *l. c.* p. 846, Asia Minor, Tinos, and Dalmatia.

Nyctegretis corsica, Mann, *l. c.* p. 847, Ajaccio and Syracuse.

Euzophera pilosella*, Zeller, *l. c.* p. 377, and Trans. Ent. Soc. *l. c.* p. 456, pl. 23. fig. 3, Jordan and Jerusalem; *E. samaritanella*, Zell. *ll. cc.* p. 379, and p. 456, pl. 23. fig. 4, *E. faustinella*, Zell. *ll. cc.* p. 380, and p. 457, pl. 23. fig. 5, and *E. favorinella*, Zell. *ll. cc.* p. 381, and p. 457, pl. 23. fig. 6, Jordan valley.

Ephestia tenebrosa, Zeller, *l. c.* p. 383, and Trans. Ent. Soc. *l. c.* p. 458, pl. 23. fig. 7, Jordan valley; *E. cahiritella*, Zell. *ll. cc.* p. 384, and p. 466, pl. 24. fig. 7, Cairo.

Propachys lineatis, Moore, *l. c.* p. 665, pl. 33. fig. 17, Darjeeling; *P. fascialis*, Moore, ibid., Bengal.

Tortricidæ.

A. Gartner (Verh. naturf. Ver. in Brünn, iv. pp. 123–163) records 187 species of this group as inhabitants of the immediate environs of Brünn, or considerably more than one-third of all the European species (520) and rather less than half the number of those inhabiting the whole of Germany and Switzerland (426). The habits of the species are indicated, and the larvæ of the following are particularly characterized:—*Tortrix gerningiana* (W. V.), *Conchylis manniana* (Fisch. v. R.), *C. dubitana* (Hübn.), *Grapholitha dimidiana* (Sod.), *G. conterminana* (H.-Sch.), *G. aspidiscana* (Hübn.), *G. æmulana* (Schläg.), *G. fœneana* (Linn.), *G. scutulana* (W. V.), *G. campoliliana* (Treits.), *G. derasana* (Hübn.), *G. badiana* (W. V.), *G. harpana* (Hübn.), *G. siculana* (Hübn.), *G. amplana* (Hübn.), and *G. flexana* (Zell.).

Stainton (Brit. Butt. & Moths, pl. 14) figures the following species:—*Antithesia corticana* (fig. 1), *Siderea achatana* (fig. 2), *Notocelia udmanniana* (fig. 3), *Dicrorhampha sequana* (fig. 4), *Anchylopera lundana* (fig. 5), *Crœsia forskaleana* (fig. 6), *Sericoris littoralis* (fig. 7), and *Calosetia nigromaculana* (fig. 8).

Tortrix croceana (Hübn.). Millière figures this species in all its stages. Ann. Soc. Linn. Lyon, xiv. p. 363, pl. 78. figs. 1–3.

Tyana callichlora (Walk.) is figured by Moore, Proc. Zool. Soc. 1867, pl. 33. fig. 14.

Knaggs redescribes his *Dicrorhampha flavidorsana*, Ent. M. Mag. iii. p. 176. The habits of the species are noticed by E. G. Meek, *l. c.* p. 180.

Leptogramma boscana and *scabrana*. Notes on these species by H. d'Orville, Ent. M. Mag. iii. p. 187.

Grapholitha ravulana (H.-Sch.) occurs in Britain. Knaggs, Ent. M. Mag. iv. p. 61. Figured Ent. Ann. 1868, Front. fig. 2.

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* Proposed by the author in place of *Stenoptycha*=*Melia* (Heinem.).

Catoptria aspidiscana (Hübn.), its occurrence in Britain noticed by J. B. Hodgkinson, Ent. M. Mag. iv. p. 16.

C. G. Barrett notices some species of this family found feeding upon oak-galls. Ent. M. Mag. iv. p. 153.

The following species of this family are cited by Walsh as having been bred from willow-galls:—*Hedya salicicolana*, *H. saliciana*, *Crœsia gallivorana*, and *Peronea gallicolana* (Clemens). *Euryptychia saligneana* (Clem.) was bred from a gall on the golden-rod (*Solidago*). Proc. Ent. Soc. Phil. vi. p. 272.

Pædisca immundana (Fisch.). Kawall (Stett. ent. Zeit. 1867, pp. 119–120) describes the larva of this species, which he obtained in catkins of the alder. Its parasites are *Eubadizon pectoralis* (Gw.), *Microgaster amentarum* (Ratz.), and a second species of *Microgaster*.

A. Gartner (Verh. nat. Ver. Brünn, v.) describes the habits and transformations of *Conchylis dipoltana* (Hübn.), *l. c.* pp. 40–42, and *Grapholitha brunnichiana* (Fab.), *l. c.* pp. 42–44.

Chrosis euphorbiana (Treit.). Life-history described by Zeller, Ent. M. Mag. iv. p. 9.

Knaggs states that when the newly spun silk of leaf-rolling caterpillars is moistened by being breathed upon, it shrinks to half its length. Ent. M. Mag. iii. p. 279.

Stainton (Proc. Ent. Soc. 1867, pp. lxxxix & xc) notices the ravages of the cotton-moth in Egypt, and identifies it with *Earias siliquana* (H.-Sch.).

Frauenfeld publishes a notice upon the moth whose larva has committed such ravages upon the Egyptian cotton-crops, and which Stainton has identified with *Earias siliquana* (H.-Sch.). Frauenfeld doubts the correctness of this identification. His paper includes two reports from A. Ivanovitch, of Cairo, giving an account of the habits of the insect and its ravages. Verh. zool.-bot. Ges. in Wien, xvii. pp. 785–792.

New species:—

Tyana superba, Moore, Proc. Zool. Soc. 1867, p. 668, pl. 33. fig. 15, Darjeeling.

Tortrix lubricana, Mann, Verh. zool.-bot. Ges. in Wien, xvii. p. 842, Tyrol.

Coccyx vernana, Knaggs, Ent. M. Mag. iv. p. 122, Darenth Wood, Kent.

Sciaphila niveosana, Packard, Proc. Bost. Soc. N. H. xi. p. 55, Labrador.

Pandemis leucophaleratana, Packard, *l. c.* p. 56, Labrador (Hopedale).

Conchylis chalcana, Packard, *l. c.* p. 56, Labrador (Strawberry Harbour).

Conchylis roridana, Mann, *l. c.* p. 847, Grossglockner; *C. cœnosana*, Mann, *l. c.* p. 848, Hungary.

Penthina frigidana, Packard, *l. c.* p. 57, *P. tessellana*, Pack, *l. c.* p. 58, *P. fulvifrontana*, Pack. *l. c.* p. 58, and *P. murina*, Pack. *l. c.* p. 60, Labrador.

Grapholitha nebulosana, Packard, *l. c.* p. 61, Labrador (Strawberry Harbour).

Tineidæ.

Stainton (Brit. Butt. & Moths) figures the following species of this group:—*Exapate gelatella* (pl. 15. fig. 1), *Chimabacche fagella* (fig. 2), *Tinea ochraceella* (fig. 3), *Adela de geerella* (fig. 4), *Prays curtisellus* (fig. 5), *Phibalocera quercana* (fig. 6), *Ysolophus marginellus* (fig. 7), *Antispila pfeif-*

ferella (pl. 16. fig. 1), *Coleophora ochrea* (fig. 2), *Chrysoelista linneella* (fig. 3), and *Lithocolletis roboris* (fig. 4).

Millière figures and describes (Ann. Soc. Linn. Lyon, xiv.) *Swammerdamia egregiella* (Dup.), p. 298, pl. 71. figs. 2–6, and *Depressaria ferulæ* (Zell.), p. 320, pl. 73. figs. 6, 7, with their preparatory states.

Stainton's 'Tineina of Syria and Asia Minor' has been noticed in general terms on p. 332. The total number of species, including those from the Caucasus &c., amounts to nearly 390, out of which 27 are described as new.

Frey has continued his Catalogue of the Swiss Microlepidoptera (Mitth. schweiz. ent. Ges. ii. pp. 169–186 and 286–303). He describes no new species, but indicates the following as new:—*Argyresthia submontana*, *l. c.* p. 183; *Butalis norieella*, *l. c.* p. 288; *Œcophora auromaculata*, *l. c.* p. 290; *Gelechia petrophilella*, *l. c.* p. 300; and *G. mariæ*, *l. c.* p. 302.

Steudel (Württ. naturw. Jahreshefte, xxiii. pp. 39–48) communicates some general remarks on the natural history of the Microlepidoptera of Würtemberg.

A. Gartner (Verh. naturf. Ver. in Brünn, iv. pp. 165–246) enumerates 271 species of this family as inhabiting the neighbourhood of Brünn, or only about one-fifth of the known European species. He includes *Fumea* in the family, and places *Micropteryx* in a distinct group. Notices of the larvæ or transformations of the following species are given by him:—*Xysmatodoma astrella* (H.-Sch.), *Tinea granella* (Linn.), *T. spretella* (W. V.), *Scardia choragella* (W. V.), *Choreutis dolosana* (Fisch. v. R.), *Depressaria enicella* (Fisch.), *D. hypomarathri* (Nick.), *D. artemisiella* (H.-Sch.), *D. absinthiella* (H.-Sch.), *D. propinquella* (Treits.), *Carposina scirrhosella* (H.-Sch.), *Hypsolopha marginella* (Fab.), *Gelechia cauliginella* (Schmid), *G. scabidella* (Zell.), *Anacampsis biguttella* (H.-Sch.), *A. coronillella* (Tisch.), *A. ligulella* (W. V.), *A. næviferella* (Zell.), *Parasia lapella* (Linn.), *P. carlinella* (Staint.), *Tichotripis festaecella* (Hübn.), *Stagmatophora serratella* (Treits.), *Butalis chenopodiella* (Hübn.), *Coleophora vulpeecula* (Zell.), *C. binotatella* (Zell.), *C. chamædryella* (Bruand), *C. nutantella* (Fr.), *C. flaviginella* (Zell.), *C. asteris* (H.-Sch.), *Lithocolletis fraxinella* (Mann), and *Tiscberia angustieolella* (Zell.). A great number of the shorter notices of habits &c. are appended to the citations of other species.

Gelechia. Stainton (Nat. Hist. Tin. x.) gives a general account of this genus, of which he enumerates 231 species as inhabiting Europe and the basin of the Mediterranean. Of these, Stainton (*l. c.*) describes and figures the following 24:—*G. leucomelanella* (Zeller), p. 60, pl. 9. fig. 1; *G. cauligenella* (Schm.), p. 70, pl. 9. fig. 2; *G. costella* (Steph.), p. 78, pl. 9. fig. 3; *G. maculea* (Haw.), p. 90, pl. 10. fig. 1; *G. trieolorella* (Haw.), p. 102, pl. 10. fig. 2; *G. viscariella* (Staint.), p. 114, pl. 10. fig. 3; *G. fraternella* (Dougl.), p. 122, pl. 11. fig. 1; *G. fischerella* (Treit.), p. 132, pl. 11. fig. 2; *G. marmorea* (Haw.), p. 142, pl. 11. fig. 3; *G. maculiferella* (Dougl.), p. 154, pl. 12. fig. 1; *G. sequax* (Haw.), p. 170, pl. 12. fig. 3; *G. tæniolella* (Zell.), p. 182, pl. 13. fig. 1; *G. coronillella* (Treit.), p. 192, pl. 13. fig. 2; *G. albipalpella* (H.-Sch.), p. 202, pl. 13. fig. 3; *G. anthyllidella* (Hübn.), p. 210, pl. 14. fig. 1; *G. arundinetella* (Staint.), p. 220, pl. 14. fig. 2; *G. lathyri* (Staint.), p. 228, pl. 14. fig. 3; *G. bifraetella* (Dougl.), p. 238, pl. 15. fig. 1; *G. inopella* (Zell.), p. 246, pl. 15. fig. 2; *G. brizella* (Treit.), p. 256, pl. 15. fig. 3; *G. pietella* (Zell.), p. 266, pl. 16. fig. 1; *G. ericinella* (Dup.), p. 276, pl. 16. fig. 2; *G. suboeellea* (Steph.) p. 288, pl. 16. fig. 3, and 1 new species.

Schleich (Stett. ent. Zeit. 1867, pp. 452–455) discusses the characters and habits of *Gracilaria hofmanniella* (Staint.) and *G. imperialella* (Mann), the latter at greater length.

Tinea oleastrella (Millière) is said by Stainton to be most nearly allied to *Zelleria*. Proc. Ent. Soc. 1867, p. lxxvii.

Fallou notices a new species, probably belonging to the genus *Dissoctena* (Staud.), of which the larvæ were found at Fontainebleau. Bull. Soc. Ent. Fr. 1867, p. xlv.

Bond notices a gilded variety of *Adela degeerella*. Proc. Ent. Soc. 1867, p. xc.

Tinea cloacella. A coppery variety noticed by Stainton. Proc. Ent. Soc. 1865, p. 129.

Stainton (Ent. Ann. 1868, pp. 127–133) records the occurrence in Britain of *Solenobia conspurcatella* (Zell.), *Ypsolophus ustulellus* (Fab.), and *Opostega reliquella* (Zell.). He indicates the characters and mode of life of these species, and figures the first-named (Front. fig. 3).

Ypsolophus ustulellus (Fab.). Its occurrence in England recorded by E. Horton and A. Edmunds. Ent. M. Mag. iv. p. 152.

Bucculatrix artemisiella (Wocke) recorded as occurring in Britain by Knaggs, Ent. M. Mag. iv. p. 36.

Opostega reliquella captured in Britain. Stainton, Ent. M. Mag. iv. p. 140.

Stainton (Ent. Ann. 1868, pp. 134–155) publishes notes on the natural history of numerous species of this family observed by him in this country and on the continent. The species noticed are:—*Hyponomeuta egregiella* (Dup.), *Prays oleellus* (Boy. de F.), *Depressaria rutana* (Fab.), *Gelechia pinguinella* (Tr.), *G. figulella* (Staud.), *G. terrella* (W. V.), *G. lucidella* (Steph.) *G. arundinetella* (Zell.), *Ypsolophus trinotellus* (H.-Sch.), *Y. verbaseellus* (W. V.), *Œcophora fusceseens* (Haw.), *Tinagma resplendellum* (Staint.), *Zelleria philyrella* (Mill.), *Gracilaria imperialella* (Mann), *Coleophora lixella* (Zell.), *Stathmopoda pedella* (Linn.), *Butrachedra præangusta* (Haw.), *Laverna decorella* (Steph.), *Chalybe* (*Pseeadia*) *pyrausta*, and *Swammerdamia conspersella* (Tengstr.).

Gregson (Entomologist, iii.) publishes life-histories of *Yponomeuta padella*, p. 225, and *Depressaria carduella*, p. 269.

Gracilaria syringella. C. Healy publishes a life-history of this species. Ent. M. Mag. iv. pp. 148–150.

Goureau (Insectes nuisibles, pp. 127–133) describes the characters and habits of the species of this family which are injurious to cloth, feathers, and other dry animal substances, namely *Tinea tapetzella, sarcitella, pellionella*, and *flavifrontella*.

Acrolepia assectella. Stainton translates Breyer's account of the habits of this species, which he says is described by Goureau (Ins. nuisibles à l'Agric. p. 204) under the name of *Tinea vigeliella* (Dup.). It is distinct from *A. betuletella* (Curt.). Ent. M. Mag. iii. pp. 256–259.

Œgoeona quadripuneta. M'Lachlan notices some points in the habits of this species. Ent. M. Mag. iv. pp. 90, 91.

Cemiostoma scitella. The mode of pupation described by C. Healy. Ent. M. Mag. iv. pp. 161–162.

Nepticula deeentella. Stainton notices the habits of this species. Ent. M. Mag. iv. pp. 28–29.

C. Healy notices the pupation of *Antispila pfeifferella*. Ent. M. Mag. iv. pp. 10–12.

Packard (Amer. Nat. i. pp. 423–427) describes the natural history of *Tinea flavifrontella*, the common clothes-moth of the United States.

A posthumous note by Wttewaal on the development of *Ochsenheimeria urella*? is published by Vollenhoven. Tijdschr. v. Ent. 2de ser. ii. pp. 23–25, pl. 1. figs. 7–9.

Depressaria ultimella (Staint.). Snellen describes the larva of this species and contrasts the venation of the hind wings in it and *D. nervosa*. Tijdschr. v. Ent. 2de ser. ii. pp. 26–30, pl. 1. figs. 10 and 11, and Ent. M. Mag. iv. pp. 126–129.

Gelechia fungivorella, *G. gallægenitella*, *G. salicifungiella*, and *Batracheda salicipomonella* (Clemens) are cited by Walsh (Proc. Ent. Soc. Phil. vi. p. 273) as inhabiting willow-galls.

Yponomeuta. Diorio describes (Atti Accad. Pont. Roma, xviii. p. 124) a supposed species of this genus, under the name of *Y. œnothriella*, as injurious to the grapes in the neighbourhood of Rome. He describes two forms, which Herrich-Schäffer compares to *Tinea cinerella* and *harrisella* (Fab.). Corr.-Blatt zool.-min. Ver. Regensb. xx. p. 142.

Stainton and Swanzy mention the finding of the larva of a *Tinea* in the horn of a Koodoo antelope. A similar case is mentioned by Trimen. Proc. Ent. Soc. 1867, p. cv.

Coleophora lixella. The habits of this species noticed by Stainton. Proc. Ent. Soc. 1867, p. lxxxvii.

Stainton (Stett. ent. Zeit. 1867, p. 80) remarks upon the larvæ of several species of *Gelechia*, and indicates his belief that *G. sepiella* (Steudel) is identical with *G. triannulella* (H.-Sch.).

Gelechia micella. The natural history of this species is described by Schleich, Stett. ent. Zeit. 1867, p. 451.

Coleophora argyrella (H.-Sch.). Christoph (Stett. ent. Zeit. 1867, pp. 245–246) describes the mode of life of this species, the larva of which feeds in the interior of the stems of *Alhagi camelorum*.

Schleich publishes (Stett. ent. Zeit. 1867, pp. 131–141) instructions for collecting and preparing specimens of Microlepidoptera, in which he discusses the methods recommended by previous authors.

Peyer-Imhoff describes his mode of setting the minute *Tineidæ*, in Bull. Soc. Ent. Fr. 1867, p. xxxv.

Ypsolophus? *xylostei* (Fab.) is described by A. Forel as injurious to the Colza plant in the Canton de Vaud (Bull. Soc. Vaud. Sci. Nat. ix. pp. 80–81).

New genera:—

Chilopselaphus, g. n., Mann, Verh. zool.-bot. Ges. in Wien, xvii. p. 849. Allied to *Holoscolia*; ocelli 0; joint 1 of antennæ elongate, with no tuft of hair; labial palpi very long, porrect, compressed, fringed at the edges; wings long, posterior deeply emarginate below the apex, anterior with median cell long, subcostal vein emitting 5 branches, transverse vein with 4 branches. Sp. *C. fallax*, sp. n., Mann, *l. c.* p. 850, near Ofen.

Meridarchis, g. n., Zeller, Stett. ent. Zeit. 1867, p. 407. Allied to *Gelechia*; labial palpi long, straight, porrect, pointed; posterior wings with short fringes,

not emarginate near apex. Sp. *M. trapeziella*, sp. n., Zell. *l. c.* p. 408, pl. 2. fig. 5, East Indies.

Hermogenes, g. n., Zeller, *l. c.* p. 409. Allied to *Hypsolophus*; joint 2 of labial palpi not tufted; anterior tibiæ and metatarsi widely hairy. Sp. *H. aliferella*, sp. n., Zell. *l. c.* p. 410, pl. 2. fig. 6, East Indies.

New species :—

Anchinia grandis, Stainton, Syrian Tineina, p. 54, Ak-Dagh.

Apiletria purulentella (Led. MS.), Stainton, *l. c.* p. 43, and *A. nervosa*, Stainton, *l. c.* p. 44, Jordan valley.

Atychia beryti, Stainton, *l. c.* p. 53, Beirut (=*A. nana*, Led. nec H.-Sch.).

Euspilapteryx redtenbacheri, Mann, Verh. zool.-bot. Ges. in Wien, xvii. p. 74, pl. 9. fig. 4, Croatia.

Tinea ankerella, Mann, *l. c.* p. 75, pl. 9. fig. 5, Hungary.

Tinea latiusculella, Stainton, *l. c.* p. 41, Sharon; and *T. subalbidella*, Staint. *l. c.* p. 42, Jerusalem.

Micropteryx elegans, Stainton, *l. c.* p. 42, Palestine.

Nemotois purpureus, Stainton, *l. c.* p. 42, Palestine.

Symmocha caliginella, Mann, *l. c.* p. 842, Tyrol.

Hyponomeuta lineatonotella, Moore, Proc. Zool. Soc. 1867, p. 669, pl. 33. fig. 18, Darjeeling.

Dasycera intermediella, Stainton, *l. c.* p. 54, Amasia.

Depressaria ramosella, Stainton, *l. c.* p. 53, Caucasus.

Depressaria feruliphila, Millière, *l. c.* p. 317, pl. 73. figs. 1–3 (all stages), south of France; and *D. nodiflorella*, Mill. *l. c.* p. 322, pl. 73. figs. 8–11 (all stages), south of France.

Gelechia farinosæ, Stainton, Nat. Hist. Tin. x. p. 164, pl. 12. fig. 2, near Zurich.—*Gelechia untirrhinella*, Millière, *l. c.* p. 382, pl. 80. figs. 6–8 (all stages), Ax-sur-Ariége.—*Gelechia nitidula*, Stainton, Syrian Tineina, p. 44, Plains of Jordan; *G. subdiminutella*, Staint. *l. c.* p. 45, Jaffa and Plains of Jordan.—*Gelechia petasitis*, sp. n., Pfaffenzeller, Stett. ent. Zeit. 1867, p. 79, Hofmann, Stett. ent. Zeit. 1867, p. 201, Bavaria; *G. chrysanthemella*, Hofm. *l. c.* p. 202, and *G. albifemorella*, Hofm. *l. c.* p. 204, Germany.—*Gelechia petiginella*, Mann, *l. c.* p. 843, Tyrol.

Gelechia trimaculella, Packard, Proc. Bost. Soc. N. H. xi. p. 61, Labrador.

Gelechia petasitella, Staudinger, Stett. ent. Zeit. 1867, p. 211, Bavaria,= *petasitis* (Pfaffenz.).

Phyllobrostis hartmanni, Staudinger, *l. c.* p. 212, Bavaria.

Hypsolophus siewersiellus, Christoph, Stett. ent. Zeit. 1867, p. 239, Sarepta.

Œcophora frigidella, Packard, *l. c.* p. 62, Labrador.

Œcophora coturnella, Mann, *l. c.* p. 843, Tyrol.—*Œcophora icterinella*, Mann, *l. c.* p. 852, Dalmatia.—*Œcophora fuscofasciata*, Stainton, *l. c.* p. 48, Palestine.

Pleurota filigerella, Mann, *l. c.* p. 851, Dalmatia; *P. contristatella*, Mann, ibid., Syra.—*Pleurota submetricella*, Stainton, *l. c.* p. 46, and *P. elegans*, Staint. *l. c.* p. 47, Plains of Jordan.

Tinagma grisescens, Stainton, *l. c.* p. 51, Palestine.

Gracilaria juglandella, Mann, *l. c.* p. 844, Tyrol.

Gracilaria magnifica, Stainton, *l. c.* p. 56, Amasia.

Hypatima latiusculella (Mann, MS.), Stainton, *l. c.* p. 55, Brussa.

Ornix impressipennella, Bilimek, Verh. zool.-bot. Ges. in Wien, xvii. p. 903, Mexico (Cave of Cacahuamilpa).

Chauliodus æquidentellus, Hofmann, *l. c.* p. 206, Germany.

Chauliodus iniquellus, Wocke, Stett. ent. Zeit. 1867, p. 208, and *C. strictellus*, Wocke, *l. c.* p. 209, Breslau.

Nepticula lediella, Schleich, Stett. ent. Zeit. 1867, p. 449, Prussia.

Bucculatrix albella, Stainton, *l. c.* p. 51, Plains of Jordan.

Butalis subflabella, Stainton, *l. c.* p. 48, Beirut and Hebron; *B. albidella*, Staint. *l. c.* p. 50, Plains of Jordan; *B. subcærariella*, Staint. *l. c.* p. 55, Bosz-Dagh; and *B. tenuivittella*, Staint. ibid., Brussa.

Coleophora longicostella, Stainton, *l. c.* p. 51, Plains of Jordan; *C. amasiela*, Staint. *l. c.* p. 56, Amasia; *C. caucasica*, Staint. *l. c.* p. 57, Caucasus; and *C. phlomidis*, Staint. ibid., Amasia.

Pterophoridæ.

Zeller publishes (Stett. ent. Zeit. 1867, pp. 321–339) an abstract of Wallengren's paper on the Scandinavian species of this group. He remarks that the characters given by Wallengren for the *Pterophoridæ* as opposed to the *Alucitina* do not apply to all the genera referred to the former, the essential distinction of which he expresses as follows:—"Hind wings in repose entirely concealed beneath the narrow fore wings which stand off widely from the body." Zeller accepts Wallengren's determination of the Linnean species *Alucita monodactyla* and *pterodactyla*, of which the former is said to be identical with *Pt. pterodactylus* (auct.), and the latter with *fuscus* (auct.), but thinks that, unless the Linnean collection confirms Wallengren's view, his identification of *A. tesseradactyla* (Linn.) with *fischeri* (Zell.) is scarcely admissible. *P. ulodactylus* (Zett.) = *cosmodactylus* (H.-Sch.) = *acanthodactylus* (Hübn.), var. Zeller gives (*l. c.* pp. 331–332) a translation of Wallengren's table of genera (which amount to 9 under the true *Pterophoridæ*), and subsequently cites the species referred to them, 27 in number. These genera are *Cnæmidophorus* (Wall.) altered to *Cnemidophorus* by Zeller, sp. *rhododactylus* (W. V.); *Platyptilus* (Zell.), sp. *ochrodactylus* (Hübn.) [upon which Zeller remarks that Wallengren's diagnosis includes 2 nearly allied species, namely *ochrodactylus* (Hübn., H.-Sch., Zell.) = *dichrodactylus* (Mühl.) and *bertrami* Rössl.), so that it is doubtful which form inhabits Scandinavia; Zeller also notices an allied North-American form named *bischoffii* by Schläger], *zetterstedtii* (Zell.), *nemoralis* (Zell.), *gonodactylus* (W. V.), and *tesseradactylus* (Linn.); *Amblyptilus* (H.-Sch.), sp. *acanthodactylus* (Hübn.); *Oxyptilus* (Zell.), sp. *pilosellæ* (Zell.), *hieracii* (Zell.), *ericetorum* (Zell.), *obscurus* (Zell.), *didactylus* (Linn.) = *trichodactylus* (Zell.), and *bohemani* (Zell. MS.); *Mimæseoptilus* (Wall.) changed to *Mimeseoptilus* by Zeller, sp. *mictodactylus* (W. V.) = *pelidnodactylus* (Stein), *serotinus* (Zell.), *pterodactylus* (Linn.), and *paludicola* (Wall.); *Oidæmatophorus* (Wall.) changed to *Œdematophorus* by Zeller, sp. *lithodactylus* (Tr.); *Pterophorus* (Geoff.), sp. *monodactylus* (Linn.); *Leioptilus* (Wall.) changed to *Lioptilus* by Zeller, sp. *scarodactylus* (Hübn.), *tephradactylus* (Hübn.), *microdactylus* (Hübn.), *osteodactylus* (Zell.) = *microdactyla* (Zett.), and *brachydactylus* (Koll.); *Aciptilus* (Hübn.), sp. *tetradactylus* and *pentadactylus* (Linn.). The only Scandinavian species of *Alucita* is *A. hexadactyla* (Linn.) = *polydactyla* (Hübn., Zell.).

Stainton (Brit. Butt. & Moths, pl. 16) figures *Pterophorus acanthodactylus* (fig. 5), *P. pterodactylus* (fig. 6), and *Alucita polydactyla* (fig. 7).

Zeller (Stett. ent. Zeit, 1867, pp. 385–387) notices 6 species of this group collected by O. Pickard Cambridge in the east. One of them is described as new; another, a *Platyptilus*, is indicated without a specific name, its condition not permitting its precise determination. See also Trans. Ent. Soc. 3rd ser. v. pp. 459–460.

Zeller (Stett. ent. Zeit, 1867, p. 414) notices an Indian variety of *Pterophorus* (*Aciptilus*) *baptodactylus* (Zell.).

A. Gartner (Verh. naturf. Ver. in Brünn, iv. pp. 247–258) enumerates 20 species of this group as found in the neighbourhood of Brünn. He gives notes on the habits and larvæ of all the species, but particularly notices the following:—*Platyptilus gonodactylus*, *Oxyptilus hieracii*, *O. pilosellæ*, *Pterophorus stigmatodactylus*, *P. pterodactylus*, *P. scarodactylus*, *P. inulæ*, *P. microdactylus*, and *Aciptilus xanthodactylus*.

J. Hellins notices the habits of *Pterophorus osteodactylus*. Ent. M. Mag. iv. p. 157.

The larva of *Pterophorus hieracii* feeds on *Teucrium scorodonia* according to N. Greening, Ent. M. Mag. iv. p. 16. Further notes on this larva by Greening, *l. c.* p. 39.

Life-histories of *Pterophorus lithodactylus* and *osteodactylus* are given by Gregson, Entomologist, iii. p. 201.

Pterophorus isodactylus. Habits noticed by Jordan, Ent. M. Mag. iv. p. 38. Birchall describes its mode of occurrence in Ireland, *l. c.* p. 39.

Alucita hexadactyla. A. Gartner (Verh. nat. Ver. Brünn, v. pp. 44–47) describes the habits and transformations of this species.

New species:—

Pterophorus (*Platyptilus*) *exaltatus*, Zeller, Stett. ent. Zeit. 1867, p. 411, Darjeeling; *P.* (*Œdematophorus*?) *forcipatus*, Zell. *l. c.* p. 412, pl. 2. fig. 7, Darjeeling.

Platyptilus farfarellus, Zeller, Stett. ent. Zeit. 1867, p. 334, note, Meseritz.

Aciptilus desertorum, Zeller, Stett. ent. Zeit. 1867, p. 386, and Ent. Trans. 3rd ser. v. p. 460, Jordan.

DIPTERA.

Brauer, Friedrich. Die Einwendungen Dr. Gerstäcker's gegen die neue Eintheilung der Dipteren in zwei Gruppen. Verhandl. zool.-bot. Gesellsch. Wien, xvii. pp. 737–744.

This paper includes the description of a new genus of Phryganidæ.

Cope, E. D. On the Habits of a Tipulideous larva. Proc. Acad. Nat. Sci. Philad. 1867, pp. 222–226.

Relating to the larva of a species of *Sciara* (?).

Frauenfeld, G. von. (See "Insecta.")

Grote, A. R. Description of two new Species of North American Brachycerous Diptera. Proc. Ent. Soc. Philad. vol. vi. p. 445: 1867.

Jaennicke, F. Beiträge zur Kenntniss der europäischen Bombyliden, Acroceriden, Scenopiniden, Thereviden und Asiliden. Berliner entom. Zeitschrift, 1867, pp. 63–94.

——. Beiträge zur Kenntniss der europäischen Leptiden. Ibid. pp. 95–100.

——. Neue exotische Dipteren. Abhandl. Senckenb. naturf. Gesellsch. Band vi. pp. 311–408, pls. 43, 44: November 1867.

Jones, T. Rymer. On the Structure and Metamorphosis of the larva of *Corethra plumicornis*. Quarterly Journ. Micr. Sci. vol. xv., Trans. Micr. Soc. pp. 99–104, pl. 9.

Kowarz, F. Beschreibung sechs neuer Dipteren-Arten. Verhandl. zool.-bot. Gesellsch. Wien, xvii. pp. 319–324.

Laboulbène, Alex. Histoire des Métamorphoses de la *Teichomyza fusca*. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 33–42, pl. 5 : June 12, 1867.

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——. Ueber *Empis ciliata* Fbr. und über die ihr zunächst verwandten Arten. Ibid. pp. 1–10. Ueber den Verwandtschaftskreis der *Empis stercorea* Linn.: pp. 11–24. Ueber diejenigen mit *Empis chioptera* Meig. verwandten Arten, welche dunkle Schwinger haben : pp. 25–62. Nachträgliche Bemerkungen zu den Empis-Arten aus den Verwandtschaftskreisen der *E. stercorea* und *chioptera* : pp. 157–166.

——. Ueber die bisher beschriebenen europäischen *Anisomera*-Arten. Zeitschr. für die gesammten Naturwiss. Band xxvi. pp. 395–426 : 1865.

Mik, Josef. Dipterologische Beiträge zur "Fauna Austriaca." Verhandl. zool.-bot. Gesellsch. in Wien, Band. xvii. pp. 413–424, pl. 10.

Nowicki, Max. Beschreibung neuer Dipteren. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 337–354, pl. 11.

Rondani, Camillo. Scatophaginæ Italicæ, collectæ, distinctæ et in ordinem dispositæ. (Dipterol. Ital. prodrom. Pars vii. fasc. 1.) Atti Soc. Ital. Sci. Nat. vol. x. pp. 85–135.

——. Anthomyinæ Italicæ, collectæ, distinctæ et in ordinem dispositæ. Ibid. vol. ix. pp. 68–217 : June 1866.

——. De speciebus duabus Dipterorum generis Asphondyliæ et de duobus earum parasitis. Annuario Soc. Nat. in Modena, ii. pp. 37–40 : 1867.

Schiner, J. K. Zweiter Bericht über die von der Weltumseglungsreise der k. Fregatte Novara mitgebrachten Dipteren.

Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 303–314. (See 'Record,' 1866, p. 498.)

Schiner, J. K. Ueber die richtige Stellung von *Ochthiphila litorella*, Fall., im neuen Dipteren-Systeme. Ibid. pp. 325–328.

——. Neue oder weniger bekannte Asiliden des k. zoologischen Hofcabinetes in Wien. Ein Beitrag zur Kenntniss der Asiliden. Ibid. pp. 355–412.

——. Das neue Dipteren-System, meine Ansichten über das Flügelgeäder der Dipteren und der Catalogus systematicus Dipterorum Europæ. Ibid. pp. 631–638.

Stein, J. P. E. F. Eine der Gerste schädliche Fliege. Berliner entom. Zeitschrift, 1867, pp. 395–397, pl. 3.

(*Aphaniptera.*)

Guyon, —. Histoire naturelle et médicale de la Chique (*Rhynchoprion penetrans*, Oken), insecte parasite des régions tropicales des deux Amériques. (Suite.) Revue et Mag. de Zool. 1867, pp. 7–15, 208–211, 276–290, & 324–327, pls. 1 & 2.

This elaborate memoir on the Chigoe is not yet completed. The author seems to aim at bringing together every accessible reference to the insect. The 2 plates are copied from Karsten's figures.

Anatomical and Physiological Papers.

Carus, C. G. Professor Nicolai Wagner's in Kasan Entdeckung von Insekten-Larven die sich fortpflanzen. Nova Acta Acad. Leopoldinæ Nat.-Cur. tom. xxxiii. pp. 95–97.

An abstract of Wagner's observations.

Landois, Léonard. Anatomie des Hundeflohes (*Pulex canis*, Dugès) mit Berücksichtigung verwandter Arten und Geschlechter. Nova Acta Acad. Nat. Cur. tom. xxxiii. pp. 66, pls. 7 : 1866.

An elaborate anatomy of *Pulex canis*, with considerations upon the position of the Fleas in the classification.

Mäklin, F. W. Om vivipara Dipter-larver. [On viviparous dipterous larvæ.] Œfvers. af Finska Vet.-Soc. Förhandl. viii. pp. 22–32.

An abstract of the published observations on the subject.

Meinert, E. Nouvelles observations sur la multiplication des Cécidomyies. Transl. in Ann. Sci. Nat. 5e sér. tome vi. pp. 16–18.

Landois (Zeitschr. für wiss. Zool. xvii. pp. 134–152) describes the sound-producing organs in the members of this order. He

distinguishes three different tones as emitted by these insects—during flight a relatively low tone, a higher one when the wings are held so as to prevent their vibrating, and a higher still when the fly is held so that all motion of the external parts is prevented. The last mentioned is the true voice of the insect; it is produced by the stigmata of the thorax, and may be heard when every other part of the body is cut away. The first sound is caused by the rapid vibration of the wings in the air; the second is caused, or at all events accompanied, by the vibration and friction of the abdominal segments, and by a violent movement of the head against the anterior wall of the thorax. The arrangement of the parts by which the stigmata are enabled to give origin to the sound produced by them is rather complicated; it is described and figured by Landois in *Calliphora vomitoria* (*l. c.* p. 138, pl. 10. figs. 9–12), *Eristalis tenax* (*l. c.* p. 142, pl. 10. fig. 14, and pl. 11. fig. 13), *Scatophaga stercoraria* (*l. c.* p. 145), and *Musca domestica* (*l. c.* p. 145, pl. 11. figs. 15, 16). The author describes the structure of the halteres, which are connected by a lever with the chitinous ring connected with the sound-apparatus in the hinder pair of thoracic stigmata, and, by communicating to this their movements, assist in producing the sound. The vibration of the head in the Diptera during the emission of sound is regarded by the author as due to the transmission of movement from the thorax.

Schiner (Verh. zool.-bot. Ges. in Wien, xvii. pp. 631–638) discusses the remarks made by Gerstäcker, in his Report on the entomological literature for 1863 & 1864, upon the new nomenclature of the wing-veins in the Diptera, proposed by Schiner, the new classification of Diptera established by the joint efforts of Schiner and Brauer, and the catalogue of European Diptera published in 1864. Schiner complains, and in some respects justly, of having been misunderstood by Gerstäcker; but his remarks will hardly admit of being condensed for insertion here.

Brauer also (*l. c.* pp. 737–744) replies to Gerstäcker's remarks, and especially discusses the nature of the metamorphosis in *Cecidomyia destructor* and its allies to which Gerstäcker appealed as invalidating Brauer's primary division of the Diptera into *Cyclorhapha* and *Orthorhapha*, and indicates the differences which he considers distinguish the *Cecidomyiæ* with coarctate pupæ from the true *Cyclorhapha*.

Schiner continues his notices of the Diptera collected on the voyage of the 'Novara' (Verh. zool.-bot. Ges. in Wien, xvii. pp. 303–314). In this report he refers to the species of his families *Stratiomydæ* to *Midasidæ*.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 432–433 & 449–456) notices a series of species of this order collected on board the 'Novara.' Some of them are described as new. *Cyrtoneura stabulans* (Meig.) occurred on board on the return voyage, in the midst of the Atlantic, in 20° S. lat.

Drosophila melanogaster (Meig.) was captured at the close of the same voyage, near Gibraltar.

Jaennicke, in the introduction to his descriptions of new Exotic Diptera (Abhandl. Senck. naturf. Ges. vi. p. 312), gives a list of European species which he has met with coming from extra-European countries, and also a note of 5 species of Diptera from Cuba, not recorded in Ramon de la Sagra's Natural History of that island.

C. Gerhardt (Jenaische Zeitschrift, iii. p. 454) records a case in which a patient, after 4 days' illness, vomited about 50 larvæ of some Dipterous insect, probably a large species of Muscidæ.

Cecidomyidæ.

C. G. Carus (Nova Acta &c. Leopoldinæ, xxxiii. pp. 95–97) gives a short account of the larval reproduction of *Miastor*.

Mäklin has published (Öfvers. Finska Vet.-Soc. Förh. viii. pp. 22–32) an abstract of the observations made by various authors upon the viviparous larvæ of *Miastor*.

Lubbock discusses the larval reproduction of *Miastor* in his Presidential Address for 1867. Proc. Ent. Soc. 1866, pp. lvii–lx.

Walsh (Proc. Ent. Soc. Phil. vi. pp. 223–229) notices the galls formed by various species of this family on willows in North America. He also discusses the statements of Fitch and Harris as to the metamorphosis of these gall-gnats.

A. Forel (Bull. Soc. Vaud. Sci. Nat. ix. pp. 82–84) notices the habits of *Cecidomyia brassicæ* (Winn.), and of its parasites (see pp. 205–206).

Asphondylia pruniperda, sp. n., Rondani, Ann. Soc. Nat. Mod. ii. p. 37, in the flower-buds of the common plum; *A. verbasci*, sp. n. (Vall.), Rond. *l. c.* p. 38, in the unopened flowers of *Scrophularia canina*. The Chalcidian parasites of these species are also described by Rondani.

Cecidomyia s. strobiliscus, sp. n., Walsh, Proc. Ent. Soc. Phil. vi. p. 223; *C. s. rhodoides*, sp. n., Walsh, *l. c.* p. 224; *C. s. cornu*, Walsh, ibid.; *C. s. siliqua*, sp. n., Walsh, *l. c.* p. 225. All in galls of willows.

Hormomyia fischeri, sp. n., Frauenfeld, *l. c.* p. 781, larva in *Carex pilosa*.

Culicidæ.

Goureau (Insectes nuisibles, pp. 133–139) describes the characters and habits of various species of this family, which render themselves obnoxious by their avidity for blood, such as *Culex pipiens, ornatus, annulatus, nemorosus*, and *Anopheles maculipennis*.

Culex conopas, sp. n., Frauenfeld, Verh. zool.-bot. Ges. in Wien, xvii. p. 451, on board the 'Novara' in the Chinese Seas.

Mycetophilidæ.

Nowicki has published (Verh. zool.-bot. Gesellsch. in Wien, xvii. Sitzungsb. pp. 23–36) an elaborate report on the *Army-worm*, the assemblage of larvæ of *Sciara thomæ*, as observed by him in the Carpathians and Tatra. He describes the appearance of the peculiar train of larvæ, but did not himself see any of the very large processions described by authors, the longest being only 20 inches in length. The larvæ creep along not only side by side, but also one over the other, all adhering together by their sticky surface, but

continually changing their position in the mass. At the close of their march, when fatigue or the want of nourishment causes the larvæ to rest for a time, the larvæ composing a train collect into a ball, which gradually diminishes in size and finally disappears, by the burrowing into the mould of the larvæ which are lowest in the mass. Nowicki describes the observations made by previous naturalists on these larvæ and the fly from which they originate, and finally indicates the superstitious notions to which they have given rise.

E. D. Cope communicates (Proc. Acad. Nat. Sci. Phil. 1867, pp. 222–226) some particulars as to the occurrence in Pennsylvania of snake-like bodies of larvæ, probably belonging to some fly of the genus *Sciara*, and analogous to those known as the "Heerwurm" in Germany.

Bibionidæ.

Bibio elegans, sp. n., Jaennicke, Abh. Senck. Ges. vi. p. 317, Australia; *B. castanipes*, sp. n., Jaen. ibid., Illinois.

Plecia minor, sp. n., Jaennicke, *l. c.* p. 318, Brazil.

Tipulidæ.

Anisomera. H. Loew (Zeitschr. ges. Naturw. xxvi. pp. 395–426) subjects the species which have been referred to this genus to a critical revision. The earliest species was described by Latreille under the name of *Hexatoma*, which was suppressed by Meigen on account of his own genus of the same name. Loew considers that it is not now desirable to restore Latreille's name to this genus, Meigen's *Hexatoma* (Tabanidæ) being generally received. Meigen established the genera *Nematocera* and *Anisomera*, which he subsequently united under the latter name. The species referred to this genus have got into much confusion as to their synonymy; they are all discussed by Loew, who admits the following species, which are characterized as well as the genus :—

1 & 2. *A. longipes* and *æqualis*, spp. nn. (*vide infrà*). 3. *A. bicolor* (Meig. I.) = *gaedii* (Meig., Schin.). 4. *A. obscura* (Meig.). 5 & 6. *A. saxonum* and *burmeisteri*, spp. nn. (*vide infrà*). 7. *A. vittata* (Meig.). 8. *A. nubeculosa* (Burm.) = *striata* (Schin.).

Tipula striata (Fab.) and *Hexatoma nigra* (Latr.) are not identifiable.

Peronecera fuscipennis (Curt.), characterized by Loew (*l. c.* pp. 422–424), which has been regarded as synonymous with *A. nigra* by Walker, is generically distinct.

Mik changes the name of his *Geranomyia maculipennis* to *G. caloptera*, as *Aporosa maculipennis* (Macq.) is a *Geranomyia*. Verh. zool.-bot. Ges. in Wien, xvii. p. 423.

Chironomus stercorarius (De G.). On the occurrence of this species in in abundance in a cornfield, see Künstler, Verh. zool.-bot. Ges. in Wien, xvii. p. 835.

New genera and species :—

Furina, g. n., Jaennicke, Abh. Senck. Ges. vi. p. 318. Allied to *Limnobia*;

antennæ 11-jointed, joint 2 minute, 3–11 ovate; legs long and stout; wings with 7 longitudinal veins, 2 forked, lower branch united to 3 by a transverse vein; 3 veins from discoidal cell. Sp. *L. rufithorax* (Wied.), pl. 43. fig. 1.

Macrothorax, g. n., Jaennicke, *l. c.* p. 319. Allied to *Megistocera*; thorax very large, nearly as long as abdomen, with a strong tubercle in front; wings nearly three times as long as abdomen. Sp. *M. ornatus*, sp. n., Jaen. *l. c.* p. 320, pl. 43. fig. 2, Australia.

Cladolipes, g. n., H. Loew, Zeitschr. ges. Naturw. xxvi. p. 424. Allied to *Anisomera*; flagellum (in ♀) of 6 cylindrical joints with small radiating hairs; second longitudinal vein simple. Sp. *C. simplex*, sp. n., Loew, *l. c.* p. 425, Greece.

Rhicnoptila, g. n., Nowicki, Verh. zool.-bot. Ges. in Wien, xvii. p. 337. Allied to *Dactylolabis*; wings long, narrow, useless for flight. Sp. *R. wodzickii*, sp. n., Nowicki, *l. c.* p. 339, pl. 11. fig. 1, in the Tatra, elevation 6000–8000 feet. The larva lives in a gelatinous covering of the granite rocks.

Tipula trifasciata, Loew, Zeitschr. ges. Naturw. xxvi. p. 135, near Bad Liebenstein.—*Tipula niligena*, Jaennicke, *l. c.* p. 320, and *T. abyssinica*, Jaen. *l. c.* p. 321, Simen.

Gynoplistia fusca, Jaennicke, *l. c.* p. 322, Chili.

Anisomera longipes, Loew, *l. c.* p. 415, Alps; *A. æqualis*, Loew, *l. c.* p. 416, Lombardy (= *A. nigra*, Walk.); *A. saxonum*, Loew, *l. c.* p. 417, Germany (= *bicolor*, Burm., Meig. vi. ?, Schin. ?); and *A. burmeisteri*, Loew, *l. c.* p. 419, Germany (= *nigra*, Burm. = *vittata*, Walk.).

Stratiomyidæ.

According to Jaennicke (Abh. Senck. Gesellsch. vi. p. 326) *Sargus vespertilio* (Wied.) belongs to *Chrysochlora*, and *S. inermis* (Wied.) to *Raphiocera*.

Stratiomys strigata. The transformations of this species are briefly noticed by Kawall (Stett. ent. Zeit. 1867, p. 124). The larva was found among black ants in an old fallen *Pinus sylvestris*.

New genera and species :—

Elasma, g. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 322. Allied to *Phyllophora*; antennæ longer than head, porrect, joint 1 rather long, nearly cylindrical, 2 cup-shaped; 3 long, 5-ringed; 5 terminating in a long point, somewhat dilated at base. Sp. *E. acanthinoidea*, sp. n., Jaen. *l. c.* p. 323, pl. 43. fig. 3, Java.

Rondania, g. n., Jaennicke, *l. c.* p. 324. Allied to *Clitellaria*; discoidal cell emitting only 3 veins. Sp. *Cl. chalybæa* (Wied.); *R. obscura*, sp. n., Jaen. *l. c.* p. 325, pl. 43. fig. 4, Mexico.

Eurynema, g. n., Schiner, Verh. zool.-bot. Ges. in Wien, xvii. p. 308. Allied to *Clitellaria* and *Odontomyia*; antennæ inserted close to margin of mouth, terminal style almost rudimentary; abdomen very flat. Type *Stratiomys fascipennis* (Fab.).

Histiodroma, g. n., Schiner, *l. c.* p. 308. Allied to *Rhaphiocera*; antennæ 3-jointed, joint 3 short, oval, triannular, seta apical, 2-jointed; scutellum unarmed; mediastinal and subcostal veins nearly amalgamated, radial reaching nearly to apex, cubital shortly forked, discoidal cell small, emitting 3 veins. Type *Sargus inermis* (Wied.).

Odontomyia kirchneri, Jaennicke, *l. c.* p. 323, Australia; *O. prasina*, Jaen. *l. c.* p. 324, Mexico.

Sargus festivus, Jaennicke, *l. c.* p. 325, Abyssinia; *S. violaceus*, Jaen. *l. c.* p. 326, Brazil.

Nemotelus lomnickii, Mik, Verh. zool.-bot. Ges. in Wien, xvii. p. 413, pl. 10. fig. 6, Halicia.

Xylophagidæ.

Beris servillei (Macq.) belongs to the genus *Actina*, and the genera *Acanthometra* and *Raphiorhynchus* (Wied.) belong to the present family rather than the Tabanidæ, according to Jaennicke, Abh. Senck. Gesellsch. vi. p. 326.

Subula marginata (Macq.). The habits of this species are described by Goureau; the larva lives under the old bark of dead poplars. Bull. Soc. Ent. Fr. 1867, p. lxxxvii.

Exaireta, g. n., Schiner, *l. c.* p. 309. Allied to *Diphysa*; forehead narrow; antennæ inserted in the middle, 3-jointed, joint 3 elongate, 10-ringed, without style or seta; scutellum with 4 long, strong spines; mediastinal and subcostal veins separated only at base, cubital forked, terminating in anterior margin; discoidal cell large, heptagonal, emitting 4 veins. Type *Xylophagus spiniger* (Wied.).

Tabanidæ.

Goureau (Insectes nuisibles, pp. 140–148) describes the characters and habits of the following species of this family:—*Tabanus bovinus, morio, fulvus, luridus, tropicus, autumnalis, bromius*, 4-*notatus*, and *rusticus*, *Hæmatopota pluvialis*, *Chrysops cæcutiens* and *marmoratus*.

New genera and species:—

Stibasoma, g. n., Schiner, Verh. zool.-bot. Ges. in Wien, xvii. p. 310. Allied to *Selasoma* and *Hadrus*; antennæ inserted below middle of head, joints 1 & 2 short, 2 with a sharp point above, 3 furcate, 5-ringed, ring 1 large, deeply emarginate above, and with a long, thick, blunt process. Type *Tabanus theotœnia* (Wied.).

Apocampta, g. n., Schiner, *l. c.* p. 310. Allied to *Pangonia*; joint 3 of antennæ 8-ringed, without a basal process; abdomen short, depressed; wings short, rounded at apex. Type *A. nigra*, sp. n., Sydney.

Diclisa, g. n., Schiner, *l. c.* p. 311. (*Pangoninæ*.) Allied to *Mycteromyia* (Phil.) = subdivision *Scione* (Walk.); proboscis half as long as body; upper branch of cubital fork with a small appendicular vein, 1st and 4th posterior marginal cells closed, 3rd apical vein abbreviated. Type *Pangonia incompleta* (Macq.).

Pangonia. Jaennicke (Abh. Senck. Gesellsch. vi.) describes the following new species of this genus:—*P. jucunda*, p. 327, Chili; *P. aurofasciata*, ibid., pl. 43, fig. 5, and *P. dilatata*, p. 328, Australia; *P. rüppellii*, p. 329, Simen; *P. crocata*, p. 330, and *P. grisea*, p. 331, Chili.

Tabanus sufis, Jaennicke, *l. c.* p. 332, Nubia; *T. psusennis*, Jaen. *l. c.* p. 333. Abyssinia.

Chrysops lineatus, Jaennicke, *l. c.* p. 334, Illinois.

Nemestrinidæ.

Prosæca, g. n., Schiner, Verh. zool.-bot. Ges. in Wien, xvii. p. 311. Allied

to *Trichophthalma*; eyes naked; epistome never gibbously inflated; wings not reticulated at apex. Type *Nemestrina westermanni* (Wied.).

Hirmoneura nemestrinoides, sp. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 335, pl. 43. fig. 6, Chili; *H. heydenii*, sp. n., Jaen. *l. c.* p. 336, pl. 43. fig. 7, Australia.

Bombyliidæ.

Jaennicke discusses the European species of this family (Berl. ent. Zeitschr. 1867, pp. 65–76), of which he also describes some new species. In some introductory remarks (*l. c.* pp. 63–64) he refers to the peculiar scales which occur in place of hairs upon some Bombyliidæ, and especially describes the different forms of these appendages to be met with in *Exoprosopa stupida* (Rossi). *Phthiria minuta* (Fab.) is recorded as new to Germany. The following synonymic indications may be cited:—*Anthrax paniscus* (Rossi) = var. *hottentotta* (Linn.); *L. belzebul* and *sabæa* (Fab.) are probably identical. The notices of other known species chiefly relate to their geographical distribution and comparative abundance or rarity.

New genera:—

Ostentator, g. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 348. Allied to *Bombylius*; joint 3 of antennæ elongate, subulate, with a short apical style; wings long and narrow, third longitudinal vein forked, anterior basal cell nearly twice as long as posterior. Sp. *O. punctipennis*, sp. n., Jaen. *l. c.* p. 349, pl. 43. fig. 10, Chili.

Pœcilognathus, g. n., Jaennicke, *l. c.* p. 350. Allied to *Thlipsomyza*; palpi long; proboscis as long as the body; face below produced into a snout. Sp. *P. thlipsomyzoides*, sp. n., Jaen. *l. c.* p. 351, pl. 43. fig. 11, Mexico.

Diplocampta, g. n., Schiner, Verh. zool.-bot. Ges. in Wien, xvii. p. 312. Allied to *Exoprosopa*; antennæ distant, very short, joint 3 round, with a short style; arolia rudimentary; mediastinal and subcostal veins of nearly equal length, radial apparently springing from cubital perpendicularly, and then bent at a right angle, with a recurrent appendage. Type *D. singularis*, sp. n., Chili.

Tritoneura, g. n., Schiner, *l. c.* p. 312. Allied to *Comptosia*; proboscis longer than head and thorax, gaping like a fork; antennæ prominent, joint 1 long, 2 short, 3 = 1 & 2 together, subapical style rudimentary; wings with 4 cubital cells. Type *Comptosia lugubris* (Phil.).

Callynthrophora, g. n., Schiner, *l. c.* p. 313. Allied to *Corsomyza*; antennæ longish, approximate at base, joint 1 short, 2 very small, 3 longer than 1 & 2 together, clavate, apical style rudimentary; wings with 3 cubital cells. Type *C. capensis*, sp. n.

New species:—

Argyromœba massanensis, Jaennicke, Abh. Senck. Gesellsch. vi. p. 336, Massana.

Anthrax niloticus, Jaennicke, *l. c.* p. 337, Abyssinia; *A. bipartitus*, Jaen. *l. c.* p. 38, Chili; *A. castanea*, Jaen. ibid., pl. 44. fig. 15 (wing), and *A. paradoxa*, Jaen. *l. c.* p. 339, pl. 44. fig. 16 (wing), Mexico.

Anthrax dolosa, Jaennicke, Berl. ent. Zeitschr. 1867, p. 65, south of France, Spain; *A. stœchades*, Jaen. *l. c.* p. 66, Hyères; *A. squamifera*, Jaen. *l. c.* p. 67, South Europe; *A. variegata*, Jaen. *l. c.* p. 69, Sicily.

Anthrax claripennis, Kowarz, Verh. zool.-bot. Ges. in Wien, xvii. p. 324, Miskolcz and Losoncz.

Exoprosopa. Of this genus Jaennicke (Abh. Senck. Gesellsch. vi.) describes the following new species:—*E. kaupii*, p. 340, pl. 44. fig. 17 (wing, with 5 submarginal cells), *E. anthracoidea*, ibid., pl. 44. fig. 18 (wing), *E. rostrifera*, p. 341, pl. 44. fig. 19 (wing), *E. blanchardiana*, ibid., pl. 44. fig. 20 (wing), and *E. pueblensis*, p. 342, pl. 44. fig. 21 (wing), from Mexico; *E. blasiris*, p. 343, Simen; *E. chrysolampis*, p. 344, pl. 43. fig. 8, Java, Moluccas; and *E. leuconoe*, p. 345, Moluccas.

Comptosia rufoscutellata, Jaennicke, *l. c.* p. 345, pl. 43. fig. 9, Australia.

Adelidea flava, Jaennicke, *l. c.* p. 346, Mexico.

Bombylius loewii, Jaennicke, *l. c.* p. 346, Australia; *B. neithokris*, Jaen. *l. c.* p. 347, Abyssinia.

Bombylius senilis, Jaennicke, Berl. ent. Zeits. 1867, p. 74, Switzerland.

Systœchus pausarius, Jaennicke, Abh. Senck. Gesellsch. vi. p. 348, Australia.

Cillenia unicolor, Jaennicke, *l. c.* p. 350, Chili.

Chalcochiton schineri, Nowicki, Verh. zool.-bot. Ges. in Wien, xvii. p. 343, Podolia (=*Mulio holosericeus*, Wied., changed on account of *Anthrax holosericeus*, Fab.).

Lomatia rogenhoferi, Nowicki, *l. c.* p. 346 (=*L. belzebul*, Schin. nec Fab.), Podolia.

Phthiria zimmermanni, Nowicki, *l. c.* p. 347, Podolia.

Sparnopolius cumatilis and *S. coloradensis*, Grote, Proc. Ent. Soc. Phil. vi. p. 445, Colorado Territory.

Acroceridæ.

Jaennicke (Berl. ent. Zeitschr. 1867, p. 77) notices the European species of this group. *Ogcodes pallipes* (Lat.) is recorded as occurring in Germany.

Lasia cyaniventris, sp. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 351, Chili.

Scenopinidæ.

Jaennicke (Berl. ent. Zeitschr. 1867, p. 78) remarks upon the distribution of the European species of this family.

Asilidæ.

Schiner (Verh. zool.-bot. Ges. in Wien, xvii. pp. 355–412) publishes notes, chiefly from type specimens, on the following known species of this family:—Dasypogoninæ: *Leptogaster niger* (Wied.); *L. nitidus* (Macq.); *L. histrio* (Wied.)=*annulatus* (Say); *L. glabratus* (Wied.); *L.* (*Gonypes*) *audouini* (Macq.); *L.* (*Gonypes*) *molucanus* (Dolesch.); *Gonioscelis* (*Dasyp.*) *setosus* (Wied.); *Triclis* (*Dasyp.*) *palasii* (Wied.); *T.* (*Asilus*) *hæmorrhoidalis* (Fab.); *Dioctria octopunctata* (Say); *Laparus* (*Dasyp.*) *albopunctatus* (Macq.)=*D. spinther* (Walk.); *Lochites* (*Dasyp.*) *ornatus* (Wied.), varieties noticed; *Aphamartania* (*Dasyp.*) *polita* (Say); *Lastaurus* (*Dasyp.*) *lugubris* (Macq.)= *L. anthracinus* (Loew), perhaps only a var. of *L. fallax* (Macq.); *L.* (*D.*) *fallax* (Macq.)=*L. mutabilis* (Loew), of which *D.* (*Morimna*) *mallophoroides* (Walk.) is probably a var.; *Plesiomma* (*Dasyp.*) *lineata* (Fab.)=*P. macra* (Loew); *Microstylum* (*Asil.*) *capensis* (Fab.); *M.* (*Dasyp.*) *afrum* (Wied.); *M.* (*D.*) *tæniatum* (Wied.); *M.* (*D.*) *lugubre* (Wied.); *Archilestes*

(*D.*) *capnopterus* (Wied.)=*D. albitarsis* (Macq.). LAPHRINÆ: *Atomosia* (*Laphria*) *viduata* (Wied.); *Laphria rufipennis* (Wied.); *Maira* (*L.*) *spectabilis* (Guér.)=*splendida* (Guér.)=*kollari* (Dolesch.)=*socia, replens, comes,* and *consobrina* (Walk.); *M.* (*L.*) *tristis* (Dolesch.)=*L. taphius* (Walk.); *M.* (*L.*) *villipes* (Dolesch.); *M.* (*L.*) *pellucida* (Dolesch.); *Andrenosoma* (*L.*) *erythrogastra* (Wied.). ASILINÆ: *Craspedia* (*L.*) *splendidissima* (Wied.)=*C. audouini* (Macq.)=*Blepharotes abdominalis* (Westw.); *Mallophora* (*Asil.*) *calida* (Fab.); *M. geniculata* (Macq.); *M. opposita* (Walk.); *M.* (*A.*) *ruficauda* (Wied.); *M.* (*Dasyp.*) *nigritarsis* (Fab.), of which *M. nigrifemorata* (Macq.) is probably ♀; *M. heteroptera* (Macq.) probably=*A. laphroides* (Wied.), of which *M. clausicella* (Macq.) is perhaps a var.; *M. singularis* (Macq.); *Promachus* (*Asil.*) *trichonotus* (Wied.); *P.* (*A.*) *nigripes* (Fab.); *P.* (*A.*) *vagator* (Wied.); *P.* (*A.*) *vertebratus* (Say); *Philodicus* (*Trupanea*) *rubritarsatus* (Macq.); *Alcimus* (*Asil.*) *fraternus* (Wied.); *A.* (*A.*) *sericans* (Wied.); *Proctophorus* (*A.*) *pyrrhomystax* (Wied.); *Erax* (*Dasyp.*) *striola* (Fab.); *E. maculatus* (Macq.); *E.* (*A.*) *rufinus* (Wied.); *E.* (*A.*) *mellinus* (Wied.); *E.* (*A.*) *copulatus* (Wied.); *E.* (*A.*) *lascivus* (Wied.); *E.* (*A.*) *lades* (Walk.); *E. cinerascens* (Bell.); *E. albibarbis* (Macq.); *E. bastardi* (Macq.); *Proctacanthus* (*Asil.*) *leucopogon* (Wied.); *P.* (*A.*) *longus* (Wied.); *P.* (*A.*) *heros* (Wied.); *Eccritosia* (*A.*) *plinthopyga* (Wied.); *Asilus pelago* (Walk.); *Lophonotus* (*A.*) *chalcogaster* (Wied.); *L. auribarbis* (Macq.); *L.* (*A.*) *pellitus* (Wied.); *L.* (*A.*) *molitor* (Wied.); *L.* (*A.*) *comatus* (Wied.); *Synolcus* (*A.*) *acrobaptus* (Wied.)=*S. signatus* (Loew); *Itamus* (*A.*) *alcetas* (Walk.); *Ommatius minimus* (Dolesch.); *O. noctifer* (Walk.) = *minor* (Dolesch.); *O. angustiventris* (Macq.) probably=*O. cœræbus* (Walk.); *Allocotosia* (*Omm.*) *scitula* (Walk.); and *Atractia* (*Asil.*) *psilogaster* (Wied.). Of a great number of these species Schiner gives detailed and corrected descriptions.

JAENNICKE (Berl. ent. Zeitschr. 1867, pp. 81–94) remarks upon the European species of this family, chiefly with regard to their geographical distribution and comparative abundance or rarity. Some new species are described by him, and the following synonymic indications may be cited:—*Dioctria baumhaueri* (Meig.)=*flavipes* (Meig.); *Lasiopogon macquarti* (Schin.) is distinct from the species so named by Perris; *Laphria ignea* (Meig.) appears to be a var. of *gilva* (Linn.); *L. dioctriæformis* (Meig.) is probably a var. of *marginata* (Linn.).

JAENNICKE substitutes *Holcocephala* for *Discocephala* (Macq.), the latter name being preoccupied in Hemiptera. He also notices that *Plesiomma nigra* (Macq.)=*Dasypogon fuliginosus* (Wied.). Abh. Senck. Gesellsch. vi. p. 359.

Asilus impendens (Wied.) belongs to *Senoprosopis* (Macq.), and *A. ludens* (Wied.) to *Trupanea* (Macq.), *l. c.* p. 366.

V. MAYET has observed the parasitism of the larva of *Asilus barbarus* upon that of *Phyllognathus silenus*. Bull. Soc. Ent. Fr. 1866, p. lxiv.

New genera:—

Nicocles, g. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 355. Allied to *Plesiomma*; forehead broad; abdomen flat, base narrow, apex globular, flask-shaped. Sp. *N. analis*, sp. n., Jaen. *l. c.* p. 355, pl. 43. fig. 13, Mexico.

Psecas, g. n., Jaennicke, *l. c.* p. 359. Allied to *Craspedia*; middle tibiæ di-

lated and thickened at apex, especially within, and covered beneath with strong, blunt spines; joint 1 of middle tarsi dilated. Sp. *P. fasciata*, sp. n., Jaen. *l. c.* p. 360, pl. 44. fig. 2 (leg), Australia.

Doryclus, g. n., Jaennicke, *l. c.* p. 366. Allied to *Asilus*; posterior legs elongated, tibiæ dilated and hairy at apex, as also joints 1 & 2 of tarsus, 2 one-fourth length of 1 (remainder wanting). Sp. *A. distendens* (Wied.), pl. 44. fig. 3.

Eupalamus, g. n., Jaennicke, Berl. ent. Zeits. 1867, p. 86, pl. 1. (1866) figs. 1 & 2. Allied to *Cyrtopogon*; joint 3 of antennæ somewhat shorter than 1 & 2 together, style but little shorter than joint 3; moustache in ♂ projecting in a tuft and longer than antennæ. Sp. *E. alpestris*, sp. n., Jaen. *l. c.* p. 86, Switzerland.

Polysarca, g. n., Schiner, *l. c.* p. 398. Allied to *Proctacanthus*; abdomen short, thick, cylindrical. Sp. *P. violacea*, sp. n., Schin. *l. c.* p. 399, Elisabethopol.

New species:—

Leptogaster ramoni, Jaennicke, Abh. Senck. Gesellsch. vi. p. 354, Cuba.

Leptogaster pusillus, Jaennicke, Berl. ent. Zeits. 1867, p. 81, Germany.

Leptogaster distinctus, Schiner, *l. c.* p. 357, Brazil; *L. vitripennis*, Schiner, *l. c.* p. 358, Brazil; *L. kamerlacheri*, Schiner, ibid., Brazil; and *L. ochraceus*, Schin. *l. c.* p. 359, Pennsylvania.

Euscelidia fascipennis, Schiner, *l. c.* p. 359, Brazil.

Holopogon albosetosus, Schiner, *l. c.* p. 360, Amasia; *H. philadelphicus*, Schiner, ibid., Pennsylvania.

Holopogon flavescens, Jaennicke, *l. c.* p. 84, Marseilles.

Lasiopogon bellardii, Jaennicke, *l. c.* p. 85, Switzerland.

Dioctria lugubris, Jaennicke, Abh. Senck. Ges. vi. p. 356, Cuba.

Dasipogon [sic] *heydenii*, Jaennicke, *l. c.* p. 356, pl. 44. fig. 1, Corrientes.

Stenopogon macquartii, Jaennicke, *l. c.* p. 358, Abyssinia.

Stenopogon antar, Schiner, *l. c.* p. 361, Brussa.

Dioctria meyeri, Nowicki, Verh. zool.-bot. Ges. in Wien, xvii. p. 348, Podolia.

Gonioscelis phacopterus, Schiner, *l. c.* p. 362, *G. hæmorrhous*, Schiner, ibid., *G. melanocephalus*, Schiner, *l. c.* p. 363, and *G. ventralis*, Schiner, ibid., Africa.

Stichopogon chrysostoma, Schiner, *l. c.* p. 364, Amasia, Egypt.

Damalis felderi, Schiner, *l. c.* p. 365, Ceylon.

Habropogon appendiculatus, Schiner, *l. c.* p. 367, Spalato.

Xiphocerus longicornis, Schiner, *l. c.* p. 367, Sicily; *X. brussensis*, Schiner, *l. c.* p. 368, Brussa.

Lochites claripennis, Schiner, *l. c.* p. 369, Brazil; *L. apicalis*, Schiner, *l. c.* p. 370, Brazil.

Saropogon argyrocinctus, Schiner, *l. c.* p. 370, Brazil.

Saropogon bicolor, Jaennicke, *l. c.* p. 357, Panama.

Senobasis auricincta, Schiner, *l. c.* p. 371, Surinam.

Aphamartania frauenfeldi, Schiner, *l. c.* p. 372, Venezuela; *A. syriaca*, Schiner, ibid., Syria.

Plesiomma longiventris, Schiner, *l. c.* p. 375, Cuba; *P. jungens*, Schiner, ibid., Brazil.

Cacodæmon crabroniformis, Schiner, *l. c.* p. 375, origin not stated.

Aphestia brasiliensis, Schiner, *l. c.* p. 378, and *A. calceata*, Schiner, *l. c.* p. 379, Brazil.

Cerotainia brasiliensis, Schiner, *l. c.* p. 379, and *C. bella*, Schiner, *l. c.* p. 380, Brazil.

Laphria carolinensis, Schiner, *l. c.* p. 380.

Apoxyria apicata, Schiner, *l. c.* p. 382, origin not stated.

Michotamia setitarsata, Schiner, *l. c.* p. 383, origin not stated.

Mallophora belzebul, Schiner, *l. c.* p. 385, Brazil.

Promachus wiedemanni, Schiner, *l. c.* p. 388, South America?; *P. philadelphicus*, Schiner, *l. c.* p. 389, Pennsylvania.

Apoclea illustris, Schiner, *l. c.* p. 391, and *A. aberrans*, Schiner, ibid., Egypt.

Atomosia beckeri, Jaennicke, *l. c.* p. 359, Mexico.

Mallophora nigriventris, Jaennicke, *l. c.* p. 361, Paraguay.

Erax zetterstedtii, Jaennicke, *l. c.* p. 362, Venezuela.

Asilus sundaicus, Jaennicke, *l. c.* p. 363, Java; *A. regius*, Jaen. *l. c.* p. 364, Australia; *A. agrion*, Jaen. *l. c.* p. 365, Illinois.

Asilus armatus, Jaennicke, Berl. ent. Zeits. 1867, p. 91, south of Europe.

Protacanthus micans, Schiner, *l. c.* p. 397, North America; *P. variabilis*, Schiner, ibid., and *P. robustus*, Schiner, *l. c.* p. 398, origin not stated.

Lophonotus leoninus, Schiner, *l. c.* p. 402, *L. ursinus*, Schiner, *l. c.* p. 403, and *L. albovittatus*, Schiner, ibid., Cape of Good Hope.

Dysmachus appendiculatus, Schiner, *l. c.* p. 404, Amasia.

Senoprosopis brasiliensis, Schiner, *l. c.* p. 404, and *S. varipes*, Schiner, *l. c.* p. 405, Brazil.

Mochtherus illustris, Schiner, *l. c.* p. 406, Syria; *M. goliath*, Schiner, *l. c.* p. 407, Brussa.

Cerdistus mannii, Schiner, *l. c.* p. 407, Amasia.

Epitriptus syriacus, Schiner, *l. c.* p. 409.

Tolmerus corsicus, Schiner, *l. c.* p. 409, Corsica.

Ommatius holosericeus, Schiner, *l. c.* p. 411, Brazil; *O. erythropus*, Schiner, ibid., South America.

Atractia coronata, Schiner, *l. c.* p. 412, and *A. pulverulenta*, Schiner, ibid., Brazil.

Mydas gracilis, Jaennicke, Abh. Senck. Gesellsch. vi. p. 353, pl. 43. fig. 12, Australia.

Therevidæ.

Jaennicke (Berl. ent. Zeitschr. 1867, pp. 78–81) remarks upon the European species of this family. *Thereva oculata* (Egg.)=*nobilitata* (Fab.). The ♂ of *T. melaleuca* (Loew) is described by Jaennicke (*l. c.* p. 81) from a specimen taken *in copulâ*.

Thereva rondanii, sp. n., Jaennicke, *l. c.* p. 79, Switzerland.

Thereva schineri, sp. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 352, and *T. maculicornis*, sp. n., Jaen. *l. c.* p. 353, Chili.

Leptidæ.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 493–497) remarks upon the genera of the Leptidæ, and especially upon the genus *Ptiolina* (Zett.), which he shows to be distinct

from that so named by Walker, Haliday, and Schiner, the anal cell being closed in the former and open in the latter. He therefore proposes a new name for *Ptiolina* of recent authors, and gives the following table of the characters of this and the allied genera:—

I. Joint 3 of antennæ round, oval, or conical; seta terminal.
  a. Anal cell open..... Leptis. (Type *L. scolopacea*, Linn.)
  b. Anal cell closed.
    a. Seta hair-like..... Chrysopila. (Type *C. atrata*, Fab.)
    β. Seta styliform..... Ptiolina. (Type *P. obscura*, Fall.)

II. Joint 3 of antennæ reniform; seta apparently dorsal.
  a. Anal cell closed..... Atherix. (Type *A. ibis*, Fab.)
  b. Anal cell open..... Symphoromyia. (=*Ptiolina*, auctt.; type *Atherix melæna*, Meig.)

Jaennicke (Berl. ent. Zeitschr. 1867, pp. 95–100) discusses the geographical range, variation, and synonymy of the European species of this family. He regards *Leptis strigosa* (Meig.) as a var. ♀ *L. scolopacea* (Linn.).

Eurytion, g. n., Jaennicke, *l. c.* p. 99, pl. 1. (1866) fig. 8. Allied to *Chrysopila*; joint 1 of antennæ short, broader than long, 2 shorter than 1, 3 longer than 1+2, pyriform, seta terminal, short and thick. Sp. *E. paradoxus*, sp. n., Jaen. *l. c.* p. 99, Switzerland.

Leptis janotæ, sp. n., Nowicki, Verh. zool.-bot. Ges. in Wien, xvii. p. 349, Galicia.

Ptiolina wodzizkii, sp. n., Frauenfeld, *l. c.* p. 497, pl. 12. figs. 15–20, Galicia.

Empidæ.

Empis. In a series of three papers in the Berliner ent. Zeitschr. for 1867, H. Loew subjects the species belonging to certain sections of this genus to a critical revision. The first of these (*l. c.* pp. 1–10) relates to the species related to *Empis ciliata* (Fab.), to which Loew refers *E. nigerrima* and *E. hirta* (Loew) of known species, and 3 new species here described by him. A 4th new species (*E. pilosa*) is also characterized as being nearly allied to the preceding in its general characters, although its halteres are yellow. The second section discussed by Loew (*l. c.* pp. 11–24 and 157–160) is the group of species allied to *E. stercorea* (Linn.), under which he indicates and characterizes 11 European species, of which the following were previously described:—*E. stercorea* (Linn.) incl. *E. stigma* (Meig.), *E. punctata* (Meig.)=*E. ignota* (Meig.), *E. trigramma* (Meig.), *E. lutea* (Meig.), and *E. parvula* (Egg.). *E. punctata* (Fab.) is said by Loew to be distinct from the species originally described by Meigen under that name, and identical with that referred by Zetterstedt to *E. testacea* (Fab.). It is described as new by the author, who also characterizes *E. testacea* (Fab.) from a specimen said to have been determined by Fabricius (*l. c.* p. 158). The author also indicates 2 species (*E. dispar*, Scholtz, and *E. mesogramma*, sp. n.) which in their general characters seem to approach the *E. stercorea* group, but differ in certain points. *E. mesogramma* belongs to the section of *E. nigricans*, to which Loew (*l. c.* p. 24) refers 12 other European species, namely:—*E. variegata* (Meig.), *affinis* (Egg.), *confusa* (Loew), *maculata* (Fab.), *apicalis* (Loew), *rava* (Loew), *macra* (sp. n.), *meridionalis* (Meig.), *nigricans* (Meig.), *cognata* (Egg.), *discolor*

(Loew), and *alpina* (sp. n.). The characters of *E. macra* and *alpina* are imperfectly indicated. The third set of species here treated of by Loew (*l. c.* pp. 25–62 and 160–166) are those belonging to the group of *E. chioptera*, which possess dark halteres; and these he brings together in subordinate groups, so as to facilitate as much as possible their very difficult identification (see p. 164). The total number of species cited by Loew under this category is 28, of which only the following were previously described:—*E. florisomna* (Loew), *E. pusio* (Egg.), and *E. chioptera* and *volucris* (Meig.). But he gives a list (*l. c.* pp. 56–57) of species with dark halteres with which he is not acquainted, but which probably belong to the same group, and some of which are perhaps identical with his supposed new species.

Empis tessellata. Perty (Mitth. naturf. Gesellsch. in Bern, 1867, p. 306) notices an example with the head and proboscis monstrously developed, the former bearing two long, horn-like excrescences.

Empis. The following new species of this genus are described by H. Loew (Berl. ent. Zeits. 1867):—*E. pilicornis, l. c.* pp. 3 & 8, Spain; *E. fumosa, l. c.* pp. 5 & 8, Hungary?; *E. nigricoma, l. c.* pp. 6 & 8, Austria; *E. pilosa, l. c.* p. 9, Germany; *E. dimidiata, l. c.* pp. 12 & 19, South Germany; *E. univittata, l. c.* pp. 12 & 20, Middle and Northern Europe (=*stercorea*, var. *b*, Zett.); *E. æqualis, l. c.* pp. 13 & 20, Germany; *E. bilineata, l. c.* pp. 14 & 20, Middle and Northern Europe (=*punctata*, Fab. nec Meig., *vide suprà*); *E. semicinerea, l. c.* pp. 16 & 21, Germany; *E. nana, l. c.* pp. 18 & 21, Styria and Carinthia; *E. mesogramma, l. c.* p. 22, Silesia; *E. macra, l. c.* p. 24 (char. inc.), Greece; *E. alpina*, ibid. (char. inc.), Switzerland; *E. scaura, l. c.* pp. 27 & 52, Switzerland and Carinthia; *E. helophila, l. c.* pp. 28 & 52, Western Germany; *E. setosa, l. c.* pp. 30 & 52, Chio; *E. cincinnatula, l. c.* pp. 31 & 52, Carinthia; *E. caudatula, l. c.* pp. 33 & 53, Germany; *E. mœrens, l. c.* pp. 34 & 53, Austria; *E. tristis, l. c.* pp. 35 & 53, Grecian archipelago; *E. simplicipes, l. c.* pp. 37 & 53, Western Germany; *E. æstiva, l. c.* pp. 39 & 54, Germany, Denmark; *E. pulicaria, l. c.* pp. 41 & 54, Silesia; *E. prodromus, l. c.* pp. 42 & 54, Western Germany; *E. sicula, l. c.* pp. 45 & 55, Sicily; *E. dasyprocta, l. c.* pp. 46 & 55, Germany; *E. hystrix, l. c.* pp. 47 & 55, Sicily; *E. serotina, l. c.* pp. 49 & 55, Silesia, Posen; *E. præcox, l. c.* pp. 50 & 56, Rhodes; *E. strigata, l. c.* p. 159, Sarepta.

Rhamphomyia conformis, sp. n., Kowarz, Verh. zool.-bot. Ges. in Wien, xvii. p. 321, Losoncz.

Dolichopodidæ.

Mik describes the ♀ of his *Tachytrechus kowarzii*. Verh. zool.-bot. Ges. in Wien, xvii. p. 421.

Porphyrops longilamellatus, sp. n., Kowarz, Verh. zool.-bot. Ges. in Wien, xvii. p. 319 (figs. A, B, genitalia), Mährisch-Schönberg.

Gymnopterus [sic] *comitialis*, sp. n., Kowarz, *l. c.* p. 320, Losoncz.

Dolichopus braueri, sp. n., Nowicki, Verh. zool.-bot. Ges. in Wien, xvii. p. 351, in the Tatra.

Phoridæ.

Phora oligoneura, sp. n., Mik, Verh. zool.-bot. Ges. in Wien, xvii. p. 414, pl. 10. figs. 10, 11, Austria.

Phora navigans, sp. n., Frauenfeld, Verh. zool.-bot. Ges. in Wien, xvii. p. 454, pl. 12. fig. 14, on board the 'Novara' between Rio Janeiro and the Cape.

Muscidæ.

Tachinides.

Jaennicke (Abh. Senck. Ges. vi. p. 395) indicates as follows the modern genera to which he refers the following species of this group:—*Sarcophaga phœnicurus* (Wied.) to *Metopia* (Meig.); *Tachina obsidiana* (W.) to *Phyto* (R. D.) ?; *T. mutata* (Fab.) to *Rhinophora* (R. D.) ?; *T. singularis* (W.) to *Siphona* (Meig.); *T. isis* (W.) to *Fabricia* (Meig.); *T. brina* and *xanthaspis* (W.) to *Masicera* (Macq.); *T. pyrrhocera* and *Musca hauriens* (W.) to *Meigenia* (R. D.); *T. macilenta, pyrrhopyga, notata,* and *socia* (W.) to *Exorista* (Macq.); *T. nitens* (W.) to *Micropalpus* (Macq.); *T. melanopyga* (W.) to *Belvosia* (R. D.); and *T. analis* (Fab.) to *Echinomyia* (Dum.).

Archytas, g. n., Jaennicke, *l. c.* p. 392. Allied to *Echinomyia*; proboscis acicular, ending in a fine point. Sp. *A. bicolor,* sp. n., Jaen. *l. c.* p. 392, pl. 44. fig. 8, Venezuela.

New species:—

Baumhaueria leucocephala, Jaennicke, *l. c.* p. 380, pl. 44. fig. 5, Egypt.

Phorocera sarcophagæformis, Jaennicke, Abh. Senck. Gesellsch. vi. p. 381, and *P. cœrulea* [sic], Jaen. *l. c.* p. 382, Simen.

Phorocera vagator, Frauenfeld, *l. c.* p. 455, on the 'Novara,' near Ceylon.

Tachina cubæcola, Jaennicke, *l. c.* p. 382, pl. 44. fig. 6, Cuba.

Exorista fasciata, Jaennicke, *l. c.* p. 383, Java; *E. africana,* Jaen. *l. c.* p. 384, and *E. bigoti,* Jaen. ibid., Simen.

Nemoræa arachnoidea, Jaennicke, *l. c.* p. 385, pl. 44. fig. 7, Simen.

Demoticus ratzeburgii, Jaennicke, *l. c.* p. 386, Chili.

Micropalpus rufipes, Jaennicke, *l. c.* p. 387, Panama; *M. albomaculatus,* Jaen. *l. c.* p. 388, Mexico; *M. pallidus,* Jaen. ibid., Abyssinia; and *M. longirostris,* Jaen. *l. c.* p. 389, Simen.

Echinomyia costæ, Jaennicke, *l. c.* p. 389, Simen.

Jurinea flavifrons, Jaennicke, *l. c.* p. 390, *J. apicalis,* Jaen. ibid., Mexico; and *J. fuscipennis,* Jaen. *l. c.* p. 391, North America.

Dejeania variabilis, Jaennicke, *l. c.* p. 393, pl. 44. fig. 9, and *D. striata,* Jaen. *l. c.* p. 394, Simen; *D. rutilioides,* Jaen. ibid., Mexico.

Anthomyides.

Rondani has published (Atti Soc. Ital. Sci. Nat. ix. pp. 68–217) a complete revision of the Italian species of this subfamily. He distinguishes the following genera:—

I. Eyes in ♂ approximate, forehead always narrower than one eye.
  A. Upper calyptral scale exposing or partially covering the lower one.
    1. Anterior femora in ♂ dentate or excavate at apex.
      α. Eyes naked or nearly so ..... 1. Hydrotæa (R. D.).
      β. Eyes pilose, sometimes tomentose in ♀.
        2. Onodontha (Rond.).
    2. Anterior femora simple in both sexes.
      α. Second longitudinal vein not spinulose above; legs in ♂ of ordinary length.
        * Seventh longitudinal vein not produced to posterior margin.
          a. Posterior tibiæ incurved, especially in ♂.
            3. Ophira (R. D.).

b. Posterior tibiæ not incurved.
a. Arista pilose or pilosulous.
** Proboscis articulate and subacuminate at apex, not dilated into a lip .... 4. Drimeja (Meig.).
†† Proboscis with a distinct lip.
αα. Seventh longitudinal vein rather distant from margin of wing; abdomen not distinctly depressed.
— Intermediate tibiæ setigerous behind and on the outside.
Eyes naked or nearly so.
5. Aspilia, g. n.
Eyes pilose in both sexes.
6. Polietes (Rond.).
= Intermediate tibiæ setigerous behind and at apex.
Eyes more or less pilose.
7. Yetodesia (Rond.).
Eyes naked or nearly so.
8. Spilogaster (Macq.).
ββ. Seventh longitudinal vein less distant from margin; abdomen depressed.
9. Piezura, g. n.
b. Arista naked or pubescent.
** Seventh longitudinal vein not very distant from margin.
αα. Intermediate tibiæ setigerous behind and on the outside; abdomen depressed.
10. Homalomya (Bouché).
ββ. Intermediate tibiæ setuligerous behind; abdomen subcylindrical or subconical.
11. Azelia (R. D.).
†† Seventh longitudinal vein more distant from margin.
aa. Intermediate tibiæ with a few setæ behind, posterior nearly naked.. 12. Melanochelia, g. n.
ββ. Intermediate tibiæ setigerous behind and outside, posterior with many setæ behind.
13. Limnophora (R. D.).
† Seventh longitudinal vein reaching posterior margin of wing, or at least the apex of the spurious vein.
a. Arista more or less pilose .. 14. Hydrophoria (R. D).
b. Arista naked, or puberulous.
a. Eyes distinctly pilose.... 15. Lasiops (Meig.).
b. Eyes naked ..... 16. Anthomyia (Meig.)
β. Second longitudinal vein spinulose above; legs in ♂ elongate.
17. Achantiptera (Rond.).
B. Lower calyptral scale concealed by upper one.
1. Arista naked or puberulous.
α. Proboscis dilated into a lip at apex.
* Cheeks not inflated or setose.. 18. Chorthophila (Macq.).
† Cheeks inflated and setigerous 19. Eriphia (Meig.).

β. Proboscis subacuminate at apex, not labiate.
20. Acyglossa, g. n.
2. Arista more or less pilose ..... 21. Hylemyia (R. D.).
II. Eyes distant in both sexes.
A. Lower calyptral scale concealed by the upper one.
1. Arista nearly naked.
α. Seventh longitudinal vein produced to posterior margin; antennæ inclined..... 22. Chirosia (Rond.).
β. Seventh longitudinal vein abbreviated; antennæ suberect.
23. Schœnomyza (Hal.).
2. Arista distinctly pilose, or plumose.
α. Seventh longitudinal vein not produced to posterior margin.
24. Chelisia (Rond.).
β. Seventh longitudinal vein produced to posterior margin.
25. Mycophaga (Rond.).
B. Lower calyptral scale more or less exposed.
1. Wings shorter than abdomen; abdominal segments with the disk setose ..... 26. Syllegoptera (Rond.).
2. Wings of ordinary length; or abdominal segments not setose on the disk.
α. Lower calyptral scale with its limb barely exposed.
27. Oplogaster (Rond.).
β. Lower calyptral scale longer than upper one.
* Arista nearly naked or puberulous.
a. Penultimate joint of arista rather long; inner transverse vein opposite apex of first longitudinal.
28. Atherigona (Rond.).
b. Penultimate joint of arista not elongate; inner transverse vein opposite or beyond apex of second longitudinal vein.
29. Cænosia (Meig.).
† Arista distinctly pilose.
a. Palpi not spathuliform .... 30. Caricea (R. D.).
b. Palpi spathuliform..... 31. Lispa (Lat.).

Hydrotæa includes 7 Italian species, 1 new, type *dentipes* (Fab.); *Onodontha* (Rond.), type *ciliata* (Fab.), with 3 species, 1 new; *Ophira* with 2 species, type *leucostoma* (Fall.); *Drimeja*, 1 sp., *hamata* (Fall.); *Polietes* (Rond.) = *Macrosoma* (R. D.), 1 sp., *lardaria* (Fab.); *Yetodesia* (Rond.), 27 species, 8 new, type *pallida* (Fab.); *Spilogaster*, 22 species, 9 new, type *pagana* (Fab.); *Homalomya*, 13 species, 8 new, type *canicularis* (Linn.); *Azelia*, 5 species, 2 new, type *triquetra* (Fall.); *Limnophora*, 2 species, type *compuncta* (Wied.); *Hydrophoria*, 5 species, 1 new, type *conica* (Fall.); *Lasiops* (= *Thricops* and *Thricophticus*, Rond.), 1 Italian species, *anthomyinus* (Rond.) = *hirtula* (Rond. nec Zett.); *Anthomyia*, 18 species, 5 new, type *pluvialis* (Linn.); *Achantiptera* (Rond.), 1 species, *inanis* (Fall.); *Chorthophila*, 33 species, 16 new, type *sepia* (Meig.); *Eriphia*, 1 species, *cinerea* (Meig.); *Hylemyia*, 17 species, 7 new, type *strigosa* (Fall.); *Chirosia* (Rond.), 1 species, *albimana* (Wahlb.); *Schœnomyza*, 1 species, *litorella* (Fall.); *Chelisia* (Rond.), 1 species, *monilis* (Meig.); *Mycophaga* (Rond.), 2 species, 1 new, type *fungorum* (R. D.); *Syllegoptera* (Rond.), 1 species, *ocypterata* (Meig.); *Oplogaster* (Rond.), 2 species, 1 new, type *mollicula* (Fall.); *Atherigona* (Rond.), 1 species, *quadri-*

punctata (Rossi); *Cænosia*, 20 species, 12 new, type *geniculata* (Fall.); *Caricea*, 3 species, 1 new, type *tigrina* (Fall.); *Lispa*, 9 species, 4 new, type *tentaculata* (De G.).

Jaennicke states (Abh. Senck. Ges. vi. p. 373) that *Anthomyia limbata* (Wied.) belongs to *Hylemyia* (R. Desv.); *A. arcuata* (Wied.) to *Aricia* (R. Desv.); and *A. dichroma, spiloptera, gemina,* and *nigrina* (Wied.), and *grisea* (Fab.) to *Spilogaster* (Macq.).

Mik describes the ♀ of *Spilogaster divisa* (Meig.). Verh. zool.-bot. Ges. in Wien, xvii. p. 422.

New genera:—

Aspilia, g. n., Rondani, Atti Soc. Ital. ix. pp. 70 & 86. (See Table, p. 426.) Known sp. *A. sundewalli* (Zett.) and *A. allotalla* (Meig.). New sp. *A. glacialis, brumalis,* and *funeralis*, Rond. *l. c.* p. 88, and *A. rupestris*, Rond. *l. c.* p. 89, Italy.

Piezura, g. n., Rondani, *l. c.* pp. 71 & 122. (See Table, p. 426.) Sp. *P. pardalina*, sp. n., Rond. *l. c.* p. 122, Parma.

Melanochelia, g. n., Rondani, *l. c.* pp. 72 & 136. (See Table, p. 426.) Sp. *Aricia surda* (Zett.).

Acyglossa, g. n., Rondani, *l. c.* pp. 74 & 175. (See Table, p. 427.) Sp. *A. diversa*, sp. n., Rond. *l. c.* p. 175, Parma and Naples.

New species:—

Hydrotæa tuberculata, Rondani, Atti Soc. Ital. ix. pp. 77 & 79, Piedmont. [The species identified by Rondani with *H. irritans* (Fabr.) may be distinct, in which case the author proposes for it the name of *H. scopitarsis*, *l. c.* p. 81.]

Onodontha penicillata, Rondani, *l. c.* p. 82, Italy (=*floccosa*, Rond. nec Macq.).

Yetodesia. Of this genus Rondani describes (*l. c.*) as new Italian species:—*Y. meridionalis*, p. 97; *Y. ruficrura* and *diluta*, p. 101; *Y. boleticola*, p. 103; *Y. tinctipennis*, p. 104; *Y. bitincta* and *stolata*, p. 106; and *Y. lateritia*, p. 107.

Spilogaster. Of this genus Rondani (*l. c.*) describes 9 new Italian species, namely:—*S. hirticrura*, p. 113; *S. flagripes*, p. 114; *S. calceata*, p. 115; *S. cothurnata* and *sigillata*, p. 116; *S. obsignata*, p. 117; *S. indistincta*, p. 119; *S. montana* and *ustipennis*, p. 121.

Spilogaster dexiæformis, Mik, Verh. zool.-bot. Ges. in Wien, xvii. p. 418, pl. 10. fig. 5, Austria; *S. wierzejskii*, Mik, *l. c.* p. 420, pl. 10. figs. 7–9, Halicia.

Spilogaster. Jaennicke (Abh. Senck. Gesellsch. vi.) describes 5 new species of this genus, namely:—*S. wideri*, p. 368, *S. nigritarsis*, p. 369, *S. fasciata*, p. 370, and *S. osten-sackenii*, p. 371, Abyssinia; and *S. calliphoroides*, p. 371, Brazil.

Homalomya [sic]. Of this genus Rondani (*l. c.*) describes the following 8 new Italian species:—*H. passerinii* and *roserii*, p. 126; *H. schembrii* and *pallitibia*, p. 127; *H. ciliorura*, p. 128; *H. herniosa* and *trianguliferа*, p. 130; and *H. brevis*, p. 132.

Azelia parva, Rondani, *l. c.* p. 134, Parma; *A. zetterstedtii*, Rond. *l. c.* p. 135, Denmark.

Hydrophoria anthomyea, Rondani, *l. c.* p. 141, Parma.

Anthomyia. The following 5 new Italian species are described by Ron-

dani (*l. c.*) :—*A. procellaris*, p. 147, *A. imbrida* and *dedecorata*, p. 148, *A. ulmaria*, p. 150, and *A. digitaria*, p. 152.

Anthomyia abyssinica, Jaennicke, *l. c.* p. 372, Abyssinia; *A. chilensis*, Jaen. *l. c.* p. 373, Chili.

Anthomyia manillensis, Frauenfeld, Verh. zool.-bot. Ges. in Wien, xvii. p. 449, pl. 12. fig. 12, on board the 'Novara' after leaving Manilla.

Chorthophila. Rondani (*l. c.*) describes 16 new Italian species, namely :—*C. terminalis* and *chenopodii*, p. 162; *C. cunicularia* (Piccioli, MS.), *perforans* and *effodiens*, p. 163; *C. sulcans* (Schembri, MS.), *terebrans* (Tacchetti, MS.), and *trichodactyla*, p. 164; *C. ciliicrura*, p. 165; *C. laminifera*, p. 167; *C. incognita* and *ignota*, p. 168; *C. histricina*, p. 169; *C. divergens*, p. 170; *C. pudica* and *impudica*, p. 173.

Hylemyia. Seven new Italian species of this genus are described by Rondani (*l. c.*) :—*H. seticrura*, p. 179; *H. penicillaris*, p. 180; *H. spinosa*, p. 181; *H. tibiaria* and *bracata*, p. 183; *H. garbiglietti*, p. 184; and *H. arrogans*, p. 185.

Hylemyia simensis, Jaennicke, *l. c.* p. 372, Abyssinia.

Mycophaga boletorum, Rondani, *l. c.* p. 189, Parma.

Oplogaster cincticula, Rondani, *l. c.* p. 191, Piedmont.

Cœnosia. Rondani (*l. c.*) describes the following 12 new Italian species of this genus :—*C. infantula*, p. 197; *C. elegantula* and *nigridigita*, p. 198; *C. barbipes* and *villipes*, p. 199; *C. genualis* and *ungulata*, p. 200; *C. octosignata*, p. 202; *C. sexpustulata* and *obscuripes*, p. 203; and *C. agromizella* and *patelligera*, p. 205.

Cœnosia pseudomollicula, Frauenfeld, *l. c.* p. 450, on board the 'Novara,' between St. Paul and Ceylon.

Caricea felina, Rondani, *l. c.* p. 207, Parma.

Lispa. Four new Italian species are described by Rondani (*l. c.*), namely: —*L. suturata*, p. 210; *L. melitensis* and *meridionalis*, p. 211; and *L. leucospyla*, p. 213.

Sarcophagides.

Goureau (Insectes nuisibles, &c.) notices the habits of the meatflies (pp. 176–184), such as *Calliphora vomitoria* and *fulvibarbis*, and *Sarcophaga carnaria* and *hæmorrhoidalis*. He states that he bred a specimen of *Fiyites scutellaris* (Lat.) from a pupa of *Sarc. agricola* (p. 183).

Onesia bivittata and *O. muscaria*, sp. n., Jaennicke, *l. c.* p. 378, Chili.

Cynomyia desvoidyi, sp. n., Jaennicke, *l. c.* p. 378, Chili.

Sarcophaga octomaculata, sp. n., Jaennicke, *l. c.* p. 379, Massana; *S. nubica*, sp. n., Jaen. *l. c.* p. 380, Nubia.

Muscides.

Goureau (Insectes nuisibles) notices a considerable number of species belonging to this subfamily as being directly or indirectly injurious to man. He describes:—the species of *Stomoxys* (*calcitrans* and *chrysocephala*) and *Hæmatobia* (*irritans*, *pungens*, and *serrata*) which render themselves obnoxious by sucking the blood of man and animals (pp. 158–163); the common *Musca domestica* (pp. 163–166); the flies which plague cattle merely by settling on them (167–173), among which he includes *Musca bovina*, *corvina*, *vaccina*, *vagatoria*, *vitripennis*, *carnifex*, and *hortorum*; *Pollenia rudis* (p. 173) as frequenting houses.

Cyrtoneura stabulans. Kawall (Stett. ent. Zeit. 1867, p. 120) has observed the larva of this species in old soft cheese.

Lucilia, Jaennicke (Abh. Senck. Gesellsch. vi.) describes the following new species of this genus:—*L. barthii*, p. 374, and *L. spekei*, ibid., Massana; *L. rufipalpis*, p. 375, and *L. sayi*, ibid., Illinois; and *L. luteicornis*, p. 375, Venezuela.

Lucilia leucodes, sp. n., Frauenfeld, *l. c.* p. 453, on board the 'Novara' in the Chinese sea.

Calliphora croceipalpis, sp. n., Jaennicke, *l. c.* p. 376, Massana; *C. fuscipennis*, Jaen. ibid., Brazil.

Mesembrina anomala, sp. n., Jaennicke, *l. c.* p. 377, pl. 44. fig. 4, Cuba.

Helomyzides.

According to Jaennicke (*l. c.* p. 368) *Tetanocera limbata* (Wied.)=*Phecomyia longicornis* (Perty).

Sapromyzides.

Rondani has published (Atti Soc. Ital. Sci. Nat. x. pp. 85–135) a synopsis of the Italian species of Scatophaginæ, including an analytical table and characters of the genera and species admitted by him. The new genera and species will be noticed below.

New genera:—

Spaziphora, g. n., Rondani, Atti Soc. Ital. Sci. Nat. x. pp. 86 & 91. Allied to *Cleigastra*; palpi dilated into a subpapyraceous, spathulate form; fifth longitudinal vein produced beyond apex of third. Type *Cordylura hydromyzina* (Fall.)=*Hydromyza fallenii* (Schin.).

Gonatherus, g. n., Rondani, *l. c.* pp. 87 & 93. Allied to *Cleigastra*; arista nearly naked or puberulous; tibiæ with no long villosity within; palpi not dilated in a spathulate form; face not inclined, mouth reflexed; eyes ovate. Type *Scatomyza planiceps* (Fall.)=*friesii* (Zett.).

Cnemopogon, g. n., Rondani, *l. c.* pp. 87 & 94. Allied to *Cleigastra*; palpi subcylindric; face not inclined; antennæ elongate, joint 3 about four times as long as 2, seta pilose or plumulose. Type *Cordylura apicalis* (Meig.).

Achantholena [sic], g. n., Rondani, *l. c.* pp. 88 & 102. Allied to *Norellia*; arista nearly naked; posterior tibiæ without setæ; head elongate behind eyes. Sp. *A. maculipennis*, sp. n., Rondani, *l. c.* p. 102, Parma (?=*spinipes*, Schin. nec Fall.).

Gimnomera [sic], g. n., Rondani, *l. c.* pp. 88 & 105. Allied to *Cleigastra*; hypostome not margined with setæ; legs all naked; scutellum 4-setose; longitudinal vein 7 distant from posterior margin. Type *Cordylura tarsea* (Fall.).

Trichopalpus, g. n., Rondani, *l. c.* pp. 89 & 106. Allied to preceding; longitudinal vein 7 attaining posterior margin; legs more or less setigerous. Sp. *Cordylura punctipes* and *fraterna* (Meig.).

New species:—

Cordylura impudica, Rondani, Atti Soc. Ital. Sci. Nat. x. p. 97, Parma; *C. nigriseta*, Rond. *l. c.* p. 98, Parma and Piedmont; *C. fuscitibia*, Rond. ibid., Parma and Florence.

Norellia roserii, Rondani, *l. c.* p. 101, Germany; *N. bertei*, Rond. ibid., Parma.

Scatina fluvialis, Rondani, *l. c.* p. 113, and *S. fontanalis* [sic], Rond. *l. c.* p. 114, Parma.

Helomyza agaricina, Rondani, *l. c.* p. 119, Parma; *H. tuberiperda*, Rond. *l. c.* p. 122, Italy; *H. agnata*, Rond. *l. c.* p. 123, Parma (=*affinis*, Zett. nec Meig.); *H. pilimana*, Rond. ibid., Parma; *H. flavitarsis*, Rond. *l. c.* p. 124, Parma.

Leria bracata [sic], Rondani, *l. c.* p. 127, Italy; *L. chetomera* [sic], Rond. ibid., North Italy; *L. puerula*, Rond. *l. c.* p. 128, Parma.

Thelida diversa, Rondani, *l. c.* p. 129, Insubria.

Phycodromya meridionalis, Rondani, *l. c.* p. 132, Malta.

Sapromyza taitensis, Frauenfeld, *l. c.* p. 455, pl. 12. fig. 11, Tahiti.

Ortalides.

H. Loew (Berl. ent. Zeitschr. 1867, pp. 283–284) remarks upon the divisions which may be recognized in this group. He divides it into two main sections, the first having the first longitudinal vein setiferous or hairy, the second having this vein naked. The latter may be again divided into two groups, according as the femora are unarmed or distinctly spinous beneath. The group with spinous femora is exclusively American. Loew proposes to give it the name of Richardina, the genus *Richardia* being its best-known representative. The group with unarmed femora is represented in Europe by the genera *Seoptera* (Kirby), *Timia* (Wied.), *Ulidia* (Meig.), *Chrysomyza* (Fall.), and *Empyelocera* (Loew). It is denominated by Loew Ulidina. *Empyelocera* is peculiarly European; the other genera occur in Asia and, with the exception of *Seoptera*, also in Africa. America includes numerous forms of Ulidina, but *Seoptera* is the only genus common to both hemispheres. This and *Eumetopia* (Macq.) are the only two described genera. The species of the latter (*E. rufipes*, Macq., and *E. varipes*, Loew) are figured (pl. 2. figs. 25, 26).

Künckel and Laboulbène notice the destruction of numerous plants of a species of *Anthemis* by a dipterous larva, probably that of *Tephritis anthemisiæ* (Westw.). Bull. Soc. Ent. Fr. 1867, p. lii.

New genera:—

Dasymetopa, g. n., Loew, Berl. ent. Zeits. 1867, p. 285. Forehead broad, narrower in front; face not hollowed; clypeus projecting; antennæ short, joint 3 elongate-ovate; scutellum flat, with 4 setæ; pterostigma very large, posterior transverse vein oblique, apical section of fourth longitudinal vein strongly bent forward. Sp. *D. lutulenta*, sp. n., Loew, *l. c.* p. 285, p. 2. fig. 1, Surinam.

Œdopa, g. n., Loew, *l. c.* p. 287. Head very large; forehead remarkably broad; face broad, especially its lateral portions, which are distinctly separated; antennæ distant, very short; scutellum flat, with 4 setæ; apical section of fourth longitudinal vein somewhat bent forwards, posterior transverse vein strongly sigmoid. Sp. *Œ. capito*, sp. n., Loew, *l. c.* p. 287, pl. 2. fig. 2, Nebraska.

Notogramma, g. n., Loew, *l. c.* p. 289.—Forehead moderately and uniformly broad, pitted; face very short, buccal margin much drawn up, clypeus projecting far beyond it; antennæ rather long, joint 3 elongate; scutellum flat and sharp-edged; fourth longitudinal vein with second half of its apical

section remarkably bent forward, posterior transverse vein perpendicular. Sp. *N. cimiciformis*, sp. n., Loew, *l. c.* p. 289, pl. 2. fig. 3, Cuba.

Euphara, g. n., Loew, *l. c.* p. 291. Forehead of moderate, uniform breadth, pitted; face excavated, clypeus projecting; antennæ longish; scutellum convex, with 4 setæ; last section of fourth longitudinal vein parallel with third, small transverse vein rather near the posterior transverse vein, which is perpendicular. Sp. *Ceroxys cærulea* (Macq.), pl. 2. fig. 4.

Acrosticta, g. n., Loew, *l. c.* p. 293. Forehead, face, and scutellum as in preceding; antennæ short, joint 3 elongate-ovate; last section of fourth longitudinal vein converging towards third, posterior transverse vein perpendicular, stigma narrow and very long. Sp. *A. scrobiculata*, sp. n., Loew, *l. c.* p. 293, pl. 2. fig. 5, and *A. foveolata*, sp. n., Loew, *l. c.* p. 294, Brazil.

Euxesta, g. n., Loew, *l. c.* p. 297. Forehead of moderate, uniform breadth, even; face more or less excavated, clypeus projecting; antennæ short, joint 3 round or roundish; scutellum convex, with 4 setæ. Sp. *Ortalis notata* (Wied.), pl. 2. fig. 9; *Musca costalis* (Fab.)=*Dacus aculeatus* (Fab.), pl. 2. fig. 10; *M. annonæ* (Fab.)=*Urophora quadrivittata* (Macq.), pl. 2. fig. 13; *Ortalis sororcula* (Wied.), pl. 2. fig. 20. N. sp. *E. spoliata*, Loew, *l. c.* p. 298, pl. 2. fig. 7, *E. pusio*, Loew, *l. c.* p. 299, pl. 2. fig. 8, *E. quaternaria*, Loew, *l. c.* p. 302, pl. 2. fig. 11, *E. binotata*, Loew, *l. c.* p. 304, pl. 2. fig. 12, *E. abdominalis*, Loew, *l. c.* 307, pl. 2. fig. 15, and *E. eluta*, Loew, *l. c.* p. 312, pl. 2. fig. 19, Cuba; *E. stigmatias*, Loew, *l. c.* p. 310, pl. 2. fig. 18, Cuba and Brazil; *E. thomæ*, Loew, *l. c.* p. 306, pl. 2. fig. 14, St. Thomas; *E. alternans*, Loew, *l. c.* p. 308, pl. 2. fig. 16, and *E. atripes*, Loew, *l. c.* p. 309, pl. 2. fig. 17, Brazil.

Chætopsis, g. n., Loew, *l. c.* p. 315. Forehead a little narrower towards vertex, with setiform hairs on the lateral margins; antennæ rather short, joint 3 slightly emarginate above, with an acute anterior angle; last section of fourth longitudinal vein slightly converging towards third at its end. Sp. *Ort. ænea* (Wied.)=*O. trifasciata* (Say)=*Urophora fulvifrons* (Macq.), pl. 2. fig. 21; *C. debilis*, sp. n., Loew, *l. c.* p. 318, pl. 2. fig. 22, Cuba.

Hypæcta, g. n., Loew, *l. c.* p. 318. Forehead rather broad, uniform, finely hairy only at lateral margins; face not excavated, clypeus rudimentary; antennæ short, joint 3 strongly emarginate above; hinder angle of anal cell open, last section of fourth longitudinal vein slightly converging, transverse vein perpendicular. Sp. *H. longula*, sp. n., Loew, *l. c.* p. 319, pl. 2. fig. 23, Brazil.

Stenomyia, g. n., Loew, *l. c.* p. 320. Forehead of uniform breadth, hairy at margins of eyes, and with two long isolated hairs; face not excavated, clypeus of moderate transverse diameter; joint 3 of antennæ scarcely emarginate, but with anterior angle acute; last section of fourth longitudinal vein twice as long as preceding one, gently convergent, posterior transverse vein nearly perpendicular. Sp. *S. tenuis*, sp. n., Loew, *l. c.* p. 321, pl. 2. fig. 24, Georgia.

Epiplatea, g. n., Loew, *l. c.* p. 324. Forehead broad, narrower in front, not prominent in profile, hairy all over; face perpendicular, impressed beneath each antenna, convex between the impressions; wings short, third longitudinal vein curved backwards at the end, last section of fourth longitudinal vein not convergent. Sp. *E. crosa*, sp. n., Loew, *l. c.* p. 325, pl. 2. fig. 27, Cuba.

New species:—

Scoptera colon, Loew, *l. c.* p. 296, pl. 2. fig. 6, Brazil.

Urophora dzieduszyckii, Frauenfeld, Verh. zool.-bot. Ges. in Wien, xvii. p. 498, pl. 12. fig. 21, Cracow?

Orellia bucchichi, Frauenfeld, *l. c.* p. 500, Lesina.

Platystoma frauenfeldi, Nowicki, Verh. zool.-bot. Ges. in Wien, xvii. p. 352, pl. 11. fig. 2, Podolia.

Psilides.

Piophilus casei. Goureau (Insectes nuisibles, pp. 184–187) describes the characters and habits of this species.

Oscinides.

Schiner (Verh. zool.-bot. Ges. in Wien, xvii. pp. 325–328) discusses the position of *Ochthiphila litorella* (Fall.), which he considers to have been correctly placed by Haliday in the genus *Schœnomyia*. Schiner regards this form as most nearly allied to the *Milichiæ*.

Chlorops strigula (Fab.). Künstler reports on this insect as injurious to corn-crops. Verh. zool.-bot. Ges. in Wien, xvii. pp. 935–940.

Dr. Krauss (Württ. naturw. Jahresh. xxii. p. 128) records the occurrence of immense quantities of a species of *Chlorops* (*læta* or *geminata*) in the neighbourhood of Stuttgart in the autumn of 1865.

Perty (Mitth. naturf. Ges. in Bern, 1867, pp. 233–237) notices the abundant occurrence near Berne of a species of *Oscinis* (*Chlorops*) nearly allied to *Chlorops lineata*.

Geomyzides.

Drosophila cellaris. The characters and habits of this species are described by Goureau (Insectes nuisibles, pp. 188, 189).

Pholeomyia, g. n., Bilimek, Verh. zool.-bot. Ges. in Wien, xvii. p. 903. Allied to *Milichia*; proboscis short, with narrow lips (*Saugfläche*) and nearly spoon-shaped palpi; eyes oval, not hairy; scutellum obtusely rounded. Sp. *P. leucozona*, Bilimek, *l. c.* p. 903, Mexico (Cave of Cacahuamilpa).

Hydromyzides.

Teichomyza fusca (Macq.). A. Laboulbène describes and figures this species in all its stages, with full details of the structure of the larva (Ann. Soc. Ent. Fr. 4e sér. vii. pp. 33–42, pl. 5). The fly is exceedingly abundant in the public urinals in France, and the larva lives in human urine. Laboulbène identifies with it the larvæ described and figured by Davaine in 1857 as having been evacuated from the intestines of a woman after she had suffered much pain.

Hydrellia griseola (Fall.). Stein (Berl. ent. Zeits. 1867, pp. 395–397), from the observations of Münter, records the larva of this species as injurious to barley in the neighbourhood of Greifswald. He figures the larva and the imago, and also gives much enlarged figures of the wing and antennæ of the latter (*l. c.* pl. 3. figs. 7–10).

Cyphops, g. n., Jaennicke, Abh. Senck. Ges. vi. p. 367. Allied to *Ephydra*; head bare, triangular from above, quadrate from the side; epistoma inflated; proboscis stout; palpi short, clavate, compressed; antennæ inserted beneath

frontal margin, distant, short, joint 1 very short, 2 with a short seta at base and apex, 3 long, with a long seta pectinate above; first longitudinal vein simple, third and fourth convergent, anal and posterior basal cells wanting, small transverse vein before the middle of the wing. Sp. *C. fasciatus*, sp. n., Jaen. *l. c.* p. 368, pl. 43. fig. 14, Java.

Discomyza pelagica, sp. n., Frauenfeld, Verh. zool.-bot. Ges. in Wien, xvii. p. 451, pl. 12. fig. 13, from the Nicobars and on board the 'Novara' near Sumatra.

Œstridæ.

Goureau (Insectes nuisibles, pp. 149–158) describes the general characters and habits of the insects of this family, and gives a description of the appearance and natural history of the following species:—*Hypoderma bovis*, *Œstrus equi*, *hæmorrhoidalis*, *nasalis*, and *Cephalemyia ovis*.

Platypezidæ.

Platypeza superba, sp. n., Kowarz, Verh. zool.-bot. Ges. in Wien, xvii. p. 322 (wing figured), and *P. barbata*, sp. n., Kowarz, *l. c.* p. 323 (wing figured), Losoncz.

Syrphidæ.

Eumerus æneus (Macq.). The larva of this species feeds on the *Aphides* which form galls on the Elm and Poplar; its habits are described by Goureau, Bull. Soc. Ent. Fr. 1867, p. lxxxvi.

New species:—

Merodon knerii, Mik, Verh. zool.-bot. Ges. in Wien, xvii. p. 415, pl. 10. figs. 3, 4, Galicia.

Pipiza jablonskii, Mik, *l. c.* p. 417, pl. 10. figs. 1, 2, Galicia.

Volucella maximiliani, Jaennicke, Abh. Senck. Gesellsch. vi. p. 395, *V. mellea*, Jaen. *l. c.* p. 396, and *V. haagii*, Jaen. *l. c.* p. 397, Mexico.

Syrphus octoguttatus, Jaennicke, *l. c.* p. 398, Chili; *S. hecticus*, Jaen. ibid., Illinois.

Eristalis. Of this genus Jaennicke describes (*l. c.*):—*E. thoracica*, p. 399, *E. tricolor*, p. 400, and *E. bellardii*, ibid., Mexico; *E. ursinus*, p. 401, Java; and *E. tabanoides*, p. 402, pl. 44. fig. 4, Massana.

Milesia meyeri, Jaennicke, *l. c.* p. 403, pl. 44. fig. 11, Java.

Chrysogaster lugubris, Jaennicke, *l. c.* p. 404, Chili.

Conopidæ.

Myopa insignis, sp. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 404, Simen.

Zodion splendens, sp. n., Jaennicke, *l. c.* p. 405, Mexico.

Hippoboscidæ.

Goureau (Insectes nuisibles, pp. 189–192) describes the characters and habits of *Hippobosca equina* and *Melophagus ovinus*.

Giebel records the occurrence of 24 ♀ specimens of *Stenopteryx hirundinis* on a Swift. Zeitsch. ges. Naturw. xxx. p. 126.

Hippobosca wahlenbergiana, sp. n., Jaennicke, Abh. Senck. Gesellsch. vi. p. 406, pl. 44. fig. 13, Caffraria.

Ornithomyia javana, sp. n., Jaennicke, *l. c.* p. 406, pl. 44. fig. 14, Java.

APHANIPTERA.

L. LANDOIS (Nova Acta &c. xxxiii.) publishes an elaborate anatomy of *Pulex canis*, illustrated with seven plates. He discusses the various systematic positions that have been assigned to the *Pulicidæ*, and adopts the opinion originally propounded by De Geer, that these insects should form a distinct order, for which De Geer's name "Suctoria," or Latreille's "Siphonaptera" may be retained.

GOUREAU (Insectes nuisibles, pp. 192–197) describes the general natural history of the Insects of this group, and characterizes the European species which especially attack man and the domestic animals, such as *Pulex irritans*, *canis*, *felis*, and *columbæ*.

GUYON has continued his memoir on the Chigoe, Rev. et Mag. de Zoöl. 1867, pp. 7–15, 208–211, 276–290, and 324–327, plates 1 & 2.

LABOULBÈNE records the occurrence of two examples of *Pulex penetrans* in the foot of a person who had recently arrived in France from Pernambuco. Bull. Soc. Ent. Fr. 1867, p. vi.

NEUROPTERA.

BRAUER, FRIEDRICH. Beitrag zur Kenntniss der Mantispiden-Gattungen. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 281–286.

——. Beschreibung neuer Neuroptera aus dem Museum Godeffroy und Sohn in Hamburg. Ibid. pp. 505–512.

——. Ueber *Myrmeleon sinuatum*, Oliv., als Beitrag zur Kenntniss der Myrmeleoniden-Genera, *Palpares*, *Stenares*, und *Acanthaclisis*. Ibid. pp. 519–520.

——. Beschreibung und Verwandlung des *Dendroleon pantherinus*, Fbr., und Vergleich der bis jetzt bekannten Myrmeleoniden- und Ascalaphiden-Larven. Ibid. pp. 963–966, pl. 14.

——. Larve von *Hypochrysa nobilis*, Heyd. Ibid. pp. 27–30, pl. 9.

This paper contains notices of the larvæ of 3 species of *Hemerobiidæ*.

EATON, A. E. On some British Neuroptera. Annals & Mag. Nat. Hist. 3rd ser. vol. xix. pp. 395–401.

FRAUENFELD, G. VON. (See "INSECTA.")

HAGEN, H. A. Notes on the genus *Raphidia*. (Translated by R. M'Lachlan.) Trans. Ent. Soc. Lond. 3rd ser. vol. v. pp. 493–499: May 1867.

HASSELT, A. W. M. VAN. Kleine Entomologische Mededeelingen.—No. 6. Jets over de Phryganiden. Tijdschrift voor Entom. 2de serie, Deel i. pp. 211–215.

A notice of M. E. Smee's paper on the *Phryganidæ* and their cases.

M'Lachlan, Robert. New genera and species &c. of Neuropterous Insects; and a revision of Mr. F. Walker's British-Museum Catalogue of *Neuroptera*, part ii. (1853), as far as the end of the genus *Myrmeleon*. Journal Linn. Soc. vol. ix. Zool. pp. 230–281, plate 8: 1867.

——. Bemerkungen über europäische Phryganiden, nebst Beschreibung einiger neuer Genera und Species. Stettiner entom. Zeitung, 1867, pp. 50–63.

——. Notes on British Trichoptera. Entom. Annual, 1868, pp. 1–7.

Meyer, A. Beiträge zu einer Monographie der Phryganiden Westphalens. Stettiner entom. Zeitung, 1867, pp. 153–169.

Contains a few remarks on the natural history of the *Phryganidæ*, and a list of the species found by the author in Westphalia, with notes on their habits, occurrence, &c.

Scudder, S. H. An Inquiry into the Zoological Relations of the first-discovered traces of Fossil Neuropterous Insects in North America; with Remarks on the difference of structure in the wings of living Neuroptera. Mem. Bost. Soc. Nat. Hist. vol. i. pp. 173–192, plate 6: 1867.

In this valuable paper Scudder not only describes some fossil insects lately discovered in the Carboniferous strata of North America, but discusses in considerable detail the peculiarities of venation which serve to characterize the different families of Neuroptera (Linn.). The paper will be found especially important to the student of fossil insects.

Sélys-Longchamps, — de. Notice sur une nouvelle espèce de Névroptère. Annales de la Soc. Ent. de Belgique, tome x. pp. 253–255, pl. 2: 1866.

Tomes, C. S. An account of a Trichopterous larva. Quarterly Journ. Micr. Sci. vol. xv. pp. 248–251, pl. 9.

Westwood, J. O. Descriptions of new species of *Mantispidæ* in the Oxford and British Museums. Trans. Ent. Soc. Lond. 3rd ser. vol. v. pp. 501–508: May 1867.

This paper contains also a description of a new *Nemoptera*.

M'Lachlan has published (Journ. Linn. Soc. ix. Zool. pp. 258–281) a revision of a portion of Walker's Catalogue of Neuroptera, including his families Sialidæ, Hemerobiidæ, and Myrmeleonidæ. He indicates the generic and specific synonymy, and gives detailed descriptions of some of the species.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 431 and 445) notices several species of this order taken on board the 'Novara.'

Myrmeleontidæ.

M'Lachlan, in his revision of the species of this family included in Walker's Catalogue (Journ. Linn. Soc. ix. Zool. pp. 273–281), first of all discusses the generic divisions proposed in it by Hagen (see 'Record,' 1866, p. 515), and expresses his opinion that eventually many of these will require subdivision. He estimates the probable number of species at 500. The following synonymic indications are given with regard to the species enumerated by Walker:—

Myrmeleon gigas, contrarius, inclemens, patiens, libelluloides, speciosus, infimus, pardus, and *incommodus* belong to *Palpares*; *M. sollicitus* = *Palpares cephalotes* (Klug); *M. cephalotes* = probably *P. cephalotes* (Ramb. nec Klug); *M. furfuraceus,* probably identical with the last; *M. tigris* = *P. manicatus* (Ramb.) = probably *tigris* (Dalm.); *M. subducens* = *P. cephalotes* (Klug); *M. pardalinus* is distinct from *pardalinus* (Burm.), and receives the name of *Palpares*? *brachypterus* (*l. c.* p. 275); *M. occitanicus* belongs to *Acanthaclisis*; *M. distinctus* not *distinctus* (Ramb.), according to Hagen; *M. edax* = *gulo* (Burm.), according to Hagen; *M. longicollis* not Rambur's species; these three belong to *Acanthaclisis*; as do also *M. fundatus, subtendens, feralis, inclusus,* and *horridus* (Walk.); *M. molestus* = *Acanth. distincta* (Walk.); *M. ferus* = *A. atra* (Fab.); *M. impostor* = *A. fallax* (Ramb.); *M. peritus* = *Stenares hyæna* (Dalm.); *M. improbus* is a *Stenares*; *M. longicaudus* = *Macronemurus abdominalis* (Say); *M. conspersus* = *Macron. irroratus* (Ramb.); *M. nebulosus, iniquus, immitis, versutus, ferox, appendiculatus, nefandus, barbarus, abditus,* and *callidus* belong to *Macronemurus*; *M. insidiosus* = *Macron. appendiculatus* (Lat.); *M. anomalus, infestus, tacitus, gratus, pulchellus, falsus, erythrocephalus* (?), *singularis,* and *circuiter* belong to *Glenurus*; *M. nigrocinctus* = *Glenurus obsoletus* (Say); *M. tetragrammicus, ingeniosus, audax, gravis, striola, verendus, vesanus, pugnax* (perhaps = *mustelinum,* Fab.), *vafer, dirus, truculentus, cautus, durus, tappa* (perhaps ♀ *vesanus*), and *insomnis,* belong to *Formicaleo*; *M. perjurus, torvus,* and *violentus* = *F. striola* (Leach), of which *M. bistrigatus* (Ramb.) is probably a variety; *M. lentus* = *F. dirus* (Walk.); *M. desperatus, perniciosus,* and *malefidus* = *F. vafer* (Walk.); *M. acer, formicarius, inopinus, lanceolatus, leachii, tristis, lethalis, lethifer, exitialis, acutus, tectus, asper, malignus, immanis, sævus, sagax, infensus, dolosus, hostilis, metuendus, exsanguis, crudelis,* and *morosus* belong to *Myrmeleon*; *M. innotatus* = *formicalynx* (Linn.); *M. inconspicuus* = *leachii* (Guild.); *M. secretus* = *alternans* (Brullé); *M. invisus* = *asper* (Walk.); *M. fictus* = *malignus* (Walk.); *M. perfidus, africanus* (perhaps = *plumbeus,* Oliv.), and *mortifer* belong to *Creagris*; *M. vnigrum* and *pervigil* = *Creagris mortifer* (Walk.); *M. pallidipennis* and *lugduniensis* = *C. plumbeus* (Oliv.); *M. sedulus* and *adversus* = *C. perfidus* (Walk.); *M. infidus, acerbus, mendax, solers, implexus,* and *atrox* belong to *Myrmecælurus*; *M. flavus* = *Myrmec. trigrammus* (Pall.); *M. iners* = *Myrmec. atrox* (Walk.); *M. efferus* and *prædator* belong to *Megistopus*; *M. notatus* = *Megist. flavicornis* (Rossi); *M. occultus* and *malus* belong to *Gymnocnemia*; *M. subdolus* is a *Dimares*; *M. astutus* is a *Tomateres*; *M. compositus* = *Tomateres pardalis* (Fab.); and *M. translatus* = *Pamexis conspurcatus* (Burm.), to which *M. pardalinus* (Burm.) seems to be nearly allied. M'Lachlan identifies a

South-African species with *Myrmeleon punctatus* (Fab.), and gives a description of it (*l. c.* p. 279).

Brauer remarks (Verh. zool.-bot. Ges. in Wien, xvii. pp. 519–520) that *Myrmeleon sinuatum* (Oliv.) is the species figured by Seba (Thes. pl. 86. fig. 5), and is very nearly allied to *Palpares hæmatogaster* (Gerst.), both belonging to the genus *Stenares*. Brauer also states that in *Acanthaclisis fundata* (Walk.)=*fallax* (Ramb.) the spurs are only bent and not geniculate, so that a new character is wanting for the genus.

Brauer (Verh. zool.-bot. Ges. in Wien, xvii. pp. 963–966, pl. 14. fig. 3) describes and figures the larva of *Dendroleon pantherinus* (Fab.), and indicates the general characters of the known larvæ of insects of this family.

Crambomorphus, g. n., M'Lachlan, Journ. Linn. Soc. ix. Zool. p. 243. Allied to *Stenares*; labial palpi robust, last joint clavate, much thickened; head and thorax very hairy; wings nearly equal, coriaceous, elongate, subfalcate, dorsal and apical margins broadly sinuate; costal area biareolate at base; postcosta in hind wings furcate, marginal anastomosis with a recurved branch. Sp. *Palpares hæmatogaster* (Gerst.)=probably *M. sinuatum* (Oliv.).

Echthromyrmex, g. n., M'Lachlan, *l. c.* p. 243. Allied to *Dimares*; antennæ slender, club acuminate; wings spotted, narrowed at base, much dilated and rounded at apex, costal area uniareolate, transverse veins very numerous, cells quadrate; posterior with the postcosta simple; legs short, very spinous, spurs equal to joint 1 of tarsi. Sp. *E. platypterus*, sp. n., M'Lachl. *l. c.* p. 244, Bagdad.

New species :—

Palpares falcatus, M'Lachlan, Journ. Linn. Soc. ix. Zool. p. 236, Burmah; *P. fulvus*, M'Lachl. *l. c.* p. 237, South Africa; *P. immensus*, M'Lachl. *l. c.* p. 239, Damara Land; *P. sparsus*, M'Lachl. *l. c.* p. 240, Damara Land and Zambesi; *P. damarensis*, M'Lachl. *l. c.* p. 241, Damara Land; and *P. flavofasciatus*, M'Lachl. *l. c.* p. 242, Damara Land.

Creagris nigro-strigatus, M'Lachlan, *l. c.* p. 245, Natal.

Glenurus pustulatus, M'Lachlan, *l. c.* p. 246, Ceylon; and *G. japonicus*, M'Lachl. *l. c.* p. 248, Japan.

Hemerobiidæ.

M'Lachlan, in his revision of the species of this group cited in Walker's Catalogue (Journ. Linn. Soc. ix. Zool. pp. 261–273), gives the following synonymic indications:—Walker's *Mantispa prolixa* is not *prolixa* (Erichs.); *M. pagana*=*styriaca* (Poda); *M. perla* is doubtful; *M. biseriata* is the type of a new genus, *Ditaxis*; *Raphidia varia*=*Trichoscelia varia* (Walk.)=*M. myrapetrella* (Westw.); the latter name must be retained, as there is already a *M. varia* (Erichs.); *Hoplophora* belongs to the Mantidæ; *Nymphes extraneus* is probably a *Myiodactylus*; *N. sejunctus* is also a *Myiodactylus*, and is described in detail (*l. c.* p. 263); *Osmylus chrysops*=*maculatus* (Fab.); *O. strigatus* is the type of a new genus, *Porismus*; *O. validus*=*Polystœchotes punctatus* (Fab.); *O. tenuis* is the type of the new genus *Stenosmylus*; *Chrysopa vittata* is mixed; *C. concolor*=*congrua* (Walk.); *C. vulgaris* is mixed; *C. divisa*=*collaris* (Schn.); *C. hybrida* is not *hybrida* (Schn.); *C. internata* =*ampla* (Walk.); *C. signata*=*ramburii* (Schn.); *C. transversa*=? var. *collaris* (Schn.); *C. abbreviata* is not *abbreviata* ( ); *C. latipennis*=*ypsilon* (Fitch); *C. chlorophana*=*transmarina* (Hag.) as stated by Hagen; *C. occulta*

=*ypsilon* (Fitch); *C. marionella, aurifera,* and *lutea* belong to *Apochrysa*; *Hemerobius viridipennis* is the type of M'Lachlan's genus *Rapisma*, the character of which is corrected (*l. c.* p. 270); *H. phalænoides* and *binoculus* belong to *Drepanepteryx*; *H. flavicornis, hamatus,* and *longicollis* to *Berotha*; *H. mimicus* and *cœlivagus* to *Psychopsis* (Newm.); *H. hirtus* to *Megalomus*; *H. subanticus, variegatus,* and *posticus* to *Micromus*, the latter probably=*insipidus* (Hag.); *H. fuscus=subnebulosus* (Steph.); *H. pallidus* and *punctatus=micans* (Oliv.) [*H. nervosus* (Fab.) and *subnebulosus* (Steph.) are characterized *l. c.* p. 271]; *H. nebulosus* and *perelegans=limbatus* (Wesm.); *H. obscurus, lutescens, affinis, paganus,* and *apicalis=humuli* (Linn.); *H. crispus, stigma, obliteratus, pini,* and *fasciatus=limbatus* (Wesm.); *H. marshami=elegans* (Steph.); *H. longifrons* is characterized, *l. c.* p. 273; *H. fuscatus* and *confinis =Sisyra fuscata* (Fab.); *H. nitidulus=S. dalii* (M'L.); and *H. vicarius* is a *Sisyra*. *Dromophila montana* (Walk.) belongs to the Phryganeidæ and= ♀ *Enoicyla pusilla* (Burm.).

Brauer (Verh. zool.-bot. Ges. in Wien, xvii. pp. 281–286) remarks that he was mistaken in identifying *Drepanicus* (Blanch.) with *Trichoscelia* (Westw.). He now regards it as a distinct genus, which he characterizes (*l. c.* p. 282), and which he considers to form the true transition from *Mantispa* towards *Hemerobius* and *Chrysopa*. To the genus as characterized Brauer refers *Mantispa biseriata* (Westw.) from Moreton Bay, *D. gayi* (Blanch.), and a supposed new species from Chili.

Brauer (Verh. zool.-bot. Ges. in Wien, xvii.) describes and figures the larvæ of *Hypochrysa nobilis* (Heyd.), *l. c.* p. 27, pl. 9. fig. 1, *Chrysopa pallida* (Schneid.), *l. c.* p. 29, pl. 9. fig. 2, and *Hemerobius humuli* (Linn.), *l. c.* p. 30.

Eaton (Ann. Mag. N. H. 3rd ser. xix. p. 395) notices examples of *Chrysopa vittata* and *phyllochroma* (Wesm.) with abnormities in the venation of the wings.

Mantispa pagana (Fab.)=*styriaca* (Poda) has been captured near Spandau. Stein in Berl. ent. Zeitschr. 1867, p. 397.

M'Lachlan notices the supposed ♀ of *Trichoscelia notha* (Westw.). Proc. Ent. Soc. 1867, p. xcix.

Nemoptera. De Sélys-Longchamps, in describing a new species of this genus from Asia Minor (Ann. Soc. Ent. Belg. x. pp. 253–255), refers to the characters of some of the allied species, and figures *N. barbara* (Klug), pl. 2. figs. 3 & 4, and *N. halterata* (Forsk.), pl. 2. figs. 5 & 6.

Ditaxis, g. n., M'Lachlan, Journ. Linn. Soc. ix. Zool. p. 262. Allied to *Mantispa*; wings broader, very obtuse; costa distant from subcosta up to the apex; costal area broader; gradate venules in two series. Sp. *Mant. biseriata* (Westw.).

Porismus, g. n., M'Lachlan, *l. c.* p. 266. Allied to *Osmylus*; first sector distant from radius, but approximated at apex, subcostal area with numerous transverse venules. Sp. *O. strigatus* (Burm.).

Stenosmylus, g. n., M'Lachlan, *l. c.* p. 267. Allied to *Osmylus*; prothorax elongate, subcylindric; wings long and narrow, rounded or acute at apex, subcostal veinlets numerous, transverse veinlets in the disk very numerous, Sp. *O. tenuis* and *longipennis* (Walk.); *S. stenopterus*, sp. n., M'Lachl. *l. c.* p. 267, Australia.

New species:—

Mantispa. Westwood (Trans. Ent. Soc. 3rd ser. v.) describes the follow-

ing new species of this genus:—*M.* (*Trichoscelia*) *partheniella*, p. 501, *M.* (*T.*) *eurydella*, ibid., *M.* (*T.*) *bella*, p. 502, *M.* (*T.*) *egella*, ibid., *M.* (*T.*) *sequella*, p. 503, *M.* (*T.*) *iridella*, ibid., *M.* (*T.*) *basella*, p. 504, *M.* (*T.*) *fumosella*, ibid., *M. hageneella*, ibid., and *M. batesella*, p. 507, from the valley of the Amazons; *M.* (*T.*) *fasciatella*, p. 503, and *M. cognatella*, p. 506, Venezuela; *M. myrapetrella*, p. 505, South America, in the nest of *Myrapetra scutellaris*; *M. hamiltonella*, p. 506, East Indies; and *M. burmanella*, p. 507, Burmah.

Mantispa erythræa, Brauer, Verh. zool.-bot. Ges. in Wien, xvii. p. 506, Brisbane.

Trichoscelia latifascia, M'Lachlan, Journ. Linn. Soc. ix. Zool. p. 255, Ega.

Nemoptera imperatrix, Westwood, *l. c.* p. 507, West Africa.

Nemoptera ledereri, Sélys-Longchamps, Ann. Soc. Ent. Belg. x. p. 254, pl. 2. figs. 1 & 2, Asia Minor.

Hemerobius graeffei, Brauer, Verh. zool.-bot. Ges. in Wien, xvii. p. 507, pl. 14A. fig. 1, Samoa Islands.

Chrysopa. M'Lachlan (Journ. Linn. Soc. ix. Zool.) describes the following new species of this genus:—*C. cognata*, p. 249, Cambodia, China, Japan; *C. tripunctata*, p. 250, Australia; *C. nigriceps*, p. 251, Ega; *C. palliceps*, ibid., Ega; *C. gigantea*, p. 252, Natal; *C. rufostigma*, p. 253, Natal; and *C. clava*, p. 254, Ega.

Micromus navigatorum, Brauer, *l. c.* p. 508, Fiji and Navigators' Islands.

Drepanicus chrysopinus, Brauer, *l. c.* p. 284, Chili.

Myiodactylus armatus, M'Lachlan, *l. c.* p. 264, North Australia.

Coniopteryx detrita, M'Lachlan, Ent. M. Mag. iv. p. 151, Adelaide.

Rhaphidiidæ.

Rhaphidia. Hagen publishes (Trans. Ent. Soc. 3rd ser. v. pp. 493–499) some notes on the species of this genus. He records 18 species, 5 of which are characterized as new, and describes the following known species:—*R. schneideri* (Ratz.), *R. ophiopsis* (De G.), *R. media* (Burm.), *R. xanthostigma* (Schum.), *R. affinis* (Schn.), *R. hispanica*, *R. notata*, and *R. cognata* (Ramb). He remarks that in the form of the genital parts three types may be recognized, namely, those of:—

1. *R. ophiopsis*, varied and repeated in *xanthostigma*, *corsica*, *taurica*, *armeniaca*, and *notata*;

2. *R. cognata*, repeated in *bavarica*; and

3. *R. media*, repeated and varied in *affinis*, *cyprica*, *adnixa*, and *oblita*.

The species described are regarded by Hagen as undoubtedly distinct, with the exception perhaps of *R. schneideri*, which may = *cognata*. The apex of the abdomen in *R. ophiopsis* is figured p. 499. fig. 1, and the same part, with the head and stigma, in *R. xanthostigma* and *schneideri*, ibid. figs. 2 & 3. Ratzeburg has once found the larva of a *Raphidia* in a cocoon of *Lophyrus pini*.

Raphidia corsica, sp. n., Hagen, Trans. Ent. Soc. 3rd ser. v. p. 496; *R. taurica*, Hag. *l. c.* p. 497; *R. armeniaca*, Hag. ibid.; *R. bavarica*, Hag. ibid.; and *R. cyprica*, Hag. *l. c.* p. 498.

Sialidæ.

M'Lachlan (Journ. Linn. Soc. ix. Zool. pp. 259–261) publishes the following synonymic notes on the Sialidæ of Walker's Catalogue of Neuroptera. Walker's *Sialis ferrugineus* = *americana* (Ramb.); *Chauliodes fasciatus* = pro-

bably *C. lunatus* (Hag.); *Hermes=Neuromus* (Ramb.) and includes species of *Chauliodes* and *Corydalis*; *H. maculatus=Chaul. serricornis* (Say); *H. ruficollis=C. maculipennis* (Gray); *H. maculifera=C. maculipennis* ♀; *H. dubitatus=* ♀ *C. californicus* (Walk.); *H. indecisus=* ♀ *C. rastricornis* (Ramb.); *H. anticus=* ♀ *C. sinensis* (Walk.); *H. testaceus, hieroglyphicus, albipennis,* and *costalis* belong to *Corydalis*; *Raphidia varia* belongs to *Trichoscelia. Hermes sinensis* (Walk.) belongs to *Chauliodes*, and, as there is already a *C. sinensis*, M'Lachlan changes the name to *C. bowringii. Hermes prasinus* does not belong to the Sialidæ; it is the type of M'Lachlan's Perlide genus *Stenoperla.*

Corydalis cornutus. The larva of this species is described and figured in the Amer. Nat. i. p. 436, and the adult ♀ is figured, *l. c.* p. 437.

New species:—

Chauliodes pusillus, M'Lachlan, Journ. Linn. Soc. ix. Zool. p. 231, East Indies?; *C. japonicus*, M'Lachl. *l. c.* p. 232, Japan.

Corydalis batesii, M'Lachlan, *l. c.* p. 232, pl. 8. fig. 1, Ega; *C. crassicornis*, M'Lachl. *l. c.* p. 233, pl. 8. fig. 2, Texas; and *C. inamabilis*, M'Lachl. *l. c.* p. 235, pl. 8. fig. 3, Texas.

Panorpidæ.

Panorpa. M'Lachlan (Journ. Linn. Soc. ix. Zool. pp. 256–258) enumerates the species of this genus found in Japan, namely:—*P. japonica* (Thunb.), descr. p. 256; *P. leucoptera* (Uhler); a species indicated but not named by Hagen, with black wings spotted with white; and 2 new species.

Panorpa klugii, sp. n., M'Lachlan, Journ. Linn. Soc. ix. Zool. p. 256, and and *P. macrogaster*, sp. n., M'Lachl. *l. c.* p. 257, Japan.

Hagen remarks (Stett. ent. Zeit. 1867, p. 90) upon the species of *Panorpa* from Japan, especially those described by Uhler.

Eaton (Ann. Mag. N. H. 3rd ser. xix. pp. 395–398) describes and figures the distinctive characters presented by the apical segments of the abdomen in the males of the British species of *Panorpa*, viz. *P. communis, germanica,* and *cognata.*

Boreus hyemalis. The occurrence of this species near Croydon is recorded by Douglas, Ent. M. Mag. iv. p. 166. It was also taken at West Wickham by Scott, ibid.

Phryganeidæ.

M'Lachlan (Stett. ent. Zeit. 1867, pp. 50–63) remarks upon various European species of this group, including:—*Limnephilus pavidus* (Hag.); *Halesus nigricornis* (Brauer)=*auricollis* (Pict.), and probably *guttatipennis* (M'Lachl.); *H. flavipennis* (Pict.); *Apatania fimbriata* (Pict.); *Mormonia irrorata* (Curt.); *Philopotamus siculus* (Hag.); and *Rhyacophila venusta* (Pict.). Under *M. irrorata* (pp. 59–61) M'Lachlan remarks upon the habits and dwellings of that species, and of two others found in company with it. In the males of *Chætopteryx* the anterior tibiæ are destitute of spurs (p. 56). M'Lachlan also calls attention to the fact that the name *Diplectrona* (Westw.) has been misapplied by continental authors (p. 61).

M'Lachlan publishes (Ent. Ann. 1868, pp. 1–7) some notes on British Trichoptera, supplementary to his monograph of those insects. *Limnephilus*

nobilis (M'L.)=*decipiens* (Kol.); *L.* (*Chætotaulius*) *striola* (Kol.) is a British species; *Apatania vestita* (M'L.) is not *vestita* (Kol.), M'Lachlan names it *A. muliebris* (*l. c.* p. 4); *Mormonia* (*Helictomerus*) *basalis* (Kol.)=*Lasiocephala taurus* (Costa); *Mystacides ferruginea* (E. Pict.), probably=*Setodes reducta* (M'L.); *Hydropsyche fulvipes* (Curt.) is distinct from *angustipennis* (Curt.); *H. ophthalmica* (Ramb.) ♀ has small eyes.

Meyer (Stett. ent. Zeit. 1867, pp. 153–169) publishes an account of the species of this family found in Westphalia. He details his experience in rearing these insects from their larvæ, and mentions (*l. c.* p. 155) several instances of the copulation of the sexes of different species with production of fertile ova. The number of species enumerated is 45, of which 4 (2 *Polycentropus*, a *Mystacides*, and a *Setodes*) are undetermined, and have their distinctive characters briefly indicated. Most of the species were bred by the author from their larvæ, and he appends notes on the characters of the latter and of their cases.

C. S. Tomes (Quart. Journ. Micr. Sci. xv. pp. 248–251) describes the larva of a small Trichopterous insect, probably belonging to *Hydroptila*, found by him in a pond at Hampstead, inhabiting a silky case enveloped in an outer layer of concentrically arranged filaments of Conferva. The larva, with its case and details of its structure, is well figured, *l. c.* pl. 9.

A. E. Eaton indicates the means of identifying the pupæ and pupa-skins of insects of this group. Ann. & Mag. N. H. 3rd ser. xx. p. 384.

Eaton (Ann. & Mag. N. H. 3rd ser. xix. p. 398) notices some peculiarities in the venation of a ♀ *Anabolia nervosa* (Curt.) and the occurrence of *Silo fumipennis* (M'Lachl.) near Cambridge. He also describes the pupa-skin of *Brachycentrus subnubilus* (Curt.), and figures its mandibles and anal setæ (*l. c.* p. 399).

Neuronia clathrata (Kolen.) captured in Britain. M'Lachlan, Proc. Ent. Soc. 1867, p. cviii.

E. Gedge records an instance of renewed copulation in a pair of *Chætopteryx tuberculosa*. Ent. M. Mag. iii. p. 204.

Hydroptila. The habits of the larvæ of a species of this genus (*H. pulchricornis*?) are noticed by M'Lachlan. These larvæ remain suspended at midwater by a thread. Ent. M. Mag. iv. p. 17.

Limnephilus striola (Kolen.). A gynandromorphous specimen noticed by M'Lachlan. Proc. Ent. Soc. 1867, p. xcix.

M'Lachlan notices the occurrence of 2 species of *Stenophylax*, with an Ichneumon (*Paniscus*), in ice-caves in the Alps. Proc. Ent. Soc. 1865, p. 110.

New genera:—

Potamorites, g. n., M'Lachlan, Stett. ent. Zeit. 1867, p. 54. Allied to *Chætopteryx*; max. palpi smooth; ocelli present; anterior wings narrow, obliquely truncate at apex, sparsely clothed with hairs; calcaria 1, 2, 2. Sp. *P. biguttatus* (Pict.)=*Enoicyla limnophiloides* (Brauer); *E. frauenfeldii* (Brauer), &c.

Cryptothrix, g. n., M'Lachlan, *l. c.* p. 56. Allied to *Chætopteryx*; penultimate joint of max. palpi slightly dilated and truncate at apex; anterior wings long and narrow, obtusely rounded, with a very dense pubescence, radius a little inflexed at apex, discoidal cell long, closed; posterior wings

in ♂ with a deep median fold, beneath which the veins bear long hairs; calcaria 1, 2, 2. Sp. *Enoicyla nebulicola* (Hag.).

Bereodes, g. n., Eaton, Ann. & Mag. N. H. 3rd ser. xix. p. 400. Allied to *Berœa*; joints 2 & 4 of maxillary palpi equal, 5 longer, 3 shorter; joints 1 & 2 of antennæ much longer and stouter than the rest. Sp. *Silo minutus* (Kol.).

Acrophylax, g. n., Brauer, Verh. zool.-bot. Ges. in Wien, xvii. p. 742. Allied to *Chætopteryx*; spurs 0, 3, 4; antennæ stout, joint 1 shorter than head; joint 1 of labial palpi very small, 2 & 3 long and equal; anterior wings not widened to the end. Sp. *A. zerberus*, sp. n., Bauer, *l. c.* p. 743, Carpathians.

New species :—

Stenophylax montivagus, M'Lachlan, Stett. ent. Zeit. 1867, p. 50, and *S. difformis*, M'Lachl. *l. c.* p. 51, Carinthia.

Halesus adustus, M'Lachlan, *l. c.* p. 52, and *H. madidus*, M'Lachl. *l. c.* p. 53, Carinthia.

Apatania frigida, M'Lachlan, *l. c.* p. 57, Norwegian Lapland.

Rhyacophila glareosa, M'Lachlan, *l. c.* p. 62, Carinthia, Austria, and Bavaria.

Wormaldia nervosa, Brauer, Verh. zool.-bot. Ges. in Wien, xvii. p. 509, Fiji Islands (Oualou).

Hydromanicus ruficeps, Brauer, *l. c.* p. 510, pl. 14 A. fig 2, and *H. piceus* Brauer, *l. c.* p. 511, Fiji Islands (Oualou).

ORTHOPTERA.

A. *Separate Work.*

Wattenwyl, Charles Brunner de. Nouveau système des Blattaires. Vienna, 1865, 8vo, pp. xi and 426, with 13 plates.

In this valuable work Wattenwyl publishes a monograph of the difficult and little-studied family of the *Blattidæ*, in which, as he says, he describes about four times the number of species known to Serville and Burmeister. He describes in considerable detail the general characters of the family; and this description is followed by a most useful analysis of the works and memoirs cited, giving a list of the species described in each, with a statement of their equivalents in the author's system. In a supplementary notice at the end of the work, similar analyses of Saussure's recent memoirs on the *Blattidæ* are given, these having appeared whilst the descriptive portion of Wattenwyl's work was passing through the press.

B. *Papers published in Journals &c.*

* *Descriptive &c.*

Brauer, Friedrich. Beschreibung neuer exotischer Libellen aus den Gattungen *Neurothemis, Libellula, Diplax, Celi-*

themis und *Tramea*. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 3–26.

Brauer, Friedrich. Bericht über die von Hrn. Dir. Kaup eingesendeten Odonaten. (Schluss.) Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 287–302.

The previous portions are published under the title of "Descriptions of New Exotic Libellulidæ" (see above and 'Record,' 1866, p. 522). This part contains descriptions of new species, and notes upon several others.

——. Ueber den Dimorphismus der Weibchen in der Libellulinen-Gattung *Neurothemis*. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 971–976.

——. Neue Exotische Odonaten. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 811–816.

Dohrn, H. Versuch einer Monographie der Dermapteren. (Nachtrag.) Stettiner entom. Zeitung, 1867, pp. 341–343.

——. Neue und bisher nicht genügend bekannte Forficulinen. Ibid. pp. 343–349.

Eaton, A. E. (See "Neuroptera.")

Frauenfeld, G. von. (See "Insecta.")

Giebel, C. Die im zoologischen Museum der Universität Halle aufgestellten Epizoen, nebst Bemerkungen über dieselben. Zeitschrift für die ges. Naturwiss. Band xxviii. pp. 353–400: December 1866.

A list, with remarks, of the Epizootic Insects, Acarina, and Crustacea contained in the Museum of the University of Halle, with descriptions of new species of Mallophaga.

Graber, Vitus. Die Orthopteren Tirols mit besonderer Rücksicht auf ihre Lebensweise und geographische Verbreitung. Verhandl. zool.-bot. Ges. in Wien, Band xvii. pp. 251–280 and 2 tables.

——. Analytische Uebersicht über die in Tirol beobachteten Orthopteren. Zeitschr. des Ferdinandeums &c., 3te Folge, Heft xiii. pp. 261–277.

An analytical table of the Tyrolese *Orthoptera genuina*.

Hagen, H. Revision der von Herrn Uhler beschriebenen Odonaten. Stettiner entom. Zeitung, 1867, pp. 87–95.

A synonymic notice of the species described by Uhler in the Proc. Acad. Nat. Sci. Phil. for 1857 and 1858.

——. Revision der von Herrn Scudder beschriebenen Odonaten. Stettiner entom. Zeitung, 1867, pp. 96–100.

——. Die Neuroptera der Insel Cuba. Stettiner entom. Zeitung, 1867, pp. 215–232.

This paper contains descriptions of Cuban Dragonflies, the colours given from Gundlach's descriptions of the living animals.

HAGEN, H. Notizen beim Studium von Brauer's Novara-Neuropteren. Verhandl. zool.-bot. Gesellsch. in Wien, Band xvii. pp. 31–62.

Notices of the species of *Æschnides* and *Corduliides* described by Brauer in the zoology of the 'Novara's' voyage.

HEER, OSWALD. Ueber die fossilen Kakerlaken. Vierteljahrsschrift naturf. Gesellsch. in Zürich, Jahrg. ix. pp. 273–302, with a plate.

JÄCKEL, A. J. Ueber die Wander-, Zug- oder Strichheuschrecken (*Œdipoda migratoria*, L.) in Bayern. Corr.-Blatt zool.-min. Ver. Regensb. xxi. pp. 83–93.

KÖPPEN, F. T. Ueber die Heuschrecken in Südrussland. Nebst einem Anhange über einige andere daselbst vorkommende schädliche Insekten. Horæ Soc. Ent. Ross. tom. iii. pp. 83–294.

M'LACHLAN, R. A monograph of the British Psocidæ. Ent. Monthly Magazine, vol. iii. pp. 177–181, 194–197, 226–231, 241–245, and 270–276, plate 2.

NITZSCH, C. L. Die Federlinge der Sing-, Schrei-, Kletter- und Taubenvögel. Zeitschrift gesammt. Naturw. xxvii. pp. 115–122: 1866.

A posthumous paper, published by Giebel.

PACKARD, A. S. The Dragonfly. American Naturalist, vol. i. pp. 304–313, pl. 9.

RITCHIE, A. S. Notes on the "Spectrum femoratum." Canadian Naturalist and Geologist, vol. iii. pp. 66–69.

RUDOW, FERD. Sechs neue Haarlinge. Zeitschrift gesammt. Naturwissenschaften, xxvii. pp. 109–112, Taf. 5–7: February 1866.

——. Characteristik neuer Federlinge. Ibid. pp. 465–477: June 1866.

SCUDDER, S. H. (See "NEUROPTERA.")

† *Anatomical and Physiological.*

GRABER, VITUS. Zur Entwickelungsgeschichte und Reproductionsfähigkeit der Orthopteren. Sitzungsb. Akad. Wiss. Wien, Band lv. pp. 307–324, pls. 4: 1867. Abstract in Ann. & Mag. N. H. 3rd ser. xix. pp. 147–148.

On the developmental history and reproductive faculty of the Orthoptera (*Orth. genuina*).

Thysanura.

H. Lucas gives an abstract of Haliday's description of *Iapyx solifugus* (see 'Record,' 1864, p. 568). Bull. Soc. Ent. Fr. 1867, p. xx.

Lepisma saccharina. The characters and habits of this insect are noticed by Goureau (Insectes nuisibles, pp. 213–215).

G. S. Saunders notices the occurrence of insects of this family on melting snow in Yorkshire in March 1867. The species is doubtfully identified by Lubbock with *Podura* (*Anura*) *tuberculata* (Templ.). Proc. Ent. Soc. 1867, p. lxxxv.

Lepisma anophthalma, sp. n., Bilimek, Verh. zool.-bot. Ges. in Wien, xvii. p. 905, Mexico (Cave of Cacahuamilpa).

Mallophaga.

Goureau (Insectes nuisibles, pp. 207–213) describes the characters of the principal insects belonging to this group which infest domestic animals, and indicates their general habits.

Giebel notices the occurrence of a gigantic *Nirmus* on the Golden Eagle. Zeitschr. ges. Naturw. xxvi. p. 473.

Giebel has published (Zeitschr. für die ges. Naturw. xxviii. pp. 356–397) a list of the species of this group contained in the museum of the University of Halle. The majority of the specimens were accumulated by Nitzsch; and the remarks and descriptions interspersed in the list are chiefly derived from his MSS. The whole number of species is 437; but many of these have received no names. Many others are described as new.

Characters of the following new species are given by Giebel, chiefly from Nitzsch's MSS.:—*Docophorus leptomelas, l. c.* p. 358, on *Corvus albicollis*; *D. furcatus, l. c.* p. 359, on *Cyanocorax cristatellus*; *D. gilvus, l. c.* p. 360, on *Psittacus erithacus*; *D. integer*, ibid., on *Grus communis*; *D. sphenophorus, l. c.* p. 361, on *Platalea leucorodia*; *D. nitzschi*, ibid., on *Tringa pugnax* and *Totanus maculatus*; *D. bisignatus, l. c.* p. 362, on *Ibis falcinellus*; *D. pustulosus, l. c.* p. 363, on *Lestris parasitica.*

Nirmus leucocephalus, l. c. p. 365, on *Corvus albicollis*; *N. exiguus, l. c.* p. 366, on *Sylvia tithys*; *N. intermedius*, ibid., on *Turdus pilaris* and *torquatus*; *N. mundus*, ibid., on *Oriolus gallula*; *N. hecticus*, ibid., on *Sericulus regens*; *N. brasiliensis, l. c.* p. 367, on *Tanagra brasiliensis*; *N. majus*, ibid., on *Cassicus cristatus*; *N. subtilis*, ibid., on *Fringilla montana* and *domestica*; *N. ruficeps*, ibid., on *Fring. montana*; *N. densilimbus, l. c.* p. 368, on *Fringilla carduelis*; *N. delicatus*, ibid., on *Emberiza citrinella*; *N. cephaloxys*, ibid., on *Alcedo ispida*; *N. cephalotes, l. c.* p. 369, on *Buceros rhinoceros*; *N. melanophrys*, ibid., on *Upupa epops*; *N. superciliosus, l. c.* p. 370, on *Picus medius*; *N. quadrulatus*, ibid., on *Tetrao urogallus*; *N. anchoratus*, ibid., on *Penelope parraces*; *N. unicolor, l. c.* p. 371, on *Otis tarda*; *N. umbrina*, ibid., on *Scopus umbretta*; *N. funebrius*, ibid., on *Aramus gigas*; *N. ellipticus*, ibid., on *Glareola austriaca* and *orientalis*; *N. fuscus*, ibid., on *Charadrius alexandrinus, minor*, and *morinellus*; *N. hospes*, ibid., on *Vanellus squatarola*; *N. subcingulatus, l. c.* p. 372, on *Strepsilas interpres*; *N. ochropygos*, ibid. = *N. hæmatopi* (Denny); *N. semifissus*, ibid., and *N. hemichrous*, ibid., on *Himantopus rufipes*; *N. pileus, l. c.* p. 373, on *Recurvirostra avocetta*; *N. stictochrous, l. c.* p. 374, on *Dromas ardeola*; *N. similis*, ibid., on *Totanus glottis*; *N. fimbriatus*, ibid., on *Phalaropus fimbriatus*; *N. zonarius*, ibid., on *Numenius arquatus, Tringa minuta*, and

T. cinctus; *N. sacer*, *l. c.* p. 375, on *Ibis sacra*; *N. truncatus*, ibid.=*N. scolopacis* (Denny); *N. minutus*, ibid., on *Gallinula chloropus* and *Fulica atra*; *N. phœonotus*, ibid., on *Sterna fissipes*; *N. anagrapsus*, *l. c.* p. 376, on *Sterna leucoparcia*; *N. striolatus*, *l. c.* p. 377, on *Larus glaucus*; *N. triangulatus*, *l. c.* p. 378, on *Lestris crepidata*; *N. frontatus*, ibid., on *Eudytes arcticus* and *septentrionalis*; and *N. citrinus*, ibid., on *Alca torda*.

Lipeurus strepsiceros, *l. c.* p. 379, on *Psittacus erithacus*; *L. heterogrammicus*, ibid., on *Perdix cinerea*; *L. cinereus*, ibid., on *Perdix coturnix*; *L. mesopelios*, ibid., on *Phasianus pictus*; *L. heterographus*, *l. c.* p. 381, on *Gallus gallinaceus*; *L. angustissimus*, *l. c.* p. 382, on *Hemipodius pugnax*; *L. simillimus*, ibid., on *Palamedea chavaria*; *L. antilogus*, *l. c.* p. 383, on *Otis tetrax*; *L. maculatus*, ibid., on *Ciconia nigra*; *L. lepidus*, ibid., on *Anastomus coromandelicus*; *L. leucoproctus*, *l. c.* p. 384, on *Ardea purpurea*; *L. loculator*, ibid., on *Tantalus loculator*; *L. platalearum*, ibid., on *Plat. ajaja* and *leucorodia*; *L. subsignatus*, ibid., on *Phœnicopterus antiquorum*; *L. linearis*, ibid., on *Tachydromus isabellinus*; *L. rhaphidius*, ibid., on *Ibis falcinellus*; *L. taurus*, *l. c.* p. 385, on *Diomedea exulans*; *L. serratus*, ibid., on *Anser albifrons*; *L. sordidus*, ibid., on *Anas crecca* and *clypeata*; *L. depuratus*, ibid., on *Anas strepera* and *penelope*; *L. angustolimbatus*, *l. c.* p. 386, on *Anas nigra*; *L. toxoceras*, ibid., on *Halieus carbo*; *L. gyroceras*, ibid., on *Hal. brasiliensis*; *L. runcinatus*, ibid., on *Podiceps cristatus* and *minor*; *L. pullatus*, *l. c.* p. 387, on *Sula alba*; and L. *fœdus*, ibid., on *Psophia crepitans*.

Goniodes pusillus, *l. c.* p. 387, on *Perdix petrosa*; *G. isogenos* and *G. gregarius*, *l. c.* p. 388, on *Perdix afra*; *G. lipogonus*, ibid., on *Crypturus rufescens*; and *G. oniscus*, ibid., on *Crypt. tao*.

Goniocotes microthorax, *l. c.* p. 389, on *Perdix cinerea*.

Menopon sittæ, *l. c.* p. 390, on *Sitta europæa*; *M. incisum*, *l. c.* p. 391 (on *Coracias garrula*?); *M. phanerostigma*, ibid., on *Cuculus canorus*; *M. pallescens*, ibid.=*fulvomaculatum* (Denny); *M. ventrale*, ibid., on *Argus giganteus*; *M. phœostomum*, ibid., on *Pavo cristatus*; *M. stramineum*, ibid., on *Meleagris gallopavo*; *M. cracis*, ibid., on *Crax rubrirostris*; *M. micrandrum*, *l. c.* p. 392, on *Recurvirostra avocetta* and *Hæmatopus ostralegus*; *M. crocatum*, ibid., on *Numenius arquata*; *M. obtusum*, ibid., on *Larus tridactylus*; *M. phœopus*, ibid., on *L. ridibundus*; *M. eurygaster*, *l. c.* p. 393, on *Halieus brasiliensis*; and *M. pustulosum*, ibid., on *Sula alba*.

Colpocephalum breve, *l. c.* p. 394, on *Dicholophus cristatus*; *C. macilentum*, ibid., on *Grus communis*; *C. cornutum*, *l. c.* p. 395, on *Tringa pugnax*; and *C. maurum*, on *Sterna fissipes* and *Larus tridactylus*.

Physostomum simile, *l. c.* p. 395, on *Sylvia suecica*; *P. nitidissimum*, ibid., on *Emberiza citrinella*.

Giebel has published (Zeitschr. ges. Naturw. xxvii.) a paper by Nitzsch on the Mallophaga of the Song-birds, Clamatores, Scansores, and Pigeons. It contains diagnoses of the following species:—*Docophorus semisignatus*, p. 115, on the Raven; *D. argulus*, ibid., Raven; *D. subcrassipes*, p. 116, Magpie; *D. cruciatus*, ibid., on *Lanius collurio*; *D. ornatus*, ibid., Golden Oriole; *D. bifrons*, ibid, Bee-eater; *D. mystacinus*, ibid., on *Alcedo coromanda*; *Nirmus gracilis*, ibid., Martin; *N. quadrilincatus*, p. 117, on *Parus caudatus*; *N. gulosus*, ibid., Creeper; *N. cyclothorax*, ibid., on *Fring. montifringilla* and *montana*; *N. fenestratus*, ibid., Cuckoo; *N. latirostris*, ibid., Cuckoo; *N. candidus*, ibid., on *Picus canus* and *viridis*; *N. heteroscelis*, p. 118, on *Picus*

martius; *Lipeurus cinereus*, ibid., Martin; *L. strepsiceros*, ibid., on *Psittacus erithacus*; *L. baculus*, ibid., various Doves; *Goniodes compar*, ibid., Domestic Pigeon; *G. damicornis*, p. 119, on *Columba palumbus*; *Menopon anaspilum*, ibid., Raven; *M. mesoleucum*, ibid., on *Corvus cornix* and *corone*; *M. isostomum*, ibid., Rook; *M. anathorax*, p. 120, Jackdaw; *M. brunneum*, ibid., Nutcracker; *M. curysternum*, ibid., Magpie and Jackdaw; *M. indivisum*, ibid., Jay; *M. pusillum*, ibid., on *Motacilla alba*; *M. agile*, ibid., on *Sylvia tithys*; *M. exile*, p. 121, Wheatear; *M. cucullare*, ibid., on a white Starling; *M. fertile*, ibid., Hoopoe; *Physostomum agonum*, ibid., Redbreast; *P. sulphureum*, ibid., Golden Oriole; *P. frenatum*, ibid., Goldcrest.

Trinoton biguttatum, Rudow, Zeitschr. ges. Naturw. xxvii. p. 467, on *Tinnamus bannaguira*.

Colpocephalum. Rudow (*l. c.*) describes the following new species of this genus:—*C. numenii*, p. 469, on *Numenius linearis*; *C. vittatum*, ibid., on *Ardea ralloides*; *C. unicolor*, p. 470, on *Carpophaga samoensis*; *C. cornutum*, ibid., on *Balearica pavonina*; *C. scalariforme*, p. 471, on *Tantalus loculator*; *C. cinctum*, p. 472, on *Procellaria glacialoides*; *C. flavum*, ibid., on *Carduelis granadensis*; *C. furcatum*, p. 473, on *Procellaria mollis*; *C. commune*, p. 474, on *Neomorphus cultridens*; *C. hirtum*, ibid., on *Buceros ruficollis*; *C. semicinctum*, p. 475, on *Corvus scapulatus*; *C. impressum*, ibid., on *Aquila fulva*; *C. minutum*, p. 476, on *Cygnus musicus*.

Lipeurus ferox, Giebel, Zeitschr. ges. Naturw. xxix. pp. 195–196, from *Diomedea melanophrys* (3½ lines in length).

Trichodectes. Rudow (Zeitschr. ges. Naturw. xxvii.) describes the following as new species of this genus:—*T. mexicanus*, p. 109, pl. 5. fig. 1, on *Cercolabes mexicanus*; *T. breviceps*, p. 110, pl. 5. fig. 2, on *Auchenia llama*; *T. longiceps*, p. 110, pl. 6. fig. 1, on *Antilope arabica*; *T. mambricus*, p. 111, pl. 6. fig. 2, on *Hircus mambricus*, from West Africa; *T. crassipes*, ibid., pl. 7. fig. 1, on the Angora Goat; and *T. solidus*, p. 112, pl. 7. fig. 2, on a Goat from Guinea.

Ornithobius rostratus, Rudow, Zeitschr. ges. Naturw. xxvii. p. 465, on *Chenalopex ægyptiacus*.

Trabeculus, g. n., Rudow, Zeitschr. ges. Naturw. xxvii. p. 466. Allied to *Docophorus*; joint 2 of antennæ in ♂ produced into a hook, 3–5 set on at right angles; trabeculæ in both sexes. Sp. *T. schillingi*, sp. n., Rudow, *l. c.* p. 467, on *Procellaria mollis*.

Thysanoptera.

Heliothrips hæmorrhoidalis (Bouché). F. Löw records the occurrence of this species in great abundance, and in all stages, in winter on plants of *Viburnum tinus* in his room. Verh. zool.-bot. Ges. in Wien, xvii. p. 747.

Frauenfeld notices (Verh. zool.-bot. Ges. in Wien, xvii. p. 800) the occurrence of various forms of this group in hothouses, and gives a list of plants observed by Benseler to be particularly subject to their attacks in the Botanic Garden of Vienna. He also describes a new species.

Thrips benseleri, sp. n., Frauenfeld, *l. c.* p. 800, on *Zea mais* in Vienna.

Pseudo-Neuroptera.

Termitidæ.

Fritsch (Berl. ent. Zeitschr. 1867, pp. 254–259) has some remarks on the habits of the South-African Termites and the construction of their nests.

Goureau (Insectes nuisibles, pp. 70-74) describes the European species of this family (*Termes flavicollis*, Fab., and *lucifugus*, Rossi) and their habits.

Psocidæ.

M'Lachlan publishes (Ent. M. Mag. iii.) a monographic revision of the British species of *Psocidæ*, of which he enumerates 29. He divides the family (p. 179) into the well-known groups *Atropina* and *Psocina*, and in the former includes the 3 genera *Atropos*, *Clothilla*, and *Psoquilla* (tabulated p. 180). *Atropos* includes only *A. divinatoria* (Müll.), figured pl. 2. fig. 1, as to the ticking-powers of which McLachlan expresses great doubt (p. 181). *Clothilla* (Westw.)=*Lepinotus* (Heyd.) includes 3 British species, namely, *C. pulsatoria* (Linn.), *C. inquilina* (Heyd.), and *C. picea* (Motsch.). *C. pulsatoria* and *C. picea* are figured (pl. 2. figs. 2 & 3). Of *Psoquilla* (Hag.) the only species is *P. marginepunctata* (Hag.), which is figured (pl. 2. fig. 4). The date of the establishment of this genus is said to be 1866 instead of 1865. With regard to *Lachesilla* (Westw.) M'Lachlan states (p. 196) that, from an examination of the type specimens of *L. fatidica*, he is inclined to regard the genus as founded in error. One of the specimens appears to be the larva of one of the *Psocina*, the other possesses ocelli and small but distinctly reticulated wings, and appears to be a micropterous form of *Cæcilius pedicularius*.

The genera of *Psocina* represented in Britain are five in number, namely, *Psocus* (Lat.), *Cæcilius* (Curt.), *Peripsocus* (Hag.), *Stenopsocus* (Hag.), and *Elipsocus* (Hag.). These are tabulated on pp. 228–229. Of *Psocus* M'Lachlan (pp. 229–231 & 241–244) enumerates 10 British species, namely, *P. longicornis* (Fab.), *nebulosus* (Steph.), *variegatus* (Fab.), *fasciatus* (Fab.), figured pl. 2. fig. 5, *sexpunctatus* (Linn.), *bifasciatus* (Latr.), *quadrimaculatus* (Latr.), *subnebulosus* (Steph.), *bipunctatus* (Linn.), and *morio* (Latr.). *Stenopsocus* (pp. 244–246) includes *S. immaculatus* (Steph.), *nervosus* (Steph.), and *cruciatus* (Linn.). Of the last a small-winged form is figured (pl. 2. fig. 7). Of *Cæcilius* (pp. 270–273) we have 5 British species, namely, *C. pedicularius* (Linn.), *flavidus* (Steph.), *obsoletus* (Steph.), *fuscopterus* (Latr.), and 1 new species. *Peripsocus* (p. 273) includes *P. alboguttatus* (Dalm.), figured pl. 2. fig. 8, and *P. phæopterus* (Steph.). Of *Elipsocus* (pp. 274–276), besides a new species, we have *E. unipunctatus* (Müll.), *hyalinus* (Steph.), and *flaviceps* (Steph.), the last figured (pl. 2. figs. 9, 10). Besides the species above mentioned, M'Lachlan figures the fore wings of *Psocus*, *Stenopsocus*, *Cæcilius*, and *Peripsocus* on an enlarged scale (pl. 2. figs. 11–14), and the tarsi of *Psocus* and *Elipsocus* (figs. 15, 16).

Atropos pulsatorius. A discussion on the question whether this insect really produces a ticking noise appears in Proc. Ent. Soc. 1867, pp. lxxiii–lxxiv.

J. Blackwall mentions that, a ticking sound having been heard in a work-box, its compartments were all carefully examined, when a single specimen of *Atropos* (*divinatoria*) was found in the bran of a pincushion. No sound was afterwards heard from the box. M'Lachlan states that he has since been informed of a similar case. Ent. M. Mag. iv. pp. 19–20.

Psocus rufus (Walsh) bred by Walsh from gall *Salicis brassicoidis*. Proc. Ent. Soc. Phil. vi. p. 270.

Cæcilius dalii, sp. n., M'Lachlan, Ent. M. Mag. iii. p. 272, pl. 2. fig. 6, Dorsetshire (on Box).

Elipsocus westwoodii, sp. n., M'Lachlan, *l. c.* p. 274 (=*Psocus 4-maculatus*, Westw. nec Latr.).

Libellulidæ.

Landois (Zeitschr. für wiss. Zool. xvii. pp. 167–169) notices a peculiar sound-producing organ in the *Libellulidæ*, and figures that of *Æschna juncea* (pl. 11. fig. 20). It is situated in the prothoracic stigmata, which are placed quite at the front of the thorax, and concealed by the head. These stigmata are large elongated slits, one margin of which is simple, whilst the other bears a sort of chitinous comb of about 20 teeth, between which an exceedingly delicate membrane is extended. The metathoracic stigmata, which in general are the chief organs of sound in this part of the body, are smaller, and bear on one side a semilunar valve with stiff hairs.

A. S. Packard gives a general account of the natural history of the insects of this family, with especial reference to North-American species (Amer. Nat. i. pp. 304–313). He figures the lower surface of the head (p. 307. fig. 1) and the extremity of the abdomen (p. 308. fig. 2) of the larva and the pupa of *Æschna* and *Diplax* (p. 309. fig. 3 & p. 311. fig. 4), and refers to and figures the following species (*l. c.* pl. 9):—*Libellula trimaculata* (De G.), fig. 1; *L. quadrimaculata*, fig. 2; *Diplax berenice* (Drury), figs. 3 & 4; *D. elisa* (Hag.), fig. 5; *Nannophya bella* (Uhler), fig. 6; and *Agrion saucium* (fig. 7).

Neurothemis. Brauer proposes this name for the genus *Polyneura* (Ramb.), the latter name being preoccupied in Rhynchota (Verh. zool.-bot. Ges. in Wien, xvii. p. 6). He gives a list of the species referred by him to the genus (*l. c.* pp. 7–8), several of which are new; but this is modified by the suppression of some of his new species in a subsequent paper on the occurrence of dimorphism in the females of some of the species.

Brauer (Verh. zool.-bot. Ges. in Wien, xvii. pp. 971–976), indicates the occurrence of dimorphism in the females of some species of the genus *Neurothemis* (=*Polyneura*, Ramb.), some of them having the wings very richly veined, as in the males, whilst others have widely netted wings like those of the ordinary *Libellulæ*. He mentions that a similar dimorphism occurs in the genus *Ischnura*. He explains the phenomenon, on Darwinian principles, by the supposition that the close netting of the veins is a secondary sexual character in the males, so that the heteromorphous females are the normal form, and the isomorphous ones (which are less numerous in the collections) females with male habit. He indicates the species which he refers to the genus as follows, some of them having been described in an earlier paper, as indicated below:—1. *N. gigantea* (Br.); 2. *N. sophronia* (Dr.)=*fulvia* (Dr., Burm.); 3. *N. palliata* (Ramb.), incl. *ramburii* (Kaup, Br.), *ceylanica* (Br.), and *decora* (Br.); 4. *N. elegans* (Guér.)=? *manadensis* (Boisd.); 5. *N. pseudosophronia* (Br.), incl. *diplax* and *innominata* (Br.), and *oculata* and *stigmatizans* (Fab.), the species will therefore bear the name of *N. oculata* (Fab.); 6. *N. fluctuans* (Burm.)=*apicalis* (Ramb.); 7. *N. nicobarica* (Br.); 8. *N. equestris* (Fab.); 9. *N. feralis* (Burm.); 10. *N. oligoneura*, sp. n.

Hagen has submitted some species of this family, described in 1857 and 1858 by Uhler, to a synonymic revision (Stett. ent. Zeit. 1867, pp. 87–96), founded chiefly upon types sent to him by that author. The species noticed are:—*Libellula speciosa* (Uhl.)=*L. albistyla* (Sélys), which is identical

with *L. cancellata* (Vill.), and includes *L. obnixa* (Hag.) and *albicauda* (Brauer); *L. cancellata* (Müll.) = *scotica*; *L. phalerata* (Uhl.) = *trivialis* (Ramb.); *L. sabina* (Drury); *Cordulia viridicænea* (Uhl.); *Mnais pruinosa* (Uhl.) = *strigata* (Hag.); *Nannophya bella* (Uhl.); *Libellula bistigma* (Uhl.) = *quadrupla* (Say); *L. plumbea* (Uhl.); *L. confusa* (Uhl.) = *pulchella* (Drury); *L. saturata* (Uhl.); *L. julia* (Uhl.); *L. assimilata* (Uhl.). The described species of the genus *Nannophya* are cited by Hagen (*l. c.* pp. 90–91), and are *N. bella* (Uhl.), *maculosa* (Hag.), *prodita* (Hag.) ♂ = *inermis* (Sélys), *semiaurea* (Mus. Berol.), *phryne* (Perty) = *apicalis* (Hag.), *australis* (Brauer), *pygmæa* (Ramb.), and *exigua* (Ramb.).

Hagen publishes (Stett. ent. Zeit. 1867, pp. 96–100) some notes on the species of this family from the Isle of Pines and the White Mountains, described by Scudder in 1866 (see 'Record,' 1866, p. 523). The synonymic results are as follows:—*Agrion maria* (Sc.) = *Neoncura palustris* (Hag.); *Macromia cubensis* (Sc.) = *Erythemis longipes* (Hag.); *Tramea insularis* = *abdominalis* (Ramb.); *Libellula vinosa* (Sc.) = *Dythemis rufinerva* (Burm.); *Mesothemis poeyi* (Sc.) = *D. dicrota* (Hag.); *M. gundlachii* (Sc.) = *simplicicollis* (Say); *Perithemis domitia* = *metella* (Sélys). These species are from the Isle of Pines. On the species from the White Mountains, Hagen remarks that *Cordulegaster lateralis* (Sc.) may perhaps be identical with *C. sayi*; *Cordulia eremita* (Sc.) probably = *albicineta* (Burm.); *C. foreipata* (Sc.) probably = *C. aretiea*; and *C. shurtleffii* (Sc.) = *bifurcata* (Sélys). Hagen also communicates a note on the Odonata observed by Uhler in St. Domingo (*l. c.* p. 99).

Hagen (Stett. ent. Zeit. 1867, pp. 215–232) gives an account of some dragonflies sent from Cuba by Gundlach and Poey, and describes their colours when living from the statements of the former. The known species are:—*Pantala flaveseens* (Fab.), *P. hymenæa* (Say), *Tramea carolina* (Linn.), *T. onusta* (Hag.), *T. abdominalis* (Ramb.), *T. insularis* (Hag.), *T. marcella* (Sélys), *T. simplex* (Ramb.), *Celithemis eponina* (Drury). Hagen also refers particularly to the species hitherto referred to *Celithemis*.

Hagen publishes (Verh. zool.-bot. Ges. in Wien, xvii. pp. 31–62) a series of notes on the species of *Æschnides* and *Corduliides* cited by Brauer in the zoology of the voyage of the 'Novara.' The species referred to are:—*Anax ephippiger* (Burm.) = *mediterraneus* (Sélys) and *senegalensis* (Ramb.), and its geographical distribution; *A. jaspideus* (Burm.), ♀ descr.; *A. papuensis* (Burm.) = *eongener* (Ramb.); *A. junius* (Drury) = *spiniferus* (Ramb.); *A. longipes* (Hag.), descr.; *A. dorsalis* (Burm.), ♀ descr.; *A. amazili* (Burm.) = *maculatus* (Ramb.), ♂ descr. and geogr. distr. noticed; *A. concolor* (Br.); *A. guttatus* (Burm.) = *magnus* (Ramb.), ♂ ♀ descr.; *A. gibbosulus* (Ramb.); *A. formosus* (Van der Lind.), geogr. distrib. and variation; *A. parthenope* (Sélys); *A. julius* (Br.); *Æsehna tahitensis* (Br.), also from Sumatra; *Æ. cornigera* (Br.); *Æ. macromia* (Br.); *Æ. excisa* (Br.) = *luteipennis* (Burm.); *Æ. castor* (Br.), ♀ descr.; *Staurophlebia magnifiea* (Br.) = *retieulata* (Burm.) = *gigas* (Ramb.); *Æschna ampla* (Ramb.), additional characters; *Gynacantha idæ* (Br.); *Epopthalmia vittata* (Burm.), ♂ descr.; *E. elegans* (Br.); and *Cordulia novæ-zealandiæ* (Br.) = probably *C. smithii* (White). Hagen also remarks (*l. c.* p. 54) upon the genera *Megalæsehna* and *Neuræsehna* (Sélys), and describes *N. costalis* (Burm.).

Giraud remarks (Bull. Soc. Ent. Fr. 1867, p. xiii) upon the changes of

colour which occur in certain insects with age, and especially notices the males of *Libellula* and of *Calepteryx virgo*.

M'Lachlan notices a partially andromorphous ♀ of *Calepteryx splendens*. Proc. Ent. Soc. 1865, p. 125.

Tholymis, g. n., Hagen, Stett. ent. Zeit. 1867, p. 221. Allied to *Pantala*; eyes widely in contact; posterior lobe of prothorax small, entire; abdomen conical, segments 2–4 with a transverse suture; legs long, very slender; posterior wings dilated at base; pterostigma small, trapezoidal; triangle of anterior wings long, narrow; appendages long. Sp. *T. citrina*, sp. n., Hagen, *l. c.* p. 218, Cuba.

New species :—

Anax strenuus, Hagen, Verh. zool.-bot. Ges. in Wien, xvii. p. 34, Oahu; *A. tristis*, Hagen, *l. c.* p. 35, Guinea; *A. panybeus*, Hagen, *l. c.* p. 42, Celebes; *A. fumosus*, Hagen, *l. c.* p. 43, Ternate; *A. speratus*, Hagen, *l. c.* p. 46, Cape of Good Hope; *A. bacchus*, Hagen, *l. c.* p. 48, Himalaya.

Æschna januaria, Hagen, *l. c.* p. 51, Brazil.

Neurothemis. Brauer (*l. c.*) describes the following as new species of this genus (*vide suprà*) :—*N. gigantea*, p. 8, Amboyna; *N. ceylanica*, p. 11, Ceylon; *N. nicobarica*, p. 12, Karnicobar and Singapore; *N. incerta*, ibid., Celebes; *N. pseudosophronia*, p. 15, Ceram, China ?; *N. innominata*, p. 17, New Guinea, Ceram; and *N. diplax*, p. 18, New Guinea, Ceram.

Neurothemis oligoneura, Brauer, *l. c.* p. 970, Cape York.

Libellula pectoralis (Kaup, MS.), Brauer, *l. c.* p. 19, Ceram.

Diplax cora (Kaup, MS.), Brauer, *l. c.* p. 20, Ceram.

Diplax thoracantha, Brauer, *l. c.* p. 299, Ceram; *D. denticauda*, Brauer, *l. c.* p. 301, New Guinea.

Tramea cophysa (Koll. MS.), Hagen, Stett. ent. Zeit. 1867, p. 226, Brazil; *T. australis*, Hagen, *l. c.* p. 229, Cuba (of which *T. iphigenia*, Hag. *l. c.* p. 230, from Bogotá, is probably the ♂).

Tramea subbinotata, Brauer, Verh. zool.-bot. Ges. in Wien, xvii. p. 811, *T. longicauda*, Brauer, *l. c.* p. 812, *T. brasiliana*, Brauer, ibid., from Brazil; *T. crocea*, Brauer, *l. c.* p. 813, Philippine Islands; *T. africana*, Brauer, *l. c.* p. 814, Sierra Leone; and *T. erythræa*, Brauer, ibid., Mauritius.

Tramea transmarina, Brauer, *l. c.* p. 21, Fiji Islands; *T. samoensis*, Brauer, *l. c.* p. 22, Navigator's Islands.

Celithemis regia, Brauer, *l. c.* p. 24, Amboyna; *C. chalcoptilon*, Brauer, *l. c.* p. 25, Navigator's Islands.

Celithemis pygmæa, Brauer, *l. c.* p. 297, New Guinea.

Agrionoptera quatuornotata, Brauer, *l. c.* p. 298, Menado.

Neurobasis kaupi, Brauer, *l. c.* p. 293, Celebes.

Gynacantha rosenbergi (Kaup, MS.), Brauer, *l. c.* p. 295, New Guinea.

Rhyothemis dispar, Brauer, *l. c.* p. 815, Fiji Islands.

Ephemeridæ.

Eaton (Ann. & Mag. N. H. 3rd ser. xix. p. 401) notices specimens of *Cloëopsis diptera* in which the costal area is traversed towards the apex by irregular veins. These specimens present some other peculiarities, and may prove to belong to a distinct species.

Orthoptera genuina.

Landois (Zeitschr. für wiss. Zool. xvii. pp. 111–123) describes the various modes by which sound is produced by the insects of this order. In all cases friction is the cause of the sound. Many species produce a rattling noise during flight, due to the rubbing of the wings upon the tegmina. In the Acrydiidæ (pl. 10. figs. 1 & 2, *Stenobothrus*) the hinder femora show two lines on the lower part of their inner surface, the uppermost of which is the largest, and bears a row of minute teeth of peculiar form. The number of these teeth varies even in the same individual. It is by the rapid passage of these teeth over the projecting veins of the tegmina that the latter are set in vibration, and produce the characteristic sound emitted by these insects. The crickets (*Gryllidæ* or *Achetidæ*), as is well known, produce their sounds by rubbing the tegmina one upon the other. In each of the tegmina there is a vein near the base, which is furnished with numerous fine cross pieces, placed on the lower side in one of the tegmina and on the upper surface in the other (pl. 10. figs. 3, 4 in *Gryllus campestris*, fig. 5 in *Gryllus domesticus*). By the rapid passage of these parts over one another the sound is produced. The sound-producing organs of the *Locustidæ* are likewise in the tegmina, and consist, as in the crickets, of single elevated veins with numerous cross pieces.

Fritsch (Berl. ent. Zeitschr. 1867, pp. 260–266) notices some of the principal forms of this group observed by him in South Africa. *Pneumora* does not appear every year, but only from time to time; its favourite resorts are potato-fields. The locust (*Gryllus devastator*, Licht.) is also particularly noticed.

Graber has published (Zeitschr. des Ferdinand. 3te Folge, xiii. pp. 261–277) an analytical synopsis of the true Orthoptera known to occur in the Tyrol. The total number of species is 75, namely, *Forficulidæ* 6, *Mantidæ* 1, *Blattidæ* 5, *Gryllidæ* 7, *Locustidæ* 22, and *Acrydiidæ* 34.

Graber has also published (Verh. zool.-bot. Ges. in Wien, xvii. pp. 251–280) a valuable memoir on the true Orthoptera of the Tyrol, indicating the species found in that country, and their geographical and especially their altitudinal distribution, and in many cases touching briefly upon their habits. The total number of species here recorded is 81. The general results of the investigation are admirably summed up in two tables appended to the conclusion of the paper.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 430 & 442–445) notices various species of this order which were captured on board the 'Novara.' Several species of Blattidæ, including even the European *Phyllodromia germanica*, lived on board, and the author gives some interesting particulars as to their habits.

Forficulidæ.

H. Dohrn states (Stett. ent. Zeit. 1867, p. 341) that in his monographic revision of this family the genus *Chelidura* was unfortunately omitted, his absence at the time when it was printed preventing his correcting the proofs.

He now gives the characters of the genus, and cites the following species as belonging to it:—*C. aptera* (Charp.), incl. *dilatata* and *simplex* (Lafr.) and *alpina* (Bon.); *C. dufouri* (Serv.); *C. paupercula* (Géné); and *C. acanthopygia* (Géné). *Chelidura anthracina* (Kolen.) is the larva of *F. biguttata* (Fab.).

Dohrn also gives some additional characters of his *Pygidicrana ophthalmica* (*l. c.* p. 344), indicates some characters of Stål's *F. parvicollis* (referred to *Psalidophora*), and fully describes *F. ochropus* (Stål), which he places in the genus *Labia* (*l. c.* p. 345).

Stone ascribes the destruction of wasps partially to an abundance of earwigs, and Westwood thinks that they may also be injurious to bees. Proc. Ent. Soc. 1865, pp. 113–114.

Weir & Westwood discuss the use of the caudal appendages in the earwigs. Proc. Ent. Soc. 1865, pp. 116–117.

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 309) notices an example of *Forficula auricularia* having the right half of the forceps ♂, the left ♀.

Lucas has obtained a long yellow worm, probably a *Mermis*, from specimens of *Forficula auricularia* which had the abdomen much swelled. The worms issued between the first and second abdominal segments on the dorsal surface. Bull. Soc. Ent. Fr. 1866, p. lviii.

Platylabia, g. n., Dohrn, Stett. ent. Zeit. 1867, p. 347. Habit of *Sparatta*; antennæ of *Labia*; segments 1 & 2 of abdomen without tubercles. Sp. n. *P. major*, Dohrn, *l. c.* p. 347, Celebes; *P. thoracica*, Dohrn, *l. c.* p. 348, Penang and Ceylon; *P. dimidiata*, Dohrn, ibid., Luzon; and *P. guineensis*, Dohrn, ibid., Prince's Island.

New species:—

Pygidicrana caffra, Dohrn, Stett. ent. Zeit. 1867, p. 343, Caffraria; *P. valida*, Dohrn, *l. c.* p. 344, Burmah.

Forcinella hottentotta, Dohrn, *l. c.* p. 344, Caffraria.

Psalidophora stigma, Dohrn, *l. c.* p. 345, Venezuela.

Labia quadrilobata, Dohrn, *l. c.* p. 346, Prince's Island.

Blattidæ.

Goureau (Insectes nuisibles, pp. 60–64) describes the natural history of the species of this family, which inhabit houses in Europe, especially *B. americana* and *orientalis*. He describes the general characters of *B. germanica*, *livida*, and *lapponica*, which, he says, live in our woods, but never in the interior of houses. This, however, is incorrect.

Polyphaga mexicana (Burm.) occurs in the Mexican cave of Cacahuamilpa, according to Bilimek, Verh. zool.-bot. Ges. in Wien, xvii. p. 904.

O. Heer has published (Vierteljarsschr. naturf. Ges. in Zürich, ix. pp. 273–302) a list of the fossil species of this family, with descriptions of new species.

Brunner von Wattenwyl (Nouveau système des Blattaires) divides this family into the following subfamilies:—

I. Femora spinose.

A. Last ventral segment in ♀ ample, flat, with no subgenital lamina.

1. Supraanal lamina very narrow, transverse; wings with a triangular apical field ..... Ectobidæ.

2. Supraanal lamina produced, triangular, incised or lobed; wings with no apical field.
   * Supraanal lamina triangular; cerci more than twice its length. PHYLLODROMIDÆ.
   † Supraanal lamina more or less quadrate (♂), incised with rounded lobes, or entire, broad and rounded (♀); cerci scarcely longer than lamina ..... EPILAMPRIDÆ.

B. Last ventral segment in ♀ with valves ..... PERIPLANETIDÆ.

II. Femora not spinose.

A. Claws with an arolius.

1. Anterior part of wings acuminate, or furnished with a triangular, folded apical field ..... CHORISONEURIDÆ.
2. Anterior part of wings rounded, apical field 0.
   * Anal field of wings fan-like.
     a. Supraanal lamina in ♀ quadrate; posterior angles of abdominal segments produced ..... PANCHLORIDÆ.
     b. Supraanal lamina in ♀ rounded ..... PERISPHÆRIDÆ.
   † Anal field of wings not folded.
     a. Supraanal lamina in ♀ rounded ..... CORYDIDÆ.
     b. Supraanal lamina in ♀ quadrate, incised in middle. HETEROGAMIDÆ.

B. Arolius 0.

1. Supraanal lamina quadrate, incised ..... BLABERIDÆ.
2. Supraanal lamina transverse, rounded, entire .. PANESTHIDÆ.

The ECTOBIDÆ include the following genera:—

Ectobia (Westw.), type *E. lapponica* (Linn.), figured with details, pl. 1. fig. 1, and 7 other species, 1 new, *E. lucida* (*l. c.* p. 62), from New Holland ?, which forms the type of a subgenus, *Theganopteryx*.

Anaplecta (Burm.), with 7 species, 1 new, *A. bivittata* (*l. c.* p. 63), from Brazil; *A. lateralis* (Burm.), figured, with wings, pl. 1. fig. 2. And

Aphlebia, g. n., *l. c.* p. 66, with corneous elytra and rudimentary wings; 8 species; type *A. punctata* (Charp.), pl. 1. fig. 3, with details of both sexes; n. sp. *A. infumata*, *l. c.* p. 68 = *Blatta ericetorum* (Woll.) = ? *adusta* (Motsch.).

To the PHYLLODROMIDÆ are referred:—

Ceratinoptera, g. n., *l. c.* p. 75, with corneous elytra and perfect wings, and the inferior genital plate in ♂ furnished with styles; known sp. *diaphana* (Fab.), *poeyi* and *porcellana* (Sauss.); new sp. *C. picta*, p. 76, pl. 1. fig. 4, and *C. castanea*, p. 77, from Brazil, and *C. peruviana*, p. 78.

Loboptera, g. n., p. 79, with squamiform corneous elytra and no wings; 4 species; type *L. decipens* (Germ.), pl. 2. fig. 5; new sp. *L. indica*, p. 82.

Temnopteryx, g. n., p. 83, with abbreviated corneous elytra and rudimentary wings; 6 species, 5 new; *T. capensis*, p. 84, pl. 2. fig. 6, and *T. inconspicua*, p. 85, Cape; *T. fulva*, p. 85, Java; *T. virginica*, p. 86, and *T. deropeltiformis*, p. 87, North America.

Phyllodromia (Serv.), 33 species, 15 new; figured *P. germanica* (Linn.), pl. 2. fig. 7, and *P. vitrea*, sp. n., pl. 2. fig. 8.

Pseudophyllodromia, g. n., p. 111, pronotum leaving the top of the broad head exposed; sp. *P. ornata*, sp. n., p. 112, pl. 3. fig. 9, Philippine Islands.

Apolyta, g. n., p. 112, resembling *Thrysocera*; median vein of elytra flex-

uous; pronotum transverse, leaving the scutellum free; sp. *A. vestita* (Burm.) and *A. pellucida*, sp. n., p. 114, pl. 3. fig. 10, Sydney.

Thrysocera (Burm.), with 21 species, 4 new *T. histrio*—(Burm.) and a new sp., *T. pruinosa*, p. 117, forming a subgenus, *Pachnepteryx*; figured *T. oblongata* (Linn.), pl. 3. fig. 11.

Ischnoptera (Burm.), with 26 species, 10 new; figured *I. brasiliensis*, sp. n., p. 130, pl. 3. fig. 12, and *I. rufa*, sp. n., p. 131, pl. 3. fig. 13, from Brazil. And

Nyctibora (Burm.), with 6 species; figured *N. sericea* (Burm.), pl. 3. fig. 14.

The Epilampridæ include:—

Paratropa (Serv.), with 6 species, 1 new, namely, *P. mexicana*, p. 151, pl. 4. fig. 15.

Phoraspis (Serv.), with 9 species, 1 new, *P. modesta*, p. 161, from Brazil; figured *P. picta* (Drury), pl. 4. fig. 16, and the wing of *P. cassidea* (Burm.), pl. 4. fig. 17.

Paraphoraspis, g. n., p. 163, with distinct veins in the elytra and the pronotum truncated behind, containing *P. pallens* (Serv.) and *P. notata*, sp. n., p. 164, pl. 4. fig. 18, from Australia and Ceylon.

Epilampra (Burm.), with 31 species, 20 new; figured *E. nebulosa* (Burm.), pl. 4. fig. 19, and *E. gracilis*, sp. n., pl. 4. fig. 20, from New South Wales and Tasmania.

Homalopteryx, g. n., p. 195; branches of inframedian vein of wings furcate, not parallel; sp. *H. macassariensis* (De Haan) and *H. capucina*, sp. n., p. 196, pl. 5. fig. 21, Venezuela. And

Opisthoplatia, g. n., p. 198, with abbreviated elytra; including 4 species; figured *O. orientalis* (Burm.), pl. 5. fig. 22.

The Periplanetidæ include the genera:—

Polyzosteria (Burm.), with 22 species, of which 5, including *P. limbata* (Burm.), pl. 5. fig. 23, belong to the subgenus *Polyzosteria* sens. str., whilst the remainder form a new subgenus, *Platyzosteria*. The latter includes *P. melanaria*, *atrata*, and *aterrima* (Erichs.), and *mexicana* (Sauss.). 17 new species.

Periplaneta (Burm.), also with 22 species, 6 of which are new, includes as a subgenus *Stylopyga* (Fisch.); figured *P. americana* (Linn.), pl. 5. fig. 24.

Deropeltis (Burm.), with 11 species, 5 new; figured *D. erythrocephala* (Fab.), pl. 8. fig. 38. And

Archiblatta (Voll.), sp. *A. hoevenii* (Voll.), pl. 8. fig. 39.

To his Chorisoneuridæ Wattenwyl refers:—

Oxyhaloa, g. n., p. 252; apical field of wings 0; including 4 African species, namely, *O. ferreti* (Reiche & Fairm.), *O. fulviceps* (Klug), *O. murrayi* (Dohrn, MS.), p. 253, pl. 6. fig. 25, and *O. minor*, sp. n., p. 254.

Chorisoneura, g. n., p. 255, with a distinct anal vein in the elytra, and their scapular vein pinnately ramose; including 5 species, 2 new; figured *C. nigrifrons* (Serv.), pl. 6. fig. 26.

Areolaria, g. n. (Fieb. MS.), p. 259, with the branches of the scapular vein parallel to the axis of the elytra; including two new species—*A. fieberi*, p. 260, pl. 6. fig. 27, Batavia, and *A. bipunctata*, p. 261, Philippine Islands.

Cassidodes, g. n., p. 261, with the elytra very convex and wide, without an anal vein; *C. ligata*, sp. n., p. 262, pl. 6. fig. 28, Philippine Islands.

Hypnorna (Stål), with 1 sp., *H. hummeli* (Stål).' And

Eleutheroda, g. n., p. 264, with the triangular apical field half as long as the wing, closely reticulated; including *E. dytiscoides* (Serv.), pl. 6. fig. 29, and *E. minor*, sp. n., p. 265, from the Philippines.

In the PANCHLORIDÆ are included the genera:—

Gyna, g. n., p. 266, winged in both sexes, and with the pronotum triangularly produced behind; including *P. maculipennis* (Schaum), pl. 6. fig. 30, and 2 new species, one probably=*Panchl. caffrorum* (Stål).

Panchlora (Burm.), with 15 species, 3 new; divided into the subgenera *Panchlora* s. str., figured *P. pulchella* (Burm.), pl. 7. fig. 31, and *Leucophæa*, figured *P. surinamensis* (Linn.), pl. 7. fig. 32.

Nauphœta (Burm.), 5 species, 2 new; figured *N. lævigata* (Pal. B.), pl. 7. fig. 33.

Zetobora (Burm.), with 9 species, 2 new; *Z. transversa*, p. 290, pl. 7. fig. 34, and *Z. limbata*, p. 291, Brazil.

Philobora, g. n., p. 294, with the elytra in repose exposing the margins of the abdomen and the scapular area constricted and plicate; including 3 Brazilian species; figured *P. conspersa* (Guér.), pl. 7. fig. 38; *P. elegans*, sp. n., p. 297. And

Oniscosoma, g. n., p. 298, with the ♀ apterous, and the pronotum cucullate; 2 new sp., *O. castanea*, p. 300, pl. 7. fig. 36, and *O. pallida*, p. 301, Australia.

To the PERISPHÆRIDÆ are referred:—

Perisphæria (Serv.), with 8 species; new *P. discoidalis*, p. 310, from the Cape; figured *P. stylifera* (Burm.), pl. 8. fig. 37.

Parasphæria, g. n., p. 311, with rudimentary elytra in ♀, and head more or less exposed; 3 species; new *P. castanea*, p. 315, Brazil; figured *P. ovata* (Blanch.), pl. 9. fig. 40 (sub nom. *Deropeltis ovata*).

Derocalymma (Burm.), with 9 species, 3 new; figured *D. atra*, sp. n., pl. 9. fig. 41, and *D. dispar* (Burm.), pl. 9. fig. 42.

Proscratea (Burm.), 3 species; new *P. marginata*, p. 326, Madagascar; figured *P. complanata* (Perty), pl. 9. fig. 43.

Hormetica (Burm.), with 5 species, 2 new; figured *H. vittata*, sp. n., p. 330, pl. 9. fig. 44.

Homalodemas (Stål); sp. *H. exarata* (Stål). And

Gromphadorhina, g. n., p. 333, with the pronotum gibbous, and the ♀ apterous; sp. *G. portentosa* (Schaum), pl. 9. fig. 45.

The CORYDIDÆ include:—

Corydia (Serv.), with 5 species; new *C. ænea*, p. 340, India; figured *C. nuptialis* (Gerst.), pl. 10. fig. 46, and *C. petiveriana* (Linn.), pl. 10. fig. 47, abd. ♀.

Melestora (Stål), with 2 species.

Euthyrrhapha (Burm.), including only *E. pacifica* (Coqb.), pl. 10. fig. 48.

Latindia (Stål), with *L. maurella* (Stål) and *L. signata*, sp. n., p. 345, pl. 10. fig. 49.

Holocompsa (Burm.), with 4 species; figured *H. collaris* (Burm.), pl. 10. fig. 50. And

Diaphana, g. n. (Fieb. MS.), p. 348, with the elytra entirely membranous and pellucid; sp. *D. fieberi*, sp. n., p. 349, pl. 10. fig. 51.

To the HETEROGAMIDÆ are referred only :—

Heterogamia (Burm.), with 6 species, 3 new; figured *H. ægyptiaca* (Linn.), pl. 10. fig. 52. And

Homœogamia (Burm.), with *H. mexicana* (Burm.), pl. 11. fig. 53.

The BLABERIDÆ include :—

Monachoda (Burm.), with 9 species, 2 new; figured *M. reflexa* (Serv.), pl. 11. fig. 54. And

Blabera (Burm.), with 12 species, 3 new; figured *B. atropos* (Stål), pl. 12. fig. 55.

And the PANESTHIDÆ consist of:—

Parahormetica, g. n., p. 385, with the pronotum gibbous, semiorbicular in front, concealing the head, and the elytra lobiform; including *P. monticollis* (Burm.) and *P. tumulosa*, sp. n., p. 385, pl. 12. fig. 56.

Dasyposoma, g. n., p. 387, with the pronotum smooth, and elytra 0; species *D. punctulata* (Scudder); *D. nigra*, sp. n., p. 388, pl. 13. fig. 57, and *D. bicolor*, sp. n., p. 388, Brazil.

Panesthia (Burm.), with 6 species, 2 new; figured *P. javanica* (Serv.), pl. 13. fig. 58. And

Paranauphœta, g. n., p. 397, having the pronotum smooth, and its anterior margin truncate; with 5 species; new *P. rufipes*, p. 400, Ternate; figured *P. circumdata* (De Haan), pl. 13. fig. 59.

MANTIDÆ.

TRIMEN notices a species of this family with minute fore legs, and resembling *Bacillus*. Bate suggests that it will be found to feed upon *Bacillus*. Proc. Ent. Soc. 1867, p. cv.

DENNY (Ann. & Mag. N. H. 3rd ser. xix. p. 144) notices the hatching of an Australian species of this family at Leeds. He states that at Melbourne specimens of this insect are placed upon the window-blinds, where they capture the flies.

PHASMIDÆ.

Anisomera buprestoides (?). A note on this species by C. B. King is published in Proc. Ent. Soc. 1867, pp. lxxviii–lxxx. The author observed the species in Jamaica. The prothorax contains 2 glands, secreting a fetid fluid, which is discharged through 2 elevated pores and serves as a defensive agent. The adult insects are almost always found in copulation. They are nocturnal or crepuscular and gregarious in their habits, are slow in their motions, and feed upon the leaves of *Bignonia chinensis*. Their mode of feeding is described. The eggs [egg-cases] are cylindrical, and about an eighth of an inch in length; they are subject to the attacks of an Hymenopterous parasite, probably belonging to the *Chalcididæ*. The female is also attacked by an Ichneumonidous parasite. Bates doubts the identification of the species, which he thinks is a true *Phasma*. Smith doubts the completion of the transformation of a Chalcidite within the egg of the *Phasma*; and M'Lachlan suggests that the cocoon of the parasite was mistaken by the author for the egg.

RITCHIE (Canad. Nat. & Geol. iii. pp. 66–69) notices the habits and structure of the Canadian *Spectrum femoratum*. His entomological knowledge is evidently very limited, as evidenced especially by his reference to the eggs of the insect.

Locustidæ.

Phalangopsis annulata, sp. n., Bilimek, Verh. zool.-bot. Ges. in Wien, xvii. p. 904, Mexico (Cave of Cacahuamilpa).

Acrydiidæ.

Köppen has published (Horæ Soc. Ent. Ross. iii. pp. 89–246) an elaborate memoir on the migratory Locust of Southern Russia. He gives in the first place a bibliography of his subject, which includes several memoirs published in Russian journals. With regard to the species, Köppen remarks on the various opinions of entomologists as to the relation between *Pachytylus migratorius* (Linn.) and *P. cinerascens* (Fab.), and comes to the conclusion that the two supposed species are to be regarded as varieties of one and the same, and that *Œdipoda tatraica* (Motsch.) is identical with *P. cinerascens*. The form which he met with most abundantly in South Russia is the true *P. migratorius*.

The development of the insect is described by Köppen in detail. The eggs are deposited by the females, to the number of 60–100 together, in little nests surrounded by a membranous envelope; the eggs are laid in autumn and the young hatched in the following spring. The envelope is burst a little while before the exclusion of the young. The eggs display a great power of resisting the influence of cold; they have been found to retain their vitality when the temperature reached −26° F., when placed with earth in a large glass vessel.

The larvæ are said by Köppen to moult four times, and the fourth moult produces the winged insect. The different stages are described by Köppen. At the end of May (1861), eggs taken from the ground showed the eyes, antennæ, segments, and legs of the larvæ distinctly; and a little while before hatching, the larvæ could move within the egg. On its emergence the larva is yellowish white, with a rosy tinge; in 3–4 hours its colour is greyish black. Before and during each moult the larvæ are sluggish. At the final moult, which always takes place in the hottest sunshine, the animals hang head downwards, by the hind feet, upon the stalks of grasses &c. This enables the insects to twist about in all directions, in order to free themselves from the skin. The expansion of the wings occupies about twenty minutes after the completion of the moult (twenty-two minutes according to Köste, who says that the moult itself occupies sixteen minutes); during this period Köppen observed that a dark yellow fluid was distributed over the wings in microscopic drops. The period which elapses between the arrival of the insect at the winged state and the deposition of the eggs is uncertain; the statements of different authors vary between 4 weeks and 2 months.

Köppen describes the nearly indiscriminate voracity of these Insects, but remarks that certain plants appear to be avoided by them, namely, flax and hemp, the Cucurbitaceæ, and, according to Petzholdt, dwarf garden-beans. The Gramineæ seem to furnish their favourite food. They prefer the leaves and other soft parts of plants and trees, but also sometimes gnaw the bark and even the wood of the latter. In time of scarcity they will attack straw thatch and woollen clothes, and even devour each other. Köppen notices the statement made by various authors that the larvæ for the first ten days live upon dew, and treats it as an absurdity.

The perfect insects copulate almost immediately after the last change of

skin. The union of the sexes continues apparently for a considerable time, from 12 to 18 or even 24 hours, but sometimes only for an hour or two. The female carries the male about with her, and feeds as if alone; she is, however, unable to fly. The male sits quite motionless, only giving a sign of life by stridulation if another male should approach.

The eggs are deposited about seven days after copulation, according to Köste. The female digs a hole in the earth of about 1½ inch deep by means of the hook-like horny organs of the apex of the abdomen; and the eggs are then laid, in cylindrical masses usually placed at an angle of about 45° to the surface. The eggs are united by a spongy mass (cement), which also envelops the whole outside of the mass; here, by the adhesion of grains of sand, small stones, &c., it forms a sort of wall which protects the eggs from injurious external influences. The mass is sometimes formed wholly or partially of the frothy cement without eggs; Yersin ascribed this to a morbid condition of the female, and doubts whether the few eggs contained in such masses are capable of development. Köppen has found on removing the female insect that the pit which it had dug was filled with the frothy mass, without any eggs. This seems to the Recorder to indicate rather that the cement mass is first produced by the insect, and the eggs afterwards laid in it; the nests found containing the spongy mass without eggs would then be easily accounted for, on the supposition that the females were disturbed or destroyed when just about commencing the actual business of oviposition. The number of eggs laid in each nest seems to vary from 50 to 90 or 100; and the ovary of the female contains from 100–150 eggs, according to Krünitz. The question whether the females copulate more than once has been much discussed in Russia; and from the author's statements it would appear that the popular opinion is that the act of copulation only takes place once. From Köste's observations, however, it is certain that the females copulate and deposit their eggs several times. He observed a female, in confinement, which copulated with six different males before laying her first batch of eggs; and afterwards the same phenomena were repeated four times, the insect dying when engaged in oviposition for the sixth time. From his own observations, and those of other authors, Köppen regards it as most probable that copulation and oviposition are repeated usually at least three times by each female, perhaps at intervals of about a month, as stated by Yersin, the total number of eggs being from 160–170.

Upon the rapidity of movement of the Locusts in the larval condition the statements of authors are at variance. The observations of Sydow and Dönzingk give about a quarter of a German mile (*i. e.* about 0·975 mile English) in the hour; Tschemewsky asserts that they only advance about 350 feet in the day upon grass land.

Of the senses of the Locust, Köppen seems to regard hearing as the sharpest. The senses of smell and taste are exerted in the selection of food, and that of touch is displayed in the sensibility of the insects to changes of weather, especially temperature. Sociability is regarded by the author as characteristic of the Locusts: the larvæ proceeding from one nest seem to keep together for a time; they afterwards associate in larger masses, which move together in search of nourishment. These migrations in mass commence in the second stage of larval life, but become more general after the second moult. The migration usually takes place in the morn-

ing and evening. The author remarks upon the direction of the migrations of these insects, which he regards as influenced to a certain extent by an instinctive perception of the direction in which abundant food or a suitable breeding-place is to be found, but modified or even sometimes caused by external agents, especially the winds. The author also discusses the primary causes of the great migrations of these insects and the phenomena observed during their flight.

In the south of Russia the hatching of the eggs takes place, according to the weather, at the end of April or beginning of May. A few larvæ are sometimes produced on warm days in October, but these soon die. The hatching occupies from 2 to 3 weeks, according to circumstances. The winged insects appear in the beginning and middle of July; copulation takes place early in August; and the oviposition extends from the middle of August to October. The dry steppes constitute the chief haunt of the Locusts; damp places they seem to avoid. The females prefer for the reception of their ova the solid virgin soil, and rarely visit ploughed land for this purpose. Damp and cold are unfavourable to the development of the eggs. The author discusses in great detail the external conditions which act favourably or unfavourably upon these insects. The greater part of this section is devoted to the consideration of their enemies, of which Köppen gives a formidable list (pp. 151–166).

Linné and other authors have given Tartary as the true home of the migratory Locusts; but in Tartary no large swarms occur. In the author's opinion, the countries in which the swarms are seen are also the countries of their birth. He cites many facts in support of this opinion and in illustration of the geographical distribution of the insect, the northern limit of their migratory or nomadic life being a line passing from Spain through the south of France, Switzerland, Pomerania, South Russia, and South Siberia to the north of China. To the north of this line the insects generally occur only singly. Many interesting details as to their occurrence in vast numbers are given by the author (pp. 190–205).

Köppen also describes the injury done by the Locusts when they occur in great numbers, and indicates the means adopted for their suppression (pp. 205–246).

Caloptenus italicus. Köppen also notices this species (*l. c.* pp. 246–263), which likewise occurs in South Russia, and then, as in other regions of southern Europe, sometimes in injurious numbers. Other species which are also occasional devastators, especially when associated with the migratory species, are *Pachytylus stridulus*, *Œdipoda vastator*, *Stauronotus vastator*, *S. cruciatus*, and *Pezotettix alpina* (pp. 263–268). In an appendix the author notices some other injurious insects, belonging chiefly to the orders Coleoptera and Lepidoptera.

Jäckel (Corr.-Blatt zool.-min. Ver. Regensb. xxi. pp. 83–93) publishes a supplementary notice on the occurrence of *Œdipoda migratoria* in Bavaria. He cites various records of the visits of this species in swarms during the fourteenth century, one towards the close of the fifteenth, and one at the end of the seventeenth century, and gives a long account of a similar visitation in 1749. Since that year no swarms of Locusts have occurred in Bavaria.

Some notes on the Algerian Locusts (*Acrydium peregrinum, migratorium,*

&c.) by Come, have been communicated to the Entomological Society of France by Giraud. In them mention is made of a special work on the same subject, which the Recorder has not yet seen. Bull. Soc. Ent. Fr. 1867, pp. x–xiii. The locusts visiting Algeria come from the south, and arrive in May. They lay their eggs soon after their arrival, and the young animals produced from these eggs usually become adult in July. In August all usually disappear. Come also notices the arrival in Algeria in the early part of January 1867 of a flight of locusts. The colour af these was stated to be reddish. It appears that on first attaining their adult form, these insects are of a rosy tint, and afterwards change; and Come thinks that it is not until after their change of colour that they are fitted for reproduction. Lallemant states (*l. c.* p. xiii) that the Locusts, which live for a long time in the adult state, are at first rosy, then emigrate southwards, and return in winter of their mature colour.

Caloptenus italicus (Linn.). Künstler reports on this insect as injurious to corn-crops in Austria in 1866 and 1867. Verh. zool.-bot. Ges. in Wien, xvii. pp. 930–932.

A notice of the "Red-legged Grasshopper," *Caloptenus femur-rubrum*, appears in the American Naturalist, i. pp. 271–272; see also p. 330.

Trimen mentions his having found the pupæ of a species of *Pœcilocerus* in copulation at Natal. Proc. Ent. Soc. 1867, p. cv.

RHYNCHOTA.

A. *Work in progress.*

Walker, Francis. Catalogue of the specimens of Heteropterous Hemiptera in the Collection of the British Museum. Parts I. and II. Scutata. London, 1867, pp. 417, 8vo.

In this work Walker commences a catalogue of all the described species of Heteroptera, with indications of those which are contained in the collection of the British Museum. In the arrangement he has closely followed the system adopted by the Recorder in his Catalogue of the Scutata in the British Museum, working in the new genera since described, and describing a great number of new species. The work promises to be very useful, but unfortunately it is disfigured by many misprints.

B. *Papers published in Journals &c.*

* *Descriptive &c.*

Douglas, J. W. On some peculiarities in the development of Hemiptera-Heteroptera. (Continued.) Ent. Monthly Mag. vol. iii. pp. 200–201, and vol. iv. pp. 30–33.

——, and Scott, John. British Hemiptera: additions and corrections. Ent. Monthly Mag. vol. iv. pp. 1–6, 45–52, and 93–100, plate 1.

Frauenfeld, G. von. (See "Insecta.")

Gräber, Vitus. Kleiner Beitrag zur Hemipterenfauna Tirols. Zeitschr. des Ferdinandeums &c., 3te Folge, Heft xiii. pp. 255–260.

A list of Heteroptera captured by the author in the Tyrol in the summer [of 1866 ?].

Jakowlew, W. Die Hemiptera der Wolga-Fauna. Horæ Soc. Entom. Rossicæ, tome iv. pp. 145–163 : 1867.

A catalogue of Heteroptera, with indications of localities, food-plants, &c. It contains diagnoses of a few new species, and references to others described by the author in 1864 in a Russian paper published in the scientific memoirs of the University of Kasan.

Kuschakewitsch, A. Нѣсколько новыхъ видовъ полужестококрылыхъ насѣкомыхъ. [Descriptions of some new Hemipterous Insects.] Horæ Soc. Entom. Rossicæ, tome iv. pp. 97–101, pl. 2 : 1866.

Descriptions of new species of *Pyrrhocoris* and *Cimex* (= *Pentatoma*). The diagnoses are in Latin.

Kouchakéwitch, J. *Dorycephalus* genre nouveau de Homoptères. Ibid. pp. 102–104.

Löw, F. (See "Insecta.")

Marshall, T. A. An Essay towards a knowledge of British Homoptera. (Continued.) Ent. Monthly Mag. vol. iii. pp. 197–200, 218–221, 246–248, and 265–270.

Mulsant, E., and Rey, Cl. Histoire naturelle des Punaises de France. (Pentatomides, suite.) Ann. Soc. Linn. de Lyon, tome xiv. pp. 1–288, pls. 1 & 2 : 1867.

This paper contains the continuation of the natural history of the French Heteroptera, the previous portions of which have been noticed in preceding volumes of the 'Record.' It completes the Scutata, and is published as the second part of the separate work.

——, ——. Description d'une espèce nouvelle de Géocorise, constituant un genre nouveau parmi les Ligéides. Ann. Soc. Linn. de Lyon, tome xiii. p. 368, and tome xiv. p. 390.

Shimer, H. Notes on *Macropus* (*Lygæus*) *leucopterus*, Say ("the Chinch Bug"), with an account of the great epidemic disease of 1865 among Insects. Proc. Acad. Nat. Sci. Philad. 1867, pp. 75–80.

——. On a new genus in Homoptera. Ibid. pp. 2–11.

Signoret, V. Etudes sur le genre *Phylloxera* de Fonscolombe. Annales Soc. Ent. France, 4e série, tome vii. pp. 297–304.

——. Notice sur un Homoptère peu connu (*Periphyllus*). Ibid. pp. 371–380, pl. 10 : December 11, 1867.

Solsky, S. Matériaux &c. (see "Coleoptera"). III. Un hétéroptère nouveau du midi de la Russie. Horæ Soc. Entom. Rossicæ, tome iv. pp. 185–187 : 1867.

Stål, C. Bidrag till Reduviidernas kännedom. Œfversigt af K. Vet.-Akad. Förhandlingar, vol. xxiii. pp. 235–302.

Targioni-Tozzetti, H. Sur la cire qu'on peut obtenir de la Cochenille du Figuier (*Coccus caricæ*, auct.). Comptes Rendus, lxv. pp. 246–247.

Vollenhoven, S. C. Snellen van. Eenige nieuwe Soorten van het Geslacht *Dalcantha*, Am. & Serv. Tijdschrift voor Entom. 2de serie, Deel i. pp. 216–221, pl. 11 : 1866.

† *Anatomical and Physiological.*

Balbiani, —, et Signoret, V. Sur le développement du Puceron brun de l'érable. Comptes Rendus, lxiv. pp. 1259–1263. Translated in Annals & Mag. N. H. 3rd series, vol. xx. pp. 149–152.

——. Remarque sur la Note précédente (de M. Claparède). Annales Sci. Nat. 5e sér. tome vii. pp. 30–31. Translated in Ann. & Mag. N. H. 3rd series, vol. xix. pp. 367–368.

Claparède, E. Note sur la reproduction des Pucerons. Annales Sci. Nat. 5e sér. tome vii. pp. 21–29. Translated in Ann. & Mag. N. H. 3rd series, vol. xix. pp. 360–367.

[Künckel, Jules. Recherches sur les Organes de sécrétion chez les Insectes de l'ordre des Hémiptères. Ann. Soc. Ent. Fr. 4e sér. tome vii. pp. 43–46 : June 12, 1867 (see 'Record,' 1866, p. 535).]

Heteroptera.

Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 433 and 456–460) indicates the species of this group noticed by him at sea and on board the 'Novara' during that vessel's voyage round the world. He refers specially to the genus *Halobates*, of which he describes a new species.

Jakowlew publishes (Horæ Soc. Ent. Ross. iv. pp. 145–163) a list of the Heteropterous Rhynchota of the banks of the Wolga, in which he enumerates 299 species.

Various North-American species of Heteroptera are noticed and figured by Packard, Amer. Nat. i. pp. 327–329.

Douglas has continued his remarks upon some peculiarities in the development of these insects. His first notice (Ent. M. Mag. iii. pp. 200–201) relates to the reproduction of the antennæ when damaged or amputated; his second (*op. cit.* vol. iv. pp. 30–33) to irregularities in the elytra and wings. In the latter he gives a list of British species in which these organs are more or less aborted, and notices the peculiar forms of the elytra which occur in the *Tingidides*.

SCUTATA.

Scutellerides.

Sophela, g. n., Walker, Cat. Hem. i. p. 17. Allied to *Callidea*; lateral angles of pronotum acutely spinous. Sp. *Callidea spinigera* (Dall.).

Fitha, g. n., Walker, *l. c.* p. 45. Allied to *Callidea*, but antennæ 4-jointed, joints 2–4 nearly equal. Sp. *F. ardens*, sp. n., Walk. *l. c.* p. 45, India.

Testrina, g. n., Walker, *l. c.* p. 61. Body broadly elliptical, very convex; head transverse, subangulate in front; antennæ 5-jointed, 1 and 2 short; thorax transverse, dilated and rounded at the sides; scutellum exceeding abdomen; legs stout. Sp. *T. laticollis*, sp. n., Walk. *l. c.* p. 61, Amazons.

Testrica, g. n., Walker, *l. c.* p. 69. Allied to *Trigonosoma*; broadly elliptical; head small, produced, subquadrate in front, lateral lobes broad in front, far exceeding the middle lobe. Sp. *T. antica*, sp. n., Walk. *l. c.* p. 70, Adelaide.

WALKER (Cat. Hem. i. pp. 1–75) describes numerous new species belonging to this group and to the following genera :—*Coleotichus* 5, *Sphærocoris* 3, *Pœcilocoris* 4, *Cryptacrus* 3, *Tectocoris* 3, *Cantao* 1, *Scutellera* 4, *Tetrarthria* 16, *Callidea* 33, *Pachycoris* 12, *Symphylus* 2, *Hotea* 6, *Agonosoma* 1, *Bolbocoris* 3, *Eurygaster* 2, *Podops* 8, and *Phimodera* 1.

Odontoscelides.

Cursula, g. n., Walker, Cat. Hem. i. p. 81. Allied to *Corimelæna*; globose, shining; head small; eyes elongate; rostrum reaching posterior coxæ; joints 4 and 5 of antennæ elongate; scutellum with a recurved suture [?] on each side; legs smooth. Sp. *C. globifera*, sp. n., Walk. *l. c.* p. 81, Para and Santarem.

Cœnina, g. n., Walker, *l. c.* p. 82. Allied to *Corimelæna*; short, convex, shining; head conical, middle lobe shorter than lateral; antennæ slender, about half as long as the body. Sp. *C. variolosa*, sp. n., Walk. *l. c.* p. 82, Burmah.

WALKER (Cat. Hem. i. pp. 75–81) describes 6 new species of *Corimelæna*.

Plataspides.

Tetrisia, g. n., Walker, Cat. Hem. i. p. 111. Allied to *Plataspis*; body ovate, convex, rough; head transverse, rounded in front; rostrum passing posterior coxæ; antennæ short; pronotum with a transverse furrow, in front of which the lateral margins are rounded and serrated. Sp. *T. bruchoides*, sp. n., Walk. *l. c.* p. 112, Singapore.

WALKER (Cat. Hem. i. pp. 82–111) describes numerous new species of this group, belonging to the following genera :—*Coptosoma* 33, *Brachyplatys* 20, and *Plataspis* 1.

Oxynotides.

Teressa, g. n., Walker, Cat. Hem. i. p. 113. Allied to *Tarisa*; stout, tuberculate; head elongate, quadrangulate in front; rostrum reaching posterior coxæ; prothorax with an anterior erect tubercle; scutellum gibbous and bicarinate at base; corium tuberculate. Sp. *T. terranea*, sp. n., Walk. *l. c.* p. 113, North China.

Asopides.

Blachia, g. n., Walker, Cat. Hem. i. p. 117. Allied to *Cazira* [?]; ovate, convex; head-lobes of equal length; antennæ slender, joints 2–5 slightly increasing in length; pronotum with 2 long acute spines; scutellum broad throughout, short; anterior femora unispinose, tibiæ much dilated. Sp. *B. ducalis*, sp. n., Walk. *l. c.* p. 117, Siam.

Cecyrina, g. n., Walker, *l. c.* p. 118. Allied to *Cazira* [?]; body elongate; head produced, lobes of equal length; thorax unarmed; anterior femora unispinose and tibiæ much dilated. Sp. *C. platyrhinoides*, sp. n., Walk. *l. c.* p. 119, India.

Bodetria, g. n., Walker, *l. c.* p. 119. Body fusiform; head long, narrow, lateral lobes much longer than middle one; joints 2–5 of antennæ nearly equal; thorax transversely sulcate, with acute spines; scutellum narrow; ventral spine not passing hind coxæ; legs robust; anterior tibiæ much dilated. Sp. *B. brenthoides*, sp. n., Walk. *l. c.* p. 119, Amazons.

Gilva, g. n., Walker, *l. c.* pp. 141 and 239 (corrected character). Allied to *Hoploxys*; thorax unarmed; ventral spine 0; antennæ slender, joint 4 longest, 2 compressed, 1 very short. Sp. *G. varipes*, sp. n., Walk. *l. c.* pp. 142 and 239, Amazons.

Walker (Cat. Hem. i. pp. 114–146) describes many new species belonging to the following genera:—*Cazira* 1, *Oplomus* 4, *Platynopus* 10, *Canthecona* 1, *Glypsus* 1, *Picromerus* 2, *Arma* 9, *Hoploxys* 1, and *Asopus* 1.

Cydnides.

The following figures of species of this group are given by Mulsant & Rey (Ann. Soc. Linn. Lyon, xiv. pl. 1):—*Cephalocteus*, hemelytra &c. (fig. 1); *Cydnus flavicornis*, belly (fig. 2); *C. nigrita*, fore tibia and head (figs. 3 & 4); *Cydnus*, sp., intermediate leg (fig. 5); *Geotomus punctulatus* (Costa), fig. 6.

Walker (Cat. Hem. i. pp. 147–171) describes new species belonging to the genera:—*Cyrtomenus* 1, *Æthus* 22, *Acatalectus* 2, *Stibaropus* 2, and *Schirus* 2.

Sciocorides.

Mulsant & Rey (Ann. Soc. Linn. Lyon, xiv. p. 4) divide their Sciocoriens (see 'Record,' 1866, p. 536) into 2 "rameaux," namely, the *Oploscelates*, with the head semicircular and the tibiæ very spinose, and the *Sciocorates*, with the head subrotundate or ogival and the tibiæ with short spines or nearly unarmed. The former group includes only the genus *Oploscelis* (M. & R.), of which the type *O. ciliata* (M. & R.) is identical with *Sciocoris arenicolus* (Scholtz), and is figured under the first name (*l. c.* pl. 1. fig. 7); and the latter the 2 genera *Sciocoris* and *Dyroderes*.

Sciocoris. According to Mulsant & Rey (*l. c.*), *S. sulcatus* (Fieb.)=*angustipennis* (M. & R.); *S. brevicollis* (Fieb.)=*umbrinus* (Wolff).

New species:—

Walker (Cat. Hem. i. pp. 171–192) describes several new species belonging to the following genera:—*Sciocoris* 3, *Pododus* (?) 2, *Dictyotus* 2, *Discocephala* 10, *Dryptocephala* 1, and *Cephaloplatus* 1.

Oploscelis dohrniana, Mulsant & Rey, Ann. Soc. Linn. Lyon, xiv. p. 9, Sicily. (Forms a subgenus, *Orocephalus*, M. & R.)

Sciocoris fissus, Mulsant & Rey, *l. c.* p. 20 (=*umbrinus*, Ramb.), Hyères; *S. le prieuri* (Perris, MS.), Muls. & Rey, *l. c.* p. 27, Algeria; *S. curtipennis*, Muls. & Rey, *l. c.* p. 28 (=*umbrinus*, Panz., Hahn, Fieb.), France.

Halydides.

Apodiphus hellenicus (Lefebvre) is referred to the Asopides by Mulsant and Rey, Ann. Soc. Linn. Lyon, xiv. p. 277.

Brizica, g. n., Walker, Cat. Hem. i. p. 236. Allied to *Spudæus* and *Dalpada*; subfusiform, nearly flat; head broad, rounded at apex, lobes equal; rostrum reaching posterior coxæ; antennæ not more than half length of body; prothorax with 6 tubercles, posterior angles subacute; tibiæ sulcate, anterior quadridentate; membrane with 6 longitudinal veins. Sp. *B. alacris*, sp. n., Walk. *l. c.* p. 236, Aru.

Tarba, g. n., Walker, *l. c.* p. 236. Elliptic, finely punctate; head much shorter than prothorax, lobes equal; rostrum reaching posterior coxæ; antennæ less than half as long as the body; prothorax transversely subcarinate, posterior angles rather obtuse. Sp. *T. favillacea*, sp. n., Walk. *l. c.* p. 237, North Australia.

Camara, g. n., Walker, *l. c.* p. 237. Subelliptic, coarsely punctate; lateral lobes of head scarcely exceeding median lobe; rostrum extending a little beyond hind coxæ; antennæ less than half as long as the body, joint 1 not reaching the front, 2 much longer than 3, which is shorter than 4 and 5; angles of thorax with strong acute spines; scutellum broad, passing the corium; abdomen serrated. Sp. *C. limosa*, sp. n., Walk. *l. c.* p. 237, Natal.

Walker (Cat. Hem. i. pp. 192–237) describes numerous new species of this group, belonging to the following known genera:—*Ochlerus* 5, *Coriplatus* 1, *Alcæus* 1, *Spudæus* 6, *Pœcilometis* 6, *Atelocera* 3, *Dalpada* 14, *Brochymena* 1, *Agaclitus* 1.

Pentatomides.

Mulsant & Rey, as indicated in 'Record,' 1866, p. 536, divide the insects placed in the present subfamily by the recorder into 4 families, namely *Æliens*, *Eysarcoriens*, *Pentatomiens*, and *Acanthosmomiens*. The *Æliens* (Ann. Soc. Linn. Lyon, xiv. p. 51 *et seq.*) include the genera *Ælia* and *Æliodes*, in the former of which *Æ. rostrata* (De G.) is said to =*neglecta* (Dall.) and *pallida* (Küst.); in the latter *Platysolen griseus* (Fieb.) = *Pent. albomarginatus* (Luc.). *Crypsinus* (A. Dohrn) and its species, *Eysarc. angustatus* (Bärenspr.) are characterized as an appendix to the *Æliens* (*l. c.* p. 81). *Ælia acuminata* is figured (*l. c.* pl. 1. figs. 8–10). The *Eysarcoriens* include 2 "Branches," namely:—the

Rubiconiaires, with the head triangular and the pronotum not wider at the base than the scutellum; including the genera *Rubiconia* and *Staria* (A. Dohrn); and the

Eysarcoraires, with the head nearly quadrate in front of the eyes, and the middle lobe as long as the lateral ones.

The latter include 3 genera, two of which are new; their characters are shown in the following table (*l. c.* p. 91):—

I. Pronotum not wider at the base than the scutellum.

Eysarcoris (Hahn).

II. Pronotum at base covering at least half the base of the endocorium.
A. Claws simple..... *Dalleria* *, g. n.
B. Claws with a tooth about the middle of the inside.
Onylia, g. n.

Mulsant & Rey propose the name of *Eysarcoris epistomalis* for *Pent. inconspicuum* (H.-Sch.), the latter having been given to another species by Bärensprung. They also reject Fieber's name *Eysarcoris helferi*, on the ground that we have also a *Sciocoris helferi* (Fieb.) and that they have laid down the rule that there must not be "two identical specific names in the same family." But in their classification *Sciocoris helferi* and *Eysarcoris helferi* belong to distinct families! and under any circumstances the adoption of such a rule will never be tolerated by naturalists.

The Pentatomiens of Mulsant & Rey are divided by them into 3 "Branches" (*l. c.* p. 112), namely:—the

Aulacétraires, with a median ventral furrow; the

Strachiaires, with a strongly marked border to the anterior emargination of the pronotum, and the head margined; and the

Pentatomaires, with the head and anterior emargination of the pronotum scarcely, if at all, bordered.

The first of these groups includes only the genus *Aulacetrus* (*fibulatus*, Germ., figured pl. 2. fig. 12), which appears to be identical with *Holcogaster* (Fieb.), the authors having adopted Amyot's name for the *species* as generic. On what principle one of Amyot's names, whose 'Méthode Mononymique' is an avowed protest against the binominal nomenclature, should be allowed to take precedence of a regularly established generic name, it is difficult to see.

The *Strachiaires* include the genus *Strachia* (=*Strachia* and *Eurydema*, auctt.) and a new genus.

Between the Strachiaires and the Pentatomaires Mulsant and Rey propose *l. c.* p. 156) to place their *Aspongopaires*, a proceeding in which few entomologists will be inclined to follow them, any more than in placing together in a single "Branche" 2 "Rameaux" so dissimilar as the *Aspongopates* and *Phyllocéphalates*. They describe *Aspongopus niger* (Fieb.) and *Schizops ægyptiaca* (Lefebvre).

Their *Pentatomaires* include 2 "Rameaux," namely the *Carpocorates* and *Pentatomates*. The former have a black point on each cotyle, forming a longitudinal row on each side of the breast, and the edges of the abdomen banded with black; these characters are wanting in the second group. The *Carpocorates* include the genera *Carpocoris* (Kolen.), *Peribalus*, g. n., and *Dryocoris* (Amyot), the last preferred by the authors to *Holcostethus* (Fieb.) on the ground of the latter being "so hard to pronounce"! *Carpocoris* is divided into 4 subgenera, namely *Carpocoris* (sp. *baccarum*), *Codophila* (sp. *nigricornis*, Fab., *melanocera*, M. & R., *lunula*, Fab., and 1 n. sp.), *Antheniamia* (sp. *lynx*, Fab.), and *Dolycoris* (sp. *verbasci*, De G.).

Of their Pentatomates, Mulsant & Rey make 4 genera, namely *Pentatoma*, *Palomena* (g. n.), *Brachynema* (M. & R.), and *Nezara* (A. & S.), the last certainly more nearly allied to *Rhaphigaster* in the following group. *Pentatoma macrorampha* (Fieb.) = var. *pinicola* (M. & R.).

The *Acanthosomiens* of Mulsant & Rey include 2 "Branches," the *Rhaphi-*

* Spelt *Daleria* in Table (p. 91).

gastéraires and the *Acanthosomaires*, distinguished by their having the tarsi composed respectively of 3 and 2 joints; and the latter are again divided into *Acanthosomates* with the mesosternal plate reaching or passing the anterior margin of the prosternum, and *Sastragalates* with this plate shorter.

The first includes only *Acanthosoma hæmorrhoidalis* (Linn.); the *Sastragalates* constitute 3 genera, 2 of which are new, *Elasmostethus* and *Cyphostethus* (Fieb.) being discarded as not divided on natural principles. Figures are given of *Acanthosoma hæmorrhoidalis* (pl. 2. figs. 15–17) and *Sastragala ferrugator* (figs. 18–19). *Tropicoris rufipes* is referred to the *Asopiens*.

New genus and species:—

Dalleria, g. n., Mulsant & Rey, *l. c.* p. 103. (See Table p. 468.) Sp. *Cimex pusillus* (H.-Sch.)=*Eysarc. binotatus* (Hahn) and *Eusarc. grenieri* (Sign.).

Onylia, g. n., Mulsant & Rey, *l. c.* p. 108. (See Table p. 468.) Sp. *Cimex bipunctatus* (Fab.)=*P. amœna* (Brullé), figured pl. 1. fig. 11.

Nitilia, g. n., Mulsant & Rey, *l. c.* p. 120. Allied to *Strachia*; middle lobe of head projecting beyond the lateral ones; head triangular. Sp. (subg. *Nitilia*) *Eurydema stolidum* (H.-Sch.); (subg. *Minodia*) *N. variegata* (Klug, MS.?), Muls. & Rey, *l. c.* p. 122, south of Europe.

Peribalus, g. n., Mulsant & Rey, *l. c.* p. 185. Allied to *Carpocoris*; joint 2 of antennæ scarcely longer than 3; median lobe of head enclosed. Sp. *Cimex vernalis* (Wolff) and *Pent. inclusa* (A. Dohrn).

Palomena, g. n., Mulsant & Rey, *l. c.* p. 200. Allied to *Pentatoma*; margin of abdomen almost uniformly marked with black points on a pale ground; head somewhat rounded in front, median lobe nearly enclosed. Sp. *Cimex viridissimus* (Poda)=*prasinus* (Linn. F. S. ?, Latr., Hahn, &c.).

Meadorus, g. n., Mulsant & Rey, *l. c.* p. 238. Allied to *Sastragala*; pronotum wider at its base than the scutellum, lateral angles not forming long spines. Sp. *Cimex interstinctus* (Linn.) and *lituratus* (Panz.).

Oxydalus, g. n., Mulsant & Rey, *l. c.* p. 247. Allied to *Sastragala*; pronotum not wider at base than scutellum, lateral angles not spinous. Sp. *Cimex dentatus* (De G.).

Bolaca, g. n., Walker, Cat. Hem. ii. p. 251. Allied to *Diceræus*; prothorax unarmed, its margin subcrenulate; joints of antennæ successively increasing in length. Sp. *B. unicolor*, sp. n., Walk. *l. c.* p. 251, North India.

Asyla, g. n., Walker, *l. c.* p. 403. Allied to *Galedanta* and *Euschistus*; head large, lateral lobes partly overlapping median lobe; rostrum reaching second abdominal segment; lateral angles of thorax forming short, rectangular horns; tibiæ sulcate; membrane with 5 longitudinal veins, the first furcate. Sp. *A. indicatrix*, sp. n., Walk. *l. c.* p. 403, India.

Canoca, g. n., Walker, *l. c.* p. 404. Allied to *Euschistus*; angles of thorax forming 2 broad, deflexed, truncate horns; breast with a slight keel. Sp. *C. abrupta*, sp. n., Walk. *l. c.* p. 404, Guatemala.

Sala, g. n., Walker, *l. c.* p. 404. Allied to *Eysarcoris*; head large, elongate, sides very slightly reflexed; antennæ very slender, more than half as long as body; hemelytra small, not reaching apex of abdomen. Sp. *S. colorata*, sp. n., Walk. *l. c.* p. 405, East Africa.

Boea, g. n., Walker, *l. c.* p. 405. Allied to *Strachia*; head small, subtrigonal, sides reflexed; rostrum reaching middle coxæ; antennæ 4-jointed, very slender, joint 1 reaching apex of head, 3 shorter than 2, longer than 4. Sp.

B. purpurascens, sp. n., Walk. *l. c.* p. 405, *B. postica* and *B. auriflua*, sp. n., Walk. *l. c.* p. 406, Amazons.

Lelia, g. n., Walker, *l. c.* p. 406. Allied to *Prionaca*; angles of thorax forming two very broad, porrect, rectangulate horns; sternum scarcely keeled; ventral spine passing middle coxæ. Sp. *L. porrigens*, sp. n., Walk., Japan.

Ucia, g. n., Walker, *l. c.* p. 407. Allied to *Duadicus*; lateral horns of prothorax truncate; antennæ short, clavate, joint 1 shorter than head, 2 longer than 3, 5 shorter than 4; membrane with 5 veins, 2nd forked and joined by a transverse vein to the first. Sp. *U. mutilata*, sp. n., Walk., Australia.

Araducta, g. n., Walker, *l. c.* p. 408. Allied to *Cuspicona*; fusiform; head short and broad; antennæ half as long as body, joint 1 not reaching apex of head, 2 shorter than 3, 4 longest; ventral spine reaching middle coxæ; membrane with 9 veins. Sp. *A. glabrata*, sp. n., Walk., Aru and New Guinea.

Ealda, g. n., Walker, *l. c.* p. 409. Allied to *Diplostira* in its double sternal keel; rostrum reaching hind coxæ; joint 2 of antennæ much longer than 3; lateral spines of thorax very long, stout, acute. Sp. *E. minax*, sp. n., Walk. *l. c.* p. 409, New Caledonia.

Balsa, g. n., Walker, *l. c.* p. 410. Allied to *Arvelius*; ventral spine 0; rostrum reaching hind coxæ; angles of thorax obtuse; pectoral keel very slight; legs very slender. Sp. *B. extenuata*, sp. n., Walk. *l. c.* p. 410, North China.

Walker (Cat. Hem. ii. pp. 241–403) describes a great number of new species belonging to the following known genera:—*Loxa* 3, *Euschistus* 6, *Diceræus* 3, *Mormidea* 14, *Hoplistodera* 4, *Alcimus* 1, *Æschrus* 1, *Eysarcoris*, 9, *Antestia* 2, *Hymenarcys* 1, *Pentatoma* 29, *Strachia* 49, *Bathycœlia* 1, *Vulsirea* 3, *Rhaphigaster* 23, *Prionaca* 2, *Rhopalimorpha* 1, *Duadicus* 2, *Stauralia* 2, *Cuspicona* 21, *Microdeuterus* 1, *Taurocerus* 1, and *Acanthosoma* 8.

Carpocoris tarsata, Mulsant & Rey, *l. c.* p. 169, south of France.

Cimex albosparsus, Kuschakewitsch, Horæ Soc. Ent. Ross. iv. p. 99, pl. 2. fig. 2, Monterey; *C. flavomarginatus*, Kusch. *l. c.* p. 100, pl. 2. fig. 3, and *C. rubromarginatus*, Kusch. *l. c.* p. 101, pl. 2. fig. 4, Russian America.

Pentatoma anabasis, Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 110, Kirghise Steppes (Jenotaewsk) = ? *Acrosternum heegeri* (Fieb.).

Nezara millierei, Mulsant & Rey, *l. c.* p. 213, south of France; *N. heegeri* (Fieb. MS.?), Muls. & Rey, *l. c.* p. 215, south of Europe.

Elasmostethus fieberi, Jakowlew, Arbeiten Univ. Kasan, 1864, p. 125, Nijni-Nowgorod, Kasan.

Urostylides.

Ebora, g. n., Walker, Cat. Hem. ii. p. 415. Allied to *Urochela*; head with the sides reflexed, lateral lobes slightly exceeding median lobe; 2 ocelli; antennæ more than half length of body, joint 1 passing apex of head, 2 much longer than 3, 4 shorter than 2. N. sp. *E. circumdata*, Walk. *l. c.* p. 416, Adelaide; *E. postica*, Walk. ibid., Queensland; *E.? plana*, Walk. ibid., Archidona; and *E.? patula*, Walk. *l. c.* p. 417, Queensland.

Walker (Cat. Hem. i. pp. 411–415) describes 1 new species of *Urochela*, 6 of *Urostylis*, and 1 of *Urolabida*.

Edessides.

Dalcantha. Vollenhoven (Tijdsch. v. Ent. 2de ser. i. p. 216) characterizes this genus, and describes the following new species:—*D. westwoodii*, p. 217,

pl. 11. fig. 5, Sumatra; *D. sancti fargavii*, p. 218, pl. 11. fig. 6, Silhet; *D. amyoti*, p. 219, pl. 11. fig. 7, East Indies?; *D. stâlii*, p. 220, pl. 11. fig. 8, Silhet; and *D. servillei*, p. 220, pl. 11. fig. 9, Malacca.

Supericornia.

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 306) notices an example of *Dicranocephalus nugax* having the right antenna deformed.

Lygæodea.

Douglas and Scott (Ent. M. Mag. iv. pp. 1–3) describe *Lygæus equestris* (Linn.) as a British species.

Shimer has published (Proc. Acad. Nat. Sci. Phil. 1867, pp. 75–80) an account of his observations upon the habits of the Chinch Bug (*Micropus leucopterus*, Say), one of the most formidable enemies of the corn-crops in the United States. He particularly details his observations during the spring and summer of 1865, in which year, after an unusual abundance of insects in 1864, an epidemic disease suddenly broke out among them, and swept off the Chinch Bugs and many other species in great numbers. In a subsequent note (p. 234) Shimer says this insect has entirely disappeared.

Anthocoris nemorum. According to Goureau, this species, especially in the larva state, destroys great quantities of *Aphides*, particularly those which live in crevices of bark, galls, and other concealed places. It also feeds on the larvæ of *Psyllæ* which live under cover, such as *P. fraxini*. Bull. Soc. Ent. Fr. 1867, pp. lxxxv–lxxxvi.

Anthocoris insidiosus (Say) = *A. pseudochinche* (Fitch) is cited by Walsh as frequenting willow-galls. Proc. Ent. Soc. Phil. vi. p. 274.

Baudel describes the ravages committed among the vines in the neighbourhood of Constantine by *Nysius cymoides* (Spin.). Bull. Soc. Ent. Fr. 1867, pp. xxxix.–xli.

Perty (Mitth. naturf. Ges. in Bern, 1867, p. 306) notices an example of a species of *Pachymerus* with the left antenna much abbreviated, and containing only three joints.

Apterola, g. n., Mulsant and Rey, Ann. Soc. Linn. Lyon, xiii. p. 368, & xiv. p. 390. Allied to *Lygæus*; joint 2 of antennæ longest; ocelli small, approximated to the eyes; scutellum short, truncated behind; hemelytra rudimentary, without membrane; wings 0. Sp. *A. künckelli*, sp. n., Muls. and Rey, ibid., Spain.

Nysius albidus, sp. n., Jakowlew, H. S. Ent. Ross. iv. p. 151, Astrachan.

Ophthalmicus arenarius, sp. n., Jakowlew, *l. c.* p. 151, Astrachan.

Rhyparochromus baeri, sp. n., Jakowlew, *l. c.* p. 153, Astrachan.

Cæcigenia.

Pyrrhocoris fieberi, sp. n., Kuschakewitsch, Horæ Soc. Ent. Ross. iv. p. 97, pl. 2. fig. 1, Amour; *P. sibiricus*, sp. n., Kusch. *l. c.* p. 98, Kiachta.

Capsina.

The following species are characterized as British by Douglas and Scott (Ent. M. Mag. iv.):—*Deræocoris* (*Calocoris*) *alpestris* (Fieb.), p. 47, pl. 1. fig. 3; *Litosoma* (*Capsus*) *diaphanus* (Kirschb.), p. 47; *Globiceps dispar* (Boh.), p. 48, pl. 1. fig. 4; *Macrocoleus* (*Capsus*) *sordidus* (Kirschb.), p. 49; *Lygus* (*Phyt.*) *rugicollis* (Fall.), p. 50; and *Lopus superciliosus* (Linn.), p. 51. They also

state (*l. c.* p. 52) that *Lopus miles* (Dougl. & Scott) = *Cimex flavomarginatus* (Don.).

Psallus elegans, sp. n., Jakowlew, Horæ Soc. Ent. Ross. iv. p. 158, Astrachan.

Agalliastes pallipes, sp. n., Jakowlew, *l. c.* p. 158, Chwalynsk.

Teratocoris viridis, sp. n., Douglas & Scott, Ent. M. Mag. iv. p. 46, pl. 1. fig. 2, Perthshire.

Membranacea.

Goureau (Insectes nuisibles, pp. 64–70) notices at considerable length the history of *Cimex lectularius* (Linn.), indicating its characters and the processes adopted for its destruction. He also describes *Reduvius personatus* as one of its enemies.

Zosmenus salsolæ, sp. n., Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 113, Sarepta; *Z. kochiæ*, Beck. ibid., Sarepta.

Aradus wagneri, sp. n., Jakowlew, Arbeiten Univ. Kasan, 1864, p. 113, Kasan.

Reduviina.

Westwood records that a species of this group (probably *Enicocephalus tasmanicus*, Westw.) dances in the air after the fashion of the midges; it also possesses a pleasant musk-like odour. Proc. Ent. Soc. 1867, p. lxxxvii.

Douglas and Scott (Ent. M. Mag. iv. pp. 94–95) state that the insect described by them (in Brit. Hem.) under the name of *Nabis flavomarginatus* = *N. pilosulus* (Först.), and describe the true *N. flavomarginatus* (Scholz) from British examples.

Apiomerida. Stål (Œfvers. Vet.-Akad. Förh. xxiii. pp. 247–248) gives a table of the genera of this subfamily, of which the following is an abridgment:—

I. Intermediate tibæ with no apical pit for the reception of the tarsi.
  A. Head oval, anteocular and postocular parts of equal length. Micrauchenus (A. & S.).
  B. Head elongate or oblong-obovate, postocular part much longer than anteocular.
    * Joint 1 of rostrum scarcely, if at all, shorter than anteocular part of head; joints 1 and 2 of antennæ about equal; thorax unarmed; hemelytra extending far beyond apex of abdomen. Manicocoris, g. n.
    † Joint 1 of rostrum about half the length of the anteocular lobe of the head; disk of anterior lobe of thorax bispinose; hemelytra scarcely exceeding apex of abdomen. Agriocleptes, g. n.

II. Intermediate tibiæ with a fovea for the reception of the tarsi.
  A. Postocular part of head much longer than the anteocular.
    * Scutellum transverse, semiorbicular; postocular part of head slightly tumescent, narrowed behind; joints 1 and 2 of antennæ nearly equal in length; hemelytra much longer than abdomen; anterior tibiæ incrassate, curved ..... Agriocoris, g. n.
    † Scutellum triangular, equilateral, or produced at apex. Heniartes (Spin.) (= *Trichoscelis*, A. & S.).
  B. Anteocular and postocular parts of head of equal length.

* Antennæ slender, joints 1 and 2 much shorter than apical joints, which are not thickened; ocelli very remote.

APIOMERUS (Hahn).

† Antennæ rather thick and short, joints 3 and 4 slightly thickened, a little longer than basal joint; ocelli less distant from each other than from eyes; posterior lobe of thorax twice as long as anterior.

SPHODROLESTES, g. n.

(*Beharus* and *Ponerobia*, A. & S., unknown to the author.)

Piratida. Stål (Œfvers. Vet.-Akad. Förh. xxiii. pp. 250–252) gives a tabular conspectus of this group, from which the following is slightly abridged:—

I. Intermediate tibiæ not furnished with a spongy pit.

SIRTHENEA (Spin.).

II. Intermediate tibiæ with a spongy pit.

A. Anterior tibiæ convex above.

* Neck unarmed, destitute of lateral tubercles.

a. Head rather suddenly coarctate behind eyes.

1. Ocelligerous part of head elevated; posterior coxæ slightly separated at base, touching at apex.

a. Anterior femora spinulose beneath. LESTOMERUS (A. & S.).

b. Anterior femora without distinct spinules beneath; spongy pit of anterior tibiæ rather small; joints 1 and 2 of antennæ rather thick, 3 slightly thickened at base; thorax constricted behind middle .... MICROSANDALUS, g. n.

2. Ocelligerous part of head scarcely, if at all, elevated; intermediate coxæ distant, anterior femora unarmed.

THYMBREUS (Stål).

b. Head tumid behind eyes, suddenly coarctate behind.

1. Apical joint of posterior tarsi equal to joints 1 and 2 together.

PIRATES (Burm.).

2. Apical joint of posterior tarsi longer than joints 1 and 2 together; ocelligerous part of head not elevated.

FUSIUS (Stål.).

† Neck with a more or less elevated tubercle on each side.

a. Anterior femora compresso-ampliate beneath.

PHALANTUS (Stål).

b. Anterior femora convex beneath.

1. Apical spongy part of anterior tibiæ produced into a lamina more than half the length of the tarsi.

TYDIDES (Stål).

2. Produced apical spongy part of anterior tibiæ less than half the length of the tarsi.

a. Anteocular and postocular parts of head equal in length; body narrow..... PHORUS (Stål).

b. Anteocular longer than postocular part of head.

α. Body oblong-ovate; thorax granulate.

CATAMIARUS (A. & S.).

β. Body elongate or very oblong; thorax not granulate.

** Spongy pit occupying more than half the tibia.

αα. Scutellum subequilateral, or broader than long.

ECTOMOCORIS (Mayr).

ββ. Scutellum longer than broad, produced at apex.
— Scutellum with a long slender spine at apex; apical joint of posterior tarsi shorter than joint 2 or 1 and 2 together.. Callisphodrus, g. n.
= Scutellum somewhat produced at apex; joint 3 of posterior tarsi equal to 1 and 2 together. Macrosandulus, g. n.
†† Spongy pit not occupying more than half the tibiæ.
aa. Tylus seen from the side somewhat elevated. Melanolestes, g. n.
ββ. Tylus scarcely if at all elevated.
— Apical third of anterior tibiæ thick, bearing the spongy pit..... Brachysandalus, g. n.
= Spongy pit occupying half the anterior tibia.
0. Scutellum acuminate, produced into a spine. Sphodrocoris, g. n.
00. Scutellum scarcely produced at apex, not acuminate ..... Cleptocoris, g. n.

B. Anterior tibiæ flat and broad above..... Androclus (Stål).

(*Dieraotropis*, Mayr, is unknown to the author.)

Stål (*l. c.* pp. 283–285, note) gives the following table of genera closely allied to the genus *Reduvius* (as restricted by him):—

I. Scutellum at the apex only very obsoletely foliaceous, neither reflexed nor concave.
A. Disk of scutellum much elevated.
1. Head and thorax of equal length; posterior lobe of thorax not impressed in the middle; tibiæ linear .. Graptolestes, g. n.
2. Head a little shorter than thorax; posterior lobe of thorax longitudinally impressed; tibiæ, especially in ♀, thickened in the middle ..... Graptoclopius, g. n.
B. Disk of scutellum scarcely, if at all, elevated.
1. Posterior lobe of thorax somewhat elevated in front. Biasticus, g. n.
2. Posterior lobe of thorax not elevated.
a. Anterior lobe of thorax small, ⅓ length of posterior; abdomen much dilated ..... Pœciloclopius, g. n.
b. Anterior and posterior lobes of thorax of equal length, or posterior never more than twice length of anterior.
* Half the membrane projecting beyond the apex of the abdomen. Graptosphodrus, g. n.
† Membrane scarcely, if at all, exceeding apex of abdomen.
a. Postocular part of head shorter than anteocular. Rhinocoris (Hahn).
b. Anteocular and postocular parts of head equal, or postocular longer.
α. Anterior tibiæ a little longer than the femora and trochanters ..... Hagia (Stål).
β. Anterior tibiæ equal in length to the femora or femora and trochanters.
** Thoracic lobes continuously longitudinally impressed. Sphedanolestes, g. n

† Posterior lobe of thorax very obsoletely or not at all impressed, the impressions of the two lobes never continuous.

aa. Head and posterior lobe of thorax of equal length. DINOCLEPTES, g. n.

ββ. Head as long as, or longer than, the thorax.

— Posterior lobe of thorax longer than anterior.

0. Joint 1 of rostrum long, extending a little beyond the eyes..... SPHODRONYTTUS, g. n.

00. Joint 1 of rostrum not extending behind eyes. Ocelligerous part of head very much elevated. CATASPHACTES, g. n.

Ocelligerous part of head scarcely or not elevated. REDUVIUS (Fab.).

= Thoracic lobes of equal length; ocelligerous part of head not higher than intraocular; anterior femora incrassate.

0. Body narrow, subelongate. HÆMATOCHARES (Stål).

00. Body rather broad, suboblong. AGRIOCLOPIUS, g. n.

II. Scutellum dilated or foliaceous at apex.

A. Scutellum dilated, reflexed; hemelytra a little exceeding abdomen; femora not nodose ..... COSMOLESTES, g. n.

B. Scutellum slightly foliaceous, and concave at apex; hemelytra very long; femora slightly nodulose..... CALLILESTES, g. n.

Stål (*l. c.* pp. 202-204) publishes a conspectus of the genera of American Reduviida wanting a lateral anterior tubercle on the mesostethium (*Zelus* and allies), of which the following is an abridgement:—

I. Thorax not gibbous or produced behind over the scutellum.

A. Femora bispinose at apex.

1. Postocular part of head gradually narrowing behind when seen from above or from the side; ocelligerous part slightly elevated. RICOLLA.

2. Postocular part of head gradually narrowing behind when seen from above, not from the side, base suddenly coarctate beneath; ocelligerous part scarcely or not elevated.

a. Thorax quadrispinose..... DOLDINA (Stål).

b. Thorax unarmed behind..... HYGROMYSTES.

B. Femora unarmed at apex.

1. Joints 1 and 2 of rostrum equal, or 1 longer than 2.

a. Postscutellum not acutely prominent behind scutellum.

* Head oval, oblong, or elongate, not gibbous beneath.

a. Ocelligerous part of head not elevated.

a. Head subcylindric, postocular part little longer than anteocular, very slightly narrowing behind. FITCHIA (Stål).

b. Postocular part scarcely twice as long as anteocular, distinctly narrowing behind. PIRNONOTA, g. n.

β. Ocelligerous part of head more or less elevated.

a. Juga prominent and more or less acute.

** Postocular part of head about twice as long as anteocular; joint 1 of rostrum extending a little beyond eyes ..... PHOROBURA, g. n.

†† Postocular part a little longer than the anteocular; joint 1 of rostrum not extending beyond eyes.

αα. Apical angles of penultimate segment of abdomen with a large spine .... ATRACHELUS (A. & S.).

ββ. Apical angles of penultimate segment unarmed. ROCCONOTA, g. n.

b. Juga, if prominent, very obtuse at apex.

** Head long, postocular part more than twice as long as anteocular; neck long .... ACANTHISCHIUM (A.&S.).

†† Head variable, postocular part never twice as long as anteocular; neck very short.

αα. Thorax quadrispinose behind.

— Abdomen very slightly if at all widened, margins unarmed ..... REPIPTA (Stål).

= Abdomen widened behind the middle, apical angles of segment spinose. LINDUS, g. n.

ββ. Posterior lobe of thorax unarmed, lateral angles sometimes armed with a denticle or spinule.

— Cells of membrane nearly of equal breadth; anterior tibiæ slightly curved. MYOCORIS (Burm.).

= Anterior cell about twice as broad as posterior; anterior tibiæ straight.

0. Lateral angles of posterior lobe of thorax rounded, not prominent.

Body rather slender; eyes very prominent in ♂; joint 1 of antennæ as long as head and thorax ..... GRAPTOCLEPTES, g. n.

Body rather stout; eyes moderate; joint 1 of antennæ shorter than head and thorax. CASTOLUS, g. n.

00. Lateral angles of posterior lobe of thorax sinuate or denticulate .... SPINDA, g. n.

† Head stout, gibbous and very densely pilose beneath.

α. Anterior cell of membrane much broader than posterior; anterior femora gradually tapering to apex.

a. Anterior angles of thorax unarmed. HIRANETIS (Spin.).

b. Anterior angles of thorax forming a tubercle which is sometimes acute ..... AMAUROSPHODRUS, g. n.

β. Cells of membrane nearly equal in breadth. COSMONYTTUS, g. n.

b. Postscutellum acute, prominent behind scutellum; head long, bispinose; thorax quadrispinose behind. DEBILIA, g. n.

2. Joint 1 of rostrum distinctly, and often much shorter than 2.

a. Joint 1 of rostrum distinctly longer than the anteocular part of the head.

* Legs moderate; lateral angles of posterior lobe of thorax armed with a tooth..... MILYAS (Stål).

† Legs rather long; lateral angles of posterior lobe of thorax rounded..... PYRRHOSPHODRUS, g. n.

b. Joint 1 of rostrum about equal in length to anteocular part of head.

* Anteocular and postocular parts of head of equal length; legs rather short, anterior shorter than posterior.

COSMOCLOPIUS, g. n.

† Postocular part of head longer than anteocular; anterior femora equal to or longer than posterior.

α. Lateral angles of posterior lobe of thorax unarmed.

ZELUS (Fab.).

β. Lateral angles of posterior lobe armed with a tooth or spine.

a. Disk of posterior lobe unarmed. DIPLODUS (A. & S.).

b. Disk of posterior lobe bispinose behind.

PINDUS, g. n.

II. Thorax gibbous, produced backward over the scutellum.

NOTOCYRTUS (Burm.).

New genera:—

Cosmocleptes, g. n., Stål, *l. c.* p. 266. Allied to *Pristhesancus*; head elongate, subcylindrical, postocular part long, gradually diminishing behind; joint 2 of rostrum longest; anterior lobe of thorax bituberculate, posterior without tubercles, lateral angles prominent, scarcely sinuate behind, posterior angles produced into a broad depressed lobe; scutellum with a tubercle which is sometimes dichotomous; mesostethium with a tubercle on each side; abdomen much dilated; legs long. Sp. *Pristhesancus furcifer*, *congrex*, and *phemiodes* (Stål).

Microcleptes, g. n., Stål, *l. c.* p. 240. Allied to *Opsicœtus*; head stout, tumid behind the eyes; ocelli small, not much elevated; legs short and stout. Sp. *O. biannulipes* (Montr. et Sign.).

Sphedanocoris, g. n., Stål, *l. c.* p. 240. Allied to *Acanthaspis*; oblong-ovate; head spinulose, short, somewhat tumid and suddenly constricted behind eyes; joints 1 and 2 of rostrum nearly equal; joint 1 of antennæ scarcely reaching apex of head; thorax slightly constricted in the middle, unarmed; scutellum sometimes produced at apex; prostethium bispinose in front; legs short; femora obsoletely spinulose beneath; pit of anterior tibiæ small; joint 3 of post. tarsi scarcely longer than 1 and 2 together. Sp. *A. sabulosa* (Stål).

Agriolestes, g. n., Stål, *l. c.* p. 280. Allied to *Yolinus*; head much elongate, postocular part scarcely longer than anteocular; joint 2 of rostrum longest; joint 1 of antennæ as long as head; thorax slightly constricted, unarmed; scutellum transverse, rounded behind; hemelytra scarcely exceeding abdomen; abdomen dilated, dilated segments rounded, umbonate, last segment projecting beyond apex of abdomen; legs rather short and thick; anterior femora slightly thickened; tibiæ slightly tapering to apex. Sp. *Yolinus ineptus* (Stål).

Cosmosphodrus, g. n., Stål, *l. c.* p. 278. Allied to *Sycanus*; head slender, longer than thorax, anteocular much longer than postocular part; rostrum

slender, joint 1 shorter than 2; thorax unarmed, anterior lobe convex, or tuberculato-elevated on the disk; disk of scutellum tuberculate or spinose abdomen much widened, apical angles of segment 2 not prominent, unarmed; legs slender, rather long. Sp. *Sycanus generosus* and *pyrrholomus* (Stål.

Homalosphodrus, Stål, *l. c.* p. 278 = *Parsialus* (Stål, olim).

Agriosphodrus, g. n., Stål, *l. c.* p. 279. Allied to *Eulyes*; head much elongated, postocular and anteocular parts nearly equal in length; joint 2 of rostrum longest; joint 1 of antennæ about as long as head; hemelytra a little exceeding the abdomen; abdomen much dilated, dilated parts of segments umbonate, of last segment scarcely if at all produced; legs slender, anterior femora scarcely thickened. Sp. *Eulyes dohrni* (Sign.).

Ischnolestes, g. n., Stål, *l. c.* p. 268. Allied to *Dalyrta*; body very elongate, narrow; head elongate, with a spinule on each side behind antennæ, postocular part about one-half longer than anteocular; joint 1 of rostrum equal to or longer than 2 and 3 together; antennæ long, joint 1 longer than head, thorax, and scutellum; thorax slightly constricted in the middle, longer than broad, anterior lobe with 2 posterior spines, posterior with 4 spines; scutellum rounded at apex; hemelytra somewhat shorter than abdomen; mesostethium without lateral tubercles; last segment of abdomen lobed on each side behind the middle. Sp. *I. conspectus*, sp. n., Stål, *l. c.* p. 269, South Australia; *I. lobulatus*, sp. n., Stål, ibid., North Australia.

Cydnocoris, Stål, *l. c.* p. 274 = *Cutocoris* (Stål, olim). New sp. *C. crocatus*, Stål, *l. c.* p. 274, East Indies; *C. tagalicus*, Stål, ibid., Manilla; *C. russatus*, Stål, ibid., Japan.

Manicocoris, g. n., Stål, *l. c.* pp. 247 and 248. (See Table, p. 472.) Sp. *Cimex nigripes* (Linn.) and *Reduvius rufipes* (Fab.).

Agriocleptes, g. n., Stål, *l. c.* pp. 247 and 248. (See Table, p. 472.) Sp. *A. albo-conspersus*, Stål, *l. c.* p. 248 (= *Harpactor albosparsus*, St°l, olim), Brazil.

Agriocoris, g. n., Stål, *l. c.* pp. 247 and 249. (See Table, p. 473.) Sp. *Heniartes curvipes* (Sign.).

Sphodrolestes, g. n., Stål, *l. c.* pp. 248 and 249. (See Table, p. 473.) Sp. *S. vittaticollis*, sp. n., Stål, *l. c.* p. 249, North Brazil.

Sphodrocoris, g. n., Stål, *l. c.* pp. 251 and 261. (See Table, p. 474.) Sp. *Reduvius maculipennis* (Le P. & S.) and *Pirates guttatipennis* (Stål).

Cleptocoris, g. n., Stål, *l. c.* pp. 251 and 261. (See Table, p. 474.) Sp. *Pirates lugubris, maurus* (Stål), *balteatus* (Germ.), and *strepitans* (Ramb.).

Microsandalus, g. n., Stål, *l. c.* pp. 250 and 253. (See Table, p. 473.) Sp. *M. umbrosus*, sp. n., Stål, *l. c.* p. 253, North Australia.

Callisphodrus, g. n., Stål, *l. c.* pp. 251 and 258. (See Table, p. 474.) Sp. *Pirates decoratus, truculentus, ornatus*, and *arciger* (Stål); *Reduvius mutillarius* (Fab.), and *Callisphodrus patricius*, sp. n., Stål, *l. c.* p. 258, North Australia.

Macrosandalus, g. n., Stål, *l. c.* pp. 251 and 259. (See Table, p. 474.) Sp. *Peirates sulcicollis* (Serv.) and *Pirates albomaculatus* (Mayr).

Melanolestes, g. n., Stål, *l. c.* pp. 251 and 259. (See Table, p. 474.) Sp. *Pirates picipes* (H.-Sch.), *P. morio* (Erichs.), and *Rasahus picicornis* (Stål).

Brachysandalus, g. n., Stål, *l. c.* pp. 251 and 260. (See Table, p. 474.) Sp. *Pirates ephippiger* (White) and *fuliginosus* (Erichs.). New sp. *B. helluo*, Stål, *l. c.* p. 260, Melbourne; *B. lurco*, Stål, ibid., Adelaide; *B. punctorius*, Stål, ibid., Melbourne; and *B. sexguttatus*, Stål, *l. c.* p. 261, Mysol.

Sphodromyttus, g. n., Stål, *l. c.* pp. 282 and 284. (See Table, p. 475.) Sp.

Zelus erythropterus (Burm.) = *Phemius rubripennis* (Mayr); *Reduvius frater, convivus*, and *semirufus* (Stål); and *S. erythromelas*, sp. n., Stål, *l. c.* p. 283, Manilla.

Catasphactes, g. n., Stål, *l. c.* pp. 284 and 287. (See Table, p. 475.) Sp. *Reduvius coprias* (Stål); and *C. pyrrhopterus*, sp. n., Stål, *l. c.* p. 288, Melbourne.

Sphedanolestes, g. n., Stål, *l. c.* pp. 284 and 288. (See Table, p. 475.) Sp. *Red. impressicollis* and *xanthogaster* (Stål) and *R. pulchellus* (Klug).

Graptosphodrus, g. n., Stål, *l. c.* pp. 284 and 288. (See Table, p. 474.) Sp. *Red. gulo, verecundus, saucius, gestuolus*, and *melanocephalus* (Stål); *G. jucundus*, sp. n., Stål, *l. c.* p. 289, New Guinea.

Pœciloclopius, g. n., Stål, *l. c.* pp. 284 and 289. (See Table, p. 474.) Sp. *Red. patagiatus* (Stål).

Biasticus, g. n., Stål, *l. c.* pp. 284 and 290. (See Table, p. 474.) Sp. *Red. impiger* (Stål).

Graptolestes, g. n., Stål, *l. c.* pp. 283 and 290. (See Table, p. 474.) Sp. *G. civilis*, sp. n., Stål, *l. c.* p. 290, Cambodia.

Graptoclopius, g. n., Stål, *l. c.* pp. 283 and 291. (See Table, p. 474.) Sp. *Red. helluo* (Stål).

Dinocleptes, g. n., Stål, *l. c.* p. 284. (See Table, p. 475.) Type *Red. inops* (Stål).

Agrioclopius, g. n., Stål, *l. c.* p. 285. (See Table, p. 475.) Type *Red. albonotatus* (Stål).

Cosmolestes, g. n., Stål, *l. c.* p. 285. (See Table, p. 475.) Sp. *Red. pictus* and *æthiopicus* (Stål).

Callilestes, g. n., Stål, *l. c.* p. 285. (See Table, p. 475.) Type *Evagorus perrisi* (Sign.).

Rocconota, g. n., Stål, *l. c.* p. 293. (See Table, p. 476.) Type *Repipta tuberculigera* (Stål).

Graptocleptes, g. n., Stål, *l. c.* p. 294. (See Table, p. 476.) Sp. *Myocoris gracilis* (Burm.), *Hiranetis flavidata, gastrica, fusco-apicata*, and *hæmatogastra* (Stål).

Spinda, g. n., Stål, *l. c.* p. 294. (See Table, p. 476.) Sp. *Repipta subinermis* (Stål); *S. trinotata*, sp. n., Stål, *l. c.* p. 297, Mexico.

Amaurosphodrus, g. n., Stål, *l. c.* p. 295. (See Table, p. 477.) Sp. *Myocoris bicolor* (Burm.) = *Evagoras nigricornis* (Stål) and *Hiranetis sanguineiventris* (Stål); *A. alboannulatus*, Stal, *l. c.* p. 297, New Granada (= *Zelus albomaculatus*, Stål, olim).

Cosmonyttus, g. n., Stål, *l. c.* p. 295. (See Table, p. 477.) Type *Myocoris nigriceps* (Burm.).

Cosmoclopius, g. n., Stål, *l. c.* p. 296. (See Table, p. 477.) Sp. *Harpactor pœcilus* (H.-Sch.) and *nigro-annulatus* (Stal).

Pyrrhosphodrus, g. n., Stål, *l. c.* p. 298. (See Table, p. 477.) Sp. *P. militaris* and *amazonus*, sp. n., Stål, *l. c.* p. 298, North Brazil.

Pindus, g. n., Stål, *l. c.* p. 296. (See Table, p. 477.) Sp. *P. vittaticeps*, sp. n., Stål, *l. c.* p. 299, North Brazil.

New species :—

Durganda fuscipes, Stål, Œfvers. Vet.-Akad. Förh. xxiii. p. 237, Manilla.

Sminthus limbaticollis, Stål, *l. c.* p. 238, Malacca.

Acanthaspis bimaculata, Stål, *l. c.* p. 241, Java; *A. signaticollis*, Stål, *l. c.* p. 242, Manilla.

Centrocnemis granulosa, Stål, *l. c.* p. 244, Malacca.

Ectinoderus nitidus, Stål, *l. c.* p. 245, Manilla.

Amulius longiceps, Stål, *l. c.* p. 246, Malacca; *A. malayus*, Stål, ibid., Siam.

Heniartes productus, Stål, *l. c.* p. 248, North Brazil.

Sirthenea amazona, Stål, *l. c.* p. 252, North Brazil; *S. obscura*, Stål, *l. c.* p. 253, New Holland.

Ectomocoris ochropterus, Stål, *l. c.* p. 256, East Indies; *E. cordiger*, Stål, ibid., North India.

Veleda aculeata, Stål, *l. c.* p. 264, North Australia.

Pristhesancus illustris, Stål, *l. c.* p. 266 (= *P. æneiventris*, Stål, olim), Batchian.

Endochus inornatus, Stål, *l. c.* p. 270, East Indies.

Gminatus atricornis, Stål, *l. c.* p. 271, North Australia.

Pnirsus lineativentris, Stål, *l. c.* p. 272, North Australia.

Evagorus sordidata, Stål, *l. c.* p. 273, Borneo, Sarawak.

Arcesius sanguinarius, Stål, *l. c.* p. 275, New Guinea.

Sycanus macracanthus, Stål, *l. c.* p. 276, Borneo, Sarawak; *S. dichotomus*, Stål, *l. c.* p. 277, Borneo.

Yolinus fuliginosus, Stål, *l. c.* p. 280, Malacca.

Velinus satellitius, Stål, *l. c.* p. 281, Malacca.

Reduvius costalis, Stål, *l. c.* p. 285, Bengal; *R. aulicus*, Stål, ibid., Malacca; *R. mendicus*, *l. c.* p. 286, Malacca.

Reduvius desertus, Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 114, Sarepta.

Nabis amœnus, Solsky, Horæ Soc. Ent. Ross. iv. p. 185, Astrachan.

Nabis tamaricis, Becker, Bull. Soc. Nat. Mosc. xl. 1. p. 110, Kirghise Steppes (= *Nabis viridulus*, Spin. ?).

Doldina bicarinata, Stål, *l. c.* p. 296, North Brazil.

Fitchia nigro-vittata, Stål, *l. c.* p. 296 = *F. aptera* (Stål, olim).

Repipta lepidula, Stål, *l. c.* p. 296, North Brazil.

Acanthiscium [sic] *haglundi*, Stål, *l. c.* p. 297, North Brazil.

Diplodus annulosus, Stål, *l. c.* p. 299, North Brazil.

Aristippus fenestratus, Stål, *l. c.* p. 299, and *A. fumosus*, Stål, *l. c.* p. 300, North Brazil.

Spiniger pyrrhomelas and *amazonus*, Stål, *l. c.* p. 300, North Brazil.

Scadra nigro-rufa, Stål, *l. c.* p. 301, Japan. (*Physorhynchus lanius*, Stål, also belongs to this genus.)

Mendis sanguinaria, Stål, *l. c.* p. 301, origin unknown.

Rhiginia immarginata, Stål, *l. c.* p. 302, Quito; and *R. amazona*, Stål, ibid., North Brazil.

Larymna atripennis, Stål, *l. c.* p. 302, Malacca.

Saldidæ.

Salda quadrilineata, sp. n., Jakowlew, Arbeiten Univ. Kasan, 1864, p. 115, Kasan.

Salda conspicua, sp. n., Douglas & Scott, Ent. M. Mag. iv. p. 93, pl. 1. fig. 5, Perthshire.

Hydrometridæ.

Halobates. Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 456–460) notices the species of this genus, describes and figures the larva and male of *H. flaviventris* (Esch.), p. 459, pl. 12. figs. 3 & 4, its antenna (fig. 7), and the tarsus of the larva (fig. 9), indicates the characters of *H. micans* (Esch.),

and figures the antenna (fig. 5), and describes a new species. Frauenfeld refers to the statement of Eschscholtz that the anterior tarsi are triarticulate, the third joint being represented by the projection forming the inferior boundary of the notch containing the claws. In the author's opinion this view is erroneous.

Hydrometra costæ (H.-Sch.) and *H. odontogaster* (Zett.) are described as occurring in Britain by Douglas & Scott (Ent. M. Mag. iv. pp. 96–98).

Mesovelia furcata (Muls. & Rey) is described and figured as a British species by Douglas & Scott (Ent. M. Mag. iv. pp. 4–6, pl. 1. fig. 1). They say that it belongs to the group *Hebridæ*.

Wahnschaffe records the occurrence of *Velia currens* (Fab.) upon brackish water near Sülldorf. Berl. ent. Zeitschr. 1867, p. 192.

Halobates wüllerstorffi, sp. n., Frauenfeld, *l. c.* p. 458, pl. 12. figs. 1, 2, 6, 8, & 10, off Cape Frio.

Notonectidæ.

Douglas & Scott (Ent. M. Mag. iv. pp. 98–100) describe *Corixa præusta* (Fieb.) as a British species, and redescribe their *C. wollastoni* from mature examples.

Homoptera.

Marshall (Ent. M. Mag. iii.) has concluded his essay on the British species of Auchenorhynchous Homoptera, with a revision of the genus *Eupteryx* (Curt.) = *Typhlocyba* (Germ.). He also adds a few supplementary notes on species described in previous sections of his work.

Stridulantia.

Landois's observations (Zeitschr. für wiss. Zool. xvii. pp. 152–158, pl. 11. figs. 17, 18) on the singing-apparatus of the *Cicadæ* are particularly interesting, as demonstrating the incorrectness of the explanation of the singing of those insects given by Réaumur and since generally adopted, and at the same time bringing this phenomenon into relation with the buzzing of the Diptera. Landois describes the construction of the parts concealed by the large subabdominal plates of the male *Cicadæ*, and already noticed by Réaumur and others, and indicates that the so-called "timbale" of Réaumur cannot act in the manner described by him, as, instead of being moveable by muscular action, it is firmly attached to the wall of the metathorax. The true organ of sound, according to Landois, is the metathoracic stigma, which is of very large size and elongated form, and furnished throughout its length with two thin sounding-bands, which leave a very narrow slit between them. It is to the vibration of these bands during the escape of air from the tracheæ that the sound is primarily due; the more external organs merely serve to increase its power by their resonance.

Fulgoridæ.

Signoret publishes some observations by Rouget of Dijon on the occurrence of *Tettigometra læta* (H.-Sch.) on the lower surface of stones covering nests of *Tapinoma erraticum*. Bull. Soc. Ent. Fr. 1867, pp. lxxxiii–lxxxiv.

Marshall indicates (Ent. M. Mag. iii. p. 269) the characters of *Delphax bivittatus* (Boh.) and *D. thoracicus* (Stål) as additional British species, and describes the ♀ of *D. elegantulus* (Boh.).

Cicadellina.

Eupteryx. Marshall (Ent. M. Mag. iii. *l. c.*) publishes descriptions of the British species of this genus, of which he recognizes 28. None of them are new.

Marshall also states (*l. c.* pp. 269–270) that his *Jassus 4-vittatus* is only a var. of *J. socialis* (Flor.), and records the occurrence in Britain of *Jassus ventralis* (Fall.) and *J. brevipennis* (Kirschb.).

Dorycephalus, g. n., J. Kuschakéwitsch, Horæ Soc. Ent. Ross. iv. p. 102. Body elongate, fusiform; head produced, vertex horizontal, forehead longitudinally excavated, clypeus oblong-quadrate, lora very broad, oval; ocelli very minute; hemelytra short, veins parallel, cells 0; legs subangulate, spinulose. Sp. *D. baeri*, sp. n., J. Kusch. *l. c.* p. 103, pl. 2. fig. 5, Orenburg.

Aphididæ.

Signoret & Balbiani have detected a singular instance of dimorphism in the young of *Aphis aceris* (Fab.). The larvæ of this species present two distinct forms:—a normal pubescent form; and a somewhat foliaceous form, having the head and abdomen furnished with curious veined leaflets on their margins, and the abdomen reticulated in a manner resembling the design of the plates on the back of a Tortoise. This form was described by Thornton as a microscopic object under the name of the "leaf-insect" or *Phyllophorus testudinatus*, and by Lane Clark as *Chelymorpha phyllophora*; Van der Hoeven substituted for these the name of *Periphyllus testudo*, both the other generic names having been previously employed. Signoret adopts the name of *Periphyllus testudinatus*. Some of the normal embryos present a few flattened scale-like hairs. The function of the foliaceous larvæ in the economy of the insect has not been detected. They contain no embryos. (See Signoret, Ann. Soc. Ent. Fr. 4e sér. vii. pp. 371–378, pl. 10. figs. A 1–4, *Periphyllus testudinatus*, and figs. B 1 & 2 the normal larva; also Balbiani & Signoret, 'Comptes Rendus,' lxiv. pp. 1259–1263).

Shimer (Proc. Acad. Nat. Sci. Phil. 1867, p. 2) proposes the formation of a distinct family, *Dactylosphæridæ*, intermediate between the Aphides and the Coccidæ, for some small species of which he forms a new genus, *Dactylosphæra*. The characters given for the family are as follows:—"Wings 4, carried flat on the back in repose. Antennæ few-jointed. Tarsi composed of one joint, terminated by 2 claws, and from 2 to 6 *digituli*. Honey-tubes none; otherwise resembling *Aphidæ*." The term "*digituli*" is employed by the author for some singular organs consisting of a stalk with a round head which project from various parts of the extremity of the tarsus.

Phylloxera (Fonsc.). Signoret (Ann. Soc. Ent. &c. 4e sér. vii. pp. 297–304) describes the general characters and habits of the insects of this genus, especially noticing the production by them of a sort of pellicle or shell, serving, as he thinks, for the protection of the ova. He indicates and describes 4 spe-

cies as belonging to it, namely :—*P. carya alba* (Fitch) ; *P. quercus* (Fonsc.) = *Vacuna coccinea* (Heyd.), p. 300, pl. 7. figs. 1-5 ; *P. castanea* (Hald.) and a new species. *P. longirostris* (Fonsc.) belongs to *Lachnus* (Kalt.) = *Dryobius* (Koch) and is the *Aphis roboris* (Linn.) = *longirostris* (Fab.) = *fasciatus* (Burm.).

Coret mentions that the *Aphides* (*A. rosæ*) from the roses cultivated in great numbers at Puteaux, take shelter during the winter in houses &c., and that they there attack the buds on certain potatoes stored under cover to supply the markets of Paris in May. The potatoes are rapidly spoiled. Fumigation with sulphurous acid only temporarily checked the mischief. Signoret remarks upon this statement, that it would be desirable to ascertain whether the species attacking the potatoes is really *Aphis rosæ*, and that the fumigation may have destroyed the viviparous *Aphides*, leaving their embryos ready for development, or that fresh winged *Aphides* might make their way into the store-rooms. Laboulbène and Guérin-Méneville remark upon the effect of the saccharine fluid dropped by the *Aphides* upon plants &c. in promoting the growth of minute fungi, and producing the black matter known as *fumagine*. The latter entomologist also refers to other damage caused by *Aphides*, and suggests the question whether these insects can live indifferently upon various plants. This question is answered in the affirmative by Giraud, who also indicates the means by which the Aphides are kept in check, and notices especially the parasitic Hymenoptera which he has observed. Bull. Soc. Ent. Fr. 1867, pp. lxxiii-lxxvii.

Signoret notices a gall produced by *Aphides* upon a species of *Lentiscus*. Lallemant and Abdullah-Bey mention similar galls occurring in Algeria and in Syria ; the last is known in Turkey by the name of *Caraube*, or *Carroba*, of Judea ; it measures 11–16 centims. in length, and is employed in fumigations for certain maladies of the chest. Bull. Soc. Ent. Fr. 1867, pp. lxx–lxxi.

M. C. Cooke notices the Aphidian galls of the elm, and states that the fluid occurring in them is used in Italy and France as a remedy for sore eyes. Ent. M. Mag. iii. p. 190.

Lubbock remarks, in his presidential address for 1867, on Balbiani's supposed discovery of hermaphrodism in the *Aphides*. Proc. Ent. Soc. 1866, pp. lv–lvii.

Dactylosphæra, g. n., Shimer, Proc. Acad. Nat. Sci. Phil. 1867, p. 2 (*vide suprà*). ♂. Anterior wing with 1 one-branched discoidal and a stigmatic vein ; posterior wing with no discoidal. ♀ apterous. Common to ♂ and ♀ :— Antennæ 3–4 jointed. Tarsi 6 digituli. Promuscis-sheath 4-jointed. Sp. *D. gibbosum*, sp. n., Shimer, *l. c.* p. 2, figs. B (tarsus) and C (sheath of promuscis), in galls on *Carya glabra*. Shimer also adds to his genus with doubt *Pemphigus vitifoliæ* (Fitch), of which he figures the tarsus (A 2), and the wings (D) ; but this insect has only 2 "digituli." Both species are described at considerable length, as also their habits &c.

Phylloxera scutifera, sp. n., Signoret, Ann. Soc. Ent. Fr. 4e sér. vii. p. 303, pl. 7. fig. 6, France, on the oak.

Aphis perforatus, sp. n., Signoret, Ann. Soc. Ent. Fr. 4e sér. vii. p. 379, pl. 10. figs. C 1, 2, and D 1, on the sycamore.

Forda dauci, sp. n., Goureau, Bull. Soc. Ent. Fr. 1867, p. lxxxix, lives upon the roots of the cultivated carrot, in company with *Formica flava*.

Schizoneura sparthanti, sp. n., Boisduval, Bull. Soc. Ent. Fr. 1866, p. lx, on Spanish broom near Paris.

Psyllidæ.

Anisostropha ficus (Linn.). Frauenfeld notices the habits and gives a detailed description of this species (Verh. zool.-bot. Ges. in Wien, xvii. pp. 801–803). From the occurrence of irregularities in the venation of the wings of this species, he takes occasion to remark upon the frequency of such irregularities among the *Psyllidæ*; the variation is almost always confined to one wing. Frauenfeld gives figures (*l. c.* p. 804) of wings belonging to the 3 genera *Anisostropha, Trioza,* and *Psylla,* showing the normal and abnormal venations.

Aleurodidæ.

Aleurodes. Frauenfeld (Verh. zool.-bot. Ges. in Wien, xvii. pp. 793–801) notices the occurrence of species of this genus in great abundance on certain plants in hothouses, and indicates the species described by various authors. Of these he cites 17, of which, however, *A. dubia* (Steph.) = *Coniopteryx tineiformis* (Curt.) and *A. gigantea* (Steph.) = *Con. aleurodiformis* (Curt.); *A. dubia* (Heeger nec Steph.) = *A. phillyreæ* (Hal.), with which *A. phyllicecæ* (Bouché) is also probably identical. *A. cocois* (Curt.) is said not to belong to the genus. The species observed by the author in the hothouses of the Vienna Botanic Gardens is identified by him with *A. vaporariorum* (Westw.), and he gives a full description of it in its various stages (*l. c.* p. 798). He also describes a new species.

Aleurodes euphorbiæ, sp. n., F. Löw, Verh. zool.-bot. Ges. in Wien, xvii. p. 746, Vienna, on *Euphorbia peplus.*

Aleurodes jelinekii, sp. n., Frauenfeld, *l. c.* p. 799, on *Viburnum tinus* at Miramar.

Coccidæ.

Notes by Signoret on species of *Aspidiotus* and other *Coccidæ* will be found in Bull. Soc. Ent. Fr. 1867, pp. iii, xvi, xxx.

Giraud notices *Coccus festucæ* (Fonsc.) and *Aspidiotus quercicola* (Bouché) and their hymenopterous parasites. Bull. Soc. Ent. Fr. 1867, pp. lxxvii–lxxviii.

W. W. Saunders notices 2 species of *Coccus* which attacked the bulb of an orchid from New Granada. Proc. Ent. Soc. 1865, p. 116.

Targioni-Tozzetti (Comptes Rendus, lxv. pp. 246–247) gives the analysis of the wax of *Coccus caricæ,* with remarks upon other wax-giving species.

Coccus cryptus, sp. n., Kawall, Stett. ent. Zeit. 1867, p. 122, on the petioles of *Salix acutifolia.*

Anoplura.

Giebel publishes (Zeitschr. für die ges. Naturw. xxviii. p. 397) a list of the species of this group contained in the University Museum at Halle. He enumerates only 16 species. The notes, which are derived from Nitzsch's MS., include brief characters of *Hæmatopinus clavicornis* (Nitzsch) on *Meriones,* and *H. tuberculatus* (Latr.) on *Bos bubalus.*

Goureau (Insectes nuisibles, pp. 198–206) indicates the general natural history of the insects of this group, and describes the species which infest man and the principal domestic animals.