Reports on zoology for 1843, 1844 / Translated from the German by George Busk ... Alfred Tulk, esq., and Alexander H. Haliday. Esq.

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Ray Society.
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Publication/Creation

London : Printed for the Ray Society, 1847.

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REPORTS

ON

ZOOLOGY

FOR

1843, 1844.

TRANSLATED FROM THE GERMAN BY

GEORGE BUSK, Esq., F.R.C.S.E.

ALFRED TULK, Esq.

AND

ALEXANDER H. HALIDAY, Esq.

LONDON:

PRINTED FOR THE RAY SOCIETY.

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MAMMALIA.

BY

PROFESSOR ANDR. WAGNER, OF MUNICH.

As supplementary to last year's Report, among the works of a general nature, is first to be mentioned, An Introduction to the Mammalia, by Lieutenant-Colonel Charles Hamilton Smith; Edinburgh, 1842 (forming vol. xiii—'The Mammalia' of Jardine's work, 'The Naturalists' Library').

After a brief introduction to the class Mammalia, succeed the characters of the Orders, Families, and Genera, with the citation of one or more species of each of the latter. This work is chiefly calculated for the numerous *dilettanti* who have acquired a taste for zoology in England, and on that account cannot lay claim to any real scientific value. Its composition also has been treated much too lightly by the author, who has addressed himself to the performance of his task in a very superficial manner. Moreover, reference is made to none but English or French works.

Schreber's 'Säugthiere' (Mammalia), continued by Andr. Wagner. Supplementary Volume, Third Part. (Concluded in 1843.)

The Third Part of the Supplementary Volume has been concluded with the first half of the Rodentia, upon which I take occasion to mention, that the Fourth Part, containing the other half of the Rodentia, together with the Edentata and the whole of the Solidungula, has also been prepared in the course of the year 1844, so that at present only the Marine Mammalia (Seals and Cetacea) are in arrear, and the work is thus rapidly approaching its termination.

Schinz, 'Monographien der Säugthiere. Mit Abbildungen nach der Natur und den vorzüglichsten naturwissenschaftlichen Werken gezeichnet von Kull. Zürich, 1843.

2 Hefte. 4. (Monographs of the Mammalia, with figures drawn from Nature, and the best works on Natural History, by Kull, &c.)

The author proposes to exhibit the species of Mammalia monographically, in descriptions and coloured figures. The first part treats of the genera, *Macroscelides*, *Ailurus*, *Thylacinus*, and *Myrmecobius;* the second part, of the *Rhinoceros* species. Neither part contains anything new; the figures, mostly copies, are well executed. If the work proceeds with certainty and rapidity, it will prove very useful in facilitating the determination of species in collections.

Chr. v. Trautwetter has attempted, in his 'Novum Systema Theriologicum,' also a new systematic arrangement of the Mammalia and Birds. (Bullet. de la Soc. de Moscou, 1843, p. 448.)

Lesson, Mœurs, Instinct et Singularités de la Vie des Animaux mammifères. Paris, 1842.

This memoir is intended to refer only to those species which were unknown to Buffon, or respecting which he had but incorrect information. The most common sources only have been here referred to; and the work will certainly not bear comparison with Scheitlin's 'Thierseelenkunde.'

Observations on the Classification of the Mammalia. By G. R. Waterhouse. (Ann. Nat. Hist. xii, p. 399.)

The orders of Mammalia are represented by circles, which Waterhouse attempts to group in such a way that they may correspond to the mutual alliances of the orders. I place no especial importance in systematic expositions of this kind, since they never completely answer their professed object. Thus, in the present instance for example, the Carnivora and Pachydermata border upon each other, although anything but a transition is presented by the Hog, which is indicated as a connecting link; on the other hand, the former are widely separated from the Marsupiata, although a manifest transition between these classes exists. Since every order is connected with others on various sides, it is not possible to exhibit correctly in a figurative expression the real affinities, or even merely the analogies, which exist between these divisions. This can be done clearly and completely only in words.

Series of Propositions for rendering the Nomenclature of Zoology uniform and permanent, being the Report of a Committee for the consideration of the subject, appointed by the British Association for the Advancement of Science. (Ann. Nat. Hist. xi, p. 259.)

A useful and laudable endeavour on the part of the British Association to

put an end to the crying evils which have arisen from the extremely deranged state of the Nomenclature of Zoology in England and France. This disorder is to be attributed to the disinclination of very many, particularly among the lovers and promoters of Ornithology, to submit to any rule, and also from their want, in general, of a sufficient knowledge of the ancient languages, which has caused them so barbarously to maltreat Greek and Latin in the composition of new generic names, that these names cannot be employed by others without their equally incurring the guilt of barbarism. As for the rest, the rules given by the Association are not new, the chief of them having been (though that is not particularly shown) instituted more than thirty years ago by Illiger, who transferred them to zoology from the precepts of Linnæus' 'Philosophia Botanica,' and employed by him as far back as the year 1811, in his 'Prodromus systematis Mammalium et Avium, additis terminis zoographicis utriusque classis eorumque versione germanica.' Illiger states that he was induced to undertake this work because "among the generic names, in consequence of neglecting the rules established by Linnæus, such a number of exceptionable ones had gradually crept in, that their rejection could not be delayed, unless it were wished to see a fresh irruption of the ancient barbarism from which that great man had freed us." Had our neighbours on the other bank of the Rhine and across the Channel only followed these Linnæan canons as revised by Illiger, in the same manner that the Germans and others of kindred German race have obeyed them, the Nomenclature would not have become such an Augean stable, the cleansing of which is now certainly no easy task. As for the rest, I cannot omit this opportunity of repeating the advice given in the last year's Report, that the English and French therologists and ornithologists should make themselves better acquainted with the above-mentioned 'Prodromus,' which, as a classical work, has the right of appearing as the lawgiver.

The Geographical Distribution of the Mammalia, exhibited by Dr. A. Wagner, First Part. (Abhandl. der mathem. physik. Klasse der K. Bayerisch. Akadem. der Wissensch. iv, Abth. 1.)

The geographical distribution of the Mammalia was first selected as a special task by Zimmermann, who carried it through with spirit and knowledge of his subject. Thirty years later the same subject was taken up, with equal talent, by Illiger, and again, after another thirty years, I have proposed the same task to myself. My memoir is divided into two parts, of which the first appeared some time since; the second will soon follow, and to it will be appended the illustrative charts.

Lehrbuch der Zootomie, von Dr. Rudolph Wagner. 2te

völlig umgearbeitete Aufl. 1843. 1ste Lief: Säugthiere und Vögel.*

Gives a very comprehensive and accurate exposition of the anatomical conditions of the animal structure, on this occasion arranged, not according to the organic systems, but, what is much to be commended, according to the classes of animals. As the 'Icones Zootomicæ' of the same author are continually referred to in giving the anatomical characters of the classes, the knowledge of the subject is in consequence much facilitated.

Gravenhorst's 'Vergleichende Zoologie' (Bresl. 1843) treats rather copiously of the classes of Mammalia and Birds, with reference to their external and internal characters, as well as to their useful and injurious properties, and will prove very serviceable as an introduction to those classes.

Of Blainville's 'Ostéographie,' the Twelfth and Thirteenth Parts, embracing the genera *Felis* and *Canis*, have appeared.

Among general zootomical works, falling within the scope of this Report, are also to be mentioned:

Recherches sur le Développement des Os et des Dents, par M. Flourens (Archives du Mus. d'Hist. Nat. ii, p. 315); a very copious and accurate work, accompanied with twelve remarkably beautiful plates.

Supplement au Mémoire sur les Dents des Musaraignes et autres Mammifères, par M. Duvernoy (Comptes rendus, xvii, p. 98). According to the Report of the Commission, the Memoir at length, with the figures, will appear in the Mémoires des Savans étrangers, until which time the Reporter reserves his account of this interesting work.

Observations on the Semen and Seminal Tubes of Mammalia and Birds, by G. Gulliver. (Ann. Nat. Hist. xi, p. 514.) The author has measured the seminal vessels in Man, many Mammalia, and Birds, and appended remarks upon the condition of the semen and testicles at different seasons of the year.

Additional Measurements of the Blood-Corpuscles or Red Particles of Mammalia and Birds, by G. Gulliver. (Ann. Nat. Hist. xii, p. 367.) Additions which the author has made to his observations published in the English translation of Gerber's Anatomy.

Remarks on the Development of the Cranial Ridge in the Mammalia, and on the Development and Function of the Osseous Cavities, by George Jäger. (Müller's Archiv für Anatomie, 1842, p. 433.)

Several of the Reports on the Transactions of the Zoological Societies and Meetings have not yet reached the Reporter.

* [The text of this work has been translated into English by Mr. A. Tulk, and published with the title 'Elements of the Comparative Anatomy of the Vertebrate Animals,' 8vo, London, 1845.—Editor.]

Official Report of the twenty-first Meeting of German Naturalists and Physicians at Grätz, in September, 1843. Edited by the Secretaries of the Association, Dr. Langer and A. Schröter. Grätz, 1844.

Little of importance in zoology was produced at this meeting. An interesting communication was made by Kröyer on the relation between animal life in the polar, and in the tropical seas. (p. 178.)

Ninth Annual Report of the Mannheim Natural History Society. Mannh. 1843.

Kilian has again described several relics of the ancient world, and illustrated them with figures: skull of a Mammoth, lower jaw of *Elephas primigenius*, skull of *Rhinoceros tichorinus*, skull of *Hyæna spelæa*, horns of the Reindeer.

Actes de la Société Helvétique des Sciences Naturelles, réunie à Lausanne les 24, 25, et 26 Juillet, 1843. 28e Session. Lausanne, 1843.

Another delightful proof of the great activity of the Swiss naturalists. Besides the papers read at the general session, an epitome is also given of those of the cantonal Societies in Bâle, Berne, Geneva, Nünberg, Waadt, and Zurich. Lucerne and Freiberg are again silent in this department, and besides these Valais must be omitted.

Report of the thirteenth Meeting of the British Association for the Advancement of Science. 1844.

In our department, the Palæontology is chiefly deserving of notice. Owen has given a long report on the English Herbivora.

Reports of the Council and Auditors of the Zoological Society of London, read at the Annual General Meeting, April 29, 1843. London, 1843.

The receipts of the society in the year 1842 amounted to the sum of £10,087, and the disbursements to £9721. Compared with that of the previous year the income was diminished by £1523, partly in consequence of a diminution in the number of members, and partly from a falling off in the money paid for admission into the gardens. This diminution is explicable on the supposition that many of the visitors had at first been attracted by novelty and fashion, so that a more permanent public had only now been formed. These gardens are of the highest importance for the advancement of zoology, as well as for the knowledge of the internal structure of the more rare, or at least of the more costly animals, and consequently it is to be wished that they may flourish to the greatest extent.

Atti della quarta riunione degli Scienziati Italiani tenuta in Padova nel Settembre del 1842. Padov. 1843.

Congrès Scientifique de France (redigé par Hepp). Strasb. 1843.

The reports of neither of these meetings, nor of the Scandinavian, have reached me.

American Philosophical Society, held at Philadelphia, for promoting useful knowledge. Celebration of the hundredth anniversary. Philadelphia, 1843.

In celebration of the centenary of its existence, the American Philosophical Society arranged, on the 25th May, a great meeting of its members and many invited guests, at Philadelphia. The session was opened by Dr. Ludlow with a short and appropriate prayer, after which Dr. Patterson gave the history of the society at tolerable length. Besides this sitting, eight special sessions were held from the 26th to the 30th May, which were wholly devoted to scientific communications.

The following contributions to the knowledge of special Faunas have become known to me: Fauna, der in Krain bekannten Säugthiere, Vögel, Reptilien und Fische. Von Heinrich Freyer. Laibach, 1842. (Fauna of the Ukraine, &c.)

This Fauna of the Ukraine, with the title only of which, I was last year, acquainted, I have procured through the booksellers. Its author is Custos of the "Landes-Museum" at Laybach. It is arranged according to Cuvier's system, and gives under each name, first the systematic, then the German, and lastly, the Ukraine appellation. At the end, a threefold list of all the systematic, German, and Ukraine or Sclavonian names is given. Fifty species of Mammalia, including the domesticated, are mentioned; it is possible, however, that more may perhaps still be discovered among the Bats and small Rodents. As remarkable animals, may be indicated the Bear, Lynx, Alpine Hare, and the Chamois.

Reise im europäischen Russland in den Jahren 1840 und 1841, von J. H. Blasius. 1ster Theil. Reise im Norden. Braunschw. 1844.

One of the most interesting books of travels, and which exhibits with spirit and intimate knowledge of the subject the nature of the country, as well as of its inhabitants. Although the Fauna of Russia, it is said, will at a future time be subjected by the author to a special discussion, yet he has already in these travels, and with that object in view, here and there referred to it,

and (particularly from p. 255 to 266) communicated important remarks on the Fauna of the North-East of Russia.

Ray, Catalogue de la Faune de l'Aube, ou liste méthodique des animaux vivans et fossiles (vertébrés) qui se rencontrent dans cette partie de la Champagne. Paris, 1843. I am only acquainted with the title.

Note sur quelques petits Mammifères du midi de la France. Par E. de Selys Longchamps. (Rev. Zool. 1843, p. 129.) Among a number of small Mammalia which the author obtained from St. Zacharie (Dép. du Var), the following species occurred: *Crocidura aranea*, *Myoxus glis*, *Myoxus avellanarius*, *Mus sylvaticus*, *Mus incertus* (Savi), *Mus tectorum*, *Arvicola destructor* (?), *Arvicola incertus* (Selys), and *Crocidura etrusca*, the latter from the banks of the Durance.

In the 'Isis' (1843, p. 470) attention is directed to a memoir, certainly not recent, but which is not widely known among us: 'Cenni Zoologici,' &c. da Costa, embracing the investigation and definition of the Neapolitan animals. With reference to geographical distribution, the Mammalia mentioned in it are to be noted, viz. *Erinaceus Europæus*, *Talpa cæca*, *Meles taxus*, *Mustela martes*, and *foina*, *Canis lupus*, and *vulpes*, *Felis catus*, *Myoxus glis*, *nitela*, and *avellanarius*, *Hystrix cristata*, *Lepus timidus*, *Sus scrofa*, *Capra hircus*. *Talpa Europæa* is entirely wanting in the kingdom of Naples.

Verhandelingen over de natuurl. geschiedenis der Nederl. overzeesche bezittingen. Zoologie.

Of this most important of all recent books of travels, the Eighth and Ninth Parts in our department have been published in the year 1843, with numerous figures of the Mammalia. No part of the text belonging to this class has appeared.

A. Smith. Illustrations of the Zoology of South Africa, London, 1843.

Of this work have appeared, in the course of the year, the Seventeenth, Eighteenth, and Nineteenth Parts, which contain only three figures of Mammalia.

Harris. Portraits of the Game and Wild Animals of Southern Africa.

With this, the Fifth Part, this gorgeous work is concluded. In it are exhibited (pl. 25), *Redunca capreolus* and *Tragulus rupestris;* (pl. 26), *Tragulus sylvaticus*, (?) *Melanotis*, together with *Cephalophus cæruleus;* (pl. 27), *Phacochærus africanus;* (pl. 28), *Felis leopardus*, and *jubatus;* (pl. 29), *Felis leo;* (pl. 30), *Hyæna crocuta*, *fusca*, and *venatica*.

The Highlands of Æthiopia. By W. C. Harris. In three vols. London, 1844.

Scarcely had Harris completed his South-African Journey, when he offered himself to lead an English mission to Schoa, where he remained eighteen months. Dr. Johannes Roth, of Münich, accompanied this expedition as naturalist, and has given, in a special Appendix to the Second Part, his remarks on the Geology, Botany, and Zoology of the South Abyssinian Highlands. Respecting the Mammalia, some very valuable notices are given by him.

Om Professor J. Hedenborg's insamlingar af Däggdjur i Nordöstra Africa och Arabien, af Carl J. Sundevall. (K. V. Acad. Handl. Stockh. 1842, pp. 189-244.)

A highly important contribution (of which, by the kindness of the author, I was furnished with a separate copy, even before the publication of the whole volume) towards the knowledge of the Mammalian Fauna of the Nile countries, particularly of Sennaar, and also of Arabia Petræa. With wonderful perseverance were these and other objects collected by Hedenborg, and with the greatest accuracy has Sundevall undertaken the determination of the Mammalia. The collection contains the following species, of which those to which no locality is assigned belong to Sennaar. (*a*) APES: *Simia subviridis*, Fr. Cuv. (*S. griseo viridis rec.*), *pyrrhonotus*, and *Anubis*. *Otolicnus Teng*, Hedenb., n. sp. (from Bahr el Abiad).—(*b*) BATS: *Pteropus stramineus*. *Megaderma frons* (Bahr el Abiad). *Nycteris thebaica* (ib.). *Dysopes Midas*, Hed., n. sp. (ib.).—(*c*) CARNIVORA: *Felis maniculata* (Bahr el Abiad), *chaus* (Egypt), and *caracal* (Nubia). *Hyæna striata*. *Canis variegatus*, *lupaster*, *niloticus* (Egypt), *famelicus* (Sinai), *pallidus*, *Zerda* (Bahr el Abiad). *Viverra genetta*, var. *dongalana* (Bahr el Abiad), var. *Senegalensis*, Fr. Cuv. *Herpestes ichneumon* (Egypt), and *leucurus* (Bahr el Abiad). *Lipotus* (*Gulo*) *mellivorus*. *Ictonyx frenata*, n. sp., *Mustela Boccamela* (Cairo).—(*d*) INSECTIVORA: *Erinaceus heterodactylus*, n. sp., and *platyotis*, n. sp. (Egypt). *Sorex Hedenborgi*, n. sp., *sericeus*, n. sp. and *fulvaster*, n. sp.—(*e*) RODENTIA: *Sciurus leucombrinus*. *Mus decumanus*, *Alexandrinus*, s. *tectorum* (Cairo and Alexandria), *rattus* (ib.), *albipes*, and *macrolepis*, n. sp., (Bahr el Azrak), *orientalis* (Cairo), together with a var. "subtus albus." *Isomys variegatus* (Egypt), and *testicularis*, n. sp. (Bahr el Abiad). *Acomys cahirinus* (Alexandria), id. var. *M. dimidiatus* and *russatus* (Sinai). *Meriones gerbillus* (Bahr el Abiad), *venustus*. n. sp. (ib.), *murinus*, n. sp. (ib.), and *crassus*, n. sp. (Sinai). *Psammomys obesus* (Alexand.). *Dipus hirtipes*, and *ægyptius* (Egypt). *Lepus sinaiticus* (locality unknown), and *æthiopicus*.—(*f*) EDENTATA: *Orycteropus æthiopicus*, n. sp. (Bahr el Abiad). *Manis Temminckii*, (ib.). —(*g*) PACHYDERMATA: *Hippopotamus amphibius* (Nile). *Hyrax syriacus*, and *habessinicus* (?).—(*h*) RUMINANTIA: *Camelopardalis Giraffa*. *Oryx leucoryx*. *Bubalus lunatus*. *Antilope Dama*, *Sœmmerringii*, *Dorcas*, and *Kevella*. *Capra Beden* (Sinai), and *Hircus*, var. dom. *sennaariensis*.

Catalogue of the Terrestrial Mammalia found in Labrador, communicated by Hofr. v. Schubert (Münchn. gel. Anzeig. xviii, p. 417.) (Munich Transactions.)

The missionaries of the "Brüdergemeinde" settled at Labrador, among the Esquimaux, have at various times transmitted to the Academy of Münich meteorological observations, and also valuable zoological and botanical collections. On the last occasion they have, at our request, furnished a list of the terrestrial Mammalia and best known aquatic Birds occurring in Labrador; communications which are of very great importance towards the knowledge of the geographic distribution of these species. In the following catalogue of the terrestrial mammalia I have subjoined the systematic name to the native appellation, but which I have been enabled to do only in a few instances. (*a*) Bats: 1. Innerlugak, the Flittermouse, very rare, and only in the deeply indented bays. (*b*) Carnivora: 2. Ukjungnaraik, the Shrewmouse. 3. Aklak, the Black Bear, not numerous, generally avoids man, not seen in the winter, and is said at that time to remain in holes, and dormant. It is the *Ursus americanus;* a variety has a white ring on the nose, and the breast white. 4. Kapvik, the Badger, very strong boned; it frequently robs the provision stores, excavated under heavy stones. Fabricius supposed, that the "Kappik," as he writes the Greenland name, might be the "Glutton," *Mustela Gulo*, but from the description of the missionaries, who call it a Badger with strong bony frame, it is certainly *Meles labradoria*. 5. Terriak, the Weasel, resembling the Russian Ermine, gray in summer and white in winter. Richardson writes the Esquimaux name "Terreeya;" under it is to be understood *Mustela Erminea*. 6. Kapviaitsiak, the Marten, keeps principally in the bush. Either *Mustela Vison*, or, more probably, *M. Martes* (*M. Huro*). 7. Ammarok, the Wolf, mentioned under the same name by Richardson; it is more rare than the Bear, not dangerous to man, but very destructive to the Reindeer. 8. Kingmek, the Dog, by Fabricius called the Kemmek, or Kremmek. 9. Terrieniak, the Fox. The foxes of that country constitute two species: the *black* and *red* proceed from one and the same litter, but the *white* are smaller, and do not pair with the others. This distinction is derived from very good observation; the former species is *Canis fulvus*, the other *Canis lagopus*, which is described also by Fabricius under the name of "Teriennak." 10. Pertukserak, the Lynx, very rare; probably *Felis borealis*. (*c*) Rodentia: 11. Sigsik, the Squirrel, rare, and less than the European; the Flying Squirrel is also named, but it is more rare, and smaller. The former species is *Sciurus hudsonius;* the Flying Squirrel may be *Pteromys sabrinus*. 12. Kigiak, the Beaver; extremely rare. 13. Illakosek, the Hedgehog, not abundant, feeds principally on the bark of the pine trees; it is *Hystrix dorsata*. 14. Kivgaluk, the Water-rat, smells strongly of musk; it cannot be

more accurately determined, whether it be *Fiber zibethicus*, or, what is more probable, one of the larger species of *Hypudæus*. 15. Nunnivakak, the Mouse in general, also specially mentioned, the House-mouse, with white belly and long tail. From specimens sent, this is a new species of *Hesperomys*, to which I have given the name of *H. maniculatus*. 16. Avingak, a large Field-mouse, short tailed, places itself on the hind legs to defend itself. According to the specimens sent, this species is the *Myodes* (*Lemmus*) *groenlandicus*. Richardson signifies the same species under the Esquimaux name of Owingak and the name Awinnak, customary among the Dog-rib Indians, which he applies to *Arvicola borealis*, is the same designation, only here, probably for the first time among zoologists, transferred to another, although allied animal. 17. Ukjungnak, a small species of mouse; a new species of *Hypudæus*, named by me *H. hypoleucos*. 18. Ukkalek, the Hare, grayish blue in summer, in the winter white, with black ears. According to the specimens sent, it is *Lepus glacialis*, which Fabricius designates under the same name, Ukalek, but by him it is erroneously identified with *L. timidus*. 19. Ukkalaitsiak, the Rabbit; probably the *Lepus americanus*, Erxl., which there bears the name of Rabbit. 21. Umingmak, the Musk Ox, a very rare animal, known only from tradition. Of all the inhabitants of Nain none had ever seen it; but many years ago an Esquimaux of Okak saw one of these animals in the interior of the country, and thought it was the devil. The name is derived from Umik, beard, and mâk, large or long. It is the *Bos moschatus*, which is mentioned by Fabricius and Richardson under the same Esquimaux name.

Natural History of New York. By Authority. Vol. i, Zoology, by James E. De Kay. Part I, Mammalia. New York, 1842. 4to, with 33 lithog. plates.

Under the authority of the State of New York a Natural History of that country has appeared, of which De Kay has already completed the Mammalia. He enumerates 59 species of terrestrial animals, 2 species of Seal, and 8 Cetaceans. The descriptions are taken from nature, and exhibit great accuracy; but it is to be regretted that the author has not more frequently had the opportunity of comparing the allied European species, in order to determine the question of their specific identity or diversity. The plates are mostly on copper, and the execution excellent, but the artist has not, in all cases, known how to correct the defects in form, incidental to stuffed specimens. Externally the work is got up with the greatest splendour; a pattern for the booksellers of Germany.

American Natural History, by John D. Godman. Philadelph. Third edit. 1842. 8vo.

A complete list of the Mammalia described in this work is given in the 'Isis' (1844, p. 446), to which I refer.

It appears, from an advertisement, that Audubon and Bachman are engaged upon a work, under the title of 'The Viviparous Quadrupeds of North America,' but upon inquiry I am unable to obtain any accurate information respecting it.

Diagnoses of new species of Brazilian Bats, by A. Wagner. (Archiv, 1843, p. 365.)

I have, in that place, given the diagnoses of 19 n. sp. of Bats, of the genera *Phyllostoma*, *Chilonycteris*, *Emballonura*, and *Dysopes*.

Some new Brazilian species have also been described by Lund. (Det. K. D. Videnskabernes Selskabs naturv. og mathem. Afhandlinger. ix. Deeb. Kjöbenh. 1842, and Oversigt overdet K. D. Vidensk Selskabs Forhandl. 1843, p. 77.) Of this I have given an abstract in these Archives for 1843 (i, p. 347), and added remarks upon the species confounded together under the name of *Canis Azaræ*, as also upon the osteology and dentition of *Canis jubatus*.

Dieffenbach, Travels in New Zealand, with contributions to the Geography, Geology, Botany, and Natural History of that country. London, 1843. Vols i and ii. 8vo.

The Mammalia are arranged by J. E. Gray. It is a very remarkable circumstance that there are no indigenous Mammalia at all in New Zealand, except, perhaps, a Bat and a Rat, both of which, however, might have migrated there at a late period. The latter, in consequence of the introduction of the English Rat—not the Lemming—(Wanderratte), has become so rare that Dieffenbach was unable to procure any specimen of it. The house Mouse is also said to have been introduced. All the other terrestrial Mammalia are introduced. The New Zealand Dog is termed *Canis Dingo* by Gray; Dieffenbach, on the other hand, says, that it is not the Australian Dingo, but a much smaller variety, resembling the Jackal, and of a dirty yellow colour. Since the natives sometimes also call their Dog by the Spanish name, "pero," it is not impossible that the animal was introduced before the time of Tasman, by Spanish voyagers. The domestic Cat has been introduced by the colonists, and has partly become wild. The Hog, also, is found wild in many districts in great numbers, and appears to have been known to the natives, as in other islands, even before the advent of the English. The Horse, Ass, Ox, Sheep, and Goat are of a very recent date. The sea furnishes more species than the land, but of these Dieffenbach has not brought any specimens. He has given some notices worthy of consideration on the migrations of the Whale and its capture.

From various regions, but chiefly from America, were

collected the materials of the Zoology of the Voyage of H.M.S. Sulphur, under the command of Captain Sir E. Belcher. Mammalia by J. E. Gray. Lond. 1843. 2d Part.

The diagnoses of the greater part of the species had been previously given by Gray, and were noticed in our last year's Report. These are now followed by descriptions, greater detail in which is certainly not unfrequently to be desired. The figures are beautifully executed. The Mammalia are concluded in this second part.

As contributions, of a more general nature, to the Fauna of the Mammalia of the ancient world, are briefly to be adduced:

H. v. Meyer, 'Summary View of the Fossil Vertebrata of the Tertiary Basin of Mayence' (Jahrb. für Mineralog. 1843, p. 379), to which succeed remarks upon the fossil Mammalia of the Brown-coal of the Westerwald, of the Mardolce-caves in Sicily, and of the diluvial formation of Mosbach (ib. p. 581), and also on the Mammalian remains from various regions (ib. p. 698). Owen's 'Reports on the Fossil Mammalia of England' (Instit. 1843, p. 55) have now appeared in a separate work, which will be adverted to in the next Report. Pomel 'On the Fossil Mammalia of the Auvergne' (Instit. 1843, p. 218). Memoria per servire all' illustrazione dei grandi Mammiferi fossili, esistenti nell gabinetto di Santa Teresa in Milano, p. G. Balsamo Crivelli. Milano, 1842, (briefly abstracted in the Isis, 1843, p. 629). A. v. Nordmann, 'Ueber die bis jetzt mir bekannt gewordenen Fundorte von fossilen Knochen in Südrussland' (On the Localities of Fossil Bones in South Russia). (Bullet. de la Classe physico-mathématique de l'Académie des Sci. de St. Petersbourg, i. 1843, p. 197.) J. H. Cooper, on the Fossils found in the construction of the New Brunswick Canal, in Georgia (Ann. Nat. Hist. xii. p. 70). In the recent clay alluvium the bones of the *Megatherium* occur, together with those of *Mastodon giganteum*, *Hippopotamus*, the Mammoth, and Horse. The bones were not worn, and many belonging to the same skeleton were met with grouped together. An abstract of Lund's latest contributions to the ancient and present Fauna of Brazil have been given by the Reporter in these Archives (p. 347), and some remarks appended. The 'Literatur über Fährten and Fährten-Abdrücke urweltlicher Thiere in den Gesteinen der festen Erdrinde' (Literature on the subject of the footsteps and impressions of footsteps of extinct animals in the rocks of the earth's crust), has been collected with great completeness by R. Bernhardi in the 'Halleschen Literaturzeitung,' 1843, complementary sheet, p. 441.

On a Diseased Femur of a Cave Bear, by Ph. Fr. v.

Walther. (Journ. für Chirurgie und Augenheilk. von Dr. Ph. v. Walther und v. Ammon. 1843. p. 161.)

The celebrated author of this paper had, as far back as in the year 1825, in the 'Journal der Chirurgie,' at that time published by himself and Graefe (viii. part i), referred to a considerable number of instances of pathological changes in bones, most of them being diseased conditions occurring in man at the present time, such as necrosis, anchylosis, exostosis, caries, &c. The femur above mentioned has been already described by Esper and the Reporter. The author states that the disease of the bones, as it occurs in man at the present day, analogous with and correlative to that presented by the above-mentioned femur of the Cave Bear, has been described by Scarpa as "malignant exostosis of expansion of the osseous tissue," and by Astley Cooper as "internal fungous exostosis of the medullary membrane." Since they both, however, apply the term "exostosis" too widely, the explanation is subjoined, that "should the present disease of the bone be termed exostosis, it will, at all events, belong to the fungoid, and not to the cartilaginous exostoses, and, in fact, to those of the cancellated structure, or of the medullary membrane, and not of the periosteum or of the shell of the bone." This disease is one of the more rare, and affords another remarkable proof of the occurrence of diseases of the bones in the animals of the ancient world, in exactly the same forms, and following the same laws as those which are met with in animals of the present day.

K. Lee, 'Taxidermy, or the Art of Collecting, Preparing, and Mounting Objects of Natural History,' 6th Edit. 1843, as an Introduction to the Art of "Stuffing" has been very well received in England.

SIMIÆ.

Description des Mammifères nouveaux ou imparfaitement connus de la collection du Mus. d'Hist. Nat., et remarques sur la classification et les caractères des Mammifères. Premier Mémoire. Famille des Singes, par M. Is. Geoffroy-Saint-Hilaire. (Archives du Mus. d'Hist. Nat. ii, p. 485.)

In this Memoir, which came before the Paris Academy in the course of the year 1843 (Compt. rend. xvi, p. 1236; xvii, p. 280), Is. Geoffroy gives—1st. Remarks on the Systematic Arrangement and Characters of the Order of Monkeys. He criticises only the works which have appeared in France and England on this subject; and, consequently, my Monograph on the Monkeys, which has been four years in print, is not mentioned with a single word.

Generally speaking, English and French zoologists have, as it were by common consent, agreed to refer, indeed, mutually to each other, but to take no farther notice of German contributions. Men such as Owen, G. R. Gray, and Prichard, who possess a comprehensive knowledge of all that is written, are at present rare phenomena in England and France. Excepting in the above respect, the Memoir in question, owing to the richness of the Parisian collections, is a most important contribution to a more accurate knowledge of the Monkeys.

Is. Geoffroy divides the order of Monkeys (by him termed "Primates") into four sub-orders: Singes, Lémuridés, Tarsidés, and Cheiromydés; of the two latter of which, each contains but one genus. The first sub-order (les Singes) is divided into four tribes, viz.: (1.) Pithecina, with five molars, short nails, and the anterior members longer than the posterior; to this belong *Troglodytes*, *Pithecus*, and *Hylobates*. (2.) Cynopithecina, with five molars, short nails, and the posterior members longer than the anterior; to this belong the rest of the Monkeys of the Old World. (3.) Cebina, with six molars and short nails; to this are referred all the American Monkeys, except the following. (4.) Hapalina, with five molars and claws; this includes only the genus *Hapale*. With respect to these "tribes," I will here merely remark that I cannot consent to the division of the Monkeys of the Old World into the sub-orders Pithecina and Cynopithecina, because, as I have shown in my Monograph, there is too great a difference in the skeleton between the Gibbons and the Ourang-outangs, to allow of their being brought into such close alliance as that sought to be established by Is. Geoffroy. Moreover, although he asserts with respect to the Pithecina group, "s'ils ne sont pas bipédes à la manière de l'Homme, (ils) ne sont pas non plus quadrupèdes à la manière des autres Singes," anatomical research, as well as observation of their habits, proves the quadrupedal gait to be the only natural one for the Ourang-outangs. As has been proved by S. Müller, the notion of an upright posture being that of this animal, in consequence of which it would walk only on the two hind legs, is entirely erroneous.

Is. Geoffroy from this proceeds to reply to the question, whether the Monkeys are properly to be regarded as quadrumanous animals. He considers that this appellation is properly applicable only if under the term "hand" be understood, not exclusively an extremity furnished with a thumb capable of being opposed to the fingers, but in general one exhibiting elongated, deeply-divided, very moveable and flexible fingers. This remark is perfectly just, but not new. From the osteo-myological researches of Ilg, Ernst, Burdach, Sandifort, Vrolik, and myself (for this purpose I selected the genera *Cercopithecus*, *Cebus*, and *Ateles*), the peculiarity of the hand of the Monkeys, and its great difference from the human, is now sufficiently known; and also, that even in the Monkeys of the Old World the fore hand is far behind that

of man in capability, a fact, indeed, known even to Galen. With respect to the difference between the Monkeys of the Old and those of the New World, I have found a character in the conformation of the osseous external auditory canal, which distinguishes these two families from each other more precisely than all the other characters.

SIMIÆ CISATLANTICÆ.—Is. Geoffroy persists in regarding his *Pithecus bicolor* as a distinct species. (l. c. p. 526.)

I repeat the declaration I made last year, that a new species cannot be erected with certainty from a single young animal, whose colour and the form of whose cranium change considerably with age. I look upon it as superfluous to enter more particularly into the critical remarks which Is. Geoffroy makes upon the descriptions that have hitherto been given of the Ourang-outang, since he does not appear to be acquainted with Salomon Müller's and Schlegel's labours on that subject, nor with those of Heusinger and myself.

J. Macartney. On the minute structure of the Brain in the Chimpanzee and of the human Idiot, compared with that of the perfect Brain of Man. (Transactions of the Royal Irish Academy, xix, 2. Dublin, 1843).

A comparison of the brain of the Chimpanzee with those of two idiots, whence it appears that the brains of the latter presented a still lower degree of organization than that of the brute. Of the brain of the Chimpanzee, the author moreover says, that "the external form has so close a resemblance with that of the human brain, that, excepting the difference of size, the one might be confounded with the other. The convolutions were just as distinctly marked, and the proportion of the cerebellum to the cerebrum exactly as in man." The corpora caudicantia were very ill defined; the corpora pyramidalia and olivaria not much developed; the branches of the arbor vitæ perhaps not so distinct, but equally numerous as in man. The dentated margin of the corpus fimbriatum was wanting; the pineal gland large. The anterior pair of the corpora quadrigemina the smaller, &c. Figures are given of the brain of the Chimpanzee and of an idiot.

Is. Geoffroy has made several contributions to a knowledge of the Gibbons.

Hylobates entelloides has been described at length by him, both in Jacquemont's 'Voyage dans l'Inde' (46, 47 livrais. 1843, p. 13), and in the 'Archiv. du Mus.' (ii, p. 532), and in the latter place a beautiful figure (tab. 1) is given. From the light-coloured varieties of *H. albimanus* it is distinguished—(*a*) by

the connexion of the fore and middle fingers of the posterior hand for the length of the first phalanx; (*b*) by a broader white frontal band, which gradually passes into the colour of the vertex, whilst the same band in *H. albimanus*, on account of the more rigid hairs of which it is composed, is more distinct from that of the vertex; in the light-coloured variety of *H. albimanus* also the supercilia are black, whilst they are red in *H. entelloides*.

He also gives in Jacquemont's Voyage (p. 8) some notices on *Hylobates Hulock* and *concolor*, Harl. The latter he characterizes "for the most part black," and indicates Borneo as the locality for it. He then remarks that two specimens had reached him from Leyden, under the names of *H. concolor* or *unicolor*, in colour very much resembling *H. agilis*, so that he inquires whether they are not probably to be referred to that species, or to one differing from *H. concolor*, Harl., and to which the name of *Hylobates Mülleri*, proposed by Martin, should be reserved. The Dutch naturalists, he thinks, alone could solve this doubt. I perceive from this that Is. Geoffroy has had no better success with this species than I formerly had; however, I now find from the description given by S. Müller of his *H. concolor* in the 'Verhandel' (p. 48), but which has not been noticed by Is. Geoffroy, that the *H. concolor* described by Harlan and myself is different from Müller's, and that both the specimens mentioned by Is. Geoffroy belong to the latter; to which, consequently, the name of *H. Mülleri* should by all means be applied.

Respecting the genus *Semnopithecus*, Is. Geoffroy has also given several explanations.

Of his *Semnopithecus Dussumieri* he has given a detailed description, both in Jacquemont's Voyage (l. c. p. 17) and in the 'Archives du Mus.' (p. 538), and in the latter place has also furnished a beautiful figure (tab. 2). In both works also he has explained its difference from *S. cucullatus*, and characterized the latter more accurately than before. From the appended note I also observe, that there is a specimen in the British Museum, under the name of *S. Johnii*, of my *S. jubatus*, the description of which (Schreb. Suppl. i, p. 305) has as yet escaped him, with respect to which I must, however, remark, that John's description of the hair of the head of his "Monkey from Tellicherie" does not at all accord with my *S. jubatus*. *S. flavimanus* has been described at length by Is. Geoffroy in both works.

He has also characterized a new species under the name of *Semnopithecus nigrimanus*. (Archiv. du Mus. p. 546.)

"Long hairs on the head, forming a mesial, compressed comb or crest. Upper surface, external surface of arms and forearms, legs, gray, approaching to brownish; inferior portions, inner side of arms and forearms, inner side, and the greater part of the outside of thighs, white; the four hands

and nearly the whole of the tail black." Under part and inside of buttocks white. In the colour it presents some resemblance with *S. leucoprymnus*, particularly in the white colour of the buttocks; in *S. nigrimanus*, however, they are only partially white. The nearest to it is *S. mitratus*, in which, however, "the under side of the tail is white, the crest black, the buttocks and thighs gray, and the hands grayish or white." From this exposition it appears clear that *S. nigrimanus* is nothing else than *S. siamensis*, instituted by S. Müller and Schlegel as far back as the year 1841. With respect to *S. fulvo-griseus*, Desm., Is. Geoffroy observes that Desmoulins had taken the description from *S. leucoprymnus*, and that of the skeleton from *S. comatus*, and, moreover, that no specimen of *S. albo-cinereus* existed in the museum, and that the species described in the voyage of the Bonite was *S. obscurus*. *Nasalis* he distinguishes from *Semnopithecus*, by the former having the septum of the nostrils narrow, which is wide in the latter. With respect to *S. comatus*, Blainville had already shown that the fifth tubercle of the hindmost lower molar is wanting.

The heads of *Semnopithecus mitratus*, *melalophos*, and *maurus*, have been figured in the 'Nederl. Verhandel Zool.,' (tab. xii, et seq.).

In D'Orbigny's Diction. Univers. d'Hist. Nat., iv, p. 116, the article *Colobus* has been contributed by Is. Geoffroy.

He still, interrogatively, assigns cheek pouches to this Ape, although in my Monograph I have denied their existence in it, from observations made on *Colubus Guereza*, and which has now been confirmed by Owen also in *C. ursinus*. Is. Geoffroy divides them in the following manner: (*a*) Hair very long, black, or white and black. (1) *C. vellerosus* (s. *bicolor*, s. *leucomeros*). (2) *C. Guereza*. (3) *C. polycomos*. (4) *C. ursinus*. (5) *C. satanas*. (*b*) Hair of moderate length, colour varying from a bright red to olive. (6) *C. fuliginosus*. (7) *C. ferrugineus*, (8) *C. Pennantii*. (9) *C. verus*. With reference to *C. polycomos* and *ursinus*, Is. Geoffroy is of opinion that "in the present state of our knowledge it would be equally rash to assert the specific distinction of these two baboons, or to withdraw one of the two species, as nominal." I have shown, however, as long ago as in 1839 (Schreb. Suppl. i, p. 307), from my own comparison of Pennant's original specimen of *C. polycomos*, that *C. ursinus* is identical with it, which has been lately confirmed by Owen. The comparison also of Pennant's original specimen with *C. ferruginosus* has shown me that it is one and the same with *C. fuliginosus* (Schreb., l. c. p. 308). Of *C. verus*, Is. Geoffroy remarks that a robust figure has been erroneously assigned to it.

The genus *Miopithecus*, of which previously only a short

character was given by Is. Geoffroy, has now been fully described by him. (Archiv. du Mus. ii, p. 549.)

The only species belonging to it is *Simia Talapoin*. A second, which he had constituted under the name of *M. capillatus*, he has now himself withdrawn, since it was founded only on a badly prepared skin.

He has also (l. c.) given more detailed descriptions of *Cercopithecus labiatus*, *leucampyx*, *monoides*, *Lalandii*, *pygerythrus*, and *rufo-viridis*. The last of these (tab. iv), together with *C. monoides* (tab. iii), are also figured. He is still inclined to retain the distinction between *C. pyrrhonotus* and *ruber*, simply for the reason that in the former the nose is white, and in the latter black.

The same naturalist again endeavours to vindicate the specific independence of his *Macacus aureus*. (Archiv. ii, p. 566.)

He does not regard the *M. aureus*, in the voyage of the Bonite, to be the true one, neither does he allow it to be identical with *M. carbonarius*. He is also inclined to look upon an albino (tab. v), from the Philippines, as belonging to a distinct species, which he provisionally terms *M. philippinensis;* another specimen from the same place will agree accurately, neither with *M. cynomolgus* nor *aureus*. I observe that the coloured varieties brought by Cuming from the Philippines are again different from those above mentioned, and this great variety in the colour favours the opinion broached first by Schlegel, then by me, and soon afterwards by S. Müller, that all these colours appertain to the great group of varieties presented by *Inuus cynomolgus*.

How far *Macacus arctoides* and *maurus* are identical or not, Is. Geoffroy has not as yet been able to determine with certainty. The latter is probably of the same species as the one I have described in Schreb. Suppl. i, p. 148.

Is. Geoffroy has now raised his subgenus *Cynopithecus* into an independent genus. (Archiv. du Mus. ii, p. 574.)

"Body short, with tolerably long limbs, hands elongated, external thumbs of moderate length, no tail. Skull moderately wide, superciliary ridges much developed; snout very long, broad and sloped, its sides at a right angle with the upper surface. Eyes of medium size. Nasal fossæ very much dilated, nose flat, nostrils not tubular, and not apical. Callosities expanded." Incisors inclined, the middle in the upper jaw very broad, the last inferior molar with five tubercles. I have to remark, that the statement, "point de queue," must be corrected, to this extent, that the tail is only a very short stump. As the only species, Is. Geoffroy adduces *Cynocephalus niger*, Desm., which I have placed at the end of the short tailed *Macaci;* I do not consider a distinct genus for it necessary.

For *Macacus Gelada*, Rüpp., Is. Geoffroy is disposed to establish a separate genus. (Archiv. du Mus. ii, p. 576.)

He distinguishes this ape from the baboons by the nostrils not being altogether apical, and the incisors being almost perpendicular; characters which, in my opinion, are not sufficient to distinguish it generically from *Cynocephalus*.

The same zoologist has made a valuable contribution to the more accurate knowledge of the *Cynocephalus Babuin*. (L. c. p. 579, tab. 6.)

The "petit Papion" of Buffon, according to him, does not belong here, but, as well as the "grand Papion," to *C. sphinx*. Moreover, he asserts that both Fr. and G. Cuvier have erroneously stated the face to be flesh-coloured, whilst it is almost entirely black. The true diagnostic character he finds in the hair, which, instead of presenting, like that of *C. sphinx*, delicate rings of yellow and black, exhibits broad, and not numerous rings. *C. anubis* he looks upon as very doubtful. Lastly, he remarks upon the circumstance, that when young the baboons are very slender and agile, whilst when old they become thickset and unwieldy.

Allied forms are characterized by Ogilby (Ann. Nat. Hist. xii, p. 446) under the names of *Cynocephalus thoth* and *choras*, both from living specimens. The former has the hair longer in the anterior part of the body than posteriorly; the colour of the upper and outer parts is dark olive green, and of the under side light yellowish green; breast, throat, chin, and lower half of whiskers silvery gray; face, dirty livid flesh colour; callosities very large and flesh-coloured, the naked haunches, on each side of them, dark purple, or violet-brown; scrotum brown, sheath of the penis flesh-coloured. He would distinguish this *C. thoth* from *C. anubis* and *sphinx* by the gray colour of the hair on the hind fingers, the dark purple colour of the buttocks, and the brown scrotum, the two latter species having the callosities of a bright blood-red, and the scrotum pale flesh-colour. The colour is said to approach *C. sphinx* more than *C. anubis*, while the bright yellowish green is replaced by a sordid dunnish brown, and the slender form of *C. sphinx* by a more robust one. Ogilby regards this *C. thoth* as identical with the two specimens brought by Rüppell from Abyssinia, who has designated them in the catalogue as *C. anubis* (the *Babuin*). The other species, *C. choras*, is derived from a half-grown male, procured on the Niger expedition, with long, shaggy, deep russet-brown hair, each hair being annulated with rusty brown and black rings; face, supercilia, fingers, buttocks, and scrotum dark-brown, the upper eyelids alone flesh-coloured. Differs from *C. anubis* in the colour of the hair, the want of a light flesh-coloured circle around the eyes, and the dark-brown buttocks. The difference in the above description sufficiently shows that we shall not soon arrive at satisfactory conclusions on the relations of

C. Babuin to its allied forms from individual specimens in collections and menageries, but that we must expect to determine these relations only from observations of the animals in their native localities. I will merely observe, that I had an opportunity, a short time since, of seeing in a travelling menagerie a male and female, exactly such as Is. Geoffroy describes his *C. Babuin*, and that I regarded the individual described by me (Schreb. Suppl. i, p. 157), which I did not obtain until dead, and the colour of whose face I was given to understand was lighter during life, as one and the same species.

Simiæ Transatlanticæ.—In the first half of the Zoology of the Voyage of the Sulphur, Gray has given figures of *Brachyteles frontatus, Pithecia pogonias, leucocephala* (bare head), and *irrorata*, besides a notice on *Cebus hypoleucos*.

Upon this I refer to my remarks in last year's Report, adding that *P. irrorata* (Gray) is nothing else than *P. hirsuta*, and very well figured.

With respect to the genus *Cebus*, I will only in passing remark, that I am now enabled, by Natterer's communications on its geographical limits, to distinguish more species than the two formerly received, although with regard to others, where such accounts are deficient, I am just as much in the dark as before.

Of the Nocturnal Apes and Saimiris, more species than have hitherto been admitted have been distinguished by Is. Geoffroy. (Inst. 1843, p. 178.)

To each genus he refers 4 sp., viz. (1) *Nyctipithecus felinus*, Spix; (2) *N. lemurinus* Is. G., from New Granada; (3) *N. trivirgatus*, Humb.; (4) *N. vociferans*, Sp. With respect to *N. felinus* and *trivirgatus*, accordingly, Is. Geoffroy comes to the same conclusion as that expressed by the reporter last year. The four species of *Saimiris* (*Chrysothrix*) are: (1) *S. sciureus;* (2) *S. notus*, Is. G.; (3) *S. lunulatus*, found by Humboldt; and (4) *S. entomophagus*. The new species will probably be described at length in the zoology of the voyage of the Venus, when more will be said about them.

Iacchus rufiventer has been instituted as a new species of Marmozette by J. E. Gray. (Ann. Nat. Hist. xii, p. 398.)

Black, grisled from the white points of the hair, which are more abundant on the flanks and thighs; breast, inside of legs, under side of the body, and a spot in the middle of the vertex, chesnut-brown; tail long and black; ears large, not pencilled: from Mexico. It is totally different from *Hapale melanura*, and appears to be a distinct species, and very remarkable on account of its habitat.

Tschudi has noticed (Müller's Archiv, 1843, p. 471) a peculiar distribution of the radial, crural, and middle sacral arteries in *Lagothrix Humboldti*.

PROSIMII.—The *Lemur coronatus* has now been figured by Gray (l. c.), and proves to be a distinct species.

P. Gervais, in the Dict. Univ. d'Hist. Nat. iii, under the article *Cheirogaleus*, has more precisely characterized *Lemur furcifer*, Blainv., nearly allied to *Ch. milii*. Of Lesson's four genera, *Cebugale*, *Myscebus*, *Gliscebus*, and *Myoxicebus*, he says: "ils doivent être considérés comme non avenus, puisqu'ils font tous double emploi."

Otolicnus Teng, Hedenb., has been declared to be a new species from Sennaar by Sundevall. (K. V. Acad. Handl. 1842, p. 201.)

O. cinereus, "subtus albus, cauda cinereo-nigricante; digito posteriore quarto longiore." In *O. moholi*, as stated by Sundevall, the tail is said to be shorter, bare, and especially the third and fourth fingers of the posterior hand of equal length, and a little exceeding the fifth. *O. senegalensis* is said to differ in the paleness of the colour, above, beneath, and on the tail, as well as, according to Smith, in the uniform colour of the hair on the belly.

The Munich collection is indebted to Dr. Pruve, also, for some specimens from Sennaar, which differ from those of Hedenborg in this respect, that they have but little white beneath, but are rather of a lively yellow; their back even is dashed with a light yellow tint, which is, however totally wanting on the tail. The length of the toes is exactly as stated by Sundevall. Consequently, since the colour in the specimens from Upper Nubia is variable, and the length of the toes in dried specimens is not always to be taken as accurate, I still retain the opinion that no specific distinction exists between *O. Teng*, *moholi* and *senegalensis*, or at least that it has not been rendered evident.

Fraser remarks (Ann. Nat. Hist. xii, p. 437), that his specimen of *Galago*, from Cape Coast (West Africa), was shot in a tamarind tree, near the top of which it had built its nest of loose leaves in the fork of a branch. The eyes were large and prominent; the motions of the animal slow.

CHIROPTERA.

FRUGIVORA.—In the Zoology of the Voyage of the Sulphur, p. 28, J. E. Gray has given a synopsis of the genera which he assigns to his tribe Pteropina, as follows:

(*a*) Wings from the side of the back; head very long, pointed; no tail:

(1) *Macroglossus*, lower phalanx of thumb elongated, wings on the back of the feet, as far as the roots of the toes.

(*b*) Wings as in (*a*); head extended; index-finger with a claw. (2) *Pteropus*. No tail, lower phalanx of thumb very short. (3) *Epomophorus*, Benn. No tail, neck with a tuft of hair on each side; lower phalanx of thumb very long, connected, (*E. whitii*, *E. gambianus*). (4) *Eleutherura*, Gray. Tail short, free in the indentation in the middle of the narrow inter-femoral membrane; lower phalanx of thumb,— (?) neck without glands on the sides (*E. hottentotta*). (5) *Xantharpyia*, Gray. Tail with the base included in the under side of the inter-femoral membrane; neck without glands; lower phalanx of thumb rather long (*Pteropus amplexicaudatus*, Geoffr.)

(*c*) Wings as in (*a*), head short, swollen; nostrils tubular, molars 4—5: (6) *Cynopterus* (*Pachysoma*). Tail short, inclosed in the inter-femoral membrane; lower phalanx of thumb elongated, wing membrane attached almost to the root of the toes. (7) *Megæra*. No tail, lower phalanx of thumb very short, wings as in (6).

(*d*) Wings from the middle of the back, head and nostrils as in (*c*), index-finger with a claw. (8) *Harpyia*.

(*e*) Wings as in (*d*), head elongated, conical; index-finger without claw. (9) *Cephalotes*. *Pteropus argentatus*, Gray, and *Xantharpyia amplexicaudata* are briefly characterized.

Istiophora.—A similar arrangement of the genera in his tribe *Phyllostomina*, with several new ones, has been given by Gray. (l. c. p. 15.)

(*a*) Ears meeting above the forehead; forehead with a tolerably deep depression; nasal leaflet lanceolate, erect; tail elongated beyond the inter-femoral membrane. Wing membrane from the tarsus; lower phalanx of thumb of medium size: India and Africa. (1) *Rhinopoma*.

(*b*) Ears large, united above the forehead by a transverse lamina; forehead simple, convex; nasal leaflet as in (*a*); no tail; inter-femoral and wing membrane large; wing membrane from the feet; lower phalanx of thumb elongated. (2) *Megaderma*. Nares simple: India. (3) *Livia*, Gray. Each nostril covered with a membranous, valvular, elongated fold: Africa.

(*c*) Ears, forehead, and nasal leaflet as in (*b*); chin with a deep narrow depression: South America. (4) *Macrotus*, Gray. Inter-femoral membrane large, truncated; tail above the membrane, elongated: Hayti.

(*d*) Ears separate, on the sides of the head; forehead simple, convex; nasal leaflet lanceolate, convex; chin, anteriorly with a narrow, deep, triangular hollow; tongue and face long: South America. (5) *Phyllophora*, Gray. Inter-femoral membrane wide, truncated; tail short, inclosed, point above. (6) *Glossophaga*. Inter-femoral membrane deeply excised; no tail.

(7) *Anoura*, Gray. Inter-femoral membrane very narrow; the legs bordered; no tail. (8) *Monophyllus*. Inter-femoral membrane distinct, deeply excised; tail short, included, point above.

(*e*) Ears, forehead, nasal leaflet as in (*d*); chin, anteriorly with a broad, triangular, bare spot; tongue and face of moderate length: South America. (9) *Macrophyllum*, Gray. Inter-femoral membrane large, truncated; tail long, included, extending to the edge of the membrane. Alar membrane from the upper part of the calcaneum. (10) *Vampyrus*, Geoffr. Inter-femoral membrane wide, truncated, with three divergent lines; no tail; face rather elongated. Alar membrane from the root of the toes. (11) *Carollia*, Gray. Inter-femoral membrane wide, truncated; no tail; face short. Feet free, to the posterior part of the calcaneum; thumb long, with two equal phalanges; anterior alar membrane broad. (12) *Phyllostoma*. Inter-femoral membrane wide, truncated; alar membrane from the calcaneum; tail of moderate length, included, point above. (13) *Arctibeus*. Inter-femoral membrane deeply excised; thumb with a short and long phalanx; no tail; alar membrane attached almost to the root of the toes. (14) *Sturnira*, Gray. Inter-femoral membrane very narrow, forming a border; no tail; thumb with an inferior short and superior long phalanx.

(*f*) Ears, forehead, and chin, as in (*e*); nasal leaflet short, simple, or bifid, with a deep depression behind it; head of medium size: South America. (15) *Brachyphyllum*, Gray. Inter-femoral membrane short, deeply excised, with two rays; tail very short; nasal leaflet ovate; surrounded posteriorly with a deep depression. (16) *Stenoderma*. Neither inter-femoral membrane nor tail; nasal leaflet small, notched anteriorly; thumb elongated, thick, free up to the root; feet free; (according to Waterhouse without true molars).

Gray here remarks, that he does not know in what respect *Desmodus*, *Endostoma*, *Diphyllia* differ from this genus. As species of this genus, Gray has particularly characterized, but with inconvenient brevity, *Phyllophora megalotis* (tab. v, fig. 2), and *nigra* (tab. v, fig. 1); *Monophyllus Leachii*, *Phyllostoma hastatum* and *elongatum*, Gray (tab. viii, fig. 2); *Carollia verrucata*, Gray (tab. viii, fig. 3); *Sturnira spectrum* (tab. vi, fig. 1). A *Macrotus Waterhousii*, by him, occurs in the Ann. Nat. Hist. xiii, p. 69.

In these Archives, p. 365, I have given the diagnoses of seven new species of *Phyllostoma* from Brazil.

GYMNORHINA.—J. E. Gray has also given an arrangement of the genera in his tribe Noctilionina.

(*a*) Tail short, with the point on the upper side of the wide inter-femoral membrane; ears lateral, separate. (*a*) Head conical, forehead simple, lips simple. (1) *Mosia*, Gray, nose simple, truncated; lips rather tumid, nares

simple, inter-femoral membrane truncated; incisors $\frac{2 \cdot 2}{6}$. (2) *Mystacina*, Gray. Nose rather elongated, surrounded at the base with a row of short, stiff bristles, inter-femoral membrane truncated, incisors $\frac{2}{6}$, the upper ones large. (3) *Aello*. Head sub-conical, inter-femoral membrane wide, truncated, tail elongated, with a band from the point, incisors $\frac{2}{4}$ (requires further examination). (4) *Emballonura*. Nose moderately elongated, nostrils tubular, inter-femoral membrane truncated, incisors $\frac{2 \cdot 2}{6}$. (5) *Centronycteris*, Gray. Nose and nostrils as in (4), inter-femoral membrane truncated, spurs very strong. (6) *Urocryptus*. Nose and nostrils as in (4), inter-femoral membrane truncated, incisors $\frac{0 \cdot 0}{6}$. (7) *Diclidurus*.—(β) Head and lips as in (α), forehead with a deep depression. (8) *Taphozous*.—(γ) Head conical, forehead simple, lips large, hanging, verrucose. (9) *Noctilio*.—(δ) Head conical, nose and chin furnished with membranous folds. (10) *Phyllodia*, Gray. Nose truncated, border sharp, with a fleshy foliaceous process superiorly; nostrils beneath, chin with transverse folds on the anterior margin; ears lateral; inter-femoral membrane truncated, tail short, feet free (*P. Parnellii*, Jamaica). (11) *Chilonycteris*. Nose truncated, superior border fringed, nostrils beneath; chin with two transverse folds at the anterior edge; ears lateral, narrow, pointed, with a notch in the external margin; inter-femoral membrane wide, truncated, tail long. (12) *Mormoops*. Nose and chin furnished with complicated membranous folds; ears large, broad, almost united; inter-femoral membrane wide, truncated, feet free.

(*b*) Tail projecting above the extremity of the conical, extended inter-femoral membrane; alar membrane affixed only in a narrow line along the back. (13) *Pteronotus*, Gray. Ears lateral, chin with two transverse membranous folds (*P. Davyi*, Trinidad).

(*c*) Tail thick, elongated, projecting above the extremity of the transversely plicated inter-femoral membrane. (14) *Myopteris?* Geoff. Ears separate on the sides, large; snout short, blunt; incisors $\frac{2}{2}$. (15) *Chiromeles*. Ears as in (14), snout obliquely truncated; incisors $\frac{2}{2}$. (16) *Nyctinomus*. Ears large, meeting, folded downwards on the forehead; snout obliquely truncated, lips large, transversely hollowed. (17) *Molossus*. Ears as in (16), snout rounded, lips tumid, smooth, or hairy.

(*d*)? No tail; inter-femoral membrane distinct, deeply incised, head rounded; face disfigured with cartilaginous folds, alar membrane broad (probably belonging to *Phyllostomina?*). (18) *Centurio*, Gray.

Then follows the description of *Mosia nigrescens* (tab. vi, fig. 2, 2 A and 2 B), *Diclidurus*, *Freyreissi*, and *albus* (tab. viii, fig. 1 and 1 A), *Centurio senex* (tab. vii), probably not from Amboyna, but Brazil. *Mystacina tuberculata* has been characterized by Gray in the Appendix to Dieffenbach's Travels.

I have instituted, with diagnoses, three new species of *Chilonycteris*, and two of *Emballonura* (Archiv, p. 367), and also seven species of *Dysopes*.

Dysopes midas (Hedenb.) is a new species from Sennaar, described by Sundevall (l. c. p. 207, tab. ii, fig. 7), with the diagnosis: "Supra nigro-fuscus, subtus grisescens; membrana ad latera dorsi, ventre infimo artubusque nudis." Kotschy found the same species in Sennaar.

Description of a Bat belonging to the genus *Thyroptera*, by H. Rasch. (Nyt. Magaz. for Naturvidensk, iv, Heft. 1.)

The Reporter has translated this description abridged, and accompanied it with remarks, in the Archives for 1843, p. 261.

Some interesting remarks on the distribution and migration of *Vesperugo Nilssonii* have been made by Blasius in his 'Travels in European Russia' (p. 264). Gray has instituted (in the Ann. Nat. Hist. xi, p. 117) a *Kerivoula brasiliensis*, "blackish, hairs with brownish tips, rather paler beneath; ears large, pointed, curved backwards."

INSECTIVORA.

An excellent Monograph on the genus *Sorex* has been published by Sundevall in the K. Vet. Acad. Handl. 1842, p. 174, and three new species added.

The new species are: (1) *Sorex* (*Crocidura*) *Hedenborgi*, Sund. "Totus rufescenti niger, magnus;" from Sennaar, whence Kotschy also sent the same species to the Vienna Museum, from which I procured the figure in Schreber's work. (2) *Sorex fulvaster*, Sund. "Pallide griseo fulvescens, subtus cinereo albus; dentibus intermediis, supra 3, secundo tertioque æqualibus. Cauda longit. ½ corporis." (3) *Sorex* (*Crocidura*) *sericeus*, Hed. "Saturate cinereus nitidus, supra rufescente fuscus; dentibus intermediis, supra 3, secundo, tertioque æqualibus; cauda ultra ½ corporis." The same species was found by Kotschy in Kordofan.

With reference to my monograph in Schreber's work, I now add a few remarks. *Sorex crassicaudus*, Licht., *S. indicus*, Auct. at least in part, *S. crassicaudus*, Duv., *S. giganteus*, Duv., and *S. sacer*, Ehr., I regard as only one species. I have compared Lichtenstein's original specimen of *S. crassicaudus* with our own, and found complete correspondence in the dentition; in the colour, the former presents a light ferruginous shade on the back, and especially on the head, more distinctly than in our specimen, whilst the same hue is still more apparent in our *S. indicus*. In colour, *S. crassicaudus*, Duv., more nearly agrees with the specimens in our collection. When Duvernoy assigns to it only three intermediate teeth, it can only be owing to the fourth small one having fallen out. The inconstancy of this tooth is shown by what Duvernoy states of his *S. giganteus*.

Selys Longchamps has obtained a specimen of *Sorex etruscus* from the south of France, from the banks of the Durance (Rev. Zool., p. 131). Fraser has procured from Fernando Po (Ann. Nat. Hist. xii, p. 436) a new species, *S.* (*Crocidura*) *poensis*. "Obscuré fuscus, corpore subtus cinereo, pedibus nigrescentibus; auribus parvulis distinctis; caudâ corpore breviore pilis obscuris adpressis et setis longioribus adspersis." Body 3″ 3‴; tail 1″ 10‴.

A new genus, *Otisorex*, has been instituted by De Kay. (Nat. Hist. of New York, i, p. 22.)

Its characters are, "ears large, and projecting out of the fur; nose elongated; tail quadrangular; teeth 32." It is not properly either a genus or a sub-genus, but as it has five upper intermediate teeth, the lower incisors denticulate, the points of the teeth coloured, and the tail without hair, it belongs to the sub-genus *Sorex*, Wagl. (*Amphisorex*, Duv.)

The species referred to this genus is termed by De Kay *O. platyrrhinus*; dark gray, dashed with a dirty red, cinereous beneath; body 2. 5″, tail 1. 6″. New York.

Two specimens of *Gymnura* from Borneo differ from *G. Rafflesii* in this respect, that their fur, instead of being black, with long white hairs intermixed, is entirely of a yellowish white, some of the long hairs only being black. In other respects, the specimens from Borneo and Sumatra agree so closely, that Waterhouse does not consider himself justified in distinguishing them specifically. (Ann. Nat. Hist. xi, p. 529.)

Hylomys suillus has been figured in the 'Nederl. Verhandel,' tab. xxv, figs. 4-7 (cranium); tab. xxvi (animal); ib, tab. xxvi, figs. 2-5. *Hylogalea tana*, *ferruginea*, *javanica*, and *murina*. Moreover, in tab xxvii, the cranium and feet.

CARNIVORA.

In the Dict. Univers. d'Hist. Nat. iii, p. 177, Is. Geoffroy has presented some general considerations on the *Carnivora*.

With respect to the fundamental type upon which the dental system of the Carnivora is founded, the author would have been enabled to have expressed himself much more concisely, and with more precision, had he availed himself of Wiegmann's classical work on that subject. The refutation of the opinion, that the Carnivora might be arranged in a continuous series, I hold to be altogether superfluous, as perhaps no zoologist can at the

present time entertain any such notion, because in this, as in every other order, we meet with ascending and descending forms, which present points of connexion in very various directions, and frequently in so many, that no complete serial arrangement, however numerous the series might be, could be carried out.

URSINA.—Burmeister is inclined to characterize the omnivorous Carnivora by the carnassière being entirely wanting in them, and consequently, that the first molar, from its position, cannot even be regarded as its representative. (Halleschen Literaturzeitung, 1843, p. 514.)

I do not agree with him in this, for although in the omnivora the carnassière does not differ very considerably in its form from the molars, yet such a decided transition in the dentition exists, from the Viverrina, through *Paradoxurus*, to the Omnivora, through *Arctictis*, that in order to maintain scientifically the fundamental unity in the dental conformation, a representative of the carnassière must be looked for also in the Omnivora. To this also it may be added, that in the milk teeth of *Procyon* the upper carnassière is formed precisely on the type of the true Carnivora, and consequently, from its form, its true nature cannot in this case be overlooked.

I need only refer to the interesting observations on the breeding time and varieties of our bears, by St. K. v. Siemuszowa-Pietruski, in these Archives, p. 369.

Upon receipt of fresh materials, Lund believes that the fossil remains on which he founded his *Ursus brasiliensis* exhibit rather an alliance with the *Cuati*, and he now proposes for it the name of *Nasua ursina* (Archiv. p. 356).

Of *Procyon Psora* Gray has given a figure (Sulphur, p. 32, tab. xi and xvii, figs. 1-3).

MUSTELINA.—Gray has characterized three new species of *Mustela* in the Ann. Nat. Hist. xi, p. 118.

(1) *Mustela Horsfieldii*. Uniform dark blackish brown, very little paler beneath; centre of chin and lower lip white, whiskers black; tail slender, blacker, half as long as the body and head. *Var.*? Throat with a large white spot, chin entirely white. (2) *M. Hodgsoni*. Fur yellowish-brown, rather paler beneath; the upper part and the sides of the head much darker; face, lips, chin, and throat varied with white; tail elongated, rather bushy, more than half the length of the body and head. *Var.* Rather darker, the white extending to between the eyes. From the Himalaya. (3) *M. Xanthogenys*. Bright chesnut brown, gold yellow beneath; chin, a small spot above the angle of the mouth, and the feet, white; a yellowish-white spot under the ears; a spot behind the angle of the mouth towards the throat, chesnut-

brown; tip of the tail black. From California; rather larger than *M. erminea*, figured in the Voy. of Sulph. pl. 9, together with the head of *M. frenata*. *M. brasiliensis*, Sewast, might belong to the same species, and Seba's *M. javanica* is probably the young state of it.

Among the Weasels De Kay distinguishes three species. (Nat. Hist. New York, i, p. 34.)

Two of them, *Mustela pusilla* and *fusca*, he refers, from their dentition, to the true Martens, the third *Putorius noveboracensis* to the Polecats. The diagnosis of *Mustela pusilla* runs thus: "Colour the same as in *P. noveboracensis*, in the summer coat, but less, not changing; tail 1-4th the whole length. Length 12 to 13 inches." Tail at the tip about a shade darker; teeth in typical number. Not rare, probably identical with Richardson's *M. vulgaris*, but not with that of Europe. Of *M. fusca*, Bachm., he says: "above brown, beneath clear white; tail 1-5th the whole length; feet with long hairs; length 12 inches." *Putorius noveboracensis* is the species described by other American zoologists as *M. erminea;* the characters distinguishing it from our Ermine are not stated.

Sundevall (K. V. Acad. Handl. 1842, p. 215) remarks, that the specimens of *Mustela subpalmata* sent from Cairo entirely correspond with the description of *M. Boccamela* given by Bonaparte.

"In size and colour they do not differ from the Ermine, except in the shorter tail, which is entirely of the same colour as the back, not having black hairs even at the tip. The toes, as in all the Mustelæ, are united by a membrane. Body 10 inches long, tail $3\frac{1}{2}$ inches, with hairs, 4 inches." From inspection of two specimens set up in the Vienna Museum, also from Egypt, I have drawn out the following notice of this species: "very remarkable from the wide hairy web between the toes, which are also thickly covered with hair. Colour like that of the small Weasel, but the animal as large as the Ermine. Colour a beautiful light ferruginous; lower jaw (except some pale spots), the whole of the throat and breast white, which colour runs behind the forelegs in a narrow stripe along the belly, with which, however, pale hairs are intermixed. Tail, outer sides of uniform colour, at the tip dark ferruginous. Body $10\frac{1}{2}$ inches; tail with hairs nearly 5 inches long." It is probably identical with *M. Africana*, Desm.

The species instituted by the Reporter: *Rhabdogale multivittata* has received certain confirmation by Sundevall.

He names it (l. c. p. 212) *Ictonyx frenata*, with the definition, "lineis dorsi nigris, antice confusis; fascia frontali, caput ambiente, labiisque

albis; cauda breviore." Body 8 2-3d inches; tail 3 5-6th inches. He has figured this species in tab. iv, fig. 1. I have published a figure of it in Schreber's work.

The Otters are arranged by Gray in the following manner (Ann. Nat. Hist. xi, p. 118): (*a*) Hind and fore feet of equal size; tail tapering, acute, elongate.

(1) *Lontra*. Muffle hairy; soles of the hind feet half bare; claws distinct. *L. canadensis* (??), *L. brasiliensis*. (2) *Lutra*. Muffle bald, oblong, transverse; claws distinct, soles half bald, *L. vulgaris*, *indica*, and *chinensis*. (3) *Aonyx*. Muffle and soles as in (2), claws rudimentary, *A. Horsfieldii*, *aurobrunnea*, *indigitata*, and *Lalandii*. (4) *Latax*. Muffle bald, large oblong, triangular, angular above; claws distinct, soles hairy, *L. lataxina*. (*b*) Hind feet large. (5) *Enhydra*, and (6) *Pteronura*. A new extinct species has received from Pomel the name *Lutra Bravardi;* it is from the volcanic alluvium of the Auvergne. (Instit. 1843, p. 140.)

VIVERRINA.—The skull and dentition of *Prionodon gracilis* (*Viverra* s. *Linsang gracilis*) have been accurately described by Waterhouse. (Ann. Nat. Hist. xi, p. 529.)

The skull has more resemblance with that of *Paradoxurus* than with *Viverra*, the dentition corresponds most nearly with that of the Genetts, but is deficient, as had been already stated by Horsfield, in the ultimate molar of the upper jaw, so that the dental formula runs: $\frac{3}{4}$ false molars, $\frac{1}{1}$ canine, $\frac{1}{1}$ molar,

Four fossil species from the genera *Viverra* and *Herpestes* are enumerated by Laurillard. (Dict. Univ. d'Hist. Nat. iii, p. 727.)

Burmeister (Halleschen Literaturzeitung, 1843, p. 522) is surprised that I should have referred Geoffroy's *Ichneumia albescens* to *Herpestes leucurus*, "although, according to the figure, it belongs to *Cynictis penicillata*." If Burmeister had not contented himself with looking at the figure, but had compared my description of *H. leucurus* and *Ichneumia albescens* (particularly also in the dentition), he would, in the first place, have been convinced that they constituted but one species, but then also he would have read the following remark of mine (p. 303): "Is. Geoffroy's statement of the colour (of *I. albescens*) exactly suits *H. leucurus*, whilst the colouring of his figure must have been taken from an entirely different species, probably from *H.* (*Cynictis*) *penicillatus*."

CANINA.—A Monograph on the Dog has been given by Boitard in the Dict. Univers. d'Hist. Nat. iii, p. 536.

An extremely superficial compilation, drawn up without any acquaintance with the later foreign contributions on the subject. Like others of his

countrymen, he is as yet wholly unaware of my continuation of Schreber's work.

Histoire du Chien chez tous les Peuples du Monde, d'après la Bible, les Pères de l'Eglise, le Koran, Homère, Aristote, Xénophon, Hérodote, Plutarque, Pausanias, Pline, Horace, Virgile, Ovide, Jean Cajus, Paullini, Gesner, &c. Par Elzéar Blaze. Paris, 1843, pp. 458, 8vo.

The author, who styles himself "Auteur du Chasseur au chien d'arrêt, du Chasseur au chien courant, &c.," assures us that this book is the fruit of the labours of twenty years. He is passionately devoted to the subject of his work, giving it the preference even to man. The various relations of the dog to man, and all its properties, are circumstantially displayed and established by numerous anecdotes, so that the lovers of the dog will delight in this book.

Lund has drawn up a summary view of the Brazilian species of the Dog family.

As it was communicated by me in these Archives (1843, p. 353), I need here only observe, that he distinguishes five living and seven extinct species. Among the latter he forms the genera *Palæocyon*, *Speothos*, and *Abathmodon*. Among the living, he sets up as new, *Icticyon* (formerly named by him *Cynogale*) *venaticus*, forming the transition to the Martens, to which Lund formerly referred it. The detailed memoir must be waited for, to enable us to form a correct judgment upon it.

On the skull and dentition of *Canis jubatus*, as well as upon the species confounded together under the name of *Canis Azaræ*, I have made a communication in the 'Archives,' p. 356. The latter are, *C. melampus*, Wagn., *C. vetulus*, Lund (*C. azaræ*, Neuw.), and *C. melanostomus*, Mus. Vind.

It appears that the *Canis virginianus*, Gm. et Harl. (Gray Fox, Catesb.) must be again restored.

De Kay gives the following description of it in the 'Nat. Hist. of New York' (i, p. 45): smaller than *C. fulvus*, in general silver gray, which becomes darker from the withers towards the hinder parts; the hair is lead-coloured at the root, then of a dirty white, gradually becoming white and black at the tip. Head gray; ears yellowish within, and reddish at the base; points dark brown, yellowish behind; a dark spot on each side between the nose and eye. Muzzle black, above with a small yellow tract on each side; sides of neck tawny, lower jaw black. Breast sometimes with white spots; lower side bright coloured; tail same colour as the body, slightly dashed with red beneath, sometimes darker at the tip. Body

18 to 25 inches long, tail with hairs 9 to 12 inches. Abundant in the southern as well as in the northern counties; very plentiful in Long Island; does not extend far beyond 42° N.L., and its southern limit reaches as far as Florida.

Gray has figured *Canis ochropus* (Cojote) in the Voyage of the Sulphur, p. 32, pl. 10. Description and dimensions are wanting. Gray only says, that in this specimen the ears and face are considerably longer, and the colour darker than in a specimen of the Prairie Wolf.

With respect to *C. Lupaster* and *Anthus*, Sundevall remarks, as I had previously done, that they scarcely differ from *C. aureus*. (K. V. Acad. Handl. 1842, p. 210.)

Vulpes flavescens, from Persia, has been instituted as a new species by Gray (Ann. Nat. Hist. xi, p. 118); pale yellowish, back rather darker; face, and outer side of the forelegs and root of tail pale fulvous; a spot in front of the eyes, chin, front of the forelegs, a round spot on the upper part of the hind foot, and the tips of the hair on the tail blackish; ears black externally; point of the tail white. In what respect this Fox differs from the lighter coloured varieties of ours is not said.

The fossil remains of a Dog from the alluvium of Auvergne have been described by Pomel as *Canis megamastoides*. (Instit. 1843, p. 60.)

HYÆNINA.—Lund has corrected his former account of the occurrence of an extinct *Hyæna* in the Brazilian Caverns. (Det. K. Danske Vidensk. Selskabs Naturvidensk og Mathemat. Afhandl. ix, 1842, p. 121.)

At first he was acquainted only with the front teeth, which he found to correspond with those of the *Hyæna*. He afterwards discovered the canines, which are of an entirely different conformation, viz., being very much compressed, with cutting edges before and behind, and very slightly curved. Among living animals, the canine teeth of the Cuatis only present any resemblance in this respect, but those of the extinct animal exceed in size everything that is known of this sort of tooth.

An astragalus is in its form intermediate between that of the Cat and that of the Bear: certain metatarsal bones exhibit in the detail of their conformation a striking resemblance with those of the Cat, whilst in their massiveness they can only be compared with those of the Bear; and besides these, some phalanges altogether as in the Bear, and to which they were previously referred by Lund. In size, this remarkable Carnivor must have equalled the largest feline species and Bears. Lund now assigns to it the name of *Smilodon*. With respect to its systematic position he says nothing; but the canine teeth bring to mind *Felis* (*Stenodon* or *Ursus*) *cultridens*.

FELINA.—On Boitard's Monograph of the genus *Felis*, in the Dict.

Univ. d'Hist. Nat. iii, p. 406, the Reporter can only express the same opinion as on that of the genus *Canis*. The fossil species have, as usual, been briefly mentioned by Laurillard.

Valuable contributions to a more accurate knowledge of the Felina have been made by Is. Geoffroy in Jacquemont's Voyage dans l'Inde. (46 and 47 livraison, 1843. Mammif. p. 34.)

He admits four genera: (1) *Cynailurus*. Claws not retractile. (2) *Felis*. Claws as in the Tiger, but the pupils narrowly contracted in the light. The palate bones do not present, as in the latter, the much expanded and constant elongation, behind the molar teeth. The incisors are placed in a straight line, and the outer ones but little developed. The canines are more or less flattened on the internal surface, and are never, especially in the upper jaw, thick and conical as in the Tiger. (3) *Lynx*. Ears elongated, narrow and tufted; tail very short, only three molars above, whilst the first intermediate tooth is wanting. (Is. Geoffroy, however, himself remarks that it is present originally, but is shed early). It must be confessed, however, that the characters derived as well from the dentition as from the external appearance, are only of slight significance in this genus; that is to say, in other words, it is not tenable as a genus, which is also true of the other three. (4) *Tigris*. Claws retractile, pupils round, four molars above. To this belong *Felis*, Jard., *Leo*, Leach, and *Puma*, Jard.

Is. Geoffroy remarks (p. 45), that Guldenstradt's *Felis Chaus* is identical with the Egyptian species described by his father and Fr. Cuvier, and that the length of the tail presents in both the same proportion to that of the body.

Felis caligata, Temm., and *F. caffra*, Desm., are separated by Is. Geoffroy (p. 49) as two distinct species.

He says that Temminck here places erroneously the "Lynx botté" of Bruce and the *F. caffra* of Desmarest; otherwise his description, which includes scarcely any elements borrowed from later writers, might be regarded as a good description of *F. caligata*, which has hitherto been found only in India. He distinguishes this *F. caligata* from *F. Chaus* principally by the colour of the ears and tail. In *F. Chaus*, for instance, one part of the ear is of a reddish-brown, whilst in *F. caligata* the whole of the outside is red, except the short, black, tuft-like tip. The tail, moreover, in the latter is longer, with three or four rings, of which the two latter are complete; *F. Chaus* has two rings. Is. Geoff. distinguishes *F. caffra* from *F. caligata* thus: (1) The posterior surface, not only of the feet, but also in part of the leg and a part of the outer side of the forearm is black (in *F. caligata* the under side of the feet only, is

blackish). (2) The outer side of the legs presents several black stripes. (3) The ears are reddish-brown, more or less chesnut-brown, passing into black above; the black hairs projecting a little beyond the margin. (4) The tail in the upper half is reddish beneath, gray on the sides, externally blackish, with traces of rings. The lower half is annulated with black and white, with three black rings and a black tip. (5) The tail is much longer than in the other two species; in this species it presents 22 vertebræ, and in *F. caligata* only 19. Only in South Africa.

The same author (p. 56) also distinguishes *Felis libyca*, Fr. Cuv., from *F. maniculata*.

Whilst, for instance, in two specimens from Sennaar, which he refers to *F. maniculata*, he finds the stiff hair short, and the down scanty, the fur of *F. libyca*, on the contrary, is very rich, thick, strong, and remarkable from the abundance and length of the down. Of the latter he is acquainted with three specimens: one from Tangiers, another from Oran, and a third probably from Abyssinia. The two specimens in our collection, which came from Upper Nubia, would, from these statements, belong to *F. libyca* rather than to *F. maniculata*. I believe, however, that there is no specific difference between them, but that the former is in the winter, the latter in the summer, coat.

A new species is characterized by Is. Geoffroy (p. 59), from a specimen, as *Felis Jacquemontii*. From Kursali, in the Himalaya, perhaps not less than 2600 metres above the sea. At first regarded by him only as a variety of *F. caligata*, with somewhat longer fur. The most distinguishing character is in the ears, the outside of which, up to the tip, which alone presents any black hairs, is of a lively red; the black triangle situate at the point of the ear in *F. Chaus* and *caligata*, is wanting in this species. The sides of the head and rump, belly, inside of legs, the tarsi both fore and hinder, and the under side of the root of the tail, reddish tawny. Tail black at the point, separated by a white ring from a black one, which, though broad, is ill defined. Body 0·6 m., tail above 0·2, though not perfect.

From a young specimen of *Lynchus erythrotus*, Hodgs., Is. Geoffroy does not venture to determine with certainty whether or no it be identical with *F. caligata*.

From a skin without head or feet, brought from Sierra Leone, Waterhouse has determined a new species, *Felis rutila*. (Ann. Nat. Hist. xii, p. 58.)

"F. pilis brevibus adpressis; corpore supra ferrugineo, ad latera indistincte maculato, maculis parvulis, subtus albido maculis rufo-nigricantibus ornato; cauda brevi, immaculata, supra obscure rufâ, subtus pallidiore." Body about 36″, tail 10″. Approaches the Lynxes in the shortness of the tail and uniformity of colour.

Lund is inclined to distinguish *Felis mitis* as a separate species from *F. macrura* and *pardalis*. (Det. K. D. Vidensk. Selsk. Afh. ix, p. 121.) Upon the last Lynx shot in Thuringia, Brehm has communicated some notices. (Isis, p. 724).

PINNIPEDIA.—To the two species of *Stenorhynchus* Owen has added a new one (Ann. Nat. Hist. xii, p. 331), and has defined the genus, with its species, in the following manner:

Genus *Stenorhynchus*. Incisors $\frac{2}{2}$, canines $\frac{1}{1}$, molars $\frac{5}{5}$. Molars somewhat compressed, deeply cleft into three or more lobes; anterior molar with one root, others with two. Head small, muzzle more or less elongated, claws small. All in the South Sea.

(1) *St. leptonyx*, Fr. Cuvier. Molars trilobate, lobes pointed; muzzle slender and elongated. (2) *St. Weddellii*, Less. Molars trilobate, lobes blunt; muzzle broad and less elongated. (3) *St. serridens*, Ow. The three anterior molars four-lobed, the two posterior five-lobed, lobes blunt; muzzle of moderate length and slender.

From *Phoca vitulina*, De Kay (Nat. Hist. of New York, Mamm. i, p. 53) distinguishes a *Phoca concolor*.

"Uniform dark slate-gray; young entirely bright yellow. Length 4 feet." Formerly abundant on the coasts of the State of New York, now comparatively rare.

Lesson (Rev. Zool. 1843, p. 256) would distinguish a Seal caught in the Island of Oleron from *Ph. monachus*, under the name of *Ph. Isidorei*, by the size and number of the incisors, which are two above and below; and from the common Seal by the hands being provided with an entire web, as well as by the phalanges being completely enveloped in the web.

Stannius, in Müller's Archiv., 1842, p. 390, has undertaken a full investigation into the dentition and skull of the Walrus, with reference to the question, whether the varieties in the conformation of the cranium justify the distinguishing of several species in the genus *Trichecus*.

Most of the crania compared by him belonged manifestly to one and the same species; one only differed so evidently from all the others in several points, that from it the existence of a second species might have been concluded; he is not, however, prepared to affirm that these differences are in reality sufficient to justify the establishment of a distinct species. In the meantime he designates this abnormal form as *Trichecus dubius*.

MARSUPIALIA.

RAPACIA.—Lund has proposed some changes in the definition of the Brazilian species of *Didelphys*. (Det. K. Danske. Vidensk. Selsk. Naturv. Afh. ix, p. 135.)

After receiving Temminck's Monograph, he is of opinion that the seven living Brazilian species are different from those described therein. That which he previously regarded as *D. murina* he now terms *D. elegans;* in like manner he is more and more convinced that the species determined by him to be *D. tricolor* differs from that species, and more nearly approaches *D. brachyura*, Pallas, under which name he now admits it, from which, however, it appears to differ specifically in the sides being, not ferrugineous but pale ochreous. More accurate descriptions must be awaited before these two species can be brought into comparison with the new species instituted by Natterer and myself.

With respect to the extinct genus belonging to this order, to which he formerly gave the name *Thylacotherium*, Lund now wholly retracts what he said, expecting that new discoveries will throw more light on the subject.

Among animals from New Granada, Roulin has declared one to be the true *Didelphys brachyura* of Pallas. (Instit. p. 53.)

Dasyurus hallucatus has been described by Gould as a new species. (Ann. Nat. Hist. xi, p. 232.)

"D. supra flavescenti-fuscus, nigro-penicillatus, maculis albis ornatus; corpore infra albo; cauda immaculata ad apicem nigra." Body 11″, tail 9″. From Port Essington. Smaller than *D. Geoffroyi*, and the thumb more developed.

Upon the most cogent grounds Owen has shown, in opposition to Blainville, that *Thylacotherium* and *Phascolotherium* belong not merely to the Mammalia, but specially also to the Marsupialia. The paper in the Proceedings of the Geological Society, of which an abstract was formerly inserted in these Archives, has now appeared more at length in the Transactions of the Geol. Society of London (vi, 1, Lond. 1841, p. 47, with pl. 5 and 6). The description of a new species, *T. Broderipii*, is added.

From Port Adelaide comes the species newly described by Waterhouse, of *Phascologale albipes*. (Ann. Nat. Hist. xi, p. 307.)

"Ph. pilis brevibus et permollibus; corpore supra nigro et flavescenti-irrorato, infra albo; pedibus albis; caudâ longâ, supra fuscescente, infra

fusco-albâ." Body 3″ 9‴, tail 3″ 2‴. *Phascog. melas*, has been figured in the 'Nederl. Verhandel,' tab. 25.

Another marsupial animal, determined by Waterhouse, and from the same locality, is *Perameles Harveyi* (l. c. p. 307): "P. pilis mollibus; corpore supra fusco alboque irrorato, infra albo; caudâ longâ, supra fuscâ, infra et ad apicem sordide albâ."

A second new species is Gould's *Perameles macroura* (l. c. p. 232): "P. corpore supra nigro et flavescenti albo penicillato, infra sordide albo; pilis rigidis obsito; caudâ pilis parvulis parce tectâ, longitudine dimidio corporis æquante, supra nigrâ, infra fuscescenti-albâ; auribus mediocribus." Body 16″ 3‴, tail 7″ 3‴. From Port Essington. Very much like *P. nasuta*, but the tail is longer.

With respect to the species of this genus formerly instituted by me, *Parameles myosuros*, I have to remark that I have since then obtained a second specimen and in the best condition, from which I perceive, in the first place, that in the former specimen the tail had lost all the hair, and was otherwise mutilated, since in the second specimen it was thickly covered with short white hair; and, moreover, having now been enabled to consult, instead of the inaccurate description by Gray, the correct one by Waterhouse, I have found that both specimens are identical with *P. Gunnii*.

Of the habits of *Tarsipes*, some account has been given by Captain Gray, Governor of South Australia. (Ann. Nat. Hist. xi, p. 76.)

A specimen was in his possession for several months, when it escaped. It was fed upon moths and flies, which it seized by the wings, and whose bodies only it devoured; it was never seen to drink. It usually slept in the daytime rolled up like a ball, but it was very lively at night, and readily climbed branches of trees; it would hang suspended by the tail to a small branch and suddenly jump to another. A specimen of this *Tarsipes*, sent me since that time by Dr. Preiss, has confirmed the view I expressed in the last year's Report respecting the systematic position of this highly remarkable genus.

Phytophaga.—*Petaurus* has been increased by Gould with a new species (Ann. Nat. Hist. x, p. 404), named by him, *Belidea Ariel*.

It comes from Port Essington, and approaches in size and proportions nearest to *B. breviceps*, but is readily distinguished from it by its pale (light gray) colour, and especially by the light yellow tinge of the under suface.

Four new species of Kangaroo, *Macropus melanops* (Ann. Nat. Hist. x, p. 403), *Halmaturus Binoë* (xi, p. 386), *Petrogale inornata* (x, p. 399), and *Petrogale concinna* (xi, p. 385), have been copiously illustrated by Gould in his monograph.

RODENTIA.

SCIURINA.—The Squirrels have not, this time, received such considerable additions as in the previous year.

As a new species, Gray (Zool. of the Voy. of Sulphur, i, p. 34, pl. 13, figs. 2, 18, figs. 7, 12) describes his *Sciurus griseo-caudatus*, from the west coast of America, and distinguishes it from all the American species by the distinct black and white colour of the upper side of the tail, and the yellow and black rings of the hair of which it consists, and which are seen only on the under side. The latter character distinguishes it from *Sciurus Boothiæ*, Gray (formerly named by him *Sciurus Richardsonii*), which is much darker, with black feet, white belly, black caudal hairs, except at the tip. He has also figured this species in pl. 13, fig. 1; besides which also, *Sciurus Belcheri* (pl. 12, fig. 2) and *Tamias Hindsii* (pl. 12, fig. 1.)

Waterhouse has given more copious descriptions than the previous, of *Sciurus Stangeri*, *rufobrachiatus*, and *erythrogenys*, all from Fernando Po. (Ann. Nat. Hist. xii, p. 55.) He has also described (l. c. xi, p. 531) a variety of *Sc. Rafflesii*, or *Prevostii*, from Borneo.

A new Indian Flying Squirrel is the *Pteromys inornatus*, Is. Geoffroy.

Is. Geoffroy had characterized the same species in Jacquemont's 'Voyage dans l'Inde.' (46 and 47 livrais. Mamm. p. 62, tab. iv.) The following may be given as the diagnosis: *Pt.* supra nigello-griseus, albo punctulatus et strigillatus, subtus albus, postice rutilo lavatus, caudâ sordide rutilo-canâ, apice nigrâ. Body 0m. 28, tail with hair 0·34. From the valley of Scinde, at an elevation above the sea of about 2500m. As a distinction from *Sciuropterus* (more properly *Pteromys*) *magnificus* and *elegans*, he remarks, that the former has indeed also the point of the tail black, and a black spot on the chin, but that on the other hand it is of a bright chesnut above, aureous beneath, and of different proportions. *Pt. elegans* is of the same size, but the white stripes stand on a pure black ground; the belly is of a beautiful red, and the whole tail black.

In the 'Institut.' (1843, p. 68,) is given the scarcely credible account of a troop of *Pteromys volucella* having been reported to have been seen in the neighbourhood of Digne (Lower Alps): a specimen is said to have been transmitted to the museum in Marseilles, which will certainly be necessary for the verification of this statement. A detailed description of *Pteromys Oral* has been published by Tickell in the 'Calcutta Journal of Nat. Hist.' 1840. (Isis, 1843, p. 832.)

Jacquemont discovered in the valley of Gombar, lying at an elevation of 3500m., a Marmot, which has been described by Is. Geoffroy as *Arctomys caudatus*. (l. c. p. 66, tab. v.)

Blackish above, pale beneath; tail 2-3ds of the length of the body, light tawny above, blackish beneath, entirely black at the point; the front teeth white. The specimen sent is not larger than our Alpine Marmot, but Jacquemont asserts that he has seen it a third larger. The Reporter would observe, that this is probably the same species as that found by Vigne in his journey to Lesser Thibet, on the high table-land of Drotsuh.

Brandt has obtained from the Altai a new species of Marmot (Ziesel), to which he has given the name of *Spermophilus brevicauda*. (Bullet. de St. Petersbourg, i, 1843, p. 364.)

"Habitus *Sp. Eversmanni*. Cauda admodum brevis. Rostri dorsum, supercilia, area triangularis sub oculis, pedum anteriorum anterior facies, regio analis et crurum posterior facies, pallide ferruginea. Pectus et abdomen albida, ferrugineo lavata. Dorsum sordide et pallide ferrugineo, nigricante et albido mixtum. Cauda supra, ejusdem ferè coloris, infra ferruginea, apice alba, parum fasciculata. Auriculæ minimæ." Body 11″ 2‴, tail with hair 2″.

Waterhouse has characterized at greater length than previously (Ann. Nat. Hist. xii, p. 52) his genus *Anomalurus*, without, however, expressing himself definitively as to whether it is still to be referred to the Sciurina, or now to the Myoxina.

Myoxina.—Burmeister (Hallesche Literaturzeitung, 1843, p. 524) is inclined to regard the Myoxina, not as a distinct family, but rather as a subdivision of the Murina.

As a reason for this, he states that the conformation of the cranium, the orbital opening, the spinous process of the second dorsal vertebra, and the union inferiorly of the tibia and fibula, are the same in the Dormice as in the Mice. This is correct, although I do not attribute much importance to the two latter characters; but, on the other hand, the number, to say nothing of the form of the molars, differs in the Dormice from that in the typical Mouse; besides this their habit is different, and, what is a main point, whilst in all the other Rodents the cæcum is excessively developed, it is entirely wanting in the Dormice. I rely principally upon the last character in forming a separate family of the Myoxina, which is placed midway between the Murina and the Sciurina.

I have lately had an opportunity of ascertaining that the cæcum is

wanting also in *Myoxus Dryas*. According to the dentition, it belongs to the division *Glis*, but the frontal bone is as in *M. Nitela*, and the lower jaw is perforated posteriorly, which is not the case in *Glis*. I have counted in all 54 vertebræ; viz. 13 dorsal, 6 lumbar, 3 sacral, and 25 caudal.

Of *Graphiurus capensis*, a more accurate description than that previously given has appeared in A. Smith's 'Illustrations of the Zool. of S. Africa,' (xvii, pl. 39.)

Chinchillina.—P. Gervais has prepared the article *Chinchilla* for the 'Dict. Univ. d'Hist. Nat.' (iii, p. 584), but he is nevertheless not all aware that, since 1835, two species have been distinguished by Wiegmann.

Psammoryctina s. Orycterina.—Burmeister would remove *Psammoryctes* from this group, and refer it, on the contrary, to the *Cunicularia* (Wurfmaüsen), (l. c.)

He thinks that the short tail, and the posterior molars becoming smaller, correspond to the type of the Bristle-Rats (Schrötmause). When I established this family I had not myself inspected any specimen of *Psammoryctes*, and was obliged to rely upon the accounts of others. Having, however, obtained a specimen of it with the cranium taken out, I see clearly that *Psammoryctes* can in no way be regarded as the type of the Bristle-Rats, but that it is a transition form leading immediately from the latter to *Georhychus*. With this, the form of the cranium and of the incisors most nearly agrees; the contracted orbital opening also of the Cunicularia begins to enlarge in some degree in *Georhychus*, and in this way leads to *Psammoryctes*, in which it is still wider, and on this account corresponds with that of the Bristle-Rats (Schrötmause). Taking into consideration these highly important circumstances, I am induced, from its approachment to *Georhychus*, from the shortness of the ears and tail, and, as it appears to me, from the stronger development of the anterior in comparison with the posterior extremities, to place the genus *Psammoryctes*, as now defined by me, next to the Cunicularia (Wurfmause.) With the separation, however, of this genus from the Bristle-Rats (Schrötmause), the name of the family must be changed, on which account I now propose, instead of Psammoryctina, that of Orycterina.

An accurate description, accompanied with beautiful figures of two new Brazilian Bristle-Rats (Schrötmause), *Nelomys pictus* and *Echinomys inermis*, has been given by Pictet, in the Mém. de la Soc. de Physique et d'Hist. Nat. de Genève, x, 1re partie, 1843. Both species agree

in this, that they are without the spines. They were sent from Bahia.

(*a*) *Nelomys pictus* (p. 203, tab. i and ii) : feet altogether as in *Nelomys ;* upper molars almost exactly as in *Dactylomys*, lower precisely as in *Nelomys ;* ears rounded, as broad as long; tail thick, with tolerably large scales, which are concealed by the long and dense hair; colour curiously variegated with brown and white. Head, nape, and upper part of neck dirty white; an elongated brown spot on the vertex, tapering off towards the point of the nose. Back dark brown, which colour descends in a band as far as the forearm. Sides, belly, and hind feet, dirty white. Body 10″, tail 12″, hind feet 1″ 9‴.

(*b*) *Echinomys inermis* (p. 207, tab. iii and v, figs. 1-8); dentition, like that of *Nelomys*, ears large, slightly emarginate on the outer edge, feet moderately long; tail with scales like those of the Rat, but almost entirely concealed by the long and abundant hair; fur soft. The whole of the upper surface tawny brown, sprinkled with dark brown; under surface and inside of the legs yellowish white; tail black, in the first half the under side whitish. Body 7½″, tail 6½″, hind-foot 1″ 8‴.

In the 'Verhandl. der Schweiz. Naturf. Gesellsch.' Zu Altsdorf, 1842, p. 192, there is a notice that Pictet had exhibited some Rodents, sent from Bahia. "Three of these animals appeared to him to present tolerably marked characters, so as to demand the institution of three new genera: (1) the genus *Platythrix*, allied to *Echimys ;* (2) the genus *Pœcilomys*, allied to *Dactilomys ;* (3) the genus *Orycteromys*, differing from the Rats only in some details in the dentition, and strong nails on the fore feet."

Lund now regards his *Nelomys sulcidens* as a species of *Aulacodus*, which he names *A. Temminckii*. (Danske Vidensk. Selsk. Afh. ix. p. 135.) This junction appears to me to be very doubtful.

Murina.—Burmeister supposes (Hallesche Literaturzeitung, 1843, p. 524) that, in the characteristics of the Families, I had paid regard merely to the cranium, and consequently had overlooked, in the Murina, two important characters of the skeleton; viz. the enormous elongation of the spinous process of the second dorsal vertebra, and the union inferiorly of the bones of the leg.

I freely confess, that with the skeletons of the exceedingly numerous species, or even genera, of the Mouse family, I am much in the position of the fox with the grapes, since I have not been able to obtain most of them, though I perceive from the very sparing notices given by others on the osteological conformation of these animals, that even in larger collections

than ours no great superabundance in this respect exists. Now, I am very averse from seeking to deduce general laws from single, isolated observations, seeing that the greatest mistakes may thus arise, inasmuch as Burmeister himself has fallen into one of this kind. I have, for instance, from the inspection of the skeletons set up in our collection, of *Myodes Lemmus* and *groenlandicus, Hypudæus, amphibius, terrestris, alpinus*, and *hypoleucos*, ascertained that the above-mentioned elongation of the spinous process is entirely wanting in all of them, in which all these processes are in general very short. Consequently, on account of such a trifling character, probably all the Arvicolina would be excluded from the Mouse family, which would be highly unnatural, especially as in this respect one does not know whether other genera may not go with them. Other of the characters, also, assigned by Burmeister to the Mice, such as "rounded, more or less naked ears, scaled or setose tails with hair between, five toes before and behind," are not generally valid, although I had also inadvertently admitted the two latter characters in the definition of the family.

Five new species of the genus *Mus*, from New Holland, have been published.

Three of them by Gould (Ann. Nat. Hist. x, p. 405), viz. (1) *Mus penicillatus*. "Griseo-fuscus, vellere ferè ut in *M. decumano;* corpore subtus pedibusque albis flavo lavatis; auribus mediocribus, postice subemarginatis; caudâ gracili, dimidiâ apicali pilis longis nigris vestitâ." Body 7″ 3‴, tail 7″ 9‴. (2) *M. hirsutus*. "Vellere hirsuto, corpore supra fuscescente pilis nigris crebrè commixtis, subtus fulvescens, fusco rufoque tincto; auribus mediocribus; caudâ longâ pilis nigris, aliquanto longis, vestitâ, dimidiâ apicali pilis longioribus, his ad apicem caudæ rufescentibus." Body 10″ 4‴, tail 13″. (3) *M. delicatulus*. "Supra pallide fusco-flavus; corpore ad latera flavescente subtus albo; caudâ mediocri supra fuscâ, subtus ad basin albescenti; auribus parvulis; pedibus gracilibus albis." Body 2″ 5‴, tail 2″ 2‴.

Waterhouse's two species are (Ann. Nat. Hist. xii, p. 134): (1) *Mus castaneus*. "Intense castaneus, corpore subtus pallidiore; caudâ corpore cum capite longiore; auribus mediocribus." Body 2″ 7‴, tail 3″. (2) *M. Novæ Hollandiæ* (a very badly chosen name). "Supra canus flavescente lavatus; corpore subtus pedibusque albis; auribus mediocribus; caudâ quoad longitudinem corpus fere æquante." Body 3″, tail 2″.

As species introduced into New York, De Kay (Nat. Hist. of New York. Mamm. p. 79) mentions *Mus decumanus, rattus* and *musculus;* as a new species he describes *Mus americanus*.

"Black above, lead-coloured beneath, ears longer than wide, tail shorter

than the body; length 15 inches." Body 9″ 4‴, tail 6″. He distinguishes this species from *M. rattus*, by the dentition and the proportionate length of the ears and tail. It evidently belongs not to *Mus*, but most probably to *Hesperomys*.

Selys-Longchamps is now doubtful (Rev. Zool. 1843, p. 129) as to the identity, formerly asserted by him, of *Mus tectorum*, Savi, and *M. alexandrinus*, Geoffr.

In stating that he had obtained from the South of France *Mus tectorum* Savi, he adds: "this Roof Rat, discovered by Savi in Tuscany, and since then found by Pictet, who named it *M. leucogaster*, at Geneva, appears to be very common in the gardens of Provence. I believed it to be the same species as *M. alexandrinus*, Geoffr., but the specimen in the Paris Museum, which I have accurately examined, appears to differ from *M. tectorum* in the gray colour of the under portion of the body and of the feet, parts which are pure white in *M. tectorum*." This remark is not exactly calculated to clear up the matter, for whilst Selys makes *M. tectorum* and *leucogaster* identical, Pictet had distinguished them specifically; the belly also of *M. tectorum* is stated to be usually not a pure white, but yellowish white.

Numerous contributions to the further knowledge of the Murina, have been made by Sundevall in the K. V. Acad. Handl. 1842, p. 217.

In the first place he separates from *Mus* a genus, or rather subgenus, *Isomys*, which he thus distinguishes from the former: (*a*) that the lateral hinder toes are of equal length, because the external, like the second toe, reaches to the extremity of the metatarsus of the next one, whilst in the rest of the Mice the external is much longer; (*b*) that the incomplete posterior tubercle on the two first upper molars is wanting. To this genus Sundevall refers *Mus variegatus*, Brants, and a new species which he names *Isomys testicularis*, with the diagnosis, "griseo flavescens, subtus labiisque albidus; rostri apice pallide fulvo." Body 0m. 15, tail 0.12. From Bahr el Abiad.

The three species of the subgenus *Acomys* are compared together at length, viz. *A. cahirinus*, *dimidiatus*, and *russatus* (p. 222). He then describes four species of *Meriones*, all collected, as well as the preceding, by Hedenborg. These species are—(1) *Meriones Gerbillus*, Oliv. (nec Rüpp.) "Magnitudine *Muris musculi*, maculâ ante et pone aures albâ, caudâ corpore longiore, supra fuscâ, postice longius nigro-pilosâ." Body 3″ 4‴, tail without hair 4″ 1‴. Sundevall places here *Gerbillus ægyptius*, Desm. and Fr. Cuv., but excludes *M. Gerbillus*, Rüpp., which he unites with *Gerbillus pygargus*, which is larger. (2) *M. venustus*, n. sp. "Luteo-fulvus, gastræo maculisque pone oculos et aures niveis; caudâ corpore longiore, griseo

flavescens, supra apicem elongato-nigropilosa." Body 4″, tail without hair 4″ 10‴. From Bahr el Abiad. Sundevall finds it very like *M. pygargus*, with which I consider it to be identical, and am also fully of opinion, that it may be the full grown condition of the former. (3) *M. murinus*, n. sp. "Supra fulvescens, fusco-mixtus, naso cristato productissimo! auriculis rotundato-oblongis; caudâ corpore longiore, postice undique nigricante pilosâ." Body 5½″, tail with hair almost 6″. From Bahr el Abiad. As Sundevall himself says, this species very much resembles *Gerbillus pyramidum*, although F. Cuvier's figure of the cranium differs from it, on which however I place no importance, as those drawings are not very exact. (4) *M. crassus*, n. sp. "Pallide fulvescens, vellere quoque laterum basi cinereo; caudâ breviore, plantâ brevi." Body above 5″, tail without hair 3″ 3‴. From the Desert of Sinai. The latter species, which clearly belongs to *Rhombomys*, is very similar to my *Rhombomys pallidus*, but differs from it apparently in the remarkable shortness of the tail.

A third species of *Oxymycterus* has been characterized by Pictet in the Mém. de Genève, x, I. (1843) p. 211, tab. iv and v, figs. 9-14.

He calls it *O. hispidus;* lively red above, sprinkled with black; beneath grayish brown, with a yellow tinge; tail much longer than half of the body. Body 6″, tail 4″ 2‴. Upon comparing it with *O. rostellatus* and *nasutus*, I find it differs specifically from both of them.

Quatrefages has prepared the article "Campagnol" (*Arvicola*) for the 'Diction. Univers. d'Hist. Nat.' iii, p. 95, but certainly not in the way demanded by the present condition of therology.

Of his *Arvicola incertus*, Selys says (Rev. Zool. 1843) that he had obtained it from the Department of the Var and from Montpellier. Although he thinks that it differs from *A. Savii* only in the circumstance that in *A. incertus* the fur is lighter than in that species, and in its yellow tinge on the sides approaches more nearly to that of *A. arvalis* and *socialis*, this difference is of very slight importance, for Pecchioli states, that not only in *A. Savii* do the sides generally pass into a yellowish hue, but the young have a yellow fur, which only gradually passes into an ash gray. A very copious description, particularly of the habits of this *A. Savii*, has been given by Pecchioli. (Isis, 1843, p. 688).

In the 'Ann. des Sc. Nat.' Martius has now described in detail his *Arvicola nivalis*, from which its identity with my *Hypudæus alpinus* is evident.

De Kay (Nat. Hist. of New York, i) has distinguished two new North American species of *Arvicola:* (1) *A. rufescens*, "above clear reddish brown, beneath slaty; tail longer than the head." Body 3″, tail 2″ (2) *A. oneida*,

"above amber brown, beneath dark cinereous, claw on thumb triangular, hind foot very long." Body 3·2″, tail 1·3″.

CASTORINA.—Mention should not here, I think, be omitted of the interesting account by Dierbach of the knowledge possessed by the ancients respecting Castor. (Isis, 1843, p. 373.)

Lereboullet has obtained several specimens of *Myopotamus Coypus* in spirits, which he had an opportunity of dissecting (Instit. 1843, p. 372), and to which Ackermann had also added some remarks upon the external characters and habits. (Comptes rendus, xvii, p. 1236.)

Lereboullet found the nipples in only one female, although he examined four for that purpose. The female in question was pregnant, and contained five young ones; its nipples were 12-14 millim. (5-6‴) long. These nipples were connected with mammary glands, placed immediately under the cutaneous muscle, and composed of long, narrow, and delicate bands, the structure of which could be readily made out with a simple lens. The intestinal canal was sixteen times as long as the body; the cæcum extraordinarily developed. The liver consisted of a principal lobe divided into three portions, a right lobe, a right lobule, and a left lobe without lobule.

ACULEATA.—From *Hystrix subspinosus*, Licht., Gray has formed a separate genus, *Chætomys*. (Ann. Nat. Hist. xiii, p. 69.)

For this he relies upon the cranium and dentition, of which he has also given a figure in the 'Voyage of the Sulphur' (p. 36, pl. 18, figs. 1-6). Cranium broad, convex (without frontal protuberance), zygomatic arches expanded, maxillæ contracted. Each upper molar presents two principal plicated plates of enamel, and a small one between them. The under molars are longish; the first exhibits two circular rings of enamel, each of which has one internal fold, and the posterior ring, besides this, presents a small fold on the outer side anteriorly. Each of the other under molars has two indented folds on the inner side, and one on the middle of the external border. Pictet has given a much more accurate description of this animal (Rev. Zool. 1843, p. 225), and he has also erected it into a distinct genus, *Plectrochoerus*, which he himself, however, soon (l. c. p. 319) recognized as identical with Gray's *Chætomys*. As a specific name Pictet had proposed that of *Pl. Moricandi*; this species is, however, identical with *Ch. subspinosus*.

Malherbe, in his 'Faune Ornithologique' (p. 9), mentions that *Hystrix cristata* is indigenous in Sicily.

Subungulata.—Of *Dasyprocta punctata* and *nigra*, Gray has given figures in the 'Voyage of the Sulphur' (pl. 15 and 16), besides a repetition of the definition, but he has not added any description or comparison with other species, which would have been so necessary.

Duplicidentata.—Gray (ib. pl. 14) has given a figure of *Lepus Bennettii*, and also (p. 35) an accurate description.

EDENTATA.

Anatomische Untersuchungen über die Edentaten (Anatomical Researches on the Edentata), by W. von Rapp. Tübing. 1843.

This Monograph affords, in a clear and comprehensive manner, a general exposition of the internal structure of the Edentata, as it includes not only the facts previously known, but also describes numerous independent and extremely accurate researches, by which our knowledge of these animals is importantly advanced. The Monotremata are excluded, and the remaining Edentata divided into *herbivorous* and *insectivorous*. Nine lithographic plates, as beautifully as they are accurately executed, increase the value of this distinguished Monograph.

Description of the Skeleton of an extinct gigantic Sloth, *Mylodon robustus*, Ow., with observations on the osteology, natural affinities, and probable habits of the Megatherioid Quadrupeds in general. By R. Owen. London, 1842.

Another work of the highest importance, by the celebrated author, which not only presents to us one of the most wonderful forms of the primitive world, and displays it to our sight in twenty-four plates of surprising beauty, but besides this, from the comparison of it with congenerous, extinct, and still existing types of a whole group of animals, establishes its true systematic position. The skeleton was found in 1841, in the fluviatile deposit near Buenos Ayres, and in an almost perfect condition; its dimensions are gigantic (entire length 11′), and its form extremely massive. Owen is of opinion that the *Mylodon*, as well as the *Megalonyx* and *Megatherium*, fed, like the Sloths, on the foliage of trees, and, consequently, that these extinct animals might have employed their powerful anterior extremities for the purpose of uprooting the trees. These and the allied forms he terms "phyllophagous Edentata" with the following characters: "teeth few, composed of vascular

dentine, non-vascular dentine and cement; the vascular dentine constituting the axis. Zygomatic bone with a descending apophysis; acromion united with the coracoid process." The further subdivision is as follows:

1st Family, TARDIGRADA. Extremities long, slender, the anterior more or less longer than the posterior; hands di- or tridactyle; feet tridactyle; toes covered with falcate claws. Zygomatic arch open, tail very short. Genus I. *Bradypus*. Genus II. *Cholœpus*.

2d Family, GRAVIGRADA. Extremities short, very robust, equal, or nearly so; hands, penta- or tetradactyle; feet, tetra- or tridactyle; one or two outer toes unarmed, adapted for support or walking, the others with claws. Zygomatic arch closed; clavicle perfect; tail of medium size, thick, serving for support.

Genus III. *Megalonyx*. Teeth $\frac{5 \cdot 5}{4 \cdot 4}$? sub-elliptic, the crown hollowed in the centre, with prominent edges; anterior extremities the longer; tibia and fibula distinct; calcaneum long, compressed, high; claws large, compressed. (1) *M. Jeffersonii*, Cuv. (*M. laqueatus*, Harl.)

Genus IV. *Megatherium*. Teeth $\frac{5 \cdot 5}{4 \cdot 4}$? contiguous, quadrangular, transversely sulcated on the crown. Hands tetradactyle; feet tridactyle; two outer digits unarmed. Claws large, variously shaped, that on the middle finger very large and compressed. Head of femur entire; tibia and fibula conjoined at each end; astragalus hollowed on the outer side superiorly; calcaneum long and thick. (1) *M. Cuvieri* (*Bradypus giganteus*, Pand.)

Genus V. *Mylodon*, *Orycterotherium*, Harl.) Teeth $\frac{5 \cdot 5}{4 \cdot 4}$ separate; the first of the upper jaw sub-elliptical, and at a moderate distance from the others, the second elliptic, the third triangular, bifurcate internally; in the lower jaw, the first elliptical, penultimate quadrangular, ultimate very large, bilobed. Extremities equal, anterior with six, posterior with four toes; two outer toes unarmed, the others with large subconical unequal claws. Head of femur impressed by the round ligament; tibia and fibula separate; astragalus flattened superiorly and anteriorly; calcaneum long, thick. (1) *M. Darwinii*, Ow. (2) *M. Harlani*, Ow. (*Megalonyx laqueatus*, Harl. *Orycterotherium missuriense*, Harl.) (3) *M. robustus*, Ow.

Genus VI. *Scelidotherium*, Ow. (*Megalonyx*, Lund). Teeth $\frac{5 \cdot 5}{4 \cdot 4}$, either contiguous or separated by equal interspaces; upper ones triangular; of the lower, the first triangular, the second and third sub-compressed, the external surface sulcate, the ultimate the largest, bilobed. Head of femur with a depression; tibia and fibula separate; astragalus with two hollows anteriorly. Calcaneum long, thick; claws large, subconical. (1) *S. leptocephalum*, Ow. (2) *S. Cuvieri*, Ow. (*Meg. Cuvieri*, Lund). (3) *S. Bucklandi*, Owen. (*Meg. Bucklandi*, L.) (4) *S. minutum*, Ow. (*Meg. minutus*, L.)

Genus VII. *Cælodon*, Lund. Teeth $\frac{4 \cdot 4}{3 \cdot 3}$. Genus VIII. *Sphenodon*, Lund. Owen is still doubtful whether the name *Platyonyx* more lately proposed by

Lund is to be applied to *Scelidotherium*. He considers it probable that the teeth, upon which Lund founded his *Sphenodon*, may be only the younger condition of those of *Scelidotherium*.

Owen has made some remarks upon his establishment of Mylodon, in opposition to the opinion of Harlan, in Silliman's American Journal, xliv. p. 341.

Lund has also again published contributions of the highest importance respecting the extinct Edentata of Brazil. (Det. K. Danske Vidensk. Selsk. Naturv. Afhandl. ix, 1842, p. 137.) He divides them into the following families:

(*a*) Edentate.—Of the extinct Ant-eaters Lund now distinguishes two species, the few remains of which do not differ from the corresponding bones of *Myrmecophaga, jubata*, and *tetradactyla*.

(*b*) Armadillos.—Lund has added two new species to *Dasypus*, but on the other hand, with respect to *Chlamydotherium*, he is convinced that a part of the remains do not belong to this family, but to that of

(*c*) The Sloths, and constitute a distinct genus, *Œnotherium*, because the molars are furnished externally with a layer of cortical substance, which is wanting in all the Armadillos. Lund then proceeds to discuss with great ingenuity the systematic position which *Megatherium* and *Platyonyx*, which is in all respects identical with *Scelidotherium*, should occupy, and refutes in a striking manner, like Owen, Blainville's opinion, that the placing of Megatherium with the Sloths is erroneous, and on the other hand that its connexion with the Armadillos is established. Lund, like Owen, comes to the conclusion, that *Cælodon, Megalonyx, Platyonyx*, and *Megatherium*, cannot be placed elsewhere than with the Sloths. I have reported more at length upon this in the 'Munich Transactions.' (Münch. gel. Auzeig. xvii, p. 595.)

From these extinct forms the Reporter now returns to the existing Edentata.

Allman has discovered in the *Dasypus sexcinctus*, that it is provided with "retia mirabilia," similar to those in the Sloth, the two-toed Ant-eater, and the Lori. (Instit. 1844, p. 118.)

Sundevall has given an excellent Monograph on the genus *Manis* (K. V. Acad. Handl. 1842, p. 245), and has distinguished the species with great profundity.

Since I have already made use of this work as the basis of my description of the genus *Manis* in Schreber's work, I refer for further particulars respecting it to the latter.

Sundevall (l. c. p. 236) has accurately described the "Cochon de terre," found by Hedenborg in Sennaar, and has distinguished it as *Orycteropus æthiopicus*, from that of the Cape.

This description also I have already employed in my Continuation, to which I refer.

SOLIDUNGULA.

The article "Cheval," edited by Quatrefages in the 'Diction. Univ. d'Hist. Nat.' iii, p. 476, is well drawn up.

In the Jardin des Plantes, it appears to be decided that the "Kulan" kept there is the *Hemionus*. Quatrefages adds the description of two young ones born there, which is also inserted in the 'Institut.' 1843, p. 30.

Savi has given some remarks on the anatomical structure and the development of the horse's hoof. (Isis, 1843, p. 412.)

PACHYDERMATA.

Owen has shown that the *Tetracaulodon* represents merely the young condition of *Mastodon giganteum*, and that the *Missurium* also belongs to that genus. (Ann. Nat. Hist. xi, p. 147.)

Grant, on the other hand, adheres to the separation of *Mastodon* and *Tetracaulodon*, and assigns to the former 13, and to the latter 6 species. (Ib. p. 479.) Hays also persists in distinguishing the two genera. (Proceed. Amer. Philos. Soc. 1843, p. 44.)

A. v. Klipstein and Kaup, Beschreibung und Abbildungen von dem in Rheinhessen aufgefundenen kolassalen Schädel des *Dinotherii gigantei*. Giessen, 1843. (Description and figures of the colossal cranium of the *Dinotherium giganteum*, found in Rhenish Hesse, &c.)

Very beautiful figures, with an accurate description of the colossal cranium; together with geognostic illustrations of the ossiferous formations of the central Rhenish tertiary basin.

The dispute as to whether the *Dinotherium* belong to the Pachydermata

or to the phytophagous Cetacea, has at length been decided, since together with a portion of the jaw and teeth, a femur has been found in New Holland, which, with the two former, has been recognized by Owen as belonging to *Dinotherium* (Ann. xi, pp. 7, 329). It must be referred to the proboscidian Pachydermata.

With respect to Kaup's 'Remarks on the three species of *Mastodon* and the three species of *Tetracaulodon* of Is. Hays,' as they were published in our 'Archives,' p. 168, I need here only refer to that place.

Lyell has communicated his observations (Ann. Nat. Hist. xii, p. 125) on the geognostic relations attending the deposit of the *Mastodon giganteum*, and other fossil remains, at the Bigbone-lick in Kentucky, and at other localities of the United States.

From microscopic examination of the tusks of *Mastodon giganteum*, *Tetracaulodon Godmani*, *Kochii* and *tapiroides*, and of the *Missurium*, Nasmyth (Ann. of Nat. Hist. xi, p. 502) has ascertained the existence of differences in all, he will not, however, decide whether these differences are specific, or only individual. Upon this Hays remarks, that each tusk of the *Missurium* was made up of three pieces, and that it was by no means certain that they had all belonged to the same animal, on which account each portion should have been examined separately by Nasmyth. (Proceed. of the Americ. Phil. Soc. 1843, vol. ii, p. 265.)

The native locality of the *Rhinoceros cuculatus* described by me, has been ascertained by Harris and Dr. Roth, to be in Southern Abyssinia, as I supposed. (Harris, the Highlands of Æthiopia, ii, p. 425.)

Of the species of Hog of the Indian Archipelago, there have been figured, in the 'Nederl. Verhandel.' *Sus timoriensis*, tab. 31, figs. 1-3, *Sus barbatus*, figs. 4, 5 (cranium), *S. vittatus*, tab. 29, *S. celebensis*, tab. 28, *S. verrucosus*, tab. 28, *S. barbatus*, tab. 30.

The *Tapirus villosus* (Tapir Pinchaque) has lately been again observed by Goudot. (Instit. p. 44.)

He remarks that the young are variegated (livrée tragen); that this species also inhabits the central chain of the Andes, and prefers the cold region; that the female is also black, and that no naked spot on the rump of the young animal is observable.

From the anatomical remarks which Eudes-Deslongchamps has made on the common American Tapir, it appears that the deep broad groove on the external surface of the skull between the nasal and frontal bones, does not, as has been assumed, serve for the attachment of the proboscis, but is occupied by a fibro-cartilaginous sac, the base of which is twisted in a half-spiral. It communicates with the cavity of nostrils by an elongated opening. It is the alæ nasi, altered in position. The muscles of the

proboscis and the peculiar, superior and inferior retractors of the penis are described; figures are given of the muscles of the proboscis, the brain, male sexual organs, stomach, and cæcum (Mém. de la Soc. Linn. de Normandie, 1842, and thence in Müller's Archiv. 1843, s. cclix).

RUMINANTIA.

Tylopoda.—Under the article 'Chameau' in the Dict. Univers. d'Hist. Nat. iii, p. 378, Quatrefages has given a review of this family.

In the happy ignorance with respect to German literature enjoyed by the author, he still mentions the fabled provision of water by the Camel, for the sake of which the animals are killed, in case of dearth of water in the caravans. In the same way, he still proposes for examination the dentition in the young animal, although this subject has been long since exhausted by us, and he entertains the flattering notion that we have still to await information from Duvernoy, to become at all acquainted with the conformation of the stomach of the Llama, of which, moreover, the author does not appear as yet to have any accurate knowledge.

Stannius has made the interesting observation, that the new-born Llama, like the young Camel, as was first stated by the Reporter, is provided with four incisors in the upper jaw. (Joh. Müller's Arch. für Anat. 1842, p. 388.)

Cervina.—Copious anatomical researches on the Musk Animal of Java have been communicated by Rapp in these Archives, p. 43.

He showed, simultaneously with Leuckart (Müller's Archiv, 1843, p. 24), that the third stomach (psalterium) is wanting, so that the Musk Deer of Java, like the Llama and Camel, has but three stomachs, which are the paunch, the reticulum, and the true stomach.

The question as to the time of rutting and of gestation of the Roe has now been fully determined by Ziegler, in his interesting memoir (Beobachtungen über die Brunft und den Embryo der Rehe, Hannov. 1843). He found ruptured Graafian vesicles as early as the middle of August; but the ovules require three months before they reach the uterus through the narrow oviducts. Some confirmatory observations have been contributed by L. Bischoff in Müller's 'Archiv,' 1843, s. clxxvi.

Remarks on the occurrence of the Deer species in Northern Russia, are given in Blasius' 'Travels in European Russia,' i, p. 262.

As far as the knowledge of the Deer tribe afforded in French and the common English works, extends, one may be satisfied with the article "Cerf," in the 'Diction. Univers. d'Hist. Nat.' iii, by Pucheran; but it must not be expected to find employed in it, the works of Wiegmann, S. Müller, Reugger, and the Prince v. Neuwied. A good review of the fossil species is given in the same publication by Laurilliard.

Figures of *Cervus equinus* and *Russa* have appeared in the 'Nederl. Verhandel.' tab. 42, 43. Captains Guthrier and Eld have given an account of a new species of Deer, seen by them in the North of Bengal. (Calcutta Journal, i, p. 501; ii, p. 415, and taken thence, in the Isis, pp. 816, 835.) Either *Cervus Wallichii*, or allied to it; it is called "Sungraee," (great Deer). The chief distinction consists in the peculiar form of the inferior tine, which does not go off at an angle, but is gradually curved downwards and projects above the eye, so that it almost covers it. There are usually 6 to 10 tines, but sometimes also 16.

In a fossil lower jaw, found at Issoudun, Dép. de l'Indre, Duvernoy (Instit. pp. 177, 406; Compt. rend. xvi, xvii, p. 1227) has shown that it belonged to a Giraffe, but to one differing from the living species. Both these conclusions have been confirmed by Owen, who observes thereupon that Cautley and Falconer had found in the Himalaya two fossil species of Giraffe in the miocene formation, together with the *Hippopotamus*, *Mastodon*, *Sivatherium*, &c. and that he had satisfied himself, by examination of the fossil remains, of the correctness of the definition. Duvernoy names his fossil species *Camelopardalis Biturigum*.

CAVICORNIA.—In the Dict. Univers. d'Hist. Nat. iii, p. 501, is a Monograph on the Goats, by Roulin.

This is distinguished most advantageously from most of the other therological articles contained in this Dictionary, being a profound, thoroughly digested work, and based upon comprehensive autopsy; it also exhibits a better acquaintance with foreign literature, although *Ægoceros Falconeri* and *Æg. Pallasii* of Rouillier are not mentioned.

Among the fossil remains from the Sivalik mountains, Blyth has found portions of the cranium and the horn-cores of a large species of Ovis, closely allied to if not actually identical with the *Ovis Ammon* from Siberia; also a corresponding portion of a true *Ibex*, to all appearance identical with *Capra Sakeen*, which still occurs in the Himalaya. (Ann. Nat. Hist. xi, p. 78.)

Waterhouse has been enabled to complete his previous description of *Antilope Ogilbii*. (Ann. xii, p. 57.)

In tab. 36-39 of the 'Nederland. Verhandel.' is figured *Bos Sondaicus*, and in tab. 40, 41, *Bos Bubalus;* and in plates 40, 41, of the 'Illustrations of the Zoology of South Africa' *Antilope Oreas* is exhibited.

CETACEA.

An almost perfect skeleton of *Zeuglodon*, Ow. (*Basilosaurus*, Harl.) has been found in Alabama. (Sillim. Amer. Journ. xliv, p. 409.)

In a marly calcareous earth, a few feet below the surface, lay this skeleton of the *Zeuglodon* (erroneously written *Zygodon*), and in such a position that the whole vertebral column, from the head to the end of the tail, presented itself in an almost unbroken series; the entire length, including the skull, amounted to 70 feet. The mammalian character of this genus has been demonstrated by Owen, in the 'Transact. of the Geol. Society,' 1841, p. 69.

A new extinct genus has been named by Brandt *Cetotherium*. (Bullet. de la Classe Physico-Math. de St. Pétersbourg, i, p. 145; Instit. 1843, pp. 241-270.)

Allied to *Balænoptera*, though generically differing from it. To this belongs the fragment of a cranium from Kertsch, described by Rathke, and also other bones, upon which Brandt has founded his *C. Rathkii*. He regards Eichwald's *Ziphius priscus* as, at present, a doubtful species of this genus.

I need not here refer to the comprehensive and important researches of Eschricht on the northern Cetacea, which have now been also communicated in the 'Isis,' 1843, p. 276; Dieffenbach's observations on the southern Whales, made in his travels in New Zealand, are also worthy of attention.

In contradiction to Schlegel's opinion, who admits of only two species of Fin-fish, Joh. Müller has asserted in his 'Arch. für Anat.' 1842, s. ccxxxviii, that *Balænoptera musculus* is a perfectly distinct species, with which also corresponds the Fin-fish from Bergen, described by Kröyer and Eschricht.

Highly accurate and comprehensive researches on the optic nerves of the Dolphin have been made by Stannius. (Ib. p. 378).

Remarks on a *Hyperoodon*, stranded on the English coast, have been communicated by Bellingham (Ann. Nat. Hist. xi, p. 414); a short notice on a *Phocæna rissoana*, captured near Marseilles, is given in the 'Isis,' 1843, p. 414. The right half of the stomach of the *Hyperoodon* presents, as stated by Eudes-Deslongchamps, 7 to 8 divisions, which are separated by duplicatures of the mucous membrane. (Mém. de la Soc. Linn. de Normandie, 1842, and thence in Müller's Archiv. 1843, s. cclx.)

Delphinus leucopleurus has been instituted as a new species by Rasch. (Rev. Zool. p. 369.)

"D. corpore supra cœrulescente nigro, infra niveo, lateribus maculâ longitudinali magnâ, obliquâ, albâ griseoque bruneo ornatis; rostro breviori, maxillâ inferiori longiori, dentibus conspicuis supra infraque utrinque 28, 35 acutis, incurvis." Length 2.29-2.75 (probably mètres). Twenty-three individuals were taken in the bay of Christiania.

ORNITHOLOGY.

BY

PROFESSOR ANDR. WAGNER, OF MUNICH.

We joyfully greet the announcement of a work which is intended to supply one of the most urgent requirements in Ornithology. It bears the title of The Genera of Birds, by G. R. Gray. Illustrated with about 350 plates, by D. W. Mitchell. London. 1844. Small folio.

Although the announcement only of this work was given in the year 1843 (the first part was not published till May 1844), yet its appearance is by far too important for the Reporter not at once to direct attention to it. The object of the work is to collect and exhibit methodically, all the widely-scattered ornithological materials. To this end all the genera and subgenera are characterized in detail, and the species belonging to each enumerated, and one authority or more cited for each. Each genus will be figured, and for this purpose a species, not hitherto figured, will be regularly selected; and besides this, the individual characteristic parts will be separately exhibited in other plates. The whole work will probably not exceed 50 monthly parts, and will contain about 350 plates. Each part costs 10*s*. 6*d*. Although an accurate analysis of this work must be reserved for the next year's Report, still the Reporter is assured, from seeing the first Part, that the undertaking could not be in better hands than those of Gray and Mitchell. The text and figures are elaborated with equal excellence, and, from the comprehensive knowledge of the literature of the subject possessed by G. R. Gray, the completest possible arrangement of the vast mass of materials may be expected. This is a work which no library should be without; at all events no zoologist, who wishes to keep up his knowledge of the most recent condition of ornithology, can, without it, any longer do so.

Ornitologia powszechna, czyli opisande ptaków wszystkich

czesci swiata przez Hr. Konstantetogo Tyzenhauza. Wilno, 1842, i, cxxviii and 509 pp. 8vo.

Count Tysenhaus, a distinguished ornithologist, has, in this work composed in the Polish language, exhibited all the principal genera, indigenous as well as exotic, together with their most important species. The classification follows the system of Temminck; of whose orders the first volume includes the Rapaces, Omnivori, and Insectivori.

As this is the first instance of a similar work in the Polish language, it is to be expected that it will excite among the Poles a more lively zeal for ornithology.

An excellent figure from the life is given of *Strix micropthalmus*, Tys., as the author very strikingly names *Strix lapponica*.

Zasady, Ornitologii albo nauki o ptakach. Przez Hr. Konstantetogo Tyzenhauza. Wilno, 1841, 165 pp. 8vo.

The principal value of this memoir consists in the translation of Illiger's Terminology for the Class Aves, into the Polish language, with the addition of six well-executed plates, for the better understanding of the technical expressions. For the purpose of re-establishing a uniform terminology, it is much to be wished that similar works should be also undertaken by English and French ornithologists.

Ovographie ornithologique, par M. O. Des Murs. (Rev. Zool. 1843, p. 353.)

A continuation of the work formerly noticed, and which in the present instance treats of the colour of the eggs in general, and its cause.

The 12th part of Berge's 'Fortpflanzung der Vögel' (Propagation of Birds) is announced.

Hewitson's coloured 'Illustrations of the Eggs of British Birds,' with Descript. of the Eggs and Nests. Lond. part 12, price 2*s*. 6*d*.

Of more practical tendency are the additions and supplement to Brehm's 'Handbuch für den Liebhaber der Stuben-, Haus-, und aller der Zähmung werthen Vögel' (Manual for the Bird-fancier, &c.) (Isis, 1843, p. 484.) These additions are made partly by Brehm, partly by Count Gourcy-Droitaumont, and partly by Dr. Richter, and are derived from the varied and authentic experience of accurate observers. 'On the Use of Birds in the Economy of Nature,' &c., by St. K. v. Siemuszowa-Pietruski. (Isis S. 585). Andreä, 'Die vorzüglichsten Sing-oder Stubenvögel Deutschlands. Naturgesch. und Fang der Vögel, Behandlung derselben nebst Anleitung eine Canarienvögel-Hecke einzurichten.' Erf. 1843. (The principal Singing or Cage-birds of Germany. Natural History, Capture, and Management of the Birds, together with an Introduction to the Breeding of the Canary.)

Abundant contributions have again been made to the Special Faunas.

At the head of the European Faunas is to be placed Die Vögel Europa's (The Birds of Europe). Drawn and engraved on steel by Joh. Conr. and Ed. Susemihl. Text by Dr. Schlegel. Stuttg. Balz.

The continuations of this work are now in more rapid course of appearance. Further notice will be taken of it under the Raptores.

Catalogo metodico degli Uccelli Europei di Carlo L. Bonaparte, Principe di Canino. Bologna, 1842.

A very useful summary of the European species, with the synonyms, and an account of their geographical distribution.

Naumann's Naturgesch. der Vögel Deutschlands is in rapid progress, and in the year 1844 this distinguished work comes to a conclusion.

Beiträge zur Ornithologie Griechenlands (Contributions to the Ornithology of Greece), by Heinrich Graf von der Mühle. Leipz. 1844. 152 pp. 8vo.

The author, during his residence as an officer, in Greece, occupied himself in the industrious collection and study of the indigenous Birds, and gives in this work a list of those observed by him in that country, with excellent remarks upon the distinction of the less known ones, as also upon their habits. He mentions in all 321 species, but is of opinion himself that this number might, perhaps, be increased to 350. He proves himself throughout to be a good observer, and well versed in the literature of his subject.

Of a previous date, although Count v. Mühle could not have made use of it, is a similar work, die Vögel Griechenlands, by Dr. Ant. Lindermayer of Athens. (Isis, 1843, p. 321.)

He enumerates 263 species, and gives at the same time very valuable remarks upon particular species, especially on their habits of life and breeding. Although he adduces 58 species less than Mühle, still he gives 12 not mentioned by the latter. If we add these 12 to the 321 stated by Mühle to be the number of species of the birds of Greece, their number will already be found to amount to 333.

Faune Ornithologique de la Sicile, avec des Observations

sur l'Habitat ou l'Apparition des Oiseaux de cette île soit dans le reste de l'Europe, soit dans le nord de l'Afrique, par Alfred Malherbe. Metz, 1843. 242 pp. 8vo.

Sicily, situate between the continents of Europe and Africa, is fortunately placed for the ornithologist, presenting, as it does, the birds of each quarter. The author, officially a jurist, but well skilled in ornithology, by this Fauna fills up a great gap in our knowledge of the geographic distribution of birds. The work is elaborated with much industry and apt experience, and acquires still further interest from its constantly referring to the Fauna of the adjacent countries. The author enumerates 318 species in Sicily, of which, however, 35 are doubtful.

To these contributions to the knowledge of the geographical distribution of the birds along the Mediterranean Basin, are to be added two others: Drummond, 'Catalogue of the Birds found in Corfu and the other Ionian Islands, and on the Coast of Albania,' with remarks by Strickland. (Ann. of Nat. Hist. xii, p. 412.)

Drummond was collecting for four years, and obtained 200 sp., of which 157 are common with England. With regard to this, however, it must be remarked, that the physiognomy of these two Faunas differs much more widely than this number would lead us to suppose, because many of the species extremely common in the Ionian Islands, such, for instance, as *Cathartes percnopterus, Falco rufipes, Glareola torquata*, &c. occur but rarely and accidentally, in England. The same author has given a list of the birds observed during a two months' residence (from the 27th of April to the 18th of June, 1843) in the Island of Crete, which is also accompanied with remarks by Strickland. (Ann. xii, p. 423.) 105 species are enumerated, 81 of which also are English. They all occurred also in the Ionian Islands, except *Accentor alpinus, Anthus Richardi, Fringilla cisalpina*, and *Platelea leucorodia*.

As contributions to other portions of the Ornithological Fauna of Europe, have appeared, H. Bouteille, 'Ornithologie du Dauphiné,' Grenoble, 1843. E. Canivet, 'Catalogue des Oiseaux du Département de la Manche,' 1843. 'Die Vögel Sirmiens,' by Ch. L. Landbeck. (Isis, 1843, pp. 2, and 83.) Very rich in accurate observations by the author, and 278 species are enumerated in it, among which, however, 10 are doubtful. 'The Irish Birds,' by W. Thompson. (Ann, of Nat. Hist. xi, p. 283; xii, p. 31.) A continuation of the previously commenced work; the present portions contain the Pigeons and the commencement of the Gallinaceous Birds. 'List of, and Remarks upon, the Birds occurring in Norway,' by H. Rasch. (Nyt Magaz. für Naturvidenskaberne. Christiania, i, p. 356.) The names of the species are given in the 'Isis.' Norway numbers 218 sp., and Christiania 194, Sweden (according to Nilsson), 269. 'Skandinaviska Foglar,' af M. Körner. 9 Häftet. Stockh. 1843. Brandt, 'List of the Skins of Mammals and

Birds sent by Herr Bystrow, of Mesen, to the Zoological Museum of the Academy.' (Bullet. Scientif. de l'Acad. de St. Pétersbourg, x, 1842, p. 350.) 5 species of Mammals and 62 of Birds are enumerated, from the neighbourhood of Mesen on the White Sea; among them is *Emberiza pusilla*, Pall., which is thus added to the number of European Birds.

The following have reference to the Asiatic Fauna:

Brandt's Remarks upon certain Siberian Birds described by Latham, but which have hitherto been insufficiently determined. (Annals of Nat. Hist. xi, p. 113.) 'Illustrations of Indian Ornithology;' a series of 50 coloured lithographic drawings of Indian Birds, accompanied by descriptive letter-press. By T. C. Jerdon. Madras, 1843. E. Blyth, 'List of the Birds taken in the neighbourhood of Calcutta from September 1841 to March 1843.' (Ann. xii, pp 90, 165.) Gives 274 sp. Some additions and corrections follow at p. 229. He had already, on a previous occasion (Annals, xi, p. 477), given a list of the Birds which are common to India and Europe. A List of Bird-skins collected in the N.W. parts of Bengal. (Ib. p. 476.) Brehm has communicated good remarks on Gould's work on the 'Birds of the Himalaya.' (Isis, 1843, p. 886.) A short catalogue of Chinese Birds, collected about Canton, has been published by Strickland. (Ann. xii, p. 220.) Nos. 6 and 7, 'der Land en Volkenk. der Nederl. Verhand.' are rich in explanations respecting the Birds of the Indian Archipelago, and contain many new species instituted by S. Müller and Schlegel.

The Ornithological Fauna of Africa has on this occasion obtained but little consideration.

The Reporter is acquainted with—A. Smith, 'Illustrations of the Zoology of South Africa,' Nos. xvii, xviii, xix. Harris, 'The Highlands of Æthiopia,' vol. ii, app. p. 418, with remarks on the birds by Dr. Roth.

The contributions to the American Fauna are more numerous.

Reinhardt, 'Communications on some Birds hitherto not met with in Greenland.' (Isis, 1843, p. 59.) 'List of the best known Birds of Labrador (Münchn. gel. Anzeig, xviii, p. 421), furnished by the missionaries of the "Brüdergemeinde." Richardson, 'List of Twelve Species of Birds which were collected on the Mackenzie at 62° N. L.' (Annals, xi, p. 484.) Linsley, 'Catalogue of the Birds of Connecticut.' (Sillim. Amer. Journal, 1843, p. 249.) 302 sp. are enumerated, and valuable notes appended. I. v. Tschudi, 'Diagnoses of some New Peruvian Birds.' (Archiv d. Naturg. 1843, i, p. 385.) 22 species, of which detailed descriptions with figures will be given in the 'Flora Peruana.'

The Australian Fauna has also not been neglected.

G. R. Gray, ' List of Birds found in New Zealand, Chatham, and Auckland.' (Dieffenb. Travels, ii, p. 186.) 84 species in all, among which are several not hitherto observed, except in those islands; I have given the names in the ' Munich Society's Transactions,' xvii, p. 58. Strickland, ' Remarks on a Collection of Australian Drawings of Birds,' the property of the Earl of Derby. (Annals, xi. p. 333.) G. R. Gray, ' Correction of the Nomenclature of Australian Birds.' (Ib. p. 189.) Latham has published numerous species of Australian birds from drawings furnished by White, the editor of the ' Journal of New South Wales,' but in such an insufficient manner, that we should be thankful that Strickland and Gray, with whom Gould also has been associated, have undertaken to determine Latham's species more accurately by comparison with the original drawings. Of Gould's magnificent work, ' The Birds of Australia,' Parts x, xi, xii, and xiii have appeared in 1843.

Among general anatomical works are to be noticed:

W. v. Rapp ' On the Tonsils of Birds.' (Müller's Archiv für Anat. 1843, p. 19.) He has succeeded in finding tonsils also in birds. Stannius ' On the Lymphatic Hearts of Birds.' (Ib. p. 449.) He has discovered these organs in the Stork, Ostrich, Indian Cassowary, Goose, Swan, Colymbus, and Alca, and has observed transversely striated, primitive muscular fasciculi in these species.

Amongst the traces of an ancient world, geologists have not only more than ever satisfied themselves of the occurrence of the footmarks of birds, but have now gone so far as to believe that they possess indications of the rain that has fallen in those ancient periods. In the red sand-stone of Connecticut especially, it is that Hitchcock, Vanuxem, Lyell, Mantell, &c., believe that not only the footmarks of birds, but also the marks of raindrops of the primitive world can be recognized. (Ann. Nat. Hist. xi, pp. 322, 513.)

With such an ever increasing subtilty of observation it is not impossible that in time the senses of geologists may be so exalted that they will be able to hear the grass grow.

ACCIPITRES.

Schlegel, in the before-mentioned work, has completed his Account of the Diurnal Raptorial Birds of Europe.

A very valuable work, and one that could not have been produced but by an ornithologist possessing the comprehensive knowledge of the author, and

having a collection as rich as that of Leyden at his command. The critical part appears to me to hold the correct mean between the two extremes of too great subdivision and too close grouping of species. The constant reference made to allied exotic forms is highly praiseworthy, by means of which it is frequently possible to refer them to known species. The plates are excellently drawn and engraved, but the colouring might be more lively, which it is easy to effect, and which would render the book more attractive to amateurs. Among all the contributions to ornithology that have appeared during the year 1843, the Reporter considers the present the most important. One great advantage also presented by it, is the size that has been selected, which is not only conducive to its convenient use, but renders the cost unusually small. Works of luxury, such as those of Gould and Audubon, are not adapted for the extension and promotion of science, but must inevitably, on account of their unnecessary costliness, constantly tend to reduce the number of naturalists who are able to avail themselves of them, and they thus enrich ornithology only to its ultimate injury.

Brehm has contributed some good remarks on the Raptorial Birds capable of enduring confinement. (Isis, p. 511.)

Though Lindermayer (Isis, p. 523) still places *Vultur fulvus* and *V. albicollis* as distinct species, near each other, his own statements prove the unity of the species.

He himself, for instance, says that—1st, *V. albicollis* does not differ in its habits from *V. fulvus;* 2dly, that it occurs only in association with the latter; 3dly, that these birds exhibit as many varieties as there are specimens, and that with respect to the cervical ruff, every possible shade is met with, from that of *V. fulvus* to that of *V. albicollis;* and, 4thly, that the egg of *V. albicollis* is also spotted with reddish-brown, but less thickly than that of *V. fulvus.*

The eggs of *V. cinereus,* of which nothing certain has hitherto been known, Lindermayer describes as entirely white, and without spots. Malherbe, on the contrary, says that towards the larger end they are spotted with brown, and watered with bright red. Others, again, assign uniformly coloured eggs to *V. fulvus.*

In these contradictory statements, originating in an interchange of the nests of the two species, that of Lindermayer may probably have the most authority in its favour. Of *V. auricularis,* of which it would appear, according to Schlegel and Temminck, many specimens have been sent from Greece, no instance has been met with there either by Lindermayer or Count v. Mühle.

Falco rufipes was observed by Lindermayer, around Athens, only on its spring passage; moreover there were many more old males than females. In the Morea, on the contrary, it was frequently seen by Count v. Mühle, on its

passage both out and back; in the latter case, however, only females and young. Some remain, according to him, even up to the time of breeding.

Falco arcadicus, proposed as a new species by Lindermayer, and figured in pl. 1, appears, however, as he himself supposes, to be nothing else than the younger condition of *F. concolor*, Temm., or *F. Eleonoræ*, Gené, both which latter have great mutual resemblance, but are as yet too little known to allow of their specific identity being declared with certainty.

As Greek Accipitres, Count v. Mühle adduces the following six species: *Falco Haliætus*, *Bonelli*, *laniarius*, *pennatus*, *melanopterus*, and *parasiticus*, which are not mentioned by Lindermayer.

Extra European species, either newly established, or at least newly described, are: *Falco subniger*, locality unknown, *F. guttatus*, and *Astur cristatus;* both the latter from the Philippines. (Gray, Annals. xi, p. 371.) *Haliætus unicolor*, Gray, appears, according to Brandt, to be identical with *Falco leucoryphus*, Lath. (Annals. xi, p. 113.) *Haliastur leucosternus*, Gould, and *Haliastur*? (*Milvus*) *sphenurus*, Vieill., have been figured by Gould in his 'Birds of Australia' (part 11). (Ib.) *Astur Novæ Hollandiæ*, Lath., in the gray as well as in the white albino plumage (part 12). *Tinnunculus cenchroides*, Vig., *Circus assimilis*, Jard., and *C. Jardinii*, Gould (part 10). *Pandion leucocephalus*, Gould (part 13). New species instituted by Gould are, *Astur cruentus* and *Elanus scriptus;* both from Australia. (Ann. xi, pp. 528, 401).

Polyboroides (nomina generica in "oides" desinentia è foro releganda sunt. Philos. Bot. § 216.) *typicus*, Smith (*Falco gymnogenys*, Temm.,) is figured and described in detail, in both the old and young condition, by A. Smith in his 'Illustrations of the Zool. of S. Africa,' pl. 81, 82.

A review of the general relations of the Owls has been given by Gerard in the Dict. Univ. d'Hist. Nat. iii, p. 631, under the article 'Chouette.'

This is one of the best of the ornithological articles contained in the present part. Gerard correctly regards the received divisions merely as subgenera; he does not enter upon the species. Since, in a dictionary, the articles are easily found; and, as in the present instance, most of them do not enter specially into detail, the Reporter will, usually, not cite them separately.

With respect to the summer habitat of *Strix brachyotus*, Malherbe entertains an opinion very different from that of Lindermayer, Count v. Mühle, and Drummond. According to the latter it is never seen in Greece and in Corfu during the summer, but only on its passage, and in the winter; according to Malherbe, on the contrary, it is very common in summer in the mountain forests of Sicily, which is owing to the greater elevation. It is remarkable that *Striæ Tengmalmi* (*dasypus*), according to Lindermayer, reaches as far as Greece; he terms this species "very rare, and only in olive woods."

Guérin-Méneville has described two Abyssinian Owls, under the names of *Bubo cinerascens* and *Otus abyssinicus*. (Rev. Zool., p. 321.)

PASSERINÆ.

Corvinæ.—The opinion which has of late become pretty general, that the Rook, (Rabenkrähe) (*Corvus corone*), and the Gray Crow (Nebelkrähe) (*Corvus cornix*), are only varieties of one and the same species, begins already to appear scarcely tenable; it is at all events certain that their difference of colour cannot be attributed to climatic influences (the greater and less temperature).

According to Gloger, the black Crow belongs principally to the South, and the gray to the North. This is so far correct, that in France and Bavaria, the gray Crow is seen only in winter; and there, as for instance around Munich, in many winters very rarely. On the other hand, Gloger declares that it is something remarkable that the gray Crow occurs even in Tuscany, Dalmatia, Sardinia, &c. much more frequently than the black, or even exclusively; it is also said to occur in some of the Greek Islands. This fact has of late received further confirmation. Lindermayer, indeed, mentions the gray Crow only as a winter Bird, but in this he is completely contradicted by Count v. Mühle, who says on this point, "it occurs throughout the year in Greece, especially in the neighbourhood of Lamia, Patras, and around Athens; and what is remarkable, only in company with black Crows, such as *C. corone*," although the latter is also frequent. Malherbe did not observe the black Crow in Sicily any more than Benoit had done; for its occurrence he refers only to Galvagni, who mentions it in his 'Fauna of Ætna.' The gray Crow, on the contrary, according to Malherbe, exists in Sicily in great abundance. In like manner, Drummond had never seen the black Crow in Corfu, whilst the gray Crow occurs there occasionally, and in Albania very frequently, where it even breeds. In Candia also, he mentions only the gray Crow, which is very abundant, and breeds in that island. Landbek informs us, in the 'Isis' (1842, p. 185), that in Hungary and Siebenbûrgen the gray Crow is plentiful, and the black very rarely met with. The Reporter would take this opportunity of noticing, that the Berlin collection possesses a specimen of the gray Crow from Cairo, furnished from the Travels of v. Schubert; Ruppell also notices only this form among the Birds of Abyssinia, and never the black. These accounts suffice to show that the gray and black Crow are not distinguished by their occurring, respectively, in the North and South, but that they occur partly intermixed, partly separate from each other, as it were alternately.

This curious mode of distribution would rather favour the opinion of there being a specific distinction between the gray and black Crow; at all events it

proves that their difference in colour is not dependent upon temperature and other atmospheric influences. The few instances which are known of the pairing of the one form with the other, no more indicates their specific unity, than the analogous facts in connexion with the Horse and Ass prove that they are of one species. When it is shown that the hybrids resulting from this union are capable of producing a permanent fertile progeny, then, and not till then, will it be necessary to assume as certain the specific unity of the gray and black Crow.

In the account of the habitats of *Corvus Pyrrhocorax* and *C. Graculus*, Lindermayer appears to have interchanged the names, for, as Count v. Mühle states, the species met with in the valley of Tripolitza is *C. Pyrrhocorax*, and that occurring on Hymettus and Pentelicon *C. Graculus*. *C.* (*Garrulus*) *melanocephalus*, which, according to Temminck, would appear to be common in Greece, has not been met with there either by Lindermayer or Count v. Mühle, who observed only *C. glanderius;* Drummond also found only the latter in Corfu, so that Temminck's statement must be founded on some error.

D. Landsborough has inserted some remarks on the habits of a Rook which had been kept confined twelve years in a court-yard, in the 'Annals of Nat. Hist.' (xi, p. 275). *Struthidea cinerea*, from New Holland, has been figured by Gould in the 'Birds of Australia,' part 10.

Tschudi has directed attention to the very peculiar formation of the air-tubes of Cephalopterus. (Müller's Archiv, 1843, p. 473.)

AMPELIDÆ.—Several new species have been added to the genus *Ampelis*.

Lafresnaye has established two species: *Ampelis aureopectus*, from Santa Fé de Bogota (Rev. Zool. p. 68; Magas. de Zool. tab. xxxix), and *A. arcuata* (Rev. p. 98), from Columbia. Both belong to the green species with red beaks, to which division must also be referred *A. elegans*, from the river Tullumayo, instituted by Tschudi (Archiv, p. 385), whilst his *A. cincta*, from the forests of Pangoa, differs in having the beak black.

Gould has figured his *Pardalotus quadragintus*, from Van Diemen's Land, in the 'Birds of Australia,' part 12. From this S. Müller and Schlegel have distinguished as a separate species their *P. obsoletus*, from Timor. (Verh. Land-en Volkenk, p. 174). J. Goudot has given a detailed description of *Rupicola peruviana*, and also of its nest and eggs. (Rev. Zool. p. 1; Mag. de Zool. tab. xxxvii, Egg.) *Pipra linearis*, Bonap., and *P. vitellina*, Gould, from Central America, have been figured in the 'Zoology of the Voyage of the Sulphur,' Birds, pp, 40, 41, pl. 20, 21.

Pachycephala falcata, *melanura*, and *simplex*, from Australia, have been newly instituted by Gould. (Ann. Nat. Hist. xii, p. 61.)

FRINGILLIDÆ.—On the geographic distribution of *Fringilla domestica, cisalpina,* and *hispaniolensis* more accurate data have been given.

Count v. Mühle has never seen *F. cisalpina* in Greece; the house Sparrow of that country differs in no respect from the German; he states *F. hispaniolensis* to be extremely rare in that country. Lindermayer also says, that the house Sparrow of Greece does not differ from that of Germany, but on the other hand he affirms the occurrence of *F. cisalpina* "rarely in the spring and summer," if this does not arise from his confounding it with *F. hispaniolensis*. Drummond found in Candia only *F. cisalpina*, but not *F. domestica*, whilst the latter occurs abundantly in the Ionian Islands; where, on the other hand, *F. cisalpina* is entirely wanting. In Sicily, Malherbe found both *F. cisalpina* and *F. hispaniolensis*, but not intermixed; *F. domestica*, on the contrary, is wanting. The Reporter regards *F. cisalpina* as well as *F. hispaniolensis* merely as local, southern varieties of *F. domestica*, of which *F. hispaniolensis* appertains more especially to the western regions.

Fringilla cœlebs is met with in Corfu, according to Drummond, at the beginning of October, is common during the winter, and disappears towards the end of February; whilst, on the contrary, it breeds abundantly in Candia, at which Drummond is surprised, but which is probably owing simply to the lofty wooded mountains by which the temperature of the latter island is moderated. When Drummond, on the other hand, assigns *F. montium* as a resident Bird to both islands, it is evidently a slip of the pen, and he means *F. montana*, which he does not mention under that name in his catalogue, although it is not wanting in that locality.

Landbek has given a detailed description of his "Marsh Finch" (*Fringilla palustris*) in the 'Isis,' p. 597. It stands, in form and colour, midway between *F. cannabina* and *F. montium;* it has been observed in Alsatia, and farther observations are to be awaited before its true position with regard to the other species can be determined.

From *Passer arctous*, Pall., Brandt (Bullet. Scientif. de l'Acad. de Pétersb. x, p. 251) has formed three distinct species, named by him *Fringilla* (*Linaria*) *Gebleri, brunneonucha,* and *griseonucha*. However, after receiving more specimens from Siberia, he was convinced that *F. Gebleri* is identical with *Passer arctous*, var. *a.*, Pall., and he has consequently changed the name into *Fringilla arctoa*, on which account he has now (Bullet. de la Classe Phys. de Pétersb. i, p. 363) transferred the name *F. Gebleri* to a fourth species allied to the former. Besides these, however, Brandt has instituted a new Siberian species, *Pyrrhula* (*Corythus*) *rhodochlamys*, resembling *P. rosea* in size and colour, but wanting the two white wing spots; whilst in that respect, and in the form of the beak, it approaches *Corythus ruticilla*.

Gould (in the 'Voyage of the Sulphur') has figured three Birds belonging to this family: *Fringilla* (*Linaria?*) *coccinea*, p. 41, pl. 22, from the Sandwich Islands; *Leucosticte griseogenys*, Gould, p. 42, pl. 23, from Russian N. America; and *Cactornis inornatus*, Gould, p. 42, tab. xxv, from the Bow Island. *Carduelis colombianus*, *Fringilla analis*, *Spermophila luctuosa*, and *olivaceo-flava*, all from Columbia, have been instituted as new species by Lafresnaye. (Rev. Zool. p. 291.)

Passer pusillus, Pall., has been accurately characterized in both sexes by Brandt, and its place indicated, under *Pyrrhula* (*Dryospiza*). (Bullet. de la Classe Phys. de Pétersb. i, p. 366.)

The genus *Guiraca*, needlessly separated from *Coccothraustes*, has been enriched by Lafresnaye with a new species, *G. cinerea*, from the Galapagos Islands (Mag. de Zool. tab. xxx), and he holds in readiness a new generic name, *Piezorina*, in case some point or another in the habits should be superadded to the characteristics derived from the external condition. If this confusion in the manufacture of genera continues, we shall soon have as many genera as species. *Catamblyrhynchus diadema* has been figured by him in the 'Mag. de Zool.' tab. xxxiv.

Fraser has characterized several new species from the Niger expedition (Ann. Nat. Hist. xi, pp. 131, 133): *Ploceus collaris*, *Euplectes rufo-velatus*, *Coccothraustes olivaceus*, *Nigrita fusco-notus*, *Amadina poensis* and *bicolor*. *Nigrita* is a new name proposed by Frazer for *Æthiops*, which he says has already been allotted to a genus of Monkeys, in which, however, he is wrong, for this name has been applied in therology only as a specific and not as a generic appellation; the alteration is consequently superfluous. *Amadina Lathami*, Vig. and *A. castanotis*, Gould, are figured in the 13th Part, 'Birds of Australia.' *Ploceus melanotis*, is instituted by Guérin as a new species from Abyssinia.

Gould has encumbered this family by the erection of two superfluous genera—*Emblema* and *Poëphila*. (Ann. Nat. Hist. xi, p. 144.)

The definitions are thus given: (1) *Emblema*. "Rostrum ferè quàm caput longum, conicum (ut in genere *Ploceus*). *Alæ* mediocres; remige primâ parvulâ, 4 proximis inter se æqualibus; tertiariis elongatis. *Cauda* mediocris et ferè quadrata paululùm rotundata. *Pedes* plantigradi, digitis gracillimis; digito intermedio externis longiore, illis inter se æqualibus." *E. picta*, from New Holland. (2) *Poëphila*. "*Rostrum* ad basin tumidum, et igitur ferè tam latum et profundum quàm longum. *Alæ* mediocres, remige primâ parvulâ, 2—5 inter se ferè æqualibus; digitis gracilibus, medio externis longiore, illis inter se æqualibus; digito postico medio valde breviore. *Cauda* cuneiformis, rectricibus 2 intermediis productis." Typus: *Amadina*

acuticauda. As a new species, Gould has added *P. personata*, from the North coast of New Holland.

From Siberia, Brandt has received a new species of Bunting, termed by him *Emberiza cioides*. (Bullet. de Pétersb. i, p. 363; Instit. p. 349.)

"Habitus et colorum distributio fere ut in *E. Cia*, cui simillima. Rostrum brevius quam *E. Ciæ*. Frons, capitis latera cum superciliis, mentum, gula et genæ albæ. Macula parotica latior quam in *E. Cia*. Vertex castaneus, cinerascente vel albicante subimbutus. Pectus torquè plus minusve lætè castanea. Abdomen medio albidum, lateribus pallidè ferrugineum. Reliqua ut in *E. Cia*." Brandt also remarks (in the Annals Nat. Hist. xi, p. 114), that his *E. bruniceps* differs from *E. rutila*.

Landbeck has given a more particular notice of his *Alauda anthirostris* (Isis, p, 599): "It differs from the very similar Woodlark, (*A. arborea*), principally in its elongated, somewhat curved beak, which much resembles that of the Waterpiper (Wasserpieper), and which, in its generic allies, is conical, short, and straight pointed, the more elevated crown, and longer spur." It inhabits only the most elevated plateaus of the Swabian Alps. Landbeck considers, that should this Lark not constitute an independent species, it must still at least be regarded as a permanent variety.

Alauda Duponti, Vieill., is said to have been shot in Sicily, though Malherbe met with no instance of it. It would be desirable that ornithologists, who may have the opportunity, should pay attention to the note in Keys and Blasius (Europ. Wirbelth. s. xxxvi), according to which *A. Duponti* is probably only a monstrous variety of *A. arvensis*. Brandt has remarked, that *A. mongolica*, Pall., is a very distinct species, appertaining, as well as *A. tatarica*, *leucoptera*, and *bimaculata*, to the subgenus *Melanocorypha*, Boié. (Ann. Nat. Hist. xi, p. 114.)

In the 19th Part of the 'Illustrations of the Zoology of South Africa,' A. Smith has described and figured as new species, *Alauda Cœlea*, and *Lagepa*, *Mirafra africana*, *africanoides* (sic!), *Sabota*, and *cheniana*, *Certhilauda africana*, Vieill., and *subcoronata*.

Sturnidæ.—As stated by Malherbe, *Sturnus unicolor* abounds in Sicily, where it never forsakes its birthplace, whilst the common Starling commences its migration towards that island in March.

Count v. Mühle and Lindermayer have never observed *St. unicolor* in Greece, which, on the other hand, is as abundant in Algiers as *St. vulgaris*, with which it is associated in numerous flocks. In Corfu, Drummond reports that *St. vulgaris* is common in winter, but is never seen in the summer.

Cassicus uropygialis has been described as a new species from Columbia by Lafresnaye. (Rev. Zool. p. 290.)

DENTIROSTRES.—The Fauna of Europe has been augmented with a new species, *Lanius nubicus*, Licht. (*L. personatus*, Temm., O. col. 216, 2.)

This Bird, hitherto known only as from Nubia and Arabia, has now for the first time been indicated as European, by Lindermayer, under the name of *L. personatus*. He met with it in Greece as a bird of passage, which arrives in that country very late, not till the end of April or beginning of May. About the same time, Hartlaub had received a Shrike (Würger) from Greece, a drawing of which he transmitted to Lafresnaye, who recognized the subject of it as *L. nubicus* or *personatus*. (Rev. Zool. p. 159.) Not long afterwards, Hartlaub discovered that Lindermayer had already given this as a Greek species, in the 'Isis' (Rev. p. 211). Soon after this, Count v. Mühle gave a notice of it, under the name of *L. leucometopon*, but was satisfied, immediately upon receiving the 'Isis,' that it was identical with Lindermayer's *L. personatus*. Thus, then, *L. nubicus* has been almost simultaneously added to the European Fauna, by three different parties.

Between *Lanius Æthiopicus*, Lath. Gm., and Levaillant's "Pie-grièche," *Boubou*, Guérin is inclined to think that he has discovered a specific difference, on which account he distinguishes the latter as *Lanius Boubou*. (Rev. Zool. p. 161.)

Other species are *Collurio Smithii*, from Cape Coast. (Fraser, Ann. Nat. Hist. xii, p. 478.) *Dicrurus bracteatus* (*D. balicassius*, Vig. and Horsf. nec Lath.), from New Holland, by Gould. (Ann. Nat. Hist. xii, p. 59.) *Oreoica* (*Falcunculus*) *gutturalis*, Horsf., figured by Gould in the 'Birds of Australia,' Part 12. He has also characterized an *Artamus leucopygialis* from New Holland. (Ann. xi, p. 143.)

To our knowledge of the hitherto much confused Indian species of *Ceblepyris*, S. Müller and Schlegel have furnished an important contribution in the Verhandel. Land-en Volkenk. p. 189, in which they have critically arranged the species hitherto constituted, and added eight new ones.

(*a*) Subgenus CAMPEPHAGA: (1) *C. melas*, n. sp. New Guinea; (2) *C. cinnamomea*, n. sp. ib.; (3) *C. plumbea*, n. sp. ib., and Timor; (4) *C. morio*, n. sp. Celebes; (5) *C. fimbriata*, Temm., Java, Sumatra, and Borneo.

(*b*) Subgenus LALAGE: (6) *C. orientalis*, Temm., Java, Sumatra, Borneo, Celebes, Timor; (7) *C. aurea*, Temm., Celebes; (8) *C. timoriensis*, n. sp. Timor.

(*c*) Subgenus GRAUCALUS: (9) *C. melanops*, Lath. (*G. melanotis*, Gould),

New Holland, New Guinea, Timor; (10) *C. atriceps*, n. sp. Celebes; (11) *C. personata*, n. sp. Timor; (12) *C. larvata*, n. sp. Java; (13) *C. Novæ Guineæ*, Lath., Sumatra; (14) *C. javensis*, Horsf., (Rüppell's description belongs to *C. fimbriata*, and, on the other hand, that of the female of *C. papuensis* to this sp.) Java; (15) *C. papuensis*, Lath., Banda, Ternate, Celebes, and New Guinea; (16) *C. Temminckii*, n. sp. Celebes; (17) *C. bicolor*, Temm., Celebes.

To the Muscicapidæ are added:

Muscicapa fumigata, Guérin (Rev. Zool. 1843, p. 161), from Abyssinia; *M. cinnamomei-ventris*, *fusco-capilla*, and *M.* (*Todirostrum ?*) *ruficeps*, all from Columbia, and determined by Lafresnaye (p. 291); *Tchitrea Ferreti*, Guér., from Abyssinia (p. 163); *Vireo versicolor*, *Myiobius diadema*, and *pyrrhopterus*, *Todirostrum granadense*, all from New Granada, and determined by Hartlaub (p. 289); *Pachyrhynchus squamatus*, *Querula fusco-cinerea*, and *Setophaga nigro-cincta*, from Columbia, and instituted by Lafresnaye (pp. 291, 292).

Besides these (in the Ann. Nat. Hist. xi, p. 371), *Tchitrea rufa*, Gray, from the Philippines; *Muscipeta* (*Tchitrea*) *tricolor*, Fraser, from Fernando Po (ib. xii, p. 441); *Rhipidura Dryas*, Gould, from New Holland (ib. xii, p. 60); *Platysteira castanea*, and *leucopygialis*, Fraser, from Fernando Po (ib. xii, p. 131); *Eopsaltria australis*, Lath., and *griseogularis*, Gould, are figured in the 'Birds of Australia,' Part 13. S. Müller and Schlegel have enriched the genus *Rhipidura* with not less than nine species from the Indian Archipelago. *Rh. semicollaris*, *squamata*, *phænicura*, *threnothorax*, *rufiventris*, *gularis*, *ochrogastra*, *euryura*, and *perlata*. (Verh. Land-en Volkenk, p. 184.)

Subulirostres.—The German Fauna has received an addition by v. Homeyer, of a new Thrush, named by him *Turdus atrocyaneus*. (Isis, p. 604.)

It was taken at Rügen, on the 1st of October, 1842. It is rather larger than the singing Thrush, of a beautiful slate-blue, which is brightest on the abdomen, a white streak across the eyes; rump, middle of abdomen, points of the five outermost tail feathers, internal wing coverts (except the dark slate-blue point), as well as the inner web of the quill feathers in the middle, are also white, in consequence of which the under surface of the wings presents two white bands. Beak dark brown; at the root of the under mandible yellowish; feet bright brown. Homeyer himself notices the similarity of this Thrush with *T. leucocillus*, Pall.; it differs, however, considerably from Pallas's description.

In a Thrush from Cashmere, in the Mus. Senckenberg., Brehm recog-

nized his *Turdus Seiffertitzii*. (Isis, p. 887.) A specimen of *Turdus Whitei* has been taken in Ireland. (Ann. Nat. Hist. xi, p. 78.) *Cossypha gutturalis*, and *nigrocapilla*, from Abyssinia, have been distinguished as new species by Guérin (Rev. Zool. p. 162); he afterwards recognized the identity of the latter with *Petrocincla semirufa*, Rüpp (ib. p. 322). Lafresnaye has added a tenth species to *Grallaria: G. rufula*, from Columbia (Rev. p. 99); *Turdus fumidus*, n. sp. from Timor (in the Land-en Volkenk, p. 199); and (ib. p. 172,) *Geocichla rubiginosa*, from Timor.

Considerable contributions have been made to a more accurate knowledge of the SYLVIÆ of the South of Europe.

Lindermayer (Isis, p. 342) has instituted a new species, *Sylvia* (*Salicaria*) *elæica*. Of the same size as *S. atricapilla*, but in plumage resembling *S. orphea*, though only about half the size, and differing from all in the unusual size of the beak, on which account it has a near resemblance only to *S. hypolaïs*. Its time of arrival and breeding in Greece (end of May) show it to be an inhabitant of equatorial countries. It appears to be altogether an hitherto undescribed species.

Sylvia olivetorum, discovered by Drummond in the year 1836, in Corfu, where it abounds during the summer, has been found in Greece by Lindermayer and Count v. Mühle. The former describes its habits, song, and the structure of its nest; the latter remarks that it is identical with Rüppell's *Sylvia cassirostris*.

Lindermayer still believes that he has found a second new species in his *Sylvia ochrogenion*, which he would distinguish from all the other species, principally by a yellow spot on the chin; it is, however, known to him only in a solitary specimen. Count v. Mühle has moreover remarked to me, that this new sp. is nothing but the female of *S. melanocephala*, that has fed upon the fruit of *Cactus opuntia*, which is of such a penetrating yellow colour that it tinges of a beautiful yellow the chins of other birds also, for instance of *S. atricapilla;* he himself at one time fell into the same error.

Malherbe (l. c., p. 78) notices with respect to a sp. recently characterized by Gerbe, *Sylvia angusticauda:* "Bill remarkably more depressed and tapering than in the allied species (*S. Fitis, rufa*); tail feathers very narrow." Whole length 116 mill., tail 45. Found about Paris, and in various other parts of France. Malherbe remarks that he had received from Algeria a *S. rufa*, which appeared to him to be *S. angusticauda*, so that he supposes the latter to be only a variety of the former, and there, perhaps, the matter may rest.

Landbeck has again asserted (Isis, p. 600) the independence of his *Sylvia* (*Carruca*) *rubricapilla*. Since, however, he cannot himself refer to any specimen, but merely repeats the statement of his father, it may still perhaps be viewed only as an accidental variety of *S. atricapilla*, in which the crown of the male retains for a longer period, or permanently, its youthful colour.

A *Sylvia badiceps*, from Fernando Po, has been characterized by Fraser (Ann. xii, p. 133) as also a *Sylvicola superciliaris*, from the same locality (p. 440). *Zosterops abyssinica* is distinguished by Guérin (Rev. Zool. p. 162), and Gould has figured in the 'Birds of Australia,' part 11, *Zosterops dorsalis* with the nest, *luteus*, and *chloronotus*.

In the 17th part of his 'Illustrations' A. Smith has represented the following species of *Drymoica: D. ocularis, pectoralis, capensis, subruficapilla, affinis, cherina, aberrans, chiniana*, and *natalensis*. At the same time Fraser has characterized seven species of *Drymoica*, from West Africa, viz. *D. mentalis, Strangei, lateralis, ruficapilla, rufa, rufogularis*, and *uropygialis* (Ann. xii, p. 478), which must be more accurately known before they can be compared with the preceding species with certainty. *Cincloramphus cantatoris*, new species by Gould, from New Holland. (Ann. xii, p. 63.)

The specific difference between *Saxicola aurita* and *stapazina* has been again asserted.

Lindermayer, Malherbe, Count v. Mühle, and Drummond distinguish the two species, and the two latter writers also adduce reasons for doing so. In opposition to Strickland's opinion, that *S. aurita* merely represents the winter plumage of *S. stapazina*, is the circumstance that they occur both together in Greece and Sicily.

Guérin distinguishes from *Saxicola leucura*, a *S. leucuroides*, "tota atra, caudâ basi uropygioque imo rufescente albidis," from Abyssinia. (Rev. Zool. p. 162.) *Saxicola pyrrhonotus*, from Timor, is proposed as a new species in the 'Land-en Volkenk.' 207.

Motacilla melanocephala is regarded as a distinct species by Lindermayer, as well as by Count v. Mühle and Malherbe. According to Drummond, the black head becomes gray in winter.

As is remarked by Sundevall (Isis, p. 288), *M. flava* is common in Central and Southern Sweden, and, on the contrary, is not met with in Lapland and Norway, where it is replaced by *M. melanocephala*.

Brandt has received a new Accentor (fluëvogel) from the Altai, which he terms *Accentor altaicus*. (Bullet de Pétersb. i, p. 365.)

"*Rostrum* nigrum. *Caput* supra cum cervice griseum. *Genæ* ejusdem coloris, sed albo fuscoque longitudinaliter striolatæ. *Gula* alba, sparsim nigro-fasciolata. Pectoris superioris partis pennæ medio ferrugineæ, albo limbatæ, inferioris cum pennis hypochondriorum, crissi et tectricibus caudæ medio fuscæ, ferrugineo parum imbutæ, albo limbatæ. Abdomen medio album. Tectrices alæ inferiores albo et griseo fasciolatæ. Dorsi superior pars, ferruginea fusco-nigro maculata, ob pennas medio fusco-nigras. margine ferrugineas. Dorsi posterior pars grisea. Remiges primariæ et rectrices fusco-nigricantes, margine externo albo limbatæ." Entire length 5″ 3‴.

Grallina australis has been figured by Gould in the 'Birds of Australia,' part 11.

E. de Selys Longchamps has described as a new Titmouse his *Parus borealis*. (Rev. Zool. p. 212.)

P. supra cinèreo-griseus, pileo atro, temporibus albis; subtus albidus, lateribus vix saturatioribus, gula late nigricante." Length 4″ 10‴, tail 2″ 4‴-5‴. Brought from Iceland by the French expedition; one specimen comes from Norway. S. Longchamps proposes, doubtfully, also a second sp. as *P. frigoris*, also most probably from Iceland. As large as *P. borealis*, and having the black on the gorge less extended than in *P. atricapillus*, the black less pure gray, and inclined to olive. It appears to me that it may possibly be only an older condition, or in the breeding plumage of *P. borealis*.

Parus leuconotus and *Parisoma Galinieri*, from Abyssinia, have been announced as new by Guérin. (Rev. Zool. p. 162.)

To *Pitta*, Hartlaub has added, as a new species, his *P. cucullata*, from Malacca; he enumerates at present sixteen species of this genus. (Rev. Zool. p. 65.)

The following are to be mentioned as newly instituted, and all of them superfluous genera, founded on no permanent characters.

Smicrornis, instituted by Gould: "*Rostrum* parvulum et instar grani tritici, ferè cylindraceum, à basi incurvatum. *Nares* basales oblongæ et operculo obtectæ; ad basin rostri pili tenuissimi admodum pauci. *Alæ* modicè longæ, alula brevissima, primariæ, 3-4-5 longissimæ et inter se fere æquales. *Cauda* brevis et quadrata. *Tarsi* modici; digiti perbreves; digitus posticus cum intermedio fere coequalis. *Ungues* admodum adunci, et ad hærendum aptati." Nearly allied to *Gerygone*, which name is now substituted for *Psilopus*. New species are, *Smicrornis flavescens*, *Gerygone magnirostris*, and *chloronotus*, all from New Holland. (Ann. Nat. Hist. xii. pp. 60, 61.)

Hylacola has been separated as a genus, by Gould, from *Acanthiza*, and he has referred to it *A. pyrrhopygia*, and a new species, *H. cautæ*. (Ann. Nat. Hist. xii, p. 62, and Birds of Australia, part 13.)

Another genus has been named by him *Erythrodryas*, which differs so little from *Petroica* that the Reporter does not find it worth while to give its characters. Gould places under it *P. rhodinogaster*, Jard., and his *P. rosea*. (Ann. Nat. Hist. xi, p. 528.)

Amongst the Thrushes, Lafresnaye has instituted a distinct genus, *Ramphocinclus* (Rev. Zool. p. 66), with three species from the Antilles, distinguished by the length of the slightly curved beak, and the blackish brown plumage. The type is *Turdus brachyurus*, Vieill., with which are conjoined

by Lafresnaye two other species distinguished by him: *R. tremulus* and *gutturalis*. Lafresnaye, however, cannot be said to have long enjoyed the pleasure of founding a new genus, since immediately after its publication Lesson set about its demolition, referring *R. tremulus* and *gutturalis* to *Thriothorus*, and leaving only *Turdus brachyurus* for *Ramphocinclus*.

Certhiaceæ.—New species, *Synallaxis striaticoltis*, *unirufus*, *fuliginosus*, *brachyurus*, *gularis*, and *cinnamomeus*, all from Columbia, and defined by Lafresnaye in the 'Rev. Zool.' p. 290. From the same part are *Diglossa albilatera*, Lafr. (Rev. p. 99), and *Dendrocolaptes triangularis*, Lafr., in the 'Mag. de Zool.' tab. xxxii. *Ptilotis flava*, *versicolor*, and *unicolor*, *Myzomela obscura*, *Glyciphila fasciata*, *Entomophila*? *rufogularis*, and *albogularis*, *Climacteris melanura*; all from Australia, and defined by Gould in the 'Ann. Nat. Hist.' xii, pp. 63-65; who, besides these, has figured in the 'Birds of Australia,' *Meliphaga Novæ Hollandiæ*, Lath., and *sericea*, Gould; *Glyciphila fulvifrons*, Vig., *albifrons*, Gould, and *fasciata* (part 10); *Myzomela sanguinolenta*, Lath., and *erythrocephala*, G., *Acanthorhynchus tenuirostris*, Lath, and *superciliosus*, Gould (part 11); *Zanthomyza phrygia*, Lath., *Entomophila picta*, G., *albogularis*, G., and *rufogularis*, G., *Myzomela pectoralis*, G. (part 12.)

Lafresnaye has sketched the characters of four species of *Conirostrum*, and given a figure of *C. albifrons*. (Mag. de Zool. tab. xxxv.)

S. Müller and Schlegel have added to the Nectariniæ six new species from the Indian Archipelago, viz. *Nectarinia vulnerata*, *Boiei*, *simplex*, *hypogrammica*, *frenata*, and *Temminckii*. (Verhandel. Land-en Volkenk, p. 172.) *Nectarinia flavigastra*, Gould, found in New Ireland. (Zool. of the Voyage of the Sulphur, Birds, p. 43, tab. 24.) *Merulaxis orthonyx*, Lafr., from Columbia, may provisionally be placed here; a remarkable Bird, since it constitutes the transition from *Merulaxis* to *Megalonyx*.

Hirundinaceæ. Drummond observed on the 17th of April, 1836, near Patras, a considerable flock of *Hirundo rufula* (*H. alpestris*, Pall.; *daurica*, Linn.); at a later period (14th April, 1842), in the Island of Fano, near Corfu, of two specimens which he saw, he killed one. (Ann. Nat. Hist. xii, p. 419.) Neither Lindermayer nor Count v. Mühle mention this Bird in Greece. Malherbe remarks that it appears occasionally in Sicily, Italy, and France. Brandt states that Kittlitz has brought it from Manilla; and Strickland adds the remark, that *H. erythropygia* is probably the same species.

Guérin says of his *Hirundo abyssinica*: "affinis *H. capensi*, sed multo minor. Supra nigro-cyanea, alis nigris. Pileo uropygioque rufo-ferrugineis. Corpore infra albo, nigro guttato. Rectricibus nigris, intus ad apicem albo maculatis, duabus exterioribus longioribus. Long. tot. 15 cent."

Vicomte de Tarragon relates, as eyewitness, the interesting circumstance of Window Swallows building up in a few moments, and with great noise, a hen Sparrow which had taken possession of their nest, and was sitting upon

her eggs in it. The Sparrow perished in consequence. The relator preserved the nest, together with the dead birds, for a long time. (Rev. Zool. p. 323.)

Hirundo neoxena, from Australia, is separated by Gould, as a distinct species from *H. javanica*, and *orientalis*. (Ann. xii, p. 58.)

CLAMATORES.

MACROCHIRES. *Collocalia Ariel*, described by Gould (Ann. xii, p. 59), is indigenous in the southern parts of Australia.

Bourcier, by whom so many new species of Colibris have been instituted, describes, as such, in the 'Rev. Zool.', *Trochilus Prunellei*, *cupripennis*, *antophilus*, *Guimeti*, *Guérini*, and *Barroti* (p. 70), *Prevostii*, *cyanifrons*, *Goudoti*, *chrysogaster*, *cyanotus*, *Geoffroyi*, *Leadbeateri*, *fallax*, *Riefferi*, and *viridigaster* (pp. 99-103), all from Columbia; and from the same part, *Ornismya Poortmanni* (p. 2). A species also, from Guatemala, *Ornismya Helenæ*, is added by Delattre (ib. p. 133).

CAPRIMULGINÆ.—Since the eggs of *Steatornis caripensis* present the closest similarity with those of Owls, and especially of *Strix flammea*, O. des Murs (Rev. Zool.) is inclined to bring the Guacharo into closer relation to the latter than has hitherto been done.

It is to be remarked here that the anatomical examination by Joh. Müller, with which Des Murs appears to be totally unacquainted, has already established the place of the *Guacharo* among the Caprimulginæ, although at the same time it rendered evident its approach to the Raptorial Birds, which latter resemblance is increased by the form of the eggs. The *Steatornis* affords to the Goatsuckers a type through which they are brought into connexion with the Raptores.

TODIDÆ.—*Merops Lafresnayii* has been characterized by Guérin as a new Abyssinian species.

"Supra viridis, infra pallide cinnamomeus. Gutture flavo, postice late nigro-cyaneo marginato. Remigibus secundariis flavo-ferrugineis apice nigris. Cauda pallide cinnamomea apice nigra; duobus rectricibus mediis subbrevioribus omnino viridibus. Long. tot. 20 centim."

Eurystomus australis, Swains., has been figured by Gould in the 'Birds of Australia,' p. 12.

LIPOGLOSSÆ.—On the relationship between *Upupa* and *Irrisor* (Levaillant's Moqueur), and on the systematic place

to be occupied by both, Strickland has entered into an ample discussion. (Ann. Nat. Hist. xii, p. 238.)

From external comparison of the two genera he finds that they present a closer relationship to each other than either of them do to any other group, and that consequently they must be united into one and the same group, the UPUPIDÆ. But it is then to be inquired, what place is to be assigned to these Upupidæ? In Strickland's opinion this question cannot be accurately determined until we are in possession of more facts relating to the food, habits, and anatomy of this group. It might, however, be supposed that it is allied in one direction, through *Epimachus* or *Astrapia*, with the PARADISEIDÆ; in another, through *Merops*, with the ALCEDINIDÆ; and in a third, through *Lamprornis*, with the CORVIDÆ. Thus is this excellent naturalist still in the dark, unconscious all the while that Nitzch has long ago assigned its settled systematic place to the "Hoopoe," as well as to the "Moqueur," in doing which he certainly regarded more than the external appearance. But in order to know this, an acquaintance with German labours is undoubtedly requisite, which the greater part of English and French zoologists make it a rule, or at least find it convenient, to pass over. If Strickland had only even referred to the Annual Reports in these Archives, he would not have entered into the discussion of questions which have been long since, and definitively, settled.

As shown by S. Müller and Schlegel, all the Indian King-fishers, and also as it appears to them all the rest, as regards their habits, localities, habits of life and food, fall very naturally into three groups. (Verhandel. Land-en Volkenk. p. 175.)

(*a*) True King-fishers (*Alcedo*), or those species which remain constantly near water. To these belong the smallest but the most brilliantly coloured species, (also the three-toed species,) which mostly live near the ground, make their nests in holes in the earth, and feed principally on small fish. (*b*) *Halcyon*, with proportionably larger, especially thicker, and less angular beak; they are met with very irregularly, sometimes near water, then again at a distance from it, in dry mountainous districts; always, however, in more or less open localities, not in dense forests, and still less on the ground in dark situations, but, on the contrary, principally on trees of moderate height. They utter a very loud cry, build their nests in holes in trees, and their food consists of locusts, ephemeræ, and, other insects, and in some cases, also of small fish and crustacea. To this subdivision belong *Halcyon collaris*, *sanctus*, *omnicolor*, *atricapillus*, *coromandus*, *leucocephalus*, &c. (*c*) *Dacelo* differ still more in mode of life, form of beak, and plumage, from the true

King-fishers. They inhabit woods, especially in mountainous regions, seldom betray their presence by any sound, make their nests low on the ground, in the hollows of old trunks of trees, fissures in rocks, &c., and subsist upon all sorts of insects and small conchylia. To these belong, from the Indian Archipelago, *Dacelo concreta*, *pulchella*, *cyanotis*, *dea*, *syma*, and some new species from the Celebes and the Moluccas. As these authors observe, *D. buccoides* is the female of *D. pulchella*.

New species: *Halcyon coronatus*, S. Müll. and Schleg, from Timor (l. c.), *H. platyrostris*, Gould, from the Navigator Islands, and *H. sordidus*, Gould, from New Holland (Ann. Nat. Hist. xi, p. 324), *H. leucogaster*, Fraser, from Fernando Po (Ann. xii, p. 441), *H. saurophaga*, Gould, from New Guinea (Sulphur, Birds, p. 39, tab. xix).

ZYGODACTYLI.

Cuculinæ.—The so-called *Cuculus rufus*, has again become the subject of discussion.

Lindermayer says (Isis, p. 337), that among probably a thousand *C. canorus*, brought to the market in Athens, only one *C. rufus* will be found, and that consequently the opinion that *C. rufus* is merely the female, or in the young state, is entirely without foundation. To which Brehm (Isis, p. 890) has replied, and of all ornithologists he may, probably on this point, be considered the most competent. He remarked that the Red Cuckoo is in general rare; that occasionally, also, older as well as one year old females present the red plumage, and that more frequently, young red males also become gray. Brehm consequently regards the Red Cuckoo as merely an accidental variety, which in old, that is to say, in birds that have moulted, is common only in the female.

That Lindermayer saw only one Red Cuckoo is explained by Brehm to arise from the circumstance, that, in the first place, the females migrate at a later period, and probably, like the old autumnal birds and the young, in an entirely different direction, and also because the Red Cuckoo is in general very seldom captured; since in 30 years he had not obtained more than four specimens of old red females. The females of many species are caught with difficulty, and scarcely ever when on their passage.

Cuculus himalayus has been declared by Brehm (l. c.) to be a sub-species of *C. canorus*, or, if preferred, of *C. tenuirostris*.

A specimen of *Cuculus glandarius* has been killed in the county Galway, in Ireland. (Ann. xii, p. 149.)

New species from the Indian Archipelago are, *Cuculus sepulchralis*, *tym-*

bonomus, fasciolatus, and *lanceolatus, Eudynamis picatus, melanorhynchus*. (Verhandel. Land-en Volkenk., p. 176-178.)

The egg of *Crotophaga Ani* has been figured by O. des Murs, in 'Mag. de Zool.', tab. xxxvi.

Bucconidæ.—On the habits of *Trogon pavonius*, some notices by Delattre have been given in the 'Rev. Zool.', p. 163. *Bucco subsulphureus*, from Fernando Po, has been characterized by Fraser. (Ann. xii, p. 441.)

Ramphastidæ.—As supplementary to last year's Report, the Reporter has here to state the contents of the third part of Gould's Monograph of the Ramphastidæ, translated, with additions and some new species, by F. Sturm and W. Sturm.

Ramphastos Toco, carinatus, vitellinus, Temminckii, and *dicolorus*. *Pteroglossus hypoglaucus, Sturmii, Humboltii, inscriptus*, and *derbianus*. Among these *Pt. Sturmii* is a new species distinguished by Natterer, differing from the very similar *Pt. bitorquatus*, by the wholly black inferior mandible, the dark brown iris, the dark blue-gray naked integument around the eyes, and the pale yellow crescent at the extremity of the throat. Nearly allied to this is Gould's n. sp. *Pt. erythropygius*. (Ann. xii, p. 477.)

Picinæ.—From *Picus major* Malherbe has distinguished a *Picus numidus*, from Bona in Algeria, as a separate species. (Faune de la Sicilie, p. 144, and Mém. de l'Acad. de Metz, 1842, 1843.)

It differs from *Picus major* principally in this respect, that the black band, which in that species descends from the bill, on each side of the breast, without uniting, forms in *P. numidus* a broad, uninterrupted, cervical collar, which is entirely covered with feathers of a lively red; besides which, the white spot on the neck, the white of the scapularies, of the middle coverts, and the white spots of the tail, are less extensive in *P. numidus*, and the carmine red of the abdomen and of the tail coverts is brighter. The male is about 14 millim. less than that of *P. major*.

Brehm has divided *Picus leuconotus* into three sub-species, upon which he has furnished some good remarks. (Isis, p. 728.) With respect to his *Picus jubatus*, Lafresnaye has found that it is merely the female of *P. magellanicus*, King. It is curious, that in this species only, the male has a much shorter crest than the female. (Mag. de Zool., tab. xxxi. Figure of the female.)

It is a remarkable circumstance that, as Drummond states, *Yunx torquilla* at its time of passage is so numerous at Malta, that it is brought to market in basket loads. (Ann. xii, p. 418.)

PSITTACINÆ.—The number of this already so numerous a division of Birds, is constantly increasing.

Psittacus (*Platycercus*) *hypophonius*, from Gilobo, and *Ps.* (*Psittacula*) *stigmatus*, from Celebes (S. Müller and Schlegel, Verhandel. Land-en Volkenk, p. 181). *Calyptorhynchus macrorhynchus*. and *Cacatua sanguinea*, from Australia, by Gould. (Ann. xii, p. 65). In the 'Birds of Australia' Gould has figured *Cacatua galerita*, Lath., *Leadbeateri*, Wagl., and *sanguinea*, Gould, *Trichoglossus chlorolepidotus*, Kuhl (part 10); *Platycercus semitorquatus*, Quay, *Baueri*, Temm., and *Barnardi*, Vig. (part 11); *Trichoglossus concinnus*, Shaw, and *pusillus*, Lath. (part 13). *Coryphilus Dryas*, Gould, from the Marquesas Islands. (Sulph. p. 44, tab. xxvi.)

In the 'Isis' (p. 257) mention is made of a very intelligent Parrot.

COLUMBINÆ.

Although Wagler, who was not otherwise averse to the separation of genera, included all under a single genus, later Ornithologists have hatched a host of genera for themselves. Two such wholly untenable genera have been again instituted by Gould, *Geophaps* and *Ocyphaps*. (Ann. xi, p. 146.)

(*a*) *Geophaps*. "*Rostrum* perbreve et robustum. *Oculi* cute denudatâ circumdati. *Alæ* perbreves et rotundatæ, apicibus latis. *Tarsi* mediocres digitis longiores. *Digitus* internus paululum cæteris longior." To this belongs *G. plumifera*, new species.—(*b*) *Ocyphaps*. "*Caput* cristâ occipitali elongatâ. *Alæ* paulo breves, remige tertiâ gradatim ad apicem coarctatâ. *Cauda* mediocritèr elongata et rotundata. *Tarsi* et digitus intermedius eadem longitudine. *Digitus* internus externo brevior." Typus *C. lophotes*.

Gould has figured in the 'Birds of Australia,' among the Pigeons, *Petrophassa albipennis*, Gould (part 10); *Carpophaga leucomela*, Temm., and *luctuosa*, Temm. (part 12); *Ocyphaps lophotes*, Temm., *Peristera chalcoptera*, Lath., and *elegans*, Temm., *Chalcophaps chrysochlora*, Wagl., *Leucosarcia picata*, Lath. (part 13). Some Peruvian species have been described by Tschudi, in these 'Archives' (p. 385): *Columba gracilis*, *meloda*, and *frenata*.

With respect to his *Columba cæsia*, and *lugubris*, both of which, it is said, should be regarded as distinct species from *C. Turtur*, and which have been found in Alsatia, Landbeck has adduced notices by his father (Isis, p. 601), which do not, however, afford sufficient ground for a correct judgment. It is remarkable nothing further should have been heard of these pretended species, although, as Birds of passage, they must have presented themselves also elsewhere, for Brehm's *C. dubia* can, only very doubtfully, be referred to *C. cæsia*.

GALLINACEÆ.

Syrrhaptidæ.—*Pterocles personatus*, Gould, appears in the 'Voyage of the Sulphur;' its native locality, however, is not mentioned. (Ann. Nat. Hist. xii, p. 478.)

Gallinæ.—On the claim of the *Rakelhahn* (*Tetrao medius*) to be considered a distinct species, Wilson has communicated his observations to the Royal Society of Edinburgh. (Instit. p. 298.)

The Hybrid Grouse occurs here and there in the north of Scotland, but only in those districts where the Capercaillie and Black Grouse are found. In districts where the Capercaillie has been recently introduced, and where the Black Grouse was previously plentiful, the intermediate form did not fail shortly to appear, whence Wilson concludes, that it is not a distinct species, but merely a hybrid. This bird, he says, was formerly unknown in Scotland, at least in our time; it has not been introduced from abroad, and it is at present met with in the same districts which are inhabited by the two other species.

Brandt, in giving a more precise account of *Perdix caucasica* and *altaica*, has also furnished the characters of the sub-genera of *Perdix*. (Bullet. de la Classe Physico-mathem. de l'Acad. de Pétersb. i, p. 278.)

He receives the genus *Perdix* in the same sense as Bonaparte, and consequently excludes from it *Starna* (*Perdix cinerea*). His arrangement is as follows:

I. Sub-genus *Perdix*. Valvulæ nasales calvæ vel in margine basali ad mediam usque area angusta, subuniseriata, acuminata pennularum obsessæ. Remigum prima septima longior, sexta, subæqualis vel brevior. *Digiti* et ungues longiores et angustiores. *Squamarum* dorsalium digitos obtegentium apicalis reliquis sub æqualis. *Cauda* rectricibus 14-16 composita.

α. *Gymnorrhines* (*Lerwa*, Hodgs.). *Valvulæ* nasales calvæ; hypochondriorum pennæ acuminatæ vel sub acuminatæ. To this division belong *Perdix Heyi*, Temm., *P. griseogularis*, Brandt, and other species.

β. *Pterorrhines* (*Chacura*, H.). *Valvulæ* nasales arcâ angusta uniseriata pennarum ad medium usque extensâ vestitæ; *hypochondr.* pennæ in adultis, dilatatæ, truncato-rotundatæ. To this belong, *Perdix græca* (*saxatilis*), *P. rubra*, *P. petrosa*, *P. melanocephala*, Rüpp. and others.

II. Sub-genus. *Megaloperdix*, Brandt, (*Tetraogallus*, Gray, *Chourtka*, Motchoulski). *Valvulæ* nasales basi totæ areolâ arcuatâ angustâ pennularum pluriseriatarum obsessæ. *Remigum* prima sextâ longior. *Digiti* et ungues breviores et latiores. *Plantæ* latiores. *Squamarum* dorsalium digitos obte-

gentium, apicalis reliquis paulo longior. *Pennæ* hypochondriorum subelongatæ, plus, minusve acuminatæ. *Cauda* e pennis 18-24 composita. Large species, inhabiting lofty mountains on the border of the perpetual snow.

Spec. 1. *Perdix altaica*, Gebl. (*P. caucasica*, Eversm.). *Caudæ* rectricibus 22 vel 24 medio cinereis, apice nigris composita. *Nucha* cinerea, postice fasciâ atrâ terminata. *Pectoris* superior pars pallide cinerea, albo nigroque maculata, inferior cum abdominis anteriore parte alba. Entire length 23″, 10‴. Inhabits the highest Alps of the Altai.

Spec. 2. *Perdix caucasica*, Brandt, (*Tetrao caucasica*, Pall., *Chourtka alpina*, Motch.). *Cauda* e rectricibus 18, basi cinereis, inde a medio nigris, apice ferrugineis, composita. *Nuchæ* inferior pars, albido nigroque subtenere undulata. *Pectoris* superior pars albido, nigroque transversim fasciolata, inferior pars cum abdomine nigricante-cinerea, pallide ferrugineo striata et tenuissime punctata et fasciolata. Entire length 22″. Inhabits the highest points of the Caucasus.

? Spec. 2. *Perdix Nigelli* (*Lophophorus Nigelli*, Jard., *Tetraogallus Nigelli*, Gray). Not as yet certainly established, at all events much resembling *P. caucasica*, so that Jardine's plate 76, may be a young female, whilst pl. 141, and that of Gray, may represent another species.

With respect to this point, G. R. Gray now gives an explanation, thus completing the work of Brandt. (Ann. Nat. Hist. xi, p. 523.) He remarks, that a living specimen brought from the north of Persia corresponds with Jardine and Selby's plate 76, and that both are in all probability identical with *Tetrao caucasica*, Pall. He further shows that the plate 141 (ib.), and the figure given by J. E. Gray, under the name of *Tetraogallus Nigelli*, in the 'Ind. Zool.' belong to another species, of which he had seen many specimens from the Himalaya mountains, and which is distinguished by the silky white neck and breast; by a chesnut-brown line, running downwards, and in part encircling the base of the neck, and by the breast being variegated with black in front. Gray proposes to name this species *Tetraogallus himalayensis*, which is unnecessary, as it can retain the name of *Perdix Nigelli*.

Brandt rejects the genus *Tetraogallus*, since it presents no marked affinity either with the common Fowl or Grouse. With respect to *Lophophorus* he remarks, that it exhibits a great analogy with *Perdix*.

Very nearly allied to, if not actually identical with, *Perdix griseogularis*, is *Caccabis Bonhami*, from the mountains of Persia. (Gray, in the Ann. Nat. Hist. xi, p. 372.)

Of his *Perdix griseogularis*, Brandt (l. c. p. 365,) gives the following diagnosis: *Habitus* ferè, *P. Heyi*. *Rostrum* minus robustum. *Dorsum*, pectus et abdomen magis cinerascentia et cinereo irrorata. *Tectrices* alarum

inferiores tenuissimè atro vermiculatæ. *Frons* et stria supra oculum atra. *Mentum* cum stria pone et ante oculum album. *Gula* cum genis et capitis superiore facie cinerea. *Colli* latera albo fuscoque transversim fasciolata. *Dorsum* et pectoris initium cinereo, fusco et ferrugineo fasciolata. Length 9″ 3‴. Sent by Karelin, on his travels through Turcomania and Persia.

By this Memoir of Brandt's the questions proposed by Gerard, in his article *Chourtka* (Diction. Univ. d'Hist. Nat. iii, p. 642), are answered of themselves.

Cookson mentions the instance of a Partridge which laid 36 eggs in his aviary, from which two domestic hens hatched 30 young. He had obtained this bird when it was perhaps 3 weeks old, and after moulting it assumed, entirely, the male plumage, so that it was even taken for a male, and it was a matter of astonishment that a wild male endured captivity so well. On the moult of the next year it reassumed the female plumage, and, in the following spring, laid the above-mentioned number of eggs. (Ann. Nat. Hist. xii, p. 453.) Malherbe has published some interesting notices on the habits and breeding of the *Francolin;* it has not been met with in Greece, any more than in Corfu and Candia.

As new species Smith has described, in his 'Illustrations of the Zool. of South Africa,' *Francolinus gariepensis*, pl. 83, 84, and has given, in pl. 85, a figure of *Fr. Levaillantii*. To *Ortyx* Gould has added four species: *O. nigrogularis*, from Mexico; *O. pectoralis*, ib.; *O. castanea*, from South America; and *O. stellata*, from Brazil. (Ann. Nat. Hist. xii, p. 284.) In the 'Birds of Australia,' part 12, are *Synoicus* (*Coturnix*) *australis*, Lath., and *chinensis*, Lath.

From Peru, Tschudi has brought, as new species, *Odontophorus speciosus*, *Penelope rufiventris*, and *adspersa*, *Thinocorus Ingæ*. (Archiv, p. 386.) S. Müller and Schlegel have remarked that *Gallus æneus* (pl. col. 374) is merely a hybrid of *G. furcatus* and a tame Hen. (Land-en Volkenk. p. 210.)

Tschudi observed a peculiar formation of the penis in *Penelope abunnida* (Müller's Archiv, 1843, p. 472), upon which Joh. Müller remarks that, from his own examination of *P. cristata*, he had found exactly the same condition of the penis in it as in the three-toed Ostriches, on which account *Penelope* is related to those Birds, and not to the gallinaceous tribe.

Crypturidæ. *Hemipodius castanotus*, from New Holland, instituted by Gould, and figured in his 'Birds of Australia,' part 13. *Crypturus Kleei*, by Tschudi, in our Archives (p. 387).

CURSORES.

The most important discovery which has been made in this year is the indication of a gigantic bird of the short-winged order, named by Owen *Dinornis*, and found in New Zealand.

From the fragment of a femur found in New Zealand, Owen had, three years since, concluded that a struthious Bird, of the size of the Ostrich, had existed, or perhaps even still existed in that country. More accurate indications are now afforded, Mr. Williams, a missionary stationed in that island, having collected many of these bones, and consigned them to Prof. Buckland, who submitted them to Owen for determination. The bones, which are not at all fossilized, were dug out of the mud of streams flowing from the lofty mountains, and are in excellent preservation. A perfect femur presents almost the same relative thickness and length as that of the Ostrich, it is, however, less compressed; it differs, consequently, from that of the *Apteryx*, in being shorter in proportion to its thickness. It differs from the femur of the Ostrich and Emu in the important circumstance, that it wants the air-hole behind the neck; consequently medulla is substituted for air in the interior of the bone. It is 11 inches long, and has in the middle a circumference of $5\frac{1}{2}$ inches; whilst the latter, in another specimen, amounts to $7\frac{1}{2}$ inches. A tibia is 2 feet $4\frac{1}{2}$ inches long, and apparently corresponds with the larger femur. It differs from the same bone of the *Apteryx*, and all the large Struthionidæ, in having a complete osseous canal for the passage of an extensor tendon in the anterior concavity, above the distal condyles. The most instructive bone is a tarso-metatarsal bone, which shows that the gigantic Bird was tridactyle, in which respect it differs from both *Apteryx* and the Dodo. From these researches, it appears that the great New Zealand Bird constitutes a distinct genus in the struthious order, which is named by Owen *Dinornis*, with the specific denomination, *D. Novæ Zealandiæ*. In size it surpasses the Ostrich, and is consequently the most gigantic Bird with which we are acquainted. It has not yet been seen living. (Ann. Nat. Hist. xii, pp. 438, 444.)

Owen has completed his important Monograph on the genus *Apteryx*. (Ann. xi, p. 213.)

The concluding part contains the detailed description of the muscular system of this remarkable bird.

Of the residence and habits of the *Apteryx*, Dieffenbach has given further information (Travels in New Zealand, i, p. 230), which has been commu-

nicated by the Reporter, in the 'Münchn. Gel. Anzeig.' xvii, p. 582. Dieffenbach could procure only one specimen; in many districts the "Kiwi" is already extirpated.

The discovery of the skeleton of a Dodo in the collection at Copenhagen, has been confirmed by Reinhardt. (Isis, p. 58.)

Measurements of the blood-corpuscles of the Ostrich, Emu, and Rhea, have been made by Gulliver. (Ann. xii, p. 130.)

GRALLÆ.

Alectorides.—Some notes on the habits of a *Palamedea cristata*, kept in the Clifton Zoological Gardens, have been communicated by Martin. (Ann. Nat. Hist. xii, p. 141.)

Fulicariæ.—The European Fauna has received an accession in the *Fulica cristata*, Gmelin.

As stated by Malherbe (p. 198), this Bird, which is common in Algeria, has been killed in Provence, several times in Sardinia, and lately also in Sicily.

New species: *Fulica ardesiaca*, *Crex facialis*, and *femoralis*, from Peru, by Tschudi, in 'Archiv,' p. 388. *Rallus Rougetii*, from Abyssinia, by Guérin (Rev. Zool. p. 322). *Porzana fluminea*, from New South Wales, and *P. palustris*, from Van Diemen's Land, by Gould (Ann. xii, p. 66); both figured in the 'Birds of Australia' (part 10), as also is *Parra gallinacea*, Temm.

Erodii.—The eggs and nest of *Eurypyga phalænoides* have been described and figured by Goudot, in the 'Rev. Zool.,' p. 1, and in the 'Magas. de Zool.,' tab. xxxviii.

A. Smith has figured in his 'Illustrations,' *Ardea atricollis*, Wagl., pl. 86, and *gutturalis*, Smith, pl. 90.

Gruinæ.—According to Malherbe's account, *Grus pavonius* occurs very casually on the southern and eastern coasts of Sicily; according to Swainson, it is said not to be infrequent in those waters, especially in the small island of Lampedosa, near Malta.

Limicolæ.—New species of Plovers are, *Charadrius Winterfeldti*, and *resplendens*, *Œdicnemus superciliaris*, from Peru, by Tschudi, in the 'Archiv,' pp. 387, 388. *Lobivanellus personatus*, from New Holland, by Gould, in the 'Ann. Nat. Hist.' xi, p. 528. *Endromias australis*, Gould, in the 'Birds of Australia,' (part 13).

Pedionomus micrurus is distinguished by Gould as the second species of the genus instituted by him. (Ann. xi, p. 146.)

Our long-legged Plovers have been reduced by Brehm into five sub-species. (Isis, p. 725.) That *Totanus glottoides*, Gould, from the Himalayah, cannot

be specifically separated from our *T. Glottis*, is satisfactorily shown by Brehm (l. c. p. 894).

Among the Greek Plovers Count v. Mühle would distinguish a *Numenius syngenicos*. (Beitr. p. 111.)

It is a doubtful circumstance, as respects the independence of this species, that it is founded upon a single specimen, and that the habit, though remarkably different from that of the other three European species, nevertheless presents "no strikingly characteristic feature."

Size, figure, and feet of *N. phæopus*, bill weaker and shorter, outline of head precisely as in *N. arquata*, sides without black shaft-spots; black shaft-spots of the under part of the body not as in *N. tenuirostris*, cordate, but lanceolate; shafts of the first three large wing feathers white; lateral feathering of the under mandible not reaching above the upper.

Blyth (Ann. xii, p. 74) is inclined to place *Glareola* among the Caprimulginæ.

NATATORES.

Longipennes.—Gould has made known four species of Sea Swallows from Australia: *Sterna velox*, *Hydrochelidon fluviatilis*, *Thalasseus Torresii*, and *Sternula Nereis*. (Ann. Nat. Hist. xii, p. 67.) From Peru, by Tschudi: *Sterna acutirostris*, and *exilis*, as also *Larus modestus*. (Archiv. p. 389.)

Tubinares.—The European Fauna has received an accession in a newly instituted species, *Procellaria* (*Thalassidroma*) *melitensis*. (Ann. Nat. Hist. xii, p. 422.)

This name appears to have been given by Schembri, of whom Drummond says, that he discovered the *P. melitensis* at Malta, where it breeds in great numbers on the rock of Filfola, whilst *T. pelagica* is not known there. Drummond thinks that it may be peculiar to the Mediterranean, and remarks that in his homeward voyage he observed it in multitudes, but that after passing the Straits of Gibraltar it was replaced by *T. pelagica*. The two species, as Drummond says, are readily distinguished; *P. melitensis* is rather the smaller, and has the lower half of the tail feathers, as well as the rump, white. Malherbe mentions the same rock at Malta, but assigns *P. pelagica* to that locality, of which species he also says that it comes from Sicily. Whether or no he examined specimens himself cannot be determined from the account he gives.

Unguirostres.—G. R. Gray has proposed to substitute

for Wagler's generic name, *Malacorhynchus*, that of *Hymenolaimus*. (Ann. Nat. Hist. xi, p. 369.)

From Forster's *Anas malacorhynchus*, from New Zealand, Wagler (Isis, 1832, p. 1235) had formed the genus *Malacorhynchus*, and had also added to it the soft-billed Duck of New Holland, which, a short time previously, Swainson had also raised into a distinct genus, and indeed under the same name, of *Malacorhynchus*. Gray now shows that the two species do not belong to the same genus, since in the New Holland one, the hinder toe is without lobes, which, on the contrary, is lobed in the New Zealand species. The name, *Malacorhynchus*, Swains., being retained for the former, the latter must receive a new one, for which he has selected that of *Hymenolaimus*.

New Peruvian species by Tschudi are, *Anas leucogenys*, and *Anser montana*. (Archiv, p. 390.)

Nilsson (Isis, p. 218) has furnished some remarks upon a tame Duck which had assumed the colour and appearance of the Mallard.

It is to be recorded as a remarkable fact, that both Count v. d. Mühle and Lindermayer mention the *Cygnus musicus* as a stationary bird in Greece, where it breeds in the lakes and marshes; according to the former, in considerable numbers.

Steganopodes.—On the habitat and mode of breeding of the *Pelicanus crispus*, Count v. d. Mühle has communicated some interesting notices in his Beiträg. z. Ornithol. Griechenl. p. 132.

It is very plentiful in Greece throughout the year, and in many lakes and marshes there are extensive breeding colonies of it. *P. onocrotalus*, on the contrary, is extremely rare in Greece; Count v. d. Mühle, indeed, hardly believes that it breeds there, but that in the winter only a few scattered individuals reach that country. Lindermayer mentions only *P. onocrotalus*, and says that it is always found among other entire families on the Licari Lake. This statement, however, arises from confounding the species with *P. crispus*, since, as Count v. d. Mühle remarks, the latter is the only one which inhabits the above-mentioned lake.

Pelecanus rufescens was met with in large flocks by the Niger Expedition, near Egga, in the month of October. Fraser (Ann. Nat. Hist. xii, p. 133).

Dysporus variegatus was discovered by Tschudi, as a new species, on the coasts and islands of the Pacific. (Archiv, p. 390.) *Phalacrocorax hypoleucos*, Brand, *leucogaster*, Gould, and *melanoleucos*, Veill., have been figured by Gould in the 'Birds of Australia' (parts 11, 12).

Pygopodes.—(Ib. part 12) are fignres of *Podiceps gularis*, Gould, and *poliocephalus*, Jard.

HERPETOLOGY.

BY

DR. F. H. TROSCHEL.

FIGURES of new or imperfectly known Amphibia, drawn from Nature or from Life, edited, and accompanied with an Explanatory Text, by H. Schlegel (Dusseldorf, 1837, 1844), of which the first Part has been already noticed in these Archives (1838, ii, p. 359), has now appeared in a complete form, and consists of an Atlas, with 50 coloured plates in folio, and a small volume of text in octavo. It will be sufficient here to enumerate the species figured.

Emys vulgaris, japonica, picta; Trionyx japonicus; Crocodilus biporcatus; Gymnodactylus marmoratus; Galeotes lophyrus; Draco viridis, fimbriatus, lineatus, hæmatopogon; Monitor exanthematicus, capensis, chlorostigma, bivittatus javan., prasinus; Scincus, Mülleri, smaragdinus; Typhlops lumbricalis, squamosus, bilineatus, Eschrichtii, Lalandei, nigricans, Mülleri, lineatus, ater, polygrammicus, multilineatus; Pseudotyphlops oxyrhynchus; Tortrix scytale, rufa, eryx ægyptiaca, pseudoeryx, xenopeltis, boa; Calamaria Linnæi, oligodon; Xenodon purpurascens; Coluber melanurus javanic., Korros, subradiatus, Corais, miniatus; Herpetodryas oxycephalus javan., carinatus, dipsas, margaritiferus, psammophis, dendrophis; Psammophis pulverulenta, moniliger, var. *ægyptiaca, Seychellensis, elegans; Dendrophis ornata; Dryophis Catesbeji, prasina, Langaha; Dipsas Drapiezii, dendrophila,* var. *javan., multimaculata, Gaimardii, ægyptiaca, colubrina, carinata; Homalopsis herpeton; Boa melanura, murina, Dussumieri, carinata; Python bivittatus javanicus; Acrochordus javanicus; Elaps furcatus, surinamensis, collaris, coronatus, psammophis, lemniscatus, bivirgatus,* var. *javanic.; Bungarus annularis, semifasciatus; Naja tripudians sondaica, porphyrea, elaps, bungaroides, curta; Hydrophis hybrida; Trigonocephalus rhodostoma, puniceus; Hyla chalconotus, cyanea, erythræa, aurifasciata, Reinwardtii, leucomystax, Bürgeri; Ceratophrys cor-*

nuta, montana, turpicola; Bufo asper, scaber; Salamandra pleurodeles, nævia, Genei, subcristata, scutata, nebulosa; Cæcilia hypocyanea.

Of Andrew Smith's Illustrations of the Zoology of South Africa, there have appeared, since the work was last noticed in these Reports, the Parts from 13 to 19; that is, in the year 1841 Parts 13 to 15; 1842, only Part 16; and in 1843, Parts 17 to 19. The 13th Part contains, of the Amphibia, the figure of *Bucephalus capensis*, Sm. (*Dendrophis colubrina*, Schlegel). The 15th, *Coluber nanus*, Merr. The 16th, *Naja haje*, Sm. (*Echidna flava*, Merr.) The 17th, *Lycodon geometricus*, Schlegel, and *Lycodon guttatus*, Sm., n. sp. *Cordylus microlepidotus*, Cuv. (under which Smith includes his *C. montanus, melanotus, algoensis* and *subviridis*), *C. fasciatus* (*C. microlepidotus*, Dum. Bibr.), *C. capensis* (*Zonurus capensis*, Dum. Bibr.), *C. polyzonus* (*Zonurus polyzonus*, Dum. Bibr.), *C. griseus*, Cuv., *C. cataphractus*, Gray. The heads and crania of the various species are exhibited on a separate plate. The 19th Part contains *Vipera cornuta* and *V. lophophrys*, Cuv., *Naja hæmachates* (*Vipera hæmachates*, Dand., *Naja capensis*, Sm.) Of S. Nilsson's Scandinavisk Fauna the third Part has appeared, containing the Amphibia (Lund. 1842). The Amphibian Fauna corresponds almost entirely with that of North Germany, for there are enumerated one Tortoise—*Emys lutaria* (*europæa*); three Lizards—*Lacerta agilis, vivipara* and *Anguis fragilis*; three Snakes—*Coluber natrix, lævis* (*austriacus*), and *Vipera Berus*; nine ecaudate Batrachians—*Hyla viridis, Rana temporaria, esculenta, arvalis*, n. sp. (vide infra), *Bombinator igneus, Pelobates fuscus, Bufo vulgaris, variabilis*, and *calamita*, and lastly, three caudate Batrachians—*Triton cristatus, alpestris*, and *punctatus*; thus altogether 19 Amphibia, among which is one new species.

In the year 1842 appeared the third volume of the Zoology of New York, or the New York Fauna of James De Kay (Albany, 1842, 4), containing the Amphibia. 161 species have been enumerated as occurring in the United States, of which 64 species belonging to New York are described and

figured. These are, 17 Tortoises—*Chelonia mydas; Sphargis coriacea; Trionyx ferox; Chelonura serpentina; Emys palustris, terrapin, picta, guttata, insculpta, rubriventris, Muhlenbergii, geographica, pseudogeographica; Kinosternon pensylvanicum; Sternotherus geographicus, Cistudo carolina, Blandingii:* only two Lizards—*Scincus fasciatus* and *Tropidolepis undulatus:* 15 Snakes—*Coluber constrictor, alleghaniensis, getulus, eximius, punctatus, vernalis; Tropidonotus sipedon, tænia, leberis, Dekayi; Leptophis saurita; Calamaria amæna; Hetorodon platyrhinos; Trigonocephalus contortrix; Crotalus durissus:* and 30 Batrachians, among which 12 ecaudate—*Rana pipiens, horiconensis, fontinalis, palustris, halecina, sylvatica; Scaphiopus solitarius; Bufo americanus; Hylodes Pickeringi, Gryllus; Hyla versicolor, squirella;* and 18 caudate—*Salamandra symmetrica, subviolacea, erythronota, picta, salmonea, fasciata, longicaudata, granulata, bilineata, rubra, coccinea* (n. sp. vid. infr.), *glutinosa; Triton tigrinus, millepunctatus, niger, porphyriticus; Menobranchus lateralis; Menopoma alleghaniensis.* Only one new species of the genus Salamandra is instituted. All the above-named species are figured in 23 lithographic plates.

The Zoology of the Voyage of H.M.S. Beagle, under the command of Captain Fitzroy, during the years 1832-1836. (Part v, Reptiles, by Thomas Bell. London, 1843-4.) The Amphibia mentioned in this work are, with a few exceptions, South American; many species are described as new; all are figured in 20 lithographic plates. Besides the description, a Latin diagnosis of each species is given. Those of the new species, as well as of the two Lacertan and five Batrachian genera here instituted, are given below.

Of John Ed. Holbrook's North American Herpetology, or a Description of the Reptiles inhabiting the United States, a new edition in 8vo has appeared at Philadelphia in 1843. I regret that it has not as yet reached my hands, nor, so far as I know, has it reached Berlin.

De Filippi gives in the Giornale dell' Istituto Lombardo di Scienze, Tomo vi (Milano 1843, p. 407), the description

of several Amphibia—*Agama nupta*, n. sp.; *Herpetodryas cursor*, Schl.; and *Boa brachiura*, Gundlach. (These Arch. 1840, i, p. 361.)

A letter from Rusconi to Prof. Oken, Sur les vaisseaux lymphatiques des Reptiles (Giornale dell' Istituto Lombardo, tom. vi, p. 158), is printed in Müller's Archiv, (1843, p. 241), where are given, together with it, some historical notices respecting the lymphatic vessels of the Amphibia, by the same author.

Chelonii.—On the Structure of the Retina of the Tortoise, by Adolph. Hannover. (Müller's Archiv, 1843, p. 314.)

Sauri.—Several new genera and species in this division have been instituted in the above-mentioned works.

Chamæleo rhinoceros, Gray. (Ann. xi, p. 45.) Back and belly with a toothed keel; occiput depressed, prismatic, with a central keel; nose with a broad triangular projection, with a single smooth keel on its inferior surface, and two toothed ridges, separated by a deep sulcus, on the upper surface. Colour dark, with white spots (in spirits), with a pale streak along the middle of each side. Madagascar? From the 'Voyage of the Sulphur.'

Of the genus *Proctotretus*, Bell describes 14 species, in the 'Voyage of the Beagle,' among which are four new: *P. gracilis*, corpore gracili, capitis squamis lævibus, non imbricatis, aurium margine anteriore minute bi-tridentato, collo vix plicato, squamis imbricatis serie unicâ squamarum supralabialium, femorum facie posteriore omnino granulosâ. Patagonia. 5½ inch. *P. Bribonii*, capite squamis lævibus subconvexis; auribus ovalibus, margine anteriore unidentato; squamis temporum collique rotundatis lævibus imbricatis; colli minimis; serie unicâ squamarum supralabialium; squamis dorsi rhomboideis, carinatis, posticè acuminatis; abdominis squamis omnibus integris; femorum facie posteriore omnino granulosâ. Patagonia. 5½ inch. *P. Kingii*, squamis capitis neque imbricatis nec carinatis; supralabialibus in serie unicâ; aurium margine anteriore granuloso, interdum unidentato; squamis dorsalibus carinatis, posticè acuminatis; femorum facie posteriore præcipuè granulosâ, sed portione parvâ caudam versus squamis parvis rotundatis imbricatis tectâ. Patagonia. 6½ inch. *P. Darwinii*, corpore subdepresso; capite squamis numerosis parvis, subelevatis, lævibus non imbricatis; aurium margine anteriore integro; temporibus colloque granulatis; serie unica squamarum supralabialium; facie posteriore femorum partim granulosâ, partim squamis imbricatis tectâ. North Patagonia. 5½ inch.

Bell (l. c.) proposes a new genus, *Diplolæmus*, to be placed near *Leiosaurus*, Bibr. *Caput* breve, latum, subtriangulare. *Aures* parvæ, ovatæ, margine

lævi. *Nares* magnæ rotundæ. *Collum* infra transversè, ad latera longitudinaliter plicatum. *Corpus* subdepressum, non cristatum. *Cauda* teres, breviuscula, lævis. *Pedes* breves, robusti. *Squamæ* capitis numerosæ, parvæ, rotundatæ, non imbricatæ—corporis atque caudæ supra minimæ, læves, convexæ, paulo imbricatæ, infra læves, planæ. *Pori* femorales et præanales in utroque sexu nulli. *Dentes* palatini, nulli. *D. Darwinii*, squamis capitis convexis; caudâ corpore cum capite longiore. 7″. *D. Bribonii*, squamis capitis planis; caudâ corpore cum capite breviore. 7½″. Both from Patagonia. Port Desire.

Leiocephalus (*Holotropis*, Bibr.) *Grayii*, Bell (l. c.), cristâ dorsali elevatâ, caudâ subcompressâ; squamis ventralibus rhomboideis, lævibus; margine anteriore meatus auditorii quadridentato; squamâ occipitali magnâ. 9½ inch. Galapagos Islands.

Bell has also instituted a new genus, *Centrura*, between *Oplura* and *Doryphorus*: *Caput* breve, triangulare. *Aures* magnæ, antice cutis plicâ haud dentatâ partim celatæ. *Nares* magnæ rotundæ. *Gula* transversè subplicata. *Collum* atque corpus haud cristata, hoc depressum, latum, cute longitudinaliter plicatâ. *Cauda* teres, basin versus subdepressa, squamis fortibus spinosis verticillatis. *Squamæ* capitis numerosæ, parvæ, rotundatæ, non imbricatæ—corporis minimæ, rotundæ, subconvexæ, læves. *Pori* femorales et præanales nulli. *Dentes* palatini. One new species, *C. flagellifer*. 7½″. Habitat?

Naultinus Grayii, Bell, omnino viridis; fronte subconcavo; squamulis capitis planis. New Zealand.

Ameiva longicauda, Bell, squamis, suprahumeralibus rhomboideis, imbricatis; subfemoralibus transversim hexagonis; abdominalibus in seriebus decem longitudinalibus dispositis; caudâ, corpore cum capite plusquàm duplo longiore, squamis medio carinatis, et ad marginem subcarinatis. 7½″. Patagonia.

Agama nupta, De Filippi (l. c.), capite muricato, squamis dorsi omnibus æqualibus, carinatis; lateralibus lævibus minutissimis; caudâ subverticillatâ; gulâ flavo cæruleoque marmoratâ. Found by Osculati, at the ruins of Persepolis.

Guyon observed, in Algiers, the *Zureig*, which appears to be the *Jaculus* of the ancients. It is a new species of *Seps*, having three toes on each foot; it is of a bronze colour above, and whitish gray beneath, and is uncommonly agile; it drank daily. (Comptes rendus, xvi, p. 1011.)

SERPENTES.—J. J. Bächtold has written under the presidium of W. v. Rapp, as an inaugural dissertation,

Untersuchungen über die Giftwerkzeuge der Schlangen; Tubingen (1843-4); Researches on the Venom-organs of Snakes, &c.

The fangs of *Deirodus scaber*, Owen, the teeth and poison-bags of *Hydrophis pelamis*, and the extraordinarily long poison-gland of *Naja rhombeata*, Schlegel, discovered by Rheinhardt, are figured on two lithographic plates. The question, as to whether the Snakes with sulcated teeth are venomous or not, is not decided.

J. Th. Rheinhardt has published, in the 10th vol. of the Memoirs of the Danish Scientific Society, several new Snakes. (Beskrivelse af Nogle nye Slangearter.) The paper is accompanied with three lithographic plates, in which the heads of the species described, and other characters are exhibited. The diagnoses are as follows:

Calamaria unicolor, Reinh., capite indistincto, scuta frontalia et anteriora et posteriora præbente; scutis loreis et ocularibus anterioribus nullis; dente postremo maxillæ anterioribus longiore; corpore toto fusco, unicolore, nitido. Scuta abdomin. 179. Scutella caudalia, 38. Guinea.

C. meleagris, Reinh., capite vix distincto, scutum frontale et anterius et posterius unicum præbente; supra cæruleo nigra, squamis singulis versus apicem puncto pallido ornatis; subtus albida. Sc. abdom. 142-170; Scutella caud. 22-34. Guinea.

Lycodon guttatus, Smith (l. c.), yellowish brown, speckled with brown above, brown lines on the head, two longitudinal spots behind the nape. *L. lineatus*, Reinh., caudâ scutatâ; notæo ex griseo fusco ad latera obscuriore, supra spinam dorsi lineâ obscurâ, à fronte distinctâ incipiente deinde diffusâ, notato; gastræo flavescente, scutis singulis in angulis externis maculis obscuris ornatis. Sc. abd. 154; Sc. caud. 42. Manilla.

Psammophis oxyrhynchus, Reinh., capite distincto; rostro adunco, conico; dente postremo maxillæ sulcato et valdè elongato; notæo fusco-canescente, gastræo pallidiore. Sc. abd. 169-178; Sc. caud. 95, 96. Guinea.

Dendrophis Chenonii, Reinh., dentibus elongatis et sulcatis nullis, squamis lævibus per 15 series dispositis; corpore toto lævibus viridi. Sc. abd. 164-177, Sc. caud. 108-126. Guinea.

Dipsas variegata, Reinh., capite distinctissimo; squamis lævibus per 19 series dispositis; notæo canescente, fuliginosis maculis irregularibus, maculam canescentem rursus includentibus, huc et illuc in tæniam confluentibus, notato; gastræo albido maculis parvis, fuliginosis ornato. Sc. abdom. 218; Sc. caud. 67. *D. hippocrepis*, Reinh., capite distinctissimo; notæo brunneo-

rubescente, anteriora versus obscuriore; occipite maculâ albidâ ferri equini; formam imitante, ornato; gastræo flavescente. Sc. abd. 178; Sc. caud. 43. Guinea.

Boa inornata, Reinh., capite scutis irregularibus tecto; oculis, et naribus lateralibus, scutis labialibus planis; obsoletè fusca in partibus posterioribus diffusis maculis irregularibus notata. Sc. abd. 264-271; Sc. caud. 67-69. Porto Rico.

A special description of *Xenodermus javanicus* is given by Reinhardt, l. c. (vid. these Archiv. for 1837, 1, p. 136).

Glaps irregularis, Reinh., corpore toto cæruleo-fusco. Sc. abd. 230; Sc. caud. 26. Guinea.

Bungarus flaviceps, Reinh., squamis lævibus per 13 series dispositis; caudâ subtus scutis scutellisque obtectâ; trunco supra cæruleo, subtus flavescente, capite et caudâ flavescentibus. Sc. abd. 219; Scuta et scutella caudæ, 49. Java.

Naja nigricollis, Reinh., scutis ocularibus anterioribus duobus; supra obscurè olivacea, subtus lurida maculis fuscis confluentibus, gulâ et collo nigerrimis. Sc. abd. 203; Sc. caud. 64. Guinea.

Lastly, is also described by Reinhardt (l. c.), *Vipera nasicornis*, Daud.

Lapemis loreatus, Gray (Ann. xi, p. 46), allied to *L. Hardwickii*, Gray, but is larger, has no loreal plates, and a smaller, square, anterior, ocular scutum. Hab. unknown. From the 'Voyage of the Sulphur.'

BATRACHIA.—T. Wright observed in Hindostan, a frog (the large yellow Ram-frog) leap a distance of four feet, and seize and swallow a sparrow. (M'Clelland, Calcutta Journ. iii, p. 284.)

Rana arvalis, Nilsson (l. c. p. 92), nose acute, forehead between the eyes flat, openings of nares apical, a black spot around the aural region, continued as a black streak across the nares; marbled black above, and with three pale longitudinal bands. Hinder toes with two and a half to three joints projecting beyond the web.

Bell (l. c.) places his new genus, *Limnocharis*, between *Rana* and *Cystignathus*: *Lingua* ovalis integra margine posteriore libero. *Dentes* palatini utrinque in fasciculis duobus dispositis, quorum alter ad marginem anteriorem narium interiorum, alter pone nares interiores prope arcum maxillarem. *Nasus* terminalis, truncatus ultra labium productus. *Tympanum* conspicuum, circulare. *Cutis* omnino lævis. *Digiti* anteriores liberi, posteriores ad basin tantum palmati. One species, *L. fuscus*, from Rio Janeiro, 1″ 4‴. Hind legs, 1″ 8‴.

Borborocœtes, Bell, nov. gen. near *Cystignathus*: *Lingua* ovata, postice libera, rotundata, anticè subacuminata. *Dentes* palatini in fasciculis binis

plus minusve obliquis, pone nares posteriores positi. *Tympanum* celatum. *Digiti* anteriores haud palmati, posteriores ad basin tantum cute connexi. *Glandulæ* cutaneæ nullæ. *Sacculi* vocales (maris) utrinque sub linguâ nascentes. *B. Bibronii*, dentibus palatinis in fasciculis distantibus obliquis pone nares posteriores positis, palmis bituberculatis, 1″ 5‴. Hind legs, 2″ 6‴. Chiloe and Valdivia. *B. Grayii*, dentibus palatinis in fasciculis subcontiguis paulo obliquis, pone nares posteriores positis; palmis non tuberculatis. Valdivia.

Bell considers the separation of the genus *Pleurodema*, Tschudi, from *Cystignathus*, Wagler, to be correct, and describes three new species, *P. Darwinii*, from Maldonado, *elegans*, from Chiloe and Chili, and *bufoninus* from Patagonia.

Leiuperus salarius, Bell (l. c.), supra nigricans, lumbis maculis 3 vel 4 nigris, albo-marginatis. Patagonia.

Alsodes, Bell, nov. gen., *Caput* convexum. *Lingua* anticè acutè producta, posticè rotundata et libera. *Dentes* palatini inter nares posteriores. *Tympanum* celatum. *Aperturæ Eustachianæ* haud conspicuæ. *Digiti* anteriores ad basin tantum, posteriores usque ad phalangem tertiam membranâ connexi. Not far from *Scaphiopus* *A. monticola*, from the Chonas Islands.

Litoria glandulosa, Bell, femoribus posticè glandulosis; digitis posticis brevitèr palmatis. Chili.

Batrachyla, Bell, nov. gen., *Lingua* suborbicularis, posticè libera. *Dentes* palatini in fasciculis binis obliquis inter nares posteriores dispositi. *Tympanum* distinctum, parvum, rotundum. *Digiti* depressi, ad apicem paulo dilatati, truncati. Anteriores ad basin tantum, posteriores paulò plus palmati, *B. leptopus*. Valdivia.

Hylorina, Bell, nov. gen., *Caput* subrotundum planum. *Lingua* magna circularis posticè libera. *Dentes* palatini in lineâ transversâ parum interruptâ dispositi. *Tympanum* distinctum. *Digiti* subdepressi, ad apicem obtusi, haud expansi; anteriores ferè liberi, posteriores ad basin membranâ connexi, et marginati. *Femora* multo-glandulosa. Allied to *Hylodes*. *H. sylvatica*. Chonos Islands.

Bell (l. c.) describes two new species in the genus *Hyla*: *H. Vauterii*, Bibr., MS., and *H. agrestis*, Bell, both from Maldonado.

Uperodon ornatum, Bell, capite multo latiore quam longiore. Dorso olivaceo, maculis fuscis, albo marginatis. Buenos Ayres.

Salamandra coccinea, De Kay (l. c.), scarlet red, with three deep red, black bordered, ocellar spots on each side of the back; the tail is about half as long as the whole animal. Reaches six inches. Near Lake Pleasant, Hamilton County.

Joly observed that a Salamander (*Salamandra maculosa*)

brought forth 25 living young in one day. (Comptes rendus, xvi, p. 461.)

Nouvelles Recherches sur la Configuration, la Structure et les Rapports de la Vesicule Proligère ou Germinative chez les Salamandres Aquatiques. Par Martin Saint-Ange. (Revue Zoologique, 1843, p. 327.)

Mauro Rusconi has made observations on *Proteus anguinus*, with reference to the two vesicles which correspond to the lungs of other Amphibia. It lives altogether in water. When removed from that element these animals gave signs of uneasiness, and in about an hour began to secrete mucus from the whole surface of the body, and soon died. (Giornale dell' Istituto Lombardo, vi, p. 288; Froriep's Neue Notizen, xxvi, p. 295.)

ICHTHYOLOGY.

BY

DR. F. H. TROSCHEL.

J. Müller, Beiträge zur Kenntniss der natürlichen Familien der Fische, Contributions to the Knowledge of the Natural Families of Fish (Monthly Reports of the Academy of Sciences of Berlin, August 1843; these Archiv. 1843, i, p. 292); and Supplement to the same (these Archiv. 1843, i, p. 381), of the greatest importance with respect to system.

The new Parts of Smith's Illustrations of the Zoology of South Africa (vid. sup. p. 86) contain some new Fishes, which are given below. Besides these, are figured in the 14th Part, *Otolithus æquidens*, Cuv. Val., and *Dentex rupestris*, Cuv. Val.; in the 15th, *Sciæna hololepidota*, Cuv. Val., and *Rhinobatus* (*Syrrhina*) *annulatus*, Müll. Henle.; in the 16th, *Ostracion bicuspis*, Blumenb. (*O. stellifer*, Bl. S.)

The 4th volume of the Zoology of the Voyage of H.M.S. Beagle, under the command of Captain Fitzroy, during the years 1832-1836 (Lond. 1842, 4), contains the Fishes, arranged by Leonard Jenyns. The numerous new species, among which are also several new genera, are quoted below, since it may perhaps be supposed that the work is not one of the most easily accessible. Accurate descriptions of many already known Fishes, and interesting statements are also given. The work is not limited to any definite

Fauna, and can be regarded as a whole, only inasmuch as that the Fish were collected on *one* voyage. They belong to various regions of the earth. The figures occupy 29 lithographic plates.

Of Siebold's Flora Japonica, the second, third, and fourth Parts have appeared, containing the Fishes arranged by Temminck and Schlegel. These Parts include Fishes from the Families of the Percidæ, Scleroparei, Sciænidæ, and some Sparidæ. Among a large number of new Fishes, many previously described are also figured, and our knowledge of these animals is enlarged by numerous interesting accounts and accurate descriptions. The lithographic figures are to be especially praised, from the circumstance that most of them have been finished from recent specimens, which with respect to colour is so highly important. Several new genera are instituted, but the specific names in them are not given.

Of the Zoology of New York, or the New York Fauna, by James De Kay (Albany, 1842, 4), the fourth Volume contains the Fishes. In it 440 species are named as belonging to the United States; these are arranged in 156 genera and 32 families. 294 species are found in the State of New York and the adjacent waters; they are accurately described and figured in 72 lithographic plates.

There are 30 Percidæ: 5 *Perca*, 5 *Labrax* (of which 2 are new), 1 *Huro*, 1 *Pileoma* (n. g.), 2 *Lucioperca* (1 new), 1 *Boteosoma* (n. g.), 1 *Serranus* (new), 1 *Centropristes*, 1 *Grystes*, 3 *Centrarchus* (1 new), 2 *Pomotis*, *P. vulgaris* and *P. appendix* (*Labrus appendix*, Mitch.), 1 *Dules*, 1 *Aphredoderus*, 1 *Uranoscopus*, 1 *Sphyræna* (new), and 1 *Lepisoma* (n. g.).—20 Triglidæ: 1 *Trigla*, 3 *Prionotus*, 1 *Dactylopterus*, 4 *Cottus*, 1 *Hemetripterus*, 2 *Scorpæna*, 1 *Sebastes*, 1 *Uranidea* (n. g.), 1 *Aspidophorus*, 1 *Cryptacanthodes*, 4 *Gasterosteus*.—16 Sciænidæ: 1 *Leiostomus*, 1 *Otolithus*, 5 *Corvina* (1 new), 1 *Umbrina*, 2 *Pogonias*, 1 *Micropogon*, 3 *Hæmulon*, 1 *Pristipoma*, 1 *Lobotes*.—5 Sparidæ: 3 *Sargus* (1 new), 1 *Chrysophrys*, 1 *Pagrus*.—3 Squamipennæ: 2 *Ephippus*, 1 *Pimelepterus*.—27 Scomberidæ: 3 *Scomber*, 1 *Thynnus*, 1 *Pelamys*, 1 *Cybium*, 1 *Trichiuras*, 1 *Xiphias*, 1 *Naucrates*, 1 *Elacate*, 1 *Lichia* (new), 2 *Trachinotus*, 1 *Palinurus* (n. g.), 3 *Caranx* (1 new), 1 *Blepharis*, 2 *Argyreiosus*, 1 *Vomer*, 1 *Seriola*, 1 *Temnodon*, 1 *Coryphæna*, 1 *Lampugus*,

2 *Rhombus*.—1 Teuthidæ: *Acanthurus*.—2 *Atherina*.—4 *Mugil*.—8 Gobiidæ: 1 *Blennius*, 1 *Pholis*, 1 *Chasmodes*, 1 *Gunnellus*, 2 *Zoarces*, 1 *Anarrhichas*, 1 *Gobius*.—7 Lophiidæ: 1 *Lophius*, 2 *Chironectes*, 2 *Malthæa*, 2 *Batrachus* (1 new).—3 Labridæ: 2 *Ctenolabrus*, 1 *Tautoga*; thus, altogether, 126 ACANTHOPTERYGII.

Further—6 Siluridæ: 1 *Galeichthys*, 1 *Arius*, 4 *Pimelodus* (2 new).—27 Cyprinidæ: 2 *Cyprinus*, 1 *Abramis* (new), 5 *Labeo* (2 new), 7 *Catostomus*, (2 new), 1 *Stilbe*, 11 *Leuciscus* (4 new).—7 Cyprinodontes: 1 *Lebias*, 3 *Fundulus* (1 new), 3 *Hydrargira* (1 new.—9 Esocidæ: 4 *Esox* (1 new), 1 *Belone*, 1 *Scomberesox*, 3 *Exocætus*.—2 *Fistularia*.—11 Salmonidæ: 5 *Salmo*, 1 *Osmerus*, 1 *Bajone* (n. g.), 1 *Scopelus*, 3 *Coregonus*.—18 Clupeidæ: 7 *Clupea*, 6 *Alosa* (1 new), 1 *Chætoessus* (new), 2 *Hyodon*, 1 *Elops* 1 *Amia* (new).—2 *Lepisosteus* (1 new).—14 Gadidæ: 4 *Morrhua*, 1 *Merluccius*, 3 *Lota* (1 new), 3 *Merlangus* (1 new), 1 *Brosmius*, 2 *Phyces*.—9 Pleuronectæ: 1 *Hippoglossus*, 6 *Platessa* (2 new), 1 *Pleuronectes* (*Rhombus*), 1 *Achirus*.—1 *Cyclopterus*.—3 *Echeneis*.—7 Anguillares, 4 *Anguilla*, 1 *Conger*, 1 *Ophidium*, 2 *Ammodytes* (1 new, which must form a new genus in the Family of the Scomberidæ—*vid. infr.*); thus, altogether, 115 MALACOPTERGYII.

To these succeed—3 LOPHOBRANCHII: 2 *Syngnathus* (1 new), and 1 *Hippocampus*.—18 PLECTOGNATHI: 4 *Diodon*, 3 *Tetrodon*, 1 *Acanthosoma* (n.g.), 1 *Orthagoriscus*, 4 *Monacanthus* (1 new), 1 *Aluteres*, 1 *Balistes* (new), 3 *Lactophrys* (n. g.); to which belong *Ostracion Yalei*, Storer, *Ost. sexcornutus*, Mitchell, and a new species; 3 *Acipenser*, and 27 Cartilaginous Fishes; 13 Sharks, 9 Rays, and 5 CYCLOSTOMI; of which, 1 *Petromyzon* and *Ammocætes* are new.

The book appears to be very carefully got up, and brought out under good auspices, and is indispensable for the determination of N. American Fish.

In the Figures and Descriptions of New and Rare Animals and Plants collected by Th. Kotschy in Syria and the Western Taurus, edited by Fenzl, Heckel, and Redtenbacher, the first Part of the text (Stuttgard, 1843) includes the whole of the Fish by Jacob Heckel; and the first Part of the Atlas contains six Plates, which, according to the statement in the text, are to be about doubled. 57 species of Fishes were collected by Kotschy in the Orontes and Euphrates, of which 50 species are given as new. It appears that in Syria, as well as throughout the southern half of Asia, the Cyprini predominate among the fresh-water Fish. The Salmon is not met with at all.

(*Salmo orientalis* in the tributary streams of the Oxus! Archiv, 1843, ii, p. 113.) The author says: "In general the fresh-water fish of southern Asia are, by their organization, intended to live upon vegetable food; in fact, it seems to be universally the case, that the Mammalia and fresh-water Fishes, as the two most heterogeneous forms among the Vertebrata, stand in an inverse relation to each other, so that in those regions where the Rapaces in the one class predominate, they are deficient in the other. A great number of the fresh-water Fish in tropical Asia, the seat of the most rapacious beasts, with their toothless mouth, soft, pointed lips, and slender, elongated, intestinal canal, feed exclusively on vegetable substances; whilst in tropical America, so deficient in rapacious Mammals, not a single vegetable feeder occurs among the Fish. On the contrary, we there find shoals of ravenous Salmonidæ, which, with sharp teeth and extraordinary audacity, attack large domestic animals, and even men, when necessitated to swim across the rivers." This ingenious remark has apparently much truth in it, though it must not be considered as precisely accurate. Under the "ravenous Salmonidæ" the Characinæ are intended (vid. Archiv, 1844, Bd. i, p. 81), most of which are furnished with formidable teeth; but among them are also found genera from the same regions, possessing only the most delicate minute teeth; one even (*Anodus*) is entirely edentate. These are of course also not intended for animal feeders, but live partly on vegetables, partly on mud, which is rich in organic substances. Among the 57 species of Syrian Fishes described by Heckel, there are — 45 Cyprini; 5 *Cobitis*; 2 Cyprinodontæ; 3 Siluridæ; 1 *Mastacembelus*; and 1 *Mugil*. It is to be regretted that the work presents many errors of the press in the names, and some even in the localities.

In the Transactions of the Zoological Society of London, Vol. iii, Part ii, p. 133, is a paper by John Richardson— Description of Australian Fish, with five plates, in which

some of the species are figured. Most of the Fishes here described had been already instituted in the Proceed. Zool. Soc. 1839-41. Only two new species are added.

The continuation and conclusion of the Contributions to the Ichthyology of Australia, by John Richardson (vide the last Report, p. 104), appear in the Annals (xi, pp. 22, 169, 352, 422, 489.) These contributions are treated in the same manner as the previous ones. They relate especially to the Family of the Scombridæ, Teuthidæ, and Labridæ, and again contain many interesting illustrations with regard to the Fishes of Forster, Banks, and Solander.

Of Henrik Kröger's Danmarks Fiske (Fish of Denmark), (Copenhagen, 8vo), the first Part of the second Volume appeared in 1843 (the preceding parts I have not seen). The text is in Danish, and the figures of the Fish are on wood.

This part contains *Gadus Morrhua, Æglefinus, minutus, luscus; Merlangus vulgaris, Carbonarius, Pollachius; Merluccius vulgaris; Lota Molva, raptor, abyssorum, vulgaris; Motella Mustela, cimbria, tricirrata; Phycis furcatus; Brosmius vulgaris; Raniceps fuscus; Platessa vulgaris, Flesus, Limanda* and *microcephalus.*

The Naturalist's Library, conducted by William Jardine. Ichthyology Vol. v, contains the Fishes of Guiana, Vol. ii, by Robert Schomburgk. (Edinburgh, 1843. 8.) The descriptions of the Fishes, like those in the first volume, have been drawn up from the author's figures and notes, by a writer whose name does not appear, and whose incognito I suppose I must respect. The descriptions are in general insufficient, and it is difficult or impossible to determine by them, the Fishes from the same locality in the Berlin Museum. The figures, which occupy 30 plates, are still less adapted to facilitate the determination.

Icones piscium, or Plates of Rare Fishes. By J. Richardson. Lond. 1843. 4. Part i.

History of the Fishes of Madeira. By Richard Thomas Lowe. Lond. 1843. 8.

These two works have not yet reached me.

On the subject of Isinglass, some lengthened memoirs are given in the third Volume of M'Clelland's Calcutta Journal of Natural History, 1843. Production of Isinglass on the Coasts of India, with a Notice of its Fisheries. By J. Forbes Royle, p. 76. On East Indian Isinglass, its Introduction to, and Manufacture for, the European Market. By M'Clelland, p. 157. Extract of a Letter from E. O'Reiley, pp. 287, 289.

Remarks on the external respiratory Muscles of Fish. By Robert Remak. (Müller's Archiv, 1843, p. 190.)

On the Caudal and Cephalic Sinuses of Fish, and the lateral system of Vessels connected therewith. By — Hyrtl. (Müller's Archiv, 1843, p. 224.)

ACANTHOPTERYGII.

In this division a great number of new species have been introduced.

PERCIDÆ.—*Perca lævis*, Jenyns, Beagle. Black brown, punctated, snout in front of the nasal cavities naked, scales of the trunk smooth. Allied to *P. trucha*, Val., D. 9. 1. 11; A. 3. 9. Patagonia.

Labrax nigricans, De Kay. Dusky, with a tinge of yellow, first dorsal fin higher than the second; D. 10. 1. 12; A. 3. 8. New York. *L. albidus*, De Kay, blueish white, with slender, dusky lines; D. 9. 1. 13; A. 3. 12. Lake Erie.

Under the genus *Labrax*, which Schlegel places with the Scleroparei, he describes a new species, *L. agrammus*, with a single lateral line, otherwise very like *L. hexogrammus*.

Pileoma, new gen., De Kay, allied to *Huro*. Two distinct dorsal fins, præoperculum smooth, operculum with a weak, flat spine. Abdominal fins with fine soft rays. Teeth equal sized. *P. semifasciatum*, olive green, with numerous dusky, transverse bands; D. 13. 15; A. 12. 2 inch. Lake Champlain.

Lucioperca grisea, De Kay. Two dorsal fins, præoperculum smooth at the margin, operculum scaly, with a spine, six branchial rays, nape compressed, contracted. *B. tessellatum*, brownish, with quadrangular spots on the back and sides; 3 inch. D. 9. 14; A. 10. In the rivers of New York.

Serranus albomaculatus, Jenyns, Beagle. A series of white spots on the sides, jaws scaleless; D. 10. 13; A. 3. 8; Galapagos. *S. aspersus*, id. Dark green above, paler beneath, sprinkled on the sides with light emerald green; D. 11. 15; A. 3. 8. Cape de Verd Islands. *S. labriformis*, id. Præopercu-

lum scarcely toothed, scaly, below the lateral line ciliated, above it smooth; D. 11. 17; A. 3. 8. Galapagos Islands. *S. olfax*, id. Minute lobes at the point of the dorsal spines, two spines on the operculum, all the scales smooth; D. 11. 18; A. 3. 11. Galapagos Islands. *S. erythrogaster*, De Kay. Olive brown above, red beneath, the vertical fins with a blue border and dark margin; D. 11. 16; A. 2. 10; 2ft. Florida, New York.

Jenyns has instituted, in the 'Zoology of the Voyage of the Beagle,' a new genus of Sciænidæ, which entirely resembles the genus *Serranus*, the palatal and vomeral teeth only being deficient; he places it in a group with *Hæmulon*, *Pristipoma*, and *Diagramma*, from which, however, it differs in the want of pores on the symphysis. The genus is called *Prionodes*, the sp. *P. fasciatus*, from the Galapagos Islands; D. 10. 12; A. 3. 7. In the appendix he remarks that the want of palatal teeth is a mistake, and withdraws the genus.

Plectropoma patachonica, Jenyns, Beagle. Only two spines on the inferior margin of the præoperculum; D. 13. 15 or 16; A. 3. 8 or 9; probably only a variety of *P. brasilianum*. Patagonia.

Jenyns forms a new separate genus from *Centropistes georgianus*, Cuv., Val. It is said to be distinguished by its herring-like form, toothed sub-orbital bones, scaly jaws, small pectoral fins, and deeply-forked caudal fins; besides this, the scales, instead of the usual fan-like arrangement of rays in the basal portion, present a triangular space, with the most extreme delicate striæ parallel with the margin. The genus is called *Arripis*. *Centropristes truttaceus*, Cuv., Val., is also probably to be referred to the same.

Centrarchus obscurus, De Kay. Greenish brown; 8 in. D. 9. 1. 12; A. 3. 12. The author thinks that *Cichla minima* is probably the same species in a younger state. Onondaga Bay. On account of the small number of rays in the anal fin the fish does not appear to belong to the genus Centrarchus.

Dules leuciscus, Jenyns, Beagle, is probably *D. malo*, Val.

Helotes octolineatus, Jenyns, Beagle; with eight black longitudinal lines, the vertical fins spotted with brown; D. 12. 9; A. 3. 7. New Holland.

Pinguipes fasciatus, Jenyns, Beagle; with twelve chesnut brown transverse bands, few palatal teeth, spinous pharyngeal teeth, abdominal fins exactly beneath the pectoral; D. 7. 27; A. 1. 24.

Under the genus *Aphritis* Jenyns describes (l. c.) two new species: *A. undulatus*, with black transverse bands and undulating longitudinal lines; 3 in. P. 6; D. 8. 25; A. 1. 22. Chonos Islands. *A. porosus*, with blackish transverse bands, with rows of pores on the under jaw, præoperculum and sub-orbital bones. 2¼ in. D. 8. 25; A. 1. 22. Patagonia.

Sphyræna borealis, De Kay. Greenish above, lateral lines yellow, operculum with one spine; D. 5. 1. 9; A. 1. 9. New York. *S. nigripinnis*, Schlegel (l. c.) The distance between the two dorsal fins equals 1-4th of the whole fish; all the fins black; D. 5. 1. 9; A. 1. 9. *Acropoma* is the name given by Schlegel (Fauna Japonica) to a fish much resembling *Mullus* in the

shape of the body, but which differs from it in the want of barbal cirrhi; the anus is placed distant from the anal fin, and near the abdominal fin; the jaws are set with pointed teeth, of which the anterior are canine; nothing is mentioned about palatal teeth; 5 in. P. 7. D. 7. 1. 1. 10; A. 3. 7.

Schlegel (l. c.) has described several new species of the genus *Upeneus*, Cuv., Val., although leaving to them the generic name of *Mullus*. *M. chrysopleuron*, blood red, with gold yellow streaks along the lateral lines; 1ft. D. 8. 1. 11; A. 1. 7. *M. Bensasi*, a spine on the operculum, brown red, violet red spots on the head, one in front of the base of the pectoral fin, and two on each side on the body, the dorsal fin and the superior caudal fin have red brown bands, barbal cirrhi citron yellow; 6." D. 7. 1. 9; A. 1. 7. *M. subvittatus* was regarded by Cuv., Val., from a fish of Langsdorff, as a variety of *vittatus;* the body is higher, the snout shorter, the forehead much more arched, but almost flat between the eyes; D. 7. 1. 8; A. 1. 7. *M. dubius*. Maxillary teeth uniserial; D. 7. 1. 8; A. 1. 6.

Lepisoma, n. g., De Kay. Body and fins scaly; fleshy filaments along the base line of the head, and at the eyes; one dorsal fin. Six branchiostegous rays. Teeth in the maxillæ, vomer, and palate. Abdominal fins placed before the pectoral. *L. cirrhosum*, 6½ inch. D. 18. 12; V. 3; (?) A. 19. Florida.

Triglidæ.—*Trigla Bürgeri*, Schlegel (l. c.). A process directed outwards on each side of the nose. 9 inch. D. 9-16; A. 16. *T. hemisticta* (id.). Eyes very large, two spines on the præoperculum. D. 7-11; A. 11.

Peristedion orientale, Schlegel (l. c.), differs from the European species in the absence of the three spines about the nose. 7 inch.

Prionotus miles, Jenyns, Beagle. From the Galapagos, and different from all hitherto known species, which are found only on the east side of America.

Uranidea, De Kay, nov. gen. Head wide, depressed; body without scales; two dorsal fins; abdominal fins with three rays; eyes almost vertical, operculum smooth, præoperculum with a single spine, teeth on the maxillæ, vomer, and on the tongue, *U. quiescens*, olive brown; 3 inch. D. 7. 16; V. 3; A. 13. Round Lake, and Pleasant Lake, Hamilton County.

Cottus intermedius, Schlegel (l. c.). The large spine of the præoperculum presents four or five points. D. 9-13; A. 14. *C. uncinatus* (id.). The large spine of the præoperculum uncinate, and curved upwards; 3 inch. D. 8-19; A. 17.

Aspidophorus chiloensis, Jenyns, differs from the hitherto known species, in possessing vomeral and palatal teeth; cirrhi on the mentum and on the branchiostegous membrane, the dorsal fins separate. D. 8. 7; A. 8. Length 2" 7"'. Chiloe.

Platycephalus inops, Jenyns, Beagle. Allied to *P. lævigatus*, Cuv., Val., but the first dorsal fin has, posteriorly, a large black brown spot; the second

dorsal fin, the caudal fin, and the pectoral fins, have small brown spots, the anal fin and the abdominal fins, almost wholly black. D. 8-12; A. 12. New Holland. *Pl. spinosus*, Schlegel, Fauna Japonic. D. 9-12; A. 12.

Bembras curtus, Schlegel, (l. c.) D. 9. 8; A. 3. 5.

Scorpæna histrio, Jenyns, Beagle. Red, fins paler, with small blackish spots, head, for the most part, without scales; head and sides everywhere with minute membranous lobes, four forming a fringe above the eyes, of which the posterior are the longest. Galapagos. *Sc. neglecta*, Schlegel (l. c.) 9 inches. The spines of the head present some difference from the other species.

Pelor aurantiacum, Schlegel (l. c.), is readily distinguished from *P. japonicum*, Cuv., Val., besides minuter differences, by the orange yellow colour; small black spots are scattered all over the body.

Pterois lunulata, Schlegel, is distinguished by the smallness of the lobes above the eyes, and by the size of the caudal fin. D. 12. 1. 11; A. 3. 7.

Sebastes pachycephalus, Schlegel. The spines of the head are very thick and strong. D. 12. 1. 12; A. 3. 6; P. 19; of which twelve are simple. *S. ventricosus*, (id.). Body moderately deep, head small, acute, mouth little cloven. D. 12. 1. 15; A. 3. 7; P. 16; of which seven simple.

Apistus rubripinnis, Schlegel (l. c.) D. 14. 7; V. 1. 4; A. 3. 4.

Minous pusillus, Schlegel. The space between the eyes narrower than in the other species; 2½ inch. D. 9. 11; A. 1. 8.

A new genus, *Aploactis*, has been formed by Schlegel, from a fish which occupies a middle place between *Cottus*, *Synanceia*, *Apistus*, and *Agriopus*. All the soft rays of the fins are unbranched. 3 inch. P. 5; D. 14. 11; A. 12; V. 1. 2.

Sciænidæ.—*Sciæna japonica*, Schlegel, D. 10. 2. 26; A. 2. 8. Reaches 5 feet in length.

Otolithus analis, Jenyns, 12 inch. D. 9. 1. 24; A. 1. 16. Peru.

Corvina oxyptera, De Kay. Operculum with obsolete serratures, with two spines; præoperculum toothed, pectoral fins long and pointed. D. 10. 19; A. 3. 7. New York.

Umbrina ophicephala, Jenyns, Beagle. Distinguished from all the other species by the elongated form of the body. D. 12. 1. 22; A. 1 9. Chili.

Pogonias nigripinnis, Schlegel. Very deep, frontal profile concave. D. 11. 15; A. 5. 9.

Pristipoma cantharinum, Jenyns, Beagle. Dorsal fins of almost uniform height throughout, blueish silver coloured, the operculum with a black border. D. 12. 15; A. 3. 12. Galapagos.

Diagramma cinctum, Schlegel (l. c.). D. 12. 16; A. 3. 8. Brown gray, sprinkled above with small round spots, two oblique brown bands proceed from the back to the abdominal surface.

The name of Glaucosoma has been given by Schlegel to a fish, which is remarkable among the Sciænidæ by the smallness of the spinous portion of the dorsal fin, and of which a figure only, by Burger, has reached Europe. Pores in the inferior maxilla are not mentioned; the spines of the dorsal fin become longer posteriorly. P. 7; D. 9. 11; A. 3. 9; gray-blue. 2 feet.

Latilus princeps, Jenyns, Beagle. Head in front of the eyes bare, abdominal fins exactly under the pectoral. D. 8. 26; A. 2. 26. Galapagos.

Scolopsides inermis, Schlegel (l. c.). Allied to *S. tæniopterus*, but has larger scales, and a scarcely perceptible spine on the suborbital bones. D. 10. 9; A. 3. 6. Light red, with six dusky bands.

Sparidæ.—*Sargus avenosus*, De Kay, with transverse bands, a recumbent spine in front of the dorsal fin; 6 inch. D. 1. 12. 11; A. 3. 12. Long Island.

Dentex griseus, Schlegel (l. c.)

Chrysophrys taurina, Jenyns, Beagle. Only three rows of molar teeth in the upper jaw; resembles *Ch. aculeata*, but has not a recumbent spine before the dorsal fin. Galapagos. *Ch. aries*, Schlegel. Profile much arched, five rows of molars above and three below. D. 11. 13; A. 3. 11; gray green. *Ch. tumifrons*, (id.) The profile of the head almost perpendicular. D. 12. 11; A. 3. 10; red. *Ch. major*, (id.), D. 12. 10; A. 3. 8; red.

Scombridæ.—*Cybium flavo-brunneum*, Smith, Ill. 17. Five false fins above and four below. 24 inch.

Lichia carolina, De Kay. The depth in proportion to the length is as 1 to 2; the first ray of the second dorsal fin, and of the anal fin, very long; 1 foot. D. 1. 6. 25; A. 2. 20. Coasts of Carolina.

Paropsis is a new genus instituted by Jenyns, which differs from *Lichia* only in the complete absence of the abdominal fins. The name has been long appropriated among the Coleoptera. The only species, *P. signata*, comes from the north coast of Patagonia; the Berlin Zoological Museum possesses a specimen from Brazil.

De Kay forms, from *Coryphæna perciformis*, Mitchill (*Trachinotus argenteus*, Storer), a new genus, *Palinurus*. The spines in front of the dorsal fin are not free, but connected at the base by a membrane; a spine in front of the anal fin; operculum and præoperculum serrated. The name is appropriated among the Crabs, as the author himself remarks; why has he not invented another? The serrated operculum appears to remove this fish from the family of the Scombridæ; the whole habit, however, would readily induce us to recognize it as belonging to it.

Caranx (*Trachurus*) *declivis*, Jenyns, Beagle. The lateral lines in the whole length, furnished with 82 elevated plates. D. 8. 1. 35; A. 2. 1. 30. About 8 inch. New Holland. *C. torvus* (id.) Lateral line covered anteriorly with small unarmed scales, posteriorly with 36 plates. D. 8. 1. 26; A. 2. 1. 22. Tahiti.

Caranx defensor, De Kay. Depth of the body equals one third of the whole length; a recumbent spine before the dorsal fin; no false dorsal fins; a black spot on the operculum; 9 inch. D. 7. 1. 20; A. 2. 17. New York.

Capros australis, Richardson (Annals xi, p. 170). D. 7. 18; A. 2. 17; 10 inch. Van Diemen's Land.

Teuthidæ.—*Amphacanthus gymnopareius*, Rich. (Ann. xi, p. 174), Dark red-brown.* *A. notostictus* (id, p. 172). Black spots on the sides; an oblique band runs downwards from the posterior part of the eye. Port Essington.

Acanthurus grammoptilus, Richardson (Annals xi, p. 176). D. 9. 26; A. 3. 24. Port Essington.

Mugilidæ.—*Mugil Abu*, Heckel., 'Fische Syriens,' p. 107 (1097). D. 4. 1. 8; A. 3. 8.

Atherina microlepidota, Jenyns. Beagle. Scales small, in 18 longitudinal rows. D. 15. 1. 11; A. 1. 17; 4 inch. Valparaiso. *A. incisa* (id.) Scales of medium size, in 12 longitudinal rows; 2½ inch. D. 5. 1. 18; A. 1. 17; to D. 6. 1. 10; A. 1. 19. Chili. *A. hepsetoides*, Richardson (Ann. xi, p. 178). D. 9. 1. 11; A. 1. 14. Port Arthur. *A. presbyteroides* (id.) D. 9. 11; A. 1. 12, ib. *A. nigrans* (id.). D. 1. 4. 1. 12; A. 1. 18. Port Essington.

Blennidæ.—*Blenechis fasciatus*, Jenyns, Beagle. 2½ inch. D. 13. 16; A. 20; V. 2. Chili. *B. ornatus* (id.) 2 inches. D. 12. 11; A. 20. Chili.

Clinus crinitus, Jenyns, Beagle. The palpebral cirrhi constituted of eight hairs, distinct from the base; 6½ inch. D. 26. 11; A. 2. 24; V. 3. Chili.

Jenyns has placed near *Clinus* a new genus, *Acanthoclinus*, which differs from *Clinus* in the greater number of spinous rays in the anal fin, a longitudinal band of minute teeth on the tongue, the position of the abdominal fins beneath the pectorals, and in the presence of three lateral lines. *A. fuscus*, P. 6; D. 20. 4; A. 9. 4; V. 1. 2. New Zealand.

Clinus littoreus, Cuv., Val., also from New Zealand, probably belongs to this genus.

Tripterygion capito, Jenyns, Beagle. The lateral line scarcely extends beyond the pectoral fin; 2½ inch. D. 6. 20. 14; A. 25. New Zealand.

Jenyns (Voyage of the Beagle, p. 165) institutes two new genera in the family of the Blennidæ. Both agree in having a smooth, posteriorly compressed body, in the presence of two large conical teeth, in front of the others, in the upper jaw; of a single pointed tooth on the vomer, and two rows of teeth on the palate, in the extremely small size of the abdominal fins, and in the fusion of the dorsal and anal fins with the caudal. The one, however, *Iluocætes* (*I. fimbricatus*, from Chili), has in each jaw a row of teeth, five rays in the branchiostegous membrane, and the jaws, suborbital bones, and præoperculum fringed with membranous tubes. The other, *Phucocætes*

* In the prepared specimen.

(*Ph. latilans*, from the Falkland Islands), has one row of teeth in the upper jaw, two or three rows in the lower jaw, six rays in the branchiostegous membrane, and pores only instead of the membranous tubes.

Gobiidæ.—Bellamy reports (Ann. xii, p. 298) that an *Anarrhicas lupus* has been caught near Plymouth. It was three feet long, and had Crustacea, *Pecten opercularis* and *Fusus corneus*, in its stomach.

Gobius lineatus, Jenyns, Beagle. D. 6. 1. 9; A. 1. 8. Galapagos. *G. ophicephalus*, D. 8. 1. 16; A. 1. 13. Chiloe.

Discoboli.—Two new genera of this family have been instituted by J. Müller and the Reporter, *Cotylis* and *Sicyases*. (Archiv, 1843, i, p. 297.)

Gobiesox marmoratus, Jenyns. The anterior teeth larger, conical above, incisive below, operculum with a blunt point posteriorly; 2½ inch. P. 6; D. 13; A. 11. Chiloe. *G. poecilophthalmus* (id.). The anterior teeth larger, incisive both above and below. Operculum with a pointed spine posteriorly. 1″ 10‴. P. 6; D. 7; A. 7. Galapagos.

It cannot be determined whether these two species belong to the genus *Cotylis*, since the number of the branchiæ is not stated.

Carpopterygii.—*Lophius upsicephalus*, Smith, 'Illustrations,' part 13. Supra pallidè flavo-brunneus, subtus purpureo griseus, flavo-brunneo tinctus; oculis lucidè viridi-albis; 28½″. D. 7 vel 8; P. 16; A. 17. Cape of Good Hope.

Cheironectes politus, Richardson, 'Trans. Zool. Society.' Dorso bipinnato, corpore lævò, glabro, rubicundo, punctulato; 2½ inch. Port Arthur.

Batrachus celatus, De Kay. Operculum with two spines, dorsal fins separate, body with dark transverse bands; 1 inch. D. 3. 28; V. 3; A. 23. New York. It was found in the streets of New York, in a shower of fish, in the year 1844. *B. diemensis* (Le Sueur?) Richardson. D. 2. 18; A. 16. Port Essington.

PHARYNGOGNATHI.

This order of Fish was founded by J. Müller in the before-mentioned Memoirs on the Natural Families of Fishes. (Vid. Archiv, 1843, i, p. 305.)

Labridæ cycloideæ.—*Labrus Gouldii*, Richardson (Ann. xi, p. 353), appears to be allied to *L. macrodontus*. D. 11. 10; A. 3. 10. Western Australia. *L. cyanodus* (id.), also allied to *L. macrodontus*, no canine teeth in the angle of the mouth. D. 13. 7; A. 3. 10. Port Essington.

Cassyphus Darwini, Jenyns. Præoperculum not toothed, and no scales on the vertical fins. D. 12. 10; A. 3. 12. Galapagos.

Cheilio ramosus, Jenyns, Beagle. Fins of an uniform light brown. D. 9. 13; A. 3. 12. Japan?

Scarus chlorodon, Jenyns, allied to *Sc. variegatus*, C. V., but the caudal fin is slightly emarginate. D. 9, 10; A. 3. 9. Indian Ocean. *Sc. lepidus* (id.), allied to *Sc. globiceps*, Val. Tahiti.

Labridæ ctenoideæ.—*Amphiprion japonicus*, Schlegel. Two white transverse bands, caudal fin yellow, abdominal and anal fins with a black border. D. 10. 15; A. 2. 13.

Heliases notatus, Schlegel (l. c.) Brown-red, a white spot close behind the dorsal fin, a black spot at the base of the pectorals.

Under the name of *Caprodon*, Schlegel (l. c.) describes a fish whose teeth in both jaws are securiform, in front of which is placed a row of larger ones, the three anterior in the upper jaw, on either side, are large incisors, the most anterior in the lower jaw is very large, and directed outwards, behind it is one somewhat smaller; at the middle of the lower jaw again is placed a larger tooth directed backwards, behind which succeed other small securiform teeth. P. 5; D. 10; A. 3. 9. Rose colour, yellow lines on the head, some irregular black spots in the middle of the dorsal fin. The dorsal and anal fins covered with scales as in the Squamipinnæ. Schlegel places the fish among the Sciænidæ, but, on account of the number of branchiostegous rays I think it should be referred to this place.

Jenyns (l. c.) places a new genus, *Stegastes*, in the family of the Squamipinnæ; *St. imbricatus*, from the Cape de Verd Islands. In the 'Supplement' he recognizes the fish as *Glyphisodon luridus*, Cuv., Val.

Chromidæ.—*Chromis facetus*. Jenyns. D. 15. 10; A. 1. 8. Rio de la Plata.

Scomberesocidæ.—Couch has submitted to the Linnæan Society "An Account of a Fish, nearly allied to the genus *Hemiramphus*, taken in Cornwall."

He states that, in the month of August, 1841, several individuals of this little fish were found swimming at the surface of a large pool in the rocks near Polperro. Their length was half an inch; the head proportionately large, especially across; the body slender, eye large, snout in front of it short and abrupt; upper jaw arched, under snout projecting to a considerable extent, the point declining, and the sides not appearing to be formed of parallel rami of the jaw, but rather of a cartilaginous substance; dorsal and anal fins single, posterior, opposite; pectoral fins and tail round. No ventral fins could be discovered, even with the aid of a lens. Mr. Couch had no doubt of the specimens being in a very early state of their existence, but was unable to refer them to any known species. He thought it indeed doubtful whether they really belong to the genus by the name of which he has provisionally designated them, or even to the same family, some parts of their structure seeming to indicate an affinity with the genus *Ammodytes*. A more precise description, however, is requisite for the determination of the genus. (Ann. Nat. Hist. xi, p. 232.)

MALACOPTERYGII.

SILURIDÆ.—*Silurus triostegus*, Heckel, "Fische Syriens." Head elongated, first ray of pectoral fin strong, serrated. D. 1, 2; A. 3. 86. In the Tigris, near Mossoul.

Heckel describes (l. c.) the *Silurus Cous*, Linn. (*Pimelodus Cous*, Val.), as *Arius Cous*, on account of its having on the palate two sets of uniform teeth.

Pimelodus pullus, De Kay. Pectoral fin pointed, caudal, emarginate; 11 inch. D. 1. 5; V. 8; A. 17. Northern Lakes, in New York. *P. atrarius* (id.) black, adipose fin narrow and high; caudal fin emarginate, rounded; 5 inch. D. 1. 6; V. 8; A. 20. In the tributaries of the Hudson. *P. exsudans*, Jenyns. Six barbal cirrhi, the maxillary cirrhi not reaching as far as the anal fin; adipose fin not quite twice as long as the dorsal and anal fins. D. 1. 7; A. 13-14. Brazil.

Callicthys paleatus, Jenyns, allied to *C. punctatus*, Val., but it possesses, besides the four usual cirrhi, two labial cirrhi also, and the maxillary cirrhi reach only to about the middle of the eye. It is probably not a distinct species. South America.

CYPRINIDÆ.—In Heckel's above-mentioned work on the Syrian Fishes, the greater part is devoted to the Cyprini, and the author places great importance, and correctly, on the form of the pharyngeal teeth. The first plate represents their various forms, and it is in fact easy with this assistance, to determine the Cyprini; this is particularly the case with those which the Berlin Museum has received from Syria, through Professor Koch. The pharyngeal teeth are brought under four divisions: 1. Hollow teeth (dentes excavati), with a channelled depression on the dorsal aspect; they pass into spatulate and shovel-shaped teeth. 2. Masticatory teeth (dentes masticatorii), with a grinding surface looking outwards, not uncinate; they pass into tessular, molar, cupped, chisel-shaped, pectinate, and incisive teeth. 3. Uncinate teeth with grinding surface (dentes uncinato-submolares), with a narrow, somewhat concave grinding surface, forming a hook on the inner side; they pass into clavate, compressing, and prehensile teeth. 4. Uncinate teeth, without grinding surface (dentes un-

cinato-subconici), with longitudinal rows of hooks directed backwards; they pass into seizing and strangling teeth (Fangzähne and Würgezahne).

The two former kinds appertain to the Cyprini with a long intestine, the two latter to those with a short intestine. The 54 genera admitted by the author, and among which are 28 of Heckel's, are next divided into 10 tribes, and all of them fully characterized; and in this summary all the species are enumerated, with the necessary citations and statement of habitat. In respect to the generic characters I am compelled to refer to the work itself, the study of which is indispensable in the history of the Cyprinidæ. In many genera the author is not acquainted with the form of the pharyngeal teeth from want of materials, and a great number of species still require examination on the same account, so that this family is not as yet completely set in order. The new species from Syria are the following:

Barbus Lacerta, pectoralis, perniciosus, Grypus, Scincus, Rajanorum, Kersin; Labeobarbus Kotschyi; Luciobarbus xanthopterus, esocinus, Scheich; Scaphiodon Trutta, fratercula, Umbla, socialis, peregrinorum; Systomus luteus, albus; Phoxinellus Zeregi; Cyprinion macrostomus, Kais, Cypris; Discognathus variabilis, rufus, obtusus; Tylognathus nanus; Acanthobrama centisquama, Marmid, Arrhada, cupida; Chondrochilus regius; Squalius Berak, lepidus, cephalopsis, spurius; Aspius vorax; Alburnus Sellal, microlepis, cæruleus, hebes, mossulensis, capito, pallidus; Cobitis frenata, Panthera, insignis, Tigris, Leopardus.

Although the 17th Volume of the Histoire Naturelle des Poissons, by Cuvier and Valenciennes, did not appear till 1844, I have nevertheless thought it convenient to notice it in this place. Valenciennes includes in this volume the true edentate Cyprinidæ. He, in general, follows an entirely opposite principle to that of Heckel. Whilst the latter endeavours, by means of constant characters, to sever, to distinguish, which may perhaps occasionally lead rather to an artificial than a natural system, Valenciennes on the other hand tries to unite, and is more inclined to bring allied forms into large groups. Thus he collects a great

number of Cyprinidæ into one genus, *Leuciscus*, which have by Heckel been distributed into about 16 distinct genera. It may well be difficult to determine a Fish of this division according to Valenciennes' book. Besides these, there follow the genera *Chondrostoma*, *Catla* (*Gibelion*, Heck.), *Catostomus*, *Sclerognathus* (*Catostomus Cyprinus*, Lesueur), which appears to be identical with *Rhitidostomus*, Heck., *Exoglossum*. It is impossible here to enter upon the numerous new species.

Some new Cyprinidæ of the genus *Barbus* have been figured by Smith, 'Ill. South Africa,' 14, and arranged in subgenera. Heckel had already considered them, *Cheilobarbus capensis*. 16½ inch. D. 10; P. 16; V. 8; A. 7; C. 19. *Ch. marequensis* differs somewhat in form from the preceding.

Pseudobarbus Burchellii. 4 inch. The fins red at the base. D. 8; P. 12; V. 6; A. 7; C. 19. *Ps. pallidus*. D. 7; P. 14; V. 6; A. 7; C. 17.

Abrostomus umbratus. Reddish-gray, with yellow spots. D. 10; P. 12; V. 10; A. 6; C. 21. *A. capensis*. D. 11; P. 16; V. 9; A. 6; C. 18.

Labeo elegans, De Kay. Blueish above, head greenish, dorsal fin rounded off superiorly; 8 inch. D. 12; P. 15; V. 9; A. 8. New York. *L. Esopus* (id.) Back raised, scales elongated, lateral line indistinct; 10 inch. D. 12; P. 16; V. 9; A. 7. New York, from the interior of the State.

Abramis versicolor, De Kay. Silvery, variegated with green, blue, and gold; 7 inch. D. 9; P. 14; V. 9; A. 14. In the Connecticut and Hudson.

Catostomus oneida, De Kay. Back gibbous, two short spinous rays in the dorsal fin, head smooth, with numerous mucus-pores; 12 inch. D. 2. 13; P. 15; V. 9; A. 8. Lake Oneida. *C. pallidus* (id.) Sides pale, the two divisions of the swimming bladder connected by a wide opening; 10 inch. D. 13; P. 16; V. 8; A. 8. Near Peekskill.

Leuciscus nitidus, De Kay. Body silvery-white, head with mucus-pores, tail deeply notched, not forked; 10 inch. D. 8; P. 16; V. 10; A. 9. Lake Champlain. *L. chrysopterus* (id.) A large scale at the base of the abdominal fin; dorsal fin emarginate; 6 inch. D. 9; P. 19; V. 9; A. 10. New York Harbour. *L. vittatus* (id.) Olive-green, with a gold-coloured dorsal stripe, silvery beneath, with a dash of flesh-colour; 4 inch. D. 9; P. 15; V. 8; A. 8. Mohawk. *L. pygmæus* (id.) One or more ocellated spots on the tail; 1 inch. D. 14; P. 16; V. 6; A. 13. In brooks near Tappan, Rockland county.

Cyprinodontes.—*Pœcilia decemmaculata*, Jenyns. Ten black spots, in a longitudinal row, on each side. D. 8; A. 10; 1½ inch. Maldonado.

Lebias lineata Jenyns. Seven black longitudinal lines on each side; 2 inch.

D. 9; A. 9. Maldonado. *L. multidentata* (id.) Teeth tricuspid, but in several rows; 3 inch. D. 9; A. 9. Monte Video. Will probably be found to constitute a distinct genus. *L. mento*, Heckel, "Fische Syriens," with projecting chin. D. 2. 10; A. 2. 9. *L. cypris* (id.) Dorsal fin wider anteriorly. D. 2. 9; A. 2. 8. Both from Mossoul.

Fundulus zebra, De Kay. About twenty perpendicular lines on the body, dorsal and anal fins punctated with white. D. 10; P. 17; V. 6; A. 10. In salt-water creeks near New York.

Hydrargira atricauda, De Kay. Olive-brown, with a black broad stripe on the tail; four branchiostegous rays; 3½ inch. D. 15; P. 15; V. 6; A. 10. Lake Champlain.

Among the Cyprinodontes Jenyns places a new genus, *Mesites*, which does not appear to differ from *Galaxias*, Cuv. The author describes three new species, *M. maculatus* and *alpinus*, from Tierra del Fuego, and *M. attenuatus*, from New Zealand. 2½ inch. is stated to be the size of all three.

Characinæ.—The species of *Tetragonopterus*, instituted by Jenyns (Voyage of Beagle), have already been considered in the work on the Characinæ. (vid. *sup.* vol. I, p. 81). *T. rutilus* does not appear to differ from *Tetrag. bimac.*, Müll., Tr. (*Salmo bimaculatus*, Bl.), *T. Abramis* and *scabripinnis* are new: *tæniatus* appears to be the female of *scabripinnis*. *T. interruptus*, on account of the different dentition, must constitute a new genus. All from South America.

Salmonidæ.—Histoire Naturelle des Poissons d'Eau douce de l'Europe Centrale, par L. Agassiz.

Embryologie des Salmones, par C. Vogel. Neufchatel, 1842, 8vo. The observations were made on *Coregonus palea*, Cuv.

Young has made observations on the growth of the Salmon. As long as the Fish remain in fresh water, Young agrees entirely with Shaw; in salt water they grow much faster. He marked many individuals on their passage to the sea, and numbers of these were taken on their return, so that there could be no doubt of their being the same Fish. He thus observed the change at different ages. In April and May, 1837, he marked the descending "Smolts," which in June and July were retaken as "Grilse;" they weighed more or less according to the length of time they had been in the sea. One marked in April weighed on the 25th July seven pounds, another marked in May weighed

on the 30th July 3½ pounds; a Grilse of four pounds, marked in January, 1842, was retaken in July, as Salmon, weighing nine pounds. (Ann. Nat. Hist. xi. p. 157.)

John Shaw has also again made observations on the growth of the Salmon Trout. On the 1st Nov. 1839, the ova were fertilized, the young quitted the egg in 75 days; in two years they attained a size of seven inches, and became "Smolts." He then examined "Smolts" in the river. They returned in July and August as "Herlings" (*Salmo albus,* Flem.); having increased their weight by seven or eight ounces. They afterwards again proceeded to the sea, and returned in May and June with an average weight of 1½ pounds. After the third migration to the sea they re-appeared in the following summer with a weight of four pounds. After the fourth migration, they weighed in the following summer six pounds, that is, in the sixth summer of their life. (Ann. Nat. Hist. xi, p. 384.)

John Blackwall also communicates remarks on the Salmon which he had observed in the river Conway. (1) The lobes of milt are already much developed in the young males, which present the characters of the "Parr," whilst the lobes of roe in the female are still far behind hand. (2) These males shed their milt in the ensuing winter months. (3) The Salmon-Smolts are found to have shed their milt before their migration to the sea, although the roe in the females is at that time very small. (4) The "Smolt" acquires the aspect of a "Parr" when the silvery scales are carefully removed. The author finds fault with Young for not regarding the bulk in his weighings, because the weight depends very much upon the "condition" of the Fish. It is evident that such a remarkable increase in weight in so short a time as that stated by Young, must depend upon a good supply of food. (Ann. Nat. Hist. xi, p. 409.)

Griffith figures *Salmo orientalis* (vid. these Archiv. 1843, II, p. 113); he discovered it at an altitude of 11,000 feet, in the streams which fall into the river Bamean. (M'Clelland, Calcutta Journ. iii, p. 283.)

Amongst the Salmones, De Kay institutes a new genus, *Bajone;* a row of uniform teeth in the upper jaw, a shorter row in the intermaxillary bone, and on the anterior part of the vomer; a row of long curved teeth on the edge of the tongue. Ten branchiostegous rays; adipose fin, behind the anal; scales very minute. *B. fontinalis,* six to eight vertical black bands on the sides; 2 inch. D. 8; P. 12; V. 7; A. 9. Inhabits clear brooks and springs.

Jenyns also institutes a new Salmonian genus, *Aplochiton;* entirely scaleless, small teeth in both jaws, in a single row; two longitudinal rows on the tongue and on the vomer, none on the palate. Three branchiostegous rays. Inhabits fresh water. *A. zebra,* with black transverse bands; 9½ inch. D. 11; A. 2. 14. Falkland Islands. *A. tæniatus,* sprinkled with brown points, with a silvery longitudinal band on the sides; 4 inch. D. 12; A. 2. 13. Tierra del Fuego.

Esocidæ.—*Esox fasciatus,* De Kay. Greenish yellow, with dark vertical stripes on the sides; 10 inch. D. 15; P. 15; V. 9; A. 14. Long Island.

Clupeidæ.—Three new Herrings are mentioned by Jenyns (l. c.): *Clupea fuegensis;* 3 inch. D. 18; A. 19. Tierra del Fuego. *Cl. arcuata,* 4 inch. D. 18; A. 23. Bahia Blanca. *Cl. sagax,* 10½ inch. D. 11; A. 18, 19. Lima.

Alosa teres, De Kay. Cylindrical, ventral fins behind the dorsal; 7 inch. D. 19; P. 15; V. 10; A. 12. New York harbour. *A. pectinata,* Jenyns. Ventral fins in front of the dorsal, scales ctenoid; 12 inch. D. 16; A. 21; P. 17; V. 7. Bahia Blanca.

Engraulis ringens, Jenyns, Beagle. D. 15; A. 19. Peru.

Chatoessus signifer, De Kay. Back with three or four dark lines, a round black spot behind the branchial opening, anal fin distinct; 12 inch. D. 19; P. 18; V. 8; A. 21. New York.

Amia occidentalis, De Kay. Dusky brown, elongated, lateral lines channelled, no black spot; 2 feet. D. 46; V. 9; A. 11.

Sauridæ.—*Lepisosteus platyrhynchus,* De Kay. Jaw broad, elongated; the upper jaw three times as long as it is broad at the base, scales smooth; 2 feet. D. 17; V. 6; A. 8. Florida.

Gadidæ.—*Lota inornata,* De Kay. Ventral fin with a filamentous point, the first ray partly free; both dorsal fins of nearly equal height; 2 feet. D. 9. 71; V. 7; A. 63. Hudson.

Merlangus leptocephalus, De Kay. Green, above the lateral line. D. 12. 19. 19; V. 6; A. 27. 20. New York.

Pleuronectidæ.—*Platessa pusilla,* De Kay. Eyes dextrorsal, olive-brown, no anal spine; 11 inch. D. 67-69; P. 11; V. 6; A. 50. *P. ocellaris.* Upper side with ocellated spots; tail emarginate, eyes sinistrorsal; 18 inch. D. 95; P. 12; V. 6; A. 72.

Hippoglossus Kingii, Jenyns, Beagle. Eyes sinistr., lateral line arched in front. D. 18. 48; A. 51; P. 11; V. 6. Valparaiso.

Rhombus lentiginosus, Richardson. (Annals, xi, p. 495.) Eyes sinistr., elliptical, caudal fin rhomboid; ventral fins separate from each other, and from the anal fin; scales ciliated (at the apex). D. 73; A. 59. Port Essington.

Solea liturata, Richardson. (Transact. Zool. Soc. of London.) "Corpore lituris exiguis geminatis, sparsè sed irregulariter variegato; pinna ventrali dextrâ cum anali conjunctâ; pinnâ caudæ solutâ. Australia. 6 inch.

Anguillidæ.—*Muræna lentiginosa*, Jenyns (l. c.) Red-brown, with small, yellow circular spots; 20½ inch. Galapagos Islands. Besides this the author describes two species of this genus, without specific names; one from the Cape de Verd Islands, the other from Tahiti.

Conger punctus, Jenyns, with red-brown transverse bands, and narrow, gray interspaces; numerous minute points on the skin; 3 inch. 3 lines. Tierra del Fuego.

Ophidiidæ.—Richardson describes (Annals, xii, p. 175) a Fish from Port Essington, New Holland, as a new genus, which he places near *Ophidium*, under the name of *Machærium*. He places the genera *Ophidium*, *Machetes*, *Echiodon*, and *Fierasfer*, as a distinct family, near the Gadidæ, in which he would also include the Blennidæ.

The genus *Machærium*, is characterized as follows: Piscis malacopterygius, apodus, ensiformis, squamosus. Apertura branchialis satis magna sub gula extensa. Radii membr. branch. sex. Opercula conspicua. Os modice extensivum. Dentes parvi, uniseriales in ossibus intermaxillaribus et in maxilla inferiore, quæ rictum efficiunt, ordinati. Genæ et regiones supra scapulares squamosæ. Pinnæ verticales coalitæ, radiis spinosis nullis. Pinna dorsi per totum fere dorsum regnans. Linea lateralis brevis super anum desinens. *M. subducens*, B. 6; D. 70; A. 59; P. 10; V. 0.

De Kay describes a Fish as a new species of Ammodytes, *A. vittatus*, which has seven spinous processes in front of the dorsal fin; maxillary teeth are wanting, and on the vomer are two bony processes, which can hardly be regarded as teeth; no swimming bladder. This Fish appears necessarily to form a distinct genus of Scombridæ, near *Lepidopus*. It has a broad silvery streak on the sides. D. 7. 54; P. 15; A. 28.

LOPHOBRANCHII.

Syngnathus viridescens, De Kay. Dusky olive-green above, yellowish beneath; 7 inch. D. 40; P. 14; A. 3. *S. acicularis*, Jenyns. Yellow-brown, rather more compressed than *S. Acus*; above forty rays in the dorsal fin, one or two in the anal, pectorals very small; 6 inch. Valparaiso. *S. conspicil-*

latus (id.). Gray, with brown transverse bands; 4½ inch. D. 31; A. 32; P. 14. Tahiti. *S. crinitus* (id.) Gray, belly and opercular spot black, two cirrhi above the eyes, no anal fin, pectorals very small; 3½ inch. Patagonia.

PLECTOGNATHI.

GYMNODONTES.—*Diodon fuliginosus*, De Kay. Olive-green above, orange beneath, covered with triangular spines; three spines above each eye, caudal fin lanceolate; 2 inch. D. 14; P. 22; A. 8. *D. verrucosus* (id.) With roundish scuta, from which spring flexible spines; 1½ inch. D. 11; P. 22; A. 10. New York Harbour.

Under the name of *Acanthosoma*, De Kay (l. c.) distinguishes a new genus, which differs from *Diodon* in this, that the dorsal, caudal, and anal fins are united. One species, *A. Carinatum* (*Diodon carinatus*, Mitch.), 1 inch long. D. +; C. +; A. 52; P. 12.

Tetrodon aerostaticus, Jenyns (l. c.). Resembling *lineatus*, Bl., but wanting the lateral line; back and upper part of sides spotted; 2½ inch. D. 11; A. 10; P. 11. *T. implutus* (id.). Olive colour, with white circular spots; nares tubular, forked; 5 inch. D. 10; A. 10; P. 16. Indian Ocean. *T. annulatus* (id.). Dark brown above, with black circular spots; nares cylindrical, with two lateral openings; 9 inch. D. 8; A. 7; P. 15. Galapagos Islands. *T. angusticeps* (id.). Dark green above, two cirrhi in the middle of the back, nares tubular, with two lateral openings; 9 inch. D. 8; A. 7; P. 15. Galapagos Islands.

SCLERODERMI.—*Ostracion undecim-aculeatus*, Smith (Illust. South Africa, 16). Quadrangular; five spines on the back, six on the sides of the abdomen. Cape of Good Hope.

From the genus *Ostracion* De Kay separates a genus, *Lactophrys*, in which he places *O. Yalei*, Storer, and *O. sexcornutus*, Mitchill, besides a new species. The body is triangular, with strong spines in front of the anus, directed backwards; spines above the eyes. In the new species, *L. camelinus*, the back is elevated into a spine, besides eight spines; 3½ inch. D. 9; P. 10; A. 10.

Balistes fuliginosus, De Kay. Caudal fin doubly emarginate; a single spine between the first and second dorsal fins; 12 inch. D. 2. 1. 28; P. 14; V. 7; A. 26. New York Harbour.

Monocanthus setifer, De Kay. Some of the anterior rays of the dorsal fin elongated into filaments; 7 inch. D. 1. 33; P. 13; A. 33. New York Harbour.

Aleuteres velutinus, Jenyns. Light brown, with four darker longitudinal bands, rough; 8 inch. D. 2. 33; A. 31. George's Canal.

PLAGIOSTOMI.

Matteucci has instituted new experiments on the Electric Ray. (Annals, xi, p. 406; Comptes rendus, xvi, p. 455; Froriep's Notizen xxv, p. 184.)

In a short paper (Spicilegium Observationum anatomicarum de organo electrico in Raiis anelectricis et de Hæmatozois. Memoriam sacram regis augustissimi beati Frid. Gulielmi III, indicit A. F. J. Carolus Mayer. Bonnæ, 1843), the author shows that even the non-electric Rays are provided with a rudimentary electric apparatus. As such he regards a glandular organ scarcely the size of a hazel-nut, occupying the same situation as that in which the electric organ is placed in the electric Fish. He compares it with the parotid. It was observed in *Raja clavata, batis* and *Schultzii.* (Vide also Froriep's Notizen, xxvii, p. 121.

Humphreys Storer obtained at Cape Cod, and from New York, an electric Fish, which he recognized as identical with *Torpedo nobiliana*, Bonap. (Silliman, Amer. Journ., Jan. 1843; Annals, xi, p. 326).

ELEUTHEROBRANCHII.

On the Structure of the Brain of the Sturgeon. A Paper by Stannius. (Müller's Archiv, 1843, p. 36.)

CYCLOSTOMI.

Petromyzon appendix, De Kay. Dorsal fins connected, yellow; anal fin with a filamentous appendage in front; 6 inch. Hudson.

Ammocætes unicolor, De Kay. Uniform colour, with a dorsal fin; 5 inch. Lake Champlain.

Myxine australis, Jenyns. Two branchial openings rather behind the fourth part of the whole length; a series of pores on each side of the abdomen; 11½ inch. Tierra del Fuego. Is able to swim tail first.

The Olfactory organ in *Amphioxus* has been discovered by Kölliker. (Müller's Arch. 1843, p. 32.) It is azygous, and is a fresh indication that the animal occupies the lowest place among the Cyclostomi.

INSECTA,

BY

DR. W. F. ERICHSON.

The inconsiderate and arbitrary mode of constructing names in all departments of Zoology, which has prevailed so extensively and increasingly, especially in France and England, has become too general an evil not to have excited consideration. Attempts consequently have been made simultaneously by two parties, with the view of obviating the mischief thence arising, and if possible of putting an end to it.

In England a committee of Zoologists was formed for the effecting of this object, whose propositions are given in the 'Report of the 12th Meeting of the British Association for the Advancement of Science,' held at Manchester in June 1842—Lond. 1843, pp. 105-121; and which were also published in the 'Annals of Natural Hist.' xi, p. 259. These propositions consist—1. In rules for rectifying the present nomenclature. 2. Recommendations for the correct formation of new names (for improving the nomenclature in future). Generally speaking, the plan is very judicious, but, to me, it appears defective in not going back to Linnæus, who was the father of modern nomenclature, and has given the rules for it in the 'Philosophia Botanica.' The rules as well as the nomenclature are essentially the same for both the organic kingdoms, and their application as they are exhibited in the Phil. Botan. to Zoology, is extremely simple.

The principal cause, moreover, of erroneous nomenclature, is to be referred to the circumstance that the givers of the names are deficient in the necessary knowledge of the languages, to such an extent, even, as to be ignorant of the Greek alphabet, and under such circumstances it is hardly to be expected that the labours of the English Zoological Committee will be successful.

More success is to be anticipated from an undertaking which has been commenced on the Continent, by the multifarious and happy activity of Agassiz, and in which he is supported by a considerable number of European Zoologists: 'Nomenclator Zoologicus, continens nomina systematica generum Animalium tam viventium quam fossilium secundum ordinem alphabeticum disposita, adjectis autoribus, libris in quibus reperiuntur, anno editionis, Etymologia et familiis ad quas pertinent, in variis classibus. Auctore L. Agassiz. Solodur.' The plan of the work is evident from the title.

In the department of Entomology, the *Crustacea*, including the *Entomostraca*, appeared in 1843, with the joint assistance of Prof. Burmeister, and the *Ins. Hemiptera* with that of Prof. Germar. On the completion of the separate parts, a general summary of all the names in Zoology, with the date, and a reference to the class and order will be given. Thus, on the one side the important errors which arise from the multiplied use of one and the same name will be prevented for the future, and, on the other, owing to the mode of arrangement of the work, a summary view will be given of the already established genera and other systematic divisions, so that the book will, in a double way, be indispensable to every Zoologist, and will essentially contribute to the diminution of the number of synonyms hereafter.

Valuable researches on the Internal Structure of Insects in the wider sense of the term, have been communicated by Newport, in the Philosoph. Trans. Roy. Soc. of Lond. 1843, p. 243. "On the Structure, Relations, and Development of the Nervous and Circulatory Systems, and on the Existence of a complete Circulation of the Blood in Vessels in the Myriapoda and Macrourous Arachnida; First Series;" which, although they immediately refer to a couple of defined groups, are yet applicable to every class.

This is true especially of the researches on the structure of the chain of ganglia. The author had shown, nine years ago, that each of the nervous cords between the ganglia was constituted of two columns, and in that disposition had traced the distinction between the sensitive and motor nerves. He has now discovered that numerous filaments pass from one column to the other; he considers, however, that the inferior column alone goes to the formation of the ganglia, whilst the superior lies upon them without any perceptible enlargement The ganglion is sometimes formed by an enlargement of the nervous fibres themselves, sometimes by an interstitial deposit of nucleated cells. There are besides, in the ganglia, bundles of transverse fibres, and indeed as many as there are nerves given off on each side, so that they form commissures between the corresponding nerves. They have no

direct connexion with the brain and other nerves. Their function, consequently, must be considered reflex. In the same light are to be viewed the nervous filaments, situated on the external side of the cord, and which have no connexion with the brain (strengthening filaments). He accordingly distinguishes four sets of nervous fibres in the abdominal medullary cord: (1) motory, (2) sensitive nerves, both continuous to the brain, the one set forming ganglia, the other presenting none; (3) the connecting fibres; (4) the strengthening fibres, both unconnected with the brain, the former being the agents of the reflex function in the transverse, the latter in the longitudinal direction.

The author has considerably enlarged his discoveries with respect to the vascular system in the Myriapoda and Scorpions. (Vide Report for 1841, p. 193.) He has succeeded in proving the existence of a completely closed vascular system. In the first place, a minute artery (systemic artery) arises on each side of each chamber of the dorsal vessel, and passes to the sides of the body. The aorta afterwards ramifies in the head, in such a way that arterial trunks proceed to every organ; but besides these, a vascular circle is formed around the œsophagus, inasmuch as two branches descending on the sides of it unite, in order to form a large vessel (supraspinal artery), which lies upon the upper side of the chain of ganglia; anterior to each ganglion, on either side a branch is given off, which divides into as many lesser branches as there are nervous filaments proceeding from the ganglion, and which they accompany to the organs. A similar division of the artery occurs at the last ganglion, into branches corresponding with the nerves proceeding from it. In the *Scorpion* a venous trunk has been demonstrated on the inferior surface of the chain of ganglia. From this, branches proceed to the pulmonary sacs, whence the blood, having been collected into the *sinus*, is again distributed to the body, in order to be returned to the heart. In the young (larval) condition of the animal, the vascular system is, however, less developed.

Lassaigne (Comptes rend., Fror. N. Notiz. vol. xxvii, p. 7) has given a report on his chemical researches into the tegumental coverings of the *Insecta*. A substance peculiar to them, which Odier had already described as *Chitine*, he would rather have named *Entomaderm*. It is peculiar to the Insecta in the wider sense of the term, occurring in the Spiders as well, whilst it is wanting in the *Annelids* (earthworm, &c.)

In the compound eyes, Will has discovered (Müll. Arch. p. 349) an arrangement of minute filaments, $\frac{1}{1000}$ — $\frac{1}{1200}$‴ thick, which extend from the common expansion of the optic

nerve to the pigment, forming the pupils. The author thinks that they are motory filaments, and serve for the dilatation and contraction of the pupil. J. Müller has called attention, in a note, to the remarkable structure of the dilatations of the fibres of the optic nerve of the *river Crab*.

INSECTA.—Léon Dufour (Ann. d. Sc. Nat. xix, p. 147, pl. 6-9; Fror. N. Not. vol. xxvi, p. 257) has furnished a comprehensive memoir on the Malpighian vessels of Insects, in which he gives a copious review of the various forms of these organs, in the different orders, with numerous figures.

The author expresses himself in favour of the view which ascribes to these organs the function of secreting bile, and, in proof of this, relies chiefly on the circumstance of their opening into that part of the intestine in which the chyle is prepared. The correctness of this view might have received still farther confirmation from a reference to the great analogy existing between the Malpighian vessels of the *Locust*, and the liver of the *Crab*. Neither has the author entered into the more minute structure of the organs in question. Leaving out of view the cases (in a great many *Coleoptera*) in which a second insertion of the Malpighian vessels into the rectum seems to take place, the author found, in many *Hemiptera*, that these vessels appear to open into a special sacculated enlargement of the rectum, but upon more accurate examination he was convinced that these pouches belonged not to the rectum, but to the preceding portion of the intestine, which in *Astemma* (*Pyrrhocoris*) *apterum* presented even a whole series of preceding cæcal pouches.

Goureau has made the iridescence of the wings of Insects the subject of his researches, and shown that it is almost always presented, in a greater or less degree, by the transparent, and not unfrequently also by the coloured wings. He refers it to the physical phenomenon of the spectrum. (Ann. d. l. Soc. Ent. d. Fr. 2. Sér i, p. 201.)

V. Siebold has continued his inquiries respecting the occurrence of *Filariæ* in the *Insecta*. (Ent. Zeit. s. 78.)

As works upon separate *Faunas*, are to be enumerated: Esposizione sommaria delle osservazione raccolte durante l'anno 1842 intorno allo sviluppo ed apparazione successiva degli insetti nei contorni di Napoli, Di Achille Costa,—in the Annali dell' Accademia degli Aspiranti Naturalisti.

Connected with German local *Faunas* several contributions are given in the Entomol. Zeitung: Aphoristische Mittheilungen über die Umgebungen von Bad Ems in entomologischer Beziehung, von Suffrian (pp. 283-92). Entomologische Excursionen im Monat Juni 1842 in der Umgegend des Bades Kissingen, von Weidenbach (p. 125). Ueber Insecta die an den Salinen leben, von v. Heyden (p. 227). To the *Fauna* of Silesia belong communications from v. Uechtritz and Schlummel in the Uebersicht d. Arb. u. Veränd. d. schles. Gesellsch. f. vaterl. Kultur, Yr. 1, 1843.

Redtenbacher, Remarks on the *Coleoptera* collected by Theodor Kotschy in Russegger's Travels in Europe, Asia, and Africa. vol. i, 1843.

In the general remarks the author recognizes very correctly the great correspondence of the Fauna with that of the Mediterranean in general, and especially with that of the Morea. In this introduction the already known species are mentioned accordingly, and their distribution everywhere accurately determined; his materials, however, were too scanty to allow of the author's estimating the important relation which the *Fauna* of Syria bears to that of central Asia; of the Persian highlands on the one side, and the valley districts of the Euphrates on the other.

A contribution to the Insect Fauna of Angola, with special relation to the geographical distribution of the Insects of Africa, by the Reporter, in these Archives. (Year 9, vol. i, p. 199.) Of the Insect Fauna of Congo some account, from materials sent by Curror and Cranch, has been given by Ad. White. (Ann. Nat. Hist. xii, p. 262.)

A collective list of the known Insects of New Zealand, by Adam White and Ed. Doubleday, has appeared in Dieffenbach's Travels in New Zealand. vol. ii, p. 265.

The greater part of the species enumerated were discovered in Bank's Voyage, and have been already described by Fabricius.

Coleoptera.—Heer (Entom. Zeit. p. 47) has instituted important researches on the hitherto little regarded plication of the wings of the *Coleoptera*. These observations are the more worthy of consideration, that the mode in which the wings are folded under the elytra is not without

importance with regard to systematic arrangement, since, as the author rightly observes, "it affords at least secondary Family characters."

The author distinguishes three forms: (1) ORTHOTROPOUS WINGS (alæ orthotropæ) without any slanted fold, and without flexure (bruch); *Molorchus*, *Atractocerus*, *Lycus* (he also adduces *Carabus*, relying upon the circumstance that in *Carabus granulatus* wings of moderate length are found under the elytra; but these wings are not perfectly formed, and consequently cannot be taken into account; when, in an unusual way they are fully developed they assume, in that species, the third form. (2) ANATROPOUS WINGS (alæ anatropæ), doubled back, without slanted folding; (*Trichopteryx*, *Scaphidium*, *Catops*, and those that were examined of various Curculionidæ). (3) PLAGIOTROPOUS WINGS (alæ plagiotropæ) bent back, and at the same time folded, so that the anterior margin of the wing in the closed position forms a more or less acute angle, whilst in the anatropous wings the anterior margin is doubled back upon itself. This third form is by far the most frequent, and exhibits many modifications, which are described in a very succinct manner.

Heer (Entom. Zeit. p. 51, T. ii) has also submitted to examination the articulation of the abdomen of the *Coleoptera*.

He correctly remarks that in the *larva* there are generally nine abdominal rings present, that nine is also in the perfect beetle, to be assumed as the normal number for the segments of the abdomen, and that this number is only apparently diminished in consequence of some of the segments, either at the base or at the apex, being retracted or concealed. This is more the case on the abdominal than on the dorsal face, whence the abdominal segments depart more from the normal number than those of the back. Besides the mere number of the segments of the back and abdomen, their mutual relations also are to be taken into consideration. In this respect the author distinguishes four cases:

(1) Each abdominal segment corresponds with one dorsal segment, but the first of these is frequently not continued on the abdominal surface. (*Brachelytra*, *Silphidæ*, true *Lamellicornia*.)

(2) The first abdominal segments are opposed to single dorsal segments; —the first abdominal segments are continued immediately into single dorsal segments, but to the last abdominal segment are opposed two or three dorsal segments. (*Carabidæ*, *Lucanidæ*, *Elateridæ*, *Byrrhidæ*.)

(3) To the first abdominal segments are opposed from two to three dorsal segments, but to the rest of them only single dorsal segments; the last, however, normally is retracted within the penultimate one. This condition is frequent, as for instance in the *Longicornes*.

(4) Two dorsal segments are opposed to the first abdominal, and also to the last (*Heteroceridæ, Hydrophilidæ, Sphæridiidæ*); occasionally also the corresponding segments of the abdominal and dorsal surface are dislocated from each other, as in the *Calandræ* and *Histeres*.

In these researches the author has undoubtedly proceeded in a right track, and the results at which he has arrived contain much demanding attention; but they require, nevertheless, to be corrected in many respects. He has examined only dried specimens. The *stigmata* also must not be passed over without attention. In the *larva* the eight anterior abdominal rings are always furnished with *stigmata*; accordingly it remains also to determine which of the dorsal segments in the Beetle possess them. In general their number is reduced in proportion to the number of the segments, so that in the Beetle one segment more (the last),than pairs of stigmata, is still found; although some exceptions to this exist. The first segment, however, is never observed to be without *stigmata*, as the author supposes to be the case in *Staphylinus* (p. 52). The Beetles, also, must be compared more closely with their *larvæ*. Thus the *larvæ* of *Dytiscus* and *Hydrophilus* have only eight abdominal rings. For systematic purposes, an accurate knowledge of the composition of the abdomen of the Coleoptera is of importance, since in general it is uniform throughout the same family; rare and striking exceptions are presented by the *Trichopterygidæ* and *Lymexylonidæ*.

Guérin has begun a work which is intended as a comprehensive memoir on this Order; it is entitled, "Species et Iconographie générique des Animaux articulés, ou représentation des genres avec la déscription abrégée de toutes les espèces de cette grande division du règne animal, ouvrage formant une Série de Monographies complètes. 1re partie, Insectes Coléoptères." The author has commenced with the Monographs of those genera which require them most—viz. the *Malacodermi*.

I will report below on the few of these monographs which have reached me. It is a great evil that French works frequently appear in such small parts as the present, and so irregularly; it is scarcely possible for us to obtain such a one complete. In future, I hope, by direct communication with the Editor, to be placed in a condition to report fully upon the progress of the undertaking.

Catalogue of the Collection of Coleoptera of Jacob Sturm. (Catalog. der Käfersammlung von Jacob Sturm. Mit 6 ausgemalten Kupfertafeln. Nürnberg, 1843.)

This is the fourth catalogue of his collection which the worthy author has

published in the last forty-eight years. The present is distinguished from all similar ones by the addition of citations to all the already described species, which becomes the more necessary as the materials increase. It is in this respect of very great utility for the purpose of reference.

In an appendix a select number of partly new species are described and illustrated by figures, which show that the author still retains the high position in the art that he has occupied for more than fifty years.

Leopold. Hein. Fischer, in his Inaugural Dissertation, "Diss. Inaug. Zool. sist. Enumerationem Coleopterorum circa Friburgum Brisgoviæ indigenarum; Frib. Brisg. 1843," has given a careful and valuable essay on the distribution of the Coleoptera in Germany.

Contributions to the Knowledge of the Coleopterous Fauna of Finland are given by Mannerheim, in which he has put together his observations upon that Class during the year 1842, in an attractive manner, and generally described the new species. (Bull. Mosc. pp. 70-88.) He has paid particular attention to the *Myrmecophila*.

The new species discovered by Dr. Schrenk in the steppes and mountains of Songaria, have been published by Gebler. (Bull. Physico-Math. de l'Acad. de St. Pétersbourg, i, p. 36.)

Hope (Ann. Nat. Hist. xi, p. 364) has continued his account of new species from tropical Africa; the present communication relates to the Water-beetles, Elateridæ, and Cerambycinæ.

Contributions to the Coleopterous Fauna of the Aleutian Islands, Sitkha, and New California, by Count Mannerheim. (Bull. Mosc. p. 175.) A comprehensive enumeration of all the species observed up to the present time in those regions, a great part of which were discovered by Eschscholtz and others, but to which very considerable additions of new species have been made. Since the Fauna of the Aleutian Islands and Sitkha has so little intimate connexion with that of California, it would probably have been more to the purpose to have separated the two, and treated them apart.

Numerous new species from New Granada, found by J. Goudot, have been made known by Guérin. (Rev. Zool. p. 12.)

Hope (Proc. Ent. Soc. p. 76) has continued his Report on the Coleopterous Fauna of Port Essington (North New Holland). On account of the insufficiency of the slightly sketched diagnoses, and the uncertainty of the determination of the genera, (*Tagenia* and *Asida* are mentioned, which cannot possibly be found in New Holland) I defer my Report until the memoir appears in a more satisfactory form in the Transactions. The same observation applies to a number of species instituted by the same author (ib. p. 71), from the south-west of New Holland.

Cicindeletæ.—This family has been enriched with two new genera. *Myrmecoptera*, Germar (Guérin's Mag. de Zool., Ins. pl. 124), is considered by the author to stand between *Dromica* and *Apteroessa*, with the former of which it corresponds in the form of the labrum, and with the latter in the dilated, second (not third) joint of the labial palpi. The second joint of the labial palpi, however, is also enlarged in all the species of *Dromica*, even very much so in *Dr. coarctata*, and *vittata*. The much dilated compressed antennæ also, which especially distinguish *Myrmecoptera* are present, though less developed, in some species of *Dromica*, as for instance *D. clathrata*, so that a thoroughly defined distinction between the new genus and *Dromica*, is still a desideratum. The new species, *M. egregia*, is from Central Africa (Fasogl.)

Callidema, Guérin (Rev. Zool. p. 12), unites with the aspect of *Iresia* and *Euprosopus* the short peduncle (called here the first joint) of the *labial palpi* of *Oxygonia*. The name coincides in substance with *Calodema*, Lap. *C. Boussignaultii* was found by Goudot in New Granada, high up in the Cordilleras. The *larva* resembles that of *Cicind. campestris*, and is said to be distinguished by having only two, instead of three *ocelli* on each side. The *larva* of *Cicindela*, however, has properly four *ocelli*, two large and two small, and probably in the *larva* in question the two small ocelli have been overlooked. The habits of the larva are similar to those of *Cicindela*. The Beetle does not fly.

Guérin (ib. p. 14), has added two new species to *Oxycheila*; *O. aquatica*, black, with yellow legs and unspotted elytra; found by Goudot in New Granada, at an altitude of 1400 m., (5500 feet) upon stones in the middle of the river Chipalo. *O. Pinellii*, from Brazil, differs from *O. tristis* by the smaller spot and broad truncated apex of the elytra.

A second species (new) has been added to *Oxygonia*, Mannerh., by Germar, *O. dentipennis*, from Brazil, (Guérin, Mag. de Zool., Ins. pl. 124.)

Loew (Entom. Zeit., s. 339) has described two species of *Cicindela*, from Hither Asia, of which one, *C. quadrimaculata*, from Asia Minor, is one of

the most interesting new discoveries; the name has already been employed by Sturm: the other, *C. 8 punctata*, from the island of Rhodes, does not appear to me to differ from *C. Fischeri*, Ad. Besides these the author notices some beautiful varieties of *C. littoralis*, and *C. campestris*. Gebler's (Bull. Acad. Pétersb. i, 36, 1) *Cicindela granulata*, from the valleys of the Alatau Mountains, resembles *C. sylvatica;* it is dull black, the elytra finely granulated, a punctum on the shoulder, an oblique transverse spot broader on the external side in the middle, and a posterior white punctum.

From California, Ménétries (Bull. Acad. Pétersb. ii, p. 52) has obtained *Cicindela* 12 *guttata*, and a new species, *C. californica*.

Chaudoir has described, as new species (Bull. Mosc. p. 674): *Aptema denticollis*, from Kordofan; *Megacephala latipennis*, from Brazil? *M. lævigata*, probably the same as *M. chilensis*, Lap.; *Odontocheila distinguenda, cognata, spinipennis*, from Cayenne; *Cicindela miranda*, from Brazil, *linearis*, from Madagascar, *assimilis*, said to be from Egypt (??) *Reichei, apicalis*, from Mexico, *longicollis*, from Senegal, *Madagascariensis*, from Madagascar, *rectilatera*, from Mexico, *oculata*, from Madagascar; *Colliuris filiformis*, from Java.

Carabici.—This family has been enriched with a considerable number of new genera, principally by Chaudoir. (Genres nouveaux de la Fam. de Carabiques, cont. Bull. d. l. Soc. Imp. des Nat. de Moscou, 1843, p. 383.) For the sake of more easy reference I subjoin them in a systematic series.

Aplothorax, Waterhouse, already noticed (vid. Report for 1841, p. 205), now more particularly described and figured (Trans. Ent. Soc. Lond, iii, p. 267, pl. 12, fig. 1), is here more correctly viewed as a subgenus of *Carabus*, from which it differs chiefly in the form of the prothorax, without a reflected border. The anterior tarsi are slightly dilated, the first four joints clothed with felted down beneath. *A. Burchellii*, of the size of *Procrust. coriaceus*, is indigenous in St. Helena.

Disphericus (more correctly *Disphæricus*), Waterhouse, also noticed already (vid. ib.), and that as a genus allied to *Cychrus*, is now (Trans. Ent. Soc. Lond. iii, p. 210, pl. 12, fig. 2) more particularly described and figured, and proves to be a genus allied to *Tefflus* and *Panagæus*. The terminal joints in each pair of palpi hatchet-shaped. The mentum anteriorly emarginate. The prothorax nearly globose. The anterior femora somewhat thickened. The anterior tarsi, in the male, slightly dilated. The Beetle most nearly resembles a *Eurysoma*, but the prothorax presents no trace of angles, and is more insulated. *D. gambianus*, shining black, with deeply punctate-striated elytra; from the Gambia.

Belonognatha, Chaud. (Bull. Mosc. 1843, p. 383) differs, as the author very correctly remarks, together with *Nycteis* (*Beleopterus*, Kl.) from the rest of the *Pericallidæ*, among which it is to be placed, in having the claws dentate, and it farther agrees with *Nycteis* in not presenting a tooth in the notch of the mentum, and differs from it only in the labrum and mandibles being somewhat more elongated, and the elytra not having a terminal spine. *B. pustulata*, a small, new species from Madagascar.

Penthus, Chaudoir (Bull. Mosc. p. 387), belongs to the Ditomidæ-group, of which the author here gives the following summary: (1) Elytra free. (*a*) Mentum with a strong tooth; *Aristus*, *Ditomus*, *Odogenius*. (*b*) Mentum simply notched; *Penthus*. (2) Elytra connate. (*a*) Mentum without a tooth; (*α*) Prothorax produced posteriorly; *Chilatomus*. (*β*) Prothorax cut short posteriorly; *Pachycarus*. (*b*) Mentum toothed; *Mystropterus*. As regards *Penthus*, it appears to me that this new genus belongs to the second subdivision, with connate elytra, and might there, from the form of the prothorax, be placed next to *Pachycarus*, from which it is distinguished by the dilated anterior tarsi of the male. *Penthus tenebricosus*, from the neighbourhood of Constantinople, is already described by Waltl. (Isis, 1838) as *Ditomus tenebrioides*.

The Harpalidæ-group follow next.

Anisocnemus, Chaudoir (Bull. Mosc. p. 391), resembling *Acinopus*; the mentum without a tooth in the notch, the anterior tibiæ somewhat dilated, bluntly jagged on the external margin. A new species, *A. validus*, Kl. from Columbia.

Trichopselaphus, Chaudoir (ib. p. 399), a well-marked new genus, approaching *Paramecus*, but without a tooth in the notch of the mentum, the terminal joint of the labial palpi oval, thickened, encircled with hairs. *T. subiridescens*, from Brazil, a female; the collection here (Berlin) possesses also only a female of the same species, but a male of another species, with much thickened posterior femora, armed beneath with a strong tooth, and much curved posterior; tibiæ serrate-crenated internally, like the *Hypharpax*, Mac L. of Java; the terminal joint of the maxillary palpi, which are deficient in the author's specimen, is formed like those of the labial palpi.

Diapheromerus, Chaudoir (ib. p. 402), founded on *Harp. melanarius*, Dej.? differs from *Harpalus* in the elongated first tarsal joint, the spongy covering of the dilated tarsal joints, and the paraglossæ longer than the tongue.

Ctenomerus, Chaudoir (ib. p. 408), an *Ophonus*-form, with slightly dilated anterior tarsi, the first joint of the anterior tarsi somewhat rounded internally, distinctly pectinate; all with a pectiniform row of setæ beneath. *Ct. crenulatus*, new species, from Kordofan.

Dicheirus (Esch.), Mannerheim (Bull. Mosc. p. 211), also an Ophonus-form, including *Harp. dilatatus*, and *brunneus*, Dej., separated from the

rest on account of their thickened anterior femora, and the two spines at the tips of the anterior tibiæ.

Cyphogenius, Chaudoir (ib. p. 395), is certainly identical with *Cratognathus*, Dej., as is *Cyph. pallipes*, Chaud. (ib.), from the Cape, with *Cr. mandibularis*, Dej. The Reporter (Arch. 1843, i, p. 205) has corrected the erroneous habitat assigned to this species by Dejean, and at the same time united the genera *Eucephalus*, Lap., and *Daptomorphus*, Chaud., as well as *Harp. xanthoraphus*, Wied., Dej., under *Cratognathus*.

Pteroglossus, Chaudoir (ib. p. 405), does not appear to me to differ from *Harpalus;* even the tongue, upon the supposed peculiarity of which the author seems to lay stress, I have not found to be as described by him, but to be similar to that of *Harpalus*, as for instance of *H. ferrugineus*. The so-considered new species, *Pt. suturalis*, from Kordofan, is nothing but *Harp. fulvus*, Dej., which extends from Upper Egypt to Guinea. Since the genus cannot stand it is needless to object to the name, which is so well known as applied to a genus of birds.

In the group of the *Pterostichini:*

Simodontus, Chaudoir (Bull. Mos. p. 412). The tooth in the notch of the mentum short, inflected, apparently cleft; as it is in many of the *Feroniæ* of Dejean, from which, in other respects, no sufficient distinction of this genus can be made out, from the very ample description given of it. *S. æneipennis*, from New Holland, held by the author, though doubtfully, to be *Fer. australis*, Dej.

Oxycrepis (Dej.), Reiche (Rev. Zool. p. 78), with flat three-lobed mentum. The first three dilated joints of the anterior tarsi of the male dilated obliquely on the inner side, and clothed beneath with lobed cushions and setæ. *O. leucocera*, from Columbia, has the eighth and ninth joint of the antennæ white.

Agaosoma, Ménètries (Bull. Acad. Pétersb. ii, p. 63), is identical with *Stenomorphus*, Dej.

Both the following genera are probably immediately connected with the Pterostichini, without, however, exactly agreeing with that group.

Lissopterus, Waterhouse (Ann. Nat. Hist. xi, p. 281), has somewhat the form of the body of *Omaseus melanarius*, but differs from the Pterostichini in this respect, that in the anterior tarsi of the male the four basal joints are widely dilated. *L. 4 notatus*, black, the elytra very indistinctly striated, each with two minute red spots on the outer margin. From the Falkland Islands.

Axinidium, Sturm (Catal. 5, 51, tab. i, fig. 4) is a new genus, which, in my opinion, should be placed next to *Eripus*, from which it differs chiefly in the large hatchet-shaped terminal joint of the maxillary palpi, the double notch also of the mentum, according to the figure, is deeper than in

Eripus. *A. africanum*, a new species, supposed to be from Africa, but the locality not accurately determined, also agrees with *Eripus* in the smoothness of the upper surface, except that the elytra present, each, three deeper puncta.

In the Anchomenini.—*Oxyglossus*, Chaudoir (Bull. Mosc. p. 424). Agreeing in general very nearly with *Anchomenus* (*Agonum*), the mandibles elongated, slender, and the claws delicately pectinate at the base. *O. subcyaneus*, a new species, from Brazil.

Stenognathus, id. (ib. p. 421), formed from *Anchomenus melanarius*, Dej., differs in several respects from *Anchomenus*. The mandibles and antennæ are more elongated, the former slender and pointed, the anterior tarsi in the male scarcely at all dilated; the fourth tarsal joint emarginate.

Megalonychus, id. (ib. p. 418), simulates the aspect of an *Agonum*, Dej., but differs from it in the remarkable length of the claw-joint of the tarsus, which presents a seta above near the end. The under side of the dilated tarsal joints of the male has a felt-like lining (according to the author's statement). A new species, *M. madagascariensis*, from Madagascar.

Oxypselaphus, id. (ib. p. 415), has the pointed palpi of *Olisthopus*, but agrees with *Anchomenus* in having a tooth in the notch of the mentum. *O. pallidus*, from Turkistan, has the aspect of *Anchom. fuliginosus*.

Camptotoma, Reiche (Rev. Zool. p. 40). The palpi large, thick, ciliate, the second joint curved; and otherwise differing from *Anchomenus* in the moniliform antennæ and plump form. *C. Lebasii*, from New Granada.

Anchonoderus, id. (ib. p. 38) differs from *Anchomenus* in the body not being depressed, the longer antennæ with cylindrical joints, the heart-shaped prothorax, the posterior angles of which are not reflected, the rounded and not sinuous point and granulated interstices, of the elytra; and under it are enumerated *Anchom. eximius*, Dej., *elegans*, Brulle, *dimidiaticornis*, Dej., *elegans*, Dej., and several new Columbian species. It appears to me to be more nearly allied to *Lachnophorus*.

A monograph of the genus *Callisthenes* has been presented by Ménètries to the Petersburgh Academy. (Bull. Acad. Pétersb. i, p. 341.) It includes five species: *C. Panderi*, Fisch, from the Kirghese steppes, *C. breviusculus* (*Carab. brev.*, Mannerh.), from Beiburt, in Armenia, *C. orbiculatus* (*Carab. orb.*, Motsch., *Callisth. Motschoulskii*, Fisch.), from the mountains of Alaguez and Diligan, on the north border of Armenia, *C. Fischeri*, Mén., from the north of China, *C. Reichei*, Guérin, from Persia. The author finds such a close agreement of all these species in their peculiar habit, that he thence considers the distinct character of the genus *Callisthenes* as beyond doubt. From his comparison of the characters of *Carabus*, *Calosoma*, and *Callisthenes*, the following are deduced as those of the latter genus: third joint of the antennæ much compressed (which, in *Calosoma*, is slightly compressed),

bilobed tooth on the inner edge of the mandibles (wanting in *Calosoma*), the decidedly rounded elytra, and the constant want of wings.

Chaudoir (Bull. Mosc. p. 671) has characterized a great number of new species of various genera, and from the most various parts of the earth, which I have not yet been able to examine closely, since I have only lately received the Part of the work containing them. It appears to me that little is gained by the describing of new species in a journal of limited circulation, and it would perhaps be better that the author, when furnishing additions to the work of Dejean, should allow them to appear in a separate form. When materials are so scattered in all directions they become rather a hinderance than an assistance in the study of the subject. Entomology in particular, is at present in that condition, that the description of a new species, without farther object (in itself a witless labour), is of little advantage.—In noticing the contents of the present memoir, I can only give the names of the species described: *Casnonia picta*, California; *Drypta cyanella*, from Madagascar; *Galerita cordicollis*, North America; *longicollis*, ib.; *tristis*, Kordofan; *Helluo erythropus* (*rufipes*, Brull.), South America; *Lebia reflexicollis*, Columbia; *abdominalis*, North America; *Aptinus cordicollis*, north of Turkey; *Pheropsophus* 4-*pustulatus*, Java; *bifulcatus*, Senegal; *longipennis*, ib.; *humeralis*, Madagascar; *pictus*, Surinam; *Brachinus cruciger*, Kordofan; *undulatus*, Senegal; *parallelus*, Kordofan; *parvulus*, Cape; *oxygonus*, North America; *Graphipterus rotundipennis*, Kordofan; *parvicollis*, Cape; *lutescens*, Cape; *Anthia atra*, Cape; *Siagona sulcicollis*, Kordofan; *picea*, ib.; *angustata*, ib.; *rufa*, Barbary; *bicolor*, Kordofan; *Melænus elongatus*, ib.; *Scarites* 6-*punctatus*, Algiers; *nitidus*, Kordofan; *Dregei*, Cape; *cribripennis*, Madagascar; *oblongus*, Egypt; *quadricollis*, Brazil; *alternans*, Cuba; *vicinus*, New Orleans; *denticollis*, ib.; *quadriceps*, North America; *subcylindricus*, Egypt; *subdepressus*, Cayenne; *Faldermanni*, Brazil; *ovipennis*, Cape; *Clivina basalis*, New Holland; *elongata*, Cayenne; *Dyschirius semicrenatus*, Guadaloupe; *humeralis*, New Orleans; *subangustatus*, ib.; *oxygnathus*, Cayenne; *Leprieuri*, ib.; *rufo-æneus*, Sicily; *rotundipennis*, Styria; *Ditomus spinicollis*, Algiers; *Odogenius rufipes*, Turkey and Persia; *Carabus planatus*, ——? *Calosoma scabrosum*, Kordofan; *crassipes*, ib.; *affine*, Mexico; *Leistus rufipes* north of Turkey; *Nebria Parreysii*, ——? *subacuminata*, ——? *barbara*, Algiers; *femoralis*, Gallicia; *Gaugeri*, ——? *turcica*, Turkey; *Chlænius plagiatus*, Senegal; *longicornis*, Kordofan; *longicollis*, New Orleans; *oxygonus*, ib.; *virens*, ib.; *smaragdinus*, ib.; *distinguendus*, Algiers; *Epomis brevicollis*, Egypt; *Dinodes laticollis*, Turkey; *Oodes nigrita*, Kordofan; 14-*striatus*, New Orleans; *brasiliensis*, Brazil; *cupreus*, New Orleans; *Licinus dalmatinus*, Dalmatia; *Calathus deplanatus*, north of Turkey; *Anchomenus distinctus*, Switzerland; *deplanatus*, New Orleans; *obscuratus*, North America; *Agonum foveicolle*, New Orleans; *convexiusculum*, Smyrna; *Megalostylus saphirinus*,

laticollis, minor, New Orleans; *Pœcilus micans*, ib.; *Trirammatus angustatus*, Peru; *Hypherpes chalybeipennis*, New Holland; *Orthomus acrogonus*, Turkey; *Steropus convexus* —— ? *Lissotarsus canaliculatus*, Sicily; *Lyperus acutangulus*, New Orleans; *Molops græcus*, Greece; *rufipes*, ib.; *subtruncatus*, Switzerland; *Eucamptognathus angustatus*, Madagascar; *Leirus borealis*, Polar regions; *Leiocnemis? latiuscula*, Styria; *Masoreus laticollis*, Egypt; *affinis*, ib.; *Paramecus parallelus*, Chili; *Selenophorus foveolatus*, —— ? (*Pangus*) *impunctus*, Kordofan; *angulatus*, —— ? *Brachybænus oxyomus*, Kordofan; *Hypolithus iridescens*, Guadaloupe; *Ophonus longicollis*, north of Turkey; *Harpalus acuminatus*, Cape; *rufocinctus*, ib.; *maculicornis*, New Orleans; *nitidulus*, ib.; *fulvipennis*, Cape; *Stenolophus terminalis*, Madagascar.

The other newly characterized species can be reviewed most easily according to their geographic distribution.

From Zongaria there are described by Gebler (Bull. Acad. Petersb. i, pp. 36, 37), *Cymindis Mannerheimii*, from the valleys of the Tarbagatai mountains; *C. sellata*, from the Alakul Lake; *Lebia punctata*, steel-blue, head and prothorax dim, elytra shining, ib.; *Dromius cingulatus*, ib.; *Nebria Schrenkii*, from the valleys of the Alatau mountains; *Sphodrus thoracicus*, from the Alakul Lake; *Omaseus Mellyi*, plentiful at the river Ajagus.

From Syria and Cyprus there are described by Redtenbacher (Russegger's Reise, i, p. 979), *Cymindis seriepunctata, adusta*, from Cyprus; *Scarites punctostriatus*, ib.; *Morio olympicus*, ib.; *Procerus syriacus*, Syria; *Carabus paphius*, Cyprus; *Pristonychus crenatus*, and *quadricollis*, as also *Feronia punctata*, ib.——The finding of a *Morio* in the region of the European Fauna is especially interesting.

From Senegal we have *Stenidia Edwardsii*, Castelnau (Guérin, Mag. d. Zool. Ins. pl. 119), a conspicuous new species, which in figure and colour resembles *Drypta ruficollis*, Dej.

From Angola the Reporter in these Archives (I, p. 211-219) has described 25 new species, viz. 1 *Calleida*, 6 *Brachinus*, 1 *Helluo*, 2 *Anthia*, 1 *Scarites*, 1 *Clivina*, 1 *Cratognathus*, 4 *Stenolophus*, 1 *Hispalis*, 5 *Chlænius*, 1 *Oodes*, 1 *Pogonus*.

The Fauna of Sitka and California has received some light from the labours of Mannerheim (Bull. Mosc. ut sup.) and Ménétries (Bull. Acad. Petersb. ii, p. 49), and been enriched with a number of new species. Sitka affords 2 *Cychrus*, 4 *Nebria*, 1 *Notiophilus*, 1 *Leistus* (*ferruginosus*, Mann. *ferrugineus*, Esch), 1 *Loricera*, 2 *Harpalus*, 9 *Pterostichus* (*Feronia*); among which, *Pt. herculeanus*, Mann. (p. 201), resembling *Feron. valida*, Dej., *Pt. seriepunctatus*, Mann. (p. 204), resembling *F. adstricta*, Dej., are new; 1 *Amara*, 1 *Patrobus*, 4 *Bembidium*, viz. *B. planiusculum*, *Kupranovii*, *biimpressum*, *quadrifoveolatum*, Mann. (p. 216), all related to *B. Pfeiffei*.

California is more rich in species: 3 *Cychrus*, among which *C. velutinus* and *interruptus*, Ménét. (p. 53), are new; 1 *Calosoma*, 1 *Metrius*, 1 *Nebria*, new species; *N. Eschscholtzii*, Ménét. (p. 55), 1 *Elaphrus*, also a new species; *E. californicus*, Mann. (p. 190), Ménét. (p. 55), 1 *Notiophilus*, 1 *Loricera*, 1 *Badister*, 1 *Galerita*, new species, nearly related to *G. Janus; G. californica*, Mann. (p. 183), Ménét. (p. 52), 1 *Cymindis*, 1 *Calleida*, new species, like *C. decora; C. croceicollis*, Ménét. (p. 53), 2 *Dromius*, *Dr. biplagiatus*, Dej., and *Dr. nigrinus*, Esch. Mann. (p. 184), 1 *Lebia*, 1 *Brachinus*, 1 *Anisodactylus*, 4 *Dicheirus* (vid. sup.), among which, Ménétries (p. 61), has two new species, *D. piceus* and *hirsutus;* 2 *Harpalus*, of which *H. albionicus*, Mann. (p. 213), is new; 1 *Stenolophus*, 1 *Bradycellus* (*Acupalpus*), 1 *Eripus*, 1 *Stenomorphus*, a new species, viz. *Agaosoma californicum*, Ménét. (p. 63), 8 *Pterostichus* (*Feronia*); among which are new, *Pt. vicinus*, Mann. (p. 200), allied to *F. californica*, Dej.; *F.* (*Platysm.*) *castanipes* and *congesta; F.* (*Percus*) *Lama*, Ménét. (p. 59); 4 *Amara*, 2 *Calathus*, of which *C. Behrensii*, Mann. (p. 145), Ménét. (p. 56), is new; 15 *Anchomenus* (including *Agonum*), of which are new, *A. ovipennis*, Esch., *rugiceps. brunneo-marginatus*, Mann. (p. 196), *micans*, *Ag. deplanatum. famelicum*, Ménét. (p. 56), 5 *Chlænius*, of which is new, *Chl. asperulus*, Ménét. (p. 55), 1 *Lachnophorus*, new species; *L. elegantulus*, Mann. (p. 215), probably a *Calybe;* lastly, 2 *Bembidium*.

Reiche (Rev. Zool. pp. 37, 75, 141, 177) has continued his description of new Columbian *Carabicini*. (Vide Report, 1842, p. 167.) There are now described, 1 *Chlænius*, 1 *Oodes*, 6 *Anchonoderus*, 1 *Coptotoma*, 3 *Anchomenus*, 7 *Agonum*, 1 *Oxycrepis*, 1 *Barysomus*, 9 *Selenophorus*, 1 *Hypolithus*, 3 *Harpalus*, 2 *Acupalpus*, 2 *Tetragonoderus*, 2 *Lachnophorus*. Two new species of *Pelecium* from New Granada, have been described by Guérin. (Ib. p. 15.)

Sturm, in his new Catalogue (p. 325, t. i, figs. 1-3), has figured as new species three well-marked *Lebiæ* from Brazil, under the names of *Lia faciata*, *multipunctata*, 10-*punctata*, which are indeed omitted in Dejean's work, but have been described elsewhere; the first being *Chelonodema elegans*, Manner. (Bull. Mosc. 1837, II, p. 32); the second *Chelonodema scripta*, Laport. (Etud. Ent. p. 50, *notata*, Brullé, Hist. d. Ins. I, p. 219); the third, *Ch. affinis*, Lap. (ut sup.) Also from Brazil is *Ctenodactyla bicolor*, Castelnau (described in Guér. Mag. de Zool. Ins. pl. 119), also not new, but identical with *Ct. Langsdorfii*. (Klug. Jahrb.)

Fairmaire (Ann. Soc. Ent. d. Fr. 2 sér. i, p. 11, pl. 1) describes as a new species, *Chlænius ophonioides*, from New Holland, distinguished by the yellow colour of the dorsum of the elytra, and *Anchomenus Novæ Zelandiæ*, from New Zealand; the penultimate tarsal joint is deeply bilobed, consequently it cannot be an *Anchomenus*, and the author is even disposed to make a distinct genus of it, *Ctenognathus*, the chief character of which is "machoires pectinées." The figure represents the inner border of the mandibles, pectinate

in such a way that it appears as if the pectination were produced by the inner blade (mala) of the maxillæ lying beneath the mandibles.

An interesting feature in the natural history of *Carabus auratus*, [communication of thought, and co-operation,] is related by Klingelhöfer. (Ent. Zeit. p. 89.)

Dytisci.—Two new species of *Cybister* are characterized by Ormancey (Rev. Zool. p. 331), the one named *C. prosternoviridis* (sic!), the other *C. æneus*. The latter from Brazil, and probably the former.

A new species of *Hydaticus*, *H. discoidalis* from Western Africa, by Hope. (Ann. Nat. Hist. xi, p. 364.)

A new species of *Dytiscus*, *D. anxius*, from Sitka, very like *D. circumcinctus* has been added by Mannerheim (Bull. Mosc. p. 218.)—Westwood (Trans. Ent. Soc. Lond. iii, p. 203, pl. 11, fig. 2) has made known a monstrosity in a male *Dytiscus marginalis*, in which the distinctive sexual character, viz. the dilatation of the tarsi, was little marked.

A *Colymbetes coriaceus* with monstrous antennæ, has been figured by Lucas. (Ann. d. la Soc. Ent. d. Fr. 2 sér. i, p. 55, t. 1.)

Suffrian has given remarks on the peculiar conformation of the anterior claws in the male *Agabus bipustulatus*. (Ent. Zeit s. 332.) The author seems to entertain a notion that there may be more than one species resembling each other, with a difference of conformation in the claws, since by several writers, particularly by Degeer and myself, this conformation is not noticed. As far as I am concerned, this point was passed by, because it appeared to me unnecessary to employ such a character in a Beetle so easily recognized.

As a new Silesian species, Letzner has described (Uebers. der Arb. u. Veränd. der Schles. Gesellsch. i. J. 1843) *Agabus silesiacus*, nearly allied to *A. guttatus*, but more convex and more pointed at each end; on the elytra only one fenestrated spot behind the middle. In clear brooks on the Altvatergebirg. New species from Sitka are, *Ag. dubius*, and *hypomelas*, Mannerh. (Bull. Mosc. p. 221.)

From Angola, the Reporter has characterized two new Water-beetles (l. c. p. 220), *Hydrocanthus notula* and *Hydroporus turgidus*. The latter is also indigenous in Egypt.

Suffrian (Ent. Zeitung, p. 94) remarks that the true *Hydrop. parallelogrammus* of Ahrens, is not the dull, but the strongly punctured shining form of this Beetle. The author is of opinion that the name *Hydrop. nigrolineatus*, Sch., should be abolished as ambiguous, because Ahrens first described Stevens's Beetle of this name as *H. enneagrammus*. It will, however, perhaps be necessary to refer to Stevens's own much earlier description, in 'Schönh. Synon Sus.' which is so clear that the species meant cannot be mistaken, notwithstanding the erroneous figure accompanying it.—Mulsant (Ann. d. l. Soc. Roy. d'Agricul. d. Lyon, vi, p. 276) has described a new species from France, *Hydroporus Aubei*.

Gyrini.—Suffrian has furnished supplementary remarks to his former memoir on the German Gyrini. (Ent. Zeit. ss. 25, 369.)

Staphylini.—The examination of Ants' nests continues to afford accessions of new species, especially of this family. Several new Myrmecophila found in the Oberlausitz, have been described by v. Kiesenwetter (Ent. Zeit. s. 306), *Oxypoda familiaris*, *Dinarda Märkelii* (the larger of the two forms hitherto included under *D. dentata*, which the author considers should be specifically separated from the smaller, to which latter the *Lom. dentata* of Gravenhorst is to be referred), *Othius myrmecophilus*, *Scopæus pusillus*. In Finland, Count Mannerheim has paid particular attention to the Myrmecophila, and has observed, among a number of known species, also several new ones: *Homalota fossigera*, *Oxypoda myrmecobia*, *latiuscula*, *Oligota tantilla*, *Tachyporus pulchellus*, *Stenus formicetorum*. (Bull. Mosc. p. 77.) Chevrolat (Rev. Zool. p. 42) has described a new species, *Myrmedonia nigriventris*, from Calais, where it lives on the sea shore. Aubé (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 90) in correction, refers it to the genus *Homalota*.

Aubé (ib.) describes two interesting new species from the South of Europe: *Oedichirus unicolor*, from Badajoz in Andalusia, and *Bledius tristis*, from Sicily.

Kellner (Ent. Zeit. s. 31) describes *Quedius riparius*, a new species from the Forest of Thuringia.

Several new species from Angola have been described by the Reporter (l. c.): *Myrmedonia satelles, suturalis; Philonthus hospes; Cryptobium tricolor; Pæderus angolensis; Ædichirus terminatus.*

Mannerheim (Bull. Mosc. p. 224) has characterized as new species, from Sitka: *Homalota maritima, picipennis; Aleochara castaneipennis, sulcicollis; Tachinus nigricornis, propinquus; Othius californicus; Staphylinus tarsalis, Siegwaldii; Quedius plagiatus, brunnipennis; Oxytelus fuscipennis; Anthophagus laticollis; Arpedium testaceum, maculicolle; Omalium plagiatum; Anthobium pothos;* and further, from California, *Philonthus californicus albionicus.*

Buprestides.—A contribution to the natural history of the *Buprestides*, has been made by Pecchioli (Guér. Mag. de Zool. 1843, pl. 120, 121), based upon the natural history of *B. Fabricii* (upon which we also possess a memoir by Bertolini, vide last Report) and *B. mariana*. The *larva* and *pupa* of the latter are figured. A report upon the occurrence and on the *larva* of *Dicerca berolinensis* has been given by Klingelhöfer. (Ent. Zeit. p. 87.) The history of the metamorphosis of *Agrilus biguttatus* is detailed by Goureau (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 23, t. ii) as something new, although it has been already given by Ratzeburg, (Forztinsekten.) The larva is one of those furnished with a horny fork at the apex of the abdomen.

This memoir has excited a dispute between Léon Dufour and Goureau (ib. pp. 253, 257), caused by the latter's committing, in such a careful observer, a most extraordinary blunder, in describing the *prothorax* as the head. (For the rest I have only to refer to my paper on the Coleopterous *larvæ*, in the Archiv, f. 1841, 1 Bd. p. 82.)

Blanchard (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 321) has given a summary of the already existing observations on the larvæ of the Buprestides.

The following are the newly-described species of this family:

Sternocera lanifica, of the Reporter (Arch. Yr. 1. vol. i. p. 223), from Angola. *Sternocera liturata*, var. *Currori*, White (Ann. Nat. Hist. xii, p. 266), from Zaira (Congo), might probably be the same species, but the author has not expressed himself with regard to the sculpture of the thorax; the original species, *St. liturata*, Burch. from the Cape, is evidently *St. Orissa*, Buq. A second species, very well marked by the longitudinally wrinkled elytra, from Zaira (also from the Gaboon), is *St. feldspathica* (sic!), White. (Ib. p. 267.)

Iulodis Clouei, Buquet (Rev. Zool. p. 22), from Socotra (an island on the coast of Arabia), a well-marked species of which the author (Ann. d. l. Soc. Ent. d. France, 2 sér. i, p. 97, t. 4) has figured an individual with deformed antennæ; besides these, are *Iulodis Rothii* (Sturm, Catal. p. 328, pl. 1, fig. 5), from Jerusalem. *I. intricata* and *sulcata*. Redtenbacher (Russegger's Reis. i, s, 982), from Syria.

White (Ann. Nat. Hist. xii, p. 342) characterizes 4 species of *Chrysocroa: Ch.* (*Catoxantha*) *opulenta*, Dej., var. *purpurea*, Wh., from the Philippines, distinguished from the original species by the purple ground colour, which is also that of the breast; *Ch. prælonga*, Wh., new species from the Philippines; *Ch. sublineata*, Wh., from Bengal, is *Ch. mutabilis* Ol. (*marginata*, Gory); *Ch. ocellata*, var. *ephippigera*, Wh., an unimportant variety of *Ch. ocellata*. If each variety is to receive a name, every individual will soon come to be so honoured. *Chrysochroa Edwardsii*, Hope (Trans. Lin. Soc. xix, p. 109, t. 10, fig. 4), from Sylhet, very nearly allied to *Ch. Perrotetii*, Guér.

Chalcophora quadrioculata, Redtenbacher (l. c. p. 983), from Syria.

Buprestis Langii, Mannerheim (Bull. Mosc. p. 237, n. 132), from Sitka. *Buprestis viridiazurea*, Wh. (Ann. Nat. Hist. xii, p. 267, from Zaira), considered as coming near to *B. limbalis*, Ill.

Hyperantha (*Pœcilonota*) *vittaticollis*, from Brazil, and *stigmaticollis*, from Cordova, in South America, by Desmarest. (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 17, t. 1.)

Stigmodera gratiosa, Chevrolat (Rev. Zool. p. 201), from New Holland. *St. funerea*, White (Ann. Nat. Hist. xii, p. 344), from King George's Sound, is an unimportant variety of *St. Richei*, Gory; *St. conspicillata*, id. (ib.),

from Swan River, a beautiful new species. *Anthaxia facialis*, Erichs. (Arch. 9 Jahrg. i, p. 224), from Angola.

EUCNEMIDES.—'Revue Critique de la Tribu des Eucnémides, par M. Guérin-Meneville.' (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 163.) This memoir is important, especially in the corrections it gives of many of the "most incomprehensible mistakes" of Laporte, corrections made even from the very same specimens that Laporte had under his eyes. Besides these, the author has reviewed the genera and species found in the Paris collections. His division of them is as follows :

I. Tarsi simple, without membranous lobes.

1. Antennæ free : either

(*a*) Without the grooves on the under surface of the prothorax : 1. *Melasis*, Ol. ; 2. *Tharops*, Lap. (*Isorhipis*, Lacord.) ; 3. *Nematodes*, Latr. ; 4. *Xylobius*, Latr. (*Xylophilus*, Mann., *Xylœcus*, Serv.) ; 5. *Epiphanis*, Esch. ; 6. *Hypocœlus*, Esch. (*procerulus*, Mann.) ; *Hylochares* (*buprestoides*, *unicolor melasinus*) ; 8. *Calyptocerus*, new gen. ; 9. *Emathion*, Lap. (*Sphærocephalus*, Esch.) ; or

(*b*) With shallow grooves on the prosternum : 10. *Microrhagus*, Esch. (*pygmæus*, *Sahlbergii*).

2. The antennæ, reposing in grooves beneath the lateral border of the prothorax,

(*a*) With cylindrical joints : 11. *Fornax*, Lap. (*Dirhagus*, Esch.) ; 12. *Eucalosoma*, Lap. (*Rhigmaphorus*, Dej.),

(*b*) With saw-like antennæ : 13, *Eucnemis*, Ahr. ; 14. *Gastraulacus*, (*Galba*, Latr.),

(*c*) With brush-like antennæ : 15. *Galbodema*, Latr.

II. Tarsi with long, membranous lobes, on the under side : 16. *Galba*, Esch. ; 17. *Pterotarsus*, Esch.

The *larva* of *Melasis* is described and figured ; the author, however, has not observed its most remarkable peculiarity, viz. the absence of maxillæ ; although I have described it several years since. (Vid. Arch. Yr. 7. i, p. 84.) The author is also quite wrong in regarding it as intermediate between the larvæ of *Buprestes* and *Elateres ;* with the latter of which it has nothing in common. The genera *Hypocœlus*, Esch., and *Hylochares*, Lat., are really identical but the author employs both names, applying *Hypocœlus* to *Eucn. procerulus*, which Eschscholtz regards, though improperly, as the type of *Nematodes*, and Latreille had included under *Hylochares*. According to the author, *Hylochares* includes *Eucn. cruentatus*, Mann., *unicolor*, Lat.,

(probably identical with *buprestoides*, Rossi, or *alticollis*, Rond., and thus g. *Arhipis*, Dej.,) and further, *melasinus*, Lat., and *Eucn. senegalensis*, Lap.; a new species, *H. subacutus*, from Mexico, and *H. Lanieri*, Guér., from Cuba. Nearly allied to this genus is *Silenus ? javanicus*, Lap., which is distinguished by the antennæ incrassated enlarging towards the tip, and the want of the lobe to the penultimate joint of the tarsi; whence it would appear to be identical with the genus to which Laporte had already given the name *Eudorus*. *Nematodes* is limited by the author to *El. filum*, but I do not clearly see how *Emathion*, Lap., differs from it, to which Laporte had erroneously ascribed grooves for the antennæ, and in which *E. cylindricum*, Lap., *E. Mannerheimii*, Chevr. (*Galba mexicana*, Lap.!) *Galba Leprieuri*, Lap.! and two new species, *E. cuneatum*, Chevr., from Bahia, and *E. Buquetii*, from Columbia, are included. Since the new genus *Calyptocerus* has free antennæ, the name appears to have been given on the principle of "lucus a non lucendo." It is otherwise distinguished by the large cucullate prothorax with the posterior margin deeply notched on each side, the somewhat pisiform antennæ, the joints of which are closely approximated, the spoon-shaped last joint of the palpi, and the bilobed penultimate tarsal joint. A new species, *C. Leboucherii*, from Cayenne.—Under *Fornax*, the author adduces twelve species: *F. grandis*, from Brazil (*Eucn. sericatus*, Mannh.); *madagascariensis*, from Madagascar; *obrutus*, Chevr., from Mexico; *Petitii*, ib.; *ruficollis*, Lap., from Cayenne; *sanguineo-signatus*, from Columbia; *opifex*, Dej., from Cayenne; *Chevrolatii*, habitat unknown, (from Brazil); lastly, (*Dirhagus*) *testaceus*, *luridus*, *timidus*, *longulus*, Dej. The last species, at least, differs from the others, in this respect, that the male has pectinate antennæ, and should, in consequence, be placed not even in this division (vid. *sup.*). *Eucnemis* comprises 5 species: *E. Wicardi* (*Galba id.* Lap.), *orientalis* (*Galba id.* Lap.), *capucinus*, Ahr.; and two new species, *E. fulvicornis* and *foveolatus*, from Cayenne. *Gastraulacus*, Guér., and which, by right, should retain Latreille's name *Galba*, receives an addition of two new species: *G. atratus*, from Mexico, and *G. Leprieuri*, from Cayenne. *Galbodema* is limited to *G. flabellicornis* and *Mannerheimii*, Lap. *Galba* (Esch. Guér.) differs from *Pterotarsus*, in having three membranous lobes to the tarsus instead of four, and in the grooves for the ant. situated in *Galba*, at the lateral margin of the prothorax, and in *Pterotarsus* on the prosternum. *Galba* includes, *G. marmorata*, Guér., *murina*, Dej., and two new species, *G. flavicornis*, from North America, and *bombycina* from Columbia; in the former of which the tarsi are received into the tibiæ, on which account the author proposes for it a new genus, *Dendrocharis*.—Lastly, *Pterotarsus* includes, *Mel. tuberculata*, Dalm., *histrio*, Guér., (with the varieties, *testaceus*, and *brasiliensis*, Lap.), *bimaculatus*, Lap., Saund., *Eschscholtzii*, Lap., *rugosus*, Blanch., and *Walkenærii*, new species from Brazil.

Silenus, Lat., is removed by the author from this family, and is shown also to be the true *Anelastes*, Kirby (*Sil. brunneus*, Latr. = *An. Drusii*, Kirby).

Elaterides.—Hope's monograph of the genus *Campsosternus*, Latr., has appeared at somewhat greater length in the 'Trans. Ent. Soc.' iii, p. 286. (Vid. Report for 1841, p. 215.)

The following new species have been characterized: *Ludius anxius*, Gebler (Bull. Acad. Pétersb. i, p. 38), from the Tarbatai mountains, coming extremely near *L. melancholicus*.

Ampedus Savagei, cyanocephalus, auripennis, Iris, cyanicollis, auricollis; Alaus? interruptus, Agrypnus tropicus, laticollis, Hope (Ann. Nat. Hist. xi, p. 365), from Guinea.

Monocrepidius plancus, Atractodes cavifrons, Æolus inscriptus, Drasterius umbrosus, Cardiophorus fulvicornis, Erichson (l. c.), from Angola.

Diacanthus angusticollis, and *Athous pallidipennis*, Mannerheim (l. c.), from Sitka.

Cardiophorus californicus, tantillus, Cryptohypnus puberulus, Diacanthus serricornis, id. (ib.) from California.

Agrypnus pictipes, Chevrolat (Guér. Mag. de Zool. Ins. pl. 107, 108, p. 7), from Mexico.

Rhipicerites.—The second Livraison of Guérin's 'Anim. Artic.' contains a monograph of the genus *Sandalus*, Kn., with which the author joins *Ptyocerus*, Thunb., *Microrhipis*, Guér., *Ptiocerus*, Lap., *Megarhipis*, Lap. The species are: (1) *S. Knochii*, Guér., (*Rhipic. rufipennis*, Latr., ♂, *Sand. niger*, Kn. ♀,) from North America. (2) *S. brunneus*, (*Megarh. id.*, Lap.), from Brazil. (3) *S. Goudotii*, new species, from Columbia. (4) *S. petrophya*, Kn., (*Rhip. fulva*, Lap., *Rhip. proserpina*, Newm.), from North America. (5) *S. mystacinus*, (*Melas. id.*, F., *Ptyoc. id.*, Thunb., *Microrhip. Dumerilii*, Guér. 'Mag. Zool.' i,) from the Cape.

In the fifth Livraison of the same work *Ptiocerus*, Lap., is worked out, and four species discriminated: (1) *Pt. Goryi*, Lap., (2) *attenuatus*, Lap., (3) *nebulosus*, Kl., (4) *capensis*, Reiche, all from the Cape; the two last described for the first time: the last differing from the others by the elongated palpi, with the terminal joint, to cylindrical.

Cryptostomites.—Westwood has given the characters for a new genus *Basodonta*, in the 8th Livraison of Guérin's. 'Anim. Arctic.,' which appears to me to be allied to *Cryptostoma*, and which is established on a new species, *B. nigricornis*, from New Granada.

Atopites.—Guérin (Rev. Zool. p. 193) has established as a character for this family, to which he would rather apply the name *Dascillidæ*, the many-lobed tongue (ligula). He also gives a review of the genera: *Octoglossa*, Guérin; *Dascillus*, Latr.; *Cladotoma*, Westw.; *Odontonyx*, Guérin; *Brady-*

toma, Guérin; *Anchytarsus*, Guérin; *Cneoglossa*, Guérin. Nothing is stated, so far with respect to the contents of each genus.

Cyphonites.—A monograph of *Eucinetus*, Schüpp., (*Nycteus*, Latr.), is published by Guérin, in the fourth Livraison of the 'Anim. Artic.' The genus is still limited to the two species, *E. hæmorrhoidalis*, Germ., and *E. meridionalis*, Lap.

Lampyridæ.—Matteucci has communicated to the Academy of Paris the results of his researches on the nature of the luminous material of the *Lampyris italica*, in a letter to Dumas. This insect, "St. John's Worm," contains a substance which emits light without any perceptible heat, and also without its being requisite that the animal should be entire, or even living. In carbonic acid gas, and in hydrogen, the luminosity ceases after 30 to 40 minutes, if the gases are pure. In oxygen the light is decidedly more brilliant than in atmospheric air, and lasts three times as long, as well in the separated luminous segments as in the whole insect. When the luminous matter shines in oxygen or atmospheric air, a portion of the oxygen is consumed, and replaced by a corresponding quantity of carbonic acid. Warmth, up to a certain point, exalts the luminous power, and cold produces the reverse effect. Too elevated a temperature disorganizes the luminous matter, and the same takes place also in air, and in other media, when it is separated from the animal; but the luminous power may also cease before the death of the insect. (Compt. Rend. Fror. N. Notiz. 27 Bd. s. 168; Ann. Nat. Hist. xii, p. 373.)

Phengodes pulchella, *Roulinii*, *Megalophthalmus collaris*, Guérin (Rev. Zool. p. 17), are new species from New Granada.

Lycidæ.—Mannerheim (Bull. Mosc, p. 88) found in Finland, *Dictyoptera hybrida*, a new species, standing midway between *D. aurora* and *affinis*, but more nearly allied to the former, from which it differs in the colour, which is a deep black beneath, and more of a blood-red above, in the twice as broad rhomboid central cell of the prothorax, and the wider interstices of the elytra.

Two species from Sitka, *D. hamatus*, and *simplicipes*, are characterized by the same. (Ib. p. 245.)

Lycus appendiculatus, Sturm (Catal. p. 329, pl. i, fig. 6), from Senegal, is Laporte's *L. africanus*.

Telephoridæ.—Schummel (Arb. und Veränd. der. Schles. Gesellsch. Yr. J. 1843, s. 193) has found in Silesia two species of *Cantharis*, of which, the one, *C. melanoceros*, is without doubt identical with *C. barbara*, F.; the other, *C. denticollis*, black; the whole prothorax and legs red, tarsi blackish at the tip, $2\frac{1}{3}'''$ long; differs from *C. fulvicollis*, Gyll., in the entirely black head, shorter black antennæ, and the uniformly yellowish red colour of the inferior surface. The posterior angles of the prothorax project as a small pointed tooth.

Mannerheim (Bull. Mosc. p. 89) has discovered in Finland several new species, of which the first, *Rhagonycha fugax*, also is identical with *C. barbara*, F. (and is, in fact, a variety of it with yellow tibiæ). The others are *C. Schönherri*, Dej., and *figurata*, M. Besides these, are new species: *Cantharis notata*, from California, and *Silis pallida*, Esch., from Sitka, of Mannerheim (Bull. Mosc. p. 246); *Telephorus heros*, from New Granada, of Guérin (Rev. Zool. p. 18); and *Malthinus analis*, from Zungaria, of Gebler. (Bull. Acad. Pétersb. i, p. 38.)

Melyridæ.—New *Malachii* are, *Apalochrus nobilis*, Erichs. (l. c.), from Angola; *Malachius reflexicollis*, Gebler (Bull. Acad. Pétersb. i, p. 38), from the Alatau Mountains; *Mal. ephippiger*, Redtenbacher (Russegg. Reis. i, s. 983), from Syria. Two additional species of *Dasytus* are given by Suffrian (Ent. Zeitung. s. 334), both German; *D. scaber*, and *virens*, Müll.; one Syrian, *D. vulpinus*, by Redtenbacher (Russegg. Reis. i, s. 984), and three from California, by Mannerheim (Bull. Mosc. p. 247); *D. laticollis, parvicollis*, M., *canescens*, Esch.

Clerii.—'Description de 24 nouvelles espèces de Terediles pour faire suite à la monographie des Clairons de M. le Doct. Klug, par M. Chevrolat.' (Ann. d. l. Soc. Ent. de Fr., 2 sér. i, p. 31.) The species described are: *Tillus* (*Cymathodera*) *Boscii*, from North America; *Clerus* (*Thanasimus*) *marginicollis, obliqué-fasciatus, cinctiventris*, from Brazil; *Theano cruciatus*, from Columbia; *Cladiscus strangulatus*, from the Philippines; *Enoplium punctatissimum*, from North America; *E. seminigrum* (which does not appear to me to differ from *E. semipunctatum*, Kl.), from Columbia; *E. niveum, fimbriolatum*, from Brazil; *E.* (*Epiphlœus*) *pantherinum*, (very nearly approaching *E.* 12-*maculatum*, Kl.), from Cayenne; *E. balteatum*, from Brazil; *E.* (*Ichnea?*) *divisum, calceatum*, from Brazil; *Opilus germanus*, from the north of Germany (hardly more than a variety of *O. domesticus*); *Trichodes olivieri*, Chev., from Persia; considered by the author to differ from that of Klug; *Trich. affinis, Lafertei, viridi-fasciatus*, from the Levant, appear to me to be, all three, varieties of *T. favarius*; *Tr. Carcelii*, from Asia Minor, (identical with *Tr. nobilis*, Kl.); *Tr. laminatus*, from Asia Minor; *Tr. angustus*, from Amadan; *Trichodes?* (*Zenithicola?*) *fulgens*, from New Holland (a *Clerus* belonging to the division of which *Cl. imbricatus*, Kl., is the type); lastly, *Corynetes marginellus*, from California.

Cladiscus is a new genus, with the terminal joint of the palpi, securiform, the antennæ with eleven joints, of which, each beyond the third one, sends out a long branch; prothorax strongly constricted behind the middle; fourth tarsal joint produced inferiorly, the terminal joint with four double claws.

The new Mexican species of his collection have been published by the same author in Guér. 'Mag. de Zool.': *Cymathodera pallidipennis, discoidalis*; *Phonius sanguinipennis* (pl. 107); *Derostenus* 4-*lineatus*; *Clerus assimilis*,

venustus, nigromaculatus, Silbermanni, 4-notatus, zebra, albofasciatus, nitidus. Phonius and *Derostenus* are given as new genera; the former, however, is properly identical with *Cleronomus*, Kl.; the latter, which the author is inclined to place with *Eurypus* (which is not one of the Clerii at all,) according to the characters given by him, belongs to the form of *Tillus* with simply toothed claws, and can scarcely be said to differ from *Cleronomus*.

Mannerheim (Bull. Mosc. p. 248) describes a new species, *Clerus eximius*, which was caught in a ship that had sailed from California, and probably belonged to that country.

Lucas reared in Paris, out of brushwood from Algiers, *Opilus dorsalis* (*Notox. id.* Dej., hitherto known only as from Senegal,) and *Cylidrus agilis*, Luc. (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, 24.) The former may probably be *Notox. dimidiatus*, Lap., the latter appears to be nothing else than *Cylidrus albofasciatus*; and, in fact, the variety with black face, figured by Charpentier.

Suffrian has made known (Ent. Zeit. s. 123) that *Cylidrus albofasciatus* (*Tillus id.*, Charp., St.) has been, lately, again found in Germany, by the Rev. Pastor Schmitt, in a pine wood, near Mayence.

Ptiniores.—Schilling (Arb. u. Veränd. d. Schles. Gesellsch. Yr. I. 1843, p. 175) has obtained from the rock-salt mines of Wieliczka, in Galicia, fragments of salt with *Coleoptera*, which proved to be *Ptini*. The author regards them as a new species, which he names *Ptinus salinus*. We have long since received rock salt from the same locality with *Coleoptera*, which were nothing but *Pt. crenatus*, F., and which probably inhabited, with their *larvæ*, not the woodwork of the mines, but the human excrements.

Mannerheim (Bull. Mosc. p. 93) found in Finland two new species of *Anobium;* the one, *A. excisum*, allied to *A. denticolle*, Pz., the other, *A. explanatum*, approaching *A. molle*.

The history of the metamorphosis of *Xyletinus hederæ*, Duf. (*lævis*, Latr., *Cardui*, Dej.) has been detailed by Léon Dufour (Ann. d. l. Soc. Ent. d. Fr., 2 sér. i, p. 321). The larva inhabits dry ivy branches.

Klingelhöfer (Ent. Zeit. s. 86) has communicated his observations with respect to the occurrence of *Apate varia*.—Lucas (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 25) has reared out of brushwood three Algerian species, which he describes as new: *A. rufiventris, nigriventris, humeralis*. The last occurs also in the South of Europe, and is enumerated under the same name in Dejean's catalogue; the second is figured in Olivier's Entom. as *Bostrichus capucinus*, and is also confounded with it in the text, but it is neither a variety of *A. capucina*, nor an independent species, but a variety of *A. luctuosa*.

Silphales.—Klingelhöfer (Ent. Zeit. s. 88) communicates the interesting observation that *Necrophorus germanicus* attacks and drags away the living *Geotrupes stercorarius*, and Dr. Schmidt has confirmed the fact. I also have

never found *N. germanicus* in carrion, but always in the neighbourhood of excrement.

New species are, *Necrophorus nigrita*, M., from California; *N. maritimus*, Esch., from Sitka; *Silpha cervaria, californica*, Esch., from California; *Necrophilus hydrophiloides*, Esch., *Catops cadaverinus*, Esch., from Sitka; by Mannerheim. (Bull. Mosc. p. 251.)

Necrodes analis, Chevrolat (Guérin, Mag. de Zool. Ins. pl. 107, 108, p. 26), from Mexico, appears to be *Silpha cayennensis*, St., *discicollis*, Brüll., which is diffused throughout South America.

Histeres.—New species of this family are, *Hister heros*, Erichs. (l. c.), from Angola; *Saprinus equestris*, from the Cape de Verd Islands (not from Angola), and *S. imbricatus*, from Angola, id. (ib.); *S. californicus, sulcifrons*, Mannerh. (Bull. Mosc. p. 259), from California.

Abræus rombophorus, Aubé (Ann. d. l. Soc. Ent. d. Fr., 2 sér. i, p. 75, pl. 1. 4, fig. 2), from Paris, resembles *A. nigricornis*, from which it differs chiefly in the pale club of the antennæ, and the dilated, externally rounded anterior tibiæ.

Trichopterygia.—Heer (Ent. Zeit. p. 39), from the examination of the structure of *Trichopteryx*, has concluded that it is to be ranked with the Staphylini as a separate group, "*Ptilina*."—My own researches, viz., with respect to the oral organs, correspond but little with those of the author; I observe, also, so many peculiarities, that the formation of a separate family becomes justifiable. As an account of my researches will very shortly appear in my German Fauna, farther discussion here seems to be superfluous.—The valuable inquiries of the author with respect to the plication of the wings and the composition of the abdomen in the Coleoptera, which are communicated on this occasion, have been before referred to, (p. 121.)

Mannerheim (Bull. Mosc. p. 84) has found a new species, *Trichopteryx picicornis*, [v. Report 1845], in the Ant hills of *F. rufa*.

Nitidulariæ.—*Nitidula terminata*, Mannerheim (Bull. Mosc. p. 95), collected in Finland, about the sap which drops from the Birch, differs from *N. limbata*, F., in its less size, and in the prothorax and elytra having a broader margin. Mannerh. (ib. p. 255, 300) gives as new species, *Strongylus? tinctus*, from California; *Nitidula convexiuscula, ambigua; Rhizophagus dimidiatus*, from Sitka; *Trogosita chlorodia, viridicyanea*, from California; *T. pusillima*, from Sitka.

Cryptophagidæ.—Mannerheim (Bull. Mosc. p. 256) has enriched *Cryptophagus* with two new American species: *Cr. californicus*, from California; and *C. quadridentatus*, from Sitka.

Dermestini.—A new genus, *Telopes*, is described by Redtenbacher, (Russegg. Reis. i, s. 984); it differs from *Attagenus* in the shortness of the body,

the form of the maxillæ, and the indistinct paraglossæ. The (new) species of this genus, *T. dispar*, from Syria, belongs to a series of species allied to *Att. obtusus*, Dej.; which at first sight appear to constitute a peculiar form, characterized by their compact build, the ciliated border of the body, the strongly spined tibiæ, and short tarsi; but a more careful comparison with various true *Attageni* shows that a gradual transition to this form exists, considerable differences occurring, among the different species, in the oral organs, and in the length of the palpi and of the blade of the maxillæ. All these differences, however, are only relative. Free paraglossæ also are not found in other *Attageni;* I am consequently of opinion that the genus *Telopes* should be united with *Attagenus*.

Dermestes lupinus, and *talpinus*, Esch., and *Anthrenus apicalis*, M., from California, are enumerated as new species by Mannerheim. (Bull. Mosc. p. 257.) The second, which is adduced by Dejean as a variety of *D. catta*, Panz., is a distinct species; on the other hand, I regard the first as identical with the *Dermestes*, which commerce has distributed throughout the globe, and this, not the species indigenous with us, is the true *D. vulpinus*, F.

Reiche (Ann. de la Soc. Ent. de Fr. 2, sér. i, p. 28) has endeavoured to rectify the somewhat intricate synonymy of the European species of *Anthrenus*, but, as it appears me, not successfully. I shall, in a short time, attempt in the German Fauna to rectify this; I cannot, however, avoid being surprised that, in reference to *A. glabratus*, the author adds the query,—"*An. scrophulariæ*, var.?"—since this species cannot be included in *Anthrenus*, but constitutes a distinct genus, which I am about to characterize under the name of *Orphilus*.

Macrodactyli.—Guérin (Rev. Zool. p. 18) has added two new species to *Potamophilus*, collected by Goudot in New Granada: *P. Goudotii*, and *Cordilleræ*. They occurred together on stones in the middle of the river Chipalo, immediately above the edge of the water, so that they were continually wetted by the ripple.

Monographie du genre *Georyssus*, Latr., par Vict. Motschoulski. (Bull. Mosc. p. 644.) Eleven species in all are enumerated, of which the author discovered, *G. major*, on the bank of the Kur; *G. integrostriatus*, *trifossulatus*, on the banks of the Alasan, in Georgia; *G. tenuepunctatus*, in the Caucasus; *G. spinicollis*, in the steppes of the Caucasus; *G. mutilatus*, by the Irtisch; and *G. bisulcatus*, in Livonia.

Hydrophilidæ.—Erichson (Arch. i, p. 229) has instituted a new genus, *Amphiops*, which is distinguished by having two eyes above and two below, like *Gyrinus;* it includes *Hydroph. gibbus*, Ill., and *A. globus*, and *lucidus*, Erichs., from Angola. New species, id. (ib.) are, *Hydrophilus angolensis*, *Hydrobius dilutus*, *Berosus cuspidatus*, *Globaria subænea*.

Hope (Ann. Nat. Hist. xi, p. 364) gives *Hydrous rufo-femoratus* and *distinctus*, as new species from Guinea.

Sturm (Catal. p. 330, pl. i, fig. 7) has figured an *Hydrophilus*, found by Herr Riehl., near Cassel, as a new species, *Hyd. substriatus;* but to all appearance it is only a monstrosity of *H. caraboides*.

Mannerheim (Bull. Mosc. p. 260) has described two new species of *Cercyon*, *C. limbatum*, and *C. adumbratum*, both from Sitka.

Lamellicornia.—Coprophagi: *Ateuchus prodigiosus*, *Gymnopleurus virens*, and *sericatus*, Erichs. (l. c.) are new species from Angola.

Three Mexican species of *Phanæus* have been figured by Sturm (Catal.): *Ph. Pegasus* (tab. ii, fig. 8, 9); *Ph. palliatus* (tab. ii, fig. 1, 2); and *P. lævipennis* (tab. ii, fig. 3, 4). According to Chevrolat (Rev. Zool. 1844, p. 198) the first is identical with *Ph. Damon*, the second (as a var.)? with *Ph. Neptunus*, and the third with *Ph. Ecippus*, of Dejean's Catalogue; the last, in many collections under the name of *Ph. custos*, Kl., which has been cancelled in the Berlin collection since Say (Bost. Journ. 1835) has described this species as *Copris quadridens*. *Onthophagus* has received two new Syrian species from Redtenbacher (Russ. Reis. i, p. 985), *O. centromaculatus*, and *aleppensis*, the latter of which, however, is *Sc. nemæus*, Ol. Erichson (l. c.) has described, from Angola, *O. prasinus*, *plancus*, *venustulus*, *stellio*, *vinctus;* the third is indigenous also in Egypt and in Senegal, whilst the last has since been sent also from Christmas-Bay.

New species of *Aphodius* are, *A. parallelus*, Mulsant (Ann. de la Soc. Roy. d'Agric., &c. de Lyon, vi, p. 277), found in France, near Nismes, resembling *A. plagiatus*, but smaller, entirely black; distinguished from every other species by the extremely fine, confluent punctures, visible only under a high magnifying power; *Aph. suturalis*, Redtenbacher, (Russegg. Reis. i, p. 986), from Syria; *Aph. flagrans*, *turbidus*, Erichs. (l. c.), from Angola; *Oxyomus cadaverinus*, Esch., Manner. (Bull. Mosc. p. 261), from California.

Geotrupides.—Klug has read a paper on the genera *Athyreus*, and *Bolboceras*, at the Acad. der Wissensch. at Berlin. (Bericht über die Verhandl. p. 228.) These two genera, which are distinguished from each other chiefly by the insertion of the middle legs, agree with each other in having two teeth to the inner blade of the maxillæ, the superior of which is cleft, and the inferior simple. Under the name *Odontæus*, *O. mobilicornis*, F., and *O. filicornis*, Say (both with a moveable cephalic horn), are removed from *Bolboceras*, in consequence of the upper tooth of the maxilla being simple in them. On the other hand, *Elephastomus*, as had been proposed by the Reporter, is united with *Bolboceras*.

Mulsant (Ann. de la Soc. Roy. d'Agric. de Lyon, xv, p. 280) has described two species of this group, from Algeria, *Bolboceras fissicornis*, and *Geotrupes dentifrons;* neither, however, is new, the former being *B. Bocchus*, Erichs.,

and the latter *G. siculus*, Dahl., (*G. Douei*, Gory.) The author is also in error in referring to the labrum, one of the lateral processes of the mandible in the male of the latter.

Westwood (Proceed. Ent. Soc. p. 68) has added three new species to his genus *Silphodes* (Report for 1841, p. 226): *S. indica*, from the East Indies; *madagascariensis*, from Madagascar, *dubia*, locality unknown.

Trogides.—Two new species from Angola are, *Trox varicosus*, and *radula*, Erichs. (l. c.)

Dynastidæ.—Some Mexican Dynastidæ have been illustrated by Chevrolat. (Guérin, Mag. de Zool.) *Scarabæus* (*Megasoma*) *Elephas*, F. (pl. 109, 110) is found in Mexico, and Central America is thus determined for its habitat. According to the author's account, it was found on the sea-shore, in Mangrove thickets. The Prussian travellers in Guatemala, M. Fellechner (R. Counc.) and Dr. Müller, however, have communicated orally that they obtained it only on Mahogany trees.—*Dynastes Hyllus*, Chevr. (pl. 111, 112), has been already well figured by Panzer as *Sc. Iphiclus*.—*Enema Lupercus*, Chevr., and *E. Endymion*, Chevr., are only described, the former is merely a variety of *E. Pan*, without a tooth on the horn;—the variety occurs in Brazil also, as does the primitive species in Mexico.

Sturm (Catal. pl. ii, fig. 5), has given an excellent figure of the *Golofa Porteri*, Hope, under the name of *Scarabæus Petiveri*, Er., I must here remark, that when I noticed in the Report for 1837, that old Petiver had already figured this insect, and when I proposed that it should be named *S. Petiveri*, I believed that it differed from *Geotr. ægeon*, F.; I am now, however of opinion, that the species which is at present considered to be *G. ægeon*, is not such,—and with respect to this it is to be well weighed, that it is indigenous at Lima, a region of the productions of which Fabricius and Drury knew nothing,—but that the *G. ægeon* of Fabricius and Drury must be regarded as a small male of *G. Porteri*, Hope, with slightly developed horns. The description by Fabricius is extremely good, but Drury's figure very unsatisfactory, and the more so, that he has represented the insect with the legs of a Stag-beetle.

Rutelidæ.—A number of Mexican species belonging to the genus *Chrysina*, Kirby, have been figured by Sturm (Catal. pl. iii), under the following names: *Pelidnota æruginosa*, *amæna*, *modesta*, *latipennis*, *laniventris*, *psittacina*, *ornatissima*. The first two, as well as the fourth and fifth, must, however, be united as male and female; the last but one is figured as *Chr. auripes*, by Gray, (in Cuvier's Anim. Kingd. by Griff), and the last described (poorly enough) by Hope, as *Pel. Adelaida*.

Melolonthidæ.—Monographie du genre Elaphocera. Par P. Rambur. (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 329.)

Of this genus, which is indigenous in the three peninsulas of the south of

Europe and the adjacent islands, and also in North Africa, there are here enumerated 16 species: A, clypeus slightly or not at all emarginate:— 1. *E. Bedeaui*, Er., frequent in the Bay of Cadiz, in the sand dunes, in February; as is the case with *Cebrio*, sexual congress takes place only during a shower of rain, at other times the insects conceal themselves in the sand; 2. *E. mauritanica*, R., from Algiers; 3. *E. malaceensis*, from Malaga; 4. *E. numidica*, from Algiers; 5. *E. longitarsis*, Ill., Er.; 6. *E. hiemalis*, Er.; 7. *E. obscura*, Gené, Er.; 8. *E. dilatata*, Er. B, clypeus anteriorly more or less deeply emarginate:—9. *E. granatensis*, from Granada; 10. *E. barbara*, from Algiers; 11. *E. sardoa*, from Sardinia; 12. *E. hispalensis*, from Seville; 13. *E. byzantina*, from Turkey in Europe; 14. *E. churianensis*, from Malaga; 15. *E. carteiensis*, from the shore opposite Gibraltar (San Roque); 16. *E. gracilis*, Waltl., Er. The latter coincides with the *E. byzantina* of the author.

With reference to the position of *Elaphocera*, the author thinks that the group of Pachypodes, instituted by me in the 'Entomograph.' is not a natural one, and he considers the more imperfect condition of the mouth, only as a secondary character; he says, "that for the same reason *Sesia apiformis* must also be separated from Sesia, and made into a distinct genus." This has been long done! and when the author states that *Elaphocera*, with *Leocæta*, *Lagosterna*, *Dasysterna*, &c. forms a natural group, it is all in pettu, for he assigns no characters to the group, nor even its boundaries.

In a note, Rambur (l. c.) describes two supposed new genera, which in his opinion come next to *Elaphocera*. The one, however, *Dasysterna*, Dej., has been already instituted by me (in Mor. Wagner's Reisen in Algier) as *Phlexis*, and is probably also identical with *Tanyproctus*, Fald.; at least (although Faldermann's description is altogether useless, owing to the omission in it of the most essential points, number of lamellæ of antennæ, &c.) the species described by me (l. c.) as *Phl. Eversmanni*, has been sent us from St. Petersburgh, as *Tan. scarabæoides*, Fald. Of the three proposed species I regard, 1. *D. barbara*, Dej., from Barbary, as *Melol. hirticollis*, Fab.; 2. *D. canariensis*, Ramb., is probably one of the three Canary species described by Brullé, which I have noticed in the Report for 1840, p. 174, as species of Phlexis; 3. *D. Reichii*, from Athens, is, however, new. The second genus, *Artia*, differs from the former only in all the tarsi in the female being simple, whilst in the former the anterior tarsi of the female are dilated. Of this genus there is a new species, *A. carthaginensis*, from Tunis.

A new genus, *Metascelis*, allied to *Pachypus*, has been instituted by Westwood (Proceed. Ent. Soc. p. 68); apterous, elytra gaping at the apex, clypeus entirely covering the mouth, antennæ short, 9-jointed, the fourth joint short, dilated inwards, the fifth and sixth joints with shorter, the seventh to ninth with longer lamellæ; blade of maxillæ stunted; sides of prothorax rounded, hind legs rather short and very thick. *M. flexilis*, locality unknown.

Mimela Passerinii, Hope (Trans. Linn. Soc. xix, p. 108), is a new species from Sylhet.

Ancistrosoma rufipes (*Melol. ruf.*, Latr.), again found by Goudot, at the upper part of the river Magdalena, and two new species, *Macrodactylus tenuilineatus*, and *flavolineatus*, from the Cordilleras of New Granada, have been described by Guérin. (Rev. Zool. p. 19.)

A figure of *Pachytrichia castanea*, Hope (see Report for 1841, p. 230), has been given in the 'Transact. Ent. Soc. Lond.' iii, pl. 13, fig. 4. With reference to this, Westwood expresses his opinion in a note (p. 283), that the genus should be placed with the Glaphyridæ, and thinks that the elongated bipartite upper lip, and the edentate maxillæ, and the figure of the mentum, remove it from *Eucheirus*. I am, however, still of opinion that the genus is the most closely allied to *Eucheirus*; it differs from the Glaphyridæ in the strong build of the body, the powerful tarsi with toothed claws, and in the absence of membranous paraglossæ.

Glaphyridæ.—Two new Syrian species of *Amphicoma* are, *A. syriaca*, and *cupripennis*, Redtenbacher (Russegg. Reis. i, s. 19.) The latter agrees with the *A. papaveris* proposed by Sturm at the same time. (Catal. p. 342, tab. ii, fig. 8.)

Cetoniidæ.—Two new Goliath-forms have been illustrated by Westwood (Arc. Ent. p. 71, pl. 47): 1. *Amaurodes*, a subgen. of *Ceratorhina*: ♂, anterior tibiæ denticulated on the inner side, externally smooth, as are the four posterior tibiæ. Cephalic horn cloven, colour dull. *A. Passerinii*, from Mozambique, from a drawing by M. Passerini. It evidently affords the transition to *Mecynorhina*, so that the artificial nature of the present distinctions is rendered very manifest. 2. *Asthenorhina*, which differs from *Heterorhina* chiefly in the large, inferiorly two-toothed anterior femora; anterior tibiæ with an indistinct tooth. *A. Turneri*, from Tropical Africa.

Hope (Linn. Trans. xix, p. 107, tab. x, fig. 1) gives the characters of a new genus, *Diphyllocera*, which has been already noticed under the name *Anomalocera*, in last year's Report, p. 197. (Translated Reports, p. 193—(237).)

In the 'Transact. Ent. Soc. Lond.' iii, a number of Cetoniæ have been described by Bainbridge (p. 214), Saunders (p. 234), and Hope (p. 280), all of which, however, have been already referred to in former Reports from the Proc. Ent. Soc. (Ann. Nat. Hist.)

Lucanidæ.—Some remarkable species of this group have been excellently figured by Sturm (Catal.): *Ryssonotus nebulosus*, *Chiasognathus Grantii*, *Coryptius capensis*, Dej. (*Xiphodontus Antilope*, Westw.), and *Lucanus turcicus*, St., a new species from Constantinople, differing from *L. cervus* in having six antennal plates; I think, however, that it is to be regarded as an extraordinarily large and fully developed *L. tetraodon*, Thunb.

Several *Lucani*, from Sylhet, have been described by Hope (Trans. Linn. Soc. xix, p. 104): *Hexaphyllus Parryi*, and *Odontolabis Cuvera*, which are recognizable from their being figured; the others, *Od. Baladeva*, *Dorcus Westermanni*, *Dehaanii*, *Lucanus Brahminus*, *Buddha*, are but scantily described. Upon what the first two above-named genera, *Hexaphyllus* and *Odontolabis*, are founded is not stated; the former, according to the figure, has six, and the latter three antennal plates. Hope has given in the 'Trans. Ent. Soc.' iii, a figure of his *Lucanus Burmeisteri*, from the Mysore.

Tenebriones.—Erodites. A new species of *Zophosis*, from Angola, has been described by the Reporter (l. c.)

Tentyrites.—A new genus, *Gnophota*, with three species; further, 1 new species of *Mesostena*, and 2 species of *Oxycara*, from Angola (the last, however, probably from the Cape de Verd Islands), have been already published, id. (Ib.)

Macropodites.—Guérin (Rev. Zool. p. 261) has characterized *Adesmia Langii*, Erichs. (l. c.), 1 *Stenocara*, and 2 *Metriopus*, from Angola, as new species.

Eurychorites.—From the same locality are also, 1 new species each, of *Eurychora*, *Pogonobasis*, *Psaryphis*; the last genus is new, and contains also a second undescribed species, from the Cape.

Praocites.—Also from Angola, a new, remarkably large species of *Cryptochile*.

Molurites.—From the same locality one new species of *Moluris*.

Blapidæ.—Mannerheim (Bull. Mosc. p. 266) has enumerated 17 species of *Eleodes*, from California, seven of which are new; of these, *E. gigantea*, *sulcipennis*, *pimeloides*, are also figured in Guérin (Mag. de Zool. 1843, pl. 127-129), *E. grandicollis* (ib. 1844), and *E. reflexicollis*, *producta*, *intricata*, provisionally described with detailed diagnoses.

Waterhouse (Ann. Nat. Hist. xii, p. 258) has described three new species of *Gyriosoma*, viz. *G. Bridgesii*, *marmoratus*, *elongatus*, all from the neighbourhood of Coquimbo.

The Reporter (l. c.) has instituted two new genera, *Drosochrus*, with one species from Angola, and two from the Cape; and *Stizopus*, nearly allied to *Gonopus*, *Heteroscelis*, Latr., and *Blenosia*, Lap., with a new species from Angola.

Opatridæ.—The Fauna of Angola has afforded here also, two new genera, *Ammidium* and *Emmalus*, each with one new species; further, eight species of *Opatrum*, of which some are more widely distributed in Africa, and some have been lately proved to be indigenous to the Cape de Verd Islands, as *O. melanarium*, and *æquale*. Probably also, *O. tenebricosum*, *patruele*, *prolixum*, *virgatum*, will have to be banished from the Fauna of Angola, as having been collected in the Island of St. Vincent.

Tenebrionidæ.—With respect to Westwood's paper, Description of some Coleopterous Insects from Tropical Africa, belonging to the section Heteromera (Trans. Zool. Soc. iii, p. 207), what is most important has been already noticed in last year's Report from the Abstract given in 'Proceed. Zool. Soc.' (Transl. Report, p. 197—(241).) At present only some remarks will be made. The *Chiroscelis digitata* figured by Klug, corresponds with *Ch. bifenestrella* of the author. *Nyctobates confusus* is, as the author correctly surmises (p. 221), *Helops sinuatus*, F. The genus *Ogcoosoma* is identical with *Amatodes*, Dej., and *O. granularis*, Westw., is a species nearly allied to *Pim. gemmata*, F.

Three new genera of this group, from California, have been instituted by Mannerheim. (Bull. Mosc. p. 279.) All three nearly related to *Upis*, but are apterous. 1. *Centrioptera* (also figured in Guér. Mag. de Zool, 1843, Ins. pl. 126), has the clypeus rounded anteriorly, the femur deeply hollowed beneath, the elytra posteriorly with three lateral rows of spiculæ. A new species, *C. caraboides*. 2. *Cœlocnemis* (also figured in Guér. Mag. de Zool., 1844, Ins. pl. 133), has the clypeus anteriorly cut off straight, the femur deeply hollowed beneath, all the tibiæ with a deep longitudinal groove on the inside. Two new species, *C. californica* and *C. dilaticollis*. 3. *Cibdelis*, clypeus anteriorly slightly rounded, legs without distinction: a new species, *C. Blaschkii*. New species (from the same locality), are *Nyctobates serrata*, and *inermis*, Esch. (Ib. p. 284.)

Tenebrio subrugosus, Dej., from Senegal, Guinea, and Angola, has been described by the Reporter (l. c.)

Diaperiales. The history of the metamorphosis of *Boletophagus* (*Eledona*) *agaricola*, and of *Diaperis Boleti*, has been described by Léon Dufour, (Ann. de Sci. Nat. x, pp. 284, 290, tab. xii.) The larvæ have an essential resemblance with *Tenebrio* (with which I have formerly compared both, in the 8th annual issue of these Archiv. i, p. 366); in their mode of life they each present this peculiarity, that they bite out a round portion of the fungus, and hollow it out, and there undergo their metamorphosis, after closing the opening with fragments.

New species are, *Uloma pulla*, Erichson (l. c.), from Angola, and *Phaleria picta*, Esch., Mannerh. (Bull. Mosc. p. 277), from Sitka.

Helopii.—Along with a new species, *Helops californicus*, Esch. Mannerheim (Bull. Mosc. p. 286) has founded a new genus, *Eucyphus*, in which the head is retracted beneath the prothorax, the elytra are much arched, and a membranous appendage is placed beneath the antepenultimate tarsal joint; the species, *Eucyphus hybosoroides* is also from California.

The Reporter (l. c.) has described the genus *Himatismus* (*Imatismus*, Dej.), and has shown that it is closely related on the one side with *Epitragus*, and on the other with *Trictenotoma*. A new species, *H. mandibularis*, from Angola, even resembles *Trictenotoma* in the widely projecting mandibles.

Helops tomentosus, Mannerh., Gebler (Bull. Acad. Pétersb i, p. 38), from the sandy shores of the Balchasch Lake, appears necessarily to constitute a new genus; at all events it differs strikingly from *Helops*, in the form of the body, &c.

Mordellones.—New species are, *Anaspis sericea*, M., and *pallescens*, Esch., Mannerheim (Bull. Mosc. p. 288), from Sitka.

Pyrochroides.—A new species from the same locality, is *Pytho Sahlbergii*. Mannerheim (Bull. Mosc. p. 285).

Anthicides.—The following new species from French Barbary (but whether they are really new, or not, remains still to be proved, as it may easily be the case that they correspond with those of Southern Europe), have been characterized by Lucas (Rev. Zool. p. 145): *Monocerus numidicus*, *Anthicus vittatus*, *insignis*, *bicolor*, *fumosus*, *mauritanicus*, 4-*maculatus*. The author also enumerates among these, *Psammæcus*, and describes as a new species, *Ps. Boudieri*; this Beetle occurs also in Sicily, and appears to be only a southern variety of *Ps. bipunctatus*, from which it does not importantly differ, except in the lighter colour.

Mannerheim (Bull. Mosc. p. 97) has found in Finland *Anthicus nigriceps*, resembling *A. rufipes*, but smaller; the prothorax narrower posteriorly, the elytra more distinctly punctated, wrinkled, the hair longer, rusty yellow, head, thorax, and abdomen black; and *Euglenes fennicus*, nearly related to *E. oculatus*, but larger, more strongly punctated, and differing in the proportions of the antennal joints.

Vesicantia.—New species are, *Mylabris cæruleomaculata*, and 6-*notata*, Redtenbacher (Russegg. Reis. i, p. 987), from Syria; *M. liquida*, *tincta*, *phalerata*, *tortuosa*, 12-*guttata*, *decorata*, *jucunda*, *chrysomelina*; *Lytta chalybea*, *vellicata*, *thoracica*; *Œnas melanura*, Erichson (l. c.), from Angola; *Epicauta puncticollis*, Mannerheim (Bull. Mosc. p. 288), from California; *Tetraonyx flavipennis*, Guérin (Rev. Zool. p. 22), from New Granada.

Œdemerides.—Guérin (ib. p. 21) has described a new species, *Œd.* (*Nacerdes*) *marginata*, from New Granada.

Curculiones.—Of Schönherr's great work, 'Genera et species Curculionidum,' the seventh (third supplementary) volume has to be reported upon. It includes the Brevirostres with straight grooves for the antennæ (*Phyllobides*, *Cyclomides*, *Otiorhynchides*), and the first great division of the Longirostres (*Erirhinides*.) The number of genera has been considerably enlarged, chiefly by recent discoveries. To the group Phyllobides there have been added, *Aptolemus*, with one new species from Brazil; *Aphrastus*, formed from *Phyllob. tæniatus*, Say; *Eustylus*, with two Columbian species; *Hormotrophus*, with one new species from St. Domingo; *Styliscus*, including *Curc. armatus*, Thun., from the Cape; *Platytrachelus*, with one new species from Siam; *Macrops*, Kirby (Faun. Bor. Am.), is also placed here.

The Cyclomides belong very peculiarly to South Africa, and consequently the greatest number (11) of the new genera are from thence: *Occylotrachelus*, *Bustomus*, *Porpacus*, *Lalagetes*, *Lobetorus*, *Cladeuterus*, *Piezoderus*, *Sympiezorhynchus*, *Ellimenistes*, *Cycliscus*, *Phaulomerinthus*; besides these, 1 from Madagascar, *Catalalus*; 2 from Europe, *Cathormiocerus* (Spain, England), *Chiloneus* (Sicily); 1 from Siberia, *Mylacus*; 1 from Asia Minor, *Epiphaneus*; 3 from the East Indies, *Acanthotrachelus*, *Pyrgops*, *Isomerinthus*; 3 from New Holland, *Bothynorhynchus*, *Pantopæus*, *Merimnetes*; 2 from North America, *Phyxelis*, *Cercopeus*; 1 from South America, *Scotæborus*. The Otiorhynchides have been increased by the genera *Embrites*, from South Africa; *Siteutes* (*O. multicarinatus*, and *cirricollis*, Sch. ii), *Catergus*, from the Cape; *Caterectus*, ib.; and from the East Indies, *Nastus* (*Otiorh. humatus*, Germ.) The Erirhinides have received additions in *Ceratopus*, from Mexico; *Pteroporus* and *Tranes*, from New Holland; *Colabus*, from the Cape; *Pileophorus*, from Brazil; *Laccoproctus*, from Mexico; *Pteracanthus* (*Smidtii*, F., from South America); *Hypselus*, from Buenos Ayres; *Eutecheus*, from Madagascar; *Phytotribus*, from Cayenne; *Phyllotrox*, from South America; *Peribleptus*, from the Himalayah; *Acanthomerus*, from the Cape; *Ctenomerus*, ib.; *Pristimerus*, from Brazil; *Hoplitopales*, from the Cape; *Menemachus*, ib.; *Odontomaches*, ib.; *Storeus*, from New Holland; *Cnemopachus*, from Madagascar; *Echinocnemus* (*Erirh. squameus*, Sch. iii), from Canton; *Centemerus*, from Cayenne; *Ephimerus*, from Jamaica; *Spermologus*, from seeds from Brazil; *Balanephagus*, also from Brazil; *Technites*, from South Africa; *Cycloteres*, from Madagascar; *Elassonyx*, from South Africa; *Orimus*, ib. *Petalochilus*, Sch. iii., has also been referred to this group, whilst *Hoploparochus*, and *Pelororhinus* have been abolished, the former being united with *Acallopistes*, and the latter with *Rhinaria*.

Of Labram and Irnhoff's 'Die Gattungen der Rüsselkäfer,' the eleventh Part has appeared, exhibiting the genera *Tanaos* (*sanguineus*), *Eugnamptus* (*collaris*), *Rhinomacer* (*attelaboides*), *Diodyrhynchus* (*austriacus*), *Belus* (*suturalis*, *melanocephalus*), *Homalocerus* (*lyciformis*), *Ithycerus* (*curculionoides*), *Eurhynchus* (*scabrior.*)

With reference to *Rhinomacer attelaboides*, I have already remarked, in the Report for 1839, p. 255, that according to the characters established by Schönherr, *Rhinomacer lepturoides* only, is a *Rhinomacer*, but that *Rh. attelaboides* is a *Diodyrhynchus*; and, in fact, the male of *D. austriacus*.

White (Dieffenbach's Travels, ii, p. 275) has characterized a new genus, *Psepholax*, allied to *Gronops* and *Aterpus*; the beak short, directed perpendicularly downwards, somewhat dilated at the apex; the antennæ on the extremity of the beak, at the end of a deep groove, 12-jointed, the first joint as long as the seven succeeding ones together, with the end reaching almost but not quite as far as the eyes, becoming gradually thicker; the

second joint small; the five next the club submoniliform; the club large, oval, pointed, covered with fine hairs. The eyes roundish. Prothorax posteriorly as broad as the base of the elytra. Elytra broadest behind the base, ribbed. The legs rather short; femora thick, in the first pair bowed, and having a wide obtuse tooth; middle tibiæ with a strong tooth near the point. A new species, *Ps. sulcatus*, above 4‴ long; from New Zealand.

Waterhouse's monograph on the Philippine species of *Pachyrhynchus* has appeared in the 'Trans. Ent. Soc. of Lond.,' iii, p. 310. The species already in part known by previous diagnoses, amount to twenty-three. The species described by Chevrolat (vid. Report for 1841, p. 242) are not mentioned by the author; beside those noticed (l. c.), however, only *orbifer*, Wat., and *fimbriatus*, Chev., coincide. But the majority of Chevrolat's species have been referred by the author as varieties to his *P. orbifer;* although I have no doubt that this applies to *P. circuliferus*, and *alboguttatus*, Ch., and should have little hesitation in uniting *P. gemmans*, *pretiosus*, *scintillans*, *ardens*, and *globulipennis*, Ch., under one species, yet I cannot persuade myself that with the different position of the scales this should also be united with *P. orbifer*. The author, however, goes still further, since in conclusion he expresses the opinion, that even *P. moniliferus* and *chlorolineatus* are also included in this range of varieties, and that they must be regarded merely as varieties of one and the same species, dependent upon locality, or other causes.

The same author's monograph on the Philippine species of *Apocyrtus*, noticed in the last year's Report, has been concluded in the 'Ann. Nat. Hist.' xi, p. 247. Of the 17 previously described species, in the first place, *A. metallicus*, and *lævicollis* have been united as varieties, and *A. gibbirostris*, and *subfasciatus* have also been associated under *A. Erichsonii*, Chevr.; and then, besides the three species proposed by me in Meyer's 'Reise,' eight other new species are added, so that 26 species in all are known from the Philippine Islands.

Piaromias, Sch., has been increased by Gebler (Bull. Acad. Pétersb. i, p. 39) with two new species, *P. karelinii* and *inauratus*, both from the steppes of Zongaria.

As new Curculiones Redtenbacher (Russegg. Reis. i, p. 988) has described, *Bruchus signatus*, *Phytonomus pictus*, from Cyprus; *Tychius alboguttatus*, and *Mononychus syriacus*, from Syria. The first is *Bruchus 5-guttatus*, Ol.

New species from Angola are, *Dereodus acuminatus*, *Tanymecus humilis*, *Siderodactylus cuspidatus*, *Alcides leucogrammus*, *Baridius alcyoneus*, Erichson (l. c.)

Mannerheim (Bull. Mosc. p. 289-298) has enumerated the following new species of Curculiones and Bostrichi: 1. From California—*Apion troglodytes*,

Sch., *Sitones seniculus, Lixus poricollis, modestus, Heilipus scrobiculatus, Anthonomus brunnipennis, Sphenophorus discolor, subcarinatus, Bostrichus terminalis.* 2. From Sitka — *Apion cuprescens, Rhyncolus brunneus,* Esch., *Hylurgus sericeus, obesus,* Esch., *rugipennis, pumilus, Bostrichus cavifrons, septentrionis, nitidulus.*

The metamorphosis of several of the rhynchophorous Beetles has been observed. 1. That of *Choragus Sheppardi,* by Leon Dufour (Ann. de la Soc. Ent. de Fr. i, p. 313); it lives in the dry branches of the Whitethorn (*Cratægus oxyacantha*). 2. Of *Apion apricans,* Hbt., by Guérin (ib. p. 65); inhabits the seeds of Clover (*Trifol. pratense*). *Calyptus macrocephalus* (*Eubaz. macr.*, Nees), among the Braconidæ, and *Pteromalus pione,* Walk., one of the Pteromalina, have been observed as parasites. 3. *Lixus turbatus,* Gyll., by Eversmann (Bull. Mosc. p. 530); lives in the Southern Ural, on *Angelica archangelica.* 4. *Ceutorhynchus macula alba,* by Klingelhöfer (Ent. Zeit. s. 88); inhabits the heads of all the species of Poppy. 5. *Cionas scrophulariæ,* by Huber (Mém. de la Soc. de Phys. et d'Hist. Nat. de Genève, x, i, p. 15). 6. *Hylesinus hederæ,* Schmitt (Ent. Zeit. p. 108), a new species allied to *H. rhododactylus,* living on dry Ivy branches.

Robert (Ann. de Sc. Nat. xix, p. 12), has written upon the injury caused especially by the *Scolytus pygmæus,* to elms and oaks. The avenues of elms in the high roads in the neighbourhood of Paris are in particular very obnoxious to the attacks of this insect. The author proposes two methods for the preservation of these trees, both of which, however, appear to be rather extraordinary. 1. To cover them with an air-tight coating (as, for instance, of caoutchouc), by which the insects, together with the larvæ, are suffocated. 2. To make longitudinal or oblique incisions through the bark at certain distances, and to allow these incisions to cicatrize, since the author states that he has observed that the *Scolytus* spares such cicatrices.

Colydii.—Aubé (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 93, pl. 4) has characterized a new genus, *Philothermus,* which is very closely related to *Cerylon,* and is distinguished chiefly by the evidently eleven-jointed antennæ, with two-jointed knobs. The oral organs, also, correspond very closely with those of *Cerylon,* excepting the tongue, which differs in consistence and form. *Ph. montandonii* has been found in France in tan-beds; our collection possesses various American species.

Guérin (ib. p. 69, pl. 2), has published a new species of *Myrmecixenus, M. vaporariorum,* found in forcing-houses for pines. It occurs also in Germany.

Mannerheim (Bull. Mosc. p. 300) gives a short description of *Rhagodera tuberculata,* Esch., from California; the characters of this genus, which is very closely allied to *Sarrotrium* are, however, by no means established.

A new species is, moreover, *Cis vitulus,* Mannerh. (ib. p. 299), from California.

Paussili.—Westwood (Arcana Entom. pl. 49, 50, 58) has begun a new monograph on this family, of which the present Parts, include the genus *Cerapterus* (with the sub-genera *Cerapterus, Orthopterus, Arthropterus, Phymatopterus, Homopterus, Pleuropterus*), *Ceratoderus, Lebioderus, Hylotorus.* One species set up as new, *Cerapt. Arthropterus Hopei*, from Port Philip, I do not regard as differing essentially from *C. Mac Leayi*, Don. The numerous figures illustrating the different species, as well as the generic and sub-generic characters, are valuable. The author has paid particular attention to the oral organs, in order to obviate mistakes in the description of them, by means of precise representations.

Cucujipes.—Mannerheim (Bull. Mosc. p. 303) has brought forward as new species from Sitka: *Cucuius puniceus*, Esch., and *Læmophlæus longicornis.*

Longicornes.—Westwood has given a review of the hitherto known Stag-beetles from New Zealand. (Arcan. Ent. ii, p. 25.)

Prionii. A new New Zealand genus is *Prinoplus*, White. (Dieffenb. New Zealand, ii, p. 256; also Westw. Arcan. Ent. t. 56, fig. 1.) The eyes above and below much approximated, the mandibles short, the antennæ more than two thirds the length of the body, the third to the eighth joint, with a spine at the apex. The prothorax with woolly hairs and a spine on each side; the femora with two little teeth at the point. One species, *Pr. reticulatus*, Wh.

Chevrolat (Guér. Mag. de Zool. pl. 113) has illustrated his genus, *Trichoderes*, which was instituted in Dejean's Catalogue. It has a close resemblance with *Ægosoma;* the prothorax with two lateral spines; is chiefly characterized by the terminal joint of the maxillary palpi, which is simple in the female, and much dilated and transversely set in the male, but which is neither remarked upon in the description nor correctly represented in the figure. *Tr. pini*, Ch., is found in the elevated parts of Mexico, under the bark of firs. The larvæ are eaten by the natives.

The genus *Torneutes*, Reich., has been enriched with two species. Buquet (Rev. Zool. p. 299) has described, together with the female of *T. pallidipennis*, Reich., a new species, *T. Bouchantii*, also probably from Buenos Ayres, and Guérin (ib. p. 300, 352) has added a third, *T. obscurus*, from Patagonia, which differs from the former in its less size, and distinctly punctated elytra.

Upon *Ctenoscelis*, Buquet (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 231) has given a 'Notice monographique.' He describes four species, *Ct. ater* (*Pr. ater*, Ol.), from Cayenne, *Ct. Dyrrhacus*, new species, from the same part, *Ct. Nausithous*, Buq., from Bolivia, and *Ct. acanthopus*, (*Pr. acanth.*, Serv.), from Brazil. In the first three species the antennæ in the male are as long as the body, in the last, shorter. The author refers the *Ct. tuberculatus*, Serv. (*Pr. tub.*, Ol.), from Cayenne, to the genus *Mecosarthron*

founded by him. A new species of *Mallodon*, found on the coast of Arabia, has been described under both sexes as *M. arabicum* by Buquet. (Rev. Zool. p. 330.) *Mallodon Downesii*, from Fernando Po, as well as *Acanthophorus Palinii, longipennis*, from Sierra Leone, have been characterized by Hope. (Ann. Nat. Hist. xi. p. 366.)

Spondylis apiformis, Esch., from Sitka, and *Asemum atrum*, Esch., from California, have been made known provisionally by Mannerheim by the diagnoses. (Bull. Mosc. p. 304.)

Cerambycini.—A work by Hope, 'Observations on the Stenochoridæ of New Holland, with Descriptions of New Genera and Species of that Family,' (which, as relates to its essential contents, has been already noticed in the Report for 1841, p. 189, from the 'Proceed. Zool. Soc.'), has appeared in the 'Transact. Zool. Soc.' iii. p. 187. In the plate which accompanies it figures are given of *Piesarthrius marginellus, Strongylurus scutellatus, Coptopterus cretifer, Coptocercus unifasciatus, Stenochorus rubripes*, Boisd., *gigas, uniguttatus, Mitchellii, trimaculatus*. Some observations by M'Leay on the occurrence of various species are given in a note. *Stenochorus latus*, Hope, is found in the heart of the stem of *Casuarina*, *St. semipunctatus*, F., under the bark of *Eucalyptus*, *Meropachys M'Leayi*, in the flower of *Leptospermum*, *Uracantha triangularis*, frequent at Ulladolla, on the coast, in flowers.

A figure of the new genus, *Zonopterus*, Hope, has appeared in the 'Trans. Lin. Soc.' xix, p. 110, t. 10, fig. 7.) It has the form of a *Callichroma*, and resembles partly *Pachyteria* and *Niræus*, and partly *Promeces*, with a disciform prothorax, as in *Callidium*. *Z. flavitarsis*, H. is from Sylhet. (Ib. fig. 6), there is also represented *Purpuricenus rubripennis*, Hope, from the same locality.

Hope (Ann. Nat. Hist. xi, p. 366) has founded a new genus, *Phyllarthrius*, nearly allied to *Paristemia* and *Amphidesmus*, but which is distinguished by the antennæ beyond the fourth joint being furnished with foliaceous branches, by the nearly orbicular prothorax without lateral spines, &c., upon two new species, *Ph. africanus*, and *unicolor*, from Guinea. From the same locality are the new species, *Hamaticherus signaticollis, viridipennis, pilosicollis, glabricollis; Ionthodes amabilis, Callichroma assimile, lætum, atripenne, igneicolle; Promeces carbonarius; Euporus amabilis, chrysocollis*.

Westwood (Arcan. Ent. pl. 64) has illustrated with a figure his genus *Paristemia*, already noticed (Report for 1841, p. 246), and has added to the former species, *P. platyptera*, a second, *Pl. apicalis*. Both from Tropical Africa.

Sturm (Catal.) has figured two new species of this group. The one, *Purpuricenus dalmatinus*, a beautiful species allied to *P. Desfontainii*, might perhaps demand another name, since the insect is not indigenous in Dalmatia, but in Asia Minor. The other, *Ozodes mexicanus*, St., from Mexico, is, according to Chevrolat (Rev. Zool. 1844, p. 199), *Trichophorus argentipictus*,

(Dej.), Cat; *Tr. Chevrolati* (Guér. Iconogr. Règn. An. text.); but whether it is better to refer it to the latter genus I will leave undecided.

The Reporter (l. c.) has described as a new species from Angola, *Callidium angolense.*

Mannerheim (Bull. Mosc. p. 305) has given diagnoses of *Opsimus quadrilineatus,* Esch., from Sitka, without, however, more particularly defining the still undescribed genus; and of *Clytus nauticus,* supposed to be from California.

Westwood (Arcan. Ent. pl. 56) has figured two new New Zealand species, *Cerambyx strigipennis,* to all appearance referrible to the New Holland genus, *Trachelorhachys,* Hope (*Phlyctænodes,* Newm.), and *Obrium guttigerum,* Westw.

The metamorphosis of *Callidium sanguineum* has been described by Goureau (Ann. de la Soc. Ent. de Fr., 2 sér. i, p. 99, pl. 4), and that of *Gracilia pygmea,* and of *Anisarthron barbipes,* by Schmitt. (Ent. Zeit. p. 105).

Lamiariæ.—A new genus, *Eunidia,* has been founded by the Reporter. (Archiv, 1843, 1 Bd. p. 261.) This is a slender *Saperda*-form, many species of which are natives of South Africa; the one described *E. nebulosa,* is common to Angola and Caffraria.

Another South African *Saperda*-form, *Nemotragus,* Kl., has been figured by Westwood (Arcan. Ent. pl. 64, fig. 4), but the figure is a complete failure. *Nemotragus helvolus,* Kl., is characterized by its elongated form, its long and slender antennæ, with very long clavate first joints; by the remarkably short hind legs, and by the prothorax being gradually so much narrowed anteriorly that the much broader head is connected with it, as in *Vesperus,* by a narrow neck. These peculiarities, however, are so little represented in the figure, that I should never have allowed that it could be intended for the true *N. helvolus,* had not the author, who is known as an accurate draughtsman, remarked that he had received the insect from Klug himself.

Of new species the following have been proposed: *Dorcadion tomentosum,* and *Saperda græca,* Sturm (Catal. p. 355, tab. vi, fig. 3. 6), both from Nauplia; remarkable on account of their corresponding colour. Chevrolat (Rev. Zool. 1844, p. 199) remarks, that the former can scarcely be a *Dorcadion,* as it is winged, but from the specimen communicated by Sturm himself to this collection (Berlin), I am not satisfied that this statement has any foundation.

Stenidia Troberti, and *Phytœcia flavescens,* Mulsant. (Ann. de la Soc. Roy. d'Agric., &c. de Lyon vi, p. 283.) The former from Algiers, the latter from Hyeres; the latter is very nearly related to *Ph. virescens,* but differs from it in the shorter prothorax, a pair of naked puncta on it, elytra wider at the base and shorter, and the hairy covering more of a yellow colour.

Monohammus sulphurifer, and *Colobothea rubricollis,* Hope, from Sylhet, are figured in the 'Trans. Lin. Soc.' ix, pp. 109-111, tab. x, figs. 5 and 8.

Sternodonta Palinii, princeps, and *amabilis,* Hope (Ann. Nat. Hist. xi, p. 368), the first from Sierra Leone; both the others from the Ashantee country.

Lamia obesa, Westwood (Arcan. Ent. pl. 64), from South Africa, is a *Phryneta;* and, in fact, identical with *Phr. Dregei,* Dej. (Catal.)

Saperda carissima, Westwood (ib.), from Tropical Africa. *Sap.* (*Sphenura*) *basalis,* Erichs. (l. c.), from Angola.

From New Zealand, Westwood (Arcan. Ent. pl. 56) has figured *Lamia pulverulenta,* new species, and *Xyloteles griseus, Sap. grisea,* F.

Lepturetæ.—A new genus, *Heteropalpus,* has been founded by Buquet. (Guér. Mag. de Zool. pl. 118.) It approaches nearest to *Distenia,* but the abdomen is rather shorter, the elytra have no spine at the apex, and the maxillary palpi are curiously constructed, for the second and fourth joints are much elongated, and the latter is furnished at the base with a long, hooked, and hairy process; *H. pretiosus,* shining green, with red femora, is from Cayenne. The generic name is a "vox hybrida."

Another new genus, which might be referred to this group, is *Calliprason,* White, which the author looks upon as a subgenus of *Callichroma,* and standing near *Promeces,* and Westwood regards as a *Stenoderus,* but which appears to me most nearly allied to *Rhagiomorpha,* Newm. The eyes are roundish, and scarcely emarginate, the antennæ with an elongated clavate first joint, the prothorax with a strong lateral spine, the elytra narrowed posteriorly; the legs long and slender, the femora clavate. *C. Sinclairii,* White (Dieffenb. New Zealand, ii, 277. 80), also figured by Westwood (Arcan. Ent. ii, p. 27, pl. 56, fig. 3) as *Stenoderus Sinclairii.*

Letzner (Arb. u. Veränd. der Schles. Gesellsch. i. I. 1843, p. 173) has found upon "vine layers" (Gesenke) in Silesia a new *Leptura, L. lineata,* even more elongated than *L. lurida;* the elytra yellow brown, the suture, the lateral margin, and a central longitudinal band, black; length 5‴; in the antennæ the second, third, and fourth joints together, not longer than the fifth.

Pachyta serricornis, Gébler (Bull. Acad. Pétersb. i, p. 39), is a new species allied to *P. variabilis,* from the steppes on the Alakul Lake.

Chrysomelinæ.—

Eupoda.—*Mesophalacrus* is a new genus constituted by Sturm (Catal. p. 357, tab. vi, fig. 7), which coincides with *Mecynodera,* Hope. (Col. Man. iii.) *M. Spinolæ,* Sturm, from New Holland, is also identical with *M. picta,* Hope.

Hope (Linn. Trans. xix, p. 112, tab. x, fig. 9) has figured *Sagra carbunculus,* a new, small species, from Sylhet.

Matz (Ent. Zeit. s. 364) has described both sexes of *Orsodacne nigricollis,* Ol.; the female is of a uniform light yellow.

Suffrian (Ib. s. 122) has given some remarks upon certain species of *Lema*. New species from Sitka are, *Donacia Germari, flavipennis; Syneta carinata*, Esch., Mannerh. (Bull. Mosc. s. 306.)

Cassidariæ.—A new genus, *Platyauchenia*, has been described by Sturm (Catal. p. 358, tab. vi, fig. 8), and illustrated with an extraordinarily beautiful figure. It is allied to *Alurnus*, but has wider margins to the prothorax and elytra, and is characterized chiefly by the globularly expanded terminal joint of the maxillary palpi. From this circumstance the genus has been named *Sphæropalpus*, by Dejean. *Pl. limbata*, from Brazil, is identical with *Sph. cinctus*, Dej., and has also been already figured in Guérin's 'Iconogr. Règn. An.'

From California are the following new species: *Odontota rubrolineata, Coptocycla aurisplendens*, Esch.; *Cassida 9-maculata*, Mannerh. (Bull. Mosc. p. 307.)

Chrysomelariæ.—Two new species from Zongaria are, *Chrysomela songarica* and *Gastrophysa virescens*, Gebler. (Bull. de l'Acad. de Pétersburg, i, p. 39.)

Remarks upon the Silesian *Chrysomelæ* have been communicated by Schummel. (Arb. u. Veränd. der. Schles. Gesells. i. I. 1843, p. 195). *Chr. senecionis*, Köhler, has been retained as a distinct species; and besides it two new species have been proposed, *Chr. fusco-ænea*, and *alpestris*, the former of which might, perhaps, be a variety of *Chr. speciosa*.

The earlier states of *Chrysomela* (*Lina*) *populi*, and *tremulæ*, F., have been observed by Klingelhöfer. (Ent. Zeit. p. 85.)

Cryptocephalidæ.—In Russegger's Reis. (i, 989), *Clythra aleppensis* and *Labidostomis lineola* have been described by Redtenbacher as new species, both from Syria; the former, however, is identical with *Cl. 9-punctata*, Ol.

New species from Angola are, *Clythra stricta, angustata, discors, hyacinthina*, and *Cryptocephalus angolensis*, Erichson. (l. c. p. 263.)

Mannerheim (Bull. Mosc. p. 311) has instituted as new species: *Chlamys conspersa, Pachybrachis signatifrons*, and *Cryptocephalus chalconatus*, all from California.

Fairmaire (Ann. de la Soc. Ent. 2 sér. i, p. 13, tab. i) has instituted a new genus, *Brachycaulus*. It has the aspect of *Chlamys*, but all the characters of *Cryptocephalus*, except that the antennæ are shorter, and slightly serrated beyond the fifth joint. (The figure incorrectly represents them as 10-jointed.) *Br. ferrugineus*, from New Holland.

Galerucitæ.—The sexual differences of the native *Galerucæ* have been investigated by Suffrian. (Ent. Zeit. p. 91.)

New species are, *Gal. thoracica*, Redtenbacher (Russegg. Reis. i, 989), from Syria; *G. delata*, and *G.* (*Monolepta*) *pauperata* (Dej.), Erichson (l. c.),

from Angola; *G. flavolimbata, punctipennis, Diabrotica* 3-*vittata,* Mannerh. (Bull. Mosc. p. 308), from California.

Aubé (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 5) distinguishes three species standing near *H. oleracea,* the specific distinction of which is rendered more certain by the differences of the situations in which they occur. The true *H. oleracea* is found principally on the Cruciferæ. *H. Lythri,* living on the *Lyth. Salicaria,* is rather larger, has longer antennæ, and is always blue; less shining, the transverse furrow on the prothorax shallower. *H. Hippophaes,* occurring on the Alps and in the Jura on *Hipp. rhamnoides* is distinguished from the preceding by an extremely minute, almost imperceptible punctation, whilst the furrow of the prothorax is of unusual depth; (this latter appears to me to agree with *H. consobrina,* Duft.) *H. erucæ,* Ol., on oak shoots, easily recognized by an elevated fold on the outer border of the elytra.

New Halticæ are, *H. graptodera pyritosa,* Erichson (l. c.), from Angola; *Grapt. plicipennis, californica, Disonycha maritima,* Mannerheim (Bull. Mosc. p. 310), from California.

Coccinellæ.—A monograph on the Austrian *Coccinellæ* has been published by Ludwig Redtenbacher, in his Inaugural Dissertation: "Tentamen dispositionis generum et specierum Coleopterorum Pseudotrimerorum Archiducatus Austriæ." Vind. 1843; printed also in the fifth volume of Germar's Zeitschrift. f. d. Ent.

Dejean's genera are, for the most part, received by the author. The specification, however, of the characters upon which they are founded, is confined to a summary table.

Two new genera instituted by the author are very good: *Exochomus,* which includes *C.* 4-*pustulata,* L., and *aurita,* Scr., is distinguished from *Chilocorus* by the simple anterior margin of the head, but it differs still more in the form of the legs. *Platynaspis* contains *Sc. bisbipustulatus,* which approaches both the above-named genera in having the anterior border of the head dilated before the eyes; besides this, it differs from *Scymnus* in the 11-jointed antennæ. The author has not noticed that in *Scymnus* the antennæ are only 10-jointed. Further, the author correctly limits *Anisosticta* to *C.* 19-*punctata,* and characterizes it by the simple claws; he less correctly associates the other long forms with *Coccinella;* the genus *Hippodamia,* Dej. (*C. mutabilis,* 13-*punctata,* 7-*maculata*) differs from the true *Coccinellæ* in the claws being cloven behind the apex, they having the tooth at the very root of the claw. The American species of *Anisosticta* proposed by Dejean (10-*maculata,* &c.), correspond indeed with *Coccinella* in the form of the claw, but present one character in common with *Hippodamia,* which distinguishes them both from *Coccinella,* viz. the much contracted root of the mentum. *Cocc. M. nigrum,* which Dejean makes an *Anisosticta,* is a true *Coccinella.*

For *Rhizobius*, Steph., the author adopts the name *Nundina*, because the former had been previously (1835) applied to a genus of the Aphidæ; the genus however was already constituted by Stephens in 1829, and confirmed in 1831, in the 'Illust. Brit. Ent.' Finally, *Cynegetis*, Dej., is limited to *C. impunctata*, since *C. globosa* is admitted as *Epilachna*.

A conspicuous new species for the German Fauna, is *Hyperaspis 4-maculata*, Redt., which has been already long known as occurring in Hungary, and Hither Asia; the author is less fortunate with a series of species of *Scymnus* —set up as new, since his *Sc. affinis* = *frontalis* ♀, *Sc. flavicollis* is probably a variety of *Sc. marginalis* ♂, *Sc. quadrillum* = *Sc. frontalis*, var. ♀, *Sc. bisbisignatus* = *Sc. frontalis*, var. ♂, lastly, *Sc. basalis* = *marginalis*, var. *Coccinella* has been increased with three new species, *C. magnifica*, Ziegl., *distincta*, Meg., and *alpina*, Redt.; of which, however, as regards the first two, the difference between them and *C. 7-punctata* is not very apparent from the meagre description. *Corylophus* (*Clypeaster*) is excluded by the author from the family of the *Coccinellæ*, on account of the peculiar conformation of the mandibles; through extra European species, however, there is exhibited in that respect not only an almost imperceptible transition from *Scymnus*, but, according even to the author's own statement, the *larvæ* correspond with those of the *Coccinellæ*.

Suffrian (Ent Zeit. p. 93) has made known an hitherto undescribed German species of *Hyperaspis*, with unspotted elytra, under the name of *Cocc. concolor*. Farther (ib. p. 330), he has discussed the numerous varieties of *Scymnus frontalis*.

Newly constituted European species are, *Hippodamia scalaris*, from the Alatau mountains, and *Micraspis lineola*, from the Alakul and Saisan Lakes, by Gebler. (Bull. Acad. Pétersb. i, p. 39.) *Cocc. effusa, nassata; Chilocorus nigripennis*, from Angola, by the Reporter. (Archiv. i, p. 266.) *Hippodamia vittigera, Coccinella californica, Scymnus marginicollis*, from California, by Mannerheim. (Bull. Mosc. p. 312.)

Endomychidæ.—This family has been treated of by Redtenbacher (l. c.), but no new genera or species have been formed.

An elegant monograph on the genus *Calyptobium*, Vill., has been furnished by Aubé. (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 241.) The genus there includes four species, *C. Villæ*, Rond., from Milan; *C. caularum*, in France, collected in numbers in dung heaps; *C. Kunzei*, found by Kunze in Brazilian fungi; *C. nigrum*, discovered by Melly in Sicily. (The last, of a lighter colour, has been sent to us from Sardinia, by Gené; besides this, our collection possesses several more species.) With respect to the place of the genus the author is not clear, he is inclined to associate it with *Cholovocera*, Motsch.; it appears to me to be placed most naturally in this family. Guérin (Rev. Zool. 1844, p. 33) has correctly remarked that the genus was

instituted by Curtis, as far back as 1833, under the name of *Holoparamecus*, and that *Cal. Villæ* coincides with *H. depressus*, Curtis. *Calyptobium* instituted equally early, but not described, is recommended by its euphony.

Lathridii.—Aubé (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 73, pl. 1) has added a new species to *Monotoma*, *M. punctaticollis*, which was found in the dung of sheep-stalls; it differs from *M. quadricollis* in the more distinct punctation of the prothorax. The author also remarks, that *Mon. Blaivii*, Guér. (Rev. Zool. 1839), has proved to be identical with *M. brevicollis*.

Mannerheim (Bull. Mosc. p. 299) has formed three new species of *Lathridius*, from Sitka: *L. quadricollis, protensicollis, cordicollis*.

ORTHOPTERA.

An excellent inaugural dissertation, 'Symbolæ ad Orthopterorum quorundam œconomiam,' has been given by Fr. Goldfuss at Bonn. The researches of the author relate principally, however, to the nourishment of the *Orthoptera*, and particularly to that of *Locusta viridissima* and *Œdipoda migratoria*; and with reference to this he has seized the opportunity of setting aside, by his observations, several errors which have been pretty generally entertained. One part of the subject relates to the food of the locusts; some earlier statements have been overlooked, and this family has been usually ranked, with the Acridii, among the vegetable feeders. The author shows that they do not subsist solely upon vegetables, which, however, they by no means wholly reject, but are partly predaceous, and possess in their forelegs a great aptitude for the catching of flies. Another part of the essay refers to the "proventriculus," which has been regarded, especially when furnished with horny ridges and teeth, as a comminuting apparatus, and thence termed "a gizzard." I have long wondered how Nature could be so carelessly disregarded, for it is not easy to overlook the circumstance, that the so-called "gizzard" occurs only in carnivorous insects, and that it is never

present in those which feed upon hard vegetable substances. This is particularly remarkable in the Orthoptera, among which, for instance, the *Mantis* possesses the so-called "gizzard," whilst the *Phasmæ* are without it; and in the same way the Locusts are provided with it, and the *Acridii* not. It may also be readily observed on dissection, that in those insects which are furnished with the so-called "gizzard," the contents of the œsophagus are already liquid, so that the "gizzard" has nothing more to masticate. The author proves, from his observations, that in comparison with the œsophagus the muscular power of this part is very inconsiderable, and he consequently denies that it has any comminuting power. A great part of the present researches relates to the functions of the various parts of the intestinal canal. The ventricular appendages are proved to be secreting organs. A remarkable phenomenon was exhibited in *Loc. viridissima*, in the circumstance, that when it was fed upon insects, the alimentary canal sometimes, and in one instance even the "tracheæ," assumed a red colour. The organ of stridulation also of some "Locusts" has been carefully described by the author.

Of Charpentier's Orthoptera descripta et depicta, three successive Parts (7-9) have appeared, the contents of which will be more particularly stated below.

The conclusion of De Haan's work, referred to in the last Report, 'Bijdragen tot de Kennis der Orthoptera,' is contained in the 10th Part of the Verhandl. over de natuurlijke Gescheid. der Nederlandsche overzeesche Bezittingen, Zoologie. Although this Part did not appear till 1844, still it appears desirable now to complete the Report with it.

Forficulariæ.—The new species of this family, which have been made known by De Haan, (l. c.) are: *Apachya characterea*, from Borneo, Sumatra; *Pygidicrana pallidipennis*, from Borneo; *Psalidophora fuscipennis*, and *albomarginata*, from Sumatra; *Echinosoma sumatrana*, from Padang, living gregariously in rotten wood; *Forficula longipes*, *forcipata*, *brachynota*, from Sumatra; *insignis*, Hag., and *tenella*, Hag., from Java.

MANTIDES.—A very distinct new species has been published by Westwood. (Arcana Ent. ii, p. 52, pl. lxii, fig. 2): Body and wings narrow, the head with a broad horn between the eyes, and a more slender one, with two points, before each of them; the posterior femora lobed, the abdominal filaments long, foliaceous, jointed only at the base. The insect, *Stenophylla cornigera*, Westw., is from the interior of Brazil.

Besides this there are also figured (ib.), *Phyllocrania insignis*, West., from Sierra Leone, a new species, nearly related to those of the Cape; and *Mantis metallica*, a very pretty new species from Sylhet.

Charpentier (Orthopt. 7. fasc.) has represented *Mantis sublobata*, Serv., from Brazil, in both sexes (that is, ♂ *M. pilipes*, Serv.; ♀ *M. sublobata*, Serv., *brachyptera*, Burm.); *M. undata*, F. (*Theoclyt. undata*, Serv.), from the Cape; *M. zebrata*, new species, do., *M. fenestrata*, F., do., in both sexes; (♂ *fenestrata*, F., Burm., *vitrata*, Serv.; ♀ *M. prasina*, Burm., *nana*, Stoll.)

Guérin (Rev. Zool. p. 14) has instituted (from a South of France species, *P. Allibertii*, which does not appear to be other than *Mantis decolor*, Charp.,) a new genus, *Perlamantis*, which is founded chiefly upon this, that all the wings are membranous, a condition which obtains in very many males, particularly in the division to which the species referred to belongs. (The females, on the contrary, have short, coriaceous, rudimentary elytra.) Consequently the institution of this genus may be considered to have failed.

In these Archiv. (1843, i, s. 390) Zimmerman has given more particular information respecting the devouring of a lizard by the *Mantis carolina*.

SPECTRA.—A peculiar form of this family has been described by J. Goudot. (Guér. Mag. de Zool. Ins. pl. 125.) It is apterous in either sex, of short form, and differs from the rest in this respect, that the fore legs are not sinuate-emarginated at the base. The insects are peculiar also in their mode of life, inasmuch as in the daytime they lie concealed under stones and similar objects, and roam about at night. The author still associates this form with *Bacteria*, though it deserves, in consequence of the absence of the sinus of the anterior femora, to be formed into a separate genus. He has found three species in New Granada: *B. Bogotensis*, plentiful, and living gregariously near Bogota, under stones, in moist places; shining black, four tubercles in the situation of the wings, red in the ♂, and yellow in the ♀; *B. Roulini*, resembling the former, but with red femora; occurring at a higher elevation, and less frequent; and *B. quindensis*, wholly of a dull brown, in the cold region of the Cordilleras; solitary, under the trunks of trees. In the first species there is a gland within the thorax on each side, the excretory orifice of which is situated in a tubercle placed on each side of the anterior extremity of the prothorax, and from which the insect is able to project a milky acrid fluid to the distance of a foot. Both the other species also possess the glands, but the tubercles are

wanting. (Guérin remarks, in conclusion, that these three species belong to *Anisomorpha*, Gray, but the observation is scarcely correct, since in the latter the anterior femora are sinuate-emarginated, though only slightly so.)

Charpentier (l. c.) has figured *Ascepasma infumata*, from Java, and *Phasma ornatum*, Burm. (which is probably *Ph. Tithonus*, Gray), from Brazil.

Westwood (Arcan. Ent. pl. 61) has exhibited two species of *Diapherodes:* the one, *D.* (*Cranidium*) *pumilio*, supposed to be from Central Africa, is new, and characterized by a comb on the dorsum of the mesothorax. The other, *D.* (*Cranidium*) *serricollis*, Westw., locality unknown, is, on the contrary, the true *Cranidium gibbosum*, Hoffgg., *Diapherod. gibbos.*, Burm., from Pará. The insect formerly figured under this designation has now been named, by the author, *Diaph.* (*Craspedonia*) *undulata*.

Achetæ.—The species of this family, described by De Haan (l. c.) are, *Gryllus brachypterus*, and *platyxiphus*, from Java; *Gr.* (*Eneoptera*) *hemelytrus*, Hag., and *concinnus*, from Java; *fasciatus*, from Celebes and Java; and *cinereus*, from New Guinea and Java; *punctatus*, from Java; *Gr. scleropterus* (new subgenus, but which coincides with *Trigonidium*, Serv.); *coriaceus*, Hag., from Java; *Gr.* (*Platydactylus*) *Novæ Guineæ*, from New Guinea, Java; *Gaimardii*, from New Guinea and Banjermassing; *vittatus*, from Padang; *quadratus*, from Java; *Gr.* (*Phalangopsis*) *marmoratus*, from Japan; *pilosus*, from Borneo and Java; *microcephalus*, from Japan, Sumatra; *Buquetii*, from Java, Japan; *japonicus*, from Japan; *Gr.* (*Æcanthus*) *gracilis*, from Celebes; *Gr.* (*Gryllotalpa*) *longipennis*, from Borneo; *Gr.* (*Xya*) *japonicus*, from Japan.

Locustariæ.—Westwood (Arcana Ent. pl. 63) has figured the fragment of a very remarkable locust, preserved in the British Museum; it has in the highest degree the aspect of a *Phasma*, to which it is considered by the author as an analogous form in this family. It is apterous, the head small, projecting; the prothorax long, the ovipositor long and straight; the fore legs long and without spines, the anterior tibiæ "absque operculo." Antennæ and hinder legs are wanting. The Insect, named *Phasmodes ranatriformis*, is from King George's Sound, in New Holland. The author has also given a figure of *Prochilus australis*, Brüll.

Charpentier (l. c., 8. fascic.) has figured of this family: *Copiophora cornuta*, Deg., from Brazil, Cayenne; *Rhaphidophora palpata* (*Locust. palp.*, Sulz., *Phalangops araneiform.*, Burm.), from the South of Europe; *Hetrodes longipes*, new species, from Benguela (Lower Guinea); *Polyancistrus serrulatus*, Palis., Beauv., from St. Domingo.

Acridii.—A couple of Proscopia-forms have been figured by Westwood. (Arcana Ent. pl. 63). One of them, named *Proscopia occidentalis*, from Chili, is remarkable for its contracted form and the hump-like inflation of the metanotum and it must certainly constitute a distinct genus, for which I propose the name *Hybusa*. It differs from *Proscopia*, besides the

form of the body, also in a particular which has been overlooked by the author, which is, that one claw on the tarsus is stunted, so that only a single claw remains on the side of the evident "pulvillus." The other, *Proscopia* (*Cephalocæma*) *subaptera*, with minute, free elytra, and small metallic-black wings concealed under them, said to be from Brazil, I do not hesitate to look upon as an *Astroma*, Chard. With respect to the elytra, the author has probably been deceived, in having taken for elytra the broad, coriaceous, anterior edge of the wings, beneath which the metallic portion of them is folded up like a fan. Were elytra really present it would be altogether impossible, on account of their smallness, and the length of the mesothorax (since they would naturally be placed at the anterior extremity of the mesothorax), that they could cover the wings, as the author believes. The little wings of *Astroma* are not placed, as Westwood here asserts, on the first, but as Charpentier (Orthopt. descr. et dep. i, tab. iv) has clearly figured, on the second segment behind the prothorax. Lastly, Westwood's figure exhibits, although his description is silent upon it, the formation of the claws of *Astroma*, without "pulvillus," as they have been correctly represented by Charpentier. The locality assigned is, without doubt, erroneous. (Ib.) the author gives also the diagnosis of the new *Mastax affinis*, from Assam.

Charpentier (l. c.) has enriched this family with three new genera.

Hyalopteryx (8. fasc. tab. xlvi), related to *Truxalis*, the antennæ equally ensiform, the head, however, is not turreted; the wings, in the male, furnished with a row of very large, quadrangular specular cells. *H. rufipennis*, from Brazil.

Brachypeplus (9. fasc. tab. li), without epiglottis, with very minute rudimentary elytra; of the contracted build of *Ædipoda hystrix*, with a large prothorax extending far back, and remarkably long posterior tarsi. *Br. virescens*, from Mexico.

Dactylotum (9. fasc. tab. lii), with thick epiglottis, very cylindrical, with deeply incised prothorax; reticulated, rudimentary elytra, as long as the prothorax; and little trace of wings; in the male the inferior anal cover large, boat-shaped, and lined internally with a regularly transversely plicated membrane. *D. bicolor*, from Mexico.

Besides these the author has figured (ib., fasc. 8, 9): *Rhomalea microptera*, Serv., from North America; *Acridium herbaceum*, Serv., from the Cape; *A. plorans*, Charp., distributed from the South of Europe to the Cape; *Œdipoda bisignata*, Charp., ib.; *Œ. longipes*, new species, from Sicily and Turkey; differing from *Œ. insubrica*, which in other respects it closely resembles, by the wings being of a light yellow at the root.

Keferstein has written upon the noxious Locusts ("Ueber die schädlichen Heuschrecken.") (Ent. Zeit. p. 167. 213. 232).

PERLARIÆ.—Rambur (Hist. nat. d. Ins. Neuropt.) has elaborated this

family, although with only slight acquaintance with what has been written on the subject; the newly instituted species consequently, will in part have to be abolished, and the rather, because Pictet's excellent monograph has appeared in the meantime. The newly proposed genus, *Leptomeres*, with elongated penultimate, and slender terminal joint of the maxillary palpus, coincides probably with *Isopteryx*, Pictet, or even *Chloroperla*, Newm., or with both.

Psocides.—Huber (Mém. de la Soc. de Phys. et d'Hist. Nat. de Genève, x, i, p. 35) has communicated his interesting observations upon several species of *Psocus*.

The author observed that they lay their eggs upon leaves, and surround them with a web; and that the various species form webs of different kinds. This fact is not new, although, perhaps the discovery of the spinning organ which is placed, in the form of a couple of oblong corpuscles, on the border of the labrum is.* A species with spotted wings, constantly remains beneath filaments, which it spins from one side of the leaf to the other. The author remarked that the *Psoci* feed upon "rust" (Uredo), which chiefly follows the punctures made by *Aphides*.

Libellulinæ.—Rambur (Hist. Nat. des Ins. Neuropt.) has enriched this family not only with a great number of new species, but also of new genera. With reference to the species, it is remarkable that the author is entirely unacquainted with Charpentier's great work on the European *Libellulæ*; in general the new species, which are for the most part extra-European, will still require to be subjected to special examination.

The new genera are, in the *Libellulidæ*-group: *Nannophya*, with one new species, locality unknown; *Acisoma*, with two new species, from the East Indies and Madagascar; *Zyxomma*, with one new species, from the East Indies; *Uracis*, with one new species, from Buenos Ayres; *Polyneura* (the same is no longer disposable), with *Libell. sophronia*, and *fulvia*, Drury; *Palpopleura*, with *Lib. dimidiata*, L.; *portia*, Dr.; *marginata*, F.; *lucia*, Dr.; *fasciata*, L.; *Diastatops*, with *Lib. pullata, obscura*, Burm.; *Macromia*, with several new species. The author separates from the Æschnides, as a distinct group, the Gomphides, with the eyes mostly placed apart; and includes under it these genera: *Gomphus*, Leach (*L. forcipata*, L.); *Diastatomma*, Charp. (*Æ. clavata*, F.); *Ictinus*, new genus, with three new species; *Lindenia*, *Phenes*, new genus, with one new species, from Chili; *Cordulegaster*, Leach; *Petalura*, Leach (*gigantea*, Leach). The Æschnides are limited to *Anax*, *Æschna*, *Gynacantha*, new genus, with exotic species.

* I remember to have remarked also, in *Hydrophilus piceus*, a pair of minute oblong corpuscles on the under side of the labrum, and since the *Hydrophili* also spin, this may probably, in like manner, be the spinning organ.

The Agrionidæ-group has been increased with the following new genera: *Rhinocypha*, with *A. fulgidipennis*, Guér., and *perforata*, Perch; *Micromerus*, with *Calopt. lineata*, Burm.; *Argia*, with *Agr. australe*, Guér.; *Mecistogaster*, with *M. Lucretia*, Dr., &c.; *Microstigma*, with two new species; *Megaloprepus*, with *L. cærulata*, Dr.

Pictet (Guér. Mag. de Zool. Ins. pl. 117) has founded a new species, *Cordulia splendens*, from the South of France, the male of which has been described by Selys Longchamps (Ib., and Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 108; as also in Rev. Zool. p. 131), who has moreover remarked, that it differs widely from the rest of the *Corduliæ*, and belongs in all respects to the genus *Macromia*, Ramb., founded on Indian and North American species, and which differs from the former in the completely divided claws, and double number of minute nervures in the first costal space; besides which, however, the minute accessory eye is more distinct than in the former. Form and colour as in *Cordulia*.

Selys Longchamps (Ann. S. E. Fr. p. 107, Rev. Zool. p. 158) has also described the male of *Lindenia tetraphylla*, and distinguished a second European species, *Cordulegaster bidentatus*, from *C. annulatus*, Latr. (*lunulatus*, Charp.)

White (Dieffenb. New Zealand, p. 281, n. 97) has described a new species, *Petalura Carovéi*, from New Zealand, which differs from *P. gigantea*, Leach, in the broader yellow markings on the thorax; the dilated anal appendages are somewhat rounded; the anterior border and the apex of the wings, the latter, especially in the hinder wings, dusky.

Lepismenæ.—Gervais (Hist. Nat. d. Ins. Aptères, iii, p. 449) has divided *Lepisma* into two subgenera, *Lepismina*, and *Lepisma*; the former of which includes the species with short cordate bodies and broad prothorax.

Templeton (Transact. Ent. Soc. Lond. iii, p. 304, pl. 16, figs. 1-7) has instituted a new species, *Lepisma niveo-fasciata*, from Ceylon, which gnaws the old Dutch books in the libraries there.

Westwood (Ib. p. 231) has given a more particular description of a minute apterous insect, which lives under herbage on the earth, and which he had exhibited in 1840, to the Ent. Soc. (Proceed. Ent. Soc. p. 14.) It is about 2‴ long; slender, flat, soft, with thirteen rings; with tolerably large head, many-jointed antennæ, pretty long legs directed laterally, two claws on the single tarsal joint, and two long hairy bristles on the terminal abdominal segment; of a whitish colour; very active and nimble. The author regards it as a new genus of this family, and assigns it the name of *Campodea*. It has also been found by Gervais (l. c.), who is of the same opinion respecting it. It appears to me, however, very uncertain whether it be not some kind of larva.

NEUROPTERA.

Histoire naturelle des Insectes Néuroptères, par M. Rambur. Paris, 1842, forms part of the Suites à Buffon-Roret; the work embraces the NEUROPTERA of Latreille, but the author is so unacquainted with all the literature not French, respecting them, that the most recent German labours on the subject have been entirely overlooked by him. Thus neither Charpentier's great work on the Libellulæ, nor Hagen's Synonomy of the European Libellulæ, have been referred to, nor has the author noticed either Klug's 'Monograph of the Panorpatæ', nor mine, 'of the Mantispæ.' He is also equally ignorant that I have proved that that section of the earlier Neuroptera, in which the metamorphosis is incomplete, possesses the systematic characters of the Orthoptera, and should be associated with them, but that the rest constitute a distinct order, which cannot at least be brought under the definition of any other. This extremely limited reference to the literature of the subject has not been without influence upon the determination of the species; and as in fact the book contains good observations, it is much to be desired that a Hagen would render it useful by a critical sifting of the synonymy.

HEMEROBII.—Rambur has here formed a number of genera, for the most part by the subdivision of previous, more extensive ones. *Ascalaphus*, F., is divided into *Ascalaphus* (*longicornis*, L., &c.), *Theleproctophylla* (*australis*, F.), *Puer*, Lef. (*maculatus*, Ol.);—*Bubo*—a genus of Birds!—(*capensis*, F.); *Ulula*—a genus of Birds!—(*senex*, Burm.); *Cordulecercus* (*surinamensis*, F.); *Colobopterus*—a genus of Coleoptera! (two new species); *Byas* (one new species); *Haplogenius*, Burm.; *Azesia*, Lefebr. *Myrmeleon*, F., is divided into *Palpares* (*libelluloides*, L., &c.); *Acanthaclisis* (*occitanica*, Vill.), *Myrmeleon*, *Megistopus* (a new species, with particularly long fore legs); the undetermined native locality of *M. bisignatus* is Brazil. *Hemerobius*, in the sense of later writers, is divided into three genera: *Micromus*, with three species: *lineosus* (= *paganus*, L.); *variegatus*, F.; and *tendinosus*, R. (= *intricatus*, Wesm.); *Megalomus*, with *H.* (*Drepanopteryx*) *phalænoides*, L.; *M. tortricoides*, R. (= *hirtus*, F.), and two new species. *Mucropalpus*, with *H. lutescens*, F., and five species stated to be new, but which require further confirmation.

The name *Hemerobius* has been again used by the author for *Chrysopa* of later writers. Lastly, such species of *Corydalis*, the males of which have simple mandibles, are constituted into a separate genus, *Neuromus*.

Schneider, in his 'Inaugural Dissertation' delivered at Breslau, has given a very good monograph on *Raphidia*. Seven species have been observed, and are figured with their earlier states:—(1) *R. ophiopsis*, Schumm. (2) *R. xanthostigma*, Schumm., under which, however, two species are still confounded; they differ in the ocelli, and especially in the venation of the wings. The true *R. xanthostigma* has been figured by Schummel; the other, very distinctly, in this work. (3) *R. affinis*, a new species, related to the former. (4) *R. media*, Burm. (5) *R. major*, Burm.; which, without hesitation, I regard as *R. megacephalus*, Leach. (6) *R. notata*, F. (7) *R. crassicornis*, Schumm., for which the author institutes a special subgenus, *Inocellia*, distinguished, less by the deficiency of the ocelli, which are also absent in some species of true *Raphidiæ*, than by the shortness of the prothorax.

Grube's excellent 'Beschreibung einer auffallenden, au Süsswasserchwämmen lebenden Larve' (Description of a remarkable larva inhabiting freshwater sponges), in these Archiv. (1843, i. Bd. s. 331, tab. x), has been already mentioned in the last year's Report, p. 235.

Phryganides.—Rambur (Hist. Nat. d. Ins. Neuropt.) has added several new genera to this family: *Oligotricha*, differing from *Phryganea* in the nearly naked wings, including *Phr. reticulata*, and *phalænoides*, L., and two supposed new species; *Enoicyla*, oral organs as in *Limnephila*, the four posterior tibiæ with only a single pair of spurs; *E. sylvatica*, new species, plentiful near Paris, in woods, in the autumn; *Monocentra*, the four posterior tibiæ with a single spur in the middle, the wings covered with minute hairs and scales; in other respects, particularly in the palpi and venation of the wings, agreeing with *Limnephilus*; *M. lepidoptera*, from Sardinia. The four following genera belong to the group Sericostomidæ, Steph., which Rambur names Trichostomides: *Pogonostoma* (the name has been appropriated to a coleopterous genus), with one pair of spurs on the middle tibiæ, and on the posterior tibiæ, a single spur in the situation of the superior pair; *P. vernum*, common in the spring, on the Seine, at Paris; *Dasystoma*, with a single pair of spurs on all four posterior tibiæ, antennæ denticulated; *D. pulchellum*, from Spain; *Lasiostoma*, coinciding probably with *Silo*, Curt.; *Lepidostoma*, with *Goëra*, Hoffgg.; lastly, *Setodes*, differing from *Mystacida* in the inferior wings not being plicated, as, for instance, *Phr. punctata*, F. It is as curious that the author's new genera should so little coincide with those of Stephens and Curtis, as that their works, especially the sixth volume of Stephens's 'Illustr. Brit. Ent. Mand.' which has been published ten years, should have remained unknown to him, in Paris.

HYMENOPTERA.

A comprehensive work on this order has been undertaken by Dahlbom, under the title 'Hymenoptera Europæa præcipuè Borealia, formis typicis nonnullis specierum generumve exoticorum aut extraneorum propter nexum systematicum associatis, per Familias, Genera, Species, et Varietates disposita atque descripta,' and the first Part has appeared, (C. A. Koch at Griefswald), embracing a portion of the Linnæan genus *Sphex*, and the contents of which will therefore be more particularly referred to below.

Spinola (Ann. Soc. Ent. Fr. i, p. 111) has given as a contribution to our knowledge of the Hymenopterous fauna of Spain, 'Notes sur quelques Hyménoptères peu connus, recueillis en Espagne pendant l'année 1842, par M. V. Ghiliani, roy. nat.,' which is, however, limited to the description of the species recognized as new. The author has been unacquainted with Waltl's 'Reise nach Spanien' (Travels in Spain), in which the Hymenoptera were described by Klug and myself; there are, however, not many species which had been already described there.

A number of Russian Hymenoptera has been published by Fischer v. Waldheim. (Guér. Mag. d. Zool. Ins. Pl. 122.)

Although the species here proposed have been already in part long well known, and in part are here insufficiently described, the author is still deserving of thanks for directing the attention of Russian entomologists to this order, who since the time of Pallas, with the honorable exception of Eversmann, have paid exclusive attention to the Coleoptera. The materials collected by Pallas, now ready for publication here, cannot fail, when brought to light, to afford a sure foundation for the future researches of Russian entomologists.

Tenthredinetæ.—Spinola (l. c.) has described a series of new Spanish species: *Tenthredo rufimana, xanthopus, bætica, limbalis, erythrogaster, Cephus Parreysii, Tarpa hispanica.* The last is identical with *T. bucephala*, Kl. (Entom, Monogr.)

Fischer v. W.'s (l. c.) *Tenthredo nyctea* is certainly nothing but the true

T. blanda, L.; and *T. Grossulariæ*, from the description, is, in my opinion, doubtful, from the appellation probably only a variety of *T.* (*Nematus*) *Ribesii*, Schr. (*ventricosus*, Kl., Hart.)

Urocerata.—Spinola has published a Memoir, which was produced before the Scientific Congress at Padua, entitled, 'Considerazioni sopra i costumi degl' Imenotteri del g. Sirex F., e sopra il miglior posto dei Sireceti nel methodo razionale, Genova, 1843;' in which he supports the opinion lately propounded by Lepelletier de St. Fargeau, that the Wood Wasps are parasitic, in the same way as the Ichneumons, by an instance in which a *Sirex gigas* is stated to have come out of the pupa of *Papilio machaon*. The author, however, does not agree with Lepelletier in separating the Wood Wasps from the Saw Flies and associating them with the Ichneumons; and he is the more correct in this, as it has been sufficiently ascertained in this country, that the Sirex-larvæ themselves bore into the wood; and the observation related above must be founded in some error.

Ichneumonides.—Blackwall (Report of the Twelfth Meeting of the Brit. Association, held in Manchester, 1842, p. 68; in more detail, Ann. Nat. Hist. xi, p. 1; Fror. N. Notiz. 25 B. s. 113) has given an account of the larva of an *Ichneumon*, which is met with externally, on the upper part of the abdomen of several spiders, particularly of *Epeïra antriada*, aud *cucurbitina*, &c. From this larva he bred an Ichneumon, which Stevens determined to be *Polysphincta carbonaria*, Gr. When the Ichneumon larva had quitted the Spider, for the purpose of spinning its cocoon on the cork of the bottle in which it had been contained, the Spider died. The latter was immature, and it was a remarkable circumstance that it did not cast its skin.

As new Spanish Ichneumons, Spinola has described (l. c.), *Bassus hispanicus*, *Pimpla Ghilianii*, *Cryptus andalusicus*, *Ichneumon melanopterus*, *nigricornis*, *bæticus*, *erythrurus*, *unifasciatus*.

Braconides.—From the same country are, *Bracon bæticus*, *bicolorator*, *Agathis bætica*, Spinola (l. c.) The latter is *Ag. cæsa*, Kl., in Waltl's 'Reise.' An undetermined Braconid, bred out of *Callidium sanguineum*, has been described by Goureau. (Ib. p. 104, tab. iv.)

Evaniales.—Westwood's Memoir on '*Evania*, and some allied genera of Hymenopterous Insects,' already noticed (Report for 1841, p. 267), has now appeared in the 'Transact. of the Ent. Soc. of London,' and illustrated with numerous figures. The genus *Evania*, in the present enumeration, contains thirty species, among which is one new, *E. antennalis*, W., from Bombay. *Fænus* has received an accession in *F. gracillimus*, from Demerara, and Spain is assigned as the native locality for *F. dorsalis*. *Aulacus*, also, has acquired a new species, *A. congener*, locality unknown.

Some remarks on *Evania* have been made by Guérin. (Rev. Zool. p. 333.)

The bifurcation of the "metasternum," noticed by Spinola, was found by the author in all true *Evaniæ* with perfect wing-cells. *Hyptia* and *Brachygaster*, on the other hand, present a simple projection. Between *E. appendigaster* and *lævigata* a difference also exists in the form of the marginal cells; and to the latter species belong *E. appendigaster*, Blanch., as ♀, and *E. Desjardinii*, Blanch., as ♂. Lastly, the author describes two other new species, *E. Poeyi*, from Cuba, and *E. Servillei*, from St. Domingo. Both belong to the subgenus *Hyptia*, which the author strangely terms "*Hyptiam*," probably because Illiger incidentally applies the name in the accusative. (Fn. Etr. ii. p. 82; . . . "genus . . . , quod *Hyptiam* voco.") The opinion that *E. thoracica*, Blanch., is identical with *E. rufipes*, F., as expressed by the author (l. c.), is afterwards retracted by him. (Rev. Zool., 1844, p. 39.)

Chalcidites.—The descriptions of the Chalcidites collected by Darwin have been continued by Walker in the 'Ann. of Nat. Hist.' (vol. xi.) From Conception there are eight species (p. 30), viz. one each of *Lamprotatus*, *Gastrancistrus*, *Pteromalus*, *Derostenus*, *Closterocerus*, *Bellerus*, Halid. (a new genus belonging to the Eulophidæ, with 12-jointed ?, slender, moniliform, verticillate-pilose antennæ, the last three joints of which form a spindle-shaped club), and two species of *Tetrastichus*, Halid. (&c.) From Lima (p. 115) we have one species each of *Dicyclus*, *Pachylarthrus*, *Pteromalus*, *Entedon*. The last is indicated as a new genus *Horismenus*, Halid., without, however, its characters being distinctly given. From the Island of Chonos (p. 184) are one species each of *Lamprotatus*, *Pteromalus?*, *Entedon*, *Closterocerus*. From Coquimbo (p. 185), 2 *Lamprotatus*, 1 *Gastrancistrus*, 1 *Platyterma* or *Pteromalus*, 1 *Tetrastichus*. In the twelfth volume (p. 45), two more new species are added: *Thoracantha Latreillei*, Guér., from Brazil; and a *Micromelus*, from Mount Wellington.

The Chalcidites collected by Guilding, in St. Vincent's Isle, have been described by the same (Ann. Nat. Hist. xii, p. 46), viz. one species each of *Decatoma*, *Pteromalus*, *Lelaps*, *Idarnes*, *Encyrtus*, *Euplectrus*, *Paphagus*. The three new genera, *Lelaps*, Halid., *Idarnes*, and *Paphagus* are more particularly described, but the author has not expressed himself as to their systematic position.

The same author has also communicated the elaboration of the Chalcidites collected by E. Doubleday and R. Forster, in East Florida, in the 'Ann. de la Soc. Ent. de Fr.' (2 sér. i, p. 145): 1 *Smiera*, 2 *Hockeria*, 1 *Ormyrus*, 2 *Callimone*, 5 *Eurytoma*, 1 *Micromelus*, 4 *Lamprotatus*, 1 *Pachyneuron*, 2 *Norbanus*, (a new, but no further described genus), 1 *Metopon*.

Lastly, the same author has given descriptions of various new species (Ann. Nat. Hist. xii, p. 103): *Isosoma hordei*, Harr.; parasitic in *Cecidomgia*, in North America; *I. Laothoe*, from Edinburgh; *Perilampus Entellus*, in Ohio; *Callimone Aea*, from New York; *Trichogramma Carina*, from the Forest of Fontainebleau.

Contributions to the classification of the Chalcidites, by Haliday (Trans. Ent. Soc. Lond. iii, p. 295), contain, first, the institution of a peculiar group, the Pireniani, with 5-jointed feet, simple legs, 10-jointed antennæ; inserted at the mouth; the metacarpus of the wing extremely short, almost wanting; included in this group are three genera: *Calypso* (1 species), with 4-jointed palpi, and remote eyes; *Macroglenes* (3 species), with 4-jointed palpi, and, in the ♂ approximated eyes; and *Pirene* (4 species), with 2-jointed palpi. Then follows the group of the Eulophini, thus arranged: I. Tarsi, 4-jointed. Antennæ, 7-11-jointed. (A) The subcostal nerve, inflected to the costa with a gentle curve. (1) *Elasmus*, Westw. (2) *Epiclerus*, Hal., Ant. 11 art.; mesothoracis parapsides discretæ, scutellum integrum, transverse impressum; abdomen petiolatum; metacarpus productus, radius brevis. (*Entedon Papryas*, Walk.) (3) *Euplectrus* Westw. (4) *Elachestus*, Spin. (5) *Lophocomus*, Hal.; Ant. ♂ 10 art., nodosæ, verticillatæ; ♀ 9 art., ulna mediocris, radius longus (*Cirrospil. Anaitis*, Walk.) (6) *Eulophus*, Geoffr. (7) *Cirrospilus*, Westw.

(B) The subcostal nerve suddenly thickened, and as it were broken, inflected obliquely to the costa: (8) *Tetrastichus*, Hal.; Ant. ♂ 9 art., ♀ 8 art.; mesothoracis parapsides discretæ, posticè incisæ; scutellum convexum, lineis 4 elongatis parallelis exsculptum; abdomen subsessile; radius ab alæ apice quam longissime remotus; metacarpus evanescens. (*Cirrosp. Attalus*, Walk.). (9) *Euderus*, Hal.; Ant. ♀ 9 art., capitulo 3 art. mesothor. paraps. discretæ, postice acutè incisæ; scutell. integrum; metacarp. productus; radius brevissimus; alæ subglabræ; abdomen subsessile. (*Ent. Amphis*, Walk.). (10) *Entedon*, Dalm. (*E. Amanus*, Walk.). (11) *Pteroptrix*, Westw. II. Tarsi, 3-jointed.—*Trichogramma*, Westw. Besides these, other new genera are described: *Agamerion* (*Miscogaster Gelo*, Walk.), and *Ophelimus* (*Euloph. Ursidius, Sabella, Cirrosp. Vannius*, Walk.); three species of *Lelaps* (vid. supr.); and, lastly, a new *Eulophus*.

Loew has given most interesting notices respecting the Caprification of the Fig. (Entom. Zeit. s. 66.) His observations were made at Leros. Natural caprification in the cultivated Fig-trees does not take place at all, or in but very few individuals; to these consequently are suspended caprified Figs, collected from the wild Fig-trees, and which are known by the patulous opening of the fruit. This is done in June, when the naturally caprified Figs contain the insect, already in a state of complete development. The author is of opinion, and probably very correctly, that in the natural course of development the insect remains within the fruit till September, but that in consequence of the desiccation of the wild Fig, after it is plucked, its egress and propagation are hastened, and thus a caprification of the cultivated Figs is effected artificially. The insect was *Blastophaga grossorum*, Grav., which Westwood, according to the Linnæan Collection, had taken to be *Cynips Sycomori*, Lin.;

the author, however, shows, very satisfactorily from the descriptions, partly of Linnæus, and partly of Hasselquist, the discoverer of this insect, that the insect of the (Egyptian) Sycomore, the *Sycophaga crassipes*, Westw., is nothing but the *Cyn. Sycomori*, L.; but that the insect of the (South European) edible Fig is the *Blastophaga grossorum*, Gr., the true *C. Psenes*, L.; and consequently that the former should be termed *Sycophaga Sycomori*, and the latter, *Blastophaga Psenes*.

Proctotrupii.—The genera, *Pelecinus* and *Monomachus* are both elucidated by Westwood, in his work on Evania (v. s.); the former at present includes eight species, the second seven, of which, however, only three are described by the author; the fourth, *M. fuscator*, is taken from Perty; the other three, (together with the first two from the Berlin Collection,) are only mentioned by name. All these species are South American. The Berlin Collection has also received some species lately from New Holland.

Some new Oxyuri, have been described by Walker, together with the Chalcidites:—*Telenomus Apitius*, from St. Vincent's Isle (Ann. Nat. Hist. xii, p. 48); *Platygaster Sylea*, from Coquimbo; and *Omaloderus intrepidus* (Hal., MS.), from the same place. (Ib. xi, p. 188.) The latter new genus is indicated as being allied to *Bethylus*, and has in the fore wings 3 cubital and 2 subcubital areolæ.

Chrysidides.—Two new Spanish species are, *Chrysis crassimargo*, and *Hedychrum aulicum*, Spinola (l. c.); the latter is distinguished from all the other species by an elevated longitudinal line down the three abdominal segments.

Sphecidæ.—Dahlbom (Hym. Europ. p. 1-29) has enriched this family with a number of new extra-European species, and has proposed at the same time some new genera, which were not given in his 'Conspectus,' but upon which, as the characters are not here added, I can say nothing more particular.

Under *Chalybion* the blue coloured *Pelopæus* are separated, as *Peps. violacea*, F., and *Sph. cyanea*, L. Another genus, *Enodia*, is erroneously attributed to the Encyclopédie Méthodique; it was instituted in the Berlin Collection, and separated from *Sphex* on account of the horny labrum, emarginate in the centre, like the mentum of the Carabidæ. Of the two species enumerated by the author in this genus, *Sphex albisecta*, Enc., is for this reason placed by us under *Enodia*, and *E. canescens*, Dahlb. (but which is *Peps. pubescens*, F.), under *Sphex*. On the other hand, we have included under *Enodia*, *Peps. Thomæ*, F., of which the author forms a distinct genus, *Priononyx*. With regard to the new species of the author, since his book will infallibly be in the hands of every one who is occupied with this order, a few remarks only will be given. *Miscus arvensis*, from North America, is by us placed with *Ammophila*, because all our specimens have the

wing venation of *Ammophila*, the author's specimen consequently would appear to be an accidental variety in the wing venation, which also occurs in other species; and it follows of course, that *Miscus* is not tenable as a genus, since it is impossible one species can stand in two genera.

Pelop. figulus is not indigenous in the South of France, but in South America, and the succeeding *Pel. assimilis* of the author does not appear to differ from it. *Sphex cinerascens* of the author is *Peps. obscura*, F.

Under *Prion. Thomæ* two species are confounded, which occur in different parts of America, viz. *Enod. rustica*, Nob., in North America; *Enodia pagana*, Nob., in the South of Brazil; on the other hand, it has escaped the author that *Peps. crucis*, F., is the female of his *P. Thomæ*. The genus *Trachypus*, Kl., does not belong to this family (vid. Report for 1841, p. 271), and just as little should I be inclined to refer to it *Psen* and *Mimesa*.

Fischer v. W. (l. c.) has described *Ammophila elongata*, *nitida*, and *Sphex obscura*, from the South of Russia. The latter is a puzzle to me, since the abdominal peduncle is stated to be 2-jointed.

Guérin (Mag. de Zool. Ins. pl. 116) has figured a new *Chlorion* as *Sphex Paulinierii*, and has described (ib.) *Ammophila cyaniventris* as a new species; both from Senegal.

Ampulicidæ.—Dahlbom (Hym Eur. p. 29) elevates the genus *Ampulex* to the rank of a separate family, without, however, fixing its characters. To *Am. compressa* he adds a new species, *A. Guerinii*, the habitat of which (not stated) is Central Africa. There can be no doubt that *Ampulex*, with some allied forms, constitutes a peculiar group, which Westwood has recently examined, in an essay announced in the 'Proceed. Ent. Soc.' as early as 1840, and given at large in the 'Transact. Ent. Soc.' (iii, p. 223), and has since completed the knowledge of it in the 'Arcana Entomol.' pl. 65. According to these two memoirs, the group includes the following genera: *Ampulex*, Jur. (the author calls the genus *Chlorion*, Lat., because Latreille described the genus originally from *Amp. femorata*, although he adduced *Chl. lobatum* as the type (since Latreille, however, afterwards himself admitted the genus *Ampulex*, and always retained *Chl. lobatum* as *Chlorion*, it appears to me safer to follow Latreille's own definition), with seven known species, of which *Chl. cyanipes*, Westw., is described more particularly in the 'Tr. Ent. Soc.' (p. 230.) *Chl. purpureum*, Westw., is characterized and figured in the 'Arcana.' *Trirogma*, Westw. (vid. Report for 1841, p. 273) *cærulea*, from the East Indies, the ♂ is figured in the 'Trans.', the ♀ in the 'Arcana;' the former presents three abdominal rings, the latter the usual number (6.) *Amphelotoma* (vid. Report for 1841, p. 273) *tasmanica*, from Van Diemen's Land, the ♂ figured in the 'Arcana;' the ♀ in the 'Transactions.' Lastly, a fourth new genus, *Rhinopsis*, in the 'Arcana;' with the clypeus prolonged anteriorly and pointed, only three

cubital areolæ, fourth joint of the tarsi lobed; a new species, *Rh. Abbottii*, from Georgia, in North America.

Pompilii.—Dahlbom (Hym. Europ.) has described a considerable number of species, both European and exotic, which are distributed under the following genera: *Dolichurus*, Spin.; *Ceropales*, F.; *Salius*, F.; *Entypus*, Dahlb.; *Planiceps*, Latr.; *Aporus*, Spin.; *Pompilus*, F.; *Agenia*, Schiödt.; *Priocnemis*, Schiödt.; *Pepsis*, F.; *Hemipepsis*, Dahlb. The characters of the new genera, *Entipus* and *Hemipepsis*, are not stated, and I am also ignorant of what they rest upon; the former contains a new species, *E. ochrocerus*, from Algiers; the latter comprises *Pomp. flavus*, F., and two new species. The author regards *Pomp. sanguinolentus*, F., as a *Salius*, but incorrectly, for the Fabrician species constitute a very peculiar form.

Fischer v. W. (l. c.) has described *Pompilus sesquialterus* and *P. alienus*, the former from the Lower Wolga, the latter from South Russia.

Guérin (Mag. de Zool. Ins. pl. 114, 115) has instituted three species of *Pompilus*, of which, *P. Paulinieri*, from Senegal, is new; *P. Brentonii*, from Senegal and Sicily, is nothing but *P. crocicornis*, Kl., lastly, *P. Graellsii*, from Barcelona, is undoubtedly identical with *P. luteipennis*, F., although Fabricius does not mention the black base of the thighs, which induces the author to demur.

Larratæ.—Dahlbom (Hym. Europ.) has comprehended under this family the genera *Palarus*, Latr.; *Tachytes*, Panz.; *Liris*, F.; *Larra*, Latr.; *Astata*, Latr. The genera *Tachytes* and *Larra* will scarcely admit of being separated, as is indeed apparent from the circumstance that *Tachytes pagana*, Dahlb., which is distributed over a great part of America, is very nearly allied to *Larra anathema*. Besides which, it may also be remarked, that *Tachytes tricincta*, Dahlb., in the Berlin collection, is not an unpublished name, as he states it, but *Liris tricincta*, Fab. (and the female, *Liris varians*, F.), and that *Liris orichalcea*, Dahlb., is also a Fabrician species, viz. *Pomp. hæmorrhoidalis*, F.

Spinola (l. c.) has instituted a new genus, *Dryudella*, which differs from *Larra* and *Liris* in this, that the radial areola has a large accessory areola, as in *Dimorpha*; and from the latter, in the crescent form of the third cubital areola, as is the case in *Lyrops*. How the ocelli are circumstanced is not mentioned. The author comprises in this new genus, *Dimorpha cincta*, Perris, and a new Spanish species, *Dr. Ghilianii*.

He has also (ib.) characterized a new species of *Oxybelus*, *O. andalusiacus*, and remarks upon it, that it may probably be a variety of his *O. Savignii*. However close the affinity, it appears to me, that the South European species is distinct from the Egyptian.

Nyssonii.—Dahlbom (Hym. Eur.) includes in this family *Alyson*, with a new European species, *A. Ratzeburgii*, *Harpactus*, *Stizus*, *Lestiphorus*, *Hop-*

lisus, with two new species, *H. seminiger*, from Brazil, and *H. Behni*, distinguished by smooth metanotum; in the Fabrician Collection placed with *Crabro fossorius;* (*Gorytes, Nysson.*) *Stizus* should remain in its natural place, in the following family:

Bembecides.—Dahlbom (Hym. Europ.) has formed a distinct genus, *Sphecius*, from *Sphex speciosa*, Drury, but in what respect this differs from *Stizus* is not stated.

Scolietæ.—Shuckard (Trans. Ent. Soc. Lond. iii, p. 222) has corrected the description of *Scolia fulva*, in 'Griff. Anim. Kingd.,' and at the same time remarked that it is not, as there stated, from South America, but from New Holland.

Fischer v. W. (l. c.) has characterized three Russian Scolietæ, of which, in *Scolia rufiventris*, may be recognized *Sc. rubra*, Jur.; *Myzine spinosa* is indubitably a true *Myzine*, but the species is not to be determined; *Myzine arcuata*, lastly, is a male *Scolia*, and most probably that of *Scolia* 5-*cincta*, which is distributed far into Siberia.

Spinola (l. c.) has described two new species of *Myzine*, which are very closely connected with *M. hæmorrhoidalis*, Guér., from the Cape; having in common with it the posterior abdominal segment of a red colour: *M. hispanica*, from Andalusia, and *M. Ghilianii*, from Sicily.

Mutillariæ.—Spinola (l. c.) has enriched *Mutilla* with several South European species, *M.* 8-*maculata*, *Ghilianii*, *fasciaticollis*, from Spain; *M. triareolata*, from Sicily, and *M. Rondani* from Parma. But the first, *M.* 8-*maculata*, has been already described by Klug as *M.* 9-*guttata*, Kl., in Waltl's Travels.

A memoir on the New Holland species of *Mutilla* has been furnished by Westwood (Arcan. Ent. p. 17, pl. 53, 54), with numerous figures. There are altogether eleven species, of which four are given in Fabricius; the rest have been established by the author. *M. dorsigera*, Westw., I consider identical with *M. Australasiæ*, F. The Berlin Collection possesses at present eleven New Holland species of this genus, of which only three occur among those noticed by Westwood.

Thynnidæ.—Id. (ib.) has given a figure of *Psamatha chalybea*, Shuck., and *Diamma bicolor*, Westw., from Van Diemen's Land. Both, however, are probably connected as male and female.

Vespariæ.—*Eumenes venusta*, a Wasp has been described by Fischer v. W. (l. c.), as a new species, both sexes of which are figured, but which was previously represented by Christius, as *Sphex tripunctata*.

White (Ann. Nat. Hist. xii, p. 268) has added to his former memoir on the Honey-wasp (Ann. vii, p. 315), some remarks of Mr. Hawkins, by whom the nest was sent.

Milne Edwards (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 34) has de-

scribed the nest of *Epipone tatua* (*Pol. morio*, F.) It is not thicker than paper, but firm, constructed around the branch of a tree, and resembles in its form, and in the annulation of its surface, the mail of the Armadillo (*Tatu*), whence its name.

Spinola has published a short memoir, 'Osservazioni sopra caratteri naturali di tre famiglie d'Insetti Imenotteri cioé le Vesparie, le Masari et le Criside,' Genova, 1843, which is intended principally to oppose Lepelletier's extraordinary division, by which the social Wasps are widely separated from the solitary. The author directs attention particularly to this circumstance, that in the Vespæ, besides the longitudinally plicated wings, the power of directing the abdomen upwards is provided for by the form of the metathorax, together with which the Masaridæ also combine the power of doubling it in, by which the Chrysididæ are distinguished, which, however, do not possess the former power.

Apiariæ.—Several remarks may be made with respect to the Spanish Bees described by Spinola (l. c.) *Andrena lanuginosa* is my *An. pruinosa* (in Waltl's Travels.)—*Sphecodes collaris*, Spin., new; (occasion is here taken to describe two other new species, *Sph. rubripes*, from Bombay, and *Sph. cribosus*, from South Africa.)—*Dasypoda bætica*, Spin., is, according to the specimens communicated by Rossi, his true *D. discincta*.—*Comptopæum* is the name given by the author to a new genus which is intended to embrace *Prosopis frontalis*, F. (*Panurgus nasutus*, Spin.), and to which a new Spanish species, *C. interruptum*, is added; which is, however, probably the female of my *Panurg. venustus*. (Waltl's Travels.)—*Ammobates muticus*, Spin., scarcely differs from *A. rufiventris*, Latr.:—to which the author objects that in Latreille's species the tibiæ and tarsi are both red, whilst in his, the tarsi only are so; in the specimen in the Berlin Collection the tibiæ are half red, whence it follows that this difference is of no great importance.—*Osmia bætica*, Spin., corresponds in many particulars with my *O. rutila* (Waltl's Travels), and is probably only a variety. *O. rutila* has a dark red abdomen, and the legs are entirely red.—*Megachile Ghilianii*, Spin., is unknown to me.—*Xylocopa sinuatifrons*, Spin., is *X. cantabrica*, Lepell.; and *X. hellenica*, Spin. (l. c.), from Greece, is identical with *X. olivieri*, Lepell.

Fischer, v. W. (l. c.), has instituted: *Melecta fasciculata*, and 14-*punctata*, both from the Upper Ural; *Bombus melinoides*, from Irkutsk, differing from *B. sibiricus*, F., only in the absence of the red band on the thorax; *Apis daurica*, from the same part, and from South Russia, is scarcely more than a local variety of *A. mellifica*.

F. Smith (Trans. Ent. Soc. iii, p. 293) has observed *Nomada Schaefferella* (♀ of *N. connexa*, Kirby), as a parasite of *Eucera longicornis*. The Bees were on the wing together in June, and when he dug up the nests in March,

he found the Nomadæ already hatched in the nests of the *Eucera*. This is the commencement of more precise observations on the relations of Parasites.

Dumas and Milne Edwards (Anns. de Sc. Nat. xx, p. 174) have instituted researches on the preparation of wax by Bees, which contradict those of Huber and Gundelach, inasmuch as that those observers imagined that they had proved by their experiments that the wax was merely separated from the vegetable nutriment in the body of the Bees, whilst on the contrary, the above-named naturalists, by accurate and cautious experiments, have shown that the wax is an animal secretion, for which the adipose substance affords the material.

The relative proportion of the sexes in the Meliponæ has been elucidated by Klug. (Bericht, ü. d. Verhandl. de Acad. de Wiss. z. Berlin, 1843, p. 219.) With regard to this subject he expresses himself decidedly, that there is only a single female in each swarm, which differs in size, length of abdomen, &c. from the males and workers, and would without doubt, have been sent in greater numbers by the intelligent travellers, v. Olfers and Sellow, had they met with more of them in the nests. Among a great number, however, of workers and numerous males, single females of only three species have been collected by these travellers, viz. of the Manduri Bees (*M. liturata*, new species), the Wora Bee (*M. clavipes, Centr. clavipes*, F.), and of the Jetahi Bee (*M. angustula*, Latr.)

STREPSIPTERA.

Siebold's important work on the Strepsiptera (in these Archiv. i, Bd. p. 137, t. 7) has been already noticed in the last year's Report.

LEPIDOPTERA.

A new and important undertaking on the subject of the European Lepidoptera is Herrich Schäffer's 'Systematische Bearbeitung der Schmetterlinge von Europa,' or Systematic arrangement of the Lepidoptera of Europe, as text, revision, and supplement to J. Hübner's collection of European Lepidoptera, with plates by Geyer. The plates contain species and varieties not as yet figured in Hübner's work;

the text gives a systematic survey of the European Lepidopterous Fauna. In the arrangement, however, the European species only are considered, and probably in consequence of its containing too many subdivisions, it does not afford a very distinct view. That a critical care is not paid, throughout, to the admission of species, is evident from the circumstance that an artificially blackened *Deilephila Euphorbiæ* has been figured as *D. Esulæ*. The outline-figures specially intended to represent the generic characters are very good. Two Parts have appeared in 1843, each with 10 plates, but the work is in rapid progress.

A notice has been already given in the last year's Report, on the contents of the Parts of Freyer's 'Neue Beiträge zur Schmetterlingskunde,' which appeared in 1843.

On the Butterflies of the Rheinthal, or Schlücken Alps, near Reutte, in the Tyrol, a report by Freyer. (Ent. Zeit. s. 153. 162.)

Account of a lepidopterological excursion from Vienna to the Styrian Alps. (Ib. s. 144.)

Entomological notices by Kokeil (Isis, 1843, p. 139), refer to some Lepidoptera observed near Laybach.

Hering (Ent. Zeitung. s. 6. 343, 354) has continued his enumeration of the Lepidoptera of Pomerania.

Dr. H. R. Schmidt, in Dantzic (Preuss. Prov. Blätt., s. 316) has given a brief supplement to Siebold's 'Catalogue of Prussian Lepidoptera.' Among the thirteen species enumerated is *Doritis mnemosyne*, found by Herr Kaspari.

British Moths, and their Transformations; with fifty-six coloured plates by Humphreys, and descriptions by J. O. Westwood, Vol. I, London, 1843, 4.

Eversmann (Bull. Mosc. p. 535) has described, and partly figured, a number of new Lepidoptera from the Ural and Altai, which will be mentioned more particularly below.

Untersuchung der Beine der Schmetterlinge. 'Investigation of the Legs of the Lepidoptera.' A contribution to their systematic arrangement. By Dr. Adolph Speyer and Otto Speyer. (Isis. p. 161.)

This memoir is a continuation of the excellent and original papers by the

same authors (Isis, 1838-39) on the structure of the antennæ and the occurrence of accessory eyes. The legs of the Lepidoptera have not hitherto received the consideration they deserve, although they furnish excellent systematic characters. The authors have here presented us with a store of observations, and it is to be regretted that they have not had at their disposal more complete collections, especially in extra-European Lepidoptera, the examination of which would have conduced to more comprehensive results. This has been fully perceived by the authors themselves. They have, however, drawn attention to many points, and this memoir deserves the most earnest attention of Lepidopterologists; I am only able, in what follows, to direct notice to certain points.

With respect to the change of skin by caterpillars, Ashton (Transact. Ent. Soc. of London, iii, 157) has confirmed the observations of Swammerdam and Bonnet, according to whom the most internal membrane of the alimentary canal and of the tracheæ is cast off together with the external integument, in opposition to Herold, who contradicts this. Ashton's observations were made on the larva of *Sphinx Ligustri*, and he found in the exuviæ behind the pupa, the internal membrane of the digestive canal, and was able, by maceration in water, to exhibit the fine ramifications of the tracheæ.

Two hermaphrodite Lepidoptera have been described by Zeller (Ent. Zeit. s. 299), *Hipparchia Janira* and *Geometra lichenaria*. The author obtained the latter fresh from the pupa; when impaled it deposited a quantity of barren ova. What a pity that this Butterfly was not examined anatomically!

Papiliones. — A new genus, *Teinopalpus*, belonging to the Equites group has been instituted by Hope (Trans. Lin. Soc. p. 131), and illustrated by Westwood. (Arcana Ent. xv. pp. 59, 60.) Outline and nervation of wings, as well as the completely formed anterior legs of *Papilio*, the forehead, however, projecting and conical, and the palpi elongated as in the Nymphalidæ, the antennæ short, the club gradually incrassate. Two showy beautifully coloured species, *T. imperialis* and *Parryæ*, are indigenous in Sylhet, perhaps, as the authors suppose, the male and female of the same species, which supposition, notwithstanding their great resemblance, is rendered questionable by the circumstance that the former (♂) has a single appendage to the posterior wing, and the latter (♀) two.

In the genus *Papilio*, Westwood has again figured several species in his 'Arcan. Entom.,' for instance, of the Indian species, *P. Glycerion*, Gray (pl. 55), from Simlah; *Agetes*, Westw. (ib.), probably from Sylhet; *Astorion*, Westw., and *Chara*, Westw. (*Varuna*, White), from Sylhet (pl. 66.) In the 13th Part a review of the New Holland species is given, and together with *P. Anactus*, Mac L., a new species, *P. capaneus*, Westw., is figured.

White (Ann. Nat. Hist. xii, p. 262) has made known a new species, *P. Ridleyanus*, from the river Zair.

Eversmann (Bull. Mosc. p. 539) has distinguished three new species of *Doritis* from the southern spurs of the Altai: *D. Clarius* (tab. ix, fig. i), *D. Actius* (tab. ix, fig. ii), and *D. Delphius* (tab. vii, fig. i.)

Herrich Schäffer (l. c.), whilst calling all diurnal Lepidoptera, with the exception of the Hesperides, Papilionides, proposes for the limited group usually so denominated the designation of Equitides; which, in consequence of its hybrid composition, cannot possibly be admitted.

In the group of the Pierides, A. and O. Speyer (Isis, p. 178) have remarked that *P. Cratægi* differs from the other species, and should constitute a distinct genus. It can, however, be ascertained only from comparison of the extra-European species, whether the distinctive characters remarked are constant.

Pontia Leucodice, Eversmann (l. c. p. 541, tab. vii, fig. ii), is a new species from the herbaceous steppes on the Nor-Saisan. It is very closely allied to *P. Bellidice*.

In the group of the Nymphalides, A. and O. Speyer (Isis, p. 170) remark, that *Argynnis* constantly differs from *Melitæa* in this respect, that in the latter only the under side, in the former the upper side of the tarsus as well, and for the most part also the tibiæ, are beset with spinous bristles. *Arg. Ino* has in the ♂ only, long and entirely bare cleaning-paws.

Jos. Mann. (Ent. Zeit. p. 62) has attempted to prove the distinction between *Apatura Clytie* and *Ilia*, by the microscopic examination of the scales. It appears to me, however, that the matter cannot be thus determined, since the form of the scales may vary in connexion with the colour, as I have shown to be the case in the scaled Elateres. (Vid. Germ. Zeitsch. p. 78.)

Two new species of *Charaxes*, from Sylhet, *Ch. Delphis* and *Eudamippus*, have been described and figured by Ed. Doubleday. (Ann. de la Soc. Ent. de Fr. sér. i, p. 217, pl. 7, 8.)

Satyrides.—Two new species have been discovered by Eversmann (l. c. p. 538): *Hipp. Ocnus*, closely allied to *H. Manto*, and *H. Sunbecca*, to *H. Phryne*; the former from the high mountains, the latter from the steppes on the Nor-Saisan.

Lycænides.—In consequence of their strict examination of the structure of the tarsus, A. and O. Speyer have made the beautiful discovery that this group, together with the Erycinides and *Hecaerge*, belongs to the division of the Heteropoda, in which namely the anterior legs are of a different form in the two sexes. In *Hecaerge* and the Erycinides the males possess, as is well known, cleaning-paws; in the Lycænides the difference between the sexes consists in the males wanting claws on the anterior tarsi: the claw joint, however, seldom ends in a blunt extremity (in *L. Ilicis*), but usually in a sharp point.

Eversmann (l. c.) has founded three new Siberian species; *L. cælestina* and *Fischeri*, from the out ranges of the Ural, and *L. Pheretiades*, from the Nor-Saisan.

Lyc. Edno, Doubleday (Dieffenb. Trav. ii, p. 283, n. 110), is a new species, from New Zealand.

Sphinges.—Notice of the occurrence of hybrid individuals in the genus *Smerinthus*. By Mr. Henry House, in a letter addressed to W. Raddon, esq. (Trans. Ent. Soc. Lond. iii, p. 193.) Description of a hybrid *Smerinthus*, with remarks on hybridism in general. By J. O. Westwood (ib. p. 195.) Mr. House obtained hybrids of *Sm. populi* ♀ and *ocellatus* ♂, which were intermediate between both parents, but possessed only a small portion of the beauty of either. They were entirely deficient, says the author, in procreative power, and they appeared to occupy an intermediate position between the two sexes. Westwood has added a more particular description of the hybrid, from which it appears that it is more closely connected with *S. populi* in the anterior wings, and in other respects more with *S. ocellatus*.

Chelonidæ.—Eversmann (l. c. t. x, f. 1 and 4) has figured two beautiful new species of *Euprepia*, from the southern spurs of the Altai: *E. intercalaris*, resembling *E. fasciata*, but with red posterior wings; and *E. glaphyra*, not unlike the former, but small, and with the marking of *E. maculosa* on the anterior wings.

Graells (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 359, pl. 12) has communicated his observations on the habits and metamorphosis of *Chelonia Latreillei*. The larva subsists chiefly on the leaves of *Plantago lanceolata*. The male Butterfly agrees in its habits with that of *Trichiosoma*, viz. in flying wildly, like that, in the sunshine.

Guénée (ib. p. 45) reports that he has met with *Zygæna balearica* Boisd., in the west of France, corresponding in all respects with the Spanish species. Whether it be a distinct species, or merely a variety of *Z. Sarpedon*, as supposed by Rambur, can only be determined from a knowledge of the larva.

Bombyces. — Observations on the Saturniæ occurring in Caruiola and Carinthia (*S. Pyri, Spini, cæcigena*) have been made by Kokeil. (Isis p. 134.)

Saturnia Perrotetii, Guérin (Mag. d. Zool. Ins., pl. 123), from Pondicherry, resembles *S. Paphia*, but without a fenestrate spot, instead of which it presents a rather small red ocellus in the centre of each wing.—Another Indian species is *S. Zuleika*, Hope (Trans. Lin. Soc. xix, p. 132, t. xi, f. 5), from Sylhet.—*Saturnia Helena*, and *Janetta*, White (Ann. Nat. Hist. xii, p. 344), are new Australian species.—*Bombyx Mariana*, Wh. (ib. p. 264), from the river Congo.

Gastropacha has been enriched by Eversmann (l. c. p. 542, t. x, f. 2,) with a new species, *G. Eversmanni*, Kind., which comes next to *G. Medicagenis*

and *Trifolii*, and the larva of which, on the spurs of the Ural and Altai, feeds upon *Caragana frutescens*. On the breeding of *G. Dumeti* a communication has been made by Daniel, (Ent. Zeit., p. 110.)

Psyche hirtella, Eversmann (l. c. p. 542), is found on the declivities of the Ural. The larva occurs very frequently on trunks of the Oak and Birch. The natural history of *Ps. albida* has been described by Von Merck. (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 81.)

Lithosia lurideola, Zinck., has been vindicated in its specific rights by Fischer von Rösslerstamm (Ent. Zeit. p. 118) against Freyer, who is inclined to conjoin it with *L. complana*.

From New Zealand we have *Hepialus virescens*, Doubleday. (Dieffenb. Trav. ii, p. 284, n. 114.)

Noctuæ.—Some newly-discovered Siberian moths have been described by Eversmann (l. c. p. 545): *Episema deplanata* from the spurs of the Ural, *Amphipyra phantasma*, from the southern range of the Altai, *Mamestra sylvicola*, from the southern ranges of the Ural, *Apamea moderata*, *Xylina deducta* (t. x, f. 3), *Hellmanni*, *Cucullia præcana*, all from the spurs of the Ural, *Catocala Icterias*, *Leucania* from the southern range of the Altai.

Plusia eriosoma, Doubleday (Dieffenbach, Trav. ii, p. 285, n. 117), is a new species, from New Zealand.

Geometræ.—New species by Eversmann (l. c. p. 550) are *Larentia tæniolata*, *Cidaria Burgaria*, *Idæa culminaria*, all from the spurs of the Ural.

Doubleday (Dieffenb. Trav. ii, p. 285) notices *Aspilates? subochraria*, *Cidaria rosearia*, *C. ? cineraria*, *Acidalia pulchraria*, *Ptychopoda rubraria*, *rubropunctaria*, as new New Zealand species.

The larva of *Gnophos variegata* has been described and figured by Bruand. (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 249, pl. 10.)

Pyralides.—Zeller (Ent. Zeit. p. 140) has described a new species, from Livonia, *Asopia Lienigialis*, which differs from the German *A. farinalis* in the darker colour, narrower anterior wings, &c. In consequence of the great similarity of the Fauna of Sweden, Livonia, and Courland, it might almost be expected that this species should occur also in Sweden, and that in that case it might be the true Linnæan *Ph. Pyr. farinalis*, which view is by no means contradicted by the description in the Fauna Suecica.

Eversmann (l. c. p. 553) describes two new species: *Ennychia alborivularis*, from the Orenburg, and *E. cacuminalis*, from the Ural Mountains.

New New Zealand species are: *Diasemia grammalis*, *Margaritia flavidalis*, *M. quadralis*, *M.? cordalis*, Doubleday (Dieffenb. Trav. ii, p. 287.)

Tortrices.—Guénée (Ann d. l. Soc. Ent. d. Fr. 2 sér. i, p. 43) draws attention to the fact that *Carpocapsa complana*, Hü., occurs in millions in all the forests in France, where the larva lives in acorns.

Tineæ.—Guénée (ib. p. 41) reports that he has met with *Crambus pedio-*

lellus, Duponch. (afterwards figured by Geyer as *Cr. spuriellus*), in the dunes of Brittany; the larva lives in that locality in a bag constructed of silk and sand, on the roots of the Triticum.—Zeller (Ent. Zeit. p. 142) has instituted a new species of *Crambus*, named after the lady who discovered it, Mad. Lienig, *Cr. Lienigialis*, and native of Livonia.

Id. (ib. p. 281) shows that Linnæus had confounded two species under *T. xylostella*, one of which, *T. harpella*, lives upon Lonic. xylosteum, and the other, *T. xylostella* of authors, to which Linnæus's description especially applies, lives upon Cruciferæ. The author, on this account, proposes to designate the latter as *T. cruciferarum*, and to abolish the name *xylostella* altogether.

Depressaria gossypiella, a Moth injurious to the cotton-plants in India, is described by Saunders. (Trans. Ent. Soc. iii, p. 284.)

Doubleday (Dieffenb. Trav. ii, p. 288) mentions several new Tineæ from New Zealand: *Crambus ramosellus, flexuosellus, vitellus; Argyrosetia stilbella*

DIPTERA.

Loew (Ent. Zeit. p. 114) has communicated his observations on the nature of the so-called suctorial stomach (Saugmagen) in the Diptera.

The commonly-received opinion of Treviranus, that the organ in question effected the absorption of fluid by means of rarefaction of the air, is most decidedly rejected. Ramdohr had with greater probability indicated this part to be an alimentary sac. In insects newly changed from the pupa the author found it empty and contracted. It remains empty, also, when the insect has taken food without eagerness; but if it should previously have fasted for some time, or if the food were particularly agreeable to it, not only the stomach in the satiated insect, but also the so-called suctorial stomach is found filled with food, either fluid, or consisting of pollen. By compression of the abdomen, and probably, also, by the muscular power of the walls of the sac, this nutriment is gradually forced back into the mouth, and afterwards swallowed into the true stomach. Air is found but very rarely, and as an exceptional case, in the so-called suctorial stomach.*

Goureau (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 299) has made experiments on the "poisers" (halteres) of the

[* V. Hunter's experiments, described in Owen's Lectures on the Invertebrata, p. 219.]

Diptera, by which the opinion which regards them as corresponding to the posterior wings, is strengthened.

The apex of the poiser forms a club-shaped process filled with air, which in the larger dipterous insects is not crushed without an audible sound. But this, as well as the removal of both the poisers, although it may be effected on one side without any remarkable prejudicial consequence, involves an immediate injury to the power of flight, and is inevitably followed, within from six to eight hours, by death. The close connexion of these organs with those of respiration explains this phenomenon. Several Hymenoptera, in which both hinder wings had been cut off, exhibited a similar result. The author infers from this that the balancers of the Diptera are metamorphosed posterior wings, and not merely rudiments of them, but organs essential to locomotion and to life itself.

Zetterstedt's 'Diptera Scandinaviæ' is in regular course of progress. In the year 1843 the Second Volume has appeared, including the families of the Dolichopodæ and Syrphici.

Macquart's 'Diptères Exotiques' is concluded with the third part of the Second Volume.

Tipulariæ.—On the transformation of some Diptera of the division of the Nemoceræ, and on their systematic position, by Loew. (Ent. Zeit. p. 27.)

(1) The author observed the development of *Ceratopogon bipunctatus*, Meig. The larva lives under the moist bark of trees, and in the fissures of posts standing in water; the nympha exhibits what is very remarkable, viz. that it remains in the last larval envelope. (2) *Lasioptera* and *Sciara* present great similarity in their earlier conditions, and stand for the most part in such near relationship with each other, that *Sciara* can only be in its natural position next to *Lasioptera*.

Macquart (Ann. de la Soc. Ent. de Fr. 2 sér. i, p. 59, pl. 3) has described a new genus, *Blepharicera*, which he is inclined to place near *Anisomera*, but which appears to me to be more closely allied with *Simulium*. In the male the eyes are joined. The proboscis is surpassed in length by a pointed labrum. The legs are long and tender. The antennæ about 16-jointed, with fine hairs anteriorly. The genus appears to be nearly allied to *Asthenia*, Westw. (vide last Report, p. 257) (293 Eng. Trans.), if it be in fact distinct from it. *Bl. limbipennis*, Macq., is met with in the South of France, in the valley of the Loire, in great abundance.

Rondani (ib. p. 263) has given a Monograph on the genus *Hebetomus*, instituted by him in 1840, in a short memoir which appeared at Parma; and

which genus also constitutes a special group, the Hebetominæ. Antennæ in each sex almost as long as the body, with about 14 joints, thickly covered with hairs, the hairs short, not verticillate, eyes round, in both sexes standing apart. Head prolonged anteriorly, rostriform, the suctorial proboscis rather longer than the rostrum, thick, the palpi 4-jointed, the terminal joint long, slender, flexible. The wings thickly covered with hairs, with numerous longitudinal nervures. Three species, *H. papatasii*, *Tip. pap.*, Scop., in central Italy, *H. minutus*, new species, from the plain of Parma, *H. molestus* (*Cyniph. molesta*, Costa), from Naples; minute insects, less than 1‴, but very troublesome on account of their sting.

Empides.—Schummel (Arbeit. u. Veränd. der schles. Gesellsch. p. 189) has thought that *Rhamphomyia alpestris* should be distinguished as a new species from *Rh. anthracina*, from the greater length of the rostrum; a character, however, derived from this part, for specific distinction is in this case uncertain, since it varies according to circumstances.

Dolichopodes.—Zetterstedt's 'Dipt. Scandinaviæ' contains a number of new species; Stäger's Monograph, however, of the Danish Dolichopodes, is still to be collated, which has as yet not been employed.

Syrphici.—A new genus, *Spazigaster*, has been instituted by Rondani. (Rev. Ent. p. 43.) The first two joints of the antennæ short, the third roundish, the antennal seta with short hairs, face tuberculated, mouth not projecting; eyes bare. Fourth longitudinal nervure of the wings straight. Abdomen spatulate, compressed, contracted at the base. Legs simple. *Sp. Apennini*, black, abdomen red in the middle, wings smoky. From the Apennines. From the same locality is *Merodon armipes*, Rondani (ib.)

Two new Silesian species have been proposed by Schummel (Arbeit. u. Veränd. der schles. Gesellsch. s. 190), *Syrphus alpicola* (belonging to the sub-genus *Platycheirus*, Enc.), and *Eristalis nigro-antennatus*, allied to *E. pratorum*, *similis*, &c.

Zetterstedt's 'Diptera Scandinaviæ' contains numerous new species: *Brachyopa vittata*, from the North, very similar to *B. ferruginea*, *Doros decoratus*, very much resembling *D. festivus* and *ornatus*, *Scæva nigritarsis*, *diaphana*, *melanostoma*, *nitens*, *lineola*, *vittigera*, *hilaris*, *macularis*, *lasiophthalma*, *maculicornis*, *triangulifera*, *cinctella*, *angustata*; *Sphærophoria nigricoxa*, differing from *Sp. scripta*, in having the coxæ black, &c., *Sph. flavicauda*, *Loewii*; *Eristalis* (the author embraces under this name, at variance with the more usual definition, the *Cheilosia* of Meigen, terming the latter's *Eristalis* "*Syrphus*"), *proxima*, *præcox*, *innupta*, *coracina*, *rostrata*, *melanopa*, *soror*, *latifrons*, *Schmidtii*, *Pipiza luteitarsis*, *vana*, *morionella*, *fulvimana*, *geniculata*, *Ratzeburgi*, *Heringi*, *Psilota ruficornis*, *Paragus ruficauda*, *Eumerus flavitarsis*, *Xylota confinis*.

The European species of the genus *Chrysogaster* have been carefully

discriminated by Loew. (Ent. Zeit. p. 204, 240, 258.) New species are *Chr. longicornis*, from Asia Minor, *simplex*, *incisa*, *Macquarti*, from Posen, *hirtella*, *insignis*, *plumbago*, *brevicornis frontalis*, *fumipennis*, the two latter also from Asia Minor.

The Silesian species of *Sphegina* have been reviewed by Zeller. (Ent. Zeit. p. 302.) A new species has been discovered by the author, *Sph. Loewii*, besides which occur *Sph. clunipes*, *nigra*, Meig., and *elegans*, Schumm.

Conoparii.—A number of new extra-European species of *Conops* have been described by Macquart (Dipt. exotiq.) viz., 1 from Senegal, 2 from the East Indies, 4 from South America, 3, North America, and 2, locality unknown.

Œstrides.—Clark (Trans. Lin. Soc. xix, p. 81) has given a supplement to his well-known work on this family, in which besides *Œ. pictus*, Meig., lately found also in England, two new species, *Œ. Libycus*, from Egypt, and *Œ. Clarkii*, Shuck., (strange compliment!) from South Africa, have been described. Besides this are several remarks and corrections, from which we select the following. 1. *Œ. Trompe* (*stimulator*, Cl.) the author is disposed to regard as the male of *Œ. Tarandi*, since both occur in the same localities, and females only of *Œ. Tarandi* are met with, whilst all the *Œ. Trompe* appear to be male. This opinion is not new. Modeer says—" probably *Trompe* is the male of *Curbma* (*Œ. Tarandi*) or of the nose Gadfly of the Reindeer." The latter appears to have more probability in its favour when the difference in the occurrence of both is considered: *Œ. Trompe* is found, also, in Germany, probably living on the red Deer, whilst *Œ. Tarandi* is never seen there. (The red Deer has, as is well-known, also a bot of the hide, which has not yet been ascertained: may it not, perhaps, be identical with that of the Reindeer?)—2. *Œ. ericetorum*, Leach, is declared by the author to be the male of *Œ. bovis*.—3. *Œ. pecorum*, F., he would unite with *Œ. veterinus* as a variety; it is, however, the female of a distinct species infesting the Horse, and with which he is unacquainted.—4. *Œ. Clarkii*, Leach, the author has found to be a light-coloured variety of *Œ. veterinus*.—5. As the consequence of careless compilation, the author regrets to find, in the works of Meigen, Megerle (sic!) and others, the *Œ. lineatus*, De Vill, described as a distinct species; it is unquestionably *Œ. bovis*.—6. He goes too far when he considers it below the dignity of man to possess a peculiar *Œstrus* and consequently denies the existence of the old South American *Œ. hominis*.*—Finally, 7, the author

* In spite of the rather forced explanations and little jokes, by which the author attempts to set aside the *Œstrus hominis*, its existence, i. e. the occurrence of a larva in cutaneous swellings, has been confirmed by later travellers; Schomburgk had even brought the insect which was reputed to be

explains a case opposed to his notion of the salutary effects of the *Gasterophili*, and in which a stomach beset with their larvæ was found to be perforated, by stating that this stomach, on more accurate examination, proved to be gangrenous. But whence this gangrene? The most probable supposition is that it had originated from the excessive irritation induced by the Bots.

Muscariæ.—This family has been enlarged with a considerable number of new species by Macquart (Dipt. ex.) The arrangement is, essentially, the old one followed in the 'Suites à Buffon,' except that a series of genera from Robineau Desvoidy, and also from Meigen (suppl.) have been here admitted. The new genera are: in the Tachinæ group: *Hystricia*, differing from *Jurinea* in the straight third antennal joint, and containing *T. pyrrhaspis*, Wd., and three new American species: *Blepharipeza*, allied to *Eurygaster*, the posterior tibiæ closely ciliated, with a new species from Mexico; *Trichoprosopus*, with hairy oblique hypostoma, pilose antennal setæ, naked eyes, and broader forehead in both sexes, with a new species from Chili;—in the Dexiæ group: *Megaprosopus*, with elongated projecting forehead, cheeks, which descend below the hypostoma, very small antennæ, with a new species from Mexico; *Microphthalma*, face much inclined, small eyes, cylindrical abdomen, with a new species from North America; *Cordyligaster*, based upon *D. petiolata*, Wied., characterized by an elongated, slender, peduncular, first abdominal ring, and *Trichodura*, formed from *D. anceps*, Wd., distinguished by extremely long setæ on the scutellum and abdomen, and also in the ♀ by a long ovipositor;—in the Muscidæ: *Pachymyia* (*Stom. vexans*, Wd.) and *Gigamyia* (*Stom. gigantea*, Wd.), differing from *Stomoxys*, the former in having the antennal setæ feathered on both sides, and the latter in having them bare, *Silbomyia* (*M. micans* and *fuscipennis*, F.) differing from *Amenia* in the slender form, *Diaphania* and *Amphibolia*, both formed from New Holland species, and standing very near *Rutilia*, with the antennal setæ short and hairy, in the latter, however, only at the base; *Blepharicnema*, differing from *Lucilia* in the thickly ciliated posterior tibiæ, with a new species from an undetermined locality;—in the Helomyzidæ: *Curtonotum* (*H. gibba*, Wd.) differing from *Helomyza* in the gibbous thorax, &c.;—in the Ortalidæ: *Oxycephala*, characterized by the sharp-pointed forehead, with a new species from an unknown locality; *Camptoneura*, formed of *Trypeta picta* and *obscura*, Wd.; *Eniconeura*, with a new East Indian species, *Lamprogaster*, a New Holland genus, which I was formerly inclined to place with the *Anthomyiæ*, from its possessing minute calyptra; *Cryphiocera*, with a new species from New Guinea;—in the Tephriditæ: *Odontomera*, with a Sepsis-like aspect,

the origin of the tumours, but this was a small *Tabanus*, to which the *larva* undoubtedly did not belong. The matter thus still requires further investigation.

and the femora denticulate beneath, founded on a new species from an undetermined locality; *Campylocera*, with the third antennal joint rounded beneath, with a new species from Senegal; *Acanthineura*, characterized by spinous wing nervures, with a new species from Bengal;—in the Sepsidæ: *Omalocephala*, remarkable for a flat posteriorly attenuated head, with a new species from Guiana;—in the Leptopodites: *Cardiacephala* (*Calob. longipes*, F., Wd.); —in the Hydromyzidæ: *Blepharitarsis*, with simple anterior femora and ciliated posterior tarsi, with a new African species.

Goureau (Ann. d. l. Soc. d. Fr., 2 sér. i, p. 77) bred from *Helix conspurcata*, a Fly, which he has described under the name of *Melanephora helicivora*. The larva is probably the same as that which had been already observed by Rudolphi in the same Snail. It was located in one of the antennæ.

Guérin (Rev. Zool. p. 262) has communicated a "Note monographique" on the genus *Rutilia*, Rob., in which he is the first to separate the *Musca mirabilis* of the 'Voyage d. l. Coquille' as a distinct new genus, *Formosia*, agreeing with *Amenia*, Rob. (*M. leonina*, Wd.) in having the antennal setæ plumose, but differing in the conjoined eyes of the male, and the narrow tarsi with very long claws and much extended pulvilli, an arched (not straight,) transverse nervure at the apex of the wings, and broad abdomen, somewhat emarginate at the extremity. *Rutilia* differs from it in the simple antennal setæ. The author enumerates 14 species of this genus: (1) *R. regalis*, Guér.; (2) *R. imperialis*, G., n. s.; (3) *R. formosa*, Rob.; (4) *R. decora*, n. s., though perhaps scarcely differing from (5) *R. splendida* (*Musc. spl.*, Don.), with which the author conjoins *M. australasiæ*, Griff.; (6) *R. lepida*, n. s.; (7) *R. inornata*, is *Tachina inusta*, Wied.; (8) *R. Desvoidyi* (*R. vivipara*, Rob.); (9) *R. Durvillei*, Rob.; (10) *R. vivipara* (*Tach. vivip.*, F., Wd.); (11) *R. sinuata* (*Musc. sinuata*, Don.); (12) *R. speciosa*, Er.; (13) *R. fulvipes*, Guér., which, however, does not differ from the preceding, for the differences adduced by the author are in part individual, and in part owing to misapprehension, because Guérin regards the portion of the thorax situate anteriorly to the transverse suture, peculiar to the Muscariæ, as the prothorax; (14) *R. vidua*, which is, however, distinct from the rest in several points, as Macquart had correctly recognized, who, in consequence, constituted from it a distinct genus, *Amphibolia*.

As *Musca* (*Sarcophaga*) *læmica*, White has characterized a new Fly (Dieffenb. Travels, ii, 291, n. 136): Black, with greenish abdomen, legs and head yellow.

A review of the Silesian species of the genus *Psila*, Meig., has been given by Schummel (Arb. u. Verand. der schles. Gesells., p. 186); among them are two new: *Ps. dispar*, the male of which has curved and clavate posterior femora, and *Ps. abdominalis*, 3‴ long, rusty yellow, with black spotted head and thorax, and black abdomen.

Monographie d'un genre de Muscides, nommé *Ceratitis*, par M. Guérin-Méneville, (Rev. Zool. p. 194.) The author distinguishes 5 species: (1) *C. Catoirei* (*C. citriperda*, M., Leay, Zool, Journ.) from the Mauritius; (2) *C. capitata* (*Tryp. cap.*, Wied.), from Madeira; (3) *C. hispanica*, Brême; (4) *C. Bremei*, n. s. from Senegal; (5) *C. ? dentipes*, n. s. from New Holland. The last is particularly distinguished by peculiar prominences on the head of the ♂ which have nothing in common with those of the other species, and it might, perhaps, form a distinct genus, for which the author holds in readiness the name of *Ænophila*. The fourth species is unknown to me. With respect to the first three I refer to my published opinion in the last Report p. 263, (255 of Transl.)

The genus *Milichia*, Meig., has been submitted by Loew (Ent. Zeit., p. 310, 322) to a rigorous examination, and he has added to it a new species, found near Posen, *M. formosa*.

Pupipara.—Denny (Annals of Nat. Hist. xii, p. 314, pl. 17, f. 5) has described a new species found upon *Pteropus edulis: Lipoptena Pteropi*.

Aphaniptera.—Id. (ib. p. 315, f. 6) has given a description and figure of the Flea of the *Echidna histrix*, from Van Diemen's Land: *Pulex Echidnæ*.

A collection of all the hitherto observed species and established genera of this family has been made by Gervais. (Hist. Nat. d. Ins. Aptères, iii, p. 362.)

HEMIPTERA.

A new and very useful manual of this order is the 'Histoire Naturelle des Insectes Hémiptères,' par MM. Amyot et Audinet-Serville, Paris, 1843, forming part of the 'Suites à Buffon,' published by Roret. The authors have set out with the fundamental proposition, "qu'un genre n'est pas autre chose qu'une division méthodique venant immédiatement au-dessus du dernier degré de division, qui est l'espèce, comme l'espèce est elle-même immédiatement au-dessus de la variété." In conformity with this view, where merely some subdivisions have been indicated by their predecessors, the authors have erected these subdivisions into genera, the number of which has consequently become very considerable. Many of these genera are good and will remain, others will be again reduced to the rank of mere subdivisions from which the authors have raised them, by more profound systematists, to whose idea of a genus greater significance attaches. On the score of utility, the authors' method is undoubtedly the more convenient, since by the too frequent disjunctions, caused by repeated subdivision, all connexion in the classification is destroyed. As this work will not fail to be in the hands of those Entomologists who occupy themselves with this order, a further introduction to its contents is superfluous.

Herrich Schäffer's 'die Wanzenartiger Insecten' (Bugs) is continued with the first two Parts of the seventh volume. In the second Part, a revision of the Pentatomides is commenced, upon which I shall defer my Report until the work is completed, or at least until more of it is before me. The other contents will be referred to more particularly, under the heads of each family.

Pentatomides.—The Silesian Bugs of the genera *Pentatoma* and *Cydnus* have been arranged by Schilling. (Arb. u. Veränd. der schles. Gesell. im J. 1843. p. 179.) Among them occurs a new species: *Cydnus notatus;* black, outer margin of hemelytra white, membrane brown; terminal antennal joint, covered with gray hairs. Length $1\frac{3}{4}'''$. Found once near Landeck.

Coreides.—Herrich Schäffer (l. c.) has figured the following, partly new, species: *Copius intermedius*, Burm., from Brazil (is Latreillei, Serv. Enc.) *Chariesterus mæstus*, Burm., from Mexico, *Nematopus gallus*, F., from Cayenne, *Anisoscelis fastuosus*, *divisus*, from Brazil, *pulverulentus*, from Mexico, *serrulatus*, from Brazil, *tibialis* (only description), from North America, *Hypselonotus pulchellus*, from Brazil, *Gonocerus puncticornis*, from Cuba.

Lygæites.—Herrich Schäffer (l. c.) has figured the following, mostly new, species: *Lygæus gutta*, *alternans*, *costalis*, *hamatus*, from Mexico, *L. lanio*, from Java (*hospes*, F.); *Pyrrhocoris suturalis*, F., from the West Indies, *pæcilus*, from Java, *Solenis* from Manilla (not different from *Königii*, F.), *P. obliquus*, from Mexico, *P. pyrrhomelos*, from Java, *Largus cinctus*, from Mexico, *L. bicolor* (only described), from Brazil; *Ophthalmicus dispar*, Waga, from Warsaw.

Microphysa pselaphiformis, Westw., has been found by Meyer in Switzerland. He collected it on oaken hedge-stakes. (Mittheil. d. naturf. Ges. zu Bern, 1843, p. 47.)

Capsini. List of the Rhynchota indigenous in Switzerland by Meyer. 1st Part. The family of the Capsini, with seven coloured lithographic plates (Soleure, 1843.) A valuable work, not so much a catalogue as a complete classification of the Swiss species of this family, to the illustration of which the beautiful lithographic plates by Nicolet after the author's drawings, essentially contribute. In it are enumerated: *Miris*, 7 sp., *Lopus*, 5 sp., *Phytocoris*, 3 sp., *Capsus*, 109 sp., *Cryptostemma* 1 sp. New species are, *Capsus lucorum*, *brevicollis*, *parallelus*, *hortensis*, *brunnipennis*, *modestus*, *Verbasci*, *atomarius*, *salicellus*, *coccineus*, *hortulanus*, *solitarius*, *elegantulus*, *curvipes*, *ticinensis*, *nitidus*.

Phymatites.—Herrich Schäffer (l. c.) has figured, together with *Syrtis nervosa*, F., from South America, a new species, *S. fortificata*, Kl., from Brazil.

Reduvini.—Id. (l. c.) has figured, *Harpactor hæmorrhoidalis*, F, from the south of Europe, *H. niger*, n. s. from Hungary, *Reduvius maurus*,

F., from Italy. Westwood (Proc. Ent. Soc. Lond., p. 74) has instituted two new large species from Cape Palmas (Guinea): *Ectrichodia imperialis*, and *Platymerus ducalis*, as also a new genus *Ectinoderus*: with a very large prothorax, dilated anteriorly above the articulation of the fore-legs, and projecting posteriorly above the hemelytra in two lobes, very long fore-legs, with thick femora and straight tibiæ. Antennæ 4-jointed, first joint long, the rest gradually shorter and more slender, small internodes in the first two articulations abdomen rounded, flat, with uncovered sides. Whether the anterior tibiæ have cushions or not, and the nature of the claws, is not stated; *E. longimanus*, from Sincapore?—A new species from New Zealand is *Pirates ephippiger*, White. (Dieffenb. Trav. ii, p. 283.)

Galgulites.—Guérin (Rev. Zool. p. 112) has shown that *Naucoris rugosa*, Desjardins, is a *Mononyx*, with the hemelytra coherent at the suture and not covering the wings, and that the statement of Serville and Brullé, that this part is the scultellum, is erroneous. In case it should be thought advisable to constitute a distinct genus of this species he proposes for it the name of *Peltophorus*. He further describes as new species, *Pelogonus indicus*, from the Neilgherries, *P. Perboschii*, from the Bay of Campeachy, *Mononychus fuscipes*, from Columbia, *M. laticollis*, from New Guinea.

Fulgorellæ.—Hope (Trans. Lin. Soc. xix, p. 132) has enriched this family with a number of new species from Sylhet, belonging to the genera: *Aphana* (*amabilis*, *aurora*) *Lystra* (*Westwoodii*, *dimidiata*, *punicea*), *Eurybrachis* (*basalis*, *pulverosa*, *reversa*, *insignis*) and *Corethrura* (*fuscovaria*), and they are all illustrated with beautiful figures by Westwood. The new genus *Corethura*, so named from the long fleecy tuft at the extremity of the abdomen, has the fore-legs equally dilated with those of *Eurybrachis*, but a narrow, compressed face with high keels.

Westwood (Arcana Entom. pl. 57) has figured two new Indian Fulgorellæ: one is a *Lystra* (*tricolor*), from Assam, the other constitutes a new genus *Cyrene*, a smaller form, with a conical projection of the head, upon which the lateral keels of the front are continued, without ocelli, with very broad, vertical, tough, coriaceous hemelytra, the posterior angle of which is prolonged into a point. *C. guttulata*, W., is from Sumatra. The Berlin collection possesses a second species, from the Sound of Sincapore.

Stridulantes.—Some species are figured by Westwood (Arcan. Entom.): *Cicada imperatoria*, a gigantic new species from the East Indies (pl. 51), *C. pulchella*, W., from the Himalayah, *C. 8-notata*, W., a beautifully coloured new species from Assam.

Aphidii.—Monograph of the families of the Plant-lice (Phytophthires) by Kaltenbach. Part I. The Leaf- and Earth-lice (Blatt- and Erdläuse) (*Aphidina* et *Hyponomeutes*), with illustrative figures. (Aix, 1843.) A very profound work, and the more valuable as being the fruit of actual experience.

With respect to the propagation of the Aphides, there is still much obscurity to be unravelled, and which is reserved for careful anatomical and physiological research. The attention of observing Entomologists will, without doubt also, be the more directed by this work, to the investigation of the remarkable natural history of this family, since, by accurate descriptions of all the species known to the author, the determination of the Aphides is now rendered easy. His arrangement is as follows: I. Winged Aphides, Leaf-lice, Aphidina. A. Anterior wings, with bifurcate cubitus. (1) *Aphis*, L., Antennæ 7-jointed, usually as long or longer than the body; 119 species. (2) *Lachnus*, Ill., Ant. 6-jointed, not longer than the head and thorax; 13 sp. B. Anterior wings, with a simply forked cubitus: (3) *Schizoneura*, Hart.; Anten. 6-jointed, wings fastigiated, posterior wings with two oblique nervures; 6 sp. (4) *Vacuna* v. Heyd., Anten. 5 jointed, wings horizontal, posterior wings with one oblique nervure; 2 sp. C. Anterior wings, with simple cubitus. (*a*) Ant. 6-jointed, anterior wings with four oblique nervures: (5) *Pemphigus*, Hart., posterior wings, with two oblique nervures; 7 sp. (6) *Tetraneura*, Hart., posterior wings, with one oblique nervure; 1 sp. (*b*) Anterior wings with three oblique nervures: (7) *Chermes*, L., Anten. 5-jointed, wings fastigiated; 4 sp.: (8) *Phylloxera*, Fonsc., Anten. 3-jointed, wings horizontal; 1 sp.—II. Apterous Aphides, Earth-lice, Hypomeneutes. (*a*) Antennæ 6-jointed: (9) *Rhizobius*, Burm. (the name cannot be retained, as it has previously been applied to a Coleopterous genus), terminal antennal joint, blunt, longer than the penultimate; 2 sp. (10) *Forda*, v. Heyd. (*Rhizoteres*, Hart.), terminal antennal joint pointed, much less than the penultimate; 1 sp. (*b*) Antennæ 7-jointed, terminal joint very small. (11) *Trama*, v. Heyd., posterior tarsi elongated, without joints; 1 sp. (12) *Paracletus*, v. Heyd., posterior tarsi 2-jointed; 1 sp.

The habits of the individual species are noted with exemplary accuracy. With reference to the propagation, the author distinguishes—(1) vivi-ovipara (*Aphis, Lachirus*); (2) ovipara (*Chermes, Phylloxena, Vacuna* ?); (3) vivipara (*Tetraneura, Pemphigus, Schizoneura*, and with great probability also the Earth-lice: *Forda, Rhizobius, Paracletus, Trama.*)

Ratzeburg (Ent. Zeit. p. 201) has subdivided *Chermes Abietis*, L., into two species, *Ch. viridis*, and *coccineus*. The latter coincides with *Ch. strobilobius*, Kaltenb., whilst the former is his *Ch. Abietis*.

Coccides.—Ratzeburg (l. c. p. 202) has given a notice of a new Coccus, *C. racemosus*, the females of which congregate upon the small branches of the Fir, frequently as thickly as grapes in a bunch; at first yellowish, afterwards darker brown. The male much resembles that of *Coccus Cacti.*

THYSANURA.

A compilation of the more recent systematic works on this order, particularly of those by Nicolet and Bourlet, has been undertaken by Lucas. (Ann. d. l. Soc. Ent. d. Fr. sér. i, p. 269.) Since the papers by Bourlet, in the 'Memoirs of the Agricultural Society of Lille and the Dépt. du Nord,' did not come into my hands in time for this Report, I will here give the synonymy of the genera as it has been settled by Lucas. I. PODURIDES. Bourl. (1) *Tomocerus*, Nic. 1841 (*Macrotoma*, Bourl. 1839, there is a Coleopterous genus of the same name.) (2) *Lepidocyrtus*, Bourl. (3) *Orchesella*, Templ. (*Heterotoma*, *Isotoma*, *Ætheocerus*, Bourl. (4) *Podura*, Auct. (*Isotoma*, Bourl.) (5) *Desoria*, Nic. (6) *Cyphoderus*, Nic. (7) *Degeeria*, Nic. (*Isotoma*, *Podura*, Bourl.) (8) *Achorutes*, Templ., Nic. (*Hypogastrura*, Bourl.) (9) *Lipura*, Burm. (*Anurophorus*, Nic., *Adicanus*, Bourl.) With respect to the last genus the author remarks, that it is formed, according to Waga, of undeveloped individuals of *Achorutes*.—II. SMINTHURIDES, Bourl. (10) *Sminthurus*, Latr. (11) *Dicyrtoma*, Bourl. (1842).

Another memoir on the Thysanura, which is based upon the above-mentioned researches of Nicolet and Bourlet, has been published by Gervais in the 'Hist. nat. d. Insectes Aptères,' par. MM. Walkenaer and Paul Gervais, iii. p. 379, in which the following genera and subgenera are admitted: I. *Sminthurus*, Latr., with the subgenus *Dicyrtosoma*, Bourl. II. *Podura*, with the subgenera: (1) *Macrotoma*, Bourl. (*Tomocerus*, Nic.) (2) *Lepidocyrtus*, Bourl. (*Cyphoderus*, Nic.) (3) *Orchesella*, Templ. (*Heterotoma* and *Ætheocerus*, Bourl.) (5) *Isotoma*, Bourl. (*Desoria* and *Degeeria*, Nic.) (6) *Achorutes*, Templ. (*Hypogastrurus*, Bourl., *Podura*, Nic.). (7) *Lipura*, Burm. (*Anurophorus*, Nic., *Adicranus*, Bourl.) (8) *Anoura*, Gerv. (*Achorutes*, Nic.)

PARASITA.

A memoir on this order, of the size of a manual, has been published by Gervais, in the 'Hist. Nat. des Ins. Aptères,' iii. p. 290-361.

ARACHNIDA.

ARANEÆ.

A comprehensive work 'Ueber die Lebensweise der Arachniden' (On the Habits of the Arachnida,) by A. Menge, has been inserted in the 'Neuesten Schriften der Naturf. Gesellsch. in Dantzig' (4 Bd. 1 Hft.)

This memoir includes (1) *The Development.* Previous to the first change of integument the young Spiders are naked, of indeterminate colour, and remain as it were torpid, at the place of birth; but, after the change of skin, they become hairy, of determinate colour, and active, and it is not till then also that the spinnerets are developed. The later changes have reference only to size, colour, form of abdomen, and, in the male, to the shape of the palpi. (2) *Habitation.* (3) *Movement.* Interesting relations of the formation of the foot to the mode of progression. (4) *Nutrition.* This section also contains anatomical discoveries of great importance, especially on the respiratory organs. The author having been successful in discovering, in *Argyroneta*, tracheæ, together with pulmonary sacs, which he has here particularly described and figured, he sought for them also in other Spiders, and met with them in *Salticus* and *Micryphantes*, but not in *Epeira*, *Tegenaria*, *Linyphia*, *Lycosa*, and *Thomisus*. The tracheæ of *Salticus* and *Micryphantes* open at the extremity of the abdomen, near the spinnerets, and lie in tufts or clusters in the abdomen, to which they are always confined. (5) *Construction of the web.* Instructive exposition of the procedure in the construction of the web in the various families. (6) *Propagation.* (A.) Copulation. It was reserved for the author to solve the physiological enigma which this act had hitherto presented. The spoon-shaped palpi of the males are in fact the copulative organs, with which they take the semen from the appropriate openings of the seminal ducts on the base of the abdomen, and transfer it to the sexual opening of the female. The procedure is carefully described in various Spiders. (B.) Structure of the nest and care of the young. The fertilized ova are deposited at several times. All Spiders surround their ova with a web. In many species the young, after they have escaped from the egg, are tended and even fed by the mother. (7) *Autumnal migrations.* The author refers the phenomena of the so-called "flying Summer" (Gossamer) to the circumstance that the Spiders which inhabit moist localities resort to places more suitable for the winter, by means of the filaments emitted from them. (8) *Perceptive faculties.* The author has not been able to satisfy himself that sounds make any impression on Spiders. He is also opposed to the general opinion that they are prescient of approaching

weather; and, with reference to this point, he communicates the experiments upon which his opposite view is founded. (9) *Age, Diseases, Enemies.* (10) *Injurious and useful properties.*

Max Rosenheyn, with respect to the above-mentioned memoir, refers to the opinion expressed by him several years since as to the influence of electricity on the emission of the filaments, and on the floating of the Spiders in the air on their webs. (Preuss. Prov. Blatt. p. 388.)

'Lettre sur les Araignées aéronautes du genre Lycose,' par P. Huber (Mém. d. l. Soc. d. Phys. et d'Hist. Natur. de Genève, x, 1, p. 1.) Observations copiously detailed on the species of *Lycosis*, with respect to the emission of the filaments, and their flight by means of them.

Blackwall has made several general communications on this order.

'On the Palpi of Spiders' (Report of the 12th Meeting of Brit. Associat. for the Advanc. of Science, held in Manchester, 1842. London, 1843). The author describes particularly the use which the Spiders make of their palpi. They serve, partly, for the collection of the loose filaments, partly—as in *Dolomedes*—together with the mandibles, for the holding of the ovisac; in the *Salticidæ*, in which they are covered with strong hairs, for cleaning the eyes.

"Notice of several cases of defective and redundant organization observed among the Araneidea." (Ann. Nat. Hist. xi, p. 165. Froriep. Notiz. 25, B. p. 273.) The malformations observed and mentioned by the author refer particularly to supernumerary and deficient eyes; one case also of a supernumerary tarsus.

"A catalogue of Spiders not previously recorded or little known as indigenous to Great Britain (Transact. Linn. Soc. xix, p. 113) though containing almost without exception, species already known, affords nevertheless valuable remarks upon their occurrence and habits, as well as upon the synonymy.

Epeirides.—Koch (Arachn. x Bd. 5 Hft.) has figured *Atea incerta*, a new species, probably from the East Indies; and White has characterized, in Dieffenb. Travels, ii, 272, 42, *Tetragnatha* (*Deinagnatha*) *Dandridgii*, from New Zealand.

Theridites.—*Neriene graminicolens* is described by Blackwall (Linn. Trans. xix, p. 125) as a new English species, resembling *N. trilineata*, Koch, even in the uniformly coloured exannulate legs. The genus *Neriene*, Blackw. (Phil. Journ. 1833), corresponds with *Bolyphantes*, Koch.

Drassides.—In the genus *Clotho*, Koch has figured 5 species (Arachn. x, 5 Hft.): *Cl. Goudotii*, Latr., from Egypt, and 4 new species, *Cl. cycacea*, from Italy, *Cl. guttata*, locality doubtful, *Cl. stellata*, from Portugal, and *Cl. limbata*, from Arabia. The genus *Enyo* is illustrated (ib. 4th Hft.) with 2 sp.,

E. germanica (formerly *Lucia german.*) Koch, from Germany, and *E. græca*, n. sp., from Greece.

AGELENIDES.—In this family, Koch (l. c. x, 5 Hft.) has figured: *Hersilia caudata*, Sav., and *Tegenaria atrica*, new German sp., *Philoica linotina*, n. sp., from Bavaria, *Agelena Syriaca*, Kl., n. sp., from Syria, *Ag. Pennsylvanica*, n. sp. from Pennsylvania.

Westring (Kröy. Naturh. Tidsskr. iv, p. 349) has observed that the male of *Asagena serratipes* emits a chirping sound, similar to that afforded by the Stag-beetle, Reduvii, &c. On closer examination, he found that the scutum of the cephalo-thorax, minutely indented at the margin, is coriaceous and finely wrinkled on the surface, and that it presents, at the base opposite the articulation of the abdomen a smooth space, and that the root of the abdomen is surrounded with a notched border, by the friction of which against the cephalo-thorax the sound is produced.

MYGALIDES.—Saunders (Trans. Ent. Soc. of London, iii, p. 160, pl. 9) observed in the Ionian Islands a new species, *Mygale Ionica*, allied to *M. cæmentaria;* it constructs its tubes in sandy soils, which tubes have this peculiarity: (1) that the operculum a projection over the hinge, which prevents the operculum rising beyond a right angle, and also allows of its being elevated by slight pressure upon the projection; (2) that the lower end of the tube also presents a similar but smaller operculum. In a supplement (ib. p. 165) the author communicates his further researches, instituted for the purpose of ascertaining the structure of the tube and the mode of construction of the operculum.

Westwood (ib. p. 170, pl. 10) has described a new north African Spider of this family, *Actinopus ædificatorius*, with its operculated tube.

DYSDERIDES, Koch, (Arachn. x, 5 Hft.) has figured, of this family, *Ariadne pallida*, n. sp. from North America, *Segestria Bavarica*, n. sp. from the environs of Ratisbon, and *Dysdera Hombergi* (*Aran. Homb.*, Scop., *Dysd. gracilis*, Wid.), from the same locality.

Two new Spiders of undetermined family have been instituted by Koch (l. c.) from defective specimens. *Poltys illepidus*, from the East Indies, is a remarkable form, with the cephalo-thorax attenuated anteriorly and almost pointed; on its anterior surface are placed four eyes in a square, and on the back, on either side, two other eyes, one behind the other. The genus is most nearly allied to *Mithras*, and the author is inclined to form from these two genera a distinct small family, the MITHRADÆ.—*Gea spinipes*, also, a small East Indian Spider, has the eyes in two rows, the central eyes of the posterior row being placed far back.

SOLIFUGÆ.

PHRYNIDES.—*Phrynus*, has received an addition by Koch (Arachn. x, 5 Hft.) of a species from Ceylon, *Phr. Ceylonicus*, differing from the nearly

allied *Phr. lunatus*, in having shorter palpi, with a different sort of spines. Gervais (Apt.) has, in all, nine, among which are four new species of this genus, *Phr. scaber*, from the Seychelles and Mauritius; *Phr. cheiracanthus*, from Guiana; *Phr. Grayi*, from the Philippines; *Phr. Whitei*, from Bengal.

Whilst Gervais (Aptères) notices only the species of *Thelyphonus*, given in Lucas's Monograph, Koch (Arachn. x, 2 Hft.) has enriched that genus with a series of new species from very various parts of the earth; *Th. Brasilianus*, from Brazil; *Th. Manillanus*, from Manilla; *Th. Antillanus*, from St. Domingo; *Th. Linganus*, from the Island of Linga (Farther India); *Th. Australianus*, from New Holland. In the same work are also given figures of *Th. giganteus*, Luc., from Mexico (both sexes); *Th. rufipes*, Luc., from Java; and *Th. proscorpio*, Latr. (do.) The citations from Lucas's Monograph, referring to the two former species, appear to have been inadvertently omitted.

Scorpionides.—A number of new species in this family have been noticed by Gervais (l. c.) who, however, himself refers to a memoir in the 'Archiv. d. Mus. d'Hist. Nat.' iii, which is stated to contain detailed descriptions and figures. I defer the Report until this comes before me.

Obisides.—Koch (Arach. x, Bd. 3, 4 Hft.) has completed our knowledge of this family with a number of new species: *Chelifer granulatus, grandimanus, ixoides, Panzeri, Wideri, Reussii, Fabricii, Hahnii, Schaefferi, depressus; Obisium sylvaticum, fuscimanum, dumicola, carcinoides, tenellum, elimatum, gracile, dubium*, all from Germany; and besides these, two new genera are exhibited, *Chthonius*, with the two species, *Ch. trombidioides* (*Chel. tromb.*, Latr., *ischnochelus*, Herrm.) and *Ch. orthodactylus* (*Obis. orthod.*, Leach), the generic characters are not, however, here stated; *Pelorus*, with one new species: *P. rufimanus*, from Brazil, according to the author's account with the tarsal articulation of *Chelifer*, and the eyes of *Obisium;* but as he had only a very imperfect specimen to examine, he has been deceived in the latter particular; there are not, for instance, four eyes present, but only two, and even these are indicated only by a clear point in the horny covering of the cephalo-thorax. Since similar imperfectly-formed eyes are also presented in some true *Cheliferi*, this genus, which would possess a greater number of species, still requires more accurate definition.

Galeodides.—Captain Hutton has communicated his observations on the habits of an Indian *Galeodes*. (Ann. Nat. Hist. xii, p. 81. Froriep. N. Notiz. 28 Bd. p. 49.) It is wholly nocturnal and very rapacious, seizing even large and hard-winged Beetles with its powerful jaws, and biting them into pieces with the greatest ease. A Lizard, also, 3 inches long without the tail, was seized by the *Galeodes*, and almost entirely devoured; but the insect was then so gorged that it remained fourteen days motionless. Another Lizard was bitten in the side by a Galeodes, but lived notwithstanding the wound, whence the author concludes that the bite is not venomous. A

young Sparrow was bitten to death by the Galeodes, but not eaten. The Galeodes bites animals of that kind close behind the head. It subsists properly, however, upon all kinds of insects, which are not simply sucked out but actually masticated. They do not spare each other, but fight for life and death, and the vanquished is devoured by his conqueror. But, on the other hand, the mother watches over the young with the utmost solicitude. The author confined a female, which laid above 50 white ova, over which it watched without moving. The young left the ovum in 14 days, and remained without motion for three weeks, until the first change of skin, when they ran about and grew visibly, without the author being able to perceive that they took any food. In a state of freedom the Galeodes is found under stones, and in holes in the earth; the imprisoned female also dug a gallery for itself with the mandibles and legs. The author proposes for the species the name of *G. vorax*, it is, however, very possible that it does not differ from the *G. fatalis* of Herbst.

OPILIONES.

A valuable Memoir on the Anatomy of *Phalangium opilio*, has been published by Tulk. (Ann. Nat. Hist. xii, pp. 153, 243, 318, pl. 3-5.)

From the comprehensive researches of the author, which not only complete those of Treviranus on the same subject, but serve to confirm them in the principal points, I here adduce only some particulars. The nature of the intestiniform organ, which Treviranus regarded as belonging to the male generative system, although he had not observed any direct connexion with it, remains still doubtful in Mr. Tulk's opinion. He traced the excretory canals of this organ around the principal tracheal trunks almost as far as the respiratory orifice, and supposes that they must open externally in that situation. In the nervous system, the central parts of which are not constituted, as is known, of a series of ganglia, but of several scattered, though symmetrically-placed ganglia, no trace of its being composed of motory and sensorial nerves was indicated. Peculiar to the Phalangium are some pairs of muscles which are attached to the ganglion of the cephalo-thorax, and are capable of moving it in all directions.

Remarks on the sexual organs of the Phalangium are communicated by Westring (Kröy. Naturh. Tidsskr, iv, p. 354.)

ACARI.

Of Koch's 'Uebersicht des Arachniden Systems,' (3 Heft,) the third Part has appeared, containing the continuation of the division of the Mites.

The second family of the "Running Acari:" Bdellides (proboscidal Acari),

is, as far as can be perceived, four-eyed, with a conical or acicular free proboscis, free palpi inserted at the sides of the head, and moveable laterally; it contains the genera *Bdella*, Latr., *Ammonia*, K., *Scirus*, Hermann, *Eupalus*, K., *Cheyletus*, Latr. The third family: GAMASIDES, (epizoïc Acari), without visible eyes, with the oral organs moveable forwards and backwards on a tube, free and distinctly jointed, fusiform palpi; living on animals, and also in garden mould; it includes the genera *Dermanyssus*, Dug., *Gamasus*, Latr., *Lælaps*, K., *Zercon*, K., *Sejus*, K., *Notaspis*, Herm., *Eumæus*, K., (formerly *Iphis*, K.) The fourth family: CARABODIDES, (coleopteroid Acari) beetle-formed, with distinctly separated cephalothorax, and with concealed, seldom projecting palpi, living on the earth or on plants; it consists of the genera *Oribates*, Latr., *Zetes*, K., *Eremæus*, K., *Pelops*, K., *Cepheus*, K., *Oppia*, K., *Damæus*, K., *Carabodes*, K., *Celæno*, K., *Hypocthonius*, K., *Nothrus*, K., *Murcia*, K., *Hoplophora*, K. The fifth family, lastly: the SARCOPTIDES (pedicular Acari), with an entirely concealed suctorial proboscis, and palpi, in part, or almost wholly concealed, mostly very unequal legs, with and without ungual vesicles; it includes the genera *Acarus*, L., *Homopus*, K., *Sarcoptes*, Latr., *Dermaleichus*, K., *Pteroptus*, Duf., *Uropoda*, Latr., *Hypopus*, Dug. Excepting the first, all the genera of this family inhabit animals.

Denny (Ann. Nat. Hist. xii, p. 312, pl. 17) has published some new species of *Ixodes*, viz., *I. bimaculatus* (female of the following), *I. hippopotamensis*, from the Hippopotamus in South Africa. *I. rhinocerinus*, from the Rhinoceros bicornis, do. *I. Hydrosauri*, from Hydrosaurus. Gouldii? from Van Diemen's Land.

The cutaneous Mite discovered by Simon has also been found in England. Wilson is about to publish a special memoir upon it in the 'Philosophical Transactions,' with the view of affording a more precise exposition of its internal structure, together also with information about the ova and development. He calls the animalcule *Entozoon folliculorum*, (Ann. Nat. Hist. xii, p. 222.) In the mean time, also, Owen had proposed for it the name of *Demodex*. Tulk exhibited at the Microscopical Society, in December, 1843, a similar animalcule from the cutaneous pustules of a mangy dog, which appears to be a second species. (Ann. Nat. Hist. xiii, p. 75.) Lastly, Gervais (Hist. Nat. des Aptères, iii, p. 282), who gives an extract from Simon's description, imposes on the genus the name *Simonea*, so that this Acarus has already received not less than four generic names. Vide last year's Report, p. 278 (Transl. p. 268.)

PYCNOGONIDES.

Philippi has communicated in these Archives (1843, i, Bd. p. 175, t. 9) his observations on the Neapolitan Pycnogonides, among which three new species have afforded ground for the foundation of two new genera.

CRUSTACEA.

The minute (microscopical) structure of the calcareous shells of the Crustacea, as compared with those of the Mollusca and Echinodermata, has been examined by Carpenter. (Ann. Nat. Hist. xii, p. 386.)

The calcareous shell of the Crustacea, the surface of which presents a multitude of minute papillary elevations, is covered with a layer of pigment-cells, which fill up the valleys or intervals between the papillary elevations, but do not cover the latter, so that the epidermis which covers the whole rests upon their points. The calcareous layer, of an ivory-like structure, is perforated by minute sinuous tubuli.

On the 'Auditory Organ in the Crustacea,' by Arthur Farre. (Philosoph. Trans. of the Royal Society of London, 1843, p. 233.)

At the base of the external antennæ, says the author, is an organ, and at the root of the internal antennæ another; the former is usually regarded as the auditory organ of the Crab, but certainly incorrectly; its position and structure render it probable that it is the olfactory organ. But the true auditory organ is placed at the root of the internal antennæ. The author proceeds to give an accurate and precise description of it, but it seems to have escaped him that this organ was long since made known by Rosenthal, who considered its function to be olfactory. The author points it out in the Lobster, River Crayfish, *Pagurus streblops* and *Palinurus*, and, on the other hand, has not observed it in *Squilla* and the Brachyura. The external opening of this organ, in the author's opinion, serves for the entrance of water to supply the place of ento-lymph; besides this, stony particles are found in its cavity, which are not otolithes (since they do not effervesce with acids), but grains of sand, which are of smaller size in those animals with a contracted opening, and coarser in those in which it is wider; these grains of sand the author believes supply the place of otolithes. I have not been able to satisfy myself on this point; in a River Crayfish recently killed by cutting through the anterior ganglia, I found the little masses of sand lying motionless at the bottom of the cavity of the organ in question, whilst otolithes

should have been oscillating backwards and forwards. I am unable, consequently, to participate in the author's view with respect to this organ.

Rathke's 'Beiträge zur Fauna Norwegens' (Act. Leopold. xx Bd. 1 Th.) are of importance as regards a knowlege of the Crustacea. The individual new ones will be mentioned particularly below.

Thompson (Ann. Nat. Hist. xi, p. 102) has continued his enumeration of the Irish Crustacea.

Die Südafrikanischen Crustaceen, eine Zusammenstellung aller bekannten Malacostraca, Bemerkungen über deren Lebensweise und geographische Verbreituug, nebst Beschreibung und Abbildung mehrerer neuen Arten, von Dr. Ferd. Krauss. Stuttgart, 1843, mit 4, lith. Taf. (The South African Crustacea, a collection of all the known Malacostraca; remarks upon their habits and geographical distribution, together with descriptions and figures of several new species, &c. &c.)

A meritorious work, and especially valuable on account of the interesting remarks which the author makes in accordance with his own observation of the conditions under which they are found, and of the habits of the South African Crustacea. The new species will be mentioned below.

The arrangement of the South American Crustacea in D'Orbigny's Travels, by Milne Edwards, and Lucas, has appeared in part in 1843, but was not concluded before 1844. I therefore reserve a notice of this work for the next Report.

Decapoda.—Joly has furnished a contribution of very great importance, on the development of the Decapoda. (Ann. d. Scienc. Nat. xix, p. 34, t. 3, 4.) 'Etudes sur les Mœurs, le Développement, et les Métamorphoses d'une petite Salicoque d'eau douce (*Caridina Desmarestii*), suivies de quelques réflexions sur les métamorphoses des Crustacées Décapodes en général.'

Mention of this work was made in the last year's Report, p. 272, from the notices in the French journals. The memoir itself gives much more than was there promised. The species on which the observations were made, and which inhabits fresh water, in France, is *Hippolyte Desmarestii*, Millet, of which the author shows that it belongs more properly to the genus *Caridina*, Edwards, on which account he calls it *Car. Desmarestii*. The development of the

embryo in the ovum is compared with that of the River Crayfish (according to Rathke's former work.) Whilst in the River Crayfish the antennæ, labrum, and mandibles appear simultaneously with the abdominal tubercle, in the present instance the appearance of the latter precedes that of the mandibles, labrum, and antennæ. In the River Crayfish the jaws appear before the legs; in this case the order is reversed. Whilst in the River Crayfish the pairs of jaws and ambulatory legs, are already formed in the embryo such as they afterwards appear, in the present case only three pairs of jaws, and three pairs of bifid feet present themselves, which latter afterwards become manducatory feet, and the future ambulatory feet are at this time entirely wanting. The order of appearance of the eyes, heart, intestine, liver, and of the carapace is nearly alike in both. When the young quits the ovum, its eyes resemble those of the full-grown animal; they are, however, as yet sessile and extremely large. The antennæ are short, and with few joints. The rostrum on the carapace is as yet but little developed. The abdomen is long in proportion, six-jointed, the caudal segment bilobed or spatulate. Legs occur only on the thorax, and constitute three pairs of bifid feet. At the mouth is a fleshy labrum, a pair of mandibles similar to those of the full-grown animal, and two pairs of many-lobed maxillæ. As yet there is no trace of branchiæ; they are not formed till later, and proportionately slowly, and the more posterior they are, the later are they developed. The alimentary canal is simple, the stomach a mere dilatation, without a trace of the cartilaginous apparatus, which is present in that of the full-grown animal. The liver, which in the adult state is formed of two lobes, each constituted of numerous cæcal biliary vessels, presents at this time the appearance of a granular mass, surrounding the commencement of the alimentary canal.

The young of *Porcellana longicornis* has been observed by Dujardin. (Rev. Zool. p. 187.)

It exhibits a zoa-form, resembling the young of *Pagurus*. It has two pairs of antennæ, in the mouth three pairs of jaws, viz., one pair of perfect mandibles, and two pairs of maxillæ, both the latter with palpi; moreover, at the posterior part of the cephalo-thorax, two pairs of bifid feet, which, like the antennæ, are beset with extremely fine feathering setæ, resembling those with which the rowing and branchial feet of the Entomostraca are furnished, and which the author consequently regards as the respiratory organs of the young Crab. Lastly, the posterior part of the cephalo-thorax has, besides these, two lateral, elongated processes, directed backwards, and corresponding to the dorsal spiculum of the other Zoæ.

Erdl 'Entwickelung des Hummereies, von den ersten Veränderungen im Dotter an bis zur Reife des Embryo.'

München, 1843. (Development of the Ovum of the Lobster, from the first changes in the Vitellus, up to the maturity of the Embryo. Munich, &c.)

Besides the exposition of the gradual formation of the embryo, the author, in conclusion, also gives a summary view of the varieties which occur in this respect in *Carcinas mænas* and in the River Crayfish, which were also subjected to observation. In *Carcinas mænas* the eyes are considerably larger, the liver is completed at an earlier period, but the feet and oral members at a later. In the River Crayfish the eyes are smaller than in the Lobster, although the ovum is larger; on the other hand, the antennæ are developed to a greater length at an early period, and the caudal feet are already observable in the early stages. In the Lobster the tail is developed earlier than in the River Crayfish.

Brachyura.—The following species, in the various families of the brachyurous Crabs, have been instituted as new by Krauss (l. c.): *Platyonychus rugulosus*, *Ægle* (De Haan) *Rüpellii*; *Xantho De Haanii*, 5-*dentatus*; *Galene* (De Haan) *natalensis*; *Pilumnus xanthoides*; *Menippe Martensii*; *Telphusa depressa*; *Sesarma longipes*; *Acanthonyx Mac Leayi*, 4-*dentatus*; *Pisa fasciularis*.

Besides these, two new species have been described by White: *Portunus catharus*, resembling the European *P. marmoreus*, though broader, and with four teeth on the frontal margin, from New Zealand (Dieffen. Trav. ii, p. 265), and *Atelecyclus spinulosus*, from the Falkland Islands, nearly allied to the Chilian *A. chilensis*, Edw. (Ann. Nat. Hist. xii, p. 345.)

On a peculiar structure of the branchiæ in the Land Crabs some remarks were made by J. Müller in the Society of Naturalists at Berlin. The branchiæ have, in these, stiff processes between the lamellæ, which prevent their sticking together, and the want only of which appears to be fatal to fish out of water. (Froriep's N. Notiz, 28 Bd. p. 265.)

Anomura.—*Pagurus virescens*, and also *Porcellana natalensis* and *De Haanii* are new species by Krauss (l. c.), from the coast of Natal; both the latter inhabit the Madrepore banks.

Astacini.—Krauss (l. c.) caught abundantly, in Table Bay, a *Gebia*, which, from the figure in the 'Fauna Japonica,' he determines to be *G. major*, De Haan, but on account of some differences he describes it as var. *capensis*. More accurate comparison will probably show it to be a distinct species.

Carides.—A number of new species from the coasts of Norway have been instituted and accurately described by Rathke (Verhandl. d. Kais. Leop. Acad. d. Wiss. xii, p. 6-18): *Palæmon Fabricii*, *Hippolyte subula*, *vittata* (*pusiola*, Krög), *recurvirostris*, *Lovenii* (*mutila*, Kr.), *lentiginosa* (*Gaimardii*, Kr.), *Retzii*, *Pandalus brevirostris*. Additional remarks are given in these Archives, 1844, i, p. 258-9.

The genus *Cuma*, Edw., has also been proved by Goodsir (Edinb. New Philosoph. Journ. vol. xxxiv, p. 119) to be a perfect form, since he has met with females with ova. The place, also, of the genus among the Decapoda is confirmed. The pectinate branchiæ lie, as in these, under the carapace, above the legs, the sexual organs of the male are not apparent; in the female they resemble those of *Mysis*. The pedunculate eyes are very small, and concealed under the carapace, whence it happened perhaps that they were not found by Kröyer. (Vide last Report, p. 283; transl. p. 274.) Three species were observed by the author in the Firth of Forth: *C. Edwardsii*, new species, *C. Audouinii*, Edw., and *C. trispinosa*, new species. How far these species agree with those of Kröyer, must be shown from a closer comparison of the descriptions, but it is to be remarked that the author, as well as Edwards, describes, besides the cephalic portion, four thoracic rings, whilst Kröyer, in his new species, counted five.—To distinguish it from two new allied genera, Goodsir has thus defined the characters of *Cuma*: superior antennæ, 1-jointed, scale-like, inferior antennæ 5-jointed, the double terminal scales of the caudal style 2-jointed, the last joint the shortest. The two new genera are, (1) *Alauna*, superior antennæ consisting of a peduncle and a multi-articulate filament; inferior antennæ 8-jointed; the first three pairs of legs compound; the internal scale of the caudal style consisting of three segments, the external of one; *A. rostrata*, new species. (2) *Bodotria*, the first five abdominal segments each furnished with a pair of bifurcated finlets; the two terminal scales of the caudal styles single-jointed. *B. arenosa*, new species.

STOMAPODA.

Caridioides.—Rathke (l. c. p. 18) has given a more particular description of *Mysis flexuosa* (*Canc. flex.*, Müll.), and has instituted a new species, *M. inermis*.

AMPHIPODA.

Rathke (l. c. p. 60-85) has enriched this order with two new genera: (1) *Liriope*, formed from a minute crustacean scarcely 1‴ long, *L. pygmæa*, several individuals of which were found living in the excretory cavity, which also serves as a marsupial cavity, of the *Peltogaster Paguri*, a parasitic worm of the *Pagurus Bernhardus*: the internal antennæ small, with a large whorl of hairs at the root, the external antennæ long, many-jointed. The body elongated, convex above. The first four feet with apparently clawless nippers, the two last terminating in a simple stem, the rest longer ambulatory feet; the anal feet (six pairs) flat, divided into two branches, and running out into long setæ; two slender, cylindroid, jointed caudal appendages, furnished at the extremity with long setæ.

(2) *Iphimedia*, so far very nearly related to the genus *Leucothoe*, that the legs of the first pair also in it terminate in nippers, but those of the second pair possess nearly the same kind of hand as *Gammarus* and *Amphithoe*; differing, however, in this respect, that the pollex of its nipper-feet is constituted not of two but of one joint, that the stems of the antennæ are composed not of two, but those of the superior of three, and of the inferior of four joints, and that the superior antennæ are not longer but shorter than the inferior. *I. obesa*, plentiful near Christianssund.

New species of the coasts of Norway (ib.) are: *Gammarus anomalus, Sundevallii, pœcilurus, Kröyeri, angulosus, zebra; Amphithoe tenuicornis, podoceroides, Prevostii*, Edw. ? *norvegica; Podocerus capillatus, calcaratus.*

The order Læmodipoda has been abolished by Kröyer, and united with the Amphipoda, in a memoir, 'Description of some new genera and species of the Caprellina, with introductory remarks on the Læmodipoda, and their place in the system.' (Natur. Hist. Tidsskr. iv, p. 490.) This is entirely in accordance with nature, since they present in common with the Amphipoda even the essential character, that the seven anterior segments of the body have branchial vesicles, but with the limitation, that in this family legs and branchial vesicles are not both present together, but, normally, where the latter occur the former are wanting, and vice versa. Hence, and in consequence of the stunted condition of the caudal portion, they constitute a peculiar family, which the author designates as the Læmodipoda, and divides into two groups, *Caprellina* and *Cyamea*.

In the group of the Caprellina the author, in addition to the two genera *Leptomera*, Latr., and *Caprella*, Lam., gives two new ones: (1) *Cercops*, the second ring of the body with legs and branchial sacs, as in *Leptomera*, caudal portion distinct, five-jointed, with 4 longer two-jointed appendages. (2) *Ægina*, the second segment with legs, but without branchial vesicles; caudal portion, distinct, two-jointed, with 4 appendages. Mandibles with three-jointed palpi.

The author has described (l. c. p. 499-585), *Leptomera pedata*, Abildg., from the Sound, *Cercops Holbölli*, Kr., from Greenland, *Ægina longicornis*, Kr., do., *Caprella Januarii*, Kr., *C. dilatata*, Kr., both from Rio de Janeiro, *C. septentrionalis*, in the North Sea, from Greenland to the Cattegat, *C. lobata* (*Squill. lob.* Müll.), *C. hystrix*, Kr., from Christianssund.

Rathke (l. c. p. 94) has distinguished the observed species of the Caprellina found on the coast of Norway, viz. *Caprella Phasma*, Lam., *C. acuminifera*, Leach, (?) *C. Scolopendroides*, Lam., and *Leptomera pedata*, Lam.

The genus *Cyamus* has been illustrated by Kröyer, who gives two species: *C. Ceti*, L., and *C. erraticus*, Rouss. d. V. (Naturhist. Tidsskr. iv, p. 474.)

ISOPODA.

Idoteides.—New species of *Idotea* are, *I. Lichtensteinii*, Krauss (l. c.), from the Cape (Table Bay), and *I. granulosa*, *I. brevicornis*, Rathke (l. c.), from the coasts of Norway; *I. tridentata*, Lat., also, which occurs abundantly in the same locality, has been more particularly described, and distinguished from *I. Basteri*, Aud.

Asellota.—A new genus, *Crossurus*, has been instituted by Rathke (l. c.): Four rather thick antennæ, the outer longer than the inner, body elongated, convex above, tail with two half bands of numerous hairs, like fringes, with short, jointed appendages at the point. The first pair, very strong nipper-feet, the rest slender and ambulatory. Six branchial lamellæ with corresponding opercular lamellæ. *Cr. vittatus*, 2‴ long, found near Molde, on oysters.

Oniscides.—A detailed description of the external and internal conformation of *Ligidium Persooni*, Brandt, has been given by Lereboullet. (Ann. d. Sc. Nat. xii, p. 103, pl. 45.)

Tylos has been enriched with two new species, by Krauss (l. c.): *T. granulatus* and *capensis*, from Table Bay.

Sphæromides.—The same author (ib.), among five South African species of *Sphæroma*, has described a new species, *Sph. macrocephala*, Kr., from the coast of Natal.

White (Ann. Nat. Hist. xii, p. 345) has described *Sphæroma gigas*, var. *lanceolata*, from the Falkland Islands.

A preliminary notice has been given by Milne Edwards (Ann. d. Sc. Nat. xx. p. 326) of two new fossil forms. The one, *Palæoniscus Brongniartii*, from the green marl of the Paris basin, belongs decidedly to the Sphæromides, though it cannot be assigned to any existing genus. The other, *Archeoniscus* (*Brodii*), found by Brodie, in Wiltshire, appears rather to belong to the Cymothoada, in many respects it comes near *Serolis* in particular.

Cymothoada.—A detailed description of the external and internal structure of *Æga bicarinata*, Leach, has been given by Rathke (l. c.)

Epicarides.—He (ib.) has instituted a new genus of this family, *Phryxus*, nearly allied to *Bopyrus*, but differing in the large bilobed branchiæ of the female. Two species infest Crabs, viz. *Phr. Hippolytes*, on *Hipp. lentiginosa*, R., and *Phr. Paguri*, on *P. Bernhardi*. The former species is identical with Kröyer's *Bopyrus abdominalis* (vid. Report for 1840); who overlooked the division of the branchiæ, but has so beautifully represented the history of the later development; whilst the history of the earlier stages of development within the marsupial cavity of the mother has been pursued further by Rathke.

MYRIAPODA.

Newport's Memoir on the Nervous and Vascular Systems of the Myriapoda has been spoken of in the Introduction.

CHILOGNATHA.—Lucas (Ann. d. l. Soc. Ent. d. Fr. 2 sér. i, p. 43) has instituted a new genus, *Platydesmus*, resembling *Polydesmus*, in the form of the rings of the body, but differing from it in the small triangular head, the presence of eyes, and the suctorial oral apparatus; the new species, *Pl. polydesmoides*, is from Guatemala.

Newport has instituted two new English species, *Julus sandwicensis* (Proceed. Ent. Soc. Lond. p. 66), and *I. pilosus* (ib. p. 69), and farther, *Spirotreptus antipodarum* (Dieffenb. Trav. ii, p. 270), from New Zealand.

CHILOPODA.—Templeton has communicated a short paper on *Cermatia*. (Transact. Ent. Soc. Lond. iii, p. 306.) He divides the genus into two groups. (*a*) Body elongated, distinctly broader in the middle: (1) *C. araneoides*, Pall.; (2) *C. longicornis*, Hardw., from Bengal; (3) *C. nobilis*, n. sp., from the Mauritius and India; (4) *C. coleoptrata*, Lam., from the South of Europe; (5) *C. capensis*, n. sp., from the Cape.—(*b*) Body short, and nearly of uniform breadth; (6) *C. longipes*, Lam.

Scolopendra rubriceps, from New Zealand, has been instituted as a new species by Newport. (Dieff. Trav. ii, p. 270.)

ENTOMOSTRACA.

Goodsir (Edinb. New Philosoph. Journ. xxxv, p. 102) has investigated in the Firth of Forth what the fishermen there term "Maidre." It is constituted of vast and connected masses of living animals, among which Amphipoda, Cirripedia, and Acalephæ occur abundantly, but is principally composed of Entomostraca. These waters are invaded not only by immense shoals of "Coal-fish," and small ones of Herrings, but also by various Cetaceans, particularly Dolphins, and Porpoises, and even the Rorqual is occasionally seen. The author thinks that these Cetaceans are not in pursuit of the fish in order to feed upon them, but that they participate with them in the food afforded by the "Maidre," as he has never observed a fish in the stomach of a Dolphin or Porpoise. He also found, on a visit in May to the so termed island, the water over a large circuit coloured red, owing to the presence of an Entomostracon, which proved to be *Cetochilus*. Thus the multitudinous occurrence of the almost invisible Entomostraca is the condition of existence of the vast shoals of fish as well as of the gigantic marine Mammalia.

Cladocera.—Baird (Ann. Nat. Hist. xi, p. 81), in the continuation of his 'Natural History of the British Entomostraca,' the progress of which has been interrupted for several years, has subjected the genus *Lynceus*, Müll., to a thorough investigation. The generic characters, which have been erroneously understood by all writers, chiefly require emendation, and the author thus constitutes them: Rami two, usually very short, branched, each branch three-jointed. A single eye; in front of which is a black spot; five pairs of feet; intestine convoluted, tail jointed. The author divides the British species into eight subgenera. (1) Subgenus, *Macrothrix:* anterior branch of the ramus, with a very long seta at the root of the second joint; antennæ pendulous, from the extremity of the beak: *M. laticornis* (*Monoc. lat.*, Jur.) (2) *Eurycercus:* sub-quadrangular, tail very broad, in form of a flat plate, densely serrated: *E. lamellatus* (*L. lam.*, Müll.) (3) *Chydorus*, Leach: almost spherical, beak very long and sharp, curved nearly into a crescent; rami very short: *Ch. sphæricus* (*L. sph.*, Müll.); and a new species, *Ch. globosus*. (4) *Camptocercus:* ovoid, tail long, slender, very flexible, serrated: *C. macrourus* (*L. macr.*, Müll.). (5) *Acroperus:* somewhat harp-shaped, terminating inferiorly on anterior margin in a more or less blunt point projecting forwards; rami rather long: *A. harpæ* (*L. harpæ*, Baird); and a new species, *A. nanus*. (6) *Alona:* shell quadrangular, striated, rami short: *A. quadran-*

gularis (*L. quadrangularis*, Müll.); and a new species, *A. reticulata*. (7) *Pleuroxus:* anterior margin prominent on the upper portion; the lower part truncated, or cut off straight, first pair of feet very large: *Pl. trigonellus* (*L. trig.*, Müll.), and *Pl. hamatus* (*L. ham.*, Baird.) (8) *Peracantha:* oval, the lower extremity of the shell slightly curved backwards, and, as well as the upper extremity of the anterior margin, beset with strong, hooked spines: *P. truncata* (*L. truncata*, Müll.)

Ostracoda.—A *Cypris* was brought by Dieffenbach from New Zealand (Travels, ii, p. 268), and has been described by Baird: *C. novæ Zelandiæ;* egg-shaped, elongated, equally rounded at each end, somewhat inflated and with a shallow sinus in the middle of the anterior margin, smooth, shining, entirely without hairs; resembling *C. detecta*, Müll., in which, however, the shell is not inflated.

Copepoda.—Philippi (Archiv. 1843, i, p. 54) has communicated his further observations on the *Copepoda* of the Mediterranean. A memoir, of importance in the systematic arrangement of the order. Seven new genera are instituted: *Euchæta, Idya, Metis, Ænippe, Oncæa, Euryte, Idomene*, each with a new species. *Cyclopsina*, Edw., is limited by the author to *C. castor*, and *C. staphylinus* and *furcatus* are referred to *Nauplius*, of which genus he mentions 14 species.

Goodsir (Edinb. New Philosoph. Journ. vol. xxxv, p. 336, pl. 6) has described a new species of *Cetochilus*, differing from *C. australis* in having two long spines on the twenty-second and twenty-third joints of the external antennæ, and also in the form of the foot-jaws, and which the author calls *C. septentrionalis;* besides this (ib. p. 337) a new genus, *Irenæus*, with the following characters: a large tubular organ arising from the abdominal surface of the body, bears at the apex the visual organs; the right antennæ much swollen a little behind the middle; 10 jaw-feet. The species *I. splendidus* is remarkable from the metallic brilliancy of the colours, in which sapphirine and emerald predominate. Both are found in the "Maidre" (vid. supra), in the Firth of Forth, the latter solitary, the *Cetochilus* in masses.

Siphonostoma.—Important and more precise investigations on some species belonging to the North Sea have been instituted by Rathke (Verhandl. d. Kais. Leop. Akad. xii, p. 98.) The species observed were, *Caligus curtus, C. diaphanus*, Nordm., *C. hippoglossi*, Kröy., *Nicothoe Astaci*., Aud., *Chondracanthus Lophii* (*gibbosus*, Kröy), *Lernæa brachialis*, L. The internal structure of *Caligus curtus, Nicothoe Astaci. Chondracanthus Lophii, Lernæa brachialis*, has been investigated. Especially important are the observations on the development of *Nicothoe Astaci*; for in this species no metamorphosis takes place, as is elsewhere the case in this order, but the young leave the egg in a form *similar* to that which is presented by the adult animals. Only the large wing-shaped processes of the cephalo-thorax of the female are wanting; these contain the sexual organs, and are consequently developed at a later

period together with those organs, whence the shape of the cephalo-thorax is altered; moreover, the prehensile feet are in a similar manner present, and besides these also, in the mature larvæ two pairs of feet only exist, and five in the full-grown animal. The author has never observed adult males; on the other hand, he has observed among the embryos a peculiar form, differing from the rest in having a smaller, more slender figure, longer antennæ, and shorter legs, and which on that account it appears should be regarded as the male embryo and the others as the female.

Cirripedia.—Goodsir (Edinburgh New Phil. Journ. vol. xxxv, p. 88) has made a discovery, which completes our knowledge of this order in an essential point, viz. that of the male. The author had conceived the opinion that the Cirripedia were of distinct sexes, and that the males, like those of the Lerneæ, were to be found, in an entirely different form, on the females. After a long and fruitless search he was, at last, in May, 1843, so fortunate as to discover, upon *Balanus balænoides*, and in fact immediately upon the ovaries, an animalcule, which he did not hesitate to recognize as the male. The anterior part of the body is covered with a hard shell, and consists of six segments; the first of which is semicircular, and contains a pair of pedunculate eyes, two pairs of antennal, one pair of pectinate, prehensile organs, and the mouth; the latter appears to be suctorial, and its conformation is not as yet more closely examined. The other five segments have each a pair of legs armed with a simple claw; at the base of the last pair of feet are found the external sexual organs. The posterior, soft part of the body is constituted of three portions, separated by contractions between them; the first is divided anteriorly into three lobes, and overlaps the hard-shelled cephalo-thorax, so that that portion is entirely covered by it; the second segment presents on each side an arm-like process directed backwards; the third terminates in three similar processes. The whole animalcule is about a line in diameter, but in some instances it is increased in size, viz. when a parasitic Crustacean, a quarter of a line in length, belonging to the Isopodous family of the Ionia, is contained (sometimes in large numbers) in the soft part of the body. The author has also observed and described (ib. p. 97-99) the larvæ of *Balanus balanoides* and *tintinnabulum*.

Elminius plicatus, Gray: shells yellow, strongly plicated, especially at the base, opercular plates thick, is given in Dieffenbach's Trav. ii, 269. 26.

Sowerby, jun. (Ann. Nat. Hist. xii, p. 260) has made known a remarkable fossil Cirriped, *Loricula pulchella*, from the upper chalk at Rochester, which in a manner appears to stand midway between the Balanids and Lepads. The peduncle is contracted at the base, and coated all round with interdigitating rows of large scales. There appear to be six rows of scales. Whether there are four or five opercular pieces is not clear.

MOLLUSCA,

BY

DR. F. H. TROSCHEL.

Of works having for their professed object the giving of accurate figures of all the species of *Conchylia* at present known, there are four in progress; and it appears from them that both authors and publishers concur in zealously striving to do their utmost. It is to be regretted that these works are of necessity so extensive as almost to preclude the possibility of their coming within the means of the private student; and since each of them professes to give figures of every species, it is evident that when completed they will be in great measure repetitions of each other.

The number of species has latterly become enormous, and when the number of species of a genus is increased by a writer, four- or even six-fold, we may, probably, be allowed to doubt whether he is justified in so doing; and it is certain that many species will be united as varieties under a single one when the same materials fall into the hands of another inquirer. I of course refrain from any criticism of these rich materials. The four works to which I have thus equally alluded are the following:

Illustrations conchyliologiques, ou Description et Figures de toutes les coquilles connues vivantes et fossiles, classées suivant le système de Lamarck, &c., par Chenu. Livr. 1, 2, Fol. Paris, 1843.

Lovell Reeve, Conchologia iconica. A complete Repertory of species, pictorial and descriptive, Nos. 1, 2. Lon-

don, 1843-4. The diagnoses of the species of several genera are given in the Proceed. Zool. Soc. of London.

Sowerby—Conchological Illustrations. London.

Kiener—Spécies Général. Of this work, the Parts from 83 to 92 appeared in 1843, containing the text to the genera *Murex* and *Strombus*, as well as the plates of *Strombus, Pterocera, Rostellaria* and *Ancillaria*.

Of Lamarck's Histoire Naturelle des Animaux sans Vertébres, the ninth volume of the second edition, by Deshayes, appeared in 1843. It contains the Ianthinæ, Macrostomata (*Sigaretus, Stomatella, Stomatia, Haliotis*), Plicaceæ (*Tornatella, Pedipes, Pyramidella*), Scalarinæ (*Vermetus, Scalaria, Delphinula*), Turbinaceæ (*Solarium, Bifrontia, Rotella, Trochus, Monodonta, Turbo, Littorina, Planaxis, Phasianella, Turritella*), Canaliferæ (*Cerithium, Pleurotoma, Turbinella, Cancellaria, Fasciolaria, Fusus, Pyrula, Struthiolaria, Ranella, Murex, Triton*) and the Alatæ (*Rostellaria, Chenopus, Pterocera, Strombus.*) Like the preceding volumes the present is distinguished by the numerous remarks on the organization of the animals; in regard to which especially, the valuable observations of Quoy and Gaimard in the Voyage of the Astrolabe have been employed. With these are combined numerous corrections in the systematic arrangement of the genera; here, however, Lamarck's frequently inconvenient arrangement is retained as matter of course. In the synonymy there are considerable additions and important corrections. Finally, the work acquires extraordinary utility from the addition of a great number of species which have been made known in later publications, and which have here been rendered more easy of recognition by a much more ample mode of treatment than that followed in the first edition of Lamarck's work.

Lamarck's species of shells, comprising the whole of the recent additions in Deshayes' last French edition, with numerous species not noticed by that naturalist, accompanied by accurate delineations of almost all the shells described, and forming the last edition of the Index testa-

ceologicus. The letter-press by Sylvanus Hanley; the illustrations by W. Wood. London, 1843, roy. fol. Is known to me only from the notice. Küster's continuation of the conchyliological work of Martini and Chemnitz progresses successfully; I refer to the publisher's report which is appended to the fifth part of this year's volume.

Of an English work (Figures of Molluscous Animals, selected from various authors; etched for the use of Students. By Maria Emma Gray. Vol. i, London, 1842, 8vo.) I am acquainted only with a short notice in the Annals, xi, p. 56.

Among the continuations of works previously commenced are to be enumerated, also, the second and third Parts of Philippi's Figures and Descriptions of new or little-known Conchylia (Abbildungen u. Beschreib. neuer oder wenig bekannter Conchylien.) Cassel, 1843. In this work are delineated species from the genera, *Helix, Bulimus, Melania, Neritina, Trochus, Unio, Arca, Venus, Tellina,* and *Solen.* The new species are noticed below.

Of Hartmann's Land and Fresh-water Gasteropoda (Erd ü. Süsswasser Gasteropoden) the seventh Part appeared in 1843, containing the figures of *Pupa bigranata, Heterostoma semitecta* (*Helix paupercula,* Lowe), *Helix* (*Chromocochlea*) *Tahitensis,* (*Columplica*) *dolium* and *uniplicata,* varieties of *Helix fruticum, nemoralis, lucifuga,* and *arbustorum,* and lastly, Scalarides of *Planorbis dubius.* The text, however, refers partly to the figures of the sixth Part, to those of the seventh, and even includes by anticipation those of the eighth, which is itself to appear in 1844. Since, however, that Part concludes the first volume, its contents may be stated here. It contains figures of left-handed *Helix arbustorum,* and of specimens which have undergone reparation, Scalarides of *Valvata planorbis, Carocolla Zebuensis,* Lowe, *Helix rota,* Sow., *Neritina virginea,* Lam., varieties of *Helix rhodostoma, H. montana,* and *sylvatica,* some abnormal conditions of *Clausiliæ* and Scalarides of *Helix pomatia.* The volume is thus, as has been stated, concluded, and the title-

page and index are supplied. At p. 189 the author promises to give, in the second volume, a complete, methodical review of the Swiss *Gasteropoda*. There will thus be a second volume.

H. Scholtz has published a Memoir: (Schlesiens Land-und Wasser-Mollusken, systematisch geordnet und beschrieben.) A Systematic Arrangement and Description of the Land and Fresh-water Mollusca of Silesia. Breslau, 1843, 8vo. This praiseworthy contribution to the Fauna of Silesia, shows that the author has spared no pains to render his work as complete as possible. He has described in it 128 Mollusca, two of which are new (*Helix Charpentieri* and *Pisidium roseum*). With each species is given the Latin and German name, a German diagnosis, the synonymy, a description of the shell and of the animal, and a particular account of the locality in which the species occurs. The ova, also, are frequently described. There are no figures.

A valuable contribution to the Molluscous Fauna of New Holland has been furnished by Menke: Molluscorum Novæ Hollandiæ, specimen, &c. Hanover, 1843. In this work the author enumerates 263 species of Mollusca, collected by Preiss, in the south-west of New Holland, and amongst which 64 species are described as new. Brief descriptions, but no figures are given. Menke himself, afterwards, in his 'Malocozoological Journal,' reviews this statement, and after comparison with some conchyliological works, declares twelve of his new species to have been already described, so that only 48 new species remain.

Carpenter has communicated to the Royal Society a paper on the microscopical structure of the hard parts of the *Invertebrata*, the first portion of which refers to the shells of the Mollusca. He found shells, with a prismatic cellular structure, as *Pinna*, which are composed of numerous depressed, hexangular, calcareous prisms; others, which consist of a membranous shell-substance without cellular tissue; thirdly, some of a nacreous substance; and

finally, shells of a tubular structure. The latter portion of the paper relates to the epidermis and colouring substance of the shells. (Annals xi, p. 380.)

These researches are further carried out. (Annals xii, p. 377.) General Results of Microscopic Inquiries into the minute structure of the Skeletons of *Mollusca, Crustacea,* and *Echinodermata*. By William B. Carpenter.

Kölliker has observed that the motion of the otolites in the Mollusca is dependent upon cilia, with which the internal surface of the cyst is covered. He has seen these cilia in *Tritonia thethydea, Thethys fimbria, Pleurobranchæa Meckelii, Diphyllidia lineata,* and *Hyalæa tricuspidata ;* most clearly in *Thethys* and *Diphyllidia*. (Froriep's Neue Notizen, 1843, vol. xxv, p. 134.)

Joly has observed with respect to certain Mollusca (*Paludina vivipara* Lam., and *Anodonta cygnea,* Lam.) that they may be frozen up in ice without being killed. Some of the *Paludinæ* even produced young shortly after they had been frozen. (Comptes rendus, 1843, xvi, p. 460.)

Cephalopoda.—A. Kölliker has discovered in the *Cephalopoda* cavities near the eyes, to which a nervous filament, arising from the optic nerve, proceeds ; he considers them to be olfactory organs. (Froriep's Notizen, vol. xxvi, p. 166.)

Vrolik communicates the results of an examination of the *Nautilus Pompilius,* two specimens of which, from the Bay of Amboyna, are possessed by the Academy of Sciences at Haarlem. (Ann. xii, p. 174.)

They are as follows: (1) The chambers contain nothing but gas which abounds in azote, and contains no carbonic acid. (2) The animal is attached to the shell only by means of the siphon. (3) The structure and position of the internal parts correspond [in general] with Owen's description. (4) The mandibles are horny, but covered with a bluish calcareous substance. (5) The number and relations of the pouches on the pericardium are as they have been described by Valenciennes. (6) The anus is not situated as figured by Valenciennes, but in the crescentic fissure of the lamellated organ, which Owen brings into relation with the oviduct. (7) There is a distinct opening in the pericardium, as described by Owen and denied by Valenciennes.

In the Annals also (xii, p. 305), is a paper by Owen on the tentacula of the *N. Pompilius,* in which he maintains his formerly expressed opinion, in opposition to the explanation of those organs by Valenciennes, who considers that the numerous tentacula correspond to the acetabula on the arms of the other cephalopods, and that there are only eight true arms.

Pteropoda.—An interesting Memoir on the Anatomy, Physiology, and Natural History of the *Pteropoda,* is given by Souleyet, in the Comptes rendus de l'Acad. des Sciences de Paris, xvii, p. 662; Froriep's Not. xxviii, pp. 81 and 97.

The naked and conchiferous *Pteropoda* are distinguished by the greater and less development of the oral organs and by other anatomical differences. They are all hermaphrodite; the penis is separated from the rest of the sexual organs, and is merely an exciting organ. Eyes are probably wanting in all the Pteropoda. The nervous collar presents ganglia only below the œsophagus. The author distinguishes in the nervous collar of the [cephalous] Mollusca three divisions [orders of ganglia]: (1) the superior pair of ganglia, which may be either in contact, or so far apart as to pass under the œsophagus, afford the nerves for the organs of sense; (2) the inferior pair, which may be either in contact or [sometimes] so far separate as to be placed above the œsophagus, serve for locomotion and common sensation; (3) besides these, at the inferior part of the nervous ring, there is a variable number of ganglia, connected with each other by commissures, and the nerves arising from which are never perfectly symmetrical, and ramify over the branchiæ and viscera. The inverted position in swimming is accounted for by the situation of the bulk of the viscera in the superior part of the body; and the opinion is expressed that a continual swimming movement does not, as is commonly supposed, really occur, but that the animals can partly float along quietly on the surface, or also affix themselves. As regards their systematic position the author does not consider their separation from the *Gasteropoda* as natural, he assigns them a place near *Bulla, Gasteropteron,* and *Aphysia.* The second part of the work contains the description of the genera and species.

Gasteropoda.—A. Paasch has published in these Arch. ix, I, p. 71, his careful and instructive researches on the Sexual System and Urinary organs of certain (indigenous) hermaphrodite Snails, such as *Paludina vivipara.*

Pulmonata.—Clarke (Annals xii, p. 333) enumerates

the Irish species of *Limax*, and figures them in three plates.

They are, *L. maximus*, L. *glaucus*, new species (*arboreus*, Bouchard Chantreux: mantle produced behind, with concentric striæ; albus flavescens, glauco variegatus, clypeo dorsoque duabus fasciis nigricantibus, tentaculis obscuris); *L. flavus*, Drap.; *L. agrestis*, L.; *L. Sowerbii*, Fèr.; *L. Gagates*, Drap.

L. rustica, Millet (Guérin Mag. pl. 63); shield smooth, clear red brown, with black lines on each side; body keeled, with two black fasciæ, lateral foramen situate rather posteriorly (subpostica). France.

Helix Charpentieri, Scholtz, l.c. allied to *faustina*, Ziegl., and *cornea*, Drap. Silesia. *H. Sowerbyana*, *fulvida*, *porphyria*, *indistincta*, *mexicana*, *oajacensis*, *Winteriana*, and *pomum*, Pfeiffer, all of which have been already described in his 'Symbolæ Heliceorum,' are figured by Philippi, in his second Part; and *H. bicincta*, *Guerini*, *detecta*, *lusitanica*, Pfeiffer, are also figured in the third part of Philippi's work, as well as *H. Cumingii* (Proc. Zool. Soc. 1842), *paludosa*, and *fragilis*, Pfeiffer. (Wiegmann's Archiv. 1839.) *H. plana*, Dunker, ib. discoid, with a callous tooth on the columella. East Indies. ? *H. Zeus* (Proc. Zool. Soc. 1842.) Also *calamechroa* and *distorta*, Jonas, the two latter from Guinea. *H.* (*Helicella*) *australis*, Menke, l. c., allied to *H. irrorata*, Zgl.

Carocolla subplanata, Petit, from New Granada (Rev. Zool. p. 238), is closely allied to *H. plicata*, Born., but is smaller and flatter; it is figured in pl. 68 of 'Guérin's Magasin.'

Bulimus subsemiclausus, *Powisianus*, and *Goudoti*, Petit, from New Granada. (Rev. Zool. p. 239.) Are figured and described at length in 'Guérin's Magasin,' 1843, pl. 65-67; as are also *B. malleatus* and *fulguratus*, Jay, from South America, which had already been instituted in the 'Rev. Zool.,' 1842.—*B. bicinctus*, Recluz. (Rev. Zool. 1843), from Socotra.—Of this genus, Philippi in his third Part, has figured: *B. bullula*, Brod., *B. simplex* (Proc. 1842), *pallens*, and *guineensis*, Jonas, the two latter from Guinea, *fictilis*, Brod., *calobaptus*, Jonas (Proc. 1842), and the following species, which have been already instituted elsewhere (Proceed. Symb. and these Archiv.): *B. Cumingii*, *truncatus*, *sulcosus*, *fulvicans*, *Schiedeanus*, *canimarensis*, *turricula*. *pachychilus*, *Bridgesii* and *eburneus*. In the 'Mémoires de la Société Royale des Sciences de Liége' (tom. i, 1843 and 1844, p. 261, pl. 7) Nyst has figured and described two species from Columbia: *B. fulminans*, testa ovata-oblonga, imperforata, rugulosa, ventricosa, fulvo-brunnea, strigis flexuosis castaneis, sutura pallescente; longitu-

dinaliter sulcata, ultimo anfractu magno; apertura oblonga labro incrassato, repando, reflexo, atro-fusco, 60 millim. *B. Funckii:* testa ovato-oblonga, medio ventricosa, sublævigata, crassa, fusco-nigra anfractibus convexis; apertura ovata, intus fuscescente; columella subtorta, labro reflexo, incrassato, marginato, pallidè rufo. 90 mill. *B. indutus,* Menke (l. c.): perforate, six whorls, the last longer than the spire, labrum acute, yellowish, 18 lines. *B. bulla,* id.: perforate, six whorls, greenish yellow, with brown bands and striæ, 7 lines.

Pupa Jehennei and *arata,* Recluz., (Rev. Zool.) Socotra, figured in 'Guérin's Magasin,' pl. 75 and 76.

Petit has instituted a new genus in the family of the Helicidæ (Proc. Zool. Soc. 1843, p. 2.), whose species inhabit the islands of the Pacific. *Elasmatina,* testa ovata seu turrita, fragilis, pellucida; columella uni- vel pluridentata, dentibus lamelliformibus; labrum tenue, acutum. Four new species: *E. subulata, Cumingiana, reclusiana,* and *globosa.*

W. H. Benson describes a new genus in the family of the Limneaceæ, which appears to be the intermediate step to *Ancylus.* It is named *Camptoceras:* testa elongata sinistrorsa, anfractibus paucis productis, haud connexis, spira saliente subrecta; apertura oblonga, libera, integra; peristomate acuto, continuo. Animal tentaculis duobus filiformibus, obtusis, munitum; oculis magnis inter tentacula sitis; proboscide mediocri; pallio labia testæ haud transeunte. Pede brevi longitudinem aperturæ vix superante. The only species, *C. terebra,* has three whorls with two angles. Bengal. (Calcutta Journal, iii, p. 465.)

Auricula (*Cassidula*) *rugata,* Menke: with seven whorls, longitudinally plicated, labrum thickened, three orange-coloured teeth on the columella, 15 lines. At Victoria River.

Scarabus Cumingianus, Petit. (Proc. Zool. Soc. p. 3.) From Zebu Island.

Cyclostoma naticoides, Recluz. (Rev. Zool.) Socotra. *C. clathratula,* id. ib. (An. juv. spec. precedentis?) Both are figured in 'Guérin's Mag.,' pl.73-74. The former is distinguished by a thick callosity, similar to that of some species of *Natica;* the latter has a perforate umbilicus. *C. bilabre,* Menke (l. c.), without umbilicus, with double oral margin, the external reflexed. South coast of New Holland. Twelve new species by Sowerby. (Proc. 1843, p. 29.) *C. suturale,* from Demerara, *rugulosum,* from Jamaica, *semistriatum,* from the East Indies, *translucidum, brasiliense, giganteum,* from Panama, *corrugatum,* from Jamaica, *clathratulum,* from Arabia, *tigrinum, pileus,* and *linguiferum,* the three latter from the Philippines, *Listeri,* Gray, from the Mauritius.—*C. stramineum,* Hinds. (Proc. p. 46.) From Merida.

Further, twenty-eight species of this genus, by Sowerby (Proc. p. 59), which are all figured in his Thesaurus.

Pectinibranchia.—*Paludina decipiens*, Millet. (Guérin Mag. pl. 63.)

Five or six ventricose whorls with deeply-impressed sutures, the last whorl very tumid, and separated from the preceding by a large umbilical fissure. France. The figure does not appear to be good. The species may, very possibly, be the same as *P. Troschelii*, described by Paasch. France. *P. granum*, Menke (l. c.), perforate, smooth, five whorls, throat yellow, $1\frac{1}{3}$ line. Swan River.—Of *Melania* twelve species have been figured by Philippi, half of which are new: *M. coffea*, Phil., from Java (?) *Hügelii*, Ph., from New Holland (?) *siccata*, v. Busch, from Java, *Largillierti*, Ph., from Central America, *Schiedeana*, Ph., from Mexico, *strigilata*, Dunker, locality not mentioned.—*M. lirata*, Menke, turreted, yellowish green, the last whorl surrounded with delicate furrows, Columella with sharp plicæ, $8\frac{1}{2}$ lines. Avon River.

Benson (l. c.) has instituted a new genus, *Tricula*, allied to *Melania*: testa spira elongatiuscula, apertura obliqua, ovata, integra superne angulata; peristomate continuo, subreflexo; anfractu ultimo subumbilicato. Animal Melaniæ simile; proboscide elongatâ, antice emarginatâ, tentaculis filiformibus duobus oculos postice prope basin gerentibus; pede mediocri-ovato antice subquadrato. Operculo corneo subspirali. *T. montana*, in the river near Bhimtâl.

Truncatella striatula, Menke, turreted, perforate, transversely striated, 5 lines. West Coast of New Holland.

Recluz has described several species of *Rissoa*, from the coasts of France, in the 'Rev. Zool.,' p. 5: *R. souleyetana, lilacina, arata, minutissima*, Mich. Var., *Guérini, parva* (*Turbo parv.*, Maton), *cancellata* (*Turb. canc.*, Lam., *Rissoa lactea*, Mich.), *costata* (*Turbo costatus*, Montagu, *R. carinata*, Phil.), *matoniana, striatula* (*Turbo striat.*, Montagu). *vittata* (*Turbo. vitt.*, Donovan), (*Turbo cingillus*, Mont.), *unifasciata* (*Turbo unif.*, Mont., *Rissoa fulva*. Mich.) And in page 104 are *R. cyclomostomata, Deshayesiana, præusta.*

Hinds has instituted eight new species of *Scalaria*: (Proc. p. 124) *Sc. glabrata, Dianæ, vestalis, suturalis, aciculina, creberrima, porrecta, vulpina.* The same naturalist has described (Annals, xi, p. 16) twenty-nine new species of the genus *Triphoris*, (Desh.), small, sinistral *Cerithia*. He divides the genus into three sub-genera.

(1) *Ino*: testa cylindrica, elongata, acuminata; to which belong *Triphoris gigas*, from New Guinea, *concors, sculptus, vittatus, bilix*, from Malacca, *Metcalfeii*, from the Pacific, *cancellatus, corrugatus, maxillaris*, from Malacca, *micans, asperrimus*, from New Guinea, *marmoratus*, from the West Indies, *elegans*, from Malacca.

(2) *Sychar:* testa elongata, anfractus rotundati, apex mamillaris; containing *Tr. vitreus*, from Malacca.

(3) *Mastonia:* testa acuminata, circa medium tumida; including *Tr. vulpinus, ruber, Carteretensis*, from New Ireland, *T. monilifer, clemens*, from Malacca, *T. Grayii*, from the Mediterranean, *T. affinis* and *castus*, from the West Indies, *T. cœlebs, æmulans, concinnus, roseus, candidus*, and *hilaris*, from the Pacific, *tristis*, to which no locality is assigned. It is probably to be expected that of these numerous species several will be united as varieties of one and the same. The differences relate principally to the number of whorls, and to the number and colour of the rows of tubercles. To the above may be added, from the same author (Proc. p. 22), *T.* (*Ino*) *pagodus* and *T.* (*Mastonia*) *collaris*, from the Philippines.

Natica sagittata, Menke: globular, with curved longitudinal lines, a series of round spots at the suture; in the middle of the last whorl, three rows of arrow-shaped spots; umbilicus contracted by a white callosity. *N. sertata*, id.: hemispherical, longitudinally furrowed at the suture; on the last whorl, two rows of brown coloured branching spots; both from the west coast of New Holland. Recluz has described (Proc. p. 204) thirty-one species of this genus, most of which are stated to be new. *N. Cookii*, Recluz. (Proc. p. 197), from Comora.

Of the genus *Narica*, which with *Velutina, Fossarus*, and perhaps *Neritopsis*, would seem to constitute a special small family, the Velutinidæ, between Blainville's Coriocellæ and the Neritæ, Recluz has enumerated the nine hitherto known species, and added eight collected by Cuming in the Philippines, and four from his own collection.

In the second part of Philippi's work, one plate exhibits fourteen species of *Neritinæ*. Of these are described as new: *N. elegantina*, Busch, (*N. purpurea*, Cuming), and six species by the same author from Java: *rugosa, fuliginosa, flavovirens, inconspicua, bella*, and *nubila; aterrina*, Koch, locality unknown, and *lugubris*, Phil., from the Sandwich Islands. Besides which there are figured, *granosa*, Sow., *ziczac*, Lam., *melanostoma*, Trosch., *sandwichensis*, Desh.? *bætica*, Lam. In the conclusion it is remarked that *N. hamuligera*, Trosch. = *N. Smithii*, Gray (Sow. Conch. iii, fig. 36); the former name, consequently must be abolished. Recluz again institutes ten species of *Nerita* (Proc. p. 71), and further (ib. p. 198) eleven species. Of the last, *N. Rumphii*, he distinguishes thirty-two varieties.

Lovell Reeve gives the diagnoses of ten species of *Delphinula*, which are figured in his Conchologia iconica. (Proc. Zool. Soc. p. 141.)

Two plates, one in the second, and one in the third Part of his work, are devoted by Philippi to the genus *Trochus* in the widest acceptation of the name. In the first plate eight species are figured: *T. triumphans*, Ph., (*Guilfordiæ*, Reeve), *Hanleyanus*, Reeve, *Antonii*, Koch, allied to *T. granulatus*, Born,

perspectivus, Koch, related to the fossil *euomphalus*, Ph., *agrestis*, Ph., resembling *T. conulus*, *vinctus*, Ph., by later observation found to be *T. bicingulatus*, Lam., *T. miniatus*, Anton, *Tr.* (*Turbo*) *digitatus*, Desh., from Acapulco. The new species are all given without any assigned locality. In the second plate eleven species are figured: *Turbo Fokkesii*, Jonas, from California, *Tr. cicatricosus*, Jonas, from New Holland, *Tr. carinatus*, Koch., from Central America, *Tr. rubroflammulatus*, Koch, *Monodonta Dunkeri*, Koch. *Mon. Philippii*, Koch, *Tr. corrugatus*, Koch, the latter four without assigned locality, *Tr. chlorostomus*, Menke, from New Holland, *Tr. strigilatus*, Anton., from California, *Tr. tuberosus*, Phil., related to *Tr. cælatus*, *Tr. torulosus*, Phil., both without assigned locality.

Philippi is in favour of a complete union of the genera *Trochus, Monodonta, Turbo,* and with regard to this, expresses the opinion that no great importance is to be placed in the difference of the operculum. According to my researches, there exist highly important anatomical distinctions, especially in the formation of the oral organs, which render it necessary to admit a whole series of genera in this family. There are species with a horny, and others with a calcareous operculum, with and without maxillæ, with and without keel; the presence or absence also, as well as the nature of the umbilicus, is of great importance, and the peculiarities of the aperture should not be disregarded. A more certain definition of the genera cannot be effected until a sufficient amount of observations on the anatomy of numerous species has been obtained. The genera *Trochus, Monodonta,* and *Turbo,* are obviously not sufficient and as such, are not to be separated.

Trochus Philberti and *agathensis*, Recluz. (Rev. Zool.), on the coast of Cette. *T. nassaviensis*, Chemn. (ib. p. 107). *T. subcarinata* (*Helix subcarin.*, Montagu) (ib.) *Tr. prasinus, ciliaris, viridulus, chlorostomus* (fig. by Philippi), *Preissii, Lehmanni* (probably *Phasianella elegans*, Lam.), *impervius, vitiligineus* all from the west coast of New Holland, are described as new species by Menke. (l. c.)

Monodonta sitis, Recluz. (Rev. Zool.) Cette.—By Menke, *M. melanoloma, baccata, crenulata, ringens, maxillata, virgata*, from the west coast of New Holland. *M. lupina* and *turrita* are afterwards (Zeitsc. für Malocozoologie) recognized by the author himself as *M. denticulata* and *conica* of Gray; *M. apicina* is *Trochus irisodontes* of Quoy and Gaimard.

Turbo Lehmanni, Menke (l. c.), with a thin horny operculum, spotted, belongs to the *Margaritæ*, Leach.

Phasianella pulchella, Recluz (Rev. Zool.), whitish yellow, with dark purple violet lines. Atlantic Ocean. *Ph. brevis*, Menke (l. c.), from the south coast of New Holland. *Ph. Lehmanni* and *Preissii*, of the same author, are, according to a later notice (Zeitschrift, &c.) varieties of *Ph. bulimoides*, and figured as such by Quoy and Gaimard. (Voy. de l'Astrolabe.)

Phos veraguensis, Hinds (Annals, xi, p. 257), from the coast of Veragua. *Ph. crassus*, id., from Panama.

Gaskoin describes two new Cyprææ (Proceed. p. 23), *C. Saulæ* and *leucostoma*, from the Philippines.

Marginella liturata, Menke (l. c.), yellowish green with angularly punctated, brown, longitudinal stripes.

Conus marchionatus, Hinds (Annals, xi, p. 256), white, with brown angular reticulations, furrowed. Marquesas. *C. patricius*, id. (ib.) coronate, striped, superiorly plicated. Gulf of Nicoya, Central America. *C. cœlebs*, id. (ib.), with raised lines; base of columella and apex violet. Feejee Islands.

Conus Delessertii, Recluz (Rev. Zool. p. 2), from Socotra in the Red Sea, with a much elongated spire, is figured in 'Guerin's Magasin.' (pl. 72.) *C. rutilus*, Menke (l. c.). By Lovell Reeve (Proceed. p. 12.) *C. Stainforthii*, *lignarius*, *magnificus*, and *Neptunus*, all from the Philippines, and already figured in the author's 'Conchologia iconica.' *C. vidua* and *furvus*, also by Reeve (Proc. p. 79); fifty-one species of the same by Reeve. (Proceed. p. 168.)

Mitra Belcheri, Hinds (Annals, xi, p. 255), milk-white with black epidermis, four plicæ on the columella. West coast of Central America.

Voluta reticulata, Reeve (Proc. p. 144), resembles in figure, *V. pallida*, but presents fine brown reticulations on a yellow ground; the interlacement of the reticulations forming two broad bands. New Holland.

Terebra albula, Menke (l. c.), milk-white, longitudinally plicated.—Hinds enumerates 108 living and 24 fossil species of this genus, 50 of which are new; 16 are from the Indian Ocean, 6 from the African Seas, 12 from the American Seas, and 5 from the Pacific; of 11 the locality is unknown. (Proc. 1843, p. 149.)

Buccinum acuminatum, Menke, long fusiform, smooth, striped at the base, reddish brown, with black and white jointed bands beneath the suture. *B. fasciculare*, id., translucent, white, with fine brown lines. Both from the west coast of New Holland.

Planaxis atropurpurea, Recluz (Rev. Zool. p. 261), smooth, with three stripes at the base. South Seas.

Columbella bidentata, Menke (l. c.), white, reticulated with wide brown

longitudinal lines, two plicæ on the columella. West coast of New Holland.

Cassis paucirugis, Menke (l. c.), differs from *C. pyrum* by the lip being toothed internally.

Murex antillarum, centrifuga, festivus, foveolatus, ananas, Belcheri, californicus, hamatus, cirrosus, gravidus, radicatus, and *peritus*, Hinds (Proc. p. 126.) *M. Boivinii*, Kiener (l. c.), without assigned locality, *alveatus, exiguus*, id., all with more than three varices, *calcar*, id., with lamellated varices.

L. Pfeiffer gives a 'Notice Critique à une Monographie du genre *Tritonium*, Cuv.,' in which eighty-nine species are enumerated, since the genus *Ranella* is united with *Tritonium*. (Rev. Zool. p. 134.) The chief object of this Monograph is to clear up the synonymy and to do justice to priority in the names. Menke describes (l. c.) a new species: *T. rutilum*, from New Holland.

Ranella californica, Hinds (Annals, xi, p. 255), with a single row of tubercles, and transverse granulated striæ, the last whorl with many rows of tubercles. California.

Hinds gives three new species of Broderip's genus, *Trichotropis*, from the collection of Captain Belcher, of H. M. S. Sulphur (Proc. p. 17): *T. cancellata, inermis*, and *flavida*, the two former from Sitka. He describes, also, from the same collection: *Typhis quadratus*, from the Bay of Guayaquil, *T. arcuatus*, from the Cape, and *T. nitens*, from Macassar.

Fusus ventricosus and *exilis*, Menke (l. c.)

Lovell Reeve (Proc. p. 31) institutes ten new species of *Pleurotoma*, which it is said are to be forthwith figured in his 'Conchologia iconica.' *P. Garnonsii* (*babylonia*, var., Kiener), *spectabilis*, both from the Philippines, *exasperata, arcuata*, from Central America, *picta*, Beck, MS., from Panama, *papalis* (*mitræformis*, var., Kiener), *obesa, virginea*, Beck, MS., from the mouth of the Gambia, *annulata*, and *catena*.—(Ib. p. 36) are eight species of the same genus, collected by R. B. Hinds in the Voyage of the Sulphur. *P. nobilis*, from Mexico, *gemmata*, from California, *jubata*, from China, *stolida* and *gravis*, from the Cape, *inermis*, from California, *violacea*, from New Guinea. These species belong to that division of the genus which possesses a long canal, from which the author separates the division, Clavatula, Lam., with a short canal, in which he describes forty-nine new species collected in the most various seas. In the third division, Mangelia, Leach, in which the want of operculum is stated as probable, five species are next described: *cinnamomea, coronata, vittata oriza*, and *celebensis*, all from Macassar.—(Ib. p. 181) follow thirty species, by Reeve, which are figured in the 'Conchologia iconica.'

Hinds institutes, in the 'Annals,' xi, p. 256, a new genus, *Cyrtulus*, in the family of the Pyrulidæ.

Testa fusiformis; anfr. ultimus et penultimus turbinatus; spira per saltum

ascendens; apertura linearis in canali brevi effuso desinens; columella valde arcuata, superne callosa; labium externum acutum; umbilicus parvus. Epidermis lævis. *C. serotinus.* Marquesas.

Hinds describes (Proceed. p. 47) ten new *Cancellariæ: C. ventricosa, urceolata, albida, cremata, corrugata, elata, funiculata,* all from the west coast of America, *bicolor,* from Macassar, *lamellosa,* from various parts of the Indian Ocean, *antiquata,* from New Guinea.

Pomatobranchia.—Recluz describes, in the 'Rev. Zool.,' *Ovula triticea,* Blainv., as *Bulla Blainvilleana.* Atlantic Ocean.

Nudibranchia.—Alder and Hancock have described a new British *Calliopæa, C. dendritica* (Annals, xii, p. 233), where they also give four new species of *Eolis: E. stipata, pellucida, curta,* and *concinna,* all British.

The same authors have published their observations on the development of *Eolis, Melibæa,* and *Tritonia,* which have an immediate connexion with those of Sars. The development of the ova requires about fourteen days. They observed in *Eolis* a system of vessels in connexion with the alimentary canal, similar to that discovered by Milne Edwards in *Calliopæa,* except that there were not two longitudinal vessels, but only one, which sends branches to the papillæ. Within the extremity of each papilla is an ovate vesicle, which is connected to the central tube by means of a transparent vessel. By the contraction of this vesicle minute bodies are occasionally expelled from the extremity of the papilla. The auditory organs also were observed. The authors, like Blainville, look upon the dorsal tentacles as an olfactory organ.

De Quatrefages read, at the Académie de Paris, the description of a new Mollusc, *Eolidina paradoxa,* which would in many points appear to form a transition to the *Annulata.* A more particular description must be awaited (Comptes rendus, vol. xvi, p. 1123) with reference to this; vide observations by Alder and Hancock. (Annals xii, p. 238.)

Aspidobranchia.—*Haliotis scabricosta,* Menke, with scaly

costæ. Mistaken Island. *H. semiplicata,* id., anteriorly, longitudinally plicated.

The French species of *Emarginala* have been described by Recluz, in the 'Rev. Zool.,' and the synonymy cleared up. They are as follows : *E. fissura,* Lam., *lævis, rosea,* Bell, *Hazardi,* Payr., *elongata,* Costa, *fissurata,* Sowerb., *franciscana,* Recluz, new species.

Fissurella reticulata is distinguished as a species from *F. græca,* by Recluz. (Rev. Zool. p. 110.) *F. occitanica,* id. (ib.) *F. oblonga,* Menke, rose-coloured.

Fissurella (*Rimula*) *striata,* Recluz. (Rev. Zool. p. 228.)

Cyclobranchia.—*Patella onychitis* and *insignis,* Menke, of which the latter in his opinion is the forgotten *P. cruciata,* L.—*Chiton biradiatus,* Sowerby, from the Philippines. (Proc. p. 102.)

CONCHIFERA.

D'Orbigny has considered the question of the natural position of the bivalve Molluscs. Linnæus, Bruguière, and Lamarck place the hinge inferiorly, Blainville reverses the position, and places it superiorly, Deshayes assigns an inferior position to the siphons and a superior one to the mouth. D'Orbigny would now, in the symmetrical *Conchifera,* propose the last possible position that remains for these organs, and would make the siphons superior and the mouth inferior, because in its natural position the animal assumes a posture corresponding to this. It is undoubtedly true that in the living *Conchifer* the siphons are extended upwards and the mouth directed downwards, but not in such a way as that these organs should assume a perpendicular position, for the siphons are directed upwards and backwards. I am, consequently, unable to agree in opinion with D'Orbigny. The natural position of the *Conchifera* is between the perpendicular and horizontal. In consequence of the animal's pushing itself forward in the sand by means of the fleshy foot, the position approaches much more nearly to the horizontal, so that it is evident that unless we carry accuracy so

far as to consider the position as oblique, with the anus directed upwards and backwards, Blainville's representation, which makes the hinge superior, should be preferred. With respect to the asymmetrical Conchifers, the author very acutely observes, that they stand in the same relation towards the symmetrical as the *Pleuronectæ* do to the rest of the *fishes*, and that, consequently, in them the valves are to be distinguished not into left and right, but into superior and inferior. They are placed on the side. (Comptes rendus, xvi, p. 561, 1843; Froriep's Notiz. xxvii, p. 193.) This innovation of D'Orbigny's is attacked by Deshayes (Comptes rendus, xvii, p. 1333), and defended again by D'Orbigny. (Ib. p. 1364.)

Templeton states that *Avicula radiata*, Leach, is the *Pearl-oyster* of Ceylon. It is figured, 'Annals' xi, p. 325, pl. 7.

Menke describes (l. c.) a new *Plicatula*, *P. imbricata*, with scaled plications.

Lima Cumingii and *angulata*, Sower. (Proc. p. 23), both figured in his 'Thesaurus.'

Pecten bifidus, Menke, the costæ of the convex valve divided by a groove.

Two new species of Pinna are instituted by Menke (l. c.), *P. virgata* and *deltodes*; the latter from the mouth of Victoria River.

Küster contends (Isis, 1843, p. 565) for the dangerous assertion that in Europe numerous species of *Unio* and *Anodonta* should be distinguished. It is very possible that an accurate study and careful discrimination would be of great utility, but the numerous European species adduced can only be regarded, in my opinion, as local varieties of a few species. This is not the place to carry out this view further, and it is here merely referred to.

Unio bigerrensis (Guérin, Mag. pl. 64), testa pseudo-elliptica, crassa, non hiante, posterius bicolorata, obliquè truncata; radiis viridibus aut-rufescentibus divergentibus: natibus decorticatis erosissimis; dentibus cardinalibus brevibus crassis, sulcatis, et dentatis non regulatim, laterali acuto lamelloso. *U. manca* id. (ib.), testa oblonga reni-formis, natibus prominulis, non decorticatis, undato-rugosis. Both from France. *U. panacoensis*, v. d. Busch in Philippi (Heft 2), is a beautiful large species from the river Panaco, near Tampico.

Castalia Duprei, Recluz (Rev. Zool. p. 305, and Guérin's Magas. pl. 77, 78), from the great lake of Para, in Brazil.

The genus *Arca* is enriched by Philippi (Heft. 2) with a very peculiar species, *A. Hemicardium*, Koch, which is anteriorly, truncated directly downwards from the beak; the posterior cardinal teeth are uncinate, and form an angle open posteriorly. This species might very properly be taken for the type of a new genus. Its native locality is not given; it comes, however, from Peru, where it was collected by Dr. v. Tschudi. In the same plate are also figured *A. tuberculosa*, Sow., *brasiliana*, Lam., and *pexata*, Say.

Pectunculus giganteus, from California, *raripictus*, *aurifluus*, and *holosericus*, all without assigned locality, by Lovell Reeve. (Proc. p. 33.) By the same (ib. 79), *P. bicolor*, from California, *pallium*, from Zanzibar, *nodosus*, from Ceylon, *lineatus*, from the West Indies, *obliquus*, from Swan Piver, *tellinæformis*, from Rio Janeiro, *tenuicostatus*, from Australia;—and further (p. 190), 12 more species: *spurcus*, *pertusus*, *oculatus*, *cancellatus*, *morum*, *Siculus*, *perdix*, *spadiceus*, *formosus*, *sericatus*, *lividus*, and *Delessertii*.

The genus *Nucula* is enriched by Hinds with about 23 new species from the collection of Belcher and Cuming. (Proc. p. 97.)

Chama spondylodes, Menke (l. c.), allied to *Chama asperella*, Lam.

Menke has instituted three new species of *Cardita*, of which he afterwards states in his journal that *C. rubicunda* is figured by Reeve as *C. incrassata*, β, and *C. Preissii*, under that name; *C. tridacnoides* he also explains to be (ib.) *C. crassicostata*, Lam. Reeve describes (Proc. p. 191) 21 more species of this genus.

Lovell Reeve gives 7 new species of *Cypricardia*, which are figured in the 'Conch. iconic.': *C. serrata*, *decussata*, *vellicata*, *incarnata*, *laminata*, *obesa*, *solenoides*. (Proc. p. 195.)

In the plate of the second part of Philippi's Conchyliological work, which is devoted to the genus *Venus*, there are figured, *V. undulosa*, and *tristis*, Lam., *semicancellata*, Koch, from Java, *V. Kochii*, Phil., without native locality, and *V. africana*, v. Mühlfeld, from the Cape of Good Hope.—Menke describes (l. c.) *V. gravescens* and *cælata* as new.

Cytherea scalaris and *vaginalis*, Menke (l. c.)

Lucina cristata, which had been already described in the 'Rev. Zool.' 1842, by Recluz, is figured in Guérin's 'Magasin' (1843, pl. 60.) *L. corrugata*, Desh. (Guérin's Magas. pl. 82), testa orbiculari, lentiformi, ventricosa, transversim et irregulariter sulcato-lamellosa, lineolis squalide fuscis radiata, intus extusque alba; cardine incrassato, edentulo. California.

Pisidium roseum, Scholtz (l. c.), transparent, with opaque transverse bands, beak somewhat recurved. Animal of a rose red. Silesia; in the pools at the entrance into the snow-pits.—*P. semen*, Menke, from Swan River.

Tellina ligamentina, Deshayes (Guérin, Mag. pl. 81), testa ovato-oblonga,

depressa, tenui, fragili, alba, hiante, subæquilatera, postice subangulata, subinæquivalvi; cardine angusto imidentato; nymphis incrassatis, profundis. *Patria?* In the third part of Philippi, a plate contains *T.* (*Solen*) *constricta*, Brug. (*Psammabia cayennensis*, Lam.); and, besides this, four species as new: *T. sericena*, *truncata*, and *hippopoidea*, Jonas, from China, and *T. pellucida*, Phil., without any assigned locality.

Donax Powisiana, Recluz (Rev. Zool. p. 261), locality unknown. *D. salcarius*, Menke (l. c.)—Five new species are described by Hanley (Proc. Zool. Soc. p. 5): *D. semisulcata*, *punctato-striata*, *carinata*,, *dentifera*, and *pulchella*: the last from the West Indies; the native localities of the others unknown.

Hinds describes 22 new species of *Corbula*, collected partly in the voyage of Captain Belcher, and partly by Cuming; most of them from the Philippines, some from the west coast of America.

Mactra decussata, Menke (l. c.), from the west coast of New Holland.

Mesodesma lata, Deshayes (Guérin, Mag. pl. 80), testa ovato trigona, depressa, solida, lævigata, transversim, substriata, subæquilatera; latere postico breviore, antico latiore; marginibus integris; apice minime; cardine augusto; foveola ligamentali profunda. *Patria?* *M. triquetrum* and *planum*, Hanley. (Proc. p. 101.)

Recluz defines, in the 'Rev. Zool.' p. 166, a new genus, *Poronia*, between *Erycina* and *Amphidesma*, with the following characters: "Animal ferè ignotum, pallio postice bilobo: siphonibus duobus, disjunctis; pede plano, acuto. Testa ovata, seu subrotunda, regularis, transversalis, æquivalvis, inæquilatera, clausa; apices minuti, antice recurvati. Lunula areaque nullæ. Cardo dentibus cardinalibus duobus in utrâque valvulâ, apicali minima ante auctam, antica majori apicalem approximata, transversali, concava, ad marginem superam inflexa, et in valvulâ dextrâ inserta, fossulâ interpositâ, elongatâ oblique valde transversali, sub dente laterali decurrente, ligamentum magnum, cartilagineum, unicum ferente; dente laterali unicâ, posticâ, remotâ, in valvula sinistrâ, triangularia, in dextrâ insertâ. Impressiones musculares ovales. æquales. Sinus palliaris nullus." It embraces 3 species, *P. Adansonica* (*Le poron*, Adans), from Senegal, *P. Petitiana*, from Peru, *P. rubra* (*Cardium rubrum*, Montagu, *Kellia rubra*, Turt.), from the English coast.

Recluz (Rev. Zool. p. 292 and 359) divides the genus *Amphidesma* (after deduction of the species with simple ligament) into two genera. The first of these, of which *Amphidesma variegata*, Lam., and *A. reticulata*, Sow. (*Lucina ret.*, Lam.), are the types, retains the name of *Amphidesma;* the other, which includes *Amph. Boysii*, *prismatica*, *tenuis*, *nucleola*, and *purpurascens*, Lam., *Erycina Renieri*, Brown, and *Amph. segmentum*, Costa, receives the name of *Syndosmya*. It presents a new species, *S. ocitanica*. All these species are European, and very small. Mantle with wide opening, being

united merely into a short tube for the siphons. The siphons separate, the superior shorter, foot long, compressed; curved valve free, inequilateral Two minute cardinal teeth, under the apex on the right, one on the left, behind them a hollow for the internal ligament, two triangular lateral teeth on the right. An external and internal ligament; pallial impression large.

Mya semistriata, Hanley (Proc. p. 6), is defined from a single shell.

Potomomya nimbosa, Hinds, from the Rio de la Plata, and *ocreata*, Hinds, from fresh-water streams in Brazil.

E. Forbes adds to the two already known species of *Neæra*, Gray, two new ones, from the Ægean Sea, *N. attenuata* and *abbreviata*. (Proc. p. 75.)

Ib. is contained the description of 17 species of this genus by Hinds, among which are included *Corbula costellata*, Desh., *Anatina costata*, Sow., *Mya rostrata*, Chemn., and *Tellina cuspidata*.

A plate in the second Part of Philippi's work represents *Solen*, viz. *Solen abbreviatus*, Phil. (*Solen vagina*, Var. *abbr.*, Lam.), *truncatus*, Sower., *vaginoides*, Lam., *intermedius*, Koch (*S. vagina*, var. *a*, Lam.), *Vagina*, Linn., and *S. marginatus*, Koch, from Africa, which differs from *Vagina* by the narrower and rounded posterior end. Three species are described by Hanley (Proc. p. 101), *S. philippinarum*, from the Philippines, *acinaces*, and *cylindraceus*, without assigned locality.

Pholas dilatata, Souleyet, from Manilla. (Rev. Zool. p. 176.) *P. spathulata*, Desh. (Guérin, Mag. pl. 79), transversely lamellated, longitudinally striated, smooth posteriorly, beaked anteriorly. Chili.

Caillaud communicates, in Guérin's 'Magas.' pl. 69-71, interesting observations on *Gastrochena modiolina*, which he made at Malta. The animal is furnished with a calcareous tube, which internally for about one third of its length presents two ridges, which not being united separate the siphons imperfectly. The very minute animals bore extremely fine holes in the stone, of which holes two are always situated close together, though entirely distinct. The author asserts that the animal, before reaching its full development, must possess the form of a thread-like worm, which penetrates to a depth of even 20 millimetres, according to the degree of hardness of the stone, then makes a turn, and thus bores a second hole parallel to the former until it has effected a second opening. The author has met with instances in which the second portion of the

boring has been only half completed. This process must be effected in a short time, since both the external openings are of the same size. As the animal becomes further developed, and the tubes enlarged, the partition is broken through. The author believes, from comparison of the size of the borings, that it must be assumed that the animal changes them three times before it reaches its full growth. The interior of the excavation, moreover, is perfectly circular, so that the animal probably, during its growth, turns itself round and round like the *Pholas*. No such turning on the axis occurs with *Modiola lithophaga*, in which case the excavation is oval.

END OF REPORTS FOR 1843.

REPORTS

ON

THE PROGRESS OF ZOOLOGY,

FOR THE YEAR 1844.

TRANSLATED FROM THE GERMAN

BY

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MAMMALIA.

BY

PROFESSOR ANDR. WAGNER, OF MUNICH.

For the two classes of Vertebrate animals over which our yearly report extends, J. J. Kaup endeavours to devise a new scheme of arrangement in his 'Classification der Saügthiere und Vögel;' Darmstadt, 1844.

This attempt is a physio-philosophical classification constructed, with some alterations, according to the principles of Oken. "The sacred number 5 is," in the opening words of our author, "*the necessary result* of his investigations, and is based upon the quinary number of the senses, which are to be regarded as the floral organs or blossoms of the five anatomical systems. Of these last there is, as he assures us further on in the work, exactly the same number as of the sensorial organs, observing that "all the rest that were framed by Oken must be regarded as subordinate. "Now the eye is the blossom of the vital organs or nerves, the ear that of the respiratory organs or lungs, the nose of the organs of support or the bones (!!), the tongue of the digestive organs or muscles (!!), the organs of increase or generation the blossom of the integument or tactile organs." In accordance with this number five and the serial arrangement of the floral organs, the author proceeds to enter into the details of his system, and expresses a hope "that once for all, the time has dawned when science shall be disencumbered of unmeaning attempts at systematizing, and the correctness of this his arrangement become acknowledged." In this we would indeed yield our consent to the author, had it pleased him to adduce proofs of his assertions. But he has completely kept to himself the key that should unlock his own principles; and we must, therefore, with regard to their accuracy, rely merely upon the author's word for it, and await the time when, no right being conceded to mere credit, many a naturalist may cease to interpret, as strange or fanciful, the peculiar department of his inquiries. We at once perceive in this systematizing a fruitless game of fantasy, that, apart from its

own author, will certainly play no further jest with any one else. The number five is for Kaup the bed of Procrustes; when the body to be laid upon this is too large or long, he shortens it, and when too short, unmercifully stretches it; so that our author may well glory in such adroit dealings: while he observes, "that hitherto no exception has occurred to me which might detract from the validity of the number 5, and I challenge Zoologists at large to point me such an one out." If we look into the details of this schematism, we are everywhere met by great capriciousness of arrangement. Thus e. g. the Rodentia, Insectivora, Marsupialia, Cheiroptera, and subspecies of Quadrumana have been thrown together into a single order, the Carnivora united with the Cetacea; among Birds the entire work of Nitzsch, with all its great results, has been left disregarded. Readily as we acknowledge the merit and importance of Kaup's palæontological contributions, the work now before us must, on the contrary, be declared a failure in its design. All further discussion will be therefore deferred, until the large museums of animated nature bestir themselves to dispose their Mammalia and Birds according to the new classification.

Of a different kind from the above is the Systematische Verzeichniss aller bis jetzt bekannten Saügthiere, oder Synopsis Mammalium nach dem Cuvierschen Systeme von Dr. Heinrich Schinz; Soloth, 1844, vol. i.

The arrangement of Cuvier is taken for a basis, and in conformity therewith the orders of Apes, Bats, Rapacious quadrupeds, and Marsupials are treated of in the first book. The fabrication of such a synopsis can at present occasion no great difficulty, when we have before us the published labours of Schreber, with, furthermore, the excellent monography of Waterhouse on the Marsupialia, and that of Nilsson on the Seals. There is nothing new to be found in this synopsis; even the previous literature might have been examined among other things more closely. Thus, e. g., scarcely any reference has been made to the superlative work of Nitzsch; so that the species of Seals have not been properly arranged by Schinz. Phoca proboscidea and cristata, which in their entire structure obviously approximate each other, have been removed to the two extremities of the genus. After Phoca vitulina and caspica directly follows Ph. barbata; but then comes the Ph. annellata: a mode of arrangement that is utterly at fault, since the Ph. barbata differs in the condition of the dental system, cranium, vibrissæ, and feet so strikingly from the three other species, which present the highest amount of similarity to each other, that it cannot properly find a place amongst them. The critical examination, bestowed by Nitzsch upon the genus Otaria, is completely overlooked, so that a number of nominal species are still figured. In treating of the genus Nasua, Schinz

must have read rather carelessly the description of the Reporter, when he states "that Wagner resolves the two known species into one, and says that the Prinz von Wied and Rengger are of the same opinion;" for this is thoroughly incorrect. The Reporter says just the contrary (in Schreber's Suppl. ii, s. 166): "the Prinz von Wied distinguishes as a second and larger species the Nasua solitaria: Rengger also recognizing this second species."

The fourth and concluding part (1844) of the Supplement band to Schreber's Mammalia, as continued by Andr. Wagner, terminates the Rodentia, to which succeed the Edentata, Solidungula, Pachydermata, and Ruminantia. The Seals, to be followed by the Cetacea, are already being prepared for the last volume.

The second part of the geographical distribution of the Mammalia, propounded by Dr. A. Wagner, has appeared in the Abhandl. der mathem. physikal klasse der k. bayerisch. Akadem der Wissenchaften, IV. Abth. 2.

The first part depicts, after a general introduction given to the subject, two provinces of the northern animal zones, namely, the polar and temperate. The second part is devoted to the third or the temperate province of North America, and is then applied to the consideration of the middle or tropical zones, of which the first or southern Asiatic province is treated of. The printing of this part has been long since concluded, so that its publication may be hopefully expected to follow towards the end of this year.

Numbers 14 and 15 of Blainville's Ostéographie have come to hand, and treat of the Hyæna and Manatus.

A very detailed comparative description of the cranium has been given by Otto Köstlin, in his work entitled 'Der Bau des knöchernen Kopfes in den vier klassen der Wirbelthiere;' Stuttg. 1844.

The Disquisitiones recentiores de arteriis Mammalium et Avium of L. Barkowius, in Nov. act. acad. nat. cur. xx, 2 (1844), p. 607, deserve to be mentioned with praise. We may here also notice with distinction the new edition of Gurlt's Anatomischen Abbildungen der Haus-Saügthiere, which has reached the 14th Number.

A very interesting Report concerning the institutions of natural history adjacent to, or upon the banks of, the Rhine, was communicated in the 'Isis,' s. 245. It ranges over the

collections of Strasburg, Mannheim, Kaiserslautern, Dürkheim, Mainz, Neuweid, Wiesbaden, Frankfurt, Darmstadt, Heidelberg, Carlsruhe, Freyburg, and Constanz.

A list of the specimens of Mammalia in the British Museum has been printed by order of the trustees; London, 1843; but, though in possession of the ornithological list, which appeared later, that of the Mammalia is still our desideratum.

In a work undertaken at the request of the committee of the Zoological Garden at Amsterdam, and entitled 'De Diergaarde en het Museum van het Genootschap Natura Artis Magistra te Amsterdam;' Amsterdam, 1842, 209, s. gr. 8, mit 25 Tafeln, H. Schlegel has, with happy tact, understood how to combine popular appearance with scientific contents, so that this work is as agreeable to read as it is instructive to the man of letters. The number of plates are capitally executed, and it must be adjudged an honour to the establishment of Westermann, the bookseller, that so goodly and substantial a "gem" for the public has received the greatest amount of care and attention in passing through the press.

The following animals are described and figured in this zoological garden:—Of the MAMMALIA: *Simia satyrus, Hylobates leuciscus, Ursus tibetanus, Felis leo, F. tigris, F. pardus* Temm., *F. concolor, Hyæna crocuta, Elephas indicus, Cervus tarandus, Antilope gnu, Bos taurus indicus, Halmaturus derbyanus.* Of BIRDS: *Vultur fulvus, Aquila fucosa, Strix bubo, Phasianus pictus, Struthio camelus, Anser ægyptiacus, Pelecanus onocrotalus.* Of REPTILES: *Chelonia viridis, Crocodilus lucius, Boa constrictor, Naja tripudians, Salamandra maxima.*

Of the zoological atlas to the work entitled 'Voyage autour du Monde sur le Frégate la Vénus pendant 1836-39, par M. A. Dupetit-Thouars,' and appearing at the government's expense, six fasciculi, though without text, have been issued.

In the third of these are contained tab. 5 of the skeleton of *Ursus ferox;* 10 of that of *Sciurus aureogaster*, Fr. Cuv. var.; 12 of *S. Nebouxii*, Is. Geoffr; and 13 of *Neotoma floridana.* In the fourth, *Cercopithecus Lalandii*, Is. Geoffr., tab. 1; *Procyon lotor*, var., tab. 6; *Felis albescens*, Puch, tab. 8. In the fifth, *Sciurus aureogaster*, var., tab. 11; heads and crania of

Nyctipithecus lemurinus and *felinus*, tab. 3; cranium and brain of *Callithrix Chrysothrix*, and *Hapale*, tab. 2. In the sixth fascicle, *Ursus arctos*, var. *Kamtschatk*, tab. 4; *Felis rufa*, tab. 9. All these being of Mammalia.

Special Faunas have been treated of in the following works:

Moselfauna, or Handbuch der Zoologie, enthaltend die Aufzahlung und Beschreibung der im Regierungsbezirke Trier beobachteten Thiere, mit Berucksichtigung der Angrenzung des Mosel departements und Belgiens, von M. Schäfer: Trier, 1844.

This first volume comprises the Vertebrata, of which not merely a simple enumeration of names and habitats, but the characters of the species and remarks concerning their mode of living, have been given; so that the author is seen to be well informed on his subject. Among the Mammalia deserving notice we must mention the *Wolf* which is not very rare, and in many severe winters makes its appearance before the gates of Trier. From the years 1816 to 1842 inclusive, there were no less than 1550 Wolves killed in the government district of Trier. The *Wild Cat* likewise occurs. The *Hamster* inhabits the country of Achen; *Myoxus nitela* and *avellanarius* are frequent, but the *M. glis* is, on the contrary, rare. The *Wild Boar* is common in the large woods; the *Roe* is frequent, but the *Stag* or *Red-deer* is always rare. The 'Zweiter Jahresbericht-der Pollichia,' Neust. a. d. Hardt. 1844, contains a list of the natural objects that occur in the province of Pollichia. The catalogue of the Mammalia and Birds has been prepared by Spannagel; the occurrence in this of the Wild Cat and Hamster are worthy of note.

Two Catalogues, one by Lesson, D'une Faune du département de la Charente-Inférieure, contained in the Actes de la Société Linnéene de Bordeaux, xii, p. 4, and another, by A. Tremeau de Rochebrune (at p. 211 of the Actes), D'une Partie des Animaux Vivants dans le dép. de la Charente, are worthy of note in respect to the distribution of our European species, Rochebrune having supplied the list of those that occur in the upper quarters of Charente, and Lesson that of those in the lower.

It is to be observed that where no author is denoted at the end of a name, that both Lesson and Rochebrune have bestowed it in common upon the species. Where an L. stands, the species is simply Lesson's; where an R. is attached, it has been indicated by Rochebrune. *Vespertilio noctula*, L., *serotinus*, L.,

pipistrellus, murinus, R., *auritus, barbastellus*, L., *Rhinolophus unihastatus, Erinaceus europæus, Sorex araneus, foviens*, R., *Talpa europæa, cæca*, L., (more rare than the others), *Meles vulgaris, Mustela vulgaris, erminea, vison*, L., *foina, Martes* L., *putorius, furo* (domesticated), *Lutra vulgaris, Canis lupus, vulpes, Viverra genetta*. The Wild Cat does not occur. *Phoca vitulina*, L. (one specimen has been captured in the Isle of Aix.) *Sciurus vulgaris, Myoxus nitela, avellanarius*, L., *Arvicola amphibius, arvalis, Mus decumanus, rattus, musculus, sylvaticus, campestris*, Fr. Cuv. (Field Mouse of the woods, Daub.), L., *Lepus timidus, cuniculus* (frequently wild), *Sus scrofa ferus* (occurs only occasionally), *Delphinus santonicus*. L., *phocæna*, L., *Balænoptera acuto-rostrata*, L., *borealis*, L.

With the Faune méridionale, ou Déscription de tous les animaux Vertébres vivans et fossiles, sauvages et domestiques, qui se rencontrent toute l'année, ou qui ne sont que de passage dans la plus grande partie du midi de la France; par J. Crespon; Montpell. 1844, we are only acquainted by its title. Also with the enumeration of the Mammalia and Birds in Lombardy, by G. Balsamo Crivelli, contained in the Notizie naturali e civili su la Lombardia, Milano, 1844, only by the short notice in the 'Isis' of 1845, s. 469.

General Remarks concerning the Fauna der Ukraine und der Steppe am Dneiper, are to be found in the 'Reise im sudlichen Russland von Blasius,' II, s. 314, u. 285.

The animal world of the Ukraine has in this work been so richly illustrated as to show that the species of the middle and south Russian Fauna here occur in mutual association. While, upon the one hand, the *Bear* and *Elk* here attain their southern limit of range, numerous other species, which belong rather to the south, reach the northern boundary of their roamings. The main body of animals consists only of those that are found in the middle of Europe northward of the Alps. The *Roe* completely agrees in character with our own; its occurrence is striking, since it is not met with in an easterly direction as far as the Ural, nor westward unto Volhynia and Lithuania. *Myoxus dryas* is not rare; several species of Sousliks, among which is *Spermophilus guttatus*, occur; *Arctomys bobac* is frequently kept in a tame state; *Arvicola glareola* is as frequent in the woods as *arvalis* is in the fields. While in the north, as low down as Petersburg, only a single Bat occurs: all the species of middle Europe are here met with. Among the rapacious animals, *Mustela sarmatica* affords a characteristic type. Although most of the characteristic species, that animate the south and steppes, advance for the first time further southward and south-east, still the Fauna of the south

and steppe is as definitely commenced by the Gerbils and Mole-rats, as the polar Fauna is in the north by the Lemmings. All the three species of *Spalax* established by Nordmann occur in the Ukraine, and belong collectively to *Sp. typhlus*. If in the north we feel inclined to adopt the Dwina as the physio-historical limit between Europe and Asia, so must the province of the uncultivated steppe in the south down to the northern coast of the Black Sea, and beyond the mouth of the Dniepr ranging westward, be placed to the account of Asia.

Bericht über die Expedition in das nordöstliche Siberien während der Sommerhälfte des Jahres 1843, von Dr. A. Th. v. Middendorf, in the 'Bullet de la Classe Phys. Math. de l'Acad. de Pétersbourg,' iii, p. 150.

In this extremely interesting German Report a list is contained at p. 289 of the Mammalia, Birds, and Fishes observed by the traveller, with here and there special observations concerning them. In Tamirland two species of *Lemmings* were observed; concerning these we shall make more detailed mention further on. *Arv. œconomus* occurred frequently as the only species of this genus at the Boganida (71¼°), but was absent at the river Tamyr in 73° north Br. *Arv. amphibius* prevails like an epidemic pest at Jenissei and the Lena, ranging as far as the cultivation of field and garden crops extends; yet it goes beyond this limit to Jenissei at 70°. *Mus musculus* approaches closer to the Polar circle. *Sciurus vulgaris* roams among the fir-trees to their utmost limit. *Sorex-araneus* and another, as yet undetermined, species, were captured under 71⅓°. *Canis lagopus* and *C. lupus* range as far north as Reindeer. *Mustela sibirica* disappears first within the polar circle. *Ursus arctos* and *Gulo borealis* make expeditions in the Tundra. The *Reindeer* annually set out on great excursions. The Seal that occurs in the gulfs is probably *Phoca barbata*.

Fauna Japonica, by Ph. F. de Siebold. Mammalia elaborantibus, Temminck and Schlegel, Dec. 2 and 3.

The second Decad in the text, prepared by Temminck, extends to the commencement of the description of *Nycterentes viverrinus*, at the same time giving plates with figures, that were in arrear, of land mammalia. The third Decad, of which Schlegel has been the author, is simply occupied with the Seals and Whales found in the Japanic waters, and furnishes figures also of these two divisions of Mammalia.

Verhandelingen over de natuurl. geschiedenis der Nederl. overzeesche bezittingen Zoologie. N. 10. The 10th Number, for the year 1844, of this beautiful work, is well worthy of note, from its comprising the joint description by

S. Müller and H. Schlegel of the *Squirrels* inhabiting the Indian Archipelago.

Beiträge zur Säugthier-Fauna von Kaschmir, by A. Wagner, in Baron von Hügel's 'Kaschmir,' iv, s. 567. The Reporter has endeavoured, so far as materials sufficed, to depict the Mammalian Fauna of Cashmire, and has established as new species *Megaderma spectrum* and *Herpestres pallidus*. Figures are given of the first-mentioned species, of *Lepus macrotus* and *Capra Falconeri*.

Only two Parts have appeared, in 1843, of A. Smith's 'Illustrations of the Zoology of South Africa,' London. Nos. 20 and 21 are published, but the work is slow in progress.

'Untersuchungen über die Fauna Peruana auf einer Reise in Peru während der Jahre,' 1838-42, von Dr. J. J. von Tschudi. St. Gallen, 1844; 2 Parts containing the Mammalia.

This is one of the most important physio-historical books of travel, revealing as it does to us the Fauna of a country hitherto but little known and yet exciting a high degree of interest, by reason of its contrast with the Brazilian fauna. For the first time we obtain satisfactory information concerning this remarkable fauna, and the Reporter freely confesses that but few works of travel have insured him so much gratification and instruction as the present. During the past year two parts have appeared, which begin with a geographical sketch of Peru, and a systematic enumeration (given in our Archives, s. 224) of all the Peruvian Mammalia known up to the present time; whereupon follows the description of the Apes and a portion of the Cheiroptera. The descriptions are executed with masterly precision and acute critical discernment; the mode of living and geographical distribution very fully treated of, and the figures true to nature and beautiful. The external appearance of the work is pleasing, with a praiseworthy avoidance of all unnecessary ornament. In the 'Isis,' s. 83, a survey has been communicated, by an unknown writer, of the Mammalia occurring in this colony, that by no means corresponds to scientific requirements, yet contains a very creditable outline, especially of the geographical distribution, of the species.

Several works of more general scope than the above have appeared as contributions to our knowledge of the fossil remains of the primo-mundane and warm-blooded animals.

Under the article Petrefaktenkunde in the 'Allgemeinen Encykl. der Wissensch. u. Künste von Ersch und Gruber,' H. von Meyer has afforded us an interesting glance at the primo-mundane Flora and Fauna, with special reference to the Mammalia. A similar survey has been given by the Reporter, in his 'Geschichte der Urwelt;' Leipzic, 1844 and 45, at section 2, entitled 'Das Thier und Pflanzenreich der Urwelt,' wherein he bestows greater attention likewise on the Mammalia. 'Traité élémentaire de Paléontolgie ou Hist. Naturelle des Animaux fossiles considérés dans leurs rapports zoologiques et géologiques,' par F. J. Pictet; Genève, 1844, tom. i. In this work Pictet aims at giving a manual of Paleontology, yet one that bears reference only to the animal kingdom. He has our thanks for the excellent manner in which it is executed. The first volume is concerned with the primo-mundane Mammalia and Birds, which are very well delineated: 18 plates, by way of illustration, accompany the work, and are of the same 8vo form.

'A History of British Fossil Mammalia and Birds,' by Richard Owen; London, 1844. Parts i—vi. This is a thoroughly classical work, such as we are accustomed to receive from the eminent Hunterian professor. It is not confined simply to an enumeration of the primo-mundane remains of Mammalia and Birds occurring on the British islands, but is rich with his own investigations, and critical examination, of the proposed species: 6 Nos. have appeared in the course of the year 1844, the last of which breaks off in the description of Mastodon angustidens. A number of well-carved woodcuts serve to elucidate the text. Our author has also given a Report on the British Fossil Mammalia, Part xi, concluding the Ungulata, being in the Report of the thirteenth meeting of the British Association, held at Cork; London, 1844, p. 208. J. Morris's 'Catalogue of British Fossils,' London, 1843, includes plants as well as animals, giving the specific name of each, with quotations of where the species have been described and figured, besides the kind of rock and locality wherein each

occurs. This Catalogue has been worked out with great industry, and, since the Geological Society of London has twice assisted the author in preparing the present list by a grant from the Woolastonian fund, we may thus be convinced of its accuracy.

Grateloup, Considérations générales sur la Géologie et la Zoologie fossile de la commune de Léognan, près Bordeaux. (Actes de la Soc. Lin de Bordeaux, xi, pp. 335, 344.)

In the marine sandstone, a kind of mineral conglomerate, numerous bones of large Turtles from the family Chelonia, vertebræ and ribs of huge Cetacea, Sharks' teeth of gigantic size, jaws of large Dolphins and Gavials, with other Saurians, are found; the *Squalodon* also occurs amongst them. The formation is regarded as of marine orgin. The conglomerate of Fronsadais, on the coasts of Ille, is, on the contrary, a fresh-water deposit. In it are found in abundance bones of terrestrial Mammalia and fresh-water Reptiles, such as the *Palaeotherium magnum*, *medium*, *crassum*, and *minus*, with different kinds of *Emys* and *Trionyx*. These bones are met with unassociated with marine Mollusca, or the latter are but of rare occurrence; neither Cetacea or Sharks' teeth are to be found. At Salles the marine sandstone contains very numerous fossil bones, as of *Mastodon angustidens* and *minutus*, along with bones of large Cetacea, as Whales, Dolphins, Lamantines, and such like animals. Here also the petrified (*humatile*) skeleton of a human being was discovered, yet was not truly fossil, seeing that it was enveloped by mineral layers more recent than the marine formation, or by a kind of travertine or calcareous concretion. At p. 149, vol. xiii, of the same journal, Pedroni announces the extraction, from the stone-pits or quarries of Léognan, of four Cetacean vertebræ, two fragments of Chelonian carapaces, and a portion of a stag's antlers. The Reporter would take this opportunity to mention that F. Robert informs the Academy at Paris, that he has discovered in calcareous marl from Alais fossil human bones (Institut., 1844. p. 195), but that Marcel de Serres shortly afterwards pointed out that no reliance could be placed in the spot where they were found. H. v. Meyer has described the fossil bones from the tertiary formations of Serro de San Isidoro, near Madrid, as also those from the caves in Lahn-Thale (Jabrb. f. Min., S. 289 and 431), and communicated further news concerning the fossils of Æningen, Weisenau, Mombach, Flombach, and Georgensgmund, with sundry other matters. (Jahrb., s. 329 and 564.)

King, in the ' Proceed. of the Acad. of Nat. Sciences at Philadelphia,' 1844, p. 175, has increased, by several new examples, the nominal stock of primo-mundane footprints.

These foot-prints are met with in a coarsely granular sandstone that occurs about 800 feet below the highest bed of the coal-formation in the county Westmoreland of Pennsylvania. Two such impressions appear as if produced by Wading-birds, and are distinguished by King with the names *Ornithichnites gallinuloides* and *Culbertsonii*. Five other such impressions consist of a larger roundish track, around the half or two-thirds of whose circumference five other impressions radiate, which in two of the specimens have a lanceolate, but in the three others an irregular rounded or oval form The impressions belonging to the first two specimens are ascribed by King to Saurian reptiles, upon which he bestows the names of *Thenaropus leptodactylus* and *pachydactylus*. He is quite uncertain, however, with regard to the other foot-prints, which he might refer to Digitigrade Carnivora, or in some degree to Hippopotami; the animals, from whomsoever they proceed, he would have designated by the provisional names, *Thenaropus sphærodactylus* and *ovidactylus*. The Reporter readily confesses his inability to form any opinion respecting these singular impressions. Upon another plane of sandstone from twelve to fourteen, some very distinct, and several indistinct, impressions were found, and are attributed by King to a marsupial animal. The fore and hind feet are different, the former being provided with four toes, and four and a half inches long, the latter with five toes, of five and a half inches in length. On each of the feet there is one toe that stands off from the rest like a thumb. The fore and hind foot-prints are only separated by an interval of about two inches from each other.

Of guide-books to the preservation of natural objects I am acquainted with two, one by Streubel, 'Der Conservator oder Anleitung Naturaliensammlungen anzulegen und zu erhalten,' Berlin; the other at Heidelb. by Leven, entitled 'Anweisung zum Abbalgen, Ausstopfen und Conserviren der Vögel, Saügthiere, Fische und Amphibien.'

QUADRUMANA.

Simiæ catarrhinæ.—Professor Owen has communicated some short notices concerning the dissection of a female Ourang-outang that died in the Gardens of the Zoological Society of London. The animal might be between five and six years old, and weighed forty-one pounds; the eruption of the permanent teeth had been in a state of progress during one year. The laryngeal sacs extended as far as the clavicular bones and the scapulo-humeral articulation. Owen procured ova from several Graafian vesicles, one of which inclosed two ova; they closely resembled the human, and had

a thick transparent vitelline membrane, that contained the small granular contents and germinal vesicles; their diameter amounted to about $\frac{1}{200}$th of an inch. Under the name *Cercopithecus Samango*, Wahlberg has established a new species of Monkey. (Hornschuch, Archiv. Skandinav. Beitr. z. Naturgesch, I, S. 179.) It belongs to the largest species, and is characterized as follows: C. cinereus; pilis flavescente variegatis, capite nigro, pallide punctato, *absque fascia frontali pallescente;* brachiis totis nigris. Mas adultus longitudine ad basin caudæ 0 m. 59; caudæ longit. 0,77. Facies nigricans genis totis dense pilosis, colore corporis. Labium superius usque ad nasum et inferius cum mento sparse albidopilosæ; macula ante genas nigra. Aures intus et margine albidopilosæ. Gastræum pallescens. Pili gulæ et juguli lanati, densi, breves, albidi. Antipedes tantum in antica humerorum parte variegati. Pedes posteriores extus obscure cinerei, albido variegati. Manus omnes nigri. Cauda a basi ad medium albida, linea superiore fusca; dein sensim nigra. *Femina* parum minor, similis mari. Discovered by Wahlberg in great numbers in Caffirland, at an inward latitude from Port Natal.

In the 'Ann. of Nat. Hist.' xiv, p. 361, Templeton has contributed some good observations made upon *Innus sinicus* in its own locality, and regarding its specific place.

It is found throughout the western and southern coast provinces of Ceylon, and is easily distinguished from *I. radiatus* by the bright tan hue of the face and the black rim of the lower lip. The diversities of age and sex are closely delineated.

Simiæ platyrrhinæ.—J. von Tschudi has, in the 'Fauna Peruana,' S. 23, demonstrated the existence of 9 genera, with 20 species of Apes, in Peru. All these Apes are distributed also through other regions of South America, yet several of them may be set down as peculiar to Peru, from their attaining the maximum of frequency in this country, and being, so to speak, dispersed in different directions from it as from a common centre of origin. Tschudi lays particular stress upon *Lagothrix Humboldti*, together with *Ateles ater* and *marginatus*, which extend north and eastward from Peru into the adjacent tracts of land; the remaining species, however, may be regarded as having migrated from the former territory.

Of the genus Ateles, Tschudi represents in the above 'Fauna' four species; viz. *A. marginatus, ater, paniscus,* and *pentadactylus*. He has only once seen *A. marginatus*, but, on the other hand, *A. ater* more frequently. In the latter species the colour of the face is a deep black merging into a coppery hue, and is then difficult to distinguish from *A. paniscus*. As distinctive characters for A. ater, Tschudi adduces the following: eyes placed further apart, muzzle more rounded off, the five extremities much longer in

proportion to the body, the latter being slender, and its fur intensely black. These characters, which are scarcely rediscoverable in stuffed specimens, would not withhold me from persisting in the union of A. ater and paniscus, did not our author subjoin to them the statement that the young in the former species are black at their birth, but in the latter, on the contrary, of a dirty olive green tint. According to a specimen preserved in spirits of wine, in which the thumb was wanting to the right, but present on the left fore-hand, I had united *A. paniscus* and *pentadactylus* into one species, a proceeding the validity of which is not admitted by Tschudi, seeing that both had different circuits of distribution, and that he had never met with a case similar to mine; he therefore advances the conjecture that the specimen in question might have lost one thumb by an injury. Now this is certainly not the case, as is proved by inspecting the right fore-hand, when the pollicial deficiency is seen to have been congenital. Yet at present I would not lay so much stress as heretofore upon this circumstance, since I learn from Tschudi's account that both the species of Spider-Monkeys occupy very different kinds of range, a fact that had also been previously told to me by Natterer, who met, indeed, on his travels, with A. paniscus, but never with A. pentadactylus.

Like the Reporter, Tschudi distinguishes only two species of *Lagothrix* but interprets differently their synonymy. The *L. cana*, Geoffr., is regarded by Tschudi, after a comparison with the Parisian specimen, as not identical with the *Gastrimargus olivaceus*, Sp., but with the latter's *G. infumatus*. If this view be correct, then both the name as well as the description given by Geoffroy and Desmarest of their *L. cana* is thoroughly incorrect, since *L. infumata* has an entirely different colour. In order that no confusion might be caused to interrupt the definite settling of these doubts, I retain for the latter species the name given it by Spix, while his *Gastrimargus olivaceus* is, without hesitation, to be denoted as *L. Humboldtii*, just as Tschudi describes it.

The same traveller establishes three species of Howling Monkeys, from Peru; viz. *Mycetes stramineus*, *rufimanus*, and *flavicaudatus*. These three species I had blended with the Caraya, by reason of their being collectively very imperfectly known, and only through the medium of isolated individuals. But after learning from Natterer that he had never seen a specimen in the whole of Brazil which would agree with the *M. stramineus* mounted in our collection, I have since regarded it as the representative of a distinct species. From Natterer I likewise learnt that the *M. rufimanus* hitherto known only by one specimen, had been frequently seen by him in troops, and that the female and young are not yellow like the Caraya, but coal-black like the male. Hereupon I saw myself necessitated to establish *M. rufimanus* also as a species per se. Again Tschudi expresses himself in

acknowledgment of both species; of *M. stramineus* he has as yet observed only one example, while in *M. rufimanus* he has likewise found the female to be black; he says nothing about the young. As to whether he observed the *M. flavicaudatus* in a wild state, no mention has been made; in accordance with its circuit of distribution, it ought certainly to be regarded as a distinct species.

In the very puzzling genus *Cebus*, Tschudi records three distinct species as inhabiting Peru. They are the *C. robustus*, Neuw., *capucinus*, and *albifrons*, of which the right to be considered a separate species has with the first always remained to me a doubtful matter. Meanwhile I would observe that I now set apart the *C. gracilis* species as one distinct from *C. hypoleucos*, after a comparison of several specimens brought over by Natterer; as likewise the *C. xanthosternus*, Neuw. (*Xanthocephalus* Sp.), which appears to belong only to the coast lands, and a *C. nigrivittatus*, brought over by Natterer from Upper Rio branco. An intimate acquaintance and record of the local ranges of these Apes may assist us in separating them into species, or at least into constant local varieties; in studying from collections, without exact information as to the spots where they were found, we remain the prey of mere conjecture. With the Capuchins then we will have no more to do until its species have been firmly established.

Of the genus *Callithrix*, which is rich in species, Tschudi has only found two species in Peru, *C. personata*, and *amicta*. He regards the *C. nigrifons* Sp., as only an aged individual of *C. personata*, but to this conclusion I cannot, after a comparison of fourteen specimens that perfectly coincide with each other, thirteen of them having been imported by Natterer, give my assent. On the contrary, I now look upon *C. nigrifons*, after having become better acquainted with it, as entitled to constitute a distinct species, peculiar to the southern provinces of Brazil, and characterized by the following diagnosis. C. brunescens: tænia frontali lata manibusque nigris. *C. Gigot* Sp., occupies a place in the north-east of Brazil, being sordide canescens, stria angusta frontali manibusque nigris. Our specimens and the two in the museum at Vienna are labelled "from Bahia," and bear a complete resemblance to each other, so that *C. Gigot* must be viewed as a distinct species, or at least as a constant variety of C. nigrifons. *C. melanochir*, with which I am not acquainted through personal observation, as neither the Bavarian or Eastern States travellers have found it, is distinguished from the two others by its chesnut-brown loins. Above all these, as specifically different from C. personata, is *C. cinerascens* Sp., both from its smaller size and shorter covering of hair, as well as its range of distribution on the Peruvio-Brazilian borders. It may be thus characterized: C. cinerascens, dorso-dilute ferrugineo-brunescente, manibus griseis, cauda nigricante; statura C. cupreaæ. *Chrysothrix* and *Nyctipithecus* are

cited by Tschudi as belonging to Peru, yet he has not himself observed any species there. Of the Sakis he has found there *Pithecia satanas;* of the Tamarins, *Midas rufimanus, labiatus,* and *chrysomelas.* J. E. Gray has given a figure of *Hapale rufiventer* in the 'Zoology of the Voy. of Erebus,' N. 4, tab. 18. Martin St. Ange has discovered, in respect to the fœtus of a Mandarin, that the placenta consists of two equal-sized cakes, which lie opposite to each other and are separated by a zone of the chorion 2 centimetres in breadth. (Rev. Zool. p. 73.)

PROSIMII.—Under the title of Bydragen tot de Kennis van de Lemuridæ or Prosimii, in the 'Tijdschrift voor natuurl. geschied.,' xi, p. 1, J. van der Hoeven has given us a monograph of the demi-monkeys, to the parcelling out of whose species, though still not reduced to a precise state, he has furnished valuable contributions. He gives the following conspectus of the species:

I. Unguis indicis podariorum solus incurvus subulatus. A. Dentes incisivi $\frac{4}{4}$, canini $\frac{1}{1}$, molares $\frac{6}{6}$. Lemur, Geoffr. Tarsus non elongatus; cauda longissima undique pilosa; auriculæ breves rotundatæ.

(*a*) Capite elongato, rostro acuto.

LEMUR, Auct.

(*) Cauda albo nigroque annulata: 1. *L. catta.*

(**) Cauda unicolore, torpore subtus nigro. 2. *L. macaco.* 3. *L. ruber.*

(***) Cauda unicolore, abdomine dilutiore: 4. *L. mongoz,* L.: griseo bruneus, genis et collari flavescentibus (Mongous, Fr. Cuv.) 5. *L. nigrifons,* Geoffr.: rufo-griseus, nucha humerisque canis, gula alba, fascia nigra transversa frontali. 6. *L. bruneus,* Hoev. (*L. fulvus,* Geoffr., *L. nigrifrons,* Fr. Cuv.): griseo-bruneus, abdomine dilutiore, flavescente, facie tota nigra. 7. *L. albifrons,* Geoffr. 8. *L. rufus,* Geoffr. 9. *L. coronatus,* Gray. 10. *L. rufifrons,* Benn.

(*b*) Capite abbreviato, spatio interorbitali nasoque convexis.

CHIROGALEUS, Geoffr.

II. *Lemur griseus,* Geoffr. (Andeb. Mki. fig. 7): griseo-bruneus, infra pallide cinereus, cauda corporis longitudine. 12. *Lemur* (*Chirogaleus*) *Milii,* Geoffr. (*Myspithecus typicus,* Fr. Cuv.)

STENOPS. Illig. tarsus non elongatus; cauda nulla aut brevissima; auriculæ breves rotundatæ; oculi magni opproximati.

(*a*) Cauda nulla. 1. *St. gracilis.*

(*b*) Tuberculum caudale brevissimum. 2. *St. tardigradus.* 3. *St. Javanicus.*

PERODICTICUS.—Tarsus elongatus; cauda brevis; manus indice brevissimo; auriculæ breves rotundatæ; oculi laterales. 1. *P. Potto.*

Otolicnus.—Tarsus elongatus; cauda longissima; auriculæ nudæ magnæ. 1. *O. Galago.* 2. *O. Alleni.* 3. *O. Crassicaudatus.* 4. *O. madagascariensis* (Microcebus, Geoffr.)

B. Dentes incisivi $\frac{4}{4}$, canini $\frac{1}{1}$, molares $\frac{5}{5}$.

Lichanotus.

(*a*) Cauda brevissima. 1. *Lichonotus Indri.*

(*b*) Caudata elongata. 2. *L. Avahi* (*Habrocebus lanatus.*)

Propithecus.—1. *P. Diadema.*

II. Ungues digiti 2 et 3 podariorum incurvi subulati.

Tarsius *spectrum.*

Tab. 1 contains figures of skulls of Chirogaleus griseus, Lemur albifrons, Perodicticus Potto, Stenops gracilis, Lichanotus Indri and Avahi, Tarsius spectrum. At tab. 2 is the figure of Perodicticus Potto, and on tab. 3 that of Lichanotus Avahi.

The internal structure of the Loris has been illustrated by a comprehensive investigation of Vrolik. The results have been inserted in the 'Nieuwe Verhandelingen der erste Klasse van het K. Nederl. Instituut. van Wetenschappen te Amsterdam,' x. (1843) p. 75. Vrolik's researches were first of all directed to the *Stenops tardigradus* in a fresh state; but besides this he examined the *St. gracilis* and, as he mentions, the *St. Javanicus.* In all he found a great accordance in internal structure, being thus in opposition to Schröder van der Kolk, who has announced important differences as occurring in the last-named species, but which Vrolik attributes to the young condition of his specimen, and its having lain a long time in spirits of wine. The hemispheres of the cerebrum cover only the anterior part of the cerebellum; the grooves upon it are not numerous, and the convolutions exhibit great symmetry. The tubercula quadrigemina did not consist, as asserted by Kolk, of one, but of two pairs. The most remarkable feature on the tongue is a demi-cartilaginous and sub-membranous disc which is placed upon the under surface, not far from the apex of that organ, and is terminated by fine dentils or points; Vrolik found this disc in all three species. The right lung has four, the left two lobes. Our author describes in detail the well-known vascular plexuses that occur in the extremities, and are not simply formed by the arteries, but also by the veins. The constrictions of the intestinal canal, as also the occurrence of a special vermiform cæcal appendage, described by Schröder, from St. Javanicus, are disputed to exist by Vrolik in all three species. The small intestines he found to be throughout of nearly equal width, excepting that they expanded somewhat in order to prolong themselves into the large intestine; the cæcum coli terminates in an

obtuse but somewhat elongated apex that does not contract suddenly, like an appendix vermiformis, but is of equal width with the intestine. The osseous and muscular systems are described at very great length. Three beautiful plates illustrate the text. In the first a coloured drawing of the head of St. Tardigradus, in a fresh state, is given.

An answer to the criticising remarks of Vrolik has been communicated to the Tidjschr. voor natuurl. gesch.' xi. (1844) p. 123, by S. van der Kolk. While Kolk for his former investigations could only have possessed a young specimen of Stenops Javanicus, preserved too for a long time in spirits of wine, he upon this occasion obtained the fresh carcase of an adult animal belonging to the same species. Now in respect to the viscera, he pointed out the same relations in this as in the young specimen; viz. the same intestinal constrictions, a long vermiform appendage or process, and a narrowing of the small intestine towards its point of opening into the large. One need only compare the two beautiful figures of Kolk, representing the parts just adverted to, with those of Vrolik, to perceive at a glance the striking difference between the two, and to concur then at once in Schröder's opinion that Vrolik had not St. Javanicus before him, but took for this a specimen of St. tardigradus. The divergence in the account is thus not to be ascribed to errors of observation, but to diversity of the species. These differences occur, moreover, in other points of structure; thus, e. g. in St. Javanicus the left lung is divided into three, in St. tardigradus into simply two lobes; besides, the liver is in the latter cleft into two lobes, whereof the right only divides into three lobules while the left is entire, but in St. Javanicus, on the contrary, the right lobe falls into five, and the left into three, lobules. To the external distinctions between the two species, important internal ones are also superadded. In conclusion it is to be remarked that Schröder has likewise discovered the sacral plexus in the blood-vessels, and that here also the venous plexus is present. Templeton contributes to the 'Ann. of Nat. Hist.' xiv, p. 362, some remarks concerning individuals of *Stenops gracilis* kept in confinement. This species is very common in flat-lands upon the east and west side of Ceylon, and apart from it no other species of " Stenopidæ" there occurs.

CHEIROPTERA.

J. v. Tschudi projects, in S. 57 of his 'Fauna Peruana,' the following scheme or plan of this order.

I. Tribus *Istiophora*. II. Tribus *Anistiophora*.

A. *Dentibus molaribus tuberculatis.*

I. Sectio. Ch. pentadactyla.

(*a*) Indice completo.

vacat. 1. Fam. *Pteropina.*

B. *Dentibus molaribus cuspidatis.*

(*b*) Indice incompleto.

2. Fam. *Phyllostomina.* 3. Fam. *Noctilionina.*

II. Sectio. Ch. tetradactyla.

4. Fam. *Rhinolophina.* 5. Fam. *Vespertilionina.*

An account of the Bats brought over by Cuming from the Philippine Islands has been published by Waterhouse. (Ann. of Nat. Hist. xiii, p. 302.) In the 'Zoology of the Voy. of Erebus,' No. iv, J. E. Gray has given the figures (without description) of *Scotophilus Gouldii, morio, pumilus* and *Greyii, Nyctophilus Geoffroyii,* and *major, Mystacina tuberculata* and *Molossus norfolcensis.*

Istiophora.—Of the genus Phyllostoma, v. Tschudi has established two new species from Peru, *Ph. erythromos,* and *oporaphilum.* 1. *Ph. erythromos* (Tab. 1): supra brunescens, subtus ex fusco canescens, intra scapulas et auriculas pilis elongatis densis ferrugineo rufis; prosthemate lanceolato. 2. *Ph. oparaphilum* (Tab. 2): supra ex fusco canescens, lateribus uropygioque obscurioribus; subtus albido-canum.

The genus *Glossophaga* has been divided by the same naturalist, in his 'Fauna Peruana,' into two sub-genera, *Glossophaga,* and *Choeronycteris,* Licht. a. *Glossophaga:* "dentes incisores superiores contigui, medii majores; lingua apice utrinque fimbriata, longissima, extensilis; cauda distincta; patagium anale magnum vel imperfectum." Typus, G. amplexicaudata.

b. *Choeronycteris:* dentes incisores superiores parvuli, per paria dispositi, lacuna intermedia distincti, compressis hebetes, medii minores; rostrum tenue, valde productum; lingua mollis, subglabra, haud fimbriata; cauda nulla. Of this genus two new species are characterized by Tschudi. 1. *Ch. peruana* (Tab. 3, figs. 1-2): "supra saturate fuliginoso-fusca, pilis basi albidis apice fuscis; subtus bruneo-canescens, pilis basi canis apice bruneis; prosthemate parvo, trigono lanceolato; alis nigris; antibrachio longitudinis usquam ad dimidium piloso; patagio interfemorali nullos unguibus bruneo flavescentibus." Habitat. at the Eastern declivities of the Peruvian Cordillera. 2. *Ch. mexicana* (Tab. 3, fig. 3): "supra bruneo-canescens, subtus dilutior, alis fuscis; prosthemate elongato triangulari; patagio interfemorali lato, brevi, exciso; unguibus nigris." From Mexico. The Reporter would observe that according to his investigations *G. ecaudata* also belongs to this sub-genus.

Macrotus is a genus, or rather sub-genus of Rhinopomes established by J. E. Gray in 'Ann. of Nat. Hist.' xiii, p. 68. It agrees most with the sub-genus Macrophyllum, but is distinguished from this by the last caudal joint projecting beyond the border of the large cruro-alary membrane. Another distinction is afforded by the striking dimensions of the ears and their union

upon the vertex. As a new species the *M. Waterhousii* also finds its place here: "colore murino, abdomine pallidiore, prosthemate lanceolato." Body $2\frac{1}{2}''$, tail $1''$ $2'''$, ears $1''$, $2'''$. From Hayti. The genus Macrotis has also been found upon Jamaica. (Ann. of Nat. Hist. xiii, p. 224.) Two new species have been added to *G. Megaderma*. (1) *M. spectrum*, Wagn.: "supra schistaceo-cinereum; subtus albidum; prosthemate verticali, mediocri, ovali; trago lanceolato, intus appendicula ovato acuto; unguibus albidis." From Cashmere. (Baron v. Hügel's Kaschmir iv, S. 569, with fig.) (2) *M. philippinense*, Waterh.: "supra cinereo-fuscum, subtus cinereum; prosthemate verticali fere ovali, ad apicem subtruncato, horizontali paulo minori, cordiformi; auribus permagnis; trago elongato, attenuato, acuto, ad basin antice lobo mediocri acuto instructo." (Ann. of Nat. Hist. xiii, p. 304.)

Gymnorhina. *Chilonycteris* has been increased with one species by Gray. *Ch. fuliginosus*: "supra fuliginosus, fusco-tinctus, subtus fuscescens, gula femoribusque ad basin rufescentibus; auribus elongatis, attenuatis, acutis." From Hayti. (Ann. of Nat. Hist. xiii, p. 68.) There likewise, Gray has given further illustrations of his genus *Phyllodia*, and characterized the only known species thus: *Ph. Parnelii*; "auribus magnis subacutis; vellere cinerascenti-fusco, pilis ad apicem obscurioribus." From Jamaica.

The *Horseshoe Bats* have received the most considerable accession of species. (1) *Rhinolophus gigas*, Wagn.: "maximus, fuliginosus, capite, dorsi lateribus gastræoque albidis; auriculis elongatis angustis; cauda brevi." From Benguela. (vid. our Archiv. 1845, s. 148.) (2) *Rh. Martini*, Fras., distinguished from the others by the membrano-tegumentary apparatus of the snout not being divided longitudinally. From West Africa. (Ann. of Nat. Hist. xiii, p. 73.) (3) *Rh. pygmæus*, Wat.: prosthemate superiore semicirculari; corpore supra nigricante (pilis ad basin albescentibus), subtus cinerascente; auribus acutis ad latus exterius distincte emarginatis. (4) *Rh. philippinensis*, Wat., is nearly related to Rh. eurysotis, but differs therefrom in the much larger size of the accessory ear-lobe and the truncated form of the most anterior of the nasal laminæ. The two latter species are from the Philippine Islands. (Ann. of Nat. Hist. xiii, p. 303.)

Nilsson has shown that Linnæus's *Vespetilio murinus* is the V. discolor of Neuer. (Förhandl. vid. de skand. Naturf. 1843, p. 436; Isis, 1845, S. 436.)

INSECTIVORA.

Temminck, has in the 'Fauna Japonica, Mammal.' dec. 2, finished his description of the Japanese Shrews. He characterizes the *Sorex indicus*, *S. Dzi-Nezumi*, and *S. umbrinus*, the first two of which are also figured. In treating of S. indicus our author takes pains to inquire into its very confused synonymy, and remarks, that in the systematic lists the S.

myosuros of Pallas must be wholly suppressed, because it is based only upon an Albino specimen of one out of the four large species that are at present known under the names S. giganteus, serpentarius, indicus, and crassicaudatus. In this respect, however, Temminck has erred, as is proved from the description left by Pallas, or by myself, of S. myosuros. His S. indicus is identical with S. myosuros, and this, as being the older name, should therefore be retained. A. Smith gives, in his 'Illustrations of the Zoology of South Africa,' Nos. 21 and 22, the descriptions and figures of four South African species of *Shrews*. Three of these species, *Sorex capensis*, Geoffr., *S. flavescens*, Geoffr., and *S. varius*, Smuts, were already known; the fourth, *S. mariquensis*, has been re-established by Smith, and belongs to the subdivision Crocidura; its upper aspect is brownish red, as is also the under, only the colour is lighter, and there is a pearly gray under-fur. Hairs grayish black at base. Body 3″ 4‴. Tail 1″ 10‴. It is to be desired that the diagnoses given by Smith were more rigidly and grammatically composed, and that in particular the indications of colour fell into better accordance in both languages. Thus, e. g. *S. flavescens* is said by him to be "broccolibrown" on the dorsal side, distinctly tinted with light yellowish brown, which statement is rendered in the Latin by rufo-flavus; moreover, the ventral side is said in English to be wood-brown, in Latin flavo-cinereus; so that, judging from such a diagnosis, one might almost conclude that another species than the one described was meant. The European Fauna is indebted to Nilsson for the accession of a new species of Shrew, *Sorex pumilus*. (Hornschuch's Archiv. skand. Beitr., 1, S. 145.) This S. pumilus is still smaller than S. etruscus, and belongs to the same group as S. vulgaris, L. Tail slender, covered with longer hairs, between which no smaller ones occur, and terminated by an acuminate pencil of hairs; head nearly as long as the whole remainder of the body; colour, above, rusty gray brown, below, white; body, 1″ 4½‴; fusiform tail, 1″ 2½‴. Found hitherto only in a single specimen in north-east of Schonen. Now in this province *S. pygmæus* has also been observed, and Nilsson surmises that, upon further comparisons being instituted, it may turn out that the Shrew from Jemtland, regarded as S. rusticus, will admit of being interpreted as S. pygmæus.

Palæospalax is a genus that has been founded by Professor Owen upon a fossil lower jaw. (Hist. of Brit. Foss. Mammal., p. 25.) It was found with remains of Mammoth, Goats, and Deer upon the coast of Norfolk, exhibits the nearest affinity to the Mole tribe, but is as large as that of a Hedgehog. Owen designates it by the specific name of *P. magnus*. Upon another fossil lower jaw from Hoodwell, Wood, in 'Ann. of Nat. Hist,' xiv, p. 350, has based a genus of primo-mundane Insectivora, and called it *Spalacodon;* but of this I know nothing further than the name.

J. Jacobson has communicated (Förhandl. vid. de skand. Naturf.,

Stockh. 1843, p. 704; Isis, 1845, s. 459) some observations concerning the changes which occur in the symphisis pubis of the Hedgehog during pregnancy and parturition.

CARNIVORA.

URSINA.—Bazin has, in the 'Actes de la Soc. Linn. de Bordeaux,' xiii, p. 143, avec fig., given an account of an Albino variety of the *Ursus arctos*, from the Pyrenees.

A female was killed, 1841, in the mountains about Bagnères de Luchon, being 1 m. 27 in length, of a yellowish white or creamy colour, dark under the neck and on the lower jar, the hue extending from thence to the anterior part of the shoulders and upon the cheeks, and fading away at the eyes. External and anterior side of the arm and fore-arm yellow; hind legs internally almost isabel, or cream-coloured, externally dirty white; belly studded with several irregular spots of a tolerably dark yellowish white hue; eyes red, claws yellowish white.

Along with the above we have Professor Owen (Brit. Fossil Mammalia, p. 77) and Pictet (Palæontologie, 1, p. 146) expressing themselves even now against Blainville's view of *Ursus arctos* being only an abortive or arrested descendant of *E. spelæus*. The Professor would appear likewise to be unacquainted with my works upon the Cave-bears and upon the Muggendorfian Cave-animals generally, although they have been inserted in this Archive and in the 'Isis.'

Concerning the Bears that occur upon the Japanese islands, Temminck has, in the 'Fauna Japonica,' p. 29, communicated up to the present time more precise information. He reckons 3 species. (1) *Ursus ferox*, dark brown, occasionally blackish, in some individuals the colour being brighter upon the head and fore-quarters, in others interrupted by a yellowish band proceeding from the shoulders, as in the Siberian Bears with a neck-collar; another variety is more of a fallow or gray tint. Hitherto we have obtained only skins of the above, without the skull and foot-bones, so that the determination of the species still does not appear to me quite secure; one of these skins had a length of about eight feet. In the mountainous districts of the islands Jozo and Karafto, it attacks horses, deer and even man; but is frequently too kept in confinement, in order to fatten and then eat it. (2) *U. tibetanus*, frequently occurs in the mountainous parts of the Japanese islands, and usually subsists upon vegetable substances; Siebold saw also an Albino of this species. (3) *U. maritimus*: in the year 1690 several Polar or Ice bears (?) are said to have been seen upon

the coasts of the province Jetsigo (between 37° and 38° N. Br.); v. Siebold is of opinion that they might have been wafted thither upon ice-blocks.

Mustelina.—The same Zoologist has also described a Japanese Badger and 3 species of Marten, viz. *Meles anakuma*, with *Mustela melampus*, *brachyura*, and *Itatsi*. *Meles anakuma* is devoid of the streaked markings upon the head, as seen in our own and the North American Badger. The form of the cranium, with the number, form, and disposition of the teeth, is exactly as in our own species. *Mustela melampus* has been already described and figured by the Reporter in Schreber's Suppl.; we here learn from Temminck that the winter and summer fur-coat are very differently coloured. *M. brachyura* is only known by skins without head; *M. Itatsi* agrees in form and size with our Polecat, but its fur is shorter and of another colour. Our *Lutra vulgaris* also occurs frequently in Japan, as is shown by a comparison of the skeleton and numerous skins. *Enhydris marina* is at present remarkably rare, so that a skin, at the time when Siebold was staying in Jedo, would cost from 800 to 1500 francs. In the catalogue already mentioned of the Fauna des Départements de la Charente-Inférieure, Lesson also mentions a *Mustela vison* (that of Buff. xiii, pl. 31 et pl. color. 232), and adds, "tolerably common in the great woods of Schizé and the tract of land separating Saintonge and Poitou; having been incorrectly taken for an American beast, and omitted in all the French Faunas. In his 'Nouveau Tableau du Règne Animal,' Lesson places this M. vison directly after M. martes and foina, and juxtaposits as synonymous the Vison of Buffon (pl. col. 232); but in speaking of Putorius lutreola, he once again cites the Vison, Buff.; so that one can scarcely know what rank this M. vison is to occupy as a species with Lesson. We fortunately know that one must not deal too rigidly with him as regards accuracy.

Bazin, in the 'Act de la Soc. Linn. de Bord.,' xiii, 91, attempts to determine satisfactorily what animals were those designated by the ancients with the names αἴλουρος, γαλῆ, and γαλεώτης.

According to his interpretation, αἴλουρος signifies the domestic Cat. Γαλῆ means the *Mustela vulgaris*: and yet this name appears to have been given also to most animals of the genus *Mustela*. Γαλεοειδὴς, γαλεώδης, and γαλεώτης may be regarded as synonyms, and signify *musteliformis;* they were applied to all animals whose form and habits corresponded with those of the small Weazel or γαλῆ. The γαλεώτης of Aristophanes is a Lizard, but does not belong to Cuvier's Galeotes. The γαλεώτης of Polybius is a Sword-fish.

Viverrina.—The Reporter has moreover called attention to the necessity of our distinguishing among the *Mungos* two species, or at all events perma-

nent varieties. (Baron. v. Hugel's Kaschmir iv, S. 570.) (1) *Herpestes pallidus*, Wagn.: "major ferrugineo-lutescens, pilis e ferrugineo-fusco et pallide luteo annulatis; pedibus saturatioribus," 17″ 2‴.—*H. Malaccensis* s. *Mungos* Fr. Cuv.: "minor, fusco-lutescens, pilis e nigro et pallide luteo-annulatis; pedibus pallidioribus," 13″ 9‴. Both from India. Of the *Viverra genetta*, Lesson, in his published catalogue, informs us that it is pretty common in the oak-woods of Fourras, and that not a year elapsed without sundry specimens being killed. Rochebrune states that he has only seen three individuals of the Genet brought to market from the Département de la Charente, and that it occurs but seldom in the great woods between Larochefoucault and Conolens.

CANINA.—Temminck has commenced, in the second Decade of the Fauna Japonica, the description of the Japanese Dogs.

According to the accounts given by Fr. v. Siebold the Japanese distinguish from each other three races of the *domestic Dog*. The one is the sporting Dog, known by its straight ears, pointed muzzle, and slender form: the hairy coat usually short and smooth, of varied colour, but mostly yellowish red, or white, with bright brown or black spots. Its food consists, like that of the other races, in fish; and it is used for hunting. The other race is the street Dog or Cur, which belongs not to one but all kinds of streets. It is less slender than the other, and the body thicker; ears dependent, fur longer, the tail being recurved and very hairy. It is found of all colours, among others of a foxy red. The house Dog has been introduced from China.

The wild Japanese Dog, Jamainu of the Chinese (*Canis hodophylax*, Temm.?), is similar to our Wolf, but smaller, and shorter in the legs. The fur is short and smooth, but the tail is clothed with long hairs; the condition of the fur, as well as its colouring, differs slightly from that of the Wolf. The body measures 2″ 9″, the tail about 1′, the height of the shoulder 1′ 4″, ears 3″. Its mode of living is that of our Dog. The Fox so frequently met with in Japan is, according to Temminck, identical with *Canis vulpes*.

E. v. Baer has communicated to the Bullet de la Classe Physico-mathém. de l'Acad. de Pétersb. 1844, ii, p. 47, new documents touching the migration of Foxes in a southerly direction.

In the year 1842 a fresh individual was captured in the neighbourhood of Petersburg, and two others (a male and female) killed in Courland, on the borders of Lithuania, nearly under 56° Br. So far as the narrator could

ascertain from experience, whole bodies of individuals have been met with in the spring of the year.

A remarkable work upon canine madness, by Renner and Schenk, entitled 'die Hundswuth und Berichtigung der Irrthümer,' &c., Jena, 1844, 36 s., has appeared.

HYÆNINA.—The osteology of the Hyæna, in combination with the establishment of the fossil species, has been worked out by Blainville in the 14th fasciculus of his Ostéographie.

The *Proteles*, which had been associated by the Reporter in one family along with the Hyæna, is brought by Blainville to a place among the Dogs, but as appears to me with less exactitude. Regard being paid to the anomalous condition of the teeth, it is best after all to form from it a distinct family. The *Hyæna brunea*, B., is united with H. striata to constitute a single species; yet I had two years previously demonstrated, in the 'Abhandl. der. Akadem. der. Wissensch. zu München,' from the condition of the cranium and dental structure, joined to the peculiar hairy covering and colour of the fur, the claim upon the part of the first to hold good as a distinct species. Blainville has only before him the single skull of that *H. brunea* of which Cuvier and H. Geoffroy had already made mention, while all declare that the lower carnivorous tooth exhibited an internal tubercle, as in *H. striata*. But upon two skulls, whose comparison may be adduced, I have ntirely failed to detect the same, upon one of them only a slight indication of it being present: I have as little too been able to perceive such a tubercle in a third specimen at Vienna, so that the cranium preserved in the Paris collection is either not to be taken at all for that of *H. brunea*, but of *striata*, or the internal tubercle is apparent simply as an accidental anomaly upon the carnivorous tooth. Sundevall has recorded (Forhandlinger vid. de skand. Naturf. Stockh., 1843, p. 642; Isis, 1845, S. 436) the occurrence of a cranium of Proteles with the full complement of molar teeth, viz. five above as well as below.

FELINA.—Owen has, in the Brit. Fossil Mammalia, p. 163, drawn attention to a good character whereby the crania of the Tiger and Lion may be distinguished.

It consists in the "prolongation backwards, in the lion, of the nasal processes of the maxillary bones to the same transverse line which is attained by the upper ends of the nasal bones; whilst, in the Tiger, the nasal processes of the maxillary bones never extend nearer to the transverse line attained by the upper ends of the nasal bones than one third of an inch, and sometimes fall short of it by two thirds of an inch, where they terminate by an obtuse or truncated extremity, whilst in the Lion they are pointed. It is

very desirable that this character should be determined, if possible, in the continental specimens of the skulls of the Felis spelæa." The Reporter is enabled to reply to this enjoinment, the plaster cast of a skull of the F. spelæa, which was completely preserved in all parts, having arrived with the Münster collection of fossils. On this cranium, however, the nasal processes of the superior maxillary bone do not merely remain behind the above-mentioned transverse line, but even extend to some distance beyond it. The F. spelæa is accordingly not to be placed along with the Tiger, but with the Lion, although it is also specifically distinct from the living species. The Reporter would take this opportunity of remarking, that upon the same skull is present the alveola or socket for the first false molar. Upon a lower sectorial molar tooth, from the Red Crag at Newbourn, Owen has based the *Felis pardoides*. (p. 169.)

Felis Geoffroyi has been distinguished as a distinct species by D'Orbigny and Gervais. (Institut., p. 189, and Magas. de Zoolog., n. 39, tab. 58.) In certain respects it resembles the Ocelot, Chati and Marguay, but is somewhat larger than the latter, less thick-set than all three, and particularly distinguished from them by the small, numerous, punctiform and blackish spots which it has upon the body, shoulders and a great part of the legs. These spots, arranged as they are in an oblique series, appear, yet without attaining to this, as if fully prepared to be continued in a linear form; they form no stripes as in the above-mentioned species. Upon the head and neck they are replaced by lines; there are, e. g. two cheek-bands, a distinct band upon the neck, and under that four transverse bands. The under surface of the body has some bands of a less dark colour; the tail is annulated. The ear has a large white spot upon it posteriorly. Length of the body 0, 55, of the tail 0, 32. D'Orbigny brought three specimens from Rio Negro, in Patagonia.

With other cavern-fossils in the Kent's Hole were found the remains of a *Machairodus*, Kaup., that have been recognized by Owen as belonging to a new species, on which he has bestowed the name of *M. latidens*. (Brit. Foss. Mamm. p. 174.) The largest of the canine teeth (which are the only parts of the skeleton that have hitherto been found in England) measure 6″ along the anterior curve, and 1″, 2‴ across the base of the crown; the animal to which they belonged could not have been inferior in size to the Felis spelæa.

MARSUPIALIA.

Owen has made the unexpected discovery that in *Thylacinus* the pouch-bones do not exist as bones, but are only represented by two small, longish, and flat fibro-cartilages. (Ann. of Nat. Hist. xiv, p. 62.)

These cartilages are imbedded in the columns of the abdominal ring, and each of them appears as a condensed or thickened part of the tendon of the obliquus externus abdominis muscle which forms the upper columnar fibres. The length of the marsupial fibro-cartilage is 6 lines, its breadth 3—4, its diameter 1½ lines. Of such a condition were the rudiments of the pouch-bones found in two adult females and one male; in a fourth large and old male some particles of osseous substance had been deposited in the middle of the fibro-cartilage, and caused a grating sound, while a section was being made of them with the knife.

Gray, in the Zoology of the Voy. of Ereb. Mamm. tab. 25, has given figures of three species of the genus *Antechinus*, namely, *A. Swainsonii*, *leucogaster*, and *affinis*. Gould has obtained from South Australia a new species of Kangaroo-rat, which he has published in the Ann. of Nat. Hist. xiii, p. 389, under the name *Bettongia campestris*. The texture and colour of the fur bears much resemblance with that of our hare. He moreover characterizes three other new species: *Halmaturus Houtmanii*, *Halm. Dama* and *Lagorchestes hirsutus*. (Ann. xiv, p. 446.)

Gilbert has, in the Annals, xiv, p. 447, communicated his observations concerning the habits and mode of life of *Lagorchestes albipilis*, *Macropus ocydromus*, and *Halmaturus manicatus*.

For the first time during the composition of this Report, has the second Part of Gould's Monograph of the Macropodidæ, although bearing date May 1st, 1842, come to hand. The objects of which it treats are *Macropus fulginosus*; *Halmaturus ruficollis*, *nalabatus*, *Parryi*, *agilis*, and *Thetidis*; *Osphranter antilopinus*; *Petrogale penicillata*, *lateralis* and *inornata*; *Dendrolagus ursinus*, and *inustus*; *Lagorchestes conspicillata*; *Bettongia cuniculus* and *fasciata*.

RODENTIA.

Sciurina.—Betrachtungen über die verschiedenen Arten von Ziesel in Russland, mit Bemerkungen über die Anordnung und geographische Vertheilung der Gattung Sper-

mophilus, so wie über die Klassification der Familie der Eichhörnchen, von J. F. Brandt.

Under this title Brandt has, in the 'Bulletin de la Classe Physico-mathématique de l'Acad. de Pétersb.' ii (1844), p. 357, given a distinguished contribution towards a more exact acquaintance with the family Sciurina. An abstract of the above is also contained in the 'Inst.' p. 299. He first of all divides this family into two tribes: *Campsiurina* and *Arctomyina;* the former including the genera *Sciurus, Pteromys, Sciuropterus,* and *Tamias,* the latter the genera *Arctomys* and *Spermophilus.* According to our author, there must be in Russia, besides the Baibac, two other species allied to this and Arctomys Monax, viz. the Marmot (? *A. camtschatica*), already mentioned by Pallas as the *A. Baibac varietas camtschatica,* and another recently discovered in the Altai regions, and very similar to this, which may, perhaps, constitute a distinct species, the *A. baibanica.* Brandt then proceeds to the arrangement of the species in the genus Spermophilus, in which undertaking a far richer amount of material has been at his command than at mine. He divides the genus into two subgenera.

Subgenera I.—*Colobotis;* Molarium superiorum primus secundo et tertio duplo vel vix duplo minor, apice sub 3—4 lobatus et acie compressa, transversa, subobliqua, satis lata, truncata, acuta instructus. Molarium superiorum 2, 3 et 4 coronæ cuneato-triangulares, facie interiore compressæ, valde angustæ et acuminatæ. Plicæ centrales longitudine subæquales, valde elevatæ, in margine coronæ externo parallelæ, in margine coronæ interno antem angulo plus minusve acuto introrsum conniventes et parte interna conjunctæ. Auriculæ truncatæ vel subtruncatæ, brevissimæ, interdum fere marginiformes. Plantæ nudæ vel pone digitorum basin ad calcareum usque vel in calcaneo tantum pilosæ. Here belong all the European and Asiatic, as well as all the Russian, Marmots.

(a) Plantæ adultis totæ nudæ (in calcanei lateribus tamen pilis rigidiusculis incumbentibus limbatæ et ex parte tectæ); auriculæ submarginiformes truncatæ; cauda submediocris vel brevis, podario longitudine subæqualis, (*a*) oculorum ambitus capitis lateribus concolor. (1) *Sp. fulvus,* Blas. et Keys. (2) *Sp. rufescens,* K. B. (*A. undulatus*), *β,* oculorum ambitus albus vel albidus, a capitis lateribus colore pallidiore distinctus. (3) *Sp. erythrogenys,* Brandt; capitis superior facies, apice rostri excepto, griseo, nigricante et albido mixta; cauda circiter $\frac{1}{4}$—$\frac{1}{3}$ corporis longitudinis, pilis ferrugineis nigris plerumque mixtis, patentibus, subdistichis obsessa. Body 9—13″, tail with hairs 2″ 3‴—3″. (4) *Sp. brevicauda,* Brandt (*Sp. mugosariscus,* Eversm.), capitis superior facies cum rostri dorso fere tota subsordide ferruginea, vix nigro mixta; cauda $\frac{1}{6}$—$\frac{1}{5}$ corporis longitudinis, ultra medium et in lateribus pilis subadpressis ferrugineis, apice albis obsessa. Body 8″—$9\frac{3}{4}$‴, tail with hairs 1″—6‴. Brandt would distinguish this species from Lichtenstein's Sp. mugosariscus, which was hitherto only known from the Berlin

specimen by the want of the thumb and the colour, by the one-coloured flat tail and distinctly annulated hairs upon the body. (5) *Sp. mugosariscus*, Licht. (6) *Sp. musicus*, Men.; probably identical with Citillus xanthoprymna, Benn.

(b) Plantæ adultorum in calcaneo plus minusve largiter pilosæ; auriculæ brevissimæ; cauda elongata, podario triplo vel duplo longior, cum pilis circiter ½ corporis longitudinis æquans. (7) *Sp. Parryi*, Rich. (8) *Sp. Eversmanni*, Brandt (*Arctomys altaicus*, Ev.), facies supra nigro albido et ferrugineo mixta; cauda disticha cum pilis corporis dimidiam longitudinem superans. Body 9—11½″, tail with hairs 5—6″.

(c) Plantæ pone digitorum basin et in calcaneo in adultis pilosæ; auriculæ breves, sed distinctissime marginatæ; cauda mediocris vel submediocris ¼ vel ⅓ corporis longitudinis. (9) *Sp. guttatus*, Temm. (10) *Sp. Citillus;* of this species the Reporter has obtained one specimen from Vienna, another from Constantinople, and has heard of some having been procured in Bohemia.

The doubtful species of the Russian Fauna are (11) *Sp. intermedius*, (?) 2 specimens from Balkasch. See, preserving a kind of mean betwixt Sp. erythrogenys and brevicauda, (12 ?) *Sp. jacutensis*, mentioned by Gmelin, and probably Sp. Eversmanni; (13 ?) *Sp. leucostictus*, founded, like the subsequent ones, upon the varieties recorded by Pallas; (14 ?) *Sp. dauricus*.

Spermophili peregrini: (15) *Sp. concolor*, Is. Geoffr., probably identical with Sp. fulvus; (16) *Sp. Franklini;* (17) *Sp. Hoodii;* (18) *Sp. Richardsonii*.

Subgenus II.—*Otospermophilus*. Molarium superiorum primus secundo circiter triplo minor, conicus acuminatus apice antice rotundato lævigato, postice parum oblique truncato et fossula minima impresso. Molarium 2, 3 et 4, coronæ fere subrhomboidæ, facie inferiore parum angustatæ, subsemilunares et rotundatæ. Plani mastucatorii plicæ centrales parum elevatæ, subparallelæ, longitudine inæquales, anteriore longiore, posteriore in crure interiore impressa. Auriculæ mediocres vel submediocres, circiter ⅓ capitis longitudinis. Cauda elongata. Plantæ pone digitos pilosæ. Here belong 19—25 *Sp. Beecheyi, Douglasii, macrourus, lateralis, grammurus Clarkii* and *mexicanus*. It is not said how many species have been examined as to their dentition.

Distinguished as is this work by Brandt upon the Sciurina for its solid information, the article "Ecureuil," by Boitard, in 'Dict. Univ. d'Hist. Nat., v, p. 207, has been, upon the other hand, superficially and carelessly prepared. According to him, it must be very annoying to Systematists, who lay such great stress upon the characters of the cranium, to learn that a form such as that of the infra-orbital foramen brings the Sciurina into approximation with the Elephant. He is further of opinion that, after the Sciurina have been studied in a more philosophic manner, the 104 species at present comprised in that family will admit of being reduced to twelve or fifteen at the very utmost. These assertions are a satisfactory proof of Boitard being incompetent as yet to pass judgment upon points of Zoology.

S. Müller and H. Schlegel have given the description of the Sciurina that occur on the islands of the Indian Archipelago. It is to be found in the 10th Hefte der Verhandel. over de natuurl. Geschied. der Nederl. overzeesche bezitt Zöologie.

No mention is made whatever in this of my labours upon the Sciurina in Schreber's works, which I the more regret, since many doubts entertained by Müller and Schlegel might have been thereby removed, while to them there was naturally a far greater supply of materials at command than to myself, as also opportunities for observing habit and geographical range, which to me were wholly wanting. The fifteen species of Sciurina, which they admit as belonging to the Indian Archipelago, are divided in the following manner: (a) Large species without lateral stripes; tail very long, clothed with two distinct rows of very long hairs; skull broad and strong; muzzle short, broad, and arched; above as well as below, upon either side, four molar teeth: *Sc. bicolor*, *hypoleucus*, and *ephippium*. (b) Species of median size, usually provided with long stripes upon the sides of the body; tail thickly covered with hair, yet less distinctly tripinnated than in a, and longer than the body; in front of the first true molar there is one of very small size: *Sc. hippurus*, *rubriventer*, n. sp., *Rafflesii*, *vittatus*, *nigrovittatus*, *leucomus*, n. sp., *modestus* and *murinus*, n. sp. (c) Species very small, tail shorter than the body, molar teeth as in b: *Sc. exilis* and *melanotis*. (d) Species of median size, tail shorter than the body; muzzle more or less elongated; molar teeth as in b; living mostly upon or near the earth; colour dark; tail slightly bicurvate; *Sc. insignis* and *laticaudatus*. With the exception of the three new species, the rest have been already described. Of the former, which belong to Celebes, and have been published by Forsten, merely the diagnoses have been given, as follows:—(1) *Sc. rubriventer:* size, form, and colour in general like that of Sc. hippurus, but the ears longer and covered much more closely with black hairs of very great length, and thus projecting far beyond the ears; the reddish brown of the lower parts not only extends over the inner but also outer side of the paws; caudal hairs black, surrounded towards the apex with broad rings of a feeble reddish brown tint. (2) *Sc. leucomus:* size and form as in Sc. vittatus and nigrovittatus; ears lined internally with brownish yellow, posteriorly with long black hairs, projecting far above the ears; colour of the upper parts and outer side of the feet olive-brown; the hairs mostly marked with rusty-yellow rings, and having in part black apices; tail dappled with these three colours, behind the ears a large white spot: under side of the body rust-coloured, inclining to reddish brown. (3) *Sc. murinus:* general appearance and form as in Sc. modestus, but somewhat smaller, the tail being rather shorter, ears less hairy, and the colour more uniform; above, whitish gray, and the hairs with whitish yellow points; beneath, ashy-gray.

If the author (S. 91) adduces *Sc. auriventer* as being identical with *Sc. Finlaysonii*, the Reporter has, on the contrary, to remark, that in both not merely the absolute size of the body, but also the relation to it of the tail, in accordance with the preceding descriptions, exhibits such differences, that so long as these are not equalized, an identification of both kinds of animals does not appear to him justifiable.

Concerning the habits of *Tamias striatus*, Eversmann has given extensive details in the 'Bullet de la Classe Phys. Math. de l'Acad. de Pétersb.' ii, p. 123.

Myoxina.—Lortet has (Annales des sc. phys. et nat., d'Agriculture et d'Industrie, publiées par la Soc. Roy. d'Agriculture, &c., de Lyon, vii, 1844, p. 153, and 430) communicated observations concerning the lethargic sleep of the Dormouse (*Myoxus muscardinus*.)

The observations were instituted upon a single individual, and in such a manner that the bulb of the thermometer was introduced between the ventral folds of skin. They were commenced in October, 1843, and extend over a whole year. On October 25th the animal fell into the lethargic sleep, out of which it awoke several times. Until the following June was the longest period of sleep; and the following is the temperature as observed by a Centigrade scale:

				Air temperature.	Temperature of the animal.
From November	29	to December	6	11,9	12,2
„	10	„	15	12,3	11,9
„	17	„	24	11,9	10,9
„	15	January	15	7,3	7,0
January	17	February	6	8,4	8,5
The animal was longest awake,					
from „	7	to January	9	11,6	32,0
„	15	February	27	7,5	30,2
„	16	March	27	9,0	35,0

Until the middle of July the sleep was almost always lethargic, with considerable diminution of the temperature, and the animal required but a few seconds in order to relapse therein, without its dropping off into a sleep similar to that of the other Mammalia, i. e. without depression of heat and without protracted or irregular respiration. From the 20th of July the animal continued in a waking or sleeping condition, without exhibiting symptoms of lethargic sopor. The first lethargic sleep was observed upon October 15, 1844, and thus almost at the same time as in the past year.

Dipoda.—Remarks upon the classification of the Jerboas, in reference

chiefly to the species occurring in Russia, with a survey of the systematic arrangement of the species in general, their affinities and geographical distribution, have been communicated by Brandt, in the 'Bullet de la Classe Phys. Math. de l'Acad. de Pétersb.' ii, 1844, p. 209. Brandt first of all divides the family of Jerboas into three sub-families: (1) *Dipodina s. Tylarodactyli;* (2) *Merionina,* (including merely the North American Jaculus); (3) *Pedetina.* He again divides the Dipodina into two sections with three genera, besides sub-genera and genera below these, as follows: Sect. A. Dentes incisorii superiores sulcati; pedes postici tridactyli—*Dipodes genuini.* Gen. I. *Dipus,* Fr. Cuv., with two subgenera.

Subgen. 1. *Scirtopoda,* Brandt: molares $\frac{3}{3}$ molarium superiorum primus facia externa 2-3 plicatus, interna biplicata; secundus et ultimus facie utraque biplicati, &c. Pedum posticorum digitus medius lateralibus fere subæqualis vel paulo longior, articulo suo apicali laterales superans. Dentes incisores albi. (a.) *Halticus,* Brandt: molarium sup. primus extus triplicatus, intus biplicatus; secundus et tertius utrinque biplicati. Mandibulæ molarium primus et secundus utrinque triplicati, &c. Tail without black arrow-like marking and white tip. As a species Brandt here reckons simply *D. Telum,* Licht., and is of opinion that *D. halticus,* Ill., which is based solely upon Mus Jaculus, var. media of Pallas, likewise belongs here, on which account Brandt would have the name, D. halticus, retained for this species. The Reporter finds this restriction to be in the highest degree hazarded, since Pallas unites his var. media with the Jaculus, and thus with a pentadactylous species, while, with his usual accuracy, it is difficult to assume that he should have committed an oversight upon this point. (b.) *Haltomys,* Brandt: molar sup. 1, 2 et 3 utrinque biplicati. Mandibulæ molarium primus utrinque biplicatus, secundus extus triplicatus, intus biplicatus, &c. Tail with arrowy marking. Here come—2, *D. ægyptius;* 3, *D. hirtipes;* 4, *D. macrotarsus;* and 5, *D. mauritanicus.* The two latter species Brandt considers, with the Reporter, to be insecure.

Subgen. 2. *Dipus,* Brandt: molares $\frac{4}{3}$, molar sup. primus minimus simplex, cæteri extus subtriplicati, intus biplicati, &c. Pedum posticorum digitus medius lateralibus angustior, longitudine iis subæqualis vel vix brevior. Dentes incisores aurantiaci. Ex. 6, *D. sagitta;* 7, *D. lagopus.* Sectio B. Dentes incisorii superiores lævigati; pedes posteriores 5-dactyli, rarius 4-dactyli. *Scirtetides.*—Gen. II. *Scirtetes,* Wagn.: dentes molares $\frac{4}{3}$, cauda pictura sagittiformi ornata. Subgenus 1. *Scirtomys,* Brandt: pedes postici 4-dactyli. 1, *Sc. tetradactylus,* Licht. Brandt has unfortunately been unable to impart any information concerning the osteology and dental system of this remarkable species. Subgenus 2. *Scirtela,* Brandt; pedes postici 5-dactyli. Here belong—2, *Sc. Jaculus,* of which Brandt distinguishes the following varieties: var. a. *Macrotis* = *D. Jaculus,* Auct., *D* subvar. α. nigricans = *D. decumanus,* Licht., subvar. β. flavescens = *D. rex-*

illarius, Ev., and var. b. brachyotis = *D. spiculum*, Licht. As a result supported upon an examination of more than thirty specimens, Brandt here reduces four species into one, and in this respect he may be right, since we also know now, from the observations of others, that the length of the ears and the tail, as well as the colouring, is subject to diverse variations. Blasius had already remarked that D. vexillarius is not different from D. Jaculus, and Eversmann doubted the propriety of the distinction between the latter and D. decumanus. 3, *Sc. Acontion;* 4, *Sc. elater*, according to Brandt, probably one in kind with the preceding species, since it deviates from it only in such characters as have been found to be changeable in D. Jaculus. 5, *Sc. indicus*, Gray; 6. *Sc. arundinis;* 7, *Sc. aulacotis*. Gen. III. *Platycercomys*, Brandt: dentes molares $\frac{3}{3}$; cauda pictura sagittiformi privata. 1, *Pl. platyurus* = *D. platyurus*, Licht. Brandt gives a detailed description of this species.

Chinchillina.—We have been informed by Bridges (Ann. Nat. Hist. xiv, p. 56) that *Lagotes pallipes* inhabits the east side of the Chilian Andes; he found these animals at a height of 4000 to 5000 feet, between Villavicencia and Uspallata, in a rocky valley.

Orycterina.—*Octodon gliroides* has been established as a new species by P. Gervais and A. d'Orbigny. (Rev. Zool. p. 123.) The colour and character of the hair remind us of that in Myoxus glis and the Chinchilla. Hairs white, ashy gray above, white below. Tail blackish brown beneath, tipped with the same colour, and somewhat pencil-like (en balai.) The new species is distinguished from O. Cumingii, of whose size it is, by the molar teeth being somewhat less extended, especially the fourth, which has less oblique plaits, the upper being more triangular and the lower more in the form of the Arabian eight (or 8) with the exception of the posterior, the crown whereof is rod-like (la partie eburnée est virguliforme), with external notches, and not with internal as in O. Cumingii. In this, the same tooth and its corresponding fellow in the upper jaw is less different in form and compass from the preceding one than in O. gliroides. The new species comes from the heights of the Bolivian Andes in La Paz, where it lives principally upon Cactus. This opportunity serves to remind me that another new species, and thus the third of this genus, has come to hand from Chili; upon it I bestow the name of *Octodon pallidus*, with the diagnosis: O. lutescens, infra pallidior, pedibus apiceque caudæ subpenicillato albentibus. Bridges has furnished some information concerning the residence and habits of *Octodon Cumingii*, *Schizodon fuscus*, and *Poëphagomys ater*. (Ann. of Nat. Hist. xiv, p. 54.)

Cuniculina.—Instead of rejoicing in the sound discrimination between the genera of this family, as acquired by closer examination of the skull and dentition, P. Gervais endeavours, if it were yet possible, to throw these again into confusion. In the 'Dict. Univ. d'Hist. Nat.' iv, p. 443, he

unites forsooth not merely *Poëphagomys*, but even *Octodon* and *Schizodon*, with *Ctenomys*, thus bringing together genera the most different; in doing this he would leave it as an undecided point whether they may not be regarded as forming a small family or a single genus. Eversmann remarks in the 'Bullet. de Pétersb.' ii, p. 124, that *Ellobius talpinus* occurs in the fertile steppes on the south-western promontories of the Ural in frequently incredible numbers.

Murina.—It has been found that the geographical distribution of *Mus minutus* extends much further north than has hitherto been supposed. Sundevall alludes to W. v. Wright, upon his late return from a journey to Finland, having found the Mus minutus in the country of Knopio, upon which Hornschuch observes, that it occurs also not unfrequently in Neu-Vorpommern. (Archiv. skand. Beitr. z. Naturgesch. i. S. 140.) Of *Cricetomys gambianus* Fraser remarks, that it is common upon the Island of Fernando Po, lives under the ground, but ascends also trees to get at their fruit, and with the natives is regarded as the greatest delicacy on high days or holidays. (Ann. Nat. Hist. xiii, p. 225.) Bridges sets down some short remarks concerning the habits of *Hesperomys longicaudatus* and *longipilis*. (Ann. Nat. Hist. xiv, p. 53.) The Swedish Lemmings (Lemmus, Geoffr.) are arranged by Nilsson in the following manner. (Archiv. Skand. Beitr. i. S. 146.)

a. All the grooves of the molar teeth disposed in a zigzag manner.

1. *Hypudæus:* the most median molar tooth having above three lateral and externally directed ridges, with two still larger ones inwardly, without a trace of a third. They divide into—*a. Earth-rats;* all three above-mentioned lateral ridges very large and acutely angular: here belong *Lemnus amphibius*, Linn., and *L. medius*, Nilss. *β. Earth-mice;* the most anterior and external lateral ridge upon the selfsame tooth much smaller than that upon the others. Ex. *L. glareola* and *rutilus*.

2. *Arvicola:* middlemost molar having above three lateral ridges externally, three internally, of which two are of the same size as the outer ones, the third being much smaller: here belong *L. insularis*, Nilss. and *L. agrestis*, Linn. Arvicola arvalis has never been found as yet in Sweden, but belongs, by virtue of the middle superior molar tooth, to this subdivision.

b. Grooves of the posterior molar nearly parallel, those of the remainder in zigzag.

3. *Myodes:* tail very short, about half the length of the head, being shorter or equal in length to the hind foot: here belong *L. norvegicus*, Nilss., and *L. schisticolor*, Lilj.

Nilsson characterizes his *Lemnus medius*, S. 146, in the following manner: similar to L. agrestis but somewhat larger, and of a dark colour, with a somewhat longer tail, and wholly devoid the posterior small supernumerary enamel folds upon the middlemost upper molar. From Lapland and the

Alps around the Guldbrandsthal. Of *Lemnus insularis* it is said, "resembles still more closely *L. agrestis*, and with similar teeth to the latter, but with a longer tail ($1\frac{3}{4}$ to 2″) and somewhat larger ears. Found, according to Natterer, upon the east Gothian Scheeren." The right upon the part of these, especially the latter species, to be regarded as distinct does not appear proved to the Reporter by these short accounts.

Myodes schisticolor has been (S. 144) established by Liljeborg: ashy gray with a large reddish brown spot upon the posterior part of the back. From the northern part of the Guldbrandsthal, in Norway. Sundevall, who had demonstrated beforehand a specimen of this new species found in Dalecarlia, remarks that the teeth possess the same form as in Mus Lemnus, but that the anterior claws, just as in the species of Hypudæus, are not larger than the posterior; in Mus lemnus the fore are much larger than the hind nails. Two young ones of the same new species have also been found at Kuopio, in Finland.

Th. von Middendorf has given a provisional Report of the species of Lemmings observed in his journey in the north-east of Siberia. (Bullet. de la Classe Phys. Math. de Pétersb. iii, p. 219.) Instead of increasing Middendorf has diminished the number of the species, since he reduces all the Lemmings observed in Tamirland to two species, and in so doing directs attention also in the case of these animals to the great conformity that prevails in the whole Fauna of the highest north. The multiplication of the species was due to the great diversities of size and colour, dependent upon age and season, presented by the same animal, the correct reduction of which to the unity of the species can only result from observing them in a state of nature. The two species occurring in Tamirland range, according to Middendorf's convictions, throughout the whole north of Asia and America.

1. *Myodes hudsonius*, Forst. and Rich., unto which belong as synonymous *Mus torquatus*, Pall., *Lemnus ungulatus*, Baer., and *Myodes grœnlandicus*, Traill. Extends from the east coast of the White Sea through Siberia and North America, and thus completely encircles the arctic regions of the globe, and reaches probably from the polar circle as far north as there is terra firma. It does not descend to the limits of vegetation, and like all true arctic natives assumes a white coat during the winter. Even the double claws belong, as it would seem, in their most perfect state, only to old males in their winter garb.

2. *Myodes obensis*, Brants., is synonymous with Middendorf to *Hyp. migratorius*, Licht., *Arv. helvolus*, Rich., and *Georh. luteus*, Ev. A more southern species than the preceding being seen by Middendorf not far above 74°; inhabits low and even woody plains, and appears to occur upon the whole Ural as far as its southern branch-chains. It does not become white in winter, though the change of colour is otherwise very considerable; when in its full summer dress it approximates the M. norvegicus. The

young of M. hudsonius and obensis possess the dorsal stripe; but this is at times either very distinct in grown-up specimens or altogether wanting.

Castorina.—Bridges has communicated some insignificant observations upon the *Myopotamus Coypus* of Chili. (Ann. of Nat. Hist. xiv, p. 54.)

Trogontherium Cuvierii has been demonstrated as an extinct Rodent animal by Owen, in his Brit. Foss. Mamm. p. 184.

Aculeata.—Reinhart has, in our Archives, S. 240, determined a new Coendou, *Cercolabes Liebmanni*.

A distinctly new species from Mexico, yet one that does not belong, as Reinhart infers, to the subgenus *Synetheres*, but from its rich coat of hair and cranial structure must be placed in *Sphingurus*, from whose present known species it differs too by its larger size.

Duplicidentata.—The identity of the *Lepus hibernicus* with *L. variabilis* has now been decided. Blasius had already declared, after inspecting a specimen of the Irish Hare, that it did not admit of being distinguished from the variabilis. Thompson has now exhibited before the British Association at Cork specimens of L. variabilis from the Scottish Highlands, and of the Irish Hare, and demonstrated by their external and internal agreement the identity of the species. (Report of the thirteenth meeting of Brit. Assoc. p. 68.) Now both Nilsson and Sundevall are inclined to regard the two forms of Hares living in Scandinavia as separate species. (Arch. Skand. Beitr. i, S. 172.) Nilsson had previously, in the 'Illumine rade Figurer till Skand. Fauna,' described them as two varieties, but now places them under the following names: (1) *Lepus borealis*, Ill., Fig. tab. 19, becomes perfectly white in winter; the tip of the ears only is black; the skin white or pale. (2) *Lepus canescens*, Ill., Fig. tab. 22, becomes blueish gray in winter, white below, the ears black at their apex and the greater part of the posterior edge; the skin gray. Sundevall here observes, that he has for some years been in the habit of comparing a tolerable number of specimens of both kinds of Hares, and having found them to be so constant in their characters that no transition could be traced from one to the other, would therefore regard them likewise as two species. In *L. borealis* the black of the ear-tip is about ten millimetres in breadth, and extends only about half along the anterior, but not posterior, edge. In *L. canescens* it is about twenty millim. broad, and runs down below the middle of the posterior, and for about 1″ upon the anterior edge. *L. borealis* is found throughout Scandinavia, but is only an occasional visitant on the Schonen plains; towards the North it ranges as far as the Polar Sea. *L. canescens* is the common species in Schonen; is found with the former in the whole of Gothland, becomes rarer northward, but is yet met with on

the Storsjö, in Jemtland. According to the Reporter's opinion, both these kinds of Hare should be regarded as constant varieties, one of which has its chief abode in the north, the other in the south. Sundevall distinguishes both his Hares from L. glacialis, which has only one tuft of black hairs upon the tips of the ears (this being the case also in both our specimens of L. glacialis, one whereof is derived from Labrador), the claws broad, obtuse, depressed at the apex, and hinder feet shorter by about one inch. Close admeasurements of seventeen specimens of the L. borealis and eight of L. canescens are subjoined.

EDENTATA.

Gray (Ann. of Nat. Hist. xiii, p. 70) establishes upon two specimens of Western Africa a new species of Pangolin, *Manis multiscutata*, which is distinguished from M. tetradactyla (M. longicaudata) by a shorter tail (one and a half length of body), by double the number of scale-rows (23), and by more pointed triangular scales. The Reporter would here remind the reader that this species is identical with M. tricuspis. Sund., and the latter name is to be applied. Two other specimens of the same species obtained by Fraser, from Fernando Po, have been brought by him to England. (Ann. xiii, p. 227.) He kept them some time alive, and had, therefore, an opportunity of making some remarks upon their habits.

SOLIDUNGULA.

Interesting anatomico-physiological remarks upon the Horse's foot have been published by Tscherning in Förhandl. vid. de Skand. Naturf. Stockh. 1843, p. 693; Isis, 1845, S. 454.

PACHYDERMATA.

Owen, in his Hist. of Brit. Foss. Mamm. p. 218, has given an elaborate memoir upon *Elephas primigenius*.

It is not merely limited to the fossil remains that have been found in England, but enters at the same time into a general and critical investigation of the peculiarities of this remarkable creature belonging to the primary world.

In the 'Bullet. de l'Acad. de Pétersb.' ii, p. 16, is contained a notice of the fresh carcase of a Mammoth having been found (1840) in a frozen state, on the shore of the Tas river, and conveyed thence to Tobolsk. Fick (Müller's Archiv, f. Anat. S. 431) examined the labyrinth of the Elephant, whereby he found that the cochlea is so flat, that its cupola projected but very slightly above the level of the largest semicircular canal, and that a

true cochlear foramen, leading into the tympanic cavity, is here completely wanting.

Not less distinguished than the article upon the Mammoth is that worked out by Owen in the same work, p. 271, upon *Mastodon angustidens*. He herein proves that *M. avernensis* and *longirostris* are identical with *angustidens*. The Professor has also given the news in the 'Ann. of Nat. Hist.' xiv, p. 268, of a *Mastodon australis* that has been found in New Holland.

The new species is dependent for its foundation only upon a single inferior molar tooth, which comes nearest to that of M. angustidens, but still presents several points of difference. Owen takes this opportunity of correcting an error which he had formerly committed, namely, that the molar fragment, occurring in common with a large fossil femur, does not belong to the *Dinotherium*, but is to be referred, on comparison with more perfect specimens, to his *Diprotodon*, a gigantic marsupial animal. Of this genus, as well as another, called *Nototherium*, he will shortly treat more in detail.

C. Ranzani has given three beautiful plates, accompanied by some observations, of the lower jaw found by J. Montius, at the commencement of the preceding century, at Bologna, and ascribed by Cuvier to the *Rhinoceros tichorinus*. (Novi Commentarii Acad. scientiar. Instit. Bononiensis, vi, 1844, p. 295.)

Tapirus helveticus has been found, according to H. von Meyer's determination, in the peat of the Molasse Von Greit am Hohen Rohnen. (Jahrb. f. Min. S. 566).

The same author (ibid. S. 298) sets up, under the name *Anchitherium*, a new primo-mundane genus related to the Rhinoceros, Anoplotherium, and Palæotherium. The remains belonging to it were found in Madrid, and are indicated by the specific name of *A. Ezquerræ*.

Morton has surmised the propriety of a second species of River Horse being distinguished as *Hippopotamus minor*. (Proceed of the Acad. Nat. Sc. of Philad. 1844, p. 185, and Ann. of Nat. Hist. xiv, p. 75.) His conjecture rests supported upon two crania which he had obtained from Monrovia, in West Africa, and of River Horses from the River St. Paul. The one cranium is that of a very aged individual, on which the sutures are perfectly obsolete, and the teeth worn down by use; added to this, its length, from the anterior border to the notch between the articular condyles of the occipital bones, amounts only to 12, 3″. Besides this, the cranial roof is uniformly arched from one orbitar cavity to the other, as well as between the occipital and the nasal bones, while in the usual species the orbits are strikingly elevated, and their intervening space hollowed out. The orbits are, moreover, placed in H. minor in the middle, between occiput and muzzle, while in the large species they are about a third from the former. Finally, the H. minor has only two incisor teeth in lower jaw, the false molars are

approximated to the canines, and the basis of the jugal bone lies upon an equal level with the lower jaw. The Reporter confesses that, after comparing these accounts with three skulls of the large species, they merit every consideration, and certainly leave us to conclude as to the occurrence of a second species.

M. Vrolik has, with great elaborateness, worked out from two male specimens the anatomy of the Babyrussa. His treatise is to be found in the 'Nieuwe Verhandelingen der ersten Klasse van het K. Nederl. Instituut. van Wetensch,' etc. te Amsterd. x, (1844), p. 207, and is accompanied by five very beautifully-executed plates. He first of all regards the osseous system, and contrasts it with that of the Pig and Peccary. There are thirteen dorsal, and six lumbar vertebræ, present. The sacrum consists, in the Pig, Babyrussa, and Peccary, of four, five, or six vertebræ; the number of the caudal vertebræ is very variable in these three animals, but does not appear to exceed twenty-four. In the muscular system Vrolik takes that of the Gnu and Tapir into consideration. The brain differs in no essential portion from that of the Pig. There are a peculiar pair of air-sacs, that occur neither in the Pig nor Peccary. They are found in the upper cervical region, behind or posterior to the pharynx, and as they have coalesced during growth, they thus open into the pharyngeal isthmus by two apertures, separated from the oral cavity by an elongation of the velum palati. In the direction backwards these sacs terminate like cæca. Upon the upper part of the pharynx there was found in one of the specimens a second expansion, but this must be viewed as a pathological aberration, since it was wanting in the other subject. An ossific deposit was exhibited in the heart's septum at the basis of the semilunar valves. The left lung consisted of only one, the right of two, lobes, the inferior of these being provided with an accessory lobule. The stomach is divided into sacs, one of which is in conjunction with the pylorus, the other with the cardia; the latter has a special appendage, which twists from left to right while environing the sac. In the Pig the structure of the stomach is simpler, but more complex in the Peccary. The cæcum is not very large, but very broad. There are no vesiculæ seminales, but a prostate gland, which is formed of two lobes and made up of a great number of small lobules.

In the tertiary deposits upon the Sewalik Mountains, in East India, Falconer and Cantley have found a new species of *Anoplotherium*, which they call *A. sivalense*. (Ann. of Nat. Hist. xiv, p. 146.)

It lay there along with the fossil remains of Sivatherium, Camelus sivalensis, Antilope, Crocodile, &c., and the species is founded upon two lower jaws, indicative of an animal midway in size between the Horse and the Sumatran Rhinoceros.

Wood, in 'Ann. of Nat. Hist.' xiv, p. 349, bases a new genus, *Microchærus*, upon a damaged fossil skull and a fragment of lower jaw. They were dug out of the fresh water deposits at Hordwell in Hampshire, along with relics of Palæotherium, Alligator, and some other animals. The new genus approximates, from the character of the teeth, very closely to the Hyracotherium, but its size could scarcely have exceeded that of the Hedgehog. The specific name given is *M. erinaceus*.

RUMINANTIA.

Under the title of *Cervus dimorphe* Hodgson gives intelligence of a Stag, regarded by him as a new species. (Ann. Nat. Hist. xiv, p. 74.)

He obtained it from the Saul-wood of Morung; the animal might then be two years old, and Hodgson kept it alive; from the descriptive sketch it was about three years. Antlers tolerably pale, smooth, and constructed in general after the type of the axis, but the mid-branches more curved, more divergent, and furnished with only a single shoot, directed forwards at the basis. Lachrymal grooves small or of moderate size, and vertical; interdigital grooves; ears expanded; tail short; stature and general aspect that of a mean betwixt the axis and Rusas. Colour, when young, bright fallow-red; becoming with age blackish-brown, with blackish nape and belly; a dark seam surrounds the muzzle, chin white, limbs pale. If Hodgson does not know to what group of Deer he should ascribe this beast, the Reporter will withhold his judgment until more accurate and comparative descriptions come to hand.

Brandt has expressed the opinion that *Cervus pygargus* ought sooner to be regarded as a particular species than as a variety of the ordinary Roe. (Bullet. de l'Acad. de Pétersb. iii, p. 280.) He gives the following as distinctive characters: (1) *Cervus pygargus*, statura C. Damæ. Caput et cornua fere ut in C. elapho (?) formato. Cornua ima basi roseiformi $\frac{3}{4}''$ inter se distantia, dein extrorsum versa et angulo satis acuto reclinata, inde a medio fortiter extrorsum arcuata, apicibus summis valde magisque quam parte media distantibus sursum, partis apicalis interna facie antem subantrorsum directa Labii superioris latera margine toto alba. Ungulæ latiores et breviores quam in C. capreolo; cauda paulo longior. (2) *Cervus capreolus*, statura Cervo Dama inferior. Cornua peculiaria, &c. Labii superioris margines lateribus nigri; cauda subnulla.

	C. pygargus.	C. capreolus.
From the muzzle to anus .	55″ 3‴	46″ 3‴
Length of head . . .	13 3	11 3
Length of horns . . .	13 0	10 3
Distance of their summits .	12 3	3 6

In a general sense Brandt is of opinion "that the *C. pygargus* may be regarded as a Roe of larger form, with the head and horns of an ordinary Stag, unto which it in some degree approximates by the form of the tail, which is more voluminous or bulky than in the common Roe." As Brandt would compare the horns of the *C. pygargus* with those of the Red-deer I do not see why, if this comparison be taken literally, the specific difference between *C. pygargus* and *capreolus* should not be set beyond all doubt. At all events remarkable differences are still left in both kinds of animal, should they even constitute but local varieties according to the characters given by Brandt.

Dr. Falconer and Captain Cautley distinguish from among the remains of primo-mundane Giraffes hitherto found imbedded in the Sewalik hills, two species: *Camelopardalis sivalensis* and *affinis*. (Ann. of Nat. Hist. xiv, p. 146.)

(1) C. sivalensis is based upon the third cervical vertebra which is about $\frac{1}{3}$ smaller than in the living species, and exhibits other differences. (2) *C. affinis* approximates very closely to our living Giraffe in the form and size of the teeth, and so on, and is based upon two fragments of the upper, and one other, of the lower jaw.

The anatomy of a Giraffe that died at Toulouse has been undertaken by Joly and Lavocat, and communicated with provisional remarks. (Instit. p. 54.) They do not appear to have been acquainted with Owen's work upon the same subject. In their specimen the gall-bladder was wanting, which was also the case in that examined by Owen; while in a third it not merely occurred of very large size, but also double. The relation of what has been called the third horn they, as well as the Reporter, Owen, and Ruppel have found out.

Cavicornia.—The examples of the occurrence of fossil remains of primo-mundane animals from this division begin to increase. In the loose deposits of the Issoire country different fossil relics have been found, and ascribed by Pomel to an aboriginal Goat, and called *Capra Rozetti*. (Rev. Zool. p. 284.)

Brehm reminds naturalists, in the Isis, S. 484, that the name *Capra pyrenaica* was first bestowed upon the Pyrenean wild Goat by Bruch, and not by Schinz.

Under the article Daim, Roulin has contributed to D'Orbigny's Dict. Univ. d'Hist. Nat. iv, p. 577, very detailed and learned remarks upon the origin and races of the domestic Goat. Schlossberger gives an account, in

Müller's Archiv. f. Anat. S. 439, of a milk-secreting Ram, with an analysis of the milk. The Ram lived at the Neuof farm at Giessen, had perfectly developed testes, penis, and horns, and had given undoubted proofs of his masculine strength in begetting several young. The two udders were situated in the same place as in the Goat, and were about the size of a fist. Some degree of compression being used, a fluid could be squeezed out of them, having thoroughly the colour, consistence, and flavour of good milk.

PINNIPEDIA.

Schlegel has worked at the members of this tribe occurring in the Japanese waters, in the third decade of the Fauna.

This work is an important contribution to a closer acquaintance with these animals. Among those that are devoid of a projecting auditory couch he distinguishes as a new species the *Phoca nummularia*, though already mentioned by Pallas. He describes in detail the *Otaria Stelleri*, and proves that it occurs also in the southern waters, and considers it very probable that the *C. chilensis* and *Lamarii* of J. Müller belong likewise to the same species, which is certainly saying a good deal.

Of still more general compass is J. E. Gray's work, since it extends altogether over the Seals of the southern hemispheres.

The account is to be found in the 'Zoology of the Voyage of H.M.S. Erebus and Terror,' edited by Richardson and Gray. Up till now two parts only of this division have appeared. By way of introduction, a systematic arrangement of the whole order of Pinnipedia, according to genera and species, has been given, the latter being pretty richly treated of. Gray follows in general throughout his arrangement the distinguished work of Nilsson, a step that is much to be approved of; but, that the Walrus should be placed between the non-eared and eared Seals, must be denounced as an error by the Reporter, since the former animal is signally distinguished from the rest of the Seals by the character of its cranium, dentition, and even posterior feet, and must be therefore separated from them as a particular family. We shall enter upon this work more fully when it is completed.

C. Jäger gives a short essay in Muller's 'Archiv,' S. 70, upon position and construction of the teeth in the Walrus. He arrives at the views of Rapp and Stannius, and makes mention of a difference in the form of the lower jaw, the rami of which have occasionally a rather straight direction, at other times a correspondent sweep outwards.

CETACEA.

A treatise upon the olfactory organ of Whales in general and of the Delphinus Delphis and Tursio, is given by A. Alessandrini, in the Nov. Commentar. Acad. scient. Instituti Bononiensis, vi, (1844) p. 141.

It contains an elaborate description of the olfactory organ, in reference to the question as to whether in the Whales, and especially the Dolphins, a proper olfactory nerve be present or not; it speaks clearly of its occurrence in the first, and shows how it has happened in dissections of these animals to have been not unfrequently overlooked.

Lesson has given a description of *Balænoptera rostrata*, from a young animal stranded in the year 1845 on the coasts of the Charente. (Actes de la Soc. Linnéene de Bordeaux, xii, p. 16.) Eschricht continues his interesting investigations upon the northern Whales in the 'Förhandlingar vid. de skand. Naturf. Stock.,' 1843, p. 203, translated in 'Isis' 1845, S. 419. He at present believes with tolerable certainty in the existence of two large and two small species of corrugated Rorqual in the north. In the 'Isis,' 437, he communicates his observations upon the Hyperoodon or Bottle-head, and takes the opportunity of entering upon its confused synonymy.

Fitzinger's description of the *Halitherium Christoli* was given in the 'Jahrb. für Min.,' S. 382.

H. Schlegel, in his 'Abh. aus dem Gebiete der Zoologie und vergl. Anat.' 2tes Heft, avails himself of the opportunity afforded him by a *Delphinus orca* and *Balænoptera arctica* being stranded upon the coast of Holland, to give exact descriptions and drawings, perfectly true to nature, of both.

BIRDS.

BY

PROFESSOR ANDR. WAGNER, OF MUNICH.

We have already in our former Report announced the appearance of a work that is of the greatest importance to the ornithologist, from its conducing both to the elevation of his literature and the determining of species, and have now again at our very outset to notice it in a more detailed manner. It bears the title of the Genera of Birds, by George Robert Gray. Illustrated with about 350 plates, by D. W. Mitchell. London, since 1844.

This work, commenced in May, 1844, was to have appeared in monthly parts, yet from the past year we have only the first five numbers lying before us. It is restricted to no systematic order, but places together the most diversified groups, such e. g., as in the first part, the Buteoninæ, Ploceinæ, Œdicneminæ, and Glareolinæ. Neither plates nor text are therefore paged, and the description of each group is so terminated, that upon the conclusion of the whole work it may be bound conformably to the arrangement pursued in the introductory "List of the Genera of Birds." The characters of the families, subfamilies, genera, and subgenera are given in detail; but of the species only the names are adduced, and one or the other authority and figure quoted. Since Gray, in accordance with the recent English and French custom, bestows the value of genera upon subgenera, and has thus completely characterized them, one is spared, in the employment of his work, the great trouble of hunting out the diagnoses of these genera, dispersed to an immoderate extent throughout the most diversified publications, and learns besides the number at once of the species that belong to such a genus, reference being also made to the writings in which they have been described and figured.

This work is therefore of most important service for the determination of specimens in collections. From each of the very numerous subfamilies admitted by Gray, one or the other genus has been represented in a coloured figure; besides this, the head, upper side of the bill, feet, and wings are depicted in appropriate copper-plates. Both text and figures have been executed with the greatest accuracy: the colouring is excellent, and the whole external decoration pretty elegant; price moderate. It is to be hoped that this work will maintain a rapid progress, and thus within five years be completed. It were in the highest degree desirable for an Ornithologist, who is furnished with the requisite literary apparatus, to select the species of Birds as objects of study, so that the far and wide-strewn materials may be again brought together, and ornithology, which, as a science, has been limited, from the constantly augmenting number of costly works, to a continually decreasing circle of readers, may thereby be newly rendered the common property of all Zoologists.

J. E. Cornay has laid before the Académie des Sciences de Paris (Institut., p. 21) a new classification of Birds, based upon the condition of the palatal bones.

It is evident from his account that the condition of the palate bone certainly affords very useful indications for systematic arrangement; and yet, when the author comes to place the Flamingo next to the Ducks, or the Cuckoo to the Roller, it is plain that a classification carried out in accordance with a single character would lead, as an inevitable result, to co-ordinations of groups, &c., that are contrary to nature. The same lesson has been taught us in Botany by the Linnæan system, although this is based upon an organ of far greater importance than is the palatal bone in Birds.

Ornitologia powszechna, czyli opisanie ptákow wszystkich części świata przez Hr. Konstantego Tyzenhauza. Wilno, 1844, tom. ii, S. 602.

The Reporter has already given notice in a former Report of the first part of this work, as being so admirably adapted for elevating the rank of Ornithology in Poland, and is delighted to find that it is making such goodly progress. The second part, containing like the first, the arrangement of Temminck, concludes with the Pigeons. Accompanying it is a coloured figure of Steatornis caripensis.

Ovographie Ornithologique, par M. O. des Murs. (Rev. Zool. pp. 75, 129, 161, 209.) A further continuation of the author's interesting work upon the eggs of Birds.

He first discourses upon the influence of food on the colour of the

eggs, then upon that of climate; furthermore, on their colouring matter, and the influence of incubation upon the development of this body on the surface of the shell; and, finally, the relation that may occur between the form and general arrangement of the spots upon the shell-surface of the coloured eggs, with their mode of exit from the cloaca.

Meyer's coloured Illustrations of British Birds, with the eggs of each species, London, 4to, are only known to me by advertisement.

Among the many ornithological articles in D'Orbigny's Dict. Univ. de l'Hist. Naturelle mention need only be made here of tom. iv.

Waterton's Essays on Natural History, chiefly Ornithology, Ed. 5th, London, 1844, is, from its radically fanatical tendencies, as well as its ill-arranged information, unworthy to be handled as subject matter for scientific consideration. A closer determination of some muscles on the anterior members of Birds has been proposed by Retzius. (Förhandl. vid. de skand. Naturf. Stock, 1843, p. 659. Isis, 1845, S. 440.) The same writer treats of the structure of the stomach in Birds, Isis, 1845, S. 445. Remarks upon the theory of the Bird's flight are to be found in Voy. autour du Monde sur la Frégate la Vénus, x., Physique, v, pp. 107, 268.

We have not this time been so richly furnished with special Faunas as heretofore. In the first place it is to be mentioned that 'Naumann's distinguished Naturgeschichte der Vögel Deutschlands' has now reached its termination. Schlegel's and Susemihl's Bearbeitung der Vögel Europa's, as well as Zander's Naturgeschichte der Vögel Mecklenburg's (5tes Heft,) are still in progress.

In H. Schlegel's Kritische Uebersicht der europäischen Vögel Leid. 1844, also entitled Revue Critique des Oiseaux d'Europe; the species have been first of all brought forward with their synonyms and abodes; then, in a special division of the work, critical discussions are appended, touching feebly determined or readily confusible species, a point by which this work acquires great value, and is to be regarded as an

important contribution to any claim made by us to our knowledge of the European Fauna, as well as forming a necessary supplement to Temminck's Manuel. From its being written both in German and French (in opposite columns) the circulation of this important and, to every ornithologist, indispensable work, is thereby insured.

Die Vögel Europa's. Eine systematische Uebersicht der synonymen Gattungen und der einzelnen Arten nach ihrer natürlichen Verwandschaft zusammengestellt, von L. Selliers von Moranville. Wien, 1844, 57, S. 8.

The author, who is amanuensis to the court library, has quite stepped out of his proper place, though limiting himself to a mere record of names without further explanations.

Die Wanderungzeit der gewöhnlichsten Zug-und Strichvögel im Amte Idstein im Jahre, 1842, has been given by Chr. Unzicker. (Jahrbücher des Vereins für Naturkunde im Herzogthum Nassau, Wiesb. 1844, S. 101.)

A list of the Birds collected by him in north-eastern Siberia, has been published by Th. v. Middendorf in the Bullet. de la Classe phys. math. de l'Acad. de Pétersb. iii, p. 295. Blyth's List of Birds from the vicinity of Calcutta, is continued in the Ann. of Nat. Hist. xiii, pp. 32, 113, 175, and xiv, pp. 34, 108. Strickland has given special observations upon it, xiii, p. 204.

Von den Verhandelingen over die natuurl. Geschiedenis der. Nederl. ovezeesche Bezitt. No continuation of the ornithological text has appeared in 1844, but only 4 plates of figures in No. 10 of the zoological section.

Fauna Japonica auctore Ph. Fr. de Siebold. Animalia Vertebrata elaborantibus Temminck et Schlegel. Aves. fasc. 1.

This first Part contains the commencement of the rapacious Birds observed by the Dutch travellers, and of these the following: *Falco communis, F. tinnunculus japonicus, Astur nisus, Astur gularis, Spizaetos orientalis, Circus uliginosus, Haliætus pelagicus, Pandion Haliætus orientalis* and *albicilla, Milvus melanotis, Buteo japonicus, B. hemilasius, B. polyogenys, Pernis apivorus.* The accompanying plates are of signal beauty, and display a

natural apprehension of the Bird's habit or general bearing, and for rigid elaborateness of detail are even to be preferred to those of Gould. In this Part are figured, *Falco tinnunculus japonicus, Astur gularis, Milvus melanotis, Buter vulgaris japonicus, Otus semitorques, Otus scops japonicus, Hirundo alpestris japonica, Caprimulgus jotaka, Muscicapa hylocharis.*

Avium conspectus quæ in Republica Peruana reperiuntur et pleræque observatæ vel collectæ sunt in itinere a Dr. J. J. de Tschudi; requires no further notice than that contained in our Archives, S. 262.

The birds brought by Bridges from Chili have been determined by Fraser, and a list of them, provided with remarks, communicated in Ann. Nat. Hist. xiii, p. 498.

A work upon the New Zealand Birds has been begun by G. R. Gray, in the Zoology of the Voyage of H. M. S. Erebus and Terror. Two Parts have appeared, the second of which has the text of the first once again unworked; the figures are excellent. Of Gould's work, the Birds of Australia, Nos. 14, 15, 16, and 17, have appeared during the year 1844.

The Zoological Atlas of Dupetit-Thouars Voy. autour du Monde sur la Frégate Vénus, contains up to the present time, in its six Parts, figures of the following Birds: Part 1st. *Grallaria squamigera,* tab. 3, *Grallaria guatimalensis,* tab. 4, *Pyrgita biarcuata,* tab. 6, *Columbi-Gallina gallopagoensis,* tab. 8, *Stolida cinerea,* tab. 9. Part 2d. *Hemignathus olivaceus,* tab. 1, *Ornismya Costa,* tab. 2, *Tanagra ruficervix* and *labradorides,* tab. 5, *Columba Dupetit-Thouarsii,* tab. 7, *Larus furcatus,* tab. 10.

List of the specimens of Birds in the British Museum. Part 1; Accipitres, 1844, 58 pages, 8vo. Part 3; Gallinæ, Grallæ, and Anseres, 1844, 209 pages, 8vo.

It is merely these two divisions that have reached us, giving evidence of the great wealth of the British Museum, and affording goodly service to its visitors. The arrangement of this list is very suitable to its purpose, since the diversities of age, sex, and season, as also the habitats, and the occasional donors of the specimens are indicated.

I am acquainted with but few contributions to the knowledge of fossil bird-bones.

P. Gervais has given, in 'Institut.' p. 293, remarks upon primo-mundane Birds, and with them a list appertaining chiefly to France. H. von Meyer acquaints us, in the 'Jahrb. für Min., S. 331, that the petrified bird's foot from Œningen, figured by Karz, belongs to a member of the order of Strand-Snipes. The Bird from the Glarner chalk formation, is denoted by him, S. 338, as *Protornis Glarniensis*. From the middle Rhine tertiary basin he obtained the fossil ulna of a Bird (S. 505.) The *Ornitholithus* from Œningen, described in 'Leonhardschen Taschenb. f. Min. 1808, was found by H. v. Meyer to be a Frog's bone (*Latonia*.)

ACCIPITRES.

Brehm has communicated his remarks upon the rank and discrimination of several rapacious Birds, in the 'Isis,' S. 488.

They have reference to the Condors, *Vultur fulvus*, *Gypaëtos*, *Haliaëtos*, *Aquila*, *Pandion*, *Circaëtos*, and Owls. In the Condors he has repeatedly observed that the male is signally larger than the female. In respect to *Vultur fulvus*, he distinguishes the two varieties of Schlegel as sub-species, and throws out the suggestion as to whether the riband-like feathers forming the neck-ruff actually pass over with age into the woolly ruff or continue riband-like unto death.

H. Schlegel et A. H. Verster van Wulverhorst, Traité de Fauconnerie, Livr. 1. Leyd. 1844.

Falconry having now-a-days again got into repute, literature is also, as a matter of course, reoccupied with its treatment. The above part has not yet come to hand, and must be deferred for notice until our next Report; but, judging from the prospectus given of the work, it is clear that, adorned as it is to be with costly figures, it will prove of equal importance to the hawking sportsman and scientific ornithologist, since it is not merely confined to the occupation of the former, but also gives a comprehensive history of this noble kind of sport, with a detailed natural history of the birds therein employed.

In Gray's Genera of Birds, the Vulturinæ, n. 2, Grypaetæ, n. 5, Gypohierax, n. 3, Buteoninæ, n. 1, and Polyborinæ, n. 4, from the order of rapacious Birds have already been treated of.

The Vulturinæ contain the genera *Vultur* with three, *Octogyps* with one, and *Gyps* with three, species. The Gypaetinæ consist of the single genus *Gypaëtos*, with one species. The Gypohieracinæ have likewise only a single genus *Gypohierax*, with one species. The Buteoninæ consist of two genera: Buteo, with thirty-two, and *Archibuteo* with three, species. The Polyborinæ comprise three genera: *Ibycter* with three, *Milvago* with five, and Polyborus with one, species.

Strickland has unnecessarily separated the *Falco gracilis*, Temm., as a genus called *Ischnosceles*, from the Goshawks. (Ann. of Nat. Hist. xiii, p. 409.)

As a motive for this step he indicates the slenderness of the legs and the relative size of the digits, the external being shorter than the internal.

Hardy, in the Rev. Zool. p. 289, has given some remarks upon the structure of nest, eggs, and habits of *Falco peregrinus*, and in the same journal (p. 440) Gerbe has done the same for an egg that may possibly belong to the Golden Eagle. *Falco rupicoloides* is a new species described and figured, tab. 92, by A. Smith, in the Illust. of the Zool. of South Africa, as is also *Accipeter rufiventris*, at tab. 93.

H. Schlegel gives, in his Abh. aus dem Gebiete der Zoologie und vergl. Anat. 2tes Heft, the description of *Falco Feldeggi* and *F. tanypterus* Licht. (*F. biarmicus*, Temm.); of the first-named there are also two beautiful figures. In his 'Kritischen Uebersicht der Europ. Vögel' he observes, at p. 11, that *F. Feldeggi* is the true Lanner-falcon of falconry, and therefore bestows upon it the name of *F. lanarius*, while to the F. lanarius of Temminck and Naumann he restores the old name of *F. sacer*.

PASSERINÆ.

In the report made by Retzius and Lovèn, concerning the work that appeared soon after, entitled Beschreibung der Vogelflügel von Sundevall, further illustrations are met with touching the distinctions that in this respect occur

between the singing Birds and the other genera. (Hornsch. Archiv skand Beitr. I, S. 156.)

It follows, as a result of the whole investigation, that the singing, i. e. those Birds whose inferior larynx is provided with five pairs of muscles, exhibit in every respect a peculiar structure, with only some occasional aberrations therefrom, and that all the remaining kinds of aquatic, wading, gallinaceous, and rapacious Birds, with the Parrots and Cuckoo-like species, however dissimilar they may appear in outward habitus, still exhibit a definite and exclusively fundamental form, which approximates that of the singing Birds merely through the medium of some transitionary forms (among which the Woodpeckers constitute the most important) that range next to the Cuckoo birds. In the singing Birds even the fleshy part upon the outside of the fore-arm is denuded of feathers, and covered only by the small feathers that rest upon the loose integument, in front of and above the humerus. The large scapularies are so short that they simply attain half the length of the primaries or are still smaller: of the lower wing-coverts or secondaries, the first of the two inverted series is wanting, and the remainder are far less numerous than in other Birds. The first primary or wing-feather exhibits a general tendency to shortening, and is rudimentary or missing in about half the known species; the cubital feathers or secondaries are nine, rarely more, in number. A peculiar form of the brachial muscles, which rounded, or as it were swollen out in caliber, and furnished with long tendons, joined to a special curve of the larger bone of the fore-arm or ulna, as well as sundry other peculiarities in the internal parts, give the whole arm a singular form, which will be readily recognized, even when the feathers have been pulled out. The remaining orders have 3-5 complete rows of feathers upon the fleshy external side of the arm; their large scapularies extend far beyond the middle of the secondary wing-feathers; and of the lower tertiaries the first series is always found reversed. The first primary wing-feather is always found and is but seldom abbreviated, so that these Birds have invariably at least ten primary wing-feathers; some few forms possessing eleven. The secondary wing-feathers are with few exceptions more than nine, but in the rest the number varies exceedingly; the ulna is arciform, not presenting a sigmoid, but curved, outline, and the brachial muscles are of equal thickness, with short tendons, and present in many respects a form opposed to that of the singing Birds. (Compare also Die Förhandl. vid. de skand Naturf Stockh. 1843, p. 585; übers Isis, 1845, S. 452.

Corvinæ.—A new species from Guatemala has been established by Hartlaub, in the 'Rev. Zool.,' p. 215, under the name of *Garrulus* (*Cyanocorax*)

melanocyaneus. In Gould's 'Birds of Australia,' n. 17, are figured, *Gymnorhina tibicen* and *leuconota*.

AMPELIDÆ.—*Pipra vitellina* has been characterized as a new species by Gould, in the 'Ann. of Nat. Hist.' xiii; it comes from Panama. *Pardolotus punctatus* and *striatus* are figured by him in n. 15 of the 'Birds of Australia.'

TANAGRIDÆ.—This family has been worked out by G. R. Gray in the third part of his 'Genera of Birds.' In the genus *Emberizoides* he numbers two species, in *Pipilo* 9, in *Arremon* 17, in *Embernagra* 11, in *Pitylus* 18, in *Cissopis* 1, *Lamprotes* 3, *Saltator* 19, *Rhamphopis* 9, *Pyranga* 17, *Lanio* 3, *Tanagra* 21, *Stephanophorus* 1, *Tachyphonus* 24, *Nemosia* 7, *Tanagrella* 2, *Calliste* 30, *Euphonia* 23, *Cypsnagra* 1; thus on the whole 218 species.

Strickland, not yet content with the inordinate disseverment of the Tanagridæ, has joined to them a new genus called *Orthogonys*. (Ann. of Nat. Hist. xiii, p. 421.) The *Tanagra viridis* of Spix is that which sums up the whole of the new genus, and is distinguished from the others by the extended bill, very curved upper surface, and the perfectly straight ridge at its apex.

Hartlaub has also given himself the thankless trouble to create, under the name of *Pœcilornis*, a new genus. (Rev. Zool. p. 369.) The type is *Arremon rufivertex*. As a reason for separating his genus from Arremon he first adduces the brilliant colouring of P., and then the form of its bill and wings, which in A. scarcely reach the root of the tail, but in P. extend as far almost as its middle. Moreover, in A. the external and inner toes are of equal length, while in P. the outer toe is considerably longer than the internal.

As new species we have to indicate *Saltator magnoides* (!) and *icterophoys*, both framed by Lafresnaye, from Mexico (Rev. Zool. p. 41), and also *Saltator guadalupensis*, by the same author (ibid. p. 167) *Arremon Abeillii*, from Guayaquil, by Lesson, in the 'Rev. Zool.' p. 435. By Strickland, in 'Ann. of Nat. Hist.' xiii, p. 419: *Tachyphonus saucius* and *ruficeps*, *Calliste thalassina*, *Nemosia fulvescens*, *Embernagra longicauda*. Lafresnaye has given a fig., tab. 50 in 'Magaz. de Zool.,' of *Lamprotes albicristatus*.

FRINGILLIDÆ.—In the 'Genera of Birds,' Part 1, G. R. Gray amplifies his subfamily Ploceinæ in the following manner: *Textor* with 5 species, *Hyphantornis* (a new name) with 28, *Sycobius* 8, *Ploceus* 26, *Philetærus* 1, *Nigrita* 2, *Plocepasser* 2, *Vidua* 10, *Cheva* 1; sum total, 83 species.

The subfamily Coccothraustinæ was arranged by Gray, in Part 2 of the same work as follows: *Spermospiza* (new name for Spermophaga) has 1 species, *Pyrenestes* 2, *Guiraca* 6, *Calamospiza* 1, *Cardinalis* 5, *Coccothraustes* 8, *Geaspiza* 8, *Camarhynchus* (Piezorhina ?) 3, *Cactornis* 3, *Certhidea* 1; making, in all, 38 species.

The *Cactornis inornata*, recorded by Gould, in 'Ann. of Nat. Hist.' xiii, p. 474, is included in the above series: and Strickland's *Spermophaga* enriched with a second species, *Sp. margaritata*. (Ann. xiii, p. 418, tab. 10.)

The Emberizinæ have been exhibited by Gray in Part 4: *Euspiza* with 14, *Emberiza* with 31, *Gubernatrix* with 1, *Fringillaria* 12 and *Plectrophanes* with 4, species; or 62 in all. As other new species from the family of Fringillidæ, we have to mention *Tearis cruentis*, from Guayaquil, described by Lesson in 'Rev. Zool.' p. 435; the *Leucosticte griseogenys*, of Gould, in 'Ann. of Nat. Hist.' xiii, p. 474; *Amadina Gouldiæ*, represented by Gould in ibid. xiii, p. 363, and in the 'Birds of Australia,' n. 15; one of the most beautiful species, named by Gould after his beloved but now deceased wife, who took a zealous interest and part in his ornithological labours; and *Amadina squamifrons*, of A. Smith, in 'Illustr. of the Zool. of South Africa,' tab. 95.

The Vicomte de Tarragon has described the structure of the nest of *Emberiza quelea* in the 'Rev. Zool.' p. 83.

Sundevall handles the systematic distribution of his Passeres, *Fringilla*, *Loxia*, and *Emberiza*. (Förhandl. vid. de. skand. Naturf. Stockh. 1843, p. 691; Isis, 1845, S. 452.)

Sturnidæ.—The young of *Icterus diadematus*, Temm., has been described by Lafresnaye, in the 'Rev. Zool.' p. 42. It is distinguished from the adult bird by an olive-blackish colour and yellow spot upon the cheek. *Pendulinus californicus*, from California, by Lesson, in 'Rev. Zool.' p. 436.

Dentirostres.—A new genus, probably identical with Leptorynchus, Ménétr., has been raised by Strickland under the name of *Holocnemis*. (Ann. Nat. Hist. xiii, p. 415.) By the elongated bill, short tail, and the whole acrotarsium, Strickland distinguishes his genus from Formicivora and Myrmeciza, as well as by the greater length of tail from Urotomus, and, by the greater freedom of the outer toe, from Pithys. Strickland here places the *Turdus cinnamomeus*, Gm., and adds to it a new species, *Holocnemis flammata* (tab. 13), probably from America. Strickland has, in the same journal, described some other allied species, viz. *Suiriri* (?) *icterophrys*, Viell. (tab. 12), *Euscarthmus cinereus* Strickland, and *Myrmeciza melanura* Strickland. Hartlaub establishes a *Brachypterix albigularis* and *malaccensis*, in the 'Rev. Zool.' p. 401 and 402. In regard to the first of these species, he conjectures that it may be identical with the *Malacopterum macrodactylum*, Strickl. (Ann. of Nat. Hist. xiii, p. 417.) There, too, (p. 370) Hartlaub has distinguished a *Tinactor guatemalensis* from T. Fuscus, Wied. Other new species are *Tyrannula Tschudii*, from Bahia (by Hartlaub, in 'Rev. Zool.' p. 369, and in p. 80), *Tyrannula ardosiaca*, from Columbia, by Lafresnaye. The *Tyrannus* (*Milvulus*) *monachus*, Hartlaub, in 'Rev. Zool.' p. 214, is interpreted by Lafresnaye in the same journal, p. 234, as the young of Milvulus savana

(Muscicapa tyrannus, Gm.) He also brings forward (ibid. p. 78) some corrections of previous errors. He finds that his *Muscicapa fusco-capilla* is identical with *Myiobius diadema*, Hartlaub, and therefore retains the latter name. On the other hand, he shows that Hartlaub's *Myiobius pyrrhopterus* is one in kind with the *Muscipeta cinnamomea*, d'Orb. et Lafr. Finally, he acknowledges that his *Scatophagha nigro-cincta* is the female of *Myiodioctes canadensis*, Aud., that properly belongs to the subsequent family.

Setophaga flaveola has been distinguished from S. ornata by Lafresnaye, in 'Rev. Zool.' p. 81. *Piezorhynchus nitidus* is figured by Gould in his 'Birds of Australia,' n. 14. *Muscipeta Smithii*, from West Africa, has been characterized by Fraser, in 'Ann. of Nat. Hist.' xiii, p. 135. Lafresnaye would have the *Vireo versicolor* ranged with Pachyrhynchus or Pachyramphus. (Rev. Zool. p. 40.) *Pachycephala lanoides*, figured by Gould in 'Birds of Australia,' approximates so much to the Shrikes, that he is only deterred from referring it to that group by the fact of no true Lanius having hitherto been found in Australia. The Reporter does not see why this should not be the first?

Lafresnaye characterizes three new species of *Tamnophilus*, from Columbia. (Rev. Zool. p. 82.) They are called *Th. albicans*, *multistriatus*, and *brevirostris*, a fourth species being conjectured to be *Lanius undulatus*, Natt.

Falcunculus and *Cyclarhis* would, on account of their plumage and the form of their toes, be united by the same Ornithologist under the name of Mesang Pies-Grièches, with the Titmice (Rev. Zool. p. 169); but the form of the bill is opposed to it. *Telophonus trivirgatus*, from South Africa, has been set up as a particular species by A. Smith, in his 'Illustr. of Zool. of South Africa,' tab. 94.

Atrichia is a new genus, instituted in this family by Gould. (Ann. of Nat. Hist. xiv, p. 360.) The great peculiarity that distinguishes this genus from all others belonging to the family is the utter want of bristles at the root of the bill. The first species known was from South Australia, and called by Gould, from its loud cry, *A. clamosa*: it is figured in his 'Birds of Australia,' n. 14.

Lafresnaye has added two new species to the genus *Turdus*, Hartlaub, one. (Rev. Zool. pp. 167, 214.) Lafresnaye's species come from Guadeloupe, and are called *T. montuaus* and *l'Herminieri*; that of Hartlaub from Guatemala, and designated *Turdus rufitorques*. Other new species are *Merula infuscata*, from Mexico, by Lafresnaye (Rev. Zool. p. 41); *Pomatorhinus superciliosus* and *rubeculus*, from Australia, by Gould, in the 'Birds of Australia,' n. 16; *Timalia pyrrhophæa*, from Malacca and Sumatra, with *Garrulax bicolor*, S. Müll., from Sumatra, both characterized by Hartlaub, in 'Rev. Zool.' p. 402. *Ixos phæocephalus*, from Malacca, has been established by the same author.

(Ibid. p. 401.) There have been distinguished by Strickland, in the 'Ann. of Nat. Hist.' xiii, p. 411, *Criniger* (?) *icterinus*, *Pycnonotus Finlaysoni*, *P. crocorrhous* (*Turdus hæmorrhous*, Horsf., differing from the synonymous Bird of Gmelin by the saffron-coloured rump), *P. flavirictus*, and *Hypsipetes philippensis*. The same author has given a figure of Hartlaub's *Pitta cucullata* at tab. 11, p. 410.

Brandt has communicated his observations on three new species from the genera *Saxicola* and *Accentor* to the 'Bullet. de la Classe phys. math. de Pétersb.' ii, p. 139: (1) *Saxicola albifrons*, Brandt = *Motacilla stapazina*, Pall., from Siberia. (2) *Accentor montanellus*, Temm. = *Motacilla montanella*, Pall. Brandt remarks that Temminck's and Naumann's description, as also the figure given by the latter, would not pass exactly for those of an old male specimen, which displays no reddish colour upon the back and wings, with no spots on the breast. He therefore conjectures that the Bird described by Temminck and Naumann may be a variety or distinct species, to be indicated by the name of *Accentor Temminckii*. (3) *Accentor atrigularis*, Brandt, from Semipalatinsk, in Siberia.

In Gould's 'Birds of Australia' have been figured, n. 16, *Acanthiza chrysorrhœa*, *A. diemenensis*, and *Ewingii* n. 17, besides n. 15, *Xerophila leucopsis*, *Pyrrholæmus brunneus*, n. 17, and *Sericornis citreogularis*, n. 14. The genus *Jora* has been increased by Hartlaub with a new species, *J. Lafresnayei*. (Rev. Zool. p. 401.)

Levaillant's le Pâtre has been separated by Strickland (Ann. of Nat. Hist. xiii, p. 410) as a distinct species, called *Pratincola pastor*, from P. rubicola. *Calamanthus fuliginosus* has been figured by Gould in the 'Birds of Australia,' n. 16. Both the Birds characterized by Hartlaub, in 'Rev. Zool.' under the names *Hylophilus leucophrys* (p. 81), and *Parus melanotis*, Sandb. (p. 216), come from Guatemala.

Sundevall makes mention of a specimen of *Motacilla alba* with a black back, having been shot at Gothenburg, and which is the same variety indicated, as *M. Yarrellii*, by English Ornithologists. *Psophodes* has been provided with a second species, *Ps. nigrigularis*, by Gray. (Ann. of Nat. Hist. xiv, p. 363, and Gould's Birds of Australia, n. 15.)

Certhiaceæ.—Lesson enumerates, in 'Rev. Zool.' p. 434, 18 species of *Troglodytes*. To these he appends a 19th, from Peru, and has given it the name of *T. murinus*. The other species of this family that have been figured by Gould, in his 'Birds of Australia,' are *Sitella chrysoptera*, *leucoptera*, and *pillata*, n. 14; *Cimacteris melanura*, ditto; *Melicophila picata*, n. 15; *Acanthogenys rufogularis* and *A. inauris* (identical with *A. carunculata*, Vig.), n. 16; *Ptilotis cratitius*, n. 16, and *P. auricomis*, n. 17; *Myzantha garrula*, *lutea* and *obscura*, n. 15; *Entomyza albipennis*, n. 17. *Nectarinia flavigaster* has been characterized by Gould in 'Ann. of Nat. Hist.' xiii, p. 474. *Conirostrum superciliorum*, from Guatemala, by Hartlaub, in 'Rev. Zool.' p. 215.

Dendrocolaptes Perrotii, from Columbia, is described by Lafresnaye in 'Rev. Zool.' p. 80, and at p. 433, Lesson characterizes a *Picolaptes cinnamomeus*, from Guayaquil. Lafresnaye, in the 'Rev. Zool.' p. 43, criticises Lesson for having assigned to the genus *Ramphocinctus* a place among the Troglodytinæ.

Hirundinaceæ.—Fr Boie gives, in the 'Isis,' S. 164, a survey of his family *Hirundinidæ*. With the Swallows proper are united the Swifts, a step of which the Reporter cannot approve, seeing that sufficient differences between them are afforded by the musculo-vocal apparatus and skeleton. The author characterizes in detail the genera, and bestows on each its appertinent species.

Menurinæ.—From an investigation of the Parasites living upon the Menura, Denny has assigned it a place among the Insessores. (Ann. of Nat. Hist. xiii, p. 313.)

Denny obtained, from five specimens of the Menura, parasites, among which were recognized the genera Nirmus and Menopon, the first being almost exclusively confined to the Insessores, wading and aquatic birds. One or two species of Nirmus have been met with in the Birds of prey, and about as many in the Waders, but these are by no means characteristic of the latter, as is, on the contrary, the distinct case with Goniocotes, Goniodes and Lipenous, not one of which appears to infest the Menura. The Nirmus is regarded by Denny as the N. marginalis of Nitzsch, and very much approximates that found on the Merulidæ. He is therefore of opinion that, if the constancy of parasitism with certain genera in definite families of birds be taken into account, the Menura must be numbered with the Insessores.

CLAMATORES.

Macrochires.—A contribution towards setting aright the confused synonymy of the genus *Ornismya* (!) has been given by Loddiges, in the Ann. Nat. Hist. xiii, p. 511.)

According to this *O. vestita* = *Trochilus uropygialis*, Fras.; *O. heteropogon*, Boiss. = *T. coruscus*, Fras.; *O. microrhyncha*, Boiss. = *T. brachyrhynchus*, Fras.; *O. ensifera*, Boiss. = *T. derbianus*, Fras.; *O. Bonapartei*, Boiss. = *T. aurigaster*, Lodd; *O. Temminckii*, Boiss. = *T. cyanopterus*, Lodd.; *O. Guerini*, Boiss. = *T. parvirostris*, Fras.; *O. Lafresnayi*, Boiss. = *T. flavicaudatus*, Fras.; *O. Allardi*, Bourc. = *O. Paulinæ*, Boiss.

= *T. tyrianthinus*, Lodd. An *O. Feliciana* has been described by Lesson in ' Rev. Zool.' p. 434; its native haunt is stated to be about Guayaquil.

Caprimulginæ.—In the ' Birds of Australia' Gould has given figures of *Podargus phalænoides*, n. 14, *Aegotheles leucogaster*, n. 16 and *Caprimulgus macrurus*, n. 17.

Lipoglossæ.—Lafresnaye (p. 172 of the Rev. Zool.) is at the pains to inform the reader that the Hoopoe must be ranged in the Passerine order and with the Tenuirostres, though under the title of a distinct family, Upupidæ. As our author observes, one must be astonished to find that, up to the present day in all ornithological works, the Hoopoe is associated with Epimachus, although belonging to the tenuirostral Passerinæ. Unhappily, however, neither the one nor the other of these assertions is correct. In Nitzch's ' Pterylographie' it had already (1840) been shown that Upupa and Epimachus ought not to be placed in mutual juxtaposition, but that the latter should be allied with the Birds of Paradise, while he had, twenty years previously, hit upon the Upupidæ as constituting the proper place for the Hoopoe. Now, if Lafresnaye had only made himself somewhat acquainted with the German productions, and even with these yearly Reports alone, he might have spared himself an unnecessary trouble. We have seen in a former yearly Report, that the case fared no better between Strickland and the Hoopoe, than it has done now with the latter and Lafresnaye. Both gentlemen could have convinced themselves by reference to Nitzch's work, that, because ornithology does not consist exclusively in the knowledge of bird-skins, but in that of the whole ornithic structure, it is of demonstrable utility for something else than the bare exterior to be taken, in an attempt to classify, under consideration.

Lafresnaye throws out the conjecture as to Gould's *Halcyon platyrostris* being probably identical with his *Todiramphus recurvirostris* (Rev. Zool. p. 322.) Gould's new species, *Halcyon saurophaga* comes from New Guinea. (Ann. Nat. Hist. xiii, p. 473.) *Dacelo gigantea* and *cervina* were figured by him in the ' Birds of Australia,' n. 15.

ZYGODACTYLA.

K. Kessler, of Kiew, has contributed some exceedingly valuable observations to the Bullet. de Moscou, 1844, p. 311, upon the relations of the Woodpeckers, in respect to their skeletal structure, with the rest of the Scansorial birds.

The author submits to comparison the skeletons of *Picus*, *Psittacus*, *Bucco*, *Psilopogon*, *Centropus*, *Coccyzus*, *Phœnicophæus*, *Crotophaga*, *Cuculus*,

Trogon. Two only of these genera, *Bucco* and *Psilopogon* approximate the Woodpeckers in some degree by their bony frame-work, a great resemblance being found between them in the form of the pelvis, sternum, and last caudal vertebra, while the strongly marked excavation upon the body of all the cervical, with occurrence of inferior comb-like spines upon all the thoracic, vertebræ, joined to the external contour of the cranium, distinguish the Barbets generically from the Woodpeckers. The genera *Centropus*, *Coccyzus*, *Phœnicophæus*, *Crotophaga*, and *Cuculus*, seem in like manner to constitute "inter se" a distinct natural group, characterized chiefly by the structure of the cervical vertebræ, pelvis and sternum. As regards *Trogon* and the genera therewith allied by our author, viz., *Caprimulgus* and *Cypselus*, they, too, resemble the Woodpeckers as little as do the genera of the preceding group. They present a great similarity to each other in the structure of the cranium and that of the broad rounded-off pelvis, though each again possesses the characters of the three genera that are peculiar to, and serve as it were to isolate, them. Lastly, the Parrots stand apart from all the scansorial birds, and approximate the diurnal birds of prey.

CUCULINÆ.—Hartlaub, in the 'Rev. Zool.' p. 215, believes that he has added a new species, under the name of *Gecoccyx affinis*, to the genus.

I had, however, already remarked, more than ten years ago, that this species is to be distinguished from G. viaticus; and in the 'Münchn. gel. Anzeig.' iii (1836), S. 95, described it also as *Cuculus* (*Geococcyx*) *velox*, from specimens brought by Baron Karwinski from Mexico.

In the 'Ann. of Nat. Hist.' xiii, p. 403, the opinions current among the people concerning the Cuckoo, as a prophetic bird and harbinger of good-luck, have been compiled from Grimm's 'Deutscher Mythologie.'

A new species has been brought from the Kokos Islands, in the north of the Indian Ocean, and nominated by Gould, in 'Ann. of Nat. Hist.' xiii, p. 475, as *Coccyzus ferrugineus*.

RHAMPHASTIDÆ.—Two new species of Toucans have again fell to the lot of Gould to determine, and are called by him *Rhampastos citreolaemus* and *Pteroglossus pœcilosternus;* both from Santa Fé di Bogota. (Ann. of Nat. Hist. xiv, p. 61.)

PICINÆ.—K. Kessler gives, in the 'Bullet. de la Soc. des Naturalistes de Moscou,' 1844, pp. 285-362, contributions to the natural history of the Woodpeckers.

A very comprehensive and profound, though chiefly osteological, work upon the Woodpeckers. The author first of all gives a very detailed description of the osseous fabric in a general point of view, and then divides

the European Woodpeckers into three groups, the green, black, and party-coloured Woodpeckers, their osteological diversities being separately stated in detail. Of foreign species the author has only been enabled to compare the skeletons of *Picus flavescens* and the skulls of *P. campestris, melanochlorus, rubricatus, candidus, flavifrons, albirostris, lineatus* and *passerinus;* so that this portion of the work is as yet imperfect. Among the latter he distinguishes a group of the brown-yellow Woodpeckers by the type afforded in *P. flavescens,* the structure of whose cranium accords with that of *P. flavicans tinnunculus,* and *Jumana;* besides a group of the dark-backed Woodpeckers by *P. candidus* and *flavifrons.* The author observes that under these five groups, so far as the evidence of external characters may warrant us, the 68 species of the Petersburg museum admit of being brought; although there are some with whom it will certainly prove difficult to determine under which of these they ought respectively to be numbered, and what species constitute the alliance-members of all the groups, seeing that the latter have been separated as distinct genera, and by Swainson made into no less than twenty. In the second division the author treats of the plumage of the Woodpeckers and adds some remarks upon the caudal gland, the mucous glands, and the lingual apparatus.

A new species, *Colaptes mexicanoides* (!), has been raised by Lafresnaye, in the 'Rev. Zool.' p. 42, and at p. 81, the sexual differences in *Picus melanopogen* are determined by the same author. Hartlaub remarks, at ibid. p. 402, that the home for *Hemicircus rubiginosus,* Swains., is not Senegambia but Malacca.

Psittacinæ.—New species of Fraser: *Psittacus Timneh,* from Sierra Leone, and *Plyclolophus citrino-cristatus* (Ann. of Nat. Hist. xiv, p. 452.) Ibid. xiii, p. 475, of Gould; *Psittacus flavinuchus,* from South America. In the 'Birds of Australia' he figures *Euphema pulchella* and *petrophila,* n. 14; *Platycercus Brownii,* n. 16. Brehm's 'Monographie der Papageien' has reached the fourth part.

COLUMBINÆ.

Naturgeschichte der domesticirten Thiere in ökonomischer und technischer Hinsicht von Buhle. 5tes Heft, die Tanbe und ihre verwandten. Halle, 1844. Of two of his sub-families of Pigeons, the Columbinæ and Trerorinæ, characteristics of the genera and an account of the species have been given by Gray, in the Genera of Birds, n. 5 and 4.

In the Columbinæ he numbers *Carpophaga* with 30 species, *Lopholaimus* with 1, *Columba* with 34, *Ectopistes* with 2, *Geopelia* with 4, *Macropygia* with 8, *Œna* with 1, *Turtur* with 12, species. In Trerorinæ he mentions; *Ptilonopus* with 25, *Treron* with 18 species.

New species: *Treron crassirostris*, of Fraser, in 'Ann. of Nat. Hist.' xiii, p. 135, and xiv, p. 502, *Geopelia placida* and *tranquilla*, from Australia, of Gould. *Ptilinopus superbus*, n. 14, *Geopelia humeralis*, n. 15, and *Macropygia phasianella*, n. 17, have been figured in his 'Birds of Australia.'

Wahlberg observes, in 'Arch. skand. Beitr.' I, S. 138, that, according to credible accounts, Turtle-doves occur in Luleå Lappmark, but it merits closer inquiry as to whether they belong to Columba turtur or to an allied species, obtained by the Reichsmuseum from the north of Sweden.

GALLINACEÆ.

Gray, in his Genera of Birds, n. 3, represents his subfamily of *Penelopinæ* with three genera, *Ortalida* with fourteen, *Penelope* with ten and *Oreophasis* with one, species.

Penelope leucogaster, whose habitat is unknown, has been framed for a new species by Gould, in the Ann. Nat. Hist. xiii, p. 475.

At xiii, p. 313, of the same journal, H. Denny endeavours from the parasites upon *Talegalla* to assign its place in the system of Birds.

Swainson had placed this genus with the Vultures, while other Ornithologists concurred in ranging it with the Gallinaceous Birds. Denny also accedes to this latter opinion, having found upon the Bird in question the two genera Goniodes and Lipeurus, the first of which, if not both, infests almost every Gallina. The latter genus is indeed found upon the rapacious, wading, and aquatic Birds, but never the first.

Sundevall, in the 'Arch. skand. Beitr.' i, S. 160, has given a characteristic of the differences incident upon age and sex in the *Tetrao hybridus lagopoides* of Nilsson, who first made us acquainted with the true nature of the bastard progeny, called "Riporre," of the Black-cock and Ptarmigan. The male only was then known, but Sundevall has recently obtained the female also from Helsingland. It is somewhat smaller than a Black-hen, which it resembles in the form of the tail, but has rougher toes and is of a whitish colour.

Lagopus ferrugineus is a new Mexican species, established by Fraser, in 'Ann. of Nat. Hist.' xiii, p. 452.

From specimens sent by Karelin from Altai, Brandt has now assured himself that *Perdix* (*Megaloperdix*) *Nigelli*, truly belongs to the Russian Fauna. (Vid. Bullet de la Classe phys. math. de l'Acad. de Pétersb. iii, p. 188.) Brandt at the same time gives the diagnoses of the three species of *Megaloperdix*, viz. *M. altaica*, *Nigelli* and *caucasica*.

A species closely related to Perdix Heyi is characterized by Fraser, in the 'Ann. of Nat. Hist.' xiii, p. 305, as *Perdix Bonhami;* it comes from Teheran, in Persia. He also observes that *Tetraogallus* (*Megaloperdix*) *Nigelli* has been sent from the same locality.

A monograph of the Ortyginæ or Partridges of America, by J. Gould, London, 1844. Under this title Gould announces a monography of the genus or rather sub-genus Ortyx, to appear in three parts, each at £2 10*s*., with ten plates, so that the whole is to cost no less than £7 10*s*. sterling, and will exhibit once again species that have been figured long ago. Now, seeing how much costly or luxurious works are increasing, and editions of them, that might be applied to more useful purposes, unnecessarily enlarged, there will be soon nothing left for the scientific Ornithologist than to completely ignore such picture-books, and leave them to the dilettanti, for whom they have been "par excellence" prepared.

Remarks upon the different kinds of Pheasants belonging to the Russian Fauna have been published by Brandt, in the 'Bullet de la Classe phys. math. de Pétersb.' iii, p. 49. Three species are recorded, *Phasianus colchicus*, *mongolicus* and *albotorquatus*, Bonn. (*Ph. torquatus*, Temm.) The second of these is established by Brandt; but it has been already described by Pallas, and that indeed as *Varietas mongolica* of *Ph. colchicus*.

The muscles which move the tail and caudal plume-feathers are explained by Heming, in the 'Ann. of Nat. Hist.' xiv, p. 357.

Two specimens of *Hemipodius trachydromus* were killed on October 29th, 1844. (Ibid. p. 460.)

CURSORES.

Upon *Dinornis*, an extinct genus of three-toed Struthious birds, with description of the osseous remains of five species that formerly existed in New Zealand. By Richard Owen. (Transact. of the Zool. Soc. of London, vol. iii, Part 3, p. 235-275, with 18-30 plates.)

The whole of this third part of vol. iii is occupied with the above-named and highly important treatise of Professor Owen. The brief remarks concerning the discovered bones, already mentioned in the course of the preceding year, are here investigated in full detail, and illustrated by thirteen excellently designed plates. To my former account I am now enabled to add the following, as derived from the present treatise. As regards the pelvis, the Dinornis departs furthest from the struthious type, and forms the nearest transition to the three-toed Grallæ or wading Birds. Although no bones belonging to the superior or alary members have hitherto been transmitted from abroad, still the remaining parts of the skeleton admit of our conjecturing that the power of flight was wanting to the Dinornis. Owen now distinguishes five species: *Dinornis giganteus, ingens, struthoides, dromæoides* and *didiformis*. The stature of *D. giganteus* he estimates at 10 feet, that of *D. ingens* at 9, of *D. struthoides* not above 7, of *D. dromæoides* at 5, and of *D. didiformis* at somewhere under 4 feet. Upon comparing the bones of the extremities with the foot-prints found by Hitchcock in new red sandstone in Connecticut Valley, and called, from his having ascribed them to a gigantic bird, *Ornithichnites giganteus*, the pedal impressions of the Dinornis giganteus are found to be still larger. According to Taylor's chemical analysis, there are in a fresh tibia of the Ostrich 25·51 and in a femoral bone of the *Dinornis didiformis* 25·99 parts in a 100 of organic substance. Day analysed the thigh-bone of the Ostrich and Dinornis struthoides, and fou in the former 34·86 parts of organic and 65·65 inorganic matter; in Dinornis 37·86 of organic matter and 62·94 of inorganic. The overplus of animal matter in the latter depends upon its femur being only a medullary bone, while in the Ostrich it contains air. From this chemical character of the bones, Owen concludes that the extinction of the Dinornis is of proportionately recent date.

To the above treatise we append the notices given by W. Colenso in the Ann. of Nat. Hist. xiv, p. 81, concerning the *Moa*, as the Dinornis is styled by the natives, and which were derived from investigations conducted on the very place and spot where its relics were found.

Partly in company with the missionary Williams (through whom Owen has obtained most of the bones), and partly alone, he instituted everywhere inquiries among the natives. They were all indeed acquainted by current hearsay with this gigantic Bird, but none of them had obtained a sight of it. Colenso procured the bones only from river-beds, and is of opinion that the Moa was either extinguished prior to, or contemporaneously with, the immigration of the present race of New Zealanders.

Hitchcock, who is generally gifted with a rather lively imagination, supposes that the nest also of the Dinornis has already been found, and that it must still be living upon the coast of New Holland. (Ann. of Nat. Hist. xiv, p. 310.) In support of his assertion he has recourse to the accounts of Cook and Flinders; the first of whom had met, upon the Lizard Islands, by the north-east coast of New Holland, a nest upon the ground, that measured 26 feet in circumference, and 2′ 8″ in height. Flinders met with two similar nests in King George's Bay, upon the south coast of New Holland. Now Hitchcock presumes that such nests from their very size could belong to no other Bird than the Dinornis, which must accordingly be still found living in the above-named spots; only our author surely errs in both cases, since we know that such and far larger nests are built up by Megapodius. (Vid meinen Jahresbericht, 1842, S. 85.)

In the 'Ann. of Nat. Hist.' xiv, p. 324, is a small essay by Strickland, treating concerning the evidence of Struthioid Birds, different from the Dodo, that formerly existed upon the island of Mauritius.

Léguat, who from 1691—1693 dwelt upon the island Rodriguez, near the Mauritius (Isle de France), gives the description of a Bird, which he calls Le Solitaire, and bases it upon Gmelin's Didus solitarius. According to Léguat's description and figure the Solitaire is distinguished from the Dido in the following points: 1st, the bill resembles that of a Turkey, but is much more curved; 2d, the tail is almost wanting; 3d, the Solitaire is higher-limbed than the Turkey; 4th, the neck is longer than in the latter, and carried straight out; 5th, the wings, although unfit for flying, appear to have been more developed than in the Dido; 6th, the female had a kind of band upon the upper part of the bill. This large Bird from Rodriguez has since then not been seen, so that it has become extinct.

There are yet further accounts extant which render it probable that, upon the Island of Bourbon, birds of a similar character to the above formerly lived. In the library of the Zoological Society a manuscript was found, sent by Telfair from Mauritius, and entitled 'Journal et Relation des Voyages faits par le Sr. D. B. aux îles Dauphine ou Madagascar et de Bourbon ou Mascarene,' 1669. The author therein speaks of the land-birds upon the Isle of Bourbon, the following words being worthy of remark. "Solitaires: ces oiseaux sont nommés ainsi, parce qu'ils sont toujours seuls. Ils sont gros comme une grosse Oye et ont le plumage blanc, noir à l'extrémité des ailes et de la queue. A la queue il y a des plumes approchantes de celles d'Autruche, ils ont le col long, et le bec fait comme celui des bécasses, mais plus gros, les jambes et pieds comme poulets d'Inde. Cet oiseau se prétend à la course, ne volant que bien peu.—*Oiseaux bleus*, gros comme les Solitaires,

ont le plumage tout bleu, le bec et les pieds rouges, faits comme pieds de poules, ils ne volent point, mais ils courent extrêmement vite, tellement qu'un chien a peine d'en attraper à la course; ils sont très bons." This Solitaire is obviously different from that upon Rodriguez, and the blue birds differ, at the same time from both, as also from the Dodo. These birds have now likewise disappeared from Bourbon. Their determination, in the event of any osseous or other remains being found, would be a matter of great importance. According to Quoy, the pretended Dodo bones in the Parisian Museum did not come from Mauritius, but from Rodriguez, so that they would seem to belong to the Solitaire of Léguat. Sundry bones from Rodriguez have been sent by Telfair to the Zoological Society of London, and in the Andersonian Museum at Glasgow are to be found the so-called "Dodo bones from Mauritius." It is to be desired that all these remains were one day closely compared with each other.

GRALLÆ.

FULICARIÆ.—Gould establishes, among the Rallidæ, a particular genus, *Eulabeornis*. (Ann. Nat. Hist. xiv, p. 503.)

"Rostrum capite longius, fere rectum et leviter incurvum, lateraliter compressum; naribus elongatis, apertis, singulis in sinu per mandibulæ tres fere partes a basi excurrente positis. Alæ paulo breves atque debiles, valde rotundatæ; tertiariis elongatis fere ad apicem alæ. Tarsi pulo longi et robustiores quam in genere Rallus, digitis attamen brevioribus. Cauda longa cuneiformis, pogoniis laxis et effusis." The new species upon which this genus is founded is called *E. castaneoventris*, and is figured in the 'Birds of Australia,' n. 17.

ERODII.—Desmurs has endeavoured, in the 'Mag. de Zool.' n. 36, to assign from the character of the egg of *Notherodius guaruana* its place in the system.

From the egg agreeing in form with that of the Heron, in colour with that of the Crane, he is of opinion that its proper place is to be settled as being between these two, and that the name of Ardea geranos may be given it. The egg is figured at tab. 46. In *Ardea helias* Desmurs finds, on the contrary, the egg (tab. 47) more similar to that of the Rails.

Ardea rectirostris has been established by Gould, in the 'Ann. Nat. Hist.' xiii, p. 70, as a new species upon a probably young specimen, very similar to the common Hern. In the 'Birds of Australia,' n. 17, Gould figures *Geronticus spinicollis*, *Threskiornis strictipennis*, and *Falcinellus ingens*.

Limicolæ.—The Glareolinæ have been treated of by Gray in the 'Genera of Birds,' n. 1. He places it as a third sub-family to his *Charadridæ*, with the single genus *Glareola*, in which he enumerates seven species. The last of these was first instituted by Fraser, in the 'Ann. Nat. Hist.' xiii, p. 74, as *Glareola cinerea;* it is found in West Africa.

To the Cursorinæ, that constitute his second sub-family of the Charadridæ, Gray (ibid. n. 3) adds the genera *Pluvianus* with one, *Cursorius* with seven, and *Oreophilus* with one, species. In the Ædicneminæ he enumerates the genus *Ædicnemus* with six and *Esacus* with two, species.

Glottis glottoides has been figured by Gould in the 'Birds of Australia,' n. 16.

Odontoglossæ.—Desmurs (Rev. Zool. p. 241) would have the Flamingo, on account of the similarity of its egg to that of the Pelicans, placed with the Natatorial birds.

NATATORES.

Longipennes.—Fr. Boie in the 'Isis,' S. 178, propounds a systematic division of his family Sternidæ, with an enumeration of the species.

His genera are *Hydrocecropis*, *Thalasseus*, *Sternula*, *Hydrochelidon*, *Gygis*, *Pelecanopus*, *Sylochelidon*, *Gelochelidon*, *Anous*, *Planetis*, *Haliplana*, *Nænia*, *Rhyncops*, *Gavia*, *Xema*, *Larus* and *Catarrhacta*. New species: *Larus brachyrhynchus*, from Russian America, by Gould, in 'Ann. Nat. Hist.' xiii, p. 476. In ibid. xiv, p. 450, Gilbert communicates some notices upon the "modus incubandi" of *Anous stolidus*. In the 'Birds of Australia,' n. 14, *Sternula Nereis* has been figured.

Tubinares.—Gray, in the 'Genera of Birds,' n. 2, has given the survey of his first sub-family of Procellaridæ, the Procellarinæ, consisting namely of *Pelecanoides* with three, *Puffinus* with thirteen, *Thalassidroma* with eleven, *Procellaria* with twenty-five, and *Prion* with two, species.

Schembri's *Thalassidroma melitensis* has been shown by Strickland to be identical with *Th. pelagica*. (Ann. Nat. Hist. xiv, p. 348.)

Important contributions to our knowledge of the geographical distribution of this family of Birds, along with the characteristics of twelve new species have been furnished by Gould, in the 'Ann. Nat. Hist.' xiii, p. 360. The new species are called *Diomedia gibbosa* (identical with *D. nigripes*, Audub.) and *olivaceo-rhyncha; Procellaria atlantica*, *solandri*, *mollis*, *leucoptera* and *flavirostris; Puffinus brevicaudus*, *carneipes* and *sphenurus; Thalassidroma*

tropica, melanogaster and *leucogaster*. Ibid. xiv, p. 503, the characters are repeated by him of *Puffinus carneipes, Procellaria solandri* and *leucoptera*.

In the ‘ Genera of Birds,’ n. 2, Gray treats of the Diomedinæ with its single genus *Diomedia*, to which he ascribes ten species.

Gould has figured, in ‘ Birds of Australia,’ *Prion turtur* and *vittatus*, n. 16, *Puffinaria urinatrix*, n. 15, *Diomedia exulans* and *melanophryx*, n. 14, *Diomedia chlororhyncha* and *cauta*, n. 15.

Unguirostres.—Of this family Gray treats, in the ‘ Genera of Birds,’ concerning the *Fuligulinæ*, n. 4, *Erismaturinæ* and *Merginæ*, n. 5. The Fuligulinæ number in genera — *Branta* with one species, *Fuligula* with seven, *Nyroca* with seven, *Clangula* with five, *Harelda* with one, *Hymenolaimus* with one, *Camptolaimus* with one, *Micropterus* with one, *Eniconnetta* with one, *Somateria* with two, *Oidemia* with four, species. The Erismaturinæ contain the genera *Thalassiornis* with one, *Biziura*, with one, *Erismatura* with seven, *Nesonetta* with one, species. To the Merginæ belong the genera *Merganetta* with one, *Mergus* with seven, (three of which are doubtful,) *Mergellus* with one, species.

Anser ægyptiacus has been killed in different parts of France. (Rev. Zool. p. 441.)

Anus flavirostris, sparsa and *Rhyncaspis capensis* have been described and figured by A. Smith, in his ‘ Illust. of the Zool. of South Africa,’ n. 21.

Tadorna radjah and *Casarca tadornoides*, n. 14, *Strepera graculina*, n. 15, *Bizura lobata* and *Erismatura australis*, n. 16, have been figured by Gould, in his ‘Birds of Australia.’

Pygopodes.—G. R. Gray has shown that under *Aptenodytes patachonica* two species are confounded. (Ann. of Nat. Hist. xiii, p. 315.)

Pennant’s Patagonian Penguin (in the Phil. Trans. viii, 91) is the original figure, but differs from Shaw’s Aptenodytes patachonica, which was figured from Forster’s drawings. The latter species is called by the traveller the Emperor, the Pennantian, the King. They differ from each other as follows :

Emperor.	King.
From the tip of the bill to the end of the tail 50″.	Ditto 44″.
From ditto to angle of mouth 5″.	„ 4½″.
Base of lower jaw not expanded.	Expanded.
The yellow upon the sides of the head merging imperceptibly into the white of the sides of the neck, where	The yellow on the sides of the head of an intense hue, and suddenly merging upon the throat into a

Emperor.	King.
it is divided, like the back, by a prominent dash of the same colour.	bright orange-colour, that gradually becomes white on the breast.
Black colour under the throat of short extent, and divided in the middle by a pencil-shaped set of white feathers near the fauces.	Black under the throat, terminating in a blunt point at the fauces.

To avoid confusion in future, Gray proposes to indicate the Emperor by the name of *A. Forsteri*, and the King by that of *A. Pennantii*.

A new species, *Aptenodytes undina*, smaller than A. minor, and from Van Diemen's Land, has been established by Gould, in 'Ann. Nat. Hist.' xiv, p. 504 He has also figured, in the 'Birds of Australia,' *Spheniscus minor*, n. 16, and *Podiceps australis*, n. 17.

ENTOMOLOGY.

BY

DR. W. F. ERICHSON.

TRANSLATED BY A. H. HALIDAY, ESQ.

[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 (Aranеidæ,

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 ænippe, marianne, pirene, Callidryas philippina, pyranthe, minna, hilaria, alcmeone, Loxura atymnus, Polyommatus vulcanus, Danais similis, limniace, Euplæa coreta, Nymphalis lisianassa, liria, aconthea, Limenitis leucothoe, strophia, Charaxes bernardus, athamas, Argynnis niphe, phalanta, Vanessa charonia, orithyia, ænone, 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 chrysorrhæa, Lithosia pulchra, Triphæna 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., *Protætia 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 *Malthinus* call for especial mention.

Bohemann has attended to the Myrmecophila in Sweden (Oefvers. Kongl. 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 Carabidæ, 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

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* 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 coryphæus,* 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, amæna*, 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 *Ceratistes*, 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, *Pæderini* 33, *Stenini* 44, *Oxytelini*, 34, *Phlæocharini* 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. *a. 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. Hydrænaires:* abdomen with six ventral segments at least. *Ochthebius*, 1. *granulatus*, new species, from the mountains in the east of France. 2. *exculptus*, Müll. (♂ *Enicocerus viridiæneus*, 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. *α. 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*. *α. 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 exstriatus*, 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; *Cænochilus 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 thoracequc 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 *Plectrascelis 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*, Lesceleur (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 mæstum*, 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, reeeived 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., = *Taphæus*, 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.)

[*Cælinius 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.

Vespariæ.—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. cupheno, 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. *Cœnonympha*, 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 Cœnonympha—*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 (Hiig. 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 hawerthi*, 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 obliqualis*, *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, niveltus*, 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., ♂ *melanogaster*, Mg., ♀ *virginea*, Mg., ♂ var., *nili-*

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 1⅓ 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 coniectures 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.

MOLLUSCA.

BY

DR. F. H. TROSCHEL.

Menke's Zeitschrift für Malacozoologie (Malacological Journal) affords, as regards the class Mollusca, a special vehicle for the diffusion of useful scientific intelligence. A sheet of letter-press appears monthly, which is devoted partly to original articles and partly to critical notices. The former, besides those by the Editor, were, in 1844, furnished by Beyrich, Dunker, Jonas, Koech, Pfeiffer, and Philippi, and will be noticed in their proper places. The critical notices refer for the most part to new works, and are furnished by the Editor, who is peculiarly well qualified for a task of this kind, by his special acquaintance with this branch of natural science, and by the possession of a distinguished and almost complete library. The undertaking will doubtless be successful, particularly, as on account of the cheapness of the publication (which can only be referred to the non-addition of figures), it will come within the reach of a greater number of persons. At the end of the year a title-page and alphabetical index are given.

The tenth volume of Lamarck's 'Histoire Naturelle des Animaux sans Vertèbres, par Deshayes;' appeared in 1844. As in the former volumes, so in this also, the enlargement of the synonymy has been particularly attended to, as well as the rectification of the nomenclature as regards priority. The remarks upon the animals of the several genera are

especially important. This volume contains the genera—*Cassidaria, Oniscia, Cassis, Ricinula, Purpura, Monoceros, Concholepas, Harpa, Dolium, Buccinum, Eburna, Terebra; Columbella, Mitra, Voluta, Marginella, Volvaria; Ovula, Cypræa, Terebellum, Ancillaria, Oliva.*

Of Philippi's valuable 'Enumeratio Molluscorum Siciliæ,' the first volume of which was published at Berlin in 1836, the second volume appeared in 1844 with the distinct title, 'Fauna Molluscorum viventium et in tellure tertiaria fossilium Regni utriusque Siciliæ.' Halis Saxonum, sumptibus Eduardi Anton. Particular attention has been devoted in this volume to the complete enumeration of the species of Mollusca occurring in those countries, to the distinguishing by certain characters, of doubtful and new species, and to the correction of the synonymy. According to the author's statement in the Introduction, there were enumerated in the first volume 640 living, and 367 fossil species from the Island of Sicily; in the second volume the researches were extended to the entire kingdom of Naples, and in consequence of this, the number of the described living species has been raised to 814, and that of the fossil to 589; and 258 species have been here, for the first time, figured on 16 lithographic plates (tab. xiii to xxviii).

The general survey of the geographical distribution of the Mollusca of Lower Italy, which is given at the end, appeared in these Archiv. (1844, i, p. 28).

A Supplement to the second volume of the 'Enumeratio Molluscorum Siciliæ,' has been furnished by Philippi in Menke's Zeitschrift (1844, p. 100). In this again we have many corrections on various points, and several new species are added, the names of which will be given below.

Of Philippi's 'Abbildungen und Beschreibungen neuer oder weniger gekannter Conchylien' (Figures and Descriptions of new or little known Conchylia), five Parts, 4—8, have appeared in the course of the year 1844, with which the first volume is concluded. Title-page and index are given in the last Part. The genera treated of are, in

Part 4: *Helix, Nerita, Trochus, Pyrula, Psammobia, Pecten;* in Part 5: *Steganotoma* and *Cyclostoma, Fusus, Paludina, Haliotis, Tellina, Venus;* in Part 6: *Glandina, Trochus, Sigaretus, Haliotis, Cytherea;* in Part 7: *Helix, Bulimus, Melania, Mactra, Cytherea, Venus;* in Part 8: *Cylindrella, Trochus, Murex, Psammobia, Cytherea, Pecten.* It appears highly conducive to convenience, that with each genus the month and year of publication are stated. Would that French authors could be induced to attend to this little precaution! Their Livraisons frequently appear altogether without the date of the year.

In the year 1838 a work was published by Potiez and Michaud, under the title 'Galerie des Mollusques, ou Catalogue méthodique, descriptif et raisonné des Mollusques et Coquilles du Muséum de Douai.' The first volume contains the Cephalopoda, Pteropoda, and Gasteropoda, a considerable portion of which has been figured in 37 plates. The second volume has now appeared in the year 1844, containing the Brachiopoda, Testacea, and Tunicata; consequently the second great division of the Mollusca. To this volume belong 33 lithographic plates. The text, for the most part, affords only the name of the species with the synonomy and habitat. Some new species are described, and of these, as the work, perhaps, has not an extensive circulation, the diagnoses are given below.

In the Uebersicht der Arbeiten und Veränderungen der Schlesischen Gesellschaft, für vaterländische Kultur, im Jahre 1844, supplements to the Molluscous Fauna of Silesia are given, by H. Scholtz. In these some species, and also the genus *Pupula,* Ag., are added to the Silesian Fauna. In an appendix is given an alphabetical list of the genera and species indigenous in Silesia, together with an account of their distribution according to the different conditions of altitude. According to this there occur, in the plains, 91 species; in lower declivities, 92 species; and in the mountainous regions, 25 species. Of the 135 species, arranged in 26 genera, 78 in 14 genera are terrestrial, and 57 in

12 genera aquatic. Among the latter are 37 univalves distributed in 8 genera, and 20 bivalves (muscheln) constituting 4 genera. Of the terrestrial univalves, the genera most remarkable for the number of species are *Helix* (34) and *Clausilia* (14); of the aquatic, *Limnæus* (11) and *Planorbis* (13); of the bivalves, *Anodonta* (6) and *Unio* (6).

In 1844 appeared the fourth part of the Thesaurus Conchyliorum, or figures and descriptions of recent shells, edited and illustrated by G. B. Sowerby, jun. A Report upon the first part was given in 1843; with the second and third I am not acquainted: they contain monographs of the genera *Pecten, Pteroceras, Hinnites, Lima,* and *Cyclostoma;* the present or fourth part gives the genera *Scalaria* and *Columbella.*

Chenu 'Illustrations Conchyliologiques, ou Description et Figures de toutes les Coquilles connues, vivantes et fossiles, classées suivant le système de Lamarck, modifié d'après les progrès de la science et comprenant les genres nouveaux et les espèces récemment découvertes. Avec la collaboration des principaux conchyliologistes de la France et de l'etranger.' Of this work, brought out under such brilliant auspices, 54 livraisons have already appeared up to the beginning of the year 1846; but, it is to be regretted, without the date of the year; so that it cannot be decided how many of this number belong to the year 1844. The work consists of monographs, of which the livraisons that have appeared contain those on the genera, *Aspergillum, Panopæa,* by Valenciennes; *Dentalium. Siliquaria, Sigaretus,* by Recluz; *Solen, Clavagella,* by Caillaud; *Magilus, Stylifer, Corbis, Glycimeris, Poronia* (*Cardium* sp.), by Recluz; *Pecten, Pedum, Ungulina, Hinnites, Galathea, Syndosmya,* by Recluz; *Strombus,* by Duclos; *Oliva, Ervilia,* Turt; *Spondylus, Diceras,* by Favre; *Lavigno,* Cuv., *Tridacna, Mycetopoda,* D'Orb, *Cleidothærus,* Stutchbury (*Chama albida,* Lam.), and *Ligula,* by Recluz. The term "coquilles" is here employed in a very extensive sense; for, besides the above-named molluscous genera, the following genera of Cirripedia

and Annulata are treated of: *Arenicola, Spirorbis, Coronula, Balanus, Sabellaria, Terebella, Amphitrite, Pherusa, Pectinaria, Siphostoma, Ditrupa, Creusia, Pyrgoma, Tubicinella.*

Of the Zoology of the Voyage of H.M.S. Sulphur, under the command of Captain Sir E. Belcher, during the years 1834-42, two Parts have appeared in 1844 (6 and 7), and in 1845 one Part (8), containing Mollusca. This division is arranged by Hinds. As the section relating to the Mollusca is brought to a close in the 8th part, it appears convenient to report upon the whole at once. The work contains descriptions and figures of a great number of new species, most of which have already been published in the Annals of Natural History and in the Proceedings of the Zoological Society. Each part contains seven coloured plates on copper by G. B. Sowerby, jun. Malacology receives no additions from this work, as the shells only are described.

Menke has given, as a pragmatic introduction to his Zeitschrift für Malaco-Zoologie, p. 1, an essay, "Standpunkt und Bedürfniss der Malacozoologischen Literatur" (Condition and requirements of Malacozoological Literature).

Furthermore, by the same author, we have contributions: on the most ancient history of the Mollusca (Zeitschrift, p. 17, and in the following numbers), in which he refers (p. 65) to Homer and (p. 145) Hesiod. In Homer but very few Molluscs are mentioned. The τήθεα (Iliad. 16, 747) Menke is inclined to explain as Oysters, or at all events for an edible Mollusc. In the Odyssey (v, 432) Ulysses, when clinging to a rock, is compared to the πουλύπους (probably *Octopus vulgaris.)* The helmet of the frogs, in the War of the Frogs and Mice, 165 and 258, is very cleverly shown by Menke to be the *Limnæus stagnalis.*

Hesiod (ἔργα καὶ ἡμέραι, v. 522, 523) terms the marine polypes boneless, which leads to the conclusion that the genus *Octopus* is signified. Ib. v. 569, the Snail is called the harbinger of spring.

In the Comptes rendus, xix, p. 1076, a Memoir by

Alcide d'Orbigny is announced: Recherches sur les lois qui président à la distribution géographique des Mollusques marins côtiers. The observations have reference only to the coast of South America, and coincide with those which the author had formerly published with respect to the Foraminifera. (Vid. these Archiv. 1840, i, p. 398.) The Falkland Islands have a special Fauna; that of the temperate regions is richer than that of the torrid zone, and this is the case in both oceans. Of 95 genera fifty belong to one ocean only, whilst 45 are common to both. The currents tend to distribute those Molluscs which are capable of enduring a more considerable variety of temperature. Thus in the Atlantic Ocean 12 species are distributed over 19°, and in the Pacific 15 species over 22° of latitude, and cease on the northern limits of the currents. On the other hand, the currents determine the line of separation of the different Faunas, when they flow at a distance from the coast, as at the Falkland Islands, or when they wash against a promontory, as at Cape Horn, and when they flow impetuously upon the coast, as near Payta. The temperature in the next place constrains the species within narrower limits. The oreographical conditions of the coasts have also an important influence on the nature of the Fauna.

For a review of the Mollusca of the North Sea, or at least for a commencement of it, we are indebted to Menke. (Zeitschrift, pp. 129-148.) There are three Cephalopoda, seven Nudibranchia; among which a new genus (vid. infra) and a *Bulla*.

Essai sur les Mollusques terrestres et fluviatiles, et leurs coquilles vivantes et fossiles, du département du Gers, par M. l'Abbé D. Dupuy, Professeur d'Histoire Naturelle au petit Séminaire d'Auch, Paris, 1843. 8vo. is known to me only from the notice in the Rev. Zool. 1844, p. 189.

From W. Thompson (Annals, xiii, p. 430) we have Additions to the Fauna of Ireland. In this list are enumerated 30 Gasteropoda, 2 Brachiopoda, 10 Lamellibranchiata, and 11 Tunicata. There are no new species among them.

The British Fauna has also received additions from E. Forbes, who has described and figured some animals found by M'Andrew. (Annals, xiv, p. 410.) Of Mollusca we have the following: *Emarginula crassa*, Sow., previously known only as fossil; *Eulima Mac Andrei*, new species (vid. infra); *Pleurotoma teres*, Forbes, figured in Reeves's Conch. iconic. pl. 19, f. 161; a variety of *Natica monilifera*, *Chemnitzia fulvo-cincta* (*Turritella* sp.), Thompson; *Pleurotoma Bothii*, Smith; *Cyprina triangularis*, Mont.; *Pecten Landsburgi*.

Heinrich Meckel has published in Müller's Archiv f. Anatomie, &c. (1844, p. 483) his researches on the sexual organs of the Hermaphrodite Molluscs, and illustrated them with two plates of very clear figures. This memoir is of extreme importance as regards the significance of the organs, about which so much has already been written. The author regards the organ, which is situated in the liver, neither as a testis nor ovary, but, as Siebold has latterly done, as both together; showing that the individual sacculi, of which the organ is composed, are formed of two sacculi one within the other, of which the internal contains spermatozoa, and the external ova. From this androgynous gland proceed two canals, also contained the one within the other, which thus reach the glandula uterina, the testis of Cuvier, in which, according to the author, the albumen is formed. From this point the two canals proceed in union, and indeed connected with each other by a groove throughout their whole length, as far as the vulva.

The so-called pedunculate vesicle is regarded by Meckel as a vesicula seminalis, which at the time of copulation receives the semen; the "organes multifides" he looks upon as mucous organs. The sexual organs of *Helix pomatia*, and what is of especial interest, those of *Thetis*, *Doris*, *Tritonia*, and *Pleurobranchæa* are figured; and they correspond in this respect with *Helix*, that the vas deferens, before entering the vulva, diverges in order to reach the penis; and, lastly, those of *Aplysia*, *Bullæa*, *Doridium*, *Umbrella*,

Gasteropteron, and *Diphyllidia*, which so far correspond that the female system is united with the male throughout its whole course. As regards the peculiarities of each genus reference must be made to the memoir itself.

Charles W. Peach has observed the nidi of *Purpura lapillus* and *Buccinum reticulatum*. In the former, the young leave the nidi in about four months from the time of their being fixed on the rocks; when recently deposited they are quite transparent, very fragile, and present no appearance of shells. In the latter the nidi are frequently strung together in single lines, and overlie each other like scales; the young escape from them at the upper part. The nidi are horn-colour and semitransparent. (Annals, xiii, p. 203 [with figures]).

Küster has communicated his experiments respecting the tenacity of life of the inland Mollusca. (Isis, 1844, p. 645.) *Helices* live, as is well known, for months or even years without food or moisture; *Paludina* (*Hydrocera*) *Sirkii* survived a whole summer in a dry state; even Conchifera (Muscheln) were able to do without water with impunity for eighteen days.

CEPHALOPODA.

An attempt to classify the Tetrabranchiate Cephalopods, by William King (Annals, xiv, p. 271), of course relates almost exclusively to fossils.

E. Rüppell, in a letter to Anastasio Cocco (Giornale del Gabinetto di Messina, fasc. xvi, Maggio, 1844), describes some Cephalopoda.

Enoploteuthis margaritifera, figured in Fig. 1. The visceral sac is rather longer than the head with the short tentacles; the point of the cartilaginous piece projects a little in front of the rhomboid fin; the long arms support at the extremity numerous very minute acetabula in several rows, and four hooklets. Messina. *E. Veranii*, Fig. 2. The breadth of the fin exceeds the length of the visceral sac; its terminal point projects above the point of the cartilaginous piece; three hooks on the longer arms. Messina.

Loligo æquipoda is allied to *L. Coindeti*, Verany, but differs from it in the smaller fin and the different proportion of the tentacles.

Rossia (in the text it is *Sepiola*, but corrected by the author) *dispar* is distinguished by the four acetabula of the ten-times longer lateral arms; each arm has 15—20 acetabula.

Loligopsis vermicularis is characterized by the length of the neck; the anterior margin is equally remote from the eyes and from the commencement of the cordate, posteriorly acuminated fin.

The genus *Octopoteuthis* unites the characters of the genera *Octopus*, *Loligo*, and *Enoploteuthis*. The mouth is surrounded by eight arms of equal length, which are furnished with two longitudinal rows of minute hooks; the visceral sac is conical, infundibuliform, contains a very thin horny lamella, and supports on the back, for two thirds of its length towards the apex, a large sub-cordate fin. The species *O. sicula* is rose coloured, clear as glass, with red points to the arms.

Sepia rubens, Philippi. (Enum. p. 293). Corpore depressiusculo, utrinque lævi, rubente; brachiis pedunculatis prælongis; lamina dorsali elongato-elliptica, rosea. Naples.

PTEROPODA.

Aug. Krohn described in these Archiv. (1844, i, p. 324) a new pteropodous species, *Tiedemannia creniptera*. but afterwards communicated, in a letter to the Reporter, the remark, that he had recognised this animal in Forskal's Descriptiones Animalium, &c., tab. 43, fig. D. The projecting rostrum, he says, and the characteristic digitiform lobes on the lateral margins of the great fin are distinctly shown. In the text the description of the animal is wanting; in the explanation of the plate referred to it is called *Gleba cordata*. With respect to this species, as well as to the Physophoridan afterwards known as *Hippopodius luteus* (*Gleba hippopus*, Forsk. ejusd. tab., Fig. E), the editor, the illustrious Niebuhr, also adds, "animalculo non descripto, sed modo delineato hisque nominibus insignito tradidit, &c., Forsk. Color aqueus et substantia gelatinosa."

HETEROPODA.

On the genus *Sagitta*, Quoy and Gaimard, respecting which our previous knowledge was very incomplete, we derive very important information from two papers by

Darwin and Krohn. Although the systematic position of the animal is not, in fact, as yet determined, and Krohn, from his particular researches, is inclined to place it in the class Annulata, I here follow D'Orbigny's opinion, referring it provisionally to the Heteropoda. It must be confessed that the difference of its organization from that of the other genera of this division is very considerable, yet we find among the Annulata fewer points still of relationship which might justify its arrangement in that class.

Darwin's Observations on the Structure and Propagation of the Genus Sagitta (Annals, xiii, p. 1) relate to *Sagitta hexaptera*, D'Orb. Besides the well-known unciform teeth, of which, in this species, eight are present on each side, there occur close to the mouth two other rows of exceedingly minute teeth. The animals affix themselves frequently by the caudal fin, never by the cephalic portion [or by its teeth] to other objects. Of digestive organs an intestine only is present. No nucleus, no branchiæ, no liver. In quite young animals the author remarked a distinct pulsating organ in the anterior part of the body; at a later period no heart nor vessels were to be perceived. There are two ovaries lying near each other in the length of the body, anterior to the caudal portion, which open laterally between the posterior pair of fins. In the tail itself the author observed a distinct circulation of a granular matter, in two columns, separated by a longitudinal septum; he regards this as an organ for the preparation of the ova of the ovary. Information is given respecting the ova and their development. They are pointed at one extremity and contain a small nucleus. The point swells out into a globular form soon after the egg quits the ovary, becomes filled with a granular substance, and communicates with the granular globule in the interior of the egg, so that the egg consists of two nearly equal-sized globules, one of which contains the granular substance, and the other is empty; then the two balls separate from each other. The whole phenomenon was effected in about ten minutes.

The Memoir by Krohn goes much further. (Anatomisch-physiologische Beobachtungen über die *Sagitta bipunctata*. Mit einer lithograph. Tafel. Hamburg.) The author, who was unacquainted with Darwin's Memoir, divides the animal into head, trunk, and tail. In the species described by him there are only from five to seven unciform teeth, the two internal minute denticles were also observed in this instance. The head is separated from the body by a transverse septum, and the body from the tail by a similar septum. In the trunk there were likewise observable only the intestinal canal and the two ovaries. The latter open by two orifices on the back, between which on the abdomen the anus is situated in the middle. Heart, vessels, branchiæ, and liver were not observed. The two cavities in the tail are seminal receptacles, and the circulating granules, which Darwin regarded as undeveloped ova, constitute bundles of spermatozoa, which are thread-like, attenuated at each extremity, and exhibit serpentine movements. These seminal receptacles open on each side anteriorly to the caudal fin, in a small papilla which is hollow, and to which leads a small canal, becoming narrower as it advances outwardly. These animals, consequently, are androgynous, and the author believes that, in them, self-impregnation takes place, because at a time when spermatozoa are found in the ovaries the seminal receptacles are always empty; this, however, appears to me improbable, from the distance of the male genital orifice from the female. Copulation, however, has not yet been observed. The nervous system consists of an hexangular cephalic ganglion, from which arise anteriorly two filaments, which on the muscles of the unciform teeth are expanded into a ganglion on each side; posteriorly also two filaments are given off, which, at the border of the cephalic portion, are united in such a way as to constitute a loop. At their origin also two delicate nerves arise, which proceed to the two black eye-points situate on the upper surface of the head. Lastly, two filaments arise laterally from the cephalic

ganglion which turn backwards and are united into a ganglion in the abdomen, anteriorly to the middle of the trunk, which ganglion again sends backwards two other branches, which split up at their extremity into a sort of cauda equina.

GASTEROPODA.

Alder and Hancock describe two new species of Doris in the Annals, xiv, p. 230), *D. flammea*, 9 branchiæ, allied to *tuberculata*, but the tubercles and branchial plumes are rather smaller, scarlet red. *D mera*, white, with 13 branchiæ. Both species are British. *D. elegantula*, Philippi, Enum. p. 80, with 11 branchiæ.

Quatrefages (Comptes rendus, xix, p. 193) gives a notice respecting calcareous spiculæ in the surface of the body of two minute genera allied to *Doris*. This is evidently the same fact as that observed by Lovén in the young *Doris muricata*, (Vid. Archiv. f. 1841, ii, p. 275.) These calcareous needles belong only to the young state.

Quatrefages describes (in the Annales d. Sc. Nat. 3me série, i, p. 129; vid. also Comptes rendus, vol. xviii, p. 13, vol. xix, p. 190, Annals, xiv, p. 28) several new genera, which differ very essentially in their organization from the type of the other Gasteropods, and which, with the previously instituted genera, *Eolidia, Calliopæa, Cavolina, Glaucus, Actæon, Placobranchus*, which have been placed under the Nudibranchia, as well as with the genus *Eolidina*, previously described by the same author, would appear to constitute a distinct sub-order of Gasteropoda, which he terms *Phlebenterata*. Whilst the circulatory organs are described as very simple, and consisting merely of a heart and arteries, the veins disappearing, and whilst in connexion therewith the respiratory organs are wanting, the functions of the branchiæ are assumed, in the author's opinion, by the digestive canal, which has a very peculiar conformation, and presents a disposition to branching. The anus is also very minute, in some genera appearing to be wanting. As for the rest, there can be no doubt that the animals under consideration do belong to the Mollusca; this is shown by the

nervous system with an œsophageal ring, the eyes and auditory organs, and especially also by the tongue. The latter, it must be confessed, differs from that of the other Gasteropods; it is very narrow, and consists only of a longitudinal row of unciform plates, so that I would compare it with the middle row of plates, which is very distinct in most Snails (Snecken); consequently in this case the lateral plates, which in other divisions are often very numerous, are wanting. That the genus *Glaucus*, which the author places here only interrogatively, is in reality properly so placed, I can confirm from my own researches on the oral organs; I am also acquainted with the oral organs of *Eolidia*.

The author subdivides the order, which he characterizes as Gasteropoda with incomplete or deficient circulation, and without special respiratory organs, into two families.

1. Enterobranchia.—In these the intestine is branched, and the branches are prolonged into external appendages. These appendages are either separate (Enterobranchia sensu strictiore) with the genera—*Eolidia*, *Eolidina*, *Zephyrina*, *Amphorina*, *Calliopæa*, *Cavolina* (?) *Glaucus* (?); or they are united and remiform (Enterobranchia remibranchia) with the genera: *Actæon*, *Actæonia*, *Placobranchus* (?).

2. Dermobranchia.—They have a very simple intestine, in the form of sacculi, few in number; no external appendages. In this division are the genera *Pelta* and *Chalidis*.

The new genera are characterized by the author as follows:

Zephyrina (is *Venilia*, afterwards *Proctonotus*, Alder and Hancock). Head indistinct; four tentacles, the anterior broad and thin, the posterior long conical; body attenuated anteriorly and posteriorly; two eyes at the base of the posterior tentacles; very numerous appendices respiratoriæ on the sides of the head and body, on the former in a single row; foot thick, longer posteriorly than the body. Mouth armed with two strong, lateral, horny teeth, and a horny palatal plate; the abdominal vessels give off a multitude of cæca in the cirrhi of the body; brain with four evident ganglia. One species, *Z. pilosa*.

Actæon, Oken. Head distinct, two tentacles, behind which, occasionally at some distance, are two eyes; body flat, oval, short, on the sides two lamellated expansions, which unite behind the body, and are produced posteriorly; foot projecting before the mouth, only under the body, so that the appendages project free; anus posterior in the middle above the point of

connexion of the appendages; genital aperture on the right side, on a level with the eyes. Tongue cartilaginous, transverse, curved; a ventricular sac, from which proceed four branched trunks; brain with four distinct ganglia. *A. viridis*, Oken, and a new species, *A. elegans*, have been observed.

Actæonia. Head distinct, notched anteriorly, widened by two thick fringes, which posteriorly form two short tentacles, behind which are two eyes; body scarcely broader than the head; anus superior at the posterior extremity; branchial lobes thick, fleshy, forming a lateral fringe, and uniting posteriorly; foot very small, hardly reaching to the extremity of the body. One species, *A. senestra.*

Amphorina. Head distinct, thicker than the body, with four tentacles; body flat; foot longer posteriorly; few branchial appendages, fusiform or egg-shaped in two rows; genital aperture on the right, anterior to the branchial appendages; two eyes behind the posterior tentacles; two minute lateral jaws and a tongue in the median line; two intestinal sacculi, each of which has its distinct opening in the oral cavity, large cæca penetrate into the appendages of the body; brain with two ganglia. One species, *A. Alberti.*

Pelta. Foot lateral and projecting posteriorly, not reaching the mouth, head surrounded on the sides by two lamellar lobes, which unite posteriorly in the middle; no tentacles; two eyes; sides and posterior extremity of the body separated by a groove; tongue with a median and two lateral branches, transverse; stomach armed with four jaws, intestine saccular, pouches irregular; brain with two ganglia. One species, *P. coronata.*

Chalidis. Body anteriorly and in the middle flat, in the posterior third roundish, head distinct, instead of tentacles two broad lateral fringes; foot scarcely reaching to the mouth, indistinct posteriorly; no special stomach, the intestine consists of two long sacculi, united in the middle. Brain with two ganglia. One species, *Ch. cærulea.*

All these animals are at most some lines long, and were observed on the coast of Brittany. Their transparency facilitates the study of their anatomy.

Souleyet (Comptes rendus, 19, p. 355; Annals xiv, p. 342) comes forward to oppose the observations of Quatrefages. He denies, in the first place, the absence of veins, the existence of which he has proved by injection; he has traced them as far as the external branchial appendages, from which he also proves that these appendages really perform the respiratory function. Consequently, also, the branches of the digestive canal, which frequently extend into the branchiæ, are not respiratory organs; the author

regards them as biliary ducts which open singly into the stomach. He also gives a different account of the position of the anus and of the genital apertures. In *Actæon* the anus is not placed posteriorly in the middle, but anteriorly, on the right side, in the form of a minute papilla, and the genital orifice is not in common, but in the female is situated on the right in form of a minute fissure, which runs from the anus towards the under surface of the animal; in the male the opening is also situate on the right side at the base of the tentacle.

It follows of course that Quatrefages should defend himself against such an attack. (Comptes rendus, xix, p. 806.) He allows that separate genital apertures exist in *Venilia*, and at the time of copulation, also in the Tergipedina, also that the branchial appendages are perforated at the point. But with respect to the latter he thinks that they are not as it were supplementary anuses, but that they serve for the ejection of spiculæ, which correspond in almost all respects with those of the Actiniæ, Medusæ, and Synaptæ. On the other hand he denies that the branches of the intestinal canal open singly into the stomach, and that they are biliary ducts, because he has observed the food enter and again leave them; he also denies the existence of veins.

Another attack upon the observations of Quatrefages, and written in a much more peaceable style than the above by Souleyet, appears in the Annals (xiv, p. 125), by Joshua Alder and Albany Hancock. The authors regard the genus *Eolidina* as identical with *Eolis*. They look upon the absence of the anus, of the male intromittent organ, and of the complete circulatory organs as the fruits of inaccurate observation. In conclusion, they express the opinion that Quatrefages has been very premature in instituting his division of the *Phlebenterata*. After all that has been said for and against the Phlebenterata, I feel myself compelled to say that precise inquiries as to the history of the development of these animals are highly desirable. At all events they must constitute a separate division (family),

because their tongues, according to Quatrefages' figures, as well as from my researches with respect to *Eolis, Glaucus,* and others, are remarkable for their narrowness; the median plates only are developed in them. The opposite condition to this is exhibited in *Bulla, Bullæa,* and *Gasteropteron,* in which it is the median plates or teeth that are deficient, so that in consequence of the lateral teeth only being present, two narrow separate tongues are constituted. On the other hand, it may be expected that the extraordinary organization as it is represented by Quatrefages, will disappear before the eyes of a more circumspect observer.

Joshua Alder and Albany Hancock institute (Annals, xiii, p. 161) a new genus of Nudibranchiate Molluscs under the name of *Venilia,* which is changed (ib. p. 407) into *Proctonotus.*

The body limaciform, ovate-oblong tapering to a point behind, depressed, mouth with a pair of corneous jaws, four tentacula. The branchiæ papillary, elongated, arranged on a projecting margin down each side of the back. Anus posterior on the medial line of the back. Genital aperture on the right side. The species, *V. mucronifera* is figured, both the whole animal, and the jaws, the tongue, and the branched appendages of the stomach. The animal belongs to the Phlebenterata of Quatrefages, and is identical with the genus *Zephyrina,* to which, however, the name *Venilia* has the priority.

(Ib.) also by the same authors, are described some new species of the genus *Eolis,* viz.: *E. alba* and *Farrani* from [Malahide near] Dublin, and *E. angulata, Northumbrica, gracilis,* and *violacea* from Cullercoats, Northumberland.

Eolis limacina and *Scacchiana,* Philippi (Enum. p. 73), the former with short tentacles not projecting beyond the dorsal papillæ; the second with longer tentacles.

Near *Eolis* and *Calliopæa* also belongs a new genus, *Pterochilus,* Alder and Hancock. (Annals, xiv, p. 329). The body is oblong, nearly linear, tapering behind; head anterior terminal, with a flat expanded lobe on each side; jaws corneous, two linear tentacles [dorsal], behind which the eyes are placed; branchiæ papillary, elongated, on the sides of the back; anus on the right side behind the generative organs. *P. pulcher,* with a row of five or six branchiæ on each side [of the back]. Branches proceed from the gastric vessel to the papillæ; 0·3 inch. Rothesay Bay, Isle of Bute.

Elysia (*Actæon*) *fusca*, Philippi (Enum. p. 100). Small, fuscous, darker above, beneath with red points, with expanded wings.

Janus, Verany, nov. gen. (Rev. Zool. p. 302). Head distinct, with a tentacular prolongation anteriorly on each side, two non-retractile conical dorsal tentacles, on a thick common base, eyes sessile, indistinct, behind the base of the tentacles. Branchiæ as in *Eolis*, consisting of numerous cylindrical filaments, placed in longitudinal rows on the sides of the back, but which extend so far anteriorly and posteriorly, that the rows of the two sides meet. Anus posteriorly in the median line of the back. Common genital aperture in a tubercle, anteriorly, on the right side. The species is not named.

Lomanotus, Verany, n. gen. (ib.) Head as broad as the body, anteriorly with a frontal veil (stirn segel), which supports on each side minute tentacular prolongations. Two retractile, clavate dorsal tentacles, placed in a basin-shaped sheath. The branchiæ consist of two thin, fringed organs, which are situate on each side between the dorsal and lateral surfaces of the animal. Anus and genital apertures as in *Tritonia*. The species is not named.

Psiloceros, Menke, n. gen. (Zeitsch. p. 149). Animal limaciforme; tentacula frontalia quatuor, basi nuda; ramenta labialia nulla; branchiæ dorsales simplices serie longitudinali duplici digestæ. The species, *Ps. claviger*, is figured by Bomme in 'Verhandelingen te Vlissingen,' D. 3, p. 296, No. 4, fig. 3, but differs from *Doris clavigera*, Müll., and *Doris fimbriata*, Vahl.

From *Polycera punctilucens*, d'Orb., Lovén forms a new genus, *Ægires*: Corpus robustum, gibbum; e spiculis numerosissimis rigidum; pallium adnatum, a solea sulco distinctum, tuberculosum; vibracula cylindrica, simplicia, nec perfoliata, intra vaginam retrahenda; branchiæ ano præpositæ, pinnatæ, paucilobæ, lobo quovis papillâ defenso; velum abbreviatum, rotundatum. To this genus, besides the above species, also belongs *Doris maura*, Forbes. (Öfversigt af Kongl. Vetenscaps—Academiens Förhandlingar, 1844, p. 49.)

The same naturalist describes (ib.) a new species, *Stiliger modestus*, differing from *S. ornatus*, Ehrb., in the shorter vibracula and broader foot.

Cloelia, new genus, (id. ib.) Corpus gracile, solea latiuscula; pallium adnatum; vibracula simplicia, indefensa, contractilia; branchiæ laterales, utrinque simplici serie, fruticulosæ; velum labiale amplum, in lobum oblongum utrinque productum. To this, besides a new species, *C. formosa*, is also to be referred *Doris fimbriata*, Vahl.

Hermæa, new genus, (id. ib.) Corpus gracile, molle elongatum; vibracula auriformia, extus canaliculata; branchiæ laterales; velum breve, in lobum minutum utrinque productum; solea angusta, antice dilatata; anus sublateralis; porus genitalium anticus, lateralis. To this belong *Doris bifida*, Mont., and a new species, *H. venosa*.

TECTIBRANCHIA.

Lovén figures (ib.) the young states of *Lacuna vincta*, *Eulima distorta*, *Bulla truncata*, and *Bullæa aperta*, which come very near to the young states of the Nudibranchia first described by Sars, as they possess the two ciliated oral lobes. This is of importance as regards the systematic position of the genera.

Bulla Cécillii, Philippi (Menke Zeitschr. p. 164). Cylindrical, white, columella depressed-conical; 5½‴. China. *B. vestita*, Philippi (Enum. p. 95), brown, covered with white reticulations.

From *Bullæa planciana* Philippi (Enum.) distinguishes a species from the Cape, *B. Schroeteri*, which is well figured in Schroeter's Einleitung, &c. vol. i, t. 1, f. 8.

Aplysia lepus, Philippi (Enum. p. 99), probably a variety of *Apl. fasciata*, Poiret.

INFEROBRANCHIA.

Pleurobranchus perforatus, Philippi (Enum. p, 87.) The mantle deeply emarginate anteriorly. *P. brevifrons* (ib.) Foot longer than the mantle, shell large.

Patella insessa (Ann. x, p. 82), from California, is figured in Hinds. (Voyage of Sulphur.)

Also *Patelloida depicta* (Ann. p. 82).—*Chiton pulchellus*, Philippi (Enum. p. 83). *Ch. magdalenensis*, from California. Hinds. (Voyage of Sulphur.)

PULMONATA.

T. F. G. Schlemm has written a dissertation De Hepate ac bile Crustaceorum et Molluscorum quorundam; Berolini 1844. 4to,—in which the liver of *Helix pomatia* and *Limax ater* is investigated physiologically, anatomically, and chemically. Another dissertation appeared at the same time, by Jacob Frank: De Hepate Molluscorum, in which what was already known respecting the liver of many Molluscs is collected, and the liver of *Helix nemoralis* described from the author's own observations.

Pfeiffer has offered, in Menke's Zeitschrift, p. 177, critical remarks upon certain groups of the Heliceæ, in which, in the first place, the group allied to *Helix rapa* is considered, next to which stand, a new species, *H. Mulleri*, Pfr., *H. Lamarckiana*, Lea, *H. stolephora*, Val., *H. Zeus*, Jonas, and

H. ovum, Val.; moreover, it is remarked that *H. castanea* Mull., is identical with *Nanina juliana*, Gray, and probably also with *H. Belangeri*, Desh., and *bombeyana*. There are also remarks upon *Bulimus ovoideus*, *ventricosus*, and corrections of the synonymy of some species of the genera *Bulimus* and *Pupa*.

In the same journal (p. 188), and continued in the first sheet for the year 1845, Menke expresses himself respecting the interpretation of the *Helices* which Linnæus obtained from the Barbary States.

H. striatula, Linn., he regards as *Carocolla limbata*, Phil., *Leucochroa limbata*, Beck, *Helix amanda*, Rossm., *H. Boyssii*, Terver.—*H. algira* does not occur in Africa.—*H. leucas*, Linn., is a young *H. pisana*, Müll.—*H. pupa*, Linn., is explained to be *Bulimus pupa*, Brug.—*H. barbara* is referred doubtfully between *Bulimus acutus* and *B. ventricosus*, but at all events is a *Bulimus*.

Helix Duvalii, Petit (Revue Zool. 1844, p. 1; Guérin Mag. pl. 93): orbicular depressed, umbilicate, five whorls, chesnut brown, with a yellow band, labrum reflexed, 40 millim. Madagascar.

Three new species of *Helix* are instituted by Hinds (Voyage of Sulphur): *H. adustus*, umbilicate, depressed, brown, four approximated whorls, labrum thick, reflexed.—*H. squalus*, umbilicate, globular thin, corneous, labrum acute, reflexed. Both from New Ireland.—*H. pyxis*, not umbilicate high, transparent, four round whorls, the ultimate keeled in the middle, labrum acute, reflexed.

In Philippi (Abbild. Lief. iv, tab. 4) Pfeiffer has given figures of the following *Helices*, which have been already noticed in his Symbolæ: *H. sagittifera*, Pfr., *bulla*, Pfr., *bifasciata*, Lea, *sirena*, Beck, *bigonia*, Fér., = *samarensis*, Pfr., *Beckiana*, Pfr., *trochiformis*, Fér., *marginata*, Müll., *diluta*, Pfr., *Butleri*, Pfr. Furthermore, in Part 7 the fifth plate is devoted to the genus *Helix*. It contains:

H. prasina, Koch, pale bluish green; *H. oreas*, Koch., chesnut brown, a tooth on the last whorl, another opposite it.—*H. crassula*, Phil., flat above, the whorls higher than broad, beset with minute hairs. Java.—*H. tortilabia*,

Less.—*H. circumdata*, Fér.—*H. gallinula*, Pfr., allied to *H. Lesteri*, from Luçon.—*H. eximia*, Pfr., allied to *H. humboldtiana*, Val., from Vera Cruz.—*H. paradoxa*, Pfr., green, with a black umbilical spot, Luçon.—*H. trigonostoma*, Pfr., with broader, almost triangular, aperture, whitish with brown-violet narrow bands, Honduras.—*H. fodiens*, Pfr., nearly allied to *fruticum*, Luçon.—*H. radula*, Pfr., with crowded lines of growth, which are traversed by acute costæ, Luçon.—*H. biangulata*, Pfr., the whorls with a double keel, Luçon.—*H. spectabilis*, Pfr., horny yellow, with a reddish-brown band, labrum acute, Luçon.

Bulimus clavator, Petit (Rev. Zool., 1844, p. 1; Guérin Mag., pl. 94), turretted, yellowish, 8—9 whorls, longitudinally wrinkled, margin of aperture thickened, umbilical fissure contracted; 66 millim. Madagascar.

Jonas institutes, in Menke's Zeitschrift (p. 35), five species of Bulimus all occurring near the cavern Guacharo, in the valley of Caripe: *B. astrapoides, superbus, bellulus, trigonostomus*, and *euryomphalus*.

Bulimus cantorii, Philippi (ib.), allied to *B. pupa*, from China, island of Auri, near Nankin.

The seventh Part of Philippi's Abbildungen contains a plate with *Bulimus*. In it are figured: *B. marmoratus*, Dunker, from Brazil; *B. astrapoides*, Jonas, *dardanus*, Frivaldsky, from Constantinople; *dealbatus*, Say, *columella*, Philippi, from Brazil; and *curtus*, Koch, from Chili.

Pupa Largillierti, Philippi (Menke, Zeitsch. p. 165), from the Isle de Bourbon, with an oval, three-toothed aperture.

The genus *Cylindrella* is exhibited by Pfeiffer on a plate in Philippi's Abbildungen. It contains *C. gracilicollis*, Fér., *elegans*, Pfr., *variegata*, Pfr., *subula*, Fér., *crispula*, Pfr., *Laterradii*, Grat., *perplicata*, Fér., *acus*, Pfr., *collaris*, Fér., *costata*, Guild., *Pilocerei*, Pfr., *Chemnitziana*,, Pfr., *Humboldtiana*, Pfr., *rosea*, Pfr., *cylindrus*, Chemn., *brevis*, Pfr., *Gruneri*, Dunker, new species, from Hayti, and *speciosa*, Dunker, new species, from Mexico.

The sixth Part of the same work is devoted to the genus *Glandina*, a subgenus of *Achatina*. Thirteen species are figured, two of which are new, *obtusa*, Pfr., from Nicaragua; *sericina*, Jonas, from Guinea.

Scarabus pollex (Ann. x, p. 82) is figured by Hinds. (Voy. of Sulphur.)

Planorbis subangulatus, Philippi. (Enumer. p. 119.)

Limnæus solidus, Philippi (Enum. 121), appears to be merely a variety of the mutable *L. pereger*.

Onchidium nanum, Philippi (Enum. p. 101): black-brown with white tubercles, on each side six large tubercles at the margin. 3‴.

PULMONATA OPERCULATA.

Cyclostoma Deshayesianum, Petit (Revue Zool. 1844, p. 1, Guérin. Mag. 1844, pl. 98): orange-coloured, on half of the whorls surrounded with lamellar

keels, margin of aperture thick, surrounded externally with a lamella, umbilicus wide; 25 millim. Madagascar.

In Philippi's Abbildungen there are figured, *Cyclostoma Cuvierianum*, Petit, *indicum*, Desh., *variegatum*, Valenc., new species, from Java, and *mexicanum*, Menke.

On the same plate, besides *Steganotoma picta*,* Troschel, a new species of that genus, *Steg. Princepsi*, v. d. Busch, also from Bengal, is figured.

Pupina aurea and *mitis* (Ann. x, p. 83) are figured by Hinds. (Voy. of Sulphur.)

Ampullaria malleata, Jonas (Menke, Zeitsch. p. 35), from Mexico.

CTENOBRANCHIA.

Paludina seminalis (Ann. x, p. 83) is figured by Hinds (Sulphur). Philippi Abbild. V. tab. 1, contains 15 Paludinæ: *magnifica*, Conrad, *pyramidata*, v. d., Busch, new species, from Bengal, *tricarinata*, Anton, *angularis* (*Nerita*) Müller, *javanica*, v. d. Busch, from Java, *ponderosa*, Say, *decisa*, Say, *integra*, Say, *georgiana*, Lea, *obtusa*, Troschel, *unicolor*, Olivier, *Francisci*, Wood (*conica*, Troschel), *granum*, Menke, *coronata*, Pfr., *crystallina*, Pfr.

Deshayes describes (Guérin, Magas. pl. 83) a *Melania crenularis*, from the Philippines, which has much similarity to *M. amarula*.

R. Brinsley Hinds (Annals, xiv, p. 8) has instituted 17 new species of *Melania*. They are figured in the Voyage of the Sulphur. Among them are 10 species from New Ireland, six from the Fee-jee Islands, one from California.

Three new *Melaniæ*, by Jonas (in Menke, Zeitsch. p. 49): *M. Gruneri*, from Venezuela, *porcata*, from Manilla, *cingulata*.

In Philippi Abbild. vii, tab. 3, 15 *Melaniæ* are figured, among which the following are new: *M. semicancellata*, *anthracina*, and *intermedia*, v. d. Busch, the latter from Nicaragua; *acuminata*, *harpula*, *mitra*, and *flammigera*, Dunker (the latter, from the Ganges, appears to me to be identical with *M. adspersa*, Troschel), *flavida*, Dunker.

Philippi describes (Enum. p. 137) three new species of *Chemnitzia: densecostata*, *obliquata*, and *gracilis*.

Rissoa elata, Philippi (Enum. 124); *R. venusta*, ib., from Venice; *R. scabra*, ib.; *R. aspera*, ib.; *R. coronata*, Scacchi, ib.; *R. Ehrenbergii*, ib., from Cattaro; *R. obscura*, ib., was sent to the author under the name of *R. obscura*, Benz., a name already applied, *R. dictyophora*, *R. rudis*,

* Philippi will have it that *Steganotoma*, like *Cyclostoma* and *Pleurotoma*, is neuter. But *Steganotoma* and *Pleurotoma*, being formed from τομή, incision, are of the feminine gender.

R. excavata, *R. gracilis*, *R. tenera*, *R. subsulcata*, *R. simplex*, *R. granulum*, *R. soluta*, *R. clathrata*, p. 223 in the Appendix.

Joshua Alder has figured (Annals, xiii, p. 323) some British species of the genera *Rissoa* and *Odostomia: R. inconspicua*, *costulata*, Risso, *rufilabrum*, Leach, *glabra*, Brown, *Odostomia nitida*, *cylindrica*, and *obliqua*.

Hanley describes three species of the genus Odostomia (Proc. 13, Feb. 44): *O. eulimoides*, *rissoides*, and *turrita*, all from Guernsey.

Eulima Mac Andrei, Forbes (Annals, xiv, p. 412): with 10-12 narrow whorls, the last of which is [sub-] keeled, aperture sub-quadrangular, columella straight. Loch Fine.

Litorina brevicula, Philippi (Menke Zeitschrift p. 166): three keels on the last whorl, 5‴—China, at the mouth of the Yang-tse-Kiang.

Five species of *Ringicula*, by Hinds (Proc. p. 96.) One of them, *R. caron*, is figured in the Voyage of Sulphur; the others are from Mr. Cuming's collection.

Fossarus clathratus, Philippi (Enum. p. 148.)

G. B. Sowerby describes 16 new species of the genus *Scalaria*, from the collection of Mr. Cuming, all of which are figured in the fourth part of his Thesaurus Conchyliorum Proc. p. 10. Together with these are also (ib. p. 26) 21 species of the same genus. The eight *Scalariæ* instituted in the Proc. 1843 (vid. last Report p. 220) are figured by Hinds (Sulphur). The monograph of the genus *Scalaria*, in Sowerby's Thesaurus, treats of 93 species. They are figured on four plates (32-35).

Cerithium gemmatum, from Panama, *pharos*, from Bow Islands, *macrostoma*, from Macassar, are figured by Hinds (Sulphur). *C. lævigatum* and *pygmæum*, Philippi. (Enum. p. 161.)

Also 20 species of *Triphoris*. (Vid. last Report, p. 220.)

Hinds has instituted 14 new species of *Solarium* (Proceed. 1844, p. 25), and one species, *S. fuliginosum* (ib. p. 158). Of these 11 are figured in the Voyage of Sulphur. *S. discus*, Philippi. (Enum. p. 225.)

C. L. Koch has given remarks (Menke Zeitsch. p. 151) on the species *Natica maroccana* (*Nerita*), Chemn., and *N. marochiensis*, Lam., by which the synonymy is cleared up. *N. maroccana*, Chemn., is = *Nerita marochiensis*, Gm. non Lam., with three varieties, *N. lurida*, Phil., *N. unifasciata*, Lam. Deless., *N. Chemnitzii*, Pfeiff.—*N. marochiensis*, Lam. (non *marochiensis*, Gm.), is *Nerita glaucina*, L., *Natica intermedia*, Phil. olim, *Nat. Poliana*, Scacchi. To the latter species the author gives a new name, *N. similis*, which, however, as Menke very correctly remarks in a note, must give way to the Linnæan name, *N. glaucina*, should this species really belong there.

Natica macilenta, Philippi (Enum. p. 140). The genus *Narica* has been treated monographically by Recluz in the Rev. Zool. pp. 4 and 47. The

paper will shortly appear with figures in Guérin's Magasin. The species are 19 in number: (a) latticed (gegittert): *N. cancellata*, Lam., *cidaris*, from the Philippines; *ligata*, *petitiana*, *Cumingiana*, from the same locality; *orbignyana* and *granulosa*, from New Holland; *tuberosissima*, Mont., *rosea*, from the Molluccas; and *sulcata*, from the Antilles. (b) Shell plicated: *plicata*, *Gueriniana*, and *distans*, from the Philippines; *helicoidea*, Le Guillou, *striata*, D'Orbign, *acuta*, and *Blainvillei*, from the Moluccas; *lamellosa*, D'Orbign., *glaberrima*, from England.

In Philippi's Abbildung. vi, the following species of *Sigaretus* are figured and described: *S. maximus*, Phil. (*concavus*, Sow.), *Leachii*, Blain., *depressus*, Phil., new species; *haliotideus*, L., *martinianus*, Phil. (Martini, i, f. 151, 154), *perspectivus*, Say, *maculatus*, Say, *lævigatus*, Lam., *planus*., Phil., new species.

Janthina patula, Philippi. (Enum. App. p. 224.)

Philippi (Enum. p. 92) is inclined to place a new genus, *Thyreus*, near *Pileopsis*. The shell is long oval, irregular, with an irregular spire; apex obtuse, rounded, inclined backwards. From the apex radiating striæ proceed anteriorly, posteriorly there are transverse striæ; muscular impression indistinct; a longitudinal impression on the posterior side, the upper border of which projects free. The species, *Th. paradoxus* is milk-white.

Crepidula solida, Hinds (Sulphur), from California.

The fourth part of Philippi's Abbildungen contains Neritæ: *N. planospira*, Anton, *ornata*, Sowerby, *picea*, Recluz, and the following new ones: *N. peruviana*, Ph., white and black, labrum with ten, columella with four teeth.—*N. carbonaria*, Ph., black, labrum without teeth, columella with five small teeth, locality not stated.—*N. incerta*, v. d. Busch, black with milk-white, points, columella with four teeth—Java.—*N. anthracina*, v. d. Busch, black or marbled with yellow, columella with four teeth, labium granulose—Java.—*N. costulata*, v. d. Busch, transversely sulcate, yellowish white, waved with black transverse lines, spire projecting—Java.—*N. Winteri*, Ph., whitish, with 20 25 grooves—Moluccas.—*N. venusta*, Dunker, reddish, with two black bands (Chemn. f. 2015)—Amboyna.—*N. aurora*, Dunker, longitudinally plicated, white, with three saffron-yellow bands—locality not stated.

Delphinula Reeviani, Hinds (Sulphur), from Malacca; *D. Cævis*, Philippi (Enum. p. 146); *D. exilissima* (ib. p. 224).

Orbis foliaceus, Philip. (Enum.): lamelliform, depressed, with numerous whorls rounded at the periphery. Much resembles a *Planorbis;* but is marine, and is white and shining. The author places it near *Delphinula*.

Rotella sagittata, Hinds (Sulphur), from Madagascar.

From the group of the black *Trochi*, Jonas (Menke Zeitschr. p. 113) distinguishes ten species, among which three are new: *Tr. mæstus*, locality not stated, *euryomphalus*, from the west coast of South America, and *stenomphalus*, locality unknown; the latter, according to a subsequent remark (ib.

p. 176), is *Tr. microstomus*, D'Orb. (Voyage.) He also describes (ib. p. 168) *T. aureus*, from New Holland; *T. melaleucos*, from Peru; *T. attenuatus*, locality unknown, and *T. signatus*, do.; *Tr. dubius*, Philippi (Enum. p. 149) allied to *Tr. Laugieri*; *Tr. unidentatus*, ib.; *Tr. villicus*, ib., allied to *Tr. varius*; *Tr. pygmæus*, ib. $1\frac{1}{6}'''$; *Tr. pumilio* (p. 226).

In the fourth Part of Philippi's Abbildung, a plate is devoted to the genus *Trochus* (in the wider sense of the term). It contains *Tr. longispina*, Lam.; *latispina*, Philip., appears to me to be *brevispina*, Lam., and *Buschii*, Phil., is, perhaps, *inermis*, Chemn. Furthermore, *F. cicer*, Menke, and *Tr. menkeanus*, Phil., from the Cape; *Tr. lugubris*, Phil., and *fuscescens*, Phil., from Chili. Part vi, tab. 4, contains, *Trochus* (*Margarita*) *tæniatus*, Sow., *T. callosus*, Koch, new species; *maximus*, Koch, new species, very nearly allied to *Tr. niloticus*; *Kochii*, Phil., new species; *squamiferus*, Koch., new species, from New Holland; *eximius*, Reeve, *impervius*, Menke, *tridens*, Menke, new species, from Peru, is *microstomus*, D'Orb. (Voyage, pl. 76, f. 20, 21); *scalaris*, Anton, new species, from Laguayra; *cruentus*, Phil., new species, and *fasciatus*, Anton. Part viii. contains *Tr. japonicus*, Dunker, new species, from Japan; *melanoloma*, Menke; *ater*, Lesson (*atro-purpureus*, Menke); *Tamsii*, Dunker, new species, from South Africa; *bicanaliculatus*, Dunker, new species, and *sauciatus*, Koch, new species.

Monodonta glomus and *limbata*, Philippi. (Enum. p. 157.)

Turbo magnificus, Jonas (Menke, Zeitsch. p. 167), differs from *T. petholatus*, in the shell being transversely striated, not having a bordered suture, and in its wanting the green limbus around the aperture—Peru.

Haliotis dentata, Jonas (Menke, Zeitsch. p. 34), locality not stated.—*H. Roedingi*, Chemn., and *H. ficiformis*, new species, are described by Menke (ib. p. 97)—the former is from the Isle de Bourbon, the latter from the Cape.—*H. elegans*, Koch, from New Holland, in Philippi's Abbildung. v. pl. 1.—*H. capensis*, Dunker (ib.) Moreover, *H. Iris*, Gmel. juv., and *scabricostata*, Menke, are figured in the same Part, and in Part vi, pl. 2 and 3, *H. nævosa*, Martyns.

Scissurella striatula, Philippi. (Enum. p. 160.)

In Hinds (Sulphur), besides the *Conus* instituted in the Annals xi, p. 256, are also figured *C. voluminalis*, from Malacca, and *C. californicus*, from California.

Ovula dorsuosa, from Malacca, *gallinacea* and *corrugata*, from New Guinea, are figured in Hinds (Sulphur).

Ancillaria mamillata, Hinds (Sulphur), from Malacca.

Nineteen species of Marginella are instituted by Hinds (Proc. p. 72). which were collected in the Voyage of the Sulphur and by Cuming. Of these, seven species in the division *Phænospira*, and two in the division *Cryptospira*, are figured in the Voyage of the Sulphur.

Erato vitellina, Hinds (Sulphur), from California.

Lovell Reeve institutes (Proc. p. 169) 87 new species of *Mitra*, which are figured in his Conchologia iconica. The great number must demand it. *M. Belcheri*, previously instituted in the Annals (xi, p. 255), is figured in Hinds (Sulphur).

Imbricaria carbonacea, Hinds (Sulphur), from the Cape. The generic name given by Schumacher, 1817, is here preferred to *Conohelix*, Swainson, 1833.

Six new species of *Voluta*, by G. B. Sowerby, are given in the Proceed. p. 149.

Sowerby describes 37 species of *Columbella*, from Cuming's collection, which are figured in his Thesaurus, part 4, (in Proceed. 12, March, 1844; Annals, xiv, p. 495): *C. fusiformis*, from Veragua; *pavonina*, locality not stated; *carinata*, from California; and *lentiginosa*, from the Gulf of Nicoya, Hinds (Sulphur).

The monograph on the genus *Columbella*, in Sowerby's Thesaurus, contains 103 species, figured on five plates (36-40).

Planaxis breviculus, Deshayes (Guérin, Magas. de Zool. pl. 108): oval, pointed, with brown longitudinal and transverse striæ, aperture chesnut brown internally, columella callous above; locality unknown.

Pl. Savignyi, id. (ib. pl. 109): long oval, pointed, transversely striated, last whorl with an obtuse angle, aperture sulcate internally, columella with a white border, callous in the upper angle. Red Sea and Madagascar.

Buccinum metula, Hinds (Sulphur), from Veragua.

Nassa candens, from the Marquesas Islands; *cremata*, locality not stated; *perpinguis*, from California, *myristicata*, from the Cape, *podata*, from Malacca, *mæsta*, from Central America, and *gaudiosa*, from Malacca, are instituted and figured in Hinds (Sulphur).

Twenty species of *Terebra* (Proc. 1843, p. 149, vide last Report, p. 358, (Transl. p. 223) are figured in Hinds (Sulphur).

Cassidaria depressa, Philippi (Enum. p. 186.)

Purpura chrysostoma, Deshayes (Guérin, Magas. pl. 86): longitudinally costate, aperture narrow, orange, columella thickened in the middle; 20 millim. Red Sea.

Deshayes figures (in Guérin's Magas. pl. 85) his *Fusus Blosvillei*, from Ceylon, but places it in the genus *Purpura*, Lam.; *F. clausicaudatus*, Hinds (Sulphur), from the Cape; *F. pulchellus*, Philippi (Enum. p. 178.) In Philippi's Abbildung. v. pl. 1, are figured: *F. Voigtii*, Anton, *ambiguus*, Phil., *plumbeus*, Phil., from Chili, *obscurus*, Phil., *pygmæus*, Gould, *cinereus*, Say, *guttatus*, V. d. Busch, *capensis* and *lineolatus*, Dunker, from the Cape, *limbatus*, Phil. (*F. pulchellus*, Pfr.), *modestus*, Anton, *decemcostatus*, Say.

Fasciolaria Antonii, Recluz. (Rev. Zool. p. 49; Guérin, Magas. pl. 92.)

The species of *Pleurotoma* already enumerated in the last Report, p. 359

(Transl. p. 224), are figured in Hinds (Sulphur). Also 48 species of his subgenus *Clavatula*, and the five species of the subgenus *Mangelia*.

Two new subgenera of *Pleurotoma* are instituted by the same author in the Voyage of Sulphur. *Conopleura:* Testa coniformis vel involuta; spira conico-elata; sinus lateralis posticus, profundus, margine calloso; labrum intus læve, columella subproducta, apertura linearis, canalis subnullus. *C. striata.—Daphnella:* Testa gracile fusiformis, tenuis, fragilis; anfractus ultimus elongatus, spiram superans; sinus lateralis et ante suturam margine acuto; labrum tenue, intus læve, apertura elongate ovalis, vix canaliculata; columella nuda, plerumque striata. To this belong *Pleurotoma lymnæiformis*, Kiener, and three new species: *D. marmorata* and *ornata*, from New Guinea, *D. casta*, from Central America.

In Philippi (Enum.) are given as new: *Pleurotoma cærulans, rugulosum, brachyostomum, secalinum, La Viæ.*

In Philippi's Abbildungen (Part 4) is a plate with *Pyrula*. It contains *P. Mawcæ*, Gray, and three new species: *P. ochroleuca*, Menke, from Chili, *bispinosa*, Phil., and *Martiniana*, Pfr.

Turbinella Philberti, Recluz (Rev. Zool. p. 48; Guérin Magas. pl. 91): fusiform, red brown, with nine longitudinal costæ, surrounded with white raised lines, eight whorls, the last with two white keels, columella with five obsolete folds; 56 millim. Manilla. *T. tessellata* id. ib., allied to the former species, but with numerous folds on the columella. Philippines. *T. Cécillii*, Philippi (Menke, Zeitschrift, p. 166), from China.

Cancellaria Cumingiana, Petit (Guérin, Mag. de Zool. pl. 112): oval, thick, transversely sulcated, the costæ flat, depressed, umbilicus canalicular. Payta. The ten *Cancellariæ* (Proc. 1843, p. 47; vide last Report, p. 359 (Transl p. 225), are figured in Hinds (Sulphur).

Cyrtulus serotinus is figured in Hinds (Sulphur).

Also two *Trichotropis* (Proc. 1843.) Six new species of *Tritonium* are instituted by Hinds in the Proceedings, 27, Feb. 1844, and figured in the Voyage of Sulphur; forty-one species of the same genus by Lovell Reeve. (Proc. p. 110.)

Fifteen species of *Ranella* by Lovell Reeve (Proc. p. 136.)—*R. californica* (Ann. xi, p. 255), and *R. pectinata*, from Mexico, are figured in Hinds (Sulphur.)

Murex nigrita, Phil., from the Pacific Ocean, on the coast of Mexico, and *hippocastanum*, Phil., from Peru, are figured and described by Philippi (Abb. viii.)

Ten *Murex* (Proc. 1843) are figured in Hinds (Sulphur).

Also three *Typhis* (Proc. 1843, p. 18, 19.)

Also *Trophon fimbriatus* and *gyratus*, from Macassar, and *T. muricatus*, from Panama.

Besides the two species of the genus *Phos*, which were previously insti-

tuted in the Annals (xi, p. 257), *Phos virgatus* and *recetosus*, from Ceylon, *articulatus*, from Panama, *roseatus*, from Sumatra, and *gaudens*, from the west coast of Mexico, are figured in Hinds (Sulphur).

BRACHIOPODA.

Orthis anomioides, Scacchi et Philippi (Enum.) : small, transversely oval, low, flat beneath, the internal skeleton consists of a triangular plate, and presents an incrassated apex.

TESTACEA.

A Memoir by Duvernoy, on the nervous system of the Conchifera —Du Système nerveux des Mollusques acéphales bivalves ou lamellibranches, is noticed in the Comptes rendus (xix, p. 1132.)

Will has instituted researches on the eyes of the Conchifera. He found them to be very highly organized. Besides *Pecten*, *Spondylus*, and *Ostrea*, he found them also in *Pinna*, *Arca*, *Pectunculus*, *Mytilus*, *Cardium*, *Tellina*, *Mactra*, *Venus*, *Solen*, *Pholas*, sometimes in vast numbers. The existence of eyes has also been proved, in the Ascidians, *Cynthia*, *Phallusia*, and *Clavellina*, and to the number of fourteen, eight of which appertain to the respiratory and six to the anal siphon. (Frorieps n. Notiz. xxix, pp. 81 and 99.)

Van Beneden has instituted new researches on the sexual relations of *Anodonta*. He found the organ in the foot of the animal, the ovary, constituted of small cæcal pouches, some of which contained ova, others spermatozoa ; the organ consequently was at the same time ovary and testis. The organ which Bojanus had explained as lungs, and Neuwyler as testes, is regarded by the author as a pericardium, and the floating bodies contained in it, as analogous to the spongy bodies in the venous cavities of the Cephalopoda. (Bulletin de l'Académie de Bruxelles, xi, 2, p. 377.)

With respect to the copulation of *Tellina planata*, Will

makes an interesting communication in Froriep's Notizen xxix, p. 57. The male extended the tubes very far and moved them actively, so that they were frequently in contact for some time with the also extended tubes of the female. The male then ejected, to the distance of about an inch, round flocculi of a white substance, which consisted of spermatozoa, and even before the emission was concluded, which lasted above a quarter of an hour, the female absorbed a great part of the semen ejected by the male. The spermatozoa some hours afterwards were still very lively in the branchiæ.

Anomia aspera, Philippi (Enum. p. 65), differing from *A. ephippium* in having spinous longitudinal folds, is probably only a variety of that species. *A. elegans*, ib., circular, white, when old with elevated radiating lines.

A plate with *Pecten* in Philippi's Abbildungen, iv, contains: *P. Antonii*, Phil., *tricarinatus*, Anton, *crebricostatus*, Mus. Berol., from China, *tunica*, Ph., from the Sandwich Islands, *Fabricii*, Ph., from Greenland, *tigris*, Lam., *porphyreus*, Chemn. A second Plate (ib. viii): *P. excavatus*, Anton, *bifidus*, Menke, *solaris*, Born, *madreporarum*, Petit, and *vitreus*, Chemnitz. In Hinds (Sulphur): *P. sericeus*, from Panama, *floridus*, from California, *rubidus*, from North-west America, *digitatus*, from Guayaquil, *fasciculatus*, from Veragua, and *corruscans*, from the Marquesas Islands.

Pinna truncata, Philippi (Enum, p. 54), truncated.

Several new Mytilaceæ are described by Sylvanus Hanley (Proc. 13, Feb. 1844; Annals, xiv. p. 367), viz.: *Modiola Metcalfei, striatula, Philippinarum, biradiata, strigata, arcuatula, sordida.—Lithodomus canaliferus*, from the Philippines, and *plumula*, from Panama.—*Mytilus granulatus*, from Valparaiso.

Modiola vestita, Philippi (Enum. p. 51), from Malta. *M. Favannii*, Potiez et Michaud (Gal. p. 130): testa oblonga, arcuata ad nates tumidiore, nitida, fulva et anterius rufa, longitudinaliter minutissime striata, nate producta, incurva, intus margaritacea. Whence?

Anodonta coarctata, Potiez et Michaud (Gal. p. 142): testa ovato-oblonga, tenui, fragili, transversim sulcata; postico latere rotundato, antico, producto, compresso, coarctato; natibus retusis. Franche Comté. *A. obtusa* (ib. p. 144): testa oblonga, utrinque rotundata, crassa, picea, nitida; striis longitudinalibus in medio subnullis; natibus compressis decorticatis; intus rubente. Senegal.

Unio Osbeckii, Philippi (Menke, Zeitsch. p. 164): black, linguiform, nates for a quarter of the shell, wrinkled. China, in the Yang-tse-Kiang. *U. Aradæ*, Philippi (Enum. p. 49), differs from *U. Gargottæ*, in the olive colour,

the almost beak-like narrower posterior extremity, and the nearly double size of the cardinal tooth. Francofonte.

Cardita abyssicola, Hinds (Sulphur), white, with many radiating lamellar costæ, lunula broad, cordate; internally milk-white. Malacca.

Arca turgidula, Deshayes (Guérin, Mag. pl. 84), differs from *A. barbata* in the strongly arched form of the shells, by which it is rendered almost cylindrical. Whence? Thirty-nine new species are instituted by Lovell Reeve (Proc. 14, March 1844; Annals, xiv, p. 486), and figured in his Conchol. iconica. Also, by the same, twenty-three species. (Proc. p. 123.)

Eighteen species of *Nucula* which were instituted in the Proc. 1843, p. 97, are figured in Hinds (Sulphur).

Eight species of *Cardium* by Lovell Reeve (Proc. p. 167). *C. vertebratum*, Jonas, in Menke's Zeitsch. (p. 33), from New Holland. *C. scabrum*, Philippi (Enum. p. 38), allied to *C. papillosum*, Poli. *C. parvum*, Phil. (Enum.), small, inequilateral, with twenty-three costæ. Tarento.

Venericardia zelandica, Potiez et Michaud (Gal. p. 166) : testa suborbiculata, inæquilatera, tumida, subtus albido-grisea, intus purpureo-nigricante nitidoque maculata; costis longitudinalibus numerosis striisque transversis sublamellosis cancellata; umbonibus obliquis, recurvis; cardine bidentato; ano oblongo; marginibus subtilissime plicatis. New Zealand.

Seven new species of *Venus*, by Sylvanus Hanley (Proc. p. 160.) *V. lithioda*, Jonas (Menke, Zeitsch. p. 33), from Chili. *V. bella*, id. (ib. p. 34), from the Moluccas. *V. nitens*, Scacchi et Philippi (Enum. p. 35), nearly allied to *V. geographica*. Naples. *V. sulcata*, Potiez et Michaud (Gal.), from Kamtschatka, is figured, but is without any description. In Philippi's Abbildungen, the fifth Part, pl. 2, contains *Venus Dombeyi*, Lam., *placida*, Phil., from Van Diemen's Land, *notata*. Say, and *amathusia*, Philippi. Moreover (Part vii, pl. 3.), *V. calcarea*, Phil., from Cuba, *discrepans*, Sow., *ignobilis*, and *expallescens*, Phil., from Chili, *subrugosa*, Sow., *lunularis*, Lam., *variabilis*, Mus. Vindob., from Bombay. *V. Kellettii*, Hinds (Sulphur), chesnut brown, furnished at the extremities with lamellæ. Island of Quibo, west of Veragua.

Sylvanus Hanley has instituted seven new species of the genus *Cytherea* (Proceed. Zool. Soc. p. 109.) To this genus also three plates are devoted in Philippi's Abbildungen. VI. pl. 1 contains *C. ponderosa*, Koch, *ligula*, Anton, *elegans*, Koch, from New Holland, *rostrata*, Koch, from Brazil.—VII. pl. 2, species allied to *Arthemis*.—VIII. pl. 3, *C. fusca*, Koch, *rubiginosa*, Phil., *modesta*, Phil., from the Philippines, *fulminata*, Valenc., *lutea*, Koch, *planatella*, Lam., *trigonella*, Lam., *minuta*, Koch.

Recluz (Guérin, Magas. p. 110) figures *Arthemis reticulata* (*Lucina reticulata*, Lam.) In the Revue Zool. p. 299, he refers two species placed by Lamarck under *Lucina* (*reticulata* and *undata*) to the genus *Arthemis*.

To this genus belong five species of *Cytherea* figured in Philippi's Abbild. vii, pl. 2 : *C. patagonica*, Phil. from Patagonia, *Adansonii*, Phil. (*Dosin* Adans.), *hepatica*, Lam., *excisa*, Chemn., *Dunkeri*, Phil. (*pacifica*, Mus. Berol.), from the Pacific, on the coast of Mexico. Besides which, the following species are described by Philippi as belonging to the genus *Arthemis* (they are not figured) : *concentrica*, Born., *gigantea*, Sow., *exoleta*, L., *lincta*, Pulteney, *lupinus*, Poli, (*lunaris*, Lam.), *contracta*, Phil , (Chemn. vii, f. 403), *juvenilis*, L., *dilatata*, Phil. (Chemn. vii, f. 406), *lucinalis*, Lam., *australis*, Quoy et Gaim., *scalaris*, Menke, *prostrata*, L.

Four new species of *Cyrena* by Sylvanus Hanley (Proc. p. 159.) *C. manilensis*, Philippi (Menke, Zeitschr. p. 162), suborbicular. Manilla. *C. Largillierti*, Philippi (ib.), allied to *orientalis*, Chemn., but much longer and with very narrow transverse striations. *C. nitens*, ib., with narrow striations, beaked posteriorly, brown. Both from China, from the river Yang-tse-Kiang. *C. cuneata*, Jonas (ib. p. 186), from the Orinoco. 2 *Cyrenæ* (vide Annals, x, p. 81), in Hinds (Sulphur).

Lucina vitrea, Deshayes (Guérin, Mag. de Zool. pl. 106) : orbicular, white transparent, finely striated, beak triangular, pointed; corslet and lunula compressed; border entire, hinge with one tooth. Sumatra. *L. gibbia*, id. (ib. pl. 107) : orbicular, convex, with concentric striations, white; corslet with a deep border, lunula very minute, lanceolate cordiform, hinge with two teeth. Sumatra. *L. fenestrata*, Hinds (Sulphur) : orbicular, flat, whitish, rough, with longitudinal and transverse lines, emarginate posteriorly. San Blas.

A new genus, *Scacchia*, has been instituted by Philippi (Enum. p. 27). It differs from *Amphidesma* in the simple, not arched pallial impression; from *Lucina* in the double (one external, the other internal) ligament, in the posterior round muscular impression, the linguiform, compressed foot and double branchiæ, *Lucina* having but one branchia on each side. *S. elliptica*, Ph. (*Tellina elliptica*, Scacchi), *S. ovata*, Ph. Naples.

Sylvanus Hanley has communicated to the Zoological Society the descriptions of eighty-two new species of the genus Tellina (Proc. pp. 59, 68, 140, 146, 164).—*T. carnea*, Philippi (Menke, Zeitschrift), allied to *T. fabula*. The plate in the fifth Part of Philippi's Abbildungen, devoted to the genus *Tellina*, contains *T. concinna*, Phil., *planissima*, Anton, *Antonii*, Phil., *serrata*, Brocchii foss., *staurella*, Lam., *ampullacea*, Phil., from Senegal, and *Philippi*, Anton.—*T. fucata*, from California, *bodegensis* from Russian Bodegas, *rodora*, from Macassar, in Hinds (Sulphur).

Recluz has given a Monograph on the genus *Ervilia*, Turton. (Rev. Zool. p. 85; Guérin, Magas. de Zool. 1844, pl. 95, 96.) The correct characters are thus stated: Animal ignotum. Testa libera, oblonga, transversalis, æquivalvis, inæquilateralis, depressa, omnino clausa. Apices parvi, posticé

vix recurvi, acuti, integerrimi seu superne parum emarginati. Cardo in valvula dextra dentibus cardinalibus duobus parum divergentibus: antico antrorsum porrecto, lateraliter compresso, integerrimo; postico angusto, cum fovea triangulari interposita interne producta et postice fossula altera oblonga prodente valvæ alterius. In valvula sinistra dentibus duobus, triangularibus, submarginalibus, externe compressis, valde divergentibus, cum fovea intermedia dente longitudinali inæqualiter bipartita; parte centrali majore trigona, ligamentum excipiente; parte laterali oblonga antrorsum brevi, angusta, antica, prodente cardinali valvæ oppositæ. Dentes laterales nulli. Margines internæ vix prominulæ, sulco obsoleto in acie notatæ. Ligamentum internum in foveis trigonis affixum. Impressiones musculares transversales, ovatæ, interne truncatæ. Sinus palliaris profundus, ovatus, antice rotundatus. Angulus palliaris brevis, acutus, antrorsum in linea angusta prolongatus. To this belong *E. castanea*, Recluz (*Donax castanea*, Mont.), *E. nitens*, Turton (*Mya nitens*, Laskey), *E. pellucida*, Macgillivray (*Tellina pellucida*, Brown.) All three on the coasts of Great Britain. The first two are figured.

Psammobia solida, Phil., from Chiloe, *Ps. violacea*, (Solen), Lam., and *Ps. costulata*, Turton, are figured in Philippi's Abbildungen. (Ib. viii.) *Ps. Küsteri*, Anton, *elongata*, Lam., *radiata*, Dunker, new species, from Amboyna and Java, *flavicans*, Lam., and *serotina*, Lam. *Ps. decora* (Ann. x, p. 81), is figured in Hinds (Sulphur).

Mactra cygnea, Philippi (Menke, Zeits. p. 161), allied to *M. grandis*, Lam. Red Sea. The Plate of Mactræ in Philippi's Abbild. vii, contains *M. solidissima*, Chemn., *ponderosa* Phil. new species, America, in the Atlantic Ocean, *lateralis*, Say, and *subtruncata* (*Trigonella*), Dacosta.

Lutraria maxima and *rhynchæna*, Jonas (Menke, Zeits. p. 34), the latter from New Holland.

Pythina, Hinds (Sulphur), nov. genus Mactracearum. Testa transversa, subæquilateralis, æquivalvis. Valva altera dente unico mediano parvo, duobus lateralibus, altera dentibus duobus lateralibus. Ligamentum internum. Impressiones musculares duæ rotundatæ. Impressio pallii rectiuscula, sinu nullo. *P. Deshayesiana*, triangular, white, with three grooves divided in the middle. New Ireland.

Recluz (Rev. Zool. p. 246) would do away with the genus *Goodalia*, Turton, seeing that it coincides with the genus *Astarte*.

Three new species of *Neæra* by Hinds, from the Philippines (in Proc. p. 97). Five species are figured by him in the Voyage of Sulphur, which were instituted in the Proceedings, Zool. Soc. 1843, p. 76.

Deshayes figures three species of his genus *Cardilia*, which he places provisionally in the family of the Mactraceæ, viz.: *C. semisulcata* (*Isocardia semisulcata*, Lam.), and two new species, *C. inermis*, white, cordiform, half grooved, with shallow sulci, from Sumatra; and *C. Martini*, long cordiform,

half of it grooved with crenulate sulci, from Malacca. (Guérin, Magas. pl. 99, 101.)

Recluz gives the Prodromus of a Monograph of the genus *Erycina* (Rev. Zool. pp. 299, 325.) He refers to it the following eighteen living species: *E. Deshayesii*, new species, from New Holland, *E. donacina*, new species, from the Antilles, *E. Geoffroyi*, Payr., *E. corbuloides*, Bivona, *Bornia inflata*, Philippi, *Kellia suborbicularis*, Turton, *Peronia Laperousei*, Desh., *E. nucleola*, new species, from Cherbourg, *E. thracierina*, new species, from Corsica, *Montacuta purpurea*, Bean, *E. seminula*, new species, from the Mediterranean, *E. caroburgensis*, new species, from Cherbourg, *Montacuta bidentata*, Turton, *Montacuta oblonga*, Turton, *Montacuta ferruginosa*, Turton, *E. Souleyetana*, new species, from Brest, *M. substriata*, Turt., *E. franciscana*, new species, the Channel. Besides these, eleven fossil species.

Amphidesma scabrum and *zebuense*, from the collection of Mr. W. Metcalfe, are described by Hanley (Proceed. Feb. 1844; Annals, xiv, p. 370), both from Zebu Island. Moreover *A. carnicolor*, by the same, from the Philippines, from Cuming's collection.

Corbula decussata, Deshayes (Guérin, Magas. de Zool. pl. 105): elongated, subequilateral, truncated posteriorly, beak obliquely keeled at the base. Sumatra. *C. crispa*, Hinds (Proc. 27, Feb.), from the Philippines, *C. adusta*, id., from New Zealand, *C. procera*, id., *C. carnosa*, id., without assigned locality. *C. thecoidea*, Jonas (Menke, Zeitsch. p. 185), from New Holland. Twelve species of Corbula (Proceed. 1843, p. 55) are figured in Hinds (Sulphur).

Choristodon, Jonas, nov. gen. (Menke, Zeitsch. p. 185), is placed in the family of the Lithophaga. Animal ignotum. Testa cardine valvulæ dextræ dentibus tribus approximatis, sinistræ vero duobus et uno intermedio separabili; lateralibus nullis. Ligamentum externum. *Ch. typicum*, from St. Thomas.

Saxicava Groenlandica, Potiez et Michaud (Gal.): testa ovata, elongata, subcylindracea, transversa, pellucida, longitudinaliter costata, hiante, epidermide tenuissima, pallescente, latere antico brevi, postico longiore; cardine subunidentata, intus nitide polita, albida. Greenland.

Thracia ovalis and *fabula*, Philippi (Enum. ii, p. 17), *Galeomma ? compressum* Philippi (ib.)

A Monograph of the genus *Myodora*, Gray, is given by Lovell Reeve (Proceed. p. 91.) He speaks, however, only of the shells, of which ten species are described. They are figured in his Conchologia iconica.

Mittre has given (in Guérin's Magas. de Zool. pl. 102-104) the anatomy of the animal of *Anatina hispida*. The mantle is completely closed, except a small anterior fissure for the passage of the foot, the two siphons are united, and form an elongated fleshy mass, the orifice is contracted by warty projections, and anterior to these are placed others, which the author

regards as organs of taste. On each side are two branchial lamellæ, conjoined anteriorly, posteriorly free. On each side two oral lobes. The intestine passes in a direct line, and without offering any dilatation, to the anus. Of sexual organs the author has found merely an ovary without excretory canal, which reaches as far as the internal opening of the anal siphon. The foot is small, simple, and has at the extremity a minute round impression, which may serve to the animal as a suctorial disc, for the purpose of affixing itself. In the nervous system, only the pharyngeal ganglion and the posterior ganglion with its filaments were observed. On account of the great correspondence between the animal and that of *Mya*, the author replaces the genus *Anatina* in the Mya family, and also notices that the calcareous body at the hinge (l'osselet) is present in *A. truncata* and in *A. Liautaudi*, Mittre, and that, on the other hand, it is wanting in *A. subrostrata*, Lam., *A. hispidula*, Cuv., and *A. Leaana*, Conrad.

Lastly, he also describes a new species of this genus, *Anatina Liautaudi:* testa minima, transversa, utrinque rotundata, fragili, pellucida, antico latere posteriorique hiante, transversim striata, punctis minimis extus asperata. Manilla.

A. elegans, Philippi (Menke, Zeitsch.), differs from *A. truncata*, Lam., in the rectilinear abdominal border, and in the posterior border being truncated in a straight line, perpendicularly. China.

Solen Bouchardii, Potiez et Michaud (Gal. p. 261): testa oblongo-ovali, recta, convexa, transverse striata, utrinque rotundata, sub epidermide fulva, intus alba; alterius valvæ cardine bidentato, alterius unidentato. Gulf of Guinea. According to the drawing, the shell is subtruncate anteriorly, the cardinal teeth are placed a little behind the middle.

To the genus *Glauconoma*, which was first placed by Gray near *Venus*, and by Reeve in the family of the Solenaceæ, Hanley has referred *Solen virens*. (Proceed. 13, Feb. 1844; ib. Feb. 1844; Annals, xiv, p. 382.) Lovell Reeve describes seven new species of this genus, which are figured in his Conchologia iconica. *G. rugosa, straminea, corrugata*, from the Island of Negros, *curta*, from Luçon, *cerea*, from the Ganges. All inhabit the mouths of the rivers.

Jonas (Menke, Zeitschr. p. 135) gives some critical remarks upon the genus *Fistulana*. It is identical with *Gastrochæna*, Spengler, who first in 1783, described three species, and a fourth subsequently, in 1793. *Gastrochæna mumia*, Sp., is identical with *Fistulana clava*, Lam. *Fistulana gregata* is a *Teredo*, and must again receive the name of *Teredo clava*. *Gastr. cuneiformis* has been correctly separated by Philippi from *Pholas pusilla*, Poli. (*Gastr. Pholii*, Phil.); *Gastroch. modiolina*, Lam., is also a distinct good species. *Gastr. cymbium* is unknown to the author. *Gastr. rostrata*, Sp., on the other hand, is described at length; it is figured in Chemnitz, x. f. 1680, 81.

HELMINTHOLOGY.

BY

PROFESSOR C. TH. V. SIEBOLD,

OF FREIBURG IN THE BREISGAU.

A zootomical work by Owen (Lectures on the Comparative Anatomy and Physiology of the Invertebrate Animals; London, 1843, p. 42), embracing all the orders of Helminthes [Entozoa], has appeared, in which, however, the author has directed his attention more particularly to those which usually select the human body for their abode.

Many Helminthologists have latterly applied themselves in earnest to the disproving of the notion of an equivocal generation, which has long since been shaken even in its cherished ground of Helminthology. Their labours have already been crowned with brilliant success; important discoveries have been made on those very points, upon which the doctrine of equivocal generation was supposed to be established. These discoveries will not only add to the knowledge of the naturalist, but will be of great utility to the physician, conveying, as they do to him, more correct views respecting the so-called verminous diseases. A Report on this subject, drawn up by Henle (Bericht über die Arbeiten im Gebiet der rationellen Pathologie seit Anfang des Jahres 1839 bis Ende 1842. PARASITEN. A. Entozoen. S. Zeitschrift für rationelle Medizin. Her. v. Henle and Pfeufer. Bd. iii, Hft. 1, 1844, p. 1), will therefore be most warmly welcomed by the medical public. With the same view also Valentin has collected all the researches in

Helminthology, made up to the present time. (Lehrbuch der Physiologie des Menschen. Bd. ii, 1844, p. 833.)

But as novel ideas are always prone to excite too great enthusiasm, and when nourished too luxuriantly to branch out into monstrous excrescences, thus it has unfortunately happened in the present instance. Klencke, desirous of reaping at one swoop the entire harvest of this as yet but little cultivated field, has come forth with an astounding array of facts, from which it would be made to appear that the origin of Entozoa was dependent upon the active or passive migration of their ova. (Klencke, Untersuchungen und Erfahrungen im Gebiete der Anatomie, Physiologie, Mikrologie, und wissenschaftlichen Medizin. Bd. i, Mikrosk. pathologis. Beobachtungen über die Natur des Kontagiums, p. 144.) At the same time, however, he has not denied that many parasitic animals are produced *de novo*, morbid fermentative processes producing abnormal corpuscular cells which become individualized as animals (ib. p. 148). In a larger work (Ueber die Kontagiosität d. Eingeweidewürmer, 1844) Klencke sets himself to inquire in what relation the Entozoa stand with respect to the morbid phenomena of the organism infested by them. This work swarms with manifest errors, to which the Reporter will hereafter refer, and it is difficult to conceive how any one could possibly allow himself to be deluded to such an extent as is here apparent. It is to be hoped that these are the last of Klencke's researches, for his in every respect worthless experiments are calculated ultimately to awaken mistrust in the results which have been obtained by other naturalists from researches carried on with the greatest conscientiousness and care. That the Reporter is by no means unjust, in thus totally rejecting Klencke's experiments on the contagiousness of Entozoa, will be at once seen upon reference not only to his annual Report (Jahresbericht über die Fortschritte der gesammten Medizin in allen Ländern, im Jahre 1844, herausg. v. Canstatt und Eisenmann, Bd. iv; Bericht über Entozoen, Epizoen, Ento-und Epiphyten, von Canstatt und Siebold,

p. 471), but also to two other Reports, by Henle (ib. Bd. i. Bericht ü. d. Leistungen in der Histologie v. Henle, p. 4), and Bischoff (Müller's Archiv, 1844; Bericht über die Fortschritte der Physiologie im Jahre 1843, v. Bischoff, p. 69), who have simultaneously expressed themselves in the same indignant terms with respect to these writings of Klencke.

Hager (Die fremden Körper im Menschen, 1844) has adduced many older and more recent instances in which Entozoa, the *larvæ* of insects, and other pseudo-parasites have been met with in unusual situations in the human body. We are indebted to Tiedemann (Von lebenden Würmern und Insekten in den Geruchsorganen des Menschen, 1844) for a very valuable collection of all the cases in which Round Worms, Scolopendræ, Earwigs, the *larvæ* of Flies, Leeches, &c., have escaped from the nose. To a French translation of Nordmann's memoir on Entozoa in the Eye of Mammalia. Rayer has added several older and more recent observations, (Archives de Médecine comparée. Paris, Nos. 2 and 3, 1843. Sur les Helminthes dans l'œil des animaux supérieurs.)

HELMINTHES GORDIACEI.

The Reporter (Entomologische Zeitung. Jahrg. 1843, p. 77) is convinced, by communications in letters from Creplin and Diesing, that the *Gordius aquaticus* is really parasitic in the abdominal cavity of the most various insects. He has also described (ib. p. 79) a *Mermis albicans*, which was found in a pool of water near Erlangen. The females of this long worm contained simple ova, and the genital aperture was situated at a considerable distance from the posterior extremity of the body; the males presented at the caudal extremity a double, horny penis, which is entirely wanting in *Gordius*. The Reporter is also induced to refer the *Filaria acuminata* to *Mermis*. The list of insects infested by *Gordius* and *Mermis* as parasites, published by him, has been augmented with many new instances.

HELMINTHES NEMATODES.

Dujardin (Annales d. Sc. Nat. tom. xx, 1843, p. 332, pl. 14) has observed in various Mammalia, in the Shrew-mouse, Field-mouse, Falcon, Sparrow-hawk, Lark, Jackdaw, Magpie, Jay, Common Fowl, Salamander, Carp, and Rudd (Plötzen), species of *Trichosoma*, and for the most part in the small intestine of the animals above named; but in the Shrew-mouse he met with *Trichosomata* also in the spleen, which, as he supposed, might have reached that organ in the course of their migrations. He has also particularly described the digestive and generative organs of this worm, and distinguishes two modifications of the male sexual organs. Thus several *Trichosomata*, among others *T. contortum* and *inflexum*, have a thick penis, with a short smooth sheath, whilst others, e. g. *Tr. splenæum*, Duj., from the Shrew-mouse and Lark are furnished with a very slender and flexible penis, the long sheath (præputium) of which has a rough aspect from the transverse wrinkles on its surface. The females belonging to this latter *Trichosoma* present at the vulva a remarkable appendage in the form of a short cylinder directed backwards. A simple uterus and ova are always present. The ova, whilst passing in a single series one behind the other through the lower end of the uterine pouch, acquire a special shell; the two polar extremities, however, remain uncovered by this investment, and at these points the internal membrane of the egg projects as a short rounded appendage. The Reporter has observed the ova of the *Trichosomata* from the Dog and Seagull to be formed exactly in the same way and also the ova of the *Trichocephali*. From Dujardin's assertion it would appear that the ova of *Trichosoma cyprinorum* are externally horny, and those of *Trichosoma soricum* surrounded with a mucous layer, by means of which they adhere together in masses. In the *Trichosomata* of the Shrew-mouse, respecting which Dujardin leaves it doubtful whether those found in the

small intestine and in the spleen belong to one and the same species, he remarked no trace of transverse rugæ, but distinctly two broad longitudinal bands on the abdominal aspect, which were covered with projecting granules.—Rayer (Archives de Méd. comp., Nr. 2, 3, p. 180) has also communicated some remarks on *Trichosoma*, likewise illustrated with figures. He found, on the walls of the urinary bladder of *Mus decumanus*, sometimes ten to twenty individuals, although the parasites had induced no change in the bladder. They occurred also in the calices [of the kidneys] and ureters, but the males were always more rare than the females. The same was the case with a *Trichosoma* from the urinary bladder and renal calices of the Fox. With reference to the more intimate structure of this *Trichosoma*, the unity of the internal female sexual organs, the external appendage at the vulva, the peculiar form of the penis, and its elongated sheath, which, together with the penis, projected from the male generative pore, did not escape the observation of Rayer.

Bellingham (Annals of Nat. Hist. vol. xiv, 1844, p. 471) has given a list of the Entozoa occurring in Ireland, and has appended to it several remarks, which, however, do not present anything new to the Helminthologists of Germany. Of the genus *Trichosoma*, 13 species are noticed, among which nine are probably new. They were met with, by Bellingham, in the urinary bladder of the Cat and Rat, and also in the intestinal canal of Mustela vulgaris, Erinaceus europæus, Otus vulgaris, Columba livia, Corvus monedula, and Merluccius vulgaris.

According to Delle Chiaje (vid. Isis, 1843, p. 557; Delle Chiaje, sul Tricocefalo disparo, ausilario del Cholera asiatico, osservato in Napoli, 1836) the *Trichocephalus dispar*, which otherwise is seldom met with in Italy, occurred abundantly in the bodies of persons dead of cholera. Its presence is said to have aggravated the disease. Rokitansky also (Handbuch der patholog. Anat. Bd. iii, p. 295) assigns a special importance to the occurrence of this worm in the

bilious feculent contents of the cæcum and colon, in typhus.

The following cases are new contributions to the history of the *Filaria medinensis*. Mr. W. S. Oke (Provincial Medical Journal, Lond. 1843, vol. vi, p. 446) states that a seaman, twenty years old, arrived at Cape Coast Castle in June, 1842, where he remained sixty-five days, during which period he was on shore once, for three hours; on this occasion he wore no shoes, and found the sands and rocks so hot that he could not with impunity put his feet on the ground. Numerous Africans visited the ship daily, many of whom were affected with the Guinea worm, and presented suppurating sores caused by that parasite. The seaman above mentioned arrived at Southampton on the 14th of October, in good health, and remarked in the middle of May 1843, a sore on his left instep. This continued with little pain or inconvenience, in the form of a pustule, for about a fortnight. When this pustule was ruptured, a white cord-like substance, about the size of a violin string, was expressed from it, which the patient extracted to the length of five inches, and cut off. This was succeeded on the next day by erysipelatous inflammation, which gradually extended over the upper part of the foot and half way up the leg, and suppurating in various places, ceased with the removal of the remainder of the worm, two and a half feet in length. On the 23d of May a similar pustule arose in the lower part of the left fore-arm, from which, upon its being scratched by the patient, another *Filaria* made its appearance. This was thirty-two inches in length, and was cautiously extracted in the course of fourteen days. At this time also the convolutions of a third worm were seen and felt under the cutis on the dorsum of the right foot, but no local inflammation was set up in that situation. As the otherwise perfectly healthy seaman, during his stay in Africa had suffered only from a small ulcer on the outer side of his right thigh, Mr. Oke supposes that the larvæ of the *Dracunculus* were introduced into the body through this sore. In another case, a soldier

on his return to Paris, after a service of two and a half years in Senegal, where he frequently marched barefoot on the moist soil, there arose, four months after his arrival in France, on the dorsum of the left foot, a furuncle, from which, upon its being opened, a nematoid worm, nine inches long, came out; a second worm was extracted at the upper end of the fibula. In the worms, as well as in the purulent matter of both the abscesses caused by them, were myriads of minute living animalcules, which Maisonneuve recognised as the embryos of the worm. (Archives Générales, 1844, p. 472, or the Med. Chirurg. Review, No. 84, 1845, p. 579.) Two Dracunculi, not more than an inch in length, were extracted from beneath the conjunctiva of two Africans, by Loney. (The Lancet, June, 1844.) Here also, probably, belongs the case mentioned by Lallemand (Caspar's Wochenschrift, 1844, Nr. 52, p. 842) of a Negro in Brazil, who, in July, 1844, complained of an itching feel in the globe of the eye, as if something was crawling about in it. Lallemand perceived above the cornea, and between the conjunctiva and sclerotica, a white serpentine filament, which in a short time crept upwards. Through a puncture in the conjunctiva he succeeded in extracting the worm piecemeal by means of a pair of forceps; a third of it was left behind, and gradually disappeared entirely. The portion of worm extracted measured three fourths of an inch. According to Boston (Medical and Surgical Journal, June, 1843, or Allgemeine Medizinische Central-Zeitung, Nr. 39, 1844, p. 312) the Guinea worm is endemic at the elevated Cape Coast in West Africa, and attains a length of from two to six feet, occurring most commonly in the lower extremities, but locating itself also in the orbit and beneath the tongue. Some attribute the origin of the worm to drinking the water of the country, others to bathing in green stagnant water. The Europeans consequently in that country make use of water which has been kept in reservoirs of their own, in which the Guinea worm is said never to occur; nevertheless, Boston says that he has observed

two Guinea worms in a glass of such water intended for drinking.

According to Alessandrini (Isis, 1843, p. 530) the *Filaria attenuata*, from Ardea purpurea, is viviparous, whilst another *Filaria*, under the cutis of Mustela foina, is oviparous. A *Filaria papillosa*, in the anterior chamber of the eye in a Horse of the Moldavian race, was observed by Flögel. (Oesterreichische medizinische Wochenschrift, 1843, p. 63.) The horse's cornea at first appeared clouded, and sight was lost in the right eye. After the cornea had been somewhat cleared by the application of red precipitate ointment, a very active worm, of the thickness of a strong linen thread, and from two to three inches long, was, for the first time, noticed. On the application of a brighter light it became quiet; subsequently, when the opacity of the cornea was in great measure removed, a fold of linen dipped in hartshorn-oil (Hirschhorn öl) was laid over the eye, which appeared to affect the worm disagreeably, and after a few days to kill it. Flögel mentions, as the predisposing cause for the origin of this worm, the alteration in the habits of the horse, which, having always enjoyed full liberty in its native country, had been compelled to pass, during the last eight months, the greater part of the day in a dark stall.

Bouché (Entomologische Zeitung, 1844, p. 205), in dissecting several species of Gamasus, particularly Gam. coleoptratorum, marginatus, horticola, &c., sometimes observed *Filariæ*, half an inch long, creep out from them, and move about in the water for from twelve to twenty-four hours. Bellingham (Annals of Nat. Hist. xiv, p. 475), besides *Filaria attenuata* in the cellular membrane of the abdomen of Falco peregrinus, and two new *Filariæ* found in the peritoneum of Trigla Pini and Mugil capito, has also remarked in the abdominal cavity of Bombus terrestris on several occasions numerous minute cylindrical filaria-like worms. A *Filaria*, thirty inches long, which inhabits the abdominal cavity of the Rhea americana, is mentioned by Owen. (Lectures on Comparative Anatomy, p. 74.)

The Reporter will recur more at length, below, to a case of disease described by Goodsir, in which he states that he observed *Filariæ* associated with cystic bodies. C. H. Schmidt has given a short notice respecting numerous Filariæ, between the coats of the intestine of the larva of Bombyx dispar. (Amtlicher Bericht über die zwei und zwanzigste Versammlung deutscher Naturforscher und Aertzte in Bremen im September 1844. Abth. ii, p. 129.) Rayer (Archives de Méd. comp. l. c. p. 171, pl. 8, figs. 1-9), who, together with Desir, examined many Dogs, found in one of them, between the muscular coats of the œsophagus, a tumour of the size of an almond, with thick walls, which, besides pus and blood, contained several convoluted worms. These presented all the characters of *Spiroptera sanguinolenta*, a worm found by Rudolphi, only in the Wolf. Valenciennes (Comptes rendus, 1843, p. 71—Sur des tumeurs vermineuses de l'estomac du cheval, et sur les entozoaires qu'elles contiennent) has met with two different worm-tumours in the pyloric extremity of the stomach and in the colon of a Horse. One sort of these tumours is inhabited by a solitary *Strongylus*, in the other were contained several worms altogether different. The first verminous tumour occurred to him at the end of May, in a lame, but in other respects healthy horse, in which it formed a small projection on the inner surface of the stomach. He afterwards, in eleven instances out of twenty-five horses, met with similar tumours, which were imbedded between the mucous membrane and fibrous coat of the stomach, and discharged themselves on the internal surface of that viscus by one or several openings. The cavity of this kind of tumour was surrounded by a very thick fibrous wall, and divided by septa into several compartments, all of which, however, mutually communicated, and were filled with a tenacious mucus, in which numbers of small nematoid worms were always enveloped and entangled. Male and female individuals could be distinguished among them. Their mouth presented no distinctive character, the caudal extremity of

the male was spirally convoluted, alate on each side, and furnished at the extremity with two projecting curved penes of unequal length. Valenciennes thinks he observed in the interior a brown-coloured proboscis (une trompe), which was one third the length of the intestinal canal, and could be protruded to some distance. The females, which were rather longer and thicker, were straight, not alate at the caudal extremity, and were able to protrude a still longer proboscis. The short vagina, which was situated at the termination of the anterior third of the body, soon divided into a double uterus, one [subdivision] of which proceeded inferiorly, and the other superiorly. Valenciennes observed a pair in copulâ, for which purpose the male had wound himself spirally around the female sexual orifice. Since Rudolphi assigns but one penis to his *Spiroptera megastoma*, and Gurlt also has figured but one penis in this worm, Valenciennes hesitates in regarding the above-described worms as *Spiroptera megastoma;* it is, nevertheless, most probable that they do belong to that species, and that the second penis has previously been merely overlooked. The Reporter is acquainted with very many *Spiropteræ* with a double penis of unequal length.

Bellingham (Ann. Nat. Hist. xiii, 1844, p. 101, and xiv, p. 478) mentions nine species of *Spiroptera*, and the same number of species of *Strongylus*, as occurring in Ireland. Among which are six doubtful species of *Spiroptera* from the œsophagus of Corvus corax, and Charadrius pluvialis, from the small intestine of Fulica atra, from tubercles of the œsophagus of Tadorna Bellonii, from the crop of a Procellaria anglorum, and from the digestive canal of Raja batis. Among the species of Strongylus, we have *Strongylus* (*Syngamus*, Sieb.) *trachealis*, from the trachea of Perdix cinerea, and Pavo cristatus, together with two doubtful species from the thoracic cavity of Buteo rufus, and the trachea of Meleagris gallopavo. Besides these, *Oxyuris curvula*, *ambigua*, and *Cucullanus elegans*, and *foveolatus*, are indicated by him as Irish species.

Gurlt (in these Archives, 1844, Bd. i, p. 322) has observed that the small varieties of *Strongylus armatus* (six to seven lines in length) which occur in the aneurismal mesenteric artery of the Horse are unarmed. These so-termed varieties are only the young conditions of *Strongylus armatus;* the armature does not become visible till after subsequent moultings. Gurlt observed the cephalic extremity of these young *Strongyli* to be surrounded with a membranous oral vesicle, from out of which the little oral teeth already glistened. The caudal extremity, also, of the male becomes changed in the process of growth, so that these animals consequently undergo, as it were, a metamorphosis, which had been already noticed by Mehlis. The circumstance that the bronchi of the Porpesse are always crammed with such a great multitude of worms (*Strongylus inflexus*) is stated by Eschricht (Isis, 1843, p. 280) to be the cause of this Cetacean possessing such a limited power of diving.

For a series of interesting researches on various nematoid worms, and especially with reference to their development, we are indebted to Kölliker. (Müller's Archiv, 1843, pp. 69 et seq.) In *Cucullanus elegans* he found no spermatic cells (spermatozoida) in the female sexual organs. The ova of this worm, which were situate somewhat deeper in the uterus, all nevertheless presented the first indications of an already commenced development. Kölliker was unable to observe the very earliest stages in the formation of the embryo. He observed first two large cells containing single nuclei, which completely filled the cavity of the egg-membrane. Further on he found ova, which contained three nucleated cells, two smaller, and one larger, and which might be regarded as embryonic cells. These nucleated cells become less in size, and more numerous, by an endogenous formation of cells, up to the appearance of the vermiform body of the embryo, and at the same time the ovum itself continues to increase. Previous to the formation of the worm, the mass of embryonic cells becomes

flattened; the embryo itself does not increase in length at both extremities, but always appears convoluted, so that Kölliker supposes that the mass of embryonic cells is transformed at once into a spirally convoluted embryo. The young flattened worm consists of a soft, transversely wrinkled, external integument, and of a granular substance contained within it; it presents neither mouth, anus, nor generative opening. The granular substance is regarded by Kölliker as the first indication of the intestinal canal, with the commencement of the œsophagus and stomach already marked out. He also observed complete fission of the yolk in the *Cucullanus* of the Slow-worm. (Entwicklungsgeschichte der Cephalopoden, p. 121.)

In *Ascaris dentata*, Kölliker (Müller's Archiv, 1843, p. 69) observed the external orifice of the female organs, as a transverse fissure almost in the middle of the body. The internal generative organs, as in other female Round-worms, are divided into two portions, one of which fills the anterior and the other the posterior part of the body. The ova of this *Ascaris dentata* attain, within the body of the mother, a very considerable degree of development. The more particular examination and observation of the extremities of the ovarian tubes led Kölliker to conclude that those tubes are, at the point, constituted of a single row of cells, the walls of which, where they are in mutual apposition, disappear in course of time, and that their cavities, thus communicating, constitute the canal of the ovary. By a repetition of this process the ovarian tube increases in size and length. At the extremity of these ovarian tubes Kölliker observed the formation of the ovum, in the progress of which he perceived that the germinal spot is the first formed structure in the ovum, around which the germinal vesicle is formed like a primitive cell around the nucleus, and around which subsequently granules are deposited, constituting the vitellus and a secondary cell, the vitelline membrane. Kölliker confirms Bagge's and the Reporter's observation made on *Strongylus auricularis* and *Ascaris acuminata*, that all the ova which have traversed

the fundus of the uterus are fertilized, but cannot satisfy himself that the peculiar corpuscles accumulated at the fundus uteri, and which we explained as Spermatozoa, are such. Kölliker describes these corpuscles, which he met with in *Ascaris dentata, acuminata, Strongylus auricularis, dentatus,* and *Oxyuris ambigua,* as immature seminal fasciculi or undeveloped spermatic cells, which have been ejaculated together with the mature semen into the female organs. He adds, hereupon, that the cells discovered by us in the fundus uteri of *Ascaris acuminata* precisely resemble the cells in the testicle of the male. Kölliker also found in *Oxyuris ambigua* precisely similar nucleated cells, both in the testes and in the fundus uteri. But since Mayer (neue Untersuchung. a. d. Gebiete d. Anat. u. Physiol. p. 9) observed the spermatic filaments, in the female *Oxyuris vermicularis,* $\frac{1}{100}$ of a line in length, in a curved form, with acuminated extremities lying scattered amongst the ova, Kölliker sees the greater reason for regarding these cellular corpuscles in the sexual organs of nematoid females as fasciculi of undeveloped Spermatozoa. In *Oxyuris ambigua* Kölliker recognised, at the uppermost extremity of the testes, spherical cells, 0·0036‴ in size, all of which presented a nucleus with a round nucleolus. These cells became altered, the further they were removed from the extremity of the testicular sac; they became elongated and produced on one side into a long point; their nucleus with the nucleolus gradually disappeared; in short, the spherical cells were finally transformed into a lengthened caudate, homogeneous, pale body, in which no distinction between the contents and the envelope was any longer apparent. These bodies were sometimes straight, sometimes of a crescentic or serpentine form, 0·014‴ to 0·018‴ long, and occasionally exhibited longitudinal striæ; on which account Kölliker considered them as fasciculi of spermatic filaments. Similar undeveloped spermatic cells (testicular cells) were observed by Kölliker also in *Trichocephalus dispar, nodosus, Strongylus auricularis,* and *Ascaris acuminata.* But Kölliker

assumes the capillary figure of the Spermatozoida in the Nematoda with too great certainty. The Reporter has never seen spermatic filaments in round worms, nor also has Kölliker; but he appeals to Mayer's researches without actually confirming them.

When the development of the embryo of *Ascaris dentata* commences, the germinal vesicle with its germinal spot immediately disappears; whereupon the primitive nucleated embryo-cell is formed, which is rather larger than the germinal vesicle. In this primitive embryo-cell two new nucleated cells are produced, which are liberated on the disappearance of the primitive embryo-cell. These two cells become again mother-cells, and are subdivided into two cells, by which means four embryo-cells are produced. Each of these four cells, as also the succeeding ones, are broken up into two cells, by which means the vitelline cell, the granules in which during this process gradually disappear, is finally completely filled with embryo-cells. This mass of cells becomes the body of the young worm. At first the nuclei are still apparent in the embryo-cells, but in proportion as they become less their nuclei are less perceptible. Kölliker observed a precisely similar course of development of the embryo in the ova of *Oxyuris ambigua*. During this production of embryo-cells a very remarkable change goes on, the chorion of the ovum in *Ascaris dentata*, consisting in the formation at each extremity of a process, which, continuing to shoot out longer and longer, becomes spirally twisted, and breaks up into very delicate, equal-sized, also spiral filaments, or fibres. For those who may be desirous of repeating some of Kölliker's researches on his *Asc. dentata*, the Reporter remarks that this worm, according to Kölliker's statement, was procured from the intestine of Salmo thymallus, whilst *Ascaris dentata* has hitherto been met with only in the Cyprinaceæ, and, according to Rudolphi, possesses simple "ova globosa." Is it not probable that Kölliker had to do with *Asc. obtuso-caudata*, which occurs extensively in the Salmonidæ? In *Ascaris nigrovenosa*, *acuminata*, and *succisa*,

Kölliker, has regarded the vesicles present in the fission-globules (Furchungs-kugeln) of the ova as actual nucleated cells. He opposes the opinion of Bagge and the Reporter, according to whom the embryo-cells within the fission-globules of these Nematoda increase by division; he is much more inclined to believe that he has observed in this case also, the multiplication of the embryo-cells to be effected by an endogenous formation, as in *Ascaris dentata*, but with this difference that the vitelline substance does not surround the common mass of cells, but that, on each new formation of cells, a portion of the vitellus completely envelops the individual cells, whence arises the fission of the vitellus. Consequently, if the formation of these fission-globules be dependent upon each multiplication of the embryo-cells, the multiplication of the latter must precede the production of new globules. Kölliker endeavours to explain this by assuming that the embryo-cells exert a sort of attraction on the surrounding vitelline substance. To the question, why in other Entozoa this attractive force of the embryo-cells acts upon and divides the vitelline substance, Kölliker certainly does not venture to give a reply.

Rayer (Archives de Méd. comp. l. c. p. 146) believes that he found beneath the palpebral conjunctiva in the left eye of an Emberiza pecoris, Wils., an *Ascaris leptoptera*, which, according to Rudolphi, occurs only in the œsophagus of the Lion. But, as Rayer does not give a more minute description of this worm, and refers merely to a rough drawing made by himself, the Reporter would inquire whether it were correctly determined, as the lion in all probability would scarcely have one and the same Round-worm in common with the bird in question. Bellingham (Annals of Nat. Hist. 13, p. 167) notices 42 Irish species of *Ascaris*, among which nine are doubtful, which were met with in the small intestine of Charadrius hiaticula, Sterna hirundo, and Anas [Mareca] penelope; furthermore, in the œsophagus of a Mergus merganser, in the crop of a Procellaria anglorum, in the intestine of Cyclopterus lumpus, and in the peritoneum of

Ardea cinerea and Cobitis barbatula. He also mentions an *Ascaris alata* occurring in the intestine of man. The female individuals are $3\frac{1}{2}$ inches long, the anterior extremity appears curved, the posterior, on the contrary, straight. A transparent membrane, $1\frac{1}{2}$ line in length, descends on each side of the neck.

Various instances have been noticed of Round-worms (Asc. lumbric.) which have quitted their abode in an unusual mode. From an abscess in the middle of the transverse diameter of the abdomen, and eight days after it was opened, Dr. Müller, at Schmiegel, observed a Round-worm make its exit. (Oesterreich. mediz. Wochenschrift, 1843, p. 661; Aus den Beiträgen zum Sanität—Berichte in dem Posener Regierungs-Bezirke. 1843.) In a communication from Vandenbergh (Annales de la Société de Médecine d'Anvers, 1844, Jan. p. 46) it is stated that a Round-worm, a span in length, escaped together with well-formed pus from a swelling in the right groin, without any trace of fæces. In a case given by Kingdon (Froriep's n. Notiz. 548, p. 318), in which there existed an urethral fistula, Round-worms came away, with many troublesome symptoms, from the urethra of a child seven years old. Botto (Oesterr. mediz. Wochenschrift, 1845, p. 91; from the Gazetta Medica di Milano, 1843, Nr. 47) performed laryngotomy, without finding anything, in a boy affected with fits of choking, produced, as was supposed, by his having swallowed a small stone; after some days bronchitis was set up, the child complained again of having swallowed a small stone, and indicated its situation precisely. He died at last under an aggravation of the symptoms. On dissection no foreign body was found in any part of the respiratory passages, but a great number of Round-worms in the stomach and intestines, which had probably induced the convulsive fits, as a reflex phenomenon. In another case, of a boy, twelve years of age, affected with tonic spasms of the superior and inferior extremities, and who after their cessation succumbed under an uncontrollable diarrhœa, Dr. Weisse (Ib. 1843, p. 41—from the Vermischten

Abhandl. a. d. Gebiete der Heilk. von einer Gesellsch. praktisch. Aerzte in St. Petersburg, 1842) found on dissection a Round-worm inserted in the vermiform process, with its caudal extremity projecting into the cæcum, and he supposed that this worm, by its entering the vermiform process, had been the cause of the spasms, and that after its death it had caused the diarrhœa as a consequence of the fruitless efforts of the intestine to rid itself of its deceased guest. Gilli (Schmidt's Jahrbücher, Bd. 40, 1843, p. 310, from the Giornale delle sc. med. March, 1842) observed in a child the discharge of 510 Round-worms within eight days. From the New York Journal of Medicine it is related (Lancet, August, 1844, p. 589) that a man, 33 years of age, experienced excessive itching in the glans penis, and unpleasant sensations in the rectum. Next day difficult micturition supervened, and a long-shaped substance gradually made its appearance from the urethra, which was recognised by Clarke as a male *Lumbricus teres*, eleven inches in length. To this Clarke adds, that the man had, eighteen months before, suffered from dysuria with discharge of blood and pus, during which attacks the worm entered the bladder from the rectum. The doctor considers it very remarkable that the Lumbricus teres, "the common earth-worm," should have reached the rectum. This betrays very great ignorance of the human Entozoa, and the Reporter would inquire whether the worm that was discharged should not be referred to *Strongylus gigas*.

Several new Nematoda have been described by Creplin (Archiv, 1844, Bd. i, p. 115), but without his determining their genus. They were found in the abdominal cavity and the intestinal canal of Bradypus tridactylus, and Dipus tetradactylus, the small intestine of Phacochœrus africanus, the membrane on the bones of the fore-arm of Vespertilio serotinus, the lungs of Coluber natrix, the stomach of Rana dorsigera, the intestinal canal of Raja batis; moreover, in Sorex areneus, and Lepidopus Peronii, without the habitat being more particularly stated. Several of these Entozoa

were found by Otto and sent to Creplin. The latter (Ib. p. 126) has also endeavoured to determine correctly the Entozoa found by Fabricius and figured by Müller in the 74th plate of the Zoologia Danica, and has described Fig. 1 to be the female of *Ascaris osculata;* Fig. 2, the anterior extremity of the same worm; Fig. 3, as a mutilated male individual of the same *Ascaris;* Fig. 4, as *Ascaris Rajæ;* Fig. 5, as probably *Asc. collaris;* Fig. 6, as a mutilated *Ascaris clavata.* With respect to Figs. 7 and 8, Creplin does not venture to decide. A nematoid worm with a long œsophagus, found by Rayer (Archiv. de Méd. comp. l. c. p. 183) in the stomach of an Emys europæa is certainly to be referred to *Spiroptera contorta.*

The following remarks have been made respecting *Trichina spiralis,* which is undoubtedly only an immature nematoid worm. After Knox (London Med. Gazette, Sept. 1843, p. 805) had for the first time, in the spring of 1836, in Edinburgh, observed a case of *Trichina spiralis* in the human muscles, it was not till October 1839 that he had again an opportunity of examining a second similar case; subsequently to this, however, he had examined more than a hundred bodies for this entozoon, in vain; whence he concludes that *Trichina spiralis* (*Vibrio humana*) must be much more rare in Scotland than in England and Ireland, for, after requesting communications from the Scottish physicians, he could only hear of the one case, in which Lizars, among from 200 to 300 bodies, observed the *Trichina spiralis* in that of a woman 50 years of age, whilst Handyside, in 143 bodies, had met with no *Trichina,* and Mackenzie, generally in no case at all. The occurrence of the *Trichina spiralis* in Denmark is shown by the case mentioned by Svitzer (Bibliothek for Laeger—Copenhagen, 1843, No. 2, p. 336; Et Tilfoelde of *Trichina spiralis* of Prof. Svitzer) who met with the parasite in the fat body of a woman from 30 to 40 years of age, and particularly in the muscles of the arms and legs and the subcutaneous cellular tissue. In this case, also, the worm within several of the cysts

was transformed into a crystalline vitreous substance; Svitzer in other respects, observed the animal erroneously, since he regards the longitudinal streak indicating the cavity of the muscular œsophagus, and which is almost invariably present in the young nematoda, as the penis. Svitzer believes that a series of minute corpuscles might be regarded as ova, but which the Reporter explains as being the remains of the vitellus. Klencke also (Ueber die Contagiosität der Eingeweidewürmer, p. 111) has fallen into the error of regarding the *Trichina spiralis* as a completely developed and sexually mature nematoid worm. He has even carried his error farther, and has made experiments of injections with the granular contents of this *Trichina*, which he has taken for ova. But what can be said with respect to this, when Klencke asserts that these experiments have actually been successful in his hands, and that by the injection of these supposed ova he has transplanted the *Trichina spiralis* from one dog to another? He also supposes that he has found *Trichina spiralis* very abundantly in Fish, Snakes, Birds of prey, and Mammalia, which may be readily believed, since young asexual and encysted Nematoda, which the Reporter (Archiv, 1838, Bd. i, p. 312) has described as *Trichina*, are found so universally distributed. According to Klencke (l. c. p. 112), it would appear that the occurrence of *Trichina spiralis* is not constantly limited to the voluntary muscles, and that they also extend to the muscles of the vegetative system, of which one may be convinced in animals, and even in man. This may be granted with respect to animals, but where has Klencke observed it in man?

Dubini believes that he has found an entirely new human Round-worm. (Omodei Annali univ. di medicina. Aprile, 1843. tom. cvi, p. 5. Schmidt's Jahrbücher. Bd. 41, 1844, p. 186.) This worm, which has been named by its discoverer *Agchylostoma duodenale*, is $4\frac{1}{2}$ lines in length, and was met with in at least 20 among 100 bodies, in the duodenum and upper part of the jejunum. Like the

Trichocephalus dispar, this worm causes no particular symptoms. It is of a yellowish, reddish, or brown colour. The head is not distinct from the cylindrical body, the round oral orifice appears to be armed with four hooklets placed upon conical elevations, and curved towards the middle. The œsophagus, as it descends, becomes dilated into a clavate form, and is always distinct from the blackish stomach (intestine?). The tail of the male individuals is distinguished from the obtuse caudal extremity of the females by a fan-shaped dilatation, in which the external genitals are situated. The caudal extremity of the females is always less curved than that of the males. The integument is transversely striated, the intestine opens laterally at the caudal extremity, and is surrounded either by the oviduct which contains elliptic ovules, or by the spermatic tube. The latter expands in the middle of the body into a sort of seminal vesicle, is afterwards contracted and proceeds to the genital orifice, at which is attached a club-shaped penis. The fan-shaped expansion of the caudal extremity of the male would appear to constitute a sort of funnel, by the transparent walls of which eleven cæcal appendages are strengthened, which Dubini may term spermatic appendages (Samenanhängsel), but which in all respects remind the Reporter of the caudal lobes of the male *Strongyli*.

Another problematic nematoid worm has been found by Thomas Stratton (Edinburgh Med. and Surg. Journal. July, 1843, p. 261) at Kingsdon, in Canada, within the abdominal cavity of a Bitch. The four individuals were alive, of a light-brown colour, the largest of them was $8\frac{1}{2}$ inches in length, and the smallest 6. No opening could be discovered in any part of the intestinal canal of the Dog, from which these worms could have escaped. Stratton proceeds to inquire whether they might not have reached the abdominal cavity of the Bitch through the [Fallopian] tubes, from without. A more particular description of these worms is wanting.

On the so-called Filariæ in the blood, which should more correctly be regarded as the young of some nematoid worm arrested in their migrations, Gruby and Delafond have instituted various researches. Gruby (Institut. 1843, p. 35; or the Lancet, vol. ii, 1842, 1843, No. 8, p. 265; or Annals Nat. Hist. vol. xi, 1843, p. 403), for instance, in the month of February, observed, in the blood of a healthy, strong Dog, ten or eleven years old, and which had been fed upon horse-flesh, transparent worms $\frac{1}{100}$th of a line in length, which at the anterior, larger end of the body, were provided with a mouth, and posteriorly presented a pointed tail. They were very active, had a serpentine motion, and were perceptible in the blood in every part of the Dog. Gruby subsequently looked for these nematoid hæmatozoa in 100 other dogs in vain. He afterwards continued his researches with Delafond (Comptes rendus, Nr. 16, 1844, p. 687), and among 250 dogs of every breed, of all ages, and of both sexes, found five individuals whose blood was charged with these young nematoda. The dogs were otherwise perfectly healthy. Food, rest, exercise, and blood-letting, had no influence on the number, form, and motions of the young worms. The transfusion of two decilitres of blood thus impregnated with nematoda, caused the blood of a healthy dog to be verminous for only eight days, whilst the blood of a healthy dog into which a litre of verminous blood had been injected, was itself verminous for seven months. Upon injecting frogs with the verminous blood, the minute nematoda could be recognised in the blood of these Batrachians during eight days, and did not disappear until the blood-corpuscles of the dog also began to disappear from the frog's blood. The blood was, on every occasion, before it was used for injection, freed from fibrine. The minute nematoda were destroyed when the blood was injected into serous cavities, or into the cellular tissue of living dogs. Excepting in the blood of a dog, similar nematode embryos were never met with elsewhere in one of those animals, either in the excretions or secretions, the

urine, saliva, aqueous humour, nor in the crystalline lens, the bile, and the serous fluid from the cerebral or spinal cavities. Just as little was this sort of vermiculi found in the chyle, in the lymph, and in the pus of wounds. In one of the dogs affected with hæmatozoa these minute nematoda lived year after year within the sanguineous vascular system, without quitting it like the Filariæ in the blood of frogs.

HELMINTHES ACANTHOCEPHALI.

Bellingham (Annals Nat. Hist. v. 13, 1844, p. 254) enumerates fifteen *Echinorhynchi*, parasitic in various Irish Mammalia, Birds, and Fishes; amongst which are five doubtful species from the rectum of Charadrius hiaticula [small intestine] of Cinclus aquaticus, Mergus albellus, Somateria spectabilis, and Lepus cuniculus. The remarks appended do not present anything new.

HELMINTHES TREMATODES.

A parasite, found by Otto in the digestive canal of Chelonia midas, has been described by Creplin under the name of *Amphistomum scleroporum*. (Archiv, 1844, Bd. i, p. 112.) Among the Irish Trematoda collected by Bellingham (Ann. Nat. Hist. 1844, vol. xiii, pp. 335 422) occur four *Monostomata* and nine *Amphistomata*, among which are three doubtful species from the intestine of Birds. As for the rest, these *Amphistomata* all belong to the genus *Holostomum* [Holostoma]. In the genus *Distomum* [Distoma] 32 species are mentioned, with 11 doubtful species from the intestinal canal of various Water-birds and Fish. Bellingham has, moreover, fallen into a great error in believing that the "porus ventralis" of the Distomata takes a part in the process of propagation.

A case of *Distomum hepaticum*, in the portal vein of a man (a thatcher by trade), has been communicated by Duval. Froriep's neue Notiz. Nr. 529, p. 9, or Nr. 770, p. 352.) [In the month of November, 1843, the Translator met with several *Distomata* of a large size ($1\frac{1}{2}$ to $\frac{3}{4}$ of an inch) in the upper part of the jejunum of a Lascar sailor who had recently arrived from India. These worms were very unlike the *Distoma hepaticum* in outward appearance, being very much thicker and firmer, and quite opaque. The arrangement of the internal canals could not be seen by simple inspection, but they were readily injected through the oral aperture, with mercury, and also with size and vermilion, and then exhibited the disposition of vessels presented by the *Distoma lanceolatum* of Mehlis, as figured in his beautiful Monograph. These worms would, therefore, but for the enormous difference in their size, appear to belong to that species. They were at all events not specimens of *Distoma hepaticum*, and they occurred only in the above-mentioned part of the intestine, the liver and biliary passages exhibiting no mark of disease. A short notice and a figure of the injected worm are given in Dr. Budd's work on Diseases of the Liver, p. 399.]

From a notice by Pluskal, in Lomnitz (Oesterreich. mediz. Wochenschrift, 1844, p. 36) an epizootic disease followed the severe winter of 1841-2, consisting in a putrid softening and suppuration of the thoracic and abdominal viscera, and which killed a large quantity of forest game. On dissection of a Roebuck dead of this disease there were found, in thick-walled cysts in the liver, one the size of a hazel-nut and the other of that of a pigeon's egg, in the one five, and in the other, thirteen individuals of *Distomum hepaticum*, without any outlets from the cysts being perceptible. What Klencke communicates with respect to the habitat of the Liver-Fluke, sounds very strange; for he says that he has met with these parasites not only in the liver of the sheep, but also in the spinal marrow, in various glands of that animal, in the mammary glands and thymus.

Besides which he tells us other very remarkable things with respect to *Distomum hepaticum*. In his opinion, the brown bodies from the oviducts have been erroneously regarded as ova; they are rather cysts filled with ova. Klencke, in other words, declares the vitelline cells contained in each ovum of *Distomum hepaticum* to be so many ova. He ruptured these cysts by pressure, and thought by this means to obtain the naked ovules. With these supposed ova, which were nothing but the vitelline substance squeezed out of the egg-membrane, he made experiments by inoculation, which, if any one is disposed to believe it, succeeded perfectly both in Dogs and Cats. Moreover, he perceived in the gall-bladder, together with old Flukes, in the intestinal secretion, and in the blood of the sheep, infusoria-like animalcules; these creatures were of course the young fry of the Liver-Fluke, and Klencke made with them experiments in infection, and transplanted also in this way the Liver-Fluke into dogs and puppies.

Dujardin (Annales des Sc. Natur. tom. xx, 1843, p. 338) found, in the intestine of Sorex araneus abundance of a *Distomum*, which, before it contains ova, resembles a *Distomum* occurring in the liver of Limax, so that he could not avoid the supposition that the *Distomum* had been first developed in the Limax, and had been subsequently transported into the intestinal canal of the Shrew-mouse, where it had completed its development. The Reporter agrees with him that something in all respects similar to this takes place with the *Distomum echinatum*, since this Fluke is developed in species of Lymnæus, and it is not until after these Snails have been swallowed by Ducks, Geese, Cormorants, and Cranes, that the development of the *Distomum* is completed in the intestine of those birds. Dujardin founds upon this *Distomum* of the Shrew-mouse the new genus *Brachylaimus*, to which he also refers several other *Distomata*, from whose pharynx the two cæcal intestinal sacculi immediately proceed and pass backwards. The *Distomata* referred to this genus are subdivided by Dujardin according

to the position of the male sexual organ; in some *Brachylaimi* for instance, the male organ opens in front of the ventral acetabulum; in others, on the contrary, it does so in the middle between the ventral acetabulum and the extremity of the abdomen, whilst the oviduct opens anteriorly and externally. At the extremity of the abdomen of these Trematoda a pore leads into a contractile cavity, from which four winding, mutually-anastomosing, lateral canals proceed upwards, which are here and there furnished with solitary undulating cilia. The Reporter in this description recognises the excretory organ which is peculiar to the Trematoda, as well as the vascular system provided with ciliated lobes, which Dujardin has not distinguished from that excretory organ. Besides those taken from the male genital organs, Dujardin also finds in *Brachylaimus* various other specific characters, which relate to the size of the acetabula and of the ova, and to the greater or less prickliness of the cutaneous surface. The same naturalist has referred to this genus a *Distomum* found in Sorex araneus, as *Brachylaimus advena;* but has named it afterwards (in his larger work on the Helminthes) *Brachylaimus migrans.* He derives this animal from the *Distomum* inhabiting the Limax, which presents exactly similar acetabula, a similar intestinal canal, and the same system of vessels furnished with vibratile cilia, and in which the male genital apparatus exhibits a form, in all respects similar; whilst, of the female sexual organs, nothing is as yet to be recognised. Similar *Distomata* in Frogs are probably derived, in Dujardin's opinion, from Snails that have been swallowed.

According to Kölliker's observations (Müller's Archiv, 1843, p. 99), the ova of *Distomum tereticolle* are thus developed: in the midst of the compact granular vitelline substance the primitive embryonic cells are formed, increase, break through the vitellus, and entirely consume it. The collective mass of the very minute embryonic cells is finally transformed into the body of the embryo. This is of a vermiform shape, moves sluggishly, exhibits no trace of

organization, except an opaque portion situate at the cephalic extremity, and another part extending through the body.

Several *Distomata* from the Acalephæ have been made known. The *Distomum* found by Will (Archiv, 1844, Bd. i, p. 343) in the aqueous passages of Beroë rufescens presented an annulate body, a retractile caudal extremity, and a sessile abdominal acetabulum. Its excretory organ, filled with transparent, round globules, was bifurcate, and sent up the two lateral branches as far as the oral extremity, where they were united at an acute angle; an organization, which the Reporter has met with also in *Distomum appendiculatum*. Another *Distomum*, of cylindrical figure, and also furnished with a sessile abdominal acetabulum, was found by Philippi (Müller's Archiv, 1843, p. 66, taf. v, fig. 11 and 12) in the stomach of a Physophora. The same naturalist noticed a *Distomum*, differing from the above, in the stomach, and creeping about between the knob-shaped tentacula of Velella spirans. This latter Distomum was from three fourths to one line long, was provided with a very large, shortly pedunculate, abdominal acetabulum, and was prolonged into a thick, rounded, posterior extremity.

From Yarrell (A History of British Fishes, vol. ii, London, 1841, p. 468: vid. the vignette) we learn that as many as twenty specimens of the rare parasite *Tristomum coccineum* were found on the outer surface of the head of an Orthagoriscus mola, taken on the English coast.

According to J. C. B. Bellamy (Annals Nat. Hist. xiii, 1844, p. 78), this discovery has since been repeated on the coast of England. Rathke (Nova Acta Acad. Leopold. Carol. Nat. Curios, tom. xx, p. 1, 1843, p. 238) has very correctly shown that *Hirudo hippoglossi* or *Phylline hippoglossi*, Ok., can in nowise be referred to *Tristomum elongatum*, Nitzsch, as it has been by Diesing, but must constitute an independent genus and species, differing as it does essentially from *Tristomum elongatum*, in the presence of four horny hooklets on the but slightly concave surface

of the abdominal acetabulum, and in the numerous papillæ, disposed in a radiating manner on that acetabulum. On this account he names the worm *Tristoma hamatum*. It is found only on the external surface of the integument of Pleuronectes hippoglossus, whilst the above-named *Tristomum* inhabits only the oral and branchial cavities of Acipenser sturio. Respecting the internal structure of the *Phylline hippoglossi* we learn little from Rathke, and his figure of this worm is far inferior to the beautiful one by Johnston (Annals Nat. Hist, vol. i, 1838, p. 431, pl. 15, fig. 3), and with which Rathke is unacquainted. Rathke's statement, that the male genital opening is situate at some distance behind the mouth on the median line of the abdomen, is incorrect; it is much rather, as Johnston has very distinctly represented it, and as the Reporter can confirm, placed quite anteriorly near the left suctorial disc, externally on the acute lateral margin of the abdomen, whence a long penis can be traced, passing obliquely to the median line of the body. The two large roundish organs situate in the middle of the body, are undoubtedly the testes, whilst another whitish organ, also visible in the interior, represents either the ovary (keim-blaschen-stock) or a vesicula seminalis.

Rathke (ib. p. 242) has described an *Octobothrium digitatum* as new, but afterwards (Archiv, 1844, Bd. i, p. 259) recognised in this parasite, which he found on the gills of Pleuronectes hippoglossus, the *Octobothrium palmatum*, previously described by Leuckart in his Zoological Fragments. He has also (Nov. Acta, &c., p. 244) besides this settled the diagnosis of his new genus *Peltogaster*, instituted some time since, as follows: "Corpus torosum, inarticulatum; alterum ejus extremum in tubum brevem productum, ore amplo, orbiculari, inarmato terminatum; procul ab ore acetabulum rigidum, corneum, discoideum." To the former species, *P. paguri*, with the following diagnosis: "Corpore oblongo, tereti, alterutrum latus incurvato; acetabulo in medio ventre," Rathke has added a second species: "Cor-

pore transversim elliptico, subdepresso; acetabulo ori opposito," which he found attached by the acetabulum to the soft inferior surface of the abdomen of Carcinus mœnas. For the rest, Rathke does not believe that these animals are properly placed, with the Trematoda; as he has found minute Amphipoda in their stomach, they do not consequently draw their nourishment from the animals they inhabit.

According to Bellingham (Annals Nat. Hist. xiv, 1844, p. 162), *Pentastomum* [*Pentastoma*] *tænioides* occurs also in Ireland.

Schomburg (Froriep's n. Not. Nr. 647, p. 136) has discovered a trematode entozoon in the Leech, and named it *Heptastomum hirudinum.*

Valentin (Valentin's Repert. Bd. viii, p. 90) in examining, in the month of August, thin sections of Frog's kidneys under the compressorium, observed embryonic entozoa furnished with a crown of cilia, such as also occur in the urinary bladder of Frogs, as well as a larger Trematode with an obvious acetabulum.

According to Henle's observation (Zeitschrift für rationelle Medizin. l. c. Bd. iii, p. 6), ciliary motions are evident in many places in the lateral vessels of *Cercaria echinata,* the anterior part of the bodies of which animals he observed to be beset with minute spines. He also remarked in many instances, in this *Cercaria,* larger and smaller spherical corpuscles, resembling the so-termed vitreous corpuscles of the Cyst-worms, which frequently presented concentric striæ, and exhibited, as it were, a central opaque nucleus, and broke under pressure. The Reporter is also acquainted with similar corpuscles in several other Cercariæ; they are contained in the excretory organs of these trematode-larvæ, and in *Histrionella ephemera* have been regarded by Ehrenberg (Symbolæ physicæ) as ova.

HELMINTHES CESTODES.

Bellingham has noticed as Irish Cestoidea, *Scolex polymorphus, Ligula sparsa, Tetrarhynchus grossus,* and *solidus.* (Annals Nat. Hist. xiv, pp. 163, 251, 317.) The last is a new species discovered by Drummond in the abdominal cavity of Salmo salar. Bellingham thinks he has observed bodies like ova beneath the integument of this worm, upon each side of the depressions upon the head. The same naturalist enumerates besides, eighteen Bothriocephali, with five as yet undetermined species from the intestinal canal of Podiceps minor and rubricollis, Sterna arctica, Raja batis, Gadus morrhua, and æglefinus. We are also informed that the *Bothriocephalus latus,* compared with the very abundant *Tænia solium,* occurs but extremely rarely in Ireland. Of fifty-one Irish *Tæniæ,* Bellingham has been compelled to leave twenty-three species undetermined.

The observations by Wawruch on persons affected with Tapeworm, which have been already noticed on a previous occasion, have since appeared as a special Monograph (Wawruch: prakt. Monographie der Bandwurmkrankheit, 1844), in which he has given his confession of faith respecting the origin, nourishment, growth, motion, propagation, regeneration, duration of life, and habitat of the Tapeworm. In an essay on the reproduction and regeneration of the Tapeworm, the familiar phrases concerning equivocal generation are once more employed by Melion. (Würtem. med. Correspondenzblatt, 1844, n. 21.)

A remarkable case of the discharge of a *Tænia solium* from the navel of a man has been communicated by Herz (Medizinisch. Zeitung. herausg. v. d. Verein. f. Heilkunde in Preussen, 1843, Nr. 17, p. 75 ; or Schmidt's Jahrbücher. Bd. 41, 1844, p. 287), to which the Reporter has appended some remarks upon the migration of the Entozoa.

Under the name *Proglottis,* Dujardin (Annals d. Sci. Nat. t. xx, 1843, p. 342) has instituted a new Cestoid genus, the species of which occur in Shrew-mice, in the common

Fowl, the Pike, and Roach; the Reporter, however, is unable to extract any proper generic character, from Dujardin's description, by which *Proglottis* can be said to be distinguished from *Tænia*. In the ova, provided with three simple oval egg-cases, of *Proglottis pistellum*, from Sorex araneus, Dujardin found the well-known embryos, characterized by six hooklets. The head of this Tapeworm possesses a proboscis with hooks. The first seven to fourteen joints are asexual, and constitute the neck of the animal, the five or six succeeding ones contain only the male organs, for at the anterior end of each of these joints there is placed an oblong transversely-lying testis, and a lemniscus opening laterally. The next one or two joints appear to be hermaphrodite, and the five last exclusively female. This view of the genital apparatus of the individual joints of the *Proglottis* may easily give rise to misconceptions. The gradual development of the joints from the neck backwards takes place in this instance in the same way as in the other Cestoid worms; only the development of the male organs in the invariably hermaphrodite joints commences earlier and proceeds more rapidly anteriorly than that of the female; in the most posterior, so-termed, female joints, the oviducts are so crammed with ova that the male organs, which are never wanting in these joints but have already performed their function and become collapsed, are driven altogether into the background by the female propagative organs.

Respecting the history of the *Bothriocephalus latus*, Castelli (Isis, 1843, p. 618) has communicated the notice that he has met with this Tapeworm, which does not occur in Italy, in two Swiss soldiers serving in that country.

A *Bothriocephalus* from the duodenum of Salmo umbla, and which is probably new, has been discovered by H. Kölliker (Müller's Archiv, 1843, p. 91), and employed for the investigation of the history of the development of the Cestoid worms. He found the youngest ova of this *Bothriocephalus* globular, and constituted of a vitelline membrane, germinal vesicle, and probably a germinal spot;

other ova which existed in great abundance, however, possessed an external elliptic egg-membrane which was of tolerable thickness, more or less distant from the vitelline membrane, from which it was separated by a clear fluid without granules. The germinal vesicle was recognised in only some of these ova; there was always a vitellus very rich in granules. Other ova again, of a larger size and more elliptic form, consisted of an external egg-membrane, and of a vitelline membrane closely applied to it, which was entirely filled with granular vitelline substance. In ova of a still larger size Kölliker observed in the centre of the vitellus a clear spot, the size and transparency of which continued to increase, and which finally broke through the vitellus; during the increase of this clear spot the vitellus gradually diminished, until at last it disappeared entirely, and the clear spot, which consisted of an assemblage of self-multiplying embryonic cells, occupied the whole of the vitelline membrane. Hereupon the embryonic cells were divided into a peripheric and a central layer, the latter at first appeared roundish, soon became pyriform, and rather flattened, and was finally transformed into the true embryo, on which, on more particular inspection, the six hooklets arranged in pairs could be recognised. Kölliker supposes that this embryo grows at the expense of the peripheric layer, and ultimately breaks through the egg-membrane. Since, moreover, on no single occasion did he find the ova containing a living embryo, as large as those ova in which the germinal vesicle had disappeared, and since these again were larger than those which did not yet possess a chorion, he assumed that in the first stages the vitellus is still increasing in bulk, and mechanically distends the egg-membrane, but on the appearance of the embryonic cells, the latter enlarge at the expense of the vitellus.

Kölliker (Müller's Archiv, 1843, p. 99) has found in abscess-like cavities of the liver of several Rabbits a yellow, puriform, thickish matter, consisting of ova, which were in various stages of development, analogous to those of the

Bothriocephalus umblæ. Hake (On Carcinoma of the Hepatic Ducts, London, 1839, 4to) has taken the same objects for peculiar elements of the pus in the hepatic abscesses of the Rabbits.

A considerable number of minute Entozoa discovered by Valenciennes (Comptes rendus, 1844, p. 544; or Annales d. Sc. Nat. t. ii, 1844, p. 248; or Froriep's n. Notiz, Nr. 727, p. 5) in the abdominal cavity of Lacerta viridis, have been raised by him to the rank of a separate genus, and designated as *Dithyridium lacertæ.* The worms were three millimetres long, had no joints, but only transverse rugæ; on each side of the body were two undulating canals, and at the cephalic extremity four suctorial acetabula. The parenchyma of the body contained, especially anteriorly, irregular angular granules, and the posterior extremity a yellowish material of a cellular aspect, which would seem to be the first beginning of the generative organs. Valenciennes compared these animals with *Scolex,* and declared them to be the parasite already mentioned by Rudolphi under the name of *Dithyridium.* In every case, nevertheless, they were young Cestoidea, but which were perhaps not sufficiently developed to allow their being assigned to any particular genus.

According to Owen it would appear (Lectures on Comp. Anat. p. 48) that in Tænia the intestinal canal commences at a minute central orifice in the rostellum, and soon bifurcates, which is positively incorrect, because the four vasiform lateral canals of the Tæniæ constitute, in their head, a closed annular canal surounding the sacculus of the rostellum.

From Klencke (Ueber d. Cont. d. Eingeweid, p. 147) we again learn some most astonishing facts respecting the Cestoidea. That the experimental injections he made upon dogs with the ova of *Bothriocephalus cotti* and *latus* succeeded excellently well, is of course understood, but things also, which have hitherto been observed by no helminthologists, and cannot possibly ever be seen by them, Klencke's gifted sight has enabled him to perceive at a

glance; for instance, on many occasions has he seen in the *ovaries* (!) of *Tænia solium* and *serrata* the living young, as vermiculi $\frac{1}{50}$th to $\frac{1}{10}$th of a line in length, with delicately annulate bodies and a pointed process at the head. Fourteen days has he kept these microscopic *Tæniæ* alive in clean water, upon which, after having allowed them to dry up, they were brought to life again by means of warm water, and transplanted by being given in drink to a Goat and a Cat. Klencke also found these young Tapeworms, in springs and pits and advises those who may wish to procure these embryo Tæniæ from open waters, to choose the mild winter season for that purpose; the large individuals he would immediately recognise from their resemblance to Rattlesnakes.

HELMINTHES CYSTICI.

The Sea-fish taken on the coast of Ireland have afforded seven species of *Anthocephalus*. Bellingham (Annals Nat. Hist. xiv, 1844, p. 396) for instance, has discovered, besides *Anthoceph. elongatus* and *granulum* (in the abdominal cavity of Gadus luscus), four other undetermined encysted species within the abdominal cavity of Merluccius vulgaris, Trigla gurnardus, and pini, Hippoglossus vulgaris, Gadus æglefinus, Merlangus pollachius, and carbonarius, as well as of Anguilla conger. A new species found by Drummond in the peritoneum of Pleuronectes maximus, has been named by him *Anthocephalus paradoxus*. Besides *Cysticercus fasciolaris, tenuicollis, cellulosæ,* and *pisiformis,* Bellingham has enumerated as Irish Entozoa also another *Cysticercus,* which he met with, encysted, in the abdomen of Cobitis barbatula. The cysts, which were about the size of a pin's head, were appended by short pedicles to the liver and intestine, and contained a short-necked Cyst-worm, the head of which was furnished with a cylindrical and unarmed rostellum.

According to Rokitansky (Handb. d. Patholog. Anatom.

Bd. ii, pp. 367, 839) the *Cysticercus cellulosæ* occurs in most of the muscles of man, but as it seems, only in the voluntary muscles, and is found at the same time in the substance of the heart and brain. The ossification of the Cyst-worm has also been observed by Rokitansky. In the brain, where the worm most frequently occupies the gray substance, it would appear, when dead and ossified, to be with great difficulty distinguishable from an ossified tubercle, and, according to Rokitansky, the diagnosis of it can only be established by the simultaneous presence of other living Cysticerci. Difficulties of this kind in the diagnosis will certainly be felt when no value is placed on the microscope, by the aid of which the indestructible hooklets of the crown of a *Cysticercus* long dead and destroyed are so readily detected. A case of *Cysticercus cellulosæ* in the brain has been related by Drewry Ottley (Med. Chirur. Transact. of London, vol. xxvii, 1844, p. 12; or Lancet, 1843, Dec. p. 368) as follows: a woman, 40 years of age, of lymphatic temperament, resident in Exeter, had for many years been a sufferer from emphysema of the lungs, with frequent attacks of bronchitis. In the early part of 1838 she began to complain of frequent giddiness and of a dull stupifying pain in the head. These attacks returned again and again, and after a time the giddiness became more constant and the loss of memory and confusion of intellect more troublesome.

In 1839, in addition to the above symptoms, she became subject to fits, during which there was entire loss of consciousness, with convulsion of the limbs. The character of these attacks was different from that of ordinary epileptic fits. They were less sudden, both in their invasion and their termination, and the convulsions ceased and recurred as often as eight or ten times in as many hours, the stupor remaining during the intervals and after their cessation. The recovery from them was slower also, for she would often remain for two or three days in a stupified state.

During the last twelve months of her life her sufferings

became more constant. She could scarcely walk alone, from a frequent tendency to stagger. The pain in the head became constant, though never *extremely* acute; her sight became dim, and, after frightful convulsions, she expired towards the end of October 1840. On examination after death, the vessels on the surface of the brain were found moderately congested, and the sub-arachnoid cellular tissue was infiltrated with serum; but the most remarkable morbid appearance which the organ exhibited arose from the presence of numerous small fibrous cysts in the pia mater, covering the surface of the hemispheres, and dipping between the convolutions of the brain. These cysts were present on both sides, but were most numerous on the surface of the left hemisphere. They varied in size from that of a pea to that of a small peppercorn; they were seated in the pia mater, but had become partially imbedded in the gray matter of the convolutions. None existed in the white matter, in the central ganglia, nor in the plexus choroides. A few were found at the under surface of the cerebral convolutions; but none either in the cerebellum or medulla oblongata. The cerebral tissue around the cysts appeared natural, as to colour and consistence, and the brain generally, except for the presence of these animals, would have been termed healthy. There was, it should be added, however, rather more fluid in the ventricles and at the base of the brain than is natural. No traces of the parasitic animals were found in the chest. Several of the cysts which had been removed were afterwards examined, and each was found occupied by a vesicular worm, consisting of a posterior semi-transparent vesicle, and an anterior cylindrical portion, which lay retracted in the former, like the finger of a glove turned inwards; the latter part was furnished at its extremity with a double circlet of hooks, round which were seen four oval suckers. The animal, in short, answered exactly to the *Cysticercus cellulosæ* of Rudolphi. In some of the cysts the animal had evidently perished and was undergoing decay, but still retained sufficient traces of

its structure to leave no doubt of its identity; in these [instances] the cysts contained a turbid fluid and a small pellet of albuminous matter, the remains of the worm.

Several new instances of the occurrence of *Cysticercus cellulosæ* in the eyeball of man have been published. A former case which was observed by Estlin (Medical Gazette, vol. xxii, p. 839; Gaz. Méd. de Paris, 1840, p. 776; or Rayer, Archives de Méd. Comp. 1843, Nr. 2 et 3, p. 125), and which does not appear to have been known in Germany, is the following: "A little girl, of six years of age, was brought to Bristol on account of an affection of the eye. There was, at the internal angle of the right eye, immediately above the caruncula lachrymalis, a semi-transparent tumour of the size of a currant. Estlin opened the tumour, on which, besides a viscid puriform fluid, a white hydatid came into view, which under the microscope proved to be a *Cysticercus.*"

It is related by Cunier (Annales d'Oculistique, tom. vi, 1842, p. 271; or Rayer, Archives de Méd. Comp. l. c. p. 128; or Froriep's n. N. Nr. 557, p. 104) that a Moth flew against the right eye of Comte de B., aged 16, so that it was necessary to extract one of the feet of the insect from beneath the eyelids. Five months afterwards an inflammation of the eye was set up, in the course of which a small tumour was noticed on the conjunctiva near the cornea. This swelling after some months had become developed into a hydatid tumour. After its removal by Cunier it proved to be dependent upon a *Cysticercus cellulosæ.*

Three instances of this Cyst-worm under the conjunctiva of living man, have been communicated by Sichel. (Journal de Chirurgie, par Malgaigne, 1843, p. 401; or Oppenheim's Zeitsch. für d. ges. Mediz, Bd. xxviii, p. 570.) In the first case, a girl, seven years old, who had never received a blow or any traumatic injury in the eye or in its neighbourhood, presented, in the external portion of the conjunctiva of the left eye, two lines from the edge of the cornea, a round tumour, which, covered by the reddened conjunctiva, and

surrounded with a dusky red areola, was two and a half lines in diameter and one and a half line high. This tumour, which Sichel removed with scissors, constituted a very thick-walled cyst, in which lay concealed a *Cysticercus cellulosæ*, with the head and neck retracted. In a second case, a gendarme, 46 years old, was affected with a tumour, the size of a bean, in the inner angle of the left eye, covered by the reddened conjunctiva, and partly concealed by the caruncula lachrymalis. The soldier had first remarked this swelling fifteen days before, having four months previously suffered from a foreign body getting into the eye and exciting inflammation. After the operation performed by Sichel, the cyst, which was also thick-coated, exhibited the same contents as that in the former case. The third case was that of a girl, six and a half years of age, in whose right eye her mother had remarked, for fifteen days, a swelling, one and a half line from the edge of the cornea, and which was concealed beneath the upper eyelid. The conjunctiva was also in this case locally injected, and the cyst thin, since its contents, which were afterwards removed by the extirpation, were visible through it, like a white spot (the retracted head and neck of the worm). Cunier (Annales d'Oculistique, tom. vi, p. 277; or Rayer, Archives de Méd. Comp. l. c. p. 130) also gives the account of a tumour with *Cysticercus cellulosæ*, under the conjunctiva at the outer angle of the eye of a Hound. No traumatic injury had in this case preceded the affection; but Cunier, about five months before, had introduced, under the eyelids of the Dog, pus taken from a soldier affected with purulent ophthalmia, by which a blenorrhœa, was produced, which had been suppressed by a solution of nitrate of silver.

Bendz (Isis, 1844, p. 814) examined several individuals of a *Cysticercus*, found by Prof. Hausmann, of Hanover, under the skin of a dropsical mole (Talpa europæa), and the largest of which were from two to three lines long. Bendz remarked at the bottom of the caudal vesicle [the part opposite to the head] several small roundish projections, of different sizes

and of a cellular texture, which were connected with the vesicle by the intervention of a contracted part. Now, according to the opinion of Bendz, it would seem that new *Cysticerci* are developed from these bodies, and are afterwards detached, so that these Cyst-worms multiply by gemmation. He goes still further, and asserts that the *Cœnurus cerebralis* also multiplies itself in a similar manner by the scission of smaller vesicles, and that probably the smaller Cœnurus-cysts which occasionally occur near a large Cœnurus-cyst in the brain of a Sheep, might have originated in this sort of gemmation.

Klencke (l. c. pp. 28, 101) has taken for granted that the transparent or calcareous corpuscles in the body of *Cysticercus*, which have already been frequently spoken of as ova, are so really and in truth; and has, in fact, conveyed the *Cysticercus* by means of them to various animals, at which truly there is nothing to be wondered at, since such great and unheard of success had previously crowned all his experiments; he was also enabled even to descry the young *Cysticerci* proceeding from these supposed ova. It sounds very extraordinary indeed that, according to Klencke, the *Cœnurus cerebralis* is not propagated by means of ova, but by gemmation and spontaneous division; and yet the *Cœnurus* contains exactly the same corpuscles as the *Cysticercus*. Klencke cannot have thought of these calcareous corpuscles in the *Cœnurus*, or otherwise he would certainly have had no difficulty in observing their development into Cyst-worms. It is evident also that his object did not require ova at all, since the transplantation of the *Cœnurus cerebralis* into various animals, as Dogs, Rabbits, Goats, &c., by means of fragments of it, retaining one or more heads, and introduced sometimes by injection and inoculation, sometimes in the drink of the animals, completely succeeded.

Pluskal (Oesterr. medizin. Jahrb. 1844, Juli; p. 54) proposes for the name *Cœnurus cerebralis* the appellation *Hydatis polistomos medullaris*, because this worm (Drehwurm)

is found not only in the brain, but also in the medulla oblongata and spinalis of the Sheep, and is, in fact, a parasite peculiar to the medullary substance, in which, according to its site, it produces sometimes the "sturdy" or "dizzy," (Drehkrankheit), and sometimes the "Gnubber," or the "Traberkrankheit." These three different forms of disease would also be better named according to the situation of the *Cœnurus*, viz. "Hydrocephalus hydatideus," "Hydrops hydatideus medullæ spinalis," or "medullæ oblongatæ."

A *Cœnurus* has [however] been found by Mr. Rose (London Med. Gazette, 1844, July, p. 525) also between the lumbar muscles, as well as in the neck and back of Rabbits. In one case he observed a large cyst in the subcutaneous cellular tissue over the dorsal and lumbar muscles, which was formed of three or four intercommunicating compartments. The largest compartment of this cyst contained two large hydatids, but besides these there were several other smaller vesicles, some free, some attached; young, completely-formed hydatids projected externally on the larger ones.

Goodsir (Transactions Roy. Soc. of Edinburgh, vol. xv, 1844, p. 561) explains the development of *Cœnurus cerebralis*, and describes the ova concealed in the neck of the *Cœnurus-heads*. In the figures that are given of these supposed ova, in which Goodsir thinks that he has seen not only egg-membrane, vitelline membrane, germinal vesicle, and germinal spot, but also, even the division of the vitellus, every unprejudiced observer will at once recognise the discoid calcareous corpuscles. That Goodsir could not perceive the way by which these ova escaped will readily be believed. According to Bellingham (Annals Nat. Hist. xiv, p. 401), both *Cœnurus cerebralis* and *Echinococcus hominis* also occur in Ireland. To the number of these Irish entozoa collected by Bellingham, Thompson (ib. p. 439) has besides added six others.

Many observations have been made of late years respecting the *Echinococcus*; in consequence of which it is gratifying

to notice that the name "*Acephalocystis,*" so fertile a cause of misconception, begins, in France, to give way to the systematic term *Echinococcus*. Thus Mayor (Archives générales, 1843, Juill. p. 320; or Gazette Médicale, 1843, p. 821) advises his countrymen to change the inappropriate designation of "Acephalocyst," given by Laennec, into the better name of *Echinococcus*. He describes the brood of this Cyst-worm perfectly correctly; the vesicles, in which the young are developed, and which bud out from the internal surface of the mother-cyst, are designated by him "capsules de l'Echinocoque," in order to distinguish them from the true mother-cyst, which he terms "hydatide." The delicate internal membranous lining, from which the "capsules de l'Echinocoque" spring, is named by him "membrane capsulaire." He asserts very correctly, that a "cyste" may contain hydatids (Echinococcus-cysts), some of which include very many "capsules de l'Echinocoque," others very few, and lastly, some which present no trace of them.

A very good Monograph has been published by Livois (Recherches sur les Echinocoques chez l'Homme et chez les Animaux, 1843, Paris; vid. The British and Foreign Medical Review, No. 33, 1844, p. 194), which explains very clearly the distinction between serous cysts and the *Echinococcus*. The author had the opportunity of examining very many so-called Acephalocysts, and says that he never failed to find the minute *Echinococci;* as for the rest, he regards the well-known, already frequently mentioned, calcareous corpuscles in the interior of the young, as ova or germs, and moreover is unable to detect any difference between the *Echinococcus hominis* and the *Echinococcus* of other animals.

In a Dissertation written by Thiel (Ueber den *Echinococcus,* Dissert. Würzb. 1844) there is an interesting analysis by Scherer of the membranes of the Echinococcus-cysts. The membranes consist of albumen, their fluid contents of water with salts, without a trace of albuminous matter; 1000 parts of the whole mass when dried left a

solid residue of 26·79, and when burnt, 4·57 of inorganic salts, consisting of sulphate, phosphate, and carbonate of soda, chloride of sodium, and phosphate of lime. Thus this solid residuum contained 22·22 protein substance, and 4·57 salts. The remarks added by Thiel on the *Echinococcus* are of no value; the four acetabula are regarded as so many oral orifices of the young *Echinococci;* which latter, after throwing off the crown of hooklets and the acetabula, are transformed into acephalo-cysts, a proceeding, however, that has not been directly observed by Thiel. Since, in Cattle and Sheep, the production of hydatids in the lungs and liver is much promoted by moist localities and unfavorable weather; it would appear, according to Thiel, that in man also unfavorable endemic and epidemic conditions, connected, probably, with bad, innutritious food, might not be without influence in the production of the *Echinococcus.* He mentions a case observed in the Julius Hospital, at Würzburg, in which a soldier, who had served, under very unfavorable circumstances, in Greece, was affected with *Echinococcus* in the liver and spleen. In another Dissertation, Mielay (Alex. Mielay de hydatidibus et cysticis, Pars prior Dissert.; Berolin, 1844) collects the older views respecting the origin and propagation of the Cyst-worms, without being acquainted with the most recent researches on this subject. The Reporter has given a figure of the characteristic hooklets of which the circlets in the Echinococcus-brood are composed, as well as of the laminated structure of the cysts. (Vogel's Icones Histologiæ pathologicæ, tab. xii, fig. xi.)

From Lebert's description of the *Echinococcus hominis* we gather only what is already well known. His observation of the ciliary motion, which he thinks he perceived in the interior of the still living and spontaneously moving animals, is new. Under "spontaneously moving animals" can, however, be understood only the young of the Echinococcus. It were much to be wished that Lebert had stated more particularly where he saw the ciliary organs; at all events, it is not made at all clear to the Reporter in what

situation in these animals cilia should occur. Owen (Lectures on the Comparative Anatomy of the Invertebrata, p. 44) is still unacquainted with the relation in which the progeny of the *Echinococcus* stands with respect to the mother-cyst. He regards the mother-cyst as a distinct genus of the Cystica, in which the two species, *Acephalocystis socialis* [*prolifera*, Cuv.] and *eremita* (vel *sterilis*), or *endogena* and *exogena*, are distinguished. In the former species filial cysts are developed on the internal surface of the mother-cyst by a fissiparous process, whilst in the latter the development of the progeny takes place on the external surface. This latter mode of increase of the *Acephalocystis eremita*, which is said to occur especially in the Ox and other domestic animals, has never come under the Reporter's observation. Owen also compares the mother-cyst of his Acephalocysts to a "gigantic organic cell," in which occasionally other animals furnished with suctorious acetabula and a coronet of spines, the so-called Echinococci, set up their abode. Thus Owen is not, in this place, aware that these latter are the progeny of the Acephalocyst. He compares the *Echinococci*, moreover, to polygastric infusoria, the retracted coronet of hooks offering in his eyes a close resemblance to the cylinder of teeth of the Nassula [and many other Polygastria], and the clear globules (calcareous corpuscles) in the parenchyma of the animals appear to him very similar to the [so-called] stomachs of the Polygastria; he even thinks that he once observed the little *Echinococci* in the mother-cyst moving in the fluid, in the manner of the Infusoria, apparently by the action of superficial vibratile cilia; which has certainly been an illusion. Consequently, Owen afterwards looked in vain for any such ciliated epithelium in the *Echinococci* of a small Musk-deer [which he attributes to the *Echinococci* being dead].

According to Rokitansky (Handbuch der pathologischen Anatomie, Bd. ii, pp. 364, 465), who, as for the rest, also speaks of Acephalocysts, the *Echinococcus hominis* very rarely occurs in the muscles and in the substance

of the heart. With respect to the latter situation, he has met with only two instances. In one of which, a servant girl twenty-three years old who died suddenly, there was seated in the "septum ventriculorum" a fibro-serous, delicate-walled cyst, larger than a hen's egg, which had burst, and whose equally large Acephalocyst had been forced into the conus arterialis and pulmonary artery. The liver also had been the seat of Acephalocysts, one as big as a child's head, and two smaller ones. In the second case, which was that of a soldier, thirty-five years of age, who died suddenly, a rounded cyst, of the size of a duck's egg, was seated in the most posterior and superior part of the septum ventriculorum, which inclosed, besides a pultaceous, brownish fluid mixed with broken down, flocculent, fibrinous coagula, the remains of Acephalocysts reduced to a gelatinous consistence. Alessandrini also (Isis, 1843, p. 628) found, in the walls of the right ventricle of an Ox, an *Echinococcus veterinorum* with young animals. Two cases of hydatids of the liver and cavity of the pelvis, which were certainly nothing else than *Echinococcus hominis*, have been described by Nicolai. (Medizinische Zeitung, Herausg. v. d. Verein f. Heilk. in Preussen, 1843, p. 107.) Another case of hydatid formations in the lungs, communicated by Bouvier (Bulletin de l'Académie Royale de Médecine, 1843, t. viii, p. 1244), must also be here referred to. In the case related by Dickson (Schmidt's Jahrbücher, Bd. 39, 1843, p. 294), in which a semi-cartilaginous sac filled with a melicerous substance, in the liver of a man, twenty-five years old, contained hydatids from the size of a pin's head to that of an egg, and several others of the pill-box kind, a colony of *Echinococcus hominis* cannot be mistaken. Erasmus Wilson (Dublin Medical Press, No. 399, Dec. 1844, p. 361), having observed a case of *Echinocccus hominis* in the liver, in which it is extremely probable that the pedicles at the posterior extremity of the body of the young *Echinococci*, by which they are connected with Echinococcus-capsules, struck his notice, proposes to name these animals

as a distinct new species of Cyst-worm, *Cysticercus pedunculatus;* in which certainly no one will follow him.

[The full account of Mr. E. Wilson's researches respecting the *Echinococcus* appears in the Transactions of the Royal Med. and Chirurg. Society of London, Nov. 12, 1844 (vol. xxviii, p. 21, pl. 1), "On the Classification, Structure, and Development of the *Echinococcus hominis*, showing reasons for regarding it as a species of Cysticercus." He regards the transparent oviform bodies as "apparently adipose cells," and seems to consider them as peculiar to individuals that had been some time dead; both which suppositions are undoubtedly erroneous, as is also the statement that these bodies are scattered irregularly through the substance of the animal, for they are always situated immediately under the integument, or between it and the internal granular substance of which the interior of the body is chiefly composed. His account of the mode of development of the animalcules is highly interesting, if confirmed by further observation. The comparison of the animalcule with the genus *Cysticercus* (Zeder) was made by Pallas as far back as 1766, and in 1800 Zeder makes it a species of *Cysticercus*. Laennec in 1804 describes the granulations which he observed adherent on the walls of the cyst as composed of several individual vermiculi, which, he says, nearly resemble the *Cysticercus*. Under the modern arrangement, however, of these genera, as defined by Rudolphi, the *Echinococcus* must constitute a distinct genus.] [On the same subject is also a paper by the Translator in the Transactions of the Microscopical Society of London, November 13, 1844 (vol. ii, P. i, p. 10, pl. 1), "Some Observations on the Natural History of the *Echinococcus*," in which is given a short summary of the history of this animalcule, and an attempt is made to show the unity of the species in man and other animals, and especially to indicate the mode of attachment of the *Echinococci* among themselves, and of the aggregate masses or so-called granulations to the interior of the parent-cyst, together with other particulars relating to the intimate structure of these creatures.]

Démarquay (Gazette Médicale de Paris, 1844, Nr. xix, p. 308) has described an hydatid tumour, which produced great pain in the left inguinal region of a man, forty-five years old, and upon being opened, afforded many vesicles, from the size of a hemp-seed to that of a pigeon's egg. This was an *Echinococcus* colony, which, as was shown upon inspection of the body five weeks afterwards, was seated between the psoas and iliacus muscles; death ensued, probably from the profuse purulent discharge. In a case observed by Stanley (London Med. Gaz. Oct. 1844, p. 101) a moveable tumour presented itself on the fore arm, and one above the breast of a healthy young woman; both tumours were looked upon as abscesses, and were opened with the lancet. From that on the arm a thick purulent matter escaped; from the other, together with the matter, a vesicle was expelled, which contained an Echinococcus progeny, and was evidently inclosed in a cyst. Rose (ib. 1844, July, p. 525) has given three cases of *Echinoccus hominis*, in one of which hydatids were removed from an abscess in the liver; in another hundreds of vesicles were coughed up with hæmoptysis; and in the third case hydatids were expelled not only upwards through the lungs, but also downwards through the intestinal canal [preceded by painful swelling in the region of the liver]. The same observer found in the lungs of a Monkey, which had long suffered from cough and dyspnœa, a large colony of Acephalocysts. The lungs in this instance contained seven considerable cysts filled with hydatids; the liver also, and the omentum and mesentery, were loaded with similar cysts, in which several hydatids of various sizes were inclosed; only a few hydatids were solitary in cysts, or free in the hypogastric region. Rose was able to separate a delicate lamina from the internal surface of these hydatids, which was beset with spherical, nucleated corpuscles. Various cases of disease with hydatids in the liver, lungs, and brain, related by Rayer (Gazette des Hôpitaux, t. v, 1843, p. 581), Griffith (Med. Gazette, August, 1844, p. 585), Sturton (Lancet, January, 1841), and others (Provincial Medical Journal, No. 171, January, 1844, p. 275),

must be referred to *Echinococcus hominis*. In two cases of hydatid formations in the abdominal cavity, which had been observed by Gairdner and Lee, the pathological forms were microscopically examined and described by Goodsir, (The Edinburgh Medical and Surgical Journal, Oct. 1844, p. 269; "Cases and Observations illustrating the History and Pathological Relations of two kinds of Hydatids, hitherto undescribed; by Gairdner and Lee; with microscopical observations by Goodsir:" vid. also the Archiv. f. Physiol. and patholog. Chemie und Microscopie, 1844, Hft. iii, p. 231), who believed that these forms were referable to two new species of Cyst-worms, which he named *Diskostoma acephalocystis* and *Astoma acephalocystis*. From the description and figure of the former of these Cyst-worms the Reporter was unable to arrive at any conception of the parasite at all. What Goodsir says with respect to the membranes penetrated by numerous tubuli, which are said to form the walls of the vesicular bodies of these *Diskostomata*, was the most unintelligible to him. It appears, however, as if the whole was nothing more than a large dead Echinococcus colony. This view, at all events, is supported by the multitude of vesicles, their various size, and their being inclosed one within the other, as well as by the irregularity of their shape and their rupture, caused by compression. The fluid contents of the Echinococcus-vesicles after bursting, together with the torn and dissolving membranes, are very frequently converted into a gelatinous mass, which, like a jelly, envelops the remaining and as yet uninjured Echinococcus-vesicles. In the above instance something of this kind may have been the case, in consequence of which the mass in which the vesicular bodies were buried, assumed, after the removal of the latter, a honeycomb appearance. Goodsir does not appear to have observed whether the peculiarly formed hooklets from the coronet of the young worms were present in the gelatinous mass or not, of which, if only a few had been found, they would have at once thrown light upon the whole nature of this parasite. The circumstance

of the entire mass not being surrounded by any cyst is not opposed to the view of its consisting of *Echinococci,* because, in rare instances there is no doubt that *Echinococci* do occur not encysted. In the second case also an Echinococcus-colony indubitably existed, as is evident from the vesicles of various sizes contained one within the other, and from the progeny pullulating on their internal surface. But Goodsir should have described more precisely the ova, which he says he saw between the membranes of the vesicular bodies. Just as little does the Reporter dare to express an opinion respecting the *Filariæ* which Goodsir thinks he observed in the gelatinous envelop of the vesicular bodies. In the figure, at all events, no Nematoid worm is recognisable ; the central granular portion of these filamentous bodies, explained by Goodsir as *Filariæ,* was, perhaps, not black, but colourless, and appeared black by transmitted light under the microscope, whilst the same object under reflected light would have presented a chalk-white colour. In stating the colours of microscopic objects, naturalists have in general paid too little attention to the conditions under which the object is regarded, particularly whether by transmitted or reflected light.

Goodsir furthermore (Report of the Fourteenth Meeting of the British Association for the Advancement of Science, held at York, 1844. London, 1845 ; Notices, p. 67) expresses himself with respect to Entozoa inhabiting cysts, and remarks, quite correctly, that a cyst, the internal surface of which secretes a nutrient fluid for its parasites, produces, in time, a substance of too great consistence, in which the inhabitants are killed and entombed. But that Goodsir had still no very clear notion with respect to *Echinococcus hominis,* is evident from the three species of Cyst-worms instituted by him under the names *Acephalocystis simplex, monroi,* and *armatus.* The first species is said to contain only a few young cysts ; in the second the mother-cyst (germinal membrane) is stated to be subdivided by a fibrous tissue into many compartments, which are

filled with one or more cysts containing young hydatids. In the mother-cyst of the last species, small and transparent vesicles are developed, which are gradually rendered opaque by the young produced in their interior. With respect to *Echinococcus* we again learn the most incredible things from Klencke (Ueber die Contag. d. Eingeweid. pp. 14, 83 et seq.; vid. also Klencke's previous communications with reference to my experiments on the transmission of hydatids as "Contagium animatum," in Haeser's Archiv, 1843, p. 226), which also must excite our wonder how it is that Klencke has had such an extraordinary amount of experience with regard to the *Echinococcus hominis*. The cheesy substance which is frequently present in the aqueous contents of the Acephalocysts, is explained by Klencke to be the ovary of these Cyst-worms; in whose walls he has also perceived oral orifices and intestinal tubes. Ova are said to be contained in the Echinococcus progeny, which Klencke has frequently seen attached in masses to the circlet of hooks. From these masses of ova, cysts are said to be formed, from which Acephalocysts originate, so that it follows that these cysts are nothing else than encysted ovaries of the *Echinococcus*. He has also found the ova of *Echinococcus* both in the human blood and in cow's milk. The experiments of transplantation of the *Echinococcus* into other animals, in which experiments these supposed ova and ovaries were sometimes injected, sometimes inoculated, were again completely successful in the wonderfully fortunate hands of Klencke. It is to be hoped that Klencke will desist from these researches, which he has, in a short time, so completely exhausted, and the results of which have advanced to such an extraordinary extent our present possible knowledge, and relinquish a field, the praiseworthy and careful cultivation of which by other naturalists, though but slow, will be attended with more permanent results.

HELMINTHES DUBII.

A case is related by Scortegagna (Omodei Annali, Nov. 1844, p. 301), in which, by the use of Chabert's oil, two new worms were expelled, which he has named *Lumbricus rostratus*, and *Filaria policotoma*, but not described more particularly.

Behn (Amtl. Bericht über die 22te Vers. der Naturf. u. Aerzte in Bremen, 1844; Abth. ii, p. 113) found the external surface of the blood-vessels of Chelonia midas covered with tumours of various sizes, formed of a thick capsule, the contents of which appeared like a black substance (by transmitted or reflected light?), but which under the microscope proved evidently to be worms. Erdl (these Archiv, 1843, Bd. i, p. 162) has described and figured the moving filaments in the venous cavities of the Cephalopoda, which had been already noticed by Krohn, in Froriep's neuen Notizen, 1843, Nr. 214, p. 214, several years before. They form elongated intestiniform sacculi or tubes, which twist around, lengthen and shorten themselves, and are curved into arches or rings, during which the creatures turn quickly round in a circle by means of the long cilia with which the whole surface of their body is covered. A wider cephalic extremity can be distinguished in them, in which, according to Erdl, an oral orifice is said to be situated, but the Reporter has never been able to perceive more than a pit-like depression in that situation, which enabled the animalcules to employ their cephalic extremity as a suctorial disc. In their interior were globular corpuscles, in various degrees of development, one behind the other, which, when the development was more advanced, moved about like infusoria by means of a ciliated epithelium. The Reporter was inclined to look upon these curious creatures with their infusoria-like contents as the saccular larvæ of an animal subject to an alternation of generations. With reference to this we cannot refrain from noticing the similarity of these

infusoria-like contents to the enigmatical, caudate *Posrospermata* described by Joh. Müller (Müller's Archiv, 1841, Taf. xii, Fig. 3, *a*, *g*, and Fig. 9, *a*.)

Örsted (Entwurf einer system. Eintheil. und speciel. Beschreibung der Plattwürmer, p. 14) speaks of Leucophrys-like Entozoa, which he had met with in the Rhabdocœlæ, without describing them more particularly; probably the *Opalina* are thereby intended, which the Reporter has frequently seen in the intestinal canal of the Planariæ.

Goodfellow (The Lancet, Oct. 1844, p. 45; or London Med. Gazette, Aug. 1844, p. 724) remarked in the blood and in the vomited contents of the stomach of a typhus patient myriads of very lively active animalcules, of from $\frac{1}{5000}$th to $\frac{1}{3000}$th of a line in length, and presenting no distinction of head and tail. He also recognised the same corpuscles in the bloody exudations of the mouth and nasal mucous membrane, as well as, forty-eight hours after death, in the aorta, carotids, vena cava, and in the fluid of the stomach. These creatures were certainly nothing but the vibriones which occur in such countless multitudes in all putrefying and fermenting [animal] fluids, and which are constantly to be met with in the mucus of the mouth, which collects between the roots of the teeth.

Hammerschmidt (Archiv, f. physiol. u. patholog. Chemie, u. Microscopie, 1844, p. 83) thinks he has found new Entozoa in the urine of Serpents, which in their motions might be regarded as Spermatozoa, but which in form and size nearly approach *Bodo* and the caudate *monads*. Their oval-lanceolate body presents a very slender filamentary rostellum and a thicker shorter tail.

According to the observations of Gruby and Delafond (Comptes rendus, 1843, tom. xiii, p. 1034; or Institut. 1843, p. 426; or Froriep's n. Notiz. 1843, Nr. 609, p. 233), four species of living animalcules occur in the paunch and reticulum of ruminating animals during digestion, the Horse is said, at this time, to present even seven species of these animalcules in the cæcum and colon, whilst in the

stomach of the Dog only two species, in that of the Hog but one species of monads are found, which would appear to stand in close connexion with the digestion of various vegetable and animal articles of food.

Klencke (Neue physiologische Abhandlungen, 1843, p. 165, Fig. 25) has observed in the blood of persons who had been subject to frequent attacks of vertigo, minute serpent- and fish-like animalcules of various sizes, which moved with great activity, swimming sometimes with a serpentine motion, and sometimes, when larger, crawling along like caterpillars. From this description no idea of these worms can be formed; the smallest individuals were about the third part of a blood-disc in length, and the largest were about three times as long as the diameter of a blood-disc. They were quickly killed by a drop of water. Immediately before the attacks of vertigo they were more lively, and shortly after them more sluggish. If the vertigo did not occur for from eight days to a fortnight, Klencke could not discover any trace whatever of the infusoria-like Entozoa. If the attack of vertigo was very severe, the larger animalcules predominated. As for the rest, it appears that Klencke first discovered these hæmatozoa in his own blood at a time when he had suffered for several months from sudden attacks of vertigo. If the figure which Klencke gives of these creatures be compared with the vibriones (vid. Vogel, Icones Histologiæ pathologicæ, Tab. xi, Fig. 10) which are developed in all putrefying animal fluids, as blood, pus, &c., in vast quantities, and which are scarcely ever wanting in foul ulcers, it will be quite evident that Klencke's hæmatozoa were also vibriones of the same kind. The same observation, probably, will apply to the worms found by Brunetta (vid. the Reports of the Scientific Congress at Lucca. Medical section. allgem. Augsburger Zeitung vom 14 Oct., 1843; Supplement, p. 2247) in the buboes of a syphilitic patient.

An already well-known hæmatozoon has latterly been the subject of investigation by several naturalists. Its simple organization allows it to be compared with a cell, the whole

creature, consequently, if it be actually an independent animal, must be referred to the Infusoria. Its body is contractile, and furnished on one side with an actively vibrating ciliated lobe. Gruby (Comptes rendus, 1843, p. 1134; or Annales des Sci. Nat. 1844, tom. i, p. 104, Pl. 1, B; or Froriep's neue Notiz. Nr. 604, 1843, p. 152) has named this hæmatozoon, which he discovered in the blood of adult Frogs, *Trypanosoma sanguinis*. He describes the animal as having an elongated flattened body, with a filamentary prolongation at each end, it is jagged at one lateral margin, and rotates on its longitudinal axis. The lateral margin appears jagged only in consequence of an optical delusion during the movements of the laterally attached ciliary fringe.

Mayer (De organo electrico et de hæmatozois, 1843, p. 10, Tab. iii, Figs. 10, 11) saw in the blood of the green Grass-frog, two different animalcules swimming about actively, one of which (*Paramæcium loricatum*, or *costatum*, May.) is said to be oval, obliquely striated, and furnished anteriorly with cilia, whilst the other (*Amœba rotatoria*, May.) presented a slender, elongated, very mutable body, furnished with a lateral, rotorial, ciliary apparatus. Both forms certainly belong to the *Trypanosoma* described by Gruby, to which also it is most probable that the Entozoon found by Hyrtl (Müller's Archiv, 1843, p. 238) in the lateral canal of a Trout, and which corresponded with the worm discovered by Valentin in the blood of that fish, should be referred.

Will (Horæ tergestinæ, 1844, p. 78, et 81) could almost always perceive in the cavities of the stomach, the respiratory tubes and sexual organs of *Diphyes Kochii*, which communicate with each other, elongated Entozoa pointed at each end, which were smooth externally and rather flattened, and varied in size from $\frac{1}{45}$th to $\frac{1}{27}$th of a line. They exhibited a very active serpentine motion, and swam about, especially in the respiratory cavity with great facility, and attached themselves also by one extremity of the body, which

was bulbous, after doing which they moved the free portion about in a serpentine manner. Of their internal structure nothing could be made out. Similar active corpuscles presented themselves, also in Ersæa pyramidalis, truncata, and elongata. Might not these creatures perhaps have been Spermatozoa?

PSEUDOHELMINTHES.

The capilliform Spermatozoidea developed in the lower Crustacea and Cirripedia have, most incomprehensibly, been described by Goodsir as Filariæ. (Froriep's neue Notizen, Nr. 627, 1844, p. 163.) Berres (Oesterreich. mediz. Jahrbücher, 1843, p. 141) has gone still further, and has described all the Spermatozoidea generally as animals. He thinks that in the human Spermatozoidea he has seen in the interior of the body a granular material grouped in various ways, the granules of which, in many individuals, exhibit a sort of fluctuation, such as may be observed during the peri- and anti-peristaltic motion of the digestive organs in the Infusoria. Berres believed that in some, he had remarked, in the axis of the body, a cylinder or tube filled with a coloured matter, and which was continued as far as the caudal extremity. In most of the Spermatozoidea, however, he was struck with a clear, round vesicle, in the interior of the body near the tail, probably a stomach or ovary (?), whence he comes to the conclusion that the Spermatozoidea of Man are animals having a complex organization. The same observer also saw the bodies of these Spermatozoidea assume various figures by means of constrictions.

The new Entozoon described by Mayer (Oesterreich. mediz. Jahrbüch. 1843, p. 141) under the name of *Acanthosoma chrysalis*, which was met with on the outer surface of the stomach, and between the layers of the omentum of Rana esculenta, must be referred by the Reporter to the Pseudohelminthes. The vermiculi to which this name has been given were of a brownish colour, one and a half line

long, presented twelve belts beset with spiculæ, and at one extremity of the body a horny organ with a double hook, which Mayer was inclined to look upon as the penis. The Reporter, in these vermiculi, recognises nothing but the larvæ of a viviparous Tachina, which had probably been devoured by the Frog, and its progeny, then creeping out of the swallowed Fly, had instinctively bored their way through the membranes of the Frog's stomach, and thus arrived between the layers of the peritoneum; seeing also that these larvæ are compelled to work their way through the integument of the body of the Caterpillars, in consequence of the want of an ovipositor in their mother; and for which purpose the hooklets on the belts, which are directed backwards, and the horny pointed jaws, which Mayer was inclined to regard as a penis, are of great use.

A case is related by Hampeis (Oesterreich. medizin. Wochenschrift, 1844, p. 729), in which a number of worms moved about in the cavity of the carious knee-joint of a soldier. Hampeis did not know what to make of these worms, as in their figure they did not correspond with any of the known Entozoa. But from the description he gives of these problematic creatures, it is easy to guess that they were nothing but the maggots of a Fly. Various older and more recent cases, in which insects and their larvæ, and other animals, have strayed as pseudo-parasites into the human body, have been collected by Hager (Die fremden Körper im Menschen, 1844) and Tiedemann (Von lebenden, Würmern u. Insekten in den Geruchsorganen des Menschen, 1844).

A case given by Green (Rare case of Filamentous or entozoon Worms, in the Lancet, 1842-3, vol. ii, No. 9, p. 294) appears to the Reporter very extraordinary. A lady took a sulphur-bath, and was afterwards covered with hundreds of minute worms, which, whilst she was dressing, fell to the ground, springing from the skin to a distance of from twelve to twenty inches. They were more than half an inch to an inch in length, of a pale red colour; the larger

individuals presented a black, the smaller a brown, head; when shrivelled up and dried they resembled short black hairs. The lady said she had suffered in the same way for two years, and that she had become affected by having on one occasion, during the summer, slept on the ground near some stagnant water, and when she woke her mouth was filled with very minute worms.

SUPPLEMENT.

A Helminthological work, by Luigi Rolando, presented as long ago as the year 1805 to the Academy of Sciences in Sienna, has not been printed till within the last two years. (Atti dell' Accademia delle Scienze di Siena, tom. x; Siena, 1841, p. 1. "Osservazioni sopra i vermi intestinali colla descrizione di qualche nuovo genere e nuova specie, del Dott. Luigi Rolando.") These observations, of course, bear upon them the stamp of a period at which these parasites, and especially their internal structure, were very little known; it is consequently difficult to determine the worms described by Rolando, and the more especially since the appended figures are extremely imperfect. In the first place, he asserts that Man, besides the *Ascaris lumbricoides* also harbours another larger worm, differing from that species, and in which he thinks he has recognised an *Echinorhynchus*. He next describes an *Ophiostoma* from the stomach of Falco peregrinus. A Round-worm, more than three inches long, and which is said to have been marked with a black ring in the middle of the body, found in the parenchyma of the lungs of Anas clangula, has received from Rolando the old name of *Crino*. Several nematoid worms, one and a half inch long, found in the cæcum of a Vanellus, he refers to *Hexastoma*, because they are furnished at the blunt anterior extremity of the body with six black orifices or puncta, arranged one behind the other, whilst the posterior extremity of the body is acuminated. Three small nematoid worms from the intestine of an Egyptian goose, the anterior extremity of

which was provided with a sort of cap, and the posterior with a short and a long point, are described by Rolando as *Cucullani;* they were besides encircled anteriorly with a reddish ring, from which a black stripe ran backwards, the whole length of the body. A nematoid worm, found in the abdominal cavity of Corvus graculus, which possessed a bilobed mouth, and was equally thick and rounded at either end, he refers to the genus *Filaria,* as well as another worm from the abdominal cavity of Turdus saxatilis, with depressed body and a toothed caudal extremity. The viscera protruding from the ruptured body of this worm appeared to him "un fenomeno molto singolare." In consequence of this rupture, undoubtedly, the caudal extremity was entirely curled up, and was viewed by Rolando as being toothed. He, moreover, found in the lungs of Ardea purpurea various intertwined aggregations of nematoid worms, which reminded him of the *Hamularia* of Treutler, but as he did not remark at one end of the body any hook-shaped appendage, he referred them to *Cucullanus.* A headless *Tænia,* from the intestinal canal of an Ardea major, has been most imperfectly described. A nematoid worm, parasitic in the intestine of Ardea nycticorax, has been named by Rolando, on account of its long rostellum, *Proboscidea,* but it is most probable that he has taken the slender caudal extremity of the worm for a rostellum. Of two *Echinorhynchi,* from the intestinal canal of Muræna anguilla and Cyprinus carpio, the latter is said to have had no hooklets on the rostellum. Several worms, four lines in length, which inhabited the muscles of the head of Esox lucius, have been described as *Linguatulæ,* because they are said to be furnished at the anterior extremity with four to five pores. A similar smaller species of *Linguatula* was observed in the dorsal muscles of a Cyprinus tinca.

Lastly, Rolando has noticed another *Echinorhynchus* from the intestine of Falco pygargus, and some worms from a species of Moth (Nachtfauenauge) from a Cerambyx, a Limax, and a Sepia, but which he had not examined more

closely. But the most interesting thing in the whole Memoir is the description of a new worm, from which it appears that Rolando had already observed *Monostomum faba*. He found this worm by pairs in tubercles the size of peas, with which the cutis of a Starling was beset all over. The figures which he has given of two of these worms, which he referred to *Globularia*, resemble in all respects the drawings published by Creplin in these Archives. (Year 5, Bd. I.) The two intestinal sacculi, the uterus, the oviducts, and the ovaries (dotterstöcke) are distinctly recognisable, but it must be confessed that Rolando has himself given an incorrect explanation of them.

WORMS, ZOOPHYTES, AND PROTOZOA,

IN 1843 AND 1844.

BY

PROFESSOR C. TH. V. SIEBOLD,

VERMES ANNULATI.

The Annelids have of late frequently become the subject of attention to naturalists. They have not only received additions in many new genera and species, but their internal organization has also been illustrated by numerous observers.

Chætopodes branchiati.—A very copious Memoir on the intimate structure of the nervous system of the Annelida has been furnished by Quatrefages (Ann. d. Sc. Nat. tom. ii, 1844, p. 81), in which *Eunice sanguinea*, Sav., *Nereis Beaucondrayi*, Aud. et Edw., *Glycera Meckelii*, Aud. et Edw., *Phyllodoce pellucida*, Quatr., the genus *Glycera*, Aud. et Edw., and *Aricinella*, Quatr., have been the principal subjects of investigation.

The genus *Aricinella*, instituted by Quatrefages (ib. p. 95), is provided, as a head, with a long acuminated rostellum, without any appendage, but which supports on its dorsal aspect two distinct eyes. The same active naturalist (Comptes rendus, tom. xix, 1844, p. 195; or Froriep's n. Notiz. Nr. 674, p. 215) discovered the auditory organ in a new *Amphicora*, Ehrenb., consisting of an auditory capsule provided with otolithes, and placed on each side of the foremost segment of the body. According to the observations of Quatrefages (Comptes rendus, 1844, p. 77; or Ann. d. Sc. Nat. t. i, 1844, p. 17), the vascular system in various

Annelids is simplified to an extraordinary degree. In the Tubicolæ the blood circulates partly in vessels, partly in lacunæ; in *Doyeria*, Quatref. (allied to *Syllis*) there is only a simple dorsal vessel, and in *Aphlebine*, Quatref. (allied to *Terebella*) neither branchiæ nor blood-vessels exist. With respect to the sexual organs, Quatrefages (Comptes rendus, 1844, p. 193; or Froriep's n. Not. Nr. 674, p. 215) observed distinct sexes in many Dorsibranchiata and Capitibranchiata. He (ib. 1844, p. 77; or Ann. d. Sc. Nat. t. i, 1844, p. 22) discovered on the coast of Brittany a *Syllis*, which, like the *Nereis prolifera*, Müll., was multiplied by spontaneous fission, after the development of a head upon the anterior extremity of the portion of the body behind a posterior constriction. After the separation the two new individuals are exactly alike, but possess different properties. The anterior individual probably reproduces its caudal extremity, whilst the posterior propagates itself by means of sexual organs which are developed in it. The small species of *Syllis*, *Nereis*, and *Polynoë*, which Quatrefages noticed to be luminous, are not, according to his researches (Annales d. Sc. Nat. t. xix, 1843, p. 184; or Froriep's n. Not. Nr. 586, 1843, p. 209), provided with any special luminous organs, as the muscles alone develop the light during their contractions. Other researches have convinced him (Comptes rendus, t. xvii, 1843, p. 962; or Institut. 1843, p. 274) that fresh water acts like a poison upon the marine Annelids, which is chiefly owing to the want of chloride of sodium.

We are indebted to Oersted for a series of systematic essays on the branchiate Annelids. He proposes, instead of the older classification of them according to Audouin and Milne Edwards, and consequently instead of the divisions into Dorsibranchiata, Capitibranchiata and Abranchiata, the following new classification. (Archiv, 1844, Bd. i, p. 99.) He divides them, according to their habitation, into Maricolæ, Tubicolæ, and Terricolæ. But this arrangement cannot suffice, since among the Maricolæ there are also the branchiate Annelids which inhabit tubes, and moreover because many Terricolæ live in water. In the classification of the

Maricolæ, Oersted regards the structure of the intestinal canal, the number of the segments of the body, and the form of the branchiæ. Thus he institutes the following sub-orders and families: (1) Sub-order, CHÆTOPODA, with the three families, Chæt. trematodina, vera, and terricolina, each family with two sub-families, viz.: the Amphinomaceæ, Aphroditaceæ, Euniceæ, Nereidæ, Arenicolæ, and Ariciæ; whilst (2) the sub-order, ACHÆTA, contains only the family Peripateæ. Of these families, Oersted has given a more particular exposition of the Ariciæ, to which have been added the new genera, *Disoma*, *Sphærodorum*, *Dodecaceria*, *Ophelina*, and *Eumenia*. (Archiv, 1844, Bd. i, p. 103.) He has also commenced the description of the Danish Annulati, beginning with the Maricolæ. (Annulatorum danicorum conspectus. Fasc. i. Maricolæ. Hafniæ, 1843.) Of the 48 Danish Maricolæ enumerated by him, 23—24 species are new, viz.: *Lepidonote assimilis*, *Pholoë baltica*, *Heteronereis fucicola*, and *viridis*, *Nereilepa variabilis*, and *fusca*, *Nereis zostericola*, *Notophyllum viride*, and *longum*, *Eulalia pusilla*, *sanguinea*, *Eteone Sarsii*, *maculata*, *pusilla*, *Phyllodoce assimilis*, *mucosa*, *groenlandica*, *Nephtys borealis*, *assimilis*, *Goniada alba*, *Leucodorum cæcum*, *Disoma multisetosum*, *Sphærodorum flavum*, *Dodecaceria concharum*, *Ophelia mamillata*, *Ophelina acuminata*, *Eumenia crassa*, and further, *Chætopterus*, new species, but so mutilated that the animal could not be determined by Oersted. For the new genus *Heteronereis*, allied to *Nereilepa*, Blainv., he has assigned the following characters: Corpus ex duabus partibus et forma et appendicibus valde discrepantibus constans, parte anteriore tereti appendicibus ut in Nereidis genere prædita, posteriore vero depressa; in hac, segmenta multo breviora, mamilla branchiali ad basin cirri superioris, lamella apici pinnæ inferioris, cirro inferiore mamillæ bipartitæ affixo. Setæ partim cultratæ, partim spinosæ. The new genus, *Notophyllum*, allied to *Phyllodoce*, is characterized as follows: Corpus lineare depressum; caput cordatum; tentacula 4 elliptica in apice capitis, cirrorum tentacularium paria 4; oculi

duo; pinnæ duæ discretæ, branchia superior horizontalis in appendice pinnæ superioris verticali affixa, maximam dorsi partem obtegens; branchia inferior in apice pinnæ inferioris verticalis. Mamilla ad basin pinnæ inferioris. Of all these Danish Annulati, seven species occur also in France.

Oersted's work on the dorsibranchiate Annelids of Greenland, of which an abstract had been previously published (vid. Archiv, 1843, Bd. ii, p. 289), has now appeared in a complete form. (Grönlands Annulata dorsibranchiata, 1843.) (The text, except the Latin Diagnoses, is in the Danish language.) As a contribution to the Fauna of Ireland, Thompson has enumerated (Annals Nat. Hist. xiii, 1844, p. 437) sixteen branchiate Annelids, from the genera: *Phyllodoce, Syllis, Nephtys, Campontia, Cirratulus, Trophonia, Terebella, Sabella,* and *Serpula.*

The coast of Norway has been explored with reference to its Annelids by Rathke (Nov. Act. Acad. Leop. Car. Nat. Car. t. xx, p. 1, 1843, p. 149), who has there found *Polynoë squamata,* Sav., *levis,* Aud. et Edw., and *cirrata,* Sav., *Nereis pelagica,* Lin., *Dumerilii,* Aud. et Edw., *Phyllodoce laminosa,* Sav., and *clavigera,* Aud. et Edw., *Amphitrite auricoma,* Müll., *Terebella cirrata,* Cuv., *Cirratulus borealis,* Lam., *Sabella octocirrata,* Sars, *penicillus,* Cuv., and *libera,* Sars, and *Lumbricus lineatus* (?), Müller, together with several altogether new animals, which have been described with the following diagnoses. *Sigalion Idunæ:* squamis dorsum omnino tegentibus; antenna impari ad basin appendicibus duabus parvis flexuosis. *Nereis grandifolia:* ligulis branchialibus præmagnis, tenuibus, obtusis; extremitatum cirro superiore, longo crenulato. This *Nereis* is afterwards (Archiv, 1844, Bd. i, p. 258) declared by Rathke to be identical with *Heteronereis arctica,* of Oersted. Besides these there are, new—*Nereis Sarsii:* ligulis branchialibus triangularibus, tenuibus, acutis; cirro superiore segmento primo secundo aliquanto majore. *Syllis cornuta:* flavescens, capite longiori, fronte profunde excisa, oculis in unam seriem dispositis. *Syllis tigrina:* vittis alternantibus fuscis et albis in

superiore corporis facie; capite longiori, fronte mediocriter excisa, oculis in unam seriem dispositis. *Halimede,* nov. gen., with the single species, *H. venusta,* is distinguished from *Hesione* by the following diagnosis: proboscis subglobosa, crassa, orificio sub-quadrangulari, tentaculis nonnullis prædita; maxillæ nullæ; antennæ 4 parvæ; externæ intermediis paulo majores; cirrorum tentacularium paria 6; cirri superiores prælongi filiformes; pedes indivisi, branchiis tribus parvis prædiți. *Ephesia,* nov. gen, with the species, *E. gracilis,* differs from *Goniada* in the following: maxillæ, oculi, tentaculi, et cirri tentaculares desunt; proboscis longa, clavata, lævis; corpus elongatum, utroque latere eminentiis mammæformibus, et fasciculis setarum brevissimarum in unam seriem dispositarum. Besides these there are also new—*Nephtys ciliata:* proboscide cirris conoideis brevioribus in 5 series transversas dispositis; extremitatum ramo superiore carente. *Glycera alba:* antennis 4; extremitatibus branchia una falciformi, cirro superiore minori, cirroque inferiori multo majori, complanato, triangulari fere, instructis. *Aricia Müllerí:* duobus minutissimarum setarum fasciculis in utraque 17 anteriorum segmentorum latere; eminentia lamelliformi pone inferiores illos fasciculos aut indivisa, aut semel incisa. *Arenicola Boeckii:* corpore gracile, extrema versus pedetentim attenuato; branchiarum paribus 40. Bordering upon *Arenicola* is the new genus, *Scalibregma,* with the species, *Sc. inflatum:* corpus molle, longum, annulatum, subcylindricum; setarum fasciculi 4, in omnibus fere corporis segmentis; branchiæ in anteriore corporis parte, pone totidem setarum fasciculos dorsales, fruticosæ; eminentiæ setiferæ in posteriore corporis dimidiâ parte pediformes, complanatæ, in duos ramos divisæ; antennæ, maxillæ, oculi nulli; proboscis sine eminentiis verrucæformibus. *Ammotrypane:* corpus elasticum, prolongatum, annulatum, glabrum; branchiæ simplices, cirriformes, in duos series ad corporis latera dispositæ; setæ omnes tenues, simplices ad corporis latera; caput ante diminutum et acute terminatum; os in inferiore capitis facie, nudum, transver-

sum; tentacula et oculi nulli. In this genus Rathke has described the three species, *Amm. aulogaster, limacina,* and *æstroides,* but afterwards found (Archiv, 1844, Bd. i, p. 259) that the latter species coincided with *Ophelia mamillata* Oerst. To the genus *Siphonostoma* he has added four new species: *S. plumosum:* corpore attenuato; cute verrucosa; superioribus setarum fasciculis inferiores longitudine multo superantibus; cirris octo cylindraceis magnis; tentaculis paulo latioribus. *S. vaginiferum:* corpore attenuato; cute subrugosa; setarum fasciculis cute tanquam vagina abductis; cirris numerosis, parvis, in duos fasciculos collatis; tentaculis multo latioribus et longioribus. *S. villosum:* corpore breviori; cute ubique villosa; setis inferioribus crassis, brevibus, superioribus multo tenuioribus et longioribus; cirris numerosis, parvis, in duos fasciculos digestis; tentaculis multo latioribus. *S. inhabile:* corpore toroso doliiformi; cute verrucosa; cirris 6 (8?) parvis; tentaculis paulo latioribus. Lastly, Rathke has instituted as a new genus, between *Sabella* and *Clymene,* that of *Clymeneis,* with the species, *Cl. stigmosa,* which differs from *Sabella* in the want of branchiæ on the head, and from *Clymene* in the narrow and slender posterior production of the body, which, consequently, is not furnished with any infundibuliform appendage.

According to the observations of H. Koch and Will (Archiv, 1844, Bd. i, p. 331) *Chætopterus pergamentaceus* occurs also in the Adriatic Sea. Peach (Institut. 1844, p. 419) thinks he has observed, that the *Nereis tubicola* is able to swim about on the surface of the sea; but this is declared by Forbes to be merely accidental.

A new and extremely remarkable Annelid, having the aspect of a young *Syllis,* has been discovered by Quatrefages on the coast of Brittany, and been named *Dujardinia.* (Comptes rendus, 1844, p. 77; or Ann. d. Sc. Nat. t. i, 1844, p. 19.) It has, on each side of the body, a row of motory organs, which recall in every respect the rowing organs of the Rotatoria; its rudimentary feet, as in the other Branchiata, support stiff setæ.

The genus *Serpula* has been submitted to a more particular examination by Philippi (Archiv, 1844, Bd. i, p. 186, or Froriep's n. Notiz. Nr. 731, 1845, p. 73). He has employed the nature of the operculum in the various Serpulæ, as a very good character for the formation of subgenera, and has, in accordance with this, added to the already recognised subgenera *Serpula, Vermilia,* Lam., *Cymospira,* Sav., *Galeolaria,* Lam., *Spirorbis,* Lam., *Protula,* Ris., the following additional new ones, viz.: *Placostegus, Pomatoceros, Eupomatus,* and *Psygmobranchus.* The species have been arranged by Phillippi in accordance with this classification of the genera, and fifteen new species are added.

Chætopodes abranchiati. Very copious and valuable researches, respecting the various species of Earth-worm, have been published by Hoffmeister. (De vermibus quibusdam ad genus Lumbricorum pertinentibus, Dissert. Berol. 1842, and in these Archiv, 1843, Bd. i, p. 183.) He properly objects to the previous zoological works on the genus *Lumbricus,* that the hitherto admitted specific distinctions have been founded upon unessential and mutable characters, such as the situation of the clitellum and the position of the vulva, since these parts have no determinate position; nor is the number and situation of the pores below the clitellum constant. On the other hand, Hoffmeister adduces the form of the upper lip as an infallible and immutable character, which is applicable also in young and asexual individuals, in which both the clitellum and genital orifices are wanting. The position of the clitellum and of the vulva, the proportionate length of the body to its thickness, the form of the separate segments, of the body, that of the tail, and the colour of the integument are employed only as subordinate specific characters. In accordance with this, Hoffmeister institutes the five genera, *Lumbricus, Rhynchelmis, Haplotaxis, Enchytræus,* and *Sænuris;* in the distinguishing of these, however, reference is made to the pedicelli, viz.: whether they are disposed in two or four series; whether they are placed singly, in pairs, in three to four, or

five to eight together. To the genus *Lumbricus* are assigned the six species: *Lumb. agricola, rubellus, anatomicus, riparius, olidus,* and *agilis,* all of which occur in North Germany. To *Enchytræus albidus,* Henl., to which *Lumb. vermicularis,* Müll., is said to belong, Hoffmeister has added, besides, the *Ench. Galba; Rhynchelmis limosella* and *Haplotaxis Menkeana* are interesting on account of their long upper lip. *Sænuris variegata* and *lineata* are said to be identical with Müller's *Lumbricus variegatus* and *lineatus,* which the Reporter doubts, because, according to Hoffmeister (Dissert. p. 11), *Sæn. variegata* inserts itself into the mud, and waggles about with the projecting caudal extremity, which *Lumbr. variegatus,* Müll., never does. *Sæn. variegata* is certainly identical with *Lumbr. tubifex,* at all events, with the worm figured by Schäffer (vid. his Memoir: Die grünen Armpolypen, die Wasserflöhe und eine besondere Art kleiner Wasseraale, Taf. iii), which last supposition has also been broached by Grube. (Archiv, 1844, Bd. i, p. 213.) The latter naturalist describes a new worm under the name of *Lumbricus variegatus* (ib. p. 198), which is most probably the *Lumbr. variegatus* of Müller. This worm is remarkable by its vascular system. The dorsal vessel in it, at each segment, gives off a branch at right angles, which terminates in a digitate manner in cæcal twigs, as in fact Treviranus had already noticed (Beobachtungen aus der Zootomie und Physiologie, 1839, p. 59) in the *Lumbricus variegatus* of Müller. Grube recognised a vascular system, in all respects similar, also in *Euaxes filirostis,* which new genus he characterizes by a long, unjointed proboscis and the want of a clitellum. Böck also (Isis, 1843, p. 287) expresses himself with respect to the uncertain characters of the species of Earthworm, instituted by Savigny and Dugès, and maintains that he has observed seven different species of the genus *Lumbricus* in Norway.

In a marine worm allied to *Nais* Quatrefages (Comptes rendus, 1844, p. 193; or Froriep's n. Notiz. Nr. 674, p. 215) observed three eyes on the head, and besides these also an eye on each side of each segment of the body, together with rudi-

mentary feet. This worm is probably to be referred to the *Nais picta*, described by Dujardin. (Ann. d. sc. nat. t. ii, 1839, p. 293, Pl. 7, Figs. 9-11.)

Müller (Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1841, Berlin, 1843, p. 181), gives up the appellation of *Cyclocirra Thompsonii*, introduced for *Myzostomum cirriferum*, Leuck., but declares, as the Reporter also had done (Archiv, 1843, Bd. ii, p. 299), that the species *Myzost. glabrum*, instituted by Leuckart, is identical with his other *Myzostomum cirriferum*. Müller noticed marginal cirri in all these animals, which he observed on *Comatula mediterranea*.

Hirudinei. The experiments hitherto published, on the subject of the breeding of leeches, have been collected by Egidy in a special memoir (Die Blutegelzucht nach Ergebnissen der Erfahrung dargestellt, nächst ausführlicher Beschreibung des Blutegels, seiner Arten u. Varietäten, 1844), together with which are also added, a history of what is known respecting the anatomical structure of the Leech, a description of the allied species, and a copious account of the literature of the subject. Olivier (Journal de Chirurgie, par Malgaigne, 1844, Mars, p. 88) has proposed a curious proceeding. The fully-gorged leech should be punctured with the point of a lancet, at the termination of the first third of its body, on the back, in one of the transverse wrinkles, the incision being made parallel with it between the vein and artery, and in a direction from before to behind. The wound must be two millimeters long. The leech is afterwards to be placed in lukewarm water, in which, by the contractions of the animal, which may be assisted by pressure with the fingers, the blood that it had sucked escapes through the wound. Should a whitish bladder present itself in the wound, that is, a portion of the walls of the stomach, it is to be cut off in order to allow the blood again to escape freely. The animal is afterwards placed in rain- or river-water. The Ranunculus aquaticus appears to

be very useful to leeches, it is even said that the young individuals feed upon it, consequently it is good to place this plant in the water with them, for at the end of eight or ten days large quantities of green fæces are seen lying at the bottom of the water, which Olivier maintains that he recognised as the fragments of the Water-ranunculus. The lancet-puncture in the leech closes after a few days, and it can then be again employed for sucking; in this way a leech may always be reapplied after fifteen to eighteen days, and but few die in consequence of the operation. Olivier has done as much with thirty-five leeches as it would otherwise have required 183 to effect.

Guyon (Comptes rendus, 1843, p. 424; or Institut. 1843, p. 292; or Oesterreich. med. Wochenschr. 1844, p. 125) has again reported respecting *Hæmopis vorax*, the abundance of which in Algeria is exceedingly troublesome, as these worms crawl over man and beast. In one case a worm of this species had crawled into the vagina of a soldier's wife at Bona, and had caused a metrorrhagia.

Among the Hirudinei, according to Thompson (Annals. l. c. 13, p. 437), *Piscicola geometra*, *Clepsine tessulata* and *hyalina* are indigenous in Ireland. In a dissertation (De Hirudinibus circa Berolinum hucusque observatis. Diss. Berol. 1844), by F. Müller, the genera *Clepsine*, *Nephelis*, *Aulostoma*, *Sanguisuga*, *Piscicola*, and *Branchiobdella* are characterized, and *Clepsine marginata*, *tessulata*, *complanata*, *hyalina*, *Carenæ* and *bioculata*, species that occur near Berlin, are described at length, and to these besides is added the new species *Clep. verrucata*. The latter can be distinguished from *Clep. complanata* only by the internal structure. *Clepsine verrucata* possesses, for instance, "appendicum ventriculi paria 7, par ultimum inter appendicum intestini par primum et secundum terminatum;" *Clepsine complanata*, on the contrary, "appendicum ventriculi paria 6, par ultimum inter appendicum intestini par secundum et tertium terminatum." In *Clepsine complanata*, Müller observed, before the expulsion of the ova, on both sides of the abdominal

surface, peculiar filamentous organs projecting, which were certainly connected with the sexual function. In *Cleps. complanata* and *tessulata*, the first-formed ova escape laterally into the back, by which, at last, a sort of zone or girdle of ova is formed, from which the animal withdraws its cephalic extremity, its body forming a sort of shield over the group of ova. *Cleps. tessulata, marginata,* and *complanata* remain lying motionless upon these groups of ova, but subsequently carry about with them, on the abdomen, the progeny when extruded from the ova; but *Cleps. hyalina, Carenæ,* and *bioculata* carry about with them, not only the young, but also the ova. In another paper (Archiv, 1844, Bd. i, p. 370), Müller has described the anatomical differences between *Clepsine tessulata* and *marginata.*

Grube has selected the development of the ova of *Clepsine* for the subject of ample researches (Untersuchungen, über die Entwicklung der Anneliden. Heft. i, 1844), from which we learn that *Clepsine complanata* deposits usually five to seven ova, enveloped in a very transparent, soft, saccular egg-case; whilst in *Cleps. bioculata* there are only three or four, and in *Clepsine marginata,* only one ovum in each capsule. The egg-cases (nidamental capsules) are glued, by a peduncle, to water-plants, and continue hanging thereon, whilst the young, when extruded, attach themselves to the belly of the mother. The ovi-position, as well as the preparation of the capsules, was observed by Grube to be performed in the same way in *Clepsine* as it is known to be in *Nephelis.* He has also described the internal structure of the sexual organs, but was unable to satisfy himself, whether the *Clepsinæ* reciprocally impregnate each other, or whether their ova are developed in consequence of self-impregnation.

Nemertini. Oersted has systematically arranged the division of the Nemertini (Entwurf einer systematischen Eintheilung und speciellen Beschreibung der Plattwürmer; Kopenhagen, 1844, p. 76), which must be acknowledged to be the more deserving of our thanks, since the literature respecting these so much neglected worms is very scattered,

and in most zoological treatises scarcely anything has heretofore been said about them. On which account also the Reporter is induced to give in this place the families and genera instituted by Oersted, together with his diagnoses.

In the first place, he considers the Nemertini as a sub-order of Vermes apodes, which sub-order is designated by him as Cestoidina, and is characterised as follows: Corpus lineare teretiusculum rarius depressum, multo longius, quam latius, indistincte annulatum, mucosum, ciliis vibrantibus obsitum; musculi distincti, non vero nervi (?). Oculi 2, 4, 6, 8, 10, multi, vel nulli. Organa respiratoria specialia nulla, vel fissuræ respiratoriæ laterales in capite aquæ ad cordum parietes aditum conciliantes. Circulatio completa et corda duo. Tubus cibarius simplex cum oris apertura infera (rarius terminali) et ano terminali. Os nullum exsertile. Sexus duo, in utroque organum copulationis stimulandæ. Testiculi et ovaria cava ne minimum quidem formâ inter se discrepantia tantum modo contento (ovulis aut spermatozois), complura in utroque latere uniuscujusque segmenti. These Cestoidina are divided by Oersted into two families, with eight generas. These are:

Fam. I.—Nemertina. Os inferum, anus terminalis.

(1.) Corpus filiforme, utrinque æqualiter attenuatum (caput nullum distinctum), fissuræ respiratoriæ nullæ.

Os et ovaria aut testiculi ab apice valde remota.

1 Gen. *Cephalothrix* Oerst. with two species.

Os et ovaria aut testiculi ab apice non multo remota.

2 Gen. *Astemma* Oerst. with two species.

(2.) Corpus lineare teretiusculum, antice plus minusve dilatatum (caput distinctum), fissuræ respiratoriæ distinctæ aut nullæ.

a. Caput a corpore constrictum, fissuræ respiratoriæ nullæ.

3 Gen. *Borlasia* (Oken) Oerst. with eight species.

b. Caput a corpore non constrictum, fissuræ respiratoriæ plus minusve distinctæ.

a. Oculi numerosi acervati.

4 Gen. *Polystemma* (Ehrb.) Oerst. with nine species.

β. Oculi 8-16, biseriati.

5 Gen. Nemertes (Cuv.) Oerst. with twenty-eight species. Among others Oerstedt places here the worms described as *Polia, Meckelia, Notospermus, Tubulanus.*

γ. Oculi four.

6 Gen. Tetrastemma, Ehrb. with thirteen species.

(3.) Corpus lineare-oblongum depressum, utrinque æqualiter obtusum, fissuræ respiratoriæ distinctæ.

7 Gen. *Cerebratulus,* Ren. with two species.

Fam. II.—Amphiporina. Tubi cibarii utraque apertura terminalis opposita.

8 Gen. *Amphiporus* (Ehrb.) Oerst. with one species. Of the species described, twenty-one belong to the coast of Denmark, amongst which, fourteen quite new species occur.

Rathke (Nov. Act. Acad. Nat. Car. &c., t. xx. p. 231) has given the diagnosis of the *Borlasia striata,* previously described by him, as follows: oculis 16 (aut 18?); corpore gracili, subdepresso; striis longitudinalibus nigrescentibus et subflavis alternantibus. To this is also added a new species, viz. *Borlasia rufa:* oculis 6; facie superiori convexa rufa, inferiore plana flavescente. Rathke could not procure, in a state sufficiently perfect to allow of their diagnoses being determined, two species of *Meckelia,* which, like the *M. somatotomus* described by Leuckart, were able to dismember themselves with facility. Besides these worms, Rathke has designated another, also found on the coast of Norway, under the name of *Ramphogordius lacteus,* probably belonging to the Gordiaceæ. Its very slender cylindrical body terminates anteriorly in two minute processes representing a proboscis, between which the oral aperture is situated. Lateral depressions, organs of sense, and an opening for the passage of the long vermiform organ are wanting. The intestine, which is adherent to the abdominal cavity, presents posteriorly several longitudinal folds, and the abdominal nervous system is composed as in *Borlasia* of two lateral chords.

According to a notice communicated by Quatrefages (Comptes rendus, 1844, p. 77 ; or Ann. d. Sc. Nat., t. i, 1844, p. 20), *Nemertes*, in the disposition of its vascular system and oral apparatus, approaches the Hirudinei, but in the conformation of the sexual organs, and the cæcal termination of the intestinal canal, it recalls various Helminthes.

VERMES TURBELLARII.

Oersted has also supplied another great want in having made, as far as was possible, a complete systematic classification of the planariform worms. (Entwurf einer Eintheilung der Plattwürmer.) He subjects Ehrenberg's classification of the TURBELLARII to a just criticism, and correctly shows that it cannot be deemed satisfactory. He conjoins the Planariæ with the Hirudinei, in a single order, the Apoda, which he designates as the TREMATODINA. The Planariæ constitute a distinct tribe in this sub-order, which is thus characterised by Oersted: Corpus plus minusve depressum, plerumque modo paucies longius quam latius, ciliis vibrantibus obsitum et mucosum. Systema nervorum et sæpe musculorum indistinctum. Oculi, 2, 4, multi aut nulli. Cor nullum, sed vasa distincta cum sanguine hyalino, flavescente vel etiam rubescente. Circulatio valvulis filiformibus (undulatione vasorum nulla) fit. Tubus cibarius in corporis massam infossus, simplex vel ramosus, tantum modo una apertura instructus. Os plerumque exsertile. Androgyna aut sexu discreto. Ovaria indistincta vel duo cava. Organum copulationis stimulandæ solidum, in utraque sexu ejusdem formæ.

Dispositio Familiarum et Subfamiliarum.

1. Tubo cibario ramoso.

a. Ore maximo ferme plano (convexiusculo).

I. Fam. CRYPTOCŒLA.

b. Ore minore plus, minusve cylindrico.

II. Fam. DENDROCŒLA.

2. Tubo cibario simplici.

III. Fam. RHABDOCŒLA.

*a** Ore cylindrico horizontali.

a† Oris apertura terminali.

1. Subfamilia PROSTOMEÆ.

a†† Oris apertura infera.

2. Subfamilia DEROSTOMEÆ.

*a*** Ore annuliformi verticali.

3. Subfamilia MACROSTOMEÆ.

*a**** Ore ferme nullo.

4. Subfamilia MICROSTOMEÆ.

The family Cryptocœla is characterized by Oersted as follows: Corpus quam maxime depressum. Oris apertura (unica apertura anali discreta nulla) infera ferme in medio corpore. Os maximum in cavitate propria liberum, imaginem tubi cibarii ramosi Dendrocœlorum referens et exsertum tentaculorum modo os circumdans. Tubus cibarius arbusculiformis. Oculi in acervos distributi. Cor distinctum. Ovaria duo os cingentia.

Dispositio Generum.

1. Excisura frontali, papillis numerosis in tota corporis superficie.

1. Genus *Tysanozoon,* Grub.

2. Neque excisura frontali, nec papillis in tota corporis superficie.

a. Appendicibus tentacularibus.

*a** Ad aculorum acervos.

2. Genus *Planocera,* Blainv.

*a*** In margine frontali.

3. Genus *Eurylepta,* Ehrb.

b. Appendicibus tentacularibus nullis.

*a** Oculorum plurimorum acervis quatuor.

4. Genus *Leptoplana,* Ehrb.

*a*** Oculis nullis.

5. Genus *Typhlolepta,* Oerst.

Twenty-three to twenty-five species are enumerated in these five genera, including scarcely any than marine Planariæ, amongst which are two new species, *Leptoplana nigripunctata* and *Typhlolepta cæca*, from the coast of Denmark. The description of the family Dendrocœla runs as follows :

Corpus plerumque valde depressum. Tubus cibarius ramosus. Oris apertura in medio vel post medium corpus. Os cylindricum in cavitate propriâ liberum, margine tantum posteriore ad tubum cibarium affixum, valde exsertile.

Dispositio Generum.

1. Corpore lineari, oculo unico.
   1. Genus *Monocelis*, Ehrb.
2. Corpore oblongo oculis duobus aut multis.

a. Oris apertura in medio corpore.

* Tubi cibarii ramis arbusculiformibus.
   2. Genus *Dendrocœlum*, Oerst.

** Tubi cibarii ramis indivisis oviformibus.
   3. Genus *Planaria* (Müller), Oerst.

b. Oris apertura extremitati posticæ proxima.
   4. Genus *Telostoma*. Oerst.

Oersted enumerates eleven different species in this family, one of which is new. Besides the well-known freshwater Planariæ, we also find amongst them some marine forms. The family Rhabdocœla, lastly, is thus described :

Corpus subdepressum vel tereticusculum. Tubus cibarius simplex. Apertura oris terminalis vel infera. Os amphoriforme vel annuliforme, minus liberum quam in familia antecedenti.

Dispositio Subfamiliarum et Generum.

a. Ore cylindrico horizontali.

*a** Oris apertura terminali.
   Subfamilia I. Prostomeæ.
   1. Genus *Prostoma*, Oerst non Dugès.

*a*** Oris apertura non terminali.
   Subfamilia II. Derostomeæ.

† Ore amphoriformi cum apertura in extremitate anticâ.

2. Gen. *Vortex*, Ehrb.

†† Ore oviformi cum apertura in latere inferiore.

3. Genus *Derostoma* (Dugès), Oerst.

β. Ore annuliformi verticali.

Subfamilia III. MESOSTOMEÆ.

† Ore rotundo.

* Oculis duobus approximatis 4-5 corporis partem ab apice remotis.

4. Genus *Mesostoma*, Dug.

** Oculis duobus non approximatis octavam corporis partem ab apice remotis.

5. Genus *Strongylostoma*, Oerst.

*** Oculi nulli.

6. Genus *Typhloplana*, Ehrb.

†† Ore ovali.

7. Genus *Macrostoma*, Oerst.

γ. Ore minutissimo non exsertili.

Subfamilia IV. MICROSTOMEÆ.

† Corpore lineari subdepresso.

8. Genus *Microstoma*, Oerst.

†† Corpore longitudinaliter convoluto.

9. Genus *Convoluta*, Oerst

In these genera twenty-one species are described, of which seven are altogether new. Oersted has met with a great part of the Planariæ, described by Fabricius and Müller, in the environs of Copenhagen, which must have much facilitated to him the recognition of these frequently very briefly described and still more indistinctly figured animals; but, nevertheless, he has not been able to assign a determinate systematic position to eight of the species of Planaria instituted by those Danish naturalists.

Various terrestrial Planariæ, of variegated colour, were found by Darwin under rotten wood in South America, New Zealand, Van Diemen's Land, and the Mauritius (Annals Nat. Hist. xiv, 1844, p. 241), which were in all

respects of the same nature as the aquatic Planariæ, and were distinguished by the same reproductive power. These animals, on creeping, leave behind them a slimy streak, are found under stones and in other moist localities, and most probably live upon vegetable matter [viz. on decayed wood]. Their motion is very sluggish; they cannot endure water, and shun the light of day. Their intestinal canal appears to be branched in the same way as it is in *Planaria lactea*, and their mouth-sucker also retains the power of motion for a very long time after the death or even dissolution of the rest of the body. The external orifice for the mouth-sucker and the genital orifice consist of transverse slits, placed one behind the other, on the abdominal surface. Darwin enumerates twelve different species of these terrestrial Planariæ, viz. *Planaria vaginuloides*, with numerous ocelli at the anterior margin of the body, with yellow, orange-coloured and black markings, $2\frac{3}{10}$ inch in length, and *Planaria elegans*, with ocelli only on the lateral edges of the foot, with white, red-brown, and purple markings, one inch long. Both species were found under the bark of decayed trees in the forests of Brazil. *Planaria pulla* and *bilinearis*, with numerous ocelli regularly disposed at the anterior part of the body; and *Planaria nigro-fusca*, with numerous ocelli on the anterior border of the body; those at the anterior edge are grouped in regular series, but on the sides in two and three together. All three species occur under stones and rotten wood in the districts on the Rio Plata. *Planaria pallida*, three inches long, the ocelli of which are arranged like those of *P. nigro-fusca*, was discovered by Darwin in the neighbourhood of Valparaiso; whilst he found in the south of Chili the three species, *P. maculata*, *semilineata*, and *elongata*, the last of which had no ocelli, but was five inches in length. A *Planaria tasmaniana*, found in the forests of Van Diemen's Land, was furnished with ocelli, set all round the margin of the foot.

Darwin (Annals Nat. Hist. xiv, p. 246) has also added the

description of some new marine *Planariæ*. One of these, which he has named *P.* [?] *oceanica*, is characterized by two ear-like processes, situate upon the neck-shaped anterior extremity of the body. *Planaria formosa*, another marine Planaria, has no exsertile mouth-sucker, but four groups of ocelli on the anterior part of the back, and is characterized by red, purple, and white markings. A third species has been named by Darwin *Planaria* [?] *macrostoma*, the anterior extremity of the body is square, truncate, and can be employed as a suctorial acetabulum. On its neck are two large black ocellar spots, whilst the alimentary orifice, with an extremely long mouth-sucker, is situated in the posterior half of the body. A fourth species, *Planaria* [?] *incisa*, presents a sinuous-toothed, anteriorly deeply indented, margin, which at the anterior edge supports very numerous crowded ocelli. In the median line of the abdominal surface four apertures are placed, one behind the other, of which the penultimate is an oral orifice, from which a thin, much folded, sinuated mouth-sucker can be protruded, and which, when extended, is quite as wide as the body. On a fifth species Darwin has founded the new genus *Diplanaria*, which is characterized by a double alimentary orifice, with two exsertile mouth-suckers, and behind which two genital orifices are placed. Its ocelli are collected into four groups. The only species, *Diplanaria notabilis*, occurs under stones [in tidal pools], but also swims freely in the sea water by the movements of its toothed foot-border.

ECHINODERMATA.

Sipunculus capitatus has been described as new by Rathke (Nov. Act. Natur. Curios. t. xx, P. i, 1843, p. 143.) The animal has a thick cephalic extremity, with a long constricted neck, and the oral orifice is furnished with about fifteen flattened, lanceolate tentacles. The middle portion of the body is surrounded with a belt of minute blackish

points, each of which represents a pointed cone directed backwards. The neck and body of the animal appear rough, from small verrucose elevations, and at the extremity of the cylindrical, thick body, several small clavate appendages project. Rathke, who found this *Sipunculus* on the coast of Norway, regards it as allied to Leuckart's *Phascolosoma longicolle*, in which he is undoubtedly right; at all events, the animal, whose figure is besides extraordinarily mutable, belongs to the genus *Phascolosoma;* if not, perhaps, to *Phascol. granulatum*, Leuck. Another animal also allied to *Phas. granulatum* has been described by J. Müller under the name of *Phascolosoma scutatum*. It is distinguished by two sharply-defined, hard, coriaceous discs, one of which is placed at the point where the body is continuous with the proboscis, but the other at the posterior extremity of the body. The Reporter here adds, that the Zoological Collection in Erlangen possesses a *Phascolomosa scutatum*, found by Will near Trieste, which is inserted in a very firm calcareous tube of uniform width, and open above and below, into which the animal has the power of entirely retracting itself, when it certainly closes the orifices of the tube with its two discs. Müller moreover remarks, perfectly correctly, that *Phascolosoma granulatum* varies in many ways in form and the condition of the rough surface of its integument, and that *Ascosoma Blumenbachii* Leuck., *Sipunculus verrucosus* Grub., *Sip. tuberculatus* Blainv., *S. tigrinus* and *flavus* Riss.; as also *Sip. Bernhardus* and *Johnstoni*, Forbes, probably belong to *Phascolosoma granulatum*. The Reporter must, in addition, remark, that *Phascolosoma longicolle*, Leuck., is also probably to be referred to the same species. According to Rathke's researches (Nov. Acta Nat. Curios. l. c. p. 136), *Holothuria inhærens*, Müller has no sucker (fusschen), but anchor-shaped and retiform calcareous corpuscles in its verrucose integument, and is, consequently, a *Synapta*. A small, pisiform *Holothuria flava*, found by Rathke near Christianssund, is furnished at the mouth with ten tentacula, and presents on the verrucose surface of the body five shallow

longitudinal grooves. The warts on its surface also contain anchor-shaped corpuscles. Rathke would have been inclined to refer this *Holothuria* to *Minyas*, Cuv., if the latter genus possessed anchor-shaped corpuscles. According to Costa's observations (Annales d. Sc. Nat. t. xix, 1843, p. 394), *Synaptæ* occur in the Bay of Naples, which differ from *Synapta duvernæa*. Peach (Report of British Association, 1844, Notices, p. 65) has found on the coast of Cornwall a true *Holothuria* furnished with twenty tentacula, a form which has hitherto been wanting in the British Fauna. Its cucumber-shaped body is furnished with spine-like processes and four rows of suckers. On the other hand, *Holothuria squamata*, Müller, has been taken by M'Andrew (Annals Nat. Hist. xiv, 1844, p. 413) in the Hebrides.

Forbes (ib. xiii, 1844, p. 517) observed nine different Echinidæ at various depths in the Egean Sea, viz.: *Spatangus purpureus;* the fragments of a Sea-urchin belonging to the genus *Brissus*, Kl.; *Amphidetus mediterraneus*, nov. sp., "dorso convexiusculo, depressione subplano, impressione scutiformi, extremitate anali truncata impressa, cauda prominenti acuminata, ventre plano, area postorali lanceolata." In the family of the Clypeastridæ [Clypeasteriæ] Forbes observed [in abundance] in that sea, *Echinocyamus pusillus;* in the family of the Cidaridæ, *Echinus lividus* was most abundant, and *Cidaris hystrix* frequent, whilst *Echinus esculentus* was rarely met with. Another *Echinus*, indistinguishable from the fossil *Echinus monilis*, was found very abundantly at from twenty to one hundred fathoms. It is the *Echinus miliaris* of Grube, but very distinct from the true *E. miliaris*. The same naturalist (ib. vol. ii, 1843, p. 280), describes *Goniaster abbensis* as a new British Starfish, with the following diagnosis: corpore planiusculo, orbiculari, angulis in brachiis productis, infra et supra tuberculis, granulis stomatibusque vestito. He also (ib. xi, 1843, p. 463, and xii, p. 211; also, Transact. Linn. Society, vol. xix, P. 2, 1843, p. 143), institutes a new genus of the Ophiuridæ, *Pectinura*, with the following characters: corpus orbiculare, squamosum, gra-

nulosum, ad peripheriam radiatum, radiis simplicibus, squamosis, in corporis discum subprolongatis; squamis radiorum lateralibus adpressis, in marginibus superioribus spiniferis; ossiculis ovarialibus binis in corporis lobos non productis. The single species belonging to it was found by Forbes on the coast of Lycia. Three new species of the genus *Ophiura*, Lam., Agass., found in the Egean Sea, he has described under the names of *O. texturata, albida* and *abyssicola*. Besides these, Forbes has instituted the new Ophiuridan genus, *Ophiopsila*, with the following characters: corpus orbiculare, coriaceum, læve, ad peripheriam radiatum; radiis simplicibus squamosis, infra discum insertis, squamis lateralibus subcarinatis, spiniferis, spinis simplicibus; ossiculis ovarialibus parvis, oralibus ad latera nudis. The single species *Oph. aranea* was placed in this genus. Another new Ophiuridan genus has been named by Forbes *Amphiura*, under which he has described the three species *Amph. neglecta, florifera*, and *Chiajii*, of which we extract the diagnosis of *Amph. florifera*: disco squamis centralibus maximis rosulatis, scutellis ovatis disjunctis, squamis radiorum superioribus quadratis; inferioribus trilobatis; lateralibus 3-spiniferis; spinis brevibus simplicibus.

Müller and Troschel (Archiv, 1843, Bd. i, p. 113; and 1844, Bd. i, p. 178) have also given new expositions respecting the geographical distribution of the Starfishes, and have furnished therewith the description of several new species, viz.: *Echinaster decanus, Oreaster valvulatus, Astrogonium nobile, Goniodiscus singularis, seriatus, Astropecten triseriatus, Buschii, Vappa, Preissii, Ophiolepis chilensis;* and further, *Asteracanthion polyplax, Echinaster Sarsii, Ophidiaster pusillus, Astropecten echinulatus, Mülleri, squamatus, Ophiolepis Schayeri, Ophiacantha groenlandica*, and *Ophiothrix parasita*. They, have, moreover, remarked that the genus *Pectinura*, instituted by Forbes, is identical with their genus *Ophiarachna*, and his species *Pect. vestita*, probably with a young *Oph. gorgonia*. They have further shown, that the three species *Ophiura texturata, albida* and *abyssicola*, Forbes, represent

only different ages of *Ophiolepis ciliata*, and have recognised in *Ophiomyxa lubrica*, Forb., their *Ophiomyxa pentagona*; in *Amphiura neglecta* and *Chiajii*, Forb., their *Ophiolepis squamata* and *filiformis*; as well as in *Goniaster abbensis*, Forb. their *Astrogonium phrygianum*. Müller and Troschel are also induced to unite the genera *Ophiothrix* and *Ophionyx*, since not only the latter is furnished with many-toothed hooklets beneath the rows of spines of the rays, but these organs also occur in *Ophiothrix*, though with this difference, that the latter Ophiuridan presents these hooklets only at the extremity of the rays, whilst in the former they are placed along their whole length.

The development of the Asteridæ has been described by Sars (Archiv, 1844, Bd. i, p. 169; or Annales d. Sc. Nat. t. ii, 1844, p. 190), whose observations were made on the ova of two new Starfishes, viz. *Echinaster sanguinolentus* and *Asteracanthion Mülleri*. The ova lie upon the surface of the abdomen, which is hollowed out so as to constitute a marsupial pouch. The *Echinaster sanguinolentus* of Sars is moreover, according to Müller (ib. 1844, Bd. i, p. 169), the *Echinaster Sarsii* described by himself and Troschel.

Müller (ib. 1843, Bd. i, p. 131) has described two new Comatulæ as *Alecto purpurea* and *Wahlbergii*, and has supposed that the Echinodermata described by Retzius as *Asterias multiradiata* and *pectinata*, and preserved at Lund, probably belong to the Crinoidal genus *Actinometra* instituted by him. The Comatulæ, but very briefly noticed by Lamarck, have been more particularly described by Troschel (ib. p. 135) from the original specimens, as, *Alecto carinata, Adeonæ, solaris, brachiolata, rotalaria*, and *fimbriata*. Müller has given a very important memoir on the structure of *Pentacrinus caput Medusæ*. (Abhandlungen der Akademie der Wissenschaften zu Berlin, a. d. I. 1841; Berlin, 1843, p. 177.) He had obtained a specimen from the West Indies, which, after a preliminary historical review of the researches hitherto instituted respecting the Crinoideæ and *Pentacrinus*, is described with the greatest particularity. The stem in

Pentacrinus caput Medusæ is beset with cirri, verticillately disposed with five in each whorl, whose distance apart and length diminishes from below upwards. At the upper part of the stem longer and shorter joints alternate. The upper joints, which present five obtuse angles, grasp each other with serrato-denticulate borders, whilst the joints at the lower end of the stem, are connected by straight sutures. The inferior many-jointed cirri of the stem present an unciform, curved, terminal joint. The five rays of the cup consist each of three pieces, the uppermost of which presents two articular surfaces for the attachment of the arms, which are there affixed. In these arms, in *Pentacrinus* as well as in the other Crinoideæ, joints exist, which are not connected, moveably, with the contiguous joints, either by muscles or an elastic intercellular substance, but by sutures admitting of no motion whatever. Immoveable sutures of this kind are termed by Müller "syzygia." A joint below one of these syzygia never bears pinnulæ. Otherwise the latter alternate on the joints, and appear to be, in general, regularly distributed. The abdominal surface [surface of the stomach] of the Pentacrini and Comatulæ is covered with a soft perisoma, which connects the rays of the cup, and is continued upon the free arms and pinnulæ. On this perisoma, both on the arms and pinnulæ, run longitudinal channels, which open into each other, pass from the arms upon the cup, and terminate in a tentacular ring surrounding the mouth. The edge of these channels is beset with delicate, minute, cylindrical tentacles or cirri (Fühlern), which have the power of elongating or shortening themselves, and the surface of which is again covered with more minute cylindrical tentacules or cirruli (Fühlerchen). In the Comatulæ the pinnulæ present saccular enlargements, which in some individuals contain ova, and in others, on the contrary, spermatic corpuscles.

ACALEPHÆ.

Lesson (Histoire naturelle des Zoophytes. Acalèphes. Paris, 1843) has arranged the Acalephæ in the "Suites à Buffon." As this naturalist had made a voyage round the world, and enjoyed sufficient opportunities of seeing most of these marine animals in a fresh state and alive, it was fair to expect that he would be most completely master of his subject; his performance, however, has but little corresponded with this expectation. With the internal structure of the Acalephæ and the history of their development Lesson appears to have given himself small concern. In this work he has, for the most part, thrown loosely together all the materials appertaining to the subject, without working them up into a whole, and in doing this has caused to be printed quite literally only those German writings that have appeared as translations in the French journals, whilst he has ignored the remaining German works, with the excuse that he had met with no translator for them, although there are, in Paris, numerous persons who live by translating German works. The Reporter consequently restricts himself, on the present occasion, merely to exhibiting Lesson's systematic arrangement of the Acalephæ. He institutes in them the following eight families: I. Beroidæ, with the eight tribes: Cestoideæ, Callianiræ, Leucothoeæ, Calymmeæ, Neisidæ, Ocyroeæ, Cydippæ, and Beroæ. II. Medusæ, which has four subdivisions. (1) Medusæ without proboscis and stem, with the five tribes: Eudoræ, Carybdeæ, Marsupialæ, Nucleiferæ, Berenicidæ; (2) True Medusæ, with the three tribes: Thalassanthæ, Æquoridæ, Oceanidæ; (3) Medusæ with a stem; and (4) Medusæ with a proboscis, with the two tribes: Monostomæ and Polystomæ. III. Diphydæ, with the three tribes: Polygastricæ, Monogastricæ, and Dubiæ. IV. Polytomæ or Plethosomæ, with the two tribes: Plethosomæ and Stephanomiæ. V. Physophoræ, with the seven tribes: Rhizophoræ, Discolabæ, Angelæ, Athorybiæ, Physo-

phoræ, Agalmæ, Apolemiæ. VI. Physaliæ, with the three tribes: Cystisomæ, Salaciæ, and Alophotæ. VII. Velellæ. VIII. Porpitæ. Respecting the geographical distribution of the Acalephæ, Forbes (Report of the British Association, 1843, p. 146) states, that of the fifty-seven Mediterranean species of Medusæ, only a few occur in the Egean Sea, their number diminishing from Gibraltar eastwards in the Mediterranean. Of Pulmograda, Forbes noticed eight species in the Egean Sea, viz.: *Rhizostoma Cuvieri* (?) Esch., *Cephea tuberculata,* Macr., *Oceania cruciata,* Forsk., *Thaumantias laxa,* Forb., *Aurelia granulata* (?) Lam., *Geryonia proboscidalis,* Forsk., together with a new species, and *Mesonema cælum pensile,* Mod. Of Cirrigrada inhabiting that sea, there are *Velella spirans,* Forsk., and *Porpita glandifera,* Lam.; whilst of Physograda we have *Stephanomia contorta* (?), M. Edw.; of Ciliograda, only *Beroe Forskalii,* M. Edw., *Cestum Veneris,* Le S., and *Cydippe,* nov. sp.; and, lastly, of Diphyda, the two species, *Pyramis tetragona,* Ott., and *Calpe pentagona,* Q. and G.

Will has given us a very sterling work on the Acalephæ of the Adriatic Sea (Horæ tergestinæ, oder Beschr. u. Anat. der bei Triest beobacht. Acalephen, 1844), to which we are indebted for a multitude of novel expositions with respect to the habits and internal structure of the Medusæ. In the first place, he expresses himself respecting the swimming and the motions of the Ciliograda. The vibratile lamelliform cilia (Schwingblättchen) are not the only motory organs of the *Beroë,* although they do propel the body with the mouth foremost; but these cilia are also in motion when the Beroë is at perfect rest, and, on the other hand, the animal has the power of locomotion when the cilia have been removed. These organs consequently are merely accessory to locomotion, for this, as Will has satisfied himself, is affected by the alternating contraction of a muscular apparatus concealed under the integument. He has completed the diagnosis of *Eucharis multicornis* of Escholtz (which, from the perfect specimens of Quoy and Gaimard, was at first described

as a *Beroë*), in the following manner: corpore elliptico, complanato; tentaculis quatuor ciliatis; lobis ad os duobus, corpore paullo brevioribus, reniformibus; verrucis expansilibus seriatim inter costas et in superficie loborum externa dispositis; colore fusco-rufescente. At the same time, Will mentions, as a difference between *Eucharis* and *Mnemia*, that, in the former, the integument is verrucose, and not in the latter; the Ciliograda, also, described by Mertens as *Bolina*, would appear to belong partly to *Eucharis* and partly to *Mnemia*. He describes *Cydippe brevicostata* as a new species, with the following diagnosis: corpore oblongo-ovato, posteriore corporis parte costis octo brevissimis prædita, anteriore nuda; ciliis longissimis; cirris ramosis albis; colore griseo-albido. The diagnosis, also, of *Beroë rufescens*, Forsk., has been thus supplied by him: corpore ovato-oblongo, costis octo, quatuor brevibus; ore magno nudo; appendicibus ramosis ad anum; vasibus rubro-maculatis; maculis sub epidermide flavido-fuscis; sanguine rubro. With reference to the luminosity of the Ciliograda, Will remarks, that in a living *Beroë rufescens* the costæ are never luminous, and that, in this animal, upon its being touched near the anus, a vivid spark of yellowish-red light is given out; but, on the other hand, after death the whole substance of the Medusa, including the costæ, is luminous, but with a bluish-green light, a phenomenon which always recurs upon the animal being shaken. In *Eucharis*, Will noticed that the costæ also afforded a bluish-green light upon forcible agitation of the water, or touching; on the first slight contact, a point near the anus was also always illuminated. A dead *Eucharis* presented precisely the same luminous phenomena as the *Beroë*. Will, moreover, does not believe that the luminosity of the living Ciliograda is dependent upon the function of the sexual organs. A new pulmograde Medusa, under the name *Cephea Wagneri*, has been thus characterized by the same naturalist: disci glabri centro prominulo, fusco; brachiis bipartitis; cirris inter brachia quatuor; cotyledonibus aut lacteis aut cæruleis. Of a new *Polyxenia leucostyla* he has

furnished the following diagnosis: hyalina; appendicibus ventriculi, 12-16; cirris annulatis, rigidis, albis, apice flavescentibus. Will has also found reason to enlarge the diagnosis for *Cytæis tetrastycha*, Esch., as thus: disco campanulato; ventriculo tubuloso, in margine fasciculis cellularum urticantium magnarum instructo; quatuor cirris marginalibus crassis, annulatis, rigidis, albis. He has also added the diagnosis of *Cytæis polystyla* as a new species, thus: disco campanulato, ventriculo tubuloso; labiis fasciculis compluribus cellularum urticantium instructis; cirris marginalibus 26, annulatis, rigidis, albis, apice fuscescentibus. Two new *Geryoniæ* are described by him as follows: *Geryonia pellucida:* disco hyalino, subconico; glandulis generationis lanceolatis quatuor; ore quadrilobato; cirris marginalibus 64, expansilibus; and *Geryonia planata:* disco planiusculo, tenui; ventriculo rubro, quadrilabiato; glandulis generationis rotundis, quatuor; cirris marginalibus undecim expansilibus, albis. *Thaumantias leucostyla* is also described as new by Will: disco tenui, planiusculo; cirris marginalibus albis, annulatis; glandulis generationis rotundis; vesiculis marginalibus in basi cirrorum. Two species of *Ephyra*, observed by Will near Trieste, and which differ essentially from the *Eph. octolobata*, Esch., he is inclined to regard as the immature condition of a discoid Medusa, and the more so as the *Eph. octolobata* has been pronounced by Sars to be a young *Medusa aurita*. A *Diphyes Kochii* has been instituted by Will, with the following diagnosis: cavitate ductus nutritorii brevissima; squamis processibus duobus, lanceolatis, erectis præditis; ventriculis cirrisque albis. In the genus *Ersæa* he has described three new species, viz.: *Ers. pyramidalis*, parte corporis nutritoriâ pyramidali, lobis duobus inæqualibus, altero duplo longiore, truncato; processu posteriore cavitatis nutritoriæ sessili, parvo; *Ers. truncata*, ambabus corporis partibus æqualibus, nutritoriâ rotundata, glabra, lobis brevibus, subæqualibus, processu posteriore cavitatis nutritoriæ petiolato, parte natatoria conoidea, rotundata, margine integerrimo; and *Ers. elongata*, parte corporis nutritoria triplo

minori, quam altera, tetraëdra, apice rotundato; lobis latissimis, cavitatis natatoriæ marginem superantibus; cavitate nutritoria minima, processu posteriore petiolato, multo majore.

As Irish Acalephæ, there are noticed by Thompson (Annals Nat. Hist. xiii, 1844, p. 440) *Cydippe pileus, Melicertum campanulatnm, Aurelia aurita, bilobata,* and *Cyanea Lamarckii.*

Physophora tetrasticha has been more particularly described by Philippi. (Müller's Arch. 1843, p. 58.) Four rows of cartilaginous swimming-vesicles may be distinguished at its axis, beneath which is placed a double circle of prehensile tentacles. The exterior tentacles, of which there are from sixteen to twenty, are considered by Philippi as true prehensile tentacles (Fangarme). The interior tentacles consist of three portions, viz.: of a globose base with granular contents, upon which is placed a ventricose middle portion, with a narrow-pointed terminal piece. From the basal portion of these tentacles filaments hang down, which are beset with shortly-pedunculate, elliptical, and spirally striated corpuscles. The hollow axis projecting above the swimming-vesicles contains no air, and presents inferiorly, among the tentacles, an aperture, which is probably the oral orifice. Moreover, among the tentacles there are also some free cluster-shaped organs, of which a short cluster is always associated with a long one; they probably represent an ovarium and testis. Philippi has also expressed himself with regard to the distinction of the earlier species of *Physophora* described by Peron, Forskal, and others. Kölliker (Froriep's n. Notiz. Nr. 534, p. 81) has communicated his observations on the marginal bodies of various Pulmograda, which have led him to regard the corpuscles furnished with a pigment as analogous to the eyes, and, on the other hand, those without pigment, to the auditory organs. Hollard would be inclined to regard the Acalephæ allied to *Porpita* and *Velella* as a small natural family, or rather, perhaps, as a distinct order, and asks

whether *Rataria* may not be a young condition of *Velella*; in the explanation also of the various organs of these Acalephs he differs from the hitherto received notions respecting their organization.

Dujardin (Comptes rendus, t. xvi, 1843, p. 1132; or Annales d. Sc. nat., t. xx, 1843, p. 370) has observed minute Zoophytes allied to the Syncorynæ, from the Mediterranean, and has described them under the name of *Stauridium*. These animals constituted clavate expansions at the extremity of a branched, horny stem, and presenting four arms disposed in the form of a cross. The arms, a millimeter in length, terminated with a small enlargement, containing, as in the *Hydra*, spinigerous vesicles. Similar vesicles also occurred in the stem. These *Stauridia* seized Entomostraca (*Cyclops*) and swallowed them, for which purpose they widely opened the mouth, which is placed in the centre of the tentacles. This organ was furnished with several short rudimentary tentacles, which were without the spinigerous vesicles. In the interior of the branches of the polypidom was a canal clothed with vibratile cilia. Dujardin believed that the *Stauridia* constantly multiply themselves by gemmation, at all events he observed them in that condition during two years without Medusæ being produced from them. But when much nutriment was present in the water, he remarked at the bases of isolated *Stauridia* two or three red buds pullulate, which finally assumed in all respects the form of the female *Syncoryne sarsii*. The campanulate transparent disc of this progeny was furnished with eight to ten marginal tentacles; at the base of each of these tentacles was a slight swelling with a black eye-speck; at the bottom of the bell rose a reddish stomach, whilst from the border a contractile membrane was extended over its mouth, in the centre of which membrane was situated the oral orifice. The tentacles of these young medusiform creatures were of a bifurcate form, so that the animals, when they had become detached from the parent polypidom, resembled in all respects the *Eleutheria* of Quatrefages.

Dujardin termed the animal in this condition *Cladonema radiatum*. These now free Medusæ were competent to procure abundant food for themselves by means of their branched arms, and their development proceeded, during which their 8—10 tentacles became still further branched. These *Cladonemata* were either attached by the bell, and allowed their tentacles to float in the water, or retained themselves by the tentacles, or swam about in the water by the sudden contractions of the bell. Dujardin has proposed to place this *Cladonema* near *Oceania, Thaumantias,* and *Cytæis;* the Reporter, however, is inclined to suppose that its metamorphosis was not yet completed.

POLYPI.

The Bryozoa have again received an accession of some new genera and species. Allman (Institut, 1843, p. 454) admits two varieties of *Plumatella repens* according as the polypidom is affixed on larger broad bodies, or on smaller objects, and is then necessarily closely compressed. He (Annals Nat. Hist. xiii, 1844, p. 328) enumerates the following among the fresh-water Bryozoa [zoophytes] of Ireland: *Cristatella mucedo, Alcyonella stagnorum, Plumatella repens,* with two other new species, *Pl. emarginata* and *fruticosa,* further *Fredericella sultana,* to which is added also the new species, *Fr. dilatata* and *Paludicella articulata;* lastly, Allman adds an entirely new hydroid zoophyte [occupying a position between *Coryne* and *Hermia*] which he describes as a distinct genus under the name of *Cordylophora lacustris.* The polypidom of this Bryozoon is horny and branched, rooted by a creeping tubular fibre, branches tubular. Polypes developed at the extremity of the branches ovoid, bearing the mouth at the distal extremity, and furnished with scattered filiform tentacula. Another new genus has been added to the Bryozoa by Van Beneden (Bulletin de l'Acad. Roy. de Bruxelles, t. ii, 1844, p. 385)

under the name *Crinomorpha;* the animal is said to multiply by gemmation and ova.

Krohn (Froriep's n. Notiz, Nr. 533, p. 70) has drawn attention to the remarkable bird's-head-shaped organs of *Cellaria avicularis* [*Cellularia avicularia*], *Bicellaria ciliata,* and *Flustra avicularis,* and, like Nordmann, is unable to throw any light upon the pendulum-like oscillations of these organs. In *Retepora cellulosa,* and in some Discopori, he met with nipper-like (pincettenförmige) organs, but which did not oscillate; whilst, in the Telegraphina he observed only articulated spines and setæ, which were alternately elevated and depressed. Darwin (Voyage of the Beagle, 1844, Part 1, p. 252) who instituted experiments on the bird's-head organs of various Flustræ, observed, than when the polypes were cut off from the polypidom or destroyed, these organs still continued to move as before.

Allman (Annals Nat. Hist. xiii, 1844, p. 328) has mentioned as Irish Arm-polypes, *Hydra vulgaris, fusca,* and *viridis,* [ib. p. 330, is given a synopsis of the genera and species of the fresh-water Zoophytes of Ireland.] A very complete enumeration of all works on fresh-water Polypes, published since 1703, has been undertaken by Van Beneden. (Nouveaux Mémoires de l'Académie des Sciences et Belles-Lettres de Bruxelles, t. xvi, 1843.)

A new Sea-Anemone, *Actinia* (*Isacmæa*) *clavata,* discovered on the coast of Norway, has been described by Rathke. (Nov. Act. Acad. Nat. Curios. t. xx, P. i, 1843, p. 147.) It has a ferrugineous mantle, a cylindrical body with rounded posterior extremity; and, when extended, presents an elongated neck; its sixteen filamentous tentacles, with ochreous spots, are placed in a single series. In another Norwegian Sea-Anemone, with the tentacles arranged in three circles, Rathke recognised the *Actinia* (*Isacmæa*) *viduata,* Müll. According to Thompson (Annals Nat. Hist. xi, 1843, p. 103), *Pagurus Prideauxii,* on the British coast, always occurs associated with *Actinia maculata,* Adams. A new Polype, probably intermediate between *Actinia* and *Lucernaria,* has

been described by Allman. (Report of British Association, 1844, Notices, p. 66.) Its tentacles are capitate, and arranged in two series, and its internal structure is exactly the same as that of *Actinia*. *Coryne squamata*, which was found on Fucus in the Baltic, near Dantzic, has been described by Rathke (Archiv, 1844, Bd. i, p. 155; or Annales d. Sc. Nat. t. ii, 1844, p. 200), and found to be of distinct sexes; a *Coryne*, also, found by Rathke on the coast of Norway, agreed pretty nearly with the Dantzic species. A new hydroid Zoophyte has been described by Quatrefages (Annales d. Sc. Nat. t. xx, 1843, p. 230; and t. i, 1844, p. 11) as *Synhydra*. This marine Polype, presents internally a true horny polypidom, which supports two sorts of individuals, the one sort is of a clavate form, and has no mouth, whilst the other is of a saccular figure, and is furnished with an oral aperture. The mouth in it, is placed upon a papilliform eminence, the base of which is set round with numerous tentacles. These tentacles vary in number (34 and 36) according to the size of the individual, and are arranged in two series, in groups together. The common base from which these different Polypes pullulate, is very thin, and forms a peculiar network. The intestinal cavities of the individual Polypes communicate with each other by means of canals which penetrate both the soft and horny substance of the Polype. Quatrefages, who met with these Polypes on the coast of Brittany and Normandy, affixed on various univalve shells inhabited by Paguri, proposes for it the appellation of *Synhydra parasita*. The individuals without mouth, subserve merely to propagation; their free, expanded extremity presents minute uneven elevations, which have a cauliflower-like aspect, beneath which, oval bodies, as sexual organs, project. Amongst these two forms of highly irritable and contractile Polypes, a multitude of smaller Polypes, in all stages of development, are seen projecting from the broad polypidom. Van Beneden (Bulletin de l'Académie Royale de Bruxelles, t. xi, 1844, p. 305), who will not recognise the *Eleutheria* of Quatrefages as a distinct genus of Polypes,

declares this animal to be a Polype as yet immature, which, when full grown, might probably find its position among the Tubulariæ, since it is a fact that even young Polypes may produce ova and possess eyes; Van Beneden even does not consider it impossible that *Eleutheria* may be the younger animal of *Synhydra*, in which conclusion, however, Quatrefages refrains from joining him. Van Beneden, moreover, recognises in the *Dysmorphosa conchicola*, Philip., and *Cordylophora lacustris*, Allm., his *Hydractinia* described in the year 1841, and proposes the following classification of the Tubulariæ:

A. Polypes à polypier.

1. *Pennaria*, Goldf., tentacules de deux sortes, dont les supérieurs épars et à plusieurs rangées. *P. Cavolinii.*

2. *Tubularia*, Pall., tentacules de deux sortes, en deux rangées.

T. calamaris, Pall., *T. coronata*, Abildg., *T. Dumortieri*, V. B.

3. *Syncoryna*, Ehrb., tentacules tous semblables, à plusieurs rangées.

S. pusilla, Ehrb., *S. Listerii*, V. B., *S. ramosa*, Sars, *S. Sarsii*, Lovén, *S. Chamissonis*, Ehrb.

4. *Corydendrium*, V. B., tentacules tous semblables, épars. *C. parasiticum* (*Sertularia parasitica*, Cuv.)

5. *Eudendrium*, Ehrb., tentacules en une rangée.

E. ramosum, Ehrb., *E. brioïdes*, Ehrb., *E. splendidum*, Ehrb., *E. racemosum*, Ehrb.

B. Polypes sans polypier.

6. *Coryna*, tentacules tous semblables, épars.

C. squamata, Müll., *C. aculeata*, Wagn.

7. *Hydractinia*, V. B., tentacules à une rangée.

H. lactea, V. B. (*Synhydra parasita*, Quatr.), *H. rosea*, V. B.

Two interesting memoirs, on the Campanulariæ and Tubulariæ, have also been published by Van Beneden. In the former of which (Mémoires sur les Campanulaires de la Côte d'Ostende, in the Mémoires de l'Académie Royale de

Bruxelles, t. xii, 1844) he has given a preliminary historical review of what had hitherto been done with reference to the Campanulariæ, which is succeeded by his own observations, according to which the Campanulariæ multiply by gemmation as well as by ova. The gemmæ commence, as in *Hydra*, in simple offsets, but in a definite number, and at determinate distances from each other, to which the regular figure of the polypidom is owing. In this polypidom certain of the gemmæ are developed in the axils of the branches into ovarian cells, the progeny of which present in all respects the form of a pulmograde Medusa (schirmqualle), with marginal cirri and capsular marginal bodies. The memoir concludes with the particular description of *Campanularia gelatinosa, geniculata, volubilis,* and *syringa,* to which beautiful figures are also added. In the second memoir (Recherches sur l'Embryogénie des Tubulaires, ib.) Van Beneden has also commenced with an historical sketch of the works hitherto published respecting the Tubulariæ, and afterwards endeavoured to show how they multiply in five different modes, viz.: 1. By gemmules, which do not detach themselves from the stem. 2. By gemmules, which become detached. 3. By simple ova. 4. By self-multiplying ova. 5. By gemmules becoming detached, which produce ova. The Reporter, however, supposes that Van Beneden, in consequence of his mistaking the divisional process which takes place in the vitellus of the ova, has not quite correctly understood the modes of multiplication of the Tubulariæ. To this history of the development of the Tubulariæ Van Beneden has also added a complete description, illustrated by figures, of this family, according to the classification proposed by him (vid. sup.) He has comprised these observations on the Campanulariæ and Tubulariæ, in the following statement (Müller's Archiv, 1844, p. 110): "These Polypes have no sexual organs, and also produce no female individuals; but what have hitherto been taken for females are young animals; of the five different modes of propagation, three or four are frequently presented by one and the same species

of Polype. The young Polypes correspond in aspect and in their motion with Acalephæ, whence a near relationship between these Polypes and the latter class of Zoophytes is deduced."

Minute corpuscles, covered with vibratile cilia, which swam about in water in which Sertulariæ and Campanulariæ were kept, were regarded as ova by Peach (Institut, 1843, p. 454), but were, on the other hand, declared by Forbes to be Medusa-embryos.

Kölliker (Froriep's n. Notiz. Nr. 534, p. 81) observed, in *Sertularia Cavolini*, that the young, on quitting the ovarian vesicles of its polypidom, possessed a medusiform figure, which enables them to swim about freely in the water, by the contractions of their discoid body.

From a comparison of the various observations and opinions of the older and more recent naturalists, respecting the modes of increase of the Polypes, which has been undertaken by Kröhn (Müller's Archiv, 1843, p. 176), it appears that the figure of the females, their connexion with the polypidom, persistent till dissolution, their discharging themselves, and the period of the development of the ova, vary to an extraordinary degree in each of the different species. Kröhn describes the various medusiform, free swimming animalcules belonging to *Syncoryne* and *Campanularia* as the females of those Zoophytes.

E. Forbes (Report of the British Association, 1844, Notices, p. 68, and Annals, xiv, 1844, p. 385), in a paper on the "Morphology of the Reproductive System of the Sertularian Zoophyte, and its Analogy with the Reproductive System of the Flowering Plant," compares the formation of the reproductive organs in the Sertulariadæ to that of the flower in plants, inasmuch as in the former an ovigerous vesicle is produced by the [ideal] metamorphosis of the polypidom and its branches, in the same way that the flower arises from a metamorphosis of the stem and its leaves. At the same time he proposes to classify all Zoophytes in the four following orders: (1) [Those which present the ovaries in

the form of bud-like bodies, including] the Hydraidæ and Tubulariadæ. (2) [Those which have the ovaries formed out of the transformed branches or pinnæ, as the] Sertulariadæ. (3) [Those which have the ovaries included in the substance of the polypidom, as the] Asteroida; and (4) [those which have the ovaries forming a part of the internal constitution of the individual Polypes, as the] Zoophyta Helianthoida. But besides this, Forbes would separate the Bryozoa [Ascidioida] from the Polypes, and place them, near the compound Tunicata, among the Mollusca.

Savigny's position, that a compound Ascidian is distinguished by its six tentacles from *Alcyonium*, whose polypes always have eight, has been controverted by Milne Edwards (Comptes rendus, t. xix, 1844, p. 1140), who has discovered in the Mediterranean a true compound Ascidian, with eight tentacles.

M'Andrew (Report of British Association, 1844, Notices, p. 64, and Ann. Nat. Hist. xiv, 1844, p. 413) has dredged on the West Coast of Scotland, and at a depth of twenty fathoms, a *Virgularia*, two feet six inches long, with a quadrangular stalk, which Forbes announced as new, under the name of *Tunicularia quadrangularis*, but which he afterwards convinced himself was no other than the "*Pennatula quadrangularis*," Pall., from which Cuvier had formed the genus *Pavonia*.

A Zoophyte allied to *Virgularia* was observed by Darwin (Voyage of Beagle, 1844, P. i, p. 116) in South America, its slender, straight, and fleshy stalk, which was beset on the sides with alternate polype-tubes, contained an elastic calcareous axis, and terminated, whilst it was blunted on the one end, in a vermiform appendage on the other, which was parted into two divisions, and contained minute, round, yellow ova. At low water Darwin saw these Zoophytes standing, like stubble, on the muddy sand, into which, however, when touched they withdrew themselves entirely.

Three new polypidoms have been described by Hassall (Ann. Nat. Hist. xi, 1843, p. 111) under the names of

Antennularia arborescens, Alcyonidium glomeratum, and *Farcimia spathulosa.* Forbes (Annals, &c., xii, 1843, p. 40) rejects the genus *Echinocorium,* instituted by Hassall, the new Polype being nothing else than *Alcyonidium echinatum,* to which several individuals of *Coryne squamata* had accidentally become affixed. Hassall (ib. xii, p. 117) took this objection very ill, without relinquishing his previous opinion. Forbes (ib. xii, p. 188), who subsequently recognised this *Coryne* as a distinct species, named it *Coryne Hassalli* (corpore elongato, capite clavato, tentaculis brevibus albidis), which might probably appease Hassall.

As Irish Zoophytes, the following Polypes have been noticed by Thompson (ib. xiii, p. 440): *Thujaria Thuja, Zoanthus Couchii,* and *Lepralia verrucosa.* According to Forbes's observations (Report of British Association, 1843, p. 146), but very few Zoophytes of the class of Polypes occur in the Egean Sea. *Corallium rubrum* is found there only in small specimens, as well as *Farcimia fistulosa, Cladocera cæspitosa,* and *Porites dædalea.* Flustræ are rare, whilst Alcyonia are not so; moreover, Forbes remarked in that sea *Edwardsia vestita,* and two species of *Pennatula,* and in soundings, *Idmonea, Caryophyllia, Plumularia, Hornera,* besides *Myriapora truncata, Tubularia serpens, Retepora, Alecto, Eudendrium, Valkeria, Campanularia, Crisia, Actinia,* and *Alcyonium.*

Various plants which, on account of their calcareous constituents, have been referred to the Polypes, viz., *Corallina* and the allied genera, *Galaxaura, Halimedia, Udotea, Acetabulum, Melobesia, Jania,* &c., have been described as Algæ by Kützing (Anatomie, Physiologie, und Systemkunde der Tange, 1843, p. 8), and it is there left undetermined whether the Sponges are of an animal or vegetable nature.

PROTOZOA (Infusoria and Rhizopoda).

Ehrenberg's observations on the external and internal structures, as well as on the habits of the Infusoria have been briefly collected by Gravenhorst (Naturgeschichte der Infusions-thierchen nach Ehrenberg's grossem Werke über diese Thiere, 1844), and a synoptical view of the genera, without addition, however, of the generic characters, has been given according to Ehrenberg's classification.

Ehrenberg (Bericht über die Verhandl. der Akad. d. Wissensch. zu Berlin a. d. I. 1843, p. 161, u. 259) found in the deposits of the Elbe, near Hamburg and Glückstadt, abundance of the microscopic shields of marine Infusoria, belonging to the siliceous-shelled Polygastrica and calcareous-shelled Polythalamia. His examinations of the mud of the Scheldt and Ems afforded similar results, as did that of the marine deposit in various littoral regions of the North Sea and Baltic. In the course of these researches five new genera and many new species were discovered. He has also convinced himself of the enormous proportionate extent and intensity of life in the highest latitudes, both at the south and north poles, and at the greatest attainable depths of the ocean. (Ib. 1844, p. 182.) Ehrenberg arrived at this conviction from the examination of the oceanic materials with which he was furnished from the antarctic voyage of Captain Ross, and also by Messrs. Schayer and Darwin, and which afforded him the rare opportunity of investigating the amount of life in the water taken from the polar sea in 70°-78° S. L. The same indefatigable explorer of microscopic organisms recognised in dust, which fell upon a ship out at sea in the Atlantic Ocean, various siliceous Polygastrica, and has shown that this dust was derived from a desiccated marsh. (Ib. 1844, p. 194.) He also recognised various siliceous Polygastrica, and calcareous Polythalamia, with nine new species, in samples of the marine deposits in the Sea of Marmora and the

Bosphorus, which were transmitted by Koch from Constantinople. (Ib. 1843, p. 253.) All the new genera and species found on this occasion have been incorporated by Ehrenberg in his system.

Werneck (Archiv, 1843, Th. i, p. 105) has expressed himself on the subject of *Gallionella* and *Monadina* in the ferruginous bog-water, to whose observations Ehrenberg has also added various remarks. (Archiv, 1843, Th. i, p. 105).

Kützing (Anat. Physiol. u. Systemkunde der Tange, 1843, p. 4) has referred the Bacillariæ to the Algæ as Diatomeæ. According to him, they would seem to enjoy a vegetable as well as an animal life. These Diatomeæ we find described and figured in a great work by Kützing, according to genera and species, with short diagnoses. (Die kieselschaligen Bacillarien oder Diatomeen, 1844.) He has nevertheless, however, excluded *Gallionella ferruginea*, Ehrb., from the Diatomeæ as a true Conferva, having endeavoured to show (ib. p. 56) that it takes no part, as Ehrenberg thinks, in the formation of the iron-ochre and meadow-iron ore, but that the carbonate of iron contained in ferruginous springs, is decomposed, and, becoming oxide of iron, is deposited as the so-termed iron-ochre, whether *Gallionella ferruginea*, which, moreover, is not even furnished with a siliceous case, be contained in the water or not. Kützing also holds the tenet, that it is only in the higher organic world that a vegetable and animal life are to be contradistinguished, and that in many forms of the lower creations this distinction does not exist. In this sense he has written a paper (Ueber die Verwandlung der Infusorien in niedere Algenformen, 1844), in which the proposition is started, that the Infusorium *Enchelys pulvisculus*, is transformed into a *Protococcus*, and finally into an *Oscillatoria ;* and further, that the Infusorium *Chlamidomonas pulvisculus* is metamorphosed into the Conferva, *Stygeoclonium*, together with which, *Tetraspora lubrica*, or *gelatinosa*, *Palmella botryoides*, various species of *Protococcus* and *Gyges*, are represented as different forms of development. Flotow also (Nov. Act. Acad. nat. Curios.

xx, P. ii, 1844, p. 413) has composed a theme on the same subject, and remarked thereupon, that various forms of development of *Hæmatococcus pluvialis* may easily be regarded as Infusoria, since isolated forms of them bear the greatest resemblance to the infusorial genera instituted by Ehrenberg, of *Chilomonas, Cryptomonas, Gyges, Chlamidomonas, Pondorina, Chætoglena,* and *Chætotyphla*. These naturalists were preceded by Unger, who allowed himself to be seduced by his observations on *Vaucheria clavata* (Die Pflanze im Momente der Thierwerdung, 1843), into the same opinion, that animals could be transformed into plants, and *vice versâ*, plants into animals. The Reporter, however, in a special dissertation (De finibus inter regnum animale et vegetabile constituendis ; Erlangæ, 1844), has remarked that no further conclusion can be drawn from Unger's interesting discoveries, together with which those also of Thuret (Annales des Sc. nat. Botanique, t. xix, 1843, p. 266 ; Recherches sur les organes locomoteurs des spores des Algues) must be mentioned, than that " a ciliated epithelium and ciliary organs are not an exclusive attribute of the animal kingdom,"

REPTILIA.

BY

DR. F. H. TROSCHEL

Systema reptilium auctore Leopoldo Fitzinger; Fasciculus primus. Amblyglossæ. Vindobonæ, 1843. The author gives an introductory general view of his System of the Animal Kingdom, in which he classifies all animals, as far as into orders, on the supposition that in each division one system of organs must be specially developed. Thus, according to him, the class of Reptiles is that in which the function of generation, and at the same time the muscular system, are especially developed, in opposition to that of the Fishes in which nutrition, together with the osseous system, would seem to be particularly developed. The further division of the Reptiles, like that of the other Vertebrata, is then proceeded with, according to the predominant development of the five senses: (1) Touch: Rhizodonta, with the orders Cetosauri, Loricata, and Ornithosauri; (2) Taste: Dipnoa, with the orders Ichthyodea, Hemibatrachia, Batrachia; (3) Smell: Testudinata, with the orders Oiacopoda, Steganopoda, Tylopoda; (4) Hearing: Leptoglossæ, with the orders Ophidia, Hemisauri, and Sauri; (5) Sight: Amblyglossæ, with the orders Ascalabotæ, Humivagæ, Dendrobotæ.—The Crocodiles consequently have been obliged to part company with the Saurians, because the male has five senses, and necessarily come under the tactile Reptiles (Gefühlsreptilien), which might now be associated (schwärmen)

with the Ornithosauri. Why each division must necessarily be subdivided into three orders is not stated. To this succeeds a Schema Systematis, constituting a list of the Amblyglossæ, down to genera and subgenera. The principal part of the work is then occupied with the definition of the genera in copious Latin diagnoses, as also of the subgenera, to the multiplying of which the author appears much inclined, but which is not unsupported in the diagnoses. The most marked diagnostic characters are always placed at the commencement of the diagnoses, an arrangement which is very conducive to the convenient use of the book, and in which respect it has an advantage over many others. With respect to the nomenclature especial care has been taken to do justice to priority, which has become very necessary, especially in the Amphibia. Under each genus the known species are enumerated, with names, synonyms, and habitat, and with each is given a notice of the collections in which they occur. Many new names originate from the splitting up of the genera, but an extract from this work would lead too far, and I must consequently refer to the Part itself.

The Verhandelingen over de natuurlike Geschiedenis der Nederlandsche overzeesche bezittingen, door de Leden der Natuurkunde commissie in Indie en andere Schryvers uitgegeven op Lase van den Koning door C. I. Temminck, Zoologie; Leiden, 1839—1844, are now completed. The Amphibia have been arranged by Sal. Müller and Herm. Schlegel. The following are described and figured as new: *Crocodilus* (*Gavialis*) *Schlegelii, Testudo emys, Trigonocephalus formosus.* Besides these, figures are given of *Monitor prasinus, Monitor Dumerilii, Homalopsis leucobalia, Elaps Mülleri, Naja bungarus.* Speaking generally, thirty-five Amphibia are found in the islands of the Indian Archipelago, viz.:

Crocodilus vulgaris . . .	Java.
biporcatus . . .	Java.
Gavialis Schlegelii . . .	Java.

Trionyx stellatus	Java.
subplanus . . .	Java, Sumatra, Borneo.
Emys Couro	Java, Borneo, Celebes, Amboyna.
subtrijuga	Java.
Diardii	Java, Sumatra.
platynota	Sumatra.
spinosa	Borneo.
crassicollis	Borneo.
borneoensis	Borneo.
Testudo emys, n. sp. . . .	Sumatra.
Forstenii, n. sp. . .	Gilolo.
Monitor bivittatus . . .	Sumatra, Java, Borneo, Celebes.
chlorostigma . .	Amboyna, Gilolo, New Guinea, Rawak, Waigeou, and New Ireland.
timoriensis . . .	Timor.
prasinus	New Guinea.
Dumerilii . . .	Borneo, Pelo-Bato, near Sumatra.
Trigonocephalus rhodostoma	Java.
puniceus .	Java.
viridis . .	Sumatra, Banca, Timor.
Wagleri	Sumatra, Borneo, Celebes.
formosus (vid. infr.)	Sumatra.
Homalopsis buccata . . .	Java, Borneo.
Schneideri . .	Widely distributed.
decussata . .	Java.
plumbea . . .	Java, Borneo, Celebes.
aër	Java, Borneo, Bengal.
leucobalia . .	Timor.
Elaps furcatus	Java.
bivirgatus	Java, Sumatra, Borneo.
Mülleri	New Guinea.
Naja tripudians, var. *sondaica*	Java, Sumatra, and Borneo.
bungarus	Java.

The text relating to the Amphibia occupies seventy-two pages, and ten plates are devoted to them.

Of Andrew Smith's Illustrations of the Zoology of South Africa, the 20th and 21st Parts appeared in 1844. In the former of these there are figured, of the Amphibia, *Cordylus giganteus*, n. s., old and young; *Gerrhosaurus flavigularis*, Wiegm., old and young; *Gerrh. Bibroni*, n. sp.; *Gerrh.*

typicus, Dum. Bibr.; and in the latter, *Acanthodactylus capensis*, n. sp., male and female; *Platysaurus capensis*. n. gen.; *Gerrhosaurus subtessellatus*, n. sp.; *Gerrh. sepiformis*, Dum. Bibr., and the heads and femoral pores of the above-named species of *Gerrhosaurus*, to which also *G. lineatus* and *bifasciatus* are added. The diagnoses of the new species are given below.

James Linsley gives a list of the Amphibia [Reptilia] of Connecticut. (Silliman's American Journal, xlvi, p. 37.) Altogether fifty-six Amphibia [Reptilia] are enumerated, among which are thirteen Chelonian, two Saurian, eighteen Ophidian, eleven ecaudate and twelve caudate Batrachians. Descriptions of the species are not given.

Duvernoy, Fragmens sur les organes génito-urinaires des reptiles et leurs produits. (Comptes rendus xix, p. 249, 285, 948.) This paper treats (1) on the vesical calculi of the soft Chelonii; (2) on the existence of fossil urolithes; (3) on the sexual organs of the male and female of the Salamander and Tritons; (4) on the kidneys of the Salamander and Tritons.

CHELONII.

The only new Chelonians described are those above mentioned by Sal. Müller and Schlegel, viz. *Testudo emys*, from Sumatra, and *Testudo Forstenii*, from Gilolo.

SAURI.

Rusconi (in Müller's Archiv, 1844, p. 508) communicates his observations on the African Chameleon, and shows that this animal does not project its long, glutinous tongue towards insects, from its erection in consequence of sanguineous congestion, but by the action of the muscles. This projection takes place with great rapidity, and the stroke is attended with a faint sound. A figure illustrates this account.

A more detailed monograph on the Chameleon is promised.

New Lizards have been described only by Smith in his 'Illustrations.'

Cordylus giganteus. Flavo-brunneus inferne pallidior, dorso caudâ superne extremitatibusque superne fusco-nebulatis; occipite, temporibusque postice spinis fortibus triangularibus in ordine singulo armatis; dorsi squamis leviter carinatis, laterum fortiter spinosis; caudâ supernes pinossissima; extremitatibus anterioribus inferne squamis tuberculosis; poris femoralibus decem. 15″. Quathlamba Mountains.

Gerrhosaurus Bibroni. Superne brunneus lineis duabus sublatis et duabus augustis variegatis, his ad basin caudæ, illis versus apicem desinentibus; mento, gulâ, capitis lateribus, gutture, extremitatibusque anterioribus interne miniatis; pectore abdomineque griseo-albis; scuto occipitali rhombico. 10½″. At the springs of Caledon, a tributary of the Orange River.—*G. subtessellatus.* Dorso flavo-brunneo, linea albâ brunneaque tessellata in utroque latere marginato; partibus inferioribus carneis cupreo-viridè-tinctis; corpore fortiter depresso, squamis lævibus. 6″. Namaqualand.

Acanthodactylus capensis—Mas. Superne flavo-brunneus, lateribus nigro-brunneis, et macularum albarum, seriebus duabus et lineis duabus, longitudinalibus ejusdem coloris variegatis; partibus inferioribus ochraceis; digitis externe dentatis. *Fem.* Superne pallide aurantius, lateribus rubro-aurantiis, superne inferneque linea subalbida, marginatis; partibus inferioribus ochraceis, versus latera nigro-brunneo tessellatis. 10½″ Namaqualand.

Platysaurus, nov. gen. Teeth short, numerous, narrow; nasal openings circular, on the posterior and inferior border of the nasal scute; frontal plate simple; fronto-parietal plates four, as in *Cordylus;* palpebral plates as in *Gerrhosaurus.* Body flat, scales very small, triangular on the abdomen and in transverse rows, femoral pores small but distinct, jugular folds rudimentary. *Pl. capenses,* superne, griseo-brunneus, dorso fasciis tribus, subalbidis notato; capite corporeque partiter depressis; corporis squamis parvis; poris femoralibus 18; cauda versus basin depressa, versus apicem cylindracea; partibus inferioribus viridi-flavis. 7¾″. Namaqualand.

Tropidolepisma striatum, Peters (Bericht der Acad. zu Berlin, 1844, p. 36), appears to me to be *Euprepes sechellensis,* D. B.

SERPENTES.

Of Dumeril and Bibron's Herpetologie générale, the sixth part appeared in 1844, containing the commencement of the Serpents. After an introduction, in which are detailed the principles upon which all the existing systems

are founded, the authors develop that followed by themselves. They divide the Serpents into five sections:

1. *Vermiformes* (Scolecophides). Teeth in one jaw only; body of uniform size throughout, vermiform. The upper jaw only moveable, intermaxillary and nasal bones and vomer firmly united; no poison-fangs or grooved teeth.

2. *Cicuriformes* (Azemiophides). All the facial bones moveable, superior maxillary bones very long; teeth in both jaws; no poison-fangs or grooved teeth.

3. *Fidendiformes* (Aphoberophides). All the facial bones moveable, teeth in both jaws, the posterior teeth of the upper jaw grooved, the anterior entire; not venomous.

4. *Fallaciformes* (Apistophides). All the facial bones moveable, teeth in both jaws, the anterior teeth of the upper jaw grooved; venomous.

5. *Viperiformes* (Thanatophides). All the facial bones moveable, teeth in both jaws; poison-fangs in the upper jaw; venomous.

To a general consideration of the various organs of serpents succeeds the special part, in which, in the first place, the Vermiformes are divided into two families.—Typhlopians.—Lower jaw without teeth; with the genera *Pilidion, Ophthalmidion, Cathetorhinus, Onychocephalus, Typhlops, Cephalolepis.*—Catodonians.—Lower jaw with teeth, comprising the genera *Sternostoma.*

In the section Cicuriformes the first two families only are treated of in this volume. The Pythonians are divided into three tribes: Pythonides, intermaxillary teeth, with the genera *Morelia, Python, Liasis, Nardoa;* Erycides, without intermaxillary teeth and without prehensile tail, containing only the genus *Eryx;* Boacides, without intermaxillary teeth, with prehensile tail, including the genera *Enygrus, Leptoboa, Tropidophis, Platygaster, Boa, Pelophilus, Eunectes, Xiphosoma, Epicrates, Chilabothrus.*—The Tortricians consist of the genera *Tortrix* and *Cylindrophis.* Sixty-five species in all are described in this volume.

Dr. T. S. Savage has given some notices on the habits of *Python natalensis,* and has described several instances in which it had wound itself round and crushed animals. It sometimes coils the tail around some [fixed] object in order to enable itself to exert more force upon its prey; sometimes it inserts the rudimental feet in fissures in the ground [or under rocks], thus affording a fulcrum [which gives inconceivable force to the blow]. It also employs the rudimental feet in ascending trees, for which purpose it inserts

them into chinks in the bark. (Annals, xiv, p. 148, and Froriep's n. Notiz. xxxii, p. 198.

Trigonocephalus formosus, instituted by Sal. Müller and Schlegel (l. c.), differs from *Tr. Wagleri* in the much less strongly keeled scales, the larger labial scutes, more numerous abdominal scutes, and in the different disposition of the colouring.

BATRACHIA.

Prévost and Lebert (Mémoire sur la formation des organes de la circulation et du sang dans les Batraciens. (Annales des Sc. Nat., 3me Série, t. i, p. 193.)

Vogt (ib. p. 45) has published some observations on the Embryology of the Batrachians.

Schlotthauber has described in these Archives (1844, i, p. 257), a variety of *Rana temporaria*, from the neighbourhood of Hamburg.

Dactylethra Mülleri, Peters (Bericht d. Acad. zu Berlin, 1844, p. 37), differs from *D. capensis* in having a tubercle on the nape and a tentacle beneath each eye. The extremities are ochreous-yellow beneath, with black spots. Mozambique.

Küster has described *Salamandra Genei*, of which he procured two living specimens in Sardinia. It differs from *Salamandra* in the want of the aural glands and in the smooth body, from *Triton* in the smooth skin and the round tail, from *Geotriton* in the conformation of the toes, which are, as it were, cut off at the extremity and connected by a web. The animal, probably, constitutes a distinct genus. (Isis, 1844, p. 655.)

Owen has described a new species of Axolotl, in the Annals (xiv, p. 23). The species are characterised as follows:

1. *Axolotes guttata* (*Siren pisciformis*), fusca, nigro-guttata, capite antice rotundato, cauda compresso-lanceolata.

2. *A. maculata*, nov. species, grisea, nigro-marmorata, subtus lactea, capite antice truncato, cauda compresso-rotundata. 3″-5″. Mexico. A figure on wood of the latter species is added.

ICHTHYOLOGY,

BY

DR. F. H. TROSCHEL.

At the head of this year's Report I place a Memoir by J. Müller, which affords expositions of the highest importance with regard to the systematic arrangement of the Fishes: Ueber den Bau und die Grenzen der Ganoiden und über das natürliche System der Fische (On the Structure and Limits of the Ganoidei, and on the Natural System of the Fishes) in the Reports of the Berlin Academy, 1844, p. 416, and further detailed in these Archiv. (1845, p. 91.) Since the system here proposed rests upon such a certain base that it will undoubtedly be universally recognised, I shall in what follows arrange my Report according to it.

Of importance for the knowledge of Fishes is a work edited by Lichtenstein: J. Forsteri, descriptiones animalium in itinere ad maris australis terras, per annos 1772 bis 1774 suscepto, observatorum; Berolini, 1844. 8. Forster's descriptions have hitherto been before the public only in Bloch's Systema ed. Schneider, and in fact not in a complete form. They appear in this work complete, and with the addition of those names which have been given to the Fish in later times, particularly in Schneider's edition of Bloch, and in Cuvier Valenciennes.

The fifth Part of the Zoology of the Voyage of H.M.S. Sulphur, under the command of Captain Sir Edward

Belcher, during the years 1836-1842, containing the Fish, has appeared in 1842. It is arranged by Sir John Richardson. This Part embraces the family of the Gobioidei, in which one new genus and some new species are described; besides these a new *Batrachus* and a new *Synanceia* are instituted. The ten lithographic plates exhibit Fishes which have as yet not been treated of in the text.

The Verhandelingen over de natuurlike Geschiedenis der Nederlandsche bezittingen ct. door C. J. Temminck, Zooloogie. Leiden 1839, 1844, are completed, as has been stated above in the Report on the Reptilia. The Fish occupy twenty-five pages of text and six plates of figures; they are arranged by Sal. Müller and Schlegel, and are limited to three Memoirs: On *Osteoglossum formosum;* Description of four species of *Amphacanthus;* and a Review of the species of the genera *Amphiprion, Premnas, Pomocentrus, Glyphisodon, Dascyllus,* and *Heliases,* brought from the Sunda Islands and the Moluccas. Figures are given of *Osteoglossum formosum, Amphacanthus dorsalis, corallinus, virgatus, vermiculatus, Pomacentrus fasciatus, trimaculatus, littoralis, chrysopœcilus, Glyphisodon aureus, melas, unimaculatus, modestus, antjerius, biocellatus, Heliases cinerascens, Premnas trifasciatus.*

Of Henric Kroyer's Danmarks Fiske, Kopenhagen (vid. last Report, p. 98), the second part of the second volume has appeared. The Fish, as before, are figured in woodcut. This Part contains the following species: *Platessa saxicola, limandoides, Hippoglossus maximus, Rhombus vulgaris, maximus, hirtus, cardina, Solea vulgaris, Cyclopterus lumpus, Liparis montagni, barbatus, Lepadogaster cornubiensis, Salmo salar, trutta, eriox* and *fario.*

Towards the ichthyological Fauna of Norway a contribution is given by v. Düben (Om Norriges Hafs-Fauna in der Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar 1844, pp. 13, 111). The species here given have been minutely described in the beginning of the year 1845

by V. Duben and Koren. (Vid. Hornschuch Archiv, Skandinavischer Beiträge zur Naturgeschichte 1845.) Of the thirteen species five are new; the others are *Polyprion cernium, Sebastes imperialis, Sternoptix Olfersii, Gadus* (*Merlangus*) *potassoa,* Risso, *Motella argenteola,* Mont., *Rhombus megastoma,* Donov., *Lepadogaster bimaculatus,* Penn., and *Cyclopterus minutus,* Pall., which the author agrees with Fries in regarding as the young state of *Cyclop. lumpus.* The new species are given below.

In the twenty-first Part of the Illustrations of the Zoology of South Africa, by Andrew Smith, which appeared in 1844, five Fish also are figured, viz. *Pentaceros Richardsoni,* Smith, *Sebastes capensis* and *maculatus,* Cuv. Val., *Sargus hottentotus* and *capensis,* Smith. The three new ones are given below.

Of Siebold's Fauna Japonica, the fifth and sixth Parts of the Fishes have appeared in 1844, arranged by Temminck and Schlegel. They contain Fish from the families Sparoidei, Squamipennes, and Scomberoidei, of which those that are new are noticed below.

The Ichthyology, in the Histoire naturelle des Iles Canaries, par MM. P. Barker, Webb, and Sabin Berthelot, arranged by Valenciennes, was concluded in 1843. Numerous Fishes are described as living in the seas which wash those islands, among which are a large proportionate number of new species, and also several interesting new genera. This group of islands affords many Fish in common with Madeira; they appear to connect by corresponding forms the Ichthyological Fauna of South America with that of the Mediterranean, rather than with that of the African coast. Most of the new species, as well as some of those previously instituted, are figured in twenty-six plates, partly on copper and partly on stone. The new species, but especially the new genera, are noticed more particularly below. The only fresh-water fish is an Eel, *A. canariensis.*

In Silliman's American Journal (xlvii, p. 55) we have a list of the Fishes of Connecticut, by James Linsley, in which 173 species in all are enumerated. There are 72 Acan-

thopterygii, 36 Malacopterygii abdominales, 23 Malacopterygii jugulares, 6 Malacopterygii apodes, 3 Lophobranchii, 19 Plectognathi: 2 Sturgeons, 17 Plagiostomi, and 5 Cyclostomi.

Under the title of "Zur Kenntniss des Wirbelthier-Skelettes" (towards the knowledge of the Vertebrate Skeleton), by Bernhard Carl Brühl, the first half of the first division, with the special title of Die Methode des Osteologischen Details, dargestellt am Karpfen-skelette, Wien, 1845, 4, has appeared. This Part contains twenty-nine sheets of letter-press, thirteen tables, and 3 lithographic plates. The three remaining Parts will not relate especially to Ichthyology.

DIPNOI.

Peters has sent from Quellimana the description and a specimen of a fish allied to *Lepidosiren annectens*.

The pectoral and abdominal fins consist, besides an articulated ray, of cartilaginous rays, which are attached to the principal ray, and constitute a vane upon it. Nasal openings as in *Lepidosiren paradoxa*, as is also the labial cartilage. Three external branchial cirri. Should this fish be considered generically distinct from *Lepidosiren annectens*, the author gives it the name of *Rhinocryptis amphibia;* in case of its being identical with *L. annectens* and generically distinct from *L. paradoxus*, Owen's name, *Protopterus*, must be again adopted. (Reports of the Berlin Academy, 1844, p. 411.)

TELEOSTEI.

Acanthopteri.—*Serranus caninus*, Valenc. Canar., differs from *S. gigas* in the truncated caudal fin. D. 11, 15; A. 3, 8. Brown.

S. emarginatus (id. ib.), with an incision above the angle of the præoperculum; setiform teeth only in the centre of the upper jaw. D. 11, 15; A. 3, 11. Large brown clouded spot on the back. Scales on the upper jaw.

Uranoscopus bufo, Val. Canar. The head is shorter than in *U. scaber;* it is contained $4\frac{1}{2}$ times in the whole length; 70 scales occur in a longitudinal row. D. 4, 15; A. 14.

Beryx borealis, Düben (l. c.), (formerly regarded by the author as a new

genus "*Urocentrus*") has five spinous rays above and four below, at the root of the caudal fin; two spines on the nape, two on the muzzle, two below the nasal openings.

Sphyræna afra, Peters (Ber. d. Acad. z. Berlin, 1844, p. 32). The pectoral fins extend as far as the commencement of the first dorsal; ventral fins in front of the commencement of the first dorsal. St. Paolo de Loanda.

Kroyer gives diagnoses for *Aspidophorus niger*, Kr., *decagonus*, Bl., and *europæus*, and describes a new species from Greenland, *A. spinosissimus*, characterized by jaws of equal length and maxillary barbal cirri. (Tidssk. p. 249.)

Id. (ib. p. 261) has instituted a new genus, *Icelus*, in the family of the Sclerogenidæ: Forma subcompressa, altior, quam lata. Caput magnum, aculeis armatum rostri, præoperculi et nuchæ, squamis vero destitutum. Dentes acerosi, minutissimi maxillarum, vomeris ossiumque palatinorum. Radii membranæ branchiostegæ sex. Pinnæ dorsales duæ discretæ; ventrales sub pectoralibus sitæ, quatuor compositæ radiis; omnes pinnarum radii indivisi. Utrinque a nucha usque ad basin pinnæ caudalis series scutorum osseorum continua prope pinnas dorsales. Linea lateralis tuberculis composita osseis. Squamæ ciliatæ laterum et abdominis raræ et sparsæ; ceterum cutis nuda. To this genus belong, besides a new species, *I. hæmatus*, Kr., from Spitzbergen, also *Cottus uncinatus*, Reinh., and *Cottus bicornis*, Reinh.

Id. (ib.) elevates *Cottus tricuspis*, Reinh., to the rank of a distinct genus, *Phobetor*, on account of its wanting the vomeral teeth.

Id. (ib. p. 267) further institutes a new genus, *Caracanthus*, in the same family, which, on the other side, approaches the Scomberoidei, in the height of the body, the shortness of the snout, and the rays before the anal fin: Forma valde compressa, ovalis. Rostrum brevissimum, truncatum. Dentes acerosi, ossium intermaxillarium, maxillæque inferioris. Radii membranæ branchiostegæ sex (?). Os infraorbitale antice aculeo armatum. Duæ pinnæ dorsales sat humiles; pinnæ pectorales breves, radiis formatæ simplicibus, pinnæ ventrales prorsus rudimentariæ; duo pinnæ analis aculei, a radiis mollibus sat magno distincti intervallo. Squamæ nullæ; plurimæ vero papillulæ ubique cutaceæ. *Car. typicus*, from Owhyhee.

Agriopus alboguttatus, id. (ib. p. 224), black, with milk white spots; three pairs of spines on the head. D. 16, 12; A. 1, 8. Peru.

Lastly, the same author has characterized (ib. p. 281) the northern species of the genus Sebastes, *S. norvegicus*, Cuv., *S. viviparus*, Kr., and *S. imperialis*, Cuv. ?

Sebastes filifer, Valenc. Canar. The second spine of the dorsal fin is elongated, so that it is $1\frac{2}{3}$ times as long as the third; only four spines on the præoperculum. D. 12, 10; A. 3, 5.

Umbrina ronchus, Valenc. Canar. The body is higher than in the Mediterranean species; the scutum above the shoulder is very small. D. 11, 25; A. 27.—*U. canariensis*, id. (ib.) The first dorsal fin is lower, the second longer, the body more elongated. D. 11, 29; A. 2, 7.

Pentaceros Richardsonii, Smith, Ill. Capite scabre striato, squamis paucis infra oculos; thorace scutis parvis multilateralibus tecto; dentibus criniformibus; spinis pinnarum osseis, fortibus, longitudinaliter striatis, linea laterali arcuata. 21″. D. 14, 9; A. 4, 8. Cape.

Pristipoma ronchus, Valenc. Canar. D. 12, 16; A. 3, 12. No spot on the operculum.

Synanceia asteroblepa, Richardson (Voy. of the Sulphur). Capite sub cylindrico superne planiusculo, cute fimbriatula arcte adhærente tecto; cute corporis laxa, minute papillosa; colore fusco-purpureo punctis brunneis minimis variegato; pinnis pectoralibus maculatis; pinnis omnibus ad margines nigrescentibus. D. 16, 4; A. 4, 5. New Guinea.

Sargus hottentotus, Smith, Ill. Corpore fasciis quinque verticalibus variegatis; maxillæ dentibus incisoribus duodecim, mandibulæ octo; pinnis ventralibus postice subarcuatis; pinna caudali furcata, 17½″. D. 11, 13; A. 3, 11. South-west coast of South Africa.—*S. capensis*, id. (ib.) Macula nigra sub extremitatem posteriorem pinnæ dorsalis; squamis infra oculos subquadrangularibus in ordinibus arcuatis dispositis; dentibus incisoribus in maxilla et in mandibula octo, pinnis ventralibus externe acuminatis. 14″. D. 12, 15; A. 3, 14. South-west coast of South Africa.—According to Valenciennes (Ichth. d. Canaries) Lowe's *Charax cervinus* belongs to the genus *Sargus*.

Pagrus Bertheloti, Valenc. Canar. D. 11, 12; A. 3, 9; red, with some blue spots.—*P. auriga*, id. (ib.) Spines of the dorsal fin very high; reddish silvery, with four or five broad brown bands. The author thinks it may possibly be the young condition of the former species.

Pagellus canariensis, id. (ib.) differs from *P. vulgaris* in the shorter snout, less numerous anterior teeth, and larger molar teeth.

Dentex filosus, id. (ib.) The second ray of the dorsal fin very much elongated, the third and fourth less so. D. 13, 10; A. 3, 8.

Lethrynus hæmatopterus, Schlegel (Faun. Japon.) D. 10, 9; A. 3, 8. Dusky olive-green on the head; brighter on the back, the scales have a brown spot, throat and lips carmine red, fins brownish yellow, dorsal fins posteriorly blood red. 20″.

Boops canariensis, Val. Canar., differs from *B. vulgaris* in the broader head and larger eyes. The colour on the back is silvery violet.

Melanichthys, new gen., Schlegel (Faun. Japon). Dentated teeth in one row, behind which is another row of similar but smaller teeth, and behind these a row of setiform teeth; no palatal teeth. The species, which as yet

is unnamed, is black above and of a lighter colour beneath. D. 14, 14; A. 3, 12. 15″.

Gerres equula, id. (ib.) D. 9, 11; A. 3, 8. Greenish blue.

Ditrema, n. g. id. (ib.), in the family of the Mænides, is distinguished by a very low dorsal fin and an opening behind the anus. The species has D. 10, 22; A. 3. 27.

He has instituted a new genus *Chætopterus*, which, in habit, would appear very nearly to approach *Aphareus;* but it is furnished with vomeral teeth and four rays in the branchiostegous membrane. D. 10, 10; A. 3, 8.

In the family of the Squamipennes several new genera and species have been instituted.

Chætodon modestus, Schlegel (Fauna Japonica, p. 80.) resembles *Ch. melanopus*, Reinwardt; it is milk-white, with four light brown bands, a black spot on the commencement of the soft part of the dorsal fin. D. 11, 21; A. 3, 20.—*Ch. aureus*, id. Brownish yellow, a black perpendicular stripe across the eyes, and twenty dark longitudinal bands on the sides.

Holacanthus septentrionalis, id., allied to *annularis;* but the dorsal and abdominal fins are not prolonged into points; about twelve blue longitudinal stripes. D. 13, 18; A. 3, 18.

A new genus, *Hypsinotus*, has been instituted by the same naturalist, after a figure by Bürger. It is characterized by the position of the ventral fins close to the anus, by the lowness of the soft dorsal fin; the body is nearly as high as it is long. The fish is brick-red. B. 6; D. 8, 27; A. 3, 26. The genus is placed near *Drepane*.

Another new genus, *Histiopterus*, by the same author, is placed near *Taurichthys* and *Heniochus*, which it resembles in the figure of the body. The dorsal fin is very high, and presents four strong spines; head covered with asperities, teeth setiform, no scales on the fins. It includes two species: *H. typus*, D. 4, 27; A. 3, 11. The third ray of the dorsal fin the longest. *H. acutirostris*, the snout shorter, and the fourth ray the longest.

Valenciennes has described, in the Ichthyologie des Canaries, a fish, approaching the genus *Brama*, as a new genus, *Neobrama Webbii*. The same fish had been already named by Lowe *Polymixia nobilis*, which name has the priority. Valenciennes gives the following characters: Corpus oblongum, squamis asperrimis tectum; caput parvum, squamosum, rostrum ac mandibula superior nuda; maxilla inferior squamosa, infra cirris duobus longis symphysi affixis instructa; dentes in maxillis, in palato, in vomere ac in linguâ minuti, creberrimi, velutini; ossa opercularia inermia, squamosa, præter interoperculum nudum, cutaceum; pinnæ dorsales coadnatæ, ventrales radiis ramosis septem; membrana branchiostega radiis quatuor.

Id. (ib.) has instituted a genus *Crius*, also belonging to the Squamipennes, and which had also received a name from Lowe, *Leirus*. Lowe was acquainted with but one species, *L. Bennettii*, to which Valenciennes adds a second, *C. Berthelotii*, with the following characters: Corpus compressum, antice carinatum, squamis deciduis lævibus omnino vestitum; caput parvum, truncatum, squamosum; præoperculum in limbo sulcatum, ad marginem integrum neque aculeatum; operculum, suboperculum, interoperculum, absque spinis aut serrulis, sed subciliata; dentes setacei minimi in unica serie; palatum glabrum, edentulum; pinnæ dorsalis, analis, caudalisque squamosæ; membrana branchiostega radiis sex. *C. Bennettii*, D. 7, 31; A. 3, 25. *C. Berthelotii*, D. 4, 34; A. 3, 22.

Kroyer (Naturhistorisk Tidskrift, 1844, p. 213) has instituted a new species in the genus *Oplegnathus*, Rich. (vid. Archiv, 1841, ii, p. 136): *O. fasciatus*. Altissimus, valde compressus; altitudo dimidium fermè æquat piscis longitudinem, crassitudinemque ter ad minus superat. Caput quarta longitudinis parte parum majus. Color nigricans, fasciis luteis transversis verticalibus quinque. D. 11, 16; A. 3, 12. Peru. The author is not inclined to place the genus near *Scarus*, but among the Squamipennes, on account of the compressed and lofty figure of the body, the fleshy and squamous fins, the very minute and ciliated scales, the conformation of the pharyngeal bones and their teeth, the length of the intestine and the number of cæca, the unbroken lateral lines, &c.

There is, perhaps, no doubt of the genus *Scarodon*, instituted by Schlegel, in the Fauna Japonica (p. 89), being identical with the above, and to which two species are referred: *Sc. fasciatus*, figured in Krusenstern (Atlas, tab. 52, f. 2), and probably not differing from *O. fasciatus*, Kroyer.—*Sc. punctatus*, with numerous dark points of various sizes.

In the family of the Labyrinthibranchii, a new genus *Ctenopoma* has been instituted by Peters. (Bericht der Acad. z. Berlin, 1844, p. 34.) Operculum with two crescentic incisions and three pectinate lobes, teeth on the vomer and palate, numerous rays in the dorsal and anal fins. *Ct. multispinis*, near Quellimana, in a brook.

In the family of the Scomberoidei, we have in the year 1844 contributions only by Schlegel, in the Fauna Japonica. In which work a *Scomber scombrus japonicus* is noticed, which would seem to come near the Cape variety; and a *Scomber pneumatophorus japonicus* is figured in a small and a larger variety.—In the same place are described five species of *Thynnus*. *Th. orientalis* has short pectoral fins, like *brachypterus*, but has one more ray in the first dorsal fin, and the false fins are placed very near the second dorsal and the anal fins.—*Th. thunnina.*—*Th. pelamys.*—*Th. sibi*, with very long pectorals, approaches *Th. argentivittatus*, but the first false fins are connected with the dorsal and anal.—*T. macropterus*, anal and second dorsal

fins are very long and falciform; the first false fin beneath is connected with the anal; it attains the length of ten feet.

Pelamys orientalis differs from *P. chilensis*, C. V., in the much shorter pectoral fins, D. 18, 14 + 8; A. 12 + 1 + 8. The last two false fins only are free.

Cybium chinense and *niphonium* are described and figured in the same work, as well as *Trichiurus lepturus japonicus*.

Histiophorus orientalis, new species, differs from *indicus* in the elevated forehead and in the dorsal fin being much lower anteriorly than in the middle.

Elacate bivittata, which was described by Cuv. Valenc. from a young specimen, is here figured and described in the full-grown state.

Chorinemus orientalis, Schl., would appear to correspond very nearly with *Ch. mauritianus*, C. V., differing from it only in the teeth of the lower jaw, the external row of which is directed horizontally outwards.

Trachinotus anomolus, Schl., has only four spines in the first dorsal fin, and the anterior part of the soft dorsal and anal fins are not elongated at the tip; the skin is divided into irregular areas. The fish might probably constitute a separate genus, it has, however, been instituted merely from a drawing.

Amongst the figured species of the genus *Caranx*, is a *Trachurus*, which Schlegel does not separate from *Caranx trachurus;* it appears to approach the *C. declivis* of Jenyns very nearly, at least the number of the lateral plates and of the fin-rays pretty nearly corresponds.

Of *Caranx* with a false fin, two species have been described and figured. *C. muro-adsi*, D. 8, 1 + 33; A. 2, 1 + 27, and *C. maru-adsi*, D. 7, 1 + 34; A. 2, 1+ 28.—Lastly, in the division without false fins two species have been instituted: *C. flavocæruleus* and *C. equula*.

In the family of the Teuthyidæ, four species of the genus *Amphacanthus* have been described by Sal. Müller and Schlegel: *A. dorsalis, corallinus, virgatus,* and *vermiculatus*. (Verhandelingen, &c.)

Anastasio Cocco has described, in the 25th Part of the Giornale del Gabinetto di Messina, January 1844, a new genus of the Tænioidei, under the name of *Krohnius;* snout short, mouth cleft obliquely, body elongated, head obtuse, teeth in the maxillæ, a barbal cirrus on the chin, anus near the head, first dorsal fin short and high, the second extends the whole length of the back as far as the extremity of the tail, as also does the anal fin. The rays of the ventral fins prolonged into long filaments: *K. filamentosus*, D. 8, 150; A. 100, P. 20, V. 8. B. 7. 2 inch. Messina.

The same naturalist has instituted (ib.) two other new genera, which would appear to constitute a peculiar small family. The one, *Bibronia*, is

of a lanceolate form, compressed, head sloping, maxillæ without teeth. The single dorsal fin is elongated anteriorly, and is united with the caudal and long anal fins, the rays of the ventral fins are elongated. *B. ligulata*, ⅔ inch. Messina. The other genus, *Pelorina*, differs from the preceding in the circumstance that the dorsal and anal fins are separate from the caudal, teeth in the maxillæ. *P. Heckelii*, the anterior rays of the dorsal fin short. D. 90, V. 5; A. 70, B. 7. 1 inch. Messina. *P. Ruppelii*, the first ray of the dorsal fin prolonged into a filament. D. 118; V. 5; A. 90. Rather more than an inch. Messina. All the species are roughly figured on copper.

Valenciennes has instituted (l. c.) in the family of the Blennioidei a new genus near *Blennechis*, which he names *Blennophis:* Corpus depressum, alepidotum; caput obtusum; os parvum; dentes quatuor adunci recurvi in utrâque maxillâ symphysin versus; pinna dorsalis unica emarginata, analis dorsali similis, sed brevior, caudalis distincta, pectorales ovatæ latæ; jugulares biradiatæ. The species *B. Webbii* is small, but uncommonly abundant, and is eaten prepared like the anchovy.

Clinus canariensis, Val. Canar., red brown above, dorsal and anal fins marbled with brown. D. 18, 12; A. 20.

Kroyer (Tidskr. 1846, p. 227) makes a new genus of *Gunnellus Strömii*, Cuv. Val., as this fish does not properly come under any hitherto established genus; it differs from *Gunnellus* in having cæca and tentacles, whilst it is without teeth on the vomer; the ventral fins consist of a spine and three rays; no lateral line.

Eliotris latifrons. Richardson, Sulphur. Fronte declivi, planâ, intra oculos dimidium longitudinis capitis lata; capite quartam partem totius piscis longitudine superante; squamis corporis magnis (37 in serie laterali); squamis frontis dimidio minoribus; poris 4 ad oram posteriorem præoperculi; pinnis ventris, dorsi anique seriatim guttatis. Pacific Ocean.

Philypnus ocellicauda (id. ib.) Rostro obtuso, naribus cirriferis; corpore prasino, marmorato dorsoque transversim subfasciato; cauda ocello purpureo notata. Bocca Tigris.

Callionymus Reevesii (id. ib.) Aperturis branchiarum supernis, apice spinæ præoperculi recto; rostro acutiusculo; oculis magnis approximatis; pinna caudæ longissima infra nigra; pinnis dorsi caudæque seriatim guttatis, pinna ani extus nigerrima. D. 4, 9; A. 8. China. *Call. Belcheri* (id.) Aperturis branchiarum supernis; spinæ præoperculi apice recto, ore parvo, maxillis æqualibus acutiusculis, oculis magnis approximatis; pinna dorsi secunda fasciata; pinna ani antice nigra marginata; cranio scabriusculo. D. 4, 9; A. 9. Pacific. *Call. Hindsii* (id.) Aperturis branchiarum supernis; cranio summo lævi; apice spinæ præoperculi recurvo; rostro obtuso; pinnis pectoralibus pinnas ventrales longitudine excedentibus; corpore brunescenti variegato, pinna dorsi priore albo nigroque fasciato, pinna caudæ albo punctata, pinnis cæteris immaculatis, perlucentibus. D. 3, 9; A. 9. Pacific.

—*Call. lateralis* (id.) Apertura branchiarum laterali sub apiculis binis operculi brevissimis; corpore teretiusculo quam capite crassiore; capite parvo, parce depresso, vix latiore quam alto; colore supra spadiceo, fasciis transversis brevibus, badiis, variisque; in medio latere maculis duabus fuscis albo indentatis; infraque medio guttis albis arcte ordinatis. D. 4, 8; A. 7. Pacific.

In the Annals (vol. xiv, p. 280) Richardson gives the characters of a new genus, *Patæcus*, which appears to belong to the Blennioidei. It is very much compressed, has very small teeth [microscopici] in both maxillæ, [and pharyngeal bones], none on the palate [tongue, or vomer], no scales, no ventral fins, the pectorals affixed very low down, the dorsal fin extends from the forehead as far as the caudal fin [with which it is united], anal fin distinct from the latter. *P. fronto*, from South Australia.

The same naturalist (ib. xiii, p. 461) has instituted a genus, *Channicthys*, which was found by Sir James C. Ross, near Kerguelen's Land. Teeth crowded, short, curved, none on the palate, body roundish, with a gradually attenuated tail, without scales, lateral line armed with rough scales. Ventral fins in front of the pectorals. *Ch. rhinoceratus*, B. 6; D. 8, 35; A. 31.

Gobius Nilssoni v. Düben (l. c.), dorsal fins wide apart. D. 2, 20; A. 20. —*G. Stuvitzii*, id. ib. D. 5, 12.

Chæturichthys, Richardson, nov. gen., Voyage of Sulphur. Corpus elongatum, antice teretiusculum in caput subtetragonum sensim proclive, et postice in caudam compressam attenuatum. Oculi modici, sublaterales. Os largum terminale. Dentes mandibularum ordine bino, exteriores majores pauciores, curvato-subulati et in maxilla inferiore patuli, interiores arcti, vix conspicui. Vomer et palatum lævia. Maxilla inferior subtus barbatulata. Cranium, genæ striatæ, operculaque inermia, squamosa. Tempora sulcata. Apertura branchialis ampla, membrana quinqueradiata, operculata. Pinnæ dorsales ambæ, pectorales et ventrales Gobiorum. Pinna caudæ lanceolata, utrinque in cauda decurrente et ibi radiis plurimis inarticulatis simplicibusque sustentata. Papilla genitalis simplex. One species, *Ch. stigmatias*. South Sea.

Lepadogaster Webbeanus, Val. Canar. D. 16; A. 9; reddish.

Lophius eurypterus, v. Düben and Koren (l. c.) Radio capitali primo sequentibus duobus plus quàm duplo breviore, terminato in cylindrum transversum, crassum, ciliatum; pinnis omnibus amplis; pectoralibus extensis aream corporis æquantibus.

Chironectes arcticus (id. ib.) Lævissimus, radiis pinnarum pectoralium et caudæ indivisis, hac longitudini pinnæ dorsalis æquante; appendicibus cutaneis raris, sparsis, validis, sub cylindricis; basi vaginatis, et corpore arcte adpressis, apice pinnatis.

Batrachus margaritatus, Richardson, Voyage of Sulphur. Esquamosus

ineis punctorum lucidorum plurimis caput corpusque percurrentibus; præoperculis et maxilla inferiore porosis. D. 2, 34; A. 26. Pacific Ocean, on the west coast of Central America.

ANACANTHINI.

In the family of the Gadoidei Valenciennes (Canar.) has instituted a new genus, *Asellus*. A barbal cirrus, two dorsal fins, of which the anterior is short, the posterior elongated, two anal fins, five rays in the ventrals. One species, *A. canariensis*. D. 8, 43; A. 17, 17.

Phycis limbatus, Val. (Canar.) D. 11, 60; A. 58.

Macrourus (*Lepidoleprus*) *sclerorhynchus*, Val. (Canar.) D. 11, 87; A. 72. Snout short.

Rhombeus serratus, Val. (Canar.) Eyes sinistrorsal, separated by a space equal to one diameter, the scales at the base of the dorsal and anal fins prolonged into minute points. D. 90; A. 57.

Solea scriba, Val. (Canar.) Eyes dextrorsal, small. D. 81; A. 62.

PHARYNGOGNATHI.

Bellamy has described the *Labrus lineatus*, Fleming. (Annals, xiii, p. 77.) —*L. nubilus*, Valenc. (Canar.) D. 19, 20; A. 3, 9.

In the genus *Acantholabrus* Valenciennes (Canar.) has described two new species: *romeritus* and *romerus*, the former differs from *viridis* in having four instead of five spines in the anal fins, the latter is allied to *Crenilabrus trutta*, Lowe.

In the family of the Labroidei ctenoidei, some new species are described by Sal. Müller and Schlegel in the Verhandelingen, &c.

Amphiprion intermedius agrees with *laticlivius*, even to the having a broad band on the tail.

Pomacentrus chrysopoecilus, Kuhl, v. Hasselt, new species. D. 13, 14; A. 2, 12. Java.—*P. albifasciatus*. D. 12, 14; A. 2, 12. Celebes.

Glyphisodon breviceps. D. 13, 11. Head and snout very short, strongly arched above. Sumatra.—*Gl. modestus*. D. 13, 12; A. 2, 12. Back yellow, fins bluish. Java.

Peters has sent a number of specimens of a Chromidan, which he (Bericht der Ac. zu Berlin, 1844, p. 32) describes as being nearly allied to the *Tilapia* of Smith. J. Müller, who communicated Peters's description to the Academy, remarks (ib.) that he considers both Peters' fish, as well as the *Tilapia* of Smith as not differing from *Chromis niloticus*, since the number of fin-rays in this species varies exceedingly. It is also remarked that the *Chr. niloticus* has cycloid scales, so that the character which is derived from the scales is not constant in this family.

PHYSOSTOMI.

Duvernoy has published his particular observations on the development of the viviparous *Poecilia surinamensis*, Val. They are preceded by an historical review of the most important works respecting the development of the fish. A plate with figures is added. (Comptes rendus, vol. xviii, 1844, pp. 667, 720; Annales d. Sc. Nat. 1844, i, p. 313; Froriep's Notiz. xxxii, pp. 1, 17, 33, 49, 65, 81.)

Cyprinodon orthonotus, Peters (Bericht d. Acad. z. Berlin), from Quellimana. Dusky green, with metallic lustre, aureous beneath, a blackish brown spot on the scales. J. Müller adds the remark that this species, with *C. flavulus*, are the only species of *Cyprinodon* at present known. *Cyprinodon umbra*, on account of the teeth on the vomer and palate, must constitute a distinct genus, *Umbra Crameri*, Müll.

(Ib.) a new species, *Anableps microlepis*, is noticed, which presents much smaller scales, seventy in a longitudinal series. Besides some notices respecting the genera of the family of the Cyprinodontes, a notice is lastly also given of two new species of the genus *Molinesia: M. fasciata*, Müll. Trosch. D. 8; A. 9, with dark transverse bands, from Mexico, and M. surinamensis, Müll. Trosch. D. 10; A. 10. From Surinam.

A Synopsis generum et specierum familiæ Characinorum auct. J. Müller et F. H. Troschel, has appeared in these Archives, 1844, p. 81, in which 83 species are arranged in 32 genera.

Osteoglossum formosum, Sal. Müller and Schlegel, (Verhandelingen, &c.), differs from *O. bicirrhosum*, Agass., in the smaller dorsal fin, and in the circumstance that the caudal fin is separate from the anal. It is, consequently, without doubt a distinct genus. Borneo.

Saurus trivirgatus, Val. (Canar.) D. 12; A. 11.—*Aulopus filifer*, Val. (Canar.) The first ray only of the dorsal fin elongated. — *A. maculatus* (id. ib.), none of the rays of the dorsal fin elongated.

Th. G. Tellkampf has more particularly described and figured in Müller's Archiv, 1844, p. 381, the blind fish of the Mammoth caverns in Kentucky, *Amblyopsis spelæus*. It constitutes a peculiar family among the Physostomi abdominales, and is especially distinguished by the position of the anus anterior to the ventral fins, on the throat. It possesses minute eyes covered by the integument. It has no accessory branchiæ, no adipose fin, a simple swimming-bladder, a cæcal pouch of the stomach, and cæca.

From a notice by Thompson (Annals, xiii, p, 111) respecting this fish, we learn that it is viviparous. A specimen recently taken and placed in water, brought forth about twenty young, four lines in length.

Valenciennes, in his Ichthyology of the Canary Islands, has also described an Eel, *Anguilla canariensis*, allied to *A. latirostris*.

Ophisurns pardalis, Val. (Canar.) with obtuse teeth and rudimentary pectoral fins; white, with round spots. B. 30; D. 4, 33; A. 2, 96.

PLECTOGNATHI.

Balistes caprinus, Val. (Canar), large scales behind the branchial aperture, caudal fin deeply emarginate, dorsal and anal fins with brown bands.

Monacanthus filamentosus, Val. (Canar.), the second ray of the dorsal fin prolonged into a long filament, green, with large brown spots.—*M. gallinula*, (id. ib.) without the long filament, and of a uniform dusky green with pale fins.

Bellamy (Annals, xiii, p. 77) notices the capture of an *Orthagoriscus mola* not far from Plymouth.

SELACHII [PLAGIOSTOMI.]

Prionodon obvelatus, Val. (Canar.), would appear to differ from *P. Milberti* in the smaller teeth, the larger eyes, the broader, first dorsal fin, the longer pectorals, and in the longer and narrower inferior lobe of the caudal fin.

Jobert has communicated to the Paris Academy his observations on the electric organ of the Torpedo. He describes the prisms as filled up and solid, without any contained fluid. (Comptes rendus, vol. xviii, 1844, p. 810; and thence in Froriep's n. Notiz. xxx, p. 225.)

Torpedo trepidans, Val. (Canar.) The male sexual organs and the two dorsal fins much smaller than in the other species; reddish brown with black spots.

Myliobatis episcopus, Val. (Canar.), would seem to differ from *M. aquila* in the form of the teeth and of the tail.

Pteroplatea canariensis, Val. (Canar.), has the tail shorter than *P. altivela*.

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THE END.

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REPORT

OF THE

FOURTH ANNUAL MEETING

OF

THE RAY SOCIETY;

HELD AT OXFORD, JUNE 26, 1847.

HUGH E. STRICKLAND, M.A. F.G.S.

IN THE CHAIR.

WITH

THE LAWS OF THE SOCIETY, LIST OF OFFICERS,

&c. &c.

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REPORT OF THE RAY SOCIETY,

FOR THE YEAR ENDING JUNE 19, 1847.

The Council of the Ray Society are gratified at being able to present their Fourth Annual Report under circumstances not less favorable than those of last year. Since the Anniversary Meeting at Southampton the whole of the works due to the subscribers for the third year have been distributed, including Meyen's Geography of Plants, the Third Part of Alder and Hancock's work on the Nudibranchiate Mollusca, and Burmeister on the Organization of Trilobites. The Council feel that on no occasion have they had greater reason for referring with satisfaction to their publications of the year. The paucity of works on the geography of plants in the English language has made the translation of Meyen's work on that subject an acceptable boon to the British student of botany, whilst the elegance and accuracy of the translation have been a theme of general commendation. The Third Part of the great work of Messrs. Alder and Hancock has been issued during the past year, and the Council feel great pleasure in drawing attention to this part, as offering, if possible, an improvement upon the other two in the accuracy of its details, and the style in which its lithotints have been executed. The work of Professor Burmeister on the Organization of Trilobites cannot have failed to have given satisfaction to those interested in zoological or geological pursuits. Besides having secured impressions from the original plates, the Council succeeded in obtaining from Professor Burmeister his invaluable assistance in making the work not merely a translation, but another edition amended and enlarged by the author. Notes and additions have been also made by the English editors.

During the past year the Council have distributed the volume of Reports on Zoology and Botany, due to first year's subscribers, to those who had become Members of the Society subsequent to the exhaustion of the whole of the first impression of that work. The Council can therefore still supply new subscribers with complete sets, although the stock for the first year is now becoming exceedingly low.

For the present year (1847) the Council has decided on publishing a Fourth Part of the work of Messrs. Alder and Hancock, and this work they hope to complete in two more parts. The Council confidently appeals to this great work as a proof of the value of the Ray Society, as when completed it will

have cost above two thousand pounds; a sum that could not have been expended by a private publisher on a scientific work of this nature.

As the Society has been the means of publishing translations of several German works, and as many of these involve considerations which can only be understood by a reference to those philosophical principles which have exerted a marked influence on German scientific literature, they determined to embrace the offer of Mr. Alfred Tulk to publish his translation of the work of Oken, on the Philosophy of Nature. This work and one consisting of a continuation of the Reports published on the progress of Zoology are now ready for distribution.

The Council, having received expressions of satisfaction from the members with regard to the production of Reports on the progress of Zoology and Botany, feel justified in proposing their continuation.

The Council have had so great a number of valuable works suggested for publication in future years, that they have had some difficulty in making a selection. The following works, however, are either in the press, or in a condition to be immediately published when the funds of the Society enable the Council to proceed with them.

1. The Naked-eyed Pulmograde Medusæ of the British Seas, with coloured drawings of every species, by Professor Edward Forbes, F.R.S., L.S. & G.S.
2. Bibliographia Zoologiæ et Geologiæ, comprising a catalogue of all published works and papers on Zoology and Geology, by Professor Agassiz, of Neufchatel, edited by Hugh E. Strickland, Esq., F.G.S.
3. The Letters of John Ray, including the Philosophical Letters and a collection of Manuscript Letters in the British Museum, edited by E. Lankester, M.D. F.R.S. L.S.
4. A Volume of Papers on Zoology, including papers of interest by Steenstrup, Retzius, Loven, Erichson, and other naturalists, edited by George Busk, Esq., F.L.S.

The Council have again to congratulate the Members on an increase in their numbers, although a period of eight months has scarcely elapsed since they presented their last Report; the positive increase of Members is forty-four, making 868 members on the books for the current year (1847).

The Council appointed by the Meeting at Southampton, held September 15th, 1846, in obedience to the Sixth Rule of the Society, appointed Mr. Bowerbank Treasurer, and Dr. Johnston and Dr. Lankester Secretaries for the past year.

Statement of Receipts and Expenditure of the Ray Society, from September 1, 1846, *to June* 19, 1847.

RECEIVED.	£	s.	d.
Balance from last audit	387	1	8
Interest on Deposit Notes		14	10
Subscriptions from July 10, 1846, to June 19, 1847	798	0	0
	£1185	16	6

EXPENDED.	£	s.	d.
Printing	241	2	3
Paper	180	13	0
Drawing, engraving, colouring, and printing	333	1	3
Binding	46	12	7
Advertising	12	15	0
Translating and editing	55	5	0
Salaries	50	0	0
Collector	4	7	3
Local Secretaries' expenses	3	10	6
Petty cash, Stationery, Postage	15	8	9
Delivery of Books	19	3	6
Balance	223	17	5
	£1185	16	6

The preceding accounts, extending from September 1, 1846, to June 19, 1847, inclusive, have been examined by us, and compared with the vouchers, and found to be correct; leaving a balance in the Treasurer's hand of £223 17*s.* 5*d.*, as per statement above. Signed, W. SPENCE,
ARTHUR HENFREY,
Auditors.

RESOLUTIONS.

Moved by Prof. Henslow; seconded by Capt. Ibbetson, K.R.E.:

That the Report now read be adopted, and printed for circulation among the members.

Moved by Dr. Carpenter; seconded by Mr. Arthur Strickland:

That the thanks of this meeting be presented to the Council for their services during the past year, and that the following gentlemen be requested to act as Council for the ensuing year.

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Moved by the PRINCE OF CANINO; seconded by MR. NEISON.

That the thanks of this meeting be given to the President, Treasurer, and to the Secretaries and Local Secretaries, for their services during the past year.

Moved by DR. HODGKIN; seconded by MR. WOLLASTON:

That the thanks of this meeting be given to PROFESSOR BELL and to PROFESSOR EDWARD FORBES, for their services in editing the translation of PROFESSOR BURMEISTER'S work on the Organization of Trilobites.

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THE LAWS OF THE RAY SOCIETY.

I. That this Society shall be called THE RAY SOCIETY; and that its object shall be the promotion of Natural History, by the printing, of original works in Zoology and Botany; of new editions of works of established merit; of rare Tracts and MSS.; and of translations and reprints of Foreign works which are generally inaccessible from the language in which they are written, or from the manner in which they have been published.

N.B.—It will be a direction to the Council that they shall not print anything that appears to them suitable to the Transactions of established Societies; nor any work which a respectable publisher shall undertake to publish without charge to the author.

II. Every subscriber of One Guinea annually to be considered a Member of the Society, and to be entitled to one copy of every book published by the Society during the year to which his subscription relates; and no Member shall incur any liability beyond the annual subscription.

III. That the annual subscriptions shall be paid in advance, and considered to be due on the 2d day of February in each year; and that such Members as do not signify their intention to withdraw from the Society before the 2d day of June, shall be considered to continue Members, and be liable for the year's subscription.

IV. The management of the Society shall be vested in a Council of Twenty-one Members, of whom one third shall have their stated residences in London, and all of whom shall be eligible for re-election at the annual meeting.

V. That the Council hereafter shall be elected by the Members, at a meeting to be held at the time and place of the meeting of the British Association for the Advancement of Science, and that no Member whose subscription is in arrear be allowed to vote at any meetings.

VI. That the Council shall elect two Secretaries (one of whom shall be resident in London) and a Treasurer, who shall *ex officio* be Members of the Council.

VII. The annual subscription shall be deposited in a chartered bank, in the name of the Treasurer and two Members of the Council.

VIII. The accounts of the receipt and expenditure of the Society shall be examined annually by two Auditors appointed by the Council; the Auditors to be Members of the Society, who are not Members of Council, and their statement circulated among the Subscribers.

IX. That the number of copies of the Society's publications shall, unless otherwise directed by the Council, be limited to the number of actual Subscribers who shall have been enrolled, and paid their subscriptions, on or before the 2d day of June.

X. That the Editors of Works published by the Society be entitled to a number of copies, not exceeding 20, as may be decided by the Council.

MEMBERS ARE REQUESTED TO OBSERVE THE FOLLOWING

REGULATIONS FOR THE DELIVERY OF BOOKS.

They are delivered, free of expense, within three miles of the General Post Office, London.

They are sent to any place in England, beyond the distance of three miles from the General Post Office, by any conveyance a Member may point out. In this case the parcels are booked at the expense of the Society, but the carriage must be paid by the Member to whom they are sent.

They are delivered, free of expense, at any place in London which a Member, resident in the country, may name.

They are sent to any of the Hon. Local Secretaries of the Society, each Member being expected to pay the Local Secretary a due share of the carriage of the parcel in which the books are sent.

Any number of country members may unite, to have their books sent in one parcel, to any address they may name. In this case they are requested to depute one of their number to transmit to the Secretary for London a list of the names of those whose books are to be included in the same parcel.

Those Members who wish their books to be included in any of the parcels to Local Secretaries, are requested to send in their names (with their Christian name in full) and particular address to the various Local Secretaries, who are respectfully requested to forward to the Secretary for London an accurate list of all such names with as little delay as possible.

Unless intimation to the contrary be given to the Secretary for London, the future deliveries will be made in accordance with the delivery of the first volume.

All communications are requested to be addressed to the London Secretary. Subscriptions may be paid to the Local Secretaries, or by Post-office Order or Cheque to the London Secretary.

(By order of the Council.)

EDWIN LANKESTER,

SECRETARY FOR LONDON.

22, *Old Burlington Street.*

RAY SOCIETY.

INSTITUTED 1844.

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