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Entomology.

ENTOMOLOGY.

BY

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[With notes and additions in brackets.]

Agassiz Nomenclator Zoologicus, a work urgently demanded in Entomology, if in any department of Zoology, has been steadily proceeding, and draws near the conclusion with the year 1845.

Recherches sur les transformations des appendices dans les Articulés, par M. Brullé. (Ann. Sc. Nat. 3me Sér. i, p. 271.)

A work treating at large of the same subject, which has already occupied Savigny (Mém. sur les Anim. sans Vert.) and Erichson, in his 'Entomographien.' (Zool. Char. der Ins., &c.) Had the author been acquainted with the last-named essay, which was published five years before, he would probably have avoided some errors into which he has fallen. One of these is that he regards the antennæ (feelers) as analogous to the legs and jaws. That the two latter are only different modifications of similar organs has been a settled point since the researches of Savigny; but too much regard has been paid to the essential destination of the parts, to allow of the antennæ being placed in the same class with them before. The antennæ are exclusively organs of sensation, deriving their nerves from the brain, while those of the mouth and legs originate from the lower ganglions. The author, following Latreille and others, considers the upper jaws of Arachnida to represent antennæ; chiefly on account of their position so far above the cavity of the mouth. But independent of the other reasons for considering the parts in question as analogically upper jaws (mandibulæ), we have pretty convincing evidence in the saliva vessels (or poison vessels) opening into them in the Spiders and Solipugas (Araneidæ,

Solifugæ), and demonstration in their nerves not being derived from the brain.

Another misconception of the author is his treating the tongue (ligula) and side lips (paraglossæ) as analogous to the jawblades (malæ.) The Reporter has shown, in the essay referred to before, that the Orthoptera alone possess corresponding appendages of the under lip, but that these do not represent the tongue and side lips of other insects, since the tongue exists distinct and separate in this order. Not less improperly is the chin (mentum) considered to represent the haft (stipes) of the under jaws. The only parts which answer to the latter are the lip palps (palpi labiales), with their stems (stipites). In consequence the author goes too far in arguing, by analogy from the structure of the under lip, that the upper lip (labrum) also represents a pair of jaws soldered together. (A shorter notice of this essay in Compt. rend. xviii, 233; Frorieps N. Notiz. xxxi, 309.)

Newport (Philos. Trans. 1844, p. 283) has made experiments, with instructive results, on the reproduction of lost parts in Myriapoda and Insecta.

The power of restoring lost limbs has long been known to exist in Arachnida and Crustacea, and among Insects with incomplete metamorphosis, the like had been observed with respect to Phasma. The author had, on a former occasion, exhibited to the Entomological Society a Scolopendra with a leg on one side smaller than the corresponding one of the pair, but no certain conclusion could be drawn whether the organ had been reproduced or crippled in its first formation. To determine this point he made the following experiments. A young Julus was mutilated in the legs and antennæ, and shut up with others. After a few weeks, when they had cast their skin, the mutilated one could not be distinguished from the others. After this three more, not full grown, were shut up together, an antenna and some of the legs having been cut off in each. For more than three months after there was no appearance of a reproduction, till the time that they severally formed a hollow in the earth, in which to remain dormant from the middle of June to the end of July. Towards the close of this period they changed their coat, and when the individuals which had been so treated appeared above ground again, the lost parts were restored, but shorter, smaller, and lighter in colour than the uninjured limbs.

Of the Chilopoda, the author observed a Lithobius which had lost some legs. At the next change of coat they were reproduced, not in the form of stumps like the legs at their first formation, but very tender and much smaller than the rest. They continued to grow, however, for a little while after the skin was cast. After the next moult they had grown visibly,

though still inferior to the other legs : so also after the third ; but after the fourth they were no longer distinguishable from the rest.

The experiment as to Insects with complete metamorphoses was made upon *Vanessa urticæ*. Some of the true feet were cut off, entirely or in part, in a number of Caterpillars before they were full grown. The leg cut off was reproduced, in some of the younger ones, immediately after the moult which remained to be undergone. Out of twenty-eight Caterpillars the author obtained thirteen Butterflies. In four no trace of reproduction was seen, or scarcely any ; in the rest it was pretty complete, the leg being sometimes perfect but under-sized, sometimes the foot-joints shorter than usual ; in one instance the shank was restored entire, but without the spines at the end.

From these experiments it appears that—1, reproduction of lost members takes place also in Myriapoda and Insects with complete metamorphosis ; 2, it is simultaneous with the moulting.

Rathke (Müller's Arch. Anat. 1844, p. 27, pl. 2, f. 1-5) has made observations on the development of the Mole-cricket (*Gryllotalpa vulgaris*), which are of great and general interest, bringing to light a new fact, that in the embryo of an insect a temporary organ exists, which seems to be of the nature of a gill.

1. The egg increases by about a third in volume during the development of the embryo, probably by imbibing water from the moist earth in which it is deposited. The author has found the like to take place in the eggs of other insects also, as Phryganeæ, and of many Crustacea.—2. The egg, when newly excluded, shows two coats, the outer transparent (chorion), the inner more delicate (membrana vitelli.) These are closely applied to one another, and in like manner enfold the yelk, which is composed of simple cells and drops of grease. The embryo is formed at the circumference of the yelk, so that this is at last completely contained within it. In the second half of the vegetative period (frucht-leben) a clear fluid collects between the embryo and the coats of the egg ; this is no water of absorption, for it contains much albumen, and coagulates on contact with water or alcohol. It disappears when the embryo is at maturity.—3. The inner coat is obliterated completely in the second half of the vegetative period, while the outer one becomes thinner and more transparent.—4. The embryo gradually takes such a curved form that the thorax is strongly bowed, and the head bent in upon itself. The legs are so placed that thigh and shank compose a sort of loop.—5. The integument of the abdomen is drawn into a flattish fold at the sides, where the row of spiracles is in course of formation. —6. Under this fold, and immediately behind the attachment of the third

pair of legs, in the position of the first abdominal segment, an organ appears at each side, which is subservient to the vegetative existence only, and is cast off at the time of hatching. It consists of a round disk, supported on a foot-stalk of moderate length. It has a very delicate investing membrane, remains colourless and semitransparent, and the somewhat convex outer surface of the disk is pressed against the coats of the egg. The author gives reasons for supposing that this organ (which has not been observed hitherto in any other insect) serves the embryo for respiration.—7. The mucous layer of the germinal membrane, as in other true Insects, is expended entirely in the formation of the intestinal canal, and in embryos which have passed the middle period of the vegetative existence, the yelk, still of considerable bulk, is found contained in the stomach, not in a distinct yelk-bag,as is the case with the Decapods among Crustacea. From observations made on various other Insects, it appears that the mucous layer goes to the formation of the stomach alone, and that the gullet (œsophagus) and intestines are produced from the latter at a subsequent period. Towards the end of the vegetative period the alimentary canal shows a small globular empty appendage (crop), a large stomach filled with yelk, and four malpighian vessels (ductus hepatici.) Soon after hatching the author found the crop (ingluvies) larger, and filled with a mass different from the yelk, and which can only be food taken in by the mouth; the gizzard (proventriculus), which had been faintly indicated in the embryo, was now more developed; the true stomach (ventriculus chylop.) smaller, with two peaks; the bulk of the contained yelk diminished; the malpighian vessels already increased in number to six.

Descriptiones animalium quæ in itinere ad maris australis terras per annos 1772, 1773, et 1774, suscepto collegit, observavit et delineavit Fr. Reinh. Forster, nunc demum editæ auctoritate et impensis Academiæ literarum regiæ Berolinæ, curante H. Lichtenstein. Berlin, 1844.

The portion of this interesting work which regards Entomology is not considerable, being confined nearly to the description of some Insects found in the islands to the west of Africa.

Tellkampf (Müller's Archiv, Anat. 381, Wiegm. Arch. i, 318) has communicated very interesting particulars respecting the animal life in the mammoth cavern of Kentucky.

Besides one or two peculiar forms of Fishes, and a number of Infusoria, in a subterranean lake five miles from the entrance and more than one mile in length, there are of Crustacea a new Astacus, and a new genus of Amphipoda (*Triura*): of Insects two new coleopterous genera, *Anophthalmus* and

Adelops, a species of Phalangopsis, and flies of the genus Anthomyia. It is a remarkable circumstance that in most of these creatures the eyes are either wanting entirely (*Anophthalmus*, *Anthrobia*, *Phalangodes*), or at least very imperfect (*Adelops*, *Astacus*.) As the animals, almost without exception, differ specifically, or even generically, from those living on the surface of the earth, there is evidence of a peculiar subterranean Fauna existing, our very limited acquaintance with which is much extended by these two communications.

These productions of the Mammoth cave in general have little resemblance to those of the caves of Carinthia. Only the genus Anophthalmus, a very similar species of which has been found contemporaneously in the Lueg Grotto, is common to the caverns of both hemispheres; probably also the genus Adelops; at least the Berlin Museum possesses two European species of it, but their history is unknown. [A brief notice of some of these is given also in the Annals of Natural History, xiv, 111.]

An instructive treatise by Platner, Notices respecting the Respiratory Organs and the Skin in Silkworms (Müll. Arch. Anat. p. 38, pl. 3), has for its subject the structure of the tracheæ (air-pipes) in particular.

The author believes the spiral thread to consist not of cellular but of nuclear fibres, i. e. fibres composed not of cells but of the nuclei of cells [vesicles]. Regularly a new spiral fibre is formed between two pre-existing, which shows how every branch of the tracheæ commences with a new spiral thread. At the same time the branching of the tracheæ usually is not ramuscular [i. e. by smaller branches given off at the sides], but commonly a single branch splits into two. Frequently also a branch is subdivided into a number of finer fibres. The course of the tracheæ is very tortuous, particularly that of the finer fibres, in which all terminate at last, and which resemble a spiral spring uncoiled. These fine threads never pass into each other (anastomose). Their diameter is pretty nearly that of the spiral fibre in the tracheæ themselves, and the author infers that the slender extremities of the tracheæ are composed of their spiral fibre merely, and that the tracheæ form a tube only so long as the coils of the spiral are contiguous. Special attention also is given to the distribution of the tracheæ to the nervous system. Every ganglion receives from beneath, at each of its sides, a stout branch of the trachea, which is accompanied by a blood-vessel, (the author remained in doubt about the latter, the presence of which the Reporter is able to confirm, and that it terminates in the main trunk which accompanies the spinal chord [rachis.]) Detached tracheæ resolve themselves into fibres, which are so closely matted about the ganglion that the entire mass of nerve is enveloped by them. In the skin of

the Silkworm the author discovered bony corpuscles, in the form of star-shaped cells, exactly like those of the human body.

Léon Dufour (Compt. rend. xix, 188) persists in declaring the German naturalists in error who profess to have observed a circulation in insects, although the existence even of a closed vascular system, in insects breathing by tracheæ, is now established beyond dispute.

Küster assigns to the feelers (antennæ) of insects the function of smelling. (Isis, 647.)

This opinion is grounded upon the following experiments. Some pure spirit of turpentine having been dropped upon small pieces of paper, these were placed in glass cylinders, and captured insects were introduced. In a few minutes they appeared very uneasy, rubbing their feelers frequently, while the parts of the mouth were also in action, and the kinds with a trunk protruded it. By degrees the movements became slower, the feelers which had begun to droop at the end, especially if they were long, lost at last the power of straightening, and, after a stupor of from ten to twelve hours, death ensued. The author then gives a series of observations on the varying degrees of sensibility to the smell of turpentine, in different insects, always with reference to the comparative development of the antennæ. This frequently is in an inverse ratio to that of the eyes, as in the Cicindelidæ and Carabidæ. In accordance with this, the Carabidæ showed more sensibility to the smell of turpentine, and their antennæ drooped very quickly so far as the pubescence on them extends. So of the Cerambycidæ. The Buprestidæ have very little, the Elateridæ, on the contrary, very great irritability, and above all the males with pectinated feelers. The author considers the structure of these organs in the Hymenoptera as strongly corroborative of his theory, and the insects of this order betrayed great sensibility to the vapour of turpentine. In Spiders the author is disposed to consider the enlarged palps of the males as an organ of smell highly developed for the discovery of the other sex; but it has been demonstrated already that these parts have a different function. (Report 1843, p. 195.)

If these experiments show that the feelers betray a sensibility to the effect of powerful odours, it is not yet proved that these act on them directly, and so the evidence that the sense of smell has its seat in the feelers is defective. In regard to this the fine downy coat with which they are often clothed demands particular attention.

Siebold has published his investigations into the organ of hearing in some Orthoptera. (Ueber das Stimm- und

Gehörorgan der Orthopteren. (Wiegm. Archiv. 1844, vol. i, p. 52.)

The drum-shaped organ above the hind legs in the Acridii,* the apertures, closed with a tight membrane, in the fore-shanks of the Locustæ† and Achetæ, are the parts which the author thinks he is enabled to designate as the organ of hearing, on the ground of anatomical relations. It is not to be gainsaid that these organs possess every requisite to be the seat of the sense under consideration. But the question may fairly be put, where is the corresponding organ in other insects. In all other animals the organ of hearing is in immediate connexion with the brain (vertebrata), or with the loop which embraces the throat (invertebrata). The same objection I have before advanced in answer to Goureau, who, reasoning a priori, had come to an opinion like that of Siebold. (Report 1837, p. 198.)

Westring (Kröyer Nat. Tidsskr. N. Räkk. i, 58) has detailed his researches concerning the instruments of sound in insects, from which the general inference is drawn, that in every case where a sound is produced by the friction of two separate parts, the surfaces in contact are wrinkled or shagreened, or else a prominent edge of one plays against the wrinkled or fluted surface of the other.

1. *Geotrupes stercorarius, sylvaticus, vernalis,* have at the back side of the last pair of hips a corner fluted crosswise, against which the sharp hinder rim of the second abdominal segment plays. The moving instrument is here the abdomen, and the hip the fixed one.

2. *Copris lunaris* has a slightly raised ledge on the fore rim of the breech-plate (pygidium), and on the underside of the shards (elytra), near the seam and extending to nearly a fourth of its length, a ridge scored crosswise, against which the ledge plays when the breech-plate is put in motion.

3. The *Cerambycidæ* and *Lepturidæ*, as is known, rub the hind rim of the fore-chest (prothorax) against the neck of the mid-chest (mesothorax), which part Goureau has erroneously described as smooth; it is in reality wrinkled or fluted crosswise.

4. In *Necrophorus* there are found two ridges running lengthwise, and parallel, down the back of the fourth segment of the abdomen. These are fluted crosswise or scolloped, and form the moving instrument, being rubbed against a projecting cross-ledge under the end of the shards.

5. *Cychrus, Trox, Lema, Cryptorrhynchus lapathi* have a ridge on the

* *Locustidæ*, Lch. † *Gryllidæ*. Lch.

inside of the shards, close to the edge, against which the shagreened sides of the abdomen play.

6. *Reduvius*, according to Goureau's incorrect representation, produces its tones by the friction of the neck against the fore rim of the fore-chest; but as the neck is smooth this explanation is not credible, any more than it is agreeable to the reality. The fact is that the groove of the fore-breastplate (prosternum) is delicately fluted, and the end of the sucker playing in it at an angle of 45° produces the sound.

7. In *Mutilla*, Goureau has correctly accounted for the sound by the friction of the hind rim of the second abdominal segment upon a dusky spot at the base of the third; but he is mistaken in describing this spot as smooth, since it is finely wrinkled crosswise.

8. The machinery of sound in *Acheta*, *Locusta*, and *Gryllus* has been previously examined and described by various observers.

9. *Pneumora* has ten to twelve raised horny ribs at the sides of the bladder-like abdomen, and a finely serrated ridge along the inside of the hind thighs, which is drawn across the former.

Schiödte (ibid. 69) adds that in *Lema brunnea* the moveable instrument consists of two ridges on the last abdominal segment, which are delicately scored across, not much raised, and a little inclined towards one another.

Bohemann has laid before the Stockholm Academy his narrative of a journey to Lapland in 1843. (Oefvers. K. Vetensk. Akad. Förhandl. i, 95; translated into German in Hornschuch's Archiv. Skand. Beytr. i, pt. 2, p. 299.)

This expedition has been one of great interest in respect to the Entomology of the northern regions. Nearly eleven thousand insects were collected, and more than one hundred new species discovered. The expedition set out from Stockholm the 24th of May, its destination Quickjock, an Alpine district, where they arrived by the 27th of July. The Flora was splendid and diversified. The insects diminished in number of species as they ascended the mountains, so that about two hundred species of Coleoptera only were collected during a six weeks' stay at Quickjock. *Geotrupes stercorarius*, which is found throughout the low country, did not occur; of *Carabi*, *glabratus* alone. Orthoptera are not numerous, and *Gryllus pedestris* (*Locusta*, Lch.) is the only species which extends to the summit of the mountain. Of Hemiptera there are some conspicuous types, but the species are few. Of Lepidoptera not many butterflies or larger moths, but, on the other hand, the minuter tribes are more abundant in the high lands. Hymenoptera in general rare, except Humble-bees and the parasitic tribes (Pupivora). Diptera compose the great mass of insect life. If the species become fewer, the multitude of individuals is proportionally enormous;

particularly the tormenting Gnats (*Culex cantans, pipiens, sylvaticus*), with *Simulia reptans, nana*, and *Ceratopogon pulicarius*. Thousands of two small Cicadæ, *Iassus* (Germ.) *abdominalis*, F., and *pallens*, Zett., often filled the bag-net, making it difficult to examine the other contents. At the highest point of the mountain, near the snow-line, occurred *Nebria nivalis, Cychrus rostratus, Leiochiton arcticus, Amara alpina, Patrobus septentrionalis, Lina* alpina; Argynnis pales, Psodos trepidaria, Geometria polaria* (vel n. sp.), *Chilo furcatellus; Œstrus trompe, Echinomyia alpina, Anthomyia*, new species, *Tipula nubeculosa*. Besides these, in the alpine regions were found, *Colymbetes dolabratus, Hydroporus lapponum, striola, Anthophagus rotundicollis, Omalium*, new species, *Silpha lapponica, Podabrus alpinus, Lina* lapponica, Gonioctena† alpina; Argynnis freja, Erebia manto, norna* (var. *hilda*), *Lycæna*, new species, (allied to *pheretes*), *Zygæna exulans, Anarta melaleuca, melanopa, Psodos fuscaria*, the female of which, previously unknown, has only rudiments of wings), and other Lepidoptera; of Hymenoptera, *Bombus nivalis*, and *lapponum*, and a remarkable form of *Tenthredo* with serrated feelers; of Diptera, *Tabanus borealis, alpinus, Thereva fuscinervis, Œstrus tarandi*, &c. The woods upon the slopes of the mountain, composed of rather slender spruce firs (Pinus abies), and the little dells through which the brooks descend from the alpine heights, afforded many species to invite attention, as *Syntomium æneum, Aphodius lapponum, piceus, Cetonia ænea, Trichius fasciatus, Elater bifasciatus, Ampedus nigrinus, Dictyopterus aurora, Anthocomus cardiacæ, Pachyta borealis, marginata, smaragdula; Argynnis thore*, &c. The swamps and river banks, overgrown with small willow bushes, were rich in Diptera; here also occurred *Elaphrus lapponicus, Pelophila borealis, Agonum consimile*, various *Omaliani, Tachinus elongatus, Hylobius arcticus*; also *Colias palæno, Argynnis pales, Hesperia fritillum*, &c. Lastly, over the luxuriant meadows composed of Poa pratensis and Aira cespitosa, and inclosed by natural hedges of willows, alders, &c., *Pieris bryoniæ, Plusia divergens* and other Lepidoptera were on the wing; with *Tabanus albomaculatus, borealis, auripilus, confinis, Chrysotoxum fasciolatum*, and many Diptera besides. In the same situations occurred *Amara torrida, quenselii, Simplocaria picipes*, several species of *Anisotoma* and *Hydnobius*, as well as *Catops* and *Colon, Pachyta interrogationis*, 6-*maculata*, and *Coccinella* 3-*fasciata*.

Kollar and Redtenbacher have given a sketch of the Entomology of Cashmere and the Himalaya mountains. (Aufzählung und Beschreibung der von Freihernn C. v. Hügel auf seiner Reise durch Kaschmir und das Hima-

* Chrysomela of English authors, Melasoma, Dillwyn.

† Chrysomela autt. Phytodecta, Kby.

lejagebirge gesammelten Insekten, in v. Hügel's Kaschmir, iv, p. 395.)

This department exhibits very peculiar relations. It is a striking phenomenon in the Fauna and Flora of the Himalaya chain in general, that the forms of tropical India extend up the southern face to the mountain heights. This is accounted for by the direction of the chain, which shuts out the cold winds from the east and north, while the southern slope is open to the warm currents from the south and south-west, under whose influence the valleys that open southwards produce purely tropical forms. On the opposite side the law is in force to which the other elevated tracts of India are subjected, that the temperate climate yields forms corresponding to those of central Europe within similar limits of temperature. In consequence, tropical forms appear in this Fauna intermingled with those which bear the stamp of the temperate zone. Of 185 Lepidoptera collected in Cashmere and the Himalaya, 107 present the character of the tropical, 78 of the temperate zone. Among the Coleoptera the proportion is 79 to 37. In Orthoptera (including the Libellulini, enumerated among the Neuroptera) 20 to 16. In Hemiptera 44 to 22. In Hymenoptera 32 to 17. In Diptera 3 to 21. Thus it appears that tropical forms predominate in most of the orders, and those of the temperate zone in Diptera alone. Among the Lepidoptera, along with the purely tropical forms of which *Papilio protenor, polyctor, sarpedon, cloanthus, agestor, panope, Pieris valeria, phryxe, horsfieldii, epicharis, mesentina, coronis, gliciria, Thestias œnippe, marianne, pirene, Callidryas philippina, pyranthe, minna, hilaria, alcmeone, Loxura atymnus, Polyommatus vulcanus, Danais similis, limniace, Euplœa coreta, Nymphalis lisianassa, liria, aconthea, Limenitis leucothoe, strophia, Charaxes bernardus, athamas, Argynnis niphe, phalanta, Vanessa charonia, orithyia, œnone, limonia, almana, hippocla, Libythea myrrha, Cethosia cyane, Biblis protogenia, Satyrus europa, leda, banksia, Macroglossa picus, Chalcosia tiberina, Erebus crepuscularis, retorta,* are diffused over the greater part of the East Indies or of the entire Old World, a large list of mere European species reappears: *Papilio machaon, Pieris brassicæ, Rhodocera rhamni, Colias myrmidone, hyale, Lycæna bætica, amyntas, argiolus, agestis, Polyommatus phlæas, Limenitis aceris, Argynnis latonia, Liparis chrysorrhœa, Lithosia pulchra, Triphœna subsequa, Trachea atriplicis, Noctua c. nigrum, Plusia gamma, chalcitis, Urapteryx sambucaria, Nymphula interpunctalis, potamogalis.* Among the Coleoptera the number of species identical with those of Europe is less, being limited to *Colophotia italica, Lema 5-punctata,* and *Entomoscelis adonidis,* while *Anisoteles bimaculatus,* Hope, *Hister melanarius,* Er., *Gymnopleurus sinuatus,* Ol., *Xylotrypes oromedon,* F., *Protœtia albo-guttata,* Vig., *Mylabris sidæ,* F., *Batocera 8-maculata,* F., *Podontia 14-punctata,* F., are spread over the greater part of India, and partially of Southern Asia, and

Onthophagus rubricollis, Hope, *Euchlora horsfieldii*, Hope, *Popillia cyanea*, Newm., *Jumnos roylii*, Hope, *Coryphocera nigricornis*, Gory, *Lucanus lunifer*, Hope, and *chevrolatii*, Chenu, are species already known as peculiar to the Himalaya mountains. To the tropical forms belong of Orthoptera, *Acridium ruficorne* and *peregrinum*, Ol.; of Hemiptera, *Scutellera nobilis*, *Belostoma annulatum*, *Cicada pulchella*, Westw., *Polyneura ducalis*, Westw., while the aquatic species of *Ranatra*, *Nepa*, *Notonecta*, *Corixa*, *Hydrometra*, wear quite the livery of the European. The Hymenoptera are signalized by Tenthredinidæ of the genera *Cimbex*, *Hylotoma*, *Tenthredo*, and a *Bombus* like the European, while *Sphex argentata*, *Polistes macaensis*, *Eumenes conica*, *Vespa cincta*, F., and *Xylocopa latipes* are forms characteristic of Southern Asia. Among the Diptera, *Tipula scurra*, *Eristalis campestris*, *tenax*, and *Hippobosca equina* are identical with European species, and others are closely allied, only single species of each of the genera *Penthetria*, *Pangonia*, and *Asilus*, belonging to the tropical forms. The Lepidoptera and Coleoptera are treated of more in detail, and most of them figured in twenty-eight plates.

Of D'Orbigny's Voyage dans l'Amérique méridionale, some progress has been made with the entomological portion, so that the families Cleridæ, Melyridæ, and Telephoridæ may now come under review. The issue of the plates is far in advance of the text.

The history of the insects indigenous to the nests of Ants has already reached a considerable extent, through the attention paid to it in various quarters.

Märkel (Germ. Zeitschr. v, 193) has given a summary of all that had been published up to the date, comprehending every species observed in company with Ants, but distinguishing such as are not attached to them exclusively. The number of species extends to 284, only 100 of which are distinctively the associates of Ants. *Formica rufa* and *fuliginosa* have the greatest train; along with the former 100, with the latter so many as 150 have been reckoned. *F. fusca* has much fewer; again they are numerous with *F. cunicularia*. *F. nigra*, *flava*, *Myrmica cespitum*, *rubra*, afford little; and none have yet been found in the nests of the rest. Among the Coleoptera the largest proportion belong to the family *Staphylinidæ* (159 species of 41 genera); next to these the *Histeridæ* and *Pselaphidæ*; the remaining families present only individual species, or such whose occurrence in that situation may be considered merely casual. Among Hemiptera, Diptera, and Hymenoptera, no inconsiderable number of species frequent the nests of Ants, but of them only a few detached species have been discriminated. A number of Arachnida, Myriapoda, and Thysanura, too, live in the nests of *F. rufa*. The solution of the question, what part these races act in the colonies of Ants is yet distant. The author is disposed to infer from his

own observations, that a large proportion, in particular the Staphylinidæ and Histeridæ, are attracted by the excrements of the Ants. (?)

Schiödte (ibid. 473) has briefly noticed the Myrmecophila of Denmark. Among these, *Scydmænus exilis*, Er., *truncatellus*, Er., *claviger*, Ill., which he found exclusively in the nests of *F. rufa*, and two species of *Mailthinus* call for especial mention.

Bohemann has attended to the Myrmecophila in Sweden (Oefvers. IKongl. Vetensk. Acad. Förh. 1844, p. 155.) He collected in the nests of *F. rufa* 26 species, all of them found also in Germany and elsewhere, but of which 13 were additions to the Swedish Fauna.

Mannerheim has continued his examination of the nests of Ants in Finland (Bull. Mosc. 1844, p. 176) and has made no inconsiderable addition to the list of Myrmecophila, among them several new species. The nests yielded most in spring; in July and August scarcely anything was found besides *Myrmecoxenus subterraneus*, but this in thousands. It resides, not deep down, but in the uppermost galleries. It is worthy of remark, also, that particular species occur gregarious in some nests, not at all in others; (such is the case with *Myrm. subterraneus*, too, which the Reporter has found about Berlin only in particular nests, but there by thousands.) Lastly, Motschoulsky (Bull. Mosc. 812) has made some remarks on Märkel's paper above noticed, stating that in his former travels, as well in Russia as in other countries, he had repeatedly searched the Ant-hills without finding anything like the variety which Märkel represents. The list given of the species which he had observed is of no scientific value, the greatest number of them being given as new, yet not characterized, or only in the most superficial style.

While the foregoing investigations concern the races which live in amicable relations with the Ants, Cornelius has directed attention to the enemies of these insects. (Entomol. Erfahrungen, Verhand. Naturhist. Vereins Preuss. Rheinland. Yr. 1, p. 50.) These are chiefly Caraabidæ, which haunt the edges of the nests, and prey upon the young brood, that is, the pupæ. *Pterostichus cupreus*, *Harpalus ruficornis*, *Carabus cancellatus*, *granulatus*, *Procrustes coriaceus*, *Taphria vivalis*, have come under his observation. *Gryllus campestris*, also, which he found near the nests, in captivity did not refuse the pupæ of Ants, for which reason the author is inclined to include it in the list.

[Curtis (Royal Agric. Soc. Report, v, and also in the Gardener's Chronicle, under the signature Ruricola) has continued his illustrations of the natural history of insects which affect the produce of the field, the garden, and the forest, and has figured many species of different orders, in their several progressive states.]

Desmarest has collected the instances in which metals

have been perforated by insects. (Ann. Soc. Ent. Fr. ii. Bull. xx,, xxiv, xxxii. Revue Zool. 90.)

This has been observed with soft metals only, commonly lead, in one instance type metal, and in circumstances where the insect had to make its way through the metal in order to escape from the lair of the pupa. The instances mentioned are briefly these: 1. Audouin had a sheet of lead sent him, part of the sheathing of a vessel, which the larvæ of *Callidium* had gnawed into numerous and deep cavities. 2. Emy saw, at Rochelle, entire pieces of a leaden roof not only gnawed, but absolutely perforated, by *Bostrichi*. 3. Stephens found beams quite eaten away by the larvæ of *Callidium bajulus*, though lined with lead, and holes in the metal, which he took to be the burrows of *Callidia*. 4. The Marquis de Brême exhibited to the Entomological Society at Paris a number of cartridges from the arsenal at Toulon, the paper at one end of which was perforated, and the ball eaten away to a depth of 4-5 millimetres [about a line, more or less.] One of the barrels was greatly eaten away, but when it was opened no trace of the insects was discovered inside. 5. Du Boys noticed a printer's form, from Limoges, that had been pierced with two deep galleries, in which *Apate capucina* was found. Lastly, Desmarest shut up two individuals of *Callidium sanguineum* in thin vessels of lead, in such a manner that they were separated by the bottom of one of the vessels; in a few days this was found pierced through, and the two beetles together. At the end notice is taken of another case mentioned by Blainville, and stated to have been observed by Dr. Piccioni, of Corsica; that *Cetonia Cardui*, Dej., having made its way into Dr. Piccioni's beehives, where it was eating up the wax and honey, in order to keep it out sheets of lead were placed in front of the hives, with orifices only large enough for the bees to pass through; but in a short time he perceived that the beetles had attacked the lead, and enlarged the openings so as to get admission into the hives again. Sheets of zinc were then substituted, and they proved too hard for the *Cetoniæ*. Desmarest doubts, with reason, whether their soft jaws could make any impression on the lead either. The question had been put to him whether the insects in these instances swallowed the metal. To assure himself on this point he had the *Apate*, found in the printing form, chemically analysed, when no trace of lead was discovered.

COLEOPTERA.

Schiödte (Germ. Zeitschr. v, 474) has made some observations on the structure of the abdomen in Coleoptera.

He shows, in particular, that when the segments of the abdomen are taken into the systematic character, the shield of the cloaca ought to be excluded

from the proper segments, though in reality a modification of these. The segments have that designation when they can be drawn in or pushed forth at will. The Reporter does not think this mark precise enough to distinguish the one from the other in every case; instances often occur where either denomination might be applied with equal justice. The spiracles afford the surest mark, as has been already stated. (Report, 1843, p. 122.) Neither can he agree with the views of the author respecting the first segment. In the Monograph of the Staphylinidæ it is laid down that the first dorsal segment has none corresponding to it on the underside, but Schiödte asserts that every dorsal has its corresponding ventral segment. Anatomically, it is true, a ventral segment may be demonstrated, opposite to the half ring there treated as the first of the back, but it is of no consequence as a segment, and the one which comes after is articulated directly with the breast. Subsequently the Reporter has become convinced by the comparative examination of different families, as well as of the earlier states, that this segment is properly the second, and that the first (likewise without a continuation on the underside) lies still more forwards, and is in fact the part commonly regarded as the postscutellum of the metathorax, to which the large spiracles belong, treated by all authors, and also in the work last cited, as the spiracles of the metathorax. Although more resembling in size and form the spiracles of the thorax, than those of the other abdominal segments, the consideration of the metamorphosis proves that they are identical with the pair placed in the first segment of the abdomen in the larva.* Accordingly the Coleoptera in general possess two dorsal segments

* This later view of the learned and philosophical editor of the Archives remains, however, open to discussion. It seems, for instance, fully as reasonable, from the more separated and contrasted forms of the several parts in the perfect insect, to proceed and identify their counterparts in the larva, where the distinction of thorax and abdomen is usually less marked, as it is to assume first the line of division (arbitrary by comparison) in the latter, and thence to impose upon the former denominations at variance, it may be, with the position and apparent office of the parts which they are here employed to denote. If in some insects in the perfect state (as Orthoptera) it may seem allowable to assign the segment in question as well to the abdomen as the thorax, yet in the greater number, but particularly in the small-waisted Hymenoptera, its intimate connexion with the thorax is evident, and no describer has ever been at fault in regard to it. To Newman the merit belongs of having pointedly called attention to the mutual relation and characteristic importance of this and the following segment, to which he gave respectively the names of propodeon and podeon; terms which might stand, unless considerations of harmony in the description of the thorax should recommend for the former a name framed in accordance

preceding the first ventral, the second being sometimes, in conjunction with the third, opposed to this one. Something similar occurs, also, in other orders of insects, where the abdomen is closely attached to the thorax, but in that case there is commonly but *one* dorsal segment opposite to the first ventral.

Of Guérin's Species et Iconographie générique des Animaux articulés, no more has come to hand than the portions noticed in last year's Report (p. 122.)

Die Käfer Europa's, nach der Natur beschrieben von Dr. H. C. Küster, mit Beiträgen mehrerer Entomologen. 1er Band. Nürnberg, 1844. Verlag von Bauer und Raspe.

The plan of this work is very good. The species are described very fully, each on a separate leaf, in no determinate order, so that the possessor can arrange them as he pleases. Experience, it is true, proves the expediency of treating a series of allied species in their relative connexion, partly that the specific characters may be brought out more prominently, partly that the medley of synonyms may be duly sifted. But the unfettered form of the work admits of this also when requisite. On the other hand it allows of interesting discoveries being published without delay. In a work of the sort this may counterbalance the higher value in a scientific point of view, which a connected systematic treatment confers on a Fauna. In respect to its geographical limits, the European Fauna presents some difficulties. The author makes it extend over the whole basin of the Mediterranean, taking in also the coasts of the Black Sea, Asia Minor, Syria, Egypt, Barbary, Madeira, and the Canary Islands. But the Fauna of Northern Africa, along with much that is in common to it and Southern Europe, has many peculiar and purely African forms to show, and would introduce into the European Fauna elements quite foreign to it, as *Graphipterus* and *Steraspis*. In this direction the Mediterranean is a sufficient boundary. The limit is not so easily drawn on the Asiatic side, since through the whole of Northern Asia no natural line of demarcation presents itself, and the Fauna of Dauria,

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with those of the three preceding segments, as hysterothorax (after-chest), and hysteronotum (after-chine.) Ratzeburg (Ent. Zeit. 1844, p. 151) has perceived, and stated in general terms, the existence of a fourth thoracic segment following that which bears the hind pair of wings. Newport (Todd's Cyclopædia of Anatomy, ii, p. 911) has called it thoracico-abdominal, as if not entirely belonging either to the thorax or abdomen. If the analogy to the perfect insect has the weight assumed in this note, the segment immediately following the three that bear the legs, or the fifth of the body, in larvæ, must be considered normally as a segment of the thorax, although in descriptions it may be needless to vary the terms in common use.—Tr.

and even of the north of China, differs from the European less than that of Barbary.

Catalogus Coleopterorum Europæ. Zusammengestellt auf Veranlassung des Entomologischen Vereins zu Stettin vom Geh. Reg. Schmidt, Stettin, 1844.

According to oral information received from the author, this catalogue, which has no further aim than to facilitate exchanges between collectors, was compiled with the greatest haste; nevertheless judicious use has been made of the Monographs that have appeared most recently. In many portions of such a compilation the names of catalogues and manuscripts are felt as an encumbrance; but one which will diminish daily, in proportion as Faunas and Monographs carry on the advance of the science. The activity at present evinced in this direction will, doubtless, make a new edition of this catalogue by the same author, to the present date, much more complete.

Of Sturm's Deutschland's Fauna, the 15th volume has appeared, containing the continuation of the Nitidulariæ and the new genus of Carabidæ, Anophthalmus.

Grundlage zu einem Verzeichnisse der Käfer des Harzes seiner Umgebungen, entworfen von E. G. Hornung. Erste und Abth. Die Lauf-und Schwimmkäfer, Aschersl. 1844.

The Natural History Society of the Harz has proposed, as its special object, to investigate the natural productions of that district. The author has undertaken the Coleoptera, of which this essay forms the first part. The Harz comprehends a space of sixteen [German] miles by ten, and, with great diversity of positive elevation, physical configuration, soil and vegetation, presents indisputably one of the most interesting and copious Faunas of Northern Germany, and one which has been diligently investigated, as the present part of the catalogue evinces. The locality is particularized under every species, and frequently critical remarks are appended.

Catalogo dei Coleopteri della Lombardia, compilato dai fratelli Antonio e Gio. Battista Villa. Milano, 1844.

A catalogue merely, the extent of which is evidence that it affords a very complete summary of the Coleoptera of Lombardy.

Excursion Entomologique dans les montagnes de la vallée d'Ossau, par Léon Dufour. (Bull. Soc. des Sciences, Lettres et Arts de Pau.)

Records 768 species of Coleoptera collected in this excursion. A number of new species are proposed, some reducible to known ones, others not to be determined with certainty from the brief specific characters given.

Mannnerheim has further illustrated the Fauna of Finland by two little essays (Bulletin de Moscou, 160) Mémoire sur la récolte d'Insectes Coléoptères faite en 1843, and (p. 189) Description de quelques nouvelles espèces de Coléoptères de Finlande.—Spicilegium Entomographiæ Rossicæ auctore G. Fischer de Waldheim (Bull. Mosc. 1844, p. 3) contains descriptions of a great number of species, mostly new, both from the Russian Empire and from the adjoining countries.

Note d'un viaggio nella Persia e nelle Indie orientali negli anni 1841, 1842, di Gaetano Osculati. Monza, 1844.

The narrative of the author's travels, containing scattered notices respecting natural history, has at the end a catalogue of Coleoptera collected on the journey, and in the appendix six new species are distinguished by the specific characters, which are here extracted under the respective heads, as the book may not be generally accessible.

Parry has contributed to the Fauna of Assam a decad of new species, of which merely the diagnoses are given for the present, (Proceedings of the Entomological Society of London, in the Ann. Nat. Hist. xiv, 454), and the detailed descriptions reserved for future publication.

White has characterized some new Coleoptera from Hong-Kong. (Ibid. 422.)

Lucas (Revue Zool. p. 262) describes some new Coleoptera of Northern Africa, from the country of Biskra situate fifty-five leagues south of Constantina. The Fauna of this region seems to differ notably from that of the sea-board, as these species are of a purely African type. Those collected by M. de Faremont on the route to Biskra consist principally of *Melasoma*.

Haldeman has published the specific characters of 49 new species (North American) of the genera *Cymindis, Dromius, Plochionus, Lebia, Coptodera, Pasimachus, Clivina, Badister, Anchomenus, Agonum, Omaseus, Amara, Selenophorus, Ophonus, Harpalus, Stenolophus, Acupalpus, Notaphus, Leja, Peryphus, Athous, Charactus, Mycterus, Lytta, Hoplia, Chlænius, Coprobius, Aphodius, Phileurus, Bothrideres, Ichthy-*

dion, and *Anthicus*. (Philadelph. Proc. i, p. 298. Bohem. Aorsber. p. 43.)

Guérin (Revue Zool.) has contributed two short papers on the Fauna of Mexico (p. 253) and of New Granada (p. 8.)

Waterhouse, Contributions to the Entomology of the southern portions of South America. (Ann. Nat. Hist. xiii, 41.)

He observes with justice that the habitat "Chili" is the more vague, as this country in its different regions presents very various climates, and a corresponding difference of soil and physical circumstances. Thus the northern part is extremely dry and parched (rain being almost unknown), generally sandy and stony, abounding in the Indian fig (Cactus). On the contrary, the southern portion, in which rain falls copiously, is wooded, and frequently yields the most luxuriant vegetation.

The dry country in the north includes the provinces of Coquimbo and Copiapo, the south Chiloe, Valdivia, and Concepcion. Between the two lie Valparaiso, Aconcagua, and San Iago, in which the climate also is of an intermediate character, with periodical rains from May to August inclusive, the soil in the valleys tolerably productive of trees, and on the mountain slopes overgrown with low bushes. Hence an interest attaches to the memoranda of Mr. Bridges respecting the localities and occurrence of a number of Chilian Coleoptera.

Curtis has laid before the Linnæan Society of London his descriptions of the insects collected by Captain P. P. King in the survey of the Straits of Magellan, as a continuation of his essay in the 18th vol. of the Society's Transactions.

An extract is given in the 'Annals of Nat. Hist.,' xiv, 218, but as it contains merely the abridged characters of the new species, the Report upon the Essay itself is deferred until after its appearance in the 'Transactions.' It embraces the families *Histeridæ*, *Hydrophilidæ*, *Scarabæidæ*, *Lucanidæ*, and the entire of the Heteromera.

Le Guillou has published in the Revue Zool. (p. 220) the preliminary short specific characters of the new Coleoptera (20 species) collected during the voyage of the Bonite round the world.

Count Mannerheim has given an account of a tour in Sweden, Denmark, and Northern Germany, in which many

interesting observations occur, and several new species are described. (Bull. Mosc. p. 845.)

Cicindeletæ.—The following new species have been published: *Megacephala obscurata*, Chaud. (Bull. Mosc. 454), from Mexico or Columbia; *Pseudoxycheila lateguttata*, Chaud. (ibid. 455), from Columbia, too hastily separated, as it should seem, from *Oxycheila bipustulata*, on the examination of a single specimen of each; *Cicindela burmeisteri*, *kirilowii*, Fischer v. W. (ibid. p. 6), from Songary; *C. syriaca*, Buquet (Ann. Soc. Ent. Fra. ii, Bull. p. xxxvi), from Syria; *C. himalayica*, Kollar and Redt. (Hüg. Kaschm. 497, pl. 23, f. 1), from Cashmere (resembling C. margineguttata, Dej.); *C. posticalis*, White (Ann. Nat. Hist. xiv, 422), from Hong Kong; *C. nietii*, Guér. (Rev. Zool. 254), from Mexico; *Dromica gigantea* (Melly), De Brême (Ann. Soc. Ent. Fr. ii, 289, pl. 7, f. 3), from Christmas Bay; *Tricondyla globicollis*, *vicina*, *conicicollis*, Chaud. (Bull. Mosc. 456), from Manilla; *Tr. pulchripes*, White (Ann. Nat. Hist. xiv, 422), from Hong Kong; *Colliuris attenuata*, Koll. and Redt. (ib. 498), from Cashmere.

Callidema boussignaultii, Guérin (s. Rep. 1843, p. 124), is figured in 'Mag. Zool. Ins.' pl. 144, and the generic name altered to *Eucallia*.

De Brême has given a figure and full description of the rare and little known *Cicindela lugubris*, Dej., from Senegal. (Ann. Soc. Ent. Fr. ii, 288, pl. 7, f. 1, 2.)

Carabici.—Hornung has given a complete catalogue of the species found in the Harz (Grundlage Verz. Käf. Harz.), extending to 276 species, the four Cicindelæ included.

Schiödte has published an essay on the distribution of the Carabidæ in Denmark, as a supplement to his work Danm. Eleutherata. (Kröyer Nat. Tidsskr. N. R. i, 46.)

New genera:—

Pleurosoma, Guér. (Rev. Zool. 8; Mag. Zool. Ins. pl. 136), most nearly allied to Dyscolus, from which it is separated principally by differences of habit; the chest broader; the shards convex, with rounded sides and deeper furrows, having a certain resemblance to Eurysoma.

The only species *Pl. sulcatum*, Guérin, from New Granada, is new.

Rhytiderus, Chaudoir (Bull. Mosc. 470), established for *Dromius* 10-*punctatus*, (Buquet), Reiché (Rev. Zool. 1842), which, in fact, is no Dromius, but belongs to the genus *Sericoda*, Kby. (Fna. Bor. Amer.), with which therefore Rhytiderus is identical.

Philophlæus, Chaud. (ibid. 472), established for *Cymindis australis*, Dej., which differs from the genuine Cymindis in form, essential characters, and economy, living under bark of trees, and in the author's opinion comes nearer Thyreopterus.

Anophthalmus, Sturm (Deutschl. Ins. xv, 129, pl. 303), a very remarkable genus, most nearly related to Trechus, from which it is distinguished principally by the proportions of the joints of the palps, and above all by the total want of eyes. The genus is subterranean. One species, *A. schmidtii*, Sturm, was found by Ferd. Schmidt in the Lueg grotto, in Inner Carinthia; a second, *A. tellkampfii*, Erichs. (Müll. Archiv. 384 note), by Dr. Tellkampf, in the Mammoth cave of Kentucky. The latter is distinguished by the ovate outline of the chest and the narrower shards.

Motschoulsky (Guér. Mag. Zool. Ins. pl. 149, 150) has attempted to elucidate the specific distinctions in the genus *Procerus*, and has increased the number of species by three, *Pr. bosphoranus* from Rumelia, *colchicus* from Mingrelia, and *ægyptiacus*, given as Egyptian. Another supposed new species, *Pr. sommeri*, from Rumelia, has been characterized by Mannerheim. (Bull. Mosc. 868 note.)

The Reporter has not been able to satisfy himself that the Proceri occurring in Rumelia and Asia Minor are of more than one species. The form of the chest indeed, in comparing individual specimens together, shows notable differences both in outline and in the relative length and breadth, but among a numerous set these differences shade off by insensible gradations. In the same way there are individual peculiarities in figure, sculpture, and colour. In such a case, only researches in their native localities, or the comparison of great numbers of specimens, can justify the making of new species. The propriety of dividing *Pr. scabrosus*, Oliv. (*Olivieri*, Dej.), into several species seems the more doubtful since we receive the different forms, or varieties, together, from the same sources, and Olivier himself collected several without distinguishing them. The Berlin Museum possesses one specimen of Olivier's collecting, which agrees tolerably well with *colchicus*, Motsch. A second, which Dejean presented to Schüppel, and which is one of those he had before him when describing the species, agrees better with *sommeri*, Mannerh., and *bosphoranus*, Motsch.

The European Fauna has received the addition of several new species.

Dyschirius riparius was discovered by Mannerheim in Finland (Bull. Mosc. 189.) Küster (Käf. Eur. i, 1) has described a *Pterostichus aterrimus*, St., from the south of France, but the trivial name cannot stand beside the Fabrician species which bears the same. Boudier (Guér. Mag. Zool. Ins. pl. 152) has figured *Feronia* (*Pterost.*) *excavata*, found in woods at Montmorency, but which the Marquis de la Ferté pronounces to be a monstrosity of *nigrita* (not uncommon here also), with protuberant shoulders, and a depression in the region of the scutel.

Gaubil has described some new French and Algerine species: *Feronia* (*Argutor*) *maritima* (resembling vernalis), from the coast near Beziers; *Amara floralis*, in meadows near the same place (the author makes it a *Celia*,

but it belongs to the group of Amaræ proper with the terminal spur of the fore shank three-pronged; *Harpalus mauritanicus*, from the province of Constantina; *Bembidium* (*Tachys*) *guerinii*, from the Department of Aveyron.

A number of new species from southern Russia and the north of Asia have been made known by Fischer v. W. and Chaudoir. The former, in his 'Spicilegium Entomographiæ Rossicæ' (Bull. Mosc. ii, 135), describes of *Carabus*, 16 species; *Nebria*, 3; *Chlænius*, 2; *Pristonychus*, 1; *Acinopus*, 3. Chaudoir (Suppl. à la Faune Entom. de la Russie, &c., Bull. Mosc. 435) has described the following species: *Cymindis crenata*, from Abassia; *Lebia femoralis*, from the Crimea (not satisfactorily separated from L. cyanocephala, on the inspection of a single specimen); *Morio colchidicus*, from Abassia; *Carabus granosus*, from some part of Siberia; *Blethisa aurata*, Esch.; *Notiophilus rufipes*, from Abassia; *Budister xanthomus*, from Kiew (according to the author's own account, the form of *B. humeralis*, mentioned by Erichson, with a larger head, considered here as distinct on account of intermediate varieties not occurring, but their being found associated favours the opinion of their identity); *Patrobus lapponicus, assimilis*, from Petersburg, separated respectively from P. septentrionis and rufipes on the inspection of a single specimen of each; *Feronia* (*Agonodemus*) *elegantula*, and *F.* (*Glyptopterus*) *lacunosa*, both from Trebizond; *Pelor tauricus*, from the Crimea; *Amara nigrita*, from Irkutsk; *A. assimilis*, from Kiew; *Bradytus brevipennis, cordicollis, microderus, longipennis*, all from the Altai mountains; *Harpalus rotundatus, cyclogonus, violaceus*, from Siberia; *H. ovatus, bungii*, from the Altai; *Trechus latipennis*, from Trebizond; *Bembidium* (*Peryphus*) *nordmanni*, *B.* (*Leja*) *bisulcata*, from Kiew.

Chaudoir has also (ib. 415) published additions and corrections to the catalogue of Carabici collected near Asterabad, in the province of Mazanderan, by M. de Karéline. A great part of these corrections were communicated to the author by Mannerheim, who has introduced a number of new species: *Odacantha puncticollis*, M., *Brachinus subnotatus*, Ch., *Callistus gratiosus*, M., *Chlænius latithorax*, M., *angusticollis*, M., *Epomis karelinii*, M., *Agonum longipenne*, M., *Zabrus ovipennis*, Ch., *propinquus*, Ch., *vicinus*, M., *Stenolophus persicus* (Dej.), M., *Peryphus astrabadensis*, M.

Osculati (Coleopteri raccolti nella Persia, &c., p. 72) has characterized the following as new:

Carabus osculati, Villa: "Oblongo-ovatus subdepressus niger, thorace subquadrato brevi margine rotundato, elytris granulis pluribus oblongis elevatis inæqualibus per seriem dispositis. Affinis. C. kruberi." From the west of Persia; (perhaps the same as *C. paphius*, Redt.)—2, *C. orientalis*: "Oblongo-ovatus subdepressus niger, thorace quadrato rugoso, elytris foveis excavatis per series dispositis, tres quarum foveis crassis, quarta marginalis brevior foveolis mediocribus primis et ultimis obsoletis. Affinis C. cribrato

et orsinii, differt tamen convexitate minore elytrorumque sculptura. Fem. minor magis attenuata opaca." From Mount Ararat, in Armenia.—3, *Sphodrus armeniacus*: "Apterus niger elongatus, capite lævi occipite bi-impresso, thorace oblongo subcordato lateribus marginato in medio linea longitudinali sulcato, elytris oblongis subovatis striatis striis vage punctatis. Affinis Sphodro elongato." In moist woods of Armenia, not common. The two Carabi are also figured.

Motschoulsky has given *Carabus luxuriosus*, from Mount Taurus. (Guér. Mag. Zool. Ins. pl. 151, fig. 3.)

Kollar and Redtenbacher (Hüg. Kaschm. 498) have described, *Cymindis 4-maculata* (pl. 23, f. 3), *Carabus caschmirensis* (f. 4), *Chlænius janthinus*, *Calathus angustatus*, *Selenophorus quadricollis*, from Cashmere, and *Feronia* (*Omaseus*) *himalejica*, from Massuri, in the Himalaya.

Helluo (*Acanthogenius*) *asteriscus*, White (Ann. Nat. Hist. xiv, 422) is from Hong Kong.

Reiche (Ann. Soc. Ent. Fr. ii, 391, pl. 7, f. 6, 5, 4) has given three remarkable south African species, *Graphipterus westwoodii*, *Anthia melly*, and *A. alveolata*, all from Christmas Bay.

New American species are, *Onypterygia thoreyi*, Mannerh. (Bull. Mosc. 869 note); *Morio lafertei* and *Calosoma peregrinator*, Guérin (Rev. Zool. 254), from Mexico; and *Cordistes arcuatus* and *lafertei*, Guér. (ibid. 9), from New Granada.

The last-named author (Mag. Zool. Ins. pl. 140) has figured *Sphallomorpha nitiduloides*, a remarkable species from New Holland.

There remains to notice an article by Chaudoir (Bull. Mosc. 454.), 'Observations sur quelques espèces de Carabiques,' &c., which, besides the genera specified above, comprehends a variety of new species of other groups: *Drypta elongata*, from Senegal (a variety of Dr. dorsalis, Dej.); *Galerita pallidicornis*, Reiche, *macrodera*, *æquicollis*, from Columbia; *Calleida bicolor* and *erythrodera*, from Senegal; *C. marginicollis*, from the Cape; *C. cyanipennis*, country not specified; *C. interrupta* and *nigriceps*, from Brazil; *C. elegans*, Kl., from Cuba (distinguished from rubricollis, Dej.); *Anthia oxygona*, from the Cape; *Aristus punctulatus*, from Syria. It is remarked that *Calleida splendida*, Gory, is *auricollis*, Lap.,——and *Cychrus interruptus*, Mén., from California, the true *ventricosus*, Esch., while the species to which the latter name is applied by Ménètries is new, and here described as *C. striato-punctatus*, that *Anchomenus validus*, Lafert., belongs to the genus *Stenognathus*, Chaud., and *Anch. micans*, Mén, to the genus *Scaphiodactylus*, Chaudoir.

[Curtis (Royal Agric. Soc. Journ. v, 224) has communicated the observation that *Pterostichus madidus* is a great destroyer of wireworms, the noxious larvæ of the Elateridæ.]

Dytiscidæ.—Dr. Schaum (Entom. Zeit. 195) has examined the synonyms of some species of *Hydroporus*.

1. *H. nigrolineatus*, Stev., = *enneagrammus*, Ahr.—but *H. nigrolineatus*, Sch., = *parallelus*, Aubé, = *schoenherri* (*consobrinus*, Zett, ♀)—and *H. nigrolineatus*, Kunzé, = *parallelogrammus*.

2. *H. affinis*, St., = *frater*, Kunzé, = *assimilis*, Payk.

3. *H. borealis*, Gyll. Aubé, = *alpinus*, Duft., = *septentrionalis*, Heer., = *Daviesii*, Curtis;——and *H. septentrionalis*, Gyll., = *alpinus*, Kunzé.

4. *H. castaneus*, Heer, = *ovatus*, St.

5. *H. melanocephalus*, St., = *pubescens*, Aubé.

6. *H. foveolatus*, Heer, = *nivalis*, Heer (with accidental impressions).

7. *H. suturalis*, Müll. (Germ. Mag. iv, 225) = *granularis*.

8. *H. delicatulus* is a new species from Austria, where it was confounded with *H. minutissimus*.

The following new species are to be noticed: *Trochalus rugulosus* and *Colymbetes lineatus*, Kollar and Redt. (Hüg. Kaschm. 502, pl. 23, fig. 5 the Colymbetes), from Cashmere; *Laccophilus yvietæ*, Le Guillou (Rev. Zool. 220), from Chili; lastly, *Haliplus lineolatus* and *pictus*, Mannerh. (Bull. Mosc. 190, 2, 3), from Finland.

Hornung (Grundl. Verz. Harz.) enumerates 100 species of *Dytiscidæ* and *Gyrinidæ*, so that the Harz district is about on a par with Sweden and Switzerland in the number of species in this family. A species new to the German Fauna is *Agabus conspersus* (*Dyt. id.*, Marsh., *Colymb. id.*, Steph., = *Col. subnebulosus*, Steph., *Agabus id.*, Aubé, *Ag. nebulosus*, Schiödte), found in brackish water near Strassfurth.

Buprestides.—Lucas (Rev. Zool. 49, 87) has described new species from Algiers: *Julodis setifensis*, *Buprestis levaillantii*, *mauritanica*, *Sphenoptera vittaticollis*, *Acmæodera mauritanica*, *tristis*, *multipunctata*, *melanosoma*, *flavopunctata*, *rubromaculata*, *flavovittata*, *Anthaxia vittaticollis*. From some remarks by Chevrolat (ib. p. 134), followed by a reply from Lucas, and a rejoinder by the other, it should appear that the last-named species is identical with *Anth. ferulæ*, Gené., from Sardinia. Chevrolat is of opinion also (seemingly not without reason) that *Sphenoptera vittaticollis*, Luc., is not distinct from *Buprestis rauca*, F. According to my recollection of *Bupr. sanguinea*, F., which I saw eleven years ago in the collection at Copenhagen, *Bupr.* (*Ancylochira*) *levaillantii*, Lucas, very much resembles that species, if it be not a mere variety of it, which the description by Fabricius is not sufficient to determine.

Other new species are, *Sternocera dasypleuros* and *Agrilus caschmirensis*, Kollar and Redt. (Hüg. K. 504), the former from the Himalaya, the latter from Cashmere; also *Agrilus blandulus*, Guér. (Rev. Zool. 256), from Mexico.

Lucas (Ann. Soc. Ent. Fr. ii, 315) has illustrated the natural history of

the *Buprestis mariana*. In regard to the question, as to the position of the spiracles in the larva of this family (s. Rep. 1843, p. 134) Lucas (ibid.) and Dufour (p. 204) have made further researches.

ELATERIDES.—Germar (Zeitschr. v. 133) has continued the examination of this family, in the course of which the difficulty of finding determinate and well-characterized groups has become still more sensible, strengthening the conviction that a natural arrangement of the family must rest on considerations different from any hitherto applied. Such can be come at only through a comprehensive and profound study of the whole, which makes our obligations to the author the greater for the pains which he has taken with them.

The article under review treats of a pretty natural group of Elateridæ, having the feet simple without membranous flaps, the forehead curving down but with a rim in front, and the thigh-covers [the hind pair of hips] dilated internally. The genera are four: 1. *Cryptohypnus* [false orthography!]; feelers filiform, with the base joint long and thickened; feet with long bristles; containing besides the proper Cryptohypnus (formerly *Hypolithus*), Esch., in which the scutel is broad (17 species), also *Oöphorus*, Dej., with the scutel oval, with which *Drasterius*, Esch., is joined (12 species.) 2. *Ampedus:* feelers slightly serrated from the fourth joint, feet with scattered hairs beneath; contains 40 species, among which *limbalis*, Hbst., with strongly serrated feelers, and *dorsiger* (*Drasterius id.*, Dej.), with the hairs of the feet long and close set, differ from the rest, and *A. semiflavus* might be referred to the genus *Melanoxanthus*. 3. *Ischnodes*, new genus, the type of which is *El. sanguinicollis*, Pz., with the feelers serrated from the third joint. 4. *Aphanobius:* differing from all the foregoing by the feelers distinctly twelve-jointed (11 species). The author then examines several species related to this group, but with flaps to the feet. *El. acuticornis*, Germ. Spec. [*Ampedus nigellus*, Dej.], in other respects agreeing with *Ischnodes*, has a flap to the third joint, and the fourth is minute. *Amp. signaticollis*, Dej., comes close to it also, but the second and third joints are here broader and almost triangular. *Amp. fulvus*, Redt. (Col. Austr.), agrees with Ampedus, only the third joint has a large flap, and the fourth is very minute. In conclusion, the genus *Melanoxanthus*, Esch., is discussed, and it is shown that Escholtz's description of the first joint of the foot, as not much larger than the second, does not apply to *El. melanocephalus*, F. [given by Dejean as an example.] It appears to me that this genus, which is closely allied to Ampedus, is characterized principally by the very narrow thigh-covers, and the feelers much compressed from the fourth joint. The feet are elongated in *M. melanocephalus*, F., and 4-*guttatus*. Er., shorter in *Amp. semiflavus*, Germ. In other respects this last agrees well with the others, and seems to be better placed in this genus than in Ampedus.

New species: *Dima dalmatina* (Dej.), Küster (Käf. Eur. i, 13), from Dalmatia; *Lacon brachychætus, Ludius caschmirensis, Cardiophorus vicinus*, and *consentaneus*, Kollar and Redt. (Hüg. Kaschm. 506), from Cashmere; *Monocrepidius chazali*, Le Guillou, from Nukahiva; *M. leluti* and *eveillardi*, Le G., from northern Australia; *M. cordieri*, Le G., from Hobart Town; *Dicrepidius tastui*, Le G., from Hamoa (Rev. Zool. 220); *Eucamptus imperialis*, Chevr. (= *Pericalles corygphæus*, Dej.); *Semiotus regalis, illigeri, schaumii, seladonius, linnæi, germarii, Chalcolepidius bomplandii, erichsonii, gossypiatus*, Guérin (Rev. Zool. 15.), from New Granada; *Lissomus flavipennis*, Guér. (ib. 257), from Mexico.

[Curtis has illustrated the history of the Elateridæ, injurious to agriculture in England (Royal Agric. Soc. Journal, v, 180-223.) In the figures which accompany this article the external anatomy of *Agriotes obscurus*, in its several states, is represented in detail; several other species, *Agriotes lineatus, sputator, Athous ruficaudis, niger, longicollis, Agrypnus murinus, Lepidotus holosericeus, Dolopius marginatus*, are figured, with different forms of the larvæ, properly known as wireworms. (Ibid. pl. I. K.).]

Cebrionites.—Guérin has published two new species, *Cebrio chevrolatii* (Rev. Zool. 255. Mag. Zool. Ins. pl. 145), from Mexico, and *C. guyoni* (Rev. Zool. 403), from Algiers.

Cyphonides.—*Cyphon bohemanni*, Mann. (Bull. Mosc. 196, 6), a new species, which Bohemann discovered in the island of Oeland, and Mannerheim has found in Finnland also, is distinguished from C. lividus by the rather narrower form, stronger punctures, darker colour, and more elevated fore-margin of the thorax.

Lampyrides.—Küster (Käf. Eur. i, 17) has enriched *Lampyris* with a new European species, *germari*, found at Callaro, in Dalmatia, coming nearest to *L. splendidula*, and distinguished chiefly by the luminous spot including only the last segment but one.

Le Guillou (Rev. Zool. 222) has characterized two new species, *L. bardelii*, from Chili, and *L. bremeri*, from northern Australia.

Of the genus *Drilus* a new species, *mauritanicus*, Duponchel (d'Orb. Dict. Hist. Nat.), has been discovered by Lucas at Algiers, where the larva inhabits the Cyclostoma wobstianum.

Lycides.—*Lycus suturalis*, Kollar and Redt. (Hüg. K. 508), from Cashmere, also *L. bremeri* and *goryi*, Le Guillou (Guér. Rev. Zool. 221), from Hobart Town, are given as new species; but L. bremeri seems to be identical with *Anarhynchus scutellaris*, Er., and L. goryi, to come near *Porrostoma discoideum*, Er. (Archiv. viii, 1. p. 146.)

Telephoridæ.—Letzner (Arb. Schles. Ges. 72) has made some observations on *Cantharis* (*Tel.*) *melanoceros* and *denticollis*, Schumm., and has described a new Silesian species, *C. rufotestacea* (rufotestacea pilosa tho-

race subquadrato, elytris pedibus abdomineque rufotestaceis, tarsis nigrescentibus; Long. 4—4½ lin.), distinguished from C. pilosa by the superior size, shorter thorax, and the light colour of the under side; found on vine-stocks.

Fischer v. W. (Bull. Mosc. 33) describes four new species of *Podabrus*, from Southern Russia and Songary.

Kollar and Redt. (Hüg. K. 509. pl. 23, 24) have figured *Cantharis ceruleomaculata* and *Anisoteles bimaculatus*, (Hope,) from Cashmere; the generic characters of the latter are given. The name *Tylocerus*, Dalman (Anal. Ent. 1825), has the priority. In this family they place also *Deromma*, a genus characterized as new, but which is identical with *Idgia*, Lap., and better placed among the Melyridæ, next to Epiphyta, Dej. (= *Prionocerus*, Perty), with which Dejean even united it. There are now three species of it described: 1, *J. terminata*, Lap. (= *melanura*, Dej.), from Senegal; 2, *Canth. dubia*, Schönh., from the East Indies; 3, *Deromma melanura*, Kollar and Redt. (Hüg. K. 512, pl. 25, f. 6), from Cashmere.

Blanchard (d'Orb. Voy. 104) has described a great number of South American species, and one new genus, *Psilorhynchus*. This agrees with Chauliognathus (Callianthia, Dej.), except in the form of the head and thorax. The head is tapered behind, so that at the base it is but half as broad as the thorax, and contracted into a snout below the eyes and above the feelers; both pair of jaws (mandibulæ, maxillæ) are long and narrow; the last joint of the palps completely oval; feelers thin, filiform, rather shorter than the body; thorax narrowed in front; *Ps. bifasciatus*, new species, from Corrientes. The other new species are, *Chauliognathus plagiatus*, from Rio Janeiro; *Ch. signaticollis, ochraceus, pallens, circumdatus, sulcaticollis, gracilis*, from Bolivia; *Telephorus luteus, flaviventris, denticornis*, from Brazil; *T. ruficeps, janthinipennis, Silis plana, armaticollis, simplicicollis*, from Bolivia; *S. pallens, læta, amœna*, from Brazil; *Malthinus fuscescens, sellatus, variegatipennis*, from Bolivia.

Le Guillou (Rev. Zool. 223) has characterized a new species from the Straits of Magellan, *Tel. magellanicus*.

Melyrides.—Fischer v. W. (Bull. Mosc. 35) separates from *Malachius* the species *cornutus* and *bipustulatus* as the genus *Ceratisles*, which does not seem to me well-founded, as every species of Malachius has its peculiar form of feelers and head, and from these the characters of the new genus are drawn. —*Malthinus equestris*, Fisch. (ibid. 37), seems to be placed by mistake merely among the new species, as the spec. char. shows it to be no other than *Malachius equestris*, F.—*Dasytes analis*, Fisch. (ibid. 38), is a new species from Songary.

Küster (Käf. Eur. i, 20) has added to the genus *Atelestus* a second species, *At. erichsonii*, discovered in the island of Lissa, in Dalmatia.

The new species described by Blanchard (d'Orb. Voy.) are *Epiclines basalis*, from Chili (Valparaiso); *Dasytes flavofasciatus* (= *Das. antis*, Perty, Lap.), *D. rubrofasciatus* (= *cyanerythrus*, Perty, *bifasciatus*, Lap.), from Rio Janeiro; *D. atromaculatus*, from the same; *D. vittaticollis*, from the district of Chuquiseca; *D. patagonicus*, from Patagonia; *D. cincticollis*, collected by St. Hilaire at the mouth of the Uruguay; *D. luteus*, *mæstus*, from Chili (Valparaiso); *D. flavomaculatus*, from Chuquiseca; *D. xanthurus*, from Maldonato, at the mouth of the Rio la Plata.

Clerii.—Blanchard (ibid. 92) has proposed a new genus *Eurymetopum*, which comes under *Clerus* in the wider sense, inasmuch as the last joint of the lip-palps is hatchet-shaped and the first joint of the feet greatly abbreviated, but is distinguished as a subgenus by simple claws, a three-jointed club to the feelers, the upper lip rounded in front, the forehead broad and flat, the eyes prominent and the corslet long and cylindrical. It seems a form peculiar to Chili. The author has given three species, *E. maculatum*, *pallens*, *fulvipes*, all from Valparaiso.

Other new species of this family are, *Clerus nigriventris* and *minutus*, from Corrientes; *C. triplagiatus* (*trifasciatus* in the plate) and *cinereopilosus*, from Rio Janeiro, *Tillus abdominalis*, from Bolivia, (a *Priocera*, perhaps variety of *Pr. spinosa*, F.); *Enoplium terminatum* and *E.* (*Platynoptera*) *vitticeps*, from Rio, and *E. obsoletum*, from Bolivia; lastly, *Trichodes bizonatus*, from Chili, which to me, however, seems identical with *Calendyma viridifasciata*, Dej., and, if so, belongs neither to that genus nor even to the family.

Fischer v. W. (Bull. Mosc. 39) describes as a new species *Trichodes axillaris*, from Songary.

De Brême (Ann. Soc. Ent. Fr. ii, 294) has enriched the genus *Eurymanthus* with a second species, *variolatus*, from Senegal.

Suffrian (Entom. Zeit. 27) has pointed out the difference in the parts of the mouth between our two blue species of *Corynetes*, *cyanellus*, And., and *violaceus*, L., and comes to the conclusion that the first should constitute a distinct genus, intervening between Corynetes and Trichodes. This idea has been previously brought forward by Stephens, who has applied to the first of these forms the name *Corynetes*, to the other *Necrobia*. The rather perplexed synonyms of the species referred to have been discussed by Klug in his essay on this family. The name *cyanellus*, And., has no claim to be received, as the insect is Degeer's *Clerus cæruleus*. Suffrian is in error in making it the same as Sturm's *C. violaceus*, which is not different from *Dermestes violaceus* of Linnæus, and is identical also with *C. chalybeus*, Sturm; but he seems quite correct in uniting *C. ruficornis*, St., as a variety to *C. cæruleus* (*cyanellus*, And.)

Staphylinii.—The German Fauna has received very valuable illustrations in this department from Kiesenwetter's enumeration of the species

occurring about Leipzic (Staphyl. Fna. Leipzigs Umgegend, Entom. Zeit. 307, 340, 372), and this not only from the new species he has discovered, but more especially from his particular observations on their occurrence and economy.

In the environs of Leipzic the meadow land predominates, there is no want of water either still or running, and the floods often occasion an immense accumulation of insects under the leavings, of which many are transported from considerable distances. Those kinds accordingly prevail most, that belong to meadows, or to the water's edge. Of the *Aleocharini* 140 have been observed, of *Tachyporini* 41, *Staphylinini* 85, *Pœderini* 33, *Stenini* 44, *Oxytelini*, 34, *Phlœocharini* 1, *Omaliani* 23, *Proteinini* 7, *Piestini* 1, the total 410 species. The following are to be noticed as new or interesting: *Tachyusa chalybea*, Rudd., on the banks of the Elbe and Mulde, often in plenty; *T. lata*, new species, still broader than T. atra, found running about on moist clayey banks; *Homalota ripicola*, new species, like H. labilis, but distinguished by its clear blue-black hue without the grayish gloss, runs about on sandy river-banks, like most of the genus; *H. lugens*, new species, resembling Oxypoda cuniculina; *Oxypoda leporina*, new species, allied to O. longiuscula; *Aleochara rufipennis*, on sandy river-banks; *Silusa rubiginosa*, found about the oozing sap of elms and beech trees; *Myllæna grandicollis*, new species, constantly of a ferruginous hue; *Philonthus rubripennis*, resembling Ph. fulvipes. With *Lathrobium elongatum* the author found males exactly corresponding to Gyllenhall's description, these he considers a second form of ♂, no other differences being discoverable. *L. quadratum* and *terminatum* he regards as distinct species, for which, however, a sufficient character has still to be framed. In *Stenus* he observed the œsophagus protruded in the living insect, without, however, being able to satisfy himself whether it could be drawn in again. *Thinobius*, new genus, closely allied to Trogophlæus, and principally distinguished by the shards gaping at the seam, so as to leave a triangular piece of the wings uncovered; *Th. ciliatus*, found beside water, (also by Grimm at Berlin). All the species of *Trogophlæus* frequent wet places by the water-side, burrowing like the Bledii. The author is disposed to unite *Tr. riparius* and *bilineatus*, while he distinguishes as *Tr. obesus* another species with lateral impressions on the corslet, and reverts to *Tr. inquilinus* as a genuine species. *Acrognathus mandibularis* and *palpalis* often appear in abundance in moist meadows, but not before sunset. *Lesteva bicolor* and *Anthophagus plagiatus* have an oily coat which repels water. The species of *Megarthrus* occurred only in fungi.

Two new species from the salt lake at Eisleben are described at the same time, *Philonthus salinus*, very like Ph. fulvipes, and *Trogophlæus halophilus*.

The German Fauna has also received some accessions from the Thuringian forest, (Kellner in Entom. Zeit. 413.) *Oxypoda infuscata* identical

with *O. pellucida*, Mann., the deep-coloured individuals representing the former, the lighter ones the latter; *Ox. similis*, like O. fumida, and in company with it under the bark of beeches; *Lathrobium dentatum*, a very distinct species. The author corroborates the occurrence of *Quedius dilatatus* in hornets' nests.

A number of new species have again been discovered by continued examinations of ants' nests. Of those enumerated by Märkel (Germ. Zeitschr. v, 199-242), the nests of F. fuliginosa yielded the greatest number: *Myrmedonia similis, Bolitochara bella, Homalota validicornis, divisa, confusa, hospita, Oxypoda spectabilis, Aleochara gentilis;* in company with F. cunicularia were found *Euryusa linearis*, and probably *coarctata* also, and *Sunius neglectus;* lastly, *Myrmedonia memnonia* is a new species from Sicily, allied to M. canaliculata. Mannerheim has added, besides, some new species found with F. rufa: *Homalota parallela* (the same as *H. talpa*, Heer), *Oxypoda gilvipes* and *Tachyporus crassicornis*. (Bull. Mosc. 178.)

The g. *Evæsthetus* also has been enriched by the latter (ibid. 195) with a new species from Finland, *E. læviusculus*, with the punctures rather dispersed, as in E. ruficapillus, but the impressed lines of the corslet strait, as in E. scaber; it has been since found near Berlin by Grimm.

Guérin (Revue Zool. 10) has described a number of new Staphylini from New Granada, including two new genera. *Thyreocephalus* is founded on *Xantholinus lynceus*, Er., along with a new species, *Th. jeckelii*, Guér., distinguished from Xantholinus by the upper lip, which is entirely horny and many-toothed. *Latona* is most nearly related to Cryptobium: the last joint of the jaw-palps pointed, one half shorter than the preceding, and almost as thick at the base; the two species, *L. spinolæ* and *erichsonii*, Guér., probably differ only in sex. The rest belong to established genera; *Xantholinus puncticeps, impressifrons, nigriceps; Cryptobium maxillosum, anale; Philonthus succinctus*, of the 5th, *Ph. cupreus, amœnus, cyanescens*, of the 7th, *Ph. antennatus, cupripennis*, of the 8th group, according to Erichson's method.

Staphylinus cinctus, Kollar and Redt., (Hügel Kaschm. 504, pl. 23, f. 6) is identical with *St. leucomus*, (Erichson Staph. 362.)

Pselaphii.—Revision de la famille des Pselaphiens par le Dr. Aubé. (Ann. Soc. Ent. Fr. ii, 73.) An important work, by which this family is enlarged, not only with many new species, but several genera. These are: 1. *Hamotus*, nearly allied to Tyrus, differing by the spindle-shaped end-joint of the jaw-palps, and the insertion of the feelers in a pit at either side of the forehead. 2. *Phamisus:* the last joint of the jaw-palps hatchet-shaped, as in Bythinus, but it has, like Tychus, two equal claws to the feet; the feelers inserted on a tubercle of the forehead. 3. *Faronus*, greatly resembling Euplectus, but the feelers inserted on a tubercle of the forehead, and the feet have two equal claws. The species are disposed in the following order:—

A. Feelers 11-jointed. *A.* Feet with two unequal claws. I. *Metopias*, Gory, (*Marnax*, Lap.) 1. *curculionides*, from Cayenne. II. *Batrisus*, Aub. 1. *formicarius*, Aub., found among Ants, Formica emarginata, near Paris. 2. *germari*, new species, Brazil. 3. *dregei*, new species, South Africa. 4. *albionicus*, Aub. North America. 5. *riparius* (*Psel. id.* Say), Missouri. 6. *lineatocollis*, Aub., North America. 7. *delaporti*, Aub, Europe. 8. *schaumei*, new species, North America. 9. *venustus* (*Psel. id.* Reich. *B. id.* et *B. brullei*, *buqueti*, Aub.) Europe. 10. *oculatus*, Aub., do. 11. *australis*, Er., Van Diemen's Land. 12. *B.* ? *thoracicus*, Motsch., Georgia. 13. *B.* ? *testaceus* (*Temnodera id.*, Hope), in Gum Animé.

B. Feet with two equal claws. III. *Chennium*, Latr. 1. *bituberculatum*, Latr., Europe, in the nests of Myrmica cæspitum. IV. *Tyrus*, Aub. 1. *mucronatus* (*Psel. id.* Pz.), Germany, Switzerland. V. *Faronus*, Aub. 1. *lafertei*, new species, found near Chinon, in France. VI. *Hamotus*, Aub. 1. *lateritius*, Columbia. 2. *bryaxoides*, Do. 3. *humeralis*, North America. VII. *Phamisus*, Aub. 1. *reichenbachii*, new species, Columbia. VIII. *Ctenistes*, Reich. 1. *palpalis*, Reich., Europe. 2. *æquinoctialis*, new species, Columbia. 3. *ghilianii*, new species, Cadiz. 4. *Ct.* ? *carinatus*, Say, North America.

C. Feet with one claw. IX. *Pselaphus*, Hbst. 1. *heisei*, Hbst. (*id.* et *herbstii*, Reich.) Europe. X. *Bryaxis*, Lch. 1. *sanguinea* (♂ *longicornis*, Lch. ♂ var. *laminata*, Motsch.) Europe. 2. *fossulata*, Autt., Europe. 3. *tibialis*, new species, Sardinia. 4. *xanthoptera* (*Psel. id.*, Reich., ♂ *B. rubripennis*, Aub., ♀ *B. depressa*, Aub.) France, Germany. 5. *hæmoptera*, Autt. (*xanthoptera*, Aubé, *spinicoxis*, Motsch. ?), Europe. 6. *lefeburei*, Aub., Europe. 7. *helferi*, Schm. (*pulchella*, Schaum), Sicily, Saxony. 8. *schüppelli*, new species, Triest. 9. *hæmatica*, Autt. (*nodosa*, Vict.) Europe. 10. *dentata* (*Psel. id.* Say, *B. abdominalis*, Aubé), North America. 11. *furcata*, Vict., Georgia. 12. *juncorum*, Autt., Europe. 13. *tomentosa*, Aubé, North America. 14. *chevrieri*, new species, Italy, Syria. 15. *rubra*, new species, Columbia. 16. *opuntiæ*, Schm., Southern Europe, Algiers. 17. *rubicunda*, new species, North America. 18. *impressa*, Autt., Europe. 19. *goryi*, Aub., Columbia. 20. *lebasii*, new species, Do. 21. *antennata*, Aub., France. 22. *heterocera*, new species, Algiers. 23. *eucera*, new species, Porto Rico. 24. *lævicollis*, new species, Columbia. XI. *Tychus*, Lch. 1. *niger*, Autt., Europe. 2. *ibericus*, Motsch., Southern Europe. 3. *castaneus*, new species, Spain, Sicily. 4. *tuberculatus* (*dichrous*, Schm. ?) France. XII. *Bythinus*, Lch. 1. *clavicornis* (*Psel. id.* Pz. Aubé unites with this species also *Ps. glabricollis*, Reich., as ♀, but erroneously, the Museum of Berlin possessing both sexes of each), Germany. 2. *B.* ? *nigriceps* (*Kunzea id.*, Lch.) the Maritime Alps. 3. *puncticollis*, Denny (♂ *chevrolati*, Aub., *regularis*, Schm.) Europe. 4. *validus*, new species, Germany. 5. *nigripennis*, new species, Saxony, England. 6. *crassicornis*, Motsch.

(*longipalpis*, Vict.), Caucasus, Austria. 7. *femoratus*, new species, Austria. 8. *bulbifer*, Autt. (♀ *glabricollis*, Gyll. Aub.) Europe. 9. *curtisii*, Lch., Europe. 10. *nodicornis*, Aub. (*sternbergii*, Schm.?) Saxony (Märkel.) 11. *securiger*, Autt. (♀ *macropalpus*, *globulipalpis*, Aub.), Europe. 12. *burrellii*, Denny, Er. (*laniger*, Aub.), Europe. 13. *uncicornis* (*burrellii*, Aub.) XIII. *Trimium*, Aub. 1. *brevicorne* (*Psel. id.* Reich.), Europe. 2. *leiocephalum* (*Eupl. id.* Aub.), Toulon. XIV. *Euplectus*, Lch. 1. *sulcicollis* (*Psel. id.* Reich. *Anthicus dresdensis*, F.), Europe. 2. *maerkelii* (*sulcicollis*, Aub.), Europe. 3. *kunzei*, new species, Styria, Switzerland. 4. *erichsoni*, Märk., new species, Saxony. 5. *fischeri*, Aub. (*tscheri*, Heer, although Aubé's trivial name arose from a mere clerical error, he chooses to retain it), Saxony, Switzerland. 6. *duponti*, Aub., France. 7. *signatus*, Autt. (*kirbyi*, Denny, Aub.), Europe. 8. *sanguineus*, Denny, Europe. 9. *karstenii*, Autt., Europe. 10. *spinolæ*, new species, Geneva. 11. *nanus* (the synonyms omitted), Europe. 12. *piceus*, Motsch., doubtful habitat. 13. *ambiguus*, Autt. (*pusillus*, Denny), Europe. 14. *minutissimus*, Aub., Sicily, Saxony, (Märkel). 15. *bicolor*, Denny, Aub. (*Psel. glabriusculus*, Gyll.), Paris, Styria. 16. *easterbrookianus*, Lch., England. 17. *schmidtii*, Märk. (see further on.)

B. Feelers six-jointed. XV. *Claviger*, Preyssl. 1. *testaceus*, Preyssl. (*foveolatus*, Müll.), Europe. 2. *colchicus*, Motsch., Georgia. 3. *longicornis*, Müll., Germany, France.

C. Feelers of a single joint. XVI. *Articerus*, Dalm. 1. *armatus*, Dalm., in Copal. 2. *fortnumi*, Hope, New Holland, viz. Adelaide.

The author has figured (pl. 3) the parts of the mouth in most of the genera. He does not quite agree with the representations I have given, (Käf. Mark. Brand. 263.) He finds the first joint of the jaw-palps very short, the second long, and what I considered as the fourth he treats as no proper joint but as a membranous tip. In this he is perfectly correct, and not only does it so appear to me now, but I have sketches agreeing in all essential points with Aubé's figures, which were made from more exact examination of the parts soon after the publication of my work referred to. But as respects the lip-palps which Aubé regards as two-jointed only, I must adhere to my first views. Such a small setaceous terminal joint, if not usual in Coleoptera in the perfect state, is pretty general with their larvæ, and in many genera of the Pselaphii, as in such larvæ, it bears at the end a still finer bristle.

Euplectus schmidtii, Märkel (Germ. Zeitsch. v, 259), is a new species discovered by the late Dr. Schmidt and Mr. Dieckoff, in a nest of Formica rufa.

Palpatores.—Schaum has given addenda to his Monograph of the genus *Scydmænus*, (Germ. Zeitsch. v, 459.) Having investigated the trophi of many species, he has found various differences in their structure.

especially as regards the mandibles and palps. *Sc. thoracicus* (with which *laticollis* and *minutissimus*, Aubé, should be associated) is distinguished as a peculiar genus, *Cephennium*, Müll. (= *Megaladerus*, Steph.) by the small falcated upper jaws, and the nearly straight termination of the tongue, while in the genuine *Scydmæni* the tongue is deeply notched at the end, almost bilobed. In like manner *Sc. truncatellus* and *abbreviatellus*, Er., are separated as the genus *Eutheia*, Steph., on account of the elongated basal joint of the lip-palps, and the peculiar form of the upper jaws, the long and slender extremity of which is bent in almost at a right angle. The new species are *Sc. rotundipennis*, from Syria, allied to Sc. collaris; *Sc. helvolus*, from Hesse, resembles Sc. sparshalli; *Sc. styriacus*, to be placed near Sc. pubicollis; *Sc. intrusus*, from Syria and Sicily; and *Sc. nanus* (*Sc. exilis*, Schaum. Anal.), a German species of the same division with Sc. wetterhallii; and *Sc. vulpinus*, from Arabia, which belongs to the division containing Sc. tarsatus.—Mannerheim (Bull. Mosc. 193) has added *Sc. mäklini*, a small fuscous species, with feelers formed as in Sc. claviger, to which it is most nearly allied,—found in company with Formica rufa.

Silphales.—Schiödte has published some observations on the family. *Necrophorus* differs in having ten-jointed feelers, and peculiar organs of sound. (See p. 307 preceding.) *Necrodes* departs from the rest of the family in the form of the ovaries and of the small intestine. Schiödte thinks he has found also an external character in the prothoracic spiracles being free in Necrodes, covered in the other Silphæ. I do not find this character sufficiently determinate, for Silpha lacrymosa has them half covered, exhibiting a gradual transition in this respect, as in others also it connects Necrodes with the typical Silphæ. The only alternatives are to cut up Silpha into a considerable number of genera, or to include Necrodes also in that genus, for which there is the greater reason as the Silphæ are far from agreeing among themselves in internal structure. *Catops* and *Colon*, according to Schiödte's investigations, conform in internal structure to the type of the Silphæ, yet with some peculiarities, chiefly in the form of the male genital organs, and the absence of a cæcum.

Fischer v. W. (Bull. Mosc. 40) has added four new species to *Necrophorus*, viz. *lunatus*, from Songary; *frontalis*, from Bucharest (the red-spotted var. of *germanicus*); *particeps*, from Turkestan; and *sulcatus*, from Anatolia.

Silpha ioptera, Kollar and Redt. (Hüg. Kaschm. 512), is a conspicuous new species from Cashmere.

In immediate connexion with Catops stands the new genus *Adelops*, Tellkampf, (Wiegm. Arch. i, 318.) It is distinguished by wanting the compound eyes, the place of which is merely marked by a roundish white spot with the appearance of a faintly-developed simple eye. *A. hirtus* was

found under a stone in the Mammoth cave of Kentucky. Erichson has added the remark that Leptinus comes next to this new genus.

Mulsant has observed that the larvæ of several species of Silpha are herbivorous. (Ann. Soc. Ent. Fr. ii, LIX.)

HISTERES. — New species, *Hister parallelus*, Kollar and Redt. (Hüg. Kaschm. 514), from Cashmere. *Hololepta urvillei* and *paugami*, Le Guillou (Rev. Zool. 223), the former from Vavao, the latter from the Aröe Islands.

TRICHOPTERYGIA.—A Monograph on *Trichopteryx*, by Allibert, is announced by Guérin, (Revue Zool. p. 51.) It is to contain 38 species, 18 of them new (the summary characters are given), to which two are added subsequently (p. 133.) The characters are not sufficient to determine the species intended, so that the author must be considered to have failed in the object of securing priority for his names.

Motschoulsky (Bull. Mosc. 819. Rev. Zool. 445) recognizes a division of the genus *Trichopteryx*, Kby. (= *Ptilium*, Schüppel) into three: 1. *Ptilium:* body depressed, with silky pubescence, corslet not the least narrowed behind, shards truncated, not completely covering the abdomen; e. g. *Pt. atomarium*, Deg. *fasciculare*, Herbst., &c.; 2. *Trichopteryx:* body convex, shining, corslet evidently narrower behind, shards pointed, covering the abdomen completely; e. g. *Tr. evanescens*, Marsh., *punctata*, Gyll.; 3. *Ptinella:* apterous, elongated, shards strongly truncated, much shorter than the abdomen; (the eyes obsolete in some species, *Pt. aptera*). The author is in error in assuming the genus *Trichopteryx* to have been established for *Silpha evanescens*, Marsh. Trichopteryx is noticed by Kirby only in a note to the 'Introduction to Entomology,' and the species named is *Silpha minutissima*, Marsh. (= *Dermestes atomarius*, Deg. = *Lathridius fascicularis*, Herbst.), that is, just the form which is here denominated *Ptilium*. Under Ptilium the author cites *Tr. testacea*, Chevr., which has the corslet very evidently narrowed behind; and under Ptinella, *oblonga*, Märk., and *minutissima*, Web., Gyll., both of which have entire shards, and perfect wings. In fact the latter is introduced again under Trichopteryx as *trisulcata*, Aubé.

Mannerheim (Bull. Mosc. 181) has found two new species in Ants' nests, *Tr. grandicollis*, and *longicornis;* of which the former at least is frequent in other situations.

NITIDULARIÆ.—The fifteenth volume of Sturm's 'Deutschlands Insekten' is principally taken up with the continuation of this family, in which the genera *Cercus*, *Brachypterus*, *Carpophilus*, *Epuræa*, *Nitidula*, *Soronia*, *Amphotis*, *Omosita*, and *Pria*, are treated of. His excellent figures will much assist in determining the species, which is often difficult.

Erichson (Germ. Zeitschr. v, 438) has completed his essay towards a systematic arrangement of the Nitidulariæ, which appeared in a former part of the same journal (see the Report for 1842, p. 181): 1. Genus *Ecnomæus*, two new species, *concavus*, from Christmas Bay, *scaphula*, from Nubia.

II. A division of the extensive genus *Meligethes* into seven groups. III. *Cybocephalus*, a new genus, in the group of *Strongylinæ Genuinæ*, like Agathidium, in the form and the power of rolling itself up into a ball, contains *Anisotoma exigua*, Sahlb. (of which *ruficeps*, Sahlb. is the ♂), with four new species, *C. politus*, from Mesopotamia, *gibbulus*, and *chlorocephalus*, from the East Indies, and *C. anticus*, Klug, from Madagascar. IV. Remarks on the genus *Rhizophagus:* the feelers are ten-jointed, and the hind feet in the male have only four joints. V. Distribution of the genera of the Trogositinæ or Peltidæ in the following order: 1. *Egolia*, Er. (Arch. viii, 1, p. 180.) 2. *Acalanthis*, resembles the last: feelers ten-jointed, with the club of two joints, the forehead simply notched in front, the shanks spinous. *A. 4-signata*, new species, from Chili. 3. *Nemosoma:* the feelers ten-jointed in *N. elongata*, eleven-jointed in *N. cornuta*, Sturm. 4. *Temnochila* (*Temnoscheila*), Westw., distinguished from Trogosita by the divided tongue and a groove down the fore part of the forehead; *Tr. cærulea*, Oliv., and many American species. 5. *Melambia*, composed of *Trog. gigas*, F., and some closely allied species, separated from Trogosita on account of the divided tongue and the blunt-spined shanks. 6. *Alindria*, distinguished from Trogosita by the cylindrical body and spinous shanks, containing *Tr. grandis*, Enc., *Tr. spectabilis*, Kl., *Tr. cylindrica*, Enc., and a number of undescribed species. 7. *Trogosita*, the shanks without spines, tongue square without division; *Tr. mauritanica* (= *caraboides*, F.), differs from most of its American congeners in the club of the feelers not being abrupt. 8. *Leperina* has, in common with the following genus, the form and scaly covering of the body and the strong development of the inner jawblade, while it agrees with the foregoing in the number and position of the eyes. It consists of *Peltis squamulata*, Gebl., and *Trogosita decorata*, Er. 9. *Gymnochila*, Kl.: eyes four, two larger placed obliquely, more distant from each other at the crown, and two smaller on the lower side behind the insertion of the feelers. One species, *G. vestita*, Kl. 10. *Anacypta* Ill.: four eyes as in the last, the upper two approaching closely on the crown. The species is *Nitidula punctata*, F., = *buprestoides*, Web. I have to remark, in addition, that the genus has been proposed by Dalman (Ephem. Ent. p. 15) also, as *Acrops*. He has overlooked the lower pair of eyes, and was not acquainted with the native country of the species he describes, *Acr. metallicus*, which, however, is identical with the first named. 11. *Peltis*, 12. *Thymalus*, which differ from all the foregoing by the inner jawblade forming a hook, and from each other by the strong hooked spine at the end of the fore shank in Peltis, all the terminal spines being very short and delicate in Thymalus. Peltis is increased with a new species, *P. pubescens*, from the Crimea; and of Thymalus, an American species, very like limbatus, is distinguished, *Th. fulgidus*.

Cryptophagides.—Three species of the genus *Atomaria*, found in Ants'

nests, have been described as new: *Cryptophagus concolor*, by Märkel (Germ. Zeitschr. v, 244, 181), and *At. guttula* and *dimidiatipennis*, by Mannerheim. (Bull. Mosc. 184, 46; 185, 47.) I can see no difference between the first and *At. fuscipes* (*Cryptoph. id.*, Gyll.); the second, which Mannerheim found on pines also, I take to be a marked variety of *At. mesomelas* (*Derm. id.*, Herbst.), with the yellow of the shards confined to a small spot near the tip; the third, from the description, I should have taken for *A. pusilla* (*Cryptoph. id.*, Payk.), which Märkel has taken in Ants' nests also, if Mannerheim could be supposed to have mistaken that species.

Byrrhii.—Reichenbach (Ann. Soc. Ent. Fr. ii, lix), has published an observation made by him, in company with Märkel, on the economy of *Byrrhus*, from which it appears that these Beetles are herbivorous. They found *B. ornatus* in the Saxon Switzerland, upon a rock overgrown with moss, where it was feeding; its excrement, dissolved in water, showed particles of the leaves of Mnium punctatum and cuspidatum. *Byrrhus varius* also is common on walls incrusted with Barbula muralis.

Heteroceridæ.—Kiesenwetter has made some additions to his Monograph of *Heterocerus*. (Germ. Zeitschr. v, 480.)

Hydrophilii.—This family has been investigated by Mulsant among the series of Monographs by which he is illustrating the Coleoptera of France so effectively. (Histoire Nat. des Coléoptères de France, par M. E. Mulsant. Palpicornes, Lyon. 1842.)

The following is a summary of the contents, which deserve to be studied, both on account of the more accurate determination of the characters and for the new genera and species characterized in it.

A. Hydrophilides. The first joint of the hind feet shorter than the second. A. *Sperchéens*, upper lip concealed. *Spercheus emarginatus*. B. *Helophoriens*: upper lip discovered; corslet narrower than the shards. *α. Helophoraires*: abdomen with five ventral segments visible. *Helophorus* (the ventral segments even). 1. *rugosus*, Oliv. 2. *nubilus*, F. 3. *intermedius*, Dej. (*griseus*, Brullé), from the south of France. 4. *aquaticus*, L. (*grandis*, Ill.) 5. *granularis*, L. 6. *dorsalis*, Marsh. 7. *pumilio*, Er. 8. *nanus*, Schüpp. *Hydrochus* (the first four ventral segments pushed up in the form of scalloped transverse lists). 1. *brevis*, Hbst. 2. *carinatus*, Germ. 3. *elongatus*, Schall. 4. *angustatus*, Müll. 5. *nitidicollis*, Dej. (distinguished from the last by its metallic gloss), from the south of France. *β. Hydrœnaires*: abdomen with six ventral segments at least. *Ochthebius*, 1. *granulatus*, new species, from the mountains in the east of France. 2. *exculptus*, Müll. (♂ *Enicocerus viridicæneus*, Curt. ♀ *En. tristis*, Curt. = *O. sulcicollis*, Steph.) 3. *gibbosus*, Müll. 4. *margipallens*, Ltr. 5. *marinus*, Pk. 6. *pygmeus*, F. 7. *bicolor*, Kby., (var. *rufomarginatus*, Steph., Er.) 8. *exaratus*, new species, from the south of France. 9. *pellucidus*, new species, do. and Paris. 10. *fove-*

olatus, Müll. 11. *punctatus*, St. *Hydræna*. 1. *testacea*, Curt. 2. *rugosa*, new species, from Paris. 3. *nigrita*, Mull. 4. *riparia*, Kug. 5. *angustata*, Dej. 6. *gracilis*, Müll. 7. *flavipes*, St. C. *Hydrophiliens:* upper lip discovered; corslet as broad behind as the shards. *a. Limnobiaires:* abdomen with six to seven ventral segments. *Limnebius*. 1. *truncatellus*, Thunb. 2. *papposus* (*mollis*, Marsh.?) 3. *nitidus*, Marsh. 4. *atomus*, Dft. (*minutissimus*, Germ.) *β. Berosaires:* ventral segments five; middle shanks fringed for swimming. *Berosus*. 1. *spinosus*, Stev. 2. *æriceps*, Curt. 3. *luridus*, L. 4. *affinis*, Brullé. *γ. Hydrophilaires:* ventral segments five; middle shanks without hairs for swimming; breast keeled. *Hydrophilus piceus*. —*Hydrous*. 1. *caraboides*, L. 2. *flavipes*, Stev. *δ. Hydrobiaires:* ventral segments five; middle shanks without hairs for swimming; breast simple. † *Hydrobiates:* jaw-palps shorter than the feelers. *Hydrobius*. 1. *convexus*, Ill. 2. *oblongus*, Hbst. 3. *fuscipes*, L. 4. *bicolor*, Pk. 5. *æneus*, Stev. 6. *globulus*, Pk., (*limbatus*, F.,) ‡‡ *Laccobius minutus* L. †† *Philydrates:* jaw-palps longer than the feelers. *Helochares* (at first *Helophilus*, subsequently changed with propriety, on account of the genus of Diptera so named). 1. *lividus*, Först. 2. *melanophthalmus*, Duf., from Spain (previously described by Erichson as *Hydrobius lucidus*, from Angola). *Philydrus*. 1. *melanocephalus*, Oliv. 2. *marginellus*, F. E. *Cyllidiaires:* but four ventral segments visible: *Cyllidium seminulum*, Pk.

B. Geophilides: first joint of the hind feet longer than the second: *Sphæridiens*. *a. Sphæridiaires:* mid-breastplate (mesosternum) much narrower than it is long. *Cyclonotum orbiculare*, F. *Sphæridium*. 1. *scarabæoides*, L. 2. *bipustulatum*, with which the author joins *Sph. marginatum*, F., without good grounds in my opinion. *Cercyon*. 1. *obsoletum*, Gyll. 2. *hæmorrhoidale*, F. 3. *hæmorrhoum*, Gyll. 4. *laterale*, Steph. 5. *unipunctatum*, L. 6. *quisquilium*, L. (he confirms the doubt which I have suggested respecting the generally received assumption that this is but the ♂ of the last species; both sexes of each occur). 7. *centrimaculatum*, Sturm. 8. *pygmæum*, Ill. 9. *litorale*, Gyll. 10. *aquaticum*, Steph. 11. *flavipes*, F. 12. *melanocephalum*, L. 13. *minutum*, F. 14. *lugubre*, Pk. 15. *anale*, Pk.— *Pelosoma*, new genus, distinguished from Cercyon by the form of the mid-breastplate, which is neither linear nor fusiform, but elongate pentagonal. *P. lafertei*, new species from the district of Chinon.—*β. Megasternaires:* mid-breastplate broader than long. Two new genera, the first with rhomboidal, the second with pentagonal, fore-breastplate: *Megasternum bolitophagum*, Marsh.; *Cryptopleurum atomarium*, F.

The last three genera, and with them the last group, appear to me to be divided from Cercyon artificially.

Mulsant (Ann. Scienc. Phys. Nat. Lyon vii, p. 167) has illustrated the genus *Cyclonotum* in a Monograph, derived chiefly from the species of

Dejean's collection, of which the city of Lyon purchased the portions Palpicornes and Trimera. The eleven species described are arranged as follows: A. Shards without any score: 1. *C. globulosum*, Kl. (*Hydrob. rotundatus*, Dej.), from Louisiana and South America; this stood in the Berlin Museum as *C. globulare*, a name afterwards suppressed when the same species was received from Pennsylvania, and we learned to know it as *Hydrophilus extriatus*, Say.—B. Shards with a single score: 2. *C. orbiculare* (*Hydroph. id.*, F.), from Europe, Madagascar, and the East Indies. Two species seem to be mixed up here, *C. orbiculare*, from Europe and the East Indies, and *C. punctulatum* (*Sphær. id.*, Kl.), from Madagascar and Angola, double the size of the former, less convex, and more closely and finely punctured.—C. Shards with ten punctured scores: a. The spaces between with larger punctures: 3. *C. cayannum*, Lacord., from Cayenne.—b. The outermost space alone with stronger punctures. *α*. The score next the seam prolonged to the scutel: 4. *C. capense*, Dej., from the Cape and the East Indies (in this museum, from different parts of India only, and considered to be the *Sphær. hydrophiloides*, Mac L., Annul. Javan.) *β*. Seam-score not extending to the scutel: 5. *C. subrotundum* (*Hydroph. id.*, F., = *Cycl. lebasii*, Dej.), from New Granada. c. The spaces without larger punctures: *α*. The seam-score not extending to the scutel: 6. *C. sublævigatum*, Muls., the country unknown. 7. *C. flavicorne*, Sch., from Cuba and Jamaica. *β*. The seam-score prolonged to the scutel: 8. *C. picicorne*, Sch., from Jamaica. 9. *C. americanum*, Dej., from Cayenne. 10. *C. striatopunctatum*, Dej., from Brazil.—D. Shards with eleven punctured scores: 11. *C. abdominale* (*Sphærid. id.*, F.), from the Isle of France, Madagascar, and different West Indian islands, found also in Sardinia.—The group C, c, *β* will include, besides, *Sphærid. diaperinum* and *gibbum*, Kl., from Madagascar.

Further, a number of new species, not found in France, are described (ibid. 373): *Hydrochus scabratus, rugosus*, Dej., from North America; *Ochthebius sericeus*, Dej., from Egypt (from Sinai rather); *O. difficilis*, from Sardinia; *O. quadricollis*, from Corsica; *Hydrobius cribratus* (*Cyclonotum id.*, Dej.), from the Isle of France; *Helochares maculicollis*, from Louisiana; *Philydrus spadiceus*, Dej., from Cayenne and New Granada; *Cercyon tantillum*, Dej., from Brazil; *Cryptopleurum capense* (*Cercyon id.*, Dej.), from the Cape.

New species in addition are, *Berosus murinus* and *suturalis*, Küster (Käf. Eur. i, 36, 37), from Dalmatia; *Hydrophilus viridicollis, caschmirensis*, and *Tropisternus mergus*, Kollar and Redt. (Hüg. Kaschmir, 513), from Cashmere.

Lamellicornia.—The group *Copridæ* has received many additions of new species. Fischer v. W. has described (Bull. Mosc. 42-45) *Onitis sophax, Onthophagus tricornis, specularis, Aphodius hirtipes, gonagricus*, from

Southern Russia and Siberia; Kollar and Redt. (Hügel's Kaschm. 515-523), *Ateuchus devotus, Gymnopleurus opacus, Sisyphus caschmirensis, Onitis castaneus,* all from Cashmere; *O. himalejicus, Copris sacontala,* from Massuri, in Upper India; *C. sexdentata, Onthophagus brama, angulatus, excavatus,* from Cashmere;—Le Guillou (Guér. Rev. Zool. 223) gives *Onthophagus difficilis* from Borneo;—and White (Ann. Nat. Hist. xiv, 423), *Sisyphus bowringii, Onthophagus bifurcalis, taurinus, suturalis,* from Hong Kong.—Buquet (Guér. Rev. Zool. 19) has enriched the genus *Hyboma* with four new species from Columbia, *H. chalcea, hippona, arrogans, æquinoctialis;* the second and third, perhaps only varieties of one species, are distinguished by their very short fore feet, in which they differ from all the species previously known, though without claiming the rank of a separate genus.

The group *Dynastidæ* has been aggrandized with three new genera by De Brême (Ann. Soc. Ent. Fr. ii): 1. *Xenodorus* (p. 296, pl. 7, f. 8), founded on *Geotr. janus,* F., adjoins Oryctes and Phyllognathus, having an unarmed, coriaceous, ciliated jawblade (mala), and simple, conical, obtuse, upper jaws. 2. *Lycomedes* (p. 299, pl. 8, f. 12), with the jawblade divided at the tip, and below this with a third tooth inside, the upper jaws outwardly three-toothed towards the end, the ♂ with one claw of the fore feet elongated, and having a tooth at the base. The male has a larger horn of the head divided at the end, behind it a tubercle, and a broad, depressed, ascending horn on the prothorax. *L. reichei,* new species from Columbia, about the size of Sc. abderus, Sturm, and, like it, having a dappled coat of fine felted hairs. 3. *Antodon* (p. 302, pl. 8, f. 4), strongly signalized by the jawblade, which is indeed unarmed, but has the entire inner edge grooved crosswise like a file. The male has a small, broad, obtusely three-toothed horn of the head. *A. burmeisteri,* given as a new species from Brazil, is already described (the ♀) by Laporte, in the first volume of the same Annals, as *Agaocephala goryi.*

In the group *Rutelidæ* Guérin (Rev. Zool. 259) has made known a new *Chrysophora,* from Mexico, *Chr. nietii,* for which he also constitutes a special subgenus, *Macropoides,* the characters of which and the relation it bears to the allied forms will appear from the annexed table:

I. Upper jaws outwardly rounded and dilated: A. Hind feet of the male longer than the shank: *Chrysophora.*—B. Do. shorter, &c. 1. All the claws simple: *Chrysina.* 2. The outer claw of the two anterior pairs cloven: *Heterosternus.*—II. Upper jaws outwardly straight and not dilated, the point ascending in a curve; the outer claw of all the feet cloven: *Macropoides.*—III. Upper jaws outwardly notched, with two teeth: A. Hind feet longer than the shank: *Anisocheirus* (*Chrysoph. kirbyi,* Gray.) B. Do. shorter, &c. *Rutela, Pelidnota,* &c.

Mr. Nieto discovered the grub of *Chrysina macropus* in the stem of a gigantic Ficus; the Beetle appears the middle of June, and continues until July (ibid.)

Another new species, is *Macraspis pretiosa*, De Brême (Ann. Soc. Ent. Fr. ii, 303, pl. 8, f. 3), from Bogota.

In the group *Melolonthidæ*, De Brême (ibid. 305, pl. 9, f. 1) has characterized a very conspicuous new genus, *Anatista:* feelers ten-jointed, the club five-jointed, the first two leaves short, the rest long and curved; snaffle (clypeus) much prolonged in front, covering the upper lip; upper jaws at the end obtusely two-toothed, destitute (according to the fig.) of a molar face; the jawblade coriaceous, unarmed; the claws simple: a handsome new species, *A. lafertei*, from New Granada.

Another genus, proposed by Le Guillou (Rev. Zool. 224) as new, *Caulobius*, is identical with *Silopa*, Erichson.

New species: *Macrodactylus dimidiatus*, Guér. (Mag. Zool. Ins. pl. 147), from Mexico; *Strigoderma fulgicollis* and *insignis*, De Brême (Ann. Soc. Ent. Fr. ii, 304, pl. 8, f. 5, 6), from Columbia; *Ancylonycha holosericea, cribricollis, Serica ferruginea, Euchlora vittata* (= *horsfieldii*, Hope,) *Anomala rufiventris, Popillia sulcata, truncata, caschmirensis*, Kollar and Redt. (Hügel's Kaschm. 524), the first from the Himalaya, the rest from Cashmere; *Hoplia squamacea, elegantula, Adoretus cribratus*, White (Ann. Nat. Hist. xiv, 424), from Hong Kong; *Anomala bousqueti*, Le Guillou (Rev. Zool. 223), from Mankassar; *Caulobius villosus*, distinct from the species described by Erichson, and *Heteronyx obscurus* (ibid.), from Van Diemen's Land; *Anisoplia marietti*, Osculati (Col. racc. p. 72, No. 5): Nigra nitida subtus albopilosa, clypeo subquadrato, capite thoraceque nigro-cæruleis punctatissimis, scutellum et prope scutellum villosa, elytris rugosis inæqualiter sulcatis sulcis obsoletis marginibus exterioribus sulco longitudinali depresso instructis. Not uncommon in gardens and meadows about Constantinople in the summer.

Fischer v. W. (Bull. Mosc. 46) reclaims the genus *Catalasis*, Dej., as previously (1823) characterized by himself (Entomogr. ii) under the name *Cyphonotus*, and describes *C. anketeri*, (*Melol. id.* Hbst.), from the Caucasus; *C. monachus*, Kryn., from Turkestan; *C. thoracicus*, Kryn., from Sarepta; *C. macrophyllus, affinis*, new species, from Turkestan.

Von Heyden (Entom. Zeit. 14) has assigned the neighbourhood of Constantinople as the native region of *Propomacrus bimucronatus* (*Scarab. id.*, Pall.) The female, now first made known, differs from the male in having the corslet narrower, the fore shanks not elongated, scarcely curved, and destitute of the tooth inside.

To the group *Melitophila* relate Observations critiques sur la famille des Lamellicornes Melitophiles, par M. le Dr. Schaum (Ann. Soc. Ent. Fr. ii, 333.) A work of much labour, which rectifies the synonyms in numerous instances, mostly from personal examination of the authentic specimens. He has annexed as new species, or hitherto overlooked, *Ceratorhina* (*Amaurodes*) *passerinii*, Westw., ♀; *Heterorhina suavis*, from Guinea; *H. smarag-*

dina, Hbst., distinguished from africana by the yellow sides of the shards, &c.; *H. induta*, from Christmas Bay; *Gymnetis Bonplandii*, Paraguay; *Discopeltis concinna*, Senegambia; *Phoxomela abrupta*, Christmas Bay; *Oxythyrea amabilis*, Algoa Bay; *O. æneicollis, perroudii*, Christmas Bay; *Aplasta dichroa, lutulenta*, do.; *Cetonia* (*Protætia*) *bremii*, Manilla; *C.* (*Pachnoda*) *histrio*, F., Arabia; *Pantolia ebenina, rubrofasciata*, Madagascar; *Pygora erythroderes*, do.; *Diplognatha blanchardi*, Abyssinia; *Ptychophorus fluctiger*, Senegambia; *Cœnochilus platyrrhinus*, East Indies; *Scaptobius aciculatus*, the Cape of Good Hope; *Lissogenius planicollis*, Guinea; *Agenius clavus*, Caffraria. The genera *Phoxomela, Aplasta, Lissogenius* are new. To *Phoxomela* belongs, besides the new species named above, *Cet. umbrosa*, Gory, Perch. The two new species of *Aplasta* resemble Anoplochilus; while *Lissogenius* is a Cremastochilus, with five-jointed feet and almost abortive claws.

Westwood has again (in his Arcana Entom.) made some additions to the history of the Melitophila. In pl. 73 both sexes are figured of *Inca sommeri*, a species like *I. weberi* even to illusion, but the author discriminates it, independent of the different locality, by the more obliquely truncated horns of the head of ♂, and the more obtuse teeth of the fore shanks of ♀, (the latter mark I cannot observe, but a constant difference between *I. sommeri* ♀ and *I. weberi* ♀, seems to lie in this, that the fore margin of the snaffle (clypeus) in the first is simply notched, in the second slightly three-lobed, and that the hind shanks of the former are not toothed, while in the latter they are armed in the middle with two little teeth, a shorter and a longer;) also *Inca beskii*, Dej., from Brazil. Pl. 81 exhibits the ♂ of *Ceratorhina* (*Cælorhina*) *aurata*, Westw., and a very conspicuous species from Cape Palmas, given by Harris (Journ. Bost. Soc. Nat. Hist. iv, pl. 21), under the name *Mecynorhina savagei*, and referred to also in a communication by Klug. (Uebersicht der bekannten Arten der Gattung Goliathus, Monatsber. Berl. Akad. 1843, p. 293.) It resembles M. polyphemus, but is at once known by its yellow hind feet.

Kollar and Redt. (in Hügel's Kaschmir) have described and figured the following new species: *Coryphocera hirti ventris* (p. 528), *C. affinis* (530), *Protætia flavoguttata* (530, pl. 25, f. 2.)

Lucanidæ.—The same work gives a new figure (pl. 24, f. 4) of *Lucanus lunifer*, Hope, from the Himalaya, and characterizes a new species, *Dorcas punctato-striatus* (p. 532.)

Percheron (Guér. Mag. Zool. Ins. pl. 134, 135) has given a second supplement to his monograph of *Passalus*, adding the following new species: A. With the club of the feelers six-leaved. 1. *P. naviculator*, Perch., from Vanicoro or Hogoleu, certainly from one of the South Sea islands. 2. *P. cantori*, Hope, from Assam. 3. *P. canorus*, Perch., from the East Indies, or some of the isles adjacent.—B. The club of the feelers five-leaved: 4. *P.*

savagei, Hope, from Cape Palmas, Sierra Leone. 5. *P. hopei*, Perch., country not specified.—C. The club of the feelers four-leaved: 6. *P. palinii*, Hope, from Cape Palmas.—D. The club of the feelers three-leaved: 7. *P. africanus*, Hope, Sierra Leone.—8. *P. vicinus*, Hope (probably variety of *P. bicolor*), country not given. 9. *P. bihastatus*, a species distinguished by the peculiar processes of the head, country uncertain.

Burmeister's 'Manual of Entomology,' vol. iv, part 1, Berlin, 1844, contains, Coleoptera, Lamellicornia, *Anthobia*, et *Phyllophaga Systellochela*.

Tenebriones.—Fischer v. W. (Bull. Mosc. 67) has proposed a new genus in the group *Tentyrites*, *Rhostax*, with the globose corslet much pinched in behind, almost forming a footstalk. Both the species are new; *Rh. karelini*, from Songary, and *Rh. menetriesii*, from Southern Russia, about the Caspian. Other new species described there are *Tentyria kindermanni*, from Southern Russia, by the Sarpa; *Anatolica torulosa*, from Dauria; *A. thoracica*, from Bucharia; *A. angulosa*, from Nertschinsk.

In the group *Macropodites*, *Adesmia* has received the addition of the following new species: *A. villæ*, Osculati (Col. 72, No. 6): Nigra elongata subdepressa capite thoraceque punctatis, elytris costis 2 apice confluentibus, marginali denticulata dorsali undulata, interstitiis rugosissimis plicis inæqualibus. From the south of Persia, Ispahan.—*A. de vecchii*, Osc. (ibid. No. 7): Parva nigra ovalis capite thoraceque punctulatis, elytris subdepressis costis 2 granulosis obsoletis fere apice confluentibus interstitiis foveolatis, foveis latis triplici serie dispositis, unica serie inter costas, duplici suturam versus. From Armenia.—Also *A. faremontii*, *biskreensis*, *douei*, *solieri*, Lucas (Rev. Zool. 264), from the district of Biskra, in Algiers.—*A. langii*, Guérin (see Rep. 1843, p. 147), is figured in the 'Magasin de Zoologie,' 1844, Ins. pl. 139.

Of the group *Pimeliariæ*, Fischer v. W. (Bull. Mosc. 53) describes as new species, from Turkestan, *Pimelia marginata*, *Pachyscelis karelini*, *Ocnera* (*Trachyderma*, Latr.) *lepidacantha*, *granulata*, *Trigonoscelis echinata*, *Lasiostola heterogena*, *Diesia karelini*.—The genus *Platyope* up to this time contains seven known species: 1. *Pl. granulata*, Fisch. (Entomograph.); 2. *proctoleuca*, Fisch. (ibid.). 3. *leucographa*, Pall. (*Tenebrio*). 4. *lineata*, F. (*Akis*). 5. *obliterata*, Fisch., new species, from the salt lake of Inderskoe. 6. *unicolor*, Esch. Zoubk. (= *karelinii*, Kryn.) 7. *collaris*, Fisch., new species, from Songary, which differs from all the rest by a deep groove on the corslet.

Waterhouse (Ann. Nat. Hist. xiii, 41) has made an important contribution to our knowledge of the group *Nyctelites*, in a revision of the species in the collection of the late Baron Dejean. 1. *N. luczotii*, Buq., a *Gyriosomus*, identical with *G. curvilineatus*, Guér. 2, 3. *N. erythropus* and *ebenina*

belong to *Epipedonota*, Solier, and are mere varieties of one species. 4. *N. senex*, Lac., also an *Epipidonota*, and perhaps only a variety of *ebenina*. 5. *N. crystallisata*, Lac., a good species of the same genus. 6. *N. monilis*, Lac., which Waterhouse considers a variety of *ebenina*, has been brought home by Darwyn also. 7. *N. andicola*, Lac., is *Auladera id.*, Solier. 8. *N. desertorum*. 9. *serva*. 10. *caraboides*. 14. *picta*. 15. *dejeanii*, Lac., belong to *Mitragenius*, Solier, and are here reduced to three species, Nos. 8, 10, and 14 being pronounced only varieties of one species. 11. *N. multicosta*, Guér., is *Callyntra id.*, Solier. 12. *N. rustica*, Dej., comes very near *Epipedonota rugosa*, Wat., and is perhaps a variety of it. 13. *N. jugletii*, Buq., probably *N. crenicosta*, Guér., is an *Auladera*, Sol. 14. *N. mamillonea*, Lac., is *Plectraseelis id.*, Sol.; and 17. *N. discicollis* = *Plectr. id.*, Sol. 18. *N. lævicollis* (Dup.) is *Plectr. pilipes*, Sol. 19. *N. klugii*, Buq., is *Plectr. glabratus*, Sol., and *Nyct. lævigata*, Er. (in Meyen's Travels.) 20, 21. *N. vestita*, and *deplanata* (the *Cerostenæ* like-named of Sol.) 22. *N. plicatipennis*, Lac., is *N. transverso-sulcata*, Wat. (Proc. Zool. Soc. 1841.) 23. *N. nebulosa*, Buq., *picta*, Kl., is *N. decorata* of Erichson. Waterhouse is disposed to arrange this species under Cerostena, but it comes surely much nearer to Gyriosomus. 24. *N. picipes*, Dej. = *N. nodosa* and *brunnipes*, Latr. Of the genus *Entomoderes* Waterhouse admits *draco*, *satanicus*, and *erebi*, as good species, and accounts *E. cellulosus*, Lac., a small specimen of *erebi*. The three species of *Entomoderes* and Nos. 5 and 9 of *Nyctelia* are described at large. The author adds as new, *Nyct. bremii*, (p. 48) from Mendoza, which comes very near *N. westwoodii*, Wat., and *Gyriosomus whitei* (p. 50), from Coquimbo. With respect to the genus *Gyriosomus*, the remark is made (p. 53) that *G. luczotii*, *bridgesii*, and *elongatus* have the fore breastplate (prosternum) contracted and prolonged backwards beyond the insertion of the legs, while in *G. hopei* and *marmoratus* it is broader, and not prolonged behind.

In the group *Tagenites*, Waterhouse, (ib. p. 53) gives two new species, *Gonogenius brevipes*, distinguished from G. vulgaris by its shorter figure, narrower head, shorter corslet, with the sides uniformly rounded, the spaces between the scores of the shards punctured and wrinkled, and the legs shorter, with very angular shanks,—and *Psammeticus crassicornis*, differing from Ps. costatus principally in having the feelers twice as thick. Both are from Coquimbo.

Of the group *Zopherites*, the genus *Zopherus* has been enriched with a remarkable new species from Columbia, *Z. bremii*, Guérin (Rev. Zool. 48), De Brême (Ann. Soc. Ent. Fr. ii, 307, pl. 9, f. 2.)

To the group *Praocites* we must refer an insect which Fischer v. W. (Bull. Mosc. 125) has described as *Sternodes mannerheimii*, from specimens in Eschscholtz's collection, where it stood without any note of locality.

According to Motschoulsky's remarks (Bull. Mosc. 1845, p. 63), it is a *Praocis*, and the male described = *Pr. rufipes*, Esch., the female = *Pr. sulcata*, Esch.

An arrangement of the group *Molurites*, by Solier (Memorie d. R. Academia d. Sc. di Torino, 2de serie, vi, 213), is a sequel to his previous Monographs published in the Annals of the Entomological Society of France.

The group falls naturally into two divisions: 1, The Sepidium type, with a narrower corslet (prothorax), having in front protuberances in the shape of humps or horns. 2, The Moluris type, with a shorter, even corslet. The first division contains the following genera and species:

1. Genus *Tapenopsis*, Sol. Legs short, fore shanks enlarged towards the end; chin (mentum) hexagonal, with the front line straight; the two last joints of the feelers united in one oval joint; corslet narrowed behind, with two ridges down the back; eyes oblique, on the lower side of the head; has much resemblance to the Tagenites, with which it should, perhaps, be associated, but in figure and in the protuberant eyes agrees with the Sepidia, differing from the following genera in the form of the chin, the feelers, and fore shanks. A single species, *T. costatus*, Dup., fuscus oblongo-ovalis hispidus, elytris dense punctato-striatis singulo costis 3 serratis tertia marginali; long. 7, lat. 2⅓ millim. Of Olivier's collecting in his travels, without more exact specification of locality.

2. Genus *Dymonus*, Sol. Last joint of the feelers small, almost withdrawn inside the tenth; in other respects it agrees with Sepidium. Species 1. *vestitus* (*Sep. id.* Gory, Guérin, Iconogr. R. An. = *S. senegalense*, Dej.), from Senegal. 2. *dufossei* (ib. 222), new species, from Sennaar (stands in many collections under the name *S. sennaariense*, Koll.) 3. *tuberculatus* (*Sep. id.* Klug), from Egypt. 4. *gibbicollis* (Dup. ibid. 224), given as a native of the Cape, is merely a variety of the preceding, with the foremost protuberance of the corslet divided into two lobes which curve upwards.

3. Genus *Sepidium*, F. The last two joints of the feelers distinct. A. The lateral spine of the corslet sharp-pointed. 1. *bidentatum* (Duf. ib. 227), new species, from the south of Spain. 2. *mittrei*, Sol. (ib. 228), from Algiers, is *S. uncinatum*, Er. (Wagner's Algiers, iii, 178, 20.) B. Lateral spine of corslet blunt or notched. *a*. Intermediate ridge of the corslet divided by a groove. 3. *douei*, Sol. (ib. 230), from Barbary (= *S. aliferum*, Er., ib. 19.) 4. *siculum* (Dej. ib. 231), new species, and 5. *genei*, (ib. 232), new species, both from Sicily, the latter distinguished by the somewhat superior size (13½-15 millim. long.), the darker colour, the middle lobe of the base of the corslet broader, the intermediate rib of the shards less tubercled, and the marginal rib with small blunt tubercles. 6. *variegatum*, F., Oliv., from Barbary. 7. *dufouri*, Sol. (ib. 234), from Tunis, probably a

variety of the preceding, the only difference being a couple of deep irregular impressions at the base of the corslet. 8. *barbarum* (Dup. ib. 235) it is likely should be united with No. 6 as the other sex, being distinguished merely by the after-trunk (hinter-körper) being triangular rather than parallel-sided. β. Intermediate ridge of the corslet without the groove. 9. *servillei* (ibid. 236), new species, resembles S. genei, only the lateral tooth of the corslet is more deeply notched, and the tubercles of the marginal ridge of the shards are somewhat stronger. It seems not improbable they may both be varieties of *S. siculum*, in which the groove in the intermediate ridge of the shards is often very slight and faint, and may be liable to vanish yet more completely. 10. *barthelemeyi* (ibid. 236), new species, from Upper Egypt. 11. *flexuosum* (ib. 237), new species, and 12. *tricuspidatum*, F., both from Egypt. 13. *maillei*, Sol. (ib. 239), from Tunis, is *S. wagneri*, Er. (Wagner's Algiers, iii, 179, 22.) 14. *serratum* (ib. 240), new species. 15. *requieni* (ib. 241), new species, from Tunis. 16. *multispinosum*, Sol. (ibid. 241), from Barbary (= *S. tomentosum*, Er., ibid. 178, 21.)

4. Genus *Echinotus*, Dej. Corslet without a lateral tooth, but with a slender process in front; third joint of the feelers very long; the posterior thighs thin, suddenly forming a little club at the tip; corslet and shards with prickly tubercles on the back. One species, *E. spinicollis* (Klug, ib. 243), from the Cape.

5. Genus *Cyrtoderes*, Dej. Corslet expanded into a sort of hood over the bowed head; mouth free. The author gives three species: 1. *sinuosus* (ib. 246), which has the turned-up margin of the shards bellying, with an elevated longitudinal line. 2. *nigritus* (ib. 247), with the same margin descending perpendicularly; the insect entirely covered with a black earthy coat. 3. *curculioides* (ib. 248) resembling the last, but the coat clay-colour, as in the first. But all these are, doubtless, mere varieties of one species, the *Brachycerus cristatus*, F., from the Cape.

6. Genus *Cryptogenius*, Sol. Distinguished from the preceding by the fore breastplate (prosternum) covering the mouth like a cape. Species 1. *Cr. dentatus* (ib. 250, *Cyrtoderes id.*, Dej. Cat.) 2. *Cr. spinolæ* (ib. 251), new species, with the last joint of the feelers shorter than the foregoing, while these are equal in the first species, in which also the first rib of the shards forms a sharper projection behind. But as the two agree otherwise in all material points, the difference seems to be rather sexual than specific.

The section of *Moluris* proper is thus subdivided.

Subdivision 1. Last joint of the jaw-palps small, oval, or slender, and slightly truncated.

7. Genus *Physogaster*, Latr., Lac., Guér. A single species, *Ph. mendocinus*, Lac.

8. Genus *Thylacoderes*, Sol. Distinguished from the preceding by the pro-

jecting fore breastplate inclosing the mouth like a cape, and by the short shanks finely denticulated on the outside; also a single species, *Th. eumolpoides* (ib. 257 = *Physog. id.*, Lac.), from Tucuman.

9. Genus *Polpocara*, Sol. Distinguished from the last by the snaffle (clypeus) deeply notched in front. The genus was proposed under the name *Philorea*, ten years before, by Erichson (in Meyen's Travels, Zool., 366), and for the same species, discovered by Meyen in Peru, *Ph. picipes* (*Polp. id.* Sol., ib. 259.)

Subdivision 2. Last joint of the jaw-palps in general broadly truncated, more or less hatchet-shaped, or cup-shaped.

10. Genus *Entomochilus*, Gay and Sol. Resembling Physogaster in figure; the snaffle and upper lip hollowed out in front; the last joint of the jaw-palps oval, with the end truncated; corslet adjoining the base of the shards; fore breastplate enlarged in front, covering the under side of the mouth like a cape. *E. pilosus* (ib. 261): niger obscurus plus minusve cinereo-pilosus, capite granulato, prothorace dorso dense punctato punctis pilis obtectis, elytris obsolete granulatis longitrorsum sinuato-striatis. Long. 8½-13 millim. Chili, Coquimbo.

11. Genus *Cylindrothorus*, Sol. Corslet cylindric, closely contiguous to the base of the shards; last joint of the jaw-palps strongly hatchet-shaped; chin three-lobed in front; thighs club-shaped. A single new species, *C. pilosus* (ib. 263): fuscus oblongo-ovalis punctatus, pilis griseis retrorsum reflexis numerosis erectisque raris concoloribus tectus, elytris tuberculis obtusis depressis seriatis. 11 millim. From the Cape.

12. Genus *Amatodes*, Dej. Corslet contiguous to the base of the shards; snaffle (clypeus) truncated in front with the section straight. End joint of the jaw-palps strongly hatchet-shaped; chin three-lobed in front; feelers thin; thighs simple. 1. *A. gemmata* (*Pim.*), F. 2. *A. hirsutula* (Dej.): lata brevis suborbicularis, prothorace valde transverso, elytris granulatis hispidis costa marginali haud prominula, antennis versus apicem leviter sensim incrassatis. Long. 11 millim. All from Senegal.

13. Genus *Eutelus*, Sol. Very like the preceding, but the feelers evidently thicker towards the tip, and the end joint of the jaw-palps not so broad. 1. *E. requieni* (ib. 270): niger rubromaculatus suboblongus, capite valde punctato, prothorace prope basin dilatato punctato rugoso, elytris dense tuberculatis. Long. 12 millim. 2. *E. nodosus* (ib. 271): niger indumento terrulento cinereus, globosus, prothorace supra medio valde longitrorsum bicalloso, elytris irregulariter tuberculis conicis nodosis. Long. 9 millim. Both from the Cape.

14. Genus *Moluris*, Latr. Hind margin of the corslet not touching the shards; fore breastplate enlarged in front, covering the mouth, or at least great part of it.

A. Corslet not globular above. *a.* (*Moluris*) thighs simple. 1. *M. unicolor* (*Pimelia*), F. 2. *lævicollis* (Reiche, ib. 277), new species. 3. *striata* (*Pim.*), F., a paler variety of No. 1. 4. *vittata* (Dup. ib. 278), new species. 5. *reichii* (ib. 379), new species. 6. *hæmisphærica* (Dup. ib. 280), new species. 7. *gravida* (Dej. ib. 281), new species. 8. *spinolæ* (ib. 281), new species. 9. *pinguis* (Dej. ib. 282), new species. 10. *dejeanii* (ib. 282), new species. 11. *goryi*, (Hope, ib. 283), new species, from Sierra Leone. 12. *plicata* (ib. 284), new species. 13. *tomentosa* (Spin. ib. 285), new species. 14. *pilosa*, Thunb. Schönh. (= *cribricollis*, Dej.) 15. *scabrata* (Dup. ib. 287), new species. 16. *lævigata* (*Pim.*), Oliv. 17. *pierreti*, Amyot (Guér. Mag. Zool. Ins. pl. 129.) *β*. The posterior thighs greatly compressed. (*Piezomera.*) 18. *scabra* (*Pim.*), F.—B. Corslet globular above. (*Physodera.*) 19. *gibba* (*Pim.*), F. 20. *gibbosa* (*Pim.*), Oliv. 21. *rouleti* (ib. 292), new species. 22. *globulicollis* (Spin. ib. 292), new species. 23. *semiscabra* (Dej. ib. 293), new species. All of these, except No. 11, from the Cape.

15. Genus *Phanerotoma*. Distinguished from Moluris by the mouth and underside of the head being free. A. Hind feet lengthened, evidently exceeding the fore pair. 1. *pubescens* (Dej. ib. 297), new species. 2. *brunneum* (*Pim.*), Oliv. 3. *ruficorne* (Dej. ib. 298), new species. 4. *plicatum* (Kl. ib. 299), new species. 5. *granulatum* (ib. 299), new species. 6. *subcostatum* (Dup. ib. 300), new species. B. Hind feet short, scarcely as long as the fore pair. 7. *elongatum* (Dej. ib. 301 = *Pim. marginata*, Hbst.) 8. *grande* (Gory, ib. 302), new species. 9. *ovatum* (Dup. ib.), new species. 10. *convexum* (Spin. ib. 303), new species. 11. *opacum* (Kl. ib. 303), new species. 12. *suturale* (*Moluris id.* Wied. ib. 304), new species. 13. *rugulosum* (Dej. ib. 305), new species. All from the Cape.—Perhaps Phanerostoma was the name intended. But I feel no doubt that the genus is identical with *Psammodes*, Kby., and *Ps. longicornis*, Kby., may be the same as the third species.

16. Genus *Hypomelus* (*id.* et *Trachynotus*, Dej.) Distinguished from the last by the head not being sunk up to the eyes in the corslet, and by the absence of the sharp outer edge to the fore shanks. A. Outer rim of the corslet spreading, the hind angles lengthened backwards. 1. *sabulosus* (Sturm, ib. 308), new species. 2. *obliteratus* (ib. 309), new species. 3. *obliquatus* (ib. 309), new species. 4. *inæqualis* (Reiche, ib. 310), new species. 5. *villosocostatus* (Reiche, ib. 311), new species. B. Corslet simple. 6. *bicolor* (*Sepidium id.*, Wied. ib. 312), new species. 7. *grandis* (ib. 313), new species. 8. *rugosus* (*Sep.*), F. All from the Cape. The last species differs from the rest in having a longer head, narrower corslet, and the eyes less convex, and not so crescent-shaped ("plus ouverts"), on which account it is treated as a peculiar subgenus, *Gonopterus*.

17. Genus *Trachynotus*, Latr. Distinguished from the preceding by the

roundish eyes. 1. *reticulatus* (*Sep. id.*), F. 2. *leucographus* (Fisch. ? ib. 319), new species. 3. *elongatus* (*Sep.*), Oliv. 4. *carinatus* (Reiche, ib. 321), new species. 5. *lacunosus*, Ill. (= *Sepid. plicatum*, Wied.) 6. *æneus* (Dej. ib. 323), new species. 7. *goryi* (ib. 324), new species. 8. *acuminatus* (*Sep.*) Quens. Schönh. 9. *vittatus* (*Sep.*) F.

18. Genus *Clinocranion*, Sol. Eyes rather rounded, as in the last, but the forehead descending perpendicularly (as in the Lamiæ); the feet longer, especially the fore pair, of which the first is longer than the last joint. Two species, both new. 1. *Cl. spinosum* (Gory): nigrum oblongum, prothorace lateribus antice serrato medio subuncinato, elytris punctatis granulatis et dorso spinis paucis, pedibus angustioribus. Long. 13 millim. 2. *planatum*: nigrum oblongum, prothorace lateribus obtuse angulatis ante basin emarginatis, elytris punctatis dorso tuberculis conicis acutis numerosis seriatis costa marginali serrata retrorsum spinosa, antennis compressis. Long. 17 millim. Both from South Africa.

19. Genus *Oxura*, Kby. With the head more slender, the corslet longer, almost cylindrical. 1. *setosa*, Kby. 2. *vestita* (Dej. ib. 331), new species. Both from the Cape.

Another new species belonging to the genus *Phanerotoma* is Moluris *bertolinii*, Guérin (Mag. Zool. Ins. pl. 148), from Mozambique. It is remarkable for its superior size and elongated figure.

Fischer v. W. (Bull. Mosc. 69) has considered the *Blaptidæ* of Russia much in detail. Of the genus *Blaps* in its restricted application forty-eight species are given, many of them new. Those with the corslet padded (pulvinate), and the scutel visible, are separated as the subgenus *Peltarium*; but the group cannot be preserved, since it is made up of species of *Blaps* propr. (as *Bl. caudata*, Gebl.), along with females of *Prosodes*, Esch. (*P. bicostatum*, *marginatum*, *punctatum*, Fisch.) So also the proposed new genus *Dila*, the majority of the species referred to which are males of Prosodes, Esch. (e. g. *D. attenuata*, Fisch., and *Blaps cylindrica*, Hbst.) Of all the species referred to the genus Dila, as far as I am acquainted with them, the first alone, Blaps *lævicollis*, Gebl., may claim to be considered as a distinct type, differing from Blaps by the narrow figure, and more especially by the toothed fore thighs. *Nyctipates*, Dej., is also admitted as a genus. It agrees with Prosodes in essential characters, and is distinguished by the angular margin of the shards, and the spiny outer edge of the fore shanks. Consequently Peltarium must merge, *Dila* be restricted to *Bl. lævicollis*, and Nyctipates be united with Prosodes (*Bl. attenuata*, F., *cylindrica*, Hbst.)

To the *Pedinites*, Fischer, v. W. has added *Platyscelis labialis* and *Pandarus femoralis* (Bull. Mosc. 122, 141), both from Anatolia; and to the *Opatrides*, *Opatrum granulosum*, from Songary; *intermedium*, from Southern Russia; and *pruinosum*, from Turkestan (ibid. 126); while *Notocorax westermanni*, from Java, has been made known by Mannerheim (ibid. 862.)

Of *Tenebrionides*, Westwood (Arct. Ent. pl. 87) has figured the several species of the remarkable genus *Chiroscelis*, including a very handsome new one, *australis*, from Southern Africa; but *Ch. passaloides*, Westw., can scarcely remain associated with this genus, the many-toothed fore shanks, broad hind shanks toothed at the tip outside, and the absence of the characteristic spots on the second segment of the abdomen, presenting differences of moment.

Fischer v. W. (Bull. Mosc. 123) has added to the genus *Calcar* two new species, *crassipes* and *sulcatus*, from Southern Russia.

Of the *Diaperiales* we have new species, *Uloma fahræi* and *westringii*, Mannerh. (Bull. Mosc. 850, 857), from Java, and *Boletophagus tricostatus* and *granulatus*, Fisch. (ibid. 128), the former from Turkestan, the latter from Songary.

New species of the *Helopii* are *Helops anthracinus* (Dej.), Küster (Käf. Eur. i, 47), from Sicily; *H. sulcatus*, Fisch. (Bull. Mosc. 124), from Anatolia; and *Strongylium rufipenne*, Kollar and Redt. (Hüg. Kaschm. 533, pl. 25, f. 3), from Cashmere.

Cistelides.—Mannerheim (Bull. Mosc. 197), has found in Finland a new species, *Mycetochares bimaculata*, in decayed birch timber.

Melandryadæ.—Braselmann (Verhandl. Naturf. Vereins preuss. Rheinland.—Yr. 1, p. 17) has given some account of the transformation of *Orchesia micans*. The larva, of which no farther description is given, lives in the common tinder boletus (*Polyporus igniarius*), winters there, and changes in spring, so that the perfect insect comes out in May. The author has attended more particularly to the mode in which this species leaps, which is effected by means of the hind legs, when the insect is laid on its back, in the same manner as in the Water-beetles, as *Cybister* and *Laccophilus*.

Mordellonæ.—Suffrian (Ent. Zeit. 25) has pointed out the characters which distinguish the sexes in the species of *Anaspis*. In the male of *A. frontalis* the segment last but two of the abdomen has a pair of narrow leaf-shaped appendages. This peculiar character is found in like manner in several other species which resemble the one named, including *flava* and *obscura*, Gyll. In *A. biguttata*, Marsh., the male is to be distinguished only by a sharp ridge down the middle of the last segment. In *A. ruficollis* and *thoracica*, and in the broader species in general, the author has discovered no external differences between the sexes.

A new species of *Mordella* is *M. troglodytes*, Mannerh. (Bull. Mosc. 198), from Finland. It is allied to M. pusilla, Dej.

Lagriariæ.—To the genus *Lagria* have been added the new species *ænea*, *variabilis* and *bicolor*, Kollar and Redt. (Hüg. Kashm. 533), from Cashmere; and *L. aureopilosa*, Le Guillou (Rev. Zool. 225), from New Guinea.

MELOIDES.—Fischer v. W. (Bull. Mosc. 130) has characterized the following new species: *Mylabris tauscheri*, from Turkestan; 11-*punctata*, 8-*notata*, *intermedia*, *marginata*, from Songary; 4-*signata*, from the Kalskir River; *Lytta togata*, from Songary. The last species, according to a specimen in the Berlin Museum received from Ménètries, has the strongest resemblance to L. vesicatoria, except that there is a broad yellow band down each shard, of which, however, one indigenous specimen in the museum shows evident traces. But the description does not perfectly suit the specimen sent as such, and there seems to have been some confusion between this and L. vittata, Brullé.

The following new species from Cashmere have been described by Kollar and Redt. (ibid. 535): *Epicauta rubriceps*, *limbata*, *Prionotus præustus*, *tunicatus*, *semivittatus*. The newly-established genus *Prionotus* has the form of Lytta with the trophi of Zonitis; the claws are cleft, one of the divisions being horny and pectinated. It is synonymous with *Sybaris*, Steph. Among the described species, *Lytta testacea*, F., and *icterica*, Sch., come under this group.

Guérin (Mag. Zool. Ins. pl. 141) has given a figure of *Tetraonyx flavipennis*.

Le Guillou (Rev. Zool. 225) has characterized *Zonitis tricolor*, a new species from Hobart Town, Van Diemen's Land.

CURCULIONITES.—Of Schönherr's 'Genera et Species Curculionidum' the first part of the eighth volume has appeared, containing the addenda to the *Cholides*, *Baridides*, and a portion of the *Cryptorrhynchi*. To the Cholides the following genera are added: *Polyderces*, containing Litomeus *zonatus* (Sch. iii), and a new species from St. Vincent's. *Brachycnemis*, the Litomerus 4-*signatus* (Sch. iii.) *Perideræus*, a new species, from Brazil. *Parallelosomus*, established for Calandra *planicollis*, F. *Pylarus*, one species from the Cape, new. *Nertus*, four new species from Brazil. *Liturgus*, one from New Holland, new. *Lyterius*, four species, including Rhynch. *musculus* and *abdominalis*, F. *Craspedotus*, a new species, from Brazil. *Nanus*, two American species, new. *Euerges*, one from Brazil, new. *Arthrotomus*, (Kl.) is introduced next after Trypetes. *Cyphorrhynchus*, the name (previously employed by Stephens) is changed to *Phacelobarus*. The Baridides receive the addition of the following new genera: *Apostasimerus* and *Eutoxus*, each with one new species, from Brazil. *Megops*, formed for Magdalis *morosus*, Germ. *Scambus* [a subgenus of Pimpla], several species, South American. *Apotomorrhinus*, two from the East Indies. *Dactylocrepis* (Dej.), the Cylindrocerus *flabellitarsis* (Sch. iii.) *Trachymerus*, one species, Brazilian. *Physomerus* Chevr.—genus of Hemiptera), one from Cayenne. *Odontocorinus*, one Mexican. *Torneates* (genus of Prionidæ), also a single species, South American. The genus *Cyrtomon*, previously characterized, is designated

by a new name, *Sphadasmus*, on account of the genus Cyrtoma among the Diptera.

The new classification of the Cryptorrhynchi is carried on in this part to the end of the division with the groove of the beak complete and closed behind. The new genera are, *Chætetectorus*, composed of Gastrocercus *bifasciatus* and *setosus* (Sch. iv.) *Bothrobatys* (Chevr.), with a single new species from New Granada. *Aonychus*, one from New Holland, which, like Anoplus, wants the claw-joint. *Euscepes*, one new species, West Indian. *Poropterus*, New Holland Insects, viz. Cryptorrh. *antiquus* and *succisus*, Er., and Acalles *conifer*. *Lembodes*, a new species, from Guadaloupe.

The Report for next year will embrace the conclusion of this grand work.

A couple of new genera have been established by Kollar and Redt. (Hüg. Kaschm. 538, pl. 26), *Dicranognathus*, very like Rhynchites, differing by the perpendicular beak, the structure of the mouth, and the proportions of the feeler-joints. One new species, *D. nebulosus*. *Pachynotus*, one of the Brachyderides, apterous, and without a visible scutel, the corslet elevated, broader almost than the shards; two species *globulicollis* and *angustatus*. The newly described species belonging to established genera are, *Blosyrus variegatus* and *costatus*, *Cneorhinus pictus*, *lituratus*, and *obscurus*; *Phyllobius jucundus*, *Hypomeces pollinosus*, *Cleonus* 6-*guttatus*, *Ptochus tigrinus*, *Omias crinitus*, *Lixus* 8-*guttatus* (which, from the figure, I take to be an Alcides), and *L. fasciatus*, all from Cashmere.

Schilling has given a methodical compendium of the Curculionidæ with elbowed feelers, collected in Silesia and the county of Glatz. (Arbeit. u. Veränd. Schles. Gesellsch. vaterl. Cult. 1844, i, p. 73.)

Walton has published very valuable critical remarks on the British species of *Rhynchites*, *Bruchus*, and *Apion*. (Annals Nat. Hist. xiii, 81, 216, 444;—a translation in the Entom. Zeitg.)

Blanchard (Ann. Soc. Ent. Fr. ii, p. 81) has given a list of the species of *Bruchus* collected in Sicily, amounting to thirty-five, of which seventeen are distinguished as new species by the abridged characters. Aubé and Chevrolat have, however, expressed their opinion that, if due regard were paid to the differences of sex and varieties, the number would be reduced considerably.

The new species of this family dispersed in particular essays are *Omias validicornis*, Märkel (Germ. Zeitschr. v, 250, 220), nearly allied to O. forticornis; it was found in the nests of Formica fuliginosa. *Anthonomus pyri*, Chevrolat (Rev. Zool. 135), corresponding to *A. ulmi var.* γ of Schönherr, which is found only on pear trees, and differs in several points besides from the original A. ulmi. *Cleonus margaritiferus*, Lucas (Rev. Zool. 267), from the country of Biskra, in Algiers. *Naupactus bridgesii*, Waterhouse (Ann. Nat. Hist. xiii, 54), from Chili. *Cratosomus consularis*, Guérin (Mag.

Zool. Ins. pl. 142), from New Granada. *Calandra aurofasciata*, De Brême (Ann. Soc. Ent. Fr. ii, 308, pl. 9, f. 7), from Columbia.

Bertolini (De duobus insectis Ulmo campestri et Pyro malo infensis, in the Nov. Comm. Acad. Scient. Bononiens. 1844, vi, 460) describes the natural history of *Orchestes ulmi*, the larva of which burrows in the leaves of the elm, and undergoes its transformation there also. The Beetle becomes injurious to the trees by its excessive multiplication.—Goureau (Ann. Soc. Ent. Fr. ii, 49) has described the transformation of *Phytonomus rumicis*.—Dieckhoff (Entom. Zeit. p. 383) has communicated notes on *Lixus gemellatus* and some allied species.—Loew. (ibid. 417) has called attention to the peculiar habits of the species of *Lixus* with the ends of the shards elongated and bent upwards, viz. that they are fond of descending under the surface of the water, especially when the sun is clouded.—Léon Dufour (Ann. Soc. Ent. Fr. ii, xi) has made some corrections of his former article on *Choragus sheppardi*, which relate to the form of the oral organs.

The development of *Hylesinus trifolii*, Müll., the grubs of which live in the roots of Trifolium pratense, and are often injurious to clover-fields, has been described by Schmitt. (Entom. Zeit. 389.)—Letzner (Arbeit. u. Verand. Schles. Gesellsch. 64) has noticed three species of *Eccoptogaster* on the elm. *E. scolytus* and *multistriatus*, which were intermixed, and *E. pygmæus*, living only towards the tops of the trees. They had killed the elm trees, which stood singly among the oaks and hornbeams in the park of Scheitnig. He had found also *Bostrichus* (*Cryphalus*) *asperatus*, Gyll., in Silesia, in spruce firs, several of which had perished by its ravages, the signs of which resemble nearly those of Cr. abietis. *Hylesinus pilosus* occurred along with it. (Ib. 68.)

Cerambycini.—Synopsis of the Cerambycidæ of Munich. (Dissert. inaug. von. Jos. Kriechbaumer, München, 1844.)

Of the group *Prionii* is a new species, *Cyrtognathus huegelii*, Kollar and Redt. (Hügel Kaschm. 550, pl. 28, f. 1), from Cashmere. *Aulacopus robustus*, Heyden (Entom. Zeit. 15), from Turkey, is by Germar (ibid. 82) identified as *Pr. serricollis*, Motsch.

The group *Cerambycidæ* has received additions in a "Note monographique" by Guérin (Mag. Zool. Ins. pl. 146; Rev. Zool. 257), on the genus *Amphidesmus*, founded by Serville for *Cer. analis*, Oliv. (*quadridens*, F.) Three new species are here added: *A. nietii*, from Mexico; *A. xanthomelas*, Chevr. (*hoepfneri*, Dej., *torquatus*, Kl.), do., and *A. westermanni*, from Guinea.

New species besides are, *Pteroplatus transversalis* and *nigriventris*, De Brême (Ann. Soc. Ent. Fr. ii, 309, pl. 9, f. 3, 4), from Bogota; *Chlorida cincta*, Guér. (Rev. Zool. 259), from Mexico; *Callidium angustum*, Kriechbaumer (Dissert. p. 8, black, shining, finely pubescent, pronotum rufous, as broad as long, elytra rugose-punctured, bluish-green), from the environs of

Munich; and *Callidium similare*, Küster (Käf. Eur. i, 54), from Dalmatia and Montenegro.

Of the group *Lamiariæ*, Chevrolat (Rev. Zool. 343) has described three new species of *Sternotomis* (*Cerosterna*, Dej.), *St. bohemanni*, and *niveisparsa*, from Christmas Bay, and *S. calliaudi*, found by Cailliaud, on his journey to Meroe, in a little oasis (El Uah el Bahryeh), and by Latreille (Voyage à Meroe) considered to be *L. ornata*, Oliv.

Westwood (Arc. Ent. pl. 69, 78, 84, 85, 86) has delineated the genus *Sternotomis*, and the kindred African forms more particularly. The new species are *St. virescens*, *palinii*, (which is afterwards (p. 147) identified with *L. principalis*, Dalm.,) both from Sierra Leone; *St. comes*, (which it is subsequently remarked is *L. cornutor*, F.); *St.* ? *princeps*, from Guinea; *St. eremita*, from Senegal; *St.* ? *bicolor*, from the Gold Coast; *St. amabilis*, from the Ashantee country; *St. ferreti*, from Abyssinia; *St. tagarvei*, from Guinea; and the two described contemporaneously by Chevrolat, *St. bohemanni* and *niveisparsa* (see above.)

The following also are new: *Batocera princeps*, *Cerosterna fasciculata*, *Phytæcia pallidipennis* and *interrupta*, Kollar and Redt. (Hüg. Kaschm.), the first from Massuri, in the Himalaya, the others from Cashmere; *Saperda* (*Isoscelis*) *nigriceps*, White (Ann. Nat. Hist. xiv, 425), from Hong Kong; *Amphionycha luctuosa*, Leseleur (Guér. Mag. Zool. Ins. pl. 138), from the interior of Brazil; and *Oberea ragusana* (Dej.) Küster (Käf. Eur. i, 55), from Dalmatia.

Of the *Lepturetæ*, the genus *Euryptera* has received the addition of a new species, *E. venusta*, De Brême (Ann. Soc. Ent. Fr. ii, 311, pl. 9, f. 8), from Brazil.

The transformation of *Ergates faber* has been described by Lucas (Ann. Soc. Ent. Fr. ii, 161): of *Morimus lugubris* and *Saperda scalaris*, by Goureau (ib. 427); of *Oberea pupillata*, by Serville (ibid. L.)

Chrysomelinæ.—Suffrian (Eutom. Zeit. 49, 89, 135, 186, 206, 241, 270) has published an arrangement of the German species of *Cassida*. This work is the more welcome, as there are great difficulties in the determination of a number of the native species. The essay is important also in other respects. The golden and mother-of-pearl gloss in several species has been carefully attended to. By repeated observations the author has made out that this gloss in most of the species appears not till a long time after the nymph skin is cast, and simultaneously with the maturity of the sexual faculty; that is, in many species, not for three or four weeks, and in that case the specimens without the gloss are as common as those that possess it, or even more so (*C. hemisphærica*, *sanguinosa*, *vibex*, *denticollis*, *chloris*, *sanguinolenta*, *lucida*, *nebulosa*, *obsoleta*); in others the period is shorter, and individuals destitute of the gloss are rare (*C. nobilis*, *oblonga*); while in others yet the

gloss seems to show itself as soon as the skin hardens (*equestris, margaritacea, ferruginea*). The like takes place with the blood-red or testaceous colour, at the base of the shards, observable in many species; in *C. vibex* alone it appears in individuals newly disclosed, in the rest not till after a greater interval, and that immediately before the metallic gloss, as the author has observed in *C. vibex* in particular. The species are grouped according to the puncturing of the shards.

I. The punctures scattered: 1. *C. equestris*, F. 2. *hemisphærica*, Hbst.

II. With punctures in rows, without regular ridges down the shards.

A. Lateral rim bent upwards: 3. *C. austriaca*, F. 4. *vittata*, F.

B. Lateral rim flattened out: 5. *C. murræa*, L. 6. *sanguinosa*, Creutz. (*prasina*, Hbst.) 7. *rubiginosa*, Müll. (along with the nearly related, similarly ornamented species of Southern Europe, *lata*, Suffr., *deflorata*, Ill., *hexastigma*, Kunzé, *depressa*, Heyd.) 8. *thoracica*, Kug. 9. *rufovirens*, Suffr., new species, from different parts of Germany. 10. *vibex*, L. 11. *denticollis*, Suffr., new species, from Northern Germany. 12. *chloris*, new species, diffused over almost the whole of Germany, with which, perhaps, 12^{b}, *C. stigmatica*, Ill., should be united as a sub-species. 13. *C. sanguinolenta*, Müll. 14. *lineola*, Creutz. 15. *azurea*, F. 16. *lucida*, Suffr.; a species like the last, very brilliant when living, found in all its states upon Cucubalus behen, near Ems.

C. The lateral rim descending abruptly: 17. *C. margaritacea*, Schall. 18. *subreticulata*, Meg., from Austria. 19. *nobilis*, L., with which 19^{b}, *C. viridula*, Payk., as it seems, should be joined as merely individuals not fully coloured. 20. *oblonga*, Ill., with a kindred new species, *C. puncticollis*, Heyden, from the south of Europe.

III. Shards punctured in rows, with regular elevated lines down them: 21. *C. berolinensis*, Dej., distinguished by the yellow colour of the underside. 22. *obsoleta*, Ill. 23. *ferruginea*, F. 24. *nebulosa*, L.

IV. Shards wrinkled: *C. atrata*, F.

Cassida nigra, F., according to the specimens preserved in the Berlin Museum, should be referred to *C. equestris*, as individuals blackened by unknown causes. The specimen described by Herbst, which is in Schüppel's cabinet, according to information communicated orally by the possessor, does not belong to the same species, but is a similarly disfigured *C. nebulosa*.

Delocrania cossyphoides, Guérin (Mag. Zool. Ins., pl. 131), from Brazil, is a new form of Hispa, with elongated slender body, and the side rims of the corslet and shards dilated simultaneously, those of the corslet extending much further forwards than the head, which, therefore, is seated in the bottom of a deep bight. Another new *Hispa* is *H.* (*Uroplata*) *leseleurii*, Guér. (Mag. Zool. Ins., pl. 143), from Cayenne, remarkable for the form of the

feelers, the joints of which are all consolidated except the first two, a circumstance which is of frequent occurrence among the American Hispæ, in particular of this group, though not often to so great an extent.

The genus *Prioptera*, Hope (*Basiprionota*, Chevr.), has received the addition of a new species, *Pr. westermanni*, Mannerheim (Bull. Mosc. 864), from Java.

Of *Alurnus* there are two new species from Columbia, *A. undatus* and *cyaneus*, Reiche. (Ann. Soc. Ent. Fr. 2, 311, pl. 11, f. 5, 6.) The enlarged rim of the shards gives a peculiar aspect to the latter species.

Küster (Käf. Eur.) has described a number of *Chrysomelæ*, including several new species: *Chr. viridana*, Dahl., from Sardinia; *mixta*, Ziegl, from the south of France; *distincta*, Dej., probably of the same country.—*Chr. megerlei* is a mere local variety of *Chr. cerealis*, and so probably is the *Chr. hæmoptera* of the author. *Chr. bicolor*, K., from Greece and Dalmatia, is not the Fabrician species of that name (*viridicærulea*, Forsk.), which is a variety of *Chr. regalis*, Oliv., but is the same as *Chr. vernalis*, Brullé. The following references may be added to *Chr. salviæ* (Dej.), Küst. 'Germ. Sp. Ins. 586, 817,' to *Chr. diluta*, Hffg., 'Germ. ib. 591, 827.'

Letzner (Arbeit. u. Veränd. Schles. Gesellsch. 69) has reviewed the varieties of *Chr. salicis* and *collaris*, F., which occur in Silesia.—*Chr. perforata*, *caschmirensis* and *speculifera*, *Phædon nigromaculatum* (differing from the rest in wanting the scutel), are species from Cashmere, described by Kollar and Redt., (Hüg. Kaschm. 557, 562). *Chrys. 14-punctata*, F., which belongs to the genus *Podontia* of Dalm. (Eph. Entom.), is enumerated by them among the species of *Gonioctena*, with the remark that there is no material difference between these genera. I have, however, observed in Gonioctena (= Phytodecta, Kby.) a character peculiar to itself, a deep round cavity at the outside of the upper jaws, which receives the end-joint of the jaw-palps.

The natural history of the *Colaspis* (*Colaphus*) *atra* (*Chrysom. id.* Ol. = *Col. barbara*, F.), has been fully given by Joly (Ann. Sc. Nat. ii, 5.) This species is becoming more and more diffused through the south of France: both the Beetle and the Grub do considerable mischief to the fields of Lucern.

Rouget (Ann. Soc. Ent. Fr. ii, 207) has described both sexes of *Cryptocephalus* (*Homalopus*) *loreyi*. The male is smaller, and has the fore feet and hind shanks enlarged. The Beetle lives on the oak.

Mannerheim (Bull. Mosc. 201) has found on willows, in Finland, a new species, *Cryptocephalus furcifrons*, allied to Cr. pallifrons, of a lighter blue, the thorax unspotted and without impressions.

From Cashmere are the new species, *Clythra dispar*, *ornata*, *Coptocephala signaticollis*, *Cryptocephalus sannio*, and *tricinctus*, Kollar and Redt. (Hüg. Kaschm. 560.)

In the group of the *Gallerucæ*, a new genus has been characterized in the same work (p. 556, pl. 28, f. 2), *Œdicerus*, with the fifth and sixth joints of the feelers much swollen and peculiarly formed in the male. The genus is nearly allied to Cerophysa, Dej., but it is the sixth and seventh joints that are thickened in the latter. The species *Œ. cyanipennis*, from Cashmere, is new Other new species are, *Galleruca fulgida*, from the Himalaya, *G. interrupta*, *bicolor*, 6-*maculata*, *Phyllobrotica lunata*, from Cashmere. (Ibid. 553-556.) Of *Adimonia* there are the following new species: *A. brachyptera*, Küst. (Käf. Eur. i, 61), from Naples, allied to A. marginata, and *A. villæ* (Dej.), Küst. (ib. 64), from the Alps of Lombardy. (*A. reticulata*, Ziegl., Küst., has been previously described by Germar and Duftschmidt as *Gal. rufa*.) *A. circumcincta*, Mannerheim (Bull. Mosc. 199.) Lastly, *A. orientalis*, Osculati (Coll. racc. p. 72, No. 9): "Nigra opaca punctis crassis reticulata, elytris costis quatuor obsoletis ad apicem confluentibus:—Affinis A. artemisiæ et tanaceti, at major, elytris rugosioribus punctis crassioribus, et minus convexa." Very common in the valleys of Western Persia.

Coccinellidæ.—New species: *Cocc. basalis*, *Epilachna ocellata*, and 10-*maculata*, Kollar and Redt. (Hüg. Kaschm. 563), from Cashmere; and *Lithophilus osculati* (Marietti), with the specific character as follows: "Ovatus subdepressus griseo-ferrugineus pubescens, capite clypeo porrecto, thorace lato subquadrato marginibus rotundatis, elytris convexiusculis leviter marginatis margine acuto." Found at Constantinople, under dry moss in the cemetery (Campo de Morti); not common. (Osculati, Col. racc. 72, No. 4.)

To this family I would refer provisionally the genus *Cholovocera*, Motsch., of which Märkel has made known a second species, *Ch. punctata*, from Sicily. (Germ. Zeitschr. v, 247, 255.)

Endomychidæ.—Motschoulski (Guér. Rev. Zool. 442) observes upon the genus *Calyptobium* and *Holoparamecus*—1, that *C. villæ*, Aubé (= *Hol. depressus*, Curt.) was previously described by Beck (Beytr. z. Bairisch. Ins. Fna.) under the name *Sylvanus singularis*; and 2, that, with Curtis, he finds the feelers nine-jointed. Guérin (ibid. 443) confirms the latter remark, and is inclined to separate the species with eleven-jointed feelers, as the genus *Calyptobium* (*caularum*, *kunzei*, *nigrum*, Aubé), from *Holoparamecus*, with nine (*H. singularis*). In this he seems to be too precipitate. The data as to the composition of the feelers are not yet satisfactory, for I find them eleven-jointed in *caularum* and *nigrum*, ten-jointed in *kunzei* and *singularis*, and in other specimens of the last two nine-jointed. The undescribed species in the Berlin Museum have, some eleven joints, like caularum, some ten, as specimens of singularis. Hence we have provisionally two sections, one with eleven, the other with ten or nine joints in the feelers. In figure these sections differ in this respect, that the corslet is more pinched in behind in the first. But

to make them distinct genera, some more comprehensive characters would be required in connexion with those assigned.

Lathridii.—Mannerheim (Germar's Zeitschr. v, 1) has given a very copious and elaborate Monograph of the genera *Corticaria* and *Lathridius*. Sixty species of the former, of the latter forty-six, examined by himself, are described with exemplary particularity. Of species previously described but which he had not seen, six are given under the former, five under the latter genus.

[Among those given as new, or not described before, of the genus *Corticaria*, there are found in western or central Europe (many of them having a much wider range still), *C. piligera, badia, melanophthalma, cylindrica, crenicollis, brevicollis, crocata, truncatella*. *C. fuscipennis* is from Italy; *C. interstitialis*, from Lapland. Other species from Sweden, Finland, and Northern Russia are, *C. laticollis, lacerata, lateritia, hortensis, subtilis*. The countries about the Black Sea and Caspian, and the Caucasus have afforded further, *C. campicola, tincta, axillaris, illæsa, 4-maculata, baicalica, curticollis, taurica, suturalis, pallens, ericea, parvicollis, picipennis;* while *C. intricata, diluta, saginata, concinnula, gracilis*, and *armata*, have been found only in Siberia; lastly, there are two new from North America, *americana* and *cavicollis*.

Of the new species of *Lathridius*, more than the half are found in western and central Europe, viz. *angulatus, alternans, incisus, clathratus, collaris, nanulus, concinnus, rugipennis, planatus, anthracinus, assimilis, scitus, brevicornis, carbonarius, parallelus, tantillus*. *L. liliputanus* is Italian; *L. lapponicus* from Lapland. Sweden and Finland have added *L. variolosus consimilis, gemellatus, parallelocollis;* Southern Russia and the adjoining countries, *L. caucasicus, volgensis, monticola, anatolicus;* from Siberia also there are four, *attenuatus, nervosus, carinulatus*, and *dubius;* and one from Brazil, *L. braziliensis*.]

ORTHOPTERA.

Of Von Charpentier's Orthoptera descripta et depicta, a 10th Number has appeared, which concludes the work.

The third volume of Ratzeburg's 'Forstinsekten,' treating of the Hymenoptera, Diptera, Hemiptera, Neuroptera, and Orthoptera, contains a variety of observations on the natural history of the Orthoptera. The insects of this order are of very subordinate importance in the woodlands. The Mole-cricket, if any, may perhaps deserve attention. As some suspicions are here cast on the *Locustæ* (*Acridæ*, Lch.), these should be commended the more particularly to the protection of the forester, as they feed

not on leaves only, but also on other insects, and on caterpillars as well as flies. (Report for 1843, p. 160.) Klug once found *Locusta viridissima* devouring a caterpillar of *Sphinx pinastri*.

Hagen (Ent. Zeit. 364) has made the observation in the case of two Orthoptera, *Aeschna grandis* and *Gryllotalpa vulgaris*, that the spinal cord [rachis] consists not of two but of four strings, two upper, and two lower, the latter alone forming ganglions, the former simple throughout. This agrees exactly with the researches of Newport, who, in the separation of the upper and lower cords, recognizes the division between the nerves of sensation and those of motion. (Report for 1843, p. 117.)

Zimmermann's explanation (Wiegm. Arch. Yr. 9, i, p. 390) of his statement about *Mantis carolina* devouring Amphibia, has been copied into the 'Annals of Nat. Hist.' (xiv, 78), but in a form so abridged that the most material points in this communication have been overlooked, in particular the admission that the greatest part of the lizard, given as food to his Mantis, as well as of the frogs, toads, caterpillars, and locusts, remained unconsumed, although none of them escaped alive. In Zimmermann's first published communication it was expressed: "It (the Mantis) *consumed* daily some dozen of flies, sometimes also great locusts, and some young *frogs*; and even a *lizard* of the striped sort three times its own length." (See Burm. Handb. Ent. ii, 538). It was this which I regarded as a joke (Rep. 1838, p. 387), and which Zimmermann, in his last communication, has in effect retracted.

Spectra.—V. Charpentier (Orthopt. pl. 55) gives a very accurate figure of *Diapherodes gibbosa*, Burm., from the specimen in the Berlin Museum, and (pl. 56, 57) figures of *Podacanthus unicolor* and *Bacillus australis*, both from New Holland.

A learned essay by the same,—Observations on Lichtenstein's treatise on the species of Mantis, in the Transactions of the Linnæan Society of London, vol. vi, 1802,—is inserted in Germar's Zeitschrift (v, p. 272-311.)

Locustariæ.—Westwood (Arcan. Ent. pl. 70) has figured two extraordinary species of *Phaneroptera* with foliaceous or spinous processes of the hind thighs, *Ph. alipes*, from Columbia, and *Ph. hystrix*, from Mexico.

Achetæ.—Fieber (Entom. Monogr. p. 126, pl. 10, f. 11) has added to *Nemobius* another European species, *N. frontalis*, new species, inhabiting Bohemia and Austria.

Acridii.—Charpentier (Orth. pl. 58, 59) has figured a new genus, *Coryphistes*, differing from Opsomala by the thick body and the thick puffy forehead, from Xiphocera by the cylindrical form, the shape of the wings, the short legs, and minute prickles of the hind shanks. Peculiar to New

Holland, two species from which, *C. rhodophilus* and *cyanopterus*, are figured. The author suspects Xiphocera *ruricola*, Burm., may be a third. Both the sexes of *Acridium mœstum*, Serv., from the Cape, are given also. (Ibid. pl. 60.)

Fieber (Ent. Monogr. p. 134, pl. 10, f. 17-19) gives a third German species of *Tettix*, under the name *schrankii*, distinguished from T. bipunctata principally by the sharp upper edge of the hind thighs running without interruption to the knee, while in the latter it terminates abruptly before this. Farther, he has made a distinct group, Tettigides, in the family Acridii, out of the genus *Tettix*, Latr., *Amorphus*, Serv., *Plagiocephalus*, Fieb., *Chorophyllum*, Serv., and *Batrachotetrix*, Burm., characterized by the fore rim of the fore breast (propectus) enlarged like a collar, the fore chine (pronotum) elongated behind, and the want of the empodium. The new genus *Plagiocephalus* is founded on a new species discovered by Helfer, in the East Indies, *P. pachymerus*, nearly related to Tettix and Chorophyllum, and distinguished by the broad short head with receding forehead, the high arched and sharp-ridged (fastigiated) fore chine, as long as the abdomen, the hind thighs very broad, the keel of the middle shanks flounced and scalloped.

Bohemann has laid before the Stockholm Academy (Ofvers. Förhandl., 1844, p. 405; Hornschuch's Scand. Beitr. i, 162) an account of the appearance of a swarm of Locusts, *Gr. migratorius*. They were observed in Ostrogothia, where they perched on the tallest oaks and ash trees, as if it had been a field of clover, but disappeared in a few hours. In Wikboland they made their appearance also, greedily attacking the grass and foliage, and not letting even the stacks of corn alone.

Perlariæ.—Newman has discovered gills in *Pteronarcys regalis* in the perfect state. (Ann. Nat. Hist. xiii, p. 21; Ann. Sc. Nat. i, 183; Froriep's N. Notiz. xxx, 179.)

This is the first instance of such organs being found in the perfect insect. They are tuft-shaped (branchiæ fasciculares), composed of eight pairs of gill-pouches, from which a number of long setaceous filaments spring on the outside, forming collectively a thick tuft on each of the pouches. These are placed (as Pictet has described them in the larvæ of Nemura cinerea) above the true breathing-holes or spiracles; to be specific, the first pair at the underside of the fore chest (prothorax), in the membrane between the head and the fore breastplate (prosternum); the second and third, consisting of two tufts each, between the fore and mid, the fourth and fifth between the mid and hind breastplate, behind the middle pair of hips; the sixth in the junction of the thorax and abdomen, behind the hind hips; the seventh and eighth pairs, each consisting of a single tuft, more towards the sides, the seventh on the first, the eighth on the second segment of the abdomen. The latter two pairs have the same position as the apparently

closed or effaced spiracles in the following segments. The position of the gills, accordingly, is as uncommon as their presence at all in a perfect insect. The pupa has the gills likewise, only still more developed. Pictet has remarked that the larvæ throughout this family have gills on the chest, with the exception of Perla virescens and nigra, which would seem to indicate a different mode of life in these species. The same is the case with the pupæ of Pteronarcys regalis and Perla abnormus, Newm., respectively. According to Mr. Barnstone's observations, the former lives in the water at the bottom of the river, the latter in the chinks of the float-wood, and trunks of trees, upon the banks, &c. Pt. regalis is a nocturnal insect, lurking by day in damp places under stones. Consequently it may breathe through its gills, as it is not indispensable that these should be in immediate contact with water, they perform their function equally well if the air is only moist enough to keep them pliant. A closer anatomical examination will be necessary to determine whether it possesses tracheæ also, for though there are orifices on the underside of the chest, they are in an unusual position, in the middle of the respective breastplates (sterna), partly between the hips, and it is questionable whether they communicate with tracheæ. The presence of gills seems to be one of the distinctive characters of the genus *Pteronarcys*, as they have been found in *Pt. regalis, biloba, proteus*, and in an undescribed species. In dried specimens they shrink up and are often lost, though their existence can usually be ascertained.

Libellulinæ.—Selys Longchamps (Rev. Zool. 135) has discovered a new European species of *Cordulegaster*, and has distinguished it, as *C. bidentatus*, from C. annulatus, which it much resembles.

Hagen has endeavoured to prove that the *Libellula vulgaris* of Linnæus is Donovan's *L. scotica* (Ent. Zeit. 257); subsequently (p. 290) he has shown that *L. cancellata*, L., which Zetterstedt has referred to *L. scotica*, Don., belongs in reality to the species commonly known for it [*L. lineolata*, Charp.], and that the name *scotica* must be retained, as the oldest, for the other species [*L. nigra*, Charp., Burm.]

NEUROPTERA.

Hagen has reviewed the recent works upon the genus *Raphidia*. (Ent. Zeit. 180.)

HYMENOPTERA.

The article upon this order in Ratzeburg's Forstinsekten (vol. iii, pp. 1-14) has a claim to be noticed more parti-

cularly, on account of the number and novelty of the observations on their economy and development.

The only tribes injurious to the forests are the Tenthredinetæ and Siricites, especially the former of these, among which the genus Lophyrus and a number of Lydæ infest the Coniferæ. The Gallflies (Cyniphidæ) have little influence on the woods, and accordingly the author does not go into details with respect to that family. Wasps again are enumerated among the injurious insects, on account of the hornet, which sometimes kills the young shoots by barking them. Other kinds are named as useful on account of their preying on insects. For the same reason the sand-wasps (genus Sphex, L.) are placed among the kinds that are beneficial in woodlands. Particular attention has been given to the Pupivora (Ichneumonides and Pteromalina), as to which the author's researches are given in greater detail in a work published separately, though in substance a sequel to this. (Die Ichneumonen der Forstinsekten in entomologischer und forstlicher Beziehung. Berlin, 1844.) As respects the economical importance of these in woodcraft, the author opposes decidedly the notion that they are very efficient checks on the excessive multiplication of noxious insects. He even goes so far as to maintain that none but the sickly caterpillars, which would have perished at all events, are stung by the ichneumon flies; according to this view, the admitted use of the parasites would consist in this, "that they help to clear away quickly the diseased eggs, caterpillars, and chrysalids, which are crowded together millions upon millions, in some instances even to exterminate in a short time some devourer, which might otherwise have left behind a scanty progeny. In this manner the animal juices in course of disorganization, which are ready to infect the air with their smell and exhalations, are gradually converted into healthy living animal masses, just as the diseased sap of the fir tree is formed into vigorous healthy bark-beetles, Bostrichi, &c." (Ichn. Forstins. 32). It may often be the case that particular sorts of ichneumon flies touch only the sickly caterpillars, and the author has done well to fix attention on this circumstance, but his doctrine, in the full extent conveyed above, is not tenable, and is in contradiction to the fact known to every Lepidopterist of the least experience, that fine specimens may be reared from caterpillars that have been pricked, if the egg be carefully extracted. The Pupivora are, in fact, an important agent by which Nature checks the inordinate increase of particular sorts of insects, but as their own existence is dependent on that of the sorts which they infest, they cannot show themselves in hosts corresponding to the multiplication of the latter races, until these have existed for a certain length of time, for which reason the appearance of the parasites in numbers falls in with the period when diseases break out among the hosts of caterpillars, which of themselves would put a stop to their ravages.

Dahlbohm has published a second part of his 'Hymenoptera Europæa,' but as a third part has appeared since (in 1845), completing the first section of the work (the genus Sphex in the Linnæan acceptation), and containing the supplement to the first part, I reserve the review of the work for the next year's Report.

[A. de Pohorsky Joranko (Bull. Mosc. 149, pl. 6) has examined very particularly the structure of the frog (pulvillus) between the claws in this order. He finds it to be much more complicated than in Diptera, and confirms the opinion of Leach that it acts as a sucker. The description is taken from Apis mellifica, but he finds the structure nearly alike in other Apidæ, Vespidæ, Tenthredinidæ, Crabronidæ, Chalcidæ, Cyniphidæ, and Scoliadæ.]

Herrich Schäffer has given copies of Curtis's figures of Hymenoptera (some Pteromalina, the rest Oxyura) in No. 184 of his continuation of Panzer's Fauna.

Siebold has given a list of the Tenthredinidæ, Siricidæ, and Cyniphidæ of Prussia, with an appendix to the Fossoria. (Preuss. Prov. Blatt. 121.)

Tenthredinetæ.—Ratzeburg (Forstins. iii, 135; Entom. Zeit. 148) distinguishes the false caterpillar of the *Cimbex* that lives on the alder, figured by Degeer, Frisch, and Roesel, as belonging to a peculiar species, *C. humboldti*, the fly scarcely to be known from C. variabilis, the larva of which feeds on the birch. A male reared from one of the larvæ from the alder has been compared with the specimens of C. variabilis in the Berlin Museum; and, though no specimen was found among these, agreeing perfectly with it, the distinguishing marks which the author gives are of such a nature that the fly cannot be known with certainty by them; being such as either rest upon a "more" or "less," or else occur in some individuals of C. variabilis, for example, the colour of the feelers, and the shade of a reddish pile upon the abdomen. Further observations are necessary to establish the propriety of considering this as a distinct species, the more so as the larva of C. variabilis is known to undergo considerable variations in colour. The author takes no notice of its occurring upon willows also.

Snellen von Vollenhofen (Hoev. Tijdschr. x, 97, pl. 2) has described the larva of *C. lucorum*, about which there has been much uncertainty until now. It is light green with mealy white stripes, a dark green stripe down the back, the head light green, with the crown orange or ochre brown. It is found on the hawthorn. The pupa case is not open net, like that of C. amerinæ, but of a close texture, as in C. variabilis. An appendix to this paper (ibid. xi, 157) gives the descriptions of the larvæ of *Tenthredo* (*Selandria*) *sericans*, which lives on the ash, of *Nematus virescens*, Hart. *Cladius eucerus*, Kl., *uncinatus*, Kl., and *Nematus cæruleocarpus*, Hart.

Lyda ratzeburgi (Dahlb.—Ratzeburg Forstins. iii, 80) is a new species of Northern Germany and Sweden.

Förster (Entom. Zeit. 262, 287) has described as new a number of species collected about Aix la Chapelle, of which,—1. *Monophaduus inquilinus*, reared from many-chambered spongy galls on oak twigs, does not differ in the description from *Tenthr.* (*All.*) *melanocephala*. 2. *Dineura dorsalis* is a slight variety of *T.* (*All.*) *opaca*, F., (*verna*, Kl.) 4. *Perineura ducalis*, the male of *T.* (*All.*) *nitida*, Kl. 5, 6. *Allantus decipiens* and *omissus*, varieties of *T. marginella*, F., which is very inconstant, not only in the markings of the body, but also in the colour of the wings. Only the third species, *Cephus flaviventris*, which I do not know, appears to be new.

Gimmerthal (Entom. Zeit. 36) has published descriptions of some new Tenthredinidæ which were collected, in the neighbourhood of Riga, upon young pine trees. The three species of *Nematus*, *flavus*, *schmidtii*, *klugii*, are, in Hartig's opinion, new, though not described particularly enough to be identified with certainty. 4. *Dineura hartigii* is a variety of *T.* (*All.*) *degeeri*, Kl., and 5. *Eriocampa livoniensis*, as it would appear, *T.* (*All.*) *æthiops*, F.

Curtis (Trans. Linn. Soc. xix, 249, pl. 31) has described the singular chrysalid web of a Brazilian insect allied to Hylotoma, for which he makes a new genus, *Dielocerus*, corresponding to the fifth sub-section of Hylotoma in Klug's arrangement, (Jahrbuch. 248). With Schizocerus it agrees in the third joint of the feelers in the male being cloven, but the parts of the mouth differ, the upper lip being nearly circular, and the inner blade of the jaws not narrower than the outer one. *D. ellisii*, Curt., ♂: Blackish blue, the base joints of the feelers, the face, the collar, and the legs, red, the hind feet black, the wings limpid. The female agrees with the same sex of Hyl. formosa, Kl., in most respects, except that, as the author remarks, the second feeler-joint is brown above, the belly not red at the base, and the hind shanks not entirely black, but yellow at the root and inside, the hind feet in both species are brown, with the base whitish. The larva is 16-footed, hoary green, with cross rows of black warts, the head rufous, with a black spot round each of the eyes. When preparing for their transformation, the larvæ unite in spinning upon a branch a nest of an elongated oval shape, 4-5 inches in length, or it may be larger or smaller. Within this each of the larvæ has its separate solid cell so arranged that the longer axis is at right angles with that of the twig, and the cells are set almost as close to one another as in a honeycomb. The individual cells are laid over each other in three or four layers, so that the undermost lies immediately against the twig, and that every one of them is detached at both ends. The whole is then surrounded with a common case, which consists of a coarse open silk inside, and outside of a close web, washed over, as it were, with

some sort of gum. (The Museum of Berlin has similar webs, sent over by Beske, which, almost without exception, had the larvæ still inside them.) —Two new species of Hylotoma, from Brazil, *Schizocerus nasicornis* and *ochrostigma*, Curtis, are also described. (Ibid. 254.)

Ichneumonides.—Ratzeburg (Ichn. Forstins.) has traced for us the development of some ichneumon-flies. 1. *Anomalon circumflexum*, a parasite of Bombyx pini. The larva, which full-grown is nearly an inch long, passes through several stages of growth. In the first, when less than a line long, it has no trace of tracheæ, the horny head with only one pair of stout jaws, a long pointed appendage at the hinder end. Thus it is found inside caterpillars of 6-8 lines length, without a case. In the second stage the main trunk of the tracheæ with insulated embranchments appears, rudiments of feelers without joints, the tail-piece contracted, from being half, to a quarter the length of the body; as before, without a case. In the third stage, the larva is enveloped in a delicate milk-white membrane, in which no trace of vessels and orifices can be discovered, even with glasses of the highest magnifying power. Notwithstanding, the author is inclined to regard it as a skin cast off and inflated, although in that case the spiracles as well as the parts of the mouth could not fail to be distinguished. It is, therefore, much more probable that this bag is analogous to the cyst of Entozoa, consisting like it of an unorganized membrane, deposited about the parasite from the creature it inhabits. The larva, now 4-5‴ long, has the tracheæ perfectly branched, the jaws are accompanied by an under pair, and a lip with jointed palps, and there are jointed feelers. The tail-piece is now quite short and bent like a reaping-hook. In the fourth stage the tail is gone, the head has lost its horny consistence, and the parts of the mouth have reverted to the abortive condition which is observed in the larvæ of the other Ichneumonidæ. At the end of this period the larva undergoes its transformation within a delicate dry case inside the caterpillar. He calculates the period of development from first to last at three months. 2. *Banchus compressus*, F. The pupa-cases are found commonly where Noctua piniperda abounds, under moss, along with the chrysalids of the moth. The larva inside them is 6-7 inches long, dark yellow, with the parts of the mouth formed as usual in this family. Frequently also the white grubs of an ichneumon-fly were found inside these cases, doubtless those of some parasite of the Banchus, which Ratzeburg did not succeed in rearing. 3. *Ichneumon*. The larvæ infest Lepidoptera in particular, both as caterpillars and as chrysalids. That of *I. pisorius*, which is found in the caterpillars of Bombyces, is $1\frac{1}{4}$ inch long, very thick, flabby, and puckered, of a yellowish white, the head pretty large, the parts of the mouth very imperfectly developed, adapted for suction only. 4. *Phygadeuon pteronorum*, Hart. The larva sucks, from the outside, the false caterpillar of Lophyrus

pini, when it has already spun its web, and it shrinks up in proportion as the parasite grows. The habits of *Tryphon eques* and *Exenterus marginatorius* were similar. 5. *Microgaster nemorum*, Hart. Here again remarkable changes were observed in the larva. In the first stage, the larva, of 1 line in length, has nothing remarkable besides the large vesicle at the hinder end. In the second, it is $1\frac{1}{2}'''$ long; near the alimentary canal (filled with a parenchymatous mass) a pair of forked silk-vessels are discernible; the vesicle seems to be set with little pointed tubercles; the organs of the mouth are merely indicated by four warts. In the third stage the tracheæ are developed; and in the last, in which the larva bores through the skin of the caterpillar infested, to spin its cocoon outside, the vesicle is gone, the several segments have on the upper and under-side crossrows, at the sides oblique rows, of prickles set upon knots; the parts of the mouth are very faintly developed, only the upper jaws were found well-formed and horny (see his note). A considerable number of new species are described, which I omit without scruple, as the original work is indispensable in studying the species of this family. Only one new genus must be noticed, *Macropalpus* (vox hybrida!), founded upon *Eubadizon leptocephalus*, Hart., distinguished from that genus by the stout palps* and the narrow crown of the head, and by the former character also from Microdus, which it resembles greatly in form. It is a very common parasite of Tortrix buoliana. [This is evidently identical with *Microdus obscurator*, Nees (although Ratzeburg expressly refers to the latter in comparison), and has already, as the type of a distinct genus, received two different names. (See Westwood's Mod. Classif. Ins. Synops. 63, g. *Orgilus*.)

It is some matter of regret that Ratzeburg had not enjoyed the leisure necessary for an attentive study of the various essays on these tribes which have appeared within the last few years, in particular the comprehensive works of Wesmael and Walker. His remarks on classification evince a quick eye and sound judgment; but, in default of sufficient intimate acquaintance with the labours of his predecessors, the species given as new are not in every instance brought under their proper genus, and many of them, doubtless, may be found described already. The descriptions, though sketched with a masterly hand, are so concise that it may be sometimes difficult to ascertain the precise subjects of his interesting observations, except by a reference to the authentic specimens of his collection (at Neustadt Eberswalde), now the property of the state. It were to be wished that some one of the learned Hymenopterists of Germany would confer on science the benefit of such a collation and critical revision of the whole. It is proper to remark that the suggestions to his professional associates,

* In the text it is "feet," obviously a misprint.

concerning the publication of new species, if followed, would tend to increase the inconvenience under which Entomology labours, of a discordant and undigested heap of synonyms. This consideration may, perhaps, justify a rather closer criticism than we should otherwise be inclined to exercise upon the systematical notices which have been but the recreations interspersed among official duties and diligent observations in Physiology. As the work is not so accessible to English as to German readers, it may be well to go a little more into detail.

Of new species there are described under *Ichneumon* 10, *Tryphon* 4, *Cryptus* 3, *Hemiteles* 4, *Pezomachus* 1, *Mesochorus* 4, (he observes that this genus has more affinity to the group of Ophiones than of Crypti,) *Glypta* 1, *Polysphincta* 2, *Pimpla* 6, *Campoplex* 7, *Anomalon* 5, *Ophion* 1. Of *Exochus* it is remarked that it is related more nearly to Ichneumon than to Tryphon. The author has not been able to discover any external character by which to separate from the rest the group of Tryphons in which the females bear their bunch of eggs about under the end of the abdomen; and, accordingly, he has rejected the genus *Polyblastus*, Hart. (Wiegm. Arch. 1837, i, 155,) remarking that the character assigned to it, of pectinated claws, is found also in species of the ordinary Tryphon, and of *Exenterus*, Hart. *Exenterus adspersus* and *oriolus*, Hart., are merely varieties of *Ex. marginatorius*, F., obtained promiscuously with it out of the cocoons of Lophyrus pini.

Of the *Braconini* he describes as new species, of *Bracon* 6 (of which the first, *Br. incompletus*, can hardly belong to this genus), *Spathius* 2, *Microdus* 3, *Microgaster* 15, *Chelonus* 1, *Alysia* 2 (but the species figured, *A. rubriceps*, is an *Opius*, Wesm., and the two species of Aphidius described should have come in here,—see below), *Rogas* (= *Macrocentrus*, Curt.) 2, *Aspigonus* 1 (it is rather a *Calyptus*, Hal., = *Taphœus*, Wesm.), *Brachistes* 5 (but the genus *Eubadizon* is included here), *Perilitus* 6; and lastly, as *Aphidii*, two species belonging to the genus *Alysia*, and, like most of their congeners, parasitic upon Diptera. The species figured, *A. flavipes*, for which the generic name *Orthostigma* is suggested, is nearly related to *Al. apii*, figured by Curtis. (Brit. Ent. pl. 141.)]

De Romand (Guér. Mag. Zool. Ins. pl. 137) has figured a *Bracon* from Manilla, which he identifies with Br. lanceolator, F., and would correct the habitat, South America, given by Fabricius, accordingly. The figure and description agree very well with the Fabrician species, only the length of the borer is doubtful, and it is wanting in the specimen in our museum, which Klug received from Kolsmann, of Copenhagen, as a South American insect unnamed. Supposing the two to be of the same species, the habitat which Fabricius gives is correct enough.

Wesmael has laid before the Academy of Brussels a work on the genuine

Ichneumonidæ of Belgium (Tentamen enumerationis criticæ Ichneumonum Belgii), which that learned body intend to publish. (Bull. Acad. Brux. ii, 61, 146.)

[*Cœlinius niger*, Nees (*Alysia id.*, Oliv., *Al. olivieri*, Guér.), is a common parasite of Chlorops lineata and tæniopus. (Curtis, R. Agr. Soc. Journ. v. 496.)

Curtis (ib. 499) has observed that *Sigalphus caudatus*, Nees (ib. pl. L, f. 39), is a parasite of Oscinis vastator (see below). He couples with this the observation of Herpin, that an Ichneumon with a long borer deposits its egg in that of the fly.]

Proctotrupii.—De Romand (Rev. Zool. 97) has given a synopsis of the known species of the genus *Pelecinus*, ten in number.

Ceraphron formiceti and *inquilinus*, Er. (Germ. Zeitschr. v, 265), are two new species discovered by Märkel in the nests of Formica rufa, parasites, it is probable, of some of the Coleoptera that frequent them.

[Ratzeburg (Ichneum. Forstins) has described two new species of *Ceraphron*, *C. tortricum*, bred out of caterpillars of Tortrices, and *C. ancyloneurus*, out of the larvæ of Syrphi, (both of these have been found in England also); one of *Platygaster*, *contorticornis*, and five of *Teleas*, under which name he comprehends the small parasites of insect eggs, to which *Ichn. ovulorum* of Linnæus (erroneously cited, by the writer of this notice, for *Polynema flavipes*, Ent. Mag. i, 348) belongs. But as the type of *Teleas* was *T. clavicornis*, Latr. (*Prosacantha id.*, Nees), the name *Telenomus* is to be preferred for the present group. (See Walker, Ent. Mag. i, 345.)

Cynipsera.—Curtis (Gard. Chron. 212) has represented a many-chambered gall of the oak (Quercus pubescens), which resembles the fruit of the chesnut, and by the peasantry of Tuscany, where it is common, is supposed to be the product of a hybrid impregnation by the latter. It is, in fact, produced by the *Cynips lucida*, Hart. (*C. quercus castaneæ*, Curt. ibid. f. 3.) The gall has been figured before by Malpighi. (Pl. 15, fig. 52.)]

Pteromalina.—Ratzeburg (ibid.) has enumerated the species bred out of wood insects, and has described a number of new species. The genera characterized as new are—1. *Copidosoma*, an Encyrtus with the abdomen elongated and compressed cultrate; *C. boucheanum*, which he bred out of Tinea (Hyponomeuta) euonymella, [is not, as Erichson in the text has inadvertently suggested, *Encyrtus* (*Cercobelus*) *jugæus*, Walk. (Entomologist, pl. N, f. 1), which has nine joints only in the feelers, and a depressed abdomen with a very imperfectly formed ovipositor, but rather appears related to the group of Eupelmus.]

2. *Trichoceras* (name already in use for a genus of Diptera), with four-jointed feet, and nine joints to the lash (flagellum) of the feelers, the joints

being conical and thickly covered with decumbent, long hairs; *T. erythrophthalmus*, bred from fir-cones, infested by Tortrix strobilana, from the Harz, all males. [The genus is founded on the males alone (with hairy feelers) of the genus *Tetrastichus*, Hal. (see Report 1843, p. 172), other species of which Ratzeburg has included in Eulophus, and has figured one of them (pl. 8, fig. 1), as an example of that genus, along with the parts of the mouth, which are peculiar, in having the palps of a single joint (f. 1, b-d). The description of *Tr. erythrophthalmus* is not particular enough to determine whether it may not be one of the 130 species of Tetrastichus described by Walker, as found in England.]

3. *Stylocerus*, distinguished from Pteromalus by the feelers of the ♀ ending in a style, and by the wings, which have the stigmatical vein ("doppel-nerv") remarkably short and thick, as in Eurytoma, the radial much longer and slighter, suddenly ending in an oval knob; two species, *Pterom. subulifer*, Först., and *St. ladenbergii*, new species, bred out of Hylesinus fraxini. [The genus has been characterized already; it is *Rhaphitelus*, Walk., and *St. subulifer*, Först., = *Rh. immaculatus*, Walk. (Ent. Mag. ii, 178; Entomologist, pl. A, f. 2.)]

4. *Bothriothorax:* Head and thorax coarsely and deeply pitted, wings and breast as in Encyrtus (it is not specified whether the middle pair of legs are formed for leaping); one species, *B. altensteinii*, bred out of a Syrphus by Saxesen. [This is nothing more than *Encyrtus clavicornis*, Dalm.; and a simple gradation in sculpture has not hitherto been admitted as sufficient ground for the separation of a genus.]

5. *Hybothorax*, a well-marked genus, with the hind thighs enlarged,* [as in Chalcis], to which it comes near, but there is no trace of the radial vein; *H. graffii*, bred out of the larva of Myrmeleon by Graff; [appears related to the remarkable West Indian genus *Notaspis*, Walk. (Entomologist, pl. F, f. 1), concerning the habits of which nothing is known.]

6. *Pachycerus* (name of a Coleopterous genus): Radial vein, sculpture of the trunk and shape as in Pteromalus; abdomen as in Torymus; borer protruding, long; feelers short and thick, the lash of nine joints: 1. *P. xylophagorum*, the larva of which was observed, by Saxesen, sucking the grubs of Bostrichi from the outside; 2. *P. eccoptogastri*, bred out of Ecc. intricatus; [seems to come near the genus *Gastrancistrus*, Westw., if they be not identical. Of new species† he gives further under *Eurytoma* 5, *Torymus* 12 (of which three belong to the group with toothed hind thighs, genus *Diomorus*,

* Qualified by "slightly" in the text, on what grounds I do not know.—Tr.

† The new species of *Cleonymus* referred to in the text I cannot find. —Tr.

Walk.), *Siphonura* (= *Ormyrus*, Westw.) 2, differing, perhaps, as varieties merely of *Orm. punctiger*, Westw., *Platymesopus* 2 (but *Pl. westwoodii*, R., is identical with *tibialis*, Westw., and *Pl. erichsonii*, R., probably no more than a variety of the same), *Pteromalus* 48 (the genus is taken in the wider sense, embracing many modern genera), *Eupelmus* 1, *Encyrtus* 2, *Elachestus* 1 (an *Entedon*, Walk.), and *Eulophus* 26 (another of the groups requiring subdivision; No. 10, *E. flavomaculatus*, is, perhaps, *Cirrospilus elegantissimus*, Westw., while Nos. 19-33 belong to the genus *Tetrastichus*.)]

Von Heyden (Ent. Zeit. 205) has noticed a species parasitical on Cænia halophila (see further on), under the name of *Pteromalus salinus*. It is probably *Urolepis maritimus*, Walk. (Chalc. Brit. Mus. 26, = *Ormocerus id.*, W., Ent. Mag. ii, 169; Entomologist, pl. E, f. 4), which is known to infest the pupa of Ephydra riparia in like manner.

[Curtis has described *Pteromalus micans* (R. Agr. Soc. Journ. v, pl. L, fig. 37, *Chalcis id.*, Oliv.), which is a common parasite of Chlorops lineata and tæniopus. It is the same as *Pter. bellus*, Walk.]

Walker (Ann. Nat. Hist. xiv, 14) has described a number of species from North America: *Callimome splendidus, cecidomyiæ, Lamprotatus diæus, Encyrtus bolus, Tetrastichus granulatus;* and again (p. 18, 181), several found in Britain: *Eurytoma tumida, argele, sittace, scultenna, micipsa, Isosoma nepe, Decatoma niceæ, Callimome rasaces, ærope, Pteromalus domesticus* (bred out of caterpillars of Lozotænia xylosteana), *Encyrtus epona, euryclea, pyttalus, Aphelinus acætes. Tetrastichus rapo*, Walk., has been bred out of the cocoons of Microgaster glomeratus, a parasite of Pontia brassicæ; *Encyrtus machæras*, from the Coccus of the elm; *Encyrtus paralia* is a variety of *E. argentifer*.

He has also enumerated (ibid. p. 331, 407) some Pteromalina of the north, which he collected at Hammerfest and at Alten in Finmark. The following are new species: *Euneura augarus, Lamprotatus phlegias, mazæus, brises, cleta, scæa, leucon, lesches, icelos, Seladerma mazares, saurus, Gastrancistrus panares, Pteromalus jera, musæus, pyttalus, rhinthon, mazaces, Encyrtus cleone, Horismenus clinus, Tetrastichus idothea, Eulophus idrieus.* The new genus *Euneura* comes next to Coryna.

[Sphegides.—Curtis (Gard. Chron. 731) has given a more particular account, with figures, of the transformation of *Ammophila sabulosa*. (See Deg. ii, Mem. 14; Bouché Gartenins. 157.) A single egg was deposited on a caterpillar, probably of a Noctua, buried in a cell, about two inches deep in the earth, and very artfully closed. By the ninth day the caterpillar was entirely consumed. The grub changed to a nymph within an oval cocoon of membranous texture. The wasp came forth in about six weeks after.]

Thynnides.—Westwood (Arc. Ent. pl. 74, 75, 76, 77, 82, 83) has sig-

nally illustrated the Australian forms in this family, as well by figuring new species, and in several instances both sexes, as by the new genera he has established. The author declines giving an opinion at present whether all the genera introduced by Guérin ought to stand. Of *Thynnus* proper he has figured *hyalinatus* ♂ ♀ (pl. 74, f. 3, 4), from Van Diemen's Land; *brownii* ♂ (pl. 76, 1), King George's Sound; *picipes* ♂ (77, 2), do.; *leachiellus* ♂ (interruptus, 77, 1) ♀ (83, 4), New South Wales; *trochantericus* ♂ (77, 3), King George's Sound; *tuberculiventris* ♂ (76, 2), do.; *shuckardi*, Guér. ♀ (83, 5), New South Wales; *Klugii* ♂ (82, 1), Swan River; *gravidus* ♀ (82, 3), New Holland.

Under *Agriomyia*, Guér., he brings *Th. depressus* ♂ ♀ (74, 5, 6), from King George's Sound; *odyneroides* ♂ ♀ (75, 3, 4), *melleus* ♂ (76, 4), do.; *trifidus* ♂ (77, 4), and *marginalis* ♂ (76, 3), do. Under *Thynnoides*, Guér., *Th. fumipennis*, ♂ ♀ (75, 1, 2), from Port Philip; *obscurus*, Kl., ♀ (82, 2); *gracilis* ♂ ♀ (83, 2, 3), Adelaide. Here should be placed also *Th. purpuripennis* (83, 1), from New Holland, and *dimidiatus* (76, 5).

The author refers to genus *Aelurus*, Kl, the *Agriomyia abdominalis* of Guérin (pl. 77, p. 5), which is identical with *Th. fervidus*, Er., and unquestionably ought to constitute a new genus or subgenus, as it is perfectly distinct from the South American genus Aelurus.

All these various forms agree very closely as regards the female sex, so far as this is known, both in the structure of the body generally, and in the circumstance that the palps are always much abbreviated, and commonly also the number of the joints reduced (according to the author's researches, even so low as three for the jaw, two for the lip-pair), without any constant relation that can be established, in the present state of our knowledge, between these numerical differences in the females of the various species, and the characteristics of their males. Thus Westwood has figured *Th. hyalinatus* ♀ with three joints and four, in the jaw and lip-palps respectively; *Th. leachiellus* and *shuckardi*, 2, 3; *Thynnoides obscurus*, 2, 3; *Thynnoides fumipennis*, 3, 3, the last joint very small; *Agriomyia odyneroides*, 2, 4; *Thynnus gravidus*, 6, 4; these last the normal numbers, only the last joint of the lip-pair is very small, and the last three of the jaw-pair abbreviated.

Westwood regards *Rhagigaster*, Guér., as a distinct genus. The males are distinguished from the rest of the Thynni by their cylindric abdomen, in which respect they come near Myzine. The females differ from them more notably, they are elongated and smooth, have their upper jaws two-toothed at the point, their palps as well developed as in the other sex, the jaw-pair with six, the lip-pair with four, joints. The species he enumerates are, 1. *Rh. unicolor*, Guer., ♂ 2. *ephippiger* (*Diamma, id.* Guér.), which Shuckard considers as ♀ of the preceding. 3. *mandibularis*, Westw., ♂ ♀ (pl. 74, f. 1, 2), from Port Philip. 4. *morio*, Westw., ♂. 5. *hæmorrhoidalis*, Guér.,

♂. 6. *integer* (*Thynnus*), F., ♂, in Sir J. Banks's collection. 7. *binotatus*, Westw., ♀, Van Diemen's Land. 8. *analis*, Westw., ♀, King George's Sound. 9.? *Bethylus apterus*, F. (does not belong to the genus). 10.? *Myzine ruficornis*, Guér., from Arabia.

Next to Rhagigaster comes in the new genus *Eirone*, Westw., the ♂ like Thynnoides, but wants the hook at the end of the abdomen, the ♀ slender, smooth, very like Rhagigaster, the upper jaws, as in that genus, with the point two-toothed, the lip-palps of four joints, the jaw-pair with no more, though they are not abbreviated, the claws simple, only a little enlarged at the base. *E. dispar*, new species, from Adelaide, ♂ black, $3\frac{3}{4}'''$,— ♀ yellow, $2\frac{1}{2}'''$ in length.

More nearly allied to Thynnus is the other new genus *Enteles*, established for a female insect resembling a Thynnus of the same sex in all respects, except that the palps are not the least abbreviated, the jaw-pair with six, the lip-pair with four joints, and in this respect approaching the American species of Thynnus. The only species known, *E. bicolor*, from King George's Sound.

Vesparlæ.—Curtis (Trans. Linn. Soc. xix. 256, pl. 31) has described two Brazilian Polistes of the genus *Myrapetra*, White, *M. brunnea* and *elegans*, along with the nest of the former. This appears as if it had been hung to a branch of a tree, but is overspread with a fine reddish earth, not like such nests as hang in the open air; but this may have come from its being packed in this sort of earth. The position of the entrance at the bottom of the nest makes it very improbable that it was ever made underground.

Ratzeburg (Forstins 52, pl. 4. f. 7) has figured a new *Odynerus*, under the name of Vespa *ichneumonea*, a male very like the small male of O. parietum, but with three bands only on the abdomen, which is more thickly and strongly punctured. It was bred out of one of the resinous galls of Tortrix resinana, in which the grub, he says, doubtless had been living, in the manner of the larvæ of the Ichneumon-flies. This assumption seems to me very questionable, and I think it more probable that the parent wasp had taken advantage of the vacant cavity in the gall to lodge her egg in.

Formicariæ.—Mocquerys (Ann. Soc. Ent. Fr. ii, p. lxvii), relates that the savages in Brazil employ the *Œcodoma cephalotes* for cicatrizing wounds. For this purpose they let the ants seize the two edges of the wound between their jaws, and then they pluck away the body. It is nothing uncommon, he says, to see natives with scars of wounds closed up with seven or eight ants' heads.

[Motschoulski (Bull. Mosc. 813) remarks, that two species have been commonly confounded under the name *Formica rufa*; the larger (the true F. rufa, L.) inhabiting woods of the fir tribe, and constructing hillocks; the smaller (to which *F. dorsata*, Pz. belongs) found also in woods of other kinds, as well as in the open country, the steppes, and even in marshes, making its nest underground.]

LEPIDOPTERA.

The works of Freyer (Neue Beitr. zur Schmetterlingskunde) and of Herrich Schäffer (System. Bearbeitung d. Schmetterlinge v. Europa), have been continued regularly.

Of the former, the 69th—73d numbers have appeared; of the other, the 3d—9th parts, in which the text, from the pen of H. Schäffer, already extends to the greater portion of the diurnal species.

Eversmann has completed a general Fauna of the Lepidoptera belonging to the province of Wolga-Ural (Fauna Lepidopterologica Volgo-Uralensis exhibens Lepidopterorum species quas per 25 annos in provinciis, Volgam fluvium inter et montes Uralenses sitis observavit et descripsit Ed. Eversmann. Casani, 1844.)

An admirable work, alike accurate and copious; it is in the form of a Sequel to Ochsenheimer and Treitscke's, thus far, that the divisions and nomenclature of this are taken for the groundwork, and the synonyms of the species which it comprehends are not given over again. All the species are defined by characters in Latin. The information respecting the occurrence and distribution of the species is particularly valuable, as derived from the Author's personal observations, diligently pursued and uninterruptedly for a period of twenty-five years. A fuller notice of the work is given by Hering. (Entom. Zeitg. 1845, pp. 156, 236, 367.)

Appendix to the List of Lepidoptera, observed up to this time in Prussia, by Prof. Klupsz (Nachtrag. zu dem Verzeichniss, &c. Preuss. Prov. Bl. 1844.)

A systematic catalogue of the Papilionidæ, Sphingidæ, and Bombycidæ indigenous in the environs of Boppart and Bingen, by M. Bach and C. Wagner. (Verhandl. naturhist. Vereins der preuss. Rheinlande Yr. 1. p. 50.)

Selys Longchamps has communicated observations on some of the Lepidoptera, made during a journey in Italy. (Ann. Soc. Ent. Fr. ii, p. xii.)

Hagen has republished (in the Entom. Zeitg. p. 385) the references by Linnæus to the Lepidoptera in Schäffer's Icon. Ratisb. Ins. tom. i, from a Supplement to the 12th ed. of the Systema Naturæ, which is very rare, and hence appears to be not generally known.

Zeller (Isis, 16) has discussed the synonyms of the Lepidoptera of Hufnagel at large, and learnedly.

List of the Specimens of Lepidopterous Insects in the collection of the British Museum; Part I, printed by order of the Trustees. London, 1844. The Lepidoptera have been arranged and named by Edw. Doubleday. The Catalogue is edited by Gray. The form of this publication is commendable, as t affords a store of information not only as to the contents of the collection, but as to the geographical distribution of the species. The part published comprises the Papilionidæ, including Pieridæ, Peridromidæ, Danaidæ, Heliconidæ, Acræidæ, Nymphalidæ, Morphidæ, Brassolidæ, Satyridæ, Eurytelidæ, Libytheidæ.

Bruant and Pierret have published some observations on the pairing of Lepidoptera of different species together; as *Satyrus janira* with *Vanessa urticæ*, *Van. urticæ* with *V. atalanta*, *Satyrus janira* with *Argynnis paphia*. (Ann. Soc. Ent. Fr. ii. p. vi.)

Papiliones. Westwood has continued figuring species of the genus *Papilio*, in the Arcana Entomol. *P. chaon* and *megarus* (pl. 72, f. 1, 2), both new, and *P. xenocles*, Doubl. (79, f. 2), from Assam; *P. pollux* and *castor* (80, f. 1, 2), new species, from Assam and Sylhet; *P. leucothoe* (79, f. 3), new species, probably from Pulo Penang; *P. palæphates*, Boisd. (79, f. 1), new species, from Manilla; and lastly, *P. canopus*, Westw. (68), from Melville Island on the northern coast of New Holland.

Doubleday has characterized five new species from South America (Ann. Nat. Hist. xiv. 415); *P. photinus*, supposed from Mexico; *P. pyrochles*, from Bogota; *P. cymochles*, from Trinidad; *P. mezentius*, from New Granada or Ecuador; *P. victorinus*, from the western side of the New Continent.

Mann (Entom. Zeit. 356) has separated as distinct species from *Zerynthia polyxena*, the *Z. creusa* and *demnosia*, Dahl. It is certain that these forms present something peculiar, yet the characters on which the author lays stress do not appear to me to be quite critically correct, and it might be more judicious to attribute the discrepancies to the difference of locality. It may be observed that the Museum here has received from Dahl Z. creusa as a native of the Appennines, while Mann considers it to be confined to Sicily, and Z. demnosia from Trieste, for which he gives Tuscany as the habitat.—*Z. honoratii* a variety of *Z. medesicata*, has been figured by Freyer. (N. Beitr, pl. 416, f. 12.)

In the group *Pieridæ*, a number of new species have been described by Doubleday. (Ann. Nat. Hist. xiv, 418.) *Euterpe hylonoma*, from Bogota; *Leptalis cyra*, from Brazil; *L. eunoe*, from Mexico; *L. praxinoe*, ditto; *L. medora*, from Bogota; *Pieris marana*, probably from Guayaquil; *P. chione*, from Sierra Leone.

Boisduval (Ann. Soc. Ent. Fr. ii. p. lxviii), from observing the larva and pupa, has convinced himself that *Anthocharis belia* and *ausonia* are one

species. Pupæ which have lived through the winter, produced specimens with spots shining like mother-of-pearl (*belia*), while the butterflies which come forth the same season, after remaining but a short period in the pupa state, have the spots of a dead white (*ausonia*). As *A. belemia* and *glauce* stand in the like relation to one another, he concludes with reason that they also are but modifications of one species, as has been long since proved of Vanessa levana and prorsa, between which the difference of colour is much more considerable.—Pierret (ibid. p. lvii) has made known the female of *A. damone*, Feisth. While the ♂ is like that of A. eupheno, the other sex has a great resemblance to A. cardamines.

Kollar (Hüg. Kaschm. 424-442, pl. 3-13) has added to the group Heliconii, *Acræa anomala;* to me it appears no more than a large variety of *A. vesta*, F.—to the Danaidæ, *Danais sita*, both from Cashmere,—to the Nymphalidæ, *Limenitis selenophora, opalina, sankara, dichroa, Amathusia ganescha* (= *Cyrestis amathusia*, Boisd.), *Apatura ambica, Paphia huegelii, horsfieldii, Adolias patala, A.? derma, Ariadne wedah, Terinos sinha, Argynnis sakontala, Melitæa durga, Vanessa caschmirensis*, all from the Himalaya.

Argynnis oscarus, Eversm. (Bull. Mosc. 588, pl 14, f. 1), is a new species from Irkutsk, that comes nearest to Arg. ossianus, Hbst., but is twice the size.

Freyer (Beitr. pl. 409) has figured the earlier states of *Argynnis ino*, and (pl. 422) varieties of *A. latonia, selene*, and *Melitæa athalia*.

Herrich Schæffer (System. Bearbeit. Schmetterl. Eur.) divides the *Satyridæ* into genera thus :—I. Ribs at the root of the fore wing not puffed up, or the one next the fore edge only (eyes bare). 1. *Arge:* chequered black and white; the feelers very gradually thickened. 2. *Erebia:* black or brown, usually with a rust-red band before the border; club of the feelers oval, compressed. 3. *Chionobas:* brown with a good deal of ochre yellow; feelers gradually enlarging to form the club. II. Marginal and middle ribs of the fore wing puffed up: A. Eyes bare. 4. *Satyrus:* the inner edge of the hind wing not scooped before the tail-corner. 5. *Epinephela*, Hubn.: the same edge scooped. B. Eyes hairy. 6. *Pararga*, Hubn. III. The ribs at the root of the fore wing all three puffed up; eyes bare;—the inner edge of the hind wing scooped in 7. *Cænonympha*, Hubn. Not so in 8. *Phryne*, n. g. To Epinephela belong the species *hyperanthus, pasiphae, ida, tithonus, narica, eudora, janira;* to Pararga—*pamphilus*, &c.; to Cænonympha—*dejanira, roxelana, mæra, megæra*, &c.; while Phryne is founded on Papilio phryne, Hubn., which now receives the trivial name *tircis*, Cr.

From the region of the European Fauna the following new species.—Sat.; virbius, H. Schäff., (ibid. f. 45-48), from Southern Russia (= H. bryce, Ochs.); Hipp. cyclopius, Eversm. (Bull. Mosc. 590, pl. 14, f. 3), Irkutsk; *H. beroe* (Friv.), H. Schäff. (f. 108-111, and Freyer (Beitr. pl. 415, f. 12),

from Asia Minor; *H. fatua* (Friv.), Freyer (ibid. f. 3, 4), from Turkey (a variety of *H. allionia*).

Freyer has also figured *H. tarpeia*, Ochs. (pl. 427), and *H. leucomelas*, in its different states (pl. 433).

Kollar (Hüg. Kaschm. 444-452, pl. 14-17) has described the following new species from the Himalaya Mountains, and has figured most of them: *Satyrus swaha, saraswati, padma, schakra, verma, isana, hyrania, zophyrus, nareda, Erebia scanda.*

Of the Lycænidæ, Freyer has figured *Lyc. dardanus*, Friv. (pl. 419, f. 2, 3), a variety of *orbitulus; L. balkanica*, Friv. (pl. 421-2), from Turkey; *L. orbitulus* (421, 3, 4), with a small variety of *L. daphnis*, from the Ural Mountains, as *L. stevenii. L. boisduvalii*, H. Schäff. (ibid. f. 7-9), from Southern Russia, is the representative of L. eros in that country.

Kollar (ibid. 412-423, pl. 4, 5) has described and figured most of the following new species: *Thecla rama, nissa, nila, syla, sorya, Polyommatus sena, pavana, tama, pandia, asoka, patala, didda, nara, putli, maka, cælestina,—*

And of the *Hesperidæ* (ibid. 453-456, pl. 18), *Hesperia xanthopogon, leucocera, fatih, dara, disu.*

Freyer (ibid. pl. 417, f. 3, 4) has given figures of *H. cervantes*, Grasl. and *H. ætna*, Boisd., the latter to all appearance *H. cincionius*, Hffg. ♀, a Brazilian species.

Sphinges. *Macroglossa nycteris*, Kollar (Hüg. Kaschm. 458, pl. 19, f. 15), is a new species, from Massuri, in the Himalaya, which comes very close to Sph. pandora, F.

Ghiliani (Ann. Soc. Ent. Fr. ii, p. 72) has communicated his new observations on the cry of *Brachyglossa atropos*. He soon convinced himself that it proceeds from the head. Having cut off the head, it ceased, as might be expected. He removed the palps in another and the sound continued. Next he cut the trunk off at the root, the cry continued, while a greenish fluid was forced out and drawn in by turns through the middle orifice (the proper passage to the mouth), becoming foamy with air-bubbles introduced into it as it gushed out. When the author stopped up this orifice with a pin the cry ceased at once, but recommenced when the pin was withdrawn.

Sesiariæ.—Kollar has characterized a new genus, *Trypanophora*, with the feelers slender, between serrated and scalloped towards the base, compressed and dilated at the tip, with bearded short palps, a long spiral trunk, the wings broad, partially bare of scales, the cubital vein with two branches, and inclosing a pretty long, nearly oval, cell, the abdomen cylindrical, with a short ovipositor protruded from the end of it in ♀; the legs of equal length, almost compressed, with very short terminal spines to the shank. A single species, *Tr. semihyalina*, from Cashmere. (Hüg. Kaschm. 457, pl. 19, f. 1-4.)

Chelonidæ.—Zeller (Entom. Zeit.) has made remarks, which deserve attention, on some species of *Zygaena*. He considers *Z. ephialtes* as a climatic local variety (with red markings) of *Z. peucedani*, which, like the primitive species, extends furthest northwards, while in going southward it is replaced by the variety with yellow markings (*Z. coronillæ*). *Z. angelicæ*, Ochs., has been of late confounded with several other species. Thus Boisduval, in his 'Monogr. Zygæn.,' has given a small *Z. filipendulæ*, but in the 'Icon. Histor.' a Z. hippocrepidis as it. After Prof. Hering had found the whitish caterpillars of *Z. minos* on Pimpinella saxifraga, he met with orange ones upon Thymus serpyllum, from which proceeded a moth so like Z. minos that Zeller, having accidentally put one among specimens of the latter, was not able again to tell which was it, although the specimens which had been kept apart had some distinctive marks.

Freyer (ibid. 85) mentions, concerning *Z. minos*, that he once found the white caterpillars of this species in abundance, and among them a few yellow ones. They would only feed on the Pimpinella, though they bit the thyme and other plants. The yellow caterpillars produced almost all females, while males mostly, and scarcely any females, came from the white ones.

Zygæna favonia, Freyer (Beitr. pl. 428, f. 1), is a new species, from Turkey.

Kollar (Hüg Kaschm. 459-469, pl. 19-21) has given the following new species from the Himalaya: *Zygæna kaschmirensis*, *Syntomis diaphana*, *bicincta*, *Chalcosia pulchella*, *leptalina*, *hyalina*, *selene*, *Asemia adulatrix*, *Euprepia principalis*, *equitalis*, *imperialis*, *leopardina* (= Bombyx crotalaria, F., syringa, Cr.) *E.*? *argus*, *E.* 4-*ramosa*, *erythrozona*, *casigneta*, *exclamationis*. He reunites the genus Campylotis, Westw., to Chalcosia, Hubn., as synonymous.

Bombyces.—Boisduval (Ann. Soc. Ent. Fr. ii, lxv) remarks that there are two sections of the genus *Psyche*, in the one the ♀ is apterous indeed, but the feelers and legs are fully formed, in the other the shape is quite like a worm. It is also remarkable that the caterpillars of the male turn themselves round in their case before they turn into chrysalids, which is not the case with the ♀. The latter stretches the ovipositor out of the case, to be impregnated; the eggs are uniformly laid inside the case, and the young caterpillars use the remains of it to make the first ones for themselves. These accounts are in direct opposition to the observations of Mann. noticed elsewhere, and although it seems to follow that the habits are different in the different species, this requires to be corroborated by repeated careful observations.*

* De *Psyche plumifera*, Mannius modum coitus observavit. Immittit mas silicet abdomen penitus in sacculum femineum, decimam horæ isto situ commoratus retrahit hoc pedetentim, volitat ulterius, et passuum paucorum

Boyer de Fonscolombe (ibid. lx) has made some remarks about *Dicranura vinula*, and *Lasiocampa lineosa*. In the former he thinks that the moth keeps a round head-cap in front of the chrysalid shell to enable it to pierce through the hard cocoon; at least he constantly found such a piece in front of the hole, when the moth had made its way out. Las. lineosa, which is gregarious on cypress trees, is easy to rear. The cocoons are like those of L. pini.

Bertolini. (De duobus insectis Ulmo campestri et Pyro malo infensis, Nov. Comm. Acad. Sc. Inst. Bonon. vi, 1844, p. 460). The insect injurious to apple trees is *Cossus æsculi*, represented in all its states in plate 30.

Freyer (Ent. Zeit. 29, 397) relates what he has observed of the natural history of *Orgyia selenitica*.

Hering (ibid. 415) has distinguished a new species, *Lithosia arideola*, which he has reared, and which differs in various points from both L. complana and L. lurideola, the two species which resemble it most.

Kollar (Hüg. Kaschm. 470-473, pl. 21) gives the following new Bombycidæ from the Himalaya Mountains, *Liparis chrysolopha, xanthorrhœa, vitellina, Gastropacha sulphurea, kaschmirensis, velutina.*

Noctuæ.—Kollar (ibid. 477) has proposed a new genus, *Arcte*, with the body stout, nearly cylindrical, the thorax thickly clothed with long hairs, which nearly conceal the head; the feelers of moderate length, setaceous, simple; the palps short, applied to the forehead, with the last joint very short and scarcely discernible. A spiral trunk. The legs bearded with long hairs, except the feet. The wings not broad, dark-coloured, the hind pair with blue bands. *A. polygrapha*, new species, from the Himalaya. The new species of established genera are *Erebus albicinctus, chymista, dasypterus, leucostigma, Ophiusa discios, Caradrina himalejica, Trachea melanospila, Agrotis biconica, exigua, Plusia cælonota, Polia scotochlora.*

Freyer has figured the following new Noctuæ, some of them indicated by name in Boisduval's Catalogue, *Hadena groenlandica*, B., *Polia cærulescens*, B., *Cucullia xeranthemi*, B., *C. ceramantheæ*, Schmidt, with its caterpillar, most nearly related to C scrophulariæ, discovered by Ferd.

spatio confecto decidit exanimis. Abdomen prius lanuginosum maxime quod fuerat peracto coitu glaberrimum evadit. Auctor, dissecto sacculo, abdomen maris animadvertit porrectum esse sub pectus feminæ in fundum sacculi reductæ, pene longo fistuloso in vulvam hujus ab infra immisso.—Aliter vero res se habet cum *Ps. febretta*, teste Ghilianio l. l. femina quippe corpore medio extra sacculum prorepit ad occursum mariti.—Pierretus docuit quoque (ibid.) *Orgyias* ♀ apteras (e. g. *rupestris, tritophus*), ad coitum pari modo se præbere intra telum latitantes ovipositore tantum foras extruso.

Schmidt, near Laybach, upon Ceramanthe (Scrophularia) verna; *Acontia urania*, Friv., from Turkey; *Miselia conspurcata*, Fuchs, from the Ural, perhaps a variety of M. filigramma, Er.

Eversmann (Bull. Mosc. 591, pl. 14, 15) has described, of new species, *Agrotis lutescens*, *Noctua quadrangula*, *Gortyna cervago*, from the spurs of the Ural, *Plusia renardi*, from Eastern Siberia, *Pl. dives*, from Irkutsk.

Donzel (Ann. Soc. Ent. Fr. ii, 199, pl. 6, n. ii) has characterized a new species, *Polia felicina*, taken in the neighbourhood of Marseilles.

Metzner (Ent. Zeit. 167) has made some remarks on the occurrence of *Noctua haworthi*, Curt., and the names which have been applied to this species. In Germany it was first found by Zeller, near Frankfort on the Oder, in a wet peat moss. The caterpillar is still unknown.

Freyer has figured (Beitr.) the following moths in all their states: *Simyra venosa*, *Plusia modesta*, *Catocala nupta*, *Cucullia lucifuga*, *ceramanthea* (see above), *Triphæna serotina*, *Cerastis glabra*. Eversmann (Bull. Mosc. 604, pl. 16, f. 4) gives the caterpillar of *Cucullia santonici* [which lives upon Artemisia repens]. Bruand has described that of *Spaelotis nyctemera* (*simulatrix*, Hübn.) which lives on Festuca ovina, and will feed on Poa annua also, and that of *Caradrina respersa*, Ochs., which lives on grasses and the white houseleek. (Ann. Soc. Ent. Fr. ii, 192, pl. 6, n. 1, c, d.)

Boisduval has inserted in the same (p. 70) a communication he received from Hungary respecting the caterpillar of *Noctua communimacula*. Like that of Limacodes, of which genus more than forty species are known, mostly American, it lives in the leaves of almond and cherry trees curled up as the effect of Aphides sucking them, and feeds upon these insects. Boisduval having in consequence compared the moth with North American species of *Limacodes* is perfectly satisfied that it belongs to the same genus.

Geometræ.—Eversmann (Bull. Mosc. 597, pl. 15. f. 43) has figured *Acidalia curata* and *formosaria*, the first from Eastern Siberia, the second from the province of Kasan and the spurs of the Ural. A very dissimilar figure of the latter is given by Freyer (Beitr. p. 338), along with which *Fidonia desertaria*, Ev., *Acidalia extersaria* (not extensaria) Ev., and *Cidaria burgaria*, Ev., from Casan, are represented; and in pl. 426 varieties of *Acid. dubitaria* and *dilutana*, and pl. 414, the earlier states of *Ennomos dolabraria*.

The following "Loopers" from the Himalaya are described by Kollar (Hüg. Kaschm. 486-491): *Geometra lycænaria*, *Aspilates phæniceotæniata*, *peregrina*, *Acidalia adumbrata*, *Cidaria propinquata*, *albigirata*, *subangulata*, *Zerene leopardina*, *Idæa hyalinata*.

Pyralides.—Also from the Himalaya are *Hypena obliquatis*, *Scopula 4-maculalis*, *Botys vitellinalis*, *Asopia elongalis*, Kollar (ib. 491-423.)

Bertolini, De *Botyde silaceali* de que damno quo afficit Cannabin sativam. (Nov. Comm. Acad. Sc. Inst. Bonon. vi, 1844, p. 91, pl. iv.) The caterpillar of this moth lives in the stalks of hemp.

Tortrices. Prittwitz (Ent. Zeit. 419) has made known a new species of *Tortrix*, *T. salicetana*, nearly related to T. zachana.—Freyer (Beitr. pl. 419) has figured a new species, *Carpocapsa kokeileana*, Schm., which Ferd. Schmidt bred out of galls from Istria.

Tineæ.—Zeller (Isis, p. 198) has given a profound Monograph of the genera Hyponomeuta and Psecadia, some additions to which are inserted in the Entom. Zeit. (p. 379.) The genus *Hyponomeuta*, which is diffused over the whole of Europe, comprises the following species: 1. *H. rufimitrella*, Zell., Germany. 2. *H.* 20-*punctata*, Retz. (*sedella* Treitsche), living on Sedum. 3. *H. plumbella*, Wien. Verz., on Rhamnus frangula. 4. *H. irrorella*, Hübn. 5. *H. variabilis* (*padella*, L., Hübn. Tr. Freyer, Ratz.), on the sloe and the hawthorn. 6. *H. rorella*, Hübn. (*helicella*, Fr. N. Beitr.) on willows. 7. *H. malinella*, Zell. Fr., on apple trees. 8. *H. euonymi*, Zell. (*cognatella*, Hübn. Tr. Fr. Ratz.) on Euonymus europæus, which has got its popular name of spindle tree from the webs of this moth. 9. *H. padi*, Zell. (*euonymella*, L. F. Hübn. Tr. Fr.), on the sloe tree.—*Psecadia* has the following species: 1. *Ps.* 6-*punctella*, Hübn. 2. *Ps. scalella*, Scop. (*Tinea sequella*, W. Verz., *pusiella*, F., *lithospermella*, Hübn.) 3. *Ps. echiella*, W. Vz., on Echium vulgare. 4. *Ps. funerella*, F. 5. *Ps.* 10-*guttella*, Hubn., on Lithospermum officinale. 6. *Ps. chrysopyga*, Zell., (Ent. Zeit. 1844, p. 379), *flavianella*, Fisch. v. R. (Zell. Isis, 1844, p. 233.) 7. *Ps. pyrausta*, Pall. (Zell. Ent. Zeit. p. 379), from the Ural. 8. *Ps. flavianella*, Hubn. (Zell. Ent. Zeit. 140.) 9. *Ps. aurifluella*, Hubn. Fr. (*pyrausta*, Zell. Isis, 234.)

Bruand (Ann. Soc. Ent. Fr. ii, p. 187, pl. vi) has communicated observations made on several of the Tineidæ. 1. The natural history of *Chilo phragmitellus*, with its caterpillar. 2. *Hæmylis pastinacella*, the caterpillar of which lives on Heracleum sphondylium, eating the seeds while green, and undergoing its transformation within the stem. 3. *Solenobia clathrella*? Dup., the caterpillar of which is a case-bearer, and feeds on lichens. The female is apterous, and remains in her case till pairing-time, when she clings to the upper side of it, and afterwards, by means of the elongated ovipositor, lays her eggs in the bottom of the case.

Guérin has made a Report to the Academy of Paris upon the injury done to the olive by *Œcophora olivella*. (Compt. rend. xix, 1147.)

Eversmann (Bull. Mosc. 599, pl. 16) has figured the following new species: *Phycis brunneella*, from Orenburg; *Ph. chalybeella* and *Myelophila geminella*, from the spurs of the Ural, and *Yponomeuta hæmorrhoidella*, from the Lower Wolga and the Caucasus.

From the Himalaya come *Chilo chrysographellus, locupletellus, nivellus*, Kollar. (Hüg. Kaschm. 494.)

ALUCITÆ.—Eversmann has added a new species, *Al. nephelodactyla*, from the Wolga and the spurs of the Ural. (Bull. Mosc. p. 603, pl. 16, f. 3.)

DIPTERA.

Léon Dufour has given a general view of the internal structure in this order, (Anatomie générale des Diptères, Ann. Sc. Nat. i, p. 244.)

In the nervous system the chief peculiarity is that the spinal cord consists not of two separate strings but of a single one. The number of the ganglions varies in different families. Among the *Culicidæ* and *Tipulidæ* there are 9, 3 in the thorax, which are soldered together, and 6 apart from one another in the abdomen, while the larva has 11. The *Asilidæ* and *Bombyliadæ* agree with the *Tipulidæ* in the number and position of the ganglions, only in some larvæ of the former family the author found three more than in the perfect insect. The *Tabanidæ*, *Stratiomydæ*, *Therevidæ*, and *Leptidæ*, have 7 ganglions, 1 in the thorax, and 6 in the abdomen, and they are proportionally larger. *Scenopinus* has 5 ganglions, the *Conopidæ* but 2, and what is remarkable, their position different in the two sexes. The *Œstridæ* and the *Muscidæ* with calyptra [Creophiles, Latr.] have but 1 ganglion, the rest of the *Muscidæ* 2, or sometimes 3.—Of spiracles there are 2 pairs in the thorax, and 5 or 6 pairs in the abdomen; the latter lie sometimes at the sides of the dorsal segments (*Muscidæ*, &c.), at other times in the connecting membrane between the segments (*Culicidæ*, *Tabanidæ*, *Asilidæ*, &c.) The tracheæ are either simple or utricular; in those kinds whose flight is easy and sustained they are furnished with air-bladders, which can be inflated at will, e. g. *Culicidæ*, *Tipulidæ*, *Tabanidæ*, *Syrphidæ*, and the *Muscidæ* with calyptra;—while they are simple in the *Muscidæ* which want those appendages to the wing. The alimentary canal is uniformly accompanied by a long-necked food reservoir, placed at the left side, and opening into the throat, (the Saugmagen [of German writers, see Burm. Manual. Ent. i, § 103]), which the author designates not inaptly paunch (panse), and correctly describes as adapted by its conformation to facilitate the process of rumination. In some Diptera (*Teichomyza*, *Drosophila*) there is a true craw [gizzard]* with brawny coats. The

* "Gesier," see, however, the remarks on this point in the Report for 1843, p. 161.

chyle stomach is the longest piece of the alimentary canal; it is simple at its origin in some *Tipulidæ* and the *Muscidæ* Acalyptrati; — furnished, in the *Tabanidæ*, *Asilidæ*, *Stratiomydæ*, *Bombyliadæ*, *Dolichopidæ*, *Scenopinidæ*, &c., with 2 pouch-shaped enlargements; with 4 such in the *Syrphidæ*; or, lastly, it is chalice-shaped, or has a circular welt in the *Conopidæ* and *Muscidæ*. The bile-vessels usually 4, rarely 5 (*Culicidæ*), free at the end, except in the larger *Tipulidæ*, where they form two bows with 4 orifices. Their insertion is sometimes with 4 distinct orifices, more commonly by 2 lateral ducts, rarely by a single one (*Stratiomydæ*). Saliva-vessels are found in all the Diptera, and these of simple form, either filiform or oval. Excrementitious glands are rare in this order. In both sexes of the Sepsidei the author found them placed on the coat of the rectum at the upper side, and they produce a scented matter, which is discharged by the anus. In the description of the reproductive organs he has turned to account the able researches of Siebold and Loew. As respects the "spermotheca" of the oviduct in the ♀, he thinks it must be considered as an organ of secretion, as there is constantly a gland in connexion with it, but he is not prepared to deny that it may perform the other function also. In a postscript to the article on *Piophila petasionis* (ib. p. 385) some further notice is taken of this matter.*

Zetterstedt's Diptera Scandinaviæ has been proceeding without interruption. This year (1844) the third volume has appeared, comprising the genera Scenopinus, Platypeza, Callomyia, Opetia, the Conopidæ, Pipunculidæ, Œstridæ, and the first part of the Muscidæ.

Hoffmeister (Ent. Zeit. 360) has communicated his observations on the occurrence of various Diptera.

The Isis for 1844 (p. 419) contains a notice of Rondani's writings upon Diptera. (Memorie per servire all Ditterologia Italiana, di C. Rondani, Parma, i, ii, 1840; iii, 1841.) The first of these describes a blood-sucking species, which constitutes a new genus, *Phlebotomus*, among the Tipulidæ. (A second paper on the same is inserted in the Ann. Soc. Ent. Fr., see Report for 1843, p. 185, in which the name is printed erroneously Hebotomus,—the author writes Flebotomus, according to the Italian mode of spelling.) The next contains a new arrangement of the Tipulidæ, and the

* Narrat clm. L. Dufourius l. l. se quondam *Piophila petasionis* in copula deprehensa, et abdomine utriusque statim abscisso, mox scalpelli ope certiorem factum fuisse penem masculum, seu potius præputium, immissum esse in bursam copulatoriam illam distentabilem (quam insectis Dipteris deesse semper Loevius contendit) et semen quoque in hanc effusum.—Res tamen ulteriore probatione videtur indigere, quum in casu prædicto constet feminam jam mortuam fuisse, vel moribundam, mare eam ineunte.

characters of several new genera of the Cecidomyini and Lestremini, an extract from which is given in the Isis. The third, containing a distribution of the European Diptera into 35 families, is in the Annali di Bologna (vol. vi), and an extract is given in the Isis (1843, p. 614.) There is, besides, a fourth article upon the genus Phasia, and a fifth upon Chortophila, [with another on a new genus of Syrphidæ.] I have not been able here to get a sight of these Transactions as yet.

Tipulariæ.—Loew has proposed several new genera. *Prionocera* (Ent. Zeit. 170, pl. 2. f. 30, 31), intermediate between Ctenophora and Tipula, the wings and feelers as in the latter, the feelers serrated beneath, without whorls of hairs, no frogs (pulvilli) to the feet, the body clothed with soft almost woolly down. A new species from the neighbourhood of Posen, *Pr. pubescens*, rather more than 3‴ long. The generic name has been employed previously.—*Mochlonyx* (ibid. 121 note), established for Corethra *velutina*, Ruthe (Isis, 1831, p. 1205), which differs from Corethra, &c., by the shortness of the first joint of the feet, [one fourth the length of the second; an extinct species is *M. sepultus* in amber.] — *Hæmasson* (ibid. 115, pl. 1, f. 1-5), beyond question identical with *Phlebotomus*, Rond.; the species observed by Loew, in Hungary, Wallachia, and Constantinople, *H. minutus*, is probably *Bibio papatasii*, Scop.—*Liponeura* (ibid. 118, pl. 1, f. 6-10), for a species found in Silesia, *L. cinerascens*, agrees in many respects with Blepharicera, Macq., and Asthenia, Westw. (Report 1843, p. 185, and 1842, p. 293), and is very probably not distinct, supposing that Westwood and Macquart may have overlooked the peculiar structure of the feet, with the last joint toothed below and the claws serrated.

Macquart (Ann. Soc. Ent. Fr. ii, 69, pl. 11) has given additional particulars of his genus *Blepharicera*. (Rep. 1843, p. 185.) He had previously known only one sex, which he took for the male, on account of the eyes meeting. He has since obtained the other sex, which, from the form of the abdomen behind, must be the male; it has also longer legs and broader wings, but what is remarkable, the eyes are smaller, separate, and composed of equal facets. The eyes are hairy; the last joint of the palps in the ♂ long and flexible, as in Tipula. The assemblages of these males were seen also performing their evolutions in the air at a greater height than the others.

Loew (Ent. Zeit. 324) divides *Lestremia* into two subgenera, *Lestremia* with fifteen joints in the feelers of the ♂, and *Cecidogona* with eleven. Of the latter he has described a new species, *L. carnea*, found at Posen.

[Rondani (Mem. ditterol. iii, Annali di Bologna, vi) has proposed several new genera, viz, of the Cecidomyini, which he distinguishes from the following tribe by the shortness of the first joint of the feet and the constant absence of eyelets (ocelli), 1. *Brachyneura* (*fuscogrisea*, new species), 2. *Dasyneura* (*luteofusca*, new species, and *obscura*, new species), differing from

Cecidomyia by the shortness of the first vein, which terminates before the tip of the wing, and by the (apparent) number of joints in the feelers, and distinguished from each other by variations of the latter. 3. *Porricondyla;* and 4. *Phytophaga*, separated from Cecidomyia only by the second of these characters. 5. *Ozirrhynchus*, remarkable in having the mouth drawn out into a perpendicular pointed beak, one species, *longicollis*, new. Of the *Lestremini*—1. *Micromyia* (*lucorum*, new species), 2. *Neurolyga* (*fenestralis*, new species, and *sylvalis*, new species); with wings like Campylomyza, but with three eyelets, the former having ten joints to the feelers, the latter fifteen in ♂, 12 in ♀; 3. *Mimosciara*, allied to Lestremia, but with two eyelets, and with twelve joints in the feelers of ♀; two species, both new, *M. molobrina* and *lestremina*, R.]

Ratzeburg (Forstins. iii, 159) has treated of the *Cecidomyiæ* of timber trees, *C. pini*, Degeer, *brachyntera*, Schwäg., and *fagi*, Hart. The last of these corresponds to *Cynips fagi*, L., of which Linnæus knew nothing more than the pointed conical galls produced by it on the leaves of the beech. Hartig, who first ascertained the true inmate of these, has made known also a second species of the beech, *C. annulipes*, which produces smaller, blunter, softer galls, covered with brown hairs. Both kinds of galls are figured.

Sciara subterranea, Märk. (Germ. Zeitschr. v. 266), is an inseparable companion of Formica rufa, in the nests of which it occurs from the early spring to the end of autumn. It not only passes through the grub state there, but the fly also lives in the nests of the ants, where the author often found them paired.

Walberg (Ofvers. K. Vet. Akad. Förh. 1844, p. 110) describes a new *Simulia* from Lapland, *S. ferruginea*, ♂ 2‴, ♀ 3‴ long, therefore the largest of the genus, and further remarkable for this, that it seems to have no appetite for blood.

[Curtis (Gard. Chron. 868) has figured the earlier states of *Dilophus febrilis*. The larva, found in numbers in garden-mould, resembles that of a Bibio, but the rows of prickles are wanting. The last segment and the foregoing have each four projecting teeth.]

Asilici.—Loew (Ent. Zeit. 165, pl. 2, f. 22-25) has characterized a new genus *Anarolius*, related to Dasypogon, but differing in the want of the frogs (pulvilli) between the claws. In this respect it agrees with the genus Acnephalum, Macq., which has, however, the abdomen broad as in a stout Laphria, while in the present genus it is compressed as in Asilus. *A. limbatus*, new species, from Asia Minor.

Dioctria hercyniæ, a new species, from the Lower Harz, is also described by Loew. (Ibid. 381).

Empides.—The following new species from Lapland are described by

Wahlberg (Ofvers. Akad. Förh. p. 107): *Paramesia tenella, Rhamphomyia paradoxa, modesta, poplitea;* and of TACHYDROMIÆ, from the same country, *Tachydromia atra*, Wahlb. (Ib. 106.)

LEPTIDES.—Loew (Ent. Zeit. 123, pl. 2, f. 1-5) has characterized a new genus *Baryphora*. *B. speciosa*, new species, from Rhodes and the eastern isles of the Ægean. The genus is intermediate between Atherix and Thereva. It is slender, with a prominent forehead, the proboscis projecting and recurved, the feelers very thick, three-jointed, the first joint enlarged, oval, the second very small, the third conical, without a style at the end. No notice is taken of the frogs (pulvilli) between the claws, which would decide which it is allied most nearly to, Thereva or Atherix. The habit is more like Atherix. The insect runs about on arbutus bushes, in the shade or early in the morning, quivering its wings and arching the abdomen.

SCENOPINII.—Zetterstedt (Dipt. Scand. iii, 897) describes a new species, *Scenopinus furcinervis*, from a specimen (♂), taken at Lund on a window, which has the third main vein of the wing doubly forked.

DOLICHOPIDÆ.—Macquart (Ann. Soc. Ent. Fra. ii, 177, pl. 4, 5) has taken in hand to examine the sexual distinctions in the veining of the wings, and has figured the wings of a great number of species of Dolichopus, in which these differences are very constant. They are as follows: 1. At the end of the mediastinal veins, which unite about the middle of their course, there is in the male a black callous dot, which is indistinct or wanting in the female. 2. The principal cross vein in ♂ usually approaches the end of the wing more than in ♀; 3. Consequently the portion of the externo-median vein, from the connecting vein to the curve or angle, is shorter in the former sex. 4. The curve or angle of the same is usually bolder in the ♂. It is only in Dolichopus that these distinctions could be verified, as the like were not to be traced in the other genera.

Wahlberg has given particulars of the habits of the Dolichopidæ observed by him on the western coast of Sweden. After a storm he saw the sand, left bare by the sea retiring, covered with swarms of Diptera, mostly Dolichopidæ of different kinds, which were making their prey of a small species of Nais that had been thrown up in quantities. Among these Dolichopidæ, *Rhaphium flavipalpe*, Zett., occurred, the male of which is here determined for the first time. For this species he proposes a new genus, *Thinophilus*, not unlike a Cordylura in appearance, combining in one the essential characters of the principal types in the family, the head and palps of Rhaphium, the wing-veins of Hydrophorus, the feelers of Dolichopus, and the sexual organs of Ammobates.* A second species of this genus is *Rhaphium macu-*

* A genus formed by Stannius (Isis, 1831), for *Dolichopus plumipes*, Fallen, &c.; but the name was preoccupied among the Hymenoptera.—TR.

licorne, Zett. (Kröyer, Naturh. Tidsskr. N. R. 41; Öfvers' K. Vet. Akad. Förhandl. 1844, p. 37.)

Also (ibid. 109) two new species from Lapland, *Hydrophorus alpinus* and *Medeterus paradoxus*. The latter with *Dolich. scambus, curvipes, femoralis, pumilio, picticornis*, &c., according to the author, seems to form a peculiar genus, for which it will be best to reserve the name *Medeterus*, retaining *Hydrophorus* for *H. regius, bipunctatus, litoreus*, &c. The species with the feeler-awn nearly terminal, and the end of the abdomen largely inflected in ♂ [*rostratus, jaculus, truncorum*, &c.], demand necessarily the formation of a separate genus, which may be aptly designated *Orthobates*, from the manner of walking as on tiptoe.

[But Hydrophorus has been previously appropriated by Macquart (Ins. Dipt. Nord. d. Fr.) to designate this last group, the synonym Medeterus being restricted to the second; while the subgenus *Camptosceles* has been proposed for the first section. (Zool. Journ. 1831, vol. v.) The trivial name *alpinus* has been employed already for a species of Medeterus. (Hal. Ent. Mag. i, 163).]

Bombyliarii.—Loew. (Entom. Zeit.) has added four new genera to this family. *Platypygus* (p. 127, pl. 2, f. 6, 8) has the body slightly hairy, the thorax gibbous, the abdomen broad and flat, the wings with a discoidal cell emitting three veins, and one submarginal cell; it resembles Usia in its aspect and movements, but differs notably from the rest of this family in the veining of the wings. *Pl. chrysanthemi*, new species, from Rhodes and the Greek Islands, found in the spring months upon Chrysanthemum, greedily devouring the pollen of the flower.—*Eclimus* (p. 154, pl. 2, v, f. 9-11) comes near to Systropus by its slender Dioctria-like figure, but differs in the form of the abdomen, which is not club-shaped but cylindrical, and in the structure of the face and palps, as well as in the veining of the wings, from the discoidal cell of which three veins spring, forming one posterior cell more than in that genus. *E. perspicillaris*, new species, found in Asia Minor and the Greek Islands, upon low plants, on the pollen of which it feeds, and *E. gracilis*, new species, from the southern coast of Asia Minor.—*Chalcochiton* (p. 157, pl. 1, f. 14-17), in habit like a Mulio, but distinguished from it, as a genus, by the short proboscis ending in a knob, and by the possession of pulvilli (frogs). *Ch. speciosus*, from the southern coast of Asia Minor.—*Oligodranes* (p. 160, pl. 2, f. 13-16) agrees with Phthiria in the double style at the end of the feelers, with Geron in the veining of the wings, while it is distinguished from either by the broader and rounder thorax, the straight proboscis thick at the root, and the length and peculiar form of the palps. *O. obscuripennis* and *fumipennis*, both new species, found in Asia Minor and in Greece, in the spring months, hovering about the haulm of grass in the warm morning

sunshine, and feeding on pollen principally of the grasses, towards evening hanging motionless from the stalks. The male was not observed to take any nourishment.

STRATIOMYDÆ.—Stager (Ent. Zeit. 403) has examined what the species is which Linnæus meant by *Musca hypoleon*, and comes to the conclusion that it should be referred to the *Oxycera pulchella*, Meig. (see further the Report for 1845.)

Stratiomys argentata, F., *Oxycera hypoleon*, Zett., and *O. leonina*, have been found in Denmark by Jacobsen. (Kröyer, Nat. Tidsskr. N. R. i, 40.)

The larva of *Clitellaria ephippium* has been discovered by Märkel. (Germ. Zeitschr. v, 266, 478.) It lives in the nest of Formica fuliginosa. The larva had left the nests towards the end of March, and towards the end of April the fly made its appearance.

SYRPHICI.—Rondani (Ann. Soc. Ent. Fr. ii, 61) has given a Monograph of the Italian species of *Callicera*. 1. *C. spinolæ:* with two deep black bands across the abdomen, the thighs in the ♀ entirely red. Common in Central Italy in October, chiefly on the flowers of Solidago virgaurea. 2. *C. roserii:* abdomen with a dark band at the sides of the second, and sometimes also of the third segment; the thighs in both sexes black, with the tip red. Found among the lower ranges of the Appennines of Central Italy, in September and October. 3. *C. macquartii:* without bands on the abdomen; the second joint of the feelers but half the length of the first; the eyes hairy in ♂ ♀.—Duchy of Parma. 4. *C. aurata* Rossi (*ænea*, Meig.): without bands on the abdomen, the first two joints of the feelers of equal length, the eyes of the ♀ bald. Very rare in Germany, France, and Italy. The author thinks *C. ænea*, Pz., may possibly prove a fifth species (*C. panzeri*, Rond.), differing from all the rest by the length of the second joint of the feelers, which exceeds the first by much, if the figure is correct.—(A sixth species will be *C. rufa*, Schumm. (Arb. Schles. 1841), which, in the proportions of the feeler-joints, agrees with C. macquartii, but has the legs entirely red, and seems, besides, to be marked by the red colour of the pubescence.)

[Rondani has also (Ann. Bol. 1844, Settre.) separated *Scæva ruficornis*, F. (*Conops cuprea*, Scop.), from Cheilosia, as a new genus, *Ferdinandea*, characterized by the forehead jutting out at the insertion of the feelers, and by the awn of these being perfectly naked. A second species, *F. aurea*, R., new, is described.]

Wahlberg (Ofvers. Vet. Akad. Förh. 1844, p. 64) has described several new species of this family, from Lapland; *Helophilus affinis*, intermediate between pendulus and trivittatus; *H. lapponicus*, most nearly related to H. arcticus, Zett., *H. bottnicus*, which in aspect and habit resembles a Criorhina; *Brachyopa cinerea*, of a lead colour, the abdomen black, with the end reddish brown; *Scæva latimana*.

Robineau Desvoidy (Ann. Soc. Ent. Fr. ii, 39) has characterized a new species of *Brachyopa, scutellaris*, which, however, seems scarcely to be different from B. bicolor.

Henopii.—Loew has discovered in Asia Minor, and in the island of Stanchio, a species of Philopota, a genus hitherto known as South American only. The species, *Ph. murina* is described very particularly and figured. (Ent. Zeit. 162, pl. 2, f. 17-21.)

Conopica.—Zetterstedt (Dipt. Scand. iii, 942) has distinguished as a species *Myopa sundewalli*, given by Fallen and Meigen as a variety of M. atra, from which it differs in having the third and fourth main veins separate to the tip of the wing. The new species is also larger, and has the abdomen gray with an indistinct black stripe down the back.

Platypezina.—In this family also several new species are added to the Fauna of Scandinavia, *Platypeza vittata*, from Sweden and Denmark, *Pl. modesta* (Stäg. in litt.), from Schonen and Seeland, *Pl. consobrina*, from the interior of Sweden, *Callomyia zetterstedtii* (Wahlb. in litt.) from Ostrogothia.

Pipunculini.—The additions are *Nephrocerus flavicornis*, Zett., from the south of Sweden, *Pipunculus fuscipes* (Stäg. in litt.), *P. unicolor, fusculus, fuscipes, obtusinervis*, Zett.

Œstrides.—Zetterstedt has characterized two new species, *Gastrus ferruginatus* and *nigritus*. The first agrees with G. jubarum, Meig., which is the male of G. pecorum, only the band between the wings is brown, and the black hairs on the breast are wanting; it may be but a variety of the species last named. So also the second, notwithstanding the different colours of the pubescence (atro-villosus, pectore antice abdominisque basi cano hirtis, ano rufo-villoso), may be a mere variety of G. nasalis, from which the author separates G. salutaris also, on account of the black down with which the fore thighs are clothed below. There is no difference between them in the veining of the wings. Further observation will decide whether the colour of the pubescence marks distinction of species in this case.

The opinion which I expressed in the preceding Report (p. 187) with regard to Œstrus tarandi and trompe, has been confirmed by Zetterstedt (ibid.) and Bohemann. (Arsberätt. Zool. Framst. 1843, 1844, p. 189.) Zetterstedt describes both sexes in each, and states that the larva of Œ. trompe lives in the frontal sinuses, in the throat, and under the tongue of the reindeer, while Œ. tarandi is well known as the bott of the hide. Bohemann has found both the species paired. The two sexes of Œ. trompe present scarcely visible differences externally, and the ♂ of Œ. tarandi also resembles the ♀, except that the long ovipositor is wanting. This sex is not so commonly found, not being in the habit of hovering round the deer as the female does, but sitting still on stones, &c.—[See Ann. Nat. Hist.

xiv, 218.]—Having received from Bohemann a number of fine fresh specimens of Œ. trompe, from Lapland, for examination, I have changed my opinion about the German species, which I now consider to be truly distinct. It is the *C. auribarbis*, Meig., of which, probably, the wasted specimens are *Œ. rufibarbis*, Wied. Meig. Ratzeburg (Forstins. iii, pl. 10, f. 13) has given a beautiful figure of the German species, which he regards with reason as the species producing the maggots in the nostrils of the red deer.

L. Goudot (Ann. Soc. Ent. Fr. ii, p. 41) has given the description of a new species, *Cuterebra noxialis*, from New Granada. The larva which is 2 centim. (above an inch) long, lives under the skin of domestic animals, dogs as well as cattle. The Americans call it " Gusano" or " Nuche." To get rid of it, they squeeze the part where the bott is so as to kill it (?), afterwards washing the wound with salt water, and sprinkling over it the seeds of Asagrea officinalis (Veratrum) powdered.

Muscariæ.—Zetterstedt's arrangement in the third volume of his Diptera Scand. comprises the Hæmatomyzides, Tachinariæ, Phasiariæ, and Dexiariæ.

Ratzeburg (Forstins, iii, 162) has given important observations on the natural history of such of the *Muscidæ* as are of interest in woodcraft. These are principally the Tachinariæ. With respect to his notion that these flies also lay their eggs only on diseased subjects, I refer to what has been said already under the head Hymenoptera.

[He has noticed as new species of Anthomyia 4, Tachina 13, Gonia 1; but as they are rather indicated than described, it is needless to consider them further in this place.]

Etudes sur les Myodaires des environs de Paris, par Robineau Desvoidy. (Ann. Soc. Ent. Fr. ii, p. 1.)—This author proposes to describe the Muscidæ of the Paris district, and has begun here with the *Macromydæ*, including the genera *Peletieria*, *Fabricia*, *Echinomyia*, *Servillea*, *Eurithia*, and the *Anthophilæ*, viz. g. *Linnæmyia* and *Bonellia*.

Loew (Ent. Zeit. 168, pl. 2, f. 26, 29) has characterized a new genus, *Phylloteles*, with the form and habit of a Miltogrannua, but remarkable in having the awn of the feelers three-jointed, with the third joint compressed, foliaceous. *Ph. pectipennis*, new species, discovered in Asia Minor.

He has also submitted the species of *Ocyptera* to a searching examination. (Ib. 226, 266.) The genus is divided into two groups according to the structure of the feeler-awn, which is of the common form in the first, but dilated at the end in the second, section. To the first belong—1. *O. coccinea*, Mg. 2. *O. rufipennis*, new species, from Rhodes. 3. *O. pilipes*, new species, from Constantinople and Prusa. 4. *O. brassicaria*, F. 5. *O. intermedia*, Mg. 6. *O. brevicornis*, new species, from Austria. 7. *O. setulosa*, new species, and 8. *O. coarctata*, new species, from Portugal. 9. *O. scalaris*, new species, from Vienna.

The second section contains—10. *O. gracilis*, new species, from the neighbourhood of Posen; 11. *O. costalis*, new species, from the south coast of Asia Minor.

In like manner he has illustrated the genus *Idia*, and shows that the genus *Rhynchomyia*, Macq. (*Tachina columbina*, Mg.), should be reduced to it, the difference in the pubescence of the feeler-awn not being strong enough to separate them. The author has seen the following four species alive: 1. *I. lunata*, Wied. (*Musca id.*, F., *Idia fasciata*, Mg.), diffused over all the South of Europe, extending to Asia Minor and Madeira; 2. *I. concinna* (*Musca id.*, Germ. Fna., *Tachina columbina*, Mg.), Asia Minor, Greece, Dalmatia, South of France; 3. *I. speciosa*, new species, Asia Minor, Greece, and Hungary; 4. *I. cyancesens*, new species, from Asia Minor. They were all found on flowers, feeding on the pollen.

Wahlberg (Öfvers. K. V. Akad. Förh. 1844, p. 66) has added to *Mesembrina*, a new species from Lapland, *M. resplendens*, resembling M. mystacea in form, and M. meridiana in colour and pubescence, but smaller than either of these.

[Curtis (Gardener's Chron. 275), from the communication of Mr. Bolt, has noticed an instance of an Earthworm (Lumbricus terrestris) being infested and devoured by the parasitic larvæ of *Sarcophaga carnaria*. The maggots were found upon the body of the worm, but they soon penetrated into it, only the tail-end continuing exposed through a hole in the skin. The larva of this fly seems to be a pretty indiscriminate feeder, although no recent observations corroborate the account of Degeer, on which the trivial name is founded, and in which this species appears to have been confounded with some other flies. (*Calliphora*, *Tachina*—see Report 1838, p. 374.) Bouché (Naturg. Ins. 60) has found the larvæ only in dung-heaps and rotten vegetables. It is known to Lepidopterists also, like other species of the genus, to be parasitic in caterpillars (e. g. of Vanessa io and Saturnia carpini).]

Stenhammar has laid before the Stockholm Academy an essay on the Swedish species of the *Ephydrini*, which has been inserted in their Transactions of 1843. (Öfvers. K. Vet. Akad. Förh. 1844, p. 35.) Beyond the short notice here given I know this essay only from a fuller extract given by Bohemann in his Annual Report on the progress of Zoology, for 1843 and 1844, p. 192. The author calls attention particularly to a part belonging to the mouth, found in all Diptera, though generally rather imperfect, but in the Ephydrini extraordinarily developed, surrounding the orifice of the mouth as a horny ring. He calls it the prælabrum. Notice is taken also of the unequal degrees of development of the lobe of the wing (the more or less enlarged continuation of the hinder edge of the wing towards its insertion), and the supposition put that the development of this part is connected with the power of flight, which appears to be imperfect in all cases where the wing-lobe is dwarfed. The abdomen is invariably composed of six seg-

ments, though only five may be apparent, as the sixth is very short in the female, and in the male it is bent inwards as a cover to the genitals. The different forms of this segment are of moment in the arrangement of the Ephydrini. The author has taken pains in estimating the comparative value of the several distinctive characters.

The following is his arrangement:

Tribe I. The fourth main vein inclined to the fore edge beyond the principal cross vein of the wing. Gen. 1. *Ochthera*, Latr., 1 species (*O. mantis*, Deg.)

Tribe II. The third and fourth veins parallel beyond the cross vein. Gen. 2. *Ephydra*, Fall. Section 1. *Ephydra* proper. The snaffle (epistoma) vaulted, bristly: *a*. its upper face protuberant, with a tubercle: 9 species, 6 of them new (*E. riparia*, Fall.)—*β*. its upper face with a convex slope, without the tubercle: 3 species, 2 of them new (*E. quadrata*, Fall.) Sect. 2. *Epipela*. The epistoma vaulted, with a keeled tubercle above: 1 (new) species, *E. notata*, [= *spilota*, Curt.] Sect. 3. *Parydra*. The epistoma arched, rather conically, towards the cavity of the mouth: six species, 2 of them new (*E. aquila*, Fall.) Gen. 3. *Notiphila*, Fall. A. The rib-vein terminating at the end of the third main-vein. Sect. 1. *Notiphila* proper. Subdiv. 1. Of a blackish colour, with peculiar appendages to the end of the abdomen in the male: (*Dichæta*, Mg.), 1 species (*N. caudata*, Fall.) Subdiv. 2. The colour gray; the abdomen of the male simple (*Notiphila*, Macq.) a. The face as broad as long: 4 species, 3 of them new (*N. cinerea*, Fall.) b. The length greater than the breadth of the face: 6 species, 5 of them new (*N. riparia*, Mg.) B. The rib-vein terminating at the end of the fourth main vein. Sect. 2. *Telmatobia:* 3 species, two of them new (*N. ænea*, Fall.) Sect. 3. *Hydrellia*, Macq. a. The second segment of the rib-vein longer than the third: 9 species, 7 of them new (*N. flavicornis*, Fall.) b. [The second segment not longer than the third?] 8 species. Gen. 4. *Psilopa*, Fall. Sect. 1. *Clasiopa:* 7 species, 5 of them new (*N. obscurella*, Fall.) Sect. 2. *Psilopa* proper. a. The abdomen ovate, with the end a little pointed: 3 species, 2 of them new (*Ps. nitidula*,) Fall. b. The abdomen elliptic, blunt: 1 species, (*Ps. madizans*, Fall.) Gen. 5. *Discomyza*, 2 species (*D. incurva*, Fall.)

Von Heyden (Ent. Zeit. 203) has discovered in the saltworks at Neuheim a new fly, *Cænia halophila*, the larva of which lives in the salt water in the brine-pans, and also in the passages from the evaporating (graduating) houses, in the first and second stages where the water is charged with salt up to the ratio of 6¾ per cent. It does not occur in the third stage when the proportion is raised to 27 per cent. The author suspects that the fly may be identical with the *Ephydra salinaria*, Bouché, which breeds in similar situations; but this is not the case. The latter (which I also have met with

at the salterns at Greifswald) is a genuine Ephydra, and Bouché's accurate description of the feeler-awn sufficiently shows that it is no Cænia.

[Still it is probable that Heyden is right in his supposition, and also that the fly is *Ephydra riparia*, Fall., with which the description agrees; what Heyden says of the feeler-awn ("doubly pectinated") suits this genus better than Cænia. His mistake in this case has been in referring it expressly to the latter genus. The discrepancies in Bouché's figures of the larva and pupa which he has noticed (ibid.) need scarcely raise a difficulty, as no one who has compared the figures which illustrate that interesting work with the life, will be disposed to look for more than some general resemblance.]

Stäger (Kröyer Nat. Tidsskr. N. R. 1, 36) has unravelled the differences between *Scatophaga lutaria, inquinata, spurca*, Meig. He takes the first to be the species so common in Sweden, and the same as Musca suilla, F. Sc. spurca, Mg., agrees very nearly with Sc. lutaria, var. c. Zett. Ins. Lapp., but is distinguished by light rufous feelers, the blackish margin to the segments of the light ferruginous abdomen in both sexes, and by the male having all the thighs and the inside of the hind shanks clothed with woolly hairs, these being in Sc. lutaria ♂ only pubescent, while this has a row of black bristles and spines on the hind shanks, not found in the former. Sc. inquinata, which Meigen distinguishes from Sc. spurca only by the uniform colour of the abdominal segments and the limpid wings, the author has not seen exactly agreeing with this description, but has found individuals with a dark edge to the first two segments, and with the wings nearly colourless.

Further (ibid. 38) he shows that the Sciomyza glabricula of Fallen and of Meigen are two different species, the synonyms of which he has settled thus: 1. *Sciom. glabricula*, Fall. Zett. (*Sc. nigrimana*, Mg., *Opomyza ventralis*, Mg.) 2. *Sc. angustipennis*, Stäg., = *Sciomyza glabricula*, Mg.

Again (p. 22) he gives a critical investigation of the Danish species of *Sepsis*, including *Cheligaster* and *Nemopoda*, Macq. The species are arranged according to this scheme. 1. Wings with a spot at the tip; palps abortive; The fore legs in the ♂ have the lower edge of the thigh dilated, toothed, and spined, the inside of the shank nicked. The abdomen of the male is without bristles. 1. *S. punctum*, Mg. 2. *S. violacea*, Mg. 3. *S. cynipsea*, Mg. 4. *S. flavimana*, Mg. (?) 5. *S. nigripes*, Mg. (?) 6. *S. atripes*, Macq. (?)—2. Wings unspotted. A. Feet of the male without any peculiar conformation: *A.* Palps filiform or cylindrical, very small; fore legs of the ♂ as in the first section. a. Abdomen of the ♂ with a pencil of hairs at each side of the last segment. 7. *S. putris*, Mg. 8. *S. ciliata*, new species [is *S. superba*, Hal., Ent. Mag. i. 170], not rare in the low grounds in May. 9. *S. leachii*, Mg.—b. Abdomen of the ♂ without the pencils. 10. *S. fallenii*, Stäg. (*cylindrica*, Fall., *leachii*, Zett., Ins. Lapp.) 11. *S. lucida*, new spe-

cies [is *S. minor*, Hal., ibid.], abundant in marshes in August.—B. Palps abortive; fore legs in the ♂ without teeth or spines. 12. *S. cylindrica*, Mg., *nitidula*, Fall. 13. *S. varipes*, Mg., *coxarum*, Zett. (?) *Nemopoda nigrilatera*, Macq.—B. Middle feet of the ♂ dilated, fore thighs with the lower edge dilated and spinous, fore shanks nicked; the last segment of the abdomen with a pencil of hairs, often scarcely discernible, at each side. 14. *S. annulipes*, Mg., *Nemop. id.*, Macq. *Enicopus id.*, Walk. Macq.

Léon Dufour (Ann. Sc. Nat. i, 365) has given the history of *Piophila petasionis*. The larva lives in the fat of cured hams, as that of P. casei in cheese, and is equally a hopper. It differs from the cheese-hopper in having a pair of hooks at the end of the abdomen. There is nothing particular to be noticed in its internal anatomy. In the perfect insect ♂ ♀ there are a pair of globular fleshy knots on the rectum.

Loew (Germ. Zeitschr. V, 313, pl. 1, 2) has published a critical examination of the European species of *Trypeta*, Mg., an ample and admirable essay, which at once gives the synonyms a thorough scrutiny, and adds materially to the number of described species. It is made still more useful by the markings of the wings in almost every species being very clearly figured. The author has not admitted the genera proposed by later writers, considering them as grounded on immaterial characters, and adheres accordingly to the divisions employed by Meigen, which are at all events convenient for determining the species. As the work is indispensable to every one who desires to study the genus, it is unnecessary to go more into detail as to the contents, and I will only add a few observations.

[However, as Loew's essay may not be accessible to all the English readers of this Report, the list of species is subjoined in the translation, with the most important of the synonyms not given in Meigen's work.—I. With banded wings. a. The body yellow or greenish: 1. *alternata*, Fall., *continua*, Mg. 2. *meigenii*, Lw., *alternata*, Mg. 3. *zoe*, Mg., *intermissa*, Mg., *artemisiæ*, Walk., *apicalis*, Zett. 4. *abrotani*, Mg. 5. *artemisiæ*, F. 6. *cognata*, Wied., *lucida*, Fall. 7. *speciosa*, Lw., *cognata*, Macq. *id.* ♀, Mg. 8. *flavescens*, F. 9. *heraclei*, L., *onopordinis* et *centaureæ*, F.] = *Tephr. varipennis*, Macq. Dipt. exot. [10. *antica*, Wied., *gœdii*, Mg., *zetterstedtii*, Zett. 11. *punctata*, Schra., *arctii*, Macq. 12. *arctii*, Deg. Mg., *dorsalis*, Macq. 13. *tussilaginis*, F., *vicina*, Macq. 14. *lappæ*, Cederh., *tussilaginis*, Walk. 15. 8-*punctata*, Macq., *lappæ*, Mg. 16. *cornuta*, F. 17. *florescentiæ*, L. 18. *winthemi*, Mg. 19. *wiedemannii*, Mg.—b. Abdomen gray: 20. *marginata*, Fall.—c. Abdomen banded black and gray: 21. *fasciata*, F.—d. Abdomen glossy black: 22. *centaureæ*, F., the same as No. 9. 23. *lychnidis*, F. *centaureæ*, Fall. *discoidea*, Mg. 24. *discoidea*, F., *lychnidis*, Fall., Mg. 25. *femoralis*, Desv. 26. *rotundiventris*, Fall. 27. *cardui*, L. 28. *stylata*, F. 29. *solstitialis*, L., *cuspidata*, Mg., *pugionata*,

Mg. 30. *aprica*, Fall., *pugionata*, Walk. 31. *4-fasciata*, Mg. 32. *cerasi*, L., *signata*, Mg.—II. Wings checkered, &c.: 33. *flava*, Geoff., *arnicæ*, Mg. 34. *westermanni*, Mg. 35. *parietina*, L. 36. *flavipennis*, new species, England, France, Southern Germany. 37. *proboscidea*, new species, Silesia. 38. *argyrocephala*, new species, Germany. 39. *corniculata*, Fall. 40. *zelleri*, new species, Silesia. 41. *bardanæ*, Schra., *confusa*, Mg., *heraclei*, Walk. 42. *conura*, new species. 43. *truncata*, new species, Austria. 44. *simplex*, new species, Asia Minor. 45. *leontodontis*, Autt. 46. *angustipennis*, Lw., *leontodontis var. a.* Zett. 47. *fallax*, new species, Germany. 48. *arnicivora*, Lw.] must be referred to *T. flavicauda*, Mg., as not only the description agrees, but Meigen expressly states that the larva lives in the Arnica montana. It would be well therefore to retain Meigen's name until it is satisfactorily proved that *Musca arnicæ*, L. is the same, as Loew supposes. [49. *ruralis*, new species, Silesia. 50. *vespertina*, new species. 51. *formosa*, new species, Germany. 52. *matricariæ*, and 53. *præcox*, new species, from Asia Minor and the Greek Islands.] *T. guttularis*, Hffg., corresponds to these two. His specimens from Portugal are distinct from T. guttularis, Mg., for which this name must be retained. [*T. plantaginis*, Hal., is also the same, so that the range of this species in Europe is more extensive than Loew has given it. 54. *hyoscyami*, L. 55. *postica*, Lw., *heraclei*, F., Mg. 56. *laticauda*, Mg., which the author has not seen. 57. *absynthii*, F. 58. *cincta*, new species, Germany. 59. *tessellata*, new species, do. 60. *elongatula*, Lw., *leontodontis var.* b. c. Zett., occurs on Tanacetum, from Lapland to Asia Minor. 61. *producta*, new species, Asia Minor, Greek Islands. 62. *guttata*, F., Mg., *gemmata*, Mg. 63. *reticulata*, Schra., *pupillata* et *pardalina*, Mg., *lineata*, Macq. 64. *irrorata*, Fall. 65. *biflexa*, new species. 66. *guttularis*, Mg., *capitata*, Fall. Suppl. 67. *pulchra*, new species, Austria, Asia Minor. 68. *ramulosa*, new species, Portugal,] erroneously, it is in reality from Ragusa. [69. *conjuncta*, new species, Germany. 70. *cometa*, Lw., do. 71. *stellata*, Fuessly, *radiata*, F., *terminata*, Fall. 72. *gnaphalii*, Lw., *discoidea*, Fall., *æstiva*, Mg., Sweden and Germany; the larva in Gnaphalium arenarium.—III. Wings nearly or quite unspotted. 73. *eluta*, Mg. 74. *colon*, Mg., *alciphron*, Newm., *wenigeri*, Mg., *nebulosa*, Macq. 75. *serratulæ*, L., *pallens*, Mg. 76. *fuscicornis*, new species, Sardinia. 77. *nigricoma*, same as 74. 78. *dentata*, Lw., *serratulæ*, Mg. 79. *sonchi*, Autt. 80. *stigma*, new species, Germany, Silesia. The author has not noticed *T. spoliata*, Hal. (Ann. Nat. Hist. 2), from the south of England, with the wings of section III, but more nearly related to T. solstitialis, &c.]

Stäger (Kröy. Nat. Tidsskr. N. R. i, 16) shows that Drosophila fenestrarum of Fallen and of Meigen are different species, viz. 1. *Dr. fenestrarum*, Fall. Zett., ♂ *melanoguster*, Mg., ♀ *virginea*, Mg., ♂ var., *niti-*

diventris, Mg., common throughout the summer upon burdock and other plants with large leaves. 2. *Dr. confusa*, Stäg., *fenestrarum*, Mg. Macq., *Dr. funebris, var* b, ♂, Fall., found mostly on newly-lopped stumps of trees, less common than the former.

Wahlberg has discovered two new genera of the *Agromyzidæ*, in Lapland.

1. *Amphipogon* (Öfvers Akad. Förh. 1844, p. 217, pl. iv, f. A.; Hornsch. Arch. Scand. Beitr. iii, 446, pl. 4. A) has some affinity to Heteroneura geomyzina, Fall.; the female resembles Scatophaga bicolor (Psila id.), but is one half larger, the ♂ has more the air of a Cordylura, and is distinguished by a beard to the cheeks, and the like on the last segment of the abdomen, which bears an appendage, and by the way in which the legs are armed and clothed. *A. spectrum*, 2‴ and upwards in length; lives at the foot of the Lapland Alps, among damp shady beds of willows, upon fungi.

2. *Selachops* (Öfvers, p. 67) with the head shaped as in Tetanops and Oxyrhina, but differing as to the insertion of the small feelers, which have the awn placed nearly at the tip, and are almost imbedded in distinct cavities. *Sc. flavicincta* was found abundantly in June on the banks of the Lulea-Elf (river).

Loew (Ent. Zeit. 321) has characterized a new genus, *Eucælocera*, which is undoubtedly identical with the foregoing. The species found in May at Aschersleben, *E. bicolor*, agrees so nearly with *Sel. flavicincta*, that the chief difference seems to be in the size, this being 2⅛‴, while the Lapland insect is only 1¼‴ long.

[Ratzeburg (Forstins. iii, 170), reared out of pupæ found among the woolly envelope of Chermes piceæ, a small fly, which he has named *Leucopis atratula*, [but which is already described as *L. obscura*, Hal. (Ent. Mag. i, 173.)]

Guérin (Rev. Zool. 30; Compt. rend. xviii, 163) has been attending to the species of *Chlorops* injurious to grain crops. *Chl. lineata*, Autt., attacks wheat and rye, while barley suffers from another, *Chl. herpini*, Guér., new species.

[According to Curtis (R. Agric. Soc. Journ. v, 489), *Chl. tæniopus* is destructive to the wheat and barley alike in England; but a still more formidable enemy is a smaller fly, *Oscinis vastator*, given as a new species. (Ib. 494, pl. L, fig. 31.)

Curtis (Gardener's Chronicle, 244) has described and figured as a new species *Agromyza violæ*, a small fly, which disfigures the flowers of the pansy by numerous punctures; but the way in which this is done is not yet clear in his opinion.]

HEMIPTERA.

PENTATOMIDES.—Herrich Schäffer (Wanzenart Ins. vol. vii, pt. 2-6) has given a revision of the Pentatomidæ, which is at the same time a critique on Spinola's arrangement. (See Report 1838, p. 256). Several new genera are characterized and a number of new species figured.

The new genera are, 1. *Gastraulax:* has a deep channel down the underside like Halys, but the insertion of the sucker-sheath as in Pentatoma; two new species, *torquatus*, from Manilla, and *thalassinus*, from Guinea. 2. *Basicryptus*, distinguished from Aspongopus by the sharp-edged margin of the head and the proportions of the sucker-joints; established for *Edessa costalis*, Germar, a Cape insect. 3. *Platacantha:* second abdominal segment with a broad spine extending beyond the middle hips; breast without keel and channel; the only species, *Edessa cerea*, Germ., also from the Cape. New species: *Discocephala humilis*, Klug, from Columbia; *Empicoris* (= Dinidor, Lap.), *renggerii*, and *corrosus*, from Paraguay; *Ochlerus* (Spin.) *coriaceus*, from Columbia; *lutosus*, Germ., and *sordidus*, G., from Brazil; *Phyllocephala congesta*, G., given by mistake as Brazilian, is *Ph. senegalensis*, Lap., from Senegal; *Ph. distans*, not from the interior of Africa as conjectured, but from the East Indies; *Dichelops* (Spin.) *fissus*, Kl., from Senegal; *Aspongopus melanopterus*, from Nubia, is *Edessa viduata*, F.; *Pentatoma croceiipes*, from Paraguay, also Brazilian; *scabricornis*, from Brazil; *conjungens*, from the Cape; *notulata*, from Mexico; *semivittata*, from Pennsylvania; *tristigma*, from North America; *scissicollis*, from New Holland; *spiniceps*, probably from South America; *Asopus nummularis* (before described by Erichson), from New Holland; *chrysopterus*, from Guaham; *armiger*, from Bengal, = *furcellatus*, Wolff.; *tristis* (*A. mæsta* ♂ Germ.), from South Africa; *ebulinus*, from Brazil; *Edessa albirenis*, from Carolina.

It is to be observed that the species figured as *Storthia livida* and *Empicoris maculatus* are different from those so named by Perty, and new, that the species given as *Phyllocephala furcata*, F., is *Ph. histeroides*, F., and that *Pentatoma acinorum*, Germ., is not distinct from *Cimex versicolor*, F.

Schiödte (Kröyer Nat. Tidskr. N. R. i, 19) describes the young larva of *Phlæa corticata*, Drury, scarcely $1\frac{1}{3}$ lines long; he found it under the body of the mother insect.

LYÆGITES.—Fieber (Entom. Monogr. p. 112) has treated the genus *Ophthalmicus* in the form of a Monograph, and enriched it with a number of new species, mostly discoveries of Helfer's. The species are grouped as follows: 1. Clavus distinctly divided from the corium, flexible at the seam of junction: A. Pronotum transverse, broader than long, trapeziform: a. Scutellum rounded at the end: 1. *O. luridus*, from the Euphrates; 2. *O.*

erythrocephalus (= *Salda id.* Enc. = *O. frontalis*, Friv. Hahn Wanz.), from the South of France, Rumelia, and the Euphrates; 3. *O. ruficeps*, Germ., from the Cape; 4. *O. flaviceps*, Burm., from Luçon. b. Scutellum pointed, hemelytra yellowish white: 5. *O. lituratus*, from Farther India (beyond the Ganges); 6. *O. ochropterus*, do.; 7. *O. siculus*, from Sicily; 8. *O. angularis*, do.; 9. *O. colon*, from Farther India. B. Pronotum, almost longer than the breadth, much narrowed in front, the sides sinuated; the eyes almost entirely projecting beyond the angles of the corslet; 10. *O. plagiatus*, from the East Indies. II. Clavus, firmly soldered to the corium; 11. *O. albipennis*, (*Salda*), Fabr., from various parts of Europe; 12. *O. phæopterus*, Germ., from Southern Africa; 13. *O. ater* (*Salda*), Fabr.; 14. *O. steveni* (*Salda*), Enc., from France; 15. *O. lineola*, Ramb., from Andalusia; 16. *O. ullrichii*, from Austria and Hungary. III. Clavus wanting entirely: 17. *O. grylloides* (*Cimex*), Linn.; 18. *O. lapponicus*, Zett., from Lapland; 19. *O. dispar*, Waga. The position of the last two is uncertain; the author suspects the last to be made up of *O. grylloides* ♂ and *ullrichii* ♀.]

In the nests of Formica rufa a small *Anthocoris* is found abundantly, which has been described as *A. formicetorum* by Bohemann. (Öfvers. K. Vet. Akad. Förh. 1844, p. 158, No. 23.) It comes nearest to A. exilis, but is distinguished by its inferior size, the corslet not wrinkled in front, and the whitish membrane of the half-shards (hemelytra). In the nests of the same Ant Märkel has discovered *Microphysa myrmecobia*, a new species, and the second of this remarkable genus, which has been found in the nests of Formica fuliginosa also (Germ. Zeitschr. Ent. v, p. 262.)

Aradites.—Léon Dufour (Ann. Soc. Ent. Fr. ii, p. 447, pl. 10, f. 1) has described as new two species of *Aradus*, found under the bark of fir trees in the Pyrenees, *A. dilatatus* and *A. ellipticus;* both of them, however, are Linnean species, viz. *A. corticalis* and *A. betulæ* respectively.

Tingidites.—Fieber (Entom. Monogr. p. 20) has investigated this family thoroughly, and introduced not only many new species, but a number of new genera. His arrangement is as follows:

I. Sheath of the sucker lying free upon the breast; head with horn-like processes from the cheeks; half-shards (hemelytra): Gen. 1. *Zosmenus*, Lap., 6 species. II. Sheath lying between the leaf-like plates of the breast. Netshards (sagenæ): A. Netshards without a distinct central field. Gen. 2. *Agramma*, Westw. (*Piesma*, Lap., *Serenthia*, Spin.), 5 species. B. Central field of the netshards distinct, flat or depressed. Gen. 3. *Taphrostethus:* central field doubled; clavus free; pronotum slightly elongated behind, five-ribbed: *T. 5-costatus*, new species, from the East Indies. Gen. 4. *Campylosteira:* central field running in a curve down the entire shard; pronotum cut away in front: 4 species, e. g. *Tingis verna*, Fall. Gen. 5. *Orthosteira:* central field straight, almost oblong-rhomboid, the inner rib straight, parallel to the seam-edge; target of the pronotum pentagonal,

with the overhanging fore margin vesicular; clavus indicated by a network, free, as well as the scutel: 7 species, e. g. *T. cassidea*, Fall. Gen. 6. *Teleia:* central field as in Orthosteira; target of pronotum quadrangular, cut away in front; clavus and scutel completely free: *T. coronata*, new species, from the East Indies. Gen. 7. *Phatnoma:* central field narrow lanceolate; target of pronotum trapeziform; clavus and scutel completely free: *Ph. laciniata*, new species, from the East Indies. Gen. 8. *Monanthia*, Lepell. and Serv.: central field elongated triangular; target of pronotum rhomboidal; scutel and clavus covered; antennæ hairy, the third joint filiform or cylindrical; head short, quadrangular in profile; sheath of the sucker five-jointed, long: divided into the following subgenera, 1. *Phyllontocheila:* with the sides of the pronotum dilated, foliaceous, reticulated: *M. cardui*, L. 2. *Tropidocheila:* with the sides of the pronotum welted, and a small foliaceous, reticulated, marginal piece at the angle of the neck: (e. g. *M. costata*, F.) 3. *Physatocheita:* with the border broad, turned in around the sides of the pronotum, more or less bellying, and reticulated: (e. g. *M. 4-maculata*, Wolff.) In all 33 species. Gen. 9. *Elasmognathus:* distinguished from Monanthia by the pointed triangular head and the short four-jointed sheath of the sucker: *E. helferi*, new species, from the East Indies. Gen. 10. *Dictyonota*, Curt.: differing from Monanthia by the thick, cylindrical, shagreened feelers, with coarse decumbent hairs (strigiliform): four species, e. g. *T. crassicornis*, Fall.) Gen. 11. *Laccometopus:* differing from Monanthia in having the last joint of the feelers short, thick, and not in a line with the third. *C. clavicornis*, L., and one new species.—C. Central and lateral field of the netshards jointly bellying, fastigiated. Gen. 12. *Dorephysia*, Spin.: the enlargement extending over the entire length of the shards, and forming a keel above: 2 species, *T. foliacea*, Fall., and *cristata*, Panz. Gen. 13. *Tingis:* netshards with the enlargement short, confined to the central and lateral fields: 9 species, e. g. *T. pyri*, F.

The excellent and accurate drawings of the author, representing all the species, are unfortunately much disfigured in the lithographic press.

Notonectides.—Fieber (ibid. p. 11) has given a monograph of the genera Sigara and Ploa. *Sigara* contains six species, *S. minutissima*, L., and the Sardinian *S. leucocephala*, Spin., along with four species collected by Helfer in the East Indies, *S. grisea, striata, lineata, punctata*. *Ploa* comprehends four species, two from the East Indies, *Pl. frontalis* and *liturata*, and one North American, *Pl. striola*, being associated with the European species, *P. minutissima* (*Notonecta*), Fabr.

Fulgorellæ.—Westwood (Arcan. Ent. pl.71), has figured some American species, *Fulgora* (*Episcius*) *amabilis*, Westw. (Ann. Nat. Hist. 1842), from Mexico; *Lystra combusta* and *Cladopteryx obliquata*, new species from Columbia. Another new species from Brazil, *Dilobura subocellata* Westw., is described in a note.

With respect to the apocryphal luminosity of *Fulgora candelaria*, Bowring has observed in China the Lantern-flies, both at large and in captivity, without having ever perceived them to give light. (Ann. Nat. Hist. xiv, 427.) The insect flies well, and is particularly lively in the twilight. The same is the case with our *F. europea*. About the same time a word has been again said in favour of the luminous faculty of the Brazilian *F. laternaria;* Spinola (Rev. Zool. p. 240) communicates the intelligence that a traveller named Kaffer professes to have seen one of these Lantern-flies give light.

Cicadellæ.—White (Ann. Nat. Hist. xiv, 245) has characterized a new genus nearly allied to Ledra, *Ledropsis*, with the head elongated in front, the eyelets (ocelli) in a line with the eyes, the corslet simple, the hind shanks serrated behind and not enlarged. The species, *L. cancroma*, is from Hong Kong. *Cercopis bispecularis*, White (ibid. 426), from Hong Kong, is a species often received from China.

Fieber (Entom. Monogr. 7) has illustrated the German species of the genus Cercopis, of which he distinguishes these four: 1. *C. vulnerata*, Ill., found in mountainous parts of Bohemia, Austria, Carinthia, Illyria, and Bavaria. 2. *C. mactata*, Germ., common in orchards, grass-plots, woods, and meadows. 3. *C. arcuata*, a new species, from the central and outer ranges of the Bohemian mountains. 4. *C. sanguinolenta*, L., a native of Southern Germany and the basin of the Mediterranean. The third species agrees with the fourth in the narrow markings on the half-shards, but with the other two in having the legs entirely black.

Stridulantia.—White (Ann. Nat. Hist. xiv, 426) has described a new species, *Cicada* (*Morgannia*) *nasalis*, from Hong Kong. *C. sanguinea*, Deg., and *C. sanguinolenta*, F., are also found there.

Aphides.—Ratzeburg (Forstins, iii, 195) has made additions of moment to what has been known of this family.—[Elegant figures are given of many of the species. As a fourth (and new) species of the elm, inhabiting the imbedded woody galls of the leaf midrib, he has given *Aphis alba* (p. 222, pl. 13, f. 3.) This is the *Tetraneura* described as *Eriosoma* (*Byrsocrypta*) *pallida*, in Ann, Nat. Hist. ii.]

He has also stated his ideas concerning the multiplication and generation of these insects (Entom. Zeit. p. 9), in consequence of having observed a species on a birch tree, which continued to produce a living progeny from August on into the winter, without either males or females appearing.

Bouché and Kaltenbach (ibid. 81 and 133) hereupon have remarked that the males in this family are not always winged, and may therefore easily be overlooked. The question, however, in this case, has been solved in another way, as Ratzeburg, having continued his observations, succeeded, the May following, in finding the winged females, and subsequently, in October, winged males also, and these paired (ib. 410.) He was enabled thus to identify the species as *Aphis oblonga*, Heyden.

Westwood (Proc. Ent. Soc. Ann. Nat. Hist. xiv, 453) has given an account of a species which lives at the roots of artichokes, and which he has characterized as *Rhizobius helianthemi* [= *Trama radicis*, Kalt. ?]; it is nearly white, has the hind legs attached to the sides of the body, and the hind feet very long and apparently unjointed.

Wahlberg has noticed a red colouring matter which is yielded by *Aphis taniceticola*, Kalt. (Ofvers. Vet. Akad. Förh. 1844, p. 153; Hornsch. Arch. Scand. Beitr. i, 177.)

Coccides.—Bouché (Entom. Zeit. 293) has published his recent observations on these insects. The following species have been newly detected: *Aspidiotus salicis* on young willow stems, or branches of two to four years' growth; *A. bromeliæ* on the pine-apple, to which it is often injurious; *A. cymbidii* on Cymbidium sinense in hot-houses; *Lecanium persicæ* on cherry and plum trees, whitethorn, &c.; *L. corni* on the underside of the twigs of Cornus sanguinea, Pyrus, Tilia, Corylus, Ribes rubrum, &c.; *L. juglandis* on Juglans regia and nigra; *L. aceris* on maples and elms; *L. epidendri* on Epidendron cuspidatum in hot-houses; *Coccus liliaceorum* on various Liliaceæ, at the base of the leaves and between the scales of the bulb; *C. tuliparum* on plants of the same order; *C. mamillariæ* on various sorts of Mamillaria, especially M. rhodantha.

ARACHNIDA—ARANEÆ.

Epeirides.—This family has been considerably enriched by Koch (Arachniden, ii, pt. 3-6), partly by the publication of new species, partly by the completion of the figures before given, along with which the synonyms in general are rectified.

The following are new: *Gastracantha hemisphærica*, Kl., from Sierra Leone; *sanguinolenta*, Kl., and *cicatricosa*, Kl., from the Cape; *annulipes*, Kl., and *falcifera*, Kl., from Manilla; *quadridens*, from St. Thomas, in the West Indies; *rubiginosa*, Kl., from St. Domingo; *mammosa*, Kl., *picea*, Kl., and *obliqua*, from Brazil; *pallida*, country unknown; *Acrosoma gilvulum*, from Brazil; *matronale*, Kl., from Mexico; *Epeira hirta*, Kl., from the Cape; *hispida*, Kl., from Brazil; *ravilla*, Kl., from Mexico; *analis*, from Brazil; *pulchra*, from Southern Germany; *Atea subfusca*, from Greece; *melanogaster*, from Germany; *Singa nitidula*, *trifasciata*, *nigrifrons*, *anthracina* (*Micryphia id.*, Koch. Uebers.), *sanguinea*, from the district of Erlangen; *Miranda exornata*, from Hungary; *Uloborus canescens*, Kl. from Columbia.

Blackwall (Ann. Nat. Hist. xiii, 186) has characterized a new species, *Epeira similis*, English.

Theridides.—He (ibid. 182) has added to his genus *Neriene* (= *Bolyphantes*, Koch.) *N. flavipes*, *timida*, *saxatilis*, *sulcata*, *avida*, all indigenous to England.

Agelenides.—Lucas (Ann. Soc. Ent. Fr. ii, 455) has given a synopsis of the species of the genus *Tegenaria*, Walck., agreeing with the enumeration by Walckenaer (Hist. Ins. Apt.), except that the author adds a new species, *T. annulipes*, from New Holland, which is introduced between *T. guyoni* and *arboricola*. He has observed *T. guyoni* at Algiers, and confirms the specific distinction from T. domestica. Like the latter it lives in houses, but occurs also in woods; these individuals are of a dark colour, which he considers as the effect of the locality.—Blackwall (ibid. 179) gives *T. sæva* as a new British species.

Mygalides.—Tellkampf (Wiegm. Archiv. 1844, i, 321, pt. 8, f. 13-17) has characterized a new genus, *Anthrobia*, apparently belonging to this family. *A. monmouthia*, from the Mammoth cave in Kentucky (U. S.), scarcely two lines long, differs from all other spiders by the total want of eyes.

SOLIFUGÆ.

Phrynides.—Van der Hoeven (Tydschr. x, 369) has examined the nervous system of Thelyphonus, and finds that there is not a series of ganglions in the abdomen, as in scorpions, but that, as in Phrynus and the Araneidæ, two main cords proceed from the large ganglion of the cephalo-thorax to the abdomen, and are only enlarged at the extremity into a small terminal ganglion. In this manner the Phrynides are very determinately separated from the Scorpionides.

Scorpionides.—Koch (Arachn. ii, pt. 1, 2) has figured a great number of species of the genus *Tityus*, *T. fallax*, and *striatus*, from Africa; *hottentotta*, F., Sierra Leone; *lineatus*, Kl., *virgatus*, Kl., *clathratus*, from the Cape; *æmulus*, *longimanus*, with *mucronatus*, F., and *varius* (*tamulus*, F. ?), from Java; *carinatus*, *mulatinus*, *congener*, from America; *macrurus*, *ducalis*, Mexico; *arrogans*, Brazil; *griseus*, F., from St. Thomas (West Indies); and in conclusion, *nebulosus*, *perfidus*, *fatalis*, *marmoreus*, *denticulatus*, *serenus*, *infumatus*, of which the origin is unknown.

Obisides.—Tulk (Ann. Nat. Hist. xiii, 55) has found in *Obisium orthodactylum*, Leach., viewed by the microscope, an immovable pectinated appendage of white colour and transparent texture; in addition, there is, arising from the basal joint of the jaw-pincers ("cheliceræ"), near the commencement of the claws, a tuft of long pinnated hairs, converging at their extremities so as to form a pencil reaching almost to the middle of the claws. The author assured himself, by observations made on the living animal, that this apparatus serves for cleaning the palps, and particularly their didactyle forceps. From the resemblance which these instruments bear to the combs (pectines) of the scorpion, he thinks it may be inferred that the latter also are adapted for cleaning the palps, claws, and above all the sting.

OPILIONES.

Opilionides.—A new genus, *Phalangodes*, has been characterized by Tellkampf. (Wiegm. Arch. 1844, i, 320, pl. 8, f. 7-10.) It is distinguished by the prickly palps, and above all by the want of eyes. The species, *Ph. armata*, which is half a line in length, is found in the Mammoth cave in Kentucky.

ACARI.

Dujardin has laid before the Academy of Paris his researches concerning the organs of the mouth, and the internal structure of mites,—Sur les Acariens, et en particulier sur les organes de la manducation et de la respiration chez ces animaux, 1er Mém. (Comptes rend. xix, 1158.) In the mouth he has distinguished a variety of modifications. As to the alimentary canal, he has not been able to make it out, and he infers that the organic fluids which form the food of mites pass into the cavities of the parenchymatous mass, which is of the nature of a liver. In *Bdella*, *Gamasus*, *Dermanyssus*, all blood-suckers, there is found indeed an internal chamber with symmetrical lobes filled with blood, but even here no closed vessel can be demonstrated, and the fluid seems merely to occupy the spaces between the muscles of the legs. They have, however, an anal opening. Specific secretions are found; e. g. Trombidium has a pair of poison- or saliva-vessels, which open by a long excretory duct into the ends of the mandibles. Respiration goes on simply through the skin in *Acarus* and, *Sarcoptes*, while in *Gamasus*, *Cheyletus* and various kinds with pincer-shaped mandibles, there is a complete system of tracheæ with spiracles as in true insects. Besides these two, there is an intermediate plan of respiration not known before, combining both the other modes, in which inspiration takes place through the skin, and expiration through a system of tracheæ, which have their outlet above the insertion of the mandibles. Trombidium is given as an example, in which a latticed aperture at the root of the mandibles forms the anterior outlet of two large air-pipes running from the hinder end to the front, each subdivided into a tuft of numerous unbranched simple tracheæ. Besides these there is under the skin a round-meshed network of a transparent and seemingly homogeneous substance, resembling the respiratory net under the skin of certain Trematoda. This tissue, in conjunction with the coat of feathered hairs, is supposed to serve for inspiration of air (absorption des élémens gazeux.) The water-mites are similarly circumstanced, having a corresponding system of tracheæ, the single anterior orifice of which cannot serve both for inspiration and renovation of the air. In these tribes *Limnochares*, *Atax*, *Hydrachna*, *Limnesia*, stomata are found, like those of plants, disseminated over the entire surface,

consisting of a very delicate membrane, and under each a sort of globular reservoir composed of a network like that of Trombidia. These observations deserve every attention. The author's inferences seem pushed too far, when he assigns the function of expiration alone to the tracheal system of the Trombidia. A similar system exists also in a number of spiders, along with pulmonary sacs, which can scarcely be the direct recipients of the air inspired. In the Phalangia the structure is similar to that in Trombidium, &c., the main trunks of the tracheæ having only their single orifices; and even in insects where the spiracles are multiplied, as each supplies a determinate portion of the body with air-vessels, the spiracle must serve both for inspiration and expiration.

The natural history of our indigenous mites has received important illustrations from Koch, who has figured a number of species in the continuation of Panzer's Fauna (pts. 183, 187, 188, 189, corresponding to pts. 33, 37, 38, 39, of Koch's Deutschlands Crustaceen, Myriapoden und Arachniden). As the species have been already given in systematic order by the author in his concise Uebersicht des Arachnidensystems, I refer the reader to that indispensable work.

Miescher (Bericht. Verhandl. Naturf. Gesellsch. in Basel v, 1843, p. 183) has given some details respecting mites in living animals. Nitzsch had previously described some cases of this nature, as *Sarcoptes nidulans*, which lives under the skin of Fringilla chloris in nests forming little lumps with a small opening from the outside, and *Sarcoptes subcutaneus*, which lives in the air-cells under the skin of the gannet (Dysporus bassanus). The author discovered also in the air-cells of the ventral cavity, of the bronchiæ and tracheæ, of the swift (Cypselus apus), a species of mite, according to his description clearly a Sarcoptes (Dermaleichus, Koch), and another species in the air-pouches of the ventral and pectoral cavities, in the lungs and windpipe, of the great Butcherbird (Lanius excubitor), and this in such abundance in the lower part of the tracheæ and the bronchiæ, that they actually filled the bore of these. Also in the common mouse, having stripped the skin off, he found on its inner surface little milk-white knots as large as a pin's head, or larger, which under the microscope appeared to be nests of mites, containing from twenty to thirty little mites, lying in a common cavity composed of a delicate membrane without any aperture. In the cellular tissue under the skin of the fox also, he has several times met with larger mites (1‴ in length), of a flat shape like ticks, which, however, he has not examined particularly.

In connexion with this I refer to the observations by Creplin (Wiegm. Arch. 1844, i, p. 118, note) on a mite like a Sarcoptes found in large nests, on the extensor, about the metatarsal joint, in Strix flammea.

Erasmus Wilson has laid before the Royal Society of London his

researches in respect to the cuticular animalcule of Simon,—Researches into the structure and development of a newly-discovered parasitic animalcule of the human skin, the *Entozoon folliculorum*. (Philos. Trans. 1844, p. 305.) The author has met with both the forms observed by Simon, the long one with the hinder end blunt more commonly, the short one with the same pointed more rarely, and has traced a different course of development in each. The eggs are bodies of considerable size, and the author having failed to discover any corresponding particles in the abdomen, after examining many hundreds of these creatures, he thinks that he finds an earlier condition of them in a cluster of nucleated cells [vesicles] within the hind extremity of the abdomen, and is confirmed in this view by meeting with little masses of such cells in the neighbourhood of the animalcules, and along with these, somewhat larger cells composed of subordinate small ones, and others more or less oval in shape, which contain within the investing membrane subordinate nucleated cells of considerable size and varying in number. These last he considers as a form of transition to the proper egg, which is oval, semitransparent, amber-coloured, composed of nucleated cells, and encompassed by a thin transparent membrane, and measures in the greatest diameter, $\frac{1}{300}$ to $\frac{1}{320}$th of an inch. The contained cells are so arranged as to compose an oblong body bent at each end (the embryo). The author has not seen the bursting of the egg, but has found newly-hatched embryos, and the cast egg-membranes. After this the embryo continues to develop itself, becoming thinner at the ends, while the hinder extremity is lengthened out considerably, and at last legs appear in the thick part, and oral organs at the fore end. Such is the process with the long-bodied sort; in the other the mouth and legs show themselves externally, while the embryo is still inclosed in the egg, and the lengthening of the abdomen takes place at a later period. Both sorts have at first but three pair of legs, the fourth appears after a moult. The development of both, as described by the author, presents so much that is extraordinary that it will require particular verification, and at least partial correction, before it can be received.

As respects the internal structure, the author has not been more successful than his predecessors in discovering any definite organs. In regard to the external anatomy he thinks he has made various discoveries, e. g. not only of eyes, but an eyering (orbita), four [pairs of] labral palps, and three (!) of labial. The region of the mouth, which is very limber, he treats as a head retractile within the thorax, and the abdomen as divided into segments, although, in fact, the appearance of numerous narrow rings on the abdomen is owing merely to the texture of the skin, and there is no trace of proper articulation. With such misconceptions, the author's ideas as to the systematic place of the subject cannot but be confused, and in truth he tramples down every principle of Zoology, when he attributes to it palps and

jointed legs, and yet considers it as one of the Annelidans, denying it a place with the Acari, and designating it provisionally *Entozoon folliculorum*. When I proposed (in the article by Simon) to designate the animalcule for the present an *Acarus*, it was with the persuasion that as yet we know in it no more than the first states of one of that class, an opinion which remains unshaken in my mind. Even should the course of development described here be proved in the main correct in one or other, or even in both of the modifications, it would rather confirm this idea, since the author has evidently made assumptions without evidence, when he takes a mass of cells in the hind part of the animalcule for an ovary, and imagines that the egg is formed out of such cells apart from the parent. The complete development of this mite remains, therefore, to be discovered by future researches.

Koch (Wiegm. Arch. 1844, i, 217) has given a synoptic view of the group of TICKS. He is disposed to separate them from the mites, as a distinct order, on account of the differences in the reproductive organs, corresponding to the peculiar mode of pairing, and in the respiratory organs, which consist outwardly of a pair of spiracles placed at the sides of the abdomen. He divides them into three families: 1. *Argasidæ*, the genera *Ornithodoros* (2 species) and *Argas* (5 species). 2. *Ixodidæ*, the genera *Hyalomma* (16 species), *Hæmalastor* (1 species), *Amblyomma* (47 species), *Ixodes* (32 species).—3. *Rhipistomidæ*, the genera *Dermacentor* (10 species), *Hæmaphysalis* (4 species), *Rhipicephalus* (9 species), *Rhipistoma* (2 species).

PYCNOGONIDES.

Quatrefages (Compt. Rend. xix, 150) has investigated the internal structure of the Pycnogonides, with the object of demonstrating in them Phlebenterismus: so he denominates the vascular structure of the alimentary canal, when it becomes branched and sends off its branches towards the surface of the body, in the absence of organs of circulation and respiration. The observations were made upon *Nymphon gracile*, *Ammothea*, new species, and *Phoxichilus spinosus*, Lch., and they agree perfectly with those of Milne Edwards on Nymphon fifteen years previously. The slender gullet (œsophagus) is clothed with a glittering membrane [lined with vibratory cilia]; the stomach is wider and furnished with five blind pouches at each side, which penetrate into the legs, last of all a small intestine traverses the abdomen, at the end of which the anus is placed. The brain consists of a globular mass, which lies above the gullet at its origin; in Phoxichilus the eyes are in immediate contact with this, in Ammothea a short club-shaped process of the brain enters the tubercle which bears the eyes. The spinal chord consists of four ganglions which lie in close juxtaposition between the intermediate legs. Not the least trace is there of organs for respiration

or circulation. Respiration undoubtedly takes place through the skin; the movement of the fluids is completely irregular. A liver is not found, perhaps it is represented by a granular mass at the ends of the processes of the stomach. Such being the structure, the author regards the Pycnogonides as phlebenteritic Crustacea. But the relation appears in another light when we view the Pycnogonides as Arachnida. In this case the form of the alimentary canal is nothing but what is ordinary in the class, for the processes of the stomach are not only found very generally in Acari, Phalangia, Araneidæ, but in the last-named they are formed as in the Pycnogonides, only their ends are here turned up instead of entering the legs, a difference which is accounted for by the relative capacity of the fore trunk and of the legs.

Kröyer (Naturh. Tiddsskr. N. R. i, 90) has published an essay of great importance, upon this order,—Bidrag till Kundskab on Pycnogoniderne eller Söspindlerne.

It is divided into three parts. 1. General remarks on the comparative anatomy, &c. This part contains much important matter, in particular the notices of their habits are interesting. The Pycnogonidæ are extremely sluggish, they represent the sloths among articulated animals. Many of them keep close to land, and on the northern coasts Pycnogonum littorale and Phoxichilidium femoratum are found at low tide lying motionless under stones. Others occur in deep water on tangle and polypus stems, which some of them resemble in colour, as the species of Nymphon and Pallene. In general they are solitary, only Pycnogonum littorale is found on the northern coast in families or larger societies. According to various authors, their food consists of marine animalcules, which they seize with their pincers; on this head the author has obtained no satisfactory evidence. Not uncommonly he has found Pycnogonum littorale at the foot of Actiniæ, as if endeavouring to insinuate itself between them and the rock, and he conjectures that their food consists of the mucus which is secreted abundantly by the Actiniæ. At the same time the Pycnogonum is often found in the stomach of the Actinia. Latreille's statement that the Pycnogona live upon whales, arose from their having been confounded with a different animal. The Pycnogonidæ seem to be diffused through the entire ocean, at least they are found from Spitzbergen to Rio Janeiro, at the Cape, and about New Holland.

2. Characters of the genera and species. *Zetes*, a new genus: the outline of the body nearly oval; the snout very large, three-jointed; mandibles without pincers, ten-jointed maxillæ, the egg-carrying feet also ten-jointed (found in both sexes), the legs short without subsidiary claws; the abdomen of two segments. One species, *Z. hispidus*, from the southern coast of Greenland. Besides this, accurate descriptions are given of *Nymphon*

grossipes, O. Fabr., from Greenland and Norway, *N. mixtum*, new species, from the west coast of Norway, *N. stroemii*, new species, probably from the coast of Norway, *N. hirtum*, F. (?), from Iceland, *N. brevitarse*, Kr. (*N. hirsutum*, Kr. Grönl. Amphipod.) *Pallene spinipes* (*Pygonogonum*) F., from the south coast of Greenland; *P. intermedia*, new species, do., and from the Baltic; *P. discoidea*, new species, from the south coast of Greenland, and the northern of Norway. *Phoxichilidium femoratum* (*Nymphon id.*, Rathke, *Phoxichilus proboscideus*, Kröy., *Orithyia coccinea*, Johnst., *Phoxichilidium id.* Edwards), from the coast of Greenland, Norway, and Denmark, *Ph. petiolatum*, new species, from the Oeresund Channel, *Ph. fluminense*, new species, from the estuary of Rio Janeiro. *Phoxichilus spinosus*, Mont., from the west coast of Norway. *Pycnogonum littorale*, Str., from the Baltic, the shores of Norway, and the south coast of Iceland.—3. The transformations of the Pycnogonidæ. The earlier states of Nymphon longitarse, Zetes hispidus, Pallene intermedia, have been examined, with the following results. 1. The Pycnogonidæ pass through three stages before they attain to their permanent form. 2. In the first stage they are roundish or oval, filled with a mass of yelk, have no abdomen, or more rarely the slightest trace of it, a snout with pincer-shaped upper jaws (found in the young Pycnogona as well, though wanting in the adult), two pair of feet. The eyes are not yet visible. 3. In the second stage the third pair of feet make their appearance, though yet imperfectly developed, short, with the joints indistinct, or none. The division of the body into segments begins to appear, and the rudiment of an abdomen. The eyes can be distinguished, as well as the first and second pair of jaws, at least in some species. The body either is still filled with yelk (Nymphon grossipes), in which case the young still cling fast to the underside of the parent, or the yelk is consumed, the body clear and pellucid (Pallene intermedia), and then the young doubtless leaves the parent, to seek its own food in the water. 4. In the third stage the young acquires a fourth and last pair of feet in rudimentary form, while the preceding pairs have become much more developed, the shape of the body is more lengthened and slender, approaching to that of the adult. The pairs of jaws when distinguishable are much stunted, not only small in size but without joints. 5. After another moult the animal has nearly the form which it retains thenceforth. The changes are limited to these, that the younger ones are plumper, the old more lank, and that the latter three pair of feet are originally shorter than the first pair, diminishing in length to the last, but after some time they have all grown to an equal size with the first, while the palps become developed in like manner.

[With reference to the essay of Erichson (Entomographien 1,—On the Zoological Characters of Insects, &c.) translated in this volume, it seems not out of place to notice the view of Kröyer respecting the determination

of the segments and limbs. He agrees with Erichson in thinking that the conical process in front, usually called the head, is only a part of it, which he names snout (schnabel); the next piece, (according to Erichson the head), appears to him to include also the first of the thoracic segments (four in number), with its pair of legs (the third pair of jaws, according to Erichson). The anterior portion of this piece usually more or less defined by an impression, he considers as the proper head, or the ocular segment (augenring). It bears three pairs of appendages (jaws); the third pair being the egg-bearing feet, not confined to the ♀ exclusively, as has been assumed, for he has found them in both sexes of *Nymphon*, *Zetes*, and *Pallene*. Of these three pairs one or two frequently are wanting; and sometimes even the third pair disappears, but this in the ♂ only. With respect to the systematical position of the family, he is of opinion that our acquaintance with the various forms of these marine animals and with their internal anatomy, is too imperfect as yet to authorize any positive conclusion. He is disposed, however, provisionally to unite them with the Crustacea, as Johnston and Milne Edwards have done, rather than with the Arachnida, according to the views of Erichson.]

Goodsir (Ann. Nat. Hist. xiv, 1, pl. 1) has illustrated the differences as to the form, position, and direction, of the eye-bearing tubercles in various species of this family, *Pycnogonum*, *Phoxichilus*, *Phoxichilidium coccineum*, *Pallene circularis*, *Pasithoe vesiculosa*, *Nymphon johnstoni*, *spinosum*, *pellucidum*, *simile* (new species). In some of these the number of joints of the palps and the form of the claws also is given.

CRUSTACEA.

Zaddach has given a synopsis of the Crustacea of a Prussia, in an occasional essay of great merit, Synopseos Crustaceorum Prussicorum Prodromus. Regiom. 1844; in which many of the species, in particular the new discoveries, are illustrated by descriptions in detail.

Milne Edwards and Lucas have examined the Crustacea collected by D'Orbigny in South America. (Voyage dans l'Amérique méridionale.) All the species enumerated are from the coasts of Chili and Peru, with the single exception of *Leucippe ensenadæ*, a new species, from the coast of Patagonia. As I intend soon to give, in these Archives, a general view of the Crustacea of the same coasts, which will of course comprise the new genera and species characterized, it is needless to discuss them particularly in this place. The article on Crustacea in the work under review is confined to the Decapoda.

Goodsir (Ed. N. Phil. Journ. xxxvi, 183; Froriep N. Notiz. xxix, 161)

has communicated his observations on the development of the reproductive organs and spermatic fluids in the Crustacea. The filaments which Kölliker described as Spermatozoa are in his opinion Filariæ. He has also shown that the apparatus with which the females are provided, for the safeguard of their eggs, consists either of legs imperfectly formed, or particular parts of the same extraordinarily developed.

Th. Fr. W. Schlemm, in an excellent inaugural thesis, De hepate ac bile Crustaceorum et Molluscorum quorundam, has minutely investigated the structure of the liver in the river Cray-fish, as an example of the Crustacea.

DECAPODA.

Lucas (Ann. Soc. Ent. Fr. ii, 41, pl. 1) has illustrated some malformations in different Crustacea of the genera *Carcinus*, *Lupa*, *Homarus*, and *Astacus*. These relate to supernumerary fingers belonging, some to the fixed, others to the moveable, half of the pincers.

Astacina.—Koch (Panz. Ins. Deutschl. pt. 186; Deutsch. Crust. Arach. Myriap. pt. 36) has discriminated the four species of *Astacus* which occur in Bavaria, *A. fluviatilis*, F., *A. torrentium*, Schr., (*Cancer*), *A. saxatilis* and *tristis*, K., and has figured the first two.

A very remarkable species of *Astacus* has been discovered by Tellkampf, in the Mammoth cave in North America. It is entirely white, and so transparent that the motions of the gills, and even of the internal organs, can be distinguished, especially in the younger individuals. The author has accordingly named it *A. pellucidus*. It has this further peculiarity, that the eyes are not prominent, but concealed under the cuirass (carapace). (Müll. Arch. Anat. 1844, p. 383.)

Carides.—Zaddach (ibid. p. 1) has admitted the *Palæmon* of the Baltic as a peculiar species, which he has characterized under the name *rectirostris*.

AMPHIPODA.

Gammarella.—Zaddach (ibid. 7) has formed a new genus, *Leptocheirus*, for those sandhoppers which have pincers only to the first pair of legs, no prehensory feet to the rest, nor any subsidiary lash (flagellum) to the upper pair of feelers (antennæ). They agree most nearly with Amphithoe, the principal distinction being that here, as in Talitrus, the feet of the second pair are not formed for prehension. *L. pilosus* is a new species, from the Baltic. The proposed generic name cannot stand, as a genus of Coleopterous insects already bears the name *Leptochirus*. Another new species from the Baltic also is *Amphithoe rathkii*. (Ibid. 6.) In addition, the author

has described the *Gammarus locusta*, of the Baltic, very particularly, as it differs from Milne Edwards's description in several points, though agreeing with specimens from the North Sea.

Koch (Pz. Fna. pt. 186; Dch. Crust. 36) has figured, along with *Gammarus pulex*, F., a new German species, *G. putaneus*.

Kröyer (Naturh. Tidsskr. N. R. 238) has published a carcinological essay, in which he has described in full the species following: *Orchestia grandicornis*, from Valparaiso; *O. nidroensis*, from Drontheim; *O. platensis*, from Rio la Plata; *Talitrus tripudians*, from the Cattegat; *Gammarus anisochir*, from Rio Janeiro.

Tellkampf (Wiegm. Arch. 1844, i, 321) has described a very remarkable genus with material differences from all the others, *Triura*, of which the species *Tr. cavernicola* was discovered by himself in the Mammoth cave in North America.

Caprellina.—Kröyer (ibid.) has characterized a new genus, *Podalirius*: mandibles without palps; the second segment of the body with legs, and destitute of branchial vesicles, which the third and fourth have, the fifth with a pair of very imperfect two-jointed legs without claws; the tail-piece very small, two-jointed. *P. typicus*: fuscus pilosus, capite thoraceque nermibus; long, 2‴. Found on a seastar, Asteracanthion rubens.

ISOPODA.

Oniscides.—Koch (ibid.) has figured several of this family, among others the new species *Armadillo willii*, from Northern Italy; *Porcellio urbicus* and *Itea crassicornis*, from Germany.

Zaddach (ibid. 11) describes as doubtful species, *Porcellio 3-lineatus*, Koch (?), and *conspersus*, Koch (?); and as new, *P. tristis*, *ovatus*, *Itea lævis*, *mengii*, *Armadillium grubii*, *conspersum*.

MYRIAPODA.

Monograph of the class Myriapoda, order Chilopoda, with observations on the general arrangement of the Articulata, by George Newport, Esq. (Trans. Linn. Soc. xix, 265.)

The observations on the general arrangement of the Articulata properly relate to the Myriapoda alone, and are principally directed to combat the view that they are to be regarded as true insects. He says in respect to this, "The Myriapoda certainly have many close relations to the larva state of true insects, in the elongated form of the body, in their mode of respiration, in the structure of the organs of circulation and nutrition, and also in the arrangement of their nervous system; but they

differ from them entirely in their mode of growth and development. The Myriapoda acquire a periodical addition of segments and legs, with their separate ganglia, nerves, and other structures. This addition of new parts at each change of tegument takes place in all the Myriapoda up to a certain period of their growth, which period varies in different genera. But this addition of parts never occurs in insects, even in the lowest forms of the class, or even in their earliest stages, after leaving the ovum."

The author enters yet more fully into these considerations, and if in certain points he has gone too far, as in denying the after formation of legs in insects, which is a necessary condition where the larvæ are destitute of them, still the comparison on the whole is convincing. He then goes on to controvert the high authority of Brandt, regarding, as Leach and Latreille have done, the Myriapoda as a distinct class. It is a step gained in this inquiry that the author attaches importance to the mode of development; and if he had not at the outset dismissed from his mind the comparison between Myriapoda and Crustacea (among which he probably had in view the Crayfish alone, as is often the case), it is likely he would have clearly perceived their close agreement. In the arrangement of the Myriapoda Newport has in general followed Brandt, except that he has come nearer to nature by breaking up the sub-order Siphonizantia of the latter. A number of new genera are proposed by him, particularly among the Scolopendræ, which has made the more precise determination of the older genera necessary. To render this summary complete I insert the Synopsis generum, as he has given it.

[As this has been given also in the Annals of Natural History (xiv, 50-53), it seems unnecessary to transcribe it here.]

In continuation, the external structure of the Myriapoda is described. Newport regards each separate segment as consisting of two subordinate segments, of which one only (the hinder) comes to perfection in the Chilopoda, while in the Chilognatha the ventral plates at least of both are developed in an equal degree, each bearing a pair of legs. The completely erroneous explanation of the parts of the head, applied to the Chilopoda, is surprising in so judicious and penetrating an anatomist. He considers the large pair of pincers as the mandibles, which obliges him to treat the segment on which they are seated as a portion of the head, "basilar segment," while the true head is denominated "cephalic segment." As a natural consequence, the structure of the mouth is misunderstood. The mandibles are designated maxillæ, the maxillæ maxillary palpi, the third pair of jaws tongue, the first pair of legs labial palpi. The parts which he takes for the mandibles are the first pair of legs, his basilar segment is the mesothorax. (See Erichson's Entomographien.) The side view of the fore part of a very young Geophilus, which Newport has given in fig. 3, is particularly instructive.

List of the specimens of Myriapoda in the collection of the British Museum. Printed by order of the Trustees. London, 1844. In this list 94 species of Chilopoda, and 75 of Chilognatha, are enumerated. The collection is particularly interesting, as it has afforded the chief materials for Newport's works on the order.

Newport himself has prepared the list of the Myriapoda of the British Museum in the Annals of Natural History, xiii (Chilopoda, p. 94; Chilognatha, p. 263), adding the abridged specific characters of those that are new or that have not been well determined previously.

Another important work on this order generally is by Paul Gervais, Etudes sur les Myriapodes (Ann. Sc. Nat. ii, 51). The discrepancy between the accounts given by Savi and Newport of the development of Julus, and that by Degeer, the young being hatched destitute of legs according to them, according to Degeer with three pair, induced this author to investigate the matter anew. *Glomeris marginatus* and *Polydesmus complanatus* come out of the egg with three pair of legs, and in the first-named species he was able to distinguish them in the embryo before it was hatched. The rest of the essay relates to the classification, containing observations on known genera, and the characters of new ones, viz.:

Chilognatha.—1. *Glomeridesmus*, of the fam. Glomeridæ, with 20 (21?) segments, exclusive of the head, and 32 feet; the first segment large shield-shaped, while the second is smaller than in Glomeris; *G. porcellus*, new species, from Columbia. (See further, Ann. Soc. Ent. Fr. ii, p. 27.) 2. *Oniscodesmus*, one of the Polydesmidæ: the form of the body as in Oniscus, i. e. convex on the back, the side margins of the segments bent downwards and covering the legs, the segments apparently (but not distinctly, as in the Glomeridæ) composed of five pieces: a new species, *O. oniscinus*, from Columbia (described as *Polydesmus id.*, Ann. Soc. Ent. Fr. ii, p. 28). 3. *Stemmiulus*, belongs to the Julidæ, and is characterized by the single simple eye behind each of the feelers: a small species, *St. bioculatus*, from Columbia. (See also Ann. Soc. Ent. Fr. ii, p. 28.) In the place last referred to, the author has made known some other new species, collected by Goudot in Columbia, *Polydesmus velutinus* and *granosus*, and *Siphonophora luteola*; and has noticed (ibid. p. 22) the *Cambala lactaria*, Gray, a species yet undescribed.

Lucas (Rev. Zool. 51) has characterized a new species of *Polydesmus*, from the district of Bugia, in Algeria, *P. mauritanicus*.

Koch (Pz. Fna. pt. 190; Deutsch. Crust. Arachn. Myriap. pt. 40) has figured a number of German species, and of these as new, *Glomeris rufoguttata*, *Polydesmus macilentus*, *Julus nemorensis*. A distinct genus, *Tropisoma*, is formed for *Julus pallipes*, Ol., a species indigenous in Southern Germany.

Waga (Rev. Zool. 337) shows that *Julus albipes* and *fasciatus*, Koch,

are ♂ and ♀ of one species already described by himself as *L. dispar ;* but as the names of Koch are earlier, that of *albipes* should be retained for the species.

[Curtis (Royal Agric. Soc. Journal v, 228-233) has noticed the injury to agriculture caused by several of this order. *Julus pulchellus*, Lch., *londinensis*, Lch., *terrestris*, L., *punctatus*, Lch., *latestriatus*, new species, *pilosus*, Newp., and *Polydesmus complanatus*, are specified.]

CHILOPODA.—Koch (ibid.) has figured some new German species: *Cryptops ochraceus, sylvaticus, Lithobius dentatus, calcaratus, communis.*

Some of the species enumerated by Leach, viz. *Scolopendra alternans, subspinipes*, and *trigonopoda*, have been illustrated with more complete descriptions by Gervais. (Ann. Soc. Ent. Fr. ii, p. 21.)

Decerfs (Compt. rend. xix, 933) notices a case in which a living Scolopendra (electrica) was expelled in sneezing, by a young woman of nineteen, after she had been suffering, for the two years previous, from acute neuralgia below the eye.

Qy. if some mystification was not practised on M. Decerfs in this case.

ENTOMOSTRACEA.

Koch (Panzer Deutschl. Fna. pts. 185, 186, 187; Deutsch. Crust., &c., 35, 36, 37) has figured many German species, and Zaddach has enumerated, and for the most part described more particularly, those that have been observed in Prussia.

PHYLLOPODA.

Koch (ibid. 185 or 35) has given two new species of *Branchipus, auritus* and *melanurus*.

CLADOCERA.

Several new genera in this section are given by him also: *Eunica* (name preoccupied) for *Lynceus longirostris*, Müll., *Pasithea* for *Daphnia rectirostris*, Müll., and *Scalicerus* for *Monoculus pediculus*, L. Of new species, *Daphnia congener, serrulata, ephippiata, mucronata, ventricosa, angulosa, media; Lynceus leucocephalus, rostratus ; Pasithea gibba.*

Zaddach (ibid.) has noticed five species of *Daphnia*, the last of which, *D. brachyura*, Z., is identical with *Pasithea rectirostris*, Koch; 1 of *Sida*, under which both the generic and specific characters are given more particularly; 5 of *Lynceus*, and 1 of *Polyphemus*.

OSTRACODA.

Zaddach (ibid.) enumerates twenty species of *Cypris*, including five that are new: *C. flava, incana, reticulata, vulgaris, rubida.* *C. ornata*, Jur., Edw., is discriminated from *ornata*, Müll., and named *C. jurinii.*

COPEPODA.

Koch (ibid. 185) has formed two new genera, *Doris* (name of a genus of Mollusca!) and *Glaucea;* the former exemplified by *Cyclops minutus*, Müll. (*Monoculus staphylinus*, Jur.), the other to contain *Cycl. rubens* and *cærulea*, with which are associated the new species, *Gl. cæsia, hyalina, ovata.* Another new species is *Cyclops dentatus.* (Ibid. pt. 187.)

SIPHONOSTOMA.

Will (Wiegm. Arch. 1844, i, 337, pl. 10, f. 1-9) has discovered in Actiniæ a parasite of this section, which he has distinguished as a new genus under the name of *Staurosoma.*

CIRRIPEDIA.

Loven (Öfvers. Vetensk. Akad. Förhandl. 192, pl. 3; Hornsch. Arch. Skand. Beitr. 434, pl. 3) has described a new species of *Alepas*, that lives on the skin of Squalus glacialis and spinax, which he has named *squalicola* accordingly. It is distinguished among the other species by its size, and also by the softness not being confined to the shell, but extending also to the legs and the parts of the mouth.