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THE  
ZOOLOGICAL RECORD

VOLUME THE FORTY-FIRST

BEING

RECORDS OF ZOOLOGICAL LITERATURE

RELATING CHIEFLY TO THE YEAR

1904.

BY D. SHARP, R. LYDEKKER, R. BOWDLER SHARPE, G. A. BOULENGER, W. T. CALMAN, E. R. SYKES, E. A. SMITH, EUGÈNE SIMON, FILIPPO SILVESTRI, ALICE L. EMBLETON, F. A. BATHER, W. WOODLAND, AND H. M. WOODCOCK.

EDITED (FOR THE ZOOLOGICAL SOCIETY OF LONDON) BY

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Explorate solum: sic fit via certior ultrà.

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The Editor thanks those Societies and individuals who have forwarded works and papers for the purposes of the Record, and suggests that Societies publishing Zoological Papers would much facilitate the work of the Recorders by forwarding a separate copy of each Zoological Memoir they publish to the Editor for the use of the Recorder. This is preferable to sending the entire volume, because each paper can go directly to the Recorder it concerns.



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PREFACE.



THE preparation of this Volume of the Zoological Record has been facilitated by the liberality of the Council of the Zoological Society, who granted an additional sum for assistance to the Recorders in searching the literature. This work was undertaken in chief part by Mr C. D. SHERBORN; and so far as works only in the libraries at Cambridge are concerned, by Mr S. MATTHEWS of the Philosophical Library there. Thanks to their industry the Recorders have been able to complete the Volume within the usual period.

Dr CALMAN being unable to execute the Arachnida and Myriapoda these groups have been most kindly undertaken by Monsr. SIMON, and Prof. SILVESTRI. As Prof. MINCHIN has been absent for the longer part of the year on a Government mission to Uganda, his Record of Spongix has been in larger part accomplished by Mr WOODLAND.

The list of abbreviations has been revised by the Librarians of the Royal Society, of the Natural History Museum, of the Science Library Victoria and Albert Museum, of the Zoological Society, of the Linnean Society, of the Radcliffe Library, of the Philosophical Society Cambridge; and our thanks are due to them for their assistance.

D. SHARP.

CAMBRIDGE.

20th November 1905.

sent to my 40 members 20.11.

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- XVIII. PROTOZOA. By H. M. WOODCOCK. (London.)

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By the EDITOR.





ALPHABETICAL LIST  
OF THE  
ABBREVIATIONS  
USED IN THE  
ZOOLOGICAL RECORD, VOL. XLI, 1904,  
FOR THE  
TITLES OF THE JOURNALS, TRANSACTIONS, ETC.  
THAT CONTAIN ZOOLOGICAL PAPERS;  
WITH INDICATIONS OF SOME OF THE PRINCIPAL  
LIBRARIES  
IN WHICH THE BOOKS ARE CURRENT.

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THE primary object of this list is to enable those using the Record to find with ease the full title of a Journal they see quoted in an abbreviated form. The arrangement is therefore a simple alphabetical list of the abbreviations, uncomplicated by syllabic or verbal limitations.

The list has also to serve the Recorders and others as a list of Journals, and for this purpose it is important that it should be fairly complete as regards current periodicals. In order to increase the utility of the list, the abbreviations have been made on a uniform system; but a few exceptions have, in practice, been found necessary. The chief points that have been kept in view in constructing the abbreviations may be briefly stated as follows:—

The words selected as distinctive in each title are reduced in most cases to three or four.

A distinct abbreviation is used for each different word, and the same abbreviation for the same word is used throughout the list.

Accents are omitted. As a rule the first word of the title is represented by an abbreviation, but this rule is departed from in the case of articles and prepositions, and occasionally in the case of adjectives that are useless for distinctive purposes. Thus "Annual Report" becomes "Rep.," and "Occasional Papers" becomes "Pap." Such adjectives as "New" and "Royal" are omitted, except when necessary for distinctive or other purposes.

The consecutive order of the words of the title is maintained in the abbreviation, except in a few cases where the arrangement of the words in the title is very unusual or faulty.

As an example of the form of abbreviation that is aimed at, we may take Bull. Soc. Moscou. The name of the locality is given at greater length than the more frequently used portions of the abbreviation.

After the titles, the place of publication is given, and this is followed by letters indicating some of the principal libraries in which the works may be consulted. The explanation of these letters is as follows:—

- N. = British Museum Natural History: general library.  
 Nz. = " " " library, zoological department.  
 Ng. = " " " geological " "  
 K. = Science library; Victoria and Albert Museum.  
 R. = Royal Society library.  
 Z. = Zoological Society library.  
 L. = Linnean " "  
 C. = Cambridge University library.  
 C, p or (C) p = Cambridge Philosophical Society library.  
 b, or g, or y, or z, after C, or (C) = Cambridge Balfour, or Sedgwick Museum, or Physiological, or Zoological libraries respectively.  
 O. = Radcliffe library, Oxford.  
 § is prefixed to titles added since the last list, and to changes of titles when important.

*Abeille*—L'Abeille: Journal d'entomologie publié par la Société entomologique de France. (Paris, 8vo.) Nz. C.

*Abh. Ak. Berlin*—Abhandlungen der königlich Preussischen Akademie der Wissenschaften zu Berlin. (Berlin, 4to.) N. K. R. Z. L. C, p. O.

*Abh. Bayer. Ak.*—Abhandlungen der mathematisch-physikalischen Classe der königlichen Bayerischen Akademie der Wissenschaften. (München, 4to.) N. K. R. Z. L. C, p. O.

*Abh. Böhmisch. Ges.*—Abhandlungen der mathematisch-naturwissenschaftlichen Classe der k. Böhmisches Gesellschaft. [Called also] Rozprawy tridy mathematicko-přírodvěcke královské Ceske společnosti Nauk. (Prag, 4to.) N. K. R. L. C, p.

*Abh. deutsch. Seefisch.-Ver.*—Abhandlungen des deutschen Seefischerei-Vereins. (Berlin, 4to.) Nz. C.

*Abh. geol. Karte Elsass*—Abhandlungen zur geologischen Spezial-Karte von Elsass-Lothringen. (Strassburg, 8vo.) Ng.

*Abh. geol. Landesanst. Darmstadt*—Abhandlungen der grossherzoglich Hessischen geologischen Landesanstalt zu Darmstadt. (Darmstadt, 8vo.) Ng.

*Abh. geol. Reichsanst.*—Abhandlungen der Kaiserlich-Königlichen geologischen Reichsanstalt. (Vienna, 4to.) Ng. R. L. C.

*Abh. Ges. Görlitz*—Abhandlungen der naturforschenden Gesellschaft zu Görlitz. (Görlitz, 8vo.) N. K. R.

*Abh. Ges. Götting.*—Abhandlungen der königlichen Gesellschaft der Wissenschaften zu Göttingen. Mathematisch-Physikalische Klasse. Neue Folge. (Göttingen, 4to.) N. R. Z. L. C, p. O.

*Abh. Ges. Halle*—Abhandlungen der naturforschenden Gesellschaft zu Halle. (Halle, 4to.) N. K. R. Z. L. C. O.

*Abh. Ges. Isis*—Sitzungsberichte und Abhandlungen der naturwissenschaftlichen Gesellschaft 'Isis' in Dresden. (Dresden, 8vo.) N. K. Z. C.

*Abh. Ges. Königsb.*--[Part of *Schr. Ges. Königsb.*, q.v.]

- Abh. Ges. Nurnberg*—Abhandlungen der naturhistorischen Gesellschaft zu Nürnberg. (Nürnberg, 8vo.) N. K. C.
- Abh. Ges. Wien*—Abhandlungen der K. K. zoologischen-botanischen Gesellschaft in Wien. N. K. R. Z. L. C. O.
- Abh. Hamburg. Anst.*—[Part of *Jahrb. Hamburg. Anst.*, q.v.]
- Abh. Mus. Dresden*—Abhandlungen und Berichte des königlichen zoologischen und anthropologisch-ethnographischen Museums zu Dresden. (Berlin, 4to.) Nz. Z. C.
- Abh. Preuss. geol. Landesanst.*—Abhandlungen der königlich Preussischen geologischen Landesanstalt (Neue Folge). [Formerly *Abh. geol. Spezialkarte von Preussen und den Thüringischen Staaten.*] (Berlin, 8vo.) Ng. K. C.
- Abh. Sachs. Ges.*—Abhandlungen der k. Sächsischen Gesellschaft der Wissenschaften. (Leipzig, 4to.) N. K. R. C, p.
- Abh. Schweiz. pal. Ges.*—Abhandlungen der Schweizerischen paläontologischen Gesellschaft. Mémoires de la Société Paléontologique suisse. (Basel, &c., 4to.) Ng. R. Z. (C) g. O.
- Abh. Senckenb. Ges.*—Abhandlungen herausgegeben von der Senckenbergischen naturforschenden Gesellschaft. (Frankfort a.-M., 4to.) N. K. R. Z. L. C. O.
- Abh. Ver. Bremen*—Abhandlungen herausgegeben vom naturwissenschaftlichen Verein zu Bremen. (Bremen, 8vo.) N. K. R. Z. L. C.
- Abh. Ver. Hamburg*—Abhandlungen aus dem Gebiete der Naturwissenschaften herausgegeben vom naturwissenschaftlichen Verein in Hamburg. (Hamburg, 4to.) N. K. R. Z. L. C, b.
- Abh. Ver. Karlsruhe*—[Vide *Verh. Ver. Karlsruhe.*]
- Abh. Ver. Kassel*—[Issued with *Ber. Ver. Kassel*, q.v.]
- Abh. Ver. Lotos*—Abhandlungen des deutschen naturwissenschaftlich-medicinischen Vereines für Böhmen "Lotos." (Prag, 4to.) N. C.
- Acta Ac. German.*—N. Acta Academiæ Cæsareæ Leopoldino-Carolinæ Germanicæ naturæ curiosorum. [Called also] Verhandlungen der k. Leop.-Carol. deutschen Akademie der Naturforscher. (Halle, 4to.) N. K. R. Z. L. C, p. O.
- Act. Ac. Cordoba*—Actas de la Academia nacional de Ciencias en Córdoba. (Buenos Aires, 4to.) N. R. Z. L.
- Acta Soc. Faun. Fenn.*—Acta Societatis pro Fauna et Flora Fennica. (Helsingfors, 8vo.) N. R. L. C.
- Acta Soc. Lund.*—Acta regiæ Societatis physiographicæ Lundensis. [Published as part of *Acta Univ. Lund.*, q.v.]
- Acta Soc. Sci. Fenn.*—Acta Societatis Scientiarum Fennicæ. (Helsingfors, 4to.) N. K. R. Z. (C) p.
- Acta Soc. Upsal.*—Nova Acta regiæ Societatis Scientiarum Upsaliensis. (Upsala, 4to.) N. K. R. Z. L. C, p.
- Acta Univ. Lund.*—Acta Universitatis Lundensis. [Called also] Lunds Universitets Årsskrift, [and includes] Acta regiæ Societatis physiographicæ Lundensis, [also called] Kongl. fysiografiska Sällskapets i Lund Handlingar. (Lund, 4to.) N. K. R. L. C, p.
- Actes Mus. Rouen*—Actes du Muséum d'histoire naturelle de Rouen. (Rouen, 8vo.) N. L.

- Act. Soc. Bordeaux*—Actes de la Société Linnéenne de Bordeaux. (Bordeaux, 8vo.) N. Z. C.
- Act. Soc. Chili*—Actes de la Société scientifique du Chili. (Santiago, 4to.) N. R. Z.
- § *Act. Soc. ent. Bohem.*—Acta Societatis entomologicae Bohemiae. [Called also Časopis České Společnosti entomologické.] (Praze, 8vo.)
- Act. Soc. Espan.*—Actas de la Sociedad española de historia natural. (Madrid, 8vo.) N. R. Z. C.
- Act. Soc. Helvet.*—Actes de la Société Helvétique des Sciences naturelles. [Called also] Verhandlungen der schweizerischen naturforschenden Gesellschaft. (Basel, &c., 8vo.) N. K. R. L. C. O.
- Afh. Mus. Lund.*—E Museo Lundii. En Samling af Afhandlinger. (Kjobnhavn, 8vo.) N. K. R. Z. L.
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- Agric. Ledger*—The Agricultural Ledger. (Calcutta, 8vo.) Nz.
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- Allg. Naturf. Zeit.*—Allgemeine Naturforscher Zeitung. (Berlin.)
- Allg. Zeitschr. Ent.*—Allgemeine Zeitschrift für Entomologie. Organ der "Allgemeinen entomologischen Gesellschaft." (Neudamm, 8vo.) Nz. Z.
- Amer. Geol.*—The American Geologist, a Monthly Journal of Geology and allied Sciences. (Minneapolis, 8vo.) Ng. (C)g. K. O.
- Amer. J. Anat.*—The American Journal of Anatomy. (Baltimore, 8vo.) (C) b.
- Amer. J. Physiol.*—The American Journal of Physiology. (Boston, 8vo.) N. K. R. (C) y. O.
- Amer. J. Sci.*—The American Journal of Science. (New Haven, 8vo.) N. K. R. Z. C, p. O.
- Amer. Micr. J.*—The American Monthly Microscopical Journal. (Washington, 8vo.) N. O.
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- An. Mus. Buenos Aires*—Anales del Museo nacional de Buenos Aires. (Buenos Aires, 4to.) N. Ng. K. R. Z. L. O.
- An. Mus. Chile*—Anales del Museo Nacional de Chile. Publicados por orden del Gobierno de Chile. Primera Sección. Zoología. (Santiago, 4to.) Z.
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- Annuaire. Ac. Porto*—Annuario da Academia polytechnica do Porto. (Porto, 8vo.) N.
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- Ann. Univ. Kharkow*—Annales de l'Université de Kharkow [called also Zapiski imperatorskagho Khakovskagho Universiteta]. (Kharkow, 8vo.) (C) p.
- Ann. Univ. Lyon*—Annales de l'Université de Lyon. Nouvelle série. I. Sciences, Médecine. (Paris, 8vo.) N. R. C, p.
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- Antanan. Ann.*—Antananarivo Annual and Madagascar Magazine. (Antananarivo, 8vo.) N.
- An. Univ. Chile*—Anales de la Universidad de Chile. (Santiago, 8vo.) N. C.
- Anz. Ak. Wiss.*—Anzeiger der k. Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Classe. (Wien, 8vo.) N. R. L. Z. C.
- Appalachia*—Appalachia: the Journal of the Appalachian Mountain Club. (Boston, 8vo.) N.
- Aquila*—Aquila a Magyar madártani Központ folyóirata. (Budapest, 4to.) Nz. Z.
- § *Arb. Biol. Abt. Land.-Forstwirtsch.*—Arbeiten aus der biologischen Abteilung für Land- und Forstwirtschaft am Kaiserlichen Gesundheitsamte. (Berlin, 8vo.) N. K.
- Arb. Inst. Wien*—Arbeiten aus dem zoologischen Institut der Universität Wien und der Zoologischen Station in Triest. (Wien, 8vo.) Nz. K. R. Z. L. C, b. O.
- Arb. Inst. Würzburg*—Arbeiten aus dem zoologisch-zootomischen Institut in Würzburg. (Wiesbaden, 8vo.) Nz. K. R. Z. L. C, b. O.
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An asterisk prefixed to a quotation signifies that the Recorder has not seen the journal or work referred to.





# THE ZOOLOGICAL RECORD

## FOR 1904.

### I. GENERAL SUBJECTS.\*

BY

D. SHARP.

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\* It will be understood that papers recorded here may also be found under the various classes, II—XVIII. They are included here because of their bearing on general questions, which, if not obvious, will be made apparent in the Subject-Index.

## INTRODUCTION.

NEARLY 1000 works are included in this Record.

Two works of the most general character appeared in 1904. The second edition of WEISMANN'S work on evolution (927) as well as its translation by Prof. and Mrs THOMSON (928) we can merely mention; its chief theme being that characters, taken as the sign of evolution, must be born not acquired. There can be no doubt that, however open to criticism the system of this most talented Zoologist may be, it is of much value as tending to expose the term heredity to the critical consideration it so much requires.

WASMANN'S general work (919) is practically a new one though styled a second edition. From a philosophical point of view the work of the Revd. Father might be perhaps severely criticised, but his views so far as they go are frankly stated, and the work zoologically will be found very good, and easily intelligible.

There are several learned works on the zoology of the ancients, BURCKHARDT (155-158), STRUNZ (864). At the opposite extreme we find the memoirs of SPENGLER (851), ZIEGLER (971), KORSCHOLT (482) who utter words of caution as to the confusion created by those who consider they are correcting zoological words and taxonomical expressions by changing their orthography. It certainly seems undesirable that we should have current, Kephelopoda, Cephalopoda, Zephalopoda.

The emission of rays by living bodies is attracting some attention, CHARPENTIER (180); as is also the effect of radium and other rays, on organisation, SCHAPER (792), WILLCOCK (945) etc.

Much attention continues to be given to the subject of unconscious movement. BOHN (97) after elaborate experiments concludes that the periodic movements of *Convoluta* are to be ascribed to inherited memory. Apparently this differs from the old terms instinct and habit, inasmuch as it is associated with protoplasm. JENNINGS' work (446) gives the results of observations that have extended over a number of years. He considers that the reactions of the lowest organisms to stimuli are not entirely of the kind called tropisms, but are essentially of the same nature as the method of trial and error, and exhibit therefore the rudiments of intelligence. FOREL'S (294) discussion of animal psychology is remarkably concise and lucid, and deserves the attention of all who do not entirely neglect this branch of knowledge.

The first volume of the treatise on histology by PRENANT, BOUIN & MAILLARD (738) deals with cytology, and appears to be an important work: it is said to contain much new matter.

The relations of mitosis and amitosis are discussed by H. L. OSBORN (686); and CHILD urges (184) that a greater importance attaches to amitosis than is usually conceded.

The "individuality" of chromosomes has been discussed and criticised by both HÄCKER (358) & PETRUNKEWITSCH (719). HÄCKER is inclined to favour the term autonomy rather than individuality. But in discussing autonomy he makes the difficulties connected with the term tolerably evident. He says that sperm and germ cells do not mix but only conjugate, but we do not quite gather what sort of a process conjugation without mixing is believed to be. He puts in tabular form the chromosome morphology in the heredity of cross-breeds of three forms of Arthropods. PETRUNKEWITSCH (719), who also criticises Boveri's expectations—and with great reason—valuable results from an inquiry into the cytology of parthenogenesis.

Works on development are very numerous. YATSU (957) has experimented as to the existence of "definite specification" in the regions of the egg, and finds that it is initiated by the dissolution of the germinal vesicle. MARCHAL's paper on germinogony (586) deals with one of Nature's experiments of a most remarkable character, and having the widest bearings. The subject is evidently destined to become of much importance. It is treated by the author in an excellent manner. The memoir we have already alluded to of PETRUNKEWITSCH on artificial parthenogenesis, besides dealing with the cytological aspects, discusses briefly the relation of the phenomena with natural parthenogenesis. E. B. WILSON (949) informs us that in both Annelids and Molluscs development is to be regarded as a mosaic-work of self-differentiating cells; specific conditions being dependent on specific forms of protoplasm.

Sexual dimorphism and ornament has been discussed by LAMEERE (497). He traces it to equivalence of energy in the early condition of the two sexes, concomitant with unequal physiological division of labour. Many of his examples, as well as his treatment of apparently exceptional cases, are full of interest and ingenuity.

In addition to discussing the matter in his larger paper, PAUL MARCHAL has a shorter one on the determination of sex (587) in connection with polyembryony. MONTGOMERY (640) sets forth the superiority of the female sex.

Memoirs on heredity are extremely numerous. We owe to HÄCKER (358, 360) a clear exposition of the Mendel work, and a discussion of it in connection with recent cytology. CHILD (186) as the result of regeneration experiments concludes that heredity is a physiological not a morphological question. The brief note of PAUL ABRIC (5) will no doubt receive the attention it deserves. In it he complains—and probably not altogether without reason—of the metaphysical nature of the considerations that have been previously advanced. Is it certain that the "parasitic complex" he postulates (in this as well as in other of his notes) is altogether free from the taint he complains of? We may hope that it will become quite clear to us in what way the new "parasitic complex" differs from the old "environment."

The study of regeneration has also been very extensive. MORGAN (651) discusses the phenomena and suggests new terms for use in the subject. SCHULTZ (814) instructs us as to the general view we should take of the subject; and HOLMES (414) has a chapter on the factors in the regulation of form.

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## II.—SUBJECT-INDEX.

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Animal Kingdom, general work, SCHULZE (817).  
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 Fauna Hawaiiensis, SHARP (832).  
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### 3. MORPHOLOGY.

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Record of anatomy and development, Vertebrate, SCHWALBE (820).

Anatomical views of RHUPHOS & GALENOS, VON TÖPLY (880).

Recent Russian literature, anatomy, STIEDA (862).

Animal size and form, KEMNA (466).

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Bones of foot, Primates and Man, VOLKOV (911).

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Morphology of head in *Insecta*, HOLMGREN (416).

Morphology of central ganglion, Tracheata, HALLER (365).

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Reissner's fish-like Vertebrates, SARGENT (790).

#### b. Histology:—

General treatise on histology, PRENANT, BOUIN & MAILLARD (738).

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Comparative histology, Vertebrates, atlas, LÖWENTHAL (559).

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#### c. Teratology:—

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### 4. PHYSIOLOGICAL.

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Comparative psychology, present status, MILLS (619).

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5. PROTOPLASM AND CELL. See also 6.

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 Annual review of Cytology, HENNEGUY (388).  
 Morphology and biology of the cell, general work, GURWITSCH (352).  
 Cell and cell-division, GURWITSCH (353).  
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**d. Nucleus, Nucleolus, Centrosome, etc.:**—(See also 6):

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- Embryology, Annual review, LOISEL (549).  
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## II. MAMMALIA.

BY

R. LYDEKKER.

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## INTRODUCTION.

THE most important discovery of the year, so far as systematic work is concerned, is undoubtedly the relationship between Zeuglodonts and the Creodont Carnivora, as described by FRAAS on the evidence of Egyptian material. Next, perhaps, in importance is the reference by ANDREWS of *Arsinoëtherium* to a distinct group of Ungulates—the Barypoda. The rediscovery by GOELDI of the S. American Rodent *Dinomys* is also an event of first-rate importance; as is also the description by THOMAS of a new genus (*Hylochoerus*) of African Swine. BROOM'S researches into the relationships between the jaws and limbs of Theriodont Reptiles and of Mammals are likewise of the highest importance; while it may be permissible also to allude to the Recorder's observations on the phylogeny of Arab and Thoroughbred Horses, based on the existence of vestiges of the lachrymal cavity in their skulls.

Important contributions to the morphology of the Monotremata have been made in the continuation of the memoirs on Semon's Reise; while ABEL'S investigations on the skeleton of extinct Sirenians are likewise of great value. The continuation of SCOTT'S work on Tertiary Patagonian Mammals also demands mention. Two investigators, CARLSSON and SWEET, have been independently working at the anatomy of *Notoryctes*.

MAX WEBER'S "Säugethiere" is a most important text-book on the class; while, from another point of view, the work on British Mammals by MILLAIS, of which the first volume has appeared during the year, likewise demands special recognition. Another valuable faunistic work is ELLIOT'S Mammals of Central America. It is satisfactory to welcome the appearance of the first instalments of a supplement to TROUESSART'S "Catalogue"; while PALMER'S "Index Generum Mammalian" is an absolutely invaluable work.

Ordinary descriptive work has progressed with the rapidity characteristic of recent years.

The Record is considerably larger than its immediate predecessors, despite the omission of a number of articles which did not appear to the Recorder to be of any scientific importance.

## I. TITLES.\*

1. ABEL, O. Die Sirenen der mediterranen Tertiärbildungen Österreichs. Abh. geol. Reichsanst. xix, pt. 2, pp. vi + 223, 7 pls. [*Sirenia*.]
2. ——. Ueber einen Fund von *Sivatherium giganteum* bei Adrianopel. Anz. Ak. Wiss. 1904, pp. 195 & 196, and SB. Ak. Wien cxiii, pp. 1-23, pl. [*Giraffide*.]
3. ABY, F. S. Observations on the blood-capillaries in the cerebellar cortex of young Cats. J. Neurology ix, pp. 26-34, pl. ii (1899). [*Felide*.]
4. AFLALO, F. G. and others. The Sportsman's Book for India. London, pp. 567, illustrated. [Contains chapters on Big Game.]
5. AGGOZOTTI, A. L'échange respiratoire des Cobayes dans l'air raréfié. Arch. ital. Biol. xli, pp. 402-417. [*Caviide*.]

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

6. ALESSANDRI, G. DE. Sopra alcuni avanzi di Cervidi pliocenici del Piemonte. Atti Acc. Torino xxxviii, pp. 845-858, 1 pl. 1903. [*Cervidæ.*]
7. ALEXANDER, G. Entwicklung und Bau des inneren Gehörorganes von *Echidna aculeata*; ein Beitrag zur Morphologie des Wirbelthierohres. Denk. Ges. Jena, Semon's Reise iii, Monotremata etc. ii, pp. 1-118, pls. i-xxiii. [*Monotremata.*]
8. ALEZAIS, —. Les adducteurs du Maki. C.R. Soc. Biol. lvi, pp. 537-539. [*Lemuroidea.*]
9. ALLEN, B. M. The embryonic development of the ovary and testis of the Mammals. Amer. J. Anat. iii, pp. 89-146, 7 pls.
10. ALLEN, G. M. Fauna of New England—*Mammalia*. Pap. Boston Soc. vii, 34 pp.
- 10A. —. The heredity of coat-colour in Mice. P. Amer. Ac. xl, pp. 61-163. [*Muridæ.*]
11. —. Observations on Rorquals off Newfoundland. Amer. Natural. xxxviii, pp. 613-623, figg. [*Cetacea.*]
12. ALLEN, J. A. New forms of the Mountain Goat (*Oreamnos*). Bull. Amer. Mus. xx, pp. 19-21. [*Bovidæ.*]
13. —. Mammals from S. Mexico and Central and S. America. T. c. pp. 29-80, figg. [*Chiroptera, Carnivora, Rodentia.*]
14. —. The external ear-bone in Rodents. T. c. pp. 135-138, fig. [*Rodentia.*]
15. —. Further notes on Mammals from N. W. Durango. T. c. pp. 205-210. [*Sciuridæ.*]
16. —. New Bats from Tropical America, with note on the species of *Otopterus*. T. c. pp. 227-237. [*Chiroptera.*]
17. —. Mammals collected in Alaska by the A. J. Stone expedition. T. c. pp. 273-292.
- 17A. —. A new Sheep from Kamchatka. T. c. pp. 293-298, figg. [*Bovidæ.*]
18. —. New Mammals from Venezuela and Colombia. T. c. pp. 327-335. [*Carnivora, Rodentia, Marsupialia.*]
19. —. Mammals from Venezuela. T. c. pp. 337-345.
20. —. A fossil Porcupine from Arizona. T. c. pp. 383 & 384. [*Erethizontidæ.*]
21. —. The Tamandua Anteaters. T. c. pp. 385-398, figg. [*Edentata.*]
22. —. Mammals from the district of Santa Marta, Colombia, with field-notes by Mr H. H. Smith. T. c. pp. 407-468. [*Primates, Mustelidæ, Erethizontidæ.*]
23. AMEGHINO, F. Recherches de Morphologie phylogénétique sur les molaires supérieures des Ongulés. An. Mus. Buenos Aires (3) iii, pp. 1-541, figg. [*Ungulata.*]

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24. [AMEGHINO, F.] La perforación astragaliana en los Mamíferos. Op. cit. iv, pp. 349-460, figg.
25. —. Paleontologia Argentina, No. 2. La Plata, 79 pp., figg.
- 25A. —. Nuevas especies de Mamíferos. Cretáceos y Terciarios de la República Argentina. Buenos Aires, 142 pp.; ex An. Soc. Argent. lvi, lvii, & lviii. [See Addenda.]
26. ANCEL, P. & BOUIN, P. Tractus génital et testicule chez le Porc cryptorchide. C.R. Soc. Biol. lvi, pp. 281 & 282. [*Suidæ*.]  
— [See also BOUIN & ANCEL (71).]
27. ANDERSEN, K. Five new *Rhinolophi* from Africa. Ann. Nat. Hist. (7) xiv, pp. 378-388. [*Chiroptera*.]
28. —. On von Heuglin's, Rüppell's and Sundevall's types of African *Rhinolophi*. T. c. pp. 451-458. [*Chiroptera*.]
29. — & MATSCHIE, P. Uebersicht einiger geographischen Formen der Untergattung *Euryalus*. SB. Ges. naturf. Berlin 1904, pp. 71-83. [*Chiroptera*.]
30. ANDERSON, R. J. Some considerations respecting the parietal bone. Int. J. Anat. xxi, pp. 318-343, figg.
31. —. The premaxilla in *Primates*. C.R. xivth Congr. Internat. Med. 1903, 7 pp., figg. [*Primates*.]
32. —. Note on the skull of *Grampus griseus* found on the coast near Galway. Rep. Brit. Ass. 1903, pp. 691 & 692. [*Cetacea*.]
33. —. Note on the peritoneum in *Meles taxus*. T. c. p. 692. [*Mustelidæ*.]
34. —. The skull of *Ursus ornatus*. L. c. [*Ursidæ*.]
35. ANDREAE, A. Zur Kenntniss des Miocäns von Oppeln in Schlesien. Mitt. Mus. Hildesheim, No. 20; Säugethiere, pp. 18-22. [*Insectivora*.]
36. ANDREWS, C. W. Further notes on the Mammals of the Eocene of Egypt. Geol. Mag. (5) i, pp. 109-115, 157-162, and 211-215, pl. vi. [*Carnivora, Ungulata, Cetacea*.]
37. —. Note on the *Barypoda*, a new order of Mammals. T. c. pp. 481 & 482. [*Ungulata*.]
38. ANGLAIS, J. Les animaux domestiques—Cheval, Vache, Mouton, Porc, Chien, Coq et Oie. Paris, pp. 193.
39. ANON. Gorillas at the Zoological Gardens. Field civ, p. 459. [*Primates*.]
40. ANTHONY, —. Rôle morphogénique du muscle crotaphyte sur le crâne et le cerveau chez le Chien. Bull. Mus. Paris 1903, pp. 364 & 365. [*Canidæ*.]
41. ARCHIBALD, S. [Mrs]. On the damage done to fir-trees by Squirrels. Tr. Edinb. Field Soc. v, pp. 95 & 96. [*Sciuridæ*.]
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- [For additional titles see Addenda, p. 51.]

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[† prefixed to a paragraph indicates that it relates, in part or altogether, to extinct forms: when the sign is placed before a specific name it indicates that the species referred to is extinct.]

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## XI. MARSUPIALIA.

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- Pseudochirus canescens gyrtator*, New Guinea, THOMAS, Ann. Nat. Hist. (7) xiv, p. 401, n. sp.
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## XII. MONOTREMATA.

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## †INCERTÆ SEDIS.

- †*Karoomys*, n. g. for *K. browni*, Trias, Aliwal North, BROOM, Geol. Mag. (4) x, p. 345, 1903, n. sp.

## ADDENDA.

The following new names for extinct Argentine Mammals are stated to have been proposed by AMEGHINO in An. Soc. Argent., vols. lvi–lviii. These vols., so far as known, have not reached this country, and the names are quoted from a tract published at Buenos Aires entitled “Nuevas Especies de Mamíferos, Cretáceos y Terciarios de la República Argentina (No. 25A):—

- (?) PRIMATES.—*Acropithecus* (n. g.) *tersus*, p. 4; *Antepithecus innexus*, *interassus*, p. 5, *gradatus*, p. 6; *Gonopithecus* (n. g.) *trigonodontoides*, p. 6; *Heuricosbornia alouatina*, p. 7, *subconica*, p. 8.  
 (?) HYRACOIDEA.—*Oldfieldthomasia plicata*, p. 9; *Paracelodus* (n. g. for *O. marginalis*), p. 9; *Eohyrax platyodus*, *isotemnoides*, p. 10.  
 TYPOTHERIA.—*Phanophilus* (n. g.) *dorsatus*, p. 12; *Epipatriarchus* (n. g.) *bifidus*, p. 13, *innexus*, p. 16; *Cenophilus* (n. g.) *tripartitus*, p. 16; *Getotherium* (n. g.) *tournoueri*, p. 17; *Tegethotherium* (n. g.) *burmeisteri*, p. 18; *Pseudotypotherium* (n. g.) *pulchrum*, p. 19; *Trachytypotherium superans*, *rectum*, p. 22, *disparile*, *vietum*, p. 23; *Xenotherium* (n. g.) *immersum*, p. 24; *Typotherium pseudopachygnathum*, p. 26, *eguiaci*, p. 27; *Progalæopithecus* (n. g.) p. 28, *fissurellatus*, p. 29, *tournoueri*, p. 30. [N.B. The *Galæopithecidae* are placed in the *Typotheria*!]  
 TOXODONTIA.—*Stereotoxodon* (n. g.) *tehuelche*, p. 31.  
 HIPPOIDEA.—*Nesohippus* (n. g.) *insulatus*, p. 33; *Interhippus phorcus*, p. 34; *Stilhippus* (n. g.) *deterioratus*, p. 35; *Perhippidion* (n. g.) *tetragonoides*, p. 36.  
 CONDYLARTHRA.—*Didolodus dispar*, p. 38; *Periacrodon* (n. g. for *Polyacrodon lanciformis* Roth.), p. 39; *Oroacrodon*, for *Polyacrodon* Roth., 1898, nec *Polyacrodon* Jaecel, 1889, p. 40; *Notoprotogonia* (n. g. for *Euprotogonia patagonica*), p. 41; *Argyrolambda* (n. g.) *conidens*, p. 43; *Heterolambda* (n. g.) *lunulata*, p. 43; *Eulambda* (n. g. for *Josepholeidea aculea*), p. 45; *Ricardolydekkeria cinctula*, p. 46; *Lopho-*  
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*lambda* (n. g. for *R. profunda*), p. 47; *Propantostylops* (n. g. for *Pantostylops minutus*), p. 48; *Hemistylops* (n. g. for *Pantostylops incompletus*), p. 49, *paucicuspidatus*, *trigonostyloides*, p. 50; *Polystylops* (n. g.) *progrediens*, p. 51.

PERISSODACTYLA.—*Adiantum patagonicus*, p. 52; *Theosodon karaikensis*, p. 54; *Paranauchenia* (n. g. for *Scalibrinitherium denticulatum*), p. 55; *Phœniczauchenia* (n. g.) *tehuecha*, p. 57; *Promacrauchenia* (n. g. for *Macrauchenia antiqua*), p. 58; *Euprotherotherium* (n. g.) *inæquifacies*, p. 59; *Protherotherium karaikense*, p. 60, *dichotomum*, *politum*, p. 61; *Lophogododon* (n. g.) *paranensis*, p. 62; *Licaphrium pyramidatum*, p. 63; *proximum*, p. 64; *Licaphrops* (n. g. for *Prolicaphrium festinum*), p. 64, *coalescens*, p. 65; *Prothoatherium plicatum*, p. 65; *Thoatherium velatum*, *karaikense*, p. 66, *bilobatum*, p. 67; *Diadiaphorus cælops*, p. 67; *Proectocion* (n. g.), p. 68, *argentinus*, p. 69, *precisus*, p. 70; *Aragonia* (n. g.) *insulata*, p. 71.

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p. 133; *Scelidotheriops* (n. g.) *avunculus*, p. 134; *Eumylodon bonariense*, p. 136; *Octomyodon* (n. g.) *aversus*, p. 137; *Palehoplophorus meridionalis*, p. 137; *Plohophorus cuneiformis*, p. 138, *araucanus*, p. 139; *Dædicurus ensenadensis*, p. 139; *Eutatus præpampæus*, p. 140; *Epipeltephilus* (n. g.) *recurvus*, p. 140.

The following were recorded too late to be included in the list of Titles.

504. ALCOCK, N. H. On Mammalian non-medullated nerve. *J. Physiol.* xxx, pp. xxxv & xxxvi.
505. BACKMUND, C. Entwicklung der Haare und Schweissdrüsen der Katze. *Anat. Hefte. Arb.* xxvi, pp. 315-383, pls. xi-xiv. [*Felidae.*]
506. DAMANY, P. La cavité cotyloïde, evolution ontogénique comparée de sa profondeur chez l'Homme et les Animaux. *J. Anat. Physiol.* xl, pp. 387-413, figg.
507. DENNSTEDT, A. Die Sinus duræ matris der Haussäugethiere. *Anat. Hefte. Arb.* xxv, pp. 1-96, pls. i-iii.
508. GLAS, E. Ueber die Entwicklung und Morphologie der inneren Nase der Ratte. *Anat. Hefte. Arb.* xxv, pp. 273-341, pls. x-xxiv.
509. ILLING, G. Vergleichende Untersuchungen über die submaxillaren Speicheldrüsen der Haussäugethiere. *Anat. Hefte. Arb.* xxvi, pp. 385-526, pls. xv-xviii.
510. MACNAMARA, N. C. Beweisschrift betreffend die gemeinsame Abstammung der Menschen und der Anthropoiden Affen. *Arch. Anthrop.* xxxi, pp. 77-93, fig. [*Primates.*]
511. MAGNUS, R. Versuche am überlebenden Dünndarm von Säugethieren. Pt. I. *Arch. Ges. Physiol.* cii, pp. 123-151, figg.
512. MÜLLER, C. Beiträge zur vergleichenden Anatomie und Histologie der Prostata der Haussäugetiere, etc. *Anat. Hefte. Arb.* xxvi, pp. 527-572, pls. xix-xxiii.
513. MÜLLER, E. Beiträge zur Morphologie des Gefässsystems: II. Die Armarterien der Säugetiere. *Anat. Hefte. Arb.* xxvii, pp. 71-242, pls. v-xvi.
514. SABIN, [Miss] F. R. On the development of the superficial lymphatics in the skin of the Pig. *Amer. J. Anat.* iii, pp. 183-195, figg.
515. SCHLOSSER, M. Die mumifizierte Tierwelt des alten Ägyptens. *Arch. Anthrop.* xxx, pp. 202-207.
516. VALEDINSKY, I. A. Zur Frage über die Nervenknotten im Herzventrikel einiger Säugetiere. *Anat. Hefte. Arb.* xxvii, pp. 285-294, pls. xix & xx.
517. WILSON, W. H. The immunity of certain desert Mammals to Scorpion venom. *J. Physiol.* xxxi, pp. 1-lii.





## III. AVES.

BY

R. BOWDLER SHARPE, LL.D., &amp;C.

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## INTRODUCTION.

ALTHOUGH the number of titles is somewhat less than in 1903, their perusal shews that some excellent memoirs have been published, while the standard works by Dr HARTERT, Prof. RIDGWAY, Prof. REICHENOW, and Captain SHELLEY, have all been advanced. The Recorder has again to thank Mr Chubb for his assistance.

## I.—TITLES.\*

1. \*ADAMS, C. C. The migration route of Kirtland's Warbler (*Dendroica kirtlandi*). Bull. Michigan Ornith. Club v, pp. 14-21. [*Mniotiltidae*.]
  2. ALDERSON, R. Nesting of the Rufous Dove (*Leptoptila reichenbachi*). Avicult. Mag. (2) ii, pp. 270-275. [*Columbiformes*.]
  3. \*ALLEN, G. M. The birds of New Hampshire. P. Manchester Inst. Arts & Sci. iv, pp. 23-222.
  4. ALLEN, J. A. The case of *Megalestris* vs. *Catharacta*. Auk xxi, pp. 345-348. [*Lariformes*.]
  5. —. Black-capped Petrel (*Æstrelata hesitata*) in New Hampshire. T. c. p. 383, pl. xxii. [*Procellariiformes*.]
  - ALLÉON, A. [Comte]. Obituary. [See LEVERKÜHN, P. (349).]
  6. ALLISON, A. The birds of West Baton Rouge Parish, Louisiana. Auk xxi, pp. 472-484.
  7. ANDERSON, M. P. & GRINNELL, J. Birds of the Siskiyou Mountains, California: a problem of distribution. P. Ac. Philad. 1903, pp. 4-15.
  8. ANDRÉ, E. A Naturalist in the Guianas. London, 1904, 8vo, xiv + 310 pp. with thirty-four illustrations and a map.
  9. ANDREWS, C. W. On the pelvis and hind-limb of *Mullerornis betsilei* M.-Edw. & Grand.: with a note on the occurrence of a Ratite bird in the Upper Eocene beds of the Fayum, Egypt. P. Zool. Soc. London 1904, i, pp. 163-171, pl. v, text-fig. 15. [*Æpyornithiformes*.]
  10. APLIN, O. V. *Emberiza pusilla* near Rugby. Ibis 1904, pp. 306 & 307. [*Fringillidae*.]
  11. —. Birds of Oxfordshire or Buckinghamshire. Zoologist 1904, pp. 75 & 76.
  12. —. Notes on the ornithology of Oxfordshire. T. c. pp. 361-372.
  13. —. On the breeding of the Black-necked Grebe (*Podiceps nigricollis*) in the British Islands. T. c. pp. 417-420. [*Podicipediformes*.]
  14. ARRIGHI-GRIFFOLI, G. Note ed appunti di un cacciatore sui nostri uccelli migratori. Part II. Avicula viii, pp. 6-12, 75-77, 98-102, 135-140, 148-150.
  15. —. Caccia alle Anitre con reti. T. c. pp. 20-23.
  16. ARRIGONI DEGLI ODDI, E. Manuale di Ornitologia Italiana. Elenco descrittivo degli Uccelli stazionari o di passaggio finora osservati in Italia. Milano, 1904, 908 pp.
  17. ARUNDEL, W. B. Ferruginous Duck (*Fuligula nyroca*) in Yorkshire. Zoologist 1904, p. 33. [*Anseriformes*.]
- BAER, G. A. [See OUSTALET, E. (448).]

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Paper or Work referred to.

18. BAILEY, F. M. Additional notes on the birds of the Upper Pecos. *Auk* xxi, pp. 349-363. [*Charadriiformes, Galliformes, Trochili, Tyrannidæ, Fringillidæ, Motacillidæ, Mimidæ, Turdidæ.*]
19. ——. Additions to Mitchell's list of the summer birds of San Miguel County, New Mexico. *T. c.* pp. 443-449. [*Tyrannidæ, Fringillidæ.*]
20. ——. Twelve Rock Wren Nests in New Mexico. *Condor* vi, pp. 68-70.
21. ——. A Dusky Grouse and her brood in New Mexico. *T. c.* pp. 87-89 cum fig.
22. BANGS, O. Two new subspecies of tropical American Tyrant-birds. *P. Soc. Washington* xvii, pp. 113 & 114. [*Tyrannidæ.*]
23. BANNERMAN, D. A. Ornithological notes made during a trip to the West Indies. *Zoologist* 1904, pp. 228-230.
24. BARBOZA DU BOCAGE. Contribution à la Faune des quatre îles du Golfe de Guinée. *J. Sci. Lisb.* (2) vii, No. xxvi, Oiseaux, pp. 72-90.
25. BARNARD, C. A. Coomoolooloo notes. *Emu* iv, pp. 67 & 68.
26. BARRETT-HAMILTON, G. E. H. A physiological theory to explain the winter-whitening of birds and mammals in snowy countries, and the most striking points in the distribution of white in vertebrates generally. *Rep. Brit. Ass.* 1903, pp. 698 & 699.
27. ——. On the sound produced by the wings of birds in flight. *Ibis* 1904, pp. 474 & 475.
- BARTELS, M. [See FINSCH, O. (188).]
28. BARTSCH, P. Notes on the Herons of the District of Columbia. *Smithson. Collect.* xlv, pp. 104-111, pls. xxxii-xxxviii.
- BATES, G. L. [See SHARPE, R. B. (592).]
29. BAU, A. Die Eier von *Larus audouini*. *Ornith. Jahrb.* xv, pp. 1-10, Taf. i. [*Lariformes.*]
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- Hieräetus fasciatus minor*, n. subsp., from Africa (S. Arabia, Somali Land, Mozambique) ; ERLANGER, J. Ornith. 1904, pp. 185-187, taf. x, figg. 42 : *H. spilogaster*, ♂ ♀ ad. from S. Somali Land, figured ; id. t. c. taf. ix.
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- Pernis apivorus*, note on ; CORBIN, Zoologist 1904, pp. 142 & 143.
- Poliokierax semitorquatus* from N. E. Africa ; ERLANGER, J. Ornith. 1904, pp. 224-226 : is probably distinct (*P. castanonotus* Heugl.) from the S. African bird (*P. semitorquatus*) ; id. t. c. p. 226 [described as *P. homopterus* ; OBERHOLSER, P. U. S. Mus. xxvii, pp. 738 & 739].
- Falco feldeggi*, in Lancashire ; ROBINSON, Zoologist 1904, p. 75 : *F. biarmicus* and its allies, *F. b. abyssinicus*, n. subsp., Abyssinia and Shoa ; NEUMANN, J. Ornith. 1904, pp. 369-371 : *F. subbuteo*, note on ; CORBIN, Zoologist 1904, pp. 347 & 348 : preying on Bats ; GREEN, t. c. pp. 388 & 389 : at Kelso ; ROBINSON, Ann. Scott. Nat. Hist. 1904, p. 245 : *F. fasciinucha*, notes on ; NEUMANN, J. Ornith. 1904, pp. 371 & 372 : *F. æsalon*, in Berkshire ; NOBLE, Zoologist 1904, p. 116 : *F. candicans*, in Co. Donegal ; HOWARD, Zoologist 1904, p. 115 : *F. islandus tanypterus*, in Abyssinia ; ERLANGER, J. Ornith. 1904, pp. 212-215 : *F. peregrinus leucogenys* in N. Somali Land ; id. t. c. p. 215 : *F. eleonore schistaceus* H. & E. (*F. concolor*, pt. auct.) Arabia and Abyssinia to Mosambique and Madagascar ; id. t. c. p. 216, taf. xiv, fig. 1 : *F. eleonore eleonore* from the Mediterranean ; id. t. c. pp. 216 & 217, taf. xiv, fig. 2 : *F. concolor* from Nubia and S. Somali Land to Dar-es-Salaam ; id. t. c. pp. 217-219, taf. xv, figg. 1 & 2 : *F. altaicus*, egg figured ; DRESSER, Ibis 1904, p. 282, pl. vii, fig. 7.
- Falco tinnunculus*, a pale variety ; CORBIN, Zoologist 1904, pp. 143 & 144 :

- laying in an artificial nesting-box; WHITAKER, *Zoologist* 1904, pp. 192 & 193.
- Cerchneis tinnunculus* and its allies; ERLANGER, *J. Ornith.* 1904, pp. 219–223: *C. t. arthuri*, from Abyssinia and Somali Land; id. t. c. p. 223, taf. xvi: *C. fieldi*, figured; id. t. c. taf. xvii: *C. vespertinus*, figured; HERMAN, *Aquila* xi, tab. i: *C. vespertinus obscurus*, n. subsp., Tomsk.; TSCHUSI, *Ornith. Jahrb.* xv, pp. 229 & 230.
- C. unicolor*, n. sp., Western Australia; MILLIGAN, *Emu* iv, pp. 1 & 2.
- C. sparveria loquacula*, n. subsp., Vieques Is., Porto Rico; RILEY, *Smithson. Collect.* xlvii, p. 284.
- Falco vespertinus*, in Glamorganshire; PROGER & PATERSON, *Tr. Cardiff Soc.* xxxvi, p. 126.
- Erythropus vespertinus*, remarkable nest; RADCLIFFE SAUNDERS, *Bull. B. O. C.* xiv, p. 42.
- Pandion haliaetus*, approaching extinction as a breeding species in Scotland; HARVIE-BROWN, *Ibis* 1904, p. 664.

## Order STRIGIFORMES.

- Strigidae*, their economic value in N. America; see SURFACE, *H. A.* (622).
- Asio otus*, nesting on the ground; HOWARD, *Zoologist* 1904, pp. 259–261: at Esher; DALGLEISH, t. c. p. 265: its prey; GYNGELL, t. c. p. 385: *A. accipitrinus*, breeding near Scarborough; MORLEY, t. c. p. 385: *A. otus abyssinicus (montanus)* Heugl. in the highlands of Abyssinia; ERLANGER, *J. Ornith.* 1904, pp. 231 & 232, taf. xviii.
- Asio abyssinicus*, notes on; NEUMANN, *J. Ornith.* 1904, p. 374: from Jeffi Duns, Abyssinia; GRANT, *Ibis* 1904, p. 276.
- Ketupa javanensis*, in Assam; COLTART, *J. Bombay Soc.* xv, p. 719.
- Asio magellanicus mesembrinus*, n. subsp., Costa Rica; OBERHOLSER, *P. U. S. Mus.* xxvii, pp. 179 & 180: *A. m. melancerus*, n. subsp., Guatemala and Mexico; id. t. c. pp. 180 & 181: *A. m. icelus*, n. subsp., Coast of California; id. t. c. p. 185: *A. m. lagophonus*, n. subsp., Washington to Alaska; id. t. c. pp. 185–187: *A. m. heterocnemis*, n. subsp., Labrador; id. t. c. pp. 187 & 188: *A. m. algistus*, n. subsp., N. W. coast region of Alaska; id. t. c. p. 190.
- Bubo maculosus* and allies, *B. m. cinerascens* and *B. m. milesi*; ERLANGER, *J. Ornith.* 1904, pp. 227–229.
- Pisorhina scops erlangeri*, n. subsp., Tallah, Tunis; TSCHUSI, *Ornith. Jahrb.* xv, pp. 101 & 102: *P. scops greca*, n. subsp., Lamia, Greece; id. t. c. pp. 102 & 103: *P. scops tuneti*, n. subsp., Tunis; id. t. c. pp. 103 & 104: *P. scops cycladum*, n. subsp., Naxos, Melancs, Greece; id. t. c. p. 104.
- Pisorhina capensis* and its allies, *P. c. ugandæ*, *P. c. leucopsis*, *P. c. icterorhyncha*, and *P. c. scapulata*; ERLANGER, *J. Ornith.* 1904, pp. 235–237: *P. badia* Reichenow = *P. holerythra*; SHARPE, *Ibis* 1904, p. 105, figured; id. t. c. pl. ii: *P. balia*, figured; REICHENOW, *Vög. Afrikas* iii: *P. manadensis tempestatis*, n. subsp., Wetter Is., Moluccas, notes on *P. m. albiventris* and *P. m. manadensis*; id. t. c. pp. 190 & 191.
- Scops cyprica*, figured; MADARASZ, *Ann. Mus. Hungar.* ii, tab. xv.
- Asio leucotis nigrovertex*, n. subsp., Abyssinia; ERLANGER, *J. Ornith.* 1904, pp. 233 & 234, figured; id. t. c. taf. xix, fig. 1: *A. l. leucotis*, figured; id. t. c. taf. xix, fig. 2.
- Sceloglaux rufifacies*, n. sp., North Island, New Zealand; BULLER, *Ibis* 1904, p. 639.
- Scotiapterx nebulosa*, at Dedham, Massachusetts; ALLEN, *Auk* xxi, p. 278.
- Athene noctua* and its allies, *A. n. glaux*, *A. n. plumipes*, *A. n. brama*, *A. n.*



- pulchra*, and *A. n. spilogaster*; ERLANGER, J. Ornith. 1904, pp. 238 & 239.
- Athene noctua*, in Lincolnshire; BLATHWAYT, Zoologist 1904, pp. 74 & 75.
- Carine noctua caucasica*, n. subsp., Caucasus; ZARUDNY & LOUDON, Ornith. Jahrb. xv, p. 56.
- Glaucidium passerinum*, eggs; OLSEN, Ornith. Monber. xii, pp. 60 & 61: *G. perlatum* and its allies, *G. p. capensis* and *G. p. kilimensis*; ERLANGER, J. Ornith. 1904, pp. 239-241: *G. castaneum*, figured; REICHENOW, Vög. Afrikas iii.
- Micropallas whitneyi*, notes on; BROWN, Condor vi, pp. 45-47.
- Strix flammea splendens* and its allies, notes on; ERLANGER, J. Ornith. 1904, pp. 241-244.
- Aluco flammea* and its subspecies; ROTHSCHILD, Bull. B. O. C. xiv, pp. 87-90.
- Strix stictica*, n. sp., Venezuela; MADARASZ, Ann. Mus. Hungar. ii, pp. 115 & 116.

## Order PSITTACIFORMES.

- Cyclopsittacus festetichi* Madarasz = *C. diophthalmus* (H. & J.); ROTHSCHILD & HARTERT, Ann. Mus. Hungar. i, p. 449: *C. purpuratus* Madarasz = *C. edwardsi* Oust.; iid. t. c. p. 449.
- Psittuteles weberi*, notes on; SETH-SMITH, Avicult. Mag. (2) ii, pp. 246-250.
- Chrysotis guildingi*, figured; DUTTON, Avicult. Mag. (2) ii, pl. to p. 121.
- Chrysotis caymanensis*, note on; NICOLL, Bull. B. O. C. xiv, p. 94.
- Chrysotis bahamensis*, figured; BONHOTE, Avicult. Mag. (2) ii, pl. to p. 239.
- Poiocephalus flavifrons*, notes on; NEUMANN, J. Ornith. 1904, pp. 375 & 376: *P. f. auranteiceps*, n. subsp., Gelo River, N. E. Africa; id. t. c. p. 376.
- Prioniturus waterstradti*, n. sp., S. Mindanao; ROTHSCHILD, Bull. B. O. C. xiv, pp. 71 & 72.
- Palaeornis columboides*, nesting habits; BOURDILLON, J. Bombay Soc. xv, p. 666.
- Agapornis pullaria*, breeding in confinement; PORTER, Avicult. Mag. (2) ii, pp. 350-352.

## Order CORACIIFORMES.

## Sub-order PODARGI.

- Batrachostomus moniliger*, note on the nesting; BOURDILLON, J. Bombay Soc. xv, p. 663.

## Sub-order CORACIÆ.

- Coracias garrulus*, in Hants; CORBIN, Zoologist 1904, pp. 458 & 459.

## Sub-order HALCYONES.

- Alcedinidæ*, their economic value in N. America; see SURFACE, H. A. (622).
- Alcedo ispida sibirica*, n. subsp., Barnaul, West Siberia; TSCHUSI, Ornith. Jahrb. xv, p. 99.
- Alcedo margelanica*, n. sp., Margelan, Ferghana; MADARASZ, Ann. Mus. Hungar. ii, p. 2.
- Myioceyx ruficeps* from Camaroons; SHARPE, Ibis 1904, p. 607.
- Halcyon bougainvillei*, n. sp., Bougainville Is., N. Solomon group;

ROTHSCHILD, Bull. B. O. C. xiv, pp. 5 & 6 : *H. owstoni*, n. sp., Asuncion Is., N. Mariannes ; ROTHSCHILD, Bull. B. O. C. xiv, pp. 6 & 7 : *H. generosa*, n. sp., Ceylon ; MADARASZ, Ann. Mus. Hungar. ii, p. 1 : *H. perpulchra*, n. sp., Malacca ; id. t. c. pp. 1 & 2 : *H. pileata*, in North Lakhimpur, Upper Assam ; STEVENS, J. Bombay Soc. xvi, pp. 154 & 155 : *H. australasia interposita*, n. subsp., S. W. Islands, Moluccas (Moa and Letti) ; HARTERT, Nov. Zool. xi, pp. 196 & 197 : *H. chloris* and allies ; id. t. c. pp. 197-199 : *H. enigma*, n. n., p. 199, Talaut Is. form.

*Tanysiptera*, nomenclature, re *T. dea* ; POCHE, Ornith. Monber. xii, p. 57 ; SALVADORI, Ibis 1904, pp. 552-554.

### Sub-order BUCEROTES.

*Dichoceros bicornis*, notes on ; FERGUSON, J. Bombay Soc. xv, pp. 659 & 660.

*Meniceros bicornis*, nesting habits ; OSBORN, J. Bombay Soc. xv, pp. 715 & 716.

*Orthotophus cassini* Finsch = *O. albocristatus* Cass., *O. finschi*, n. sp., Liberia ; SHARPE, Ibis 1904, p. 610.

### Sub-order UPUPÆ.

*Upupa epops* in Cheshire ; OLDHAM, Zoologist 1904, p. 429.

*Scoptelus brunneiceps*, figured ; SHARPE, Ibis 1904, pl. xii.

### Sub-order MEROPES.

*Merops superciliosus donaldsoni*, n. subsp., Bar Madu, Ganana river, Somali Land ; OBERHOLSER, P. U. S. Mus. xxvii, pp. 737 & 738 : *M. ornatus*, note on ; BERNEY, Emu iv, pp. 45 & 46.

### Sub-Order TODI.

*Todus todus* is the proper name for the Jamaica Tody ; RILEY, Auk xxi, p. 486.

### Sub-order CAPRIMULGI.

*Nyctibius jamaicensis* in Brazil, observations on habits ; GOELDI, Ibis 1904, pp. 513-518.

*Phalaenoptilus nuttalli*, notes on ; SWARTH, Cooper Ornith. Club, California, 1904, p. 15.

*Antrostomus vociferus* in Colorado ; BURNETT, Auk xxi, pp. 278 & 279.

*Caprimulgus apatelius*, n. sp., Abaya Lake, N. E. Africa ; NEUMANN, Ornith. Monber. xii, p. 143 : *C. binotatus* from Camaroons ; SHARPE, Ibis 1904, p. 612 : *C. manillensis celebensis* Grant, from Wetter Is. ; HARTERT, Nov. Zool. xi, pp. 203 & 204 : *C. nubicus* from Egypt ; N. C. ROTHSCHILD, Bull. B. O. C. xiv, p. 91.

### Sub-order CYPSELI.

*Chatura stictolaema* from Camaroons ; SHARPE, Ibis 1904, p. 612.

*Apus melba tuneti*, n. subsp., Tunis ; TSCHUSI, Ornith. Jahrb. xv, pp. 123 & 124 : *A. apus kollibayi*, remarks on ; SCLATER, Bull. B. O. C. xv, p. 13.

*Cypselus batesi*, n. sp., Camaroons ; SHARPE, Bull. B. O. C. xiv, p. 63 : *C. sladenæ*, n. sp., Fernando Po ; GRANT, Bull. B. O. C. xiv, p. 56.

*Micropus pacificus*, in Tasmania ; LEGGE, Emu iii, pp. 180 & 181.

## Sub-order TROCHILI.

- Selasphorus platycercus* and *S. rufus*, at 12,600 feet in New Mexico ; BAILEY, Auk xxi, p. 354.  
*Microlyssa* nom. emend pro *Bellona* Muls. and Verr. (nec Reichenb.) ; RILEY, t. c. p. 485.

## Sub-Order COLII.

- Colius striatus* and its allies ; NEUMANN, J. Ornith. 1904, pp. 403-405.

## Order TROGONES.

- Hapaloderma æquatoriale*, not distinct from *H. narina* ; SHARPE, Ibis 1904, p. 613.  
*Harpactes fasciatus* [*fasciatus*], nesting habits ; BOURDILLON, J. Bombay Soc. xv, pp. 663 & 664.

## Order COCCYGES.

## Sub-order MUSOPHAGI.

- Turacus macrorhynchus*, egg described ; SETH-SMITH, Bull. B. O. C. xv, pp. 13 & 14 : nestling described ; id. t. c. pp. 13 & 14 ; PYCRAFT, t. c. p. 14 : breeding in confinement ; JOHNSTONE, Avicult. Mag. (2) iii, pp. 26-29, cum fig. : notes on the pterylosis and structure of the nestling-down ; PYCRAFT, t. c. pp. 55-63, cum tab. figg. 1-4.

## Sub-order CUCULI.

- Cuculidæ*, their economic value in N. America ; see SURFACE, H. A. (622).  
*Cuculus canorus*, habits of ; PAYNE, Zoologist 1904, p. 74 : its mimicry ; SCHENK, Aquila xi, pp. 369-374 ; GEBELL, t. c. pp. 377-379 : note on ; WILSON, Zoologist 1904, pp. 264 & 265 ; ELLISON, t. c. pp. 313 & 314 : near Aberdeen ; WILSON, Zoologist 1904, pp. 384 & 385 : *C. canorus rumenicus*, n. subsp., Roumania and Balkan Peninsula to the Caucasus ; TSCHUSI, Ornith. Jahrb. xv, pp. 121-123 : *C. canorus johanseni* ; TSCHUSI, op. cit. xiv, p. 165 = *C. c. telephonus* Heine ; HARTERT, Ibis 1904, p. 429.  
*Chrysococcyx rufomerus* and allies ; HARTERT, Nov. Zool. xi, pp. 199-201.  
*Coccyzus minor shelleyi*, nom. emend pro *C. dominicæ* Shelley (nec Linn.) ; RILEY, Smithson. Collect. xlvii, p. 285.  
*Urodynamis taitensis*, breeding habits ; FULTON, Tr. N. Zealand Inst. (2) xix, pp. 213-248.  
*Centropus albidiventris*, n. sp., Gizo Is., Solomon Islands ; ROTHSCHILD, Bull. B. O. C. xiv, p. 59 : *C. efulenensis*, n. sp., Camaroons ; SHARPE, Ibis 1904, p. 615 : *C. grilli* and *C. thierryi*, notes on ; NEUMANN, J. Ornith. 1904, pp. 390 & 381 : *C. g. cæruleiceps*, n. subsp., Grandjule Lake, N. E. Africa ; id. t. c. pp. 380 & 381.  
*Geococcyx californianus*, habits ; FISHER, Condor vi, p. 80 : in Kansas ; SNOW, Auk xxi, p. 86.

## Order SCANSORES.

## Sub-order INDICATOIRES.

- Prodotiscus reichenowi*, n. sp., Moschi, German E. Africa ; MADARASZ, Ann. Mus. Hungar. ii, p. 206.

## Sub-Order CAPITONES.

- Lybius undatus* and its allies; NEUMANN, J. Ornith. 1904, pp. 387-390.  
*Melanobucco tsanæ*, figured; GRANT, Ibis 1904, pl. vi.  
*Barbatula chrysocoma* and its allies; NEUMANN, J. Ornith. 1904, pp. 391 & 392: *B. c. schoana*, n. subsp., Zodgit, Shoa; id. t. c. p. 391: *B. flavisquamata* (Camaroons) distinct from *B. stellata* (Fernando Po); SHARPE, Ibis 1904, p. 618.

## Order PICIFORMES.

## Sub-order GALBULÆ.

- Urogalba paradisea*, notes on nomenclature; РОЧЕ, Ornith. Monber. xii, p. 57.  
*Galbaleyhrynchus leucotis innotatus*, n. subsp., Rio Juruá, Southern Brazil; IHERING, Revist. Mus. Paulista vi, p. 445.

## Sub-order PICI.

- Colaptes auratus*, abnormal growth of bill; HUNT, Auk xxi, p. 384: breeding habits; STOCKARD, t. c. pp. 467 & 468: *C. auratus luteus*, at Auburn, California; FISHER, Condor vi, p. 172.  
*Dendropicus guineensis lepidus* and its allies; NEUMANN, J. Ornith. 1904, pp. 399-402: *D. guineensis zechi*, n. subsp., Togo Land; id. t. c. p. 400.  
*Melanerpes formicivorus aculeatus*, notes on; SWARTH, Pacific Coast Avifauna, No. 4, 1904, pp. 13 & 14: *M. portoricensis*, abnormal bill; BOWDISH, Auk xxi, pp. 53-55, pl. xi.  
*Centurus carolinus*, nesting habits in Mississippi; STOCKARD, Auk xxi, pp. 466 & 467.  
*Dendrocopus major*, in Roxburghshire; SIMPSON, Ann. Scott. Nat. Hist. 1904, pp. 126 & 127: in the Outer Hebrides; MACKENZIE, t. c. pp. 188 & 189.  
*D. minor morgani*, n. subsp., S. W. Persia; SARUDNY & LOUDON, Ornith. Jahrb. xv, p. 227.  
*Dendrocoptes medius caucasicus*, n. subsp., Caucasus; BIANCHI, Annuaire Mus. St. Petersb. ix, p. 4.  
*Dryobates arizonæ*, notes on; SWARTH, Pacific Coast Avifauna, No. 4, 1904, pp. 11 & 12.  
*Picoides arcticus*, at Wellfleet, Massachusetts; NICHOLS, Auk xxi, p. 81.  
*Dendromus permistus* and its allies; NEUMANN, J. Ornith. 1904, pp. 392-394: *D. p. angolensis*, Angola, *D. p. togoensis*, Togo Land, n. subsp.; id. t. c. pp. 393 & 394: *D. nubicus* and *D. neumanni*, notes on; id. t. c. pp. 394 & 395.  
*Iyngipicus obsoletus* and its allies; NEUMANN, J. Ornith. 1904, pp. 402 & 403: *I. o. nigricans*, n. subsp., Uma River, N. E. Africa; id. t. c. p. 402: *I. o. heuglini*, n. subsp., Bogos Land; id. t. c. pp. 402 & 403.  
*Ceophlæus pileatus*, breeding habits in Mississippi; STOCKARD, Auk xxi, pp. 463-466.  
*Iynx torquilla*, in East Lothian; EVANS, Ann. Scott. Nat. Hist. 1904, p. 244: *I. pectoralis* Vig. = *I. ruficollis* Wagl.; HELLMAYR, J. Ornith. pp. 307 & 308. [Cf. RICHMOND, Auk xviii, p. 179, 1900.]

## Order EURYLEMIFORMES.

- Serilophus lunatus rothschildi*, figured; HARTERT, in Wytsman's 'Genera Avium.' Part 1, 1904.



## Order PASSERIFORMES.

## Family FORMICARIIDÆ.

- Thamnophilus paraguayensis*, n. sp., W. Paraguay; HELLMAYR, Bull. B. O. C. xiv, pp. 53 & 54: *T. juruanus*, n. sp., Rio Juruá, Southern Brazil; IHERING, Revist. Mus. Paulista vi, p. 439.
- Dysithamnus aroyæ*, n. sp., S. E. Peru; HELLMAYR, Bull. B. O. C. xiv, pp. 52 & 53.
- Myrmotherula pyrrhonota amazonica*, n. subsp., Rio Juruá; IHERING, Revist. Mus. Paulista vi, p. 440: *M. brevicauda juruana*, n. subsp., Rio Juruá, Southern Brazil; id. t. c. pp. 440 & 441: *M. garbei*, n. sp., Rio Juruá; id. t. c. p. 441.
- Formicivora orenocensis*, n. sp., Orinoco and Caura Rivers, Venezuela; HELLMAYR, Bull. B. O. C. xiv, p. 54.
- Drymophila juruana*, n. sp., Rio Juruá, Southern Brazil; IHERING, Revist. Mus. Paulista vi, p. 442.
- Phlegopsis*, notes on the genus; HELLMAYR, Ornith. Monber. xii, pp. 53-55: *P. paraensis*, n. sp., Pará; id. t. c. p. 55.

## Family DENDROCOLAPTIDÆ.

- Upucerthia baeri*, n. sp., Lara, Tucuman; OUSTALET, Bull. Mus. Paris 1904, pp. 43 & 44.
- Siptornis hilereti*, n. sp., Tucuman; OUSTALET, Bull. Mus. Paris 1904, p. 44: *S. lilloi*, n. sp., Tucuman; id. t. c. pp. 44 & 45.
- Dendroornis ocellata juruana*, n. subsp., Rio Juruá, Southern Brazil; IHERING, Revist. Mus. Paulista vi, pp. 436 & 437.
- Dendrocolaptes juruanus*, n. sp., Rio Juruá, Southern Brazil; IHERING, Revist. Mus. Paulista vi, pp. 437 & 438.
- Dendrocincla*, review of the species; OBERHOLSER, P. Ac. Philad. 1904, pp. 447-463: *D. anabatina typhla*, n. subsp., Yucatan: id. t. c. pp. 452 & 453: *D. enalincia*, n. sp., S. E. Brazil; id. t. c. pp. 454 & 455: *D. ridgwayi*, n. sp., Costa Rica; id. t. c. pp. 458 & 459: *D. meruloides aphanta*, n. subsp., Tobago; id. t. c. pp. 460 & 461: *D. homochroa acedesta*, n. subsp., Panama; id. t. c. pp. 462 & 463.

## Family TYRANNIDÆ.

- Tyrannidæ*, notes on the systematic arrangement; IHERING, Auk xxi, pp. 313-322.
- Copurus funebris* Cab. & Heine, from San Paulo; HELLMAYR, Bull. B. O. C. xiv, p. 61.
- Muscisaxicola morenoi*, n. sp.; BRUCH, Revist. Mus. La Plata xi, p. 256.
- Serphophaga cinerea cana*, n. subsp., Santa Marta, U. S. Colombia; BANGS, P. Soc. Washington xvii, pp. 113 & 114: *S. parambae*, n. sp., Paramba, N. W. Ecuador; HELLMAYR, Bull. B. O. C. xiv, pp. 54 & 55.
- Ornithion pusillum juruanum*, n. subsp., Rio Juruá, Southern Brazil; IHERING, Revist. Mus. Paulista vi, p. 431.
- Todirostrum cinereum finitimum*, n. subsp., Tabasco, Mexico; BANGS, P. Soc. Washington xvii, p. 114.
- Pitangus caymanensis*, n. sp., Grand Cayman Is. W. I.; NICOLL, Ibis 1904, pp. 582 & 583.
- Myiodynastes luteiventris*, notes on; SWARTH, Cooper Ornith. Club, California 1904, pp. 21 & 22.
- Empidonax minimus*, on Grand Cayman Island; NICOLL, Bull. B. O. C. xiv, p. 95: id. Ibis 1904, p. 582: *E. difficilis*, breeding in New Mexico at 11,000 feet; BAILEY, Auk xxi, p. 355.

- Empidonax griseus* Brewst. = *E. canescens* Salvin & Godman; NELSON, Auk xxi, p. 80.
- Contopus virens*, its song; OLDYS, Auk xxi, pp. 270-274.
- Contopus pertinax pallidiventris*, breeds at 8,000 to 10,000 feet; SWARTH, Pacific Coast Avifauna, No. 4, 1904, pp. 24 & 25.
- Myiarchus*, a revision of the North American mainland species; NELSON, P. Soc. Washington xvii, pp. 21-50: *M. lawrencei bangsi*, n. subsp., Boquete, Panama; id. t. c. p. 45: *M. lawrencei querulus*, n. subsp., Michoacan, Mexico; id. t. c. p. 47: *M. lawrencei tresmariae*, n. subsp., Maria Madre Is., Tepic; id. t. c. p. 49: *M. brunneiceps* Lawr. from Panama = *M. nigriceps*; id. t. c. p. 50: *M. oberi nugator*, n. subsp., Dominica and Santa Lucia; RILEY, Smithsonian Collect. xvii, pp. 275 & 276: *M. lawrencei olivascens*, notes on; SWARTH, Pacific Coast Avifauna, No. 4, 1904, pp. 22 & 23.
- Tyrannus tyrannus*, in San Miguel Co., New Mexico; BAILEY, Auk xxi, p. 446.

### Family PITTIDÆ.

- Pitta cyanoptera*, breeding in Upper Burma; EVANS, J. Bombay Soc. xvi, pp. 171 & 172: *P. anerythra pallida*, n. subsp., Bougainville Isl. N. Solomon group; its egg described; ROTHCHILD, Bull. B. O. C. xiv, pp. 7 & 8: *P. reichenowi*, from Camaroon; SHARPE, Ibis 1904, p. 621: *P. annamensis*, figured; OUSTALET, Arch. Mus. Paris (4) v, pl. 5 [1903].

### Family XENICIDÆ.

- Xenicus stokesi* distinct from *X. longipes* and *X. gilviventris*; GRANT, Bull. B. O. C. xv, pp. 15 & 16.

### Family HIRUNDINIDÆ.

- Cf. RIDGWAY, Birds, North and Middle America, Pt. III, pp. 23-103.
- Chelidonaria urbica* at Wexford, Ireland, on the 10th of November; JOHNSON, Irish Natural. xiii, p. 48.
- Chelidon urbica* at Eastbourne in December; MORRIS, Zoologist 1904, p. 32: breeding in September and observed at Scarborough on December 16th, 1900; GYNGELL, Zoologist 1904, p. 73.
- Chelidon urbica*, not *C. lagopus*, in the Sayan Mts.; SUSHKIN, Bull. B. O. C. xiv, p. 46: *C. dasypus* from Calayan Island, Philippines; MCGREGOR, Bull. Philipp. Mus. No. 4, p. 33.
- Clivicola riparia* from Calayan Isl., Philippines; MCGREGOR, Bull. Philipp. Mus. No. 4, p. 33.
- Hirundo rustica*, distribution in Hungary in 1898; PUNGUR, Aquila xi, pp. 1-249, with two maps; HEGYFOKY, t. c. pp. 250-256: *H. rustica sawitzkii*, n. subsp., Turkestan; LOUDON, Ornith. Jahrb. xv, pp. 54-56: *H. rothschildi*, n. sp., Kaffa, N.E. Africa; NEUMANN, Ornith. Monber. xii, p. 143: *H. albigularis microptera*, n. subsp., N. Angola; HARTERT, Bull. B. O. C. xiv, pp. 73 & 74: *H. striolata* (?) in Calayan Island, Philippine Archipelago, notes on; MCGREGOR, Bull. Philipp. Mus. No. 4, p. 34.
- Lamprochelidon*, n. g., type *L. euchrysea* (Gosse); RIDGWAY, Birds, North & Middle America iii, pp. 100 & 101.
- Stelgidopteryx salvini*, n. sp., S. W. Mexico and Guatemala; RIDGWAY, t. c. pp. 62 & 63.

- Progne subis*, notes on; JACOBS, Pennsylv. Dep. Agric. i, No. 10, pp. 27-30, pls. 1 & 2.
- Psalidoprocne holomelæna massaica*, n. subsp., Mts. of East Africa; NEUMANN, Ornith. Monber. xii, p. 144: *P. orientalis reichenowi*, n. subsp., Loango Coast; id. t. c. pp. 144; *P. orientalis oleaginea*, n. subsp., Kaffa, N. E. Africa; id. t. c. p. 144: *P. nitens centralis*, n. sp., Ituri River; id. t. c. p. 144.

## Family MUSCICAPIDÆ.

- Aleonax fantisiensis* from Camaroon; SHARPE, Ibis 1904, p. 623.
- Bradyornis benguellensis*, note on; SHARPE, Ibis 1904, p. 317.
- Muscicapa atricapilla*, in Dumfriesshire; GLADSTONE, Ann. Scott. Nat. Hist. 1904, p. 188.
- Pedilorphynchus camerunensis* and *P. stuhlmanni* probably = *P. comitatus*; SHARPE, Ibis 1904, p. 624.
- Cyornis hyacinthina kühni*, n. subsp., Wetter Isl. Moluccas; HARTERT, Nov. Zool. xi, p. 204.
- Petræca goodenovi* and *P. ramsayi*, notes on; MILLIGAN, Emu iv, p. 50.
- Poliomyias luteola* in Eastern Minusinsk; SUSHKIN, Bull. B. O. C. xiv, p. 46.
- Gerygone everetti* and its allies; HARTERT, Nov. Zool. xi, pp. 204 & 205: *G. kisserensis sequens*, Roma, Isl. Moluccas; id. t. c. p. 205.
- Hyltiota violacea* distinct from *H. flaviventris* (*flavigaster!* auct.); SHARPE, Ibis 1904, p. 625.
- Cyanoptila cyanomelæna*, eggs figured; DRESSER, Ibis 1904, pl. x, figg. 5 & 6.
- Tarsiger guttifer* and *T. orientalis*, figured; REICHENOW, Vög. Africas iii.
- Chloropeta natalensis major*, n. subsp., N. Angola; HARTERT, Bull. B. O. C. xiv, p. 73.
- Megabias æquatorialis*, n. sp., Uganda; JACKSON, Bull. B. O. C. xv, p. 11.
- Smithornis capensis albigularis*, n. subsp., N. Angola; HARTERT, Bull. B. O. C. xiv, p. 73.
- Chelidorhynchus hypoxanthum*, probable occurrence at Dibrugarh during the cold season; STEVENS, J. Bombay Soc. xvi, p. 155.
- Trochocercus reichenovi*, n. sp., Fanti country, W. Africa; SHARPE, Ibis 1904, p. 630.
- Rhipidura preissi* and *R. albiscapa*, notes on; MILLIGAN, Emu iv, p. 50: *R. rufiventris pallidiceps*, n. subsp., Wetter Isl., Moluccas; HARTERT, Nov. Zool. xi, p. 206: *R. reichenovi* Finsch = *R. elegantula* Sharpe; id. t. c. p. 206: *R. intermedia* North, from N. E. Queensland, notes on; SCLATER, Bull. B. O. C. xiv, p. 8: HARTERT, t. c. p. 10.
- Terpsiphone paradisi* (figg. 9 & 10), *T. princeps* (figg. 11 & 12), eggs figured; DRESSER, Ibis 1904, pl. x.
- Cryptolopha erythraea*, n. sp., Bogos Land; SALVADORI, Boll. Mus. Torino xix, No. 464.
- Monarcha kisserensis* = *M. cinerascens*; HARTERT, Nov. Zool. xi, p. 207.
- Stoparola panayensis nigriloris*, n. subsp., Mindanao; HARTERT, Bull. B. O. C. xiv, p. 80.

## Family CAMPOPHAGIDÆ.

- Pericrocotus cinereus*, eggs figured; DRESSER, Ibis 1904, pl. x, figg. 13 & 15.

## Family PYCNONOTIDÆ.

- Hypsipetes fugensis* has a scutellated tarsus, as also *H. amaurotis*, and they probably belong to a different genus; MCGREGOR, Bull. Philipp.

- Mus. No. 4, pp. 31 & 32: *H. amaurotis*, eggs figured; DRESSER, Ibis 1904, p. 282, pl. vii, figg. 6 & 8.
- Iole holti binghami*, notes on; HARTERT, Ibis 1904, p. 543.
- Criniger propinquus*, n. sp., Tonkin; OUSTALET, Arch. Mus. Paris (4) v, pp. 76 & 77 (1903).
- C. verreauxi ndussumensis*, n. subsp., Equatorial Africa; REICHENOW, Vög. Africas iii, p. 383.
- Bleda batesi* Sharpe=*B. indicator*; id. t. c. p. 390: *B. poliocephala*, figured; id. t. c.
- Andropadus insularis somaliensis*, n. subsp., S. Somali-land (Barawa); REICHENOW, J. Ornith. 1904, p. 133: *A. oleagineus* Peters=*A. insularis*; REICHENOW, Vög. Afrikas iii, p. 408: *A. liberiensis*, Reichenow=*A. gracilirostris*; id. t. c. p. 411: *A. poensis* (Alexander), *A. percevali* (Neumann)=*A. gracilirostris*; REICHENOW, t. c. p. 411: *A. marwiti* Reichenow=*A. zombensis*; id. t. c. p. 413: *A. camaroonensis* Reichenow=*A. curvirostris*; id. t. c. p. 413: *A. montanus*, figured; id. t. c.
- Eurillas efulenensis*, n. sp., Camaroon; SHARPE, Ibis 1904, p. 637.
- Phyllastrephus harterti* (Reichenow) = *P. simplex*; REICHENOW, Vög. Afrikas iii, p. 394: *P. zambesiae* (Shelley)=*P. occidentalis*; id. t. c. p. 397: *P. centralis* (Reichenow)=*P. occidentalis*; id. t. c. p. 397: *P. tenuirostris* (Fischer & Reichenow)=*P. flavostriatus*; id. t. c. p. 399: *P. leucolæma* (Sharpe)=*P. albigularis*; id. t. c. p. 400: *P. capensis suahelicus*, n. subsp., Central East Africa; id. t. c. p. 405: *P. rufescens* Hartlaub, *P. sharpei* Shelley and *P. pauper* Sharpe=*P. strepitans*; REICHENOW, t. c. p. 405: *P. chlorigula*, figured; id. t. c.
- Pycnonotus viridescens*, n. sp., Camaroon; SHARPE, Ibis 1904, p. 638: *P. leucotis*, eggs figured; DRESSER, Ibis 1904, p. 281, pl. vii, figg. 4 & 5.

#### Family TIMELIIDÆ.

- Chætops kilimensis*, n. sp., Moschi, German E. Africa; MADARASZ, Ann. Mus. Hungar. ii, p. 204.
- Cincolosoma punctatum*, notes on the species in captivity; PHILLIPPS, Avicult. Mag. (2) ii, pp. 149-160.
- Trochalopteryx holerythrops*, n. sp., Mt. Victoria, S. Chin Hills; RIPPON, Bull. B. O. C. xiv, p. 83: *T. ramsayi*, n. sp., Karennee; GRANT, Bull. B. O. C. xiv, pp. 92 & 93.
- Argya squamiceps yemensis*, n. subsp., Yemen, S. Arabia; NEUMANN, Ornith. Monber. xii, pp. 29 & 30.
- Dryonastes maesi* (fig. 1) and *D. lugens* (fig. 2), figured; OUSTALET, Arch. Mus. Paris (4) v, pl. vi.
- Crateropus*, review of the genus; NEUMANN, J. Ornith. 1904, pp. 548-555: *C. buxtoni* Sharpe=*C. cinereus* Heugl.; id. t. c. p. 548: *C. plebeius emini*, n. subsp., German East Africa; id. t. c. p. 549: *C. leucocephalus abyssinicus*, N. and C. Abyssinia; id. t. c. p. 550: *C. platycercus togensis*, n. subsp., Togo Land; id. t. c. p. 551.
- Cinclorhynchus cruralis*, note on; BERNEY, Emu iv, p. 44.
- Pseudotharrhaleus unicolor*, n. sp., Mindanao; HARTERT, Bull. B. O. C. xiv, p. 74.
- Turdinus pumilus*, n. sp., Bipindi, Camaroons; REICHENOW, Ornith. Monber. xii, p. 28.
- Bathmedonia*, nom. emend. pro *Bathmocercus* Reichenow (nec Fitz.); REICHENOW, J. Ornith. 1904, p. 134.
- Stachyris binghami*, n. sp., Mt. Victoria, S. Chin Hills; RIPPON, Bull. B. O. C. xiv, p. 84.
- Pterythius ricketti*, n. sp., S. China; GRANT, Bull. B. O. C. xiv, p. 92.



## Family PANURIDÆ.

*Panurus biarmicus*, figured; HERMAN, *Aquila* xi, tab. iii: *P. biarmicus occidentalis*, n. subsp., S. France, Spain, Italy; TSCHUSI, *Ornith. Jahrb.* xv, p. 228.

## Family TROGLODYTIDÆ.

Cf. RIDGWAY, *Birds, North and Middle America*, pt. iii, pp. 473-674.

*Heleodytes brunneicapillus*, in Lower California; SWARTH, *Condor* vi, pp. 17-19: unusual nesting site; DAGGETT, t. c. p. 24.

*Thryothorus consobrinus*, n. sp., Venezuela; MADARASZ, *Ann. Mus. Hungar.* ii, p. 115: *T. genibarbis juruanus*, n. subsp., Rio Juruá, Southern Brazil; IHERING, *Revist. Mus. Paulista* vi, p. 431.

*Telmatodytes palustris thryophilus* is of Oberholser, not of Ridgway, as stated in *Zool. Rec.* xl, Aves, p. 57.

*Troglodytes musculus acosmus*, n. subsp., Central Chile; OBERHOLSER, *P. U. S. Mus.* xxvii, p. 204: *T. m. atopus*, n. subsp., Santa Marta region, Colombia; id. t. c. p. 207: *T. m. enochus*, n. subsp., Coast region of Central Peru; id. t. c. pp. 207 & 208.

*Thryorchilus*, n. g. type *T. browni* (Bangs); id. t. c. p. 198.

*Urocichla oatesi*, n. sp., Mt. Victoria, S. Chin Hills; RIPPON, *Bull. B. O. C.* xiv, p. 83.

*Salpinctes obsoletus*, breeding habits; RAY, *Auk* xxi, pp. 440-442, pl. xxviii, fig. 1.

## Family CINCLIDÆ.

Cf. RIDGWAY, *Birds, North and Middle America*, pt. iii, pp. 675-682.

*Cinclus cinclus bianchii*, n. subsp., Sayan Mts. (89°-94° E. long.), *C. c. middendorffi*, n. subsp., C. Sayan Mts.; SUSHKIN, *Bull. B. O. C.* xiv, p. 43: *C. baicalensis*, in the Sayan Mts.; id. t. c. p. 44: *C. cinclus sardus*, n. subsp., Sardinia; HARTERT, *Bull. B. O. C.* xiv, p. 51.

## Family MIMIDÆ.

*Nesomimus bauri*, note on; BECK, *Condor* vi, pp. 5 & 6, cum fig.

*Harporhynchus curvirostris* and *H. curvirostris palmeri*, notes on the eggs; CLARK, *Auk* xxi, pp. 214-217, pl. xviii, figg. 1 & 2.

*Toxostoma lecontei*, notes on; GILMAN, *Condor* vi, pp. 95-98.

*Myiadestes townsendii*, note on; BAILEY, *Auk* xxi, pp. 362 & 363.

## Family TURDIDÆ.

*Geocichla gurneyi otomitra*, n. subsp., Konde Land; REICHENOW, *Ornith. Monber.* xii, p. 95.

*Geocichla peronii audacis* distinct from *G. peronii*; HARTERT, *Nov. Zool.* xi, pp. 208 & 209: *G. cyanonota*, notes on the species in confinement; PHILLIPPS, *Avicult. Mag.* (2) ii, pp. 179-188 cum tab.

*Turdus cabanisi* from Deelfontein, W. Cape Colony; SHARPE, *Ibis* 1904, p. 320: *T. viscivorus*, its nesting; TERNIER, *Ornis* xii, No. 4, pp. 571 & 572: *T. ruficollis* and *T. atrigularis*, in the Sayan Mts.; SUSHKIN, *Bull. B. O. C.* xiv, p. 46: *T. alpestris*, in the Hartz Mts.; BERGE, *Ornith. Monber.* xii, pp. 160-162: *T. musicus* and *T. iliacus*, nomenclature; SALVADORI, *Ibis* 1904, pp. 551 & 552: ANON. t. c. pp. 665-667: *T. nyikæ*, Nyika Highlands, Nyasa Land; REICHENOW, *Ornith. Monber.* xii, p. 95.

*Hylocichla guttata pallasii*, in Eastern Massachusetts in winter; BLAKE, *Auk* xxi, p. 283

- Petrophila gularis*, in Burma ; MACDONALD, J. Bombay Soc. xv, p. 727.
- Accentor*, with six species and subspecies ; BIANCHI, *Annuaire Mus. St. Petersb.* ix, pp. 12-21, 49.
- A. collaris tibetanus*, n. subsp., E. Tibet ; id. t. c. p. 21.
- Spermolegus*, with five species ; id. t. c. pp. 21-37, 49.
- Prunella* Vieill. 1816 vice *Tharrhaleus* Kaup 1829, 6 species ; id. t. c. pp. 37-47, 49.
- Aprunella*, n. gen. type *A. immaculata* (Hodgs.) ; id. t. c. pp. 47-49 : *A. collaris reiseri*, remarks on ; SCLATER, *Bull. B. O. C.* xv, p. 13 : *A. modularis blanfordi*, n. subsp., S. W. Persia ; SARUDNY, *Ornith. Monber.* xii, pp. 164 & 165.
- Chimarrhornis leucocephalus*, eggs figured ; DRESSER, *Ibis* 1904, p. 281, pl. vii, figg. 1 & 3.
- Cyanecula suecica*, near London ; CHUBB, *Zoologist* 1904, pp. 262 & 263 : *C. wolffii*, note on ; NICOLL, t. c. p. 263 : at Scarborough ; NELSON, t. c. p. 31 : *C. wolffii magna*, n. subsp., S. W. Persia ; SARUDNY & LOUDON, *Ornith. Jahrb.* xv, p. 225.
- Hodgsonius phanicuroides*, eggs figured ; DRESSER, *Ibis* 1904, pl. iii, fig. 2.
- Calliope calliope*, in the Philippines ; MCGREGOR, *Bull. Philipp. Mus.*, No. 4, p. 31.
- Luscinia luscinia* (L.) and *L. minor* (L.), notes on synonymy ; REICHENOW, *Ornith. Monber.* xii, pp. 1 & 2 : KLEINSCHMIDT, t. c. pp. 42-46 : habits ; HELMS, t. c. pp. 58-60.
- Aëdon luscinia*, in Sicily ; MARINUZZI, *Avicula* viii, pp. 17-20.
- Ruticilla semenowi*, n. sp., Orenburg district ; SARUDNY, *Ornith. Jahrb.* xv, pp. 213 & 214 : *R. titys*, in Moray ; MUIRHEAD, *Ann. Scott. Nat. Hist.* 1904, p. 55.
- Erythacus* [*Phenicurus*] *titys*, and *E. phenicurus*, notes on ; REICHENOW, *Ornith. Monber.* xii, pp. 2 & 3 ; *E. algeriensis*, n. sp., Algeria, *E. moussieri*, nestling described ; KLEINSCHMIDT, *Ornith. Monber.* xii, p. 197.
- Erythacus*, notes on the Robins of Madeira and the Azores ; NICOLL, *Ibis* 1904, pp. 555 & 591 : *E. rubecula*, nesting in a tree ; ELLISON, *Zoologist* 1904, pp. 190, 191, & 312 : BENTHAM, t. c. p. 263 : *E. cairii*, notes on ; BAU, *Ornith. Monber.* xii, pp. 4-6 : GENGLER, t. c. pp. 21 & 22 : BERLEPSCH, t. c. p. 36 : KLEINSCHMIDT, t. c. pp. 55 & 56 : *E. gaetkei*, n. form, Norway (Heligoland, migration) ; notes on *E. suecicus* and allies ; KLEINSCHMIDT, *J. Ornith.* 1904, pp. 302-306.
- Erythropygia plebeia*, n. sp., Masinde, E. Africa ; REICHENOW, *Ornith. Monber.* xii, pp. 27 & 28 : *E. brunneiceps soror*, n. subsp., Little Arusha Land, E. Africa ; REICHENOW, *Ornith. Monber.* xii, p. 95 : *E. hartlaubi* and *E. vulpina*, figured ; REICHENOW, *Vög. Afrikas* iii.
- Alethe poliothorax*, figured ; REICHENOW, *Vög. Afrikas* iii, tab.
- Pratincola rubetra dalmatica*, notes on ; KOLLIBAY, *J. Ornith.* 1904, pp. 100 & 101 : *P. daeotiae*, nest and eggs from Fuerteventura Is. ; HARTERT, *Bull. B. O. C.* xiv, p. 79.
- Myrmecocichla melanura* from the Egyptian Soudan ; N. C. ROTHSCHILD, *Bull. B. O. C.* xiv, p. 91.
- Poliocichla pollux* and its allies, *P. cinerea* and *P. schlegeli* ; SHARPE, *Ibis* 1904, pp. 324 & 325.
- Saxicola gaddi*, n. sp., S.W. Persia ; SARUDNY & LOUDON, *Ornith. Jahrb.* xv, pp. 219 & 220 : *S. amphileuca* and *S. melanoleuca*, notes on ; KOLLIBAY, *J. Ornith.* 1904, pp. 80-121 : *S. hellmayri*, *S. lübberti*, and *S. falkensteini*, notes on ; SHARPE, *Ibis* 1904, p. 327 : *S. monticola*, description of plumages ; id. t. c. pp. 327-334 : *S. equatorialis* and allies ; id. t. c. pp. 333 & 334 : *S. stapazina* and *S. occidentalis*, their synonymy ; SALVADORI, *Ibis* 1904, pp. 75-78 : *S. ananthe*, in the Philippine Islands [Calayan, Oct. 24] ; MCGREGOR, *Bull. Philipp.*

- Mus., No. 4, p. 27: *S. galtoni omoensis*, n. subsp., Omo River, N. E. Africa; NEUMANN, Ornith. Monber. xii, p. 163.  
*Sialia sialis*, unusual nesting-site; BRYANT, Auk xxi, pp. 390 & 391: *S. arctica*, breeding in New Mexico at 10,300 feet; BAILEY, t. c. p. 363.  
*Calamocichla schillingsi*, n. sp., Pangani district; REICHENOW, Ornith. Monber. xii, p. 95.

## Family SYLVIIDÆ.

- Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 691-736.  
*Locustella luscinioides*, breeding in the Rhine Provinces; GEYR VON SCHWEPPEBURG, Ornith. Monber. xii, pp. 145-147.  
*Calamoherde dunetorum* and *C. arundinacea*, nesting habits; RASPAIL, Bull. Soc. zool. France xxix, pp. 63-70, text-figg. 1-5.  
*Acrocephalus palustris*, in Oxfordshire; FOWLER, Zoologist 1904, pp. 346 & 347. *A. aquaticus* in Norfolk. Cf. Nature, vol. lxx, p. 631.  
*Tatare vaughani*, described and figured; NICOLL, Ibis 1904, pp. 55 & 56, pl. i.  
*Lusciniola ædon*, eggs figured; DRESSER, t. c. pl. x, figg. 1 & 2.  
*Arundinax ædon*, in Western Minusinsk; SUSHKIN, Bull. B. O. C. xiv, p. 46.  
*Cisticola katonæ*, n. sp., Boma-Gombe, German E. Africa; MADARASZ, Ann. Mus. Hungar. ii, p. 204: *C. pictipennis*, n. sp., Moschi; id. t. c. p. 205.  
*C. cinnamomea*, n. sp., Uhehe, German E. Africa; REICHENOW, Ornith. Monber. xi, p. 28: *C. sylvia*, n. sp., Lake district, Equatorial Africa; id. t. c. p. 28: *C. humilis*, n. sp., Lettema Mts., E. Africa; MADARASZ, t. c. p. 168: *C. erythrogenys djamdjamensis*, n. subsp., Djam-djam Mts. N. E. Africa; NEUMANN, t. c. pp. 163: *C. blanfordi sobatensis*, n. subsp., Sobat River; id. t. c. p. 164: *C. cisticola fuscicapilla*, distinct from *C. cisticola*; HARTERT, Nov. Zool. xi, p. 209.  
*Prinia gracilis deltae*, n. subsp., Nile Delta; REICHENOW, J. Ornith. 1904, p. 307.  
*Spiloptila reichenowi*, n. sp., Lettema Mts., German East Africa; MADARASZ, Ornith. Monber. xii, p. 179.  
*Bradypterus castaneus*, figured; REICHENOW, Vög. Afrikas iii.  
*Hypolais olivetorum*, breeding in Dalmatia; KOLLIBAY, J. Ornith. 1904, pp. 107-112.  
*Sylvia semenowi*, n. sp., Persia; SARUDNY, Ornith. Jahrb. xv, pp. 220 & 221: *S. curruca halimodendri*, n. subsp., Middle Kirghis Steppes [Lower Irghis and Turgai Rivers, 52°-65° E. long.]: *S. curruca* and *S. affinis*, notes on; SUSHKIN, Bull. B. O. C. xiv, pp. 42 & 43: *S. curruca*, early nesting in Surrey; BUNYARD, Zoologist 1904, p. 227: CUMMINGS, t. c. p. 264: *S. orphea jerdoni*, in Dalmatia; KOLLIBAY, J. Ornith. 1904, pp. 115-117.  
*Herbivocula schwarzi*, in Western Minusinsk; SUSHKIN, Bull. B. O. C. xiv, p. 46: *H. fuscata*, in Yenesei; id. t. c. p. 46.  
*Phylloscopus humei*, in the Sayan Mts.; SUSHKIN, Bull. B. O. C. xiv, p. 46: *P. viridanus*, on the northern slope of the Sayan Mts., *P. plumbeitarsus*, on the southern slope and in Mongolia; SUSHKIN, t. c. p. 46: *P. tristis axillaris*, n. subsp., C. Yenesei (55° N. lat.); id. t. c. p. 44: *P. rufus fortunatus*, on Lanzarote Island; HARTERT, t. c. p. 51: *P. viridanus*, in the Baltic Provinces; OTTO, Ornith. Monber. xii, pp. 73-78: *P. fortunatus*, its note; NICOLL, Ibis 1904, p. 556.  
*Acanthopneuste borealis* (Blasius) is the proper name for the North American Willow Warbler; OBERHOLSER, Auk xxi, p. 390.  
*Regulus* belongs to the *Sylviidæ*; cf. RIDGWAY, Birds, North and Middle America iii, pp. 698-710.

- Acanthiza ewingi* Gould, *A. diemensis*, and *A. mastersi*, synonymy; SCLATER, Bull. B. O. C. xv, p. 9: *A. ewingi* and *A. robustirostris*, eggs described; CAMPBELL, Emu iii, p. 237: in Tasmania; LEGGE, t. c. pp. 179 & 180.
- Apalis ruwenzorii*, n. sp., Ruwenzori; JACKSON, Bull. B. O. C. xv, p. 11: *A. murina*, n. sp., Roruma District, E. Africa; REICHENOW, Ornith. Monber. xii, p. 28.
- Euprinodes leucogaster*, n. sp., Fernando Po; SHARPE, Bull. B. O. C. xiv, p. 94.
- Eremomela damarensis*, n. sp., Damara Land; SHARPE, Ibis 1904, p. 339: *E. polioxantha*, from Mashona Land and Nyasa Land; id. t. c. p. 340.
- Parmoptila ansorgei*, n. sp., N. Angola; HARTERT, Bull. B. O. C. xiv, pp. 72 & 73.
- Pholidornis bedfordi*, n. sp., Fernando Po; GRANT, t. c. p. 56.
- Cettia cetti*, in Sussex; NICOLL, Bull. B. O. C. xiv, p. 84.
- Malurus superbus* (Shaw) = *M. cyaneus* (Ellis), *M. australis*, nom. novum pro *M. superbus*, auct. (nee Shaw); NORTH, Ibis 1904, p. 672: *M. assimilis* North, notes on; SCLATER, Bull. B. O. C. xiv, p. 9: HARTERT, t. c. p. 10: *M. leucopterus* and *M. leuconotus*, notes on; MILLIGAN, Emu iv, p. 52.
- Amytornis*, notes on the species; KEARTLAND, Victorian Natural. xx, pp. 133-139.

#### Family VIREONIDÆ.

- Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 128-232.
- Vireosylva gilva brewsteri*, n. subsp., N. W. Mexico; RIDGWAY, Birds, North and Middle America iii, p. 158: *V. josepha costaricensis*, n. subsp., Highlands of Costa Rica; id. t. c. pp. 159 & 160.
- Vireo huttoni mexicanus*, n. subsp., Southern Mexico and Guatemala; RIDGWAY, t. c. pp. 186 & 197: *V. huttoni cognatus*, n. subsp., Lower California; id. t. c. p. 199: *V. bellii arizonæ*, n. subsp., Arizona, N. W. Mexico and Western Texas; id. t. c. pp. 207 & 208: *V. laurae*, n. sp., Grenada, W. I.; NICOLL, Bull. B. O. C. xiv, p. 95, figured; id. Ibis 1904, pl. xi, fig. 2: *V. caymanensis*, note on; id. Bull. B. O. C. xiv, p. 94: *V. philadelphicus*, note on the nesting; CLAIRE, Auk xxi, p. 282: YOUNG, t. c. p. 283.
- Pachysylvia ochraceiceps pallidipectus*, n. subsp., Southern Honduras and Costa Rica; RIDGWAY, Birds, North and Middle America iii, pp. 219 & 220.
- Vireolanus pulchellus viridiceps*, n. subsp., Panama; RIDGWAY, t. c. p. 224.

#### Family AMPELIDÆ.

- Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 103-112.
- Ampelis garrulus*, note on; EVANS, Ann. Scott. Nat. Hist. 1904, p. 54: late stay in Inverness-shire; MARSHALL, t. c. p. 188: in Lincolnshire; BLATHWAYT, Zoologist 1904, pp. 74 & 75: in East Anglia; TUCK, t. c. p. 115: in North of Ireland; PATTERSON, t. c. p. 31: in Germany; LINDNER, Ornith. Monber. xii, p. 96: in Brunswick; R. BLASIUS, t. c. p. 8: near Montbéliard; BERNARD, Ornith. xii, No. 4, pp. 565-567: in S. E. France; FRAISSE, t. c. p. 569: in Piedmont; SALVADORI, Avicula viii, p. 28: notes on; MARTORELLI, t. c. pp. 42-47 cum fig.

#### Family DULIDÆ.

- Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 125-127.



## Family PTILOGONATIDÆ.

Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 113-125.

## Family PRIONOPIDÆ.

*Pitohui dichrous monticola*, n. subsp., British New Guinea; HARTERT, Bull. B. O. C. xiv, p. 79.

## Family LANIIDÆ.

Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 232-252.

*Gymnorhina longirostris* and *G. dorsalis*, remarks on; DEGEN, Emu iii, pp. 201-207: *G. dorsalis*, notes on; MILLIGAN, Emu iii, pp. 177-179, pl. x.

*Lanius excubitor*, in the Forth; HARVIE-BROWN, Ann. Scott. Nat. Hist. 1904, p. 244: in Lancashire; GRAVES, Zoologist 1904, p. 115: in Cheshire; GRAVES, t. c. p. 31: *L. ludovicianus mearnsi*, n. subsp., Lower California; RIDGWAY, Birds, North and Middle America iii, p. 252: *L. vittatus*, eggs figured; DRESSER, Ibis 1904, pl. x, figg. 7 & 8: *L. collurio*, breeding in captivity; GÜNTHER, Avicult. Mag. (2) ii, pp. 339-346.

*Laniarius ambiguus*, n. sp., Kiboscho, German E. Africa; MADARASZ, Ann. Mus. Hungar. ii, p. 205.

*Chlorophoneus miniatus*, n. sp., Kiboscho, German E. Africa; id. t. c. ii, p. 205.

*Pachycephala par*, n. sp., S. W. Islands, Moluccas (Roma Is.); HARTERT, Nov. Zool. xi, p. 211: *P. par compar*, n. subsp., S. W. Islands (Letti, Moa); id. t. c. p. 212: *P. howensis*, n. sp., Lord Howe Is.; NORTH, Rec. Austral. Mus. v, pp. 125 & 126: = *P. contempta*; HARTERT, Bull. B. O. C. xv, p. 10: *P. gutturalis* and *P. occidentalis*, notes on; NORTH, t. c. p. 9; HARTERT, t. c. p. 10: *P. occidentalis* and allies, notes on; MILLIGAN, Emu iv, pp. 48-50.

*Hyloterpe fallax*, n. sp., Calayan Is., Babuyan, Philippine Archipelago; MCGREGOR, Bull. Philipp. Mus., No. 4, p. 27, pl. v, fig. 2, *H. albiventris* (pl. v, fig. 1), and *H. philippinensis* (pl. v, fig. 2), figured; id. t. c. pl. v.

*Eulacestoma nigropectus*, figured; SCLATER, Ibis 1904, pp. 373-375, pl. ix.

*Eopsaltria nana*, Ramsay, notes on; SCLATER, Bull. B. O. C. xiv, p. 9:

HARTERT, t. c. p. 10.

## Family PARIDÆ.

Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 375-436.

*Pæcile cincta sayana*, n. subsp., W. Sayan Mts. Altai; SUSHKIN, Bull. B. O. C. xiv, p. 44.

*Parus major*, in Caithness; SOUTHERLAND, Ann. Scott. Nat. Hist. 1904, p. 188.

*Parus cyaneus*, *P. cæruleus* and allied species, notes on; GROTE, Ornith. Monber. xii, pp. 175-177: *P. cæruleus languidus*, nom. emend. pro *P. c. pallidus* Grote (nec Brehm); GROTE, J. Ornith. 1904, p. 307: *P. montanus kleinschmidti*, egg; HARTERT, Bull. B. O. C. xiv, p. 79: *P. atricapillus turneri*, note on; OSGOOD, North Amer. Fauna, No. 24, p. 80: *P. rufescens*, notes on the distribution; GRINNELL, Auk xxi, pp. 364-382, maps i-iii.

*Beolophus atricristatus sennetti*, n. subsp., Texas; RIDGWAY, Birds, North and Middle Amer. iii, pp. 386 & 387: *B. inornatus restrictus*, n. subsp.,

- Oakland, California; id. t. c. p. 389: *B. inornatus murinus*, n. subsp., Southern California; id. t. c. pp. 389 & 390.
- Pentheres afer* (Gm.) distinct from *P. cinerascens* (V.), *P. intermedius* (Shelley) = *P. cinerascens*; SHARPE, Ibis 1904, p. 343.
- Cyanistes transchanicus* in Chitral; FULTON, J. Bombay Soc. xvi, p. 47.
- Ægithaliscus sharpei*, n. sp., Mt. Victoria, S. Chin Hills; RIPPON, Bull. B. O. C. xiv, p. 84.
- Psaltriparus minimus saturatus*, n. subsp., Puget Sound; RIDGWAY, Birds, N. & M. Amer. iii, pp. 434 & 435.
- Acredula tephronota passekii*, n. subsp., S. W. Persia; SARUDNY, Ornith. Monber. xii, p. 164.
- Acredula rosea* in the Outer Hebrides; MACKENZIE, Ann. Scott. Nat. Hist. 1904, p. 188.
- Remiza yeniseensis*, n. sp., Upper Yenesei River, near Sayan; SUSHKIN, Bull. B. O. C. xiv, pp. 44 & 45: *R. pendulina centralasiae*, n. subsp. [*R. stoliczkae* Pleske, nec Hume], Central Asia; id. t. c. p. 45: *R. p. javartensis*, n. subsp., Turkestan; id. t. c. p. 45.
- Anthoscopus sylviella*, n. sp., Usegua; REICHENOW, Ornith. Monber. xii, p. 27: *A. minutus* (fig. 1) and *A. smithi* (fig. 2), figured; SHARPE, Ibis 1904, pl. viii.
- Aphelocephala nigricincta* North, notes on; NORTH, Bull. B. O. C. xv, p. 9; HARTERT, t. c. p. 10.

#### Family CHAMÆIDÆ.

Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 683-691.

#### Family REGULIDÆ.

*Regulus* belongs to the *Sylviidæ*.

Cf. RIDGWAY, Birds, North and Middle Amer. iii, pp. 698-710.

*Regulus cristatus coatsi*, n. subsp., Subalpine zone of Sayan Mts.; SUSHKIN, Bull. B. O. C. xiv, p. 44.

*Regulus satrapa olivaceus* nesting in Western Washington; BOWLES, Condor vi, pp. 163-165: *R. calendula* in Lat. 53° 24' N., Long. 30° 15' W.; PATERSON, Ann. Scott. Nat. Hist. 1904, p. 55: nesting habits; SILLOWAY, Condor vi, p. 14: *R. c. cineraceus*, n. subsp., Los Angeles County, California; GRINNELL, t. c. p. 25.

#### Family SITTIDÆ.

Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 436-459.

*Sitta tshitscherini*, n. sp., Ispahan, Persia; SARUDNY, Ornith. Jahrb. xv, pp. 218 & 219: *S. victoriae*, n. sp., Mt. Victoria, S. Chin Hills; RIPPON, Bull. B. O. C. xiv, p. 84: *S. bifasciata*, n. sp., Krasnoyarsk, C. Siberia; MADARASZ, Ornith. Monber. xii, pp. 183 & 184: *S. caesia*, unusual nesting place; JOURDAIN, Zoologist 1904, p. 384.

#### Family CERTHIIDÆ.

Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 459-473.

*Certhia brachydactyla dorothea*, n. subsp., Cyprus; HARTERT, Bull. B. O. C. xiv, pp. 50 & 51: remarks on the genus *Certhia*; id. t. c. p. 51.

*Climacteris scandens* in Tasmania; LEGGE, Emu iii, p. 181: *C. weiskei* and allied species, notes on; SCLATER, Bull. B. O. C. xv, pp. 9 & 10: HARTERT, t. c. p. 10.

## Family ZOSTEROPIDÆ.

*Zosterops omoensis*, **n. sp.**, Omo River, N. E. Africa; NEUMANN, Ornith. Monber. xii, p. 162: *Z. luteirostris*, **n. sp.**, Gizo Isl., Solomon Islands; HARTERT, Bull. B. O. C. xiv, p. 61: *Z. toroensis*, **n. sp.**, Toro; REICHENOW, J. Ornith. 1904, p. 133: *Z. niassæ*, **n. sp.**, N. Nyasa Land; id. t. c. p. 133: *Z. flavissima* (nec Hartert), **n. sp.**, Cagayancillo Isl., Paragua Province, Philippine Archipelago; MCGREGOR, Bull. Philipp. Mus. No. 4, p. 26 [*Z. richmondi* nom. emend.]; MCGREGOR, P. Soc. Washington xvii, p. 165]: *Z. senegalensis* and its allies; NEUMANN, Ornith. Monber. xii, pp. 109-114: *Z. toroensis* Reichenow = *Z. stuhlmanni* Reichenow, juv.; id. t. c. p. 112: *Z. jubaensis* Erlanger, probably = *Z. smithi* Neum.; id. t. c. p. 113: *Z. anderssoni* Shelley, from Mashona Land? = *Z. stierlingi* Reichenow, from Uhehe; id. t. c. p. 113: *Z. virens* and its allies; id. t. c. pp. 115-118: *Z. kikuyuensis*, **n. sp.**, Kikuyu to Kenia; id. t. c. p. 117: *Z. kaffensis*, **n. sp.**, Kaffa; id. t. c. p. 117: *Z. schoana*, **n. sp.**, Shoa to Upper Blue Nile (Abai); id. t. c. p. 117: *Z. consobrinorum*, **n. sp.**, Laloumera, South-east Celebes; MEYER, Notes Leyden Mus. xxiv, pp. 232-235: *Z. lettiensis* and its allies; HARTERT, Nov. Zool. xi, p. 213: *Z. bassetti* from Roma Isl., Moluccas; id. t. c. p. 214.

## Family DICEIDÆ.

*Dicaeum nigrilore*, **n. sp.**, Mt. Apo, S. Mindanao; HARTERT, Bull. B. O. C. xiv, p. 8: *D. apo*, Mindanao, *D. bongas*, Samar, **n. spp.**; HARTERT, Bull. B. O. C. xiv, pp. 79 & 80.  
*Eafa* allied to *Rhamphocaris*; SALVADORI, Ibis 1904, p. 473.

## Family NECTARINIIDÆ.

*Æthopyga victoriae*, **n. sp.**, Mt. Victoria, S. Chin Hills; RIPPON, Bull. B. O. C. xiv, p. 83.  
*Cinnyris mariquensis ovamboensis*, **n. subsp.**, Ovampo Land; REICHENOW, J. Ornith. 1904, p. 133: *C. solaris exquisita*, **n. subsp.**, Wetter Isl., Moluccas; HARTERT, Nov. Zool. xi, p. 214: *C. s. degener*, **n. subsp.**, Flores, Lomblen, Alor Isl.; id. t. c. p. 214: *C. habessinica hellmayri*, **n. subsp.**, Hadramaut, S. Arabia; NEUMANN, Ornith. Monber. xii, p. 29.  
*Cyanomitra alinae*, **n. sp.**, Ruwenzori Mts.; JACKSON, Bull. B. O. C. xiv, p. 94.

## Family MELIPHAGIDÆ.

*Melithreptus carpentariana*, **n. sp.**, North Queensland; CAMPBELL, Emu iv, pp. 70 & 71: *M. leucogenys* Milligan, notes on; SCLATER, Bull. B. O. C. xv, p. 9: ? = *M. brevirostris*; HARTERT, t. c. p. 10: *M. brevirostris*, figured; CAMPBELL, Emu iii, pl. xvi, fig. 2.  
*Ptilotis novæ-norciæ*, **n. sp.**, Wongan Hills, Western Australia; MILLIGAN, Emu iii, p. 226: *P. carteri*, figured; CAMPBELL, Emu iii, pl. xvi, fig. 1: *P. leilavalensis* vel *P. carteri*, notes on; MILLIGAN, Emu iv, pp. 51 & 52.  
*Acanthochæra mellivora* and *A. lunulata*, notes on; id. t. c. p. 51.  
*Philemon cineraceus* (Bp.), notes on; HARTERT, Nov. Zool. xi, p. 216.  
*Eafa* belongs to the *Diceidæ*; SALVADORI, Ibis 1904, p. 473.

## Family MNIOTILTIDÆ.

- Helminthophila lawrencei* breeding in New York City; BEEBE, Auk xxi, pp. 387 & 388: *H. virginiae*, notes on; SWARTH, Cooper Ornith. Club, California 1904, pp. 50-52: *H. celata lutescens*, notes on; FINLEY, Condor vi, pp. 131-133.
- Dendroica crawfordi*, n. sp., Little Cayman Isl., W. I.; NICOLL, Bull. B. O. C. xiv, p. 95, fig.: id. Ibis 1904, pl. xi, fig. 1: *D. dominica* in Montserrat, W. I.; NICOLL, Ibis 1904, p. 571.
- Dendroica kirtlandi*, migration route; ADAMS, Bull. Michigan Ornith. Club v, pp. 14-21; breeding area; WOOD, t. c. pp. 3-13: breeding in Northern Michigan; ARNOLD, Auk xxi, pp. 487 & 488: in Georgia; HELME, t. c. p. 291: *D. townsendi*, nesting habits; SILLOWAY, Condor vi, pp. 12 & 13: *D. virens* in Kansas; SNOW, Auk xxi, p. 86: *D. tigrina* feeding on grapes; McATEE, t. c. pp. 489-491: *D. subita*, n. sp., Barbuda; RILEY, Smithson. Collect. xlvii, pp. 289 & 290: *D. nigrescens*, notes on; FINLEY, Condor vi, pp. 31-35 cum tab.: *D. auduboni nigrifrons*, notes on; SWARTH, Cooper Ornith. Club, California 1904, pp. 54 & 55.
- Seiurus noveboracensis notabilis*, note on; McATEE, Auk xxi, pp. 488 & 489.
- Geothlypis trichas arizela*, notes on; FINLEY, Condor vi, pp. 31-35 cum figg.: unusual nesting sites; JOHNSON, t. c. pp. 129-131.
- Setophaga picta*, notes on; SWARTH, Cooper Ornith. Club, California 1904, pp. 57 & 58.

## Family MOTACILLIDÆ.

Cf. RIDGWAY, Birds, North and Middle America, pt. iii, pp. 1-23.

- Motacilla lugubris*, nesting habits; JOURDAIN, Zoologist 1904, pp. 421 & 422, 456 & 457: *M. alba* in Ireland; WARREN, Irish Natural. xiii, p. 155: on Bartragh; WARREN, Zoologist 1904, pp. 227 & 228: *M. madaraspatensis*, eggs figured; DRESSER, Ibis 1904, pl. x, figg. 3 & 4: *M. borealis* in Sussex; NICOLL, Bull. B. O. C. xiv, p. 84.
- Budytes flavus alascensis*, n. subsp., Alaska; RIDGWAY, Birds, N. & M. Amer. iii, pp. 8-10.
- Anthus maculatus* and *A. trivialis*, nomenclature; BLANFORD, Ibis 1904, pp. 662 & 663: *A. campestris*, occurrences in England; NICOLL, Zoologist 1904, pp. 452-454: apparently a regular autumn migrant to the coast of Sussex; id. Bull. B. O. C. xv, p. 12: *A. calthorpe* Shelley = *A. caffer*; REICHENOW, Vög. Africas iii, p. 312: *A. cameroonensis* Shelley = *A. cinnamomeus*; id. t. c. p. 313: *A. vadensis* Shelley = *A. leucophrys*; id. t. c. p. 316: *A. richardi* in Cornwall; HOWARD, Zoologist 1904, p. 115: *A. pratensis*, blue eggs; RADCLIFFE SAUNDERS, Bull. B. O. C. xiv, p. 42: *A. pensilvanicus*, note on; BAILEY, Auk xxi, p. 361: *A. spragueii* in Georgia; HELME, t. c. p. 291.
- Macronyx sharpei*, n. sp., Mau Downs, Equatorial Africa; JACKSON, Bull. B. O. C. xiv, p. 74.
- Charadriola*, n. g., type *C. singularis*, n. sp., Lake Jippe, Equatorial Africa; MADARASZ, Ann. Mus. Hungar. ii, pp. 396-398 cum fig. = *Tmetothylacus tenellus* Cab.; JACKSON, Ibis 1905, p. 104.

## Family ALAUDIDÆ.

- Alaemon subcoronata* distinct from *A. semitorquata*; SHARPE, Ibis 1904, pp. 359-361: *A. bradshawi*, n. sp., Orange River; id. t. c. p. 361:



- A. damarensis*, n. sp., Damara-land; id. t. c. p. 361: *A. benguelensis*, n. sp., Benguela; id. t. c. p. 361.
- Otocoris*, key to Palearctic species; BIANCHI, Ibis 1904, pp. 370-372: *O. brandti montana*, Mts. of N. Central Asia, *O. b. przewalskii*, Zaidam, n. subsp.; id. t. c. p. 371: *O. elwesi khamensis*, n. subsp., Kham, S. E. Tibet; id. t. c. p. 372: *O. alpestris praticola*, breeding at Ipswich, Mass.; TOWNSEND, Auk xxi, p. 81.
- Melanocorypha calandra psammochroa*, n. subsp., Transcaspiæ; HARTERT, Vög. Pal. Faun. ii, p. 210: *M. c. raddei*, n. subsp., S. W. Persia; SARUDNY & LOUDON, Ornith. Jahrb. xv, pp. 221 & 222.
- Calendula dunni*, n. sp., Ogadeh, Sudan; SHELLEY, Bull. B. O. C. xiv, pp. 82 & 83.
- Devetia*, nomen emend pro *Botha* Shelley (nec Rafinesque); BUTURLIN, Auk xxi, p. 80.
- Alauda intercedens*, n. sp., Greece; EHMEKE, Ann. Mus. Hungar. ii, p. 296: *A. balcanica*, n. sp., Balkans; id. t. c. p. 297: *A. minuta*, n. sp., Caucasus to Balkans and Greece; id. t. c. p. 298: *A. schach*, n. sp., Persia; id. t. c. p. 299: *A. beludshistana*, n. sp., Persian Beloochistan; id. t. c. p. 299: *A. cypriaca* and *A. insularis*, n. spp., Cyprus; id. t. c. p. 300: *A. sordida*, n. sp., Hungary; id. t. c. p. 300: *A. subtilis*, n. sp., Montenegro; id. t. c. p. 301: *A. transcaspica*, n. sp., Transcaspiæ; id. t. c. p. 301: *A. albigularis* Brehm in Hungary; id. t. c. p. 301: *A. cinerascens*, vice *Alauda cinerea* (nec Vieill.); EHMEKE, J. Ornith. 1904, p. 313: in Tunis, REICHENOW, t. c. p. 312: MATSCHIE, t. c. p. 314: *A. japonica inopinata*, n. subsp., ?locality; BIANCHI, Annuaire Mus. St. Petersb. ix, pp. xxiv, xxx & xxxi.
- Calandrella brachydactyla*, in the Flannan Islands; CLARKE, Bull. B. O. C. xv, p. 11: SAUNDERS, l. c.: CLARKE, Ann. Scott. Nat. Hist. 1904, p. 206: *C. minor polatzeki*, n. subsp., Lanzarote, Canary Is.; HARTERT, Vög. Pal. Faun. ii, p. 217: *C. minor seistanica*, n. subsp., S. W. Persia; SARUDNY & LOUDON, Ornith. Jahrb. xv, pp. 22-24: *C. minor minuta*, n. subsp., Persia; id. t. c. p. 224.
- Mirafra marginata* Hawker = *M. cantillans*; REICHENOW, Vög. Afrikas iii, p. 335: *M. zombæ* Grant and *M. degeni* Grant = *M. fischeri*; id. t. c. p. 339: *M. transvaalensis* and *M. tropicalis* Hartert = *M. africana*; id. t. c. p. 343: *M. pallida* and *M. griseescens* Sharpe = *M. africana*; id. t. c. p. 343: *M. degeni*, figured; GRANT, Ibis 1904, pl. v: *M. horsfieldi pallidus*, n. subsp., Roebuck Bay Plains, N. W. Australia; HALL, Emu iii, pp. 231 & 232.
- Galerida schlüteri*, n. sp., Algeria; KLEINSCHMIDT, Ornith. Monber. xii, pp. 196 & 197: *G. cristata caroli*, n. subsp., Natron Valley, Lower Egypt; HARTERT, Vög. Pal. Faun. ii, p. 234: *G. c. tardinata*, n. subsp., South Arabia; id. t. c. p. 235: *G. theklæ erlangeri*, n. subsp., North Morocco; id. t. c. p. 237.
- Ammomanes deserti orientalis*, n. subsp., N. E. Persia; SARUDNY & LOUDON, Ornith. Jahrb. xv, pp. 224 & 225: *A. lusitana erythrochroa*, n. subsp., Dongola; REICHENOW, J. Ornith. 1904, p. 307: *A. samharensis* Shelley = *A. saturata*; REICHENOW, Vög. Afrikas iii, p. 356: *A. assabensis*, distinct from *A. samharensis*; SALVADORI, Ibis 1904, p. 473 (cf. GRANT, t. c. p. 262): *A. phenicuroides* and *A. zarudni*, notes on; HARTERT, Ibis 1904, p. 543.
- Pyrrhuloxia madarasi* Reichenow = *P. leucotis*; id. Vög. Afrikas iii, p. 365: ?*P. butleri* Shelley = *P. frontalis*; id. t. c. p. 370.

## Family FRINGILLIDÆ.

- Ligurinus chloris*, "xanthochroism"; BLATHWAYT, Zoologist 1904, p. 32.
- Coccothraustes coccothraustes*, breeding in Fifeshire; BERRY, Ann. Scott. Nat. Hist. 1904, pp. 11-14: in East Lothian; TUNNARD, t. c. p. 126: in Shetland; SAXBY, t. c. p. 157: at Skerryvore Lighthouse; TOMISON, t. c. pp. 187 & 188: *C. vulgaris*, at Peterhead; SEARLE, Ann. Scott. Nat. Hist. 1904, p. 244: in Aberdeenshire; SIM, Zoologist 1904, p. 384.
- Zamelodia melanocephala*, nesting habits; HEAD, Condor vi, pp. 35-37: notes on; SWARTH, Cooper Ornith. Club, California 1904, pp. 44 & 45: nesting habits; FINLEY, Condor vi, pp. 145-148: *Z. ludoviciana*, its song; SCOTT, Science (n. s.) xix, pp. 957-959.
- Hesperiphona vespertina*, in the vicinity of Quebec; DIONNE, Auk xxi, p. 280: at Beverley, Mass.; BROWN, Auk xxi, p. 385: in Central New York; FUERTES, t. c. p. 385.
- Amaurospiza axillaris* Sharpe = *A. mæsta* (Hartl.); HELLMAYR, Verh. Ges. Wien liv, pp. 516-518.
- Sporophila bouvreuil* vice *S. nigroaurantia*; HELLMAYR, Verh. Ges. Wien liv, p. 519: *S. saturata*, n. sp., Sao Paulo; id. t. c. p. 520: *S. cinnamomea* (Lafr.), notes on; id. t. c. p. 521: *S. lorenzi*, n. sp., ?Cayenne; id. t. c. pp. 522 & 523: *S. ruficollis* and *S. melanogastra*, notes on; id. t. c. pp. 523-526: *S. melanocephala ochrascens*, n. subsp., Rio Parana; id. t. c. p. 534: a key to the species of *Sporophila*; id. t. c. pp. 526-528, and further notes on the latter.
- Fringilla palmeæ*, on Hierro Island; HARTERT, Bull. B. O. C. xiv, p. 51: *F. maderensis*, its note; NICOLL, Ibis 1904, pp. 555 & 556: *F. montifringilla*, in the Philippine Islands (Calayan) in winter; MCGREGOR, Bull. Philipp. Mus., No. 4, p. 24.
- Carduelis elegans*, figured; BONHOTE, Avicult. Mag. (2) iii, pl. to p. 21, fig. 1: *C. caniceps*, figured; FINN, t. c. fig. 2.
- Montifringilla margaritacea*, n. sp., Altai Mts.; MADARASZ, Ornith. Monber. xii, p. 196: *M. alpicola groum-grzimaili*, n. subsp., Bei-schan, Central Asia; SARUDNY & LOUDON, Ornith. Jahrb. xv, pp. 215 & 216: *M. alpicola gaddi*, n. subsp., Province of Luristan, Persia; iid. t. c. p. 216: *M. brandti walteri*, n. subsp., Szetschwan and Kansu; HARTERT, Vög. Pal. Faun. ii, p. 138.
- Rhodopechys sanguinea*, in Chitral; FULTON, J. Bombay Soc. xvi, p. 53.
- Erythropsiza sanguinea*, eggs figured; DRESSER, Ibis 1904, pl. iii, fig. 5.
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- Philetairus cabanisi euchorus*, n. subsp., Dabulli, Western Somali Land ; OBERHOLSER, P. U. S. Mus. xxvii, p. 683.
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- Sporopipes frontalis emini* Neumann, is not entitled to subspecific rank ; REICHENOW, Vög. Afrikas iii, p. 17



- Amadina marginalis* Sharpe = *A. fasciata* ; REICHENOW, Vög. Afrikas iii, p. 146.
- Nigrita kretschmeri* Reichenow = *N. diabolica* ; id. Vög. Afrikas iii, p. 171 : *N. dohertyi* Hartert = *N. diabolica* ; id. t. c. p. 171.
- Pytelia kirki* Shelley = *P. melba* ; id. t. c. p. 163 : *P. affinis* (Elliott) = *P. soudanensis* ; id. t. c. p. 164 : *P. jessei* Shelley = *P. citerior* ; id. t. c. p. 165.
- Coccopygia clarkei* Shelley = *Estrela subflava* ; id. t. c. p. 186.
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- Granatina hawkeri* Lort Phillips = *Uraeginthus ianthinogaster* ; REICHENOW, t. c. p. 211.
- Erythrura forbesi* Sharpe, not distinct from *E. tricolor* ; HARTERT, Nov. Zool. xi, p. 217.
- Sycobrotus zaphiroi* Grant = *S. emini* ; REICHENOW, Vög. Afrikas iii, p. 39.
- Hyphantornis shelleyi* = *Ploceus auricapillus* ; REICHENOW, t. c. p. 79.
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- Oriolus kundoo*, eggs figured ; DRESSER, Ibis 1904, pl. x, figg. 16 & 18 : *O. indicus*, eggs figured ; id. t. c. pl. x, figg. 14 & 17.
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# IV. REPTILIA AND BATRACHIA.

BY

G. A. BOULENGER, F.R.S.

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- ESTHER F. BYRNES, *Arch. Entwicklmech.* xviii, pp. 171-177, figg., pl. x, has made experiments on the regeneration of the fore limbs in tadpoles, and, *Biol. Bull.* vii, pp. 166-169, figg., remarks on the skeleton of regenerated anterior limbs in *Rana*.
- L. v. MÉHELÝ, *Math. naturw. Ber. Ungarn* xx, pp. 239-259, figg., describes and comments upon a *Pelobates fuscus* with supernumerary fore limb.
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- LILIAN V. SAMPSON, Amer. J. Anat. iii, pp. 473-504, figg., 2 pls., has a contribution to the embryology of *Hylodes martinicensis*.
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## V. PISCES.

BY

G. A. BOULENGER, F.R.S.

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## II. GENERAL SUBJECT.

Vol. VII. of the Cambridge Natural History is mainly devoted to the Fishes. The general part and the non-Teleostean orders by T. W. BRIDGE, the Teleosteans by G. A. BOULENGER, the Leptocardii by W. A. HERDMAN.

H. WOODWARD, J. R. Micr. Soc. 1904, pp. 138-141, remarks on the evolution of Fishes in time.

A. KEMNA, Bull. Soc. malac. Belgique xxxviii, pp. xvii-cvii, remarks on the origin of Vertebrates.

A. KEMNA, Mem. Soc. Belge Geol. xvii, pp. 339-382, and xviii, pp. 3-78, figg., reviews our knowledge of the *Arthrodira*, *Ostracophori*, and *Cycliæ*.

C. T. REGAN, Ann. Nat. Hist. (7) xiii, pp. 329-349, figg., pl. vii, writes on the phylogeny of the Teleostomi, among which he includes the Placodermi (*Cocosteidae*, *Asterolepidae*, *Cephalaspidae*). The *Chondrostei* are regarded as the most generalized Teleostomi, and the *Holostei* are included in the *Teleostei*. Remarks by C. R. EASTMAN, Amer. J. Sci. (4) xviii, pp. 141-144.

W. K. GREGORY, Biol. Bull. vii, pp. 55-66, remarks on the relations of the anterior visceral arches to the chondrocranium, with special reference to the conditions known as "autostylic," "amphistylic," and "hyostylic."

K. FÜRBRINGER, in SEMON, Zool. Forsch. i, pp. 423-510, pls. xxxvii-xli, deals with the skeleton of the Dipneusti and compares it to that of Plagiostomi, Holocephali, and Dipneusti.

A. SABATIER, C.R. Ac. Sci. cxxxviii, pp. 249-252, remarks on the pectoral and pelvic arches of the *Holocephali* and *Dipneusti*.

E. S. GOODRICH, Quart. J. Micr. Sci. xlvii, pp. 465-522, figg., pls. xxxv-xli, has investigated the structure and development of the dermal fin-rays of Fishes, living and extinct.

H. BRAUS, Festschr. Haeckel, pp. 377-435, figg., pls. xiii & xiv, has a contribution to the study of the development of the fins and visceral arches.

T. MOROFF, Arch. mikr. Anat. lxiv, pp. 189-213, pls. xi & xii, remarks on the development of the gills of Fishes.

A. S. WOODWARD, Tr. Odontol. Soc. xxxvi, pp. 185-190, figg., remarks on the teeth of some fossil fishes.

A. CARGIULO, Riv. ital. Sci. Nat. xxiv, pp. 5-12, remarks on the histology of the liver and kidney in Fishes.

H. BLUNTSCHLI, in SEMON, Zool. Forsch. i, pp. 357-375, figg., pl. xxxv, investigates the histology of the liver of Fishes.

E. BIZZOZERO, Arch. ital. Biol. xli, pp. 233-245, pl. —, has made experiments on the regeneration of the intestinal epithelium in Fishes.

J. P. BOUNHIOL, C.R. Ass. Franc. xxxii, pp. 813-815, remarks on the respiration of Marine Fishes kept in aquariums.

G. H. PARKER, Bull. U. S. Fish Comm. xxii, pp. 45-64, pl. ix, writes on the sense of hearing and allied senses in Fishes.

C. J. HERRICK, Bull. Denison Univ. xii, 1903, pp. 39-96, and Bull. U. S. Fish Comm. xxii, pp. 237-272, figg., writes on the organ and sense of taste in Fishes.

P. E. SARGENT has studied the optic reflex apparatus in Fishes. Bull. Mus. Harvard xlv, pp. 129-258, 11 pls.

E. P. LYON, Amer. J. Physiol. xii, pp. 149-161, writes on the sense of orientation in Fishes.

G. H. PARKER, Amer. Natural. xxxviii, pp. 496 & 497, remarks on the function of the lateral line organs of Fishes.

M. GATTI, Annali di Agricoltura, 1902 (1903), 126 pp., 1 pl., has investigated the luminous organs of Fishes.

A. VIRÉ, C.R. Ac. Sci. cxxxviii, p. 707, remarks on the effects of perpetual darkness on Fishes.

J. SELLIER, Trav. Lab. Arcachon vii, pp. 29–31, remarks on the amyolytic properties of the blood of Fishes.

H. LICHTENFELT, Arch. ges. Physiol. ciii, pp. 353–402, figg., writes on the chemical composition of Fishes.

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On the occurrence of pebbles in the stomach of Fishes: W. H. WICKES, P. Bristol Soc. (2) x, pp. 220 & 225.

F. WERNER, Zool. Jahrb. Syst. xxi, pp. 263–302, figg., gives a list of the non-Teleostean Fishes in the Vienna University Museum.

### III. FAUNÆ.

#### EUROPE.

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*British Isles.* British Fresh-water Fishes, by Sir H. MAXWELL, and British Salt-Water Fishes, by F. G. AFLALO. Woburn Library of Natural History. London: 1904, 8vo.

*N. E. Coast of England.* On additions to the list of the Fishes: A. MEEK, Tr. Northumb. Soc. (2) i, pp. 35–38. On some Fishes from Northumberland: A. MEEK, Rep. Sci. Observ. Northumb. Fisher. Comm. 1904, pp. 86 & 87.

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*Cambridgeshire.* List of the Fishes, by E. VALLÉ-POPE, Handbook Nat. Hist. of Cambridgeshire, pp. 108–113.

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*Yunnan.* Descriptions of new Fishes by REGAN, Ann. Nat. Hist. (7) xiii, pp. 190-194, and xiv, pp. 416 & 417.

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*Lake Victoria.* Diagnoses of new Fishes by PELLEGRIN, Bull. Soc. zool. France xxix, pp. 184-186.

*Lake Chad and Shari River.* List of Fishes by PELLEGRIN, Bull. Mus. Paris 1904, pp. 309-313.

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*Cameroon Mountain.* On some lake Fishes: LÖNNBERG, Ann. Nat. Hist. (7) xiii, pp. 135-139.

*South Africa.* Descriptions of new Marine Fishes, by J. D. F. GILCHRIST, Mar. invest. S. Africa iii, pp. 1-16.

## AMERICA.

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*Massachusetts.* T. GILL, *Science* (2) xx, pp. 321-338, reviews the history of the ichthyology of Massachusetts. On the Fishes of Nantucket Id. : B. SHARP & H. W. FOWLER, P. Ac. Philad. lvi, pp. 504-512.

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*California.* On Fishes from streams and lakes of North-eastern California not tributary to the Sacramento Basin. Bull. U. S. Fish Comm. xxii, pp. 145-160, figg.

*Gulf of California.* On some Fishes : C. RUTTER, P. Calif. Ac. Zool. (3) iii, pp. 251-253, pl. xxiv.

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*Magellan Strait and Archipelago.* On the Fishes : L. DOLLO, Rés. du Voy. du S.Y. Belgica, Zool., Poiss., Antwerp 1904, 4to.

## AUSTRALASIA and POLYNESIA.

*Eastern Australia.* Records of new or rare Fishes, by E. R. WAITE, Rec. Austral. Mus. v, pp. 231-244, figg., pls. xxv & xxvi.

*New South Wales.* List of the Fishes, by E. R. WAITE, Mem. N. S. Wales Club, No. 2, 59 pp.

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*Hawaiian Islands.* On collections of Fishes : JORDAN & SNYDER, P. U. S. Mus. xxvii, pp. 939-948 & xxviii, pp. 123-126. O. P. JENKINS, Bull. U. S. Fish Comm. xxii, pp. 417-511, figg., and J. O. SNYDER, t. c. pp. 513-538, pls. i-xiii.

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On the Fishes : L. DOLLO, Rés. du Voy. du S. Y. Belgica, Zool., Poissons, Antwerp 1904, 4to.

## IV. PALÆONTOLOGY.

C. R. EASTMAN, Science (2) xx, pp. 648 & 649, remarks on the earliest mention of fossil Fishes.

*Chalk of England.* General list of the Fishes : JUKES-BROWNE, Upper Chalk of England (Mem. geol. Surv. U. K.), pp. 462-467.

*Rhætic of Western England.* On Fishes from the Bone Beds : W. H. WICKES, P. Bristol Soc. (2) x, pp. 216-227

*Lower Coal Measures of Lancashire.* List of the Fishes, by H. BOLTON, Tr. Manchester Geol. Soc. xxviii, pp. 401-405, 604-624.

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*Rhætic of South Wales.* On some Fish-remains : S. H. REYNOLDS, Quart. J. Geol. Soc. lx, pp. 209 & 210.

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## V. REFERENCES ARRANGED SYSTEMATICALLY.

## TELEOSTOMI.

## TELEOSTEI.

G. A. BOULENGER deals with the systematic part in the seventh volume of the Cambridge Natural History, pp. 539-727, figg. Synopsis of the Suborders and Families: idem, Ann. Nat. Hist. (7) xiii, pp. 161-190, translated into German in Arch. Naturg. 1904, i, pp. 197-228.

F. SUPINO brings out the three first fascicles of a work on the morphology of the Teleostean skull. These fascicles deal with the *Percidae*, *Serranidae*, *Berycidae*, and *Trichiuridae*.

F. SUPINO, Rend. Acc. Lincei xiii, ii, pp. 625-631, remarks on the skull of Teleosteans, in relation to the mode of life.

J. DEWITZ, Anat. Anz. xxiv, pp. 408-410, remarks on his share in the work of E. P. Allis on the skull of *Scomber scombrus*.

R. HAMBURGER, Rev. Suisse Zool. xii, pp. 71-148, pls. ii & iii, has studied the structure of the limbs of Teleosts (*Leuciscus*, *Trigla*, *Periophthalmus*, *Lophius*).

F. SUPINO, Rend. Acc. Lincei xiii, i, pp. 118-121, has a note on the bony tissue of *Orthogoriscus*.

E. G. MITCHELL, Amer. Natural. xxxviii, pp. 153-164, figg., and p. 405, writes on the oral breathing valves of Teleosts, their modifications and relation to the shape of the mouth.

R. WIEDERSHEIM, Zool. Jahrb., Suppl. vii, pp. 1-66, fig., pls. i-vi, writes on the presence of a larynx in Bony Ganoids, Crossopterygians, and Dipnoans.

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ANNE DRZEWINA, Kosmos polski. xxix, pp. 504-520, has a paper in Polish on the lymphoid tissue of the kidney in certain Ganoid and Teleostean Fishes.

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U. BÖHI, Morphol. Jahrb. xxxii, pp. 505-586, figg., pl. xiii, has studied the development of the body-cavity and of the genital gland in *Salmo salar* and *S. fario*.

C. H. EIGENMANN, Mark Anniv. Vol. pp. 167-204, pls. xii-xv, has further observations on the eye of *Amblyopsis*.

P. E. SARGENT, Mark Anniv. Vol. pp. 399-416, pl. xxix, writes on the torus longitudinalis of the Teleostean brain.

J. CAMERON, J. Anat. Physiol. norm. path. (2) xviii, pp. 279 & 280, remarks on the superior commissure of the brain in Teleosteans.



E. SUWOROFF, Trudui St. Petersburg. Obschch. xxxiii, 4, pp. 1-81, pl. —, writes on the regeneration of the fins in *Cyprinus auratus*.

GUIDO SCHNEIDER, KB. Ver. Riga xlvi, 1903, pp. 4-9, remarks on the primitive condition of the genital cells in Teleosteans.

H. LAMS, Arch. anat. micr. vi, pp. 633-652, pls. xxi & xxii, has investigated the genesis of the vitellus in ovarian ova of Teleosteans (*Osmerus* and *Alburnus*).

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- Stephanolepis pricei*, **sp. n.**, SNYDER, Bull. U. S. Fish Comm. xxii, p. 534, fig. 22, Hawaiian Ids.
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### PEDICULATI.

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- Regalecus parkeri*, **sp. n.**, BENHAM, Tr. N. Zealand Inst. xxxvi, p. 198, pl. ix, New Zealand.

#### OPHIDIIDÆ.

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#### ZOARCIDÆ.

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- Lycodes pallidus*, Coll., var. n. *squamiventer*, JENSEN, t. c. p. 39, pl. iv, fig. 2, off Iceland and the Faroes; *L. reticulatus*, Reinh., var. n. *microcephalus*, id. ibid. p. 66, pl. viii, fig. 1, N. E. Greenland.
- Lycenchelys kolthoffi*, **sp. n.**, JENSEN, t. c. p. 88, figg., pl. x, fig. 2, and Medd. Gronland xxix, p. 261, pl. xiii, fig. 1, N. E. Greenland.
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## BATRACHIDÆ.

- Batrachoides boulengeri*, sp. n., GILBERT & STARKS, Mem. Calif. Ac. iv, p. 182, pl. xxxi, Pacific Coast of C. America.  
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*Ericteis*, g. n., near *Lepisoma*, for *E. kalisheræ*, sp. n., JORDAN, Bull. U. S. Fish Comm. xxii, p. 543, pl. ii, fig. 4, Tortugas Archipelago.  
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*Salaria nigripes*, sp. n., SEALE, Pap. B. P. Bishop Mus. i, p. 127, Guam Is.; *S. cypho*, p. 506, fig., *saltans*, p. 508, fig., and *rutilus*, p. 509, fig., spp. nn., O. P. JENKINS, t. c. Honolulu; *S. furcatus*, sp. n., JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 213, pl. i, fig. 4, Gulf of Manaar.  
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*Microdesmus retropinnis*, J. & G., figured by GILBERT & STARKS, t. c. pl. xxxi, fig. 59.

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## TRICHONOTIDÆ.

- Trichonotus setigerus*, Bl. Schn., noticed and figured by JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 215, pl. i, fig. 7.  
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*Schizochirus*, **g. n.**, allied to *Limnichthys*, WAITE, t. c. p. 241; *S. insolens*, **sp. n.**, id. *ibid.* p. 242, figg., pl. xxvi, fig. 3, New South Wales.

## URANOSCOPIDÆ.

- Gnathagnus innotabilis*, **sp. n.**, WAITE, Rec. Austral. Mus. v, p. 238, pl. xxvi, fig. 1, New South Wales.

## NOTOTHENIIDÆ.

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*Hypsicometes heterurus*, **sp. n.**, MIRANDA RIBEIRA, A Lavoura, 1904, p. 43, Coast of Brazil.  
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*Occa iburia*, **sp. n.**, JORDAN & STARKS, t. c. p. 585, fig., Japan.  
*Podotheucus tokubire*, **sp. n.**, ISHIKAWA, P. Tokyo Mus. i, p. 15, Japan.  
*Xeneretmus infraspinatus*, **sp. n.**, GILBERT, P. Calif. Ac. Zool. (3) iii, p. 262, pl. xxvii, off Cape Flattery, Washington Territory.

## CYCLOPTERIDÆ.

- Trimegistus*, **g. n.**, near *Liparis*, for *T. owstoni*, **sp. n.**, JORDAN & SNYDER, Smithson. Collect. i, p. 238, pl. lviii, Japan. Referred to *Liparis* and figured by P. SCHMIDT, P. U. S. Mus. xxviii, p. 189, figg., and Annuaire Mus. St. Petersb. ix, p. xvii.

## COTTIDÆ.

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*Hemilepidotus gilberti*, **sp. n.**, JORDAN & STARKS, t. c. p. 254, fig., Japan.  
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*Myoxocephalus edomius* and *raninus*, **spp. nn.**, JORDAN & STARKS, t. c. pp. 274 & 277, figg., Japan.  
*Ainocottus*, **g. n.**, for *A. ensiger*, **sp. n.**, JORDAN & STARKS, t. c. p. 283, fig., Japan.  
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*Furcina*, **g. n.**, JORDAN & STARKS, t. c. p. 303; *F. ishikawæ* and *osimæ*, **spp. nn.**, iid. ibid. pp. 303 & 305, figg., Japan.  
*Ocynectes*, **g. n.**, JORDAN & STARKS, t. c. p. 306; *O. maschalis*, **sp. n.**, iid. ibid. p. 307, fig., Japan.  
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*Bero*, **g. n.**, for *Centridermichthys elegans*, Stdr., JORDAN & STARKS, t. c. p. 317.  
*Vellitor*, **n. n.**, for *Podabrus*, Rich. nec Fisch., JORDAN & STARKS, t. c. p. 318.

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**sp. n.**, H. M. SMITH, P. Soc. Washington xvii, p. 163, fig., Behring  
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*Hemitrepterus nipponicus*, **sp. n.**, ISHIKAWA, P. Tokyo Mus. i, p. 14,  
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## COMEPHORIDÆ.

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*Comephorus baicalensis*, Dyb. Note on the habits, KOROTNEFF, Arch.  
 Zool. exp. (4) ii, p. 15, fig.; *C. dybowskii*, **sp. n.**, id. ibid. p. 17, figg.  
 L. Baikal.

## SCORPÆNIDÆ.

- Review of the Japanese species by JORDAN & STARKS, P. U. S. Mus. xxvii,  
 pp. 91-175, figg., pls. i & ii.  
*Sebastes maderensis*, Lowe, redescribed by KOLOMBATOVIĆ, Glasnik Naravosl.  
 druzt. xv, p. 5.  
*Sebastes itinus*, p. 99, fig., *guentheri*, p. 102, fig., *tokionis*, p. 104, fig.,  
*iracundus*, p. 107, fig., and *flammeus*, p. 108, **spp. nn.**, JORDAN &  
 STARKS, t. c. Japan.  
*Neosebastes entaxis*, **sp. n.**, JORDAN & STARKS, t. c. p. 120, fig., Japan.  
*Thysanichthys*, **g. n.**, near *Sebastes*, JORDAN & STARKS, t. c. p. 122;  
*T. crossotus*, **sp. n.**, iid. ibid. p. 123, fig., Japan.  
*Sebastesiscus*, **g. n.**, for *Sebastes marmoratus*, C. & V., JORDAN & STARKS,  
 t. c. p. 124.  
*Sebastes kelloggi*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii,  
 p. 492, fig., Honolulu.  
*Sebastes corallicola*, p. 493, fig., *coniorta*, p. 495, fig., and *galactacma*,  
 p. 496, fig., **spp. nn.**, O. P. JENKINS, t. c., Honolulu.  
*Helicolenus emblemarius*, **sp. n.**, JORDAN & STARKS, t. c. p. 129, fig.,  
 Japan.  
*Scorpena*, Art., A. BRIOT, C.R. Soc. Biol. lvii, pp. 666, has ascertained by  
 experiments that the stings of the Mediterranean species are not  
 poisonous; *S. izensis*, **sp. n.**, JORDAN & STARKS, t. c. p. 134, fig.,  
 Japan.  
*Pontinus corallinus*, **sp. n.**, MIRANDA RIBEIRA, A Lavoura 1904, p. 35,  
 Coast of Brazil.  
*Scorpenopsis cocopsis*, Jenkins, redescribed and figured by SEALE, Pap.  
 B. P. Bishop Mus. i, No. 4, p. 11, fig.  
*Lythrichthys*, **g. n.**, near *Setarches*, for *L. eulabes*, **sp. n.**, JORDAN & STARKS,  
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*Pterois nigripinnis*, **sp. n.**, GILCHRIST, Mar. invest. S. Africa iii, p. 2,  
 Natal.  
*Ebosia*, **g. n.**, for *Pterois bleekeri*, Stdr. & Döderl., JORDAN & STARKS, t. c.  
 p. 145.  
*Dendrochirus chloreus*, **sp. n.**, O. P. JENKINS, t. c. p. 498, fig., Honolulu.  
*Apistus evolans* and *venenans*, **spp. nn.**, JORDAN & STARKS, t. c. pp. 146 &  
 148, figg., Japan.  
*Minous echigoniis*, **sp. n.**, JORDAN & STARKS, t. c. p. 153, fig., Japan.  
*Decterias*, **g. n.**, for *Minous pusillus*, Schleg., JORDAN & STARKS, t. c.  
 p. 154.

- Tetraroge kagoshimensis*, **sp. n.**, ISHIKAWA, P. Tokyo Mus. i, p. 13, pl. viii, fig. 1, Japan.
- Aploactis aspersa*, Temm. & Schleg., noticed and figured by JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 219, pl. i, fig. 5.
- Synancia thersites*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 121, Guam Id.
- Erosa*, **g. n.**, for *Synancia erosa*, Langsd., JORDAN & STARKS, t. c. p. 156.
- Inimicus*, **g. n.**, for *Pelor japonicus*, C. & V., JORDAN & STARKS, t. c. p. 158.
- Ocosia*, **g. n.**, near *Agriopus*, for *O. vespa*, **sp. n.**, JORDAN & STARKS, t. c. p. 162, fig., Japan.
- Erispex*, **g. n.**, for *Cocotropus pottii*, **sp. n.**, JORDAN & STARKS, t. c. p. 170.

## GOBIIDÆ.

- E. R. WAITE, Rec. Austral. Mus. v, pp. 277-286, pls. xxxiv-xxxvi, reviews the *Eleotris* and their allies of New South Wales.
- Gobius aelosoma*, Ogilby, noticed and figured by WAITE, Rec. Austral. Mus. v, p. 176, pl. xxiii, fig. 2; *G. parvus*, Meek, and *claytoni*, Meek, figured by S. E. MEEK, Field Mus. Zool. v, pl. xvii; *G. steindachneri*, Kolomb. = *G. kneri*, Stdr., redescribed by CLEMENTINA BORSIERI, Ann. Mus. Genova (3) i, p. 7; *G. deltoides*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 125, Guam Id.; *G. elongatus*, **sp. n.** (foss.), SIMIONESCU, Verh. geol. Reichsanst. 1904, p. 149, and Publ. Adamachi Ac. Romana, No. xii, p. 15, pl. ii, fig. 2, Eocene of Roumania.
- Microgobius miraflorensis*, **sp. n.**, GILBERT & STARKS, Mem. Calif. Ac. iv, p. 176, pl. xxix, fig. 54, Panama.
- Evermannia panamensis*, **sp. n.**, GILBERT & STARKS, t. c. p. 179, pl. xxx, fig. 55, Panama.
- Chlamydes*, **g. n.**, near *Gobius*, for *C. laticeps*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 503, fig., Honolulu.
- Gobionellus lonchotus*, **sp. n.**, O. P. JENKINS, t. c. p. 503, fig., Honolulu; *G. microdon*, Glb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xxviii, fig. 51.
- Garmannia paradoxa*, Gthr., figured by GILBERT & STARKS, t. c. pl. xxvii, fig. 52.
- Enypnius seminudus*, Gthr., figured by GILBERT & STARKS, t. c. pl. xxix, fig. 53; *E. oligolepis*, **sp. n.**, O. P. JENKINS, t. c. p. 504, fig., Honolulu.
- Ctenogobius tortugæ*, **sp. n.**, JORDAN, Bull. U. S. Fish Comm. xxii, p. 541, pl. i, fig. 1, Tortugas Archipelago.
- Gnatholepis thompsoni*, **sp. n.**, JORDAN, t. c. p. 541, pl. i, fig. 2, Tortugas Archipelago.
- Clevelandia ios*, J. & G. Note by GILBERT, P. Calif. Ac. Zool. (3) iii, p. 263.
- Elacatinus*, **g. n.**, allied to *Gobiosoma*, for *E. oceanops*, **sp. n.**, JORDAN, t. c. p. 542, pl. ii, fig. 3, Tortugas Archipelago.
- Allogobius*, **g. n.**, intermediate between *Gobius* and *Oxymetopon*, WAITE, Rec. Austral. Mus. v, p. 176; *A. viridis*, **sp. n.**, id. ibid. p. 177, pl. xxiii, fig. 3, Lord Howe Id.
- Eviota*, **g. n.**, near *Oxymetopon*, Blkr., for *E. epiphanes*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 501, fig., Honolulu.
- Leucopsarion petersii*, Hilg., figured, with notes on the habits and eggs, by KITAHARA, Annot. zool. Japon. v, p. 113, pl. v.
- Eleotris sandwichensis*, Vaill. & Sauv., redescribed by O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 499; *E. miniatus*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 125, Guam Id.

- Pycnomma*, **g. n.**, near *Gymneleotris*, for *P. semisquamatus*, **sp. n.**, RUTTER, P. Calif. Ac. Zool. (3) iii, p. 252, pl. xxiv, Gulf of California.
- Carassiops compressus*, Krefft, and *galii*, Ogilby, figured by WAITE, Rec. Austral. Mus. v, pl. xxxiv, figg. 1 & 2.
- Krefftius adspersus*, Cast., *australis*, Krefft, and *coxi*, Krefft, figured by WAITE, t. c. pl. xxxv, figg. 1 & 2, & xxxvi, fig. 1.
- Philypnodon grandiceps*, Krefft, figured by WAITE, t. c. pl. xxxvi, fig. 2.
- Asterropteryx semipunctatus*, Rüpp., redescribed by O. P. JENKINS, t. c. p. 500.

## PLEURONECTIDÆ.

- Hippoglossus vulgaris*, Flem., and *hippoglossoides*, Walb. On pelagic post-larval stages: J. SCHMIDT, Meddel. Komm. Havunders., Fisk. i, No. 3, 1 pl.
- Atheresthes evermanni*, **sp. n.**, JORDAN & STARKS, Bull. U. S. Fish Comm. xxii, p. 621, pl. vi, fig. 1, Japan.
- Cleisthenes*, **g. n.**, near *Hippoglossoides*, for *C. pinetorum*, **sp. n.**, JORDAN & STARKS, t. c. p. 622, fig., Japan.
- Alaops*, **g. n.**, near *Poecilopsetta*, for *A. plinthus*, **sp. n.**, JORDAN & STARKS, t. c. p. 623, pl. v, fig. 2, Japan.
- Paralichthys olivaceus*, Temm. & Schleg., described and figured by OTAKI, FUJITA & HIGURASHI, Fishes of Japan i, pt. 2; *P. triocellatus*, **sp. n.**, MIRANDA RIBEIRA, A Lavoura 1904, p. 49, Coast of Brazil.
- Platophrys dimorphus*, **sp. n.**, GILCHRIST, Mar. invest. S. Africa iii, p. 10, Natal.
- Pseudorhombus natalensis* and *andersoni*, **spp. nn.**, GILCHRIST, t. c. pp. 8 & 9, Natal.
- Arnoglossus macrolepis*, **sp. n.**, GILCHRIST, t. c. p. 12, Natal.
- Psettylis pellucida*, Alc., and *ocellata*, Alc. Discussed and figured by JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 207, pl. i, fig. 3, & pl. ii.
- Dexistes*, **g. n.**, near *Pseudopleuronectes*, for *D. rikuzenius*, **sp. n.**, JORDAN & STARKS, t. c. p. 624, pl. vi, fig. 1, Japan.
- Pleuronectes*, L. On the larval and post-larval stages of the Danish species: PETERSEN, Meddel. Komm. Havunders., Fisk. i, No. 1, pl. ii. *P. platessa*, L. On its habits: JOHANSEN, t. c. No. 2. On its introduction in Australia: DANNEVIG, Rep. Fisher. N. S. W. f. 1902, ii (1903), p. 5. On a malformed specimen: J. JOHNSTONE, P. Liverp. biol. Soc. xviii, p. 111, pl. i. On its fecundity: R. D. LAURIE, t. c. p. 153. On the migration and growth: A. MEEK, Rep. Sci. Observ. Northumb. Fisher. Comm. 1904, p. 70. On the spawning season: HERDMAN, Nature lxi, pp. 465 & 488, and FULTON, t. c. p. 535. *P. cynoglossus*, L. On the post-larval and early young stages: H. C. WILLIAMSON, Rep. Fish. Board Scotland xxii, iii, p. 270, pl. xvi.
- Drepanopsetta platessoides*, Fabr. On the larval and post-larval stages: PETERSEN, Meddel. Komin. Havunders., Fisk. i, No. 1, pl. i.
- Araias*, **g. n.**, near *Pleuronectes*, for *A. ariommus*, **sp. n.**, JORDAN & STARKS, Bull. U. S. Fish Comm. xxii, p. 624, pl. vi, fig. 2, Japan.
- Verequet*, **g. n.**, near *Microstomus* and *Limanda*, for *V. achne*, **sp. n.**, JORDAN & STARKS, t. c. p. 625, pl. vii, fig. 1, Japan.
- Microstomus kitahare*, **sp. n.**, JORDAN & STARKS, t. c. p. 625, pl. vii, fig. 2, Japan.
- Engyrosopon ijimæ*, **sp. n.**, JORDAN & STARKS, t. c. p. 626, pl. viii, fig. 1, Japan.
- Ancylosetta dendritica*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. lxii.
- Solea turbynei* and *fulvomarginata*, **spp. nn.**, GILCHRIST, Mar. invest. S. Africa iii, pp. 10 & 13, Cape of Good Hope.



- Gymnachirus zebrinus*, **sp. n.**, MIRANDA RIBEIRA, A Lavoura 1904, p. 50, Coast of Brazil.  
*Synaptura melanoptera* and *ciliata*, **spp. nn.**, GILCHRIST, t. c. pp. 13 & 14, Natal.  
*Aphoristia variegata*, Gilchrist, figured by GILCHRIST, op. cit. ii, pl. xviii.  
*Cynoglossus*, Han. Buch. On the Naso-pharyngeal communications, JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 209, fig.; *C. attenuatus* and *brachycephalus*, **spp. nn.**, GILCHRIST, t. c. pp. 11 & 12, Natal.

## ZEIDÆ.

- Cyttosoma*, **g. n.**, for *C. boops*, **sp. n.**, GILCHRIST, Mar. invest. S. Africa iii, p. 6, Cape of Good Hope, 120 faths.  
*Proantigonia longirostris*, Kramb., and *caprossoides*, Cosm. (foss.), described and figured by SIMIONESCU, Publ. Adamachi Ac. Romana xii, pp. 12 & 13, pl. ii, figg. 3-5.

## LUVARIDÆ.

- Luvarus imperialis*, Raf. Recorded from Guernsey by A. COLLENETTE, Rep. Guernsey Soc. 1903, p. 235.

## TRICHIURIDÆ.

- Xenogramma*, **g. n.**, near *Gempylus*, for *X. carinatum*, **sp. n.**, WAITE, Rec. Austral. Mus. v, p. 157, pl. xix, fig. 1, Lord Howe Id.

## SCOMBRIDÆ.

- Scomber colias*, Gm., described and figured by OTAKI, FUJITA & HIGURASHI, Fishes of Japan i, pt. 2.  
*Chenogaster*, **g. n.**, near *Gastrochisma* and *Lepidothynnus*, for *C. holmbergi*, **sp. n.**, LAHILLE, An. Mus. Buenos Aires (3) ii, 1903, p. 375, Montevideo.  
*Sphyrænodus pictus*, Ag. (foss.). On a fragment from the Middle Eocene of Hungary: A. KOCH, Foldtani Kozl. xxxiv, pp. 332 & 365.

## CARANGIDÆ.

- Trachurus japonicus*, Temm. & Schleg., described and figured by OTAKI, FUJITA & HIGURASHI, Fishes of Japan i, pt. 2.  
*Carangus hippoides*, p. 443, fig., *rhabdotus*, p. 444, fig., and *politus*, p. 445, fig., **spp. nn.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, Honolulu; *C. cheilio*, **sp. n.**, SNYDER, t. c. p. 524, pl. viii, fig. 14, Honolulu.  
*Carangoides ajax*, **sp. n.**, SNYDER, t. c. p. 524, pl. viii, fig. 15, Honolulu.  
*Caranx primevus*, **sp. n.** (foss.), EASTMAN, Bull. Mus. Harvard xlvi, p. 28, fig., pl. i, fig. 4, Eocene of Monte Bolca; *C. petrodava*, **sp. n.** (foss.), SIMIONESCU, Verh. geol. Reichsanst. 1904, p. 148, and Publ. Adamachi Ac. Romana, No. xii, p. 8, pl. ii, fig. 6, Eocene of Roumania.  
*Hemicaranx zelotes*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xii, fig. 22.  
*Liognathus obscura*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 74 Guam Id.  
*Oligoplites altus*, Gthr., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xi, fig. 20; *O. refulgens*, **sp. n.**, iid. ibid. p. 73, pl. xi, fig. 19, Panama.

- Decapterus muroatsi*, Temm. & Schleg., described and figured by OTAKI, FUJITA & HIGURASHI, Fishes of Japan i, pt. 2; *D. canonoides*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 442, pl. iv, Honolulu.  
*Seriola sparna*, **sp. n.**, O. P. JENKINS, t. c. p. 442, fig., Honolulu.  
*Peprilus snyderi*, **sp. n.**, GILBERT & STARKS, Mem. Calif. Ac. iv, p. 87, pl. xii, fig. 23, Panama.

## SCARIDÆ.

- Scarus cretensis*, U. & V., redescribed by KOLOMBATOVIĆ, Glasnik Naravosl. druzt. xv, p. 3; *S. cypho*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 95, Guam Id.  
*Pseudoscarus platodoni*, **sp. n.**, SEALE, t. c. p. 96, Guam Id.  
*Scaridea*, **g. n.**, near *Scarichthys*, Blkr., O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 468; *S. zonarcha*, p. 468, fig., and *balia*, p. 469, fig., **spp. nn.**, id. *ibid.*, Honolulu.

## LABRIDÆ.

- Crenilabrus steinegeri*, **sp. n.**, ISHIKAWA, P. Tokyo Mus. i, p. 13, pl. vi, fig. 2, Japan.  
*Cirrhilabrus lyukyuensis*, **sp. n.**, ISHIKAWA, t. c. p. 12, pl. vi, fig. 1, Japan; *C. jordani*, **sp. n.**, SNYDER, Bull. U. S. Fish Comm. xxii, p. 529, pl. x, fig. 18, Hawaiian Ids.  
*Chilinus nigropinnatus*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 86, Guam Id.  
*Halichoeres nigropunctatus*, **sp. n.**, SEALE, t. c. p. 89, Guam Id.; *H. macgregori*, **sp. n.**, GILBERT & STARKS, Mem. Calif. Ac. iv, p. 145, pl. xxiii, fig. 45, Panama.  
*Symphodus szajnochæ*, Zigno (foss.), described and figured by EASTMAN, Bull. Mus. Harvard xlvi, p. 29, pl. i, fig. 5.  
*Thalassoma berendti*, **sp. n.**, SEALE, t. c. No. 4, p. 15, fig., Honolulu.  
*Calotomus cyclurus*, p. 465, fig., and *snyderi*, p. 467, fig., **spp. nn.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, Honolulu.  
*Hemipteronotus jenkinsi*, **sp. n.**, SNYDER, t. c. p. 530, pl. x, fig. 19, Hawaiian Ids.  
*Novaculichthys tattoo*, **sp. n.**, SEALE, t. c. No. 4, p. 5, fig., Honolulu.  
*Julis turcica*, Risso, redescribed by KOLOMBATOVIĆ, Glasnik Naravosl. druzt. xv, p. 2; *J. duperreyi*, Q. & G., redescribed by O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 463; *J. musume*, **sp. n.**, JORDAN & SNYDER, Smithson. Collect. i, p. 236, pl. lxi, Japan; *J. punctatus*, **sp. n.**, SEALE, t. c. p. 91, Guam Id.  
*Pseudojulis cerasina*, **sp. n.**, SNYDER, Bull. U. S. Fish Comm. xxii, p. 528, Honolulu.  
*Stethojulis fulvoventris*, **sp. n.**, SEALE, t. c. p. 92, Guam Id.  
*Gomphosus pacificus*, **sp. n.**, SEALE, t. c. p. 94, Guam Id.

## POMACENTRIDÆ.

- Chromis atrilobatus*, Gill, figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xxi, fig. 43; *C. elaphrus*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 457, fig., Honolulu.  
*Amphiprion snyderi*, **sp. n.**, ISHIKAWA, P. Tokyo Mus. i, p. 11, pl. v, Japan.

- Pomacentrus gilli*, **sp. n.**, GILBERT & STARKS, t. c. p. 141, pl. xxii, fig. 44, Panama.  
*Glyphidodon polyacanthus*, Ogilby, figured by WAITE, Rec. Austral. Mus. v, pl. xxiii, fig. 1.  
*Parma polylepis*, Gthr., noticed and figured by WAITE, t. c. p. 169, pl. xxii.

## CICHLIDÆ.

- Monographed by PELLEGRIN, Mem. Soc. zool. France xvi, pp. 41-402, figg., pls. iv-vii.
- Heros tetracanthus*, C. & V., figured by EIGENMANN, Bull. U. S. Fish Comm. f. 1902, p. 231, figg.; *H. tetracanthus terralbasi*, *griseus*, and *cinctus*, subspp. nn., id. ibid. pp. 230-234, figg., Cuba; *H. nigricans*, **sp. n.**, id. ibid. p. 235, fig., Cuba; *H. (Cichlosoma) octofasciatus*, Reg., redescribed by REGAN, Ann. Nat. Hist. (7) xiii, p. 258; *H. callolepis*, **sp. n.**, id. ibid. p. 258, S. Domingo de Guzman, Mexico.
- Cichlasoma hendricki*, p. 208, fig., *evermanni*, p. 214, fig., and *majarra*, p. 217, fig., **spp. nn.**, S. E. MEEK, Field Mus. Zool. v, Mexico; *C. eigenmanni*, Meek, figured by S. E. MEEK, t. c. pl. xvi; *C. spinosissimum*, Vaill. & Pellegr., var. n., *immaculata*, PELLEGRIN, Mem. Soc. zool. France xvi, p. 225, Guatemala; *C. guentheri*, n. n. for *Heros oblongus*, Gthr., nec Casteln., id. ibid. p. 215.
- Thorichthys*, **g. n.**, near *Cichlasoma*, S. E. MEEK, t. c. p. 222; *T. ellioti*, **sp. n.**, id. ibid. p. 223, fig., Mexico.
- Astatheros*, **subg. n.**, for *Heros heterodontus*, Vaill. & Pellegr., PELLEGRIN, t. c. p. 203.
- Heterotilapia*, **g. n.**, for *Heros multispinosus*, Gthr., PELLEGRIN, t. c. p. 247.
- Acara geayi*, Pellegr., figured by PELLEGRIN, t. c. pl. iv, fig. 3.
- Astronotus ocellatus*, Ag., var. n. *zebra*, PELLEGRIN, t. c. p. 147, Santarem, Brazil.
- Geophagus camopiensis*, Pellegr., figured by PELLEGRIN, t. c. pl. iv, fig. 1.
- Lamprologus mocquardi*, Pellegr., figured by PELLEGRIN, t. c. p. 291, fig.
- Lepidiolamprologus*, **g. n.**, for *Lamprologus elongatus*, Blgr., PELLEGRIN, t. c. p. 295.
- Symphysodon discus*, Heck., var. n. *æquifasciata*, PELLEGRIN, t. c. p. 250, Brazil.
- Pterophyllum altum*, Pellegr., figured by PELLEGRIN, t. c. pl. iv, fig. 4.
- Pelmatochromis nigrofasciatus*, Pellegr., figured by PELLEGRIN, t. c. pl. vi, fig. 2.
- Paratilapia dorsalis*, Pellegr., figured by PELLEGRIN, t. c. pl. v, fig. 4; *P. prognathus* and *victoriana*, **spp. nn.**, id. Bull. Soc. zool. France xxix, p. 185, L. Victoria.
- Nanochromis*, **n. n.** for *Pseudoplesiops*, Blgr. nec Blkr., PELLEGRIN, Mem. Soc. zool. France xvi, p. 273; *N. dimidiatus*, Pellegr., figured, id. ibid. pl. iv, fig. 2.
- Tilapia boulengeri*, Pellegr., pl. v, fig. 3, *crassa*, Pellegr., p. 325, fig., *bilineata*, Pellegr., pl. v, fig. 1, and *giardi*, Pellegr., pl. v, fig. 2, figured by PELLEGRIN, t. c.; *T. guarti*, **sp. n.**, PELLEGRIN, Bull. Soc. zool. France xxix, p. 186, L. Victoria; *T. kottæ* and *dubia*, **spp. nn.**, LÖNNBERG, Ann. Nat. Hist. (7) xiii, pp. 135 & 137, Lake Barombikotta, Cameroon Mountain.
- Ophthalmotilapia*, **g. n.**, for *Tilapia boops*, Blgr., and allies, PELLEGRIN, Mem. Soc. zool. France xvi, p. 345.
- Boulengerochromis*, **g. n.**, for *Tilapia microlepis*, Blgr., PELLEGRIN, t. c. p. 304.

- Astatotilapia*, **g. n.**, for *Tilapia desfontainesi*, Lacep., and allies, PELLEGRIN, t. c. p. 299.
- Astatoreochromis*, **g. n.**, between *Astatotilapia* and *Oreochromis*, PELLEGRIN, t. c. p. 384; *A. alluaudi*, **sp. n.**, id. *ibid.* p. 385, L. Victoria.
- Crenicichla geayi*, pl. vi, fig. 4, *vaillantii*, Pellegr., p. 376, and *multispinosa*, pl. vi, fig. 3, figured by PELLEGRIN, t. c.; *C. saxatilis*, var. n., *albo-punctata*, id. *ibid.* p. 374, Guianas; *C. brasiliensis*, Bl., varr. nn., *fasciata* and *marmorata*, id. *ibid.* p. 383, figg., Brazil.

## OSPHROMENIDÆ.

- Osphromenus malayanus*, **sp. n.**, DUNCKER, Mt. Ges. Hamburg xxi, p. 163, pl. i, fig. 8, Kuala Lumpur, Malay Peninsula.
- Bettu pugnax*, Cantor, figured, with notes on the breeding habits, by WAITE, Rec. Austral. Mus. v, p. 293, pl. xxxviii.

## TEUTHIDIDÆ.

- Note on the limb girdles of *Teuthis oramin* by JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 217, fig.

## ACANTHURIDÆ.

- Acanthurus incipiens*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 480, fig., Honolulu.
- Teuthis leucopareius*, p. 476, fig., and *guentheri*, p. 477, fig., **spp. nn.**, O. P. JENKINS, t. c., Honolulu.
- Prionurus*, Lacep. Remarks on the validity of this name: GILL, P. U. S. Mus. xxviii, p. 121.
- Xesurus hopkinsi*, **sp. n.**, GILBERT & STARKS, Mem. Calif. Ac. iv, p. 155, pl. xxv, Panama.
- Callicanthus metoposophron*, **sp. n.**, O. P. JENKINS, t. c. p. 481, fig., Honolulu.
- Zabrasoma agana*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 110, Guam Id.
- Monoceros garretti*, **sp. n.**, SEALE, t. c. p. 112, Guam Id.
- Pygæus*, Ag. (foss.) is regarded by Jordan as a generalized type allied to the *Acronuridæ*, for which he proposes a new family *Pygæidæ*, EASTMAN, Science (2) xx, p. 245; *P. agassizii*, **sp. n.** (foss.), EASTMAN, Bull. Mus. Harvard xlvi, p. 31, pl. ii, Eocene of Monte Bolca.

## CHÆTODONTIDÆ.

- Scatophagus argus*, Gm. Young noticed and figured by JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 220, pl. i, fig. 1.
- Chaetodon nigrirostris*, Gill, figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xxiv; *C. dixoni*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiii, p. 276, fig., New Hebrides; *C. corallicola*, **sp. n.**, SNYDER, Bull. U. S. Fish Comm. xxii, p. 531, pl. xi, fig. 20, Hawaiian Id.
- Holacanthus fisheri*, **sp. n.**, SNYDER, t. c. p. 532, pl. xi, fig. 21, Hawaiian Ids.; *H. marianus* and *bishopi*, **spp. nn.**, SEALE, Pap. B. P. Bishop Mus. i, pp. 104 & 106, Guam Id.
- Platax vesperilio*, L., mimicking a dead leaf: WILLEY, Spolia Zeylan. ii, p. 51, fig.



## MULLIDÆ.

- Upeneus saffordi*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, p. 72, Guam Id.  
*Pseudupeneus porphyreus*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm.  
 xxii, p. 454, fig., Honolulu.

## SPARIDÆ.

- Heterognathodon dæderleini*, **sp. n.**, ISHIKAWA, P. Tokyo Mus. i, p. 10,  
 pl. iv, Japan.

## PRISTIPOMATIDÆ.

- Pomadasyd starri*, p. 200, pl. xiii, and *templei*, p. 201, pl. xiv, **spp. nn.**,  
 S. E. MEEK, Field Mus. Zool. v, Mexico.  
*Erythrichthys leucogrammicus*, Blkr. Young described and figured by  
 JOHNSTONE, Suppl. Rep. Ceylon Pearl Fisheries, No. xv, p. 221, pl. i,  
 fig. 6.

## HAPLODACTYLIDÆ.

- Haplodactylus etheridgii*, Ogilby, figured by WAITE, Rec. Austral. Mus. v,  
 pl. xxi.

## GERRIDÆ.

- Eucinostomus meeki*, **sp. n.**, EIGENMANN, Bull. U. S. Fish Comm. f. 1902,  
 p. 229, fig., Cuba.

## SCIÆNIDÆ.

- Sagenichthys mordax*, **sp. n.**, GILBERT & STARKS, Mem. Calif. Ac. iv, p. 121,  
 pl. xvi, fig. 32, Panama.  
*Larimus effulgens*, Gilb., and *acclivis*, Jord. & Brist., figured by GILBERT &  
 STARKS, t. c. pl. xvi, figg. 33 & 34.  
*Odontoscion xanthops*, Gilb., figured by GILBERT & STARKS, t. c. pl. xvii,  
 fig. 35.  
*Stellifer illecebrosus*, Gilb., and *zestocarus*, Gilb., figured by GILBERT &  
 STARKS, t. c. pl. xviii, figg. 36 & 37.  
*Ophioscion simulus*, Gilb., and *scierus*, J. & G., figured by GILBERT &  
 STARKS, t. c. pl. xix, figg. 38 & 39.  
*Polyclenus goodei*, Gilb., figured by GILBERT & STARKS, t. c. pl. xx, fig. 40.  
*Paralonchurus petersi*, Bocourt, figured by GILBERT & STARKS, t. c. pl. xx,  
 fig. 41.  
*Eques viola*, Gilb., figured by GILBERT & STARKS, t. c. pl. xxi, fig. 42.

## HOPLOGNATHIDÆ.

- Hoplognathus insignis*, Kner. Note by PELLEGRIN, Bull. Soc. zool. France  
 xxix, p. 120.

## PSEUDOCROMIDIDÆ.

- Cichlops*, M. & T., is superseded by *Labracinus*, Schleg., GILL, P. U. S.  
 Mus. xxviii, p. 119.  
*Lopholatilus chamaleonticeps*, Goode. On its osteology and relationship:  
 F. A. LUCAS, Bull. Bur. Fisher. xxiv, p. 81, figg.  
*Rathbunella alleni*, **sp. n.**, GILBERT, P. Calif. Ac. Zool. (3) iii, p. 267,  
 pl. xxviii, Monterey Bay, California.

- Opisthognathus jacksonienseis*, Macleay, redescribed and figured by WAITE, Rec. Austral. Mus. v, p. 240, pl. xxvi, fig. 2.  
*Pseudoperca*, **g. n.**, near *Pinguipes*, for *P. numida*, **sp. n.**, MIRANDA RIBEIRA, A Lavoura, 1904, p. 41, Coast of Brazil.

## SERRANIDÆ.

- Morone labrax*, L. On cases of malformation: ALBA FASCIOLO, Atti Soc. Ligustica xv, p. 92, pl. iii.  
*Epinephelus alexandrinus*, C. & V. On a specimen from the Adriatic: FILIPPO TROIS, Atti Ist. Veneto lxiii, p. 93. *E. quernus*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, No. 4, p. 1, fig., Honolulu. Redescribed by O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 449.  
*Serranus brighami*, Seale, redescribed and referred to *Apsilus* by O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 452; *S. brighami*, **sp. n.**, SEALE, Pap. B. P. Bishop Mus. i, No. 4, p. 7, fig., Honolulu; *S. kynsnaensis*, **sp. n.**, GILCHRIST, Mar. invest. S. Africa iii, p. 2, Cape of Good Hope.  
*Anthias duplidentatus*, **sp. n.**, MIRANDA RIBEIRA, A Lavoura, 1904, p. 26, Coast of Brazil.  
*Rhegma thaumasium*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xv, fig. 31.  
*Priacanthus meeki*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 450, fig., Honolulu.  
*Lates pliocenius*, **sp. n.** (foss.), A. KOCH, Ann. Mus. Hungar. ii, pp. 17 & 52, pl. vi, Pliocene of Szerem, Hungary.  
*Centropomus argenteus*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiii, p. 260, Barbadoes and British Guiana.  
*Scombrops chilodipteroides*, Blkr., described and figured by OTAKI, FUGITA & HIGURASHI, Fishes of Japan i, pt. 2.  
*Apogon queketti*, Gilchrist, figured by GILCHRIST, Mar. invest. S. Africa ii, pl. xiv; *A. evermanni*, **sp. n.**, JORDAN & SNYDER, P. U. S. Mus. xxviii, p. 123, Honolulu; *A. menesemus*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 448, fig., Honolulu; *A. erythrinus*, **sp. n.**, SNYDER, t. c. p. 526, pl. ix, fig. 17, Honolulu.  
*Fowleria brachygrammus*, **sp. n.**, O. P. JENKINS, t. c. p. 447, fig., Honolulu.  
*Ariomma*, **g. n.**, near *Apogon*, JORDAN & SNYDER, op. cit. xxvii, p. 942; *A. lurida*, **sp. n.**, iid. ibid. p. 943, Honolulu.  
*Howella brodiei*, Ogilby, noticed and figured by WAITE, Rec. Austral. Mus. v, p. 157, pl. xviii, fig. 4.  
*Lutianus jordani*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xiv, fig. 29.  
*Orthopristis brevipinnis*, Stdr., figured by GILBERT & STARKS, t. c. pl. xv, fig. 30.  
*Eteliscus marshi*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 452, fig., Honolulu.  
*Chilodactylus vittatus*, Garrett, redescribed by O. P. JENKINS, t. c. p. 489.  
*Cirrhitoides*, **g. n.**, allied to *Oxycirrhites*, Blkr., for *C. bimacula*, **sp. n.**, O. P. JENKINS, t. c. p. 489, fig., Honolulu.  
*Histioporus spinifer*, **sp. n.**, GILCHRIST, Mar. invest. S. Africa iii, p. 3, Mossel Bay, S. Africa.  
*Smerdis macrurus*, Ag. (foss.). On a specimen from the Miocene of Hungary, A. KOCH, Foldtani Kozl. xxxiv, pp. 333 & 367.  
*Krambergeria*, **g. n.**, near *Palimphyes*, Wettst., for *K. lanceolata*, **sp. n.** (foss.), SIMIONESCU, Verh. geol. Reichsanst. 1904, p. 148, and Publ. Adamachi Ac. Romana, No. xii, p. 10, pl. i, fig. 9, Oligocene of Roumania.

## NANDIDÆ.

*Mesonanta surinamensis*, Sauv. = *Polycentrus schomburgki*, M. & T., PELLEGRIN, Mem. Soc. zool. France xvi, p. 221.

## LOBOTIDÆ.

*Lobotes pacificus*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. xiv, fig. 28.

## CENTRARCHIDÆ.

R. E. RICHARDSON, Bull. Illinois Lab. vii, pp. 27-35, figg., reviews the species of the genera *Apomotis*, *Lepomis* and *Eupomotis*.

*Centrarchus occidentalis*, Meek, figured by S. E. MEEK, Field Mus. Zool. v, pl. xii.

*Micropterus dolomieu*, Lacep. Notes on the nesting habits: D. LYDELL, Bull. U. S. Fish Comm. xxii, p. 39.

*Pomotis sparoides*, Lacep., figured by T. LARGE, Rep. Fish Comm. Illinois 1900-02, pl. —.

*Kuhlia marginata*, C. & V. Noticed from Japan and figured by ISHIKAWA, P. Tokyo Mus. i, p. 9, pl. iii, fig. 1.

## BERYCIDÆ.

On the osteology of the principal types: E. C. STARKS, P. U. S. Mus. xxvii, pp. 601-619, figg.

On the specimens in the collection of the Philadelphia Academy: H. W. FOWLER, P. Ac. Philad. lvi, pp. 222-238.

*Beryx decadactylus*, C. & V., redescribed by ARIOLA, Ann. Mus. Genova (3) i, p. 163.

*Trachichthodes spinosus*, Gilchrist, figured by GILCHRIST, Mar. invest. S. Africa ii, pl. xiii, fig. 1.

*Plectromus macrophthalmus*, Gilchrist, figured by GILCHRIST, t. c. pl. xiii, fig. 2.

*Myripristis murdjan*, Forsk., redescribed by H. W. FOWLER, P. Ac. Philad. lvi, p. 222; *M. sealei*, sp. n., O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 439, fig., Honolulu.

*Holocentrum osculum*, Poey, redescribed by REGAN, Ann. Nat. Hist. (7) xiii, p. 259; *H. siccifer*, Cope, redescribed and figured by H. W. FOWLER, t. c. p. 233, fig.; *H. gladiispinis*, p. 222, fig., Tahiti, *gracilispinis*, p. 228, fig., Honolulu, *polynesia*, p. 229, fig., Thornton Is., and *thorntonensis*, p. 231, fig., Thornton Is., spp. nn., id. ibid.

*Sargocentron*, subg. n. for *Holocentrum leo*, Cuv., H. W. FOWLER, t. c. p. 235.

*Flammeo chromopterus*, sp. n., H. W. FOWLER, t. c. p. 236, fig., Samoa.

*Bradyurus*, g. n. (Berycid.?) for *Symphodus szajnochæ*, Zigno (foss.), GILL, Science (2) xx, p. 846.

## ANACANTHINI.

## GADIDÆ.

J. S. THOMSON, J. Mar. Biol. Ass. (2) vii, pp. 1-109, pls. i-viii, has investigated the periodic growth of scales in the principal British species, and regards the scales as giving a direct index of age in these fishes.

- Gadus pannonicus*, **sp. n.** (foss.), A. KOCH, Ann. Mus. Hungar. ii, pp. 4 & 37, pls. i, ii, iv, Pliocene of Szerem, Hungary.  
*Holargyreus affinis*, **sp. n.**, COLLETT, Forh. Selsk. Christian. 1904, No. 9, p. 6, Faroe Channel, 375-600 fath.  
*Lemonemodes compressicauda*, Gilchrist, figured by GILCHRIST, Mar. invest. S. Africa ii, pl. xvi.  
*Urophycis mystaceus* and *latus*, **spp. nn.**, MIRANDA RIBEIRA, A Lavoura, 1904, pp. 46 & 48, Coast of Brazil.  
*Motella megalocynodon*, Kolomb., redescribed by KOLOMBATOVIĆ, Glasnik Naravosl. druzt. xv, p. 1.  
*Eretmophorus kleinenbergi*, Gigl. Note by ARIOLA, Ann. Mus. Genova (3) i, p. 159.

## MACRURIDÆ.

- Synopsis of the genera by DOLLO, Rés. Voy. Belgica, Poiss., p. 38.  
 On the Japanese species: JORDAN & STARKS, Bull. U. S. Fish Comm. xxii, pp. 600-627.  
*Gadomus colletti*, **sp. n.**, JORDAN & STARKS, t. c. p. 603, fig., Japan.  
*Regania*, **g. n.**, near *Gadomus*, JORDAN & STARKS, t. c. p. 604; *R. nipponica*, **sp. n.**, iid. ibid. p. 605, fig., Japan.  
*Melanobranchus antrodes*, **sp. n.**, JORDAN & STARKS, t. c. p. 606, pl. iv, fig. 1, Japan.  
*Coryphænoides awe*, p. 608, fig., *garmani*, p. 610, fig., and *misakius*, p. 611, fig., **spp. nn.**, JORDAN & STARKS, t. c., Japan.  
*Hymenocephalus striatissimus*, p. 612, fig., *papyraceus*, p. 614, fig., and *lethonemus*, p. 615, fig., **spp. nn.**, JORDAN & STARKS, t. c., Japan.  
*Coelorhynchus anatrostris*, **sp. n.**, JORDAN & STARKS, t. c. p. 619, fig., Japan.  
*Nezumia*, **g. n.**, near *Macrurus*, for *N. condylura*, **sp. n.**, JORDAN & STARKS, t. c. p. 620, pl. iv, fig. 2, Japan.  
*Nematonurus lecointei*, Dollo, described and figured by DOLLO, t. c. p. 44, pl. vii.

## PERCESOCES.

## STROMATEIDÆ.

- Stromatioides nozawa*, **sp. n.**, ISHIKAWA, P. Tokyo Mus. i, p. 8, Japan.  
*Platystethus cultratum*, Gthr., noticed and figured by WAITE, Rec. Austral. Mus. v, p. 161, pl. xix, fig. 2.  
*Schedophilus maculatus*, Gthr., figured by WAITE, t. c. pl. xx, fig. 1; *S. heathii*, **sp. n.**, GILBERT, P. Calif. Ac. Zool. (3) iii, p. 260, pl. xxvi, California.

## SPHYRÆNIDÆ.

- Sphyræna picudilla*, Poey, diagnosed and figured by H. W. FOWLER, P. Ac. Philad. lv, p. 750, pl. xlvi; *S. ensis*, J. & G., and *borealis*, De Kay, notes by id. t. c. p. 750; *S. tome*, **sp. n.**, id. ibid. p. 750, pl. xlvi, Brazil (?); *S. idiastes*, **sp. n.**, HELLER & SNODGRASS, P. Washington Ac. v, p. 190, pl. ii, Galapagos Archipelago.  
*Agriosphyræna*, **subg. n.**, for *Sphyræna snodgrassi*, Jenk., and *barracuda*, Walb., H. W. FOWLER, t. c. p. 749.  
*Sphyrænodus hexagonalis*, **sp. n.** (foss.), A. KOCH, Ann. Mus. Hungar. ii, pp. 10 & 44, pls. iv-vi, Pliocene of Szerem, Hungary.



## MUGILIDÆ.

- Mugil*, Art. On the habits of the Grey Mulletts in the Arcachon basin: KUNSTLER, C.R. Soc. Biol. lvi, p. 427; *M. dobula*, Gthr. Figured, with an account of the habits, by DANNEVIG, Rep. Fisher. N. S. W. f. 1902, ii, p. 26, pl. iii (1903); *M. brasiliensis*, Spix, and *kelaartii*, Gthr., Notes by H. W. FOWLER, P. Ac. Philad. lv, p. 743; *M. cephalus*, L., and *curema*, C. & V., Young figured, id. ibid. p. 744, figg.; *M. incilis*, Hancock, redescribed and figured, id. ibid. p. 744, pl. xlv.
- Liza caldwelli*, Fowl., note by H. W. FOWLER, t. c. p. 747; *L. alosoides*, sp. n., id. ibid. p. 746, pl. xlv, Gaboon.
- Oedalechilus*, subg. n., for *Agonostoma monticola*, Griff., H. W. FOWLER, t. c. p. 748.

## ATHERINIDÆ.

- Atherina*, Art. On the European species: CLEMENTINA BORSIERI, Ann. di Agricolt. Rome, 1902 [1904], 92 pp. The five species: *A. presbyter*, C. & V., *hepsetus*, L., *boyeri*, Risso, *mochon*, C. & V., and *rissoi*, C. & V., figured, pls. vi-x. *A. insularum*, Jord. & Everm., redescribed by O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 437. *A. lacustris*, Bp., redescribed by H. W. FOWLER, P. Ac. Philad. lv, p. 727. *A. sardinella*, sp. n., id. ibid. p. 729, pl. xli, Italy. *A. evermanni*, sp. n., EIGENMANN, Bull. U. S. Fish Comm. f. 1902, p. 228, fig., Cuba.
- Atherinomorus*, subg. n. for *Atherina laticeps*, Poey, H. W. FOWLER, P. Ac. Philad. p. 730.
- Ischnomembras*, g. n., near *Atherina*, H. W. FOWLER, t. c. p. 730; *I. gabunensis*, sp. n., id. ibid. p. 731, pl. xlii, Gaboon.
- Atherinella panamensis*, Stdr., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. ix, fig. 17.
- Phoxargyrea*, g. n., near *Menida*, for *P. dayi*, sp. n., H. W. FOWLER, P. Ac. Philad. p. 732, India.
- Basilichthys regia*, Humb. & Val., redescribed by H. W. FOWLER, t. c. p. 734.
- Thyrina guatemalensis*, Gthr., redescribed and figured by H. W. FOWLER, t. c. p. 736, pl. xliii.
- Protistius semotilus*, Cope, redescribed and figured by H. W. FOWLER, t. c. p. 737, pl. xlv.
- Gasteropterus archæus*, Cope, redescribed and figured by H. W. FOWLER, t. c. p. 738, pl. xliii.
- Atherinopsis californiensis*, Gir., redescribed by H. W. FOWLER, t. c. p. 739; *A. magdalene*, sp. n., id. ibid. p. 740, pl. xlii, Lower California.
- Tropidostethus rhotophilus*, Ogilby, noticed and figured by WAITE, Rec. Austral. Mus. v, p. 234, pl. xxv, fig. 2.
- Chirostoma mezzitlal*, sp. n., S. E. MEEK, Field Mus. Zool. v, p. 170, fig., Durango, Mexico.

## AMMODYTIIDÆ.

Remarks by GILL, P. U. S. Mus. xxviii, p. 159, figg.

## SCOMBRESOCIDÆ.

- Hemirhamphus fluviatilis*, Blkr. Note on the anal fin of the male: DUNCKER, Mt. Mus. Hainburg xxi, p. 170, fig. *H. saltator*, sp. n., GILBERT & STARKS, Mem. Calif. Ac. iv, p. 53, pl. ix, fig. 16, Panama.
- Cypsilurus simus*, C. & V., redescribed by O. P. JENKINS, Bull. U. S. Fish

Comm. xxii, p. 435; *C. atrisignis*, **sp. n.**, id. *ibid.* p. 436, pl. iii, Honolulu.

*Exonantes gilberti*, **sp. n.**, SNYDER, Bull. U. S. Fish Comm. xxii, p. 522, pl. vii, fig. 13, Hawaiian Ids.

### CATOSTEOMI.

*Syngnathus incompletus*, Cosm. (foss.), described and figured by SIMIONESCU, Publ. Adamachi Ac. Romana xii, p. 6, pl. i, fig. 1. *S. cosmovicci*, **sp. n.** (foss.), id., Verh. geol. Reichsanst. 1904, p. 148, Oligocene of Roumania.

*Siphostoma brevicaudum*, **sp. n.**, S. E. MEEK, Field Mus. Zool. v, p. 163, fig., Vera Cruz, Mexico.

*Dorichthys boaja*, Blkr., figured by DUNCKER, Mt. Mus. Hamburg xxi, pl. ii, fig. 9; *D. fluviatilis*, **sp. n.**, id. *ibid.* p. 188, pl. ii, fig. 10, Kuala Lumpur, Malay Peninsula.

*Fistularia corneta*, **sp. n.**, GILBERT & STARKS, Mem. Calif. Ac. iv, p. 56, pl. x, fig. 18, Pacific Coast of C. America.

*Macrorhamphosus scolopax*, L., recorded from Florida by H. M. SMITH, Science (2) xix, p. 314.

*Gastrosteus aculeatus*, L. On its life in salt and fresh waters: BORCEA, Bull. Soc. zool. France xxix, p. 140.

*Lampris immaculata*, **sp. n.**, GILCHRIST, Mar. invest. S. Africa iii, p. 4, False Bay, S. Africa.

### HETEROMI.

*Furasfer dentatus*, Cuv. On a larva: FULTON, Rep. Fish Board Scotland xxii, iii, p. 283, pl. xviii, fig. 3. *F. acus*, Brünn. Larva figured by Lo BIANCO, Pelag. Tiefseefisch. 'Maja,' pl. iv, fig. 9.

### HAPLOMI.

On the characters of this Suborder and of its principal constituent families and subfamilies: E. C. STARKS, Biol. Bull. vii, pp. 254-262.

### CYPRINODONTIDÆ.

F. C. CARLTON, Science (2) xix, p. 245, has made experiments on the colour changes of *Fundulus heteroclitus*, to show their relation to nervous influences. J. A. LONG, t. c. p. 248, has made similar experiments on blinded specimens of this fish.

On hybrids between *Fundulus heteroclitus* and *Menidia notata*: MOENKHAUS, Amer. J. Anat. iii, p. 29.

*Haplochilus macrurus*, p. 19, Angola, and *schoelleri*, p. 136, Egypt, **spp. nn.**, BOULENGER, Ann. Nat. Hist. (7) xiv; *H. chevalieri* and *decorsei*, **spp. nn.**, PELLEGRIN, Bull. Mus. Paris 1904, pp. 222 & 223, Congo.

*Procatopus*, **g. n.**, near *Haplochilus*, for *P. nototenia*, **sp. n.**, BOULENGER, t. c. p. 20, Cameroon.

*Fundulus cubensis*, **sp. n.**, EIGENMANN, Bull. U. S. Fish. Comm. f. 1902, p. 222, fig., Cuba.

*Cynodonichthys*, **g. n.**, near *Fundulus*, for *C. tenuis*, **sp. n.**, S. E. MEEK, Field Mus. Zool. v, p. 101, fig., Oaxaca, Mexico.

*Glaridichthys falcatus* and *torralbasi*, **spp. nn.**, EIGENMANN, t. c. pp. 224 & 225, figg., Cuba.

- Girardinus caudimaculatus*, Hens. On a female assuming the male character of the anal fin: E. PHILIPPI, SB. Ges. naturf. Berlin 1904, p. 196. *G. garmani*, **sp. n.**, EIGENMANN, t. c. p. 226, fig., Cuba.
- Toxus*, **g. n.**, near *Glaridichthys* and *Girardinus*, for *T. riddlei*, **sp. n.**, EIGENMANN, t. c. p. 226, figg., Cuba.
- Heterandria cubensis*, **sp. n.**, EIGENMANN, t. c. p. 227, fig., Cuba.
- Zoogoneticus maculatus*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiii, p. 257, Rio Santiago, Mexico.
- Characodon geddesi*, **sp. n.**, REGAN, t. c. p. 257, Lake Tezcoco, S. Mexico; *C. multiradiatus*, **sp. n.**, S. E. MEEK, Field Mus. Zool. v, p. 119, Lerma, Mexico.
- Goodea luitpoldii*, Stdr., figured by S. E. MEEK, Field Mus. Zool. v, pl. i; *G. whitei* and *toweri*, **spp. nn.**, id. ibid. pp. 137 & 138, figg., Mexico.
- Skiffia lermæ*, Meek, figured by S. E. MEEK, t. c. pl. viii.
- Platyptecilus maculatus*, Gthr., figured by S. E. MEEK, t. c. pl. ix; *P. variatus*, p. 146, pl. x, and *nelsoni*, p. 147, fig., **spp. nn.**, id. ibid., Mexico.
- Pœcilia latipunctata*, **sp. n.**, S. E. MEEK, t. c. p. 150, fig., Mexico.
- Xiphophorus julapœ*, Meek, figured by S. E. MEEK, t. c. pl. xi.
- Pseudoxiphophorus pauciradiatus*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiii, p. 256, Orizaba, Mexico.
- Orestias*, Cuv. On united lower pharyngeal bones in this genus: PELLEGRIN, C.R. Ac. Sci. cxxxix, p. 682, figg. *O. tschudi*, Cast. Note by PELLEGRIN, Bull. Soc. zool. France xxix, p. 92. *O. agassizii*, C. & V., vars. *nn.*, *inornata*, *typica*, *senechali*, *crequii*, id. ibid. pp. 93 & 94, L. Titicaca; *O. neveui*, **sp. n.**, id. ibid. p. 95, L. Titicaca.
- Gambusia fasciata*, p. 129, fig., Oaxaca, and *bonita*, p. 132, fig., Vera Cruz, **spp. nn.**, S. E. MEEK, Field Mus. Zool. v.
- Paragambusia*, **g. n.**, for *Gambusia nicaraguensis*, Gthr., S. E. MEEK, t. c. p. 133.

## ALEPIDOSAURIDÆ.

- Alepidosaurus æsculapius*, Bean = *A. ferox*, Lowe, JORDAN & SNYDER, Smithson. Collect. i, p. 235.

## SCOPELIDÆ.

- Scopelus*, Cuv., or *Myctophum*, Raf. Remarks on the disposition of the photophores, and synopsis of the subgenera and species, by BRAUER, Zool. Anz. xxviii, p. 377.
- Scopelus rissoi*, Cocco, and *crocodilus*, Risso, figured, by LO BIANCO, Pelag. Tiefseefisch. "Maja," pl. ii, figg. 2 & 3; *S. argenteus*, **sp. n.**, GILCHRIST, Mar. invest. S. Africa iii, p. 15, Cape of Good Hope.
- Myctophum valdiviæ*, p. 398, fig., Atlantic and Indian Oceans, *splendidum*, p. 399, fig., Atlantic and Indian Oceans, *luetkeni*, p. 400, Indian Ocean, *microps*, p. 400, fig., Indian Ocean, *elucens*, p. 401, fig., Indian Ocean, *fulgens*, p. 402, fig., Indian Ocean, *procerum*, p. 402, fig., Agulhas Bank, *nigrescens*, p. 403, Indian Ocean, and *macropteron*, p. 404, fig., Indian Ocean, **spp. nn.**, BRAUER, t. c.
- Neoscopelus alcocki*, **sp. n.**, JORDAN & STARKS, Bull. U. S. Fish Comm. xxii, p. 580, pl. ii, figg. 1 & 2, Japan.
- Diaphus watasei*, **sp. n.**, JORDAN & STARKS, t. c. p. 580, fig., Japan.
- Notoscopelus ejectus*, **sp. n.**, WAITE, Rec. Austral. Mus. v, p. 150, pl. xviii, fig. 2, Lord Howe Id.
- Dasy Scopelus naufragus*, **sp. n.**, WAITE, t. c. p. 154, pl. xviii, fig. 3, Lord Howe Id.

- Centrobranchus*, g. n., close to *Rhinoscopelus*, Lütke., for *Rhinoscopelus coruscans*, Fowl., which is redescribed, H. W. FOWLER, P. Ac. Philad. lv, p. 754.
- Æthopora perspicillata*, Ogilby, redescribed and figured by WAITE, t. c. p. 149, pl. xviii, fig. 1.
- Chlorophthalmus punctatus*, sp. n., GILCHRIST, Mar. invest. S. Africa iii, p. 15, Cape of Good Hope, 154 fath.; *C. albatrossis*, sp. n., JORDAN & STARKS, Bull. U. S. Fish Comm. xxii, p. 579, pl. i, fig. 1, Japan.
- Goodella hypozona*, Ogilby = *Trachinocephalus myops*, Forst., WAITE, t. c. p. 232, pl. xxv, fig. 1.
- Holosteus esocinus*, Ag. (foss.). Note by EASTMAN, Bull. Mus. Harvard xlvi, p. 28.

## DALLIIDÆ.

On the osteology: STARKS, Zool. Jahrb. Syst. xxi, pp. 249-262, figg.

## ESOCIDÆ.

*Umbra*, Kram. Notes on the habits by GILL, Smithson. Collect. i, p. 295, figg.

## ENCHODONTIDÆ.

*Ischyrrhiza antiqua*, Leidy (foss.) = *Onchosaurus radicalis*, Gerv., EASTMAN, Amer. Natural. xxxviii, p. 298.

## HAPLOCHITONIDÆ.

*Prototroctes maræna*, Gthr. Notes on its habits by D. G. STEAD, Rep. Fisher. N. S. W. f. 1902, ii, p. 34, figg. (1903).

## GALAXIIDÆ.

Geographical list of the species by DOLLO, Rés. Voy. Belgica, Poiss. p. 150.

## APODES.

- C. M. L. POPTA, Ann. Sci. nat. (8) xix, pp. 367-390, figg., has studied the differences in the branchial arches and their appendages in a large number of Apodal Fishes.
- O. RICCI, Atti Soc. Modena (4) iv, pp. 11-35, remarks on the researches on the metamorphoses of the Mediterranean Apodal Fishes.
- Muræna clepsydra*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. vii, fig. 13; *M. lampra* and *kauila*, spp. nn., O. P. JENKINS, Bull. U. S. Fish Comm. xxii, pp. 423 & 424, figg., Honolulu.
- Echidna vineta*, p. 429, fig., *obscura*, p. 430, fig., and *psalion*, p. 431, fig., spp. nn., O. P. JENKINS, t. c., Honolulu; *E. uniformis*, sp. n., SEALE, Pap. B. P. Bishop Mus. i, p. 62, Guam Id.
- Gymnothorax chalazius*, sp. n., WAITE, Rec. Austral. Mus. v, p. 145, pl. xvii, fig. 2, Lord Howe Id.; *G. leucostictus*, p. 425, fig., *gracilicauda*, p. 426, fig., *thalassopterus*, p. 427, pl. ii, *leucacme*, p. 427, fig., *ercodes*, p. 428, fig., and *leihala*, p. 428, fig., spp. nn., O. P. JENKINS, t. c., Honolulu; *G. nuttingi*, p. 518, pl. iv, fig. 7, *berndti*, p. 518, pl. iv, fig. 8, *mucifer*, p. 519, pl. v, fig. 9, *xanthostomus*, p. 519, pl. v, fig. 10, and *waialuwa*, p. 520, pl. vi, fig. 11, spp. nn., SNYDER, Bull. U. S. Fish Comm. xxii, Hawaiian Ids.



- Uropterygius leucurus*, **sp. n.**, SNYDER, t. c. p. 521, pl. vi, fig. 12, Hawaiian Ids.
- Muraenichthys nicholsæ*, **sp. n.**, WAITE, Rec. Austral. Mus. v, p. 142, pl. xvii, fig. 1, Lord Howe Id.
- Moringua hawaiiensis*, **sp. n.**, SNYDER, Bull. U. S. Fish Comm. xxii, p. 517, pl. iii, fig. 6, Hawaiian Ids.
- Gastrostomus pacificus*, **sp. n.**, B. A. BEAN, Smithson. Collect. i, p. 254, fig., Pacific Ocean, 5269 faths.
- Nemichthys avocetta*, J. & G., redescribed by GILBERT, P. Calif. Ac. Zool. (3) iii, p. 256.
- Conger vulgaris*, Cuv. On the larva and young: FULTON, Rep. Fish. Board Scotland xxii, iii, p. 281, pl. xviii, figg. 1 & 2. On a larva: EIGENMANN, Science (2) xix, p. 629, fig.
- Congrellus bowersi*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 422, fig., Honolulu.
- Veternio*, **g. n.**, near *Conger*, for *V. verrens*, **sp. n.**, SNYDER, t. c. p. 516, pl. ii, fig. 3, Honolulu.
- Anguilla vulgaris*, Turt., R. QUINTON, C.R. Ac. Sci. cxxxix, pp. 938-941, and C.R. Soc. Biol. lviii, p. 170, has made experiments on the changes taking place in Eels artificially transferred from fresh into salt water, and vice-versa. The larva, *Leptocephalus brevirostris*, figured by LO BIANCO, Pelag. Tiefseefisch. "Maja," pl. i. *A. vulgaris*, var. *kieneri*, Kaup. Note by ARIOLA, Ann. Mus. Genova (3) i, p. 156. *A. australis*, Rich. On a case of icterism: J. A. KERSHAW, Victorian Natural. xx, p. 140. *A. cæca*, **sp. n.**, H. M. SMITH, P. Soc. Washington xvii, p. 121, fig., Atlantic, 60 miles S. of Nomans Land.
- Sphagebranchus flavicaudus*, **sp. n.**, SNYDER, Bull. U. S. Fish Comm. xxii, p. 516, pl. ii, fig. 4, Hawaiian Ids.
- Callechelys luteus*, **sp. n.**, SNYDER, t. c. p. 517, pl. iii, fig. 5, Hawaiian Ids.
- Brachysomophis henschawi*, **sp. n.**, JORDAN & SNYDER, P. U. S. Mus. xxvii, p. 940, Honolulu.
- Pisodonophis diaspilotus*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. vii, fig. 12.
- Microdonophis macgregori*, **sp. n.**, O. P. JENKINS, Bull. U. S. Fish Comm. xxii, p. 422, fig., Hawaiian Ids.
- Eomyrus ventralis*, Ag. (foss.). Fragment noticed and figured by SIMIONESCU, Publ. Adamachi Ac. Romana xii, p. 5, pl. i, fig. 3.

## OSTARIOPHYSI.

## LORICARIIDÆ.

- Monographed by C. T. REGAN, Tr. Zool. Soc. London xvii, pp. 191-350, pls. ix-xxi.
- Plecostomus festæ*, Blgr., pl. ix, fig. 1, *cordovæ*, Gthr., pl. ix, fig. 3, *borellii*, Blgr., pl. ix, fig. 2, and *wuchereri*, Gthr., pl. x, fig. 2, figured by REGAN, t. c.; *P. latirostris*, p. 213, pl. xi, fig. 1, Matto Grosso and Goyaz, *garmani*, p. 214, pl. x, fig. 1, Rio dal Velhas, Brazil, and *pellegrini*, p. 218, Upper Amazon, **spp. nn.**, id. *ibid.*
- Ancistrus oligospilus*, Gthr., pl. xii, fig. 1, *platycephalus*, Blgr., pl. xii, fig. 4, and *setosus*, Blgr., pl. xii, fig. 2, figured by REGAN, t. c.; *A. annectens*, p. 225, pl. xi, fig. 2, N. W. Ecuador, and *guentheri*, p. 241, pl. xii, fig. 3, British Guiana, **spp. nn.**, id. *ibid.*
- Chaetostomus anomalus*, Regan, pl. xiii, fig. 2, and *microps*, Gthr., pl. xiv, fig. 3, figured by REGAN, t. c.; *C. maculatus*, p. 246, pl. xiv, fig. 4, High Peru, *marcapata*, p. 246, pl. xiv, fig. 1, E. Peru, *brevis*, p. 247, pl. xiii, fig. 3, E. Ecuador, *marginatus*, p. 249, pl. xiii, fig. 1, N. W.

- Ecuador, and *thomsoni*, p. 250, pl. xiv, fig. 2, Colombia, **spp. nn.**, id. *ibid.*
- Xenocara*, **g. n.**, near *Chaetostomus*, REGAN, t. c. p. 251; *X. latifrons*, Gthr., pl. xv, fig. 1, and *chagresi*, Eigenm., pl. xiv, fig. 7, figured, id. *ibid.*; *X. occidentalis*, p. 257, pl. xiv, fig. 5, E. Ecuador, *brevipinnis*, p. 257, Rio Grande do Sul, and *montana*, p. 258, pl. xiv, fig. 6, Andes of Bolivia, **spp. nn.**, id. *ibid.*
- Hypoptopoma guentheri*, Blgr., figured by REGAN, t. c. pl. xv, fig. 2.
- Otocinclus vittatus*, **sp. n.**, REGAN, t. c. p. 267, pl. xv, fig. 3, Matto Grosso.
- Loricaria jubata*, Blgr., pl. xv, fig. 5, and *latirostris*, Blgr., pl. xvi, fig. 1, figured by REGAN, t. c.; *L. nigricauda*, p. 275, pl. xv, fig. 2, Rio Janeiro, *steinduchneri*, p. 281, E. Brazil, *microlepidogaster*, p. 283, pl. xv, fig. 4, Rio Grande do Sul, *punctata*, p. 285, pl. xvii, fig. 1, Amazon, *macrops*, p. 290, pl. xvii, fig. 3, R. La Plata, *simillima*, p. 292, pl. xvii, fig. 2, E. Ecuador, and *laticeps*, p. 295, pl. xx, fig. 1, Paraguay, **spp. nn.**, id. *ibid.*
- Oxyloricaria frenata*, Blgr., figured by REGAN, t. c. pl. xviii, fig. 2; *O. guentheri*, p. 299, pl. xviii, fig. 1, Upper Amazon, *robusta*, p. 300, pl. xix, fig. 1, Paraguay, and *tyra*, p. 300, pl. xix, fig. 2, R. Jurua, **spp. nn.**, id. *ibid.*
- Farlowella gladiolus*, Gthr., figured by REGAN, t. c. pl. xx, fig. 2; *F. gracilis*, **sp. n.**, id. *ibid.* p. 303, pl. xx, fig. 3, Cauca Valley, Colombia.
- Arges guentheri*, Blgr., pl. xxi, fig. 2, *orientalis*, Blgr., pl. xxi, fig. 4, *brachycephalus*, Gthr., pl. xxi, fig. 8, and *festæ*, Blgr., pl. xxi, fig. 7, figured by REGAN, t. c.; *A. homodon*, p. 309, pl. xxi, fig. 1, Andes of Colombia, *boulengeri*, p. 310, E. Ecuador, *eigenmanni*, p. 312, pl. xxi, fig. 3, Andes of Ecuador, *vallanti*, p. 312, Andes of Ecuador, *chotæ*, p. 313, pl. xxi, fig. 5, N. Ecuador, *marmoratus*, p. 314, pl. xxi, fig. 6, Andes of Colombia, *fissidens*, p. 316, Andes of Ecuador, and *simonsi*, p. 317, pl. xxi, fig. 9, Andes of Peru, **spp. nn.**, id. *ibid.*

## SILURIDÆ.

- Clarias leviceps*, Gill, redescribed by BOULENGER, P. Z. S. 1904, i, p. 200; *C. fuscus*, Lacep. Note by VAILLANT, Bull. Mus. Paris 1904, p. 298; *C. pulcher*, **sp. n.**, POPTA, Notes Leyden Mus. xxiv, p. 179, C. Borneo.
- Silurus mento*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiii, p. 192, Yunnan.
- Silurichthys schneideri* and *indragiriensis*, **spp. nn.**, VOLZ, Rev. Suisse Zool. xii, pp. 463 & 464, Sumatra.
- Macrones pluriradiatus*, Vaill., described and figured by VAILLANT, Miss. Pavie iii, p. 462, pl. xxiii, fig. 2; *M. bimaculatus*, **sp. n.**, VOLZ, Rev. Suisse Zool. xii, p. 466, Sumatra; *M. howong*, p. 181, *bongan*, p. 182, *bo*, p. 183, *kajan*, p. 184, and *fortis*, p. 185, **spp. nn.**, POPTA, Notes Leyden Mus. xxiv, C. Borneo; *M. medianalis*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiii, p. 194, Yunnan.
- Pseudobagrus ornatus*, **sp. n.**, DUNCKER, Mt. Mus. Hamburg xxi, p. 173, pl. ii, fig. 13, Muar R., Malay Peninsula.
- Liocassis fuscus*, **sp. n.**, POPTA, t. c. p. 186, C. Borneo.
- Neopangasius*, **g. n.**, near *Pseudopangasius*, Blkr., for *N. nieuwenhuisii*, **sp. n.**, POPTA, t. c. p. 180, C. Borneo.
- Liobagrus reini*, Hilg., figured by ISHIKAWA, P. Tokyo Mus. i, pl. i; *L. nigricauda*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiii, p. 193, Yunnan.
- Fajumia schweinfurthi*, **g.** and **sp. nn.** (foss.), STROMER, N. Jahrb. Min. 1904, i, p. 3, pl. 1, figg. 1 & 2, Middle Eocene of Egypt.
- Socnopæa grandis*, **g.** and **sp. nn.** (foss.), STROMER, t. c. p. 6, pl. 1, fig. 3, Middle Eocene of Egypt.

- Amiurus nebulosus*, Les. Notes on the breeding habits by H. M. SMITH & L. G. HARRON, Bull. U. S. Fish Comm. xxii, p. 151; *A. melas*, Raf., figured by T. LARGE, Rep. Fish Comm. Illin. 1900-02, pl. —; *A. australis*, p. 13, S. Vera Cruz, and *mexicanus*, R. Panuco, Mexico, **spp. nn.**, S. E. MEEK, Field Mus. Zool. v.
- Rhamdia oaxaca*, Meek, figured by S. E. MEEK, t. c. pl. v.
- Amphilius atesuensis*, **sp. n.**, BOULENGER, Ann. Nat. Hist. (7) xiv, p. 17, Gold Coast.
- Acrochordonichthys obscurus*, p. 187, *buettikoferi*, p. 188, and *varius*, p. 189, **spp. nn.**, POPTA, Notes Leyden Mus. xxiv, C. Borneo.
- Arius bonneti*, **sp. n.** (foss.), PRIEM, Bull. Soc. geol. France (4) iv, p. 44, figg., Upper Bartonian of the Paris Basin.
- Netrema mazatlan*, **sp. n.**, GILBERT, P. Calif. Ac. Zool. (3) iii, p. 255, pl. xxv, Mazatlan, Mexico.
- Galeichthys xenauchen*, Gilb., figured by GILBERT & STARKS, Mem. Calif. Ac. iv, pl. iv, fig. 8; *G. eigenmanni*, **sp. n.**, id. ibid. p. 21, pl. iv, fig. 7, Panama; *G. aguadulce*, **sp. n.**, S. E. MEEK, Field Mus. Zool. v, p. 9, pl. iv, R. Papaloapam, Mexico.
- Tachysurus emmelane*, Gilb., figured by GILBERT & STARKS, t. c. pl. vi; *T. steindachneri*, p. 29, pl. v, fig. 9, and *evermanni*, p. 32, pl. v, fig. 10, **spp. nn.**, id. ibid., Panama.
- Synodontis resupinatus*, **sp. n.**, BOULENGER, P. Z. S. 1904, i, p. 199, pl. viii, Upper Niger.
- Chiloglanis*, Peters. Synopsis of the species by BOULENGER, P. Z. S. 1903, ii, pp. 333; *C. modjensis*, **sp. n.**, id. ibid. p. 332, pl. xxxi, fig. 3, Modjo R., Gallaland; *C. cameronensis* and *batesii*, **spp. nn.**, id. Ann. Nat. Hist. (7) xiv, pp. 18 & 19, Cameroon.
- Bagarius nieuwenhuisii*, **sp. n.**, POPTA, Notes Leyden Mus. xxiv, p. 190, C. Borneo.
- Glyptosternum laak*, p. 190, and *tiong*, p. 191, **spp. nn.**, POPTA, t. c., C. Borneo.
- Pseudecheneis paviei*, Vaill., described and figured by VAILLANT, Miss. Pavie iii, p. 464, pl. xxiii, fig. 3.
- Callomystax schmidti*, **sp. n.**, VOLZ, Rev. Suisse Zool. xii, p. 470, Sumatra.
- Trichomycterus dispar*, Tsch., and *rivulatus*, C. & V. Notes by PELLEGRIN, Bull. Soc. zool. France xxix, p. 91.

## CYPRINIDÆ.

- J. REIGHARD, Science (2) xix, pp. 211 & 212, has made observations on the breeding habits of American Cyprinids, and on the function of the nuptial pearl-like warts of the males.
- On hybrids of German Cyprinids: E. LEONHARDT, Die Bastarde der Deutschen karpfenähnlichen Fische. Neudamm, 1904, 8vo, 58 pp., figg.
- Catostomus commersonii*, Lacep. On the breeding habits: CULBERTSON, P. Indiana Ac. 1903, p. 65. *C. tahoensis*, Gill & Jord., redescribed by RUTTER, Bull. U. S. Fish Comm. xxii, p. 147; *C. sonorensis*, Meek, and *conchos*, Meek, figured by S. E. MEEK, Field Mus. Zool. v, pls. vi & vii.
- Pantosteus lahonton*, **sp. n.**, RUTTER, t. c. p. 146, fig., N. E. California.
- Carpioides grayi*, Cope. Note by H. W. FOWLER, P. Ac. Philad. lvi, p. 242; *C. microstomus*, p. 27, fig., *elongatus*, p. 28, fig., and *labiosus*, p. 29, fig., **spp. nn.**, S. E. MEEK, t. c. Mexico.
- Moxostoma congestum*, B. & G. Note by H. W. FOWLER, t. c. p. 243.
- Dangila koedjem* and *rosea*, **spp. nn.**, POPTA, Notes Leyden Mus. xxiv, pp. 192 & 193, C. Borneo.

- Osteochilus jentinki*, p. 194, *vittatoides*, p. 195, *kelabau*, p. 196, *repang*, p. 196, and *bellus*, p. 197, **spp. nn.**, POPTA, Notes Leyden Mus. xxiv, C. Borneo.
- Labeo neumanni*, **sp. n.**, BOULENGER, P. Z. S. 1903, ii, p. 329, pl. xxix, Modjo and Wabbi Rivers, Gallaland; *L. chariensis*, **sp. n.**, PELLEGRIN, Bull. Mus. Paris 1904, p. 311, Shari R.
- Tylognathus kajaniensis* and *bo*, **spp. nn.**, POPTA, t. c. pp. 198 & 199, C. Borneo.
- Zezera hilgendorfi*, Ishikawa, described and figured by ISHIKAWA, P. Tokyo Mus. i, p. 3, pl. ii, fig. 1.
- Discognathus*, Heck. Synopsis of the African species by BOULENGER, P. Z. S. 1903, ii, p. 331; *D. blanfordii*, Blgr., figured, id. ibid. pl. xxxi, fig. 2; *D. makiensis*, **sp. n.**, id. ibid. p. 330, pl. xxxi, fig. 3, Maki R., L. Zwai.
- Crossochilus oblongus*, C. & V., var. n. *nigroloba*, POPTA, t. c., p. 200, C. Borneo; *C. pseudobagroides*, **sp. n.**, DUNCKER, Mt. Mus. Hamburg xxi, p. 176, pl. ii, fig. 12, Muar R., Malay Peninsula.
- Paracrossochilus*, **g. n.**, near *Crossochilus*, for *P. bicornis*, **sp. n.**, POPTA, t. c. p. 200, C. Borneo.
- Barbus maculatus*, C. & V. Note by DUNCKER, Mt. Mus. Hamburg xxi, p. 177. *B. proctozyrson*, Blkr., redescribed by VOLZ, Rev. Suisse Zool. xii, p. 477; *B. halei*, p. 178, pl. ii, fig. 15, *soroides*, p. 178, pl. i, fig. 7, *pahangensis*, p. 179, pl. i, fig. 4, and *lineatus*, p. 180, pl. ii, fig. 14, **spp. nn.**, DUNCKER, Mt. Mus. Hamburg xxi, Malay Peninsula; *B. grahami* and *yunnanensis*, **spp. nn.**, REGAN, Ann. Nat. Hist. (7) xiii, pp. 190 & 191, Yunnan; *B. linnellii*, **sp. n.**, LÖNNBERG, Ann. Nat. Hist. (7) xiii, p. 138, Elephant Lake, Cameroon Mountain; *B. erlungeri*, **sp. n.**, BOULENGER, P. Z. S. 1903, ii, p. 331, pl. xxx, Wabbi, Modjo, and Iraro Rivers, Gallaland; *B. micronema*, p. 237, Cameroon, *nummifer*, p. 449, L. Victoria, *macropristis*, p. 449, L. Victoria, and *doggetti*, p. 450, L. Victoria, **spp. nn.**, id. Ann. Nat. Hist. (7) xiii; *B. ansorgii*, p. 16, Angola, *walkeri*, p. 16, Gold Coast, *eutania*, p. 218, Angola, and *holotania*, p. 218, Cameroon to Congo, **spp. nn.**, id. op. cit. xiv.
- Luciocyprinus*, **g. n.**, near *Barbus* and *Gobio*, for *L. lang-soni*, **sp. n.**, VAILLANT, Bull. Mus. Paris 1904, p. 299, Upper Tonkin.
- Oreinus grahami*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xiv, p. 416, Yunnan.
- Acanthogobio paichevskii* and *oxyrhynchus*, **spp. nn.**, NIKOLSKI, Annuaire Mus. St. Petersb. viii, 1903, pp. 356 and 358, L. Chanka, E. Asia.
- Hemibarbus joiteni*, **sp. n.**, JORDAN & STARKS, Smithson. Collect. i, p. 241, p. lxiv, Tientsin, China.
- Pimephales anuli*, **sp. n.**, KENDALL, Bull. U. S. Fish Comm. xxii, p. 360, fig., Maine.
- Chasmistes chamberlaini*, **sp. n.**, RUTTER, Bull. U. S. Fish Comm. xxii, p. 147, N.E. California.
- Agosia robusta*, **sp. n.**, RUTTER, t. c. p. 148, fig., N.E. California.
- Notropis chalybeus abbotti*, subsp. n., H. W. FOWLER, P. Ac. Philad. lvi, p. 239, pl. xvii, New Jersey; *N. nazas* and *forionensis*, **spp. nn.**, S. E. MEEK, Field Mus. Zool. v, p. 70, figg., Mexico.
- Paranotropis*, **subg. n.**, for *Notropis luciodus*, Cope, and, *N. pilsbryi*, **sp. n.**, H. W. FOWLER, t. c. p. 245, fig., White River Basin, Arkansas.
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- H. V. NEAL, Mark Anniv. Vol. pp. 291-313, pl. xxii-xxiv, writes on the development of the spinal ventral nerves in Plagiostomes.
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BY

W. T. CALMAN, D.Sc.

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- E. hartmeyeri*, Red Sea &c. p. 38, pl. i, fig. 1; MICHAELSEN, t. c. n. sp.
- Fritillaria* spp. infested by parasitic Mesozoon *Lohmannella*; NERESHEIMER, Zeitschr. wiss. Zool. lxxvi, pp. 137-166, 2 pls., 6 text-figg.
- Gyndrocarpa*, p. 29, key to spp. p. 30, *placenta*, p. 30, *domuncula*, p. 33; MICHAELSEN, Mt. Mus. Hamburg xxi.
- G. domuncula*, Agulhas Bank and off E. Africa, 100-400 metres, p. 247, pl. x, fig. 14, pl. xiii, fig. 58; MICHAELSEN, Stolid. Ascidien Valdivia : *G. nigricans*, p. 91, pl. xv, figg. 1-4, *maxima*, p. 93, pl. xv, figg. 5-7, *latericius*, p. 94, pl. xv, figg. 8-11, *quadricorniculis*, p. 95, pl. xv, figg. 12 & 13, *purpurea*, p. 96, pl. xv, figg. 14 & 15, *similis*, p. 97, pl. xv, figg. 16 & 17, *systematica*, p. 98, pl. xv, figg. 18-21; SLUITER, Tunic. Siboga i : n. spp.
- Halocynthia chilensis*; p. 15, text-fig.; MICHAELSEN, Mt. Mus. Hamburg xxi.
- H. vanhoffeni*, Cape, p. 197, pl. x, fig. 13, pl. xii, fig. 44; MICHAELSEN, Stolid. Ascidien Valdivia : *H. transversaria*, p. 48, pl. xi, figg. 1-4, *breviramosa*, p. 49, pl. xi, figg. 5-7, *polycarpa*, 487 metres, p. 50, pl. xi, figg. 8 & 9; SLUITER, Tunic. Siboga i : n. spp.
- Herdmania* n. g. [see also *Euherdmania*], (*Herdmaniidae*) *claviformis*, California, p. 240, pls. xviii & xix; RITTER, Mark Anniversary Volume, n. sp.
- Herdmaniidae*, n. fam., p. 239; RITTER, t. c.
- Kükenthalia*, p. 112, *borealis*, p. 113; MICHAELSEN, Mt. Mus. Hamburg xxi.
- Lithonephrya eugyranda*, p. 164, text-fig. 1; DAMAS, Arch. Biol. xxi.
- Metandrocarpa* n. g. (*Polyzoineae*) p. 69, *dura*, p. 70, pl. i, fig. 8; MICHAELSEN, Mt. Mus. Hamburg xxi.
- Microcosmus albidus*, Cape, p. 213, pl. x, fig. 4, pl. xi, figg. 25 & 26; MICHAELSEN, Stolid. Ascidien Valdivia : *M. hemisphaerium*, p. 52, pl. xi, figg. 12-14, *arenaceus*, p. 53, pl. xi, figg. 15-18; SLUITER, Tunic. Siboga i : n. spp.
- Molgula echinosiphonica*, branchia, p. 782; DAMAS, Arch. Biol. xx : *M. occulta*, p. 167, text-fig. 2, *ampulloidis*, p. 170, text-fig. 3, *socialis*, p. 174, text-fig. 4, *macrosiphonica*, p. 177, text-fig. 5; DAMAS, op. cit. xxi.
- M. dentifera* (Ed. v. Beneden MS.), Belgium, p. 179, text-fig. 6; DAMAS, t. c. : *M. longipedata*, p. 113, pl. xiv, figg. 1-3, *flagrifera*, p. 114, pl. xiv, figg. 4-6, *crinita*, 69-694 metres, pl. xiii, figg. 16-18, *calvata*, p. 116, pl. xiv, figg. 7-10, *sordida*, 1788 metres, p. 118, pl. xiv, figg. 11-16, *vitrea*, p. 119, pl. xiv, figg. 17-19; SLUITER, Tunic. Siboga i : n. spp.



- Monandrocarpa*, n. g. (*Polyzoineæ*), p. 53, *tritoniæ*, Cape, p. 54; MICHAELSEN, Mt. Mus. Hamburg xxi: *M. tritoniæ*, Cape, p. 240, pl. x, fig. 2, pl. xiii, figg. 55-57; MICHAELSEN, Stolid. Ascidien Valdivia, n. sp.
- Oikopleura dioica*, segmentation of tail, p. 747; DAMAS, Arch. Biol. xx.
- Perophera listeri*, development of branchia, p. 785; DAMAS, t. c.
- Phallusia mammillata*, cross- and self-fertilisation, p. 114; GUTHERZ, Arch. mikr. Anat. lxiv.
- Podoclavelia molluccensis*, p. 5, *detorta*, p. 6, pl. iii, figg. 18-22, *fecunda*, p. 7, pl. iii, figg. 23 & 24, *procera*, p. 8, pl. iii, figg. 14-17; SLUTER, Tunic. Siboga i : n. spp.
- Polyandrocarpa* n. g. (*Polyzoineæ*) *lapidosa*, p. 34, pl. i, figg. 2 & 3; MICHAELSEN, Mt. Mus. Hamburg xxi.
- Polyzoa*, p. 55, *opuntia*, p. 58, subsp. *patagonica* n. subsp. E. Patagonia, p. 59, subsp. *pictonis*, p. 60, subsp. *waerni*, p. 61, subsp. *opuntia* (*typica*), p. 61, subsp. *gordiana*, p. 63, subsp. *lennoxensis*, p. 64, subsp. *coccinea*, p. 64; MICHAELSEN, Mt. Mus. Hamburg xxi.
- P. reticulata*, p. 65, pl. i, figg. 6a-d, & 7, *fulclandica*, p. 68; MICHAELSEN, t. c. : *P. reticulata*, p. 244; MICHAELSEN, Stolid. Ascidien Valdivia.
- Polyzoineæ*, def. p. 26, key to genera, p. 28; MICHAELSEN, Mt. Mus. Hamburg xxi.
- Pterygascidia* n. g. (*Corellideæ*), p. 21, *mirabilis*, 216 metres, p. 21, pl. ii, fig. 3, pl. vii, figg. 1-5; SLUTER, Tunic. Siboga i, n. sp.
- Rhabdocyathia latisinuosa*, 204 metres, p. 55, pl. xi, figg. 10 & 11; SLUTER, t. c. n. sp.
- Rhodosoma papillosum*, p. 26, pl. i, fig. 2, pl. iv, figg. 4-6; SLUTER, t. c.
- Rhopalopsis fusca*, p. 13, pl. ii, fig. 6; SLUTER, t. c.
- Rhopalopsis defecta*, p. 14, pl. iii, figg. 9-11, *tenuis*, p. 15, pl. iii, figg. 12 & 13; SLUTER, t. c. n. spp.
- Salpa henseni*, p. 651, pl. xii, fig. 1; APSTEIN, Rev. Suisse Zool. xii.
- S. amboinensis*, p. 651, pl. xii, figg. 2-10, *picteti*, p. 655, pl. xii, figg. 12-14, Amboina; APSTEIN, t. c. n. spp.
- Stolonica*, p. 68, *socialis*, p. 69; MICHAELSEN, Mt. Mus. Hamburg xxi.
- Styela gelatinosa*, p. 236; MICHAELSEN, Stolid. Ascidien Valdivia: *S. aurata*, p. 57, pl. vii, fig. 16, *palinorsa*, p. 60, pl. vii, fig. 17; SLUTER, Tunic. Siboga i.
- S. braueri*, off Sumatra, 750 metres, p. 232, pl. x, fig. 12, pl. xiii, figg. 52-54; MICHAELSEN, Stolid. Ascidien Valdivia: *S. sobria*, p. 63, pl. viii, fig. 1, *floccosa*, p. 64, pl. viii, figg. 2-4, *albomarginata*, p. 65, pl. viii, figg. 5-8, *contecta*, p. 66, pl. viii, figg. 9-12, *reniformis*, p. 67, pl. viii, figg. 13-16, *thelyphanes*, p. 68, pl. viii, figg. 17-19, *circumarata*, p. 70, pl. i, fig. 4, pl. ix, fig. 1, *orbicularis*, 538-694 metres, p. 71, pl. i, fig. 5, pl. ix, figg. 2 & 3, *reducta*, p. 72, pl. ix, figg. 4-6, *sedata*, p. 74, pl. ix, figg. 7-10, *incubita*, p. 75, pl. ii, fig. 7, pl. ix, figg. 11-14, *albo-punctata*, p. 76, pl. ix, figg. 15-17, *mæandria*, p. 77, pl. ix, figg. 18-20, *biforis*, p. 78, pl. x, figg. 1-4, *robusta*, p. 79, pl. x, fig. 5, *pustulosa*, p. 80, pl. x, figg. 6-9, *profunda*, 959 metres, p. 81, pl. x, figg. 10-13, *ambonensis*, p. 83, pl. x, figg. 14 & 15, *psammodes*, p. 84, pl. x, figg. 16-19, *glebosa*, p. 85, pl. x, figg. 20-22, *nutrix*, p. 86, pl. x, figg. 23 & 24, *asymmetrica*, p. 87, pl. x, figg. 25 & 26, *cylindrica*, p. 88, pl. xi, figg. 19-21; SLUTER, Tunic. Siboga i : n. spp.
- Stylopsis grossularia*, development of branchia, p. 771; DAMAS, Arch. Biol. xx.
- S. scævola*, p. 89, pl. vii, figg. 10-15; SLUTER, Tunic. Siboga i, n. sp.









## VII. MOLLUSCA.

BY

E. R. SYKES, B.A.

Assisted by E. A. SMITH, I.S.O.

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## INTRODUCTION.

THOUGH the literature for the year 1904 shows an increase over that for the previous year, this may, in a measure, be accounted for by the fact that the 'Record' has been kept open until a slightly later date.

As in past years, TRYON'S (619) 'Manual' has regularly appeared, Mr Pilsbry being now engaged on the account of the *Achatinidae*. Eleven parts of the 'Conchylien-Cabinet' (426) have been issued, dealing with *Helix*, *Naninidae*, *Agnatha*, and *Chitonidae*. A small portion of BRONN'S (86) 'Klassen, &c.' has appeared, and a further livraison of COSSMANN'S (140) very useful 'Essais de Paléoconchologie.' The latter author has also commenced, with PISSARRO (144), an illustrated 'Iconographie' in which it is proposed to figure all the known fossils of the Paris Basin; the checklist of this fauna compiled by CHÉDÉVILLE (111) has now been completed. HIDALGO (304, 305) has issued a further portion of his 'Obras,' and commenced a catalogue of the Philippine fauna. KOBELT (355) has made progress with his account of the European Marine Mollusca, and has in ROSSMAESSLER (543) given a summary of the non-marine shells, with an index to previous volumes of this work. To SACCO (546) we owe a supplement, with a necessary index, to his Tertiary fauna of Liguria. The Pteropods of the 'Siboga' Expedition have been dealt with by TESCH (610), and the Heteropods collected during several voyages of the 'Princesse-Alice' have received attention from VAYSSIÈRE (627). It may also be mentioned that a list of papers published in the 'Nachrbl. Deutsch. malak. Ges.', complete from the beginning, has been issued.

The papers dealing solely with the descriptions of new forms appear to be slightly less numerous than usual. Amongst those dealing with non-marine Molluscs, we may specially note PILSBRY and HIRASE (495-497) upon Japanese forms. ANDREAE (16) has described the shells collected in Central Asia during Futterer's Expedition, and GUDE (273) has completed his list of the Helicoids of that continent by some additions and corrections. A reprint of MORLET'S (450) papers on the fauna of Indo-China, will prove of service, as also the list of the shells of that region given by FISCHER and DAUTZENBERG (223). SMROTH (567) has published a useful paper on the slugs of Abyssinia; and ROCHEBRUNE and GERMAIN (534) have issued, unfortunately without figures, diagnoses of some Central African shells. A little work, of a popular type, on the Molluscs of Germany, has been written by LEHMANN (393), while TAYLOR (609) has continued his account of the British fauna. Two papers by HUDLESTON (314) and SMITH (575), dealing with the fauna of Lake Tanganyika, in the light of the hypothesis put forward some years ago as to its origin, should not be overlooked.

HUTTON'S (317) 'Index' to the New Zealand fauna, and KEEP'S (345) work on West American shells relate both to marine and non-marine molluscs.

Turning to marine shells, we may notice HÄGG'S (277) account of the forms collected during the Swedish Polar Expedition. JATA (330) and KWIETNIEWSKI (377) have dealt, respectively, with Mediterranean Cephalopods and Pteropods, while SYKES (604) has commenced a supplemental account to that published of the 'Porcupine' Expedition. Some molluscs from Northern Africa have been catalogued and described by PALLARY (467, 468), though it is doubtful whether the validity of all his new species can be maintained. Some new forms have been described from South Africa by SOWERBY (589), and SMITH (578) has issued a useful addendum to the known fauna, while he has also (579) dealt with some forms from the Bay of Bengal. The Nudibranch fauna of East Africa has been noticed by ELIOT (208-210), and MELVILL (433, &c.) has described some species from the

Persian Gulf, &c. PILSBRY (492, 493) has published diagnoses of new forms from Japan, and STREBEL (599) has added to our knowledge of the fauna of the Magellanic Region. The Australian fauna has, as in past years, formed the subject of papers by HEDLEY (291, &c.), including an interesting note on the 'Bassian Isthmus' as bearing on the present fauna, while he has also (293) described some deep water shells from New Zealand. PRITCHARD and GATLIFF (505, 506) have continued their work on the Victorian fauna. Two papers by HOYLE (312, 313) on Cephalopods may also be noticed, one dealing with some species from Ceylon, and the other with those collected by the 'Albatross.'

Anatomical papers have been numerous and valuable. Development and Embryology have been studied by CASTEEL (99, 100), CONKLIN (133-135), FUJITA (237), GLASER (258), JANSSENS & ELRINGTON (329), KOSTANECKI (372, 373), LEE (391, 392), LOEB (399), OSBORN (461, 462), SMALLWOOD (570), THESING (611), and WILSON (653) and others. The larval eye of *Chiton* has been dealt with by HEATH (285), while MAZZARELLI (431) has written on the free Opisthobranchiate larva. Statocysts in the Cephalopods have attracted FRÖHLICH (235), and GROSVENOR (269) has issued an interesting paper on nematocysts in Nudibranchs. DISTASO (192) has written on the nervous system of *Oscanius*, JORDAN (342) on that of the Pulmonata, while HYDE (318, 319) has dealt with the nerves and their endings in the eye of *Pecten*. MARCEAU (412, &c.) has published several notes on general anatomy, and of the other papers of this class we may mention ABRIC (1, &c.) and CUÉNOT (159) on Nudibranchs, BOISSEVAIN (73) on *Dentalium*, FLEURE (226, &c.) on *Haliotis*, GODWIN-AUSTEN (260) on *Eurystoma*, HEATH (286, &c) on the Aplacophora, HERDMAN (298, &c.) on the pearl oyster, KESTEVEN (350) on *Megalatractus*, MEISENHEIMER (432) on *Desmopterus*, PÖTZSCH (501) on *Planorbis*, RANGLES (509) on some *Trochidae*, SIMROTH (566) on several slugs, VAYSSIÈRE (629) on some Mediterranean Opisthobranchs, and WISSEL (656) on the Chitons collected by Schauinsland.

Turning to the more strictly systematic papers, we may notice DALL'S (171) work on the 'Frog-Shells and Tritons,' with the criticism by PILSBRY & VANATTA (498). With BARTSCH (172), Dr Dall has also issued a review of the *Pyramidellidae*, including a number of new generic names. CASEY (98) has described, unfortunately without any review of the family, a number of genera in the *Pleurotomidae*. Other papers of interest include BARTSCH (35) on *Sonorella*; a list of *Sphaerospira* by FULTON (240), and some notes on *Arcidae* by LAMY (380, &c.). HOYLE (310) has published a key to the recent Dibranchiate Cephalopods, and GRABAU (265) has issued a very interesting work on the phylogeny of *Fusus*.

Variation has continued to prove an attractive subject, DAVENPORT (178, 179) having, separately, and with HUBBARD (180) continued his work on *Pecten*, MALARD (409), METCALF (445), and WELDON (647) having dealt, respectively, with *Patella*, *Neritina*, and *Clausilia*, while the ever-present subject of *Helix nemoralis* has formed the subject of a work by LANG (384).

Pearls and their formation have been written on by DUBOIS (202-205), HERDMAN (298, &c.), and MCINTOSH (404).

Nomenclature, in the broad sense, has been once or twice the subject of serious discussion, and, were the law of the survival of the fittest applied to specific names, one cannot help feeling that a small landshell, rejoicing in the name of *Macrochlamys izushichitojimana* would be somewhat handicapped.

## CORRIGENDA IN ZOOLOGICAL RECORD FOR 1903, VOL. XL.

p. 42. Under Mexican Region, insert Costa Rica:—New species of *Bulimulus* and *Helicina*; PRESTON (427).

p. 56. Transfer entry of *Conulinus* to *Buliminidae* on p. 61.

p. 59. For *Papuina pseudosatsumana* read *P. pseudosatsuma*.

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1. ABRIC, P. Sur quelques variations expérimentales de coloration chez les Nudibranches. C.R. Soc. Biol. lvii, pp. 5-7.
2. —. Sur les nématoblasts et les nématocysts des Eolidiens. T. c. pp. 7-9.
3. —. Sur un nouveau Doridien de Wimereux. T. c. pp. 232-234.
4. —. Les cellules agglutinantes des Eolidiens. C.R. Ac. Sci. cxxxix, pp. 611-613.
5. AIRAGHI, C. Inocerami del Veneto. Boll. Soc. geol. Ital. xxiii, pp. 178-199, pl. iv.
6. ALDRICH, T. H. A new Oyster from the Eocene of Alabama. Nautilus xviii, p. 62, pl. iii.
7. ALMERA, J. Una playa de Terreno Cuaternario antiguo en el Llano de San Juan de Vilasar. Mem. Ac. Barcel. iv, No. 39, 11 pp.
8. AMI, H. M. Bibliography of Canadian Geology and Palæontology for the year 1902. Tr. R. Soc. Canada ix, sect. iv, pp. 173-188.
9. ANCEY, C. F. On some non-marine Hawaiian Mollusca. P. Malac. Soc. London vi, pp. 117-128, pl. vii.
10. —. New land snails from South America. Nautilus xvii, pp. 102-104.
11. —. Notes on a few shells. Op. cit. xviii, pp. 21 & 22.
12. —. Report on semi-fossil land shells found in the Hamakua District, Hawaii. J. Malac. xi, pp. 65-71, pl. v.
13. —. Études sur la faune malacologique des îles Sandwich (5<sup>e</sup> Partie). J. Conchyl. li, pp. 295-307, pl. xii.
14. —. Notes critiques et synonymiques, xxxi-lxxv. Op. cit. lii, pp. 288-316.
15. ANDREAE, A. Dritter Beitrag zur Binnenconchylienfauna des Miocäns von Oppeln in Schlesien. Mt. Mus. Hildesheim xx, 22 pp., figg.
16. —. Land- und Süsswasserschnecken aus Zentral- und Ostasien. In 'Durch Asien,' by K. Futterer, iii, pp. 43-90, 1 pl., 1903. [Pp. 43-56 appear to be a reprint of Title No. 12 in 1900.]
17. ANDRUSOW, N. [Geologische Untersuchungen auf der Halbinsel Taman.] Mater. Geol. Russlands xxi, pp. 255-382, pls. ix-xvi.
18. ANON. Les perles. Naturaliste 1904, pp. 22-24, 72-74, 85-87.

\* An asterisk prefixed to a title indicates that the Recorder has not seen the work in question.



19. ANTHONY, R. Note sur la forme et la structure des Muscles adducteurs des Mollusques Acéphales. Bull. Soc. Philom. vi, pp. 175-188, figg.
20. ——. Organisation et Morphologie des Tridacnides. C.R. Ac. Sci. cxxxviii, pp. 296-298, figg.
21. ——. L'acquisition de la forme arrondie chez les mollusques acéphales dimyaires fixés en position pleurothétique. (Note préliminaire.) Arch. zool. exp. Notes ii, pp. clxxiii-clxxxvii, 10 figg.
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24. \*BAKER, F. C. Shells of land and water; a familiar introduction to the study of Mollusks. Chicago, 8vo. [Fide Nautilus xviii, p. 72.]
25. ——. The Mollusks of Cedar Lake, Indiana. Nautilus xvii, pp. 112 & 113.
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27. ——. New American Lymnæas. T. c. pp. 62 & 63.
28. ——. The arrangement of the Collection of Mollusca in the Chicago Academy of Sciences. Museums J. iii, pp. 354-360, 1 pl.
29. ——. The Molluscan Fauna of the Dells of Wisconsin. Tr. Ac. St. Louis xiv, pp. 99-105.
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31. ——. Spire variation in *Pyramidula alternata*. Amer. Natural. xxxviii, pp. 661-668.
32. BALDWIN, J. W. *Jaminia muscorum* n. *sinistrorsum*. J. Conch. xi, p. 11.
33. BARRON, T. On the occurrence of Lower Miocene Beds between Cairo and Suez. Geol. Mag. i, pp. 603-608.
34. BARTSCH, P. A new *Ashmunella* [*A. townsendi*] from New Mexico. Smithson. Collect. xlvii, pp. 13 & 14.
35. ——. Notes on the Genus *Sonorella*, with descriptions of new species. T. c. pp. 187-200, pls. xxviii-xxxiii.
36. ——. A new species of *Amphidromus*. T. c. pp. 292 & 293, pl. xlvi.  
———. [See also DALL & BARTSCH (172).]
37. BASEDOW, H. Note on Tertiary Exposures in the Happy Valley District, with description of a new species of *Septifer*. Tr. R. Soc. S. Austral. xxviii, pp. 248-252, pls. xxxv & xxxvi.
38. BAUMBERGER, E. Fauna der untern Kreide im Westschweizerischen Jura. Teil i, pp. 1-60, maps. [Abh. Schweiz. pal. Ges.]
39. BAVAY, A. Descriptions de quelques nouvelles espèces du genre *Pecten* et rectifications. J. Conchyl. lii, pp. 197-206, pl. vi.
40. ——. Mission de Créqui-Montfort et Sénéchal de la Grange en Amérique du Sud. Mollusques terrestres et fluviatiles récoltés par le Dr Neveu-Lemaire. Bull. Soc. zool. France xxix, pp. 152-156, 7 figg.

[BAVAY, A.] [See also DAUTZENBERG & BAVAY (176).]

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46. — & VINCHON, A. Contribution à l'étude du gisement quaternaire d'Arrest (Somme). Bull. Mus. Paris x, pp. 79-83.
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## II. BIOLOGY.

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## B.—DISTRIBUTION.

## GEOGRAPHICAL.

N.B.—The numbers in brackets refer to the "Titles." A reference is thus given to each memoir containing any notice affecting the Molluscan fauna of the several geographical divisions here adopted. Synonymic notes and changes of systematic position are, however, not noticed here. References to minor notes, which are not included in the "List of Titles," but which contain faunistic notes of any value, are given to the work direct.

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North-West Africa :—Fauna, with numerous varieties, and n. spp. of *Helix*, *Valvata*, and *Vaucheria* (n. gen.) ; PALLARY (466).

3. *Central Asiatic Region.*

Central Asia :—Land and freshwater shells, with n. varr., and n. spp. of *Cathaica* ; ANDREAE (16).—New species of *Pisidium* ; CLESSIN (120).—New species of *Buliminus* ; ROSEN (542).

Turkestan :—*Stenogyra retteri*, n. sp. ; KOBELT (362).—Western Turkestan : New species of *Cathaica* ; GUDE (273).

4. *Chinese Region.*

Lake Baikal :—List of a few species ; IAKHONTOV (321) : An unknown Mollusc ; KOROTNEFF (371).

China :—Notes on some shells, with n. spp. of *Eulota* and *Limnæa* from Shantung ; JONES & PRESTON (341).

Formosa :—*Stenothyra formosana*, n. sp. ; PILSBRY & HIRASE (496).

5. *Japanese Region.*

Japanese Empire :—New varieties, and n. spp. of *Alyceus*, *Eulota*, *Japonia*, *Kaliella*, *Macrochlamys*, *Nesopupa*, *Punctum*, *Succinea*, *Trishoplita*, and *Vertigo* ; PILSBRY & HIRASE (495) : On shells, with n. spp. of *Alyceus*, *Carychium*, *Eulota*, *Macrochlamys*, *Melania*, *Punctum*, *Tornatellina*, and *Zonitoides* ; PILSBRY & HIRASE (496) : *Plectopylis hirasei*, n. sp., Riukiu Is. ; PILSBRY (488) : Critical notes on *Clausilia* with new sections and species ; PILSBRY (494) : New forms of landshells, with n. spp. of *Alyceus*, *Chloritis*, *Cyathopoma*, *Cyclotus*, *Diplommatina*, *Eulota*, *Ganesella*, *Hirasea*, *Japonia*, *Kaliella*, *Macrochlamys*, *Microcystina*, *Opeas*, *Punctum*, *Pupa*, *Situla*, *Trishoplita*, *Trochomorpha*, and *Zonitoides* ; PILSBRY & HIRASE (497) : *Ennea (Sinoennea) boettgeri*, n. sp. ; KOBELT in MARTINI & CHEMNITZ (426).

6. *Atlantidean Region.*

[None.]

## b. PALÆOTROPICAL AFRICAN ZONE.

7. *Central African Region.*

Upper Nile :—A list of land and freshwater Mollusca ; HÄGG (279).

Central Africa :—New species, from various localities, of *Corbicula*, *Limax*, *Limicotaria* (sic), *Limnea*, *Physopsis*, *Planorbis*, *Spathella*, *Subulina*, *Succinea*, *Trochonanina*, and *Vitrina* ; ROCHEBRUNE & GERMAIN (534).

Lake Tanganyika :—Critical review of the fauna, with notes on its affinities ; SMITH (575) : Origin of fauna ; HUDLESTON (314) : Notes on fauna ; GRAVIER, Bull. Mus. Paris ix, p. 347.

British East Africa :—*Limicolaria longa*, n. sp. ; PILSBRY in TRYON (619) : New species of *Ena* and *Subulina* ; SMITH (574).

German East Africa :—New species of *Pseudoglessula* ; SMITH (574).

E. Africa :—New species of *Spirotoxon* ; SIMROTH (567).

8. *West African Region.*

West Africa :—New species of *Limicolaria* and *Pseudachatina* ; PILSBRY in TRYON (619).

Corisco I. :—*Achatina occidentalis*, n. sp. ; PILSBRY in TRYON (619).

Cameroons :—*Varania loennbergi*, n. g. and n. sp. ; SIMROTH (567).



9. *South African Region.*

[None.]

10. *Malagasy Region.*

Nossi-Bé:—*Edentulina stumpffii*, n. sp.; KOBELT in MARTINI & CHEM-NITZ (426).

11. *Afro-Arabian Region.*

Abyssinia:—N. spp. of *Agriolimax* and *Atoxon*; SIMROTH (567).

## c. PALÆOTROPICAL ORIENTAL ZONE.

12. *Indian Region.*

Ceylon:—*Corilla erronea*, n. sp.; GUDE (272): New species and varieties of *Cataulus*; FULTON (238).

13. *Indo-Chinese Region.*

Indo-China:—Reprinted diagnoses of shells; MORLET (450): List of Fauna; FISCHER & DAUTZENBERG (223).

Cochin China:—*Harmandia castelneau*, n. sp.; ROCHEBRUNE (531).

Tonkin:—New species of *Hyriopsis* and *Unio*; ROLLE (539).

Yunnan:—New species of *Jullienia* and *Melania*; FULTON (241).

14. *Indo-Malay Region.*

Borneo:—*Amphidromus gossei*, n. sp.; BARTSCH (36): Non-marine shells from Sambas, with *Amphidromus weyersi*, n. sp.; DAUTZENBERG (174): *Opisthostoma beddomei*, n. sp.; SMITH (576): List of some shells collected; JONES & PRESTON (341).

Java:—New species of *Corbicula*, *Lagochilus*, *Melania*, and *Vivipara*; BULLEN (92): New species of *Melania*; FULTON (241).

Engano:—New species of *Trochomorpha*; SYKES (607).

15. *Philippine Region.*

Philippine Islands:—Illustrations of some landshells; HIDALGO (304).

## d. AUSTRALIAN ZONE.

16. *Austro-Malayan Region.*

British New Guinea:—On some Helicoids, with *Euplecta pratti*, n. sp.; GUDE (271).

Batjan:—New species of *Obba* and *Papuina*; SYKES (607).

Gebi I.:—Shells from, with n. spp. of *Albersia*, *Leptopoma*, and *Papuina*; FULTON (242): New species of *Papuina* and *Planispira*; SYKES (607).

Waigiou:—*Albersia waigiouensis*, n. sp.; SYKES (607).

Obi:—New species of *Ameria*, *Leptopoma*, *Perrieria*, and *Planispira*; SYKES (607).

17. *Australian Region.*

Victoria :—Few landshells from near Melbourne ; ANON, Victorian Natural. xx, p. 125.

New South Wales :—*Corbicula faba*, n. sp. ; BULLEN (92).

Central Australia :—*Xanthomelon bednalli*, n. sp. ; PONSONBY (500).

Queensland :—Review of *Sphaerospira* section of *Thersites*, with *T. concors*, n. sp. ; FULTON (240).

18. *Austro-Polynesian Region.*

New Hebrides :—New species of *Melania* ; SYKES (603).

19. *Polynesian Region.*

Hawaiian Is. :—Notes on *Opeas*, with *O. henshawi*, n. sp. ; SYKES (605) : Notes on *Tornatellina*, with n. spp. ; ANCEY (13) : Notes on shells, with n. varr., and n. spp. of *Auriculella*, *Helicina*, *Kaliella*, *Lyropupa*, *Microcystis*, *Nesopupa*, *Succinea*, and *Vitrea* ; ANCEY (9) : Several new subfossil *Succinea* from Hawaii, with notes on the deposit ; HENSHAW (297) : New species of *Punctum* (Oahu), and *Vitrea* (Hawaii) and several species described as subfossil from Hawaii which may prove to be recent ; ANCEY (12) : *Amastrea rex*, n. sp. ; SYKES (608).

Marshall Is. :—N. spp. of *Helicina*, *Opeas*, and *Trochomorpha* ; BOETTGER (70) : Of *Melania* ; BOETTGER (69).

20. *Neozelanian Region.*

New Zealand :—Notes on some shells with n. spp. of *Endodonta* and *Rhytida* ; SUTER (602) : Catalogue of all the known species ; HUTTON (317) : New species of *Endodonta* and *Laoma* ; WEBSTER (641) : Some species of *Oncidiella* noted ; WISELL (656).

Chatham Is. :—*Oncidiella flavescens*, n. sp. ; WISELL (656).

## e. NEANTARCTIC ZONE.

21. *Patagonian Region.*

Argentina :—New species of *Odontostomus* ; ANCEY (10).

22. *Chilian Region.*

[None.]

## f. NEOTROPICAL ZONE.

23. *Peruvian Region.*

Peru :—New species of *Bulimulus*, *Bulimus* (?), *Nenia*, and *Systrophia* ; ROLLE (540).

24. *Colombian Region.*

Colombia :—New species of *Glandina* and *Strophocheilus* ; DA COSTA (161).

25. *Brazilian Region.*

Bolivia :—Some freshwater species, with n. spp. of *Ancylus*, *Paludestrina*, *Planorbis*, *Pyrgula* ; BAVAY (40) : *Drymæus multispira*, n. sp. ; DA COSTA (161).

Brazil :—Occurrence of *Limax variegatus* ; RIBEIRO (524) : *Strophocheilus miersi*, n. sp. ; DA COSTA (161) : *Unionida* from Goyaz ; IHERING (322) : New species of *Bulimulus* and *Odontostomus* ; ANCEY (10).

26. *Mexican Region.*

Panama :—*Neocyclotus panamensis*, n. sp. ; DA COSTA (161).

Costa Rica :—*Streptostyla costaricensis*, n. sp. ; DA COSTA (161).

Mexico :—*Spiraxis cacahuamilpensis*, n. sp. ; HERRERA, Mem. Soc. Ant. Alzate v, p. 219 [1891] : New species of *Sonorella* ; BARTSCH (35) : *Glandina lamyi*, n. sp. ; FISCHER & CHATELET (222).

New Mexico :—*Ashmunella townsendi*, n. sp. ; BARTSCH (34) : Shells, with *Ashmunella walkeri*, n. sp. ; FERRISS (218).

Lower California :—*Sonorella merrilli*, n. sp. ; BARTSCH (35) : New subsp. of *Sonorella lohrii* ; PILSBRY (489).

27. *Caribbean Region.*

[None.]

## g. NEARCTIC ZONE.

28. *American Region.*

United States :—Notes on *Somatogyrus*, with n. spp. ; WALKER (637) : New varieties of *Lymnaea* ; BAKER (26, 27).—Eastern American *Ancylus* ; WALKER (638).

Alabama : List of shells collected, with some critical notes ; HINKLEY (307) : New forms of *Polygyra* ; CLAPP (116) ; *Omphalina pilsbryi* ; CLAPP (115).—Arizona : Shells, with *Oreohelix clappi*, n. sp. ; FERRISS (218) : New species of *Sonorella* ; BARTSCH (35).—Colorado : *Agriolimnaea agrestis* ; COCKERELL (121) : Few shells from Pike's Peak at 10,000 feet ; COCKERELL, Nautilus xvii, p. 130.—Delaware : List of shells collected ; RHOADS (523).—Florida : *Ammicola augustina*, n. sp. ; PILSBRY (486) : Northernmost habitat of *Liguus fasciatus* ; MOORE (449).—Indiana : Fauna of Cedar Lake ; BAKER (25) : Range of *Polygyra tridentata* var. *discoidea* ; DANIELS, Nautilus xviii, p. 92.—Iowa : Shells from near Des Moines ; HYNING, Nautilus xvii, p. 130.—Maine : Landshells of Ironbound Island ; BLANEY (59) : Landshells of Mt Desert ; COLTON (132).—Massachusetts : Few shells from Cape Cod ; JOHNSON (338).—New England : *Helix hortensis* ; WINKLEY (654).—New York : *Arion circumscriptus* at Niagara Falls ; COCKERELL, Nautilus xviii, p. 91.—Pennsylvania : *Margaritana margaritifera* ; CONNER (136).—Wisconsin : Collection of shells from ; BAKER (29).—Berinda : Post tertiary landshells, some of which may be recent ; GULICK (274) : Few landshells ; DAVIS (181).

29. *Californian Region.*

West America :—Popular account of fauna, with systematic list ; KEEP (345).

California :—*Sonorella fisheri*, n. sp. ; BARTSCH (35) : *Limax maximus* ; BARTSCH, Nautilus xviii, p. 12 : *Limax maximus* ; VANATTA, t. c. p. 23 : *Limax maximus* and other slugs ; STEARNS (593).

30. *Canadian Region.*

- Canada :—Additions to fauna ; WALKER, *Ottawa Natural*. xviii, p. 18.—  
 Ottawa : Occurrence of *Margaritana deltoidea* ; F. R. L., t. c. p. 91.  
 Alaska :—*Lymnaea randolphi*, n. sp. ; BAKER (27).  
 Newfoundland :—Occurrence of *Helicigona arbustorum* ; WHITEAVES,  
*Ottawa Natural*. xvii, p. 192.

*MARINE MOLLUSCA.* [For Non-Marine, see p. 41.]

- European Seas :—Review of *Ostrea* ; LOCARD (398).  
 Study of fauna of European Seas continued ; KOBELT (355).  
 Supplement to Mollusca of 'Porcupine' Expeditions commenced, with  
 n. spp. of *Cylichna* and *Retusa* ; SYKES (604).

1. *Arctic Province.*

- Polar Sea :—*Pecten frigidus*, n. sp. ; JENSEN (333).  
 Jan Mayen :—*Portlandia kolthoffi*, n. sp. ; HÄGG (277).  
 Greenland :—Some species quoted ; HÄGG (277).  
 Spitzbergen :—Supplement to Mollusca collected by Russian Expedition ;  
 KNIPOWITSCH (353) : List of some species ; HÄGG (277).

2. *Boreal Province.*

- North Atlantic :—*Spirialis retroversus* ; OSTENFELD & PAULSEN, *Medd.*  
*Gronland* xxvi, p. 169.  
 Norway :—*Enteroxenos ostergreni*, apparently n. gen. and sp. ; BONNEVIE  
 (76).

3. *Celtic Province.*

- North Sea :—Acclimatization of *Petricola* ; PELSENEER, *C.R. Ass. Franc.*  
 1903, pt. i, p. 223  
 British Isles :—Lancashire : Marine shells from Fleetwood ; JACKSON,  
*J. Conch.* xi, p. 115.—*Barnea candida* on Wirral Peninsula ; STANDEN,  
 t. c. p. 49.—Review of fauna of Plymouth District ; MARINE BIOLOGICAL  
 ASSOCIATION (419).—Suffolk : List of Fauna ; GREENE (266).—Few shells  
 from Tetley Lock, Lincs. ; CASTLE, *Naturalist* 1904, p. 254.—Occurrence  
 of *Crepidula* in Whitstable Bay ; SAUNDERS, *Rep. East Kent Soc.* i, p. 45.  
 —*Ostrea angulata* on East Coast ; PLOWRIGHT, *Tr. Norfolk Soc.* vii, p. 753.  
 Northumberland : Species new to the coast ; LEBOUR (390).—Marine  
 shells from Achill ; MASSY, *Irish Natural.* xiii, p. 44.—Shells from Raghly ;  
 CHASTER (110).  
 Scilly Isles :—Few shells mentioned ; VALLENTIN, *J. Inst. Cornwall* xvi,  
 p. 129.

4. *Lusitanian Province.*

- Atlantic Ocean :—Collection of Heteropoda, with n. spp. of *Cardiapoda*,  
*Carinaria*, *Firola*, and *Firoloida* ; VAYSSIÈRE (627).  
 Channel Is. :—Addenda to fauna ; MARQUAND (420).  
 France :—*Synapticola perrieri*, n. gen. and sp. ; MALARD (410).—Gulf of  
 Gascony : Two or three shells dredged ; GRUVEL, *Pr.-verb. Soc. Sci.*  
*Bordeaux* 1897, p. 248.—Wimereux : *Doris giardi*, n. sp. ; ABRIC (3).—  
 Gulf of Marseilles : *Madrella aurantiaca*, n. sp. ; VAYSSIÈRE (629) :  
*Archidoris stellifera*, n. sp. ; VAYSSIÈRE (628).—Arcachon : On some  
 Nudibranchs ; CUENOT (159).



Portugal:—Review of *Patellidæ*, Polyplacophora, and Scaphopoda; NOBRE (455).

Mediterranean:—List of shells from Llansa; MALUQUEZ Y NICOLAU (411): Notes on shells, with n. varr., and n. spp. of *Cyclonassa*, *Mitra*, and *Mytilus*; PALLARY (468): Notes on Cephalopods; JATA (330).

Adriatic:—*Cerithium sykesi*, n. sp.; BRUSINA (89).

Capri:—Fauna near; LO BIANCO (397).

Black Sea:—Some shore forms; HAUPT (282).

Algiers:—Occurrence of *Natica prietoi*; ANCEY (11).

Gulf of Gabes:—Fauna, with supposed n. varr. and subspp., and n. spp. of *Clathromangilia* (?), *Eulima*, *Ginnania*, *Homotoma*, *Mangilia*, *Megaxinus*, *Philbertia*, *Retusa*, and *Turbonilla*; PALLARY (467).

### 5. Aralo-Caspian Province.

On the fauna; SOWINSKY (590).

### 6. West African Province.

West Africa:—List of shells from Rio de Oro; FONT Y SAGUÉ (230): *Chlamys weberi*, n. sp.; BAVAY (39).

Sierra Leone:—*Cardita umbonata*, n. sp.; SOWERBY (588).

St Helena:—*Helenella insolens*, n. gen. and sp.; CASEY (98).

Ascension I.:—*Marginella robusta*, n. sp.; SOWERBY (588).

### 7. South African Province.

South Africa:—New species of *Arca*, *Cardita*, *Cardium*, *Chlamys*, *Crassatella*, *Crenella*, *Cuspidaria*, *Nucula*, *Nuculana*, *Poromya*, *Tellina*, and *Venus*; SOWERBY (589).

Cape Colony:—List of shells from Port Alfred, with notes, and n. spp. of *Ampullarina*, *Ancilla*, *Bullia*, *Cardita* (?), *Carditella*, *Clathurella*, *Cultellus*, *Cynisca*, *Drillia*, *Ethalia*, *Eulima*, *Eulimella*, *Fusus*, *Glyphostoma*, *Hochstetteria*, *Lepton*, *Lima*, *Limopsis*, *Lucina*, *Mangilia*, *Marginella*, *Modiola*, *Nassa*, *Natica*, *Purpura*, *Rissoa*, *Rissoina*, *Semele*, *Tellinmya*, *Tellina*, *Terebra*, *Theora*, *Trifora*, and *Turbonilla*; SMITH (578).

Natal:—*Sepia burnupi*, n. sp.; HOYLE (311).

### 8. Indo-Pacific Province.

E. Africa and Zanzibar:—On Nudibranchiata, with n. spp. of *Archidoris*, *Fracassa*, *Halgerda*, *Peltodoris*, *Platydoris*, *Sclerodoris* (n. gen.), *Staurodoris*, *Thordissa*, *Trippa*; ELIOT (208): n. spp. of *Chromodoris*; ELIOT (209): n. spp. of *Bornella*, *Marionia*, *Nembrotha*, *Notodoris*, *Pleuroleura*, *Trevelyana*; ELIOT (210).

Red Sea:—*Hexabranchus plicatus* and *Notarchus brevipes*, n. spp.; HÄGG (278).

Gulf of Oman:—New species of *Aclis*, *Daphnella*, *Eulima*, *Mangilia*, *Oscilla*, and *Rissoina*; MELVILL (438): New species of *Basilissa*, *Bittium*, *Cerithium*, *Clathurella*, *Cyclostrema*, *Cylichna*, *Daphnella*, *Ethalia*, *Mangilia*, *Mucronalia*, *Pleurotoma*, *Retusa*, *Scissurella*, *Trifora*, and *Turbonilla*; MELVILL (436).

Persian Gulf, &c.:—Review of *Cypræidæ*; MELVILL & STANDEN (440): New species of *Actæon*, *Mangilia*, and *Mitra*; MELVILL (436): New species of *Aclis*, *Ancistrosyrinx*, *Bullia*, *Clathurella*, *Columbella*, *Cyclostrema*, *Eulimella*, *Fenella*, *Fossarus*, *Lotorium*, *Mangilia*, *Philine*, *Rissoa*, *Scala*,

*Syrnola*, and *Turbonilla*; MELVILL (433): New species of *Eulimella*, *Odostomia*, *Omphalius*, and *Turritella*; MELVILL (438).

Arabian Sea:—*Mumiola carbacea*, n. sp.; MELVILL (438): New species of *Eulimella* and *Pleurotoma*; MELVILL (433).

Bay of Bengal, &c.:—Deep Sea shells, with n. spp. of *Acmea*, *Anatina*, *Atys*, *Capulus*, *Chiton*, *Clathurella*, *Cylichna*, *Drillia*, *Lacuna*, *Myrina*, *Pecten*, *Pleurotoma*, *Psanmobia*, *Scaphander*, *Vesicomya*, and *Xylophaga*; SMITH (579).

Pacific Ocean:—*Peronodoris cancellata*, n. gen. and sp., and *Tritonia incerta*, n. sp.; BERGH (52).

Calcutta:—*Nassa gangetica*, n. sp.; PRESTON (502).

Ceylon:—New species of *Clathurella*, *Coralliophila*, *Cythara*, *Mactra*, *Micronalia*, *Murex*, *Nassa*, *Styloptygma*, and *Thala*; PRESTON (502): Cephalopods, with n. spp. of *Polypus*; HOYLE (313).

Singapore:—New species of *Odostomia* and *Turbonilla*; DALL & BARTSCH (172).

Borneo:—List of some shells collected; JONES & PRESTON (341): *Modiola sambasensis*, n. sp.; DAUTZENBERG (174).

East Indies:—A collection of Gymnosomata and Thecosomata, with n. spp. [cf. last year's Record for names]; TESCH (610).

Celebes:—*Amussium sibogai*, n. sp.; DAUTZENBERG & BAVAY (176).

China Sea:—*Chlamys ambiguus*, n. sp.; BAVAY (39): *Linguella variolosa*, n. sp.; BERGH (52): *Dolium magnificum*, n. sp.; SOWERBY (587): List of some Mollusca, with n. spp. of *Assimineia* and *Pecten*; JONES & PRESTON (341).

Philippines, Iolo, and Marianes:—Fauna commenced; HIDALGO (305).

Philippines:—*Murex multispinosus*, n. sp.; SOWERBY (587): *Lophiotoma microsticta*, n. gen. and sp.; CASEY (98).

Pacific Ocean:—*Chlamys cythereus*, n. sp.; BAVAY (39).

Hawaiian Islands:—*Cassia fortisulcata*, n. sp.; SMITH (573): Unnamed species of *Proneomenia* and *Rhopalomenia*; HEATH (287).

Pacific Is.:—Some species of Chitons enumerated and discussed; WISELL (656).

Temoe:—Notes on *Meleagrina*; SEURAT (555).

Marquesas Is.:—*Cirrobrachium filiferum* and *Rhynchoteuthis chuni*, n. spp.; HOYLE (312).

New Caledonia:—*Chlamys wilhelminae*, n. sp.; BAVAY (39).

## 9. Australo-Zealandic Province.

Southern Australia:—Distribution of fauna explained by a former isthmus across Bass' Straits; HEDLEY (291).

South Australia:—Notes on shells, with n. spp. of *Cancellaria*, *Cassidea*, *Nacella*, and *Stephopoma*; VERCO (630).

New South Wales:—Addenda to fauna, with critical notes, and n. spp. of *Atys*, *Capulus*, *Chione*, *Dacrydium*, *Daphnella*, *Epigrus*, *Philobrya*, *Phos*, *Rissoa*, *Stiva* (n. gen.), *Strebloceras*, and *Thraciopsis*; HEDLEY (292).

Victoria:—List of fauna continued; PRITCHARD & GATLIFF (505): New species of *Cyclopecten* and *Tellina*; PRITCHARD & GATLIFF (506).

Tasmania:—New species of *Daphnella* and *Philippiella*; HEDLEY (292): *Alloidoris marmorata*, n. gen. and sp., and *Discodoris dubia*, n. sp.; BERGH (52).

New Zealand:—On shells, with n. spp. of *Cæcum*, *Couthouyia*, *Eulima*, *Leiostraca*, *Liotia*, *Pleurodon*, *Puncturella*, *Rissoa*, *Schismope*, *Scissurella*, and *Verticipronus* (n. gen.); HEDLEY (293): Catalogue of all the known species; HUTTON (317): N. spp. of *Archidoris* and *Homoiodoris*; BERGH (52): *Onithochiton marmoratus*, n. sp.; WISELL (656).

10. *Japonic Province.*

Japan :—Notes on Gastropods, with new forms, and n. spp. of *Cerithium*, *Clathurella*, *Collonia*, *Columbella*, *Cyllene*, *Daphnella*, *Drillia*, *Euchelus*, *Fusus*, *Mangilia*, *Mitra*, *Ocenebra*, *Parviterebra* (n. gen.), *Polinices*, *Purpura*, *Rissoa*, *Rissoina*, *Siphonaria*, *Terebra*, *Thala*, *Tornatina*, *Tritonidea*, *Trochus*, and *Turbonilla*; PILSBRY (492): Notes on Pelecypods, with new forms, and n. spp. of *Arca*, *Cardium*, *Chione*, *Kellia*, *Mactra*, *Ostrea*, *Pitar*, *Spisula*, and *Tellina*; PILSBRY (493): New species of *Chlamys*; BAVAY (39): *Cuthona* (?) *bicolor*, n. sp.; BERGH (52).

11. *Aleutian Province.*

Alaska :—*Limifossor talpoideus*, n. gen. and n. sp. of Amphineura; HEATH (287).

Kuril Is. :—New species of *Buccinum*; PILSBRY (490).

12. *Californian Province.*

West America :—Popular account of fauna, with systematic list; KEEP (345): Origin of fauna; SMITH (581).

N. America, West Coast :—*Melibe pellucida*, n. sp.; BERGH (52).

California :—*Odostomia americana*, n. sp.; DALL & BARTSCH (172): *Dentalium vallicolens*, n. sp.; RAYMOND (512): *Coryphella californica*, n. sp.; BERGH (52): *Periploma sulcata*, n. sp.; DALL (169): New species of *Pleurotoma*; RAYMOND (513).—List of shells dredged off Santa Catalina Island; LOWE (402).

13. *Panamic Province.*

Central America :—*Chiton angustus*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (426).

Panama :—N. spp. of *Froekenia*, *Stauroteuthis*, and *Tremoctopus*; HOYLE (312).

Mexico :—*Loligo diomedea*, n. sp.; HOYLE (312).

Colombia :—*Chiton sowerbyanus*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (426).

Galapagos Is. :—*Mastigoteuthis dentata* and *Polypus oculifer*, n. spp.; HOYLE (312).

14. *Peruvian Province.*

Chile :—*Chiton glaber*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (426).

15. *Antarctic Province.*

On the distribution of the Antarctic fauna; PELSENEER (475).

Magellan Region :—List of sp. of *Trophon*, with 14 n. spp.; STREBEL (599).

Falkland Islands :—Notes on fauna; VALLENTIN (623).

16. *Argentine Province.*

[None.]

17. *Caribbean Province.*

Brazil :—*Fusus brasiliensis*, n. sp.; GRABAU (265).

18. *Transatlantic Province.*

Florida :—*Pyramidella dodona*, n. sp. ; DALL & BARTSCH (172).

Maine :—Notes on shells from Frenchman's Bay ; BLANEY (58).

Massachusetts :—Few shells from Cape Cod ; JOHNSON (338).

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Germany:—List of fossils from South Germany; PARKINSON, Geol. Mag. i, p. 472.—A Culm fauna near Giessen; PARKINSON (469).

Dahnatia:—Fossils from near Budua; RENZ, Zeitschr. Deutsch. geol. Ges. lv, Mt. p. 16.

Moravia:—*Belemnites*, &c., from; SMYČKA (582).

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America:—List of fossils from Kansas; BEEDE & ROGERS (47).—Fauna of Colorado; GIRTY (256).—New genera from Texas and Kansas; GIRTY (255).—Fossils from Arizona; GIRTY in RANSOME, Pap. U. S. geol. Survey xxi, p. 46.

##### Devonian:—

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Germany:—List of fossils from near Remscheid; SPRIESTERSBACH,

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*Froekenia*, **n. gen.** for *F. clara*, **n. sp.**, Cape Mala, Panama ; HOYLE, t. c. p. 7, fig.

*Loligo diomedeeae*, Acapulco, Mexico ; HOYLE, t. c. p. 29, fig. : **n. sp.**

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*Stauroteuthis hippocrepium*, Malpelo I., Gulf of Panama ; HOYLE, Bull. Mus. Harvard xliii, No. 1, p. 6, fig. : **n. sp.**

*Tremoctopus scalenus*, Panama ; HOYLE, t. c. p. 13, fig. : **n. sp.**

## AMMONEA.

†*Arctoceras*, Böhm, renamed *Nathorstites*, q. v.

†*Braunsella*, **n. n.** for *Braunsina*, Buckman, preocc. ; BUCKMAN (90), p. cii.

†*Braunsina*, renamed *Braunsella*, q. v.

†*Canavarella*, **n. gen.**, type *C. belophora*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. cxxix.

†*Canavaria*, Buckm., renamed *Canavarina*, q. v.

†*Canavarina*, **n. n.** for *Canavaria*, Buckman ; BUCKMAN (90), p. cxli.

†*Darellella*, **n. gen.**, type *D. recticostata*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. cvii.

†*Darellina*, **n. gen.**, type *D. planaris*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. cvi.

†*Dawsonites*, **n. gen.** for *Trachyceras canadense*, Whiteaves, Trias ; BÖHM (62), p. 56.

†*Deltatoceras*, correction for *Deltoceras*, Buckman, 1902 ; BUCKMAN (90), p. cxix.

†*Entogonites*, **n. n.** for *Tetragonites*, Kittl non Kossmat ; KITTL, Verh. geol. Reichsanst. 1904, p. 322.

†*Episagoceras*, **n. gen.** for *Sagoceras wyneei*, Waagen, &c., Trias, India ; NOETLING, N. Jahrb. Min. B.B. xix, p. 363.

†*Frechiella*, **n. subgen.** of? for *Phylloceras subcarinatum*, Young & Bird ; PRINZ, op. cit. 1904, i, p. 31.

†*Himalayites* (Uhlig MS.) **n. gen.** for *H. treubi*, &c., **n. spp.**, Secondary, Sula Is. ; BOEHM (60), p. 38.

†*Hugia*, **n. gen.**, type *H. curva*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. cxi.

†*Lopadoceras*, **n. gen.**, type *L. arcuatum*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. cxi.

†*Nathorstites*, **n. n.** for *Arctoceras*, Böhm non Hyatt ; BÖHM (62), p. 61.

†*Nipponites*, **n. gen.** for *N. mirabilis*, **n. sp.**, Cretaceous, Japan ; YABE, J. Coll. Tokyo xx, No. 2, p. 20.



- +*Edania*, **n. gen.**, type *Æ. falcigera*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. cvii.  
 +*Osmanoceras*, **n. gen.** for *O. undulatum*, **n. sp.**, Carboniferous, Sarajevo ; KITTL, Jahrb. geol. Reichsanst. liii, p. 674.  
 +*Paineia*, **n. gen.**, type *P. nitens*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. lxxvi.  
 +*Spiticerus*, **n. subgen.** of *Holcostephanus* for *H. spitiensis*, Blanfd., &c., Spiti Shales ; UHLIG (622), p. 85.  
 +*Stokeia*, **n. gen.**, type *S. marmorea*, **n. sp.**, Oolite, Brit. Is. ; BUCKMAN (90), p. cxxvii.  
 +*Taramellia*, Campana, renamed *Taramelliceras*, q. v.  
 +*Taramelliceras*, **n. n.** for *Taramellia*, Campana, preocc. ; CAMPANA, Boll. Soc. geol. Ital. xxiii, p. 251.  
 +*Tetragonites*, **n. gen.** for *T. grimmeri*, **n. sp.**, Carboniferous, Sarajevo ; KITTL, Jahrb. geol. Reichsanst. liii, p. 677 : Renamed *Entogonites*, q. v.  
 +*Uhligia*, **n. gen.**, type *Hamites minutus*, Neum. & Uhlig ; KOENEN (366), p. 57.

## TETRABRANCHIATA.

- †*Amphoreopsis*, **n. gen.** for *A. paucicamerata*, **n. sp.**, Carboniferous, Isle of Man ; CRICK, P. Malac. Soc. London vi, p. 134.  
*Nautilus*, popular notes on ; MANGER, P. South London Soc. 1903, p. 1.

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- Monograph of Agnatha continued ; KOBELT in MARTINI & CHEMNITZ (426).  
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*Ennea*, notes on classification ; KOBELT (358) : *E. albida*, Putzeys, is a synonym of *Streptostele horei*, Smith ; ANCEY, J. Conchyl. lii, p. 290 : *E. iwakawa*, **n. subsp.** ; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 631 : *E. (Diaphora) porrecta*, Martens, p. 116, *homalogyra*, Quadras & Moellendorff, p. 119, (*Sinoënnea*) *fuchsi*, Gredler, p. 145, *micropleuris*, p. 148, *plagiostoma*, p. 150, *densecostulata*, Moellendorff, *densecostata*, Boettger, p. 151, *malaccana*, Moellendorff, p. 287, (*Gulella*) *noltei*, Boettger, figd. ; KOBELT in MARTINI & CHEMNITZ

- (426): *E. (Gulella) girardi*, n. n. for *E. hidalgoi*, Girard non Moellendorff; KOBELT in MARTINI & CHEMNITZ (426), p. 287.
- Ennea (Sinoennea) boettgeri* (Nevill MS.), Japan; KOBELT in MARTINI & CHEMNITZ (426), p. 288, fig. : n. sp.
- Glandina bogotensis*, Colombia; DA COSTA, P. Malac. Soc. London vi, p. 6, fig. : *G. lamyi*, Mexico; FISCHER & CHATELET, J. Conchyl. li, p. 321, fig. : n. spp.
- Indoennea*, n. subgen. of *Ennea* for *E. vara*, Bens., &c.; KOBELT, Nachrbl. Deutsch. malak. Ges. 1904, p. 28 : also in MARTINI & CHEMNITZ (426), p. 154.
- Pseudelma*, n. gen. for *Ennea incisa*, Morel., and *E. martensiana*, Morel.; KOBELT, Nachrbl. Deutsch. malak. Ges. 1904, p. 29 : also in MARTINI & CHEMNITZ (426), p. 125.
- Ptychorhytida* (Moellendorff MS.), n. subgen. of *Rhytida*, type *R. beraudi* (Gassies); KOBELT in MARTINI & CHEMNITZ (426), p. 65.
- Pupa canaliculata*, Crosse, is a synonym of *Gibbus uvula*, Desh.; ANCEY, J. Conchyl. lii, p. 305.
- Rhytida beraudi*, Gass., is a synonym of *R. bisulcata*, Pfr.; ANCEY, t. c. p. 289 : *R. (Macrocycloides) euglypta*, n. n. for *R. lutea*, Moellendorff; KOBELT in MARTINI & CHEMNITZ (426), p. 45.
- Rhytida duplicata*, New Zealand; SUTER, P. Malac. Soc. London vi, p. 155, fig. : n. sp.
- Sinoennea*, n. subgen. of *Ennea*, type *Ennea strophiodes*, Gredler; KOBELT, Nachrbl. Deutsch. malak. Ges. 1904, p. 27 : also in MARTINI & CHEMNITZ (426), p. 142.
- Streptaxis rollandi*, Bern., note on; ANCEY, J. Conchyl. lii, p. 307.
- S. paradiscus*, Mildff., is a synonym of *S. discus*, Pfr.; ANCEY, t. c. p. 289.
- Streptostyla costaricensis*, Costa Rica; DA COSTA, P. Malac. Soc. London vi, p. 6, fig. : n. sp.
- Testacella haliotidea*, habits; COOKE (138).

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- Agriolimax afer*, p. 676, *uataderensis*, p. 678, *gardullanus*, p. 679, *gofanus*, p. 680, *glandulosus*, p. 681, *koschanus*, p. 685, *kontanus*, *concrementosus*, p. 687, *kaffanus*, *abessinicus*, p. 689, *deckenii*, p. 690, *gimirranus*, p. 691, *fuscus*, p. 693, *limacoides*, p. 694, Abyssinia; SIMROTH, Zool. Jahrb. Syst. xix, figg. : n. spp.
- Amalia guebhardi*, Alpes-Maritimes; POLLONERA in CAZIOT, Feuille Natural. 1904, xxxiv, p. 223, fig. : n. sp.
- Ariophanta juliana*, generative organs; OVERTON (463).
- Atoxon erlangeri*, Abyssinia; SIMROTH, Zool. Jahrb. Syst. xix, p. 700, fig. : n. sp.
- Collingea*, notes on; COLLINGE (126).
- Coneuplecta moellendorffi*, n. n. for *C. globulosa*, Mildff., 1901 non 1900; GUDE, J. Malac. xi, p. 95.
- Ctenoglypta*, n. gen. for *Helix newtoni*, Nevill; ANCEY, J. Conchyl. lii, p. 306.
- Damayantia*, notes on; COLLINGE (126) : *D. smithi*, notes on; GODWIN-AUSTEN (261).
- Euplecta pratti*, British New Guinea; GUDE, P. Malac. Soc. London vi, p. 114, fig. : n. sp.
- Hirasea insignis*, Japan; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 636 : n. sp.
- Hyalinia adjaciensis*, Corsica; CAZIOT, Mem. Soc. zool. France xvi, p. 34, fig. : n. sp.
- Isselentia*, notes on; COLLINGE (126).

- Kaliella gudei*, n. subsp., *pallida*, Pils., note on; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 634.
- Kaliella sororcula*, Japan; PILSBRY & HIRASE, Nautilus xvii, p. 107: *K. thaunumi*, p. 119, *lubricella*, p. 120, Hawaii; ANCEY, P. Malac. Soc. London vi, figg.: *K. kikaigushime*, *humiliconus*, *okinoshimana*, *binuris*, Japan; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 633: n. spp.
- Limax variegatus*, biology; KÜNKELE (375).
- Limax sidamoensis*, Sidamo; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 143: *L. subfossilis*, *duplex*, Alpes-Maritimes; POLLONERA in CAZIOT, Feuille Natural. 1904, xxxiv, p. 223, figg.: n. spp.
- Macrochlamys dulcis*, p. 635, *gudei*, p. 636, n. subsp.; PILSBRY & HIRASE, P. Ac. Philad. 1904: *M. cerasina*, n. subsp.; PILSBRY & HIRASE, Nautilus xviii, p. 6.
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- Microcystina vaga*, *lampira*, Japan; PILSBRY & HIRASE, t. c. p. 634: n. spp.
- Microcystis rufobrunnea*, Hawaii; ANCEY, P. Malac. Soc. London vi, p. 119, fig.: n. sp.
- Naninida*, monograph continued, with figg. of *N. (Nesta) kaledupana*, p. 1097, *perfragilis*, Moellendorff, p. 1098; KOBELT in MARTINI & CHEMNITZ (426).
- Omphalina pilsbryi*, Alabama; CLAPP, Nautilus xviii, p. 30: n. sp.
- Parmacella deshayesii*, eggs, &c.; COLLINGE (129).
- Pliotropis*, n. subgen. of *Otesia*, type *O. biangulata*, Pfr.; KOBELT in MARTINI & CHEMNITZ (426), p. 1093.
- Sitala latissima*, n. subsp.; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 632.
- Sitala insignis*, Japan; PILSBRY & HIRASE, t. c. p. 632: n. sp.
- Spirotoxon elegans*, Simr., figd.; SIMROTH, Zool. Jahrb. Syst. xix, p. 702.
- Spirotoxon stuhlmanni*, *neumanni*, E. Africa; SIMROTH, t. c. p. 704, figg.: n. spp.
- Trochomorpha (Nigritella) contigua*, Pse., n. var.; BOETTGER, Zool. Jahrb. Syst. xx, p. 409.
- Trochomorpha (Nigritella) insolata*, Marshall Is.; BOETTGER, t. c. p. 410: *T. cultrata*, Japan; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 632: *T. gulielmi*, *dautzenbergi*, Engano; SYKES, J. Malac. xi, p. 87, figg.: n. spp.
- Trochonanina bonhouri*, Lake Albany, *zeltneri*, Oualaino; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 143: n. spp.
- Varania*, n. g., type *V. loennbergi*, n. sp., Cameroons; SIMROTH, Zool. Jahrb. Syst. xix, p. 710, fig.
- Vaucheria*, n. gen. for *V. tingitana*, n. sp., N. W. Africa; PALLARY, J. Conchyl. lii, p. 7, fig.
- Vitrea radiatula*, n. var.; PILSBRY & HIRASE, Nautilus xvii, p. 117.
- Vitrea hawaiiensis*, Hawaii; ANCEY, P. Malac. Soc. London vi, p. 120, fig.: n. sp.
- Vitrina comorensis*, Pfr., is a young *Helix aperta*; ANCEY, J. Conchyl. lii, p. 288: *V. keppelli*, Pfr., *ultima*, Mouss., and *kernadecensis*, Smith, are all the same; ANCEY, t. c. p. 307.
- Vitrina bozasi*, Riv. Oubangui; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 143: n. sp.
- Nesta sparsa*, Mousson, notes on; ANCEY, J. Conchyl. lii, p. 298.
- Zonitoides apertus*, Japan; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 636: *Z. chishimanus*, Japan; PILSBRY & HIRASE, Nautilus xviii, p. 5: n. spp.

## ARIONIDÆ.

- Arion hortensis*, absence of male generative organs ; COLLINGE, J. Malac. xi, p. 15 : *A. subfuscus*, note on var. ; COLLINGE (130).  
*Ariunculus pallaryi*, Algeria ; COLLINGE, J. Malac. xi, p. 47 : **n. sp.**  
*Ostracolethe*, anatomy ; SIMROTH, Zeitschr. wiss. Zool. lxxvi, pp. 612-672, figg.

## ENDODONTIDÆ.

- Carthæa*, Hutton, renamed *Serpho*, q. v.  
*Delos*, **n. n.** for *Rhenea*, Hutton non Saalmuller ; HUTTON, P. Linn. Soc. N. S. Wales xxix, p. 461.  
*Endodonta (Charopa) transenna*, New Zealand ; SUTER, P. Malac. Soc. London vi, p. 156, fig. : *E. (Charopa) ochra*, (*C. chrysaugia*), p. 107, *alloia*, p. 108, New Zealand ; WEBSTER, t. c. figg. : **n. spp.**  
*Helix mathinnae*, Petterd, *hookeriana*, Johnston, figd. ; HEDLEY (292).  
*Laoma moellendorffi*, Suter, sinistral specimen ; SUTER, P. Malac. Soc. London vi, p. 157.  
*Luoma (Phrixgnathus) francesci*, (*P. elaiodes*), New Zealand ; WEBSTER, t. c. p. 106, figg. : **n. spp.**  
*Punctum horneri*, Oahu ; ANCEY, J. Malac. xi, p. 66, fig. : *P. infans*, Japan ; PILSBRY & HIRASE, Nautilus xvii, p. 107 : *P. elachistum*, *apertum*, Japan ; PILSBRY & HIRASE, op. cit. xviii, p. 5 : *P. atomus*, p. 636, *rota*, p. 637, Japan ; PILSBRY & HIRASE, P. Ac. Philad. 1904 : **n. spp.**  
*Pyramidula alternata*, spire variation ; BAKER (31).  
*Pyræha*, Hutton, renamed *Thermia*, q. v.  
*Rhenea*, Hutton, renamed *Delos*, q. v.  
*Serpho*, **n. n.** for *Carthæa*, Hutton non Walker ; HUTTON, P. Linn. Soc. N. S. Wales xxix, p. 461.  
*Thermia*, **n. n.** for *Pyræha*, Hutton non Cabanis ; HUTTON, t. c. p. 461.

## HELICIDÆ.

- Alabastrina*, **n. subgen.** of *Iberus*, for *I. alabastrites*, Mich., etc. ; KOBELT in ROSSMAESSLER (543), pp. 132, 194.  
*Albersia subsphaerica*, Gebi I. ; FULTON, J. Malac. xi, p. 54, fig. : *A. waigiouensis*, Waigiou ; SYKES, t. c. p. 88, fig. : **n. spp.**  
*Ashmunella walkeri*, New Mexico ; FERRISS, Nautilus xviii, p. 53 : *A. townsendi*, New Mexico ; BARTSCH, Smithson. Collect. xlvii, p. 13 : **n. spp.**  
*Botteria*, **n. gen.** for *Campylæa setosa*, Zgl. ; BRUSINA, Nachrbl. Deutsch. malak. Ges. 1904, p. 162.  
*Cathaica orithya*, *pulveratrix*, *nodulifera*, **n. var.** ; ANDREAE (16).  
*Cathaica (Eucathaica) sturanyi*, Rolle, (*Campylocathaica*) *hermanni*, Mlldff., Western Turkestan ; GUDE, J. Malac. xi, p. 93 : *C. (Eucathaica) subtilistriata*, p. 59, (*Xerocathaica*) *ohlmeri*, (*A.*) *holdereri*, p. 64, (*Pseudiberus*) *futtereri*, p. 66, Central Asia ; ANDREAE (16), figg. : **n. spp.**  
*Cattania*, **n. gen.** for *Campylæa trizona*, Zgl. ; BRUSINA, Nachrbl. Deutsch. malak. Ges. 1904, p. 162.  
*Chloritis tosanus*, **n. subsp.** ; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 629.  
*Chloritis obscurus*, Japan ; PILSBRY & HIRASE, t. c. p. 628, fig. : **n. sp.**  
*Corilla erronella* (Nevill MS.), Ceylon ; GUDE, J. Malac. xi, p. 45, fig. : **n. sp.**  
*Discolepis*, **n. gen.** for *Helix desidens*, Rang. (of which *H. ancylochila*,



- Crosse, is a synonym), and *sumichrasti*; ANCEY, J. Conchyl. lii, p. 298.
- Drobacia*, **n. gen.** for *Campylæa banatica*, Partsch; BRUSINA, Nachrbl. Deutsch. malak. Ges. 1904, p. 162.
- Dupotetia*, **n. subgen.** of *Iberus*, for *I. dupotetianus*, Terver, etc.; KOBELT in ROSSMAESSLER (543), pp. 132, 195.
- Epiphragmophora remondi*, Tryon, *verrilli*, Ancey, notes on; ANCEY, J. Conchyl. lii, p. 312.
- Eulota pannosa*, *shikokuensis*, p. 3, *mimula*, p. 4, *friedeliana*, p. 33, *kobensis*, p. 34, **n. varr.**; PILSBRY & HIRASE (496): *E. kobensis*, *commoda*, *shikokuensis*, **n. varr.**; PILSBRY & HIRASE, Nautilus xvii, p. 105: *E. friedeliana*, p. 625, *callizona*, p. 626, *despecta*, p. 627, **n. varr.**; PILSBRY & HIRASE, P. Ac. Philad. 1904.
- Eulota endo*, p. 105, *chishimana*, p. 116, Japan; PILSBRY & HIRASE, Nautilus xvii: *E. (Ægista) eminens*, p. 4, (*Euhadra*) *irrediviva*, p. 32, (*Ægista*) *tokunoshimana*, (*Plectotropis*) *pressa*, p. 33, Japan; PILSBRY & HIRASE, op. cit. xviii: *E. globosa*, Shantung; JONES & PRESTON, P. Malac. Soc. London vi, p. 140, fig.: *E. (Ægista) omma*, p. 625, (*Euhadra*) *okinoerabuensis*, p. 626, *nioyaka*, p. 627, Japan; PILSBRY & HIRASE, P. Ac. Philad. 1904: **n. spp.**
- Eurystoma vittata*, Albers, anatomy; GODWIN-AUSTEN (260).
- Faustina*, **n. subgen.** of *Campylæa*, for *C. faustina*, Ziegl.; KOBELT in ROSSMAESSLER (543), p. 186.
- Fruticicola erjavecii*, Brus., **n. var.**; LAJOS (378).
- Fruticicola dacica*, Hungary; LAJOS, Ann. Mus. Hungar. ii, p. 294: **n. sp.**
- Ganesella myomphala*, *selasia*, **n. subspp.**; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 630.
- Ganesella tokunoshimana*, Japan; PILSBRY & HIRASE, t. c. p. 629: **n. sp.**
- Helix*, monograph continued; KOBELT in MARTINI & CHEMNITZ (426): Review of Hungarian species; SOOS (586): A number of forms figured from N.W. Africa, with newly named varieties; PALLARY (466): *H. pomatia*, structure of the spermatozooids; LEE (391): *H. pomatia*, evolution of the spermatozooids; LEE (392): *H. nemoralis*, variation; WINKWORTH (655): *H. nemoralis*, sinistral; COLLIER (124): *H. pomatia*, monstrosity; KOBELT, Nachrbl. Deutsch. malak. Ges. 1904, p. 125: *H. pomatia*, sinistral; JENNINGS (331): *H. aspersa*, reversed; WELCH & STELFOX, Irish Natural. xiii, p. 189, fig.: *H. auridens*, Rang, **n. var.**; ANCEY, J. Conchyl. lii, p. 311: *H. pomatia*, monstrosities; BELLEVOYE (49): *H. pomatia*, olfactory sense; DUBOIS (201): YUNG (669): *H. primeana*, *hidalgoiana*, *cailletii*, *mabiliei*, *leucolena*, all of Crosse, *duroi*, Hidalgo, *calculus*, Pfr., are all synonyms of various spp.; ANCEY (14): *H. hortensis* and *nemoralis*, study of variation; LANG (384): *H. pomatia*, function of salivary glands; GORKA (264): *H. aperta*, distribution and variability; CAZIOT (105): *H. nicicensis*, varr.; CAZIOT (103): *H. (Helicogena) blumi*, *critica*, *pseudopomatia*, Kobelt, *escherichi*, Btgr., *pathetica*, Albers, *philibensis*, Pfr., figd.; KOBELT in MARTINI & CHEMNITZ (426): *H. albescens* (Jan) Rossm., note on; KOBELT (365): *H. vermiculata*, synonymy and distribution; CAZIOT (107): *H. ciliciana*, *pachya*, *adanensis*, *moabitica*, *vulgaris*, *lutescens*, *figulina*, *pelasgica*, *pathetica*, *cavata*, **n. varr.**; KOBELT in MARTINI & CHEMNITZ (426).
- Helix paoliana*, p. 35, *mauryi*, p. 36, Corsica; CAZIOT, Mem. Soc. zool. France xvi, figg.: *H. arnouldi*, p. 100, *joubini*, p. 101, France; GERMAIN, Bull. Soc. Ouest France xiv, figg.: *H. (Helicogena) rueppelli*, Egypt, p. 122, *oestreichi*, Albania, *frivaldszkyi*, Turkey, p. 146, *ciliciana*, Cilicia, p. 152, *dickhauti*, Jerusalem, p. 185, *straubei*, Turkey, p. 190, *anthesi*, Bosphorus, p. 191, *pelasgica*, Greece, p. 192; KOBELT in

- MARTINI & CHEMNITZ (426), figg.: *H. (Xerophila) redassiana*, p. 12, (*X.*) *misslei*, p. 14, (*X.*) *castrisci*, p. 15, (*X.*) *foucauldi*, p. 16, N.W. Africa; PALLARY, J. Conchyl. lii, figg.: **n. spp.**
- Iberus*, notes on; KOBELT (363): *I. mariannæ*, n. var., pp. 198, 284; KOBELT in ROSSMAESSLER (543).
- Kosicia*, **n. gen.** for *Campylæa intermedia*, Fer.; BRUSINA, Nachrbl. Deutsch. malak. Ges. 1904, p. 162.
- Murella galdensis*, p. 21, *saprensis*, p. 22, *coccovelli*, p. 23, *marateensis*, p. 24, *mingardi*, p. 57, *consigliana*, p. 58, *lucana* (Westlnd.), p. 59, *sirinensis*, p. 60, Italy; KOBELT, t. c.: **n. spp.**
- Obba subgranulata*, Batjan; SYKES, J. Malac. xi, p. 89, fig.: **n. sp.**
- Oreohelix*, **n. gen.** for the Rocky Mountain Helices of the *H. strigosa* group; PILSBRY, Nautilus xvii, p. 131.
- Oreohelix clappi*, Arizona; FERRISS, Nautilus xviii, p. 53: **n. sp.**
- Otala*, notes on; KOBELT (363).
- Papuina unicolor*, Pfr., comes from Waigiou; ANCEY, J. Conchyl. lii, p. 291: *P. unicolor*, Pfr., comes from Gebi I.; FULTON, J. Malac. xi, p. 53: *P. barnaclei*, Smith, is a synonym of *P. alfredi* var. *trichroa*, Mart.; ANCEY, J. Conchyl. lii, p. 291: *P. linteræ*, Mlldff., is a synonym of *P. secans*, Hedley; ANCEY, t. c. p. 311: *P. lanceolata*, n. var.; SYKES, J. Malac. xi, p. 91.
- Papuina fallax*, Gebi I.; FULTON, J. Malac. xi, p. 53, fig.: *P. ecolorata*, Batjan, *semibrunnea*, Gebi I.; SYKES, J. Malac. xi, p. 90, figg.: **n. spp.**
- Planispira endoptycha*, Martens, n. var.; SYKES, J. Malac. xi, p. 88.
- Planispira (Crustigibba) gebiensis*, Gebi I., p. 88, (*C.*) *fruhstorferi*, Obi, p. 89; SYKES, J. Malac. xi, figg.: **n. spp.**
- Plectopylis (Sinicola) hirasei*, Riukiu Is.; PILSBRY, Nautilus xviii, p. 58: **n. sp.**
- Pleurodonte gudeana*, **n. n.** for *Helix neogranadensis*, Kobelt non Pfr.; ANCEY, J. Conchyl. lii, p. 297.
- Polygyra tridentata*, n. subsp.; PILSBRY, Nautilus xvii, p. 142: *P. stenotrema*, n. var.; CLAPP, op. cit. xviii, p. 86: *P. appressa*, p. 89, *wheatleyi*, p. 90, n. varr.; PILSBRY, t. c.: *P. monodon* and *hirsuta*, albino; HYNING, t. c. p. 92.
- Polygyra (Stenotrema) barbata*, Alabama; CLAPP, Nautilus xviii, p. 85: **n. sp.**
- Sabljaria*, **n. gen.** for *Campylæa stenomphala*, Menke; BRUSINA, Nachrbl. Deutsch. malak. Ges. 1904, p. 162.
- Sonorella*, review of group, *S. walcottiana* should be *walcottiana*; BARTSCH (35): *S. lohrii*, n. subsp.; PILSBRY, Nautilus xviii, p. 59.
- Sonorella ashmuni*, p. 190, Arizona, *nelsoni*, p. 191, *goldmani*, Mexico, *merrilli*, p. 192, Lower California, *dalli*, Arizona, p. 193, *mearnsi*, Mexico, p. 194, *baileyi*, p. 195, Mexico, *fisheri*, p. 197, California; BARTSCH, Smithsonian. Collect. xlvii, figg.: **n. spp.**
- Systrophia moellendorffi*, Peru; ROLLE, Nachrbl. Deutsch. malak. Ges. 1904, p. 35, fig.: **n. sp.**
- Thersites*, critical list of the *Sphaerospira* section with forms figd. and n. var. of *T. lessoni*; FULTON (240): *T. beddomæ* is a variety of *bellendenkerensis*; FULTON, J. Malac. xi, p. 1.
- Thersites concors*, Queensland; FULTON, t. c. p. 8, fig.: **n. sp.**
- Trishoplita mesogonia*, n. var.; PILSBRY & HIRASE, Nautilus xvii, p. 106.
- Trishoplita nitens*, Japan; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 628: **n. sp.**
- Vidoviccia*, **n. gen.** for *Campylæa lacticina*, Zgl.; BRUSINA, Nachrbl. Deutsch. malak. Ges. 1904, p. 162.
- Vulnus*, **n. sect.** for *Planispira endoptycha*, Martens; SYKES, J. Malac. xi, p. 88.

- Westerlundia*, n. subgen. of *Fruticicola* for *F. schuberti*, Roth, etc. ; KOBELT in ROSSMAESSLER (543), pp. 131, 181.  
*Xanthomelon bednalli*, Central Australia ; PONSONBY, P. Malac. Soc. London vi, p. 182 fig. : n. sp.  
*Xerophila ammonis*, n. var. ; KOBELT in ROSSMAESSLER (543), p. 201.  
*Xerophila adelpha*, p. 292, *homoleuca* (Sabljak and Kučik), p. 293, Hungary ; LAJOS, Ann. Mus. Hungar. ii : n. spp.

## BULIMIDÆ and BULIMULIDÆ.

- Amphidromus palaceus*, subcarinate var. ; BULLEN, P. Malac. Soc. London vi, p. 109.  
*Amphidromus weyersi*, Borneo ; DAUTZENBERG, Ann. Soc. malac. Belgique xxxviii, p. 4, fig. : *A. gossei*, Borneo ; BARTSCH, Smithson. Collect. xlvii, p. 292, fig. : n. spp.  
*Bulimulus pallidior*, Sby., notes on, *B. pluto*, Crosse, and *nuciformis*, Petit, are respectively synonyms of *B. tupacii*, D'Orb., and *nux*, Brod. ; ANCEY, J. Conchyl. lii, pp. 301 & 302.  
*Bulimulus (Drymæus) abruptus*, p. 35, *loxostylus*, *pergracilis*, p. 37, Peru ; ROLLE, Nachrbl. Deutsch. malak. Ges. 1904, figg. : *B. ephippium*, *goniotropis*, Brazil ; ANCEY, Nautilus xvii : n. spp.  
*Bulimus (?) illustris*, Peru ; ROLLE, Nachrbl. Deutsch. malak. Ges. 1904, fig. : n. sp.  
*Drymæus nubilus*, Preston, is a synonym of *D. reclusianus* var. *martensianus* ; ANCEY, Nautilus xviii, p. 22.  
*Drymæus multispira*, Bolivia ; DA COSTA, P. Malac. Soc. London vi, p. 5, fig. : n. sp.  
*Odontostomus inflatus*, Wagner, n. varr. ; ANCEY, J. Conchyl. lii, p. 303.  
*Odontostomus squarrosus*, Brazil, *glabratus*, *deraini*, Argentina ; ANCEY, Nautilus xvii, p. 103 : n. spp.  
*Porphyrobaphe sarcostoma*, Ancey, is a synonym of *P. yatesi* ; ANCEY, t. c. p. 104.  
*Strophocheilus mabiliei*, Crosse, is a synonym of *Bulimus pulicarius*, Reeve, and *S. dalmasi*, Dtz., comes from Colombia ; ANCEY, J. Conchyl. lii, pp. 300 & 301 : *S. argenteus*, Jouss., note on ; ANCEY, t. c. p. 314.  
*Strophocheilus (Eurytus) auriformis*, Colombia, *miersi*, Brazil ; DA COSTA, P. Malac. Soc. London vi, p. 5, figg. : n. spp.  
*Thaumastus sangoe*, *biteniatus*, epiphragms ; SMITH (572).

## BULIMINIDÆ, UROCOPTIDÆ, and PUPIDÆ.

- Anoma*, notes on with figg. of several forms and n. var. of *A. fuscolabris* ; SYKES (606).  
*Brachypodella obesula*, n. n. for *Cylindrella obesa*, Weindl. non Ad. ; PILSBRY in TRYON (619), xvi, p. 195.  
*Buliminus biети*, Ancey, is a good species ; ANCEY, J. Conchyl. lii, p. 299.  
*Buliminus silvestris*, (*Napeus*) *karagoïnensis*, Central Asia ; ROSEN, Nachrbl. Deutsch. malak. Ges. 1904, p. 169 : n. spp.  
*Clausilia dubia*, *procera*, n. varr. ; CSIKI (158) : *C. bocki*, Sykes, note on ; ANCEY, J. Conchyl. lii, p. 307 : *C. itala*, study of variation ; WELDON (647) : *C. pilsbryana*, n. n. for *C. oscariana*, Pilsbry non Gredler ; ANCEY, Nautilus xviii, p. 21 : *C. ducalis*, p. 809, *platydera*, p. 813, *aurantiaca*, p. 815, *hyperoptyx*, p. 830, *dæmonorum*, p. 833, *tryoni*, p. 837, n. varr. ; PILSBRY, P. Ac. Philad. 1904.  
*Clausilia (Albinaria) holtzi*, Crete ; STURANY, Nachrbl. Deutsch. malak. Ges. 1904, p. 110 : *C. millennaris*, Hungary ; CSIKI, Ann. Mus. Hungar. i,

- p. 108 : *C. cymatodes*, *nagashimana*, p. 180, *ventriluna*, p. 811, *ikiensis*, p. 812, *mikawa*, p. 813, *hosayaka*, *koshikijimana*, p. 814, *okinoerabuensis*, *azumai*, p. 816, *nakadai*, p. 818, *tokunoshimana*, p. 819, *ophidoon*, p. 820, *subhickonis*, p. 821, *purissima*, *asperata*, p. 826, *hyperaptyx*, p. 827, *kikaiensis*, p. 828, *sarissa*, p. 829, *yaeyamensis*, p. 831, *pattalus*, p. 832, *thaumatopoma*, p. 834, *hedleyi*, p. 835, *cladoptyx*, p. 836, Japanese Empire ; PILSBRY, P. Ac. Philad. 1904, figg. : **n. spp.**
- Coryna biarmata* (Bttgr. MS.), Hertzgovina ; STURANY, Nachrbl. Deutsch. malak. Ges. 1904, p. 105, fig. : **n. sp.**
- Diceratoptyx*, **n. sect.** of *Clausilia*, type *C. cladoptyx*, **n. sp.** ; PILSBRY, P. Ac. Philad. 1904, p. 836.
- Ena* (*Cerastus*) *lagariensis*, British East Africa ; SMITH, P. Malac. Soc. London iv, p. 68, fig. : **n. sp.**
- Hemizaptyx*, **n. sect.** of *Clausilia*, type *C. pinto*, Pils. ; PILSBRY, P. Ac. Philad. 1904, p. 824.
- Jaminia muscorum*, sinistral ; BALDWIN (32).
- Lypopupa lyrata*, Gould, note on, *mirabilis*, Ancey, *perlonga*, Pease, figd. ; ANCEY, P. Malac. Soc. London vi, pp. 125 & 126 : *L. mirabilis*, *magdalena*, **n. varr.** ; ANCEY, J. Malac. xi, p. 68.
- Lypopupa clathratula*, Hawaii, *carbonaria*, p. 125, *microthauma*, Oahu, p. 126 ; ANCEY, P. Malac. Soc. London vi, figg. : **n. spp.**
- Metazaptyx*, **n. sect.** of *Clausilia*, for *C. hachijoensis*, Pils., &c. ; PILSBRY, P. Ac. Philad. 1904, p. 811.
- Nenia huancabambensis*, Peru ; ROLLE, Nachrbl. Deutsch. malak. Ges. 1904, p. 38, fig. : **n. sp.**
- Nesiophaedusa*, **n. sect.** of *Clausilia*, type *C. bernardii*, Pfr. ; PILSBRY, P. Ac. Philad. 1904, p. 815.
- Nesopupa tamagonari*, Japan ; PILSBRY & HIRASE, Nautilus xvii, p. 118 ; *N. baldwini*, Maui and Hawaii, *plicifera*, Oahu, p. 122, *taanumi*, Hawaii, *wesleyana*, Hawaiian Is., p. 123, *kawaiensis*, Kauai, p. 124 ; ANCEY, P. Malac. Soc. London vi, figg. : **n. spp.**
- Oligozaptyx*, **n. sect.** of *Clausilia*, type *C. hedleyi*, **n. sp.** ; PILSBRY, P. Ac. Philad. 1904, p. 835.
- Oophædusa*, **n. sect.** of *Clausilia* for *C. ophidoon*, **n. sp.** ; PILSBRY, t. c. p. 820.
- Parazaptyx*, **n. sect.** of *Clausilia*, type *C. thaumatopoma*, **n. sp.** ; PILSBRY, t. c. p. 834.
- Perrieria canefriana*, Obi ; SYKES, J. Malac. xi, p. 91, fig. : **n. sp.**
- Pholeoteras*, **n. gen.** for *P. euthrix*, **n. sp.**, Hertzgovina ; STURANY, Nachrbl. Deutsch. malak. Ges. 1904, p. 106, fig. : **n. sp.**
- Pupida*, notes on nomenclature ; DALL (168) : *P. cupa*, Jan, **n. var.** ; ANDREAE (16).
- Pupa insulivaga*, Japan ; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 631 : **n. sp.**
- Serrulina collasi*, Corfu ; STURANY, Nachrbl. Deutsch. malak. Ges. 1904, p. 103, fig. : **n. sp.**
- Vertigo hirasei*, **n. subspp.** ; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 631 : *V. andrusiana*, Pils., note on ; PILSBRY, Nautilus xvii, p. 131.
- Vertigo japonica*, Japan ; PILSBRY & HIRASE, Nautilus xvii, p. 118 : **n. sp.**

## STENOGRYRIDÆ and ACHATINELLIDÆ.

- Achatinida*, review of commenced, with **n. varr.** of *A. achatina*, L., p. 10, *panthera*, Fer., p. 45, *fulica*, Fer., p. 58 ; PILSBRY in TRYON (619), xvii.



- Achatina occidentalis*, Corisco I. ; PILSBRY in TRYON (619), xvii, p. 23, fig. : **n. sp.**
- Achatinella multizonata*, notes on variation ; COOKE (139).
- Amastra luctuosa*, Pfr., n. var., with fig. of *A. henshawi*, Ancey ; ANCEY, P. Malac. Soc. London vi, p. 121.
- Amastra rex*, Hawaiian Is. ; SYKES, Ann. Nat. Hist. xiv, p. 159, fig. : **n. sp.**
- Archachatina marginata*, Swains., n. var. ; PILSBRY in TRYON (619), xvii, p. 111.
- Auriculella pulchra*, Pease, is a var. of *A. auricula* ; ANCEY, J. Conchyl. lii, p. 304.
- Auriculella malleata*, Oahu, p. 120, *canalifera*, Molokai, p. 121 ; ANCEY, P. Malac. Soc. London vi, figg. : **n. spp.**
- Burtoa nilotica*, Pfr., n. var. ; PILSBRY in TRYON (619), xvi, p. 303.
- Carelia turricula*, Mighels, *fuliginea*, Pfr., n. varr. ; ANCEY, P. Malac. Soc. London vi, pp. 121, 122.
- Leptocallista*, n. sect. of *Leptocala* for *Achatina raffrayi*, Jous., and *grandidieriana*, Brgt. ; PILSBRY in TRYON (619), xvii, p. 75.
- Limicolaria lucalana*, **n. n.** for *Bulimus jaspideus*, Morelet, 1866 non 1863, p. 262, *felina*, Shuttl., n. var., p. 266, *saturata*, Smith, n. var., p. 286 ; PILSBRY in TRYON (619), xvi : *L. hidalgovi*, Crosse, note on ; ANCEY, J. Conchyl. lii, p. 305.
- Limicolaria agathina* (Gabb), *tryoniana*, West Africa, p. 250, *longa*, British East Africa, p. 284 ; PILSBRY in TRYON (619), xvi, figg. : **n. spp.**
- Limicotaria* (sic) *joubini*, Congo ; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 142 : **n. sp.**
- Metachatina*, **n. gen.**, type *Bulimus kraussi*, Pfr. ; PILSBRY in TRYON (619), xvi, p. 307.
- Opeas*, notes on with n. var. of *O. prestoni* ; SYKES, P. Malac. Soc. London vi, p. 112.
- Opeas heptagyrum*, Marshall Is. ; BOETTGER, Zool. Jahrb. Syst. xx, p. 411 : *O. henshawi*, Hawaii ; SYKES, P. Malac. Soc. London vi, p. 112 : *O. brevispira*, *kyotoensis*, p. 637, *obesispira*, p. 638, Japan ; PILSBRY & HIRASE, P. Ac. Philad. 1904 : **n. spp.**
- Partulina physa*, n. var. ; ANCEY, P. Malac. Soc. London vi, p. 121.
- Pseudachatina pyramidata*, Kob., n. var. ; PILSBRY in TRYON (619), xvi, p. 210.
- Pseudachatina daillyana*, West Africa ; PILSBRY in TRYON (619), xvi, p. 214, fig. : **n. sp.**
- Pseudoglossula prestoni*, p. 68, *gracilior*, p. 69, German East Africa ; SMITH, P. Malac. Soc. London vi, figg. : **n. spp.**
- Pseudotrochus moreletianus*, Desh., p. 228, *interstinctus*, Gould, p. 240, n. varr. ; PILSBRY in TRYON (619), xvi.
- Spiraxis cacahumilpensis* [apparently **n. sp.**], Mexico ; HERRERA, Mem. Soc. Ant. Alzate v, p. 219 [1891] : **n. sp.**
- Stenogyra reteri* (Rosen MS.), Turkestan ; KOBELT, Nachrbl. Deutsch. malak. Ges. 1904, p. 87 : **n. sp.**
- Subulina lagariensis*, British East Africa ; SMITH, P. Malac. Soc. London vi, p. 69, fig. : *S. kassaiana*, Central Africa ; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 142 : **n. sp.**
- Tornatellina*, notes on Hawaiian species ; ANCEY (13).
- T. monodonta*, Japan ; PILSBRY & HIRASE, Nautilus xviii, p. 6 : *M. macromphala*, Maui and Oahu, p. 296, *cincta*, Hawaiian Is., p. 297, *abbreviata*, Maui, p. 298, *henshawi*, Hawaii, p. 299, *procerula*, p. 302, *subangulata*, *terebra*, p. 303, Maui, *pyramidata*, Hawaii, p. 304, *macroptychia*, Maui, p. 305, *fusca*, Hawaii, p. 306 ; ANCEY, J. Conchyl. li, figg. : **n. spp.**

## SUCCINEIDÆ, VERONICELLIDÆ and ONCIDIIDÆ.

Notes on a new but unnamed genus (*Veronicellidæ*); COLLINGE, J. Malac. xi, p. 14.

*Oncidiella flavescens*, Chatham Is.; WISELL, Zool. Jahrb. Syst. xx, p. 668, fig.: **n. sp.**

*Succinea wrighti*, Crosse, is a synonym of *S. lauta*, Gould; ANCEY, J. Conchyl. lii, p. 306: *S. casta*, n. varr.; ANCEY, P. Malac. Soc. London vi, p. 117: *S. oblonga*, white var.; WRIGHT, J. Conch. xi, p. 96.

*Succinea ikiana*, Japan; PILSBRY & HIRASE, Nautilus xvii, p. 117: *S. brumpti*, River Omo; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 142: *S. kuhnsi*, p. 117, *tenerrima*, Hawaii, *apicalis*, p. 118, *tetragona*, Maui, *quadrata*, Hawaii, p. 119; ANCEY, P. Malac. Soc. London vi, figg.: **n. spp.**

## BASOMMATOPHORA.

## AURICULIDÆ, LIMNÆIDÆ and PHYSIDÆ.

*Ameria plicaxis*, Obi; SYKES, J. Malac. xi, p. 92, fig.: **n. sp.**

*Ancylus* adhering to water-beetles; JOHNSON (335): Eastern American species; WALKER (638): *Ancylus* during the dry season in S. America; BOETTGER (68).

*Ancylus crequii*, Lake Titicaca, Bolivia; BAVAY, Bull. Soc. zool. France xxix, p. 156, fig.: **n. sp.**

*Carychium pessimum*, n. var.; PILSBRY & HIRASE, Nautilus xvii, p. 119.

*Carychium nipponense*, Japan; PILSBRY & HIRASE, op. cit. xviii, p. 7: **n. sp.**

*Gundlachia* is an *Ancylus* which by forming an epiphragm has survived winter; DALL (167).

*Limnæa reflexa*, n. varr.; BAKER (26): *L. decollata*, n. var.; BAKER, Nautilus xviii, p. 62: *L. truncatula*, n. var.; BELLINI, J. Conch. xi, p. 38: *L. maroccana*, figd.; PALLARY, J. Conchyl. lii, p. 33: *L. palustris*, n. var.; LINDHOLM, Annuaire Mus. St. Petersburg. viii, p. 339: *L. lagotis*, n. var.; ANDREAE (16).

*Limnæa rochebruni* (Germain), France; ROCHEBRUNE, Bull. Mus. Paris x, p. 191, fig.: *L. randolphi*, Alaska; BAKER, Nautilus xviii, p. 63: *L. nimoulensis*, White Nile; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 141: *L. mars*, p. 141, (*Gulnaria*) *whartoni*, (*G.*) *shantungensis*, (*G.*) *pettiti*, p. 142, Shantung; JONES & PRESTON, P. Malac. Soc. London vi, figg.: **n. spp.**

*Melampus flavus*, Gmel., *coffeus*, L., n. varr.; DAVIS (181).

*Physopsis didieri*, White Nile; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 142: **n. sp.**

*Planorbis corneus*, kidney, pericardium and heart; PÖTZSCH (501): *P. truncatus*, Miles, notes on; BAKER (30): *P. montanus*, d'Orb., carinate var. figd.; BAVAY (40).

*Planorbis bozasi*, Lake Challa; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 141: **n. sp.**

## SIPHONARIIDÆ and AMPHIBOLIDÆ.

*Ampullarina africana*, Port Alfred; SMITH, J. Malac. xi, p. 38, fig.: **n. sp.**

*Siphonaria alternata*, n. varr.; DAVIS (181).

*Siphonaria subatrata*, *rucuana*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 36, figg.: **n. spp.**

## OPISTHOBRANCHIATA.

Opisthobranchs, free larvæ of ; MAZZARELLI (431).  
Nervous system ; VAYSSIÈRE (629).

## NUDIBRANCHIATA.

Notes on some Genera ; ELIOT (208, &c.).

Spawn of some Nudibranchs ; SMALLWOOD (569).

Nudibranchiata, nematocysts ; GROSVENOR (269) : ABRIC (2, 4) : LENDEN-  
FELD (394).

Variation of colour ; ABRIC (1).

Anatomy of several Nudibranchs ; VAYSSIÈRE (629).

*Alloiodoris*, n. gen. for *A. marmorata*, n. sp., Tasmania ; BERGH (52),  
p. 41, fig.

*Archidoris stellifera* (Ihering), Gulf of Marseilles ; VAYSSIÈRE, J. Conchyl.  
lii, p. 130, fig. : *A. africana*, p. 361, *minor*, p. 362, E. Africa ; ELIOT,  
P. Zool. Soc. London 1903, ii : *A. violacea*, p. 31, *nanula*, p. 33, New  
Zealand ; BERGH (52), figg. : n. spp.

*Asteronotus hemprichi*, Ehrenberg, figd. ; ELIOT, P. Zool. Soc. London  
1903, ii, p. 384.

*Bornella digitata*, Adams, *excepta*, Bergh, p. 102, radula ; ELIOT, op. cit.  
1904, ii.

*Bornella simplex*, Zanzibar ; ELIOT, t. c. p. 103, fig. : n. sp.

*Chromodoris reticulata*, Pease, p. 386, figd., *elizabethina*, Bergh, n. var.,  
p. 392, *lineata*, Souleyet, n. var., p. 397 ; ELIOT, P. Zool. Soc. London  
1904, i : *C. (?) roseopicta*, Verrill, note on ; VERRILL, Tr. Connect.  
Ac. xi, p. 33.

*Chromodoris sykesi*, p. 387, *cavæ*, p. 388, *annulata*, p. 389, *splendens*, p. 390,  
*vicina*, p. 392, *nigrostriata*, p. 394, *inconspicua*, p. 398, (?) *flava*, p. 399,  
Zanzibar ; ELIOT, P. Zool. Soc. London 1904, i, several figd. : n. spp.

*Coryphella californica*, California ; BERGH (52), p. 6, fig. : n. sp.

*Cuthona (?) bicolor*, Japan ; BERGH (52), p. 3, fig. : n. sp.

*Discodoris cærulescens*, n. subsp., Zanzibar ; ELIOT, P. Zool. Soc. London  
1903, ii, p. 365.

*Discodoris dubia*, p. 53, *egena*, p. 54, Tasmania ; BERGH (52), figg. :  
n. spp.

*Doris planata*, notes on ; ELIOT (207).

*Doris giardi*, Wimereux ; ABRIC, C.R. Soc. Biol. lvii, p. 232 : n. sp.

*Elysia subornata*, p. 29, *flava*, *picta*, p. 30, *papillosa*, p. 31, Bermudas ;  
VERRILL, Tr. Connect. Ac. xi, figg. : n. spp.

*Facelina goslingii*, Bermudas ; VERRILL, t. c. p. 34, fig. : n. sp.

*Fiona*, development of germ layers ; CASTEEL (99) : *F. marina*, early  
larval development ; CASTEEL (100).

*Fracassa tuberculosa*, Zanzibar ; ELIOT, P. Zool. Soc. London 1903, ii,  
p. 371 : n. sp.

*Halgerda willeyi*, Loyalty Is., p. 372, *wasinensis*, E. Africa, p. 373 ; ELIOT,  
t. c. figg. : n. spp.

*Hexabranchus plicatus*, Red Sea ; HÄGG (278), p. 5, fig. : n. sp.

*Homoiodoris nov. zealandiae*, New Zealand ; BERGH (52), p. 35, fig. : n. sp.

*Kentodoris rubescens*, Bergh, figd. ; ELIOT, P. Zool. Soc. London 1903, ii,  
p. 374.

*Lamellidoris aureopuncte*, p. 31, *miniata*, p. 32, Bermudas ; VERRILL,  
Tr. Connect. Ac. xi, figg. : n. spp.

*Linguella variolosa*, China Sea ; BERGH (52), p. 21, fig. : n. sp.

- Madrella aurantiaca*, Gulf of Marseilles ; VAYSSIÈRE, Ann. Mus. Marseille viii, p. 89, fig. : **n. sp.**
- Marionia pellucida*, E. Africa, *levis*, figd., p. 94, *ramosa*, p. 96, Zanzibar, *albotuberculata*, p. 97, *viridescens*, p. 98, E. Africa ; ELIOT, P. Zool. Soc. London 1904, ii : **n. spp.**
- Melibe pellucida*, Columbia R., Washington ; BERGH (52), p. 11, fig. : **n. sp.**
- Nembrotha cærulea*, E. Africa, p. 91, *affinis*, Zanzibar, p. 92, figd. ; ELIOT, P. Zool. Soc. London 1904, ii : **n. spp.**
- Notodoris minor*, Zanzibar ; ELIOT, t. c. p. 84, fig. : **n. sp.**
- Peltodoris angulata*, p. 365, *aurea*, p. 366, E. Africa ; ELIOT, op. cit. 1903, ii : **n. spp.**
- Peronodoris*, **n. gen.** for *P. cancellata*, **n. sp.**, Pacific Ocean ; BERGH (52), p. 45, fig.
- Platydoris pulcra* (sic), E. Africa, p. 377, *incerta*, p. 378, *papillata*, p. 379, Zanzibar ; ELIOT, P. Zool. Soc. London 1903, ii : **n. spp.**
- Pleuroleura alba*, Zanzibar ; ELIOT, op. cit. 1904, ii, p. 104 : **n. sp.**
- Sclerodoris*, **n. gen.** for *Doris osseosa*, Kel., and *S. tuberculata*, p. 381, *minor*, *rubra*, p. 382, *coriacea*, p. 383, **n. spp.**, Zanzibar ; ELIOT, op. cit. 1903, ii, figg. : Genus is a synonym of *Peronodoris*, q. v. ; ELIOT, op. cit. 1904, i, p. 380.
- Sphærodores lævis*, Bergh, n. var. ; ELIOT, op. cit. 1904, i, p. 403.
- Staurodores verrucosa*, Cuv., figd. ; CUÉNOT (159).
- Staurodores depressa*, E. Africa, p. 363, *calva*, Zanzibar, p. 364 ; ELIOT, P. Zool. Soc. London 1903, ii : **n. spp.**
- Thordisa villosa*, figd. ; ELIOT (208).
- Thordisa stellata*, *crosslandi*, Zanzibar ; ELIOT, P. Zool. Soc. London 1903, ii, p. 368, figg. : **n. spp.**
- Trevelyana ceylonica*, Kelaart, p. 86, *crocea*, Bergh, p. 87, *bicolor* (?), Alder and Hancock, figd. ; ELIOT, op. cit. 1904, ii.
- Trevelyana coccinea*, E. Africa ; ELIOT, t. c. p. 85, fig. : **n. sp.**
- Trippa monsoni*, Zanzibar ; ELIOT, op. cit. 1903, ii, p. 371, fig. : **n. sp.**
- Tritonia incerta*, Pacific Ocean ; BERGH (52), p. 24, fig. : **n. sp.**

### TECTIBRANCHIATA (including PTEROPODA).

- Anatomy of some Gymnosomate Pteropods ; KWIETNIEWSKI (377).
- Archaic form of Thecosomate Pteropod ; PELSENEER (476).
- Species of Gymnosomata and Thecosomata from Siboga Expedition, recorded last year, fully described and figured with localities and anatomy ; TESCH (610).
- Actæon*, note on anatomy ; MAZZARELLI (430) : *A. globulinus*, Forbes, figd. ; SYKES, P. Malac. Soc. London vi, p. 29.
- Actæon pulchrior*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 168, fig. : **n. sp.**
- Akera bullata*, anatomy ; VAYSSIÈRE (629).
- Aplysia*, the heart ; STRAUB (598) : Notes on British forms ; HUNT (315) : *A. punctata*, chromosomes during maturation of the egg ; JANSSENS & ELRINGTON (329).
- Atya pransa*, New South Wales ; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 191, fig. : *A. submalleata*, off the Andamans ; SMITH, Ann. Nat. Hist. xiv, p. 6 : **n. spp.**
- Bulla striatula*, Forbes, figd. ; SYKES, P. Malac. Soc. London vi, p. 37.
- Bullina elongata*, Jeffreys, figd. ; SYKES, t. c. p. 36.
- Corolla (Cymbuliopsis) spectabilis*, Dall, anatomy ; HEATH & SPAULDING (289).
- Cyllichna hoernesii*, Weink., figd. ; SYKES, P. Malac. Soc. London vi, p. 36.



- Cylichna pithiscus*, Gulf of Oman ; MELVILL, P. Malac. Soc. London vi, p. 168, fig. : *C. obscura*, off S. of Ireland ; SYKES, t. c. p. 37, fig. : *C. andamanica*, off the Andamans ; SMITH, Ann. Nat. Hist. xiv, p. 6 : **n. spp.**
- Cylichnopsis*, n. sect. of *Cylichna*, type *C. acrotoma*, COSSMANN (140), p. 118.
- Desmopteris papilio*, Chun, anatomy and systematic position ; MEISENHEIMER (432).
- Dolabrifera virens*, Bermudas ; VERRILL, Tr. Connect. Ac. xi, p. 24, fig. : **n. sp.**
- Haminea solitaria*, anatomy, &c. ; SMALLWOOD (570) : Maturation, fertilization, &c. ; SMALLWOOD (571).
- Notarchus brevipes*, Red Sea ; HÄGG (278), p. 1, fig. : **n. sp.**
- Oscanius membranaceus*, nervous system ; DISTASO (192).
- Peraclis reticulata*, D'Orb., n. var. ; TESCH (610), p. 15.
- Philine punctata*, anatomy ; VAYSSIÈRE (629).
- Philine sykesii*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 60, fig. : **n. sp.**
- Placobranchopsis niveus*, Bermudas ; VERRILL, Tr. Connect. Ac. xi, p. 27, fig. : **n. sp.**
- Pleurobranchia meckeli*, nervous system ; DISTASO (192).
- Retusa excavata, lactea*, figd. ; SYKES, P. Malac. Soc. London vi, p. 31.
- Retusa dilatata*, Gulf of Gabes ; PALLARY, J. Conchyl. lii, p. 215, fig. : *R. marshalli*, off Portugal ; SYKES, P. Malac. Soc. London vi, p. 31, fig. : *R. bysma*, Gulf of Oman ; MELVILL, t. c. p. 168, fig. : **n. spp.**
- Runcina inconspicua*, Bermudas ; VERRILL, Tr. Connect. Ac. xi, p. 28, fig. : **n. sp.**
- Scaphander ceylanica*, off Ceylon ; SMITH, Ann. Nat. Hist. xiv, p. 5 : **n. sp.**
- Tethys (Aplysia) morio*, p. 25, *tarda*, p. 26, Bermudas ; VERRILL, Tr. Connect. Ac. xi, figg. : **n. spp.**
- Tornatina insignis*, p. 36, *decorata*, p. 37, Japan ; PILSBRY, P. Ac. Philad. 1904, figg. : **n. spp.**

## NUCLEOBRANCHIATA.

- Anatomy of some Heteropoda ; VAYSSIÈRE (627).
- Cardiapoda richardi*, Atlantic Ocean ; VAYSSIÈRE (627), p. 24, fig. : **n. sp.**
- Carinaria mediterranea*, Per. & Les., n. var. ; VAYSSIÈRE (627), p. 17.
- Carinaria grimaldii*, p. 18, *pseudorugosa*, p. 20, Atlantic Ocean ; VAYSSIÈRE (627), figg. : **n. spp.**
- Firola souleyeti*, p. 37, *gegenbauri*, p. 39, Atlantic Ocean ; VAYSSIÈRE (627), figg. : **n. spp.**
- Firoloida kowalewskyi*, Atlantic Ocean ; VAYSSIÈRE (627), p. 45, fig. : **n. sp.**

## PROSOBRANCHIATA.

### PECTINIBRANCHIATA.

#### TOXOGLOSSA.

#### TEREBRIDÆ, CONIDÆ, PLEUROTOMIDÆ, and CANCELLARIIDÆ.

- Ancistrosyrinx orientis*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 56, fig. : **n. sp.**
- Cancellaria pergradata*, South Australia ; VERCO, Tr. R. Soc. S. Austral. xxviii, p. 142, fig. : **n. sp.**

- +*Cancellariella*, n. subgen. of *Cancellaria*, type *C. neritoidea*, n. sp., Miocene, Maryland; MARTIN (425), p. 168.
- Clathromangilia* (?) *strigilata*, Gulf of Gabes; PALLARY, J. Conchyl. lii, p. 222, fig.: n. sp.
- Clathurella perlissa*, off the Andamans; SMITH, Ann. Nat. Hist. xiii, p. 460: *C. polyhymnia*, Gulf of Oman; MELVILL, P. Malac. Soc. London vi, p. 165, figg.: *C. bulleni*, Ceylon; PRESTON, J. Malac. xi, p. 75, fig.: *C. chichijimana*, *centrosa*, p. 11, *lischkeana*, p. 12, Japan; PILSBRY, P. Ac. Philad. 1904, figg.: *C. crassilirata*, Port Alfred; SMITH, J. Malac. xi, p. 27, fig.: *C. amphiblestrum*, p. 58, *epixantha*, *hedleyi*, p. 59, Persian Gulf; MELVILL, P. Malac. Soc. London vi, figg.: n. spp.
- +*Cochlespiropsis*, n. gen. for *C. engonata*, Conrad, and *C. blanda*, n. sp.; CASEY, Tr. Ac. St. Louis xiv, p. 143.
- Conus coromandelicus* is a *Conorbis*, with notes; MELVILL, P. Malac. Soc. London vi, p. 170.
- Cythara nevilliana*, Ceylon; PRESTON, J. Malac. xi, p. 75, fig.: n. sp.
- Daphnella cassandra*, New South Wales and Tasmania; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 187, fig.: *D. eulimenes*, Gulf of Oman; MELVILL, J. Malac. xi, p. 84, fig.: *D. radula*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 8, fig.: *D. dea*, *lucasi*, Gulf of Oman; MELVILL, P. Malac. Soc. London vi, p. 167, figg.: n. spp.
- Drillia worthingtoni*, off Andaman Islands; SMITH, Ann. Nat. Hist. xiii, p. 460: *D. streptonotus*, p. 7, *albiguttata*, p. 8, Japan; PILSBRY, P. Ac. Philad. 1904, figg.: *D. thetis*, *subcontracta*, p. 26, *albonodulosa*, *praeterrimissa*, *nivosa*, p. 27, Port Alfred; SMITH, J. Malac. xi, figg.: n. spp.
- +*Eoclathurella*, n. gen. for *E. jacksonica*, *obesula*, n. spp., Eocene; CASEY, Tr. Ac. St. Louis xiv, p. 166.
- +*Eodrillia*, n. gen. for *Pleurot. depygis*, Conrad, &c.; CASEY, t. c. p. 159.
- +*Eosurcula*, n. gen. for *Pleurot. moorei*, Gabb, &c.; CASEY, t. c. p. 145.
- Execoptychia*, Cossm., is a synonym of *Cancellaria*; COSSMANN (140), p. 120.
- +*Fusitoma*, n. gen., type *Fusus siphio*; CASEY, Tr. Ac. St. Louis xiv, p. 163.
- Genota*, note on species; RAYMOND, Nautilus xviii, p. 15.
- Ginnania taprurensis*, Gulf of Gabes; PALLARY, J. Conchyl. lii, p. 218, fig.: n. sp.
- Glyphostoma siren*, Port Alfred; SMITH, J. Malac. xi, p. 28, figg.: n. sp.
- +*Glyptotoma*, n. gen. for *Pleurotoma crassiplicata*, Gabb, &c.; CASEY, Tr. Ac. St. Louis xiv, p. 140.
- Helenella*, n. gen. for *Pleurot. multigranosa*, Smith, and *H. insolens*, n. sp., p. 168, St Helena; CASEY, t. c. p. 167.
- +*Hemisurcula*, n. gen., type *Pleurot. silicata*, Aldr.; CASEY, t. c. p. 150.
- Homotoma mirabilis*, p. 219, *bracteata*, p. 220, Gulf of Gabes; PALLARY, J. Conchyl. lii, figg.: n. spp.
- +*Leptosurcula*, n. gen. for *Pleurot. beadata*, Harris; CASEY, Tr. Ac. St. Louis xiv, p. 157.
- Lophiotoma*, n. gen. for *Pleurotoma tigrina*, Lamk., &c., with *L. microsticta*, n. sp., Philippine Is.; CASEY, t. c. p. 130.
- +*Lyrosurcula*, n. gen. for *L. elegans*, n. sp., Eocene, &c.; CASEY, t. c. p. 156.
- Mangilia cinnamomea*, n. subsp.; PILSBRY, P. Ac. Philad. 1904, p. 10.
- Mangilia kochi*, Gulf of Gabes; PALLARY, J. Conchyl. lii, p. 221, fig.: *M. posidonia*, Gulf of Oman; MELVILL, J. Malac. xi, p. 84, fig.: *M. alfredi*, Port Alfred; SMITH, t. c. p. 29, fig.: *M. adamantina*, Gulf of Oman, *aglaia*, Persian Gulf, p. 165, *apollinea*, *barbiton*, *callistephana*, Gulf of Oman, p. 166, *koweitensis*, Persian Gulf, p. 167; MELVILL, P. Malac. Soc. London vi, figg.: *M. pura*, *semicarinata*, p. 9, *kamakurana*, (*Cythara*) *hirasei*, p. 10, Japan; PILSBRY, P. Ac. Philad. 1904, figg.: *M. bathmis*, p. 57, *ecphora*, (*Glyphostoma*) *pynochila*, p. 58, Persian Gulf; MELVILL, P. Malac. Soc. London vi, figg.: n. spp.

- Megasurcula*, **n. gen.** for *Surcula carpenteriana*, Gabb, &c.; CASEY, Tr. Ac. St. Louis xiv, p. 147.
- †*Microsurcula*, **n. gen.**, type *M. nucleola*, **n. sp.**, Eocene; CASEY, t. c. p. 154.
- Mitromorpha volva*, Sby., var.; SMITH, J. Malac. xi, p. 31.
- Orthosurcula*, **n. gen.** for *Pleurot. longiforma* (sic), Aldr., and *Surcula transversaria*, Lamk.; CASEY, Tr. Ac. St. Louis xiv, p. 151.
- Parviterebra*, **n. gen.**, type *P. paucivolvis*, **n. sp.**, Japan; PILSBRY, P. Ac. Philad. 1904, p. 5, fig.
- Philbertia papillosa*, Gulf of Gabes; PALLARY, J. Conchyl. lii, p. 220, fig.: **n. sp.**
- Pleurotomidæ*, on classification; CASEY (98): *P. travancorica*, Smith, n. var.; SMITH (579).
- Pleurotoma trypanodes*, Arabian Sea; MELVILL, P. Malac. Soc. London vi, p. 57, fig.: *P. (Surcula) margarita*, off the Andamans; SMITH, Ann. Nat. Hist. xiii, p. 458: *P. (Oligotoma) patricia*, (*Surcula*) *halicyria*, Gulf of Oman; MELVILL, P. Malac. Soc. London vi, p. 164, figg.: *P. (Genota) stearnsiana*, p. 1, (*Antiplanes*) *catalinae*, p. 2, California; RAYMOND, Nautilus xviii : **n. spp.**
- †*Protosurcula*, **n. gen.**, type *Pleurot. gabbi*, Conrad; CASEY, Tr. Ac. St. Louis xiv, p. 144.
- †*Ruscula*, **n. gen.** for *Fusus plicatus*, Lea, and *R. extricata*, **n. sp.**; CASEY, t. c. p. 161.
- †*Surculoma*, **n. gen.** for *Pleurot. tabulata*, Conr., &c.; CASEY, t. c. p. 153.
- Terebra histrio*, Desh., is West African; ANCEY, Nautilus xviii, p. 21: *T. hedleyi*, Tate, is an unnecessary name; SMITH (580).
- Terebra suspensa*, Port Alfred; SMITH, J. Malac. xi, p. 30, fig.: *T. hedleyi*, p. 3, *hizenensis*, *awajiensis*, p. 4, Japan; PILSBRY, P. Ac. Philad. 1904, figg. : **n. spp.**
- Tomopleura*, **n. gen.**, type *Pleurotoma nivea*, Phil.; CASEY, Tr. Ac. St. Louis xiv, p. 138.
- †*Tropisurcula*, **n. gen.** for *Drillia caseyi*, Aldr., and *T. crenula*, **n. sp.**; CASEY, t. c. p. 153.
- †*Varicobela*, **n. gen.**, type *Strombus smithi*, Aldr.; CASEY, t. c. p. 162.

## RACHIGLOSSA.

## OLIVIDÆ, MARGINELLIDÆ, VOLUTIDÆ, and MITRIDÆ.

- Ancilla albozonata, reevei*, Port Alfred; SMITH, J. Malac. xi, p. 29, figg. : **n. spp.**
- Marginella (Cryptospira) robusta*, Ascension Island; SOWERBY, P. Malac. Soc. London vi, p. 175, fig.: *M. munda*, *pura*, p. 31, *differeus*, *dulcis*, *pseustes*, p. 32, Port Alfred; SMITH, J. Malac. xi, figg. : **n. spp.**
- Mitra stephanucha*, Melv., note on with n. var.; MELVILL, J. Malac. xi, p. 86.
- Mitra hirasei*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 12, fig.: *M. tunetana*, Gulf of Gabes; PALLARY, Ann. Mus. Marseille viii, No. 1, p. 8, fig.: *M. townsendi*, Persian Gulf; MELVILL, P. Malac. Soc. London vi, p. 163, fig. : **n. spp.**
- Oliva gibbosa*, Born, variation; MELVILL (435).
- Thala ogasawarana*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 13, fig.: *T. ceylanica*, Ceylon; PRESTON, J. Malac. xi, p. 76, fig. : **n. spp.**
- Volvaria arena*, n. var.; DAVIS (181).
- Voluta brazieri*, Cox, is, from the type, probably a monstrosity of *V. delicosa*, Montrz.; SMITH, P. Malac. Soc. London vi, p. 178.

FASCIOLARIIDÆ, TURBINELLIDÆ, BUCCINIDÆ, NASSIDÆ,  
COLUMBELLIDÆ, MURICIDÆ, and CORALLIOPHILIDÆ.

- Amycla corniculum*, n. subsp.; PALLARY, J. Conchyl. lii, p. 228.  
*Buccinum inclitum*, *chishimanum*, Kuril Is.; PILSBRY, Nautilus xviii, p. 87 : n. spp.  
*Bullia trifasciata*, Port Alfred; SMITH, J. Malac. xi, p. 34, fig.: *B. (Pseudostrombus) strenaria*, Persian Gulf; MELVILL, P. Malac. Soc. London vi, p. 51, fig. : n. spp.  
*Caducifer*, Dall (p. 77), belongs to *Buccinidæ*; PILSBRY & VANATTA (498).  
 †*Clavellofusus*, n. gen., type *C. spiratus*, n. sp., Eocene, Paris Basin; GRABAU, Smithsonian. Collect. xlv, p. 99.  
*Columbella pyramidalis*, Sby., note on; SMITH, J. Malac. xi, p. 30: *C. turturina*, p. 13, *albinodulosa*, p. 14, n. subsp.; PILSBRY, P. Ac. Philad. 1904: *C. terpsichore*, *fauroti*, notes on; FISCHER, J. Conchyl. lii, p. 59.  
*Columbella (Astyris) agatha*, Persian Gulf; MELVILL, P. Malac. Soc. London vi, p. 52, fig.: *C. liocyma*, p. 14, *somnium*, *hahajimana*, p. 15, *divaricata*, p. 16, Japan; PILSBRY, P. Ac. Philad. 1904, figg. : n. spp.  
*Cominella* (?) *sulcata*, Sby., is probably a *Daphnella*; SMITH, J. Malac. xi, p. 28: *C. unifasciata*, Sby., is a synonym of *Purpura castanea*, Dkr.; SMITH, t. c. p. 33.  
*Coralliophila jeffreysi*, n. var.; PILSBRY, P. Ac. Philad. 1904, p. 16.  
*Coralliophila dissimulans*, Ceylon; PRESTON, J. Malac. xi, p. 77, fig. : n. sp.  
 †*Cosmolithes*, n. gen., type *Fusus uniplicatus*, Lam.; GRABAU, Smithsonian. Collect. xlv, p. 142.  
*Cyclonassa vayssierei*, Bizerta; PALLARY, Ann. Mus. Marseille viii, No. 1, p. 9, fig. : n. sp.  
*Cyllene japonica*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 19, fig. : n. sp.  
 †*Falsifusus*, n. gen., type *Fusus meyeri*, Aldr.; GRABAU, Smithsonian. Collect. xlv, p. 80.  
*Fasciolaria*, amitosis in the embryo; OSBORN (461, 462).  
 †*Fulgurofusus*, n. gen., type *Fusus quercollis*, Harris; GRABAU, Smithsonian. Collect. xlv, p. 86.  
*Fusidæ*, notes on family, genera, protoconch, &c.; GRABAU (265): *F. longicaudus*, Bory, p. 28, *nodosoplicatus*, Dkr., p. 32, *perplexus*, A. Ad., p. 33, *dupetit-thouarsi*, Kien., p. 46, n. var.; GRABAU (265).  
*Fusus suboblitus*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 18, fig.: *F. brasiliensis*, Brazil; GRABAU, Smithsonian. Collect. xlv, p. 66, fig.: *F. cingulatus*, Port Alfred; SMITH, J. Malac. xi, p. 30, fig. : n. spp.  
*Heilprinia*, n. gen., type *Fusus caloosaensis*, Heilprin; GRABAU, Smithsonian. Collect. xlv, p. 87.  
*Latiaxis kieneri*, apparently n. n. for *Murex cariniferus*, auct. non Sby.; HIDALGO (305), p. 23.  
*Maculotriron*, Dall (p. 78), belongs to *Muricidæ*, with n. var. of *M. bracteatus*, Hinds; PILSBRY & VANATTA (498).  
*Megalatractus*, notes on, with anatomy; KESTEVEN (350).  
*Metula mitrella*, Ad. & Rve., is a synonym of *M. hindsi*, Ad.; SMITH (579).  
*Mitrella spelta*, Monts., figd.; PALLARY, J. Conchyl. lii, p. 229.  
*Murex trunculus*, n. var.; PALLARY (468): *M. brandaris*, note on variation, with n. var.; DAUTZENBERG (175).  
*Murex multispinosus*, Philippines; SOWERBY, P. Malac. Soc. vi, p. 7, fig.:  
 . *M. (Pteronotus) exquisitus*, Hab. incert.; SOWERBY, t. c. p. 176, fig.:  
 . *M. (Ovinebra) sykesi*, Ceylon; PRESTON, J. Malac. xi, p. 76, fig. : n. spp.  
*Nassa semiplicata*, n. subsp.; PILSBRY, P. Ac. Philad. 1904, p. 20: *N. ferussaci*, n. subsp.; PALLARY, J. Conchyl. lii, p. 226.  
*Nassa pacilosticta*, Port Alfred; SMITH, J. Malac. xi, p. 33, fig.: *N.*



- (*Phrontis*) *siva*, Ceylon, (*P.*) *gangetica*, Calcutta; PRESTON, t. c. p. 76, fig. : **n. spp.**
- Ocinebra monopectera*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 17, fig. : **n. sp.**
- Ocinebrina edwardsi*, n. var.; PALLARY, J. Conchyl. lii, p. 231.
- Phos tabidus*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 191, fig. : **n. sp.**
- Pseudofusus locardi*, **n. n.** for *P. rusticulus*, Locard non Monts.; PALLARY, J. Conchyl. lii, p. 225.
- †*Psilocochlis*, **n. subgen.** of *Turbinella* for *T. m<sup>c</sup>Callie*, **n. sp.**, Eocene, Georgia; DALL, Nautilus xviii, p. 9.
- Purpura texturata*, Port Alfred; SMITH, J. Malac. xi, p. 32, fig. : *P. tosana*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 17, fig. : **n. spp.**
- †*Rhopalithes*, **n. gen.**, type *Fusus noe*, Lam.; GRABAU, Smithsonian. Collect. xlv, p. 135.
- Sistrum morus*, n. var.; PILSBRY, P. Ac. Philad. 1904, p. 18.
- Tritonidea tosana*, Japan; PILSBRY, t. c. p. 19, fig. : **n. sp.**
- Trophon*, Magellan fauna reviewed; STREBEL (599): *T. truncatus*, n. var.; JENSEN (334).
- Trophon ohlini*, p. 203, *pæssleri*, p. 213, *elongatus*, p. 217, *pseudoelongatus*, p. 220, *albus*, p. 221, *obesus*, *acuminatus*, p. 222, *fenestratus*, p. 225, *hoylei*, p. 227, *brucei*, p. 230, *ornatus*, p. 231, *standeni*, p. 232, *couthouyi*, p. 236, *elegans*, p. 241, *ringei* (Pfeffer), p. 242, Magellan Province; STREBEL, Zool. Jahrb. Syst. xxi, figg. : **n. spp.**

## TÆNIOGLOSSA.

LOTORIIDÆ, COLUMBELLINIDÆ, CASSIDIDÆ, DOLIIDÆ,  
CYPRÆIDÆ, STROMBIDÆ, APORRHAIIDÆ, and STRUTHIOLARIIDÆ.

- Aporrhaidæ*, classification; COSSMANN (140).
- Aquillus* and allies, notes on, as on *A. labiosus* (Wood); PILSBRY, P. Ac. Philad. 1904, p. 21.
- Caducifer*, **n. sect.** of *Colubraria*, type *Triton truncatus*, Hinds; DALL, Smithsonian. Collect. xlvii, p. 136: Belongs to *Buccinidæ*; PILSBRY & VANATTA (498).
- Cassidaria echinophora*, large form; KOBELT (360).
- Cassidea sinuosa*, South Australia; VERCO, Tr. R. Soc. S. Austral. xxviii, p. 141, fig. : **n. sp.**
- Cassis paucirugis*, Menke, note on; KENYON (349).
- Cassis* (*Semicassis*) *fortisulcata*, Hawaiian Is.; SMITH, P. Malac. Soc. London vi, p. 21, fig. : **n. sp.**
- Columbellinidæ*, classification; COSSMANN (140).
- Craspedotriton*, **n. sect.** of *Bufonaria*, type *Triton convolutus*, Brod.; DALL, Smithsonian. Collect. xlvii, p. 119.
- Cypræidæ* of Persian Gulf, &c., with n. varr. of *C. caurica*, *ocellata*, *pulchella*; MELVILL & STANDEN (440): *C. onyx*, malformed; MELVILL, P. Malac. Soc. London vi, p. 3: *C. umbilicata*, white var.; SOWERBY, t. c. p. 1: *C. caputanguis*, Phil., type is at Santiago; BYNE, J. Conch. xi, p. 57.
- Dentomochilus*, **n. gen.**, type *Strombus ornatus*, Desh.; COSSMANN (140), p. 38.
- †*Dilatilabrum*, **n. n.** for *Oncoma*, Mayer non Fieb.; COSSMANN (140), p. 12.
- Dolium magnificum*, China Sea; SOWERBY, P. Malac. Soc. London vi, p. 7, fig. : **n. sp.**
- Egyrina*, **n. n.** for *Gyrina*, Schum., non *Gyrinus*, L.; DALL, Smithsonian. Collect. xlvii, p. 132.
- Eutritonium*, **n. gen.**, type *Murex tritonis*, L.; COSSMANN (140), p. 123.

*Lotorium spengleri*, eggs of; HEDLEY (292).

*Lotorium (Colubraria) concinnatum*, Persian Gulf, &c.; MELVILL, P. Malac. Soc. London vi, p. 51, fig.: **n. sp.**

*Maculotriton*, **n. sect.** of *Colubraria*, type *Triton bracteatus*, Hinds; DALL, Smithsonian. Collect. xlvii, p. 136: Belongs to *Muricidæ*; PILSBRY & VANATTA (498).

†*Maussenetia*, **n. sect.** of *Chenopus*, type *M. staadti*, **n. sp.**, Tertiary, France; COSSMANN (140), p. 71.

*Monostiolum*, **n. sect.** of *Colubraria*, type *Triton swifti*, Tryon; DALL, Smithsonian. Collect. xlvii, p. 136.

*Paralagena*, **n. n.** for *Lagena*, Mörch non Walker; DALL, t. c. p. 132.

*Phrygiomurex*, **n. subgen.** of *Colubraria*, type *Triton sculptilis*, Rve.; DALL, t. c. p. 137.

†*Pietteia*, **n. subgen.** of *Dicroloma*, type *Rostellaria hamus*, Desh.; COSSMANN (140), p. 90.

†*Quadrinervus*, **n. subgen.** of *Chenopus*, type *Pterocera ornata*, Buv.; COSSMANN (140), p. 61.

*Ranellidæ*, review of; DALL (171).

*Septidæ* (or *Lotoriidæ*), review of; DALL (171).

*Strombidæ*, classification; COSSMANN (140).

*Struthiolariidæ*, classification; COSSMANN (140).

†*Struthiolariopsis*, **n. gen.**, type *Fusus ferrieri*, Phil., Tertiary, Chili; WILCKENS, N. Jahrb. Min. B.B. xviii, p. 208.

*Teniola*, **n. sect.** of *Colubraria*, type *Triton decollatus*, Sby.; DALL, Smithsonian. Collect. xlvii, p. 137.

*Tritoniscus*, **n. sect.** of *Cymatium*, type *Triton lotoisii*, Petit; DALL, t. c. p. 134.

*Tritonocauda*, **n. sect.** of *Cymatium*, type *Murex caudatus*, Gmel.; DALL, t. c. p. 133.

*Turritriton*, **n. sect.** of *Cymatium*, type *Triton gibbosus*, Brod.; DALL, t. c. p. 133.

### CERITHIIDÆ, PLANAXIDÆ, VERMETIDÆ, TURRITELLIDÆ, and CÆCIDÆ.

*Bittium caudatum*, Gulf of Oman; MELVILL, P. Malac. Soc. London vi, p. 161 fig.: **n. sp.**

*Bittium furvum*, Watson, is the young of *Cerithium icarus*, Bayle; HEDLEY (292).

*Cæcum digitulum*, New Zealand; HEDLEY, Rec. Austral. Mus. v, p. 94, fig.: **n. sp.**

*Cerithium trailli*, **n. subsp.**; PILSBRY, P. Ac. Philad. 1904, p. 25.

*Cerithium sykesi*, Adriatic; BRUSINA, Nachrbl. Deutsch. malak. Ges. 1904, p. 167: *C. subscalatum*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 25, fig.: *C. albocoopertum*, Bermuda; DAVIS, Nautilus xvii, p. 129, fig.:

*C. anembatum*, *pervicax*, Gulf of Oman; MELVILL, P. Malac. Soc. London vi, p. 161, figg.: **n. spp.**

†*Discovermetulus*, **n. gen.**, type *D. pissarroi*, **n. sp.**, Tertiary, France; ROVERETO, Bull. Soc. geol. Ital. xxiii, p. 68.

*Mathilda carystia*, figd.; MELVILL, J. Malac. xi, p. 84.

*Pirenella conica*, **n. subsp.**; PALLARY, J. Conchyl. lii, p. 232.

*Planaxis brasilianus*, Lam., notes on; HEDLEY (292).

*Stephopoma nucleogranosum*, South Australia; VERCO, Tr. R. Soc. S. Austral. xxviii, p. 143, fig.: **n. sp.**

*Streptoceras cygnicollis*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 189, fig.: **n. sp.**

*Trifora concatenata*, Gulf of Oman; MELVILL, P. Malac. Soc. London vi,

- p. 162, fig. : *T. fuscescens, fuscomaculata, convexa*, Port Alfred ; SMITH, J. Malac. xi, p. 37, figg. : **n. spp.**  
*Triphora princeps*, p. 174, *smithi*, p. 175, Hab. incert. ; SOWERBY, P. Malac. Soc. London vi, figg. : **n. spp.**  
*Turritella illustris*, Persian Gulf ; MELVILL, J. Malac. xi, p. 81, fig. : **n. sp.**

## MELANIIDÆ, PSEUDOMELANIIDÆ, LITTORINIDÆ, and FOSSARIDÆ.

- Burtonilla*, **n. gen.** for *Turbonilla* (?) *terebriformis*, Smith ; SMITH, P. Malac. Soc. London vi, p. 97.  
*Couthouyia corrugata*, New Zealand ; HEDLEY, Rec. Austral. Mus. v, p. 95, fig. : **n. sp.**  
*Fossarus* (*Couthouyia*) *quinquecarinalis*, (*C.*) *thelacme*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 54, figg. : **n. spp.**  
*Giraudia minor, tanganyicensis*, figd. ; SMITH, t. c. p. 96.  
*Lacuna globosa*, Bay of Bengal ; SMITH, Ann. Nat. Hist. xiii, p. 472 : **n. sp.**  
*Lechaptosia ponsonbyi*, figd. ; SMITH, P. Malac. Soc. London vi, p. 94.  
*Littorina rudis*, habits ; BOHN (71, 72).  
*Melania libertina*, **n. var.** ; PILSBRY & HIRASE, Nautilus xviii, p. 9.  
*Melania morti*, p. 13, *cingulifera*, p. 14, New Hebrides ; SYKES, P. Malac. Soc. London vi, figg. : *M. vara*, Java ; BULLEN, t. c. p. 110, fig. : *M. hahajimana*, Japan ; PILSBRY & HIRASE, Nautilus xviii, p. 8 : *M. (Plotia) schneeii*, Marshall Is. ; BOETTGER, Zool. Jahrb. Syst. xx, p. 408 : *M. æruginosa*, Java, *dulcis*, Yunnan, *fortitudinis*, p. 51, Java, *lautu*, p. 52, Yunnan ; FULTON, J. Malac. xi, figg. : **n. spp.**  
*Melanopsis*, **n. varr.** with fig. of *M. mourebeyensis* ; PALLARY (466).  
*Melanopsis hungarica*, Hungary ; KORMOS, Allatt. Kozl. Magyar Tars. iii, p. 107, fig. : **n. sp.**  
†*Pauluccia*, "**nov.** *Melanopsidarum subgen.*" for *P. boettgeri*, **n. sp.**, Tertiary, S. Europe ; BRUSINA (88), p. viii.  
*Stanleya rotundata*, Lake Tanganyika ; SMITH, P. Malac. Soc. London vi, p. 93 : **n. sp.**

SOLARIIDÆ, RISSOIDÆ, HYDROBIIDÆ, VIVIPARIDÆ,  
VALVATIDÆ, AMPULLARIIDÆ, and ASSIMINEIDÆ.

- Ammicola positura*, Petterd, is a synonym of *Hydrobia brazieri*, Smith ; HEDLEY (292).  
*Ammicola augustina*, Florida ; PILSBRY, Nautilus xvii, p. 113 : **n. sp.**  
*Ampullaria* and allied groups, notes on ; DALL (165).  
*Assiminea norburyi*, Lin Chao ; JONES & PRESTON, P. Malac. Soc. London vi, p. 147, fig. : **n. sp.**  
*Bythinia richmondiana*, Petterd, and *Pupa anodonta*, Musson & Hedley, are synonyms of *Hydrobia petterdi*, Smith ; HEDLEY (292).  
*Emmericia*, notes on, with new names ; BRUSINA (89).  
*Epigrus simsoni*, Tate & May, is a synonym of *E. ischnus*, Tate ; HEDLEY (292).  
*Epigrus protractus*, New South Wales ; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 185, fig. : **n. sp.**  
*Fenella xanthacme*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 56, fig. : **n. sp.**  
*Jullientia carinata*, Yunnan ; FULTON, J. Malac. xi, p. 52, fig. : **n. sp.**  
*Limnopomus*, **n. sect.** of *Ampullaria*, type *A. columellaris*, Gould ; DALL, J. Conch. xi, p. 54.  
†*Morphotropis*, **n. gen.** for *M. tremulans*, Barr., &c., Silurian, Bohemia ; PERNER (477), Exph. pl. lxxvii.

- †*Pachystrophia* (Koken MS.), **n. gen.**, type *P. deveva*, Eichw., sp., Silurian; PERNER (477), Explan. pl. lxxiii.
- Paludestrina taylora*, habits and reproduction; JACKSON & TAYLOR (326): *P. culminea*, d'Orb. = *P. andecola*, d'Orb., figd.; BAVAY (40).
- Paludestrina popoensis*, Lake Popo, Bolivia; BAVAY, Bull. Soc. zool. France xxix, p. 154, fig.: **n. sp.**
- †*Pleuromphalus*, **n. gen.** for *P. seductor*, Barr., Silurian, Bohemia; PERNER (477), Explan. pl. lxxvii.
- †*Prosolarium*, **n. gen.** for *P. procerum*, Barr., Silurian, Bohemia; PERNER (477), Explan. pl. lxii.
- Pyrgula neveui*, Lake Titicaca, Bolivia; BAVAY, Bull. Soc. zool. France xxix, p. 155, fig.: **n. sp.**
- †*Rhabdospira*, **n. gen.** for *R. bifrons*, Barr., Silurian, Bohemia; PERNER (477), Explan. pl. lxxv.
- Rissoa elata*, nervous system; QUINTARET (507): *R. monodonta*, n. var., *spongicola*, Monts., figd.; PALLARY, J. Conchyl. lii, p. 234: *R. woodsi*, **n. n.** for *R. cyclostoma* var. *rosea*, Woods, which is a species; PRITCHARD & GATLIFF, P. Soc. Victoria xiv, p. 104 [omitted, 1902]: *R. agnewi*, Woods, note on; HEDLEY (292).
- Rissoa tokyoensis*, *ogasawarana*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 26, figg.: *R. suteri*, New Zealand; HEDLEY, Rec. Austral. Mus. v, p. 96, fig.: *R. integella*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 185, fig.: *R. (Scrobs) columen*, Persian Gulf; MELVILL, P. Malac. Soc. London vi, p. 53, fig.: *R. perspecta*, *conspicua*, Port Alfred; SMITH, J. Malac. xi, p. 35, fig.: **n. spp.**
- Rissoina tridentata*, Mich., note on with synonymy; PILSBRY, P. Ac. Philad. 1904, p. 28.
- Rissoina alfredi*, Port Alfred; SMITH, J. Malac. xi, p. 35, fig.: *R. (Phosinella) phormis*, Gulf of Oman; MELVILL, t. c. p. 80, fig.: *R. rex*, *mater-insulae*, (*Rissolina*) *levicostulata*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 27, figg.: **n. spp.**
- Seguenziella*, **n. n.** for *Taramellia*, Seguenza non Campana; SACCO (546), p. 123.
- †*Sinutropis*, **n. gen.** for *S. interrumpens*, Barr., Silurian, Bohemia; PERNER (477), Explan. pl. lxxvii.
- Solarium admirandum*, figd.; MELVILL, J. Malac. xi, p. 84.
- Somatogyrus hinkleyi*, *constrictus*, p. 135, *nanus*, p. 136, *umbilicatus*, *coosensis*, p. 137, *obtusus*, *crassus*, p. 138, Alabama, *georgianus*, p. 139, Georgia and Alabama, *pennsylvanicus*, p. 140, Pennsylvania, *virginicus*, p. 141, Virginia, *pilsbryanus*, p. 142, Alabama; WALKER, Nautilus xvii, figg.: **n. spp.**
- Stenothyra formosana*, Formosa; PILSBRY & HIRASE, Nautilus xviii, p. 8: **n. sp.**
- Stiva*, **n. gen.** for *S. ferruginea*, **n. sp.**, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 192, fig.
- Taramellia*, Seguenza, renamed *Seguenziella*, q. v.
- Valvata piscinalis*, n. var.; ANDREAE (16).
- Valvata maroccana*, N. W. Africa; PALLARY, J. Conchyl. lii, p. 41, fig.: *V. (Cincinnati) geyeri*, Bavaria; MENZEL, Nachrbl. Deutsch. malak. Ges. 1904, p. 78, fig.: **n. spp.**
- Vitrella*, review of Wurtemberg fauna, with n. varr.; GEYER (250): *V. quenstedtii*, Clessin, anatomy; SEIBOLD (553).
- Vitrella putei*, p. 317, *exigua*, *labiata*, p. 320, *franconia*, p. 323, Wurtemberg; GEYER, Jahresh. Ver. Wurttemb. lx, figg.: **n. spp.**
- Vivipara rouyeri*, Java; BULLEN, P. Malac. Soc. London vi, p. 110, fig.: **n. sp.**



## CYCLOPHORIDÆ and CYCLOSTOMATIDÆ.

- Alycæus awaensis*, Japan ; PILSBRY & HIRASE, *Nautilus* xvii, p. 117 :  
*A. oshimanus*, Japan ; PILSBRY & HIRASE, op. cit. xviii, p. 7 : *A. purus*,  
*tokunoshimanus*, p. 617, *levicervix*, p. 618, Japan ; PILSBRY & HIRASE,  
 P. Ac. Philad. 1904 : **n. spp.**
- Angigaster*, **n. sect.** of *Diplommatina*, type *D. vespa*, **n. sp.**, Japan ; PILSBRY  
 & HIRASE, P. Ac. Philad. 1904, p. 619.
- Cataulus marginatus*, Pfr., *nevilli*, Sykes, n. varr. ; FULTON (238).  
*Cataulus rugosa*, *sykesi*, Ceylon ; FULTON, *Ann. Nat. Hist.* xiii, p. 452 :  
**n. spp.**
- Cyathopoma iota*, Japan ; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 619 :  
**n. sp.**
- Cyclophorus atomus*, Morel., note on ; ANCEY, *J. Conchyl.* lii, p. 309.  
*Cyclostoma andreweæ*, Ancey, is a *Colobostylus* ; ANCEY, t. c. p. 308 : *C.*  
*moniliatum*, n. var. ; ANCEY, t. c. p. 310.
- Cyclotus nudus*, Japan ; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 618 :  
**n. sp.**
- Diplommatina asopus*, Bav. and Dtz., note on ; ANCEY, *J. Conchyl.* lii,  
 p. 315.
- Diplommatina tozana*, *tosanella*, *gibbera*, p. 620, *goniobasis*, *kiushuensis*,  
 p. 621, *tokunoshimana*, *ventriosa*, p. 622, *kumejimana*, *lateralis*,  
*immersidens*, p. 623, *vespa*, p. 624, Japan ; PILSBRY & HIRASE, P. Ac.  
 Philad. 1904 : **n. spp.**
- Japonia toshimana*, Japan ; PILSBRY & HIRASE, *Nautilus* xvii, p. 104 :  
*J. tokunoshimana*, Japan ; PILSBRY & HIRASE, P. Ac. Philad. 1904,  
 p. 616 : **n. spp.**
- Lagochilus obliquistriatus*, Java ; BULLEN, *P. Malac. Soc. London* vi, p. 110,  
 fig. : **n. sp.**
- Leptopoma crenilabre*, Strubell, note on with fig. ; FULTON (243) : *L.*  
*leucorraphe*, Martens, n. var. ; SYKES, *J. Malac.* xi, p. 92.
- Leptopoma gebiensis*, Gebi I. ; FULTON, *J. Malac.* xi, p. 54, fig. : *L.*  
*ponsonbyi*, Obi ; SYKES, t. c. p. 91, fig. : **n. spp.**
- Mascaria bifasciata*, Sby., note on ; ANCEY, *J. Conchyl.* lii, p. 309.
- Nakadaella*, **n. gen.** for *Cyclotus* (?) *micron*, Pilsbry ; ANCEY, t. c. p. 315.
- Neocyclotus panamensis*, Panama ; DA COSTA, *P. Malac. Soc. London* vi,  
 p. 6, fig. : **n. sp.**
- Omphalotropis varians*, Mlldff., is a synonym of *O. pæcila*, Ancey ; ANCEY,  
*J. Conchyl.* lii, p. 308.
- Opisthostoma*, notes on sectional names ; ANCEY, t. c. p. 315.
- Opisthostoma beddomei*, Borneo ; SMITH, *P. Malac. Soc. London* vi, p. 105,  
 fig. : **n. sp.**
- Pupinide*, notes on ; COLLIER (125) : *P. miokoana*, Mlldf., is a synonym  
 of *P. beddomei*, Ancey ; ANCEY, *J. Conchyl.* lii, p. 308.
- Pupinella oshimæ*, n. subsp. ; PILSBRY & HIRASE, P. Ac. Philad. 1904,  
 p. 618.
- Realia turriculata*, Pfr., n. subsp. ; SUTER, *P. Malac. Soc. London* vi,  
 p. 157.

## ACICULIDÆ and TRUNCATELLIDÆ.

- Coxiella*, note on, *C. confusa*, Smith, is a synonym of *C. badgerensis*,  
 Johnston ; HEDLEY (292).
- +*Pseudotruncatella*, **n. gen.**, type *Pupa microceras*, Braun ; ANDREAE,  
 Mt. Mus. Hildesheim xx, p. 15.

HIPPONYCIDÆ, CAPULIDÆ, XENOPHORIDÆ, NARICIDÆ and  
NATICIDÆ.

- Amalthea conica*, Schum., note on ; PILSBRY, P. Ac. Philad. 1904, p. 24.  
 †*Antispira*, **n. gen.** for *A. præcox*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. lii.  
 †*Auriptygma*, **n. gen.** for *A. fortior*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. lxi.  
 †*Berlieria*, **n. gen.**, type *B. ledonica*, **n. sp.**, Ledonian Jura ; LORIOLE (401), p. 131.  
*Capulus fragilis*, Bay of Bengal ; SMITH, Ann. Nat. Hist. xiv, p. 1 : *C. devotus*, New South Wales ; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 190, fig. : **n. spp.**  
*Crepidula*, origin of cleavage centrosomes ; CONKLIN (135).  
*Ergæa walshi*, note on ; PILSBRY, P. Ac. Philad. 1904, p. 24.  
 †*Fritschia*, **n. gen.** for *F. multicostata*, *paucicostata*, **n. spp.**, Trias, Germany ; PICARD, Jahrb. geol. Landesanst. Berlin xxii, p. 487.  
 †*Læogyra*, **n. gen.** for *L. bohémica*, Perner, Silurian, Bohemia ; PERNER (477), Expln. pl. lii.  
*Natica millepunctata*, *hebræa*, **n. varr.** ; PALLARY (468).  
*Natica napus*, *decipiens*, Port Alfred ; SMITH, J. Malac. xi, p. 34, fig. : **n. spp.**  
 †*Naticonema*, **n. gen.** for *N. similaris*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. liv.  
 †*Otospira*, **n. gen.** for *O. squamulata*, Perner, Silurian, Bohemia ; PERNER (477), Expln. pl. lvi.  
 †*Palæonustus*, **n. gen.** for *P. comes*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. lvii.  
*Polinices sagamiensis*, Japan ; PILSBRY, P. Ac. Philad. 1904, p. 23, fig. : **n. sp.**  
 †*Pseudotylostoma*, **n. gen.** for *P. romeroi*, **n. sp.**, Cretaceous, Argentina ; IHERING, An. Mus. Buenos Aires ii, p. 207.  
 †*Ptychonema*, **n. gen.** for *P. nigra*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. lviii.  
 †*Versispira*, **n. gen.** for *V. contraria*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. lviii.

## PTENOGLOSSA.

## SCALIDÆ.

- Acclis beltista*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 53, fig. :  
*A. thesauraria*, Gulf of Oman ; MELVILL, J. Malac. xi, p. 79, fig. :  
**n. spp.**  
*Berthais*, **n. gen.** for *Scala intertexta*, M. and St., and *Onoba egregia*, A. Ad., figd. ; MELVILL, P. Malac. Soc. London vi, p. 61.  
*Scala fimbriolata*, Melv., is a synonym of *S. kieneri*, Canefri ; SMITH (579).  
*Scala* (*Acrilla* ?) *cophinodes*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 53, fig. : **n. sp.**  
*Scalaria jolyi*, Monts., figd. ; PALLARY (468).

## GYMNOGLOSSA.

## EULIMIDÆ and PYRAMIDELLIDÆ.

- Acteopyramis bulinea*, Lowe, **n. var** ; PALLARY, J. Conchyl. lii, p. 235.  
*Asmunda*, **n. subgen.** of *Turbonilla*, type *Chemnitzia turrata*, C. B. Ad. ;  
 DALL & BARTSCH, P. Soc. Washington xvii, p. 9.

- Baldra*, **n. subgen.** of *Turbonilla*, type *T. archeri*, **n. sp.**; DALL & BARTSCH, t. c. p. 9.
- Besla*, **n. subgen.** of *Odostomia*, type *Chrysallida convexa*, Cptr.; DALL & BARTSCH, t. c. p. 10.
- Callolongcheus*, **n. subgen.** of *Pyramidella*, type *Pyramidella jamaicensis*, Dall; DALL & BARTSCH, t. c. p. 5.
- Cingulina brazieri*, Angas, is correctly placed and the name *Terebra hedleyi*, Tate, unnecessary; SMITH (580).
- Cossmannica*, **n. subgen.** of *Pyramidella*, type *P. clandestina*, Desh.; DALL & BARTSCH, P. Soc. Washington xvii, p. 6.
- Egila*, **n. subgen.** of *Odostomia*, type *Chrysallida lacunata*, Cptr.; DALL & BARTSCH, t. c. p. 11.
- Enterovenos*, **n. gen.** for *E. ostergreni*, **n. sp.**, Norway; BONNEVIE, Zool. Jahrb. Anat. xv, p. 731, fig.: Spermiogenesis; BONNEVIE (77).
- Eulima pavillus*, New Zealand; HEDLEY, Rec. Austral. Mus. v, p. 96, fig.: *E. (Subularia) hypolysina*, Gulf of Oman; MELVILL, J. Malac. xi, p. 83, fig.: *E. præcurta*, Gulf of Gabes; PALLARY, J. Conchyl. lii, p. 239, fig.: *E. distincta*, Port Alfred; SMITH, J. Malac. xi, p. 35, fig.: **n. spp.**
- Eulimella nivea, minor*, Port Alfred; SMITH, J. Malac. xi, p. 36, fig.: *E. ææa*, Persian Gulf; MELVILL, t. c. p. 81, fig.: *E. gedrosica*, Persian Gulf, p. 55, *venusta*, Arabian Sea, p. 56; MELVILL, P. Malac. Soc. London vi, figg.: **n. spp.**
- Evalina*, **n. subgen.** of *Odostomia*, type *O. americana*, **n. sp.**; DALL & BARTSCH, P. Soc. Washington xvii, p. 12.
- Folinella*, **n. subgen.** of *Odostomia*, type *Amoura anguliferens*, Folin; DALL & BARTSCH, t. c. p. 10.
- Haldra*, **n. subgen.** of *Odostomia*, type *Chrysallida photis*, Cptr.; DALL & BARTSCH, t. c. p. 11.
- Heida*, **n. subgen.** of *Odostomia*, type *Syrnola caloosaensis*, Dall; DALL & BARTSCH, t. c. p. 13.
- Iphiaua*, **n. subgen.** of *Pyramidella*, type *Syrnola densistriata*, Garrett; DALL & BARTSCH, t. c. p. 6.
- Ividia*, **n. subgen.** of *Odostomia*, type *Parthenia armata*, Cptr.; DALL & BARTSCH, t. c. p. 11.
- Lancella*, **n. subgen.** of *Turbonilla*, type *T. (Lancea) elongata*, Pse.; DALL & BARTSCH, t. c. p. 9.
- Leiostruca murdochi*, New Zealand; HEDLEY, Rec. Austral. Mus. v, p. 97, fig.: **n. sp.**
- Lysacme*, **n. subgen.** of *Odostomia*, type *Chrysallida clausiliformis*, Cptr.; DALL & BARTSCH, P. Soc. Washington xvii, p. 14.
- Milda*, **n. subgen.** of *Pyramidella*, type *Obeliscus ventricosus*, Quoy; DALL & BARTSCH, t. c. p. 4.
- Mucronalia birtsi*, Ceylon; PRESTON, J. Malac. xi, p. 77, fig.: *M. oxytenes*, Gulf of Oman; MELVILL, P. Malac. Soc. London vi, p. 163, fig.: **n. spp.**
- Mumiola carbacea*, Arabian Sea; MELVILL, J. Malac. xi, p. 83, fig.: **n. sp.**
- Odostomia callipyrga*, **n. n.** for *Odetta elegans*, Folin; DALL & BARTSCH, P. Soc. Washington xvii, p. 12.
- Odostomia (Vilia, n. subgen.) pilsbryi*, Singapore, p. 15, (*Evalina, n. subgen.*) *americana*, California, p. 16; DALL & BARTSCH, t. c.: *O. dorica*, Persian Gulf; MELVILL, J. Malac. xi, p. 82, fig.: **n. spp.**
- Orinella*, **n. subgen.** of *Pyramidella*, type *Orina pingucula*, A. Ad.; DALL & BARTSCH, P. Soc. Washington xvii, p. 6.
- Oscilla faceta, jocosu*, Gulf of Oman; MELVILL, J. Malac. xi, p. 82, figg.: **n. spp.**
- Pyramidellide*, review of genera and sections; DALL & BARTSCH (172).
- Pyramidella (Sulcorinella, n. subgen.) dodona*, Florida; DALL & BARTSCH, P. Soc. Washington xvii, p. 14: **n. sp.**

- Saccoina*, **n. subgen.** of *Turbonilla*, type *Spica monterosatoi*, Sacco ; DALL & BARTSCH, t. c. p. 8.
- Stomega*, **n. sect.** of *Odostomia*, type *O. conspicua*, Alder ; DALL & BARTSCH, t. c. p. 13.
- Styloptygma lacteola*, Ceylon ; PRESTON, J. Malac. xi, p. 77, fig. : **n. sp.**
- Sulcorinella*, **n. subgen.** of *Pyramidella*, type *P. dodona*, **n. sp.** ; DALL & BARTSCH, P. Soc. Washington xvii, p. 6.
- Syrnola umbagiosa*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 55, fig. : **n. sp.**
- Syrnolina*, **n. subgen.** of *Pyramidella*, type *Syrnola rubra*, Pse. ; DALL & BARTSCH, P. Soc. Washington xvii, p. 6.
- Tropeas*, **n. subgen.** of *Pyramidella*, type *P. subulata*, A. Ad. ; DALL & BARTSCH, t. c. p. 5.
- Turbonilla terebra, cingulata*, Dkr., notes on with figg. ; PILSBRY, P. Ac. Philad. 1904, p. 30.
- Turbonilla* (*Baldra*, **n. subgen.**) *archeri*, Singapore ; DALL & BARTSCH, P. Soc. Washington xvii, p. 15 : *T. gemmula, decora*, Port Alfred ; SMITH, J. Malac. xi, p. 36, figg. : *T. stricta*, p. 236, *mirifica*, p. 237, *tenuis*, p. 238, Gulf of Gabes ; PALLARY, J. Conchyl. lii, figg. : *T. angustissima*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 55, fig. : *T. inaequalis, microperone*, p. 162, *recticostata*, p. 163, Gulf of Oman ; MELVILL, t. c. figg. : *T. hiradoensis*, p. 29, (*Cingulina*) *triarata*, p. 31, Japan ; PILSBRY, P. Ac. Philad. 1904, figg. : **n. spp.**
- Ulfa*, **n. subgen.** of *Pyramidella*, type *P. cossmanni* (**n. n.** for *Syrnola striata*, Cossm.) ; DALL & BARTSCH, P. Soc. Washington xvii, p. 5.
- Vagna*, **n. subgen.** of *Pyramidella*, type *P. paumotensis*, Tryon ; DALL & BARTSCH, t. c. p. 5.
- Vilia*, **n. subgen.** of *Odostomia*, type *O. pilsbryi*, **n. sp.** ; DALL & BARTSCH, t. c. p. 10.
- Visma*, **n. subgen.** of *Turbonilla*, type *Eulimella tenuis*, Sby. ; DALL & BARTSCH, t. c. p. 8.
- Voluspa*, **n. subgen.** of *Pyramidella*, type *Pyramidella auricoma*, Dall ; DALL & BARTSCH, t. c. p. 4.

## SCUTIBRANCHIATA.

## RHIPHIDOGLOSSA.

## HELICINIDÆ.

- Helicina verecunda*, **n. subsp.** ; PILSBRY & HIRASE, P. Ac. Philad. 1904, p. 625 : *H. pterophora*, Sykes, is a synonym of *H. oxyrhynca* ; ANCEY, Nautilus xviii, p. 22 : *H. euglypta*, Crosse, is a synonym of *H. plicatula*, Pfr. ; ANCEY, t. c. p. 309.
- Helicina subsuturalis*, Marshall Is. ; BOETTGER, Zool. Jahrb. Syst. xx, p. 411 : *H. baldwini*, Kauai, p. 126, *dissotropis*, Oahu, *sulculosa*, Hawaii, p. 127 ; ANCEY, P. Malac. Soc. vi, figg. : **n. spp.**

NERITIDÆ, MACLURITIDÆ, TURBINIDÆ, TROCHIDÆ, and  
CYCLOSTREMATIDÆ.

- Basilissa* (*Ancistrobasis*) *compsa*, Gulf of Oman ; MELVILL, P. Malac. Soc. London vi, p. 160, fig. : **n. sp.**
- Chlorostoma rugatum*, Gld., **n. subsp.** ; PILSBRY, P. Ac. Philad. 1904, p. 33.
- †*Cirropsis*, **n. gen.** for *C. prepostera*, Barr., Silurian, Bohemia, PERNER (477), Explan. pl. lix.
- Clanculopsis jussieui*, **n. subsp.** ; PALLARY, J. Conchyl. lii, p. 240.



- Clanculus hizenensis*, n. var., with fig. of *C. gemmulifer* v. *pallidus* ; PILSBRY, P. Ac. Philad. 1904, p. 33.
- Collonia rosa*, Japan ; PILSBRY, t. c. p. 31, fig. : n. sp.
- †*Cosmina*, n. gen. for *C. complacens*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lxxv.
- Cyclostrema gyalum*, Persian Gulf ; MELVILL, P. Malac. Soc. London vi, p. 54, fig. : *C. eumares*, p. 158, *eupoietum*, p. 159, Gulf of Oman ; MELVILL, t. c. figg. : n. spp.
- †*Cyclotropis*, n. gen. for *C. indocilis*, Barr., &c., Silurian, Bohemia ; PERNER (477), Explan. pls. lxi, lxxvii.
- Cynisca fortisulcata*, Port Alfred ; SMITH, J. Malac. xi, p. 38, fig. : n. sp.
- Ethalia carneolata*, Melv., n. var. ; MELVILL, t. c. p. 80, fig.
- Ethalia jucunda*, Gulf of Oman ; MELVILL, P. Malac. Soc. London vi, p. 159, fig. : *E. africana*, Port Alfred ; SMITH, J. Malac. xi, p. 38, fig. : n. spp.
- Euchelus cancellatus*, n. subsp. ; PILSBRY, P. Ac. Philad. 1904, p. 35 : *E. erythraensis*, Sturany, is a synonym of *Clanculus gennesi* ; FISCHER, J. Conchyl. lii, p. 59.
- Euchelus lischkei*, p. 34, *hachijoensis*, p. 35, Japan ; PILSBRY, P. Ac. Philad. 1904, figg. : n. spp.
- Gibbula incurvata, vittata*, Pils., figd. ; PILSBRY, t. c. p. 34.
- †*Horio stomella*, n. gen. for *H. otiosa*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lxxiii.
- Leiopyrga* belongs to *Trochidae*, with note on *L. octona*, Tate ; VERCO (630).
- Liotia polypleura*, New Zealand ; HEDLEY, Rec. Austral. Mus. v, p. 93, fig. : n. sp.
- †*Meandrella*, n. gen. for *M. sculpta*, Perner, Silurian, Bohemia ; PERNER (477), Explan. pl. lxxxiv.
- †*Michaletia*, n. gen. for *M. semigranulata*, n. sp., Cretaceous, France ; COSSMANN, C.R. Ass. Franc. 1903, pt. ii, p. 634.
- Monilea nucleolus*, Pils., figd. ; PILSBRY, P. Ac. Philad. 1904, p. 34.
- †*Nematrochus*, n. gen. for *N. concurrens*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lxii.
- Neritina virginea*, variation ; METCALF (445).
- Omphalium collingei*, Persian Gulf ; MELVILL, J. Malac. xi, p. 80, fig. : n. sp.
- †*Pagodea*, n. gen. for *P. concomitans*, Barr. ; PERNER (477), Explan. pl. lxiv.
- Phasianella tristis*, Pils., figd. ; PILSBRY, P. Ac. Philad. 1904, p. 32.
- †*Planitrochus*, n. gen. for *P. amicus*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lxiv.
- †*Ploconema*, n. gen. for *P. protendens*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lix.
- †*Pseudotectus*, n. gen. for *P. carinatus*, Perner, &c., Silurian, Bohemia ; PERNER (477), Explan. pls. lxiv, lxv.
- †*Pycnotrochus*, n. gen. for *P. viator*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lxv.
- †*Rotellomphalus*, n. gen. for *R. tardus*, Barr. MS., Silurian, Bohemia ; PERNER (477), Explan. pl. xlii.
- †*Sellinema*, n. gen. for *S. dives*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lxiii.
- †*Tectospira*, n. gen. for *T. chopi*, n. sp., Trias, Germany ; PICARD, Jahrb. geol. Landesanst. Berlin xxii, p. 479.
- †*Temnospira*, n. subgen. of *Brochidium*, for *B. percinctum*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lxxix.
- †*Tortilla*, n. gen. for *T. disjuncta*, Barr., Silurian, Bohemia ; PERNER (477), Explan. pl. lix.

*Trochus*, anatomy of British species ; RANGLES (509).

*Trochus hirasei*, Japan ; PILSBRY, P. Ac. Philad. 1904, p. 32, fig. : **n. sp.**

+*Tubogyra*, **n. gen.** for *T. primula*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pls. lxxxiv, lxxxvi.

+*Tubomphalus*, **n. gen.** for *T. crenistria*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. xlii.

+*Umbospira*, **n. gen.** for *U. nigricans*, Barr. MS., Silurian, Bohemia ; PERNER (477), Expln. pl. xlii.

+*Umbotrochus*, **n. gen.** for *U. aspersus*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. lxvi.

+*Umbotropis*, **n. gen.** for *U. albicans*, Barr. MS., Silurian, Bohemia ; PERNER (477), Expln. pl. xlii.

### HALIOTIDÆ, BELLEROPHONTIDÆ, and FISSURELLIDÆ.

Some new Silurian genera in the last section may belong here.

+*Donaldia*, **n. gen.** for *D. altera*, Barr., Silurian, Bohemia ; PERNER (477), Expln. pl. lvii.

*Haliotis tuberculata*, anatomy and phylogeny ; FLEURE (226) : *Haliotis* without perforations ; KELSEY (346) : *H. tuberculata*, imperforate ; MARQUAND, J. Conch. xi, p. 48, also Rep. Guernsey Soc. 1903, p. 233.

*Incisura*, **n. gen.** for *Scissurella lyttletonensis* (sic), Smith ; HEDLEY, Rec. Austral. Mus. v, p. 91.

+*Lessuerella* (Koken MS.), **n. gen.** for *L. bohemica*, Perner, Silurian, Bohemia ; PERNER (477), Expln. pl. lxxiii.

+*Plectonotus*, **n. gen.** for *P. derbyi*, **n. sp.**, Devonian, Brazil ; CLARKE, Arch. Mus. Rio Janeiro x, p. 70.

+*Ptomax*, **n. gen.** for group of *Bellerophon patulus*, Hall ; CLARKE, t. c. p. 75.

*Puncturella demissa*, New Zealand ; HEDLEY, Rec. Austral. Mus. v, p. 93, fig. : **n. sp.**

*Schismope brevis*, New Zealand ; HEDLEY, t. c. p. 90, fig. : **n. sp.**

*Scissurella jacksoni*, Gulf of Oman ; MELVILL, P. Malac. Soc. London vi, p. 160, fig. : *S. rosea*, New Zealand ; HEDLEY, Rec. Austral. Mus. v, p. 90, fig. : **n. spp.**

### DOCOGLOSSA.

#### ACMÆIDÆ, and PATELLIDÆ.

*Docoglossa*, evolution in ; FLEURE (228).

*Acmea octoradiata*, Hutton, *alticostata*, Angas, notes on ; HEDLEY (292).

*Acmea minutissima*, off the Andamans ; SMITH, Ann. Nat. Hist. xiv, p. 4 : **n. sp.**

*Lottia gigantea*, Gray, anatomy ; FISHER (225).

*Nacella crebristriata*, South Australia ; VERCO, Tr. R. Soc. S. Austral. xxviii, p. 144, fig. : **n. sp.**

*Patella*, development ; WILSON (653).

### III. SCAPHOPODA.

*Cadulus acuminatus*, Tate, notes on ; VERCO (630).

+*Clavulites*, **n. gen.**, type *C. howardensis*, **n. sp.**, Carboniferous, Kansas ; GIRTY, P. U. S. Mus. xxvii, p. 732.

*Dentalium*, development ; WILSON (653) : Anatomy and histology ;

- BOISSEVAIN (73): *D. intercalatum*, of which *D. bednalli*, Sharp and Pils., is a synonym, notes on; VERCO (630).  
*Dentalium vallicolens*, California; RAYMOND, *Nautilus* xvii, p. 123: n. sp.

## IV. PELECYPODA.

- Assumption of rounded form in attached bivalves; ANTHONY (21).  
 Adductor muscles in Pelecypods; ANTHONY (19).  
 Pelecypoda, morphology; VLÈS (634).

## SEPTIBRANCHIATA.

- Cuspidaria optima*, p. 17, *nasuta*, (*Cardiomya gilchristi*, (*C.*) *forticostata*, p. 18, South Africa; SOWERBY (589), figg.: n. spp.  
*Poromya gilchristi*, p. 15, *striata*, *granosissima*, p. 16, *curta*, p. 17, South Africa; SOWERBY (589), figg.: n. spp.

## EULAMELLIBRANCHIATA.

- Synapticola*, n. gen. for *S. perrieri*, n. sp., parasite of *Synapta*, France; MALARD, *Bull. Mus. Paris* ix, p. 344.

## ANATINACEA.

- Anatina andamanica*, off the Andamans; SMITH, *Ann. Nat. Hist.* xiv, p. 8: n. sp.  
*Halistrepta*, n. sect. of *Periploma* for *P. sulcata*, n. sp.; DALL, *Nautilus* xvii, p. 123.  
*Myodora reeveana*, Smith, figd. with note; PILSBRY, *P. Ac. Philad.* 1904, p. 558.  
*Periploma sulcata*, California; DALL, *Nautilus* xvii, p. 122: n. sp.  
 †*Pleurophorella*, n. gen., type *P. papillosa*, n. sp., Carboniferous, Texas; GIRTY, *P. U. S. Mus.* xxvii, p. 728.  
*Thraciopsis arenosa*, New South Wales; HEDLEY, *P. Linn. Soc. N. S. Wales* xxix, p. 197, fig.: n. sp.

## PHOLADACEA.

- Gastrochana mowbrayi*, Bermuda; DAVIS, *Nautilus* xvii, p. 128, fig.: n. sp.  
 †*Girardotia*, n. gen., type *G. elegans*, n. sp., Ledonian Jura; LORIOU (401), p. 133.  
*Xylophaga indica*, off the Andamans; SMITH, *Ann. Nat. Hist.* xiv, p. 7: n. sp.

## MYACEA and CARDIACEA.

- Cardium*, sensory organs in the tentacles; ZUGMAYER (670): *C. hungerfordi*, Sby., n. subsp.; PILSBRY, *P. Ac. Philad.* 1904, pp. 555 & 556: *C. becheri*, Rve., note on; HEDLEY (292).  
*Cardium annæ*, Japan; PILSBRY, *P. Ac. Philad.* 1904, p. 557, fig.: *C. gilchristi*, South Africa; SOWERBY (589), p. 11, fig.: n. spp.  
 †*Ceroniola*, n. gen., type *Cultellus australis*, Gabb, Tertiary, Chili; WILCKENS, *N. Jahrb. Min. B.B.* xviii, p. 249.

- Cultellus decipiens*, Port Alfred ; SMITH, J. Malac. xi, p. 39 : **n. sp.**  
*Panopea bitruncata*, Conrad, notes on species and synonymy ; JOHNSON (339).  
*Tridacna*, morphology and anatomy ; ANTHONY (20).

### VENERACEA and TELLINACEA.

- Chione nitida*, Q. and G., notes on synonymy ; HEDLEY (292).  
*Chione despecta*, New South Wales ; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 193, fig. : *C. micra*, p. 552, *kizenensis*, p. 553, Japan ; PILSBRY, P. Ac. Philad. 1904, figg. : **n. spp.**  
*Codakia bella*, n. subsp. ; PILSBRY, t. c. p. 555.  
*Cythera crispata*, n. subsp. ; PILSBRY, t. c. p. 551.  
*Gomphina moerchii* occurs at New Hebrides ; HEDLEY (294).  
*Mactra*, artificial development of ova ; KOSTANECKI (372) : Artificial parthenogenesis in the egg ; KOSTANECKI (373).  
*Mactra carneopicta*, Japan ; PILSBRY, P. Ac. Philad. 1904, p. 550, fig. : *M. delicatula*, *taprobanensis*, Ceylon ; PRESTON, J. Malac. xi, p. 78, figg. : **n. spp.**  
*Pitar sulfurea*, Japan ; PILSBRY, P. Ac. Philad. 1904, p. 553, fig. : **n. sp.**  
*Psammodia arakanensis*, Arakan Coast ; SMITH, Ann. Nat. Hist. xiv, p. 10 : **n. sp.**  
*Semele capensis*, Port Alfred ; SMITH, J. Malac. xi, p. 39, fig. : **n. sp.**  
*Spisula (Oxyperas) bernardi*, Japan ; PILSBRY, P. Ac. Philad. 1904, p. 550, fig. : **n. sp.**  
*Tellina levigata*, n. var. ; DAVIS (181).  
*Tellina hirasei*, p. 554, *fabrefacta*, p. 555, Japan ; PILSBRY, P. Ac. Philad. 1904, figg. : *T. kenyoniana*, Victoria ; PRITCHARD & GATLIFF, P. Soc. Victoria xvii, p. 339, fig. : *T. regularis*, Port Alfred ; SMITH, J. Malac. xi, p. 39, fig. : *T. gilchristi*, *analogica*, p. 12, *vidalensis*, (*Macoma*) *levior*, p. 13, (*M.*) *ordinaria*, (*M.*) *africana*, (*M.*) *inclinata*, p. 14, South Africa ; SOWERBY (589), figg. : **n. spp.**  
*Theora ovalis*, Port Alfred ; SMITH, J. Malac. xi, p. 39, fig. : **n. sp.**  
*Venus mercenaria*, nervous regulation of heart ; BUDINGTON (91) : *V. arakana*, Nevill, note on ; PILSBRY, Nautilus xviii, p. 23.  
*Venus (Anaitis) intersculpta*, South Africa ; SOWERBY (589), p. 11, fig. : **n. sp.**

### SUBMYTILACEA.

- Anodonta bouvieri* (Locard), Charente ; ROCHEBRUNE, Bull. Mus. Paris ix, p. 391 : *A. chivoti*, France ; GERMAIN, Bull. Soc. Ouest France xiv, p. 87 : **n. spp.**  
*Astarte crenata*, n. varr. ; HÄGG, Arkiv Zool. ii, p. 37, figg.  
*Bartlettia*, notes on species and young shell ; ROCHEBRUNE (530).  
*Cardita pulcherrima*, South Africa ; SOWERBY (589), p. 7, fig. : *C. umbonata*, Sierra Leone ; SOWERBY, P. Malac. Soc. London vi, p. 177, fig. : *C. (?) minima*, Port Alfred ; SMITH, J. Malac. xi, p. 41, fig. : **n. spp.**  
*Carditella laticosta*, Port Alfred ; SMITH, J. Malac. xi, p. 41, fig. : **n. sp.**  
*Crassatella gilchristi*, p. 8, *angulata*, *africana*, p. 9, *abrupta*, *tenuis*, p. 10, South Africa ; SOWERBY (589), figg. : **n. spp.**  
†*Choniocardia*, **n. subgen.** of *Venericardia*, type *V. oppenheimi*, **n. sp.**, Tertiary, France ; COSSMANN, Bull. Soc. Ouest France xiv, p. 209.  
*Corbicula doufilei*, White Nile ; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 144 : *C. subrostrata*, Java, p. 109, *faba*, New South Wales, p. 110 ; BULLEN, P. Malac. Soc. London vi, figg. : **n. spp.**  
*Crassatellites ponderosus*, Gmelin, note on synonymy ; HEDLEY (292).



- Diplodontu tasmanica*, Woods, is a synonym of *D. zelandica*, Gray; HEDLEY (292).
- Dreissensia polymorpha*, habits, &c.; STANDEN (592).
- Grandidieria*, notes on; ROCHEBRUNE (533).
- Harmandia*, notes on; ROCHEBRUNE (531).
- Harmandia castelneavi*, Cochinchina; ROCHEBRUNE, Bull. Mus. Paris x, p. 140: **n. sp.**
- Hyriopsis gobiath*, Tonkin; ROLLE, Nachrbl. Deutsch. malak. Ges. 1904, p. 25, fig.: **n. sp.**
- Isocardia cor*, L., n. var.; PALLARY (468).
- Kellia porculus*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 558, fig.: **n. sp.**
- Lepton fortidentatus*, Port Alfred; SMITH, J. Malac. xi, p. 41, fig.: **n. sp.**
- Lucina despecta, valida*, Port Alfred; SMITH, t. c. p. 40, figg.: **n. spp.**
- Megacrinus unguiculinus* (Monts. MS.), Gulf of Gabes; PALLARY, J. Conchyl. lii, p. 247, fig.: **n. sp.**
- †*Miocardiella*, **n. subgen.** (? of *Isocardia*), type *M. taurinensis*, **n. sp.**, Tertiary; SACCO (546), p. 161.
- Nodularia*, notes on, of which *Pharaonia*, *Zairia*, *Reneus*, and *Parreysia* are synonyms; ROCHEBRUNE (533).
- Parreysia*, Conr., is a synonym of *Nodularia*; ROCHEBRUNE (533).
- Pharaonia*, Brgt., is a synonym of *Nodularia*; ROCHEBRUNE (533).
- Pisidium supinoides*, p. 81, *ovale, futtereri, kukuurensis, obliquatum, lateumbonatum*, p. 82, Central Asia; CLESSIN (120): **n. spp.**
- Quadrula*, notes on embryology; FRIERSON (234).
- Reneus*, Jouss., is a synonym of *Nodularia*; ROCHEBRUNE (533).
- Solecardia vitrea*, Q. & G., n. subsp.; PILSBRY, P. Ac. Philad. 1904, p. 558.
- Spathella bozasi, brumpti*, near Lake Rudolph; ROCHEBRUNE & GERMAIN, Bull. Mus. Paris x, p. 144: **n. spp.**
- Tellinya similis*, Port Alfred; SMITH, J. Malac. xi, p. 41, fig.: **n. sp.**
- Unionide*, notes on French species, with n. var.; GERMAIN (249): Structure of the shell; FRIERSON (233): *U. postumus*, **n. n.** for *U. duponti*, Brgt.; ROCHEBRUNE, Bull. Mus. Paris x, p. 258: *U. ater*, Nilss., n. var.; LINDHOLM, Annuaire Mus. St. Petersb. viii, p. 343: *U. tumidus, pictorum*, notes on; DUDINSZKY (206).
- Unio subniger*, France; GERMAIN, Bull. Soc. Ouest France xiv, p. 31: *U. yliscerus* (Locard), Charente; ROCHEBRUNE, Bull. Mus. Paris ix, p. 390: *U. (Quadrula) liedtkei*, p. 25, (*Nodularia*) *gracillimus*, p. 26, Tonkin; ROLLE, Nachrbl. Deutsch. malak. Ges. 1904, figg.: **n. spp.**
- Vorticipronus*, **n. gen.** for *V. mytilus*, **n. sp.**, New Zealand; HEDLEY, Rec. Austral. Mus. v, p. 88, fig.
- Vesicomya indica*, Travancore and off the Andamans; SMITH, Ann. Nat. Hist. xiv, p. 9: **n. sp.**
- Zairia*, Rochbr., is a synonym of *Nodularia*; ROCHEBRUNE (533).

## PSEUDOLAMELLIBRANCHIATA.

- †*Acanthopecten*, **n. subgen.** of *Aviculopecten*, for *A. carboniferus*, Stevens, Carboniferous, N. America; GIRTY (256), p. 417.
- Amussium sibogai*, Celebes; DAUTZENBERG & BAVAY, J. Conchyl. lii, p. 207, fig.: **n. sp.**
- Aviculopecten*, notes on genus and type; GIRTY (257): HIND, Amer. Geol. xxxiv, p. 200: GIRTY, t. c. p. 332.
- Chlamys gloriosa*, Rve., note on, *hyalina*, Poli, n. var.; PALLARY (468).
- Chlamys hirasei*, Japan, p. 197, *ambiguus*, China Sea, p. 198, *wilhelminae*, New Caledonia, p. 200, *weberi*, West Africa, p. 202, *joussearumei*, Japan, p. 203, *cythereus*, Pacific Ocean, p. 204; BAVAY, J. Conchyl.

- lii, figg. : *C. gilchristi*, p. 1, *fultoni*, p. 2, *humilis*, p. 3, South Africa; SOWERBY (589), figg. : **n. spp.**
- +*Cochlearites*, **n. gen.** for *Lithiotis problematica*, of some authors; REIS (518), p. 2.
- +*Cultriopsis*, **n. sect.** of *Gervilleia*, type *G. falciformis*, **n. sp.**, Lias, France; COSSMANN, Bull. Soc. geol. France iii, p. 510.
- Cyclopecten nepeanensis*, Victoria; PRITCHARD & GATLIFF, P. Soc. Victoria xvii, p. 338, fig. : **n. sp.**
- Dacrydium fabale*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 199, fig. : **n. sp.**
- Lima sydneyensis*, **n. n.** for *L. brunnea*, Hedley non Cooke, with fig. of *L. bassii*, Woods; HEDLEY (292).
- Lima perfecta*, Port Alfred; SMITH, J. Malac. xi, p. 43, fig. : **n. sp.**
- +*Limipecten*, **n. gen.**, type *L. texanus*, **n. sp.**, Carboniferous, Texas; GIRTY, P. U. S. Mus. xxvii, p. 721.
- +*Manellina*, **n. subgen.** († of *Lima*), type *M. inoceramoides*, **n. sp.**, Tertiary; SACCO (546), p. 148.
- Margaritifera vulgaris*, anatomy; HERDMAN (301): Parasites; SHIPLEY & HORNELL (558): *M. margaritifera*, L., notes on; SEURAT (554, &c.): *M. albina*, Lam., is correct name for Mediterranean pearl oyster; GIARD (252).
- +*Nothamusium*, **n. gen.** for *N. radiatum*, *transversum*, **n. spp.**, Carboniferous, Brit. Is.; HIND (306), p. 159.
- Ostrea*, distorted form; WINKLEY, Nautilus xviii, p. 24: Pigmentation; SCHIEDT (549).
- Ostrea circumpecta*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 559, fig. : **n. sp.**
- +*Parvochlamys*, **n. subgen.** (? of *Pecten*) for *P. oolevis*, **n. sp.**, Tertiary; SACCO (546), p. 145.
- Pecten*, retinal nerve-endings in eye; HYDE (319): Variation in some American species; DAVENPORT (179): Nervous system; DREW (199): *P. vescoi*, Bavay, is a var. of *P. opercularis*; BAVAY, J. Conchyl. lii, p. 206: *P. tenuicostatus*, anatomy and embryology; DREW (200): *P. varius*, rib variation; DAVENPORT & HUBBARD (180): *P. irradians*, nerve distribution in the eye; HYDE (318).
- Pecten (Chlamys) farreri*, Shantung; JONES & PRESTON, P. Malac. Soc. London vi, p. 149, fig. : *P. frigidus*, Polar Sea; JENSEN, Vid. Medd. 1904, p. 305, fig. : *P. alcocki*, off South India; SMITH, Ann. Nat. Hist. xiv, p. 13 : **n. spp.**
- Philippiella rubra*, Tasmania; HEDLEY, P. Linn. Soc. N. S. Wales xxix, p. 207, fig. : **n. sp.**
- Philobrya inornata*, New South Wales; HEDLEY, t. c. p. 207, fig. : **n. sp.**

## FILIBRANCHIATA.

- Anomia*, structure of muscles; MARCEAU (416).
- Arca*, critical notes on Lamarck's species and their synonymy; LAMY (381): *A. pistuchia*, Lam., of which *A. radula*, Smith, is a synonym, and *A. lischkei*, Dkr., notes on; HEDLEY (292): *A. pharaonis*, Fischer, is a synonym of *A. ehrenbergi*, Dunker; LAMY, J. Conchyl. li, p. 323: *A. rhombea*, n. var.; LAMY, Bull. Mus. Paris ix, p. 393.
- Arca (Scapharca) africana*, South Africa; SOWERBY (589), p. 4, fig. : *A. kobeltiana*, Japan; PILSBRY, P. Ac. Philad. 1904, p. 559, fig. : **n. spp.**
- Crenella striatissima*, South Africa; SOWERBY (589), p. 3, fig. : **n. sp.**
- Glycymeris* stands for *Pectunculus*; JUKES-BROWNE, J. Conch. xi, p. 101: Notes on name; DAUTZENBERG & DOLLFUS (177).
- Hochstetteria velaini, limoides*, Port Alfred; SMITH, J. Malac. xi, p. 42, figg. : **n. spp.**

- Limopsis pumilio*, Port Alfred; SMITH, t. c. p. 43, fig.: **n. sp.**  
*Modiola tenerrima*, Port Alfred; SMITH, t. c. p. 42, fig.: *M. sambasensis*,  
 Borneo; DAUTZENBERG, Ann. Soc. malac. Belgique xxxviii, p. 7, fig.:  
**n. spp.**  
*Myrina minima*, Smith, is a synonym of *Hochstetteria trapezina*, Bernard;  
 HEDLEY, Rec. Austral. Mus. v, p. 89.  
*Myrina indica*, off the Andamans; SMITH, Ann. Nat. Hist. xiv, p. 11:  
**n. sp.**  
*Mytilus*, development of gill; RICE (525).  
*Mytilus orbicularis*, Mediterranean; PALLARY, Ann. Mus. Marseille viii,  
 No. 1, p. 14, fig.: **n. sp.**  
*Pectunculus*, notes on name; DAUTZENBERG & DOLLFUS (177).  
*Pleurodon maorianus*, New Zealand; HEDLEY, Rec. Austral. Mus. v, p. 87,  
 fig.: **n. sp.**  
 †*Pseudocucullæa*, **n. gen.**, type *P. lens*, **n. sp.**, Cretaceous, Kameruns;  
 SOLGER, Zeitschr. Deutsch. geol. Ges. lv, Protok. p. 76: Is identical  
 with *Lopatinia*, Schmidt; SCHMIDT, Zeitschr. Deutsch. geol. Ges. lvi,  
 Protok. p. 120.  
*Savignyarca*, Jouss., is unnecessary, and type, *S. savignyarca*, is a form of  
*Arca obliquata*, Gray; LAMY (382).  
 †*Tachomya*, **n. subgen.** [of ?], for *T. rathbuni*, **n. sp.**, Devonian, Brazil, &c.;  
 CLARKE, Arch. Mus. Rio Janeiro x, p. 96.  
*Volsella*, Scopoli, should be dropped; JUKES-BROWNE (344).

## PROTOBRANCHIATA.

- Nucula nucleus*, locomotion; VLÈS (635): *N. nucleus*, nervous system;  
 BURNE (93): *N. hedleyi*, **n. n.** for *N. minuta*, Woods non Gould;  
 PRITCHARD & GATLIFF, P. Soc. Victoria xvii, p. 237.  
*Nucula irregularis, sculpturata*, South Africa; SOWERBY (589), p. 7, figg.:  
**n. spp.**  
*Nuculana* does not replace *Leda*; JUKES-BROWNE, J. Conch. xi, p. 100:  
*N. belcheri*, Hinds, note with fig.; SOWERBY (589), p. 4.  
*Nuculana lamellata*, p. 5, *gemmulata, compta*, p. 6, South Africa; SOWERBY  
 (589), figg.: **n. spp.**  
*Portlandia kolthoffi*, Jan Mayen; HÄGG, Arkiv Zool. ii, p. 12, fig.: **n. sp.**  
*Yoldia keppeliana*, Hab. incert.; SOWERBY, P. Malac. Soc. London vi,  
 p. 176, fig.: **n. sp.**

## V. AMPHINEURA.

### APLACOPHORA.

- Solenogastres, habits of; HEATH (286).  
*Limifossor*, **n. gen.**, type *L. talpoideus*, **n. sp.**, Alaska; HEATH, Zool. Anz.  
 xxviii, p. 329.  
*Proneomenia*, sp., Hawaiian Is., with anatomy; HEATH (288).  
*Rhopalomenia*, sp., Hawaiian Is., with anatomy; HEATH (288).

### POLYPLACOPHORA.

- Larval eye of Chitons; HEATH (285).  
*Chitonida*, egg-integument; SCHWEIKART (551): Monograph completed;  
 CLESSIN in MARTINI & CHEMNITZ (426): Egg-covering and its append-

ages; SCHWEIKART (550): *C. assimilis*, p. 118, *setiger*, p. 119, n. varr.; CLESSIN in MARTINI & CHEMNITZ (426).

*Chiton ceylanicus*, off Ceylon; SMITH, Ann. Nat. Hist. xiv, p. 7: *C. hindsi-anus*, Hab. ?, p. 107, *maculatus*, Hab. ?, p. 112, *sowerbyanus*, Colombia, p. 117, *glaber*, Chile, p. 118, *angustus*, Central America, p. 120; CLESSIN in MARTINI & CHEMNITZ (426), figg. : n. spp.

*Onithochiton marmoratus*, New Zealand; WISELL, Zool. Jahrb. Syst. xx, p. 660, fig. : n. sp.



## VIII. BRACHIOPODA.

BY

E. R. SYKES, B.A.

ASSISTED BY

E. A. SMITH, I.S.O.

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## IX. BRYOZOA.

BY

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## INTRODUCTION.

*Bryozoa* literature this year is distinguished by a monograph by CALVET (11) in which he gives descriptions of many species; in another paper (10) he gives diagnoses of numerous sub-antarctic forms from the Atlantic, several of which are new to science. MICHAELSEN (82) discusses the affinities of *Bryozoa*, and NEVIANI (84) continues his bibliography of living and fossil forms. He has also written on a collection from the Mediterranean. WATERS (116) reports on the species from Franz-Josef Land collected in 1896 & 1897 by the Jackson Harmsworth Expedition, DAVENPORT (22) on the fresh-water forms of the United States, and GARRARD (40) writes on English fresh-water representatives.

STIASNY (106) has worked on the excretory apparatus of the *Entoprocta*. Fossil *Bryozoa* have this year been the subject of five papers by CANU. In one (13) he deals with Egyptian forms; another he devotes to describing *Pustulopora semiclausa* (14); in a third and important memoir he writes

on Tertiary *Bryozoa* from the region South of Tunis (15); his fourth work is also on Tertiary representatives, but in this case from Patagonia, with many new species (16). His last paper is a small contribution on general points in the study of fossil *Bryozoa*.

MAPLESTONE (76, 77) again adds much valuable information to the subject of fossil forms. This year he has published a tabulated list of fossil Cheilostomatous Polyzoa from the Victorian Tertiary deposits. He also describes a collection from Lord Howe Island. ULRICH & BASSLER (108) have made a revision of Paleozoic *Bryozoa* of the genera and species of *Ctenostomata* and of *Trepostomata*, of which many are new. In another paper these authors deal with Miocene forms (109).

JUKES-BROWNE (55) gives lists of species found in the upper chalk of England, and CUMINGS (21) writes on the development of some Paleozoic *Bryozoa*.

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- †*Unitrypa*, Paleozoic, development, CUMINGS, Amer. J. Sci. xvii, figg. 63-70.

## CHEILOSTOMA.

- †*Cheilostomata*; tabulated list of fossil Victorian Tertiary forms; 466 spp.; comparison of fossil and recent forms, MAPLESTONE, P. Soc. Victoria xvii, i, pp. 182-218.
- †*Adéona fourtauli*, Egypt, CANU, Bull. Inst. Egypt iv, p. 226, pl. 1, figg. 1-5.
- Adeonellopsis umbilicata*, Maryland, ULRICH & BASSLER, Maryland geol. Survey 1904, p. 417, pl. cxiii, figg. 4 & 5, pl. cxiv, fig. 5.
- †*Amphiblestrum constrictum*, p. 413, pl. cxv, figg. 6 & 7; *A. agellus*, p. 414, pl. cxii, fig. 7, Maryland, ULRICH & BASSLER, t. c., **n. spp.**
- †*Aspidostoma hexagonalis*, *A. porifera* **n. spp.**, *A. ortmanni* **n. n.** for *A. giganteum* Ortmann, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 13, pl. iii, figg. 28-33.
- †*Aulopocella* **n. n.** for *Solenopora*; *A. tubulifera* (sole species), MAPLESTONE, Victorian Natural. xx, 8, p. 99.
- Beania magellanica*, p. 28, pl. viii, fig. 7, *B. hydesia*, p. 30, pl. i, fig. 7, Antarctic, WATERS, Exp. Antarct. Belge 1904.
- Bicellaria grandis*, Antarctic, WATERS, t. c. p. 26, pl. i, fig. 6, **n. sp.**
- Bifaxaria denticulata*, *B. rustica*, pp. 59 & 60, pl. viii, figg. 14-19, Antarctic, WATERS, t. c.
- †*Bimicroporella* **n. gen.** for *B. ventricosa* **n. sp.**, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 12, pl. ii, fig. 26.
- Brettia longa*, Antarctic, WATERS, Exp. Antarct. Belge 1904, p. 26, pl. i, fig. 2<sup>b</sup>, **n. sp.**
- Bugula bicornis*, *B. reticulata*, **n. var. spinosa**, pp. 21 & 22, figg. 2 & 3, WATERS, t. c.; *B.* (or *Acamarchis*) *neritina*, Bermudas, VERRILL, Tr. Connect. Ac. x (2), p. 593, fig. 6.
- Cellaria dennanti*, p. 36, pl. ii, fig. 9, pl. viii, fig. 4, *C. dubia*, p. 37, pl. ii, fig. 12, *C. malvinensis*, p. 37, pl. ii, fig. 10, pl. viii, fig. 5, Antarctic,

- WATERS, Exp. Antarct. Belge 1904; †*C. contigua*, *C. angustiloba*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 9, pl. ii, figg. 17, 19 & 20.
- †*C. subsetigera*, Patagonia, CANU, t. c. p. 9, pl. ii, figg. 16-18, **n. sp.**
- †*Cellarina patagonica*, Patagonia, CANU, t. c. p. 8, pl. i, figg. 12-14, **n. sp.**
- †*Cellepora plana*, Egypt, CANU, Bull. Inst. Egypt iv, p. 228, pl. ii, figg. 9; †*C. castrocarensis*, *C. retusa*, Tunis, CANU, Explor. Sci. Tunis 1904, pp. 23 & 27, pls. xxxiv & xxxv, figg. 30, 39-42.
- †*C. massalis*, *C. cribrosa*, pp. 428 & 429, pl. cxvii, figg. 3-6, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904, **n. spp.**
- Chaperia spinosissima*, CALVET, Ergebn. Hamburg. Magalhaen. Reise 1904, p. 12, pl. i, fig. 2.
- C. spinosissima*, Atlantic Ocean, sub-antarctic region, CALVET, Bull. Soc. zool. France xxix, 3, p. 51, **n. sp.**
- †*Cribricella* **n. gen.** for *C. crassicollis* **n. sp.**, Tunis, CANU, Explor. Sci. Tunis 1904, p. 20, pl. xxxiv, fig. 24.
- †*Cribrilina radiata*, Tunis, CANU, t. c. p. 19, pl. xxxiv, fig. 23.
- †*Cupularia denticulata*, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904, p. 414, pl. cxii, fig. 6.
- †*C. bioculata*, *C. punctata*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 10, pl. ii, figg. 21-23, **n. spp.**
- Cyphonautes compressus*, North Sea, LOHMANN, Ergebn. Plankton Exped. iv, p. 54, pl. vii, fig. 21.
- C. sargassi*, *C. equatorialis*, *C. gibbus*, *C. oblongus*, *C. parvus*, North Sea, LOHMANN, t. c. pp. 53-57, pl. vii, figg. 22-26, **n. spp.**
- †*Ditaxia lerichei*, *D. orbiculata*, Egypt, CANU, Bull. Inst. Egypt iv, p. 225, figg. 4 & 5.
- †*Electra sinuosa*, Patagonia, CANU, Mem. Soc. geol. France xii (3), p. 5, pl. i, figg. 1 & 2, **n. sp.**
- †*Eschara* sp., USSING, Danmarks geol. Unders. ii, 2, p. 98, fig. 30.
- Flustra renilla*, CALVET, Ergebn. Hamburg. Magalhaen. Reise 1904, p. 10, pl. i, fig. 3.
- †*Hiantopora patagonica*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 18, pl. iv, figg. 49 & 50, **n. sp.**
- †*Hippoporina hypsostoma*, Tunis, CANU, Explor. Sci. Tunis 1904, p. 22, pl. xxxiv, figg. 28 & 29, †*H. varians*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 14, pl. iii, fig. 38.
- †*H. radicefera*, Patagonia, CANU, t. c. p. 14, pl. iii, figg. 34-37, **n. sp.**
- Hypothoa divaricata*, *H. distans*, pp. 53 & 54, pl. vii, fig. 3, pl. iii, fig. 8, Antarctic, WATERS, Exp. Antarct. Belge 1904.
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- †*Lunulites parvula*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 8, pl. i, figg. 10 & 11, **n. sp.**
- †*Mastigophora hyndmanni*, Tunis, CANU, Explor. Sci. Tunis 1904, p. 26, pl. xxxv, fig. 36.
- Membranipora membranacea*, characters, LOPPENS, Ann. Soc. zool. Belgique xxxviii, Bull. pp. cxlii & cxliii; *M. membranacea*, natural history in Roumania, CHIRICA, pp. 13 & 14, Ann. Univ. Jassy iii; *M. incrustans*, Antarctic, WATERS, Exp. Antarct. Belge 1904, p. 31, pl. ii, fig. 15; *M. longispina*, CALVET, Ergebn. Hamburg. Magalhaen. p. 14, pl. i, fig. 1; †*M. artini*, Egypt, CANU, Bull. Inst. Egypt iv, p. 228, pl. ii, figg. 6 & 7; †*M. elliptica*, p. 13, pl. xxxiii, fig. 1, *M. lacroixii*, p. 14, fig. 2, *M. eocena*, p. 15, fig. 5-11, *M. laxa*, p. 17, pl. xxxiv, fig. 18, Tunis, CANU, Explor.

- Sci. Tunis 1904; †*M. concatenata*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 6, pl. i, figg. 5, 6, 7.
- †*M. oblongula*, p. 407, pl. cx, figg. 2-5, *M. fossulifera*, p. 408, fig. 1, *M. caminosa*, p. 409, pl. cxi, figg. 3 & 4, *M. germana*, p. 410, figg. 8 & 9, *M. parvula*, figg. 1 & 2, *M. bifoliata*, p. 411, pl. cxii, figg. 2-4, *M. nitidula*, p. 412, fig. 1, *M. fistula*, p. 413, fig. 5, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904; †*M. varians*, p. 14, pl. xxxiii, fig. 3, *M. excavata*, p. 15, fig. 4, *M. quadrata*, p. 16, fig. 12, *M. flicki*, p. 16, figg. 13-15, *M. bioculata*, p. 17, pl. xxxiv, figg. 16 & 17, *M. rotundicella*, p. 18, fig. 19, Tunis, CANU, Explor. Sci. Tunis 1904; †*M. levigata*, *M. flabellata*, Patagonia, CANU, Mem. Soc. geol. France xii, pp. 6 & 7, pl. i, figg. 3, 4 & 8; *M. longispina*, Atlantic Ocean, sub-antarctic region, CALVET, Bull. Soc. zool. France xxix, 3, p. 52, **n. spp.**
- Membraniporella magellanica*, CALVET, Ergebn. Hamburg. Magalhaen. p. 15, pl. i, fig. 4.
- †*M. magellanica*, Atlantic Ocean, sub-antarctic region, CALVET, Bull. Soc. zool. France xxix, 3, p. 53, **n. sp.**
- †*Micropora crassopora*, Egypt, CANU, Bull. Inst. Egypt iv, p. 227, pl. ii, fig. 8; †*M. coriacea*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 10, pl. i, fig. 15.
- †*Microporella malusi*, Patagonia, CANU, t. c. p. 11, pl. iii, fig. 27; *M. malusii*, *M. divaricata*, Antarctic, WATERS, Exp. Antarct. Belge 1904, p. 42, pl. iii, fig. 4, p. 46, pl. iii, fig. 1; †*M. violacea*, *M. ciliata*, pp. 21 & 22, pl. xxxiv, figg. 25, 26 & 27, Tunis, CANU, Explor. Sci. Tunis 1904.
- †*M. fullax*, *M. divaricata*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 11, pl. ii, figg. 24 & 25; †*M. præciliata*, p. 415, pl. cx, fig. 6, pl. cxiii, fig. 3, *M. inflata*, p. 416, pl. cx, fig. 7, *M. ? bifoliata*, p. 417, pl. cxiii, figg. 6-8, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904, **n. spp.**
- Mucronella centrota*, Lord Howe Island, MAPLESTONE, P. R. Soc. Victoria xvii, p. 389, pl. xxix, fig. 9, **n. sp.**
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- Osthimosia signata*, Antarctic, WATERS, Exp. Antarct. Belge 1904, p. 73, pl. vii, fig. 4.
- †*Palmicellaria convoluta*, p. 427, pl. cxvi, figg. 2-4, *P. punctata*, p. 428, pl. cxvi, fig. 1, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904, **n. spp.**
- †*Phylactella ? orbiculata*, *P. ventricosa*, Tunis, CANU, Explor. Sci. Tunis 1904, pp. 26 & 27, pl. xxxv, figg. 37 & 38, **n. spp.**
- Porella rouzaudi*, CALVET, Ergebn. Hamburg. Magalhaen. p. 30, pl. ii, fig. 6; †*P. escharella*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 17, pl. iv, fig. 53.
- P. rouzaudi*, Atlantic Ocean, sub-antarctic region, CALVET, Bull. Soc. zool. France xxix, 3, p. 57, **n. sp.**
- †*Poricella n. gen.* for *P. maçõnnica n. sp.*, Tunis, CANU, Explor. Sci. Tunis 1904, p. 28, pl. xxxv, fig. 43.
- †*Retepora prisca*, SMYČKA, Vestnik. Klub. Prostejove vii, p. 61.
- †*R. quadripunctata*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 15, pl. iv, fig. 54; †*R. doverensis*, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904, p. 422, pl. cxi, figg. 5-7, pl. cxv, figg. 1-5 : **n. spp.**
- †*Rhamphostomella perforata*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 15, pl. iii, fig. 39, **n. sp.**
- Schizoporella simplex*, *S. hosteensis*, *S. eatoni*, pp. 51 & 52, pl. iii, figg. 6, 11 & 10, Antarctic, WATERS, Exp. Antarct. Belge 1904; *S. isabelliana ?* Bermudas, VERRILL, Tr. Connect. Ac. x (2), p. 593, fig. 5; †*S. unicornis*,

- S. linearis*, *S. auriculata*, Tunis, CANU, Explor. Sci. Tunis 1904, pp. 24-26, pl. xxxiv, figg. 31-35; *S. ornata*, p. 26, pl. ii, fig. 4, *S. pellucidula*, p. 27, pl. ii, fig. 3, CALVET, Ergebn. Hamburg. Magalhaen.; †*S. informata*, p. 419, pl. cxiv, figg. 6-10, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904.
- S. gibberula*, *S. heteromorpha*, pp. 387 & 388, figg. 3-6, Lord Howe Island, MAPLESTONE, P. Soc. Victoria xvii; *S. ornata*, *S. pellucidula*, Atlantic Ocean, sub-antarctic region, CALVET, Bull. Soc. zool. France xxix, 3, p. 56; †*S. subquadrata*, p. 420, pl. cxiv, fig. 1, pl. cxviii, figg. 5 & 6, *S. latisinuata*, p. 421, pl. cxiv, figg. 2-4, *S. doverensis*, p. 421, pl. cxvii, fig. 1, *S. cumulata*, p. 422, pl. cxvii, fig. 7, Maryland, ULRICH & BASSLER, Maryland geol. Surv. 1904: **n. spp.**
- †*Schizotheca serratimargo*, nomenclature, NEVIANI, Boll. Soc. geol. Ital. xxiii, pp. 270-276, pl. x.
- Scrupocellaria funiculata*, Antarctic, WATERS, Exp. Antarct. Belge 1904, p. 23, pl. viii, fig. 1.
- Smittia marsupium*, *S. marionensis*, pp. 61 & 62, pl. iv, 4, pl. viii, 8, Antarctic, WATERS, t. c.; †*S. (Reussia) sequenzai*, p. 16, pl. iv, fig. 42, *S. (Mucronella) grotriani*, fig. 46, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3).
- †*S. incisa*, p. 15, pl. iv, figg. 39 & 40, *S. subtorquata*, fig. 44, *S. patagonica*, p. 16, fig. 45, *S. expectans*, fig. 43, *S. coronata*, figg. 51 & 52, Patagonia, CANU, t. c. **n. spp.**
- Thalamoporella michaelsoni*, CALVET, Ergebn. Hamburg. Magalhaen. p. 18, pl. ii, fig. 1.
- T. howensis*, Lord Howe Island, MAPLESTONE, P. Soc. Victoria xvii, p. 387, fig. 2; *T. michaelsoni*, Atlantic Ocean, sub-antarctic region, CALVET, Bull. Soc. zool. France xxix, 3, p. 54: **n. spp.**
- †*Tremopora radificera*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 7, pl. i, fig. 9.
- Turrítigera stellata*, Antarctic, WATERS, Exp. Antarct. Belge 1904, p. 76, pl. v, fig. 3, pl. viii, fig. 13.
- †*Umbonula ceratomorpha*, Patagonia, CANU, Mem. Soc. geol. France, Pal. xii (3), p. 18, pl. iv, fig. 47.

## CTENOSTOMA.

- †*Alcyonidium*, Paleozoic, development, CUMINGS, Amer. J. Sci. xvii, p. 55, fig. 31; *A. gelatinosum*, Franz-Josef Land; characters, WATERS, Tr. Linn. Soc. London xxix, p. 179, pl. xx, fig. 7, pl. xxi, figg. 6 & 7; *A. gelatinosum*, spermatozoa, RETZIUS, Biol. Untersuch. xi, p. 13, pl. v, figg. 1-13.
- †*Allonema botellus*, p. 281, pl. lxvii, fig. 1, *A. moniliforme* **n. var. aggregatum**, p. 282, p. lxv, fig. 14, pl. lxvii, fig. 9, *A. fusiforme*, p. 284, pl. lxvii, fig. 8, occurrence and characters, ULRICH & BASSLER, Smithsonian. Collect. xlv.
- †*A. n. gen.* for *A. botelloides*, p. 281, pl. lxvii, figg. 2-4, *A. waldronense*, p. 283, fig. 5, *A. subfusiforme*, p. 283, figg. 6 & 7, *A. ? minimum*, p. 284, figg. 10-12, American Paleozoic, ULRICH & BASSLER, t. c. **n. spp.**
- †*Ascodiclyon siluriense*, p. 286, pl. lxviii, figg. 11 & 12, *A. stellatum*, p. 287, figg. 9 & 10, synonymy and characters, ULRICH & BASSLER, t. c.
- †*A. floreale*, p. 288, pl. lxviii, fig. 13, *A. parvulum*, p. 288, fig. 14, *A. sparsum*, p. 289, fig. 15, American Paleozoic, ULRICH & BASSLER, t. c. **n. spp.**
- †*Heteronema n. gen.* for *H. capillare*, p. 278, pl. lxv, fig. 11, *H. ? contextum*, p. 279, fig. 12, *H. carbonarium*, p. 279, fig. 13, American Paleozoic, ULRICH & BASSLER, t. c. **n. spp.**



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- Pottsiella erecta*, Pennsylvania, DAVENPORT, t. c. p. 215, pl. vi, fig. 2.
- †*Ptychocladia* n. gen. for *P. agellus* n. sp., American Paleozoic, ULRICH & BASSLER, Smithsonian. Collect. xlv, p. 290, pl. lxvii, fig. 10.
- †*Rhopalonaria venosa*, p. 268, pl. lxvi, figg. 2 & 3, Indiana, *R. capillaris* (n. n. for *Terebripora* Dollfus), p. 271, fig. 32, *R. ? vetusta* (n. n. for *Terebripora* Oehlert), p. 271, fig. 33, France, Devonian, ULRICH & BASSLER, t. c.
- †*R. attenuata*, p. 268, pl. lxvi, figg. 4 & 5, *R. robusta*, p. 269, fig. 6, *R. tenuis*, p. 270, figg. 7-9, *R. medialis*, p. 270, fig. 10, *R. keokukensis*, p. 272, fig. 11, American Paleozoic, ULRICH & BASSLER, t. c. n. spp.
- †*Vinellidæ* n. fam., characters and composition, ULRICH & BASSLER, t. c. p. 273.
- †*Vinella repens*, p. 274, pl. lxviii, figg. 1-3, *V. radialis*, p. 274, fig. 4, *V. radiceformis*, fig. 7, *V. radiceformis conferta*, p. 275, figg. 5 & 6, *V. ? radians*, p. 276, pl. lxv, figg. 9 & 10, synonymy, characters, ULRICH & BASSLER, t. c.
- †*Vinella ? multiradiata*, New York, Paleozoic, ULRICH & BASSLER, t. c. p. 276, pl. lxviii, fig. 8, n. sp.

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- Alcyonella stagnorum*, Rep. Hastings Nat. Hist. Soc. xi, pl. opp. p. 51.
- Cristatella* in ponds in Norfolk, HURRELL, Tr. Norfolk Soc. vii, 5, p. 755; *C.*, budding, MARCHAL, Arch. Zool. exp. xxxii, 3, pp. 321 & 322; *C. mucedo*, occurrence in a new locality, LINDINGER, Abh. Ges. Nurnberg xv, pp. 65-84; *C. mucedo*, DAVENPORT, P. U. S. Mus. xxvii, p. 220, pl. vi, fig. 9.
- Fredericella sultana*, natural history, CHIRICA, Ann. Univ. Jassy iii, pp. 5 & 6; *F. sultana* (= *regina* Leidy), United States, DAVENPORT, P. U. S. Mus. xxvii, p. 216, pl. vi, fig. 4.
- Lophopus*, budding, MARCHAL, Arch. Zool. exp. xxxii, 3, pp. 321 & 322; *Lophopus*, in ponds in Norfolk, HURRELL, Tr. Norfolk Soc. vii, 5, p. 755; *L. crystallinus*, WEIGELT, Mem. Cour. Belgique lxiv, p. 516, fig. 83; *L. crystallinus*, anatomy and biology, GARRARD, J. Northampt. Soc. xii, 97, pp. 158-164.
- Pectinatella magnifica*, DAVENPORT, P. U. S. Mus. xxvii, p. 219, pl. vi, fig. 8.
- Plumatella*, natural history notes on Roumanian, CHIRICA, pp. 6-10, Ann. Univ. Jassy iii; *P. princeps*, p. 217, pl. vi, fig. 5, *P. polymorpha*, p. 217, fig. 6, *P. punctata*, p. 218, fig. 7, DAVENPORT, P. U. S. Mus. xxvii.



## X. CRUSTACEA.

(Including  
GIGANTOSTRACA AND PYCNOGONIDA.)

BY

W. T. CALMAN, D.Sc.

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## INTRODUCTION.

THE number of titles recorded under Crustacea is less than last year (258 as against 280) but this is accounted for by the fact that the list has been closed at a much earlier date, before some of the foreign periodicals had reached the London libraries.

One of the most notable works published during 1904 is DOFLEIN'S (53) Report on the *Brachyura* of the "Valdivia" Expedition. Besides descriptions of some important new genera and species this memoir contains the results of an elaborate investigation into the structure of the eyes in deep-sea crabs. GRUVEL'S (71) Monograph of the Cirripedes is a very useful compendium of the group of which the author has done much to extend our knowledge during recent years. It is nothing short of an absurdity however that a book which was certainly published not later than November, 1904, should bear on its title page the date 1905.

THIELE'S memoirs on *Phyllocarida* (219) and *Branchiura* (218) contain many new observations on the morphology as well as on the classification of these interesting groups. ZOGRAF'S (252) investigation of the median eye and certain associated structures in the *Branchiopoda* is of great morphological interest. SMITH (198) has elucidated some points hitherto obscure in the remarkable metamorphosis of the Isopod *Gnathia*. BONNIER'S (17) important account of a remarkable parasitic Copepod was published in 1898 but appears to have escaped notice in other bibliographies as well as in our own. Miss MOSELEY (138) has discovered an additional gill hitherto overlooked by the innumerable students of the common Crayfish.

The chief physiological paper of the year is KEEBLE & GAMBLE'S (101) work on the colouration of Decapods, a subject to which they have previously made important contributions. Experiments on the "psychology" of Crustacea are recorded and discussed by BOHN (15), SPAULDING (200 & 201) and YERKES & HUGGINS (248). Regeneration is treated of by REED (170), MORGAN (137) and ARIOLA (11).

Plankton research as usual forms the subject of a large number of papers among which those of EKMAN (56) and WESENBERG-LUND (234) may be specially mentioned.



BOUVIER'S (19) preliminary account of "Mutations" in certain fresh-water prawns is of great interest in connection with current discussions on variation and heredity.

Among the many purely systematic works there may be mentioned the series of papers by various authors on collections from the Maldives (18 & 207), from Ceylon (34, 127 & 229) and from North Western America (87, 165 & 172).

Important papers on *Pycnogonida* are published by CARPENTER (1), COLE (2) and LOMAN (5 & 6). The most interesting discovery however is HODGSON'S (3) *Pentanympyon*, which will necessitate a considerable modification of our views on the morphology of the group.

It may be mentioned that a second instalment of BUDDE-LUND'S "Revision of Crustacea Isopoda Terrestria" has appeared but is not included in the present Record since it seems probable that, like the first part (Zool. Rec. 1901, Crustacea, No. 25), it may have been published in some periodical not yet seen.

Though this is not the place for an expression of opinion on matters of nomenclature, the Recorder may draw attention to the grave danger of confusion arising out of the practice, now unhappily becoming common, of using old and well-known generic names in a new sense. It would greatly facilitate the work of the Recorder, at any rate, if authors who did so were careful to indicate in some way the particular genus with which they are dealing. To give an example, Miss RATHBUN (167) describes a new crab under the name of *Uca arstedii*. Without a knowledge of the particular views which Miss Rathbun held on the subject of nomenclature at the date when the paper was published it would be difficult to discover to which of two well-known genera the new crab is supposed to belong.

## CRUSTACEA.

### I. TITLES\*.

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2. ALCOCK, A. Description of and reflections upon a new species of Apodous Amphibian from India. [Distrib. compared with that of *Pagurida*, p. 268.] Ann. Nat. Hist. (7) xiv, pp. 267-273, pl. vii.
3. — & MCARDLE, A. F. Illustrations of the Zoology of the... Investigator. Crustacea. Part ix, pls. xlix-lv, Calcutta, 1901. Part x, pls. lvi-lxvii, 1902.
4. ALZONA, CARLO. Brevi notizie sulle raccolte zoologiche nelle caverne (continuazione). Boll. Naturalista xxiv, pp. 119-123.
5. ANDREWS, E. A. Breeding habits of Crayfish. Amer. Natural. xxxviii, pp. 165-206, 10 text-figg.
6. — Crayfish spermatozoa. Anat. Anz. xxv, pp. 456-463, 7 text-figg.
7. —. An aberrant limb in a Crayfish. Biol. Bull. vi, pp. 75-83, 5 text-figg.
8. ANGLAS, J. Les animaux de laboratoire. L'Écrevisse (Anatomie et dissection). 8vo, Paris, n.d., 27 pp., 3 col. pls., 5 text-figg.

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\* An asterisk prefixed to a title indicates that the Recorder has not seen the Journal or Work referred to.

ANNANDALE, NELSON. [See SCHARFF (187).]

9. ANON. Bull. internat. expl. Mer, Année 1903-1904, No. 3, Partie D, Plankton. pp. 115-146. [Tables.]
10. —. The giant spider crab. Amer. Mus. J. iv, pp. 25 & 60.
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12. BAKER, W. H. Notes on South Australian Decapod Crustacea. Part i. Tr. R. Soc. S. Austral. xxviii, pp. 146-161, pls. xxvii-xxxi. BASSLER, R. S. [See ULRICH & BASSLER (225).]
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16. BOLTON, H. The Palæontology of the Lancashire Coal Measures. Tr. Manchester Geol. Soc. xxviii, pp. 378-415 and 578-650.
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23. —. Notes on Entomostraca found at the Roots of Laminariæ. Tr. Soc. Northumb. i (1), pp. 3-8, pls. i & ii. —. [See NORMAN & BRADY (149).]
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Scotland: *Cumacea*, *Isopoda*, *Amphipoda*, *Copepoda* n. spp.; SCOTT (191): Dornoch Firth, *Copepoda* n. sp.; SCOTT (192): Firths of Forth and Clyde, comparison of *Decapoda*, *Schizopoda* and *Copepoda*; SCOTT in LINDSAY (115): Firth of Clyde, *Decapoda*, *Schizopoda*, *Isopoda*, *Rhizocephala*; PATIENCE (152).

England: Yorkshire, *Decapoda*, *Schizopoda*, *Amphipoda*, *Isopoda*; PETCH (160): Yorkshire, *Amphipoda*; NORMAN (148): Thames Estuary, *Decapoda*; MURIE (141): Plymouth, Crustacea; MAR. BIOL. ASS. (125): Scilly Ids., Crustacea; BROWNE & VALLENTIN (26).

Ireland: Irish Sea, parasitic *Copepoda*; A. SCOTT (190): Larne Harbour, *Copepoda*; PEARSON (157): Sligo, *Decapoda*; RANKIN (164): Sligo, *Amphipoda*; PATTERSON (153).

Bay of Biscay: Crustacea; MONACO (135): *Decapoda*, *Schizopoda*, *Isopoda*, *Amphipoda*, *Copepoda*, *Ostracoda*; RICHARD (171): *Amphipoda* n. spp., *Cladocera*, *Cirripedia*; STEBBING & FOWLER (209): Vendée, *Copepoda* (? n. sp.); BAUDOUIN (13).

Portugal: *Copepoda*, *Cirripedia*, *Amphipoda*, *Tanaidacea*, *Isopoda* n. sp., *Stomatopoda*, *Schizopoda*, *Decapoda*; NOBRE (145) & (146): off coast of Portugal, *Isopoda* n. sp.; NORMAN (147).

Mediterranean: *Copepoda*, *Cladocera*, *Ostracoda*; CLEVE (43): *Decapoda*, *Schizopoda*, *Isopoda*, *Amphipoda*, *Ostracoda*, *Copepoda*, *Cladocera*; LO BIANCO (116): *Isopoda*; NORMAN (147): Messina, *Branchiura*, *Amphipoda*, *Isopoda*, *Schizopoda*, *Decapoda*; RIGGIO (177): Coast of Catania, *Decapoda*; MAGRI (121): Trieste, *Cirripedia* (larvæ) n. sp.; STEUER (212): Croatia, *Copepoda* n. sp.; MICULICICH (132): Ponto-Aralo-Caspian region, Crustacea; SOWINSKY (199).

Canary Islands, Lanzarote, *Munidopsis polymorpha*; CALMAN (33).

W. Africa, *Brachyura* n. spp.; DOFLEIN (53).

Atlantic coast of N. America: *Alcippe* (*Cirripedia*); GENTHE (65): *Epicaridea* n. spp.; RICHARDSON (173).

Bermudas, *Isopoda* n. sp.; RICHARDSON (173).

Caribbean Sea, *Hyperidea* n. sp.; SENNA (195).

E. coast of S. America, *Epicaridea* n. spp.; RICHARDSON (173).

Falkland Ids., *Decapoda* and *Isopoda*; VALLENTIN (226).

b. *Indo-Pacific.*

E. Indian Seas, *Brachyura* n. spp.; DOFLEIN (53): Indian Ocean, *Stomatopoda* (larvæ) n. spp.; JURICH (97): *Decapoda* (larvæ) n. sp.; ZIMMER (251).

Red Sea, Gulf of Aden and Arabian Sea, *Copepoda* n. spp., *Cladocera*, *Ostracoda*; CLEVE (43): Red Sea, *Macrura* n. spp., *Stomatopoda* n. sp.; NOBILI (144).

E. Africa, *Brachyura* n. spp.; DOFLEIN (53): Zanzibar, *Stomatopoda* n. sp.; JURICH (97).

Agulhas Bank, *Brachyura* n. spp.; DOFLEIN in CHUN (41 A), DOFLEIN (53).

Maldive Ids., *Hippidea* n. sp., *Thalassinidea* n. sp., *Loricata*; BORRA-DAILLE (18); Maldive and Laccadive Ids., *Isopoda* n. spp.; STEBBING (207).

India, distribution of sub-littoral genera of *Paguridae*; ALCOCK (2).

Ceylon: *Cumacea* n. spp.; CALMAN (34): *Caprellidae* n. sp.; MAYER (127): *Brachyura* n. sp., *Macrura*, *Tanaidacea* n. sp., *Isopoda* n. spp., *Amphipoda* n. spp.; STEBBING (208): *Amphipoda* n. spp.; WALKER (229).

Singapore, *Amphipoda* n. sp.; WALKER (229).

Near Jedan Ids. (S. of New Guinea), *Cirripedia* n. sp.; HOEK (85).

New South Wales, *Isopoda*; WHITELEGGE (236); South Australia, *Caridea* n. spp.; BAKER (12).

New Zealand: list of Crustacea; HUTTON (91): parasitic *Copepoda* n. spp.; HANSEN (79): *Cirripedia*, *Amphipoda*; STEAD (205): *Phyllocarida* n. spp.; THIELE (219): *Isopoda*; THOMSON (221).

Saghalien, *Caridea* n. sp.; BRAZHNIKOV (24).

Japan, *Isopoda* n. spp.; RICHARDSON (173).

Marshall Is., *Decapoda*; DOFLEIN in SCHNEE (189).

Samoa, *Hippidea* n. sp.; BENEDICT (14).

Gambier Ids., *Caridea*; COUTIÈRE (46).

N.W. America: *Decapoda* n. sp.; RATHBUN (165): *Amphipoda* n. spp.; HOLMES (87): *Isopoda* n. spp.; RICHARDSON (172): *Epicarideu* n. sp.; RICHARDSON (173).

California: *Hippidea* n. sp.; BENEDICT (14): *Isopoda* n. sp.; HOLMES (88): *Macrura* n. sp., *Amphipoda*, *Isopoda*; HOLMES (89).

W. coast of Centr. America, *Isopoda* n. spp.; RICHARDSON (173): Realejo, Nicaragua, *Brachyura* n. sp.; RATHBUN (167): Punta Arenas, Costa Rica, *Brachyura* n. sp.; RATHBUN (167).

Valparaiso, *Brachyura* n. sp.; RATHBUN (167).

### c. Arctic and Antarctic.

Arctic *Schizopoda*, distrib. discussed; ZIMMER (250).

Arctic Ocean, *Amphipoda* n. spp., *Isopoda*; STEBBING (206).

Kerguelen, *Phyllocaridu* n. sp.; THIELE (219).

## 2. GEOLOGICAL.

Post-tertiary, Celebes, *Brachyura* n. spp.; DE MAN (124): Sweden, *Ostracoda*; MUNTHE (139): Glacial beds, Lübeck, *Phyllopoda*, *Cladocera*, *Ostracoda*; RANGE (163).

Tertiary (?), Bouzigues, Hérault, *Isopoda* n. sp.; DOLLFUS (54): Tertiary, E. Greenland, *Macrura* n. sp., *Brachyura* n. sp.; RAVN (169): Australia, *Cirripedia*: DENNANT & KITSON (52): Upper Miocene, Haguineau, *Cirripedia*, *Brachyura*; COUFFON (45): Miocene, Kalksburg near Vienna, *Brachyura* n. sp.; TOULA (222): Maryland, *Ostracoda* n. spp.; ULRICH & BASSLER (225): Maryland, *Cyclometopa* and *Cirripedia*; MARTIN (126): Massachusetts, *Cirripedia*; CUSHMAN (49): Mediterranean stage, S. Russia, *Cirripedia*; MIKHAILOVSKY (133): Eocene, Peschici, Italy, *Cyclometopa* n. sp.; CHECCHIA-RISPOLI (39).

Cretaceous, Scarborough, *Ostracoda*, *Cirripedia*; FOX-STRANGWAYS (59): East Pondoland, S. Africa, *Ostracoda* n. spp.; CHAPMAN (36): Upper Cretaceous, Belfast, *Callianassa*; LAMPLUGH (110): Chalk, England, *Brachyura*, *Macrura*, *Cirripedia*, *Ostracoda*; JUKES BROWN (96): Surrey, *Cirripedia* and *Decapoda*; HOLMES (90): Greensand, Sainte Ménehould, *Hoploparia*; COLLET (44).

Jurassic, Solnhofen Limestones, *Isopoda*, *Stomatopoda*, *Decapoda*, "bionomisch betrachtet"; WALTHER (230): Oolite, Scarborough, *Decapoda*,



*Cirripedia*; FOX-STRANGWAYS (59): Lower Oolite, Geraldton, W. Australia, *Ostracoda* n. spp.; CHAPMAN (37).

Palæozoic, Niagara Region, *Ostracoda* and *Phyllocarida*; GRABAU (67).

Carboniferous, Belfast, *Ostracoda*; LAMPLUGH (110): Coal Measures, Lancashire, Crustacea; BOLTON (16): Ohio, *Phyllopoda* n. sp., CLARKE (42).

Devonian, New York, *Phyllocarida* and *Phyllopoda*; CLARKE (42).

Silurian, Gothland, *Ostracoda*, *Phyllocarida*; MUNTHE (140): New York State, *Ostracoda* n. sp., *Cirripedia* n. sp.; RUEDEMANN (179): Salina, New York, *Phyllocarida* n. spp.; CLARKE (42): Silurian, Victoria, *Ostracoda* n. spp., *Phyllocarida* n. spp.; CHAPMAN (38).

Ordovician (?), Canada, *Ostracoda* n. sp.; JONES (93).

#### IV. SYSTEMATIC.†

[In addition to papers quoted below, see ANON. (9), †BOLTON (16), GARDINER (64), GUCCINI (76), HUTTON (91), LABBÉ (108), LANKESTER (111), MCINTOSH (120), MONACO (135), SELLIER (194), SKORIKOW (196), STAMM (204), WEIGELT (231), YAKHONTOV (246).]

### A. MALACOSTRACA.

Classification of *Malacostraca*:

Series *Leptostraca*.

Division *Phyllocarida* (Order, *Nebaliacea* n. nom.).

Series *Eumalacostraca*.

Divisions *Syncarida* (Order, *Anaspidacea* nov.), *Peracarida* n. nom. (Orders, *Mysidacea*, *Cumacea*, *Tanaidacea*, *Isopoda*, *Amphipoda*), *Eucarida* n. nom. (Orders, *Euphausiacea*, *Decapoda*), *Hoplocarida* n. nom. (Order, *Stomatopoda*),

with discussion of characters and diagnoses of series and divisions;

CALMAN, Ann. Nat. Hist. (7) xiii, pp. 144-158.

*Malacostraca* divided into Legions *Leptostraca*, *Thoracostraca*, *Stomatopoda*, *Anomostraca* nov. (for *Anaspides* &c.), *Arthrostraca*; GROBBEN, Claus' Lehrbuch, pp. 431-468.

#### 1. DECAPODA.

[See also ANDREWS (6), BROWNE & VALLENTIN (26), †FOX-STRANGWAYS (59), GADZIKIEWICZ (62), †HOLMES (90), KEEBLE & GAMBLE (102), KOBERT (104), LABBÉ (109), SCOTT in LINDSAY (115), LO BIANCO (116), LOŠKO (118), MAGRI (121), MAR. BIOL. ASS. (125), MEEK (130), MURIE (141), NOBRE (145 & 146), PATIENCE (152), PETCH (160), RANKIN (164), RICHARD (171), DOFLEIN in SCHNEE (189), SELLIER (193), VALLENTIN (226), †WALTHER (230).]

*Decapoda*, attachment of eggs to parent; WILLIAMSON, Rep. Fish. Board Scotland xxii, pt. iii, p. 116.

#### a. BRACHYURA.

[See also †COUFFON (45), †JUKES-BROWNE (96), †MARTIN (126).]

† This sign when prefixed to a quotation indicates a fossil form or forms. Where the character of a reference is not indicated the words "description" or "descriptive notes" are to be understood.

## OXYRHYNCHA.

- Anasimus rostratus*, p. 171, pl. x, fig. 4; RATHBUN, Harriman Alaska Exped. x.
- Cyrtomaia goodridgei*, pl. lix, fig. 1-1c; ALCOCK & MCARDLE, Illustr. Zool. Investigator: *C. suhmi*, p. 53, subsp. *typica*, p. 54, pl. xix, figg. 1 & 2, subsp. *platyceros* **n. subsp.**, p. 55, pl. xix, fig. 3, pl. xl, figg. 1-7, pl. xliii, fig. 4, pl. xlv, figg. 1-5; DOFLEIN, Brachyura "Valdivia."
- Daldorfia* **n. nom.** for *Parthenope* Leach, non Weber, type *horrida*, p. 171; RATHBUN, P. Soc. Washington xvii.
- Dasygnis tuberculatus*, p. 172, pl. x, figg. 3 & 3a, and text-fig. 92; RATHBUN, Harriman Alaska Exped. x.
- Erileptus spinosus*, p. 171, pl. x, fig. 1; RATHBUN, t. c.
- Hyastenus brevirostris*, S. of Sumatra, 614 metres, p. 85, pl. xxvii, figg. 13 & 14; DOFLEIN, Brachyura "Valdivia," **n. sp.**
- Inachus antarcticus*, Agulhas Bank, 155 metres, p. 74, pl. xxviii, figg. 2 & 3; DOFLEIN, t. c. **n. sp.**
- Kempferia* [= *Macrocheira*] *kempferi*, size; ANON., Amer. Mus. J., pp. 25 & 60.
- Lambrus* synonym of *Parthenope*, p. 171; RATHBUN, P. Soc. Washington xvii.
- L. macrocheles*, p. 87, pl. xxxii, fig. 5; DOFLEIN, Brachyura "Valdivia."
- Mamaia* **n. nom.** for [*Maia*] *quinado*, p. 2; STEBBING, Spolia Zeylan. ii.
- Oregonia bifurca*, p. 171, pl. vi, fig. 5; RATHBUN, Harriman Alaska Exped. x.
- Parthenope* Weber, 1795 (= *Lambrus* Leach, 1815), type *longimana* Linn., p. 170; RATHBUN, P. Soc. Washington xvii (see *Daldorfia*).
- Physacheus ctenurus*, p. 71, pl. xxiv, figg. 1-4, pl. xlii, figg. 1-7, pl. xlvi, DOFLEIN, Brachyura "Valdivia."
- Platymaia wyville-thomsoni*, p. 59, pls. ii, xx, xxii, xxiii, xxxix, xliii, figg. 5 & 6, pl. 1, figg. 2, 5 & 6, text-figg. 2-5; DOFLEIN, t. c.
- Pleistacantha moseleyi*, p. 76, pl. xxiv, figg. 5 & 6, pls. xxv & xxvi; DOFLEIN, t. c.
- Podochela hemphillii*, p. 171, pl. x, fig. 2; RATHBUN, Harriman Alaska Exped. x.
- Pugettia dalli*, p. 173, pl. ii, figg. 1 & 1a; RATHBUN, t. c.
- Scyramathia hertwigi*, Agulhas Bank, fig. on p. 497; DOFLEIN in CHUN, "Aus den Tiefen des Weltmeeres," 1900, **n. sp.**
- S. hertwigi*, p. 81, pl. xxvii, figg. 1-7, pl. xxviii, fig. 1, *pulchra*, p. 84, pl. xxvii, fig. 12, *rivers-andersoni*, p. 84, pl. xxvii, figg. 8-11, *globulifera*, p. 85; DOFLEIN, Brachyura "Valdivia."
- Stenorhynchus falcifer*, p. 70, text-fig. 6; DOFLEIN, t. c.

## CYCLOMETOPA.

- Actæa hirsutissima*, p. 102, pl. xxxii, figg. 1 & 2; DOFLEIN, Brachyura "Valdivia."
- Alpheus* Weber, 1795, synonym of *Cancer*, p. 170; RATHBUN, P. Soc. Washington xvii.
- Benthochascon hemingi*, p. 90, pl. xxix, figg. 1 & 2, pl. xli, figg. 1 & 2; DOFLEIN, Brachyura "Valdivia."
- Callinectes hastatus*, life history, fishery &c.; PAULMIER, Rep. N. York Mus. lv, pp. r129-r138.
- Cancer amphicetus*, p. 175, pl. vi, fig. 3, *anthonyi*, p. 176, pl. vi, fig. 2, *jordani*, p. 176, pl. vi, fig. 4, *oregonensis*, p. 178, pl. vii, fig. 1; RATHBUN, Harriman Alaska Exped. x: *C. pagurus*, abnormal chelæ, p. 195;

- SCHERREN, P. Zool. Soc. London 1903, ii: *C. pagurus*, breeding habits, post-larval development, rate of growth &c.; WILLIAMSON, Rep. Fish. Board Scotland xxii, pl. iii, pp. 100-140, pls. i-v: *C. pagurus*, ecdysis; WITTEN, Rep. Coll. Physic. Edinburgh ix, No. 19, 7 pp., 9 text-figg.
- +*C. bittneri*, Miocene, Vienna, p. 161, text-figg. 1-5; TOULA, Jahrb. geol. Reichsanst. liv, **n. sp.**
- Carcinus maenas*, microsporidian parasite; PÉREZ, C.R. Soc. Biol. lviii, pp. 214 & 215: proportions of sexes; PUNNETT, P. Cambridge Soc. xii (4), pp. 283-296: breeding habits, post-larval development &c.; WILLIAMSON, Rep. Fish. Board Scotland xxii, pt. iii, pp. 100-140, pls. i-v.
- Corystes* [see *Euryala*].
- Domecia glabra*, pl. liv, figg. 3 & 3a; ALCOCK & McARDLE, Illustr. Zool. Investigator.
- Elliptodactylus n. g.* (*Portunidae*), p. 93, *rugosus*, mouth of Congo, p. 94, pl. xxx, figg. 1-3, pl. xxxii, fig. 7, text-figg. 7 & 8; DOFLEIN, Brachyura "Valdivia," **n. sp.**
- Euryala* Weber (= *Corystes* Latr.), type *cassivelaunus*, p. 171; RATHBUN, P. Soc. Washington xvii.
- Geryon paulensis*, p. 531; DOFLEIN in CHUN, "Aus den Tiefen des Weltmeeres," ii Aufl. 1903, **n. sp.**
- G. affinis*, p. 106, many figg., *paulensis*, p. 112, pl. xxxi, figg. 1 & 2; DOFLEIN, Brachyura "Valdivia."
- +*Harpactocarcinus punctulatus*, p. 50, pl. i, figg. 1-3; CHECCHIA-RISPOLI, Boll. Soc. zool. Ital. (2) v.
- Lioxantho punctatus*, p. 256, pl. x, fig. 3; DE MAN, Samm. geol. Mus. Leiden (1) vii.
- Lophopanopeus bellus*, p. 180, *frontalis*, p. 181, pl. vii, fig. 8, *heathii*, p. 182, pl. vii, fig. 9, *leucomanus*, p. 182, *lockingtoni*, p. 183, pl. vii, fig. 7, *diegensis*, p. 184, pl. ix, fig. 3; RATHBUN, Harriman Alaska Exped. x.
- L. nicaraguensis*, Realejo, Nicaragua, p. 162; RATHBUN, P. Soc. Washington xvii, **n. sp.**
- Lybia*, H. M.-E., revived for *Melia* Latr., non Billberg; RATHBUN, t. c. p. 102.
- Melia* [see *Lybia*].
- +*Metopoxantho n. g.* (*Xanthidae*), p. 255, *martini*, post-tertiary, Celebes, p. 257, pl. ix, fig. 1; DE MAN, Samm. geol. Mus. Leiden (1) vii, **n. sp.**
- Ovalipes trimaculatus*, p. 92, pl. xxxii, fig. 6; DOFLEIN, Brachyura "Valdivia."
- Parathelphusa sinensis*, p. 316, pl. xvii, figg. 1 & 2, var.?, p. 318, pl. xvii, fig. 3; DE MAN, Mission Pavie Indo-Chine iii.
- P. paviei* Laos, p. 320, pl. xvii, fig. 4; DE MAN, t. c. **n. sp.**
- Pilumnus verrucosipes*, p. 100, pl. xxxii, figg. 3 & 4; DOFLEIN, Brachyura "Valdivia": *P. spinohirsutus*, p. 185, pl. vii, fig. 2; RATHBUN, Harriman Alaska Exped. x.
- +*Podophthalmus vigil*, post-tertiary, Celebes, p. 274; DE MAN, Samm. geol. Mus. Leiden (1) vii.
- Potamon*, key to spp. from Celebes, p. 567, *celebense* var. *lokaensis*, p. 561, var. *linduensis*, **n. var.**, p. 562, fig. A, var. *possoensis*, **n. var.**, p. 564, fig. B; ROUX, Rev. Suisse Zool. xii.
- P. (Potamon) cochinchinense*, Cochin-China, p. 323, pl. xviii, fig. 5; DE MAN, Mission Pavie Indo-Chine iii, **n. sp.**
- Pseudothelphusa geayi*, French Guiana, p. 127, text-fig. 1; NOBILI, Bull. Mus. Paris x, **n. sp.**
- Trichopeltarium alcocki*, p. 531; DOFLEIN in CHUN, "Aus den Tiefen des Weltmeeres," ii Aufl. 1903, **n. sp.**

*T. alcocki*, p. 88, pl. xxviii, figg. 4 & 5; DOFLEIN, Brachyura "Valdivia."  
*Xantho bidentatus*, p. 256, pl. ix, fig. 2, *impressus*, p. 256, pl. x, fig. 4;  
 DE MAN, Samm. geol. Mus. Leiden (1) vii.

## CATOMETOPA.

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- Carcinoplax longimanus*, p. 114, subsp. *indicus*, n. subsp., p. 114, pl. xxxv, figg. 1 & 2, subsp. *japonicus*, p. 115, pl. xxxvi; DOFLEIN, Brachyura "Valdivia."
- Ceratoplax hispida*, pl. lxi, fig. 4; ALCOCK & McARDLE, Illustr. Zool. Investigator.
- Chasmocarcinops gelasmoides*, pl. lxii, figg. 2, 2a, 3, 3a; ALCOCK & McARDLE, t. c.
- Clistostoma dotilliforme*, pl. lxiv, figg. 1 & 1a; ALCOCK & McARDLE, t. c.
- †*Celoma bicarinatum*, Tertiary, East Greenland, p. 120, pl. iv, fig. 6, pl. v, figg. 1-6; RAVN, Medd. Gronland xxix (1), n. sp.
- Cryptophrys concharum*, p. 188, pl. vii, fig. 6, & text-fig. 94; RATHBUN, Harriman Alaska Exped. x.
- Dotilla affinis*, pl. lxiii, figg. 1-1b, *clepsydroductylus*, figg. 2 & 2a, *blanfordi*, figg. 3 & 3a; ALCOCK & McARDLE, Illustr. Zool. Investigator.
- Elamena sindensis*, pl. lxiv, fig. 4; ALCOCK & McARDLE, t. c.
- Hexaplax* n. g. (*Gonoplacidae*), p. 122, *megalops*, off Sumatra, 470 metres, p. 122, pl. xxxi, figg. 3 & 4, pl. l, fig. 7; DOFLEIN, Brachyura "Valdivia," n. sp.
- Hymenicus wood-masoni*, pl. lxiv, fig. 3, *inachoides*, pl. lxv, fig. 1; ALCOCK & McARDLE, Illustr. Zool. Investigator.
- Lambdophallus secpes*, pl. lxii, figg. 1-1b; ALCOCK & McARDLE, t. c.
- Libystes edwardsi*, pl. lxi, fig. 1, *alphonsi*, fig. 2; ALCOCK & McARDLE, t. c.
- †*Macrophthalmus granulatus*, post-tertiary, Celebes, p. 266, pl. x, fig. 5; DE MAN, Samm. geol. Mus. Leiden (1) vii, n. sp.
- Notonyx vitreus*, pl. lxi, fig. 3; ALCOCK & McARDLE, Illustr. Zool. Investigator.
- Opisthopus transversus*, p. 188, pl. ix, fig. 2, text-fig. 95; RATHBUN, Harriman Alaska Exped. x.
- Palicus serripes*, pl. lxvii, fig. 1, *investigatoris*, fig. 2, *wood-masoni*, fig. 3; ALCOCK & McARDLE, Illustr. Zool. Investigator.
- Pilumnoplax americana*, p. 120, pl. xxxv, figg. 3 & 4; DOFLEIN, Brachyura "Valdivia."
- Pinnaodes meinerti*, Valparaiso, p. 162; RATHBUN, P. Soc. Washington xvii, n. sp.
- Pinnixa occidentalis*, p. 187, pl. vii, fig. 4, pl. ix, figg. 6 & 6a, *californiensis*, p. 187, pl. vii, fig. 3; RATHBUN, Harriman Alaska Exped. x.
- Pinnotheres mactricola*, pl. lxii, figg. 4, 5-5b, *purpureus*, figg. 6-6b; ALCOCK & McARDLE, Illustr. Zool. Investigator: *Pinnotheres* sp., p. 124, pl. xxxvii, figg. 3 & 4, text-fig. 10; DOFLEIN, Brachyura "Valdivia."
- Pinnotheres villosissimus*, in a Holothurian, Padang, p. 125, pl. xxxvii, figg. 6 & 7, text-fig. 11, DOFLEIN, t. c. n. sp.
- Psopheticus insignis*, pl. liv, fig. 2; ALCOCK & McARDLE, Illustr. Zool. Investigator: *P. stridulans*, p. 118, pl. xxx, fig. 4; DOFLEIN, Brachyura "Valdivia."
- Ptychognathus onyx*, pl. lxv, figg. 2 & 2a, *andamanica*, figg. 3 & 3a; ALCOCK & McARDLE, Illustr. Zool. Investigator.
- Pyxidognathus fluviatilis*, pl. lxvi, figg. 3 & 3a; ALCOCK & McARDLE, t. c.
- Raphonotus lowei*, p. 186, text-fig. 93; RATHBUN, Harriman Alaska Exped. x.



- Retropluma chuni*, off Sumatra, 614 metres, p. 131, pl. xxxvii, figg. 1 & 2; DOFLEIN, Brachyura "Valdivia," **n. sp.**
- Scleroplax granulata*, p. 188, pl. vii, fig. 5; RATHBUN, Harriman Alaska Exped. x.
- Scopimera investigatoris*, pl. lxiii, figg. 4-4b, *crabricauda*, figg. 5-5b; ALCOCK & MCARDLE, Illustr. Zool. Investigator.
- Sesarma lanatum*, pl. lxxv, figg. 4 & 4a, *jinni*, pl. lxxvi, fig. 1, *latifemur*, fig. 2; ALCOCK & MCARDLE, t. c.
- Speocarcinus californiensis*, p. 190, pl. ix, fig. 1; RATHBUN, Harriman Alaska Exped. x.
- Tylodiplax indica*, pl. lxiv, figg. 2-2c; ALCOCK & MCARDLE, Illustr. Zool. Investigator.
- Uca* [= *Gelasimus*] *brevifrons*, p. 308, pl. xxxv, figg. 1-5; HOLMES, P. Calif. Ac. (3) Zool. iii.
- U. arstedii*, Costa Rica, p. 161; RATHBUN, P. Soc. Washington xvii, **n. sp.**

## OXYSTOMATA.

- Atlantotlos n. g.* (*Leucosiidae*), p. 49, *rhombifer*, mouth of Congo, p. 50, pl. xv, figg. 7 & 8; DOFLEIN, Brachyura "Valdivia," **n. sp.**
- †*Calappa lophos*, post-tertiary, Celebes, p. 277; DE MAN, Samm. geol. Mus. Leiden (1) vii.
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- Cymonomus granulatus*, p. 33, pl. xi, fig. 5, pl. xii, figg. 1-3; DOFLEIN, t. c.
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- Munidopsis polymorpha*, remarkable habitat; CALMAN, Ann. Nat. Hist. (7) xiv, pp. 213-218, 1 text-fig.: *M. wardeni*, pl. lv, fig. 1, *hemingi*, pl. lv, fig. 4, *M. (Orophorhynchus) granosa*, pl. lvi, fig. 1, *edwardsii*, fig. 2, (*Elasmonotus) sinclairi*, fig. 4, *M. orcina*, fig. 5, (*Orophorhynchus) ceratophthalmus*, pl. lvii, fig. 3; ALCOCK & McARDLE, Illustr. Zool. Investigator.
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- Birgus latro*, characters and habits; NAPOLI, Boll. Soc. zool. Ital. xiii, pp. 193-197.
- Chlenopagurus andersoni*, pls. liii & liv, figg. 1 & 1a; ALCOCK & ANDERSON, Illustr. Zool. Investigator.
- Eupagurus bernhardus*, correlation of sensations; BOHN, C.R. Ac. Sci. cxxxviii, p. 113: *E. longicarpus*, psychological experiments; SPAULDING, Biol. Bull. vi, p. 325 and Journ. Compar. Neurology and Psychology xiv, pp. 49-61.
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## c. MACRURA.

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The Crayfish [genus and species not stated] regeneration of first leg; REED, Arch. Entwicklmech. xviii, pp. 307-316, pls. xvii & xviii, 3 text-figg.

*Astacus fluviatilis*: guide to dissection; ANGLAS, L'Écrevisse: structure and physiology of digestive apparatus; JORDAN, Biol. Centrbl. xxiv, pp. 321-332, 4 text-figg. and Arch. ges. Physiol. ci, pp. 263-310, pl. vii, 6 text-figg.: rudimentary gill; LANKESTER, Nature lxi, p. 270; MOSELEY, Quart. J. Micr. Sci. xlviii (3), pp. 359-366, pls. xxiii & xxiv: *A. fluviatilis* var. *torrentium*, colour-variety, p. 254; BOUVIER, Bull. Soc. ent. France 1904: *A. torrentium*, bionomics and physiology; LATTE, Nat. Hist. Common Animals, pp. 48-70.

*Astacus* [*Homarus*] *gammarus*, abnormal chelæ, p. 195; SCHERREN, P. Zool. Soc. London 1903, ii.

*Cambarus affinis*, breeding habits, young stages, &c.; ANDREWS, Amer. Natural. xxxviii, pp. 165-206, 10 text-figg.: *C. bartoni*, abnormal leg; ANDREWS, Biol. Bull. vi, p. 75, 5 text-figg.: *C.* lists of spp., distrib. ecology, &c.; HARRIS, Kansas Univ. Sci. Bull. ii (3), pp. 51-187: *C. uhleri*, habits; HAY, P. Soc. Washington xvii, p. 167: *C. viridis*, copulatory appendages; MOENHKAUS, Indiana Univ. Bull. i, pp. 17 & 18, 2 figg.: *C. affinis*, habit formation; YERKES & HUGGINS, Harvard Psychological Studies i, pp. 565-577, 4 figg.

*Homarus* [see also *Astacus*] *vulgaris*, hatching; HERDMAN, Nature lxx, p. 296: maturation divisions in testis; LABBÉ, C.R. Ac. Sci. cxxxviii, pp. 96-99.

†*Hoplopatria granulosa*, p. 32, pl. ii, fig. 1; COLLET, Bull. Soc. Reims xii.

†*H. groenlandica*, Tertiary, East Greenland, p. 115, pl. iv, figg. 1 & 2; RAVN, Medd. Gronland xxix (1), **n. sp.**

*Nephrops norvegicus*, variation of ♂ gen. apertures, and proportions of sexes; McINTOSH, P. Cambridge Soc. xii, pp. 441-444: general account of structure; MEEK, The Norway Lobster, 1903.

*Nephropsis ensirostris*, pl. lviii, figg. 1, 1a; ALCOCK & McARDLE, Illustr. Zool. Investigator.

*Parastacus hassleri*, p. 256, text-figg. 24 & 25, *agassizii*, p. 258, pl. ix; PORTER, Revist. chilena viii.

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## LORICATA.

*Palinurus vulgaris*, eye replaced by "antenna"; ARIOLA, Arch. Entwick-mech. xviii, pp. 248-252, pl. xiv: histology of alimentary system; GUIEYSSE, Bull. Soc. Philom. (9) vi, pp. 117-128, 3 text-figg.

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*C. (Trypaea) maldivensis*, Maldive Ids., p. 753, pl. lviii, fig. 3; BORRADAILE, Fauna Maldive ii: *C. (Cheramus) jousseaumei* and *calmani*, p. 236, (*Trypaea*) *bouvieri*, p. 236, (*Callichirus*) *roseæ* and *coutieri*, p. 237, Red Sea; NOBILI, Bull. Mus. Paris x: n. spp.

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*Alpheus* Weber, 1795, synonym of *Cancer*, replaced by *Crangon* Weber, p. 170; RATHBUN, P. Soc. Washington xvii: *A.* regeneration, p. 319; BRUES, Biol. Bull. vi: *A. heterochelis*, p. 5; STEBBING, Spolia Zeylan. ii.



- Angasia elongata*, p. 147, pl. xxvii, figg. 1-4, *kimberii*, p. 149, pl. xxvii, fig. 5, *robusta*, p. 150, pl. xxviii, figg. 1-8, *tomentosa*, p. 152, pl. xxix, figg. 1-4, South Australia; BAKER, Tr. R. Soc. S. Austral. xxviii, n. spp.
- Arete dorsalis* var. *pacificus*, commensalism with *Heterocentrotus mammillatus*; COUTIÈRE, Bull. Mus. Paris x, pp. 58-60.
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- Palæmon* [= *Leander*] spp., colour physiology; KEEBLE & GAMBLE, Phil. Trans. B, cxvii, pp. 295-388.
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*Sympasiphæa annectens*, pl. lii, fig. 7; ALCOCK & MCARDLE, Illustr. Zool. Investigator.

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*Urocaris infraspinis*, p. 31, fig. 10; RATHBUN, Harriman Alaska Exped. x.

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*Virbius* (?) *jactans*, Red Sea, p. 230; NOBILI, Bull. Mus. Paris x, n. sp.

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*Engystenopus palmipes*, pl. l, fig. 5; ALCOCK & MCARDLE, Illustr. Zool. Investigator.

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*Metapeneus stebbingi*, *cognatus*, *consobrinus*, *vaillanti*, Red Sea, p. 229; NOBILI, Bull. Mus. Paris x, n. spp.

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## 2. SCHIZOPODA.

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Revision of Arctic spp.; ZIMMER, *Fauna Arctica* iii (3), pp. 415-491, 172 text-figg. Only spp. of which new figures are given are noted below.

*Anaspides*, evidence as to systematic position from chromatophore system, p. 330; KEEBLE & GAMBLE, *Phil. Trans. B.* cxcvi.

*Boreophausia* [see *Rhoda*].

*Euphausia intermedia*, p. 118, pl. ii, figg. 3-6; RIGGIO, *Natural. Sicil.* xvii: *E. pellucida*, p. 422, figg. 12-15; ZIMMER, *Fauna Arctica* iii.

*Macromysis*, spp., colour-physiology; KEEBLE & GAMBLE, *Phil. Trans. B.* cxcvi, pp. 295-388.

*M. nigra*, coast of England, p. 331, pl. xviii, figg. 1-3, pl. xix, figg. 4-6, pl. xxi, figg. 10, 11 & 17; KEEBLE & GAMBLE, t. c. n. sp.

*Mysis relicta*: embryos figured, p. 107, figg. 1 & 2; KANE, *Irish Natural. xiii*: habits, distribution &c., p. 677; SAMTER & WELTNER, *Zool. Anz.* xxvii.

*Neomysis vulgaris* in *E. Norfolk*, p. 649; GURNEY, *Tr. Norfolk Soc.* vii.

*Nyctiphanes norvegica*, p. 419, figg. 2-5; ZIMMER, *Fauna Arctica* iii.

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Review of morphology, development, habits and distribution; RICHARDSON, P. U. S. Mus. xxvii, pp. 2-31.

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- Cymothoidea*, n. nom. for *Flabellifera*, p. 3; RICHARDSON, P. U. S. Mus. xxvii.
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- Cæcospheroma*, sp., habits, &c.; GAL, Bull. Soc. Nimes xxxi.
- Calathura*, key to spp., p. 700, *borradailei*, Maldiv Ids., p. 700, pl. xlix A; STEBBING, Fauna Maldive ii, n. sp.
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- Cirolanide*, notes on British spp., p. 437; NORMAN, Ann. Nat. Hist. (7) xiv.
- Corallana hirsuta*, p. 704, pl. l, B; STEBBING, Fauna Maldive ii: *C. nodosa*, p. 14, pl. i, B; STEBBING, Spolia Zeylan. ii.
- Corallanide*, notes on genera, p. 703; STEBBING, Fauna Maldive ii.
- Cyathura pusilla*, Ceylon, p. 9, pl. vi, B; STEBBING, Spolia Zeylan. ii, n. sp.
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- Cymothoa*, embryology (abstract of paper by NUSBAUM); HOYER, Zool. Zentrbl. xii, pp. 130-133: *C. borbonica*, p. 709; STEBBING, Fauna Maldive ii.
- Dynamene cordata*, p. 302, pl. xxxiv, figg. 8-10, *glabra*, p. 304; HOLMES, P. Calif. Ac. (3) Zool. iii.
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- Excorallanide* n. fam. for *Excorallana*, p. 704; STEBBING, t. c.
- Gnathia maxillaris*, metamorphosis and life-history; SMITH, Mt. Stat. Neapel xvi, pp. 469-479, pl. xviii.
- Indusa carinata* (on *Mugil hospes*), W. coast of Panama, p. 52, figg. 29-31; RICHARDSON, P. U. S. Mus. xxvii, n. sp.
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- Idoteoidea*, **n. nom.** for *Valvifera*, p. 3 ; RICHARDSON, P. U. S. Mus. xxvii.
- Arcturida*, notes on British spp., p. 444 ; NORMAN, Ann. Nat. Hist. (7) xiv.
- Arcturus scabrosus*, Faroe Channel, 327-430 fath., p. 445 ; NORMAN, t. c. :  
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- Pentis n. g.* (*Idoteida*) *hayi*, Japan, p. 47, figg. 24 & 25 ; RICHARDSON,  
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- Bopyroidea*, **n. nom.** for *Epicaridea*, p. 4 ; RICHARDSON, P. U. S. Mus.  
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- Revision of American spp. (Pacific and Atlantic) with new hosts and  
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- Cryptoniscan stage of one of the *Epicaridea*, from *Onisimus plantus*  
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- Eumetor* (?) sp. in *Sacculina* on *Pinnotheres* in *Spondylus*, Persian Gulf ;  
PÉREZ, Pr.-verb. Soc. Bordeaux 1902-1903, pp. 109 & 110.

- Ione thompsoni* (on *Callianassa stimpsoni*), Massachusetts, p. 75, figg. 64-68; RICHARDSON, P. U. S. Mus. xxvii, **n. sp.**
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## ONISCOIDEA.

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- Armadillidium depressum*, p. 23, *nasatum*, p. 23, *versicolor*, p. 24, *pulchellum*, p. 27, *vulgare*, p. 29, *opacum*, p. 30, *pictum*, p. 32, *decipiens*, p. 33; KOCH, Festschr. Ges. Nurnberg 1901.
- A. albifrons*, Meran, p. 25, *petræum*, Torbole, p. 26, *riparium*, Torbole, p. 28, *oliveti*, Torbole, p. 31; KOCH, t. c.: *A. quadrifrons*, New York State, p. r211, text-fig. 2; STOLLER, Rep. N. York Mus. liv (i): **n. spp.**
- Cylisticus convexus*, p. 53; KOCH, Festschr. Ges. Nurnberg 1901.
- Éoarmadillidium n. g.*, *granulatum*, Tertiary (?), Hérault, p. 146, text-figg. 1-3; DOLLFUS, Feuille Natural. (4) xxxiv, **n. sp.**
- Haplophthalmus mengei*, p. 68; KOCH, Festschr. Ges. Nurnberg 1901.
- Ligidium hypnorum*, p. 69; KOCH, t. c.
- L. cæcum*, Crimea, p. 327, text-figg. 9-11; CARL, Zool. Anz. xxviii: *L. longicaudatum*, New York State, p. r208, text-fig. 1; STOLLER, Rep. N. York Mus. liv (i): **n. spp.**
- Ligia* Weber, 1795, syn. of *Cancer*, p. 172; RATHBUN, P. Soc. Washington xvii.
- Metoponorthus major*, p. 64, text-fig. 5, *orientalis*, fig. 6; DYDUCH, Bull. Ac. Cracovie 1903: *M. amœnus*, p. 54, *pruinus*, p. 55; KOCH, Festschr. Ges. Nurnberg 1901.
- M. benaci*, Torbole, p. 56; KOCH, t. c. **n. sp.**
- Oniscus murarius*, p. 61, *taniola*, p. 62, *madidus*, p. 64, *minutus*, p. 65; KOCH, t. c.: *O. murarius*, feeding on lichens, p. 367; STAHL, Denk. Ges. Jena xi.



- O. languidus*, Ludwigsburg, p. 63, *lamperti*, Hohenlandsberg, p. 63; KOCH, Festschr. Ges. Nürnberg 1901, **n. spp.**
- Philoscia muscorum*, p. 57, *madida*, p. 58; KOCH, t. c.
- P. fischeri*, Teck, p. 59; KOCH, t. c. **n. sp.**
- Platyarthrus hoffmannseggii*, p. 34; KOCH, t. c.
- Porcellio rathkei*, p. 62, text-fig. 1, *affinis*, fig. 2, *gallicus*, fig. 3, *politus*, fig. 4; DYDUCH, Bull. Ac. Cracovie 1903: *P. scaber*, p. 38, *ochraceus*, p. 39, *lavis*, p. 40, *pictus*, p. 41, *conspersus*, p. 43, *dubius*, p. 44, *confluens*, p. 45, *ratzeburgi*, p. 46, *rathkei*, p. 50; KOCH, Festschr. Ges. Nürnberg 1901.
- P. tirolensis*, S. Tyrol, p. 36, *cruentatus*, Sugenheim, p. 37, *mildei*, Meran, p. 41, *saltuum*, S. Alps, p. 48, *parietinus*, Landstuhl, p. 49, *sociabilis*, Vahrn, p. 51, *cognatus*, S. Tyrol, p. 52; KOCH, t. c. **n. spp.**
- Styloniscus gracilis*, p. 318, pl. xxxvi, figg. 29–31; HOLMES, P. Calif. Ac. (3) Zool. iii.
- Trichoniscus pusillus*, p. 66, *roseus*, p. 67; KOCH, Festschr. Ges. Nürnberg 1901.
- T. papillicornis*, Alaska, p. 227, figg. 113–117; RICHARDSON, Harriman Alaska Exped. x, **n. sp.**

## 7. AMPHIPODA.

[See also ALZONA (4), BRUNTZ (29 & 30), GADZIKIEWICZ (61), GURNEY (78), KOROTNEFF (106), LO BIANCO (116), LOŠKO (118), MAR. BIOL. ASS. (125), NOBRE (145 & 146), NORMAN (148), PATTERSON (153), PETCH (160), RICHARD (171), SAYCE (186), SCOTT (191), STEAD (205), ULMER (224), VIRÉ (227 & 228), ZYKOFF (256).]

GROCHOWSKI (69), appears to deal with the general classification of Amphipoda. On p. 33 the group is divided into four orders *Antennuloremida* **nov.** (for *Constantia Branickii* Dyb.), *Crevettina*, *Hyperina* and *Læmodipoda*.

## GAMMARINA.

- Acanthonotozoma inflatum*, p. 32, pl. vi; STEBBING, Bijdr. Dierk. 17/18.
- Acanthostephea behringanus*, p. 315, pl. xxxvi, figg. 25–28; HOLMES, P. Calif. Ac. (3) Zool. iii.
- Acanthozone hystrix*, p. 29; STEBBING, Bijdr. Dierk. 17/18.
- Allorchestes ochotensis*, p. 233, fig. 118; HOLMES, Harriman Alaska Exped. x.
- Ampelisca*, key to some spp., p. 249, *tridens*, p. 249, pl. ii, fig. 11, pl. iv, fig. 11, *scabripes*, p. 250, pl. ii, fig. 12, *brachyceras*, p. 251, pl. ii, fig. 13, *cyclops*, p. 253, pl. ii, fig. 14, *chevreuxi*, p. 254, pl. iii, fig. 15, Ceylon; WALKER, Rep. Ceylon Pearl Fisheries ii, **n. spp.**
- Amphithoë scitula*, p. 314, pl. xxxvi, figg. 21–24; HOLMES, P. Calif. Ac. (3) Zool. iii.
- A. intermedia*, Ceylon, p. 290, pl. vii, fig. 46; WALKER, Rep. Ceylon Pearl Fisheries ii, **n. sp.**
- Anamixis stebbingi*, Ceylon, p. 259, pl. iii, fig. 18; WALKER, t. c. **n. sp.**
- Anonyx nugax*, p. 313, pl. xxxv, figg. 17–19, pl. xxxvi, fig. 20; HOLMES, P. Calif. Ac. (3) Zool. iii: *A. liljeborgii*, p. 8; STEBBING, Bijdr. Dierk. 17/18.
- Apherusa clevei*, Skagerak; SARS, Publ. internat. expl. Mer, No. 10, 4 pp., 1 pl., **n. sp.**
- Barentsia* (see *Gulbarentsia*) **n. g.** (*Ediceridæ*), p. 25, *hoekii*, 71° 32' N., 64° 37' E., p. 25, pl. v; STEBBING, Bijdr. Dierk. 17/18, **n. sp.**

- Byblis intermedius*, 72° 9' N., 24° 42' E., 145 fath., p. 18; STEBBING, t. c. n. sp.
- Cheiriphotis* n. g. (*Photidae*), p. 283, *megacheles*, Ceylon, p. 284, pl. vi, fig. 42; WALKER, Rep. Ceylon Pearl Fisheries ii.
- Chevalia* n. g. (*Photidae*), p. 288, *avicula*, Ceylon, p. 288, pl. vii, fig. 50, pl. viii, fig. 50; WALKER, t. c. n. sp.
- Chironisimus debruynei*, p. 13; STEBBING, Bijdr. Dierk. 17/18.
- Corophium trienonyx*, Ceylon, p. 25, pl. vi, A; STEBBING, Spolia Zeylan. ii, n. sp.
- Dexamine serraticrus*, Ceylon, p. 265, pl. iv, fig. 24; WALKER, Rep. Ceylon Pearl Fisheries ii, n. sp.
- Elasmopus subcarinatus*, p. 275, pl. v, fig. 34; WALKER, t. c.
- E. dubius*, p. 276, pl. v, fig. 35, *spinimanus*, p. 277, pl. v, fig. 36, *serrula*, p. 277, pl. viii, fig. 37, Ceylon; WALKER, t. c. n. spp.
- Erichthonius macrodactylus*, p. 292, pl. vii, fig. 48; WALKER, t. c.
- Eusirogenes* n. g. (*Eusiridae*), p. 15, *dolichocarpus*, Bay of Biscay, 1000–2000 fath., p. 15, pl. ii, A; STEBBING, Tr. Linn. Soc. London (2) Zool. x, n. sp.
- Eusiroides caesaris* var., p. 264, pl. iv, fig. 22; WALKER, Rep. Ceylon Pearl Fisheries ii.
- E. orchomenipes*, Ceylon, p. 264, pl. iv, fig. 23; WALKER, t. c. n. sp.
- Gallea* n. g. (*Amphilocheidae*), p. 256, *tecticauda*, Ceylon, p. 256, pl. iii, fig. 16, pl. viii, fig. 16; WALKER, t. c. n. sp.
- Gammaridae*, revision of genera (in Polish); GROCHOWSKI, Kosmos polski. xxix, p. 37.
- Gammaropsis tenuicornis*, Puget Sound, p. 239, fig. 124; HOLMES, Harriman Alaska Exped. x: *G. zeylanicus*, Ceylon, p. 282, pl. vi, fig. 41; WALKER, Rep. Ceylon Pearl Fisheries ii: n. spp.
- Gammarus* sp., toxicity of distilled water; BULLOT, Univ. Calif. Publ. Physiol. i (22), pp. 199–217: *G. pulex*, external and internal anatomy, habits, reproduction, development; CUSSANS, P. Liverp. biol. Soc. xviii, pp. 327–373, pls. i–iv, 6 text-figg.: *G. locusta*, embryology; HEIDECHE, Jena. Zeitschr. xxxviii, pp. 505–552, pls. xiii–xvi: *G. similis*, p. 396, pl. i, figg. 5 & 14, pl. ii, figg. 44, 45, 67, pl. iii, figg. 72–75 & 91, pl. iv, figg. 103–106, *robustoides*, p. 401, pl. 1, figg. 2, 9, 16, 21, 26, 31, 32, pl. ii, figg. 34, 35, 55, 56, pl. iii, figg. 78, 80, 84, 85, 90, pl. iv, figg. 94, 96, 112, 120–123, *crassus*, p. 403, pl. i, figg. 3, 10, 17, 22, 27, pl. ii, figg. 36–41, pl. iii, figg. 68, 69, 79, 81, 86, 87, pl. iv, figg. 95, 113, 114, 118, *obesus*, pl. i, figg. 7, 12, 19, 24, 29, pl. ii, figg. 48–53, pl. iii, figg. 76, 77, 92, 93, pl. iv, figg. 107–109, 115–117; SOWINSKY, Zapiski Kiev. Obsch. xviii.
- G. olivianus*, p. 399, pl. i, figg. 6 & 13, pl. ii, figg. 46, 47, 57–64, *sarsii*, p. 401 [localities?]; SOWINSKY, t. c. n. spp.
- Grandidierella* n. g. (*Corophiidae*), p. 173, *mahafalensis*, in a salt lake, Madagascar, p. 166, figg. 1–19; COUTIÈRE, Bull. Soc. Philom. (9) vi, n. sp.
- Guernea levis*, p. 267, pl. iv, fig. 26; WALKER, Rep. Ceylon Pearl Fisheries ii.
- Gulbarentsia* n. nom. for *Barentsia*, Stebbing non Hincks, p. 2; STEBBING, Bijdr. Dierk. 17/18.
- Haploops robusta*, p. 18, *tubicola*, p. 19, *levis*, p. 19, pl. iii; STEBBING, t. c.
- Hippomedon squamosus*, 72° 9' N., 24° 42' E. 154 fath., p. 4, pl. i; STEBBING, t. c. n. sp.
- Hornellia* n. g. (*Gammaridae* or *Melphidippidae*), p. 268, *incerta*, Ceylon, p. 269, pl. iv, fig. 27; WALKER, Rep. Ceylon Pearl Fisheries ii, n. sp.
- Hyale nilssoni* var. (name *kuriensis* suggested if species distinct), p. 238; WALKER, t. c.

- Hyalella neveu-lemairei*, Lake Titicaca, p. 132, figg. 1 & 2; CHEVREUX, Bull. Soc. zool. France xxix, n. sp.
- Ichnopus taurus*, p. 238, pl. i, fig. 3; WALKER, Rep. Ceylon Pearl Fisheries ii.
- Jassa falcata*, p. 292, pl. vii, fig. 47; WALKER, t. c.
- Lembos podoceroïdes*, p. 279, pl. vi, fig. 39, *chelatus*, p. 280, pl. vi, fig. 40, Ceylon; WALKER, t. c. n. spp.
- Leucothoë hornelli*, Ceylon, p. 258, pl. iii, fig. 17, *stegoceras*, Singapore, p. 259, pl. iii, fig. 17A; WALKER, t. c. n. spp.
- Lysianax cinghalensis*, p. 242, pl. i, fig. 6; WALKER, t. c.
- L. calochir*, Ceylon, p. 243, pl. i, fig. 7; WALKER, t. c. n. sp.
- Mæra rubro-maculata*, p. 272, pl. v, fig. 30, *tenella*, p. 272, pl. v, fig. 31, *scissimana*, p. 273, pl. v, fig. 32, *tenuicornis*, p. 273, pl. v, fig. 33; WALKER, t. c.
- M. othonides*, Ceylon, p. 271, pl. v, fig. 29; WALKER, t. c. n. sp.
- Melita anisochir*, p. 270, pl. iv, fig. 28; WALKER, t. c.
- M. zeylanica*, Ceylon, p. 22, pl. v; STEBBING, Spolia Zeylan. ii, n. sp.
- Monoculodes hanseni*, 71° 32' N., 67° 37' E., p. 22, pl. iv; STEBBING, Bijdr. Dierk. 17/18, n. sp.
- Niphargus* sp., habits, &c.; GAL, Bull. Soc. Nimes xxxi: N.; GROCHOWSKI, Kosmos polski. xxix, pp. 81, &c.: *N. kochianus*, Lough Mask, p. 274, pl. viii, figg. 1-3, *N. subterraneus*, Kent, p. 280, pl. viii, figg. 4 & 5; KANE, Ann. Nat. Hist. (7) xiv.
- Odius carinatus*, p. 238, fig. 123; HOLMES, Harriman Alaska Exped. x.
- Onisimus caricus*, p. 11, *brevicaudatus*, p. 12; STEBBING, Bijdr. Dierk. 17/18.
- Pallasiella quadrispinosa*, habits, distribution, &c., p. 683; SAMTER & WELTNER, Zool. Anz. xxvii.
- Paratylus granulatus*, Ceylon, p. 265; WALKER, Rep. Ceylon Pearl Fisheries ii, n. sp.
- Parelasomopus subuensis*, p. 278, pl. vi, fig. 38; WALKER, t. c.
- Paronesimus* n. g. (*Lysianassidae*) *Barentsi*, 75° 49' N., 53° 42' E., p. 14, pl. ii; STEBBING, Bijdr. Dierk. 17/18, n. sp.
- Perioculodes serra*, Ceylon, p. 262, pl. iv, fig. 20; WALKER, Rep. Ceylon Pearl Fisheries ii, n. sp.
- Photis longicaudata*, p. 286, pl. vi, fig. 43; WALKER, t. c.
- P. longimanus*, p. 286, pl. vii, fig. 44, *nana*, p. 287, pl. vii, fig. 45, Ceylon; WALKER, t. c. n. spp.
- Platophium læve*, p. 295, pl. vii, fig. 51; WALKER, t. c.
- P. synptochir*, p. 296, pl. viii, fig. 52, *zeylanicum*, p. 297, pl. viii, fig. 53, Ceylon; WALKER, t. c. n. spp.
- Platyischnopus herdmanni*, Ceylon, p. 247, pl. ii, fig. 10; WALKER, t. c. n. sp.
- Pontogammarus* n. subg. of *Gammarus*, p. 394; SOWINSKY, Zapiski Kiev. Obsch. xviii.
- Pontoporeia affinis*, habits, distribution, &c., p. 686; SAMTER & WELTNER, Zool. Anz. xxvii.
- Rozinante* n. g. (near *Paramphithoë*), p. 38, *fragilis* (Goës), p. 39; STEBBING, Bijdr. Dierk. 17/18.
- Siphonæetes orientalis*, Ceylon, p. 294, p. vii, fig. 49; WALKER, Rep. Ceylon Pearl Fisheries ii, n. sp.
- Socarnella* n. g. (*Lysianassidae*), p. 239, *bonnieri*, Ceylon, p. 239, pl. i, fig. 4; WALKER, t. c. n. sp.
- Stenothoë marina* var. *sinhalensis* [n. var.], Ceylon, p. 261; WALKER, t. c.
- S. alaskensis* Pribyloff Is., p. 236, figg. 121 & 122; HOLMES, Harriman Alaska Exped. x: *S. gallensis*, Ceylon, p. 261, pl. iii, fig. 19; WALKER, Rep. Ceylon Pearl Fisheries ii: n. spp.

- Tiron thompsoni*, Ceylon, p. 263, pl. iv, fig. 21 ; WALKER, t. c. n. sp.  
*Tritata antarctica*, Ceylon, p. 266, pl. iv, fig. 25 ; WALKER, t. c.  
*Tryphosa nugax*, Alaska, p. 234, figg. 119 & 120 ; HOLMES, Harriman Alaska  
 Exped. x : *T. cucullata*, Ceylon, p. 244, pl. iv, fig. 8 ; WALKER, Rep.  
 Ceylon Pearl Fisheries ii : n. spp.  
*Urothoë spinidigitus*, Ceylon, p. 245, pl. i, fig. 9 ; WALKER, t. c. n. sp.  
*Vijaya* n. g. (*Lysianasside*), p. 241, *tenuipes*, Ceylon, p. 241, pl. i, fig. 5 ;  
 WALKER, t. c. n. sp.  
*Weyprechtia heuglini*, p. 41 ; STEBBING, Bijdr. Dierk. 17/18.

## HYPERINA.

- Key to some families, p. 17 ; STEBBING, Tr. Linn. Soc. London (2) Zool. x.  
 Notes on spp. from Messina ; RIGGIO, Natural. Sicil. xvii, p. 95.  
*Archæoscina* n. g. (*Scinidæ*), p. 19, *bonnieri*, Bay of Biscay, 300-400 fath.,  
 p. 19, pl. iii, A ; STEBBING, Tr. Linn. Soc. London (2) Zool. x, n. sp.  
*Brachyscelus*, notes on spp., p. 40 ; STEBBING, t. c.  
*Elsia indica*, p. 237, pl. i, fig. 2 ; WALKER, Rep. Ceylon Pearl  
 Fisheries ii.  
*Hyperia luzoni*, p. 33 ; STEBBING, Tr. Linn. Soc. London (2) Zool. x :  
*H. bengalensis*, p. 235, dimorphism of ♂, p. 236 ; WALKER, Rep.  
 Ceylon Pearl Fisheries ii.  
*Hyperioides*, notes on spp., p. 34 ; STEBBING, Tr. Linn. Soc. London (2)  
 Zool. x.  
*Lanceola*, notes and key to spp., p. 28 ; STEBBING, t. c.  
*Parahyperia*, referred to *Hyperioides*, p. 34 ; STEBBING, t. c.  
*Paruscelus parvus*, p. 236, pl. i, fig. 1 ; WALKER, Rep. Ceylon Pearl  
 Fisheries ii.  
*Parascina* n. g. (*Scinidæ*), p. 20, *fowleri*, Bay of Biscay, to 2000 fath.,  
 p. 21, pl. ii, B ; STEBBING, Tr. Linn. Soc. London (2) Zool. x, n. sp.  
*Parathemisto oblivia*, p. 36 ; STEBBING, t. c.  
*Primno macropa*, p. 38, text-figg. 1 & 2 ; STEBBING, t. c.  
*Scina*, notes and key to spp., p. 22, *lepisma*, p. 27, pl. iii, B ; STEBBING,  
 t. c.  
*Scinidæ*, def. and key to genera, p. 18 ; STEBBING, t. c.  
*Spheromimonectes* n. g. (*Mimonectidæ*) *valdiviæ* [Atlantic?], p. 621, text-  
 figg. 1 & 3, *gaussi*, Atlantic, p. 627 ; WOLTERECK, Zool. Anz. xxvii,  
 n. spp.  
*Thaumatops*, larval stages described under name "*Physosoma*," p. 553 ;  
 WOLTERECK, t. c.  
*Thaumonectes* n. g. (*Thaumatopsidæ*), p. 93, *ducis aprutii*, Caribbean Sea,  
 p. 93 and text-fig. ; SENNA, Bull. Soc. ent. Ital. xxxv, n. sp.  
*T.*, compared with larva of *Thaumatops*, p. 563 ; WOLTERECK, Zool. Anz.  
 xxvii.  
*Vibilia*, notes on spp., p. 31 ; STEBBING, Tr. Linn. Soc. London (2) Zool. x.

## CAPRELLINA.

- Caprella alaskensis*, p. 241, fig. 125, *scabra*, p. 243, fig. 126, *kincaidi*,  
 p. 245, figg. 127 & 128. Alaska ; HOLMES, Harriman Alaska Exped. x,  
 n. spp.  
*Metaprotella excentrica*, p. 224 ; MAYER, Rep. Ceylon Pearl Fisheries ii.  
*Monoliropus falcimanus*, Ceylon, p. 225, text-figg. 1-9 ; MAYER, t. c. n. sp.



## 8. PHYLLOCARIDA.

[See also BROWNE & VALLENTIN (26), GADZIKIEWICZ (61), †GRABAU (67), MAR. BIOL. ASS. (125), †MUNTHE (140).]

- †*Aptychopsis victoriae*, Silurian, Victoria, p. 315, pl. xvii, fig. 4; CHAPMAN, P. Soc. Victoria xvii, **n. sp.**
- †*Ceratiocaris murchisoni* (?), p. 313, pl. xvii, figg. 5 & 6, *C. sp.*, p. 313, pl. xvii, figg. 7 & 8; CHAPMAN, t. c.
- †*C. pritchardi*, Silurian, Victoria, p. 312, pl. xvii, figg. 2 & 2a; CHAPMAN, t. c.: *C. (Limnocaris) praecegens*, Salina, New York, p. 92, pl. iii, figg. 5-10; CLARKE, Rep. N. York Mus. liv (1) : **n. spp.**
- †*Dithyrocaris precocx*, Silurian, Victoria, p. 314, pl. xvii, fig. 3; CHAPMAN, P. Soc. Victoria xvii, **n. sp.**
- †*Eleutherocaris n. g. whitfieldi*, p. 103; CLARKE, Rep. N. York Mus. liv (1) (see also Zittel's "Textbook of Palaeontology," English trans., p. 656).
- †*Emmelezoë decora*, Salina, New York, p. 95, pl. ii, figg. 4-11, pl. iii, figg. 1-4; CLARKE, t. c. **n. sp.**
- Nebalia bipes*, p. 9, pl. iv, figg. 79 & 80, subsp. *geoffroyi*, p. 13, pl. iv, figg. 70 & 71, subsp. *valida* **n. subsp.** p. 13, pl. iv, fig. 74, subsp. (?) *japanensis*, p. 13, pl. iv, fig. 72, subsp. *chilensis*, p. 13, pl. iv, fig. 73; THIELE, Wiss. Ergebn. Valdivia viii.
- N. longicornis*, p. 9, pl. iv, figg. 66-69, subsp. *magellanica* **n. subsp.** p. 13, pl. iv, fig. 76, subsp. *soror* **n. subsp.** p. 14, pl. iv, fig. 77; THIELE, t. c.
- Nebaliella n. g.* p. 3, *antarctica*, Kerguelen and New Zealand, p. 4, pls. i & ii, figg. 1-24; THIELE, t. c. **n. sp.**
- Nebaliopsis typica* (? var. *atlantica* **n. var.** p. 24), p. 19, pl. iii, figg. 37-54, pl. iv, figg. 55-62; THIELE, t. c.
- Paranebalia longipes*, p. 14, pl. ii, figg. 25-36, pl. iv, figg. 63 & 64; THIELE, t. c.
- †*Rhinocaris columbina*, p. 101, pl. iv, fig. 14, var. *livonensis* **n. var.**, p. 101, figg. 15 & 16, *scaphoptera*, p. 101, figg. 10 & 11, (*Elymocariss*) *capsella*, p. 101, figg. 12 & 13, *bipennis*, p. 101, fig. 9; CLARKE, Rep. N. York Mus. liv (1).

## B. ENTOMOSTRACA.

## 1. BRANCHIOPODA.

Unpaired eye, frontal organs &c.; ZOGRAF (252).

## a. PHYLLOPODA.

[See also DADAY (51), EKMAN (56), ENTZ (57), †RANGE (163).]

- Artemia salina* var. *pacifica* **n. var.**, salt lakes, Honolulu and Laysan I. p. 630, figg. 1a-g; SARS, Zool. Jahrb. Syst. xix.
- Esteria propinqua*, p. 342, text-fig. 2; ZYKOFF, Zool. Anz. xxviii.
- †*E. membranacea*, p. 103, pl. iv, figg. 1-4; CLARKE, Rep. N. York Mus. liv (1).
- †*E. ortonii*, Coal Measures, Ohio, p. 109, pl. iv, figg. 5-8; CLARKE, t. c. **n. sp.**
- Streptocephalus neumanni*, Galla country, p. 371, pl. xiii; THIELE, Zool. Jahrb. Syst. xx, **n. sp.**

## b. CLADOCERA.

[See also BROWNE & VALLENTIN (26), CLEVE (43), CUNNINGTON (48), ENTZ (57), KANE (100), LINDER (114), LOŠKO (118), MAR. BIOL. ASS.

(125), MONTI (136), PAVESI (155), †RANGE (163), SKORIKOW (197), SPRAGUE (202), STINGELIN (216), WESENBERG-LUND (234), ZACHARIAS (249), ZYKOFF (253, 254 & 256).]

Seasonal distribution in East Norfolk; GURNEY, Tr. Norfolk Soc. vii, p. 656.

*Aeroperus harpæ* var. *frigida* n. var. p. 23, text-figg. A & B; EKMAN, Zool. Jahrb. Syst. xxi.

*Alona cambouei*, p. 633, figg. 6a-d; SARS, Zool. Jahrb. Syst. xix: *A. acuticostata*, var. *tridentata* n. var. p. 349, pl. xii, figg. 18 & 19, *verrucosa*, var. p. 350, pl. xii, figg. 20 & 21, *intermedia*, var. *minor* n. var. p. 351, pl. xii, fig. 22, *davidi*, p. 352, pl. xii, fig. 23; STINGELIN, op. cit. xxi.

*A. novæ-zealandiæ*, New Zealand, p. 634, figg. 7a & b; SARS, op. cit. xix, n. sp.

*Alonella sculpta*, p. 353, pl. xii, figg. 24 & 25, var. *insulcata* n. var. p. 354, pl. xii, fig. 26, pl. xiii, figg. 27 & 28; STINGELIN, op. cit. xxi.

*A. breviceps*, Siam, p. 354, pl. xiii, figg. 29 & 29a; STINGELIN, t. c. n. sp.

*Bosmina coregoni gibbera*, male, p. 564, text-fig.; KEILHACK, Zool. Anz. xxvii.

*B. meridionalis*, New Zealand, p. 631, figg. 3a-c; SARS, Zool. Jahrb. Syst. xix: *B. hagmanni*, Amazons, p. 582, pl. xx, figg. 5 & 6; STINGELIN, op. cit. xx: n. spp.

*Bosminopsis deitersi*, Amazons, p. 584, pl. xx, figg. 7-10; STINGELIN, t. c.

*Bythotrephes longimanus*, structure of eye, p. 138, pl. ii; EKMAN, op. cit. xxi.

*Campocercus australis* var. p. 347, pl. xii, fig. 17; STINGELIN, t. c.

*Ceriodaphnia asperata*, p. 650, text-fig. 3; MEISSNER, Zool. Anz. xxvii: *C. dubia*, p. 631, figg. 2a & b; SARS, Zool. Jahrb. Syst. xix: *C. cornuta*, p. 339, pl. xi, figg. 9-11; STINGELIN, op. cit. xxi.

*Chydorus barroisi* var. *lævis* n. var. p. 636, figg. 9 & 9a; SARS, op. cit. xix: *C.*, variation in Indian region, p. 357, pl. xiii, figg. 32 & 33, *sphaericus* var. *parvus*, p. 359, pl. xiii, fig. 34; STINGELIN, op. cit. xxi.

*C. robustus*, Sumatra, p. 360, pl. xiii, figg. 35-38; STINGELIN, t. c. n. sp.

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- 1904, ii: *M. cornuta*, Turkestan, p. 508, figg. on pls. xxviii & xxix; DADAY, Zool. Jahrb. Syst. xix: *M. schauinslandi*, New Zealand, p. 632, figg. 4a & b; SARS, Zool. Jahrb. Syst. xix: **n. spp.**
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- †*Cypridina antiqua*, Ordovician (?), Canada, p. 438, text-fig. 1; JONES, Geol. Mag. (5) i, **n. sp.**
- Cypris ornata*, Britain, p. 126, pl. vii, fig. 39; BRADY, P. Zool. Soc. London 1904, ii.
- C. inermis*, p. 125, pl. viii, figg. 44-49, *aratra*, p. 125, pl. vii, figg. 34-38, Natal; BRADY, t. c. **n. spp.**
- †*Cyprosina* sp., p. 312, pl. xvi, fig. 4, pl. xvii, fig. 1; CHAPMAN, P. Soc. Victoria xvii.
- †*Cythere drupacea* var. *fortior* **n. var.**, p. 199, pl. xxiii, figg. 3a, b, *corrosa* var. *grossepunctata* **n. var.**, p. 200, pl. xxiii, figg. 5a, b; CHAPMAN, op. cit. xvi.
- †*C. lobulata*, Jurassic, W. Australia, p. 199, pl. xxiii, figg. 4a, b; CHAPMAN, t. c.: †*C. clarkana*, p. 98, pl. xxxv, figg. 1-10, var. *minuscule* **n. var.**, p. 99, pl. xxxv, figg. 11-14, *planibasalis*, p. 99, pl. xxxviii, figg. 1-3, *calverti*, p. 100, pl. xxxviii, figg. 11-13, *inæquivalvis*, p. 101, pl. xxxv, figg. 15-17, *plebeia*, p. 102, pl. xxxv, figg. 20-29, var. *modica* **n. var.**, p. 103, pl. xxxv, figg. 18 & 19, var. *capax* **n. var.**, p. 103, pl. xxxv,

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- Cythereis sicula*, p. 525, pl. xxx, figg. 123-142; DADAY, Zool. Jahrb. Syst. xix : †*C. cornuta* var. *americana* **n. var.**, p. 122, pl. xxxvii, figg. 29-33; ULRICH & BASSLER, Maryland Geol. Survey, Miocene, 1904.
- †*C. alaris*, Miocene, Maryland, p. 123, pl. xxxviii, figg. 34-36; ULRICH & BASSLER, t. c. **n. sp.**
- †*Cytheridea longicaudata*, Cretaceous, Pondoland, p. 234, pl. xxix, fig. 21; CHAPMAN, Ann. S. African Mus. iv (5) : †*C. subovata*, p. 124, pl. xxxvii, figg. 1-8, *chesapeakensis*, p. 125, pl. xxxvii, fig. 9, Miocene, Maryland; ULRICH & BASSLER, Maryland Geol. Survey, Miocene, 1904 : **n. spp.**
- †*Cytherideis ashermani*, p. 126, pl. xxxvii, figg. 10-16, *cylindrica*, p. 126, pl. xxxvii, fig. 17, *subaequalis*, p. 127, pl. xxxvii, fig. 28, *semicircularis*, p. xxxvii, figg. 18-20, *longula*, p. 128, pl. xxxvii, figg. 21-27; ULRICH & BASSLER, t. c. **n. spp.**
- †*Cytheropteron australiense*, Jurassic, W. Australia, p. 203, pl. xxiii, figg. 7a, b; CHAPMAN, P. Soc. Victoria xvi : †*C. elongato-concentricum*, Cretaceous, Pondoland, p. 235, pl. xxix, figg. 23, 23a; CHAPMAN, Ann. S. African Mus. iv (5) : †*C. nodosum*, Miocene, Maryland, p. 129, pl. xxxviii, figg. 37-40; ULRICH & BASSLER, Maryland Geol. Survey, Miocene, 1904 : **n. spp.**
- Eucandona stummeri*, Turkestan, p. 515, pl. xxix, figg. 98-111; DADAY, Zool. Jahrb. Syst. xix, **n. sp.**
- †*Isochilina labrosa*, p. 299, pl. xvi, figg. 3a, b; CHAPMAN, P. Soc. Victoria xvii.
- Limnocythere dubiosa*, p. 521, figg. on pls. xxix & xxx, 5 text-figg.; DADAY, Zool. Jahrb. Syst. xix.
- †*Loxoconcha elongata*, p. 200, pl. xxiii, figg. 2a, b, *jurassica*, p. 201, pl. xxiii, figg. 6a, b, Jurassic, W. Australia; CHAPMAN, P. Soc. Victoria xvi, **n. spp.**
- †*Macrocypris simplex*, p. 233, pl. xxix, figg. 22a, b; CHAPMAN, Ann. S. African Mus. iv (5) : †*M. vinei* (?), p. 310, pl. xiv, figg. 7a-c; CHAPMAN, P. Soc. Victoria xvii.
- †*M. flexuosa*, Silurian, Victoria, p. 309, pl. xiii, fig. 6; CHAPMAN, t. c. **n. sp.**
- †*Paradoxorhyncha* **n. g.** (near *Cytheropteron*), p. 202, *foveolata*, Jurassic, W. Australia, p. 202, pl. xxiii, figg. 1a, b; CHAPMAN, op. cit. xvi, **n. sp.**
- Potamozypris almásyi*, Turkestan, p. 519, pl. xxix, figg. 89-97; DADAY, Zool. Jahrb. Syst. xix, **n. sp.**
- †*Primitia trigonalis*, p. 300, pl. xv, figg. 8a-c, *punctata*, p. 301, pl. xiii, figg. 2a-c, *matutina*, p. 302, pl. xiii, figg. 5a-b, *reticristata*, p. 303, pl. xiii, figg. 7a-c, *obsoleta*, p. 303, pl. xiii, figg. 8a-c, *elongata* var. *nuda*, p. 304, pl. xiv, figg. 3a-c, *paucipunctata*, p. 305, pl. xiv, figg.



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- +*P. subtrigonalis*, p. 301, pl. xiii, figg. 1a-c, *semicultrata*, p. 301, pl. xiii, figg. 4a-c, *halli*, p. 304, pl. xiv, figg. 2a-c, Silurian, Victoria; CHAPMAN, t. c. **n. spp.**
- Stenocypris chevreuxii*, Britain, p. 127, pl. viii, figg. 58-62; BRADY, P. Zool. Soc. London 1904, ii.
- S. perarmata*, Natal, p. 126, pl. viii, figg. 50-57; BRADY, t. c. **n. sp.**
- +*Xestoleberis wrightii* var. *oblonga* **n. var.**, p. 308, pl. xv, figg. 1a & b; CHAPMAN, P. Soc. Victoria xvii.
- +*X. holliana*, p. 306, pl. xiii, figg. 3a-c, *lilydalensis*, p. 307, pl. xiv, figg. 1a-c, 5a-c, 8a, b, Silurian, Victoria; CHAPMAN, t. c. **n. spp.**

## 5. CIRRIPEDIA.

- [See also †COUFFON (45), †DENNANT & KITSON (52), †FOX-STRANGWAYS (59), GRUVEL (72-75), †HOLMES (90), †JUKES-BROWNE (96), MAR. BIOL. ASS. (125), NOBLE (145), PATIENCE (152), STEAD (205).]
- Revision of Cirripedia with figg. and descr. of all recent spp.; GRUVEL, Monogr. Cirrhipèdes.
- Thecostraca* **n. nom.** for *Cirripedia*; GRUVEL, t. c.
- Acrothoracica* **n. nom.** for *Abdominalia* Darwin; GRUVEL, t. c.
- Alcippe lampas*, anatomy; GENTHE, Zool. Jahrb. Syst. xxi, pp. 181-200, pls. xi & xii.
- Balanus* sp., in nearly fresh water, Norfolk, p. 645; GURNEY, Tr. Norfolk Soc. vii: †*B. concavus*, Miocene, p. 293, text-figg. 1-3; CUSHMAN, Amer. Geol. xxxiv: †*B. concavus*, p. 94, pls. xxxiii & xxxiv; MARTIN, Maryland Geol. Survey, Miocene, 1904: †*B. sp.*, Miocene, S. Russia, p. 72, pl. iv, figg. 51-54; MIKHAILOVSKY, Trudui geol. Kom. xiii.
- Lepas pectinata*, Cypris stage, p. 42, text-figg. 3-7; STEBBING, Tr. Linn. Soc. London (2) Zool. x.
- Pæcilasma aurantium*, anatomy and later larval stages; HOFFENDAHL, Zool. Jahrb. Anat. xx, pp. 363-398, pls. xxiii-xxvi.
- +*Pollicipes siluricus*, Utica shale, New York, p. 578, pl. ii, figg. 16-24; RUEDEMANN, Rep. N. York Mus. liv (3), **n. sp.**
- Proteolepas hanseni* (descr. from larvæ), Trieste, p. 228; STEUER, Zool. Anz. xxviii, **n. sp.**
- Sacculina carcini*, early stages of development; ABRIC, C.R. Ac. Sci. cxxxix, pp. 430-432.
- Scalpellum pollicipedoides*, near Jedan Ids., p. 92, figg. 4-6, *aries* (not descr.), p. 92; HOEK, P. Ak. Amsterdam vii, **n. spp.**
- +*Turrilepas* (?) *filosus*, Utica shale, New York, p. 577, pl. ii, figg. 13-15; RUEDEMANN, Rep. N. York Mus. liv (3), **n. sp.**

## GIGANTOSTRACA

(XIPHOSURA, TRILOBITA, EURYPTERIDA).

## I. TITLES.

1. AGNUS, —. *Palæoblattina douvillei*, considéré d'abord comme un Insecte est un point générale de Trilobite. C.R. Ac. Sci. cxxxviii, pp. 398 & 399.
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3. BOLTON, H. The Palæontology of the Lancashire Coal Measures. Tr. Manchester Geol. Soc. xxviii, pp. 378-415 & 578-650.
4. CARLSON, A. J. The nervous origin of the heart-beat in *Limulus*, and the nervous nature of co-ordination or conduction in the heart. Amer. J. Physiol. xii, pp. 67-74, 1 text-fig.
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12. GRIFFITH, JOHN. Some Rhondda cairns. Tr. Cardiff Soc. xxxvi, pp. 118-125, pls. i-iv. [Telson of Gigantostracan found in burial place of Bronze Age.]
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17. KITTL, ERNST. Geologie der Umgebung von Sarajevo. Jahrb. geol. Reichsanst. liii, pp. 515-738, 1 map, pls. xxi-xxiii, & 47 figg. in text.

18. MAILLEUX, EUGÈNE. Quelques mots sur les Trilobites du Couvinien des environs de Couvin. Bull. Soc. Belge Geol. xvii, Pr.-verb. pp. 579-582, 1 text-fig.
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## II. SUBJECT-INDEX.

Physiology of heart in *Limulus*; CARLSON (4).

Bicaudate abnormality in *Limulus*; SMITH (24).

Telson of undetermined Gigantostracan found in burial place of Bronze Age; GRIFFITH (12).

*Palæoblattina douvillei*, described as an Insect, is part of an Asaphid Trilobite; AGNUS (1).

## III. DISTRIBUTION.

Jurassic, Solnhofen Limestones, *Limulus*; WALTHER (27).

Palæozoic, Niagara region, *Trilobita* and *Eurypterida*; GRABAU (11).

Permian, Kansas, *Prestwichia*, n. sp.; BEECHER (2).

Carboniferous, Lower Culm, Devonshire, *Trilobita*; HIND (15): Culm, Sarajevo, *Trilobita*, n. sp.; KITTL (17): Culm, S. Germany, *Trilobita*; PARKINSON (20): Coal Measures, Lancashire, *Xiphosura*; BOLTON (3).

Devonian, Cornwall, *Trilobita*; FOX (10): Couvin, *Trilobita*, n. sp.; MAILLEUX (18): Moravia, *Trilobita*; SMYČKA (25): Upper Devonian, Condroz, *Eurypterida*; DESTINEZ (7): Middle Devonian, "Iberger kalk," *Trilobita*; HARBORT (13).

Silurian and Cambrian, Kinnekulle, Sweden, *Trilobita*; HOLM (16).

Silurian, *Trilobita*; WALCOTT (26): Haverfordwest, *Trilobita*, n. sp.; REED (22): Haverfordwest, *Trilobita*; REED (23): Silurian, Girvan, Ayrshire, *Trilobita*, n. spp.; REED (21): Gothland, *Trilobita*, *Eurypterida*;

MUNTHE (19): Silurian, Spiti, Himalayas, *Trilobita*; HAYDEN (14): Upper Silurian or Old Red Sandstone, undetermined Gigantostracan; GRIFFITH (12): Lower Silurian, Venezuela, *Trilobita*, n. sp.; DREVERMANN (8): Salina, New York, *Xiphosura*, n. sp.; CLARKE (5).

Cambrian, Portugal, *Trilobita*, n. spp.; DELGADO (6): Spiti, Himalayas, *Trilobita*; HAYDEN (14): Cambrian (?), Tasmania, *Trilobita*, n. sp.; ETHERIDGE (9).

#### IV. SYSTEMATIC.

##### XIPHOSURA.

[See also †BOLTON (3), †WALTHER (27).]

*Limulus*, physiology of heart; CARLSON, Amer. J. Physiol. xii, pp. 67-74, 1 text-fig.: *L. polyphemus*, abnormal specimen; SMITH, Tufts Coll. Stud. No. 8, pp. 379-382, 1 text-fig.

†*Prestwichia signata*, Permian, Kansas, p. 23, fig. 1; BEECHER, Amer. J. Sci. (4) xviii, n. sp.

†*Pseudoniscus roosevelti*, Salina, New York, p. 89, pls. i & ii, figg. 1-3; CLARKE, Rep. N. York Mus. liv (1), n. sp.

##### †TRILOBITA.

[See also AGNUS (1), GRABAU (11), HAYDEN (14), HIND (15), HOLM (16), MUNTHE (19), PARKINSON (20).]

*Acidaspis pigra*, p. 477, pl. xxiii, figg. 1, 1a-c; HARBORT, Zeitschr. Deutsch. geol. Ges. lv (4).

*Arethusina konincki*, p. 83, pl. xi, figg. 14 & 15; REED, Tril. Girvan ii.

*Asaphus* sp., p. 49, pl. vii, fig. 9; REED, t. c.: *A. (Isotelus) emoryi*, type specimen re-figured; WALCOTT, Pal. Univ. Fasc. ii, pl. 28.

*Bohemilla* sp., p. 53, pl. viii, fig. 4; REED, Tril. Girvan ii.

*Bronteopsis scotica*, p. 94, pl. xiii, figg. 5-13; REED, t. c.

*B. armillanensis*, Silurian, Ayrshire, p. 92, pl. xiii, figg. 1-4; REED, t. c. n. sp.

*Bronteus granulatus*, p. 483, pl. xxiv, figg. 1-7, *flabellifer*, p. xxiv, fig. 8; HARBORT, Zeitschr. Deutsch. geol. Ges. lv (4): *B. andersoni*, p. 87, pl. xii, figg. 8-11, sp. ind. p. 91, pl. xii, fig. 15, sp. ind. p. 91, pl. xii, fig. 16; REED, Tril. Girvan ii.

*B. craigensis*, p. 89, pl. xii, figg. 12 & 13, *grayi*, p. 90, pl. xii, fig. 14, Silurian, Ayrshire; REED, t. c. n. spp.

*Calymmene senaria*, Lower Silurian, Venezuela, p. 91, pl. x, fig. 2; DREVERMANN, N. Jahrb. Min. 1904 (1), n. sp.

*Cyclopyge armata*, p. 51, pl. vii, figg. 11-14, pl. viii, fig. 1, *rediviva*, p. 52, pl. viii, figg. 2 & 3; REED, Tril. Girvan ii.

*Cyphaspis ceratophthalma*, p. 479, pl. xxiii, figg. 3, 3a, 4, 4a, 5, 5a-c, *convexa*, p. 482, pl. xxiii, figg. 2, 2a-c; HARBORT, Zeitschr. Deutsch. geol. Ges. lv (4): *C. megalops*, p. 82; REED, Tril. Girvan ii.

*Dikecephalus florentinensis*, Cambrian (?), Tasmania, p. 25, pl. x, fig. 4; ETHERIDGE, Rec. Austral. Mus. v (2), n. sp.

*Encrinurus multisegmentatus*, p. 387, pl. xii, fig. 5; REED, Geol. Mag. (5) i.

*Hicksia* n. g. (near *Liostracus*), p. 327, *elvensis*, p. 333, figg. on pls. i, ii, iv & v, *spherica*, p. 335, figg. on pls. i-vi, *transtaganensis*, p. 337, figg. on pls. i, ii, v, vi, *walcotti*, p. 338, figg. on pls. ii-v, *castroi*, p. 340, figg. on pls. i, v, vi, *hughesi*, p. 341, figg. on pls. ii, v, vi, *barroisi*, p. 342, figg. on pl. ii, *dewalquei*, p. 343, figg. on pls. i, ii, v, *minuta*, p. 344, figg. on pls. ii & v, Cambrian, Portugal; DELGADO, Commun. geol. Portugal v, n. spp.



- Homalonotus barratti*, p. 753, text-fig. ; Fox, Tr. geol. Soc. Cornwall xii.
- Ilænus æmulus*, p. 54, pl. viii, fig. 5, var. p. 55, pl. viii, figg. 6-11, *barriensis*, p. 58, pl. ix, figg. 1 & 2, *bowmani*, p. 59, var. *longicapitatus*, p. 60, *davisi*, p. 60, *latus*, p. 63, pl. ix, figg. 6 & 7, *macallumi*, p. 65, pl. ix, figg. 8 & 9, *murchisoni*, p. 65, pl. ix, figg. 10 & 12, *nexilis*, p. 66, pl. ix, fig. 13, *portlocki*, p. 67, pl. ix, figg. 14 & 16, pl. x, figg. 1 & 1a, *thomsoni*, p. 70, pl. x, figg. 6-8, sp., cf. *oculosus*, p. 71, pl. x, figg. 9-11, sp., cf. *perovalis*, p. 72, pl. x, fig. 12, sp. ind. p. 73, pl. x, fig. 13 ; REED, Tril. Girvan ii.
- I. balclatchiensis*, p. 56, pl. viii, figg. 12-16, *extensus*, p. 61, pl. ix, figg. 3-5, *shallochensis*, p. 68, pl. x, figg. 2-5, Silurian, Ayrshire ; REED, t. c. **n. spp.**
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- Menocephalus? (Tornquistia)* sp., cf. *nicholsoni*, p. 86, pl. xii, figg. 3-7 ; REED, t. c.
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- Olenellus* sp., p. 325, pl. iv, fig. 9, pl. v, fig. 9 ; DELGADO, Commun. geol. Portugal v.
- O. macphersoni*, Cambrian, Portugal, p. 347, figg. on pls. iv-vi ; DELGADO, t. c. **n. sp.**
- Olenopsis* sp., p. 325, pl. i, fig. 8 ; DELGADO, t. c.
- Paradoxides*, aff. *abenacus*, p. 322, pl. i, fig. 10, pl. v, fig. 35, aff. *spinusos*, p. 323, pl. i, figg. 4 & 12, aff. *tessini*, p. 324, pl. i, figg. 7 & 9, pl. vi, fig. 5 ; DELGADO, t. c.
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- P. robertsi*, (?) Silurian, Haverfordwest, p. 106, pl. v ; REED, t. c. **n. sp.**
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[See DESTINEZ (7), GRABAU (11), MUNTHE (19).]

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Morphology of proboscis in *Pipetta* and other *Pycnogonida*; LOMAN (6).  
Morphology of *Pentanzymphon*; HODGSON (3).  
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- Plymouth, Pycnogonida; MAR. BIOL. ASS. (7).  
 Portugal, Pycnogonida; NOBRE (9).  
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 Ceylon, Pycnogonida, n. spp.; CARPENTER (1).  
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 N. W. America, California to Bering Sea, Pycnogonida, n. spp.;  
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 Antarctic, McMurdo Bay, Pycnogonida, n. sp.; HODGSON (3).

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- Tanystylum intermedium*, California, p. 278, pl. xxi, figg. 7-9, pl. xxii, figg. 1-7, pl. xxiii, figg. 1-3; COLE, Harriman Alaska Exp. x, **n. sp.**





# XI. ARACHNIDA

(Including TARDIGRADA AND PENTASTOMIDA).

BY

EUGÈNE SIMON.

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Subclass. *Trilobitæ*.

Grade B. *Nomomeristica*.

Subclass i. *Pantopoda*.

Subclass ii. *Enarachnida*.

Grade (a) *Delobbranchia* n. nom. (*Hydropneusta* Pocock).

Ordo i. *Xiphosura*.

Ordo ii. *Gigantostraca*.

Grade (b). *Eulobbranchia* n. nom. (*Æropneusta* Pocock).

Sectio (a) *Pectinifera*.

Ordo i. *Scorpionidea*.

Subordo. *Apoxyppoda*.

Subordo. *Dionycho-poda*.

Ordo ii. *Pedipalpi*.

Subordo. *Uropygi*.

Trib. i. *Urotricha*.

Trib. ii. *Tartaridæ*.

† This sign when prefixed to a quotation indicates a fossil form or forms. Where the character of a reference is not indicated the words "description" or "descriptive notes" are to be understood.

- Ordo iii. *Aranææ*.  
 Subordo. *Mesothelææ*.  
 Subordo. *Opisthothelææ*.  
 Ordo iv. *Palpigradi*.  
 Ordo v. *Solifugæ*.  
 Ordo vi. *Pseudoscorpiones*.  
 Subordo. *Panctenodactyli*.  
 Subordo. *Hemictenodactyli*.  
 Ordo vii. *Podogona n. nom.* (= *Meridogastra*).  
 Ordo viii. *Opiliones*.  
 Subordo. *Cyphophthalmi*.  
 Subordo. *Mecostethi*.  
 Subordo. *Plagiostethi*.  
 Ordo ix. *Rhynchostomi (Acarî)*.  
 Subordo. *Notostigmata*.  
 Subordo. *Cryptostigmata*.  
 Subordo. *Metastigmata*.  
 Subordo. *Prostigmata*.  
 Subordo. *Vermiformia*.  
 Subordo. *Tetrapoda*;

E. RAY LANKESTER, Quart. J. Micr. Sci. (n. s.) No. 190, xlvi, pt. 2, pp. 165-269, 77 text-figg.

General Classification of Arachnida :

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Ordo. *Scorpiones*.

Subclass ii. *Lipoctena* Pocock.

1. Sect. *Patellata n. nom.*

1. Subsect. *Megoperculata* Börner.

Ordo. *Pedipalpi*.

Ordo. *Aranææ*.

2. Subsect. *Cryptoperculata* Börner.

Ordo. *Meridogastra* Thorell.

Ordo. *Anthracomarti* Karsch (fossil).

Ordo. *Opiliones* Sund.

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2. Sect. *Haplocnemata n. nom.*

Ordo. *Chelonethi* Thorell.

Ordo. *Solifugæ* Sund. ;

C. BÖRNER, Zoologia, Stuttgart, 1904.

General classification of the Arachnida Micrura, key to the orders (*Palpigradi*, *Pedipalpi*, *Aranææ*), p. 143; H. J. HANSEN & W. SORENSSEN, on two orders of Arachnida etc.

Brief account on classification of Arachnida; key to orders p. 14, key to spiders' families p. 26; J. H. COMSTOCK & ANNA B. COMSTOCK, a manual for the study of insects (Arachnida, pp. 12-14, 48 text-figg.).

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Close affinity of *Limulus* and Scorpion; LANKESTER, p. 205, Quart. J. Micr. Sci. (n. s.) No. 190, xlvi, No. 2.

*Archisometrus shelfordi*, Sarawak, p. 1; BORELLI, Boll. Mus. Torino xix, No 477, n. sp.

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 on, p. 110; BIRULA, Bull. Ac. St. Petersb. xix, No. 3 (Oct. 1903),  
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 p. 4, *B. caucasicus przewalskii* Birula, note on, p. 5, *B. martensi* Karsch,  
 note on, p. 6; BIRULA, Annuaire Mus. St Petersb. ix (1904), **n. sp. &**  
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- B. gibbosus* Brullé, note on, p. 295; BIRULA, t. c. (1903).
- B. hottentota minax* L. Koch, from Abyssinia (riv. Niama) p. 443; E. SIMON,  
 Bull. Mus. Paris 1904, No. 7.
- Centrurus hentzi*, Florida (Runnymede and Fort Reed), p. 142; BANKS, P.  
 Ac. Philad. Jan. 1904, **n. sp.**
- †*Eoscorpium sparthensis*, Carboniferous of Rochdale, BALDWIN, p. 525, Tr.  
 Manchester Geol. Soc. xxviii, **n. sp.**
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 viii, 1903, **n. sp.**
- Hemibuthus zarudnyi*, Makran, pr. Ge. p. 75; BIRULA, Bull. Ac. St. Petersb.  
 xix, No. 2 (1903), **n. sp.**
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- Jurus dufoureyus* Brullé, note on, p. 298; BIRULA, Annuaire Mus. St.  
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- Parabuthus liosoma* Hempr. and Ehr., note on, p. 112, *P. liosoma dmitrievi*,  
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 Abyssinia, p. 444; E. SIMON, Bull. Mus. Paris No. 7, 1904.
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- Prionurus crassicauda orientalis* Birula, note on, p. 67, *P. mauritanicus* Pocock, note on, p. 105; BIRULA, Bull. Ac. St. Petersb. xix, Nos. 2 & 3 (1903).
- Rhopalurus borelli* Pocock, pl. iv, figg. 1-3, *R. junceus* Herbst, pl. iv, fig. 4, figured; R. I. POCOCK, Ann. Nat. Hist. Ser. 7, xiii.
- Scorpio smithi* Pocock, from Somaliland, p. 444; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- S. indicus*, embryology; POLJANSKY, Trudui St. Petersb. Obshch. xxxiii, pp. 42. etc.
- Tityus floridanus*, Florida (Key West), p. 142; BANKS, P. Ac. Philad. Jan. 1904, n. sp.
- Uroplectes occidentalis* E. Sim. & *U. fischeri* Karsch, from Centr. Abyssinia, p. 444; E. SIMON, Bull. Mus. Paris 1904, No. 7.

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- II. Subordo *Uropygi* Thorell.
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  - II. Tribu *Holopeltidia* C. Br. (fam. *Thelyphonidae* Lucas).
- III. Subordo *Amblypygi* Thorell (fam. *Tarantulidae*); C. BÖRNER, Zoologica 1904, pp. 1-174, pls. and text-figg.

*Damon medius* Herbst, from Abyssinia (Anton Riv.) p. 443, E. SIMON, Bull. Mus. 1904, No. 7.

*Thelyphonus caudatus*, embryology, SCHIMKEWITSCH, pp. 56-77 and 93-110, Trudui St. Peterb. Obshch. xxxiii.

*Trithyreus*, *Phrynichus*, *Tarentula* and *Admetus*, nomenclature notes, pp. 201-204, K. KRAEPELIN, Zool. Anz. xxviii, No. 6.

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*Palpigradi*, rapp. as suborder to *Pedipalpi*, external and internal morphology of *Kaenia mirabilis* Grassi; C. BÖRNER, Zoologica 1904, pp. 1-174, pls. & text-figg.

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Classification of spiders, historical and systematical, new arrangement of suborders and families, key to suborders, p. 83.

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4. Chalinuræ (Hersiliidae).
5. Polytrichæ (Psechridae, Zoropsidae, Dictynidae (pars), Drassidae, Zodariidae (pars), Clubionidae, Agelenidae (pars), Pisauridae, Lycosidae, Oxyopidae, Senoculidae).



6. Stichotrichiæ (Dictynidæ (pars), Zodariidæ (pars)).
7. Saltigradæ (Salticidæ).
8. Laterigradæ (Thomisidæ).
9. Apneumones (Caponiidæ);

DAHL, F., SB. Ges. naturf. Berlin, pp. 85-120.

General synopsis of spiders' families of Central American fauna; FR. CAMBRIDGE, Arachn.-Aran. ii, Biol. Centr.-Amer., p. 541.

Variability in the number of teeth on the claws of adult spiders, showing their unreliability for systematic description; C. HARTMANN, Biol. Bull. vi, pp. 191-197, 4 text-figg.

Structure and classification of spiders, introductory sketch; A. E. THOMSON, Tr. Manchester Micr. Soc. 1903, pp. 54-70.

### Aviculariidæ.

*Ancylotrypa cornuta*, Cape Colony (Dumbrody), p. 119; PURCELL, Tr. S. African Soc. xv, p. 111, **n. sp.**

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*Cadmon* **n. g.** (typ. *Moggridgea abrahami* Cb.), p. 143, *C. thoracica*, Cape peninsula, p. 144, pl. ix, fig. 1, *C. affinis*, Cape peninsula, p. 146, pl. ix, fig. 2, *C. congener*, Cape peninsula, p. 146, pl. ix, fig. 3, *C. dubia*, Cape peninsula, p. 147, pl. ix, fig. 4; O. P. CAMBRIDGE, Ann. S. African Mus. 1903, iii, pt. 5, **n. spp.** (Incompletely recorded, No. 24, Zool. Rec. 1903.)

*Chilobrachys paviei* E. Sim., p. 271, *C. dyscolus* E. Sim., p. 273, new description; E. SIMON, Mission Pavie iii.

*Clitotrema* **n. g.** p. 444, *zeltneri*, Abyssinia (Mt. Fické), p. 444; E. SIMON, Bull. Mus. Paris, No. 7, 1904, **n. sp.**

*Ctenolophus* **n. g.** (type *Acanthodon kolbei* Purcell), p. 117, key to species, p. 118; PURCELL, Tr. S. African Soc. xv, p. 111.

*Ctenonemus pectiniger* E. Simon = *Harmachastes* Juv., p. 121; PURCELL, t. c. (foot note).

*Harpactirella schwarzi*, Cape Colony (Willomore div.), p. 126; PURCELL, t. c. **n. sp.**

*Idiops pungwensis*, Pungwe river in Portuguese East Africa, p. 116; PURCELL, t. c. **n. sp.**

*Melopæus albostriatus* E. Sim., new description and fig., p. 270, pl. xvi, fig. 1; E. SIMON, Mission Pavie iii.

*Migas paradoxus* L. Koch, from Wanganui, New Zealand, note and text-fig., p. 68; H. R. HOGG, Ann. Nat. Hist. (7) xiii.

*Moggridgea nigra*, Cape Colony, p. 115; PURCELL, Tr. S. African Mus. xv, p. 111, **n. sp.**

*Pelmatorycter pallidipes*, Cape Colony (Matjesfontein), p. 120; PURCELL, t. c. **n. sp.**

*Pisener bicalcaratus*, Centr. Abyss., p. 444; E. SIMON, Bull. Mus. Paris, No. 7, **n. sp.**

*Pterinochilus junodi*, Zoutpansberg, p. 66; E. SIMON, Rev. Suisse Zool. xiii, **n. sp.**

*Spiroctenus pallidipes*, Cape Colony (Worcester div.), p. 121, *S. latus*, Cape Colony (Wellington), p. 125; PURCELL, Tr. S. African Soc. xv, p. 111, **n. spp.**

### Hypochilidæ.

*Ectatosticta australis* E. Sim. 1902 = *Theridion troglodytes* Higgins and Petherd, p. 327; W. J. RAINBOW, Rec. Austral. Mus. v, pt. 5.

*Uloboridae.*

- Avellopsis* **n. g.** p. 128, *capensis*, Cape Colony, p. 128; PURCELL, Tr. S. African Soc. xv, p. 111, **n. sp.**
- Hyptiotes cavatus* Hentz, Eggs and Cocoon of, p. 278, text-fig.; T. H. SCHEFFER, Ent. News Philad. xv.
- Menneus dromedarius*, Cape Colony (King Williamstown), p. 127; PURCELL, Tr. S. African Soc. xv, p. 111, **n. sp.**
- Miagrammopes constrictus*, Natal, p. 130; PURCELL, t. c. **n. sp.**
- M. rimosus* E. Simon, new description, p. 273; E. SIMON, Mission Pavie iii.
- Uloborus californicus*, California (St Helena), p. 351, pl. 39, fig. 35; N. BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
- U. geniculatus* Oliv., from Bermuda Island, p. 273; N. BANKS, Tr. Connect. Ac. xi.

*Dictynidae.*

- Auximus schreineri*, Cape Colony (Hanover), p. 131, pl. x, fig. 1, *A. silvaticus*, Cape Colony, forest at the Knysna, p. 132, pl. x, fig. 2, *A. longipes*, Cape peninsula, p. 132, pl. x, fig. 3; PURCELL, Tr. S. African Soc. xv, p. 111, **n. spp.**
- Dictyna calcarata*, California (San Pedro), p. 342, pl. 40, fig. 42; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
- D. floridana*, Florida (Lake Worth), p. 125; BANKS, P. Ac. Philad., Jan. 1904, **n. sp.**
- D. fuegiana* E. Sim., supp. descrip., p. 84, *D. togata* Allen Gardiner, p. 85; E. SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
- Dictynina* **n. gen.** p. 342, *pallda*, California (Mt. Shasta), p. 342; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
- Dictyolathys californica*, California (Palo Alto), p. 343, pl. 38, fig. 7, pl. 40, fig. 40 & 46; BANKS, t. c. **n. sp.**
- Göldia obscura* Keyserl. = (probably) *Titanoeca patellaris* E. S., p. 86; E. SIMON, Ann. Soc. ent. Belgique xlvi.
- Heterodictyna* **nov. nom.** for *Dictyna* pars, p. 118; F. DAHL, SB. Ges. naturf. Berlin 1904.
- Macrobunus spinifer* Tullgren = *Myropsis bachhauseni* E. S., p. 86; E. SIMON, Ann. Soc. ent. Belgique xlvi.
- Pseudauximus pallidus*, Cape Colony (Hanover), p. 133, pl. x, fig. 4; PURCELL, Tr. S. African Soc. xv, p. 111, **n. sp.**
- Thallumetus acanthochirus*, Punta Arenas, p. 85, *T. colatus*, La Herradura, prov. Coquimbo, p. 85; E. SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**

*Eresidae.*

- Adonea variegata*, Cape Colony, p. 137, pl. x, fig. 7; PURCELL, Tr. S. African Soc. xv, p. 111, **n. sp.**
- Dresserus angusticeps*, Cape Colony, p. 139, pl. x, fig. 9, *D. laticeps*, Cape Colony, Namaqualand div., p. 140, pl. x, fig. 10; PURCELL, t. c. **n. spp.**
- Seothyra fasciata*, Cape Colony, S. W. Kalahari, p. 138, pl. x, fig. 8; PURCELL, t. c. **n. sp.**
- Stegodyphus canus*, Cape Colony, Namaqualand div., p. 134, pl. x, fig. 5, *S. teutoricola*, Cape Colony (Hanover and Eierfontein), p. 135, pl. x, fig. 6; PURCELL, t. c. **n. spp.**

*Filistatidae.*

- Filistata hibernalis* Hentz, from Bermuda Island, p. 268; N. BANKS, Tr. Connect. Ac. xi.

*Leptonetidae.*

- Leptoneta californica*, California (Mt. Diablo, Contra-Costa County), p. 333, pl. 38, fig. 11; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**  
*Physoglenes n. g.* p. 87, *P. vivesi*, Chili, Los Perales, p. 88, text-fig.; E. SIMON, Ann. Soc. ent. Belgique xlviii, **n. sp.**

*Oonopidae.*

- Oonops bermudensis*, Bermuda Islands, p. 269; N. BANKS, Tr. Connect. Ac. xi, text-fig. **n. sp.**

*Sicariidae.*

- Drymusa silvicola*, forest at Knysna, p. 152, pl. xi, figg. 24 & 25, *D. producta*, forest on the mountain side at Swellendam, p. 153, pl. xi, fig. 26, key of the species, p. 154; PURCELL, Tr. S. African Soc. xv, pt. iii, **n. spp.**  
*Loxosceles spinulosa*, Cape Colony (Swellendam div.), p. 140; PURCELL, t. c. **n. sp.**  
*Scytodes montana*, Cape peninsula, p. 141, pl. x, fig. 11, *S. lycosella*, Natal (Rietvlei), p. 142, pl. x, fig. 12, *S. triangulifera*, Prince Albert village, p. 143, pl. x, fig. 13, *S. leipoldti*, Clanwilliam, p. 143, *S. flagellata*, Caledon div., p. 144, pl. x, fig. 15, *S. arenacea*, Orange River, p. 145, *S. testudo*, Cape peninsula, p. 145, pl. x, fig. 17, *S. gooldi*, Cape Colony, p. 146, pl. x, fig. 18, *S. subulata*, St. Helena Bay, p. 147, *S. lyriformis*, Hanover, p. 148, *S. karrooica*, Matjesfontein, p. 148, *S. silvatica*, Knysna forest and Port Elizabeth, p. 148, *S. caffra*, Zululand, p. 149, pl. x, fig. 20, *S. cedri*, Clanwilliam div., p. 149, pl. x, fig. 21, *S. lanceolata*, Hanover, p. 150, pl. x, fig. 22, *S. elizabethæ*, Port Elizabeth, p. 150, pl. x, fig. 23, key to the South African species, p. 151; PURCELL, t. c. **n. spp.**  
*Scytodes longipes* Lucas and *S. fusca* Walck., from Bermuda Island, pp. 268 & 269; N. BANKS, Tr. Connect. Ac. xi.

*Dysderidae.*

- Ariadna dentigera*, Cape Town, p. 154, *A. lightfooti*, Caledon div., p. 155, *A. jubata*, Namaqualand div. (Tsabis), p. 156, *A. kolbei*, Kentani dist. (Transkei), p. 157, *A. bilineata*, Cape Colony, p. 158, *A. karrooica*, Cape Colony, p. 159, *A. capensis*, Cape Pen. (Wynberg Hill), p. 160, *A. segestrioides*, Dumbrody, p. 161, *A. umtalica*, Mashonaland and Bechuanaland, p. 162, *A. scabripes*, Hanover, p. 162, synopsis of the South African species, p. 164; PURCELL, Tr. S. African Soc. xv, pt. iii, **n. spp.**  
*Dysdera crocata* C. Koch, from Bermuda Island, p. 269; N. BANKS, Tr. Connect. Ac. xi.  
*Harpactes drassoides* E. Simon, new descript. and fig., p. 280, pl. v, figg. 1 & 2; R. DE LESSERT, Observ. Ar. du bassin du Léman.  
*Segestriella n. gen.* p. 164, *S. gryllotalpa*, Cape Colony, St Helena Bay, p. 105; PURCELL, Tr. S. African Soc. xv, pt. iii, **n. sp.**  
*Stalita mrázeki*, Montenegro (Lipska pecina cave), p. 2; NOSEK, Arachn. Montenegrina, SB. Böhmisch. Ges. 1903, No. 46, **n. sp.**

*Caponiidae.*

- Caponia spiralifera*, Cape Colony (Hanover), p. 166, pl. xi, fig. 28, *C. karrooica*, Matjesfontein, p. 166, pl. xi, fig. 30, *C. forficifera*, Worcester

- div. (Brandvlei) and Knysna Forest, p. 167, pl. xi, fig. 31, *C. braunsi*, Willowmore, p. 167, pl. xi, fig. 32, *C. capensis*, Cape Peninsula, p. 168, pl. xi, fig. 33, *C. hastifera*, Willowmore, p. 168, pl. xi, fig. 34, *C. simoni*, Worcester, p. 168, pl. xi, fig. 35, key of the species of *Caponia*, p. 169; PURCELL, Tr. S. African Soc. xv, pt. iii, **n. spp.**
- Diploglena n. g.* p. 169, *D. capensis*, Cape Colony, p. 170, pl. xi, fig. 36; PURCELL, t. c. **n. sp.**

### *Prodidomidæ.*

- Prodidomus capensis*, Cape Town, Dumbrody, p. 170, pl. xi, fig. 39, *P. purpurascens*, Cape Penins., p. 171, pl. xi, fig. 40, *P. scaber*, Cape Colony (Prince Albert), p. 172, pl. xi, fig. 42; PURCELL, Tr. S. African Soc. xv, pt. iii, **n. spp.**

### *Drassidæ.*

- Note on genera *Laronia*, *Callilepis* and *Pterotricha*; KULCZYŃSKI, Fragmenta i, p. 548.
- Key to Chilian *Drassidæ*; E. SIMON, Ann. Soc. ent. Belgique xlvi, 1904, p. 88.
- Drassinella n. g.* p. 335, *D. modesta*, California (Santa Catalina Island), p. 335, pl. 39, fig. 33; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
- Drassodes californica* (sic.), California (Downieville), p. 338, pl. 38, fig. 8, pl. 39, fig. 28; BANKS, t. c. **n. sp.**
- D. heeri* Pavesi, note and synonymy., p. 283, pl. v, fig. 5; R. DE LESSERT, Observ. Ar. du bassin du Léman.
- Gnaphosa californica*, California (Claremont), p. 335, pl. 38, fig. 10; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
- G. islandica* W. Sor., new descript. and observ.; W. SÖRENSEN, Ent. Meddel. 1904 (2), 1 heft.
- G. pseudolaponica*, Norway, p. 6; E. STRAND, Forh. Selsk. Christian. 1904, No. 5, **n. sp.**
- G. utahana*, Utah, p. 110; BANKS, J. N. York Ent. Soc., June 1904, **n. sp.**
- Herpyllus angustus*, California (San Pedro), p. 337, pl. 40, fig. 43; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
- H. californicus*, California (Lakeside), p. 110; BANKS, J. N. York Ent. Soc., June 1904, **n. sp.**
- Megamyrmeleon gayi*, Chili (Penaflor), p. 89; E. SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
- Melanophora porteri*, Chili (Los Perales), p. 89; E. SIMON, t. c. **n. sp.**
- Prosthesina præfica* L. Koch, note and syn., p. 289, *P. fortuita* E. Sim., p. 290, pl. v, fig. 4, *P. exigua* Müller, pl. v, fig. 3; R. DE LESSERT, Observ. Ar. du bassin du Léman.
- P. tenera*, Denmark, p. 280; W. SÖRENSEN, Ent. Meddel. 1904 (2) 1 heft. **n. sp.**
- Sergiolus cyaneiventris* E. Simon, note on, p. 122; BANKS, P. Ac. Philad., Jan. 1904.
- Zelotes aprilius*, Maryland, p. 110; BANKS, J. N. York Ent. Soc., June 1904, **n. sp.**
- Z. femoralis*, California, p. 336, pl. 38, fig. 1, *Z. maculata*, California (Claremont), p. 336, pl. 40, fig. 38, *Z. pacifica*, California (Santa Rosa Island), p. 336, pl. 39, fig. 15; BANKS, P. Calif. Ac. iii, No. 13, **n. spp.**



## Zodariidæ.

*Capheris decorata*, Zoutpansberg, p. 66; E. SIMON, Rev. Suisse Zool. xii, 1904, **n. sp.**

*Diores simoni*, Cape Penins., p. 147, pl. 9, fig. 5, *D. cognata*, Cape Penins., p. 149, pl. 9, fig. 6; O. P. CAMBRIDGE, Ann. S. African Mus. iii, pt. 5, **n. spp.**

## Hersiliidæ.

*Hersilia siamensis* E. Sim., new descript., p. 274; E. SIMON, in Mission Pavie iii.

## Pholcidæ.

*Pholcus tipuloides* L. Koch, from Bermuda Island, p. 271; N. BANKS, Tr. Connect. Ac. xi.

## Theridiidæ.

Stridulating organs in several genera of Theridiidæ (Rhomphæa, Argyrodes, Theridion), p. 559, pl. 14, figg. 24-29; KULCZYŃSKI, Fragmenta i.

*Ariamnes corniger* E. Sim., descript. of male, p. 339, text-fig.; E. SIMON, Fauna Hawaiensis iii.

*Coleosoma floridana* (sic) **nov. nom.** for *Coleosoma blandum* Keyserling nec Cambridge; BANKS, P. Ac. Philad., Jan. 1904, p. 128.

*Coscinida triangulifera*, Java, p. 68; E. SIMON, Rev. Suisse Zool. 1904, **n. sp.**

*Diplocephala erythropus* E. Simon, supp. descript. p. 306; R. DE LESSERT, Observ. Ar. du bassin du Léman.

*D. pictipes*, California (Claremont), p. 345; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**

*Enoplognatha maritima* E. Simon, supp. descript., p. 39, pl. v, fig. 7; R. DE LESSERT, Observ. Ar. du bassin du Léman.

*E. molesta*, Cape Colony, p. 149, pl. x, fig. 1, *E. inornata*, Cape Col. (Clanwilliam), p. 151, pl. x, fig. 11; O. P. CAMBRIDGE, Ann. S. African Mus. iii, p. 5, **n. spp.**

*Episimus truncatus* Latr. and *lugubris* E. Sim., note on, p. 549; KULCZYŃSKI, Fragmenta i.

*Euryopsis californica*, California (Los Angeles), p. 345, pl. 39, fig. 23 & 26; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**

*Latrodectus concinnus*, Cape Penins., p. 151, pl. 10, figg. 3 & 4, *L. indistinctus*, Cape Penins., p. 154, pl. 11, fig. 1; O. P. CAMBRIDGE, Ann. S. African Mus. iii, pt. 5, **n. spp.**

*L. tredecim-guttatus* Rossi, from Mt. Fické Abyss.; E. SIMON, Bull. Mus. Paris, No. 7, p. 442.

*L. geometricus* C. Koch, from Bermuda Island, p. 272; N. BANKS, Tr. Connect. Ac. xi.

*Mero* **n. g.** p. 156, *M. quadrimaculata*, Cape Town, p. 157, pl. 11, fig. 4; O. P. CAMBRIDGE, Ann. S. African Mus. iii, pt. 5, **n. sp.** (incompletely Recorded 1903, No. 24)\*.

*Rhomphæa longa*, Herzegovina, p. 533, pl. 14, fig. 1 & 2, KULCZYŃSKI, Fragmenta i, **n. sp.**

*Sphyrrotinus delphini*, Punta Arenas, p. 92; E. SIMON, Ann. Soc. ent. Belgique xlviii, **n. sp.**

\* *Mero quadrimaculata* Cambr. is certainly synonymous with *Cyatholipus quadrimaculatus* E. Simon, Hist. Nat. Ar. t. 1, p. 713.—(Note of Recorder.)

- Teutana lepida*, Cape Penins., p. 154, pl. 11, fig. 2, *T. connexa*, Cape Penins., p. 156, pl. 11, fig. 3; O. P. CAMBRIDGE, Ann. S. African Mus. iii, pt. 5, n. spp.
- Theridion auberti*, Zoutpansberg, p. 67; E. SIMON, Rev. Suisse Zool. 1904, n. sp.
- T. bertkawi* Bösenberg, def. and fig., p. 303, pl. v, fig. 11, 12, 13 & 16; R. DE LESSERT, Observ. Ar. du bassin du Léman.
- T. bösenbergi* n. nom. for *T. bertkawi* Bösenberg præocc.; E. STRAND, Ent. Zeit. xviii, No. 3.
- T. delicatum*, Cape Penins., p. 157, pl. 11, fig. 5, *T. dedux*, Durban, p. 158, pl. 12, fig. 1, *T. purcelli*, Cape Town, p. 159, pl. 12, fig. 2; O. P. CAMBRIDGE, Ann. S. African Mus. iii, pt. 5, n. spp.
- T. floridensis* (sic) n. nom. for *Th. lyra*, Keyserling non Hentz; BANKS, P. Ac. Philad., Jan. 1904, p. 125.
- T. californicum*, California (Mill Valley), p. 344, pl. 39, fig. 34; BANKS, P. Calif. Ac. iii, No. 13, n. sp.
- T. fuegianum* Allen Gardiner, p. 90, n. sp., *T. attritum* and *spinipes* Nicolet, observ. and descript., pp. 91 & 92; E. SIMON, Ann. Soc. ent. Belgique xlvi, 1904.
- T. tepidariorum* C. K., *studiosum* Hentz and *rufipes* Lucas, from Bermuda Island, p. 272; N. BANKS, Tr. Connect. Ac. xi.
- Tricantha tricornis* E. Sim., new descript., p. 150; FR. CAMBRIDGE, Biol. Centr.-Amer. Arachn.-Aran. ii.

### Argiopidae.

- Acacesia*, new defin., p. 502, *A. foliata*, p. 502, pl. 48, figg. 1 & 2; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii.
- Acrosoma calcaratum* O. P. Cambr. = *Keyserlingia cornigera* O. P. Cambr., p. 532; FR. CAMBRIDGE, t. c.
- Amamra* O. P. Cambr. = *Vixia*, p. 485, *A. nigromaculata* O. P. Cambr. = *Epeira clavispina* O. P. Cambr., p. 509; FR. CAMBRIDGE, t. c.
- Araneus* (*Epeira*) *ulrichi* Hahn, p. 363, pl. v, fig. 25, *A. (Singa) pygmaeus* Sund., p. 370, suppl. descript.; R. DE LESSERT, Observ. Ar. du bassin du Léman.
- Aranea nephiloides*, p. 511, pl. 48, fig. 22, *A. smithi*, p. 511, pl. 49, fig. 1, *A. sargi*, p. 511, pl. 49, fig. 2, *A. gravabilis*, p. 511, pl. 49, fig. 4, *A. acutifera*, p. 512, pl. 49, fig. 5, *A. incerta*, p. 512, pl. 49, figg. 7 & 8, *A. dilatata*, p. 513, pl. 49, fig. 9, *A. helveola*, p. 513, pl. 49, fig. 10, *A. pallidula*, p. 514, pl. 49, fig. 13, *A. septemmammata*, p. 514, pl. 49, fig. 15, *A. spinigera*, p. 515, pl. 49, fig. 16, *A. rufipes*, p. 515, pl. 49, fig. 17, *A. detrimentosa*, p. 515, pl. 49, fig. 18, *A. cylindrica*, p. 515, pl. 49, figg. 19 & 20, *A. laticeps*, p. 516, pl. 49, fig. 21, *A. nigropustulata*, p. 516, pl. 49, fig. 22, *A. veniliae*, p. 516, pl. 49, figg. 23 & 24, *A. championi*, p. 517, pl. 50, figg. 1 & 2, *A. mormon*, p. 517, pl. 51, fig. 1, *A. grafica*, p. 518, pl. 51, fig. 2, *A. flava*, p. 518, pl. 51, fig. 3, *A. fasciolata*, p. 519, pl. 51, fig. 5, new descript. and fig., *A. sinistra*, Mexico, p. 510, pl. 48, fig. 21, *A. concolorata*, Panama, p. 511, pl. 49, fig. 3, *A. glabrata*, Panama, p. 512, pl. 49, fig. 6, *A. dilatata*, Guatemala, p. 513, pl. 49, fig. 9, *A. nigrocincta*, Panama, p. 513, pl. 49, figg. 11 & 12, *A. anguinifera*, Mexico, p. 514, pl. 49, fig. 14, *A. cyrtophoroides*, Mexico, p. 518, pl. 51, fig. 4; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii, n. spp.
- Araneus rufipalpis* Lucas, *theisi* Walck., *cereolus* and *strupifer* E. Simon, from Centr. Abyssinia; E. SIMON, Bull. Mus. Paris 1904, No. 7, p. 443.
- A. exsertus*, Gulf of Carpentaria (Morningson Island), p. 102, figg. 26 & 27; RAINBOW, Rec. Austral. Mus. v, pt. 2, n. sp.

- A. singeformis*, Kansas, p. 259, pl. 17, figg. 4, 5, & 6; T. H. SCHEFFER, Ent. News Philad. xv, n. sp.
- Argiope lordi* Cambr., from Harrar, *A. flavipalpis* Lucas, from Belg. Congo; E. SIMON, Bull. Mus. Paris 1904, No. 7, p. 442.
- Argyropeira hortorum* Hentz, from Bermuda Island, p. 273; N. BANKS, Tr. Connect. Ac. xi.
- Bathypantes pallidula* (sic), California (Claremont), p. 346, pl. 40, fig. 45; BANKS, P. Calif. Ac. iii, No. 13, n. sp.
- Carepalxis*, note on, p. 520; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii.
- Centromerus balteatus* E. Simon, suppl. descrip., p. 335, pl. v, fig. 21; R. DE LESSERT, Observ. Ar. du bassin du Léman.
- Cnephalocotes subæqualis* Westring = *Walckenaera fortuita* O. P. Cambr., *Lophomma laudatum* Kulczynski et *Cnephalocotes fuscus* O. P. Cambridge, p. 315; R. DE LESSERT, t. c.
- Cornicularia cuspidata* Bl., p. 9, pl. i, fig. 3; F. P. SMITH, J. Quekett Club 1904, ser. 2, t. ix.
- Coryphæus glabriceps* Fr. Cambridge = *Gongylidium distinctum* E. Simon; F. P. SMITH, p. 111, J. Quekett Club, ser. 2, t. ix.
- Cyclosa*, def. and key of the Centr.-Amer. spp. p. 491, *C. conica*, p. 493, pl. 46, figg. 19 & 20, *C. tuberculifera*, p. 493, pl. 47, fig. 1, *C. culta*, p. 493, pl. 47, fig. 2, *C. lacerta*, p. 494, pl. 47, fig. 3, *C. caroli*, p. 494, pl. 47, fig. 4, *C. furcata*, p. 494, pl. 47, fig. 6, *C. trifida*, p. 495, pl. 47, fig. 7, *C. bifurca*, p. 495, pl. 47, fig. 8, *C. walckenaeri*, p. 495, pl. 47, fig. 9, *C. diversa*, p. 496, pl. 47, fig. 12, *C. clara*, p. 497, pl. 47, fig. 13, *C. fusiformis*, p. 497, new notes and figg., *C. conigera*, Mexico, p. 494, pl. 47, fig. 5, n. sp.; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii.
- C. fissicauda* O. P. Cambr. = *Cyclosa bifurca* McCook, p. 495; FR. CAMBRIDGE, t. c.
- C. cervicula* McCook = *Cyclosa walckenaeri* O. P. Cambr., p. 496; FR. CAMBRIDGE, t. c.
- C. caudata* Hentz, from Bermuda isl., p. 273; N. BANKS, Tr. Connect. Ac. xi.
- Cyrtarachne mexicana* and *C. dugesi* O. P. Cambridge = *Marxia stellata*, p. 481; FR. CAMBRIDGE, t. c.
- C. walleri* Blackw., from Tourkouana, p. 442; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- C. decentuberculata* O. P. Cambr., referred to the gen. *Glyptogona*; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii, p. 523.
- Cyrtophora citricola* Forsk., from river Dongou, p. 442; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- Diplocephalus fuscipes* Blackw., figured, p. 9, pl. i, fig. 4; F. P. SMITH, J. Quekett Club 1904, ix.
- Dicyphus cornutus* Blackw., figured, p. 9, pl. i, fig. 2; F. P. SMITH, t. c.
- Edricus*, def. p. 499, *E. spinigerus*, p. 500, pl. 49, fig. 25, *E. productus*, p. 500, pl. 49, fig. 26, *E. crassicauda*, p. 500, pl. 47, fig. 21; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii.
- Enidia* n. nom. for *Dicyphus* Menge præocc. p. 115; F. P. SMITH, J. Quekett Club, Ser. 2, ix.
- Entelecara acuminata* Wid., figured, p. 9, pl. i, fig. 1; F. P. SMITH, t. c.
- Epeira bifurcata* Keyserl. = *Cyclosa walckenaeri* O. P. Cambr., p. 496, *E. cambridgei* Keyserl. = *E. illicita* O. P. Cambr., p. 506, *E. nava* O. P. Cambr. = *E. scutigera* O. P. Cambr., p. 508, *E. fecunda* O. P. Cambr. = *E. incerta* O. P. Cambr., 512, *E. nigrohumeratis* O. P. Cambr. = *E. detrimentosa* O. P. Cambr., p. 515, *E. dstricta* O. P. Cambr. = *E. consequa* O. P. Cambr., p. 518; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii.
- E. floridensis*, Florida (Miami), p. 129; BANKS, P. Ac. Philad. Jan. 1904, n. sp.

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- E. excelsa* Banks = *Ep. pacifica* McCook, p. 348; BANKS, P. Calif. Ac. iii, No. 13.
- E. mitifica* E. Simon, new description, p. 280; E. SIMON, in Mission Pavie iii.
- Erigoneae*, spiders of the Erigone Group, list of British spp., p. 109; F. P. SMITH, J. Quekett Club, Ser. 2, vol. ix.
- Erigone aries* Kulcz. = *Scotinotylus antennatus* (Cambr.), var., p. 552; KULCZYNSKI, Fragmenta ii.
- E. californica*, California, p. 347, pl. 38, fig. 3; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
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- G. scapha* Gerst., from Choa and Tourkouana, *G. hildebrandti* Karsch, from Madi and Niam-Niams reg.; E. SIMON, Bull. Mus. Paris 1904, No. 7, p. 442.
- G. arcuata* Fabr., pl. 16, fig. 4, *G. propinqua* Cambr., pl. 16, fig. 5, *G. leucomelas* Dol., pl. 16, fig. 3, figured; E. SIMON, in Mission Pavie iii.
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- Nephila femoralis* Lucas, *senegalensis* Walck., *pilipes* Lucas, *cruentata* Fabr. from Abyssinia and Congo, p. 442; E. SIMON, Bull. Mus. Paris 1904, pp. 442.
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- Walckenaera acuminata* Blackw., figured, pl. 1, figg. 7 & 8 ; F. P. SMITH, J. Quekett Club 1904, t. ix.
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- Heteropoda pressula* E. Simon, new descript., p. 285 ; E. SIMON, Mission Pavie iii.
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- Edignatha sima* E. Sim., new descript., p. 286 ; E. SIMON, Mission Pavie iii.
- Olbophthalmus n. nom.* for *Olbus* E. Simon (Hist. Nat. Ar., nec *Olbus* E. Simon 1880), p. 98 ; E. SIMON, Ann. Soc. ent. Belgique xlviii, 1904.
- Olbus*, note on genus, p. 98 (foot note) ; E. SIMON, t. c.
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- Polybetes delfini*, Punta Arenas, p. 99 ; E. SIMON, Ann. Soc. ent. Belgique xlviii, 1904, **n. sp.**
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- Pacificana n. gen.*, p. 65, *P. cockayni*, Bounty isl., p. 66, text-fig. ; H. R. HOGG, Ann. Nat. Hist. (7) xiii, **n. sp.**
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## Pisauridæ.

- Pisauridæ*, key to North Amer. genera, p. 313; MONTGOMERY, P. Ac. Philad. March 1904.
- Dolomedes sexpunctatus* Hentz, suppl. descript., p. 654, pl. 29, fig. 5; MONTGOMERY, t. c. Oct. 1903.
- Dolomedes*, key to North Amer. spp., p. 314, *D. sexpunctatus* Hentz, p. 314, pl. 20, fig. 34, *fontanus* Emerton, p. 316, pl. 20, figg. 35-37, *urinator* Hentz (= *tenebrosus* Hentz, Emerton, Stone), p. 317, *idoneus* Montg., suppl. descript. and synon., p. 319; MONTGOMERY, t. c. 1904.
- Euprosthenops bayoanianus* Br. Cap., from Belg. Congo, p. 443; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- Pisaurina mira* Walckenaer, suppl. descript. and synon., p. 320, MONTGOMERY, P. Ac. Philad. March 1904.

## Lycosidæ.

- Lycosidæ*, key to North American genera, p. 264; MONTGOMERY, P. Ac. Philad. March, 1904.
- Allocosa* n. g. (type *Lycosa funerea* Hentz), p. 113; BANKS, J. N. York Ent. Soc. xii, June, 1904.
- A. degesta*, Louisiana, p. 287; CHAMBERLIN, Canad. Ent. 36, n. sp.
- Aulonia humicola* Montg., supp. descript. p. 265, pl. 20, fig. 33; MONTGOMERY, P. Ac. Philad. March, 1904.
- Geolycosa* n. gen. (type *G. latifrons*), p. 292, key to N. Amer. spp. p. 293, *G. baltimoriana* Keyserl. p. 297, *arenicola* Scudd. (= *L. nidifex* Marx), p. 299, *carolinensis* Walck. p. 299, suppl. descript. and synon., *G. texana*, Texas, p. 293, pl. 18, figg. 13 & 14, *latifrons*, Texas, p. 295, pl. 19, figg. 15-18; MONTGOMERY, t. c. n. spp.
- Lycosa (Trochosa) personata* L. Koch, p. 416, pl. 6, figg. 37 & 38, *L. renidens* E. Simon, p. 420, pl. 6, fig. 46, suppl. descript.; R. DE LESSERT, Observ. Ar. du bassin du Léman.
- L. terricola* var. *pallida*, Montenegro (Bukovica), p. 3; A. NOSEK, Arachn. Monteneg. n. var.
- L. urbana* Cambr., from Madi-Bari and Niam-Niams reg., p. 443; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- L. inominata* E. Simon, new descript. p. 287; E. SIMON, in Mission Pavie iii.
- L. perkinsi*, Sandwich islds., p. 343; E. SIMON, Fauna Hawaiiensis iii, n. sp.
- L. sepulchralis* Montg., p. 645, pl. 19, fig. 1, *charonoides* Montg., p. 646, pl. 19, fig. 7, *nidicola* Emert., p. 647, *avara* Keyserl., p. 650, pl. 19, fig. 2, *pratensis* Emert., p. 651, pl. 19, fig. 8, suppl. descript. and fig., *L. contestata*, Woods Hole, p. 649, pl. 19, fig. 4; MONTGOMERY, P. Ac. Philad. Oct. 1903, n. spp.
- Lycosa*, key to North Amer. spp., p. 277, *L. nigra* Stone, p. 285, *charonoides* Montg., p. 286, *lepida* Keyserl. (= *L. communis* Emert.), p. 287, *punctulata* Hentz, p. 288, *ocreata* Hentz (= *L. stonei* Montg. nec *L. rufa* Keyserl.), p. 288, *scutulata* Hentz, p. 289, *bilineata* Emerton (= *L. ocreata pulchra* Montg.), p. 290, *L. inhonesta* Keyserl. (= *L. nidicola* Emert. and *L. tigrina* McCook), p. 290, *L. relucens* Montg. (= *L. verisimilis* Montg.), p. 292, suppl. descript. and synonymys, *L. enepigynata*, Texas, p. 279, pl. 18, figg. 1 & 2, *insopita*, Texas, p. 280, pl. 18, figg. 3 & 4, *antelucana*, Texas, p. 282, pl. 18, figg. 5 & 6, *McCooki*, Texas, p. 283, pl. 18, fig. 11; MONTGOMERY, P. Ac. Philad. March, 1904, n. spp.
- L. wacondana*, Kansas, p. 260, pl. 17, fig. 7; T. H. SCHEFFER, Ent. News Philad. xv, n. sp.

- L. nidicola* = *L. helluo* Walck., *L. kochi* Emert. and Banks (non Keyserling) = *L. pulchra* Keyserl., *L. purcelli* Montgomery = *L. kochi* Keyserl., synonyms, *L. permunda*, Kansas, p. 286; R. V. CHAMBERLIN, Canad. Ent. 36, n. sp.
- L. angusta* Tullgren = *L. lenta* Hentz, *L. albopuncta* Tullgren = *L. riparia* Hentz, *L. (Pirata) loennbergi* Tullgren = *Sosippus floridanus* E. Simon, p. 121; BANKS, P. Ac. Philad. Jan. 1904.
- L. scutata* Hentz = *L. rabida* Walckenaer, *L. babingtoni* Blackwall = *L. helluo* Walckenaer, synonyms, p. 134, *L. posticata*, Florida, p. 134, *L. hentzi*, Florida, p. 135; BANKS, t. c. Jan. 1904, n. spp.
- L. baltimoriana* Keyserl. and *L. lenta* Hentz, note on, p. 114, *L. apicata*, Arizona and Texas, p. 114; N. BANKS, J. N. York Ent. Soc. xii, June 1904, n. sp.
- L. pacifica*, California, p. 354, pl. 38, fig. 6; N. BANKS, P. Calif. Ac. 3, No. 13, 1904, n. sp.
- L. atlantica* Marx, from Bermuda Isl., p. 274; N. BANKS, Tr. Connect. Ac. xi.
- L. porteri*, Chili (Los Perales), p. 112, *L. delfini*, Chili (Los Perales), p. 113; E. SIMON, Ann. Soc. ent. Belgique xlviii, 1904, n. spp.
- Ocyale atalanta* Aud., from Abyssinia (Mt. Fické), p. 443; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- Pardosa (Lycosa) dunica*, Denmark, p. 321; W. SORENSEN, Ent. Meddel. 1904 (2), heft 1, n. sp.
- P. pedestris* E. Simon, supp. descript., p. 427, pl. 6, fig. 34, *P. schenkeli*, Valais (Arolla), p. 429, pl. 6, figg. 42-44; R. DE LESSERT, Observ. Ar. du bassin du Léman, n. sp.
- P. irretita* E. Simon, new descript., p. 288; E. SIMON, in Mission Pavie iii.
- P. lapidicina* Emerton, p. 262, pl. 19, fig. 6, and *P. pallida* Emerton, p. 653, pl. 19, fig. 3, supp. descript.; MONTGOMERY, P. Ac. Philad., Oct. 1903.
- Pardosa*, key to N. Amer. spp., p. 267, *P. pallida* Emert. p. 271, *lapidicina* Emert. p. 272, *scita* Montg. p. 272, *minima* Keyserl. p. 273, *glacialis* Thorell, p. 274, *groenlandica* Thorell, p. 274, *tachypoda* Thorell, p. 275, *nigripalpis* Emert., p. 275, supp. descript., *P. pauvilla*, Texas, p. 268, pl. 19, figg. 21-23, *P. mercurialis*, Texas, p. 270, pl. 19, figg. 20 & 21; MONTGOMERY, P. Ac. Philad. March, 1904.
- P. bilobata* Tullgren = (probably) *Pirata insularis* Emert. p. 148, *P. emertoni* n. nom. for *P. pallida* Emert., præocc., p. 175, *P. banksi* n. nom. for *P. littoralis* Banks, præocc., p. 175; R. V. CHAMBERLIN, Canad. Ent. xxxix.
- P. bilobata* Tullgren = *Lycosa milvina* Hentz, p. 121, *P. floridana*, Florida (Entreprise), p. 136; BANKS, P. Ac. Philad. Jan. 1904, n. sp.
- P. parvula*, Florida, p. 114, *texana*, Texas, p. 115; BANKS, J. N. York Ent. Soc. xii, June 1904, n. spp.
- P. atromedia*, California, p. 355, pl. 39, fig. 32; BANKS, P. Calif. Ac. 3, No. 13, 1904, n. sp.
- Pirata liber* Montg., supp. descript., p. 654; MONTGOMERY, P. Ac. Philad. Oct. 1903.
- Pirata*, key to N. Amer. spp., p. 309, *P. marxi* Stone (= *P. piraticus* Emerton nec Clerck), p. 309, *elegans* Stone, *nigromaculatus* Montg., p. 310, *liber* Montg., p. 311, supp. descript. and syn., *P. sedentarius*, Texas, p. 312, pl. 19, figg. 28 & 29; MONTGOMERY, P. Ac. Philad. March, 1904, n. sp.
- P. vacourana* Scheffer = *P. agilis*, p. 148; R. V. CHAMBERLIN, Canad. Ent. xxxvi.
- P. aspirans*, Virginia and N. Carolina, p. 286; R. V. CHAMBERLIN, t. c. n. sp.

- P. californica*, California (Coulterville), p. 356, pl. 39, fig. 13; BANKS, P. Calif. Ac. 3, No. 13, **n. sp.**
- Scaptocosa n. gen.* type *Lycosa arenicola* Scudder, p. 113; BANKS, J. N. York Ent. Soc. xii, June, 1904.
- Schizocosa n. gen.* type *Lycosa ocreata* Hentz, p. 177, incl. also *L. venustata* Hentz (= *Pardosa bilineata* Emert. and *Lycosa ocreata pulchra* Montg.), and *L. humuli* Banks; R. V. CHAMBERLIN, Canad. Ent. 36 (p. 148).
- Trochosa singoriensis*, distribution in Hungary; CSIKI, pp. 290–294 & 303, Allatt. Kozl. Magyar Tars. iii.
- Trochosa*, key to N. Amer. spp., p. 301, *T. pratensis* Emert., p. 303, *contestata* Montg., p. 303, *avara* Keyserl., p. 304, *purcelli* Montg. (= *Lycosa kochi* Emert. nec Keyserling + *L. nigraurata* Montg.), *cinerea* Fabr., p. 305, *frondicola* Emert., p. 306, *sepulchralis* Montg., p. 307, *rubicundula* Keyserl. (= *polita* Emert.), p. 307, *sublata* Montg., p. 308, supp. descript. and synonyms, *T. noctambula*, Texas, p. 301, pl. 38, figg. 9 & 10; MONTGOMERY, P. Ac. Philad. March, 1904, **n. sp.**
- Trabaca aurantiaca* Emert., supp. descript., p. 266, pl. 20, figg. 31 & 32, MONTGOMERY, t. c.

### *Oxyopidae.*

- Peucetia arabica* E. Sim., from Abyssinia (Dagota) and *P. casseli* E. Sim., from Congo (Iribou), p. 443; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- Oxyopedon rufocaligatum* E. Sim., from Ogaden, p. 443; E. SIMON, t. c.
- Oxyopes dubourgi*, Madi-Bari and Niam-Niams reg., p. 446; E. SIMON, t. c. **n. sp.**
- O. laminatus* Tullgren = *O. scalaris* Hentz, p. 121; BANKS, P. Ac. Philad. Jan. 1904.
- O. salticus* Hentz, from Bermuda Isl., p. 274; N. BANKS, Tr. Connect. Ac. xi.

### *Salticida.*

- Anoka (Wala) vernalis* Peckh., from Bermuda Isl. p. 274; N. BANKS, Tr. Connect. Ac. xi.
- Attulus histrio* E. Simon, supp. descript. and fig., p. 437, pl. 6, figg. 47 & 48; R. DE LESSERT, Observ. Ar. du bassin du Léman.
- Dendryphantès gallicus n. nom.* for *D. medius* C. Koch and *D. rudis* E. Simon; W. SORENSEN, Ent. Meddel. 1904 (2), heft. 1.
- D. floridanus*, Florida (Altoona), p. 138; BANKS, P. Ac. Philad. Jan. 1904. **n. sp.**
- D. guttatus*, California (Santa Rosa Isl.), p. 358, pl. 41, fig. 51; BANKS, P. Calif. Ac. 3, No. 13, 1904, **n. sp.**
- Epiblemum palpalis* (sic), California (Palo Alto), p. 360, pl. 39, fig. 31; BANKS, t. c. **n. sp.**
- Eremattus n. gen.* type *Marpissa albopilosa* Banks, p. 117; BANKS, J. N. York Ent. Soc. June 1904.
- Evophrys latata*, Chili (Los Perales) p. 114; E. SIMON, Ann. Soc. ent. Belgique xlvi, 1904, **n. sp.**
- Heliophanus dubourgi*, Dougon Valley, p. 446, figg. 1 & 2 (p. 445), *H. didieri*, Madi-Bari and Niam-Niams reg., p. 447, figg. 3 & 4 (p. 446); E. SIMON, Bull. Mus. Paris 1904, No. 7, **n. spp.**
- Icius floridanus* Banks = *Icius wickhami* Peckham, p. 138; BANKS, P. Ac. Philad. Jan. 1904.
- I. texanus*, Texas, p. 116; BANKS, J. N. York Ent. Soc. xiii, June 1904, **n. sp.**

- Menemerus (Tapinattus) melanognathus* Lucas, from Bermuda Isl., p. 275; N. BANKS, Tr. Connect. Ac. xi.
- Metacryba similis*, California (Los Angeles), p. 360, pl. 38, fig. 9; BANKS, P. Calif. Ac. 3, No. 13, 1904, **n. sp.**
- Myrmarachne manducator* Westw., pl. xvi, fig. 8, *M. paviei* E. Sim., new descript. p. 290; E. SIMON, Mission Pavie iii.
- Partona africana*, Centr. Abyss., p. 447; E. SIMON, Bull. Mus. Paris 1904, N. 7, **n. sp.**
- Pellenes pacifica*, California (S. Francisco), p. 359, pl. 39, fig. 37, *P. speciosa*, California (Claremont), p. 359, pl. 40, fig. 39; BANKS, P. Calif. Ac. 3, No. 13, 1904, **n. spp.**
- P. calcaratus*, N. America, p. 117, *P. californicum* (sic), California (San Diego), p. 117, *P. arizonensis*, Arizona, p. 118, *P. tarsalis*, California (San Pedro), p. 118; BANKS, J. N. York Ent. Soc. xii, June, 1904, **n. spp.**
- P. cristatus*, change of marking in the male, p. 32; EMERTON, Psyche xi, 1904.
- Phidippus ferrugineus*, Kansas, p. 258, pl. 17, figg. 2 & 3; T. H. SCHEFFER, Ent. News Philad. 15, **n. sp.**
- Ph. clarconensis* Tullgren = *insolens* Hentz, p. 121, *P. oaklandensis* Tullgren = *cardinalis* Hentz, p. 121; BANKS, P. Ac. Philad. Jan. 1904.
- P. basalis*, Arizona, p. 115; BANKS, J. N. York Ent. Soc. xii, June 1904, **n. sp.**
- Plexippus paykulli* Aud. from Bermuda Island, p. 275; BANKS Tr. Connect. Ac. xi.
- Saitis barbipes* E. Simon, p. 545, p. 14, figg. 15 & 16, new descript. and fig., *S. graeca*, Græcia (Patras and Corfu), p. 545, pl. 14, fig. 17, *S. taurica*, S. Russia, p. 546, pl. 14, fig. 18; W. KULCZYNSKI, Fragmenta i, **n. spp.**
- Sidusa arizonensis*, Arizona, p. 116, *S. borealis*, New York, p. 116; BANKS, J. N. York Ent. Soc. xii, June 1904, **n. spp.**
- Thyene squamata* E. Sim. and *T. bucculenta* Gerst. from Centr. Abyss., p. 443; E. SIMON, Bull. Mus. Paris 1904, No. 7.
- Viciria scoparia* E. Sim., new descript., p. 291; E. SIMON, Mission Pavie iii.

## V. SOLIFUGÆ.

- Dæsia*, key to Asiat. spp., p. 410, *D. rossica*, transcasp. Reg., p. 406, *D. zarudnyi*, S. Persia, p. 408, *D. persica*, S. Persia, p. 409, *D. dmitrievi*, Abyssinia, p. 410, *D. magnifrons*, N. E. Africa, p. 411; A. BIRULA, Annuaire Mus. St. Petersb. ix, 1904, **n. spp.**
- Galeodidae*, classif. of family, p. 391, key to genera, p. 393; BIRULA, t. c.
- Galeodes*, key to Centr.-Asia spp., p. 402, *G. bacillifer* Pocock, n. descript. p. 395, *G. schach*, Teheran, p. 394, *G. caspius przewalskii*, Chinese Turkest., p. 396, *G. bacillatus*, W. Persia, p. 397, *G. setipes*, Centr. As. (Margelhan), p. 398, *G. auronitens*, W. Persia, p. 399, *G. levipalpis*, Ferghanathal, p. 400; BIRULA, t. c. **n. spp.** and **n. subsp.**
- Galeodopsis* **n. gen.** (near *Paragaleodes*), typ. *Galeodes cyrus* Pocock, p. viii; BIRULA, t. c. Nouv. No. 12.
- Glviopsis rufescens persica*, S.W. Persia, p. 412, *nigrocincta*, W. Persia, p. 413; BIRULA, t. c. **n. subsp.** and **n. sp.**
- Paragaleodes fulvipes*, S. Persia, p. 400, *P. melanopygus*, N. Persia, p. 401; BIRULA, t. c. **n. spp.**
- Rhagodes aureus* Pocock, new descript. p. 414, *R. aureus setipes*, W. Persia, p. 415, *R. leucopygus*, W. Persia, p. 415; BIRULA, t. c. **n. subsp.** and **n. sp.**

## VI. CHERNETES (Pseudoscorpiones).

- Atemnus floridanus* Tullgren = *A. elongatus* Banks, p. 141; BANKS, P. Ac. Philad. Jan. 1904.



- Chelifer cimicoides* Fabr., p. 6, *C. cyrneus* L. Koch, p. 8, *C. cancroides* L., p. 11, synonym and description; ELLINGSEN, Norske Pseudosc. ii, 1903.  
*C. cancroides* L. from Abyssinia, p. 444; E. SIMON, Bull. Mus. Paris 1904, No. 7.  
*C. michaelsoni* E. Simon, note on p. 4, *C. echinatus*, S. Patag. p. 2; ELLINGSEN, Boll. Mus. Torino xix, No. 480, **n. sp.**  
*Chernes nodosus*, note on, p. 292; KEW WALLIS, Naturalist 1904.  
*Garypinus patagonicus*, Patag. (Rio Sta Cruz), p. 5; ELLINGSEN, Boll. Mus. Torino xix, No. 480, **n. sp.**  
*Ideobisium*, list and observ., p. 4, *I. strandi* Ell., supp. descript., p. 12; ELLINGSEN, Norske Pseudosc. ii, 1903.  
*Obisium muscorum* Leach, note on, p. 13, *O. brevifemoratatum*, Norway, p. 13; ELLINGSEN, t. c. **n. sp.**

## VII. OPILIONES.

The Order *Opiliones* particularly the suborder *Cyphophthalmi*; general structure of Opiliones with special regard to *Cyphophthalmi* pp. 4-67. Systematic part pp. 75-110; H. J. HANSEN and W. SORENSSEN, On two orders of Arachnida.

*Opiliones*, synopsis of order, groups and families of Central American fauna; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii, p. 548.

*Op. cyphophthalmi.*

*Cyphophthalmi* (suborder), characterization of suborder, p. 86, family *Sironoidæ*, p. 87, subfam. *Stylocellini* consp. gen. p. 88, gen. *Stylocellus* Westw. and consp. spp., p. 88 & 89, *S. beccarii* Th. p. 90, pl. i, fig. 1, *S. thorelli* **n. sp.**, Sumatra, p. 91, pl. i, fig. 2, *S. weberi* **n. sp.**, Sumatra, p. 92, pl. ii, fig. 1, *S. modestus* **n. sp.**, Celebes, p. 93, pl. ii, fig. 2, *S. sulcatus*, Java, p. 94, pl. ii, fig. 3, *S. sumatranus* Westw. p. 96, pl. ii, fig. 4, *S. pococki* **n. sp.**, Borneo, p. 97, pl. ii, fig. 5, gen. *Miopsalis* Thorell, p. 99, *Ogovia* **n. gen.**, p. 99, *O. grossa* **n. sp.**, Ogoué, p. 100, pl. ii, fig. 6, pl. iii, fig. 1, gen. *Pettalus* Thorell, p. 102, *P. cimiciformis* Cambr. p. 102, pl. iii, fig. 2, *P. brevicauda* Pocock, p. 104, pl. iii, fig. 3, *Purcellia* **n. gen.**, p. 105, *P. illustrans* **n. sp.**, p. 106, pl. iii, fig. 4, pl. iv, fig. 1, gen *Siro* Latr., p. 107, *S. rubens* Latr., p. 108, pl. iv, fig. 2, *S. duricorius* Joseph, p. 109, pl. iv, fig. 3, pl. v, fig. 1, *Parasiro* **n. gen.**, p. 110 (typ. *Siro corsicus* E. Sim.), *P. corsicus* E. Simon, p. 111, pl. v, fig. 2; *Gibocellum sudeticum* Stecker, species non existens, pp. 67-75; H. J. HANSEN & W. SORENSSEN, On two orders of Arachnida etc. Cambridge, 1904.

*Op. mecostethi.*

*Cosmetidæ* (fam.), divided into two subfamilies: *Discosominæ* **nov.** et *Cosmetinæ* **nov.**, p. 549; FR. CAMBRIDGE, Biol. Centr.-Amer. Arach.-Aran. ii.

*Cosmetinæ* subfam., key to genera of Centr.-Amer. fauna; id. t. c. p. 550.

*Cynorta*, def. and key to Centr.-Am. spp., pp. 554 & 555, *C. albipunctata*, Costa Rica, p. 556, pl. 52, fig. 9, *C. bipunctata*, Costa Rica, p. 556, pl. 52, fig. 10, *C. biguttata*, Costa Rica, p. 557, pl. 52, fig. 11, *C. bituberculata*, Guatemala, p. 557, pl. 52, fig. 12, *C. longipes*, Costa Rica, p. 557, pl. 52, fig. 13, *C. longispina*, Costa Rica, p. 558, pl. 52, fig. 14, *C. dentipes*, Guatem., Costa Rica, p. 558, pl. 52, fig. 15, *C. annulipes*, Guatemala, p. 558, pl. 52, fig. 16, *C. conigera*, Costa Rica, p. 559, pl. 52, fig. 17; FR. CAMBRIDGE, t. c. **n. spp.**

- Erginoides* n. g. (*Cosmetidae*) p. 553, *E. tarsalis*, Costa Rica, p. 554, pl. 52, fig. 7; FR. CAMBRIDGE, t. c. n. sp.
- Erginus* E. Sim., def. and key to Centr.-Amer. spp., p. 559; FR. CAMBRIDGE, t. c.
- Metacynorta* n. g. (*Cosmetidae*) p. 554, *M. gracilipes*, Guatemala, p. 554, pl. 52, fig. 8; FR. CAMBRIDGE, t. c. n. sp.
- Metavonones*, n. gen. (*Cosmetidae*) p. 553, *M. hispidus*, Mexico, p. 553, pl. 52, fig. 6; FR. CAMBRIDGE, t. c. n. sp.
- Paravonones* n. g. (*Cosmetidae*), *P. biserratus*, Mexico, p. 551, pl. 52, fig. 1, *P. quadratus*, Mexico, p. 551, pl. 52, fig. 2, *P. claviger*, Mexico, p. 552, pl. 52, fig. 3, *P. compressus*, Guatem., Costa Rica, p. 552, pl. 52, fig. 4, *P. incrassatus*, Mexico, p. 553, pl. 52, fig. 5; FR. CAMBRIDGE, t. c. n. spp.
- Sitalces californica* (sic) Banks, pl. 38, fig. 18; BANKS, P. Calif. Ac. iii, No. 13, 1904.
- Systemocentrus quinquedentatus* E. Simon, new descript., p. 295; E. SIMON, Mission Pavie iii.

### *Op. plagrostethi.*

- Acantholophus horridus* Panz. = *A. hispidus* Herbst juv., p. 80, *A. annulipes* L. Koch = *A. dentiger* C. Koch juv., p. 80, *A. kochi* n. nom. for *A. hispidus* E. Simon (non *Phal. hispidum* Herbst), p. 80 (foot-note); W. KULCZYNSKI, Ann. Mus. Hungar. ii, 1904.
- Amopaum* Sor. = *Dicranolasma* juv., p. 77; W. KULCZYNSKI, t. c. 1904.
- Astrobunus argentatus* L. Koch = *A. helleri* Auss. juv., p. 79; KULCZYNSKI, t. c. 1904.
- Caddo glaucopsis*, N. York, p. 254, fig. 4, *C. boopis*, N. York, p. 255; C. R. CROSBY, J. N. York Ent. Soc. xii, No. 4, n. spp.
- Dendrolasma mirabilis* Banks, pl. 38, fig. 17; BANKS, P. Calif. Ac. iii, No. 13, 1904.
- Dicranolasma scabrum* Herbst, age characters, p. 77, pl. 9, figg. 1 & 2; W. KULCZYNSKI, Ann. Mus. Hungar. ii, 1904.
- Egænus ictericus* C. Koch = *E. tibialis* C. Koch juv., p. 80, *E. clairi* E. Sim. = *E. sinister* E. Sim. juv., p. 80; KULCZYNSKI, t. c.
- Gagrella*, sexual and age characters, p. 82, pl. 9, figg. 9, 10 & 11; KULCZYNSKI, t. c.
- Ischyropsalis manicata* L. K., age characters, p. 78, pl. 9, figg. 5 & 6; KULCZYNSKI, t. c.
- Liobunum agile* Canestr = *L. dorici* Can. juv., p. 79; KULCZYNSKI, t. c.
- L. calcar* Wood, note on, p. 256; C. R. CROSBY, J. N. York Ent. Soc. xii, No. 4.
- Metopoctea* E. Sim. = *Trogulus* juv.; KULCZYNSKI, Ann. Mus. Hungar. ii, 1904, p. 77.
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- Ixodes ricinus*, p. 335, *tenuirostris* Neum. p. 336, *acuminatus* Neum. p. 336 parasit. on rats ; G. TIRABOSCHI, Arch. parasit. 1904, text-fig.
- I. pilosus*, note on, p. 291 ; MALLY, Agric. J. Cape Good Hope, t. xxv.

- I. anatis*, N. Zeal. (on *Anas superciliosa*), p. 201, pl. 10; CHILTON, Tr. N. Zealand Inst. xxxvi, **n. sp.**
- I. californicus*, California, Claremont (on *Toxostoma crissale*), p. 269, pl. 41, fig. 57; BANKS, P. Calif. Ac. iii, No. 13, **n. sp.**
- Laelaps elegantulus*, Italy, p. 241 (in nidis *Tapinomadis erratici*); A. BERLESE, Redia i, fasc. ii, **n. sp.**
- L. maximus*, Montevideo (on *Hesperomys vulpinus*), p. 259, *L. spiniferus*, W. Africa, p. 260, *L. pontiger*, Italy, p. 260, *L. stabularis* var. *proxima*, Norvegia (on *Lemnus*), p. 260; A. BERLESE, t. c. **n. spp.** and **n. var.**
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- Laelaps versteegi*, Surinam, parasitic on *Mus*, p. 160; OUDEMANS, Ent. Ber. Nederland. No. 18, **n. sp.**
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- L. stabularis* Koch, *L. echidninus* Berl. p. 342, *L. agilis* Koch. p. 344, parasitic on rats; G. TIRABOSCHI, Arch. parasit. 1904.
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- Lebertia pavesii* R. Monti, new descript., p. 240, *L. papillosa* Piersig, observ., p. 245, *L. longipes*, from Lago Devero (Italy) p. 242, pl.; R. MONTI, Rend. Ist. Lombardo, ser. 2, t. xxxvii.
- Leiognathus blanchardi*, Europa, on *Arctomys marmotta*, p. 558; TROUSSERT, Arch. parasit. viii, No. 4, **n. sp.**
- Leptus autumnalis*, note on, p. 363; FRIES, Munchen Med. Wochenschr. 51.
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- Limnesia cornuta*, p. 143, *paucispina*, p. 152, N. America; WOLCOTT, Tr. Amer. micr. Soc. xxiv, **n. spp.**
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- Macrocheles tridentinus* Can. and *vagabundus* Oudem. synonymy. note, p. 277; A. BERLESE, Redia i, fasc. ii.
- Megalolalaps hirtus*, Brazil on *Neleus interruptus*, p. 261; A. BERLESE, t. c. n. sp.
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- Melichares* Hering, note on, p. 140, *M. agilis* Hering, note on, p. 140; OUDEMANS, Ent. Ber. Nederland. No. 16.
- Metaparasitus suboles* Bremen, p. 655; VOIGTS & OUDEMANS, Zool. Anz. 1904, n. sp.
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- M. spinipes*, Rep. Argent. (prov. Jujuy), p. 296, fig. 3; E. NORDENSKIÖLD, Arkiv Zool. i, n. sp.
- Myobia musculi* Schrank, p. 332, *affinis*, *ensifera* Popp. *lemnisca* C. Koch, p. 332; G. TIRABOSCHI, Arch. parasit. 1904.
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- Myonyssus* n. gen., p. 337, *M. decumani*, p. 337; G. TIRABOSCHI, t. c. n. sp.
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- Myrmoleichus* n. gen., p. 244, for *M. coronatus*, Italy (in nidis formicarum), p. 244; A. BERLESE, t. c. n. sp.
- Myrmonyssus* n. gen., p. 16, *M. diplogeniis*, Italy, p. 16, *M. brachiatus*, Italy, p. 17, *M. acuminatus*, Italy, p. 18; A. BERLESE, Zool. Anz. 1904, n. spp.
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- Oribata californica*, California (Mt. Shasta), p. 367, pl. 41, fig. 52; BANKS, P. Calif. Ac. iii, No. 13, n. sp.
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- Oribates myrmobates*, Italy, p. 25; A. BERLESE, Zool. Anz. 1904, n. sp.

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- Phaulodinychus* **n. gen.** (type *P. repletus* Berl.), p. 269, *P. repletus*, Norvegia, p. 269, *P. simplex*, Italy, p. 269; A. BERLESE, t. c. **n. spp.**
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- Pionia carnea* C. Koch, note on, p. 245; RINA MONTI, *Rend. Ist. Lombardo*, Ser. ii, t. xxxvii.
- Pæcilochirus* Canestrini 1882 = *Iphidiosoma* Berl. 1892 (type *Holoaspis fimetarius* Muller), p. 140, *Pæcilochirus* Berlese (type *Acarus fucorum* de Geer.), p. 140; OUDEMANS, *Ent. Ber. Nederland.* No. 16.
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- Sperchon glandulosus* Koenike, note on, p. 246; RINA MONTI, Rend. Ist. Lombardo, Ser. ii, p. xxxvii.
- Spherolaelaps n. gen.* (*Laelaptidae*) type *Laelaps holotyroides*, p. 243; A. BERLESE, Redia i, fasc. ii.
- Spherolaelaps*, p. 447, *S. holotyroides*, p. 448, pl. 20, figg. 180 & 181, *S. calcariger*, p. 449, pl. 19, fig. 176, pl. 20, figg. 177 & 178; A. BERLESE, t. c.
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- Urophis n. gen.*, p. 245, *U. striatus*, p. 245, *U. scabratus*, p. 245, Italy; A. BERLESE, t. c. **n. spp.**
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- U.*, structure and key to genera, pp. 325-328, text-fig.; A. BERLESE, Redia i, fasc. ii.
- Urobovella n. gen.* (type *Uropoda obovata* C. et B.), p. 249, *U. notabilis*, in nidis formicæ *Lasius niger*; A. BERLESE, t. c. **n. sp.**
- U. obovata*, p. 337, pl. 8, figg. 16, 17 & 18, *notabilis*, p. 338, pl. 8, figg. 24 & 25; A. BERLESE, t. c.
- Uropitella n. gen.* (type *Uropoda paradoxa* Berl.), p. 249, *U. ocatula* p. 250, *U. conspicua*, Italy, *U. minutissima*, Italy and Nederland in nidis formicæ *Lasius niger* and *Tapinoma erraticum*, p. 250, *U. pennsylvanica*, Pennsylvania, in nidis *Formicæ subsericeæ* et *rubræ*, p. 251; A. BERLESE, t. c. **n. spp.**



- U. minutissima villosella*, Russia on *Lasius flavus*, p. 272; A. BERLESE, t. c. **n. var.**
- U.*, charact. and key to spp., pp. 343 & 344, *U. leonardiana*, p. 345, pl. 8, figg. 28 & 29, *U. ovatula*, p. 346, pl. 8, figg. 26 & 27, *U. pennsylvanica*, p. 347, pl. 9, figg. 39 & 40, *U. minutissima*, p. 348, pl. 9, figg. 35, 36, 37 & 38, *U. villosella*, Italy, p. 349, pl. 9, fig. 31 (**n. var.**); A. BERLESE, t. c.
- Uropolyaspis*, p. 384, *U. hamuliferus* Mich. p. 385, pl. 13, figg. 93 & 94; A. BERLESE, t. c.
- Urotrachytes* **n. gen.** (type *Glyphopsis formicariæ* Michael), p. 271; A. BERLESE, t. c.
- U.*, p. 381, *formicarius* Lubb. p. 382, pl. 13, figg. 91 & 92; A. BERLESE, t. c.
- Varroa* **n. gen.** (*Laelaptinæ*), p. 160, *V. jacobsoni*, on *Apis indica* in Java, p. 160; OUDEMANS, Ent. Ber. Nederland. No. 18, **n. sp.**
- V.*, **n. gen.** (?), p. 216, *V. jacobsoni*, Java, p. 217, text-fig.; OUDEMANS, Notes Leyden Mus. xxiv, **n. sp.** (?).
- Zercon trigonus*, p. 268, *Z. ornatus*, p. 269, Italy, *Z. triangularis perforatulus*, p. 269, Italy; A. BERLESE, Redia i, fasc. ii, **n. spp.** and **n. var.**

## X. TARDIGRADA.

Eggs of Tardigrada; RICHTERS, Ber. Senckenberg Ges. 1904.

- Diaphascon spitzbergense*, Spitzberg, p. 172; RICHTERS, Zool. Anz. xxvii, **n. sp.**
- Echiniscus conifer*, Lugano, p. 73, pl. 5, fig. 8; RICHTERS, Ber. Senckenberg. Ges. 1904, **n. sp.**
- E. blumi*, Spitzberg, p. 172, *E. wendti*, Spitzberg, p. 172, *E. oihonnæ*, Spitzberg, p. 172; RICHTERS, Zool. Anz. xxvii, **n. spp.**
- Macrobotus coronifer*, Tromsø, p. 171, *M. coronifer*, p. 171, and *M. echinogenitus*, p. 169, Spitzberg; RICHTERS, t. c. **n. spp.**

## XI. PENTASTOMIDA.

[Vacant.]



# XII. MYRIOPODA AND PROTO- TRACHEATA.

BY

F. SILVESTRI.

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## INTRODUCTION.

THE Record of Myriopoda for 1904 is in number of papers a little less than that for 1903 and contains also less interesting contributions to the knowledge of the group.

Amongst the papers on morphology, that of VERHOEFF (60 & 62) on the legs, and that of BÖRNER (5) on the same subject, are the most important. In anatomy and histology we mention the work of HENNINGS (28) on the Tömösvary-organe, and the research of LEGER & DUBOSCQ (38) on the structure of the intestine of *Julus* and *Polyxenus*. BOUIN (7) continues in 1904 the researches on the germinal cells of Chilopoda; BRÖLEMANN (14) writes on the copulatory appendages of some *Anocheta*.

The physiology of the ventral-nervous system of the Myriopoda has received an interesting contribution in the experiments of CARLSON (16); and HENNINGS (29) contributes also to the knowledge of the hearing-organ in Myriopoda.

The bionomic observations are almost restricted to a publication of HENNINGS (29) on the Glomerids. There are brief notes on the venom of Myriopoda, BRIOT (18), COUPIN (20); on the luminosity, DUBOIS (21).

The systematic index is scanty. The most important increase is in the *Scutigera*, VERHOEFF (64); in the *Cambalidae* there are descriptions of various species of Hawaiian *Dimerogonus* by SILVESTRI (49). ATTEMS (3&4), BRÖLEMANN (10-13), COOK (19), LIGNAU (39), SILVESTRI (52) have described various species and genera of Myriopoda, and SILVESTRI (50) has added also a new family (*Doderiidae*) to the Oniscomorpha with the Italian genus *Doderia*.

In the Prototracheata, BOUVIER (1) has published a very important work on the structure of the eggs.

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- Hylopachyiulus n. subg.* of *Pachyiulus*; ATTEMS, t. c. p. 183.
- Isobates* (?) sp., Central Asia, p. 128; ATTEMS, Zool. Jahrb. Syst. xx.
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- L. andreini*, Erythrea, p. 147, pl. ii, figg. 24-26; BRÖLEMANN, t. c. n. sp.
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- O. severini*, p. 132, pl. i, figg. 11 & 12, *vannutelli*, p. 137, pl. i, figg. 13 & 14, and pl. ii, fig. 15, *Odontopyge* sp., Erythrea; BRÖLEMANN, t. c.
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- Trigoniulus*, def.; BRÖLEMANN, t. c. figg. 7 & 8.
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BY D. SHARP.

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## INTRODUCTION.

THE Record of Insecta is not quite so extensive as that of last year, the number of titles being 1549 against 1716 for 1903. We have numerous important works to record.

HENNEGUY'S general work, "Les Insectes," is up to date and on most points thoroughly reliable; it gives in a concise form the sort of information by the accumulation of which the progress of entomology is greatly affected; and is invaluable as a compendium of subjects that are often but little known to entomologists. A correction of an error in it as regards the question of coloration will be found in Bull. Soc. ent. France 1905, p. 146.

The subject of the Orders of Insects and their classification has been again discussed by HANDLIRSCH (657), HEYMONS (684); other papers on this point are given by BÖRNER (157) and Klapálek (815). Though there is a general consent that the Orders are more numerous than was formerly considered to be the case, the views of the authorities in other respects are very diverse.

SHIPLEY (1291) has proposed that the names of all Orders shall have a uniform termination, and if this result can be attained it will be very valuable. HANDLIRSCH has no less than twelve different terminations in the names of his 34 Orders. If Entomology is to be taught in schools of Zoology it is high time for the question of a uniform terminology for the complex taxonomy of Insecta to be discussed, and our thanks are due to Mr Shipley for his practical method of introducing the point.

DONCASTER (402) gives a preliminary paper on the parthenogenetic development of *Nematus*. Though the subject is of great interest, and will probably enlighten us as to the nature of the earliest processes of ontogeny, yet at present the information is too incomplete to warrant any conclusions.

MARCHAL (906) has given more fully the results of his work on germi-nogony—a term he wishes to replace that of embryonic dissociation. In this he is doubtless correct for the division takes place in the nuclei before the formation of a definite embryo. The work is of a most interesting and important nature.

Miss EMBLETON'S memoir (450) on the anatomy and development of a Chalcid parasite of a scale-insect makes us acquainted with parts of a life-history of a remarkable character. Her accounts of the oogenesis and respiratory changes are particularly interesting, though only fragmentary.

The question of the number of segments from which the head is developed is discussed by RILEY (1173), who concludes that "sclerites originate from mechanical causes and do not necessarily have any relation to the primary segmentation." He admits six segments for the head. The same number is favoured by HOLMGREN (699), but it must be admitted that this conclusion is still hypothetical rather than demonstrated.

HILZHEIMER (686) gives a dissertation on the morphology of the labium and on the anatomy of the hypopharynx in *Hymenoptera*. DICKEL (379) resumes the question as to the nature of entoderm, taking the egg of the bee as his object; and SCHWANGART studies the same question in *Lepidoptera* (1259). VOSS (1461) contributes the first part of a study of the thorax of *Gryllus*, dealing with the skeleton; subsequent parts are to include the development of the wings, a subject that, as he justly remarks, has been greatly neglected in the lower Insects.

VERHOEFF (1435) discusses the morphology of leg and of hypopharynx; and in a postscript announces that morphologists have hitherto been in error as to the maxillæ of Insects; the labium being really the anterior, not the posterior, of the pairs of maxillæ. The same author gives an anatomical study (1434) of *Embiida*, treating them as a suborder of *Isoptera*; and he also amplifies his views as to the structure of the thorax in *Hexapoda*. SCHAUDINN (1224) in his work on the life-history of a parasitic Protozoon, gives an account of the alimentary system and of the mode of feeding of *Culex pipiens*. He inclines to the opinion that the poisonous effect of its bite is due to the enzyme of a commensal fungus. VIGIER (1456) informs us that he has discovered an apparatus of accommodation in the eye of *Aeschna* for seeing at different distances.

RÖSSIG (1189) gives an interesting paper on the formation of galls of *Cynipidæ*, in the course of which he discusses the function of cœnocytes. HOÜARD (719) contributes an extensive paper on the structure of galls; although predominantly botanical it treats of the determinants and is of considerable importance.

Some works on development have already been mentioned, but there are numerous others. The study of cuticula and ecdysis is now being pursued, and we have from PLOTNIKOW (1089) a valuable paper connected with the histology of the subject. ANGLAS (32) makes an important suggestion as to the relation of tracheæ to metamorphosis. BAUER (93) enlarges on the extreme changes that take place post-embryonically in the central nervous system.

DEGENER (358) discusses the changes that take place in the mesenteric region, showing that there is a special pupal epithelium, acting functionally for the digestion or partial digestion of the "yellow-body." POWELL (1104) gives information as to the formation of wings of *Coleoptera* etc.; maintaining that wings are outgrowths of the pleuron or tergum, or both; a conclusion which seems at present the only one consistent with all the evidence that has been obtained. KELLOGG has experimented on larvæ of *Lepidoptera* and confirms the previous observation of Oudemans that extirpation of the sex glands does not affect the development of the secondary sexual characters (781). In metamorphosis see also papers by DEWITZ (377, 378) on the physiology thereof, including coloration and chitinisation, in which he is inclined to extend the importance of enzyme action.

ASHMEAD has nearly or quite completed his classification of the *Hymenoptera* by a huge contribution (41) on the important group *Chalcidoidea*, which he considers includes 14 families. RAFFRAY has published a general work on the *Pselaphidæ* (1114), a family he has made of the first importance. It is a matter for regret that he has been obliged to defer the execution of a monograph for the present. DE MEIJERE'S paper on *Conopidæ* (933) makes a large addition to our previously meagre knowledge of the biology of this curious family of parasitic *Diptera*. BAKER (76) has given a catalogue of fleas complete to date, with information as to works and localities, and has revised the American forms.

Amongst the remarkable events of the year must be placed the discovery in France of a new genus of blind *Dytiscidæ* in a deep well fed by a subterranean spring, ABEILLE (3). This gives considerable support to the idea that Cave faunas have their origin in a hypogeal fauna of which we know little or nothing. An anomalous insect from the nest of a Termite has been described by BREDDIN & BÖRNER (173) and assigned to *Rhynchota* on somewhat unsatisfactory grounds.

Among faunistic work we find the largest contribution in MEYRICK'S Australian *Gelechiidæ* with 207 new species. He estimates the Australian Tineidæ at about 2,000 species—more probably an underestimate rather than the reverse. The publication in complete form of the results of the Harriman Alaska expedition is very welcome. The insects make two nice



volumes: MERRIAM (940). HUTTON's list of the fauna of New Zealand is a work for which we owe our thanks to the author and his collaborators (726): the Insects occupy about 150 pp. JAMES & LISTON *Anopheles* of India is remarkable for the figures of mosquitoes it contains (760). The third part of E. E. GREEN's beautiful work on the *Coccidæ* of Ceylon (620) is devoted entirely to the genus *Lecanium*. The fourth volume of GANGLBAUER's valuable work on European Coleoptera includes a statement of his views as to the classification of this Order (580).

BRÈTHES (181) records some valuable experiments as to the habits of Aculeate *Hymenoptera*; they tend to support Fabre's views as to the skill displayed in stinging the prey. ADLERZ has given a short account of the habits of *Methoca ichneumonoides*, which appear to be of the most extraordinary and unexpected nature (16).

The fact that has given rise to much surprise of the use of larvae by ants for the formation of their nests has now been confirmed by its discovery on the other side of the world, the Messrs Göldi having observed that *Camponotus senex* constructs its nests in this fashion in S. America: FOREL (532). The information given by JACOBSON & WASSILJEW (741) adds to our knowledge of the habits of *Termitidæ*, the founding of a nest of *Hodotermes* having been witnessed and described by JACOBSON. Miss FIELDE & Miss PARKER have given an account (508) of a series of instructive experiments as to the sense of hearing in ants. Perhaps the most interesting of Miss Fielde's papers on ants is that on their power of recognition (506). Mr DWIGHT PIERCE has an interesting ethological article on hypermetamorphic beetles and their hosts, with special reference to the very curious *Myiodites* (1086). SCHWARZ (1260) tells us of a grass that catches insects in great quantities in Cuba. M. PERRAUD (1031, 1032) as the result of experiments is able to state the conditions that should be realised to attract *Lepidoptera* to light.

PACKARD (1006), whose decease will be generally regretted, gives an account of the origin of pattern from the Lamarckian stand-point, and accompanies it with a very sensible criticism of the fashionable theories of mimicry. KUSNEZOV has published an article (849) calling attention to the undeveloped state of the study of the markings of Lepidopterous larvae. ENTZ has a long discussion on mimicry, but unfortunately, as it is in Hungarian few of us can profit by it (466). PIEPERS, who discusses the "tails" of Lepidopterous wings, apparently considers them as relicts from wings of larger size.

In the economic department Prof. J. B. SMITH's work (1315) on mosquito control is the most important production. DYÉ gives (444) a short and easily intelligible account of the relations of *Culicidæ* and their disease-dealing parasites.

Those who are interested in the—perhaps too extensive—chamber of horrors of entomology must not miss the New Congo floor maggot, DUTTON, TODD & CHRISTY (418).

The Polymorphism of ants is discussed by FOREL (525) & EMERY (452); the former of whom expresses a little doubt as to its causation. KELLOGG & BELL contribute a study of variation in 24 species of various Orders, and a discussion of general conclusions (783).

The naming of varieties is at present carried to a great extent, and we have not space to record them all, but we endeavour to point out all that appear to be of real importance. It may perhaps not be superfluous to add that the study of variation is by no means dependent for advancement on the naming of varieties.

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## FAUNISTIC: GEOGRAPHICAL DISTRIBUTION.

N.B.—The numbers in brackets refer to "Titles"; by their means it is intended to give a reference to every memoir containing a notice affecting the entomological fauna of each of the twelve regions here adopted. But synonymical notes and changes of systematic position are not included in these references. In addition to giving references to titles of works that actually add to the faunistic record of a region, there are also comprised references to a large number of works on local fauna, or "stations." In such cases the reference is, as a rule, made direct to the original work, not to our title-numbers, many of these local faunistic notes not being included at all in our list of titles.

In this Faunistic division varieties are not included: neither is a new genus (unless it is also a n. sp.), nor synonymy. When no subordinate locality is mentioned in connection with a memoir, it is to be understood that it refers to several divisions of the region indicated by the immediate subheading.

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 Ancient geography and modern distribution, *Cicindela*, WICKHAM (1526).  
 Summaries of numerous recent faunistic works, SPEISER (1333).  
 N. spp. without locality: see *Hymenoptera*, *Hyptia* & *Gasteruption*,  
*Pristaulacus*. *Colobathristes facetus* cf. *Hemiptera Lygæidæ*.  
*Diptera* *Forficulidæ*, see *Orthoptera Forficulidæ*.

## 1. ARCTIC AND ANTARCTIC.

FAUVEL (485); New South Georgia, n. g. *Staphylinidæ*.  
 Crozet Ids. See Insular.

## 2. INSULAR (including NEW ZEALAND).

Madeira: *Coleoptera*, DESBROCHERS (361), *Laparocerus* sp. n. PETRI  
 (1137), *Lixus* n. sp. *Hymenoptera*, *Formicidæ*, FOREL (531). *Diptera*,  
*Psychodidæ* n. sp., EATON (445).

Canary Ids.: *Hymenoptera*, *Aculeata*, SAUNDERS (1215), 8 spp. n.  
 BERTHOUMIEU (112), *Ichneumonidæ*, 2 spp. n. *Diptera*, BECKER (95),  
*Peletochila* sp. n. *Hemiptera*, REUTER (1169), *Capsidæ*, 4 spp. n.

Galápagos: *Lepidoptera Perixera* sp. n., WARREN (1476).

Hawaiian Ids.: *Collembola*, CARPENTER (243). *Thysanura*, SILVESTRI  
 (1297). *Mallophaga*, KELLOGG & CHAPMAN (784). *Macrolepidoptera*,  
 MEYRICK (947, 948). *Hemiptera*, KIRKALDY (809), 6 spp. n. *Coc-*  
*cidæ*, KIRKALDY (810).—See also New Zealand, ALFKEN.

"Oceania": *Hesperiidæ*, *Corone* n. sp., MABILLE (898).

Solomon Ids.: *Coleoptera*, JACOBY (749), *Mouhotina* & *Luperodes* n. sp.  
*Lepidoptera*, JORDAN (771), *Caprimima*, sp. n. *Rhopalocera* n. spp.,  
 ROTHSCHILD (1197). *Metallochloa* n. sp., *Xanthomima* n. sp., WAR-  
 REN (1476). *Phasmidæ*, KIRBY (805), *Necroschia*, sp. n.

Rossel Ids.: *Phasmidæ*, KIRBY (805), *Eurycantha*, sp. n.

New Pomerania: *Coleoptera*, WEISE (1504), *Hispidæ*, sp. n.

New Britain: *Coleoptera*, *Hispidæ* n. g., SHARP (1285). *Phasmidæ*,  
 KIRBY (805), *Eurycantha*, sp. n.

Bismarck Archipelago: *Psocidæ* n. g., ENDERLEIN (455).

New Hebrides: *Coleoptera*, *Theca* n. sp., *Hyocis* n. sp., FAUVEL (486).

Tonga Ids.: *Hippoboscidæ* n. sp., SPEISER (1331).

Fiji Ids.: *Hemiptera*, HORVÁTH (714), *Colobathristinæ* n. sp.

Fiji & Samoa: *Lep. Rhop.*, WATERHOUSE (1492).

Marschall Ids., Insecta. *Chrysopa* 1 sp. n., SCHNEE (1232). KEMPNY (785), *Chrysopa* sp. n.

Thursday Ids.: *Phasmidae*, KIRBY (805), *Eurycantha*, sp. n.

Shortland Ids.: *Lepidoptera*, SWINHOE (1364), *Tagiades* n. sp.

New Caledonia: *Coleoptera*, *Buprestidae*, *Tenebrionidae* n. spp., FAUVEL (486). RAFFRAY (1114), *Pselaphidae*, general work.

New Zealand & Hawaiian islands, *Insecta*, ALFKEN (22).

New Zealand: *Insecta*, HUTTON (726). New Zealand, Account of a year's collecting, WALKER (1467).

*Coleoptera*, BROUN (184), 41 spp. n., genn. n. Bounty Is., BROUN (185), *Hydrophilidae* n. g. RAFFRAY (1114) *Pselaphidae* general work, *Eupines* n. sp. *Hymenoptera*, COCKERELL (282) *Leioproctus*, 2 spp. n.

*Lepidoptera*, PHILPOTT (1047) Southern *Lep.* *Diptera*, HUTTON (727),

*Phorocera*, 7 n. spp.—id. *Limnia*, 2 spp. n. (728)—id. (730) Campbell

Is., *Calliphora* n. sp. *Neuroptera*, HUDSON (723), popular work.

*Orthoptera*, REHN (1128), *Ectobia*, sp. n. Chatham Is.: HUTTON (729),

*Pleiopteron*, sp. n.

Falkland Ids.: *Insecta*, VALLENTIN, few species, Mem. Manchester Soc. xlviii, No. 23, pp. 20–22.

Kerguelen Ids., ENDERLEIN (462), n. g. *Anoplura*.

Crozet Ids.: *Coleoptera*, ENDERLEIN (460), *Curculionidae*, 3 spp. n., n. g. *Hemiptera*, ENDERLEIN (461) n. g. *Henicocephalidae*.

### 3. PALÆARCTIC REGION.

(a.) Collective: i.e. papers referring to more than one of the following sub-divisions, c—h.

China, with the exception of Mongolia, is included in "Asia."

*Coleoptera*. ABEILLE (1), Mediterranean and Persia, *Buprest*, spp. n. BERNHAUER (107), *Aleocharini*, part 2, n. spp. DU BUYSSON (214),

Basses Pyrénées and Amurland, *Elateridae*, 4 spp. n. DU BUYSSON (215),

Bagdad, Spain, *Athous* n. sp. DANIEL (343), *Crepidodera*, revision,

2 spp. n. DANIEL & DANIEL (349), 10 spp. n., *Carabidae*, *Elateridae*,

*Curculionidae*, *Bruchidae*, *Chrysomelidae*. DESBROCHERS (361), *Curcu-*

*lionidae*, 18 spp. n. DESBROCHERS (362), revision of *Lixus*, 5 spp. n.

DESBROCHERS (363, 365), Caucasus and N. Persia, *Eusomus*, 4 spp. n.

DESBROCHERS (364), incl. Arabia, *Curculionidae*, 5 spp. n. ESCALERA

(467), Spain and Syria, *Acmaeodera*, 2 spp. n. FAUST (481), incl. Persia,

Arabia, Mongolia, *Cleonides*, many spp. n. FAUVEL (483), Sinai and

Red Sea, *Staphylinidae*, 6 spp. n. FLEISCHER (514), *Scaritides*, tables,

n. spp. FORMÁNEK (534), Astrabad, Syria, Basses Alpes, *Barypithes*,

*Omius*, spp. n. GANGLBAUER (582), Croatia, Slavonia, Servia, *Anoph-*

*thalmus*, *Hydroporus*, *Riolus* n. sp. JACOBSON (740), Manchuria list,

*Anomala* n. sp. JAKOVLEFF (752), Mediterranean and West Asia

incl. Buchara, Persia, *Sphenoptera*, 8 spp. n. KLIMA (820), *Trogo-*

*phleus*, revision, 3 spp. n., Amurland, Corfu and Turkestan. PETRI

(1035), *Lixus* n. sp. PETRI (1036), Siberia, Alexander Mts., *Lixus*

n. sp. PIC (1063), Amurland, *Cerambycidae*, spp. n., Spain, *Dorcadion*

sp. n. PIC (1065), Siberia, Tokat, 9 spp. n. PIC (1068), 6 spp. n.

PIC (1071), Mediterranean, Bagdad, Amurland, *Bryaxis*, *Malacod.*, *Curcul.*

spp. n. PIC (1072), Spain *Dorcadion*, France *Crepidodera*, Taurus

*Chrysanthia* and *Titubæa* n. sp. PIC (1077), 22 spp. n. POPPIUS

(1094), N. Russia, E. Siberia, Mongolia, *Mycetoporus*, *Choleva*, *Eपुरæa*,

*Simploxaria*, *Anatolica*, *Scythis* sp. n. RAFFRAY (1114), *Pselaphidae*

general work. REITTER (1143), notes on localities etc. REITTER

(1144), Pal. including Mongolia, *Saprinus*, 7 spp. n. REITTER (1148),

- Cionus* n. spp. REITTER (1149), Asia Minor, *Eurostus* sp. n., Galicia  
*Aphthona* sp. n. REITTER (1152), 15 spp. n. REITTER (1155),  
 Algeria, *Ammæcius*, Persia, *Lethrus*, *Prosodes*, Afghanistan and Gobi,  
*Acinæoderia*, spp. n. SCHILSKY (1227), incl. Bucharra, *Urodon*, 3 spp. n.  
 SEMENOV (1272), Mongolia and Tibet, *Elaphrus*, 2 spp. n. SEMENOV  
 (1273), localities of various species. SOLARI (1326), E. Europe and  
 Tangier *Curculionidæ*, 8 spp. n. WAGNER (1462), Austria, Corfu, *Apion*,  
 3 spp. n.
- Lepidoptera*. ALFKEN (23), *Prosopis*, 3 spp. n. BERTHOUMIEU (110),  
*Ichneumonidæ*, 11 spp. n. KOKUJEV (827), Corea, *Exetastes*, 2 spp. n.,  
 W. China, *Ichneumonidæ* spp. n., *Braconidæ*, 4 spp. n. KOKUJEV (828),  
 Ural and Transcaucasus, *Ichneumonidæ*, 2 spp. n. KONOW (836), N. &  
 Central Europe, *Lygæonematus* revision, 9 spp. n. KONOW (837), Pal.  
 incl. Saghalin Id. *Sessiliventres*, 15 spp. n. KONOW (834), *Pachynematus*  
 n. spp. KONOW (835), Europe and East Siberia, *Pteronus*, 3 spp. n.  
 MORICE (957), *Colletes*, 6 spp. n. SCHMIEDEKNECHT (1231), Oran,  
 Switzerland, *Ichneumonidæ*, 3 spp. n. Localities for Palearctic *Sphegidæ*,  
 SCHULZ (1254).
- Lepidoptera*. BARTEL (91), Palestine, *Noctuidæ*, 2 spp. n. DIETZE  
 (380), *Eupithecia*, 16 n. spp. FUCHS (572), Sarepta, *Cucullia* n. sp. ;  
 Bornich, *Eriocrania* n. sp. HERZ (680), Korea, *Noctuidæ*, *Geometridæ*,  
 320 spp., 18 spp. n. PÜNGELER (1110), *Noctuidæ* *Geometridæ*, 14 spp. n.  
 ISCHETVERIKOV (1400), Mongolia, *Dasychira* sp. n., *Noctuidæ*, 3 spp. n.  
 TUTT (1413), *Sphingidæ* Catalogue. JOANNIS, *Microlepidoptera* 5 novel-  
 ties, Bull. Soc. ent. France 1904, p. 173.
- Diptera*. BECKER (96), *Lispa* monograph, 9 spp. n. ✓ SPEISER (1330),  
 Europe, Sinai, Smyrna, *Hippoboscidæ*, 2 spp. n.
- Hemiptera*. JAKOVLEFF (754), Siberia, Corea, Turkestan, Mongolia,  
*Heteroptera*, 7 spp. n. JAKOVLEFF (755), Mantchuria, Central Asia,  
 Transcaucasus, *Acanthosoma* sp. n., *Coriomeris*, 2 spp. n. MELICHAR  
 (938), *Membracidæ* and *Cercopidæ*. REUTER (1162), Siberia and Trans-  
 caspian, *Stenodema*, 2 spp. n. REUTER (1169), Germany, Mongolia,  
 Crete, Central Asia, *Capsidæ*, 11 spp. n. MELICHAR (939), *Cicadidæ*.
- Trichoptera*. MORTON (963), *Hydroptilidæ*, numerous localities; Cintra  
 sp. n., Britain sp. n.

(b.) *Europe*, collectively.

- Coleoptera*. GANGLBAUER (580), Central Europe, general work, n. g.,  
 n. spp.
- Hymenoptera*. MAYR (928), Germany and S. Europe, *Chalcididæ*,  
*Proctotrypidæ*, spp. n., *Ormyrus* revision.
- Lepidoptera*. RIESEN makes some corrections to his lists of *Macrolepi-  
 doptera* published in Stettin Ent. Zeit. from 1887 to 1901; Ent. Zeit.  
 Stettin. lxxv, pp. 212-214.
- Diptera*. CZERNY (339), *Helomyza*, 3 spp. n.

(c.) *British Islands*.

## THE FAUNA AS A WHOLE.

**Insecta.** Eddystone lighthouse, CLARKE (279). Disappearance, South-  
 eastern Counties, WEBB, McDAKIN & GRAY (1496). Fire at Wicken fen,  
 VERRALL, p. 112, Ent. Mag. xl.

**Coleoptera.** *Catops sericatus*, novelty, CHAMPION, p. 78, Ent. Mag. xl.  
*Agathidium bodium*, novelty, CHASTER (261). *Calodera nigrata*, novelty,

NEWBERY, p. 251, Ent. Mag. xl. *Aulonium sulcatum*, novelty, POOL (1902).

*Rhynchites sericeus* withdrawn, CHAMPION, p. 79, Ent. Mag. xl.

Introduced Longicorns, BAGNALL, p. 262, Ent. Rec. xvi. Introduction of *Ptinus tectus*, HUDSON-BEARE, p. 4, Ent. Mag. xl. Doubtful or very rare British *Coleoptera*, NEWBERY, pp. 204, 205, Ent. Rec. xvi: HUDSON-BEARE, t. c. pp. 289-291. Doubtful species in the Power collection, NEWBERY, pp. 133, 134, Ent. Mag. xl. *Morimus funereus* in the Docks, ANSORGE, p. 117, Entomologist 1904. *Leptidea brevipennis* as British, WOOD & HOLLAND, Ent. Mag. xl. p. 60. Retrospect of a Coleopterist for 1903, HUDSON-BEARE, Ent. Rec. xvi, pp. 29-31. Ten years captures of new British beetles, DONISTHORPE, pp. 135-143, Tr. Leicester Soc. viii. British nomenclature of *Phytophaga* compared with Bedel, NEWBERY, pp. 80-83, Ent. Rec. xvi. Catalogue of British *Coleoptera*, BEARE & DONISTHORPE (94).

**Hymenoptera.** MORICE continues his notes of the characters of British *Tenthredinidæ*, Ent. Mag. xl, pp. 33 etc.

*Crabro styrius* and *Halictus semipunctulatus*, novelties, SAUNDERS, Ent. Mag. xl, p. 10. *Halictus freygessneri*, novelty, SAUNDERS (1217). *Rhadinocera micans*, novelty, MORICE, p. 100, Ent. Mag. xl.

**Lepidoptera.** *Ceramidia butleri* at Marlborough, MEYRICK, p. 253, Ent. Mag. xl. *P. podalirius*, BRANDE, p. 264, Entomologist 1904, and MEYRICK, t. c. p. 284. TUTT, vol. IV of British *Lepidoptera*, *Sphingidæ* (1413). Curtis coll. at Sydney, nomenclature, WALKER (1468). *Deilephila livornica* in England 1904, Entomologist 1904, pp. 188, 189. *Deilephila livornica* in England, COSTE, Nature lxx, pp. 389 & 506, THOMAS, t. c. p. 455; in Ireland, MEEHAN, p. 628, t. c.

*Colias hyale* in England 1900, PILLEY, Tr. Woolhope Club 1900-1902, pp. 171-173. *V. cardui* swarm at Hunstanton, BARRETT, Ent. Mag. xl, p. 61.

**Diptera.** *Dilophus ternatus*, *Chyliza vittata*, *Tanypeza longimana*, novelties, BLOOMFIELD, Ent. Mag. xl, p. 60. *Corethra obscuripes*, novelty, COLLIN, p. xxxiii, P. ent. Soc. London 1904. *Psychodidæ*, 2 spp. n., EATON (445). *Hydrotea pilipes*, novelty, GRIMSHAW (632). *Oncomyia sundewalli*, novelty, GRIMSHAW (633). *Asteia elegantula*, novelty, JENKINSON, p. 4, Ent. Mag. xl. *Periscelis annulata*, *Ochthera mantispa*, novelties, LAMB, p. 277, Ent. Mag. xl. *Callicera yerburyi* n. sp., VERRALL, Ent. Mag. xl, p. 229. *Neoitamus cothurnatus*, *Anthrax circumdata*, novelties, VERRALL, p. xxxiii, t. c. *Dolichopododidæ*, catalogue, novelties, VERRALL (1438).

Catalogue of *Cecidomyiidae*, COLLIN (298). The British *Diptera brachycera*, VERRALL, pp. xxviii-xxxii, P. ent. Soc. London 1904. *Oxycera dives*, confirmed, Perth, CARTER, p. 16, Ent. Mag. xl. Retrospect of a Dipterist for 1903, COLLIN, pp. 57, 58, Ent. Rec. xvi. *Trypetidæ*, some rare, DALE, pp. 212, 213, Ent. Mag. xl, and cf. VERRALL, t. c. p. 238. Notes on desiderata, VERRALL, pp. 165, 166, Entomologist 1904.

**Hemiptera.** *Drymus confusus*, *Salda setulosa*, novelties, BUTLER, p. 275, Ent. Mag. xl.

**Trichoptera.** *Oxyethira* n. sp., Rannoch, MORTON (963).

**Odonata.** Notable captures and novelty 1902, 1903, LUCAS (890).

**Orthoptera.** The British *Stenobothrus*, BURR, pp. 273-275, Ent. Rec. xvi.

**Collembola.** CARPENTER & EVANS (245); novelties, n. sp. *Yenylla brevicauda*, novelty, CARPENTER, p. 198, pl. xa, Irish Natural. 1904.



## LOCAL LISTS.

The arrangement adopted in each Order is roughly, Channel Islands, England from South to North and from West to East, Wales, Scotland, Ireland.

**Insecta.** Guernsey, LUFF, pp. 197-199, Rep. Guernsey Soc. 1903 (incl. *Calosoma sycophanta*). Scilly isles, *Diptera* and *Col.*, YERBURY, pp. 154-156, Ent. Mag. xl. Dorset, RICHARDSON, first appearance, 1902, P. Dorset Club xxiv, p. 187. Hastings, BLOOMFIELD, p. 32, Rep. Hastings Soc. xi. Ashford, *Lep.* and *Dipt.*, JEFFREY, Rep. E. Kent Soc. (2) iii, p. 25 and iv, p. 35. Faversham, chiefly *Col.*, in old hedges; CHITTY, pp. 100-103, Ent. Mag. xl. Marlborough, MEYRICK, pp. 35-44, Rep. Marlbor. Soc. lii. Horsley, LUCAS, pp. 9-13, P. South London Soc. 1903. Hertfordshire, *Lep.* and *Col.*, GIBBS, pp. 139-141, Entomologist 1904. Amersham, *Col.* and *Lep.*, TURNER, pp. 3-6, P. South London Soc. 1903. Cambridgeshire, FARREN and others (479). Suffolk, TUCK, Entomological notes, Tr. Norfolk Soc. vii, pp. 635, 636. Norfolk Broads; BROWNE (186). Yorkshire, many notices see Naturalist 1904, Index, pp. 392-395. Hull; FOSTER, H. M., List of the aquatic larvæ of flies occurring in the Hull district, Tr. Hull Club iii, pp. 180, 181. Aberdeen, *Diptera* and *Tenthredinidæ*, BLOOMFIELD, p. 193, Ann. Scott. Nat. Hist. 1904. South Kerry, BOUSKELL, F., Three weeks in the wilds of, with notes on the Insects and Plants, Tr. Leicester Soc. pp. 49-60. Sligo, *Col.*, HALBERT, pp. 194-196, *Hemipt.*, HALBERT, pp. 196, 197, *Aptera*, CARPENTER, pp. 197, 198, Irish Natural. 1904.

**Coleoptera.** Guernsey, *Calosoma sycophanta*, LUFF, p. 59, Ent. Mag. xl. Plymouth, KEYS, p. 14, t. c. Looe, *Strangalia aurulenta*, WOOD, p. 261, t. c. Isle of Wight, HUDSON BEARE, t. c. p. 257. New Forest, *Trachys parvulus*, DONISTHORPE, p. xxxix, P. ent. Soc. London 1904. New Forest, DONISTHORPE, p. 325, Ent. Rec. xvi. Dean Forest, *C. castaneus* etc., MORSE, p. 138, Ent. Mag. xl. Tewkesbury, DONISTHORPE, p. 206, Ent. Rec. xvi. Berkshire, JOY, pp. 39, 40, Ent. Mag. xl. Berkshire, JOY, p. 182, t. c. Berks, *Orochares*, JOY, p. 182, t. c. Berkshire, *Bledius femoralis*, JOY, p. 237, t. c.; FOWLER, t. c. p. 238. Berkshire, JOY, p. 279, t. c. Wokingham, *Bem. obliquum*; Oxford, *Medon dilutus*; JOY, t. c. p. 14. Oxford, *Plagioderæ*, WALKER, p. 210, t. c. Oxford, *Apion brunripes*, HOLLAND, p. 108, t. c. Bagley Wood, WALKER, p. 138, t. c. KENT, *Omalium septentrionis*, DONISTHORPE, p. 149, Ent. Rec. xvi. Canterbury etc., MAUDSON, p. 46, Rep. E. Kent Soc. (2) i, and p. 24, op. cit. iii. Sheppey, WALKER, p. 259, Ent. Mag. xl. Hastings, BENNETT, p. 326, Ent. Rec. xvi. Surrey, CHAMPION, p. 256, Ent. Mag. xl. Surrey, W. E. SHARP, Ent. Mag. xl, p. 43. Surrey, *Peritelus*, DONISTHORPE, p. 150, Ent. Rec. xvi. Woking, *Bagois brevis* etc., WALKER, p. 158, Ent. Mag. xl. Woking, *Conopalpus*, CHAMPION, p. 183, t. c. North London, *Clytus arcuatus*, WILLIAMS, p. 167, Entomologist 1904. Henley-on-Thames, *Panagæus*, FOWLER, p. 238, Ent. Mag. xl. Brandon, JENNINGS, p. 87, t. c. Brandon, TOMLIN, p. 60, t. c. Sherwood, *Rhinomacer*, TAYLOR, p. 158, t. c. Sherwood, TAYLOR, p. 258, t. c. Norfolk and Suffolk, MORLEY (960). Norfolk, EDWARDS, Tr. Norfolk Soc. vii, pp. 744-746. Norfolk, *Odontæus*, SMITH, p. 210, Ent. Mag. xl. Norfolk, *Odontæus*, ATMORE, p. 238, t. c. King's Lynn, *Ceuth. angulosus*, NEWBERY, p. 86, t. c. Norfolk, *Tetropium castaneum*, ATMORE, p. 85, t. c. Buxton, *Meloë*, TAYLOR, Ent. Mag. xl, p. 136. Derwent valley, *Metoecus*, BAGNALL, p. 159, t. c. Derwent valley, *Bembidium*, BAGNALL, p. 259, t. c. Derwent valley, *Longicornia*, BAGNALL, p. 86, t. c. Derwent valley, *Triplax ænea*, BAGNALL, p. 108, t. c. Derwent valley, *Monohammus sutor*, BAGNALL, p. 59, t. c. Yorkshire, *Geodephaga*, CARTER, pp. 148-150, Naturalist 1904. Knutsford, *Lampyrus*, OLDHAM, p. 316, Naturalist 1904. Chelford, *Prionus*, OLDHAM, p. 315, t. c.

Lake District, *Geotrupes typhaeus*, OLDHAM, p. 284, ARMITT, p. 316, Naturalist 1904. Cumberland, DAY, pp. 135, 136, Ent. Rec. xvi. Northumberland, Durham, *Clinocara*, BAGNALL, p. 108, Ent. Mag. xl. Northumberland and Durham, additions, BAGNALL, pp. 260-262, Ent. Rec. xvi. Gibside, *Triplax*, BAGNALL, p. 210, Ent. Mag. xl. Isle of Man, TOMLIN, pp. 177-179, t. c. Isle of Man, *Otiorrhynchus*, BAILEY, pp. 180, 181, t. c. Isle of Man, *Longitars. curtus*, TOMLIN, p. 60, t. c. Wales, *Quedius longicornis*, BEDWELL, p. 60, t. c. N. Wales, *Lamia*, JACKSON, p. 211, t. c. Snowdon, BEDWELL, p. 1, P. ent. Soc. London 1904. S. Wales, TOMLIN, *Lath. angusticolle*, Ent. Rec. xvi, p. 18. Peebles, BLACK, Ent. Rec. xvi, p. 17. Wigtownshire, GORDON, pp. 78-80, Ent. Rec. xvi. Ramoch, WOOD, p. 260, Ent. Mag. xl. Co. Down, *Dytiscidae*, JOHNSON, p. 93, Entomologist 1904.

**Hymenoptera.** Guernsey, *Aculeata*, *Chrysididae*, LUFF, p. 281, Ent. Mag. xl. Guernsey, LUFF, *The Chrysididae, Ichneumonidae* and *Bracoonidae* of, Rep. Guernsey Soc. 1903, pp. 245-247. Lyme Regis, *Aculeata*, NEVINSON, p. 13, Ent. Mag. xl. Torcross, *Aculeata*, SAUNDERS, p. 62, t. c. New Forest, *Aculeata*, BLOOMFIELD, t. c. p. 13. Milford-on-Sea, *Aculeata*, SAUNDERS, p. 280, t. c. Margate, *Andrena niveata*, SAUNDERS, p. 159, t. c. Rochester, *Aculeata*, MALLOCH, p. 87, t. c. Wellington, *Stelis 8-maculata*, BANKS, p. 179, t. c. Oxford, *Aculeata*, PERKINS and others, Rep. Oxfordsh. Soc. 1900 (no pagin.). Porthcawl, SAUNDERS, Ent. Mag. xl, p. 12. Hertfordshire, *Sirex juvenicus, gigas*, GIBBS, p. 40, t. c. Hertfordshire, *Sirex noctilio, gigas*, GIBBS, pp. 73-76, Tr. Hertfordsh. Soc. xii. King's Lynn, *Aculeata*, MALLOCH, p. 63, Ent. Mag. xl. Lincolnshire, *Hym.* galls, Stow, p. 284-346, Naturalist 1904. Louth, *Sirex noctilio*, CARTER, p. 377, Naturalist 1904. North Durham, *Aculeata*, HARRISON, p. 41, Ent. Mag. xl. Scotland, *Aculeata*, SAUNDERS, pp. 248, 249, t. c. Scotland, *Crabro styrius* and *capitosus*, EVANS, Ann. Scott. Nat. Hist. 1904, p. 58. Forth, *Andrena helvola*, CARTER, p. 248, t. c. Dumbartonshire, *Tenthredinidae* and *Aculeata*, MALLOCH, pp. 41-43, Ent. Mag. xl. Bute and Arran, *Sirex gigas* and *S. juvenicus*, BALLANTYNE, Tr. Soc. Glasgow vi, pp. 305, 306. Fort William, *Aculeata*, ROTHNEY, p. 280, Ent. Mag. xl. Aviemore, *Crabro carbonarius*, MALLOCH, p. 62, Ent. Mag. xl. Ireland, *Ichneumon.* and *Bracon.*, JOHNSON, p. 256, Irish Natural. 1904. Ireland, *Ichneumonidae*, JOHNSON, p. 262, Ent. Mag. xl.

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(d.) *North Europe and Siberia* [see also (a.) and (b.).]

*Insecta.* ANNANDALE (35), Faroe islds. *Aptera*, *Coccidae*, *Forficulidae*, *Lepidoptera*, short lists. SAHLBERG (1204), Finland, novelties, 5 spp. *Col.* and *Euceros crassicornis*. Cf. also summary of additions to the Finnish fauna, pp. 244-252, Medd. Soc. Faun. Fenn. 1902/03.

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*Lepidoptera.* HERZ (679), N. Russia, short list. HERZ (680A), Lena, *Rhopalocera*, *Sesia* sp. n., *Noctuidae*, 3 spp. n., *Acidalia*, 2 spp. n. REUTER (1158), Finland, *Pterophoridae*, *Tineidae*, annotated list. REUTER (1160), Finland novelties.

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*Coccidae.* REUTER (1159), Finland, novelties sp. n.

*Pelidae.* KLAPÁLEK (819), Siberia, *Dictyopteryx* sp. n.

*Psocidae.* REUTER (1161), Finland, 1 sp. n.

*Collembola.* AGREN (18), Lapland, *Collembola*, 4 spp. n. AXELSON (68), Norway, *Collembola* 37 spp. AXELSON (68A), Siberia, *Isotoma* sp. n. SCHÖTT (1234), Sweden, *Collembola*, 7 spp. n.

(e.) *Central and Eastern Europe, incl. Denmark* [see also (a.) and (b.) and for *France* (f.), for *Caucasus* (h.).]

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*Diptera*. GUILLAUME (646), Belgium, *Trypetidæ*, catalogue. Roemond, list, DE MEIJERE, pp. 114-116, Ent. Ber. Nederl. i. BECKER (95), Lioland, *Pelotophila* sp. n. SPEISER, Prussia supplement to Czwalina's Catalogue, Allg. Zeitschr. Ent. ix, pp. 265-268. OLDENBERG (993), Piedmont and Germany, *Saucropus*, 2 spp. n. CZERNY (338), Kremsmünster n. g. *Octhiphilini*. BEZZI (124), Austria-Hungary, *Empidæ*, 4 spp. n. SPEISER (1328), Hungary, *Orniheza* n. sp. KERTÉSZ (790), *Culicidæ* of Hungary. FLECK (512), Roumania.

*Homoptera*. HUEBER (724), Germany, Cat. of *Homoptera* (except *Aphidæ* and *Coccidæ*).

*Aphidæ*. SCHOUTEDEN, Belgium, n. g., 2 spp. n. [(1345) of last year; reference then omitted].

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*Orthoptera*. BAER, W., Zur *Orthopterenfauna* der preussischen Oberlausitz, Abh. Ges. Gortitz xxiv, pp. 123-127. ADELUNG (11), Charkov, *Ectobia* sp. n.

*Collembola*. ABSOLON (6), Moravian caverns, 2 n. spp.

(f.) *France* [see also (a.), (b.) and (g.)].

*Coleoptera*. The Fauna as a whole, ABEILLE (2), Ariège, *Anophthalmus* n. sp. ABEILLE (3), var., n. g. *Dytiscidæ*. ABEILLE (4), Basses Pyrénées, *Bathyscia*, 2 spp. n. ABEILLE (5), *Metallites*, *Pachybrachis* and *Coroebus* sp. n. BEDEL (97), *Degorsia* introduced. CHOBAUT (271), Nimes, *Bathyscia* n. sp. CHOBAUT (268), Ariège, *Anophthalmus* n. sp. CHOBAUT (269), Alpes maritimes, *Rhipidius* sp. n. DESBROCHERS (366), France and Corsica, *Lebiides*. DEVILLE (375), novelties and corrections. DODERO (396), Montpellier, *Mirus* sp. n. MAYET (925), Nimes, *Aphodius* sp. n. MAYET (926), Gard, *Diaprysius* sp. n. PEYERIMHOFF (1041), Ardèche, *Diaprysius* sp. n. PEYERIMHOFF (1042), Basses-Alpes, *Anophthalmus*, 2 spp. n., *Bythinus* n. sp. PIC (1060), *Ernobius* sp. n. PUEL (1109), Gard, *Anisodactylus* sp. n. REITER (1146), Alpes maritimes, *Alexia* n. sp. REITER (1151), Plantey, *Loricaster* sp. n. ABEILLE, Miscell. ent. xii, p. 100, East Pyrenees, *Ptenidium* n. sp.

*Coleoptera*. Local lists. North France, COLIN, pp. 112-114, Bull. Soc. Nord France xvi.

HOULBERT & BÉTIS (721), W. France, *Cleridæ*. DEVILLE, Haute Marne, *Dytiscidæ Hydrophilidæ*, Bull. Soc. ent. France 1904, pp. 160-162. DEVILLE, Haute-Marne, Echange xx, pp. 47 etc. BEDEL, Féré-Alais (Seine-et-Oise), list, Bull. Soc. ent. France 1904, pp. 210-212. ESTIOT, Draveil, *Tetropium fuscum*, *Anoxia* etc., Bull. Soc. ent. France 1904, p. 197. COULON, French Col. in Mus. d'Elbeuf, Bull. Soc. Elbeuf xxii, suppl. CARRET, Souvenirs entomologiques, Mont-Cenis Haute-Maurienne,

Echange xx, pp. 45 etc. Touraine. MÉQUIGNON, *Coléoptères de Touraine: Contributions à la faune du département d'Indre-et-Loire*, Abeille xxx, pp. 229-234. DESBROCHERS, Tours, flood-refuge, Frelon xii, pp. 109-118. FAUCONNET & VITURAT (480), Saône-et-Loire, *Staphylinidae, Pselaphidae, Scydmenidae*. Saône-et-Loire, PIC, Bull. Soc. Autun xv, pp. 251-254; also MARCHAL, t. c. pp. 263-265, PIC, op. cit. xvi, pp. 187-192. PIC, *Coléoptères recueillis en Saône-et-Loire sur deux vieux châtaigniers*, Bull. Soc. Autun xvi, pp. 165-172. Chartreuse, *Aphodius liguricus*, AGNUS, p. 31, Feuille Natural. xxxv. Bordeaux, LAMBERTIE, Pr.-verb. Soc. Linn. Bordeaux, pp. cxix-cxxii. PÉREZ, Bordeaux, Pr.-verb. Soc. Linn. Bordeaux lix, p. xlix. GAVOY, Catalogue Col. de l'Aude, 5ième part. *Curculionidae*, Bull. Soc. Aude xiii, pp. 223-272; 6ième part. *Cerambycidae—Coccinellidae*, op. cit. xv, pp. 167-207. CHABAUT, S. France, on *Genista*, Bull. Soc. Nimes xxxi, pp. 92-99. XAMBEU, Pyrénées orientales, Catalogue, continuation, pp. 19-66, suppl. to Echange 1904.

*Hymenoptera*. GIARD (599), Argenteuil, *Dacnusa* sp. n. GADEAU DE KERVILLE (578), Normandy. KIEFFER (793), S. France, *Evania* sp. n. ZAVATTARI (1547), French Pyrenees, general list. Supplément au catalogue des Mellifères du Sud-ouest, PEREZ, Act. Soc. Bordeaux, pp. 5-7. DUCHASSEINT, Auvergne, *Parnopes carnea*, Feuille Natural. xxxiv, p. 267.

*Lepidoptera*. ANDRÉ, Saône-et-Loire, *Rhopalocera* (31). CHRÉTIEN (276), Basses Alpes, *Anacamptis, Coleophora* and *Nepticula* sp. n. PETRY (1040), Pyrenees, *Gelechiidae*, 2 spp. n. VIARD, *Microlepidoptera*, novelties, Bull. Soc. ent. France 1904, p. 38. North France, *Rhopalocera*, GURNEY, pp. 324, 325, Entomologist 1904. MEADE-WALDO, Normandy, Entomologist, pp. 301-303. Touraine, WALDO, Entomologist 1904, pp. 69-71. DEWITZ, Villefranche, Rhone, by light, Allg. Zeitschr. Ent. ix, pp. 382-386, 401-408. BALESTRE, Alpes maritimes, *Plusia*, 6 spp. SIEPI, Feuille Natural. xxxiv, p. 247, Sainte Baume, *Parnassius mnemosyne*. SIEPI, t. c. p. 248, Marseille, short list.

*Diptera*. GIARD (598), Garden of the Luxembourg, Paris, rarities. GIARD (599), Argenteuil, *Agromyza simplex*. PANDELLÉ (1010), *Muscidae*, Catalogue. VILLENEUVE (1459), Catalogue, continuation, *Ploas* sp. n., *Dysmachus* sp. n. PORTEVIN (1101), Normandy, *Syrphidae*, list. VILLENEUVE, 3 novelties, Bull. Soc. ent. France 1904, p. 235. POJUJADE, Digne, id. Fontainebleau, *Echinomyia popelii*, novelty, Bull. Soc. ent. France 1904, p. 22. VILLENEUVE, *Anthomyiidae*, 24 novelties, pp. 190, 191, Bull. Soc. ent. France 1904. LESNE, Paris, *Penthetria holosericea*, Bull. Soc. ent. France 1904, p. 153.

*Aphaniptera*. OLIVIER (995), L'Allier.

*Hemiptera*. GUÉRIN & PÉNEAU (645), West France, descriptive work. OLIVIER (994), L'Allier, *Homoptera*, list with remarks. PÉNEAU (1015), *Hebrus* of France. PÉNEAU (1015), Nantes, novelties. PÉNEAU, Nantes, novelties, Bull. Soc. Ouest France (2) iv, pp. xii, xiii. FLEUTIAUX, Seine, *Orthotylus scotti*, p. 197, Bull. Soc. ent. France 1904. LAMBERTIE, Premier supplément à la contribution à la faune des *Hémiptères* (*Hétéroptères, Cicadines* et *Psyllides* du Sud-Ouest de la France, Act. Soc. Bordeaux lix, pp. 21-30; also cf. Pr. verb. lix, pp. xlvi, xlviij).

*Orthoptera*. Coëvrons, Mayenne, HOULBERT, C.R. Ass. Franc. xxxii, 2, pp. 750-753. Meuse, *Mantis*, VUILLEMIN, pp. 27-29, Feuille Natural. xxxv. SIEPI, Saint-Baume, *Saga serrata*, Feuille Natural. xxxiv, p. 248.



(g.) *Southern Europe and Mediterranean Basin* [see also (a.), (b.) and (f.) and for Caucasus and Transcaucasus (h.).]

- Insecta*. CHAMPION (258), Moncayo, *Col.* and *Hemipt.* FUENTE (573), Ciudad Real, *Coleoptera*, *Orthopt.*, *Hemipt.*, novelties. NAVÁS (975), Spain, *Coleoptera*, *Lep.*, *Orthopt.*, *Neuropt.* sp.? NAVÁS (975), Sierra de Guara, *Ephippiger* sp. n., *Acrid.* 2 spp. n. CORTI (322), Galls of Italy. TROTTER & CECCONI (1399), Italian galls, arranged according to plants. COBELLI, Rovereto *Hym. Homopt.* 4 spp. *Allg. Zeitschr. Ent.* ix, pp. 11, 12. WERNER (1510), Bosnia and Herzegovina, account of journey. Majorca, MUSCHAMP, pp. 221, 222, *Ent. Rec.* xvi. Cephalonia, SANGIORGI, *Atti Soc. Modena* xxxvi, pp. 72-93.
- Coleoptera*. NORMAND (983), Albères, subterranean, list. DESBROCHERS (367), Spain, Portugal, Bosnia, *Thylacites*, 3 spp. n. PIC (1076), Spain and Balearic islds., *Anthicus*, Algeria, *Tychius* sp. n. REITTER (1156), Spain, *Athous*, 5 spp. n. UHAGON (1415), Spain, *Zabrus*, monograph, 2 spp. n. FERRER Y VERT, Barcelona, short lists, *Butll. Inst. Catalan.* i, pp. 14, 15, 78-80 & 105-111. FONT, Coves, short list, *Butll. Inst. Catalan.* i, pp. 116-119. FUENTE, Moncayo, *Bol. Soc. Aragon* ii, pp. 232, 233. FRANÇOIS (539), Carthage, *Thorectes* sp. n. DODERO (397), Sardinia, *Bythinus* n. sp. Capri, N. Italy, *Bathyscia*, 3 spp. n. REITTER (1145), Lucano, n. g. *Endomychidae*. VITALE, Messina, *Boll. Natural* xxiv, pp. 26-28, 37-40, 54-56, 74-76. DODERO, Italy, *Bathyscia*, list of, *Nat. Sicil.* xvii, pp. 121-123. CARRET (246), N. Italy, *Athous* sp. n. MÜLLER (970), Dalmatia, *Apholeuonius*, 2 spp. n. MÜLLER (972), Dalmatia, *Bythinus* sp. n., *Alphitophagus* sp. n. GANGLBAUER (583), Meleda isld., Dalmatia, list with 1 sp. n. MÜLLER, Austrian coast, *Munchen. Kol. Zeitschr.* ii, pp. 314-320. ZOUFAL (1549), Herzegovina, *Silphide*, 1 sp. n. REITTER (1142), Herzegovina, *Bathyscia* sp. n. REITTER (1141), Herzegovina, *Dicerca* sp. n. REITTER (1151), Herzegovina, *Elater* sp. n. MÜLLER (971), Herzegovina, *Antroherpon* sp. n., *Bathyscia* sp. n. PENECKE (1016), Herzegovina, *Quedius* sp. n. BREIT (174), Herzegovina, *Anophthalmus* sp. n., Piedmont, *Lathrobium* sp. n. PIC, Greece and Corfu, *Malachius*, *Bull. Soc. ent. France* 1904, p. 42. CSIKI (329), Servia, *Otiorrhynchus* sp. n., *Phytonomus* sp. n. CSIKI (331), Servia, *Platynus* sp. n. RAGUSA (1115), Sicily. REITTER (1147), Sicily, *Pselaphus* n. sp. VITALE, *Nat. Sicil.* xvii, pp. 77 etc.; Sicily, *Curculionidae*, novelties. VITALE, *Nat. Sicil.* xvii, pp. 26-41; Sicily, *Cossonini*. RAGUSA, xvii, pp. 49-54, 84-92; *Coleotteri nuovi o poco conosciuti della Sicilia*. RAGUSA, *Nat. Sicil.* xvii, pp. 21-24; Sicily, *Curculionide*. FIORI (509), Sicily, *Malthodes*, 2 spp. n. SCHULTZE (1252), Corsica and Algeria, *Baris*, 2 spp. n. FAUVEL (484), Algeria, *Geostiba* sp. n. DEVILLE (374), S. France and Algeria, *Dyschirius* sp. n. DU BUYSSON (216), Morocco, *Agriotes* sp. n. NORMAND (982), Tunis, *Pselaphide*, 5 spp. n. PIC (1075), Asia Minor, *Dermest.*, *Ceton.*, *Malacod.*, *Cistelid.*, *Anthacid.* sp. n. PIC (1073), Taurus, *Clytus* sp. n. PIC (1069), Egypt and Anatolia, *Laria* and *Urodon* spp. n. PIC (1061), S. Europe, Asia Minor, *Attagenus*, *Malacoderm.*, *Anthicus*, *Curcul.*, spp. n. PIC (1059), Syria, *Cardiophorus* sp. n. PIC (1058), Tokat, *Prionychus* n. sp. DEMAISON (360), Asia Minor, *Oochrotus* sp. n. K. DANIEL (347), Crete and Asia Minor, *Leptura*, 2 spp. n.
- Hymenoptera*. ANTIGA and others (36), Catalonia, *Aculeata* and *Chryside*. BERTHOUMIEU (112), Spain, *Ichneumonide*, 4 spp. n. BERTHOUMIEU (113), Escorial, *Catadelphus* sp. n. DUSMET (417), Alicante, *Alastor* n. sp. GARCIA (585), Spain, Syria, Cairo, *Chrysid.* 4 spp. n. GARCIA (586), *Hedychridium* sp. n. GARCIA (587), Spain, *Bembex*,



3 spp. n. GARCIA (588), Madrid, *Nysson* n. sp. SAUNDERS & POULTON (1214), Majorca and Spain, *Aculeata*, 5 spp. n. MANTERO (904), Island of Giglio, n. g. *Bracon.*, *Pompilus* n. sp. MANTERO (902), North Italy, *Braconidae*, 82 spp. STEGAGNO (1341), Guests in galls, Italy. BUYSSON (217), Zante, *Hedychridium* sp. n., Turkey, *Chrysis* sp. n. KIEFFER (794), S. Eur. and Tunis, *Proctotryp.*, 23 spp. n. FOREL (532), Kairouan, list, *Oxyopomyrma* sp. n., *Biskra Stenamma* n. sp. KIEFFER (793), *Gasteruption* sp. n. FOREL (532), Jerusalem, short list.

*Lepidoptera.* CHAPMAN (259), Canales, *Heterogynis* sp. n. CHRÉTIEN (275), Segovia *Tephroclystia* sp. n. TUTT (1414), Vigo, *Cænonympha* n. sp. WALSINGHAM (1469), Spain and Morocco, *Microlep.* spp. n. N. Spain, *Geometridæ*, PROUT, pp. 284-289, Ent. Rec. xvi. Sierra de la Demanda and Moncayo, CHAPMAN, pp. 85 etc., etc., Ent. Rec. xvi. MALUQUER, Ubach, Tarrasa, short list, Butl. Inst. Catalan i, pp. 56-59. BROWNE, Mediterranean, Entomologist 1904, pp. 186-188, 204-207. FLETCHER (517), Malta, list. VERITY (1436), Pistoja, list. VERITY (1437), Tuscany, *Rhop.* varr. VERITY, Italy, *Ochrostigma melagona*, novelty, Bull. Soc. ent. Ital. xxxvi, p. 11. PERLINI, Cat. of Italian *Lep.* continued, Riv. ital. Sci. Nat. xxiv, pp. 1 etc., etc. CANNAVIELLO, S. Italy, Riv. ital. Sci. Nat. xxiv, pp. 16-19 etc. FLECK (511), Dobrudscha, account of travelling. REBEL (1122), Bosnia, Herzegovina, Catalogue and comparative distribution, *Tineida*, 6 spp. n. ZICKERT (1548), S. Italy, *Zygæna*. RAGUSA, Sicily, novelties, Nat. Sicil. xvii, pp. 18-20. PETRY (1039), Corsica, *Scoparia*, *Conchylis*, *Lita*, *Stagmatophora*, *Lithocolletis*, sp. n. WALSINGHAM (1470), Algeria, *Tineida* n. spp., n. genn. CHRÉTIEN, Algeria, *Pyralide* and *Microlep.*, Naturaliste 1904, pp. 45, 46. FONTAINE (538), Asia Minor, list. BARTEL (90), Syria, *Eriogaster* sp. n.

*Diptera.* CORTI (321), Portugal, list of 86 spp. TROTTER (1396, 1397), Galls, *Perrisia* n. sp. KIEFFER (792), Vallombrosa, *Cecidomyiida*, 2 spp. n. BEZZI (124), Bosnia, *Clinocera* n. sp. EATON (445), Algeria, *Psychodide* sp. n. MARCHAL (911), Cyprus, *Cecidom.* sp. n. GILES (604), Asia Minor, *Culex fuscianus*.

*Aphaniptera.* KOHAUT (824), Bosnia, *Typhlopsylla* n. sp. KOHAUT (825), Bosnia, *Typhlopsylla* n. sp. ROTHSCHILD, N. (1192), Egypt, 4 spp. n.

*Hemiptera Heteroptera.* REUTER (1166), Soria, *Globiceps* n. sp. ARDID, Zaragoza, Bol. Soc. Aragon. ii, pp. 270-273. CYPRUS, KIRKALDY, *Rincoti* raccolti dal Dott. G. Ceconi nell' isola di Cipro, Bull. Soc. ent. Ital. xxxvi, pp. 94-98. SPEISER (1332), Egypt, *Polycetenes* sp. n.

*Homoptera.* COBELLI, R., Contribuzioni alla *Cicadologia* del Trentino. Verh. Ges. Wien liv, pp. 556-558. HORVÁTH (716), Spain, Morocco, Asia Minor, *Caliscelis*, 3 spp. n.

*Coccide.* BERLESE (106), S. Italy, *Mytilaspis* n. sp.

*Neuroptera.* VENTALLÓ, Tarrassa, Butl. Inst. Catalana i, pp. 113-115. NAVÁS (974), *Planipennia*, *Perlida*, *Ephemerida*, spp. n. NAVÁS (976), *Myrmeleonides*, 1 sp. n. KIRBY (806), Amanus Mts., *Chasmatoptera* sp. n. *Perlida*. MORTON, Algeria, *Strobliella minuta*, Ent. Mag. xl, p. 39.

*Termitida.* SJÖSTEDT (1301), Algeria and Tangier, *Termitida*, 2 spp. n. *Thysanura.* SILVESTRI (1300), Umbria, *Machilida*, 2 spp. n. KUSNEZOV, Crimea, *Japyx solifugus*, Rev. Russe Ent. iv, p. 227.

*Orthoptera.* MEI (932), Alpes maritimes, *Locust.*, *Acrid.* SHUGUROV, S. Russia, *Acrida turrita*, distribution, p. 255, Rev. Russe Ent. iv. WERNER (1511), Asia Minor, *Saga*, list.

(h.) *Caucasus* and *West and Central Asia*, including *Arabia* [see also (a.) and (b.)]: for *Tibet* see 6, for *Mediterranean Asia* see (g.).

*Insecta.* SAHLBERG (1203), expedition with lists *Col.* and *Hemipt.*

*Coleoptera.* BAECKMANN (74), *Turkestan*, *Anoplistes* n. sp. CHOBOUT (270), *Arabia*, *Thorictus* n. sp., *Mordellistena* n. sp. ESCHERICH (469), *Turkestan*, *Tibet*, *Algeria*, *Meloidae*, 9 spp. n. JAKOVLEFF (753), *Tiflis*, *Sphenoptera* n. sp. LESNE (876), *Lob-Nor*, *Xylogenes* n. sp. LUZE (895), *Russian Centr. Asia*, *Staphylinidae*, 32 spp. n. LUZE (896), *Central Asia*, *Staphylinidae*, 2 spp. n. PETRI (1037), *Turkestan*, *Lixus* n. sp. PIC (1079), *Araxes Vall*, *Mongolia*, *Buchara etc.*, *Curculionidae* spp. n. PORTEVIN (1100), *Mongolia*, *Liodes*, sp. n. REITTER (1150), *Transcaucasus*, *Eusomus* sp. n. REITTER (1153), *Caucasus*, *Mycetophagus* n. sp. SCHMIDT (1230), *East Buchara*, *Thorictus* sp. n. SEMENOV (1275), *Transcaucasus*, *Stomis*, 2 spp. n. SEMENOV (1281), *Lake Balkash*, *Nyctiphantus* n. sp. TSCHITSCHERIN (1401), *Caucasus*, *Trechus* sp. n. TSCHITSCHERIN (1402), *N. Persia*, *Stomis* n. sp. WATERHOUSE (1491), *Acmæodera* n. sp., *Steraspis* n. sp. WEISE (1505), *Mesopotamia*, *Pseudocolaspis* sp. n.

*Hymenoptera.* FOREL (527), *Buchara*, list, *Gobi*, *Formica* sp. n.

FOREL (532), *Caucasus*, ants, list. KONOW (833), *Caucasus*, *Entodecta* sp. n. RUZSKY (1202), *Caucasus and Crimea*, *Leptothorax* sp. n.

*Lepidoptera.* PÜNGELER (1111), *Centr. Asia*, 10 spp. n. SAUBER (1213), *Anklam*, *Crambus*, *Phlyctenodes* sp. n. SCHAPOSCHNIKOV (1221), *Caucasus*, *Macrolep.* Catalogue, 575 spp.

*Diptera.* SPEISEN (1331), *Merv*, *Lychnia exornata*.

*Hemiptera.* JAKOWLEW (757), *Koukou-noor*, *Palomena* n. sp. HORVATH (717), *Turkestan*, lists of *Heteroptera* and *Homoptera* spp. n. REUTER (1164), *Persia*, *Capsidae*, 7 spp. n. REUTER (1166A), *Aden*, *Capsidae*, 2 n. spp. REUTER (1167), *Turkestan*, *Mongolia*, *E. Siberia*, *Capsidae*, 12 n. spp.

*Termitidae.* JACOBSON (741), *Turkestan*, *Hodotermes*, 2 spp. n.

4. AFRICA (TROPICAL & SOUTH). For *North Africa* see 3 (g.): for *Comoro and Aldabra Ids.* see 5. *Socotra*, see 3 (h.).

*Insecta.* TROTTER (1398), *Galls of Erythrea*. WASMANN and others (1485), *White Nile*, *Termitophilous Ins.*, 10 spp. n.

*Coleoptera.* AURIVILLIUS (57), *Cerambycidae*, 13 spp. n., *genn. n.* BERNHAUER (107), *W. Africa*, *Dinusa ethiopica* and *Platyola simplex* n. sp. BERNHAUER (108), *W. Africa*, *Staphylinus*, *Leistotrophus* sp. n. BERNHAUER (109), *Eleusis*, *Lispinus*, *Holosus*, *Omatium*, *Osorius* spp. n. BOILEAU (143), *Lucanidae*, 3 spp. BOURGEOIS (161), *S. Africa*, *Chlamydotolycus* n. sp. CAMERON (221), *Perim*, *Diglossa*, 2 spp. n. DISTANT (382), *S. Africa*, *Cerambycidae*, monograph. FAUST (481), *Cleonides* many spp. n., n. g. FAUVEL (485), *Staphylinidae* n. sp. FAUVEL (487), *Upper Egypt*, *Platyprosopus* sp. n. FAUVEL (489), *Staphylinidae*, 14 spp. n. FELSCHÉ & D'ORBIGNY (494), *Cameroons*, *Coprides*, 3 spp. n. GEBIEN (589), *Cameroon*, *Tenebrionidae*, 19 spp. n., n. g. GEBIEN (590), *Pycnocerini*, 6 spp. n. GESTRO (595), *W. Africa*, *Celaenomenodera*, 2 spp. n. GESTRO (596), *Platyprina* n. spp. GROUVELLE (639), *Nitid.*, *Colyd.*, *Cucuj.*, *Mycetoph.*, 8 spp. n. HAGEDORN (649), *Caffraria*, *Scolytoplatypus* n. sp. HARTMANN (663), *E. Africa*, *Curculionidae*, 46 spp. n., *genn. n.* HAUSER (664), *Cetoniidae*, 5 spp. n., *genn. n.* HEATH (668), *E. Africa*, *Celorrhina* and *Eudicella*, n. sp.

- HELLER (674), Cameroons, *Curculionide*, 14 spp. n. HELLER (675), E. Africa, *Zygopides* sp. n. HORN (709), E. Africa, *Cicindelide*, 4 spp. n. HORN (711), Cameroons, *Cicindelide*, 2 spp. n. HORN (712), E. Africa, *Megacephala* sp. n. JACOBY (745), *Chrysomelide*, 63 spp. n. JORDAN (768), *Anthribide*, 8 spp. n. JORDAN (770), Brit. E. Africa, *Cerambycide*, 4 spp. n. KERREMANS (786), Trop. Africa, *Julodines*, descriptions. KOLBE (830), *Copride*, *Dynastid.*, *Ceton.*, *Psammodes* spp. n. KOLBE (831), Cameroons, *Valgide* n. g. LEWIS (880), *Histeride*, 4 spp. n. MANTERO (903), Somaliland and Scioa, *Rhogas*, 3 spp. n. MARSHALL (915), *Hipporrhinus* monograph, 21 spp. n. MÖLLENKAMP (954), W. Africa, *Metopodontus* sp. n. MOSER (964), E. Africa and Sao Thomé, *Cetonide*, 11 spp. n. SHARP (969), Natal, *Cassida* sp. n. D'ORBIGNY (996), *Onthophagides*, 24 spp. n. D'ORBIGNY (997), W. Africa, *Onthophagides*, 12 spp. n. D'ORBIGNY (998), *Onthophagus*, 14 spp. n. PÉRINGUEY (1027), S. Africa, *Melolonthini* of n. genn., n. spp. PÉRINGUEY (1028), S. Africa, about 200 spp. n., *Cicindelide*, *Carabide*, *Pausside*, *Staphylinide*, *Coprides*, *Ptinide*, *Tenebrionide*, *Cantharide*, *Lagride*. PÉRINGUEY (1029), Transvaal, *Dromica*, 2 spp. n., *Anomalipus*, 4 spp. n. PIC (1053), Abyssinia, Niger, *Anthicid.*, 2 spp. n. PIC (1055), Natal, *Malacodermide* n. sp. PIC (1062), *Malacod.*, *Anobiid.*, *Anthicid.* spp. n. PIC (1064), Caffraria, *Malegia* sp. n. PIC (1066), Natal, *Malacodermid.*, 5 spp. n. PIC (1068), Dunbrody, *Malcod.*, *Notoxus*, *Salpingus* n. sp. PIC (1073), S. Africa, *Malacod.*, 5 spp. n., *Rhipiph.* g. n. PIC (1078), Somali, *Anthicus* n. sp. PREISS (1106), German E. Africa, *Cetonide*, 6 spp. n. RAFFRAY (1114), *Pselaphide*, general work. RÉGIMBART (1125), W. Africa, *Dytiscide*, 2 spp. n., *Dineutes*, sp. n. REITTER (1154), E. Africa, blind Carabid, n. gen. SCHENKLING (1226), Somali land, *Phlocopos* sp. n. THÉRY (1377), E. Africa, *Buprest.* sp. n. WASMANN (1481), *Pausside*, 6 spp. n. WASMANN (1484A), Congo, n. genn., n. spp., Myrmecophilous *Staphylinide*. WATERHOUSE (1491), *Buprestida*, 17 spp. n. WEISE (1503), *Chrysomelide*, incl. *Casside* and *Hispide*, 23 spp. n., n. g. WEISE (1504), *Hispide*, 2 spp. n. WEISE (1507), *Hispide*, 3 spp. n.
- Hymenoptera.* ANDRÉ (28), W. Africa, *Mutillide*, 11 spp. n. ASHMEAD (51), Liberia, *Curria* sp. n. DU BUYSSON (217), *Chrysid.*, 5 spp. n. DU BUYSSON (219), Damara land, *Masaris* sp. n. CAMERON (223), S. Africa, *Vespide*, *Bracon.*, *Chalc.* sp. n. CAMERON (224), Cape Colony, *Fossoria*, *Proctotryp.*, *Ichneum.*, *Bracon.*, *Evaniid.*, *Cynip.* spp. n. CAMERON (225), *Thynnides*, *Ichneum.*, *Bracon.*, *Cynip.*, 20 spp. n., genn. n. CAMERON (237), S. Africa, *Pimplina* n. g. CAMERON (238), Uitenhage, *Apteropompilus* sp. n. ENDERLEIN (456), *Braunsia*, 9 spp. n. ENDERLEIN (457), Somali, n. g. *Rhopalosomide*. ENDERLEIN (465), Trop. Africa, *Ichneumonide*, 3 spp. n. FOREL (529), *Carebara* sp. n. FOREL (531), Natal, *Plagiolipsis* sp. n. FRIESE (544), *Anthidium* and *Serapis*, 8 spp. n. FRIESE (546), *Apide*, 10 spp. n. FRIESE (549), *Megachile*, 12 spp. n. FRIESE (551), *Cœlixys* revision, spp. n. KONOW (838), *Arge*, 3 spp. n., *Distega* n. g. KIEFFER (793), *Proctotrypide* and *Evaniid.* spp. n. KIEFFER (794), *Proctotrypide*, 17 spp. n. KIEFFER (795), *Oberthurella* n. sp. MORICE & SZÉPLIGETI (959), White Nile, *Aculeata*, 3 spp. n., *Iphiaulax* sp. n. MAYR (927), White Nile, *Formicid.*, 2 spp. n. MAYR (928), Cape, *Ponera* sp. n. MOCSÁRY (952), S. Africa, *Chrysis*, 9 spp. n. SZÉPLIGETI (1367), *Braconide* n. spp. TULLGREN (1404), Cameroons, *Diploptera* and *Fossoria*, 19 spp. n. WASMANN (1484A), Congo, *Dorylus* n. sp.
- Lepidoptera.* AURIVILLIUS (60), Cameroons, spp. n., genn. n. AURIVILLIUS (61), *Acrea*, 3 n. spp., *Euryphene* and *Diestogyne*, 1 sp. n. AURIVILLIUS (62), *Bombyces*, 9 spp. n. AURIVILLIUS (63), White



- Nile list. AURIVILLIUS (64), Cameroons, *Papilio* n. sp. BETHUNE-BAKER (117), Sierra Leone, *Rhopalocera*, 15 spp. n. CATOR (250), Sierra Leone, *Lycenide*, 4 spp. n. HEYN (685), E. Africa, *Plema* n. sp. JORDAN (771), *Syntomid.*, 3 spp. n., *Phragmatobia* sp. n., *Agaristide*, 4 spp. n., *Sindris* sp. n. NEAVE (977), Victoria Nyanza, *Rhopalocera*, with table of distribution and n. spp. REBEL (1121), German East Africa, *Saturinide* sp. n. ROTHSCHILD (1195), *Sphingide*, 5 spp. n. ROTHSCHILD (1196), Aruwimi For., *Melanitis* n. sp. SHARPE (1286), Equatorial Afr., *Rhopalocera*, 4 spp. n. SHARPE (1287), Africa equat., *Rhopalocera*, 6 spp. n. SHARPE (1288), Equat. Africa, *Lycenide*, 5 spp. n. SUFFERT (1353), *Rhopalocera*, many spp. n. SUFFERT (1354), German E. Africa, *Rhopalocera*, 6 spp. n. SUFFERT (1355), E. Africa, *Alena* sp. n. SUFFERT (1355A), *Nymphalide*, 4 spp. n. SWINHOE (1361), *Agaristide*, *Lymantr.*, *Aganaida*, *Limacodide*, *Margaronia* spp. n. SWINHOE (1362), Trop. Africa, *Geometride*, list, many spp. n. SWINHOE (1363), W. Africa, *Euproctis* sp. n. THURAU (1386), E. Africa, n. g. *Noctuide*. TRIMEN (1394), E. Africa, *Zerites*, *Lycæna* sp. n. WARREN (1475), *Drepan.*, *Thyrid.*, *Uran.*, *Geometr.* spp. n.
- Diptera.* BALFOUR (77A), Nile, *Culicidæ*. BISCHOF (130), Algoa Bay, *Tachinide*, 4 spp. n. BRUMPT (191), Centr. Africa, *Glossina* n. sp. GILES (603), Angola, *Culex* n. sp. GRÜNBERG (641), Cameroons, *Rhinoestrus* sp. n. THEOBALD (1373), Gambia, *Culicidæ*, 6 spp. n. THEOBALD (1374), Senegal, *Culicidæ* n. g. THEOBALD (1376), Egypt etc., *Culicidæ*, 8 spp. n.
- Aphaniptera.* ROTHSCHILD (1191), Cape Colony, n. spp.
- Hemiptera.* BREDDIN & BÖRNER (173), Natal with Termites, n. sub-order.
- Hemiptera Heteroptera.* BERGROTH (102), Soudan, *Glypsus* n. sp. BERGROTH (103), Cameroons, *Reduviidæ*, 3 spp. n. BERGROTH (104), Cameroons, *Megadæum* sp. n. DISTANT (385), Transvaal, *Macrocoris* n. sp. DISTANT (386), Old Calabar, *Chauliops*, Cape Colony, *Henicocephalus* sp. n. DISTANT (387), S. Africa n. genn., n. spp. DISTANT (390), Transvaal, *Heteroptera*, 14 spp. n., gen. n. DISTANT (391), W., E. and S. Africa, spp. n., *Coreidæ*, *Pyrrhocoridæ*, *Nepidæ*. HORVÁTH (715), *Pentatomidæ* spp. n., genn. n., St. Thomé Is. list. KIRKALDY (808), S. Africa, *Metrocoris* n. sp. REUTER (1166A), Abyssinia, *Capsidæ*, 9 spp. n. REUTER (1168), Congo, *Capsidæ*, 6 spp. n. SCHOUTEDEN (1235), *Pentatomidæ*, 13 spp. n. SCHOUTEDEN (1237), Guinea, *Pentatomidæ*, 8 spp. n. SCHOUTEDEN (1238), Trop. Africa, *Pentatomidæ*, n. genn., n. spp. VARELA (1431), Guinea, *Reduviidæ*, 8 spp. n. VARELA (1432), Cameroons, *Reduviidæ*, 3 spp. n.
- Homoptera.* DISTANT (384), *Cicadidæ*, 4 spp. n. DISTANT (393), *Cicadidæ*, 4 spp. n. JACOBI (733), Somali Land, Soudan, *Homoptera*, 10 spp. n. JACOBI (735), E. Africa, *Locris*, sp. n. MELICHAIR (937), Shoa, Galla and Somali, *Homoptera*, 30 spp. n. SCHMIDT (1229), Benue, *Flatid.* sp. n.
- Aphide.* THEOBALD (1375), Sudan, *Aphis* sp. n.
- Trichoptera.* ULMER (1418), W. Africa, 3 spp. n., gen. n. ULMER (1419), Cameroons, 3 spp. n., n. g.
- Neuroptera.* WEELE (1501), W. Africa, *Cymothalis* sp. n.
- Termitidæ.* SJÖSTEDT (1301), *Termitidæ*, 19 spp. n. DESNEUX (369), Cameroons, *Termes* sp. n.
- Embiidæ.* VERHOEFF (1434), Cameroons, *Embia* sp. n.
- Orthoptera.* ADELUNG (12), Abyssinia, *Blattidæ*, 8 spp. n. BOLÍVAR (144), *Chrotogonine*, 9 spp. n. BOLÍVAR (145), *Petasia*, *Maura*, 5 spp. n. BOLÍVAR (146), *Pirgomorphidæ*, 5 spp. n. BOLÍVAR (147), *Pecilocerine* and *Pyrgomorphine* spp. n. BORG (155), Cameroons, *Blattidæ*, 14 spp. n. BORG (156), Cameroons, *Forficulidæ*, 9 spp. n. BURR



(201), *Forficulidæ* spp. n. BURR in DISTANT (382), S. Africa, *Bormansia* n. sp. KIRBY (804), *Mantidæ*, 5 spp. n., gen. n. REHN (1128), Zulu and Gaboon, 2 spp. n. REHN (1130), S. Africa and Mombasa, *Phasmidæ*. REHN (1133), W. Africa, *Acridiidae*, 3 spp. n.

### 5. MADAGASCAR, including ALDABRA ISLANDS, etc.

*Coleoptera*. BEGUIN-BILLECOCQ (98), Madagascar and Mayotte, *Apion*, 8 spp. n. BERNHAUER (108), *Medon*, *Eulissus*, *Xantholinus*, *Pachycorinus*. BERNHAUER (109), *Eleusis*, *Osorius*. FAIRMAIRE (473), 125 spp. n., genn. n. FAIRMAIRE (477), *Cicindelidæ* 3, *Carabidæ* 2, spp. n. FAUVEL (485), *Staphylinidæ* n. spp. FAUVEL (491), *Staphylinidæ*, 54 spp. n. FLEUTIAUX (518), *Cardiophorus* sp. n. HORN (708), *Pogonostoma* sp. n. PIC (1053), *Anthicidæ*, 3 spp. n. PIC (1054), *Ptinus*, 2 spp. n. PIC (1056), *Salpingus*, *Hylophilus* spp. n. PIC (1092), *Xamerpus*, *Theca* sp. n. PIC (1068), *Bruchus*, *Malegia* sp. n. RAFFRAY (1114), *Pselaphidæ*, general work, n. g. SCHENKLING (1226), *Phléocopus* sp. n.

*Hymenoptera*. BUYSSE (217), *Chrysid.*, 2 spp. n. FOREL (527), *Strumigenys* sp. n. KIEFFER (796), Mad., Nossi-Bé, Bourbon, *Chalcidinae* n. genn., n. spp. SZÉPLIGETI (1366), *Camarota* n. sp.

*Lepidoptera*. SWINHOE (1362), *Geometridæ*, 17 spp. n.

*Diptera*. DYÉ (443), *Anophelinae*.

*Hemiptera*. DISTANT (384), *Cicada* sp. n. HORVÁTH (715), *Pentatomidæ*, 10 spp. n. SCHOUTEDEN (1238), *Scotinophara*.

*Coccidæ*. MARCHAL (909).

*Termitidæ*. SJÖSTEDT (1301), 5 spp. n.

*Orthoptera*. BOLÍVAR (146), *Phymateus*, 2 spp. n. BOLÍVAR (147), *Pyrgomorphinae* spp. n. BURR (201), *Forficulidæ* spp. n.

### 6. TROPICAL and EASTERN ASIA, incl. JAPAN and TIBET.

For outskirts see also 3 (a.), (g.), (h.). Arabia, see 3 (h.).

*Insecta*. PAVIE (1011A), Fauna of Indo-China.

*Coleoptera*. ARROW (38), Penang, *Ochodeus* sp. n. AURIVILLIUS (57), Malacca, *Glenea* sp. n. BERNHAUER (108), Shanghai, *Eulissus* sp. n. BERNHAUER (109), Tonkin, *Lispius*, Annam, *Trogophilæus* spp. n. BOILEAU (141), Kashmir, *Dorcus* sp. n. BOILEAU (142), Madura, *Dorcus* sp. n. BOILEAU (143), India and Burma, *Lucanidæ*, 4 spp. n. BOUCOMONT (159), India, China, etc., *Enoplotrupes*, *Geotrupes*, 9 spp. n. BOURGEOIS (160), S. India and Ceylon, *Malacoderm.*, 5 spp. n. CAMERON, Perim Is. See Africa. FAUST (481), India, China, Japan, *Cleonides* spp. n. FAUVEL (482), India and Burma, *Staphylinidæ*, 27 spp. n. FAUVEL (485), India, Ceylon, etc., *Staphylinidæ* n. spp. GROUVELLE (640), Bangkok, *Heteroceris* n. sp. HAGEDORN (648), Darjiling, Japan, *Scolytidæ*, 5 spp. n. HORN (713), Ceylon, *Cicindelidæ* list, 3 spp. n. JACOBY (744), India, *Chrysomelidæ*, 43 spp. n. JACOBY (749), Tonkin, *Sagra* n. sp. JORDAN (767), Tonkin, 12 spp. n., Sikkim, 1 sp. n. JORDAN (772), Burma, *Anthribidæ*, 2 spp. n. KOKUJEV (827), W. China, *Ichneumonidæ* spp. n. KOLBE (831), Tonkin, Perak, Andamans, *Vulgidæ* n. g. LESNE (876), India, *Sinoxylon* n. sp. LEWIS (880), India, *Histeridæ*, 3 spp. n. MAINDRON (899), *Tricondyla* n. sp., *Crepidopterus* n. sp. MÖLLENKAMP (954), Himalaya, *Prosopocælus* sp. n. MOSER (965), Tonkin, Perak, Assam, *Vulgidæ* n. spp. OBERTHÜR (989), Darjeeling, *Sphingidæ* n. g. PETRI (1035), India, *Lixus*, 2 spp. n. PIC (1058), Japan, *Malachius*, 2 spp. n. PIC (1064), Tien-tsin, *Scaptia* sp. n. PIC (1065), Japan, *Dichelotarsus* sp. n. PIC (1069), Tonkin, *Laria* n. sp.

PORTEVIN (1100), Darjeeling, Mou-pin, *Silphidae*, 5 spp. n. RAFFRAY (1114), incl. India and Japan, *Pselaphidae*, general work. REITTER (1148), Japan, *Cionus* n. sp. REITTER, Afghanistan and Gobi: see Pal. Col. SCHWARZ (1266), Ceylon, *Adelocera* sp. n. SPAETH (1327), Burma, *Cassida* sp. n. THÉRY (1377), Mysore, *Buprest.* sp. n. THÉRY (1378), Ceylon, *Buprestides*, 14 spp. n. WASMANN (1481), India, *Paussidae*, 7 spp. n. WASMANN (1484A), Bombay, *Dorylocenus*, 2 spp. n., *Discoæenus* n. g. WATERHOUSE (1491), Tonkin, India, Andamans, *Buprestidae*, 5 spp. n. WEISE (1503), China, *Dioryctus* sp. n. WEISE (1504), Tonkin, India, *Hispidae*, 2 spp. n. WEISE (1507), India, Ceylon, *Hispidae*, 3 spp. n. ZANG (1546), Assam, *Basilianus* sp. n.

*Hymenoptera.* ASHMEAD (46), Japan, Fossoria, *Bethylidæ*, *Proct.*, *Cynip.*, *Chalc.* n. spp.; Formosa, *Eupelmus* n. sp. ASHMEAD (50), Ceylon, n. sp. *Alysiidæ*. DU BUYSSON (218), China, Malacca, Andamans etc., *Vespa*, 5 spp. n. CAMERON (222), Singapore, *Piagetia*, *Icaria*, *Bracon.* spp. n. CAMERON (226), Khasia hills, *Cryptine*, 26 spp. n. CAMERON (227), Khasia hills, *Bembex* sp. n. CAMERON (229), Japan, *Dielis* and *Eumenes* n. sp. CAMERON (230), India, *Apidæ*, *Vespidæ*, *Fossor.*, *Ichn.*, *Chalcid.* CAMERON (231), *Odynerus* spp. n., *Epyris* and *Haliphera* sp. n., n. g. *Braconid.* CAMERON (232), N. India, *Apidæ* spp. n., *Fossores* spp. n., *Ichneumonidæ* spp. n. CAMERON (233), N. India, n. spp. *Apidæ*, *Mutillidæ*, *Fossores*, *Ichneumonidæ*. CAMERON (234), India, n. spp. *Braconidæ*, *Fossoria*, *Vespidæ*; Ceylon, *Megachile* n. sp. CAMERON (235), Deesa, *Juartinia* n. sp. CAMERON (236), India, *Athalia* n. sp. CAMERON (241), India, *Ichneumonidæ*, 14 spp. n., genn. n. ENDERLEIN (456), Ceylon, *Braunsia* sp. n. FOREL (532), N. India, Kashmir, *Formicidæ*, 6 spp. n. FRIESE (548), Nicobars, *Megachile* sp. n. MOCSÁRY (953), *Siricidæ*, Japan, 1 sp. n., Tonkin, 4 spp. n. MOCSÁRY (951), Tonkin, *Clavellaria* sp. n. NURSE (985), India, *Apidæ*, many n. spp. NURSE (986), India, *Chrysid.* 7 spp. n., *Fossoria*, 2 spp. n., *Eumenes* sp. n. KIEFFER (794), India, Burma, *Proctotryp.*, 3 spp. n. SCHULZ, India, 4 spp. *Crabro*, *Zeitschr.* Breslau xxix, p. 101.

*Lepidoptera.* BUSCK (206), China, *Coleophora* sp. n. DIETZE (380), Japan, *Eupithecia* sp. n. DRUCE (408), Malay States, *Lycenidæ* list. DUDGEON (416), Sikhim and Bhutan, *Noctuidæ*, Cat. DYAR (428), Japan, *Epipyrops* sp. n. EHRMAN (447), Ceylon, *Ornithoptera* sp. n. FAWCETT (492), Sikkim, *Rhopalocera*, 10 spp. n. FRUHSTORFER (568), Malay states, *Felicota* n. sp. GREEN (621), Ceylon, *Danaüs alcippus*. HAMPTON (654), India, *Notodontidæ*, 2 spp. n. HEYLAERTS (682), Tonkin, *Chalia* n. sp. MANDERS (900), Ceylon, *Rhopalocera*, distribution. MOORE (956), India, *Pieridæ*, 1 sp. n. Baluchistan, *P. machaon*, NURSE, p. 723, J. Bombay Soc. xv. OBERTHÜR (988), Siao-Lou, *Rhagastis* sp. n. PÜNGELER (1110), Japan, *Noctuidæ*, *Geometridæ*, 4 spp. n. SWINHÖE (1361), Singapore, *Bombyces*, 2 spp. n., Poona, *Thosæa* sp. n. SWINHÖE (1363), Khasia hills, *Scopelodes* sp. n., *Hypereschra* sp. n. SWINHÖE (1364), Perak, *Ercheia*, sp. n. WARREN (1476), India, *Cryptoloba* sp. n., Tonkin, *Uliura* and *Ptychopoda* n. sp. YOUNG (1542), India, *Rhopalocera*, distribution.

*Diptera.* BEZZI (125), Ceylon, *Empidæ*, 4 spp. n., India, Singapore, 3 spp. n., Indo-Australian *Empidæ* list. COQUILLETT (314), India and Ceylon, *Acalyptrate*, 4 spp. n. GILES (601), India, *Corethra* n. sp. GILES (604), Himalaya, *Howardina* sp. n. JAMES & LISTON (760), India, *Anopheles*, with sp. n. KERTÉSZ (789), India, *Sapromyzides* n. g. MEIJERE (934), Darjiling, Ta-t sien-lu, n. spp. RICARDO (1172), Ceylon, *Udenocera* n. g. *Tabaninæ*. SPEISER (1331), Burma, *Ornithomyia obscurata*. THEOBALD (1371), Malay States, *Culicidæ* n. genn., n. spp.

*Aphaniptera.* ROTHSCHILD (1191), India, Japan n. spp.

*Hemiptera.* BREDDIN (167), *Chilocoris*, 2 spp. n. BREDDIN (168),

Tonkin, 11 spp. n., Sikkim, sp. n. *Pentatomidae*. DISTANT (383), India, Ceylon, Burma, *Reduviidae-Capsidae*. DISTANT (384), India and Pahang, *Cicadidae*, 8 spp. n. DISTANT (385), Ceylon, n. g. *Naucoridae*. DISTANT (386), India, *Glossopelta*, Ceylon, *Cercotmetus* n. sp. DISTANT (387), China, *Fulgentius* n. g. *Capsidae*, Singapore, *Mertila* n. g. DISTANT (392), Himalaya, Burma, *Anthocoridae*, 3 genn. n. DISTANT (393), Japan, China, Formosa, Laos, *Cicadidae* spp. n. HORVÁTH (714), Malacca, Burma, *Colobathristine* n. spp. HORVÁTH (718), Japan, *Plea* n. sp., Ceylon, *Micronecta* n. sp. JAKOVLEV (756), Sé-Tschuen, *Geocoris* sp. n. KIRKALDY (813), India, Cochin China, *Notonectidae*, 2 spp. n. MARTIN (918), S. India, n. g. *Tesseratomine*. MATSUMURA (922), Japan, *Cercopidae*, 19 spp. n., *Cicada* sp. n. REUTER (1162), Setchuan, *Stenodema*, 3 spp. n. REUTER (1165), Corea, *Capsidae*, 2 spp. n. REUTER (1166B), China and Mou-Pin, *Capsidae* spp. n. SCHMIDT (1229), Ceylon, *Ormenis* sp. n. SCHOUTEDEN (1236), Hainan, India, *Scutellerides*, 2 spp. n. Ceylon, brief notes on fauna, *Spolia Zeylan.* i, pp. 114-116. *Coccidae*. GREEN (620), Ceylon, *Lecanium* n. spp. *Termitidae*. DESNEUX (369), Annam sp. n., Ceylon sp. n. DESNEUX (373), Kashmir, *Termopsis* n. sp. *Odonata*. FÖRSTER (536), Upper Malacca, Sikkim, 4 spp. n. WILLIAMSON (1531), Burma and Lower Siam, *Culopterygine* list, 1 sp. n. WILLIAMSON (1532), Formosa, *Psolodesmus* sp. n. BOLÍVAR (144), India, *Chrotogonus* sp. n. BOLÍVAR (147), India, *Pecilocerus* n. sp. BURR (201), India, Japan, China, Tibet etc., *Forficulidae* n. spp. HANCOCK (655), Ceylon, *Tettigidae* monograph, 9 spp. n. KIRBY (804), Nepal, Ceylon, *Mantidae*, 2 spp. n. KIRBY (805), *Phasmidae*, Tonkin, 6 spp. n., Singapore, Penang, 3 spp. n. KRAUSZE (843), Tonkin, *Phaneropteridae*, 2 spp. n. KRAUSZE (844), Tonkin, *Conocephalidae*, 2 spp. n. NAVÁS (975), Himalaya, *Blattidae*, *Mantidae*, *Acridiid.*, 4 spp. n. REHN (1128), Lower Siam, *Blattidae*, 5 spp. n. REHN (1130), Siam, *Phasmidae*, Japan, n. spp. REHN (1133), Siam, *Scelimena*, Japan, *Erianthus* sp. n.

## 7. ASIATIC ARCHIPELAGO, including PAPUA. (For islands beyond Papua see 2. Insular.)

*Insecta*. DYAR, Philippines, notice of a general work of 1895 by ELERA; J. N. York Ent. Soc. xii, pp. 58, 59. *Coleoptera*. ARROW (38); Java *Ochodeus* n. sp. AURIVILLIUS (57); *Glenea* 7 spp. n. BERNHAUER (108); Mentawai, *Holosus*, Sumatra, *Pinophilus* sp. n. BERNHAUER (109); Nias Sumatra, *Lispinus Holosus*, Mentawai *Osorius*. BOILEAU (143); Sumatra, *Hemisodorcus* sp. n. FAUVEL (482); Java, Borneo, etc. *Maseochara* n. sp. FAUVEL (485); *Staphylinide* n. spp. FAUVEL (486); Sumatra, *Lyctus* n. sp. FAUVEL (490); New Guinea, *Staphylinidae*, 2 n. spp. GEBIEN (590); Borneo, *Pheugonius* n. sp., Java, *Spirocus* n. sp. HAGEDORN (650); Java, *Scolytoplastypus* sp. n. HAUSER (664); N. Guinea, *Vulgus* sp. n. HAUSER (665); Key islds., *Nemophas* n. sp. HORN (710); N. Guinea, *Cicindela* sp. n. JACOBY (743); New Guinea, *Chrysomelidae*, 54 spp. n. JORDAN (767); Sumatra, Borneo, Celebes, Philippines, *Anthribide* spp. n. JORDAN (772); Java, Celebes, New Guinea, Ternate, *Anthribide*, 14 spp. n. KOLBE (831); Sumatra and Borneo, *Valgide* n. genn., n. spp. LEWIS (880), Borneo, *Niponius* sp. n.; Java, *Platysoma* n. sp. MÖLLENKAMP (954); Borneo and Sumatra, *Lucanidae*, 5 spp. n. MOSER (965); Borneo, Sumatra, *Valgides* spp. n. PETRI (1037); Borneo, Java, *Lixus* sp. n. PIC (1064); Sumatra, *Mesocatolopus* sp. n. RAFFRAY (1114); *Pselaphidae*, general work. SÆATH (1327); Java, Sumatra, Mentawai, Borneo, *Cassididae*, 4 n. spp. WASMANN (1481); Java, *Paussus*, 2 spp. n. WEISE



(1504); Borneo, Celebes, Sumatra, New Guinea, *Hispidae* n. spp. ZANG (1545); Moluccas, *Passalidae* n. sp. ZANG (1546); Borneo, *Passalidae*, 2 genn. n.

*Hymenoptera*. ASHMEAD (44); Philippines, *Apidae* n. spp., *Fossoria*, 2 spp. n., *Hedychrum* sp. n., *Telenomus* sp. n., *Braconidae* sp. n., *Ichn.* n. sp.

ASHMEAD (47); Philippines, *Apidae*, 2 spp. n., *Fossoria*, 7 spp. n., *Mutillidae*, 1 sp. n., *Bethylidae*, 3 spp. n., *Proctotrypidae*, 1 sp. n., *Chalcid.*, 7 spp. n., *Evaniidae* sp. n., *Ichneumonidae*, 12 spp. n., *Braconidae*, 10 spp. n. ASHMEAD (48); Philippines, Catalogue with spp. n. ASHMEAD (53); Philip-

pines, fig-insects, 2 spp. n. BUYSSON (217); Java, *Chrysis* n. sp. CAMERON (222); Ternate, *Bracon* n. sp. COCKERELL (282); Philippines,

*Ctenoplectra* sp. n. ENDERLEIN (456); *Braunsia*, 3 spp. n. FRIESE (541), Tenimber-Larat, *Vespidae* n. g. FRIESE (548), *Megachile* sp. n.

FRIESE, Java, list, Allg. Zeitschr. Ent. pp. 138-140. KIEFFER (793), Java, *Evaniidae* spp. n. KIEFFER (794), Sumatra, New Guinea,

Ternate, *Proctotryp.* 7 spp. n. KRIEGER (845), New Guinea, *Trichomma* sp. n. SAUSSURE (1218), Borneo, *Megischus* n. sp. SCHULZ (1255),

New Guinea, short list, *Caelioxys* sp. n. SZÉPLIGETI (1367), Celebes, New Guinea, *Braconidae* n. spp. TULLGREN (1405), Java, *Scolia*, 4 spp. n.

*Lepidoptera*. BETHUNE-BAKER (116), Brit. New Guinea, *Lycenidae*, *Erycinid.*, *Bombyc.* s. l., *Noctuid.*, many spp. n. BETHUNE-BAKER (118),

Halmaheira, Borneo, *Arhopala*, 3 spp. n. DANNATT (351), Gilolo, *Delias* n. sp. H. H. DRUCE (407), Borneo and New Guinea, *Lycenidae*, 4 spp. n.

FRUHSTORFER (566), Borneo, *Pseudamathusia* n. sp., New Guinea, *Dicallanura* sp. n. FRUHSTORFER (567), Obi, *Euplœa* n. sp. FRUHSTORFER

(569), Engano, *Rhopalocera* list. FRUHSTORFER (570), New Guinea, *Calliptera* sp. n. FRUHSTORFER (571), Celebes, *Elymnias* n. sp.

FRUHSTORFER, Soc. ent. xix, p. 138, New Guinea, *Tenaris* n. sp. JORDAN (771), New Guinea. *Heterusia* sp. n. LATHY (860), Gilolo, *Cyrestis* sp. n.

MABILLE (898), New Guinea, 3 n. spp., Celebes, 1 n. sp. PIEPERS & SNELLEN (1084), Java, *Lithosiidae*, catalogue, 5 spp. n. PIEPERS & SNELLEN

(1085), Java, *Syntomidae*, 1 sp. n. ROTHSCHILD (1194), New Guinea, *Papilion.*, *Pier.*, *Erycin.*, *Nymphal.*, *Geometr.* spp. n. ROTHSCHILD (1195),

New Guinea, *Sphingidae*, 2 spp. n. ROTHSCHILD (1197), New Guinea, *Abisara* sp. n. ROTHSCHILD (1198), New Guinea, *Opodiphthera* n. sp.

SHELFORD (1289), Borneo, *Rhopalocera* n. spp. SWINHOE (1361), Borneo, many spp. n., Celebes, *Eupterote* sp. n., Fergusson isld. *Agonis* sp. n.

SWINHOE (1363), Philippines, *Eulype* sp. n. SWINHOE (1364), 13 spp. n. THIEME (1381), Nias isld., *Stictoptera* sp. n. SNELLEN (1428), Java, *Tineidae*, 3 spp. n. VAN DEVENTER (1429), Java, *Tineidae*, 166 spp. n.

WARREN (1476), *Geometridae*, 7 spp. n., *Thyrid.* 2 spp. n. *Diptera*. BEZZI (125), New Guinea, *Empidae* spp. n. GILES (603),

Philippines, *Culicidae*, 8 spp. n. LUDLOW (891), Philippines, *Culicidae* sp. n. LUDLOW (892), Philippines, *Culicidae*, 2 spp. n. MEIJERE (934),

Java, n. spp. MEIJERE (935), Aru and Halmaheira, *Halophilus* and *Pseudoformosia* n. sp. SPEISER (1328), New Guinea, *Otfersia*, 2 spp. n.

SPEISER (1331), Java, Sumatra, New Guinea, *Hippoboscidae*, 3 spp. n. STEIN (1343), Java, *Anthomyiidae*, 10 spp. n.

*Aphaniptera*. ROTHSCHILD (1191), New Guinea, n. sp. *Hemiptera*. BREDDIN (168), *Pentatomidae*, 10 spp. n. BREDDIN (169),

Buru, *Plisthenes* n. sp. DISTANT (387), Ternate, *Capsidae* n. sp. DISTANT (389), Borneo, *Coreidae* n. g. DISTANT (393), Borneo, *Cicada*

sp. n., Sumbawa, *Cryptotympana* sp. n. HORVÁTH (714), *Colobathristinae* spp. n., genn. n. HORVÁTH (718), New Guinea, *Micronecta* sp. n.

KIRKALDY (813), Sumatra and Celebes, *Notonectidae*, 2 spp. n. SCHMIDT (1228), Sumatra, *Flatides*, 16 spp. n., n. g. SCHMIDT (1229), *Flatides*, 8 n. spp.

*Coccidae*. GREEN (622), Java, 4 spp. n.



*Neuroptera*. WEELE (1501), *Ascalaphide*, 4 spp. n.  
*Odonata*. MARTIN (919), Java, *Macromia* n. sp.  
*Orthoptera*. BURR (210), Borneo, *Forficulide* spp. n. CAUDELL (254),  
 Philippines, *Forficulide* sp. n. KIRBY (804), Lombok, *Humbertiella* sp. n.  
 KIRBY (805), Borneo, *Necrosia* n. sp., New Guinea, *Eurycnema* n. sp.  
 NAVÁS (975), Philippines, 4 spp. n. REHN (1130), Sumatra and Obi,  
*Phasmide*. REHN (1133), Labuan, N. Borneo, *Erucius* and *Mazarredia*  
 sp. n.

## 8. AUSTRALIA and TASMANIA. (For New Zealand see 2. Insular.)

*Insecta*. FROGGATT (562), *Micromus* n. sp., *Braconide* n. sp., *Cynipide*  
 n. sp. GOUDIE & LEA, specially *Coleoptera*, Gippsland, pp. 51-56, Vic-  
 torian Natural. xxi. KERSHAW, Victorian Natural. xx, pp. 122-125,  
 Launching Place, short lists.

*Coleoptera*. BERNHAUER (108), *Oxytelus* n. spp., *Atheta* n. sp., *Zyras*  
 n. sp. BLACKBURN (132), *Trox* revision, 6 spp. n. BLACKBURN (133),  
*Bolboceras* revision, spp. n. BLACKBURN (134), *Copride* spp. n. FAUVEL  
 (485), *Staphylinide* n. spp. KERSHAW, Victorian Natural. xx, pp. 150,  
 151, Buffalo Mountains. LAMEERE (854), *Toxentes* sp. n. LEA (561),  
*Cuculionide* n. g. LEA (863), Australia and Tasmania, *Cryptocephalides*  
 revision, many n. spp. LEA (862), *Curculionide*, many spp. n. LEA  
 (864), incl. Tasmania, *Staphyl.*, *Rhysod.*, *Cucuj.*, *Copr.*, *Rhipiph.*, *Oedemer.*,  
*Curcul.*, *Scolyt.*, *Chrysom.* n. spp. LEWIS (880), *Hister.* sp. n. OHAUS  
 (990), *Anoplognathides* revision. PIC (1064), *Thaptor* n. sp. RAFFRAY  
 (1114), Austr. and Tasm., *Pselaphide*, general work. RAINBOW (1116),  
 Sydney, *Stigmodera* and *Horistonotus* sp. n. SLOANE (1310), Tropical  
 Australia, *Cicadelide* 3, *Carabide* 5, spp. n. SLOANE (1311), *Carabine*,  
 revision, n. spp.

*Hymenoptera*. CAMERON (240), *Pristaulacus* sp. n. COCKERELL (282),  
*Saropoda* sp. n., *Anthoglossa* sp. n. COCKERELL (283), *Halictine*, re-  
 vision, n. spp. ENDERLEIN (458), Adelaide, n. g. *Thynnide*. KIEFFER  
 (793), *Ecanide* spp. n. SZÉPLIGETI (1367), *Braconide* n. sp.

*Lepidoptera*. FRUHSTORFER (565), Queensland, *Tachyris* sp. n. LOWER  
 (888), incl. Tasmania, *Tineide*, 33 spp. n. MABILLE (898), *Padraona*,  
*Ocybadistes* n. sp. MEYRICK (946), Australian *Gelechiides*, 207 n. spp.,  
 39 n. genn. TURNER (1408), *Notodontide* and *Syntomide*, 9 spp. n.  
 TURNER (1409), *Geometride*, revision. TURNER (1410), revision of  
*Thyridide*, 1 sp. n., *Pyralide*, many spp. n. TURNER (1411), *Bombyces*  
*Noctuide*, *Geometr.*, *Tineid.*, many spp. n. TURNER (1412), Austral. and  
 Tasman., *Lymantriide*, 4 spp. n. WARREN (1476), *Geometride*, 3 spp. n.,  
*Thyrid.*, 1 sp. n. WATERHOUSE (1493), *Hesperide*, erroneously listed.  
 WATERHOUSE (1494), *Heteronympha* sp. n. WATERHOUSE & TURNER  
 (1495), *Lycenide*, doubtful species.

*Diptera*. BEZZI (125), *Empide* spp. n. COQUILLET (314), W. Aus-  
 tralia, *Tachina* n. sp. RAINBOW (1117), *Nycteribia* n. sp.

*Aphaniptera*. ROTHSCHILD (1191), n. spp.

*Hemiptera*. BERGROTH (105), Queensland and Tasmania, *Morbora*  
 2 spp. n. DISTANT (384), *Cicadide* sp. n. DISTANT (387), *Armachanus*,  
*Capside*, n. sp. DISTANT (388), North Queensland, *Heteroptera*, genn. n.,  
 spp. n. DISTANT (391), Queensland, *Mononyx* sp. n. DISTANT (393),  
*Cicadide*, 3 spp. n. GODING & FROGGATT (613), Austral. and Tasman.,  
 monograph, *Cicadide*, 119 species. KIRKALDY (813), *Anisops*, 3 spp. n.  
 SCHMIDT (1229), Queensland, *Flatides*, 3 spp. n. SCHOUTEDEN (1236),  
 N. S. Wales, *Philia* n. sp.

*Coccide*. GREEN (625), *Chionaspis*, *Antonina* sp. n. GREEN (624),  
 Victoria, 5 spp. n.

*Neuroptera.* KEMPNY (785), *Chrysopa* sp. n. FROGGATT (557), *Embiidae*, 2 spp. n., *Croce* n. sp. WEELE (1501), N. W. Austral., *Acanthaclysis* sp. n.

*Orthoptera.* BOLÍVAR (147), Sydney, *Monistria* n. sp. KIRBY (805), *Phasmide*, 2 spp. n. REHN (1128), 3 spp. n. TEPPER (1370), S. Australia, *Blattide*, *Mentide*, *Aceridiide*, *Gryllacris* n. spp.

## 9. NORTH AMERICA. For Bahamas and Bermudas see

### 11. Antilles.

*Insecta.* The Insects of Alaska, MERRIAM and others (940). Canada, various notes, Ottawa Natural. xvii, pp. 216-220. BEUTENMÜLLER (119), New York Galls. CURRIE (333), Kootenay, collecting trip. GODMAN (614). SCHAEFFER, S. Texas, peculiarities, J. N. York ent. Soc. xii, pp. 63, 64. SNOW (1325), Arizona, Collector's list. HEIDEMANN and others, Plummer's isld. Maryland, P. ent. Soc. Washington vi, pp. 22, 23.

*Coleoptera.* BERNHAUER (109), Michigan, *Trogophleus* sp. n. BLANCHARD (135), California, *Dromæolus* n. sp. BRUES (188), Texas, *Ecitopora* sp. n. CASEY (248), *Staphylinide*, 2 n. genn., *Anthicidæ* n. genn., *Curculionide*, 3 spp. n. CHITTENDEN (263), *Sphenophorus*, 2 spp. n., and (264), 4 spp. n. CHITTENDEN (266), Arizona, *Latheticus* n. sp. CHITTENDEN (1498), Illinois, *Oberea* n. sp. COQUILLET (317), Louisiana, *Culex* n. sp., Massachusetts, *Metrocnemus* n. sp., Canada, *Cuterebra* n. sp., *Bischofia* n. sp. DAVIS (353), New Jersey, *Neoclytus* sp. n. DURY Ohio, *Melasini*, 28 spp., Ent. News Philad. xv, p. 52. FELT & JOUTEL (495B), *Saperda*, monograph, 1 sp. n. FUCHS, Tulare, trip, Ent. News Philad. xv, pp. 337-339. KNAUS, Sacramento Mts., list, Ent. News Philad. xv, pp. 152-157. LENG, N. Jersey, J. N. York ent. Soc. xii, p. 64. NEEDHAM, Beetle drift on Lake Michigan, Canad. Ent. xxxvi, pp. 294-296, and 335. PIC (1064), *Ptinus* sp. n. PIC (1068), *Ptinus*, 2 spp. n. PIERCE (1086), Nebraska, *Rhipiphorus*, *Myiodites*, *Stylops* n. spp. RAFFRAY (1114), *Pselaphide*, general work. SCHAEFFER (1220), Rio Grande, Florida etc., n. spp., n. genn. SCHWARZ (1262), Los Angeles, *Pseudo-weisea* n. sp. SCHWARZ, Maryland, *Hormops*, P. ent. Soc. Washington vi, p. 11. SHERMAN, N. Carolina, *Cicindelide*, Ent. News Philad. xv, pp. 26-32, 112. SKINNER (1302), Arizona, *Meloidæ*, 3 spp. n. STEVENSON, Canada, *Aphodius erraticus*, Canad. Ent. xxxvi, p. 164.

*Hymenoptera.* ASHMEAD (42), *Siricidæ*, 4 spp. n. ASHMEAD (52), Utah, *Torymus* sp. n. BRADLEY (164), Oregon and Colorado, *Cratichneumon*, 2 spp. n. BRUES (190), *Proctotrypide*, 3 spp. n. BUYSSON (217), California, *Chrysis* n. sp. CAMERON (228), "N. Mexico," *Nysson* sp. n. COCKERELL (280), *Epeolus*, 6 spp. n. COCKERELL (281), New Mexico, Colorado, *Apide*, 5 spp. n. COCKERELL (284), California, *Anthophora* sp. n. COCKERELL (286), New Mexico, *Apide*, 3 spp. n. COCKERELL (289), New Mexico, *Apide*, 3 spp. n. COCKERELL (291), Southern U. S., *Apide* spp. n. COCKERELL (292), Colorado, *Nomada*, 13 spp. n. COCKERELL (293), S. California, *Apide*, sp. n. COCKERELL, New Mexico, bees, Ent. News Philad. xv, p. 171. CRAWFORD (327), New Jersey, *Halictus*, 2 spp. n. FELT (495A), New York and Colorado, *Ophionini*, 4 spp. n. FOREL (529), British Columbia, *Formicide* varr. n. FOREL (530), Texas, *Acanthostichus* sp. n. FYLES (574), Quebec, *Torymus* n. sp. FYLES (575), *Amesolytus* sp. n. GRAENICHER (619), Wisconsin, *Andrena*, 3 spp. n. KIEFFER (793), *Proctotrypide* and *Evaniide* spp. n. KONOW (838), Texas, *Periclista* n. sp. ROBERTSON (1182), *Apide*, 3 spp. n. SWENK (1358), Nebraska, *Colletes* sp. n. TITUS (1389), Illinois, n. g. *Osmiine*. TITUS (1390), *Osmiine*, 7 spp. n. VACHAL (1424), *Halictus*, 14 spp. n. VIERECK

(1445), *Odontophotopsis*, 11 spp. n. VIERECK (1446), *Fossoria*, 10 spp. n. VIERECK (1447), *Paropes*, 7 spp. n. VIERECK (1448), New Jersey, *Perdita*, 2 spp. n. VIERECK (1449), Arizona, *Tachysphex* n. sp. VIERECK (1450), Delaware, *Apidae* n. g. VIERECK (1451), Nevada, *Apidae* n. g. VIERECK (1452), Wisconsin, *Habrocryptus* sp. n. VIERECK (1453), Pennsylvania, *Ammoplanus* sp. n. VIERECK and others (1454), Oregon, British Columbia etc., *Apidae*, synopsis with spp. n. VIERECK & COCKERELL (1455), New Mexico, *Philanthide*, 3 spp. n. VIERECK, Vancouver, *Thyreopus latipes*, Canad. Ent. xxxvi, p. 51. WHEELER (1518), Utah and Colorado, *Formicidae*, 4 spp. n. WHEELER (1519), Texas, *Colobopsis* n. sp. WHEELER (1520), Catalina isld., 8 spp. WHEELER (1521), North Carolina, 61 spp. WHEELER (1522), Colorado, *Formica* n. sp.

*Lepidoptera*. Distribution of *Sphingide*, WEBSTER (1500).

ANDERSON (26), British Columbia, catalogue. ASHMEAD (45), New York, *Thymaris* sp. n. BARNES (88), chiefly Texas and Arizona, many spp. n. BRIMLEY, N. Carolina, *Sphingide*, *Saturn.*, *Ceratocamp.*, Ent. News Philad. xv, pp. 120-126. BUSCK (203), British Columbia, *Tineide*, 34 spp. n., n. g. BUSCK (204), Arizona, *Tineide* n. g. BUSCK (205), Colorado, *Ethmia* sp. n. DOD, Alberta, list (continued from 1901) Canad. Ent. xxxvi, pp. 345-355. DOLL, Brownsville, short list, J. N. York ent. Soc. xii, pp. 126, 127. DYAR (420), British Columbia, long catalogue, 14 spp. n. DYAR (422), *Rhopalocera*, *Bombyc.*, *Noct.* n. spp. DYAR (424), United States, *Pyralide*, 9 spp. n. DYAR (427), British Columbia, *Diacrisia* sp. n. DYAR (430), *Tortricide* n. g. DYAR (431), *Noctuide*, *Notodontide*, 5 spp. n. DYAR (432), *Sesuide*, *Cochliidiide*, *Noctuide*, *Geometride*, *Pyralide*. DYAR (433), Mackenzie, *Oeneis* n. sp. DYAR (435), *Illice*, 4 spp. n. DYAR (436), North Carolina, *Lactilia* n. sp. DYAR (437), Rhode isld., *Ancylylis* n. sp. DYAR (438), *Scoparia*, 4 spp. n. DYAR (439), British Columbia, *Noctuide*, 8 spp. n. FERNALD (497), Ohio, n. g. *Choreutinae*. FIELD, New Hampshire, *Eurema lisa*, Psyche xi, p. 102. FLETCHER (515), Canada, *Phyciodes*, *Thecla*, *Pamphila* sp. n. FLETCHER (516), Canada, *Rhopalocera*, 3 spp. n. FYLES (576), Quebec, *Trichotaphe* n. sp. GIBSON, Meech Lake, Quebec, Ottawa Natural. xvii, pp. 204-206. GRINNELL (634), California, *Thanaos* sp. n. HEATH, Manitoba, supplementary list, Canad. Ent. xxxvi, pp. 269-272. KEARFOTT (776), British Columbia, *Tortricide*, 7 spp. n. KEARFOTT (777), Assinaboia, *Proteopteryx* sp. n. NEWCOMB, Michigan, *Rhopalocera* in 1903, Ent. News Philad. xv, pp. 204-206. NEWCOMB, Michigan, *Cocytius cluentius*, Ent. News Philad. xv, p. 345. SKINNER (1303), Brit. Columbia, *Thecla* sp. n. SMITH (1313), *Noctuide*, Calgary, 7 spp. n. SMITH (1314), U. S., Canada etc., *Noctuide*, 12 spp. n., n. g. TAYLOR (1369), Vancouver, *Ennominae* n. g. WARREN (1474), Colorado, *Lampropteryx* and *Caripeta* n. spp. WARREN (1477), Colorado, Oregon, *Geometride*, 7 spp. n.

*Diptera*. ADAMS (2), 27 spp. n. ADAMS (9), Colorado and Texas *Siphonella*, 2 spp. n. BACK (73), *Asilide*, 6 spp. n. BEZZI (128), *Dipterous* galls in N. America, historical, statistical. BRIMLEY & SHERMAN, List of the *Tabanide* (Horse-flies) of North Carolina, Ent. News Philad. xv, pp. 270-275, correction, t. c. p. 302. BRITTON (183), Connecticut, *Culicidae*. COCKERELL (287), Colorado and New Mexico, *Cecid.*, 3 spp. n. COQUILLET (313), Georgia, *Chlorops* n. sp. COQUILLET (315), 52 spp. n., n. genn. COQUILLET (316), New Jersey, *Culex* sp. n. COQUILLET (318), Southern Texas, 9 spp. n. DYAR (426), *Culex* n. sp. DYAR (429), British Columbia, *Culicidae*. FELT (495), N. York, *Culicidae*, 9 spp. n. FELT & YOUNG (496), United States, *Culex*, 4 spp. n. GILLETTE (605), Colorado, *Pegomyia* n. sp. GROSSBECK (637), New Jersey, *Culex* sp. n. GROSSBECK (638), New Jersey, *Culex*, 2 spp. n. HERRICK, *Grabhamia jamaicensis*, Ent. News Philad. xv, p. 81. HINE (688), British



- Columbia, list with 2 spp. n.; OSBURN (1003), British Columbia, *Syrphidae* list. HINE (689), N. Carolina, *Chrysops*, 2 spp. n. HINE (690), Texas and Louisiana, *Ephydriidae*, 2 spp. n. HINE (691), *Tabanidae*, 7 n. spp. JOHNSON (765), U. S. and Canada, 4 spp. n. JOHNSON, supplementary list of the *Diptera* of New Jersey, Ent. News Philad. xv, pp. 157-163. MELANDER (936), *Stratiomyidae* list with *Macrosargus* sp. n. McCracken (931), California, *Anopheles* sp. n. SLINGERLAND & JOHNSON (1309), California, *Cecidomyia* n. sp. STEIN (1342), U. S. incl. Sitka, *Anthomyiidae* n. spp. WHITNEY (1525), *Tabanidae*, 4 spp. n.
- Aphaniptera*. BAKER (76), spp. n. ROTHSCHILD (1191), Brit. Columbia, Canada, 5 spp. n.
- Hemiptera*. ASHMEAD (54), Alaska, *Jassidae*, 3 spp. n., *Psyllidae*, 4 spp. n. BUENO (197), New York, *Heteroptera*, list. BUENO, Brit. Columbia, *Notonecta lutea*, Ent. News Philad. 1904, p. 220. BUENO, *Notonecta lutea*, Ent. News Philad. p. 220. BUENO, North American *Notonecta*, p. 62, J. N. York ent. Soc. xii. HEIDEMANN (670), *Aradidae*, 2 spp. n. HEIDEMANN (671), *Aradidae*, 3 spp. n. HEIDEMANN, North Carolina, *Schumannia*, P. ent. Soc. Washington vi, p. 12. OSBORN, Ohio Natural. iv, pp. 99-103; a further contribution to the Hemipterous fauna of Ohio. SCHOUTEDEN (1236), Colorado, n. g. *Scutellerides*. SCHWARZ (1263), *Psyllidae*, 7 spp. n. SWEZEY (1360), *Fulgoridae*, catalogue. UHLER (1416), Las Vegas, 8 spp. n. *Lygaeidae*, *Capsidae*, *Ceratocombidae*. VAN DUZEE (1430), *Pentatomidae*, Cat., 12 spp. n., n. g. WIRTNER (1535), Pennsylvania, Catalogue.
- Aphide*. COCKERELL (288), New Mexico, *Cladobius* sp. n. PERGANDE (1023), *Phylloxera*, many spp. n. PERGANDE (1024), U. S., *Macrosiphum* n. sp.
- Aleyrodidae*. BEMIS (99), California, *Aleyrodidae*, 19 spp. n.
- Coccidae*. SANDERS (1207), Ohio, 3 spp. n. SANDERS (1208), Ohio, monograph.
- Neuroptera*. BANKS (87), *Neuropt.* except *Odonata*, n. spp. *Psocidae* and *Trichoptera*. BANKS (85), British Columbia, *Trichoptera*, 2 spp. n. BANKS (84), Washington, *Hydroptilidae*, 2 spp. n. BANKS (82), New Mexico, *Trichoptera*, 7 spp. n. CURRIE (334), Arizona and California, *Hemerobius*, 2 spp. n. CURRIE (335), Kootenay, *Hemerobiidae*, 5 spp. n. BANKS (82), New Mexico, *Hemerobius* sp. n., *Brachynemurus* sp. n. BANKS (81), *Hemerobius*, 5 spp. n. BANKS (82), New Mexico, *Psocus* sp. n. BANKS (82), N. Mexico, *Perlidae*, 2 spp. n.
- Odonata*. BRIMLEY & SHERMAN, N. Carolina, list, Ent. News Philad. xv, pp. 100-102. WILLIAMSON, West Pennsylvania, additions, Ent. News Philad. xv, pp. 277, 278.
- Thysanoptera*. DANIEL (350), California, 4 spp. n.
- Orthoptera*. BRITTON, New England, *Eritettix* and *Conocephalus*, Psyche xi, p. 23. BRUNER (195), Colorado. CAUDELL (251), Florida and Galveston, *Phasmidae*, 2 novelties. CAUDELL, British Columbia, list and notes, Ent. News Philad. xvi, pp. 62, 63. CAUDELL, Assiniboia, short list, Canad. Ent. xxxvi, p. 248. GILLETTE (606), Colorado, list. BRUNER (605), Colorado, n. spp. MEAD, Ohio Natural. iv, pp. 109-112; a list of the *Orthoptera* of Ohio. MORSE (962), Southeast. U. S., *Acridiidae*, 14 spp. n. REHN (1132), New Mexico etc., *Acridiidae*, 2 spp. n., *Locustidae* sp. n. REHN & HEBARD (1134), Georgia and Florida, *Ceuthophilus* sp. n. REHN (1135), Texas, *Kakerlac* sp. n. REHN (1138), S. Carolina, *Chorisoneura* n. sp. REHN (1137), New Jersey, *Melanoplus* sp. n. REHN (1139), *Stenopelmatinae*, 2 spp. n. REHN, notes on the *Orthoptera* of the Keweenaw Bay region of Baraga County, Michigan, Ent. News Philad. xv, pp. 229-237, 263-269. REHN, notes and records of New Jersey *Orthoptera*, Ent. News Philad. xv, pp. 325-332. SCUDDER & COCKERELL (1267), New Mexico, *Bluttidae*, *Phasmid.*



*Acrid.*, *Locust.*, *Gryll.*, spp. n. WALKER (1465), Ontario, *Gryllidae*,  
2 spp. n. WALKER (1466), Ontario, *Locustidae*, annotated list.

## 10. CENTRAL AMERICA (MEXICO to PANAMA incl.).

*Insecta.* GODMAN (614).

*Coleoptera.* BATES (92), Costa Rica, *Plusiotis* n. sp. BERNHAUER  
(108), *Eleusis*, *Xantholinus* sp. n. CASEY (248), Mexico, *Dinoceus* sp. n.,  
*Anthicid.* n. sp. JACOBY (748), Mexico, Costa Rica, Panama, *Halticinae*,  
6 spp. n. JACOBY (748), Costa Rica, *Chlamys* n. sp. JACOBY (749),  
Mexico, *Chlamys* n. sp. JORDAN (769), Mexico, Costa Rica, Nicaragua,  
*Anthribidae* spp. n. LAMEERE (854), Mexico, *Callipogon* sp. n. OHAUS  
(991), Costa Rica, *Anoplognathides*, 2 spp. n. PIC (1052), Mexico,  
*Cathorama* sp. n. PIC (1064), Mexico, *Ptinidae*, 2 spp. n. PORTEVIN  
(1100), Mexico, *Silphidae*, novelties. RAFFRAY (1114), *Pselaphidae*,  
general work. SCHAEFFER (1220), Rio Grande and Lower California,  
n. spp. STERNBERG (1344), Panama, *Aegopsis* sp. n. WATERHOUSE  
(1491), Mexico, *Polycesta*, 2 spp. n. WEISE (1503), Costa Rica, *Cassid-*  
*idae*, 2 spp. n. WEISE (1504), Panama, Mexico, *Hispidae*, 2 spp. n.

*Hymenoptera.* BUYSSON (217), Mexico, *Parnopes* n. sp. CAMERON  
(228), Panama, n. g. *Masaridae*, *Paratiphia* sp. n., *Polistomorpha* sp. n.  
COCKERELL (280), Vera Cruz, *Triepeolus* sp. n. COCKERELL (281),  
Mexico, *Xylocopa* sp. n. COCKERELL (282), Mexico, *Macrotera* n. sp.  
COCKERELL (286), Mexico, *Trypetes carinatum*. FRIESE (550), Costa  
Rica, *Centris* n. sp. FOREL (526), Costa Rica, *Azteca* n. sp. KIEFFER  
(793), *Proctotrypidae* n. sp. KIEFFER (794), Nicaragua, *Proctotrypidae*,  
4 spp. n. KONOW (838), Costa Rica, Mexico, *Labidarge*, *Ptilia*,  
4 spp. n. SWENK (1357), Costa Rica, *Colletes*, 2 spp. n. SZÉPLIGETI  
(1366), Mexico, *Trogus* n. sp. TITUS (1389), Costa Rica, *Heriades*  
sp. n. VACHAL (1424), Mexico, *Halictus*, 26 spp. n. VACHAL (1426),  
*Halictus* n. sp.

*Lepidoptera.* DOGNIN (398), Costa Rica, San Salvador, *Notodontidae*,  
2 spp. n., *Eugiviria* sp. n., *Coptotelia* sp. n. DRUCE (406), Yucatan,  
*Adelocephala* sp. n., Costa Rica, *Maschane* sp. n. DYAR (422), Mexico,  
*Apatelodes* n. sp. DYAR (431), Mexico, *Afilia* n. sp. MABILLE (898),  
Chiriqui, *Thrucides* n. sp. SCHAUS (1225), *Syntomidae*, *Notodontidae*,  
*Noctuidae*, *Chrysauginæ* spp. n. WARREN (1474), Mexico, Costa Rica,  
*Geometridae* n. sp. WARREN (1477), Mexico, Costa Rica.

*Diptera.* COQUILLET (313), Nicaragua, Guatemala, Mexico, 17 spp. n.  
COQUILLET (315), Mexico, Nicaragua and Panama, 5 spp. n. COQUILLET  
(317), Mexico, *Conchyliaastes* n. sp. HINE (691), Mexico, *Tabanus*,  
2 spp. n. RICARDO (1172), British Honduras, *Dichelacera* n. sp.  
SPEISER (1328), Honduras, *Ornithopertha* n. sp.

*Hemiptera.* BREDDIN (166), Guatemala, *Lycambes* n. sp. BREDDIN  
(171), *Podisus* n. sp. DISTANT (393), *Cicadidae* n. g. SCHMIDT (1229),  
Panama, *Ormenis* n. sp.

*Termitidae.* DESNEUX (372), Mexico, *Termes* sp. n.

*Mullophaga.* CARRIKER (247), Costa Rica, 35 spp. n.

*Odonata.* CALVERT (220), Costa Rica, *Thaumatoneura* sp. n.

*Orthoptera.* BURR (201), Mexico, *Sparatta*, *Carcinophora* sp. n.  
REHN (1129), Mexico and Costa Rica, 4 spp. n. REHN (1130), Costa  
Rica, Nicaragua, *Phasmidae* n. spp. REHN (1131), Mexico, *Phasmidae*,  
*Arsid.*, *Locust.*, *Gryll.* n. spp. REHN (1136), Nicaragua, *Stagmatoptera*  
sp. n. SCUDDER & COCKERELL (1267), Mexico, *Aeloplus* sp. n.

## 11. ANTILLES, including BERMUDAS, BAHAMAS, BARBADOS.

*Insecta.* CLARK (278), GODMAN (614). West India *Col.* and *Hemiptera*, UHLER, SCHWARZ and others, pp. 42-46, P. ent. Soc. Washington vi.

*Coleoptera.* ARROW (39), Jamaica, St. Vincent etc., *Chœrostus* 2 spp. n. BERNHAUER (108), St. Thomas, *Leptacinus* n. sp. BERNHAUER (109), St. Thomas, *Osorius* sp. n., Grenada, *Trogophlœus* sp. n. FAUVEL (485), St. Domingo, *Oxytelus* n. sp. LAMEERE (854), Porto Rico, *Callipogon* sp. n. RAFFRAY (1114), *Pselaphidæ*, general work. WATERHOUSE (1491), Jamaica, St. Domingo, *Polycesta*, 2 spp. n.

*Lepidoptera.* HAMPSON (653), Bahamas, *Phalœne* spp. n., gen. n. LATHY (861), Dominica, list, 3 spp. n. SCHAUS (1225), Cuba, *Syntomidæ*, *Arctidæ*, *Hipsidæ*, *Megalopygidæ*, *Notodontidæ*, Jamaica, *Hyppena* sp. n., Grenada, *Anisothrix* sp. n. WARREN (1474), Jamaica, *Geometridæ* n. spp. WARREN (1477).

*Diptera.* ADAMS (9), Grenada, *Siphonella* sp. n. GILES (604), Antigua, *Culicidæ*, 3 spp. n. JOHNSON, C. W., A revised list of the *Diptera* of Bermuda, 50 spp., Psyche xi, pp. 76-80. PAZOS, J.-H., Liste de moustiques de Cuba, Bull. Soc. ent. France 1904, p. 134.

*Hemiptera.* DISTANT (391), Grenada and St. Vincent, *Capsidæ*, 3 spp. n.

*Orthoptera.* BURR (201), Granada, *Diplatys*, Martinique, *Carcinophora* sp. n. REHN (1130), Swan island and Porto Rico, *Phasmidæ*, 2 spp. n.

## 12. SOUTH AMERICA, including TRINIDAD.

*Insecta.* BRÈTHES (175), Tucuman, *Cyclocephala*, 2 spp. n., *Iphiaulax* sp. n., *Asilidæ*, *Syrphidæ* and *Euxestu* n. spp., *Jassus* n. sp. GODMAN (614). Falkland Islands, see Insular, VALLENTIN.

*Coleoptera.* ARROW (38), Colombia, Patagonia, *Ægidium*, *Ochodæus*, 4 spp. n. AURIVILLIUS (58), Bolivia and Argentina, *Cerambycidæ*, 4 spp. n. BATES (92), *Pelidnotinæ*, revision, n. spp. BERNHAUER (108), *Staphylinidæ*, 12 spp. n. BERNHAUER (109), Brazil, *Trogophlœus*, 2 spp. n. BOILEAU (143), *Sphenognathus* 2 spp. n. BOURGEOIS (161), *Malacodermidæ*, 3 spp. n. FAIRMAIRE (476), *Cladotoma* sp. n., *Tenebrionidæ*, 7 spp. n., n. g. FAIRMAIRE (478), Brazil, *Cladotoma*, 2 spp. n., *Ancholæmus* sp. n. FAUVEL (485), *Oxytelus* n. spp. FAUVEL (488), Brazil, *Staphylinidæ* genn. and spp. n. FAUVEL, Rev. Ent. franc. 1904, p. 140, *Luciola*, 2 spp. HAGEDORN (651) *Coccotrypes* sp. n. HELLER (675), Brazil, *Zygopidæ*, 4 spp. n. JACOBY (742), Bolivia and Argentina, *Chrysomelidæ*, 9 spp. n. JACOBY (746), *Halticidæ*, 27 spp. n. JACOBY (747), *Mastostethus*, 10 spp. n. JACOBY (748), *Chlamys*, 7 spp. n. JACOBY (749), Venezuela, *Chlamys* n. sp. JORDAN (769), *Anthribidæ*, many spp. n. and genn. n. LAMEERE (854), Peru, *Callipogon* sp. n. LEWIS (880), *Histeridæ*, 6 spp. n., gen. n. OHAUS (991), *Anoplognathidæ*, 23 spp. n. PIC (1052), *Cathorama*, 9 spp. n. PIC (1053), Guiana, *Anthicus* n. sp. PIC (1054), Peru, *Notoxus* n. sp. PIC (1057), Buenos Ayres, *Anthicus* n. sp. PIC (1064), Peru, Chili etc., *Prinidæ*, 8 spp. n. PIC (1066), Brazil, *Malacoderm.* 2 spp. n. PIC (1067), Brazil, *Eupactus*, 6 spp. n. PIC (1070), Brazil, *Anthicus*, 6 spp. n. PORTEVIN (1100), Guiana, *Dissochaetus* sp. n. RAFFRAY (1114), *Pselaphidæ*, general work. RÉGIMBART (1124), Venezuela and Guiana, *Dytiscidæ*, 2 spp. n., *Gyrinidæ* sp. n. SCHWARZ (1265), *Elateridæ*, 40 spp. n. STERNBERG (1344), *Ægopsis* 4 spp. n. THÉRY (1377), Peru, *Buprest.* sp. n. WATERHOUSE (1491), Brazil, *Acherusia*, 2 spp. n. WEISE (1503), *Cassididæ*, 3 spp. n. ADAMS (10), *Chlorops*, 5 spp. n. WEISE (1504), *Hispidæ*, many spp. n. WEISE (1507), *Cassididæ*, *Hispidæ*, 14 spp. n., gen. n.

*Hymenoptera.* ANDRÉ (29), Chile, *Mutillidæ*, *Thynnidæ*, 5 spp. n. ASHMEAD (41), *Chalcididæ* of S. America, Catalogue, many genn. n. and

- spp. n. BRÈTHES (176), Brazil, 1 sp. n., Argentina list. BRÈTHES (177), Argentina, *Meteorus* n. sp. BRÈTHES (178), La Plata, monograph of *Eumenidae*, many spp. n. BRÈTHES (179), Patagonia, *Anthidium* sp. n. BRÈTHES (180), Argentina, *Trimeria* sp. n. BRÈTHES (181), Buenos Aires, *Oxybelus* n. sp. DU BUYSSON (217), *Chrysid.*, 5 spp. n. DU BUYSSON (219), *Parachartergus* sp. n., *Sapyga* sp. n. CRAWFORD (326), Bolivia, *Diphaglossa* sp. n. DUCKE (411), social *Vespidae* n. spp. DUCKE (412), Parà, *Chrysid.*, with *Chrysogona* sp. n. DUCKE (413), Brazil, *Sphegidae*, 5 spp. n. DUCKE (414), Lower Amazons, *Eumenidae*, 6 spp. n. DUCKE (415), Amazons, *Centris*, 2 spp. n. FOREL (526), Peru and Amazons, *Formicidae*, 14 n. spp., Chile, 2 spp. n. FOREL (528), Patagonia, Chile, 3 spp. n. FOREL (530), *Formicidae*, 4 spp. n. FOREL (532), Brazil, *Formicidae*, 5 spp. n. FOREL (532), Chile, *Tupinoma* n. sp. FRIESE (542), S. Am. incl. of Chile, *Caupolicana* and *Ptiloglossa* n. spp. FRIESE (543), Brazil and Ecuador, *Ancyloscelis*, 3 spp. n. FRIESE (545), Chile, Peru, Ecuador, *Apidae*, 10 spp. n. FRIESE (547), Chile, *Anthidium* sp. n. FRIESE (550), Brazil and Chili, *Centris*, 2 spp. n. HOLMBERG (697), *Apidae*, *Fossoria*, many spp. n., genu. n., *Tenthredinide* list. KIEFFER (793), *Proctotrypidae* and *Evaniidae* spp. n. KIEFFER (794), incl. Patagonia, *Proctotrypidae*, 8 spp. n. KIEFFER (796), Chile, *Pseudochalcera* n. sp. KIEFFER (797), Chile, *Cynipidae* n. g. KIEFFER (798), Chile, *Proctotrypidae*, 3 spp. n. KONOW (838), 7 spp. n., *Labidarge* and *Waldheimia*. PORTER (1099), Chile, *Vespidae* list. SCHROTTKY (1245), Paraguay, Census, 1 n. sp., *Apidae*. SCHULTHESS-RECHBERG (1246), *Nortonia*, 4 spp. n. SCHULTZ (1253), Amazons, *Aculeata*, 3 spp. n. SZÉPLIGETI (1365), *Braconidae*, many spp. n. SZÉPLIGETI (1366), Peru, *Iphiaulax* n. sp. SZÉPLIGETI (1367), *Braconidae* n. sp. VACHAL (1424), S. Am., incl. Chili, *Halictus*, 5 spp. n. VACHAL (1425), Tucuman, *Apidae*, 62 spp., 39 spp. n. VACHAL (1426), *Halictus* n. spp. VACHAL (1427), Ecuador, *Halictus*, 3 spp. n., *Sphécodes* sp. n.
- Lepidoptera*. DANNANT (351), Venezuela, *Chlorippe*, Guiana, *Monethe* n. sp. DOGNIN (398), Northern S. Am., *Ischnocampa* sp. n., *Notodontidae*, 6 spp. n., *Geometridae*, 8 spp. n., *Eugiviria*, sp. n., *Pyralidae*, 22 spp. n., *Tortricidae*, 4 spp. n., *Cryptolechia* sp. n. DOGNIN (399), *Geometridae* and *Lithosiidae*, 23 spp. n. DOGNIN (400, 401), Peru, *Anaxita* sp. n. DRUCE (405), *Erycinidae*, 23 spp. n. DRUCE (406), Tropical S. Amer., *Syntomidae*, *Arctiidae*, *Ceratocampidae*, *Saturniidae*, *Lasiocampidae*, *Bombycidae*, *Notodontidae* spp. n. EHRMAN (447), Venezuela, *Papilio* sp. n. GUPPY, P. Inst. Trinidad, pt. 3, p. 167, Trinidad, *Metamorpha dido*, etc. JOANNIS (763), Organ mountains, *Lycomorhodes* and *Eriopyga* sp. n. KAYE (775), Trinidad, *Rhopalocera* catalogue, 289 spp., 10 spp. n. LATHY (859), *Erycinidae*, 10 spp. n. MABILLE (898), *Hesperidae*, 9 spp. n. OBERTHÜR (989), Bolivia, *Sphingidae* sp. n. RÖBER (1179), Peru, *Mechanitis* n. sp., *Lymnas* n. sp. RÖBER (1180), Colombia and Ecuador, *Caligo*, 3 spp. n. ROTHSCHILD (1195), Peru, *Sphingidae*, 3 spp. n. ROTHSCHILD, W. (1198), Tucuman, *Rothschildia* n. sp. SANDERS (1206), Brazil, Burchells 1825-1830, *Rhopalocera*. SCHAUS (1225), *Syntomidae*, *Arctiidae*, *Megalopygidae*, *Liparidae*, *Lasiocampidae*, *Saturniidae*, *Ceratocampidae*, *Perophoridae*, *Cossidae*, *Notodontidae*, *Noctuidae*, *Chrysongiue*. STICHEL (1348), *Narope*, 2 spp. n., *Caligo* n. sp. THIEME (1379), Andes, *Rhopalocera*, 4 spp. n. THIEME (1380), Ecuador, Bolivia, *Lymanopoda*, 2 spp. n. THIERRY-MIEG (1385), Peru, *Callipia*, *Stammnodes*, *Synneuria* and *Marmopteryx* sp. n., and *Geometridae* spp. n. WARREN (1474), *Thyrididae*, 2 n. spp., *Epiplem.*, 18 n. spp., *Geometridae*, about 300 n. spp., n. genu. WARREN (1477), *Siculodes*, 2 spp. n., *Epiplem.* spp. n., *Geometridae*, many spp. n.
- Diptera*. BISCHOF (130), *Tachinidae*, 13 spp. n. COQUILLET (319);

- Brazil, *Ceratopogon* sp. n. REED (1123), Chile, *Ornithomyia* n. sp. SPEISER (1328), Rio Grande do Sul, *Stilbometopa* n. sp. STEIN (1342), *Anthomyiidae*, numerous n. sp.
- Aphaniptera*. BAKER (76), Brazil, *Pulex*, 2 spp. n. ROTHSCHILD, N. C. (1191), n. spp. ROTHSCHILD (1193), Paraguay, *Ceratopsylla* n. sp.
- Hemiptera*. BERGROTH (105), Brazil, *Scutellerides*, 2 spp. n. BREDDIN (165); *Edessa*, 13 spp. n. BREDDIN (170), Bolivia, *Colobasiastes* sp. n. BREDDIN (171), *Heteroptera*, many spp. n., n. g. BREDDIN (172), Ecuador, *Tomaspis*, 8 spp. n. DISTANT (387), Northern S. Amer. *Horcius*, 3 spp. n. DISTANT (393), Bolivia, *Cicada* sp. n. HORVÁTH (714), *Colobathristinae* n. spp. JACOBI (734), *Pæcilopectera*, 2 spp. n. JACOBI (736), Brazil, *Cicadidae* and *Fulgoridae*, 6 spp. n. KIRKALDY (813), *Notonectidae*, 2 spp. n. OSBORN (1001), Bolivia and Guiana, 5 spp. n. SCHMIDT (1229), *Flatides*, 8 spp. n. SCHOUTEDEN (1236), *Scutellerides*, 3 spp. n.
- Aphide*. SCHOUTEDEN (1240), *Aphide* of S. Amer., 1 sp. n.
- Trichoptera*. ULMER (1422), Patagonia and Chile, n. spp.
- Perlidae*. KLAPÁLEK (818), Patagonia, Peru, *Gripopteryx*, 2 spp. n.
- Termitidae*. DESNEUX (369), Surinam, *Rhinotermes* sp. n. DESNEUX (372), *Calotermes* sp. n., *Termes* sp. n.
- Ephemeridae*. ULMER (1422), Patagonia, notes.
- Odonata*. NEEDHAM (978), Brazil, *Micrathyria*, sp. n. RIS (1176), Patagonia and Chili list, distribution; Buenos Aires, 2 spp. n.
- Orthoptera*. BORELLI (153, 154), Ecuador, Argentina, Paraguay, *Forfic.* 3 spp. n. BURR (201), Guiana *Forcipula*, Ecuador *Labiá*, Darien *Spongiphora* sp. n. CAUDELL (255), Paraguay, *Forficul.* and *Phasmid.* spp. n. KIRBY (804), Pará, *Photina* sp. n. KIRBY (805), S. Amer. incl. Trinidad, *Phasmidae*, 6 spp. n., gen. n. LYNCH ARRIBÁLZAGA (897), Peru, *Schistocerca* sp. n. MjöBERG (950), *Anisolabis* n. sp. from Matto Grosso, in Sweden. REHN (1129), Bolivia, *Paracanthops cælebs*. REHN (1133), Brazil, Brit. Guiana, Chile, *Acrididae*, 5 spp. n.

### PALÆO-ENTOMOLOGY.

Palæozoic insects of Belgium, HANDLIRSCH, Mem. Mus. Belgique iii, 20 pp., vii pls.

Palæozoic Insects and their relations to plants, HANDLIRSCH (659).  
*Paleoblattina douvillei*, is part of a Trilobite, AGNUS, Rev. Sci. Bourbonnais xvii, p. 85.

#### Diptera.

- Culicidae*. *Corethra ciliata*, Baltic amber, MEUNIER, p. 89, Bull. Soc. ent. France 1904, n. sp.
- MEUNIER, monographs the *Cecidomyiidae*, *Mycetophilidae* and *Chironomidae* found in amber, describing the following n. genn. and n. spp.
- Bryocrypta*, *Cecidomyiidae* (? n. g.), *girafa*, p. 25, *capitosa*, p. 26, *vetusta*, *elegantula*, p. 27, *fagioides*, n. spp., p. 28, Ann. Soc. Bruxelles, xxviii.
- Palæocolpodia* (? n. g.), *eocenicæ* n. sp., p. 29.
- Colpoda xylophaga*, p. 30, *curvinervis*, p. 31, *brevicornis*, p. 32, n. spp.
- Dicroneurus magnificus*, p. 32, *elegantulus*, p. 33, n. spp.
- Epidosis gibbosa*, p. 33, *minuta*, p. 34, *noduliformis*, *titanica*, p. 35, n. spp.
- Camptomyia sinuosa*, p. 36, n. sp.
- Winnertzia radiata*, p. 36, *cylindrica*, p. 37, *affinis separata*, p. 38, n. spp.
- Monardia submonilifera*, p. 39, n. sp.
- Campylomyza crassitarsis*, p. 40, n. sp.
- Lestremia pinites*, p. 42, n. sp.
- Frirenica eocenicæ*, p. 43, n. sp.
- Heteropeza pulchella*, p. 43, n. sp.



*Ledomyiella* n. g.?, p. 44, *L. succini*, *rotundata*, p. 45, *eocenica*, *pygmæa*, p. 46, *crassipes*, p. 47, n. spp.

*Sciariidæ*. *Palæoheterotricha* n. g. *P. grandis* n. sp., p. 62, *Sciara splendida*, p. 64, *errans*, *villosa*, p. 65, *botuli*, p. 66, *sendelina*, p. 67, *difficilis*, p. 68, *verticillata*, *variabilis*, p. 69, *eocenica*, *diabolica*, p. 71, *orientalis*, p. 72, *rara*, *bella*, p. 73, *ignorata*, *preciosa*, p. 74, *klebsii*, p. 75, *prolifera*, p. 76, *rubsamenia*, *tertiaria*, p. 77, *robusta*, *morosa*, p. 78, *palmnickii*, *minuscule*, p. 79, *villosoides*, p. 80, *defectuosa*, p. 89, n. spp.

*Bradysia curiosa*, p. 80, *electra*, *morosoides*, p. 81, *infernalis*, *agilis*, p. 82, *umbrosa*, p. 83, n. spp.

*Corynoptera dubia*, p. 84, n. sp.

*Willistoniella* n. g. *W. magnifica*, p. 85, n. sp.

*Heeriella* n. g. *bifurcata*, n. sp., p. 86.

*Cerato* n. g. *C. longipalpis* n. sp., p. 86.

*Palæognoriste* n. g., p. 87, *P. sciariforme*, p. 88, n. sp.

*Sciarella* n. g. *S. mycetophiliformis* n. sp., p. 89.

*Helomyza major*, p. 22, *media*, *minuta*, p. 24, Baltic amber, MEUNIER, Feuille Natural. xxxv, n. spp.

*Leria alacris*, *sapromyzoïdes*, Baltic amber, MEUNIER, p. 25, Feuille Natural. xxxv, n. spp.

*Heteromyza dubia*, Baltic amber, MEUNIER, p. 25, Feuille Natural. xxxv, n. sp.

*Palæoheteromyza* n. g.

*P. crassicornis* n. sp., Baltic amber, MEUNIER, p. 26, Feuille Natural. xxxv.

HANDLIRSCH describes the following from the Permian, Russia.

*Palæohemiptera*, n. group, for 2 genm. viz., *Presbole* n. g. *hirsuta* n. sp., HANDLIRSCH, p. 2, Mem. Ac. St. Petersb. (viii) xvi, No. 5.

*Scytinoptera* n. g. *kokeni* n. sp., p. 3, t. c.

*Palæomantis* n. g. *schmidti* n. sp., HANDLIRSCH, p. 4, t. c.

*Petromantis rossica* n. sp., p. 5, HANDLIRSCH, t. c.

*Limmatoblatta* n. g. *permensis* n. sp., HANDLIRSCH, p. 6, t. c.

*Aissoblatta* n. g. *orenburgensis*, *rossica* n. spp., HANDLIRSCH, p. 6, t. c.

*Phthartus* n. g. *Ephemeridform*, *rossicus*, *netschajevi* n. spp., HANDLIRSCH, p. 6, t. c.

*Dyadentomum* n. g. *Ephemeridæ*, *permense* n. sp., HANDLIRSCH, p. 7, t. c.

*Thnetus* n. g. *Ephemeridæ*, *stuckenbergi* n. sp., HANDLIRSCH, p. 7, t. c.

*Dyadozoarium* n. g. *pachypus* n. sp., HANDLIRSCH, p. 7, t. c.

List of Palæozoic and secondary *Homoptera*, with *Acocephalites* n. g. *breddini* n. sp., Kimeridge of Catalonia, MEUNIER, pp. 119–121, Feuille Natural. xxxiv.

Neuropteroid Insect from Solenhofen (Jura), WALTHER, p. 14, Monatsber. deutsch. Geol. Ges., in Zeitschr. Deutsch. geol. Ges. iv.

### *Palæodictyoptera.*

*Progonopteryx* n. g. *belgica* n. sp., Upper Westphalian Belgium, p. 5, pl. i, figg. 1–3, HANDLIRSCH, Mem. Mus. Belgique iii.

*Anthracentomon* n. g. *latipenne* n. sp., Upper Westphalian, Belgium, p. 6, pl. i, figg. 4–6, HANDLIRSCH, t. c.

*Mecynoptera* n. g. *splendida* n. sp., Upper Westphalian, Belgium, p. 7, pl. ii, figg. 7, 8, HANDLIRSCH, t. c.

*Breyeria borinensis*, figure, description, referred to new family *Breyeriidæ*, pp. 7–10, pl. iii, figg. 9, 10, HANDLIRSCH, t. c.

### *Megasecoptera.*

*Palæopalara* n. g. *gracilis* n. sp., Upper Westphalian, Belgium, pp. 10, 11, pl. ii, figg. 12, 13, HANDLIRSCH, t. c.

*Anthracopalara* n. g. *falcipennis* n. sp., Upper Westphalian, Belgium, p. 11, pl. iv, figg. 14-16, HANDLIRSCH, t. c.

### *Blattoidea.*

*Archimylacris, belgica*, pl. iv, figg. 17, 18, *carbonis*, pl. v, figg. 19, 20; Upper Westphalian, Belgium, HANDLIRSCH, t. c.

### *Protorthoptera.*

*Omalia macroptera*, pl. v, fig. 21, p. 13, referred to new family *Omalidae*, HANDLIRSCH, t. c.

*Pachytylopsis persenairei*, pl. vi, figg. 22, 23, p. 14, referred to new family *Pachytylopsides*, HANDLIRSCH, t. c.

*Palorthopteron* n. g. *melas* n. sp., Upper Westphalian, Belgium, pl. v, fig. 24, p. 15, HANDLIRSCH, t. c.

*Symbaltophlebia* n. g. *latipennis* n. sp., Upper Westphalian, Belgium, p. 15, pl. vi, figg. 25, 26, HANDLIRSCH, t. c.

*Palæomastax* n. g. *carbonis* n. sp., Upper Westphalian, Belgium, pl. vii, figg. 27, 28, p. 16, HANDLIRSCH, t. c.

*Anthrocomastax* n. g. *furcifer* n. sp., Upper Westphalian, Belgium, pl. vii, figg. 29, 30, p. 17, HANDLIRSCH, t. c.

*Distasis* n. g. *rhizophora* n. sp., Upper Westphalian, Belgium, pl. vii, figg. 31, 32, p. 17, HANDLIRSCH, t. c.

The following is named in Amer. J. Sci. xv.

*Megablattina beecheri* n. g., n. sp., SELLARDS, p. 312, pl. viii; and in op. cit. xviii, is renamed *Archoblattina* n. n. *beecheri*, and figured and described, pp. 218-221.

SELLARDS in Amer. J. Sci. xv, and xviii, discusses Palæozoic *Blattidae* and describes the following new forms from the coal-measures.

*Mylacris anceps*, p. 129.

*Etoblattina juvenis*, p. 131, *coriacea*, p. 213.

*Gerablattina arcuata*, p. 216.

*Schizoblattina* n. g. *S. multinervia* n. sp., p. 217.

*Etoblattina gaudryi*, Carboniferous of Commentry, AGNUS, p. 29, Naturaliste 1904, n. sp.

*Etoblattina steinmannii*, Upper Carbon. Baden, STERZEL, p. lxxi, pl. i, Ber. Ges. Chemnitz xv.

## III. SYSTEMATIC.

N.B.—The reference numbers collected under the headings of the various groups refer to "Titles" on pp. 5-89, and are intended to give, in each case, a complete list of all memoirs containing anything of importance in connection with the group.

Classification of Insects, with list of his 34 Orders, HANDLIRSCH (657).

The classification of *Hexapoda*, BÖRNER (157).

Remarks on Börner's classification and names, ENDERLEIN, pp. 145, 146, Zool. Anz. xxviii.

Classification by gonapophyses, *Homoithoraka* and *Heterothoraka*, KLAPÁLEK (815).—KLAPÁLEK, Zool. Anz. xxviii, pp. 255-259, further upholds his system and criticises HANDLIRSCH.

Classification of Insecta, abstract of recent works, HEYMONS (684).

The names of the Orders of Insects, SHIPLEY (1291).—SHIPLEY'S list of Orders and names reproduced, Entomologist 1904, pp. 138, 139, and Psyche xi, p. 28.

New Palæozoic Insects from Upper Westphalian of Belgium, see Palæo-entomology, p. 124.

Iridescent and metallic coloration discussed, *Morpho*, *Entimus* etc., BIEDERMANN (129).

What is a species? P. ent. Soc. London 1904, pp. xiii-xvii.

The value of a diagnosis, K. DANIEL, Munchen. Kol. Zeitschr. ii, pp. 71 etc.

Prehistoric entomology, BERTHOUMIEU (114).

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## (A.) COLEOPTERA.

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## CARABIDÆ.

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## DYTISCIDÆ.

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*H. koeae*, Slavonia, GANGLBAUER, p. 352, t. c. : n. sp.  
*Hyphydrus ovatus* var., W. E. SHARP, p. 43, Ent. Mag. xl.  
*H. caviceps*, Congo, RÉGIMBART, p. 64, Ann. Mus. Genova xli, n. sp.  
*Laccophilus virescens* Brahm=(*obscurus* Panz.), BEDEL, p. 235, Abeille xxx.  
*L. flaviventris*, Guiana, RÉGIMBART, p. 224, Bull. Mus. Paris 1904, n. sp.



*Siettitia* n. g. near *Hydroporus*, p. 226, for *S. balsetensis* n. sp., Var, in a deep well, p. 227, ABEILLE, Bull. Soc. ent. France 1904.

## GYRINIDÆ.

*Dineutes subserratus*, Fernando Po, RÉGIMBART, p. 67, Ann. Mus. Genova xli, n. sp.

*Gyrites geayi*, Guiana, RÉGIMBART, p. 226, Bull. Mus. Paris 1904, n. sp.

## HYDROPHILIDÆ.

[Cf. BROUN (185), GANGLBAUER (580).]

The *Hydrophilidæ* of Europe, GANGLBAUER, pp. 141–286, Käf. Mitteleur. iv.

*Dicyrtocercyon* subg. n., *C. ustulatus* Preyssl., GANGLBAUER, p. 276, t. c.

*Hydræna*, notes on French, DEVILLE, p. 187, Abeille xxx.

*Limnebius paganettii*, Dalmatia, GANGLBAUER, p. 261, Käf. Mitteleur. iv,

n. sp.

*Paraliocercyon* subg. n., *C. depressum* etc., GANGLBAUER, p. 276, t. c.

*Sphæridium scarabæoides* in N. America, HOUGHTON, p. 310, Ent. News Philad. xv.

*Thomosis* n. g. near *Hydrostygnum*, p. 273, for *T. guanicola* n. sp., Bounty isld., BROUN, Ann. Nat. Hist. xiv.

## STAPHYLINIDÆ.

[Cf. BERNHAUER (107–109), BREIT (174), BROUN (184), BRUES (188), CAMERON (221), CASEY (248), FAUCONNET & VITURAT (480), FAUVEL (483–485, 487–491), GANGLBAUER (581–583), KLIMA (820), LEA (864), LUZE (895, 896), PENECKE (1016), PÉRINGUEY (1028), POPPIUS (1093, 1094, 1096), SCHATZMAYR (1223), WASMANN (1484A, 1486).]

The second part of Bernhauer's Palæarctic *Staphylinidæ*, published in 1902, is recorded only this year.

*Ænictonia anommatophila, kohli*, Congo, WASMANN, p. 637, Zool. Jahrb. Suppl. vii; *A. raffrayi*, Usambara, FAUVEL, p. 285, Rev. Ent. franc. 1904 : n. spp.

*Agerodes germaini, pulcher*, p. 225, *semiviolaceus*, p. 226, *capitalis*, p. 227, *denticulatus*, p. 228, *frater, quadriceps*, p. 229, S. America, BERNHAUER, Stettin. Ent. Zeit. lxxv, n. spp.

*Aleochara (Heterochara) glasunovi*, Centr. Asia, LUZE, p. 113, Horæ Soc. ent. Ross. xxxvii; *A. andrevesi*, p. 66, *viatica*, p. 67, India, FAUVEL, Rev. Ent. franc. xxiii; *A. parvicollis*, Peru, BERNHAUER, p. 240, Stettin. Ent. Zeit. lxxv : n. spp.

*Alianta phleoporina*, Sinai, FAUVEL, p. 72, Rev. Ent. franc. xxiii, n. sp.

*Amarochara ocaleoides*, p. 166, *korbi*, p. 167, Asia Minor, BERNHAUER, Verh. Ges. Wien 1902, Beiheft, n. spp.

*Anceus cordicollis*, Madagascar, FAUVEL, p. 296, Rev. Ent. franc. 1904, n. sp.

*Anisopsis* n. g., near *Oxytelus, flexuosa*, Zambesi, p. 108, *carinata*, Zanzibar, p. 109, n. spp., FAUVEL, t. c.

*Anommatophilus* n. g. near *Pygostenus*, p. 642, *A. kohli*, pl. xxxii, fig. 13, *minor, tenellus*, n. spp., Congo, p. 643, WASMANN, Zool. Jahrb. Suppl. vii.

*Anommatoxenus* n. g. near *Pygostenus*, p. 656, *A. clypeatus*, n. sp., Congo, p. 657, pl. xxxii, fig. 16, WASMANN, t. c.

*Anthobium sikkimi*, Darjeeling, FAUVEL, p. 88, Rev. Ent. franc. xxiii, n. sp.

- Apatetica semiviolacea*, Java, *rotundicollis*, Khasia hills, p. 85, *sparsicollis*, Lombok, *laevicollis*, Tonkin, p. 86, FAUVEL, t. c. **n. spp.**
- Astenus melanurus* var. *subnotatus*, FAUVEL, p. 51, t. c.
- Astilbus incola*, India, FAUVEL, p. 63, t. c. **n. sp.**
- Atemeles pratensoides*, Luxemburg, WASMANN, p. 10, Deutsche ent. Zeitschr. 1904, **n. sp.**
- Atheta bertolinii*, Italy, PORTA, Riv. Col. ital. ii, ?p. 130 [not seen by Recorder]; *A. (Hydrosmeeta) orientis*, Sinai, FAUVEL, p. 71, Rev. Ent. franc. xxiii; *A. (Aloconota) frontalis*, Central Asia, LUZE, p. 108, Horæ Soc. ent. Ross. xxxvii; *A. nilgiriensis*, India, FAUVEL, p. 62, Rev. Ent. franc. xxiii; *A. pubicollis*, Australia, p. 238, *dohrni*, Ecuador, p. 239, BERNHAUER, Stettin Ent. Zeit. lxxv : **n. spp.**
- Baptopoda* subg. **n.** of *Oxyptoda*, BERNHAUER, p. 47, Verh. Ges. Wien 1902, Beiheft.
- Belonuchus quadriceps*, p. 287, *holisinus*, p. 288, Usambara, FAUVEL, Rev. Ent. franc. 1904, **n. spp.**
- Bledius glasunovi*, Centr. Asia, LUZE, p. 87, Horæ Soc. ent. Ross. xxxvii; *B. distans*, p. 304, *perrieri*, *lugubris*, p. 305, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *B. bellicosus*, Sumatra, *conicicollis*, Tonkin, p. 111, *arenicola*, Malabar, *helferi*, Burma, p. 112; FAUVEL, t. c. : **n. spp.**
- Bobophites* **n. g.** near *Ophites*, p. 278, *pustulosus*, pl. i, fig. 2, *aspericeps*, **n. spp.**, Brazil, p. 279, FAUVEL, t. c.
- Bolitochara semiaspera*, India, FAUVEL, p. 65, t. c. **n. sp.**
- Bombylodes* **n. g.** for *Bombylius* Fauv., FAUVEL, p. 43, t. c.
- Boopinus* subg. **n.** of *Trogophlæus*, for *T. memnonius* etc.; KLIMA, p. 56, Munchen. Kol. Zeitschr. ii.
- Boreaphilus suhlbergi*, E. Siberia, POPPIUS, p. 106, Medd. Soc. Faun. Fenn. 1902/03, **n. sp.**
- Bryothinusa* **n. g.** near *Thinusa*, p. 312, *B. catalinae* **n. sp.**, California, p. 313, CASEY, Canad. Ent. xxxvi.
- Cænonica ethiopica*, Usambara, FAUVEL, p. 284, Rev. Ent. franc. 1904, **n. sp.**
- Coprophilus striatipennis* Epp., valid, LUZE, p. 80, Horæ Soc. ent. Ross. xxxvii.
- C. (Zonoptilus) reitteri*, Centr. Asia, LUZE, p. 69, Munchen. Kol. Zeitschr. ii; *C. bimaculatus*, Centr. Asia, LUZE, p. 79, Horæ Soc. ent. Ross. xxxvii; *C. alticola*, Himalaya, FAUVEL, p. 93, Rev. Ent. franc. 1904 : **n. spp.**
- Coryphium gredleri* var. *n. dilutipes*, GANGLBAUER, p. 197, Munchen. Kol. Zeitschr. ii.
- C. parvulum*, E. Siberia, POPPIUS, p. 107, Medd. Soc. Faun. Fenn. 1902/03, **n. sp.**
- Crymus* **n. g.** near *Planeustomus*, p. 92, *C. antarcticus* **n. sp.**, New South Georgia, p. 93, FAUVEL, Rev. Ent. franc. xxiii.
- Cryptobium extraneum*, Bengal, FAUVEL, p. 55, t. c.; *C. myrmecocephalum*, Clarence Riv., pl. iv, fig. 3, p. 71, LEA, P. Linn. Soc. N. S. Wales xxix : **n. spp.**
- Delopsis microphthalmia*, Java, FAUVEL, p. 95, Rev. Ent. franc. 1904, **n. sp.**
- Demera kohli*, *nitida*, Congo, WASMANN, p. 630, Zool. Jahrb. Suppl. vii, **n. spp.**
- Deropoda* subg. **n.** of *Oxyptoda*, BERNHAUER, p. 48, Verh. Ges. Wien lii, Beiheft.
- Dicaæ ventralis*, W. Australia, p. 73, *ruficollis*, N. S. W., p. 74, with var. *nigriventris*, p. 75, LEA, P. Linn. Soc. N. S. Wales xxix, **n. spp.**
- Diglossa peyerimhoffi*, p. 73, *cameroni*, p. 74, Red Sea, FAUVEL, Rev. Ent. franc. xxiii; *D. testacea*, *subtilissima*, Perim, CAMERON, p. 157, Ent. Mag. xl : **n. spp.**
- Dinusa ethiopica*, W. Africa, BERNHAUER, Verh. Ges. Wien 1902, Beiheft, p. 15, **n. sp.**

- Discoxenus* n. g. near *Doryloxenus*, p. 655, *D. lepisma*, *assmuthi*, India, p. 66, n. spp., Wasmann, Zool. Jahrb. Suppl. vii.
- Dorylocerus* n. g. near *Dorylobius*, p. 627, for *D. fossulatus* n. sp., Congo, p. 628, Wasmann, t. c.
- Dorylogaster* n. g. *Aleocharinorum*, p. 625, for *D. longipes* n. sp., p. 626, pl. xxx, fig. 4, West Africa, with *Anomma*, Wasmann, t. c.
- Dorylomimus* n. g. near *Mimeciton*, p. 620, for *D. kohli* n. sp., Congo, p. 622, Wasmann, t. c.
- Dorylonia* n. g. near *Myrmecodia*, *D. laticeps*, pl. xxxi, fig. 8, n. sp., Congo, Wasmann, p. 635, t. c.
- Dorylonilla* n. g. near *Notothecata*, *D. spinipennis*, pl. xxx, fig. 6, n. sp., Congo, Wasmann, p. 631, t. c.
- Dorylophila* n. g. near *Aleochara*, p. 632, *D. rotundicollis* n. sp., Congo, p. 633, pl. xxxi, fig. 7; Wasmann, t. c.
- Dorylopora* n. g. near *Dorylobius*, p. 628, for *D. costata*, pl. xxx, fig. 5, *kohli*, n. spp., Congo, p. 629, Wasmann, t. c.
- Doryloxenus annulatus*, p. 653, *eques*, *kohli*, *hirsutus*, p. 654, Africa, *transfuga*, *termitophilus*, p. 655, Wasmann, t. c. : n. spp.
- Dromeciton* n. g. near *Tetradonia*, p. 282, *wagneri* n. sp., Brazil, p. 283, pl. i, fig. 4, Fauvel, Rev. Ent. franc. 1904.
- Eccoptoglossa* n. g. near *Myrmecopora*, p. 105, *E. obscura* n. sp., Central Asia, p. 106, Luze, Horæ Soc. ent. Ross. xxxviii.
- Ecitonidia* and *Eciton*, relations, Brues, p. 21, Psyche xi.
- Ecitopora nitidiventris*, Texas, Brues, p. 250, Ent. News Philad. xv, n. sp.
- Eleusis planicollis* Macl. (= *australis* Fauv.), Lea, p. 77, P. Linn. Soc. N. S. Wales xxix.
- Eleusis conradi*, *kolbei*, Usambaræ, Fauvel, p. 292, Rev. Ent. franc. 1904; *E. perrieri*, *apicalis*, p. 298, *heterodera*, *boops*, p. 299, *hydrocephala*, p. 300, Madagascar, Fauvel, t. c.; *E. rufiventris*, p. 81, *conifrons*, Sumatra, *warburgi*, Celebes, p. 82, *discalis*, Sumatra, *plagiata*, *rotundiceps*, Sikkim, p. 83, *quadridens*, Perak, *lunigera*, Malasia, p. 84, Fauvel, t. c.; *E. spectabilis*, p. 4, *propinqua*, p. 5, *brachyptera*, *rectangulum*, p. 6, *bicarinata*, p. 7, *bisulcata*, p. 8, Madagascar, *mutica*, Gaboon, p. 9, Bernhauer, Verh. Ges. Wien liv; *E. cephalotes*, Mexico, Bernhauer, p. 218, Stettin Ent. Zeit. lxxv : n. spp.
- Erchomus uliticollis*, New Guinea, Fauvel, p. 295, Rev. Ent. franc. 1904, n. sp.
- Eulissus silvaticus*, p. 230, Madagascar, *purpuripennis*, Shanghai, p. 231, Bernhauer, Stettin Ent. Zeit. lxxv, n. spp.
- Eunonia* n. g. *Omalini*, p. 313, *E. keeniana* n. sp., Brit. Columbia, p. 314, Casey, Canad. Ent. xxxvi.
- Eupsorus* n. g. ? near *Omalium*, p. 45, for *E. costatus* n. sp., New Zealand, p. 46, Broun, Ann. Nat. Hist. xiv.
- Euryalea mongolica*, Shanghai, Bernhauer, p. 132, Verh. Ges. Wien 1902, Beiheft, n. sp.
- Falagria nilgiriensis*, India, Fauvel, p. 62, Rev. Ent. franc. xxiii, n. sp.
- Geodromicus punctulatus*, p. 77, *ovalis*, p. 78, Centr. Asia, Luze, Horæ Soc. ent. Ross. xxxvii, n. spp.
- Geostiba aurogemmata*, Algeria, Fauvel, p. 75, Rev. Ent. franc. xxiii, n. sp.
- Haploderus speculiventris*, Java, Fauvel, p. 97, t. c. n. sp.
- Holosus tenuicornis*, Gaboon, p. 13, *plicatus*, p. 14, *elegans*, *sumatrensis*, p. 15, Sumatra, Bernhauer, Verh. Ges. Wien liv; *H. sinuatus*, Mentawai, Bernhauer, p. 217, Stettin Ent. Zeit. lxxv; *H. parcestriatus*, Java, *pennifer*, Annam, p. 76, *brevipennis*, *insularis*, Malasia, p. 77, *aberrans*, Ceylon, p. 78, Fauvel, Rev. Ent. franc. xxiii : n. spp.
- Holotrochus coriaceus*, p. 306, *nigrita*, *nitescens*, p. 307, *marginicollis*, *specularis*, p. 308, *fairmairei*, p. 309, Madagascar, Fauvel, t. c. n. sp.
- Homalium* (*Phleostiba*) *usambaræ*, Africa, Fauvel, p. 291, t. c. ; *H. hova*,

- p. 300, *costipenne*, p. 301, Madagascar, FAUVEL, t. c.; *H. sulcicolle*, *chlorizans*, *obesum*, p. 89, *rude*, p. 90, Sumatra, FAUVEL, t. c. : **n. spp.**
- Homalota crenulata*, India, FAUVEL, p. 65, t. c. **n. sp.**
- Hoplandria mirabilis*, Peru, BERNHAUER, p. 237, Stettin Ent. Zeit. l xv, **n. sp.**
- Hoplitodes n. g.* p. 109, *echidne*, **n. sp.**, Natal, p. 110, FAUVEL, Rev. Ent. franc. 1904.
- Lathrobium (Glyptomerus) wingelmulleri*, Adamello-Alps, BREIT, p. 29, Munchen. Kol. Zeitschr. ii; *L. sinaicum*, Sinai, FAUVEL, p. 71, Rev. Ent. franc. xxiii : **n. spp.**
- Leistotrophus africanus*, Cameroons, BERNHAUER, p. 236, Stettin Ent. Zeit. l xv, **n. sp.**
- Leptacinus apicipennis*, St. Thomas, BERNHAUER, p. 234, t. c. **n. sp.**
- Leptusa (Typhlopasilia) pinkeri*, Mt. Adamello, GANGLBAUER, p. 196, Munchen. Kol. Zeitschr. ii, **n. sp.**
- Lesteva turkestanica*, Seravschan, LUZE, p. 76, Horæ Soc. ent. Ross. xxxvii, **n. sp.**
- Lispinus usambaræ*, *insignicollis*, Usambara, FAUVEL, p. 293, Rev. ent. franc. 1904; *L. varians*, p. 296, *agnatus*, p. 297, *obscurellus*, p. 298, Madagascar, FAUVEL, t. c.; *L. macropterus*, Celebes, p. 78, *validicornis*, Queensland, *sulcatus*, New Guinea, p. 79, *rugipennis*, *acicularis*, *quadrinotatus*, p. 80, Java, *binotatus*, New Guinea, p. 81, FAUVEL, t. c.; *L. pubiventris*, Gaboon, p. 10, *specularis*, Nias isld., p. 11, *curticollis*, Tonkin, *elongatus*, Sumatra, p. 12, BERNHAUER, Verh. Ges. Wien liv : **n. spp.**
- Maseochara indica*, Nilgiri hills, *javana*, Borneo, etc., FAUVEL, p. 66, Rev. Ent. franc. xxiii, **n. spp.**
- Maurachelia* subg. **n.** of *Oxyopoda*, BERNHAUER, p. 48, Verh. Ges. Wien 1902, Beiheft.
- Medon mimeticus*, Madagascar, BERNHAUER, p. 224, Stettin Ent. Zeit. l xv, **n. sp.**
- Megaconus lineipennis*, India, FAUVEL, p. 60, Rev. Ent. franc. xxiii, **n. sp.**
- Megalops hova*, *bifenestratus*, p. 309, *cribriceps*, p. 310, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *M. brevipennis*, Brazil, BERNHAUER, p. 222, Stettin Ent. Zeit. l xv : **n. spp.**
- Megarthus prosseni*, Dobratsch, SCHATZMAYR, p. 212, Munchen. Kol. Zeitschr. ii; *M. bimaculatus*, Ceylon, *basicornis*, Sikkim, FAUVEL, p. 87, Rev. Ent. franc. xxiii : **n. spp.**
- Microglossa rugipennis*, Seravschan, LUZE, p. 114, Horæ Soc. ent. Ross. xxxvii, **n. sp.**
- Mimophites n. g.* near *Ophites*, p. 280, *bouvieri*, pl. i, fig. 3, *laticeps n. spp.*, Brazil, p. 281, FAUVEL, Rev. Ent. franc. 1904.
- Mitomorphus obsoletus*, India, FAUVEL, p. 56, t. c. **n. sp.**
- Mycetoporus sibiricus*, E. Siberia, POPPIUS, p. 1, Ofv. Finska Forh. xlvi, No. 16, **n. sp.**
- Myrmedonia kohli*, *pedisequa*, Congo, WASMANN, p. 634, Zool. Jahrb. Suppl. vii; *M. termitobia*, p. 206, *termitophila*, p. 207, *compransor*, p. 208, *simplex*, *uncinata*, p. 209, *proca.*, p. 210, *puncticollis*, p. 211 *mima*, p. 212, *capicola*, *gentilis*, p. 213, *jucunda*, *gravidula*, p. 214, *illotula*, p. 215, *hirtella*, *conifera*, p. 216, *constrictata*, *anthracina*, p. 217, *gracilicornis*, p. 218, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : **n. spp.**
- Ocalea*, cf. *Sorecocephala*.
- Ocyppus similis*, variation of wings, MÜLLER, p. 171, var. *n. semialatus*, p. 172, Wien. ent. Zeit. xxiii.
- Ocyusa hibernica*, Rye, note, NEWBERY, p. 251, Ent. Mag. xl; *O. laticollis* Thoms. = (*hybernica* Rye), BERNHAUER, p. 140, Verh. Ges. Wien 1902, Beiheft.



- O. araxis*, Caucasus, p. 139, *fortepunctata*, Turkestan, p. 145, *caucasica*, Caucasus, p. 147, *O. (Parocyusa* subg. n.) *holdhausi*, Carinthia, p. 149, BERNHAUER, t. c. **n. spp.**
- Edichirus ventralis, rufitarsis*, p. 318, *kolbei*, p. 319, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *Æ. tricolor*, Australia and Tasmania, p. 61, pl. iv, fig. 1, *terminalis*, N. W. Australia, p. 62, LEA, P. Linn. Soc. N. S. Wales xxix : **n. spp.**
- Omalium nitidicolle*, p. 108, *obscuricorne*, p. 110, Lapland, POPPIUS, Medd. Soc. Faun. Fenn. 1902/03; *O. arenarium*, Cape Good Hope, BERNHAUER, p. 16, Verh. Ges. Wien liv : **n. spp.**
- Orosius sparsior*, Usambara, FAUVEL, p. 291, Rev. Ent. franc. 1904; *O. alutaceus*, Madagascar, *truncorum*, Zanzibar, p. 17, *eppelsheimi*, Mentawai, p. 18, *eggersi*, St. Thomas, p. 19, BERNHAUER, Verh. Ges. Wien liv; *O. strangulatus*, India, FAUVEL, p. 47, Rev. Ent. franc. xxiii : **n. spp.**
- Oxyopoda arabs*, Sinai, FAUVEL, p. 72, t. c.; *O. asiatica*, Turkestan, p. 74, *skalitzkyi*, Europe, p. 75, *pubescens*, Italy, p. 76, *doderoi*, Europe, p. 78, *O. (Deropoda* subg. n.) *cingulum*, Syria, p. 87, *caucasica*, Caucasus, *nova*, S. Europe, p. 94, *O. (Maurachelia* subg. n.) *pilosicollis*, Europe, p. 97, *antennata*, Turkey, p. 98, *schusteri*, Balkans and East Siberia, p. 104, *incognita*, Bucharest, p. 107, *fortepunctata*, Caucasus, p. 108, *meridionalis*, Greece and Syria, p. 114, *fauveli*, E. Siberia, p. 115, *minutissima*, S. Europe, p. 122, *longicollis*, Crimea, p. 123, BERNHAUER, Verh. Ges. Wien 1902, Beiheft : **n. spp.**
- Oxytelopsis madecassa* Tananarive, *genalis*, Perak, FAUVEL, p. 96, Rev. Ent. franc. 1904, **n. spp.**
- Oxytelus africanus* n. n. for *flavipennis* Epp. nec Kr., LUZE, p. 83, Horæ Soc. ent. Ross. xxxvii.
- O. excellens*, p. 81, *robusticornis*, p. 82, *luridipennis*, p. 84, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii; *O. lobatus*, p. 303, *anticus*, p. 304, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *O. bubalus*, Java, p. 97, *atriceps*, p. 98, Celebes, *megacephalus*, India, *gigantulus*, p. 99, *migrator*, Siam, *ruptus*, Java, p. 100, *heterophthalmus*, N. S. Wales, *dilutipennis*, W. Africa, p. 101, *planus*, Abyssinia, *nitidipennis*, Madagascar, p. 103, *claviger*, Abyssinia, *incisicollis*, E. Africa, p. 104, *bicolor*, Madagascar, Gaboon, p. 104, *sculptiventris*, Madagascar, p. 105, *crassus*, *speculum*, p. 106, *dentifrons*, S. America, *scorpio*, St. Domingo, p. 107, FAUVEL, t. c.; *O. curtus*, p. 219, *rugicollis*, p. 220, Australia, *opacinus*, Brazil, p. 221, BERNHAUER, Stettin Ent. Zeit. lxxv : **n. spp.**
- Pachycorinus ganglbaueri*, Madagascar, BERNHAUER, p. 234, t. c. **n. sp.**
- Pæderus usambaræ*, Africa, FAUVEL, p. 290, Rev. Ent. franc. 1904; *P. andrevesi*, p. 53, *gratiosus*, p. 54, India, FAUVEL, t. c.; *P. trimerus*, N. Guinea, FAUVEL, p. 294, Rev. Ent. franc. 1904 : **n. spp.**
- Palaminus suturalis*, p. 319, *madecassa*, *penifer*, *nossibianus*, p. 320, *allocerus*, *brunneus*, *circumflexus*, p. 321, Madagascar, FAUVEL, t. c.; *P. simoni*, India, FAUVEL, p. 50, t. c. : **n. spp.**
- Parosorius* n. g. for *Anceus foersteri*, BERNHAUER, p. 222, Stettin Ent. Zeit. lxxv.
- Parocalea* n. g. for *Ilyobates baicalica* Eppelsh., BERNHAUER, p. 169, Verh. Ges. Wien 1902 Beiheft.
- Parocyusa* subg. n. cf. *Ocyusa*.
- Philonthus tantulus*, p. 94, *indubius*, p. 95, *elegantulus*, p. 97, *P. (Gabrius) insignis*, p. 98, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii, **n. spp.**
- Phlæopora opaca*, Europe, p. 194, *secretæ*, Caspian, p. 196, BERNHAUER, Verh. Ges. Wien 1902, Beiheft, **n. spp.**
- Phyllodrepa (Dropephylla) gobanzi*, Dalmatia, GANGLBAUER, p. 650, Verh. Ges. Wien liv, **n. sp.**

- Pinophilus piceus*, India, FAUVEL, p. 51, Rev. Ent. franc. xxiii; *P. eppelsheimi*, Sumatra, BERNHAUER, p. 223, Stettin Ent. Zeit. lxx : **n. spp.**
- Placusa simulans*, Usambara, FAUVEL, p. 286, Rev. Ent. franc. 1904, **n. sp.**
- Planeustomus indicus*, Burma, FAUVEL, p. 91, t. c. **n. sp.**
- Platyola simplex*, Gaboon, BERNHAUER, Verh. Ges. Wien 1902, Beiheft, p. 41, **n. sp.**
- Platyprotopus niloticus*, Abyssinia, FAUVEL, p. 275, Rev. Ent. franc. 1904, **n. sp.**
- Platystethus spinicornis*, p. 85, *flavipennis*, p. 86, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii, **n. spp.**
- Polychelus n. g.* *Omaliini*, p. 74, *P. æneipennis n. sp.*, Centr. Asia, p. 75, LUZE, t. c.
- Psilotrichus n. g.* near *Ancyrophorus*, p. 69, *P. elegans n. sp.*, Turkestan, p. 70, LUZE, Munchen. Kol. Zeitschr. ii.
- Pygostenus pusillus*, p. 646, *bicolor*, *lævicollis*, p. 647, *fauveli*, *splendidus*, *luje*, *pubescens*, p. 648, *setulosus*, *kohli*, *longicornis*, *alutaceus*, p. 649, Africa, WASMANN, Zool. Jahrb. Suppl. vii, **n. spp.**
- Quediis luridipennis* Macl.=(*semiviolaceus* Blackb.), LEA, p. 65, P. Linn. Soc. N. S. Wales xxix.
- Q.* (*Microsaurus*) *kraussi*, Herzegowina, PENECKE, p. 135, Wien. ent. Zeit. xxiii; *Q.* (*Ediquus*) *solskyi*, p. 99, *rufilabris*, p. 100, *Q.* (*Microsaurus*) *fuscicornis*, p. 101, *Q.* (*Sauridus*) *imitator*, p. 102, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii : **n. spp.**
- Scopex triangularis*, Seravschan, LUZE, p. 90, t. c. **n. sp.**
- Scytoglossa n. g.* *Myrmedonini*, p. 109, *S. delicata*, **n. sp.**, Seravschan, p. 110, LUZE, t. c.
- Sorecocephala subg. n.* for *Ocalea reitteri*; BERNHAUER, p. 159, Verh. Ges. Wien 1902, Beiheft.
- Staphylinus (Ocypus) langei*, Congo, BERNHAUER, p. 235, Stettin Ent. Zeit. lxx; *S.* (*Trichoderma*) *glusunovi*, p. 92, *S.* (*Tasgius*) *transversiceps*, p. 93, Centr. Asia, LUZE, Horæ Soc. ent. Ross. xxxvii; *S. suspectus*, India, FAUVEL, p. 57, Rev. Ent. franc. xxiii : **n. spp.**
- Stenus parilis*, Centr. Asia, LUZE, p. 88, Horæ Soc. ent. Ross. xxxvii; *S. protector*, *irroreus*, p. 311, *uniformis*, *volvulus*, p. 312, *obconicus*, *mirus*, p. 313, *alluaudi*, *sicardi*, p. 314, *goudoti*, *dieganus*, p. 315, *chloropterus*, *pluripunctus*, *creberrimus*, p. 316, *troile*, *delphinus*, p. 317, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *S. belli*, p. 47, *ventricosus*, p. 48, *andrewesi*, *consors*, *millepunctus*, p. 49, India, FAUVEL, t. c. : **n. spp.**
- Stilicoderus umbratus*, India, FAUVEL, p. 52, t. c. **n. sp.**
- Stilicus quadrimaculatus*, Usambara, FAUVEL, p. 289, t. c.; *S. anommatophilus*, Congo, WASMANN, p. 658, Zool. Jahrb. Suppl. vii : **n. spp.**
- Suniopsis politus*, pl. iv, fig. 2, W. Australia, LEA, P. Linn. Soc. N. S. Wales xxix, **n. sp.**
- Sunius lithocharoides* var. *n. quadrimaculatus*, LUZE, p. 90, Horæ Soc. ent. Ross. xxxvii.
- S. gracilicornis*, Seravschan, LUZE, p. 89, t. c.; *S. apiciflavus*, p. 68, *trilineatus*, p. 69, *brevicollis*, pl. iv, fig. 13, p. 70, Australia, LEA, P. Linn. Soc. N. S. Wales xxix : **n. spp.**
- Sympolemon tiro*, Congo, WASMANN, pl. xxxii, fig. 12, p. 641, Zool. Jahrb. Suppl. vii, **n. sp.**
- Tachinus tundræ*, p. 1, *jacuticus*, p. 2, *ochoticus*, p. 5, East Siberia, POPPIUS, Ofv. Finska Forh. xlvi, No. 13; *T. splendens*, Seravschan, LUZE, p. 103, Horæ Soc. ent. Ross. xxxvii : **n. spp.**
- Tachyporus gracilicornis*, Seravschan, LUZE, p. 104, t. c. **n. sp.**
- Tetradelus n. g.*, new tribe near *Homaliini*, p. 90, *T. trigonuroides n. sp.*, Sikkim, p. 91, FAUVEL, Rev. Ent. franc. xxiii.

- Trilobitideus paradoxus*, Port Elizabeth, p. 619, *insignis*, Congo, p. 620, WASMANN, Zool. Jahrb. Suppl. vii, n. spp.
- Trogophlæus*, revision of palæarctic, subg. n. cf. *Boopinus*, KLIMA, pp. 43-66, Munchen. Kol. Zeitschr. ii.
- T. bernhaueri*, Irkutsk, p. 50, *reitteri*, Corfu, p. 57, *heydeni*, Turkestan, p. 59, KLIMA, t. c.; *T. alluaudi*, *dieganus*, p. 302, *malgaceus*, *boops*, p. 303, Madagascar, FAUVEL, Rev. Ent. franc. 1904; *T. (Thinodromus) brevicornis*, Seravschan, LUZE, p. 80, Horæ Soc. ent. Ross. xxxvii; *T. fuscipalpis*, Ceylon, *lepidicornis*, Celebes, FAUVEL, p. 94, Rev. Ent. franc. 1904; *T. pustulatus*, p. 20, *socius*, Annam, *brasiliensis*, p. 21, *fortepunctatus*, p. 22, Brazil, *caseyi*, N. America, p. 23, *varicornis*, Grenada, p. 24, BERNHAUER, Verh. Ges. Wien liv, n. spp.
- Xantholinus olliffi*, valid, characters, LEA, p. 66, P. Linn. Soc. N. S. Wales xxix.
- X. (Nudobius) pictipennis*, Africa, FAUVEL, p. 289, Rev. Ent. franc. 1904; *X. insularis*, Madagascar, p. 232, *bilimeki*, Mexico, p. 233, BERNHAUER, Stettin Ent. Zeit. lxx; *X. cinctus*, India, FAUVEL, p. 56, Rev. Ent. franc. xxiii : n. spp.
- Xerophygus ocellaris*, Sumatra, FAUVEL, p. 95, t. c. n. sp.
- Zyras forticornis*, *hastatus*, India, FAUVEL, p. 64, t. c.; *Z. plasoni*, Australia, BERNHAUER, p. 240, Stettin Ent. Zeit. lxx : n. spp.

## PSELAPHIDÆ.

[Cf. BROUN (184), DODERO (396, 397), FAUCONNET & VITURAT (480), GANGLBAUER (581), HOLDHAUS (695), MÜLLER (972), NORMAND (982), PEYERIMHOFF (1042, 1043), PIC (1071, 1077), RAFFRAY (1114), REITTER (1147), SCHATZMAYR (1223), WASMANN (1485).]

RAFFRAY gives a catalogue and genera of the family, as well as a large number of new species; of the 18 tribes 5 are new, and the name *Bryacini* gives place to *Brachyglutini*. The synonymy is not given by the Recorder below except when new nomenclature is involved. Ann. Soc. ent. France 1903 and 1904.

Termitophilous *Pselaphidæ*, WASMANN, pp. 3-5, Jägerskiöld exp., No. 13. The sexual characters of *Bythinus*, DODERO, pp. 466-468, Ann. Mus. Genova xli.

*Achillia convexiceps*, p. 135, *picea*, *cordicollis*, p. 136, *clavata*, *quadraticeps*, p. 137, *latifrons*, *blanchardi*, p. 138, *elfridæ*, *brevicornis*, p. 139, Chile, RAFFRAY, Ann. Soc. ent. France 1905, n. spp.

*Adiastulus* n. g. for *Oxarthrius ophthalmicus*, RAFFRAY, p. 638, Ann. Soc. ent. France 1904.

*Amauronyx barnevillei* (= *Euplectus guillebeaui* Xamb.), NORMAND, p. 200, Bull. Soc. ent. France 1900.

*A. bedeli*, Tunis, NORMAND, p. 213, Abeille xxx, n. sp.

*Amaurops pinkeri*, Mt. Adamello, GANGLBAUER, p. 195, Munchen. Kol. Zeitschr. ii, n. sp.

*Anasis impunctata*, Sumatra, RAFFRAY, p. 178, Ann. Soc. ent. France 1904, n. sp.

*Anasopsis* n. g. for New Caledonian *Anasis*, RAFFRAY, p. 179, t. c.

*Ancystrocerus carinatus*, Sumatra, RAFFRAY, p. 383, t. c. n. sp.

*Apharina nodula*, p. 311, *armata*, p. 312, Sumatra, RAFFRAY, t. c. n. spp.

*Aploderina* n. g. near *Hamotus*, *A. sulcicornis* n. sp., Bolivia, RAFFRAY, p. 386, t. c.

*Aporhexius* n. g. p. 593, *A. pubescens* n. sp., Bolivia, p. 594, RAFFRAY, Ann. Soc. ent. France 1903.

*Arhytodes brevicornis*, *brasiliensis*, S. America, RAFFRAY, p. 433, Ann. Soc. ent. France 1904, n. spp.



- Arthmius pedestrianus*, Mexico, p. 16, *transversalis*, *labiatus*, Brazil, p. 17, RAFFRAY, t. c. n. spp.
- Asymplectus flagellatus*, S. Africa, RAFFRAY, p. 538, Ann. Soc. ent. France 1903, n. sp.
- Atenisodus* n. g. near *Comatopselaphus*, *A. macrophthalmus* n. sp., Sumatra, RAFFRAY, p. 121, Ann. Soc. ent. France 1904.
- Balega dentata*, Mexico, RAFFRAY, p. 511, Ann. Soc. ent. France 1903, n. sp.
- Batocenus dimidiatus*, Bolivia, *incertus*, Amazons, RAFFRAY, p. 39, Ann. Soc. ent. France 1904, n. spp.
- Batraxis tumorosa*, p. 118, Sumatra, *indica*, India, *parvispina*, Sumatra, p. 119, *obesa*, Philippines, p. 120, RAFFRAY, t. c. n. spp.
- Batribolbus* n. g. for part of *Eubatraxis*, RAFFRAY, p. 60, t. c.
- Batrissiella* n. g. for *Eubatraxis caviventris*, RAFFRAY, p. 59, t. c.
- Batraxis elegans*, *gravidus*, Sumatra, RAFFRAY, p. 58, t. c. n. spp.
- Batrisodes obesus*, p. 23, *luteolus*, p. 24, *tricarinatus*, *tuberculatus*, p. 25, *acinosus*, p. 26, *ferinus*, p. 27, *tenuicornis*, *multiforus*, p. 28, *infundus*, p. 29, *patranus*, *nodosus*, p. 30, *indecorus*, *mavortius*, p. 31, *irritus*, p. 32, *demissus*, *sagax*, p. 33, Sumatra, *harmandi*, p. 34, *epistomalis*, p. 35, Japan, RAFFRAY, t. c. n. spp.
- Batrisomalus* n. g. for pt. of *Batraxis*, with *B. infossus* n. sp., S. India, RAFFRAY, p. 60, t. c.
- Batrisoscenus siamensis*, Siam, *furcifer*, p. 43, *tumorosus*, *triangulatus*, p. 44, *truncatus*, *mitratus*, p. 45, *vulneratus*, *carinatus*, p. 46, *trigona*, *longipes*, p. 47, *cameratus*, p. 48, *fornicatus*, *binodosus*, p. 49, *calcaratus*, Sumatra, *sauropes*, China, p. 50, *deformipes*, p. 51, *cultripes*, p. 52, *major*, Sumatra, *sinensis*, China, p. 53, *indecorus*, Sumatra, *annamita*, Hué, p. 54, *quadriceps*, p. 55, *immundus*, *capitatus*, p. 56, Sumatra, *carinicollis*, Botany bay, p. 57, RAFFRAY, t. c. n. spp.
- Biblominis* n. g. *B. minutus* n. sp., Antilles, RAFFRAY, p. 545, op. cit. 1903.
- Bibloplectus parviceps*, Cape G. H., RAFFRAY, p. 545, t. c. n. sp.
- Braxyda* n. gen. near *Achillia*, *B. hamata*, p. 145, *crassipes*, p. 146, n. spp., Bolivia, RAFFRAY, op. cit. 1904.
- Brachygluta caligata*, var. n. *depressifrons*, NORMAND, p. 215, Abeille xxx.
- B. bicaudata*, Tunis, NORMAND, p. 215, t. c. n. sp.
- Bryaxina* n. g. near *Achillia*, p. 140, *B. torticornis*, *armiceps*, p. 142, *lucida*, *clavata*, *dimidiata*, p. 143, *schaufussi*, *foveifrons*, p. 144, *crassicornis*, p. 145, Brazil, n. spp., RAFFRAY, Ann. Soc. ent. France 1904.
- Bryaxis* cf. *Bythinus*.—*B. sculptifrons* var. n. *roumanice*, *B. nodicornis* var. n. *montandoni*, RAFFRAY, p. 263, t. c.
- B. (Reichenbachia) mundicornis*, Bagdad, PIC, p. 49, Exchange xx, n. sp.
- Bunoderus* n. g. near *Brachygluta*, p. 151, *B. carinicollis*, Mexico, *longipilis*, Brazil, n. spp., p. 152, RAFFRAY, Ann. Soc. ent. France 1904.
- Bythinoplectus acutangulus*, Grenada, p. 503, *transversiceps*, Brazil, p. 504, RAFFRAY, op. cit. 1903, n. spp.
- Bythinus* auctt. to be called *Bryaxis* Kug., and the *Bythinini* to be called *Tychini*, RAFFRAY, pp. 254 etc., op. cit. 1904.
- B. (Bythoxenus) guignardi*, Basses-Alpes, PEYERIMHOFF, p. 214, Bull. Soc. ent. France 1904; *B. noesskei*, Rhaetian Alps, GANGLBAUER, p. 194, Munchen. Kol. Zeitschr. ii; *B. trigonoceras*, Mte. Cavallo, HOLDHAUS, p. 227, Munchen. Kol. Zeitschr. ii; *B. heterocerus*, Dalmatia, MÜLLER, p. 208, Munchen. Kol. Zeitschr. ii; *B. (Bythoxenus) cymerichi*, Sardinia, DODERO, p. 53, Ann. Mus. Genova xli: n. spp.
- Centrophthalmosis* n. g. *C. inexpectus*, p. 376, *sulcatus*, *reitteri*, p. 377, n. spp., Africa, RAFFRAY, Ann. Soc. ent. France 1904.
- Centrophthalmus guineaensis*, *abyssinicus*, p. 373, Africa, *birmanus*, Burma, *sinensis*, Mong-po, p. 374, *papuanus*, Dorey, *angustipalpus*, Java, *bicarinatus*, Gaboon, p. 375, RAFFRAY, t. c. n. spp.



- Cercoceroides simplex, tuberculatus*, Brazil, RAFFRAY, p. 410, t. c. **n. spp.**  
*Cercoceropsis n. g.* near *Cercoceroides*, *C. longipes n. sp.*, Brazil, RAFFRAY, p. 387, t. c.  
*Cercocerulus n. g.* for *Phalepsus hirsutus*, Schauf., RAFFRAY, p. 411, t. c.  
*Chenniopsis n. g.* p. 338, *C. madecassa n. sp.*, Madagascar, p. 339, RAFFRAY, t. c.  
*Claviger montandoni*, Roumania, RAFFRAY, p. 457, t. c. **n. sp.**  
*Cliarthrus semirugosus*, South Africa, RAFFRAY, p. 18, t. c. **n. sp.**  
*Comatopselaphus parcepunctatus*, Sumatra, RAFFRAY, p. 120, t. c. **n. sp.**  
*Cryptorhinula xybaridoides*, Brazil, RAFFRAY, p. 132, t. c. **n. sp.**  
*Ctenicellus n. g.*, p. 344, *C. major n. sp.*, Australia, p. 345, RAFFRAY, t. c.  
*Ctenisomimus n. g.* for *Sognorus oneiti*, RAFFRAY, p. 341, t. c.  
*Ctenisophus validicornis*, Sumatra, *bowringi*, Siam, p. 343, *irregularis*, Sumatra, p. 344, RAFFRAY, t. c. **n. sp.**  
*Ctenistes vaulogeri*, Tunis, PIC, p. 89, Echange xx; *C. crassicornis*, Burma, RAFFRAY, p. 340, Ann. Soc. ent. France 1904, **n. sp.**  
*Curculionellus hirtus*, Sumatra, RAFFRAY, p. 322, t. c. **n. sp.**  
*Cyathiger gracilis*, p. 305, *patruelis, nodicornis*, p. 306, *truncatus*, p. 307, Sumatra, RAFFRAY, t. c. **n. spp.**  
*Cyrtoplectus subg. n.* for *Euplectus sulciventris*, NORMAND, p. 200, Bull. Soc. ent. France 1904.  
*Dalmodes gracilipes*, Brazil, RAFFRAY, p. 270, Ann. Soc. ent. France 1904, **n. spp.**  
*Decarthron bicolor*, Chile, *hetschkoi*, Brazil, p. 187, *sulcipes*, Bolivia, *tritolum*, Brazil, p. 188, *arthriticum*, Mexico, *insulare*, Grenada, p. 189, *quadraticeps*, Mexico, *planiceps*, Colombia, p. 190, *schmitti*, Mexico, p. 191, *spinosum*, Grenada, *vulneratum*, Mexico, p. 192, *brasilianum*, *minutum*, p. 193, Brazil, *tomentosum*, Colombia, *schaufussi*, Amazons, *plunifrons*, Mexico, p. 194, *longicorne*, Amazons, *frontale*, Colombia, p. 195, RAFFRAY, t. c. **n. spp.**  
*Desimia caviceps*, S. Africa, RAFFRAY, p. 346, t. c.; *D. ferruginea*, Tunis, NORMAND, p. 219, Abeille xxx : **n. spp.**  
*Diaposis n. g.* for *Batrisus carinicornis* Raffr., RAFFRAY, p. 38, Ann. Soc. ent. France 1904.  
*Diaugis n. g.* near *Batrisoschema*, p. 14, *D. granulosa n. sp.*, Sumatra, p. 15, RAFFRAY, t. c.  
*Didymoprora semipunctata*, Queensland, RAFFRAY, p. 384, t. c. **n. sp.**  
*Drasinus n. g.* near *Decarthron*, *D. binodulus n. sp.*, Mexico, RAFFRAY, p. 148, t. c.  
*Ectopocerus n. g.* for *Decarthron verticicornis* Reitt., RAFFRAY, p. 149, t. c.  
*Eleusomatus*, p. 638, op. cit. 1904, the following is called *Eleusomatus*.  
*Eleusoptamus n. g.* for *Euplectus allocephalus*, Broun, RAFFRAY, p. 548, op. cit. 1903.  
*Ephostomus crassicornis*, Sumatra, RAFFRAY, p. 347, op. cit. 1904, **n. sp.**  
*Ephimia subnitida*, Grenada, RAFFRAY, p. 312, t. c. **n. sp.**  
*Ephymata n. g.* for *Bryaxis mucronata* Raffr., RAFFRAY, p. 149, t. c.  
*Eremomus n. g.* near *Brachygluta*, *E. obesus*, Bolivia, p. 177, *crassicornis*, Para, p. 178, **n. spp.**, RAFFRAY, t. c.  
*Euphalepsus tricarinatus*, p. 61, *fasciculatus*, p. 62, Brazil, *dentipes*, N. America, p. 63, *tibialis*, Amazons, p. 64, RAFFRAY, t. c.  
*Eupines minima*, Australia, p. 123, *E. (Byraxis) longiceps*, New Zealand, p. 124, RAFFRAY, t. c. **n. spp.**  
*Euplectus*, cf. *Cyrtoplectus*.  
*E. crussus, pici*, p. 210 with var. *scillarum*, p. 211, *fedjensis*, p. 212, Tunis, NORMAND, Abeille xxx; *E. caviceps*, p. 48, *sulciceps*, p. 49, New Zealand, Broun, Ann. Nat. Hist. xiv; *E. schmitti*, p. 540, *infossus*, p. 541, N. America, *exiguus, illepidus*, Antilles, p. 542, RAFFRAY, Ann. Soc. ent. France 1903 : **n. spp.**

- Eupsenius gracilis*, Antilles, RAFFRAY, p. 197, op. cit. 1904, **n. sp.**  
*Eurhexius searpunctatus*, *longicornis*, p. 589, *megacephalus*, p. 590, *quadri-foveatus*, *levis*, *subacuminatus*, p. 591, *octopunctatus*, *reitteri*, p. 592, *bicolor*, p. 593, Brazil, RAFFRAY, op. cit. 1903, **n. spp.**  
*Euteleia* **n. g.** near *Decarthron*, *E. lewisi*, p. 183, *trifoveata*, Brazil, *nodosa*, Mexico, p. 184, **n. spp.**, RAFFRAY, op. cit. 1904.  
*Eutyphlus schmitti*, Pennsylvania, RAFFRAY, p. 546, op. cit. 1903, **n. sp.**  
*Exallus* **n. g.** for part of *Ocarthrius*, RAFFRAY, p. 18, op. cit. 1904.  
*Filiger validus*, p. 310, *opacus*, p. 311, Sumatra, RAFFRAY, t. c. **n. spp.**  
*Fustiger smithi*, St. Vincent, RAFFRAY, p. 455, t. c. **n. sp.**  
*Fustigeropsis simplex*, S. Africa, RAFFRAY, p. 455, t. c. **n. sp.**  
*Globa levis*, Bolivia, RAFFRAY, p. 122, t. c. **n. sp.**  
*Golasa* **n. g.** p. 494, for *Sagola microcephala* Reitt., RAFFRAY, op. cit. 1903.  
*Hamotoides nigropilosus*, p. 407, Pará, *hirtus*, p. 408, Grenada, RAFFRAY, op. cit. 1904, **n. spp.**  
*Hamotus sternalis*, p. 389, *boliviensis*, p. 390, Bolivia, *globulifer*, Brazil, p. 392, *tibialis*, Mexico, *punctipennis*, Colombia, p. 393, *vesiculifer*, Venezuela, p. 394, *bulbifer*, Colombia, p. 395, *letus*, Paraguay, p. 397, *cavicornis*, Guatemala, *rugosus*, p. 398, *bicolor*, *fauveli*, p. 399, *sulcipalpus*, Bolivia, *grouvellei*, p. 400, *simplex*, p. 401, Brazil, *soror*, Venezuela, p. 403, *decipiens*, *longepilosus*, Colombia, p. 404, *longiceps*, Brazil, p. 405, RAFFRAY, t. c. **n. spp.**  
*Hapochreus* **n. g.** near *Batrisoschema*, p. 13, *H. granosus* **n. sp.**, Sumatra, p. 14, RAFFRAY, t. c.  
*Harmomima* **n. g.** near *Batrybraxis*, *H. grandiceps*, p. 269, *impressicollis*, p. 270, Bolivia, **n. spp.**, RAFFRAY, t. c.  
*Itamus* **n. g.** near *Decarthron*, *I. laticeps* **n. sp.**, Brazil, RAFFRAY, p. 196, t. c.  
*Iteticus* **n. g.** for part of *Batrisodes* etc., RAFFRAY, p. 19, t. c.  
*Jubus brevis*, Bolivia, *gracilicornis*, Mexico, p. 510, *clavatus*, Grenada, p. 511, RAFFRAY, op. cit. 1903, **n. spp.**  
*Labomimus harmandi*, India, RAFFRAY, p. 382, op. cit. 1904, **n. sp.**  
*Macharites glabratus*, found with *Ponera*, CHITTY, p. xl, P. ent. Soc. London 1904.  
*Macropectus tasmanicus*, Tasmania, RAFFRAY, p. 544, Ann. Soc. ent. France 1903, **n. sp.**  
*Melba grenadensis*, Antilles, p. 535, *dentipes*, N. America, p. 536, *quadri-foveata*, St. Thomas, p. 537, RAFFRAY, t. c. **n. spp.**  
*Nenemeca* **n. g.** near *Batrisus*, *N. bidentata* **n. sp.**, Sumatra, RAFFRAY, p. 37, op. cit. 1904.  
*Methorius* **n. g.** p. 537 for *Periplectus bicolor*, RAFFRAY, op. cit. 1903.  
*Methopias carinipes*, Bolivia, RAFFRAY, p. 106, op. cit. 1904, **n. sp.**  
*Mina nasuta*, Sumatra, RAFFRAY, p. 59, t. c. **n. sp.**  
*Mirus lavagnei*, Montpellier, DODERO, p. 40, Bull. Soc. ent. France 1904, **n. sp.**  
*Mitona* **n. g.** near *Xybaris*, *M. quadraticeps*, p. 129, *bisulciceps*, Bolivia, *mnizechi*, Colombia, p. 130, *nigra*, Venezuela, p. 131, **n. spp.**, RAFFRAY, Ann. Soc. ent. France 1904.  
*Nodulina* **n. g.** for *Bryaxis convexa* Schauf., RAFFRAY, p. 153, t. c.  
*Odontalgus gracilis*, *validus*, Sumatra, RAFFRAY, p. 348, t. c. **n. spp.**  
*Omotimus* **n. g.** for *Trimiodytes sulcifrons*, RAFFRAY, p. 534, op. cit. 1903.  
*Ophelius* **n. g.** near *Batrisopsis*, *O. simplex* **n. sp.**, Sumatra, RAFFRAY, p. 36, op. cit. 1904.  
*Patreus* **n. g.** near *Sagola*, for *P. lewisi* **n. sp.**, New Zealand, BROUX, p. 47, Ann. Nat. Hist. xiv.  
*Phalepsus vulgaris*, *cavicornis*, S. America, RAFFRAY, p. 416, Ann. Soc. ent. France 1904, **n. spp.**

- Phamismus velutinus*, Bolivia, RAFFRAY, p. 512, op. cit. 1903, n. sp.
- Phoberus* n. g. near *Reichenbachia*, *P. armatus* n. sp., Bolivia, RAFFRAY, p. 176, op. cit. 1904.
- Prosagola* n. g. p. 494, for *Sagola elfrida* Reitt., RAFFRAY, op. cit. 1903.
- Pselaphus globiventris*, Sicily, REITER, p. 46, Wien. ent. Zeit. xxiii; *P. pubescens*, Annam, *vestitus*, Sumatra, *squamosus*, Cape Town, RAFFRAY, p. 321, Ann. Soc. ent. France 1904: n. spp.
- Pselaptus politissimus*, Brazil, *sternalis*, Grenada, RAFFRAY, p. 128, op. cit. 1905, n. spp.
- Pseudohamotus planiceps*, Brazil, RAFFRAY, p. 409, op. cit. 1904, n. sp.
- Pseudophanias elegans*, *robustus*, p. 413, Sumatra, *punctatus*, Singapore, p. 414, *puberulus*, Penang, *clavatus*, Sumatra, p. 415, RAFFRAY, t. c. n. spp.
- Pyxidicerus lævipennis*, Sumatra, *laticollis*, Singapore, RAFFRAY, p. 501, op. cit. 1903.
- Radamellus* n. g. for *Radama spinipennis*, RAFFRAY, p. 456, op. cit. 1904.
- Raffrayia opaca*, S. Africa, RAFFRAY, p. 595, op. cit. 1903, n. sp.
- Reichenbachia addahensis*, W. Africa, *nava*, p. 156, *breviventris*, Sumatra, *infelix*, W. Africa, p. 157, *bengalensis*, India, *grouvellei*, Mexico, p. 158, *nitella*, Sumatra, *boliviensis*, Yuracaris, p. 159, *pygidialis*, Missouri, *cicatricosa*, Sumatra, p. 160, *muscorum*, Penang, *curvipes*, Brazil, p. 161, *arabica*, Hedjaz, *irrita*, p. 162, *luteola*, p. 163, *chevolati*, *pilosa*, p. 164, *illepida*, Brazil, *fasciculata*, p. 165, *compressipes*, p. 166, Sumatra, *orientalis*, W. Asia, p. 167, *maroccana*, Morocco, *grenadensis*, p. 168, *vincentiana*, Antilles, *cultrata*, Sumatra, p. 169, *falsa*, Yucatan, p. 170, *globulosa*, Brazil, p. 171, *chiricahuensis*, Arizona, p. 172, *mexicana*, Mexico, *oberthuri*, Honda, p. 173, *appendiculata*, Mexico, p. 174, *obnubila*, Yucatan, *immodica*, Colombia, p. 175, RAFFRAY, op. cit. 1904; *R. infossa*, Sumatra, RAFFRAY, p. 635, t. c.: n. sp.
- Rybaxis villosa*, Tonkin, *convexa*, Sumatra, p. 181, *bicarinata*, Queensland, p. 182, RAFFRAY, t. c. n. spp.
- Salagosa* n. g. p. 494, for *Sagola brevipennis* Reitt., RAFFRAY, op. cit. 1903.
- Sathytes gracilis*, Sumatra, RAFFRAY, p. 65, op. cit. 1904, n. sp.
- Scalenarthrus subcarinatus*, Yucatan, *schaufussi*, Brazil, p. 125, *simplex*, Bolivia, *obliquus*, Mexico, p. 126, *clavatus*, *pectinicornis*, Antilles, p. 127, RAFFRAY, t. c. n. spp.
- Schaufussia nasuta*, S. Australia, RAFFRAY, p. 385, t. c. n. sp.
- Strombopsis* n. g. near *Xybarida*, p. 133, *X. brevipennis* n. sp., Brazil, RAFFRAY, t. c.
- Subulipalpus myrmecophilus*, Hong-Kong, RAFFRAY, p. 383, t. c. n. sp.
- Tanypleurus megacephalus*, Sumatra, RAFFRAY, p. 271, t. c. n. sp.
- Thesiastes liliputanus*, Granada, RAFFRAY, p. 543, op. cit. 1903, n. sp.
- Thysdarius* n. n. for *Thysdrus* Fairm., FAIRMAIRE, p. 117, Bull. Soc. ent. France 1904.
- Tmesiphorus punctatus*, Assinia, p. 378, *arrowi*, Adelaide Riv., p. 379, *bispina*, *squamosus*, p. 380, *aspericollis*, p. 381, Sumatra, RAFFRAY, Ann. Soc. ent. France 1904, n. spp.
- Trimium longiventre*, Transcaucasus, RAFFRAY, p. 534, op. cit. 1903, n. sp.
- Triomicrus cavernosus*, *humilis*, China, RAFFRAY, p. 147, op. cit. 1904, n. spp.
- Tychus*, study, synonymical and varietal, PEYERIMHOFF, Abeille xxx, pp. 169-179, *T. bryaxioides* var. n. *raffrayi*, p. 173; *T. niger* and *bryaxioides*, variation, *bryaxioides* var. n. *poupilieri*, RAFFRAY, pp. 265-267, Ann. Soc. ent. France 1904.
- T. bispina*, Tangier, p. 267, *sternalis*, Pennsylvania, p. 268, RAFFRAY, t. c. n. spp.
- Tyraphus vestitus*, Sumatra, RAFFRAY, p. 636, t. c. n. sp.
- Tyrus tillyi*, Carinthia, SCHATZMAYR, p. 213, Munchen. Kol. Zeitschr. ii, n. sp.

- Xybarida punctulum*, Brazil, RAFFRAY, p. 133, Ann. Soc. ent. France 1904, **n. sp.**  
*Xybaris quadraticeps*, p. 131, *atomaria*, p. 132, Brazil, RAFFRAY, t. c. **n. spp.**  
*Zethopsus puncticeps*, Sumatra, RAFFRAY, p. 502, op. cit. 1903, **n. spp.**

## PAUSSIDÆ.

[Cf. PÉRINGUEY (1028), WASMANN (1481).]

- Paussidæ*, remarks on phylogeny and biology, also new varr. besides the spp. mentioned below, WASMANN, Notes Leyden Mus. xxv, pp. 1-82.  
*Hylotorus sebakuanus*, Rhodesia, PÉRINGUEY, p. 205, Ann. S. African Mus. iii, **n. sp.**  
*Paussus favieri*, relations with ants, NORMAND, p. 79, Echange xx.  
*P. cerambyx*, Congo, p. 51, pl. iv, f. 3, *bicornis*, Cameroons, f. 2, p. 52, *semicucullatus* (Brauns), Port Elizabeth, p. 53, *cardoni*, p. 57, pl. v, f. 6, *assmuthi*, p. 58, pl. vi, f. 4, *seriesetosus*, f. 3, p. 59, *quadratidens*, p. 60, *aureofimbriatus*, p. 61, pl. vi, f. 5, India, *spiniceps*, p. 63, f. 6, Sierra Leone, *pandamanus*, f. 6, p. 64, *nigrita*, p. 65, Java, WASMANN, Notes Leyden Mus. xxv, **n. spp.**  
*Platyhopalus cardoni*, India, p. 19, *paussoides*, Bootang, p. 20, pl. iii, f. 3, WASMANN, t. c. **n. spp.**  
*Pleuropterus oberthuri*, p. 9, *brevicornis*, p. 10, Africa, WASMANN, t. c. **n. spp.**

## SCYDMÆNIDÆ.

[Cf. FAUCONNET & VITURAT (480), REITTER (1151, 1152).]

- Euconnus solarii*, Valle Lucano, REITTER, p. 152, Wien. ent. Zeit. xxiii, **n. sp.**  
*Neuraphes bescidicus*, Silesia, REITTER, p. 147, t. c. **n. sp.**  
*Stenichnus pilosissimus*, Valle Lucano, REITTER, p. 151, t. c. **n. sp.**

## SILPHIDÆ.

[Cf. ABEILLE (4), CHOBOUT (271), CSIKI (328), DODERO (397), FLEISCHER (513), MAYET (926), MÜLLER (970, 971), PEYERIMHOFF (1041, 1042), POPPIUS (1094), PORTEVIN (1100), REITTER (1142, 1151, 1152, 1155), WASMANN (1482), ZOUFAL (1549).]

REITTER figures Bosnian and Herzegowinian Cave *Silphidæ*, pl. 1, p. 146, Wien. ent. Zeit. xxiii.

- Agathidium levigatum*, Valle Lucano, REITTER, p. 154, t. c. **n. sp.**  
*Anemadus leonhardi*, Herzegowina, REITTER, p. 154, t. c. **n. sp.**  
*Antroherpon loreki*=(*kraussi* Müll.), REITTER, p. 84, t. c.  
*A. loreki*, cavern in Herzegowina, ZOUFAL, p. 20, Wien. ent. Zeit. xxiii; *A. kraussi*, Herzegowina, MÜLLER, p. 38, Munchen. Kol. Zeitschr. ii, **n. spp.**  
*Apholeuonus nudus* var. *n. longicollis*, REITTER, p. 255, Wien. ent. Zeit. xxiii.  
*A. (Haplotropidius) subg. n.* p. 89), *pubescens*, p. 78, pl. i, f. 1, *tavi*, p. 83, f. 2, Dalmatian caverns, MÜLLER, SB. Ak. Wien cxii, Abt. i, **n. spp.**  
*Bathyscia destefanii*, valid, list of Italian *B.*, DODERO, pp. 121-123, Natural. Sicil. xvii; *B. champsauri*, p. 215, *foveicollis*, p. 216, subspp. n., PEYERIMHOFF, Bull. Soc. ent. France 1904; *B. neumanni*, characters, REITTER, p. 260, Wien. ent. Zeit. xxiii.  
*B. nemausica*, Nimes, CHOBOUT, p. 76, Bull. Soc. Nimes xxxi; *B. jeanneli*, p. 242, *elguæ*, p. 243, Basses Pyrénées, ABEILLE, Bull. Soc. ent. France 1904; *B. (Aphaobius) fabianii*, Venetia, p. 55, *raveli*, Capri, p. 57, *lostæ*, Sardinia, p. 58, DODERO, Ann. Mus. Genova xli; *B. serbica*,



- Servia, MÜLLER, p. 41, Munchen. Kol. Zeitschr. ii ; *B. (Aphaobius) eurycnemis*, cavern Herzegowina, REITTER, p. 26, Wien. ent. Zeit. xxiii : **n. spp.**
- Blatrodromus* **subgen. n.**, cf. *Pholeuonopsis*.
- Choleva pallida*, E. Siberia, POPPIUS, p. 2, Ofv. Finska Forh. xlvi, No. 16, **n. sp.**
- Delios* **n. g.** *Liodini*, *D. bouvieri* **n. sp.**, Darjeeling, PORTEVIN, p. 335, Bull. Mus. Paris ix.
- Diaprysius mazaurici*, cavern, Gard, MAYET, p. 31, Bull. Soc. Nimes xxxi ; *D. serullazi*, Ardèche. PEYERIMHOFF, p. 185, Bull. Soc. ent. France 1904 : **n. spp.**
- Dissochætus geayi*, French Guiana, PORTEVIN, p. 329, Bull. Mus. Paris ix, **n. sp.**
- Eusilpha hypocrita*, Mou-pin, PORTEVIN, p. 332, t. c. **n. sp.**
- Hadrambe* Thoms. is syn. of *Ecanus* Steph., BEDEL, p. 235, Abeille xxx.
- Haplotropidius* **subgen. n.**, cf. *Apholeuonus*.
- Liodes*, habits, with larvæ noticed, FLEISCHER, pp. 251–254, Wien. ent. Zeit. xxiii, *L. curvipes* (= *macropus* Rye) characters, var. *n. ruficornis*, FLEISCHER, p. 162, t. c. ; *L. ovalis, nigricollis*, nov., FLEISCHER, p. 166, t. c. ; *L. scita*, cf. *Trichosphærule*.
- L. chaffanjonii*, Mongolia, *contracta*, Darjeeling, PORTEVIN, p. 335, Bull. Mus. Paris ix, **n. spp.**
- Loricaster cribripennis*, France, REITTER, p. 147, Wien. ent. Zeit. xxiii, **n. sp.**
- Necrophorus vespilloides* var. *n. lateralis*, PORTEVIN, p. 330, Bull. Mus. Paris ix.
- N. quadraticollis*, Mou-pin, id., l. c. **n. sp.**
- Philas* **n. g.** for *Silpha truncata* Say, PORTEVIN, p. 331, t. c.
- Pholeuon (Parapholeuon) hungaricum*, Szohodol, CSIKI, p. 565, Ann. Mus. Hungar. ii, **n. sp.**
- Pholeuonopsis (Blattodromus* subg. *n.*) *herculeana*, Bosnia, REITTER, p. 153, Wien. ent. Zeit. xxiii, **n. sp.**
- Pteroloma harmandi*, Darjeeling, PORTEVIN, p. 334, Bull. Mus. Paris ix, **n. sp.**
- Ptomaphagus bicolor*, Darjeeling, PORTEVIN, p. 329, t. c. **n. sp.**
- Scotocryptus*, notes, larva, WASMANN, Rev. Mus. Paulista vi, pp. 483–487.
- Silpha inæqualis* var. *n. rugulosa*, PORTEVIN, p. 333, Bull. Mus. Paris ix.
- Silphosoma* **n. g.** for *Silpha metallescens* Fairm., PORTEVIN, p. 333, t. c.
- Thanatophilus thoracicus* var. *n. davidi*, PORTEVIN, p. 331, t. c.
- Trichosphærule* subg. *n.* of *Liodes* for *scita* Er., FLEISCHER, p. 261, Wien. ent. Zeit. xxiii.

## TRICHOPTERYGIDÆ.

- Ptenidium levipenne*, East Pyrenees, ABEILLE, p. 100, Miscell. Ent. xii, **n. sp.**

## SCAPHIDIIDÆ.

- Scaphidium matthewsi* **n. n.** for *unicolor* Matth., CSIKI, p. 85, Wien. ent. Zeit. xxiii.
- Scaphosoma reitteri* **n. n.** for *læve* Guillb., CSIKI, p. 85, t. c.

## HISTERIDÆ.

[Cf. DAVIS (352), LEWIS (880), REITTER (1144, 1152), SCHAEFFER (1220).]

*Hister* attacking caterpillars, DAVIS (352).

- Acrilus nigricornis*, sexes, MÜLLER, p. 172, Wien. ent. Zeit. xxiii; *A. seminulum* and *nigricornis* as sexes, REITTER, p. 36, t. c.; *A. nigricornis* and *seminulum*, correction, GERHARDT, p. 368, Deutsche ent. Zeitschr. 1904.
- A. italicus*, Valle Lucano, REITTER, p. 155, Wien. ent. Zeit. xxiii, **n. sp.**
- Enicosoma n. g.* for *E. vespertinum n. sp.*, Brazil, LEWIS, p. 149, pl. vi, f. 5, Ann. Nat. Hist. xiv, **n. sp.**
- Eutidium lepidum*, Brazil, LEWIS, p. 138, t. c. **n. sp.**
- Gnathonus*, synonymy, *G. schmidtii*, established, REITTER, p. 35, Wien. ent. Zeit. xxiii.
- Hister pachysoma*, characters, LEWIS, p. 146, Ann. Nat. Hist. xiv.
- H. belli*, India, p. 146, *walkeri*, Australia, p. 147, LEWIS, t. c. **n. spp.**
- Hololepta dux*, Cameroons, LEWIS, p. 138, t. c. **n. sp.**
- Lioderma intersectum*, Peru, LEWIS, p. 139, t. c. **n. sp.**
- Macrolister n. g.* for *Hister gigas* etc., LEWIS, p. 145, t. c.
- Niponius canalicollis*, f. 1, *parvulus*, f. 2, *andrevesi*, f. 3, pl. vi, LEWIS, t. c.
- N. striaticeps*, Borneo, p. 137, pl. vi, f. 4, id. t. c. **n. sp.**
- Omalodes mestino*, Peru, LEWIS, p. 144, **n. sp.**
- Orectoscelis humeralis*, pl. vi, fig. 6, LEWIS, t. c.
- Pachycrærus cylindricus*, description, LEWIS, p. 148, t. c.
- Pachylister n. g.* for *Hister caffer* etc., LEWIS, p. 145, t. c.
- Pachylomalus andrevesi*, India, LEWIS, p. 147, t. c. **n. sp.**
- Placodes brauni*, S. Africa, LEWIS, p. 142, t. c. **n. sp.**
- Plæsius mouhoti*, *planulus*, *lævis*, redescribed, LEWIS, pp. 140, 141, t. c.
- Platylister sororius*, India, LEWIS, p. 142, t. c. **n. sp.**
- Platysoma capense* is *henningi* Sturm, *sculptum* Fähr, *punctulatum* Lew., LEWIS, p. 144, t. c.
- P. raptistriatum*, Java, LEWIS, p. 143, t. c. **n. sp.**
- Probolosternus termitophilus*, S. Africa, LEWIS, p. 148, t. c. **n. sp.**
- Saprinus politus* Brahm = (*pulcherrimus* Web.), BEDEL, p. 236, Abeille xxx; *S. lateristrius* var. *n. laterimargo*, REITTER, p. 32, Wien. ent. Zeit. xxiii.
- S. mimulus*, Astrakhan, p. 29, *syphax*, Algiers, p. 30, *duriculus*, Transcaasian, p. 31, *refector*, Samarkand, p. 32, *netuschili*, Mongolia, *pseudolautus*, Transcaucasus, p. 33, *pseudognathoncus*, W. Caucasus, p. 34, REITTER, t. c.: *S. dichrous*, *flavopictus*, S. America, LEWIS, p. 150, Ann. Nat. Hist. xiv : **n. spp.**
- Stenotrophis cavifrons*, pl. vi, fig. 7, LEWIS, t. c.
- Teinotarsus latipes*, Old Calabar, LEWIS, p. 145, t. c. **n. sp.**
- Teretriosoma sexualis*, Texas, SCHAEFFER, p. 203, J. N. York Ent. Soc. xii, **n. sp.**

## NITIDULIDÆ.

[Cf. GROUVELLE (639), POPPIUS (1094), SCHAEFFER (1220).]

- Camptodes texanus*, Brownsville, SCHAEFFER, p. 203, J. N. York Ent. Soc. xii, **n. sp.**
- Epuræa opacula*, E. Siberia, POPPIUS, p. 3, Ofv. Finska Forh. xlvi, No. 16, p. 5, **n. sp.**
- Glischrochilus olivieri*, synonymy, BEDEL, p. 236, Abeille 1904.
- Meligethes atomus*, Congo, GROUVELLE, p. 181, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Pocadius ferrugineus* and *striatus*, synonymy, BEDEL, p. 236, Abeille 1904.

## COLYDIDÆ.

[Cf. GROUVELLE (639).]

- Caprodes ater*, Congo, GROUVELLE, p. 181, Ann. Soc. ent. Belgique xlviii, **n. sp.**

- Cerylon ovale*, Gaboon, GROUVELLE, p. 182, t. c. **n. sp.**  
*Endophlæus markovichianus* Pill. (= *spinosulus* Latr.), BEDEL, p. 236, Abeille xxx.  
*Minthea rugicollis* Walk. (as *Ditoma*) = (*similatra* Pasc. = *Eulachus hispidus* Blackb. = *Lyctopholis foveicollis* Reitt.), ARROW, pp. 35, 36, Ent. Mag. xl.

## RHYSODIDÆ.

- Rhysodes ichthyocephalus, abbreviatus*, p. 79, *mirabilis*, pl. iv, fig. 7, p. 80, Queensland, *trichostemus*, p. 81, Victoria and Tasmania, *planatus*, Victoria, p. 82, LEA, P. Linn. Soc. N. S. Wales xxix, **n. spp.**

## CUCUJIDÆ.

[Cf. GROUVELLE (639), LEA (864), SCHAEFFER (1220).]

- Dryocora walkeri*, Tasmania, LEA, p. 87, pl. iv, fig. 5, P. Linn. Soc. N. S. Wales xxix, **n. sp.**  
*Læmophlæus diemenensis* ♀, pl. iv, fig. 14, *frenchi*, fig. 4; LEA, p. 87, t. c.  
*L. notabilis*, Congo, GROUVELLE, p. 183, Ann. Soc. ent. Belgique xlvi; *L. subopacus*, W. Australia, p. 82, *ubiquitosus*, Tasmania, p. 83, *pilosus*, p. 84, *testaceo-rufus*, W. Australia, *eucalypti*, Tasmania, p. 85, *pallidus*, Australia, p. 86, LEA, P. Linn. Soc. N. S. Wales xxix : **n. spp.**  
*Læmotmetus rhizophagoides* Walk. (as *Trogossita*) = (*ferrugineus* Gerst. = *Oryzæcus cathartoides* Reitt. = *Asana rhizophagoides* Oll.), ARROW, p. 36, Ent. Mag. xl.  
*Silvanus proximus*, p. 183, *frater*, p. 184, West Africa, GROUVELLE, Ann. Soc. ent. Belgique xlvi, **n. spp.**  
*Platysus integricollis*, larva, LEA, p. 88, pl. iv, fig. 6, P. Linn. Soc. N. S. Wales xxix.  
*Rhinomdulus texanus*, Brownsville, SCHAEFFER, p. 201, J. N. York Ent. Soc. xii : **n. sp.**

## CRYPTOPHAGIDÆ.

[Cf. GABRIEL (577), SCHAEFFER (1220).]

- Atomaria*; mode of distinguishing species, table, GABRIEL, Zeitschr. Ent. Breslau xxix, pp. 85-89; *A. proluxa* and *pulchra*, characters, GERHARDT, p. 83, Zeitschr. Ent. Breslau xxix.  
*Loberus ornatus*, Texas, SCHAEFFER, p. 201, J. N. York Ent. Soc. xii : **n. sp.**  
*Tomarus chamæropis*, Texas, SCHAEFFER, p. 202, t. c. **n. sp.**

## LATHRIDIIDÆ.

[Cf. POPPIUS (1095), REITTER (1152), SEMENOW (1278).]

- Corticaria solarii*, Valle Lucano, REITTER, p. 156, Wien. ent. Zeit. xxiii : *C. dentiventris*, E. Siberia, POPPIUS, p. 84, Medd. Soc. Faun. Fenn. 1902/03 : **n. spp.**  
*Enicmus minutus* and *anthracinus*, distinguished, REITTER, pp. 43-45, 80, Wien. ent. Zeit. xxiii.  
*Lar* **subg. n.** of *Lathridius* for *L. bergrothi*, SEMENOW, p. 314, Rev. Russe Ent. 1904.  
*Lathridius subbrevis* Motsch., characters, POPPIUS, p. 89, Medd. Soc. Faun. Fenn. 1902/03.  
*Lathridius semenowi*, p. 87, *lenensis*, p. 91, East Siberia, POPPIUS, t. c. ; *L. poppiusi*, E. Siberia, SEMENOW, p. 289, Rev. Russe Ent. 1904 : **n. spp.**

## MYCETOPHAGIDÆ.

[Cf. GROUVELLE (639), REITTER (1153).]

*Lithargus trimaculatus*, p. 184, *variegatus*, p. 185, Congo, GROUVELLE, Ann. Soc. ent. Belgique xlviii, **n. spp.**

*Mycetophagus irroratus* = (*tschitscherini* Reitt.), SEMENOW, p. 305, Rev. Russe Ent. 1904; *M. decempunctatus* var. *n. syriacus*, REITTER, p. 165, Wien. ent. Zeit. xxiii.

*M. ramosus*, Caucasus, id. p. 166, t. c., **n. sp.**

*Typhæa stercorea* L. 1758 = (*funata* L. 1761), BEDEL, p. 235, Abeille xxx.

## THORICTIDÆ.

*Thorictus peyerimhoffi*, Arabia, CHABAUT, p. 243, Bull. Soc. ent. France 1904; *T. kaznakovi*, E. Buchara, SCHMIDT, p. 389, Annuaire Mus. St. Petersb. viii : **n. spp.**

## DERMESTIDÆ.

[Cf. GANGLBAUER (580), PIC (1060, 1068, 1075).]

The European *Dermestidæ*, GANGLBAUER (580).

*Attagenus biskrensis*, Algeria, PIC, p. 2, Echange 1904; *A. longipennis*, Kashgar, PIC, p. 33, t. c. : **n. spp.**

*Dermestes erichsoni* **n. n.** for *tessellatus* Er., GANGLBAUER, p. 16, Käf. Mitteleur. iv.

*Entomotrogus n. g.* for *Trogoderma megatomoides* Reitt., GANGLBAUER, p. 33, t. c.

*Ignotus enigmaticus*, figure, Ent. News Philad. xv, p. 36.

*Telopes brunnescens*, Amanus, PIC, p. 73, Echange xx, **n. sp.**

## BYRRHIDÆ.

[Cf. BROUN (184), GANGLBAUER (580, 581), POPPIUS (1094).]

The *Byrrhidæ* of Europe, *Nosodendron*, a distinct family, *Nosodendridæ*, GANGLBAUER (580).

*Byrrhus picipes judicarius* subsp. *n.*, GANGLBAUER, p. 200, Munchen. Kol. Zeitschr. ii.

*Curimus vestitus*, New Zealand, BROUN, p. 49, Ann. Nat. Hist. xiv, **n. sp.**

*Simplocaria nivalis*, Tyrol, GANGLBAUER, p. 61, Käf. Mitteleur. iv; *S. nivalis*, Mt. Adamello, GANGLBAUER, p. 188, Munchen. Kol. Zeitschr. ii; *S. obscuripes*, E. Siberia, p. 5, *palmeni*, p. 6, *arctica*, p. 7, N. Russia, *nebulosa*, E. Siberia, p. 9, POPPIUS, Ofv. Finska Forh. xlvi, No. 16, **n. spp.**

## PARNIDÆ and HETERO CERIDÆ.

[Cf. GANGLBAUER (580, 582), GROUVELLE (640), SCHAEFFER (1220).]

*Parnidæ* to be called *Dryopidæ*, GANGLBAUER, p. 95, Käf. Mitteleur. iv.

*Esolus solarii*, Genoa, GANGLBAUER, p. 116, t. c. **n. sp.**

*Latelmis subopaca*, Val Pesio, GANGLBAUER, p. 118, t. c. **n. sp.**

*Riolus apfelbecki*, Servia, GANGLBAUER, p. 354, Munchen. Kol. Zeitschr. ii, **n. sp.**



- Throscinus schwarzii*, Texas, SCHAEFFER, p. 204, J. N. York Ent. Soc. xii, **n. sp.**  
*Heterocerus (Littorimus) conjungens*, Bangkok, GROUVELLE, p. 83, Mission Pavie iii, **n. sp.**

## PASSALIDÆ.

[Cf. ARROW (38), SHARP (1284), ZANG (1545, 1546).]

- The stridulation of *Passalidæ*, ARROW, pp. 731-734, Tr. ent. Soc. London 1904.  
 Stridulation, *Passalidæ*, *Proculus*, SHARP, p. 273, Ent. Mag. xl.  
*Aceraius*; synonymy of the species, ZANG, p. 184, Tijdschr. Ent. xlvii.  
*Basilianus convexifrons*, Assam, ZANG, p. 698, Zool. Anz. xxvii, **n. sp.**  
*Ophrygonius n. g.* near *Aceraius*, p. 697, *O. quadrifera n. sp.*, Borneo, p. 699, ZANG, t. c.  
*Parapelopides n. g.* near *Aceraius*, p. 694, *P. symmetricus sp. n.*, p. 695, Borneo, ZANG, t. c.  
*Passalus distinctus*, hab. America, Africa, Madagascar, ZANG, p. 181, Tijdschr. Ent. xlvii.  
*Pelops triumphator*, Moluccas, ZANG, p. 182, t. c.

## LUCANIDÆ.

[Cf. BOILEAU (141, 142, 143), BROUN (184), MÖLLENKAMP (954).]

- The stridulation of *Lucanidæ*, ARROW, pp. 735-737, Tr. ent. Soc. London 1904.  
*Cyclommatus giraffa, montanellus*, Kina Balu, MÖLLENKAMP, p. 372, Ins. Börse 1904, **n. spp.**  
*Dorcus (Eurytrachelus) brachycerus*, Kashmir, BOILEAU, p. 27, Bull. Soc. ent. France 1904; *D. (Macrodercus) rugosus*, Madura, BOILEAU, p. 39, t. c. : **n. spp.**  
*Eurytrachelus reichei* and allies, MÖLLENKAMP, p. 402, Ins. Börse 1904.  
*Hemisodorus axis*, Sumatra, BOILEAU, p. 284, Naturaliste 1904, **n. sp.**  
*Hexarthrus deyrollei* var. *n. rufipes*, BOILEAU, p. 277, t. c.  
*H. rollei*, Kina Balu, MÖLLENKAMP, p. 403, Ins. Börse 1904, **n. sp.**  
*Homoderus? variegatus*, Cameroons, BOILEAU, p. 277, Naturaliste 1904, **n. sp.**  
*Metopodontus felschei*, W. Africa, MÖLLENKAMP, Ins. Börse 1904, p. 372; *M. mirabilis*, Usambara, *speciosus*, Nilgherry hills, BOILEAU, p. 278, Naturaliste 1904 : **n. spp.**  
*Mitophyllus curvidens*, New Zealand, BROUN, p. 50, Ann. Nat. Hist. xiv, **n. sp.**  
*Odontolabis waterstradti* var. *n. kinabaluensis*, MÖLLENKAMP, Ins. Börse 1904, p. 341, *gazella telodont*, p. 348.  
*O. instabilis*, Sumatra, p. 347, *imperialis*, Kina Balu, p. 348, MÖLLENKAMP, t. c. **n. spp.**  
*Prismognathus lucidus*, Sikkim, BOILEAU, p. 278, Naturaliste 1904, **n. sp.**  
*Prosopocelus boreli*, Assam, *specularis*, Tanganyika, p. 284, *mordax*, Burma, p. 285, BOILEAU, t. c.; *P. laticeps*, Himalaya, MÖLLENKAMP, p. 403, Ins. Börse 1904 : **n. spp.**  
*Sphenognathus bellicosus, spinifer*, S. America, BOILEAU, p. 284, Naturaliste 1904, **n. spp.**

## SCARABÆIDÆ.

Stridulation of the imago, ARROW, Tr. ent. Soc. London 1904, pp. 709-750, pl. xxxvi.

*Coprini.*

[Cf. ARROW (38), BLACKBURN (132, 133, 134), BOUCOMONT (159), FAIRMAIRE (473), FELSCHE & D'ORBIGNY (494), FRANÇOIS (539), KOLBE (830), LEA (864), MAYET (925), OHAUS (992), D'ORBIGNY (996, 997, 998), PÉRINGUEY (1028), REITTER (1152, 1155).]

Notes on classification, specially of the *Geotrupid* series, ARROW, Tr. ent. Soc. London 1904, pp. 738-749.

*Egidinus* n. g. *Æ. brasiliensis* n. sp., Ega, ARROW, p. 739, t. c.

*Egidium asperatum* = (*colombianum* Bates), ARROW, p. 738, t. c.

*Allotrypes* subg. n. cf. *Geotrypes*.

*Ammacius felscheanus*, Algeria, REITTER, p. 255, Wien. ent. Zeit. xxiii, n. sp.

*Anachalcos schulzi*, E. Africa, KOLBE, p. 285, Berlin. ent. Zeitschr. xlix, n. sp.

*Aphodiides*, revision of Australian, BLACKBURN, pp. 149-181, P. Soc. Victoria xvii.

*Aphodius rufus* = (*moscoviticus* Sem.), SEMENOW, p. 37, Rev. Russe Ent. iv; *A. breviciliatus* n. n. for *fimbriolatus* Reitt. nec. Mannh., POPPIUS, p. 366, Annuaire Mus. St. Petersb. viii; *A. tunicatus* and *tomentosus*, SEMENOW, p. 305, Rev. Russe Ent. 1904.

*A. (Esymus) cuniculorum*, Nimes, MAYET, p. 130, Bull. Soc. ent. France 1904; *A. andersoni*, p. 154, *suberosus*, p. 155, *insignior*, *baldiensis*, p. 156, Australia, BLACKBURN, P. Soc. Victoria xvii: n. spp.

*Atenius moniliatus*, p. 161, *koebeli*, p. 162, *imparitis*, p. 163, *sparsicollis*, *semicornutus*, p. 164, *tweedensis*, p. 165, *nudus*, *gibbus*, p. 166, *macilentus*, *spissus*, p. 167, *consors*, p. 168, *coloratus*, p. 169, *walkeri*, p. 170, Australia, BLACKBURN, t. c. n. spp.

*Aulonocnemis*, SCHAUFUSS in *Ins. Börse* xix, p. 130 (not seen by Recorder), described 4 n. spp. of this genus.

*Bolbocerax*, revision of Australian, BLACKBURN, P. Linn. Soc. N. S. Wales xxix, pp. 481-526.

*B. macleayi*, p. 500, *aratum*, p. 502, *leovilli*, p. 503, *tenax*, p. 507, *froggatti*, *truncatum*, p. 509, *clypeale*, p. 511, *basedovi*, p. 512, *mandibulare*, p. 513, *loweri*, p. 515, *nitidiceps*, p. 516, *lævipes*, p. 517, *subretusum*, p. 518, *nitens*, p. 519, *impressicolle*, p. 520, *obscurius*, p. 522, *carinatum*, p. 523, *pontiferum*, p. 525, Australia, BLACKBURN, t. c. n. spp.

*Caccobius reticuliger*, p. 255, *gananensis*, p. 256, *longipennis*, p. 258, Africa, D'ORBIGNY, Ann. Mus. Genova xli; *C. lateralis*, p. 417, *setifer*, p. 420, *callosifrons*, p. 421, *uniseriæ*, p. 423, W. Africa, D'ORBIGNY, t. c.: n. spp.

*Copris camerunus*, Africa, FELSCHE, p. 402, Arkiv Zool. i, n. sp.

*Diastellopalpus albrechtianus*, p. 290, *zeuneri*, p. 291, Cameroons, KOLBE, Berlin. ent. Zeitschr. xlix, n. spp.

*Diastellopalpus orbignyi*, Rhodesia, PÉRINGUEY, p. 224, Ann. S. African Mus. iii, n. sp.

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*Epirrhinus flagellatus* Fabr. = (*granulatus* Oliv.), BEDEL, p. 152, Abeille xxx.

*Euparia olliffi*, N. S. Wales, BLACKBURN, p. 171, P. Soc. Victoria xvii, n. sp.

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- G. (Thorectes) punctato-lineatus*, S. E. Spain, FRANÇOIS, p. 141, Bull. Soc. ent. France 1904; *G. genestieri*, China, p. 220, *G. (Phelotrupes) varicollicollis*, Yunnan, *indicus*, N. India, p. 226, *immarginatus*, Se-tschuen, p. 231, *oberthuri*, *denticulatus*, p. 232, Siao-Lou, *G. (Odontotrupes* subg. n.), p. 236, *purpurei-punctatus*, p. 239, Se-tschuen, *taurus*, Centr. Asia, p. 240, *rufipes*, p. 242, *G. (Thorectes) armatus*, p. 246, Se-tschuen, BOUCOMONT, Rev. Ent. franc. 1904: n. spp.
- Gymnopleurus*, *coriarius* Herbst. = (*flagellatus* Fabr., auctt.), BEDEL, p. 152, Abeille xxx.
- Heliocopris felschei*, E. Africa, KOLBE, p. 287, Berlin. ent. Zeitschr. xlix, n. sp.
- Hybosorides*; the Australian, BLACKBURN, p. 180, P. Soc. Victoria xvii.
- Idiostoma* n. g. and n. subfam., p. 740, *I. rufum*, pl. xxxvi, fig. 1, *medon* n. spp., Patagonia, p. 741, ARROW, Tr. ent. Soc. London 1904.
- Lethrus (Ceratodirus)*, synonymy, REITTER, pp. 83, 84, Wien. ent. Zeit. xxiii; *L. cephalotes*, combats, HAJOSS, pp. 8-10, Rov. Lapok xi.
- L. (Microlethrus) mithras*, Persia, REITTER, p. 256, Wien. ent. Zeit. xxiii, n. sp.
- Liatongus basicornis*, Madagascar, FAIRMAIRE, p. 225, Ann. Soc. ent. Belgique xlvi, n. sp.
- Milichus rhodesianus*, S. Africa, PÉRINGUEY, p. 222, Ann. S. African Mus. iii, n. sp.
- Ochodeus maculipennis*, Java, pl. xxxvi, fig. 3, p. 743, *decoratus*, Penang, *campognathus*, fig. 2, Argentina, p. 744, *tridentatus*, Colombia, p. 745, ARROW, Tr. ent. Soc. London 1904, n. spp.
- Odontotrupes* subg. n. cf. *Geotrupes*.
- Oniticellus tibatensis*, Cameroons, KOLBE, p. 295, Berlin. ent. Zeitschr. xlix; *O. sjostedti*, Cameroons, FELSCH, p. 403, Arkiv Zool. i: n. spp.
- Onthophagus granulum* n. n. for *granum* d'Orb., *O. minutus* Hausm. = (*rusticus* Boh.), *setosus* = (*cretus* Pér.), *criniger* n. n. for *crinitus* d'Orb., p. 326, *fulleborni* Kolbe = (*hauseri* d'Orb.), *nyassicus* Kolbe = (*tridepressus* d'Orb.), p. 328, D'ORBIGNY, Ann. Mus. Genova xli; *O. transcaspicus* Koen. = (*lineatus* Reitt.), REITTER, p. 25, Wien. ent. Zeit. xxiii.
- O. sjostedti*, Cameroons, D'ORBIGNY, p. 407, Arkiv Zool. i; *O. ragazzii*, p. 261, *traversii*, p. 262, *aericans*, p. 264, *rufovirens*, p. 266, *calous*, p. 268, *impunctatus*, p. 271, *astigma*, p. 273, *flavibasis*, p. 274, with var. *lineiger*, *mundatus*, p. 275, *stillatus*, p. 277, *choanicus*, p. 279, *levis*, p. 281, *hirtipodex*, p. 283, *longiceps*, p. 285, *gestroi*, p. 287, *bituber*, p. 289, *carinifer*, p. 292, *concaivifrons*, p. 294, *scaberrimus*, p. 296, *unicarina*, p. 298, *investis*, p. 301, *piceiceps*, p. 304, *O. (Phalops) gallanus*, p. 309, *O. (Proagoderus) flexicollis*, p. 314, *triarmatus*, p. 320, Africa, D'ORBIGNY, Ann. Mus. Genova xli; *O. nitidifrons*, p. 425, *inconstans*, p. 426, *miles*, p. 428, *nonstriatus*, p. 430, *bidentiger*, p. 433, *imbellis*, p. 434, *feai*, p. 436, *androgynus*, p. 439, *curtipilis*, p. 440, *mucronifer*, p. 442, *altidorsis*, p. 443, W. Africa, D'ORBIGNY, t. c.; *O. cupreovirens*, p. 204, *adornatus*, p. 205, *arcifer*, p. 206, *anthracites*, p. 208, *bocandei*, p. 209, *minax*, p. 210, *duvivieri*, p. 211, *semiviridis*, p. 212, *tschoffeni*, p. 213, *flavorufus*, p. 215, *rufaticollis*,

- p. 216, *O. (Proag.) superbus*, p. 217, *praedentatus*, p. 218, *marginidens*, p. 220, Africa, d'ORBIGNY, Ann. Soc. ent. Belgique xlviii; *O. placens*, p. 219, *praetortus*, *decedens*, p. 220, *serenus*, p. 221, *rhyrachophorus*, p. 222, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii; *O. carteri*, N.S.W., p. 147, *jungi*, S. Australia, p. 148, BLACKBURN, P. Soc. Victoria xvii : **n. spp.**
- Orphnus striatopunctatus*, Cameroons, FELSCHÉ, p. 405, Arkiv Zool. i, **n. sp.**
- Panelus pygmaeus* Macl. = (*arthuri* Blackb.), LEA, p. 89, P. Linn. Soc. N. S. Wales xxix.
- Phycochus*; tarsal structure, LEA, p. 90, t. c.
- P. sulcipennis*, Tasmania, id. p. 89, pl. iv, fig. 10, t. c. **n. sp.**
- Pleurophorus caesus* = (*Atenius rugiceps* Dury), BEDEL, p. 152, Abeille xxx.
- Psammodioides australicus*, *obscurior*, Australia, BLACKBURN, p. 174, P. Soc. Victoria xvii, **n. spp.**
- Pseudopedaria n. g.* for *Pedaria grossa* Th., FELSCHÉ, p. 400, Arkiv Zool. i.
- Rhyssenus*; synonymy of French species, CHABAUT, pp. 90–92, Bull. Soc. Nîmes xxxi.
- Saprosites mansuetus*, p. 175, *sternalis*, p. 176, Australia, BLACKBURN, P. Soc. Victoria xvii, **n. spp.**
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- Thorectes nitidus*, characters, synonymy, *latus* = (*inflatus* Reitt.), *rugosicollis* = (*chalconotus* Cherr.), *semisericeus* = (*rugatulus* Jck.), *punctulatus* = (*brancziki* Apf.), id. p. 140, Bull. Soc. ent. France 1904.
- Thyregis n. g.* *Scatonomides*, p. 145, *T. kershawi n. sp.*, Victoria, p. 146, BLACKBURN, P. Soc. Victoria xvii.
- Tomogonus subg. n.* for *Caccobius castaneus*, d'ORBIGNY, p. 254, Ann. Mus. Genova xli.
- Trox*; Australian, synonymy, descriptions and tables, BLACKBURN, pp. 281–296, Tr. R. Soc. S. Austral. xxviii.
- T. demaisonii*, Asia Minor, REITTER, p. 156, Wien. ent. Zeit. xxiii; *T. nigrociliatus*, *raduloides*, p. 293, *annexus*, *massaicus*, *erlangeri*, *neumannii*, p. 293, *amitinus*, p. 294, Africa, KOLBE, Berlin. ent. Zeitschr. xlix; *T. tasmanicus*, Tasmania, *setosipennis*, p. 292, *eyrensis*, p. 293, *tricolor*, p. 295, *perhispidus*, p. 296, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxviii : **n. spp.**

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Synopsis of *Glaphyrus*, with identification of sexes and synonymy, CHAMPENOIS, Abeille xxx, pp. 137–151.

*Hemiglaphyrus subg. n.* p. 145, t. c., for *caucasicus* and *modestus*.

### Melolonthini.

[Cf. BROUN (184), FAIRMAIRE (473, 474), PÉRINGUEY (1027), PIC (1068).]

The *Melolonthini* of S. Africa, systematic work, PÉRINGUEY, Tr. S. African Soc. xiii, pp. 1–293.

*Ablabera hottentota*, p. 79, *transvaalica*, *hirticollis*, p. 80, *capicola*, p. 81, *gravidula*, *gratula*, p. 82, *modesta*, *amena*, p. 83, *matabelena*, *hopeiana*, p. 84, S. Africa, PÉRINGUEY, Tr. S. African Soc. xiii, **n. spp.**

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- Allokotarsa* n. g. near *Serica*, p. 36, *A. rotundicollis*, *clypeata* n. spp., S. Africa, p. 37, PÉRINGUEY, t. c.
- Alogistotarsa* n. g. *Sericinae*, p. 39, *A. straminea*, *ovampoana* n. spp., S. Africa, p. 40, PÉRINGUEY, t. c.
- Amphimallus fuscus*, metamorphosis, XAMBEU, p. 33, Naturaliste 1904; *A. pygialis*, habits etc., CLERMONT, pp. 104–106, Bull. Soc. ent. France 1904.
- Anoxiella* Reitt. (= *Schistocomete* Brenske), REITTER, p. 24, Wien. ent. Zeit. xxiii.
- Apogonia improba*, *mashona*, Rhodesia, PÉRINGUEY, p. 292, Tr. S. African Soc. xiii, n. sp.
- Arraphytarsa* n. g. *Sericinae*, *A. damarina* n. sp., S. Africa, PÉRINGUEY, p. 39, t. c.
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- Clypeasta* n. n. for *Clypearia* Fairm. 1903, FAIRMAIRE, p. 226, Ann. Soc. ent. Belgique xlviii.
- Coniopholis proxima*, Transvaal, PÉRINGUEY, p. 273, Tr. S. African Soc. xiii, n. sp.
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- Hoplia (Decamera) hauseri*, Turkestan, REITTER, p. 157, Wien. ent. Zeit. xxiii, n. sp.
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- Neoserica transvaalensis*, S. Africa, PÉRINGUEY, p. 22, Tr. S. African Soc. xiii, n. sp.
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- Phytolema herrmanni* and *Riviera plebeia*, injurious habits, larvæ, RIVERA, pp. 241 etc., Revist. chilena viii.
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- Psilonychus deridens*, p. 267, *barkeri*, p. 268, *perturbator*, p. 269, S. Africa, PÉRINGUEY, t. c. n. spp.
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- Sebakue* **n. g.** near *Schizonycha*, *S. coriacea* **n. sp.**, S. Africa, PÉRINGUEY, p. 264, t. c.
- Serica* (*Ophthalmoserica*) *rosinae*, Amurland, PIC, p. 33, Echange 1904, **n. sp.**
- Sparrmannia* *transvaalica*, *capicola*, p. 176, *prieska*, *namaqua*, *boschimana*, p. 177, *gonaqua*, p. 178, *discrepans*, p. 179, *bechuana*, p. 180, S. Africa, PÉRINGUEY, Tr. S. African Soc. xiii, **n. spp.**
- Stenosericia* *delagoana*, *zambesicola*, S. Africa, PÉRINGUEY, t. c. **n. spp.**
- Suntemnonycha* **n. g.** near *Schizonycha*, *S. collusor* **n. sp.**, Rhodesia, PÉRINGUEY, p. 262, t. c.
- Syngeneschiza* *omrumba*, Ovampoland, PÉRINGUEY, p. 261, t. c. **n. sp.**
- Tlaocera* **n. g.** near *Macrophylla*, *T. saga* **n. sp.**, Cape Colony, PÉRINGUEY, p. 133, t. c.
- Trichinopus* *titania*, Damaraland, PÉRINGUEY, p. 165, t. c. **n. sp.**
- Trochalus* *vagus*, *damarus*, p. 44, *mashunus*, p. 45, *inops*, *exasperans*, p. 46, *orbiculatus*, p. 48, *placens*, p. 49, *lepidus*, *urbanus*, *sebakuanus*, p. 51, S. Africa, PÉRINGUEY, t. c. **n. spp.**
- Tulbaghia* **n. g.** near *Microcamenta*, p. 88, *T. lightfooti*, p. 89, *cereris*, p. 90, **n. spp.**, Cape Colony, PÉRINGUEY, t. c.

### *Rutelini.*

- [Cf. BATES (92), FAIRMAIRE (473, 474), JACOBSON (740), OHAUS (990, 991).]
- Revision of Australian *Anoplognathides*, OHAUS, pp. 57-175, Stettin Ent. Zeit. lxxv.
- Revision of American *Anoplognathides*, pt. i, OHAUS, t. c. pp. 254-341.
- Revision of *Pelidnotinae* with table of genera, BATES, Tr. ent. Soc. London 1904, pp. 249-276.
- Adoretus* *ampliatius*, p. 226, *rugosohirtus*, p. 227, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Amblyterus* *clypealis*, Australia, OHAUS, p. 165, Stettin Ent. Zeit. lxxv, **n. sp.**
- Anomala* *gudzenkoi*, Mantchuria, JACOBSON, p. xiii, Annuaire Mus. St. Petersb. viii, **n. sp.**
- Anoplognathus* *acuminatus*, Australia, OHAUS, p. 105, Stettin Ent. Zeit. lxxv, **n. sp.**
- Antichira* *meridionalis*, injurious in Jamaica, PANTON, p. 117, Bull. Dep. Agric. Jamaica ii.
- Callichloris* *helleri*, p. 334, *kirschi*, p. 335, *bessleri*, p. 336, Peru and Colombia, OHAUS, Stettin Ent. Zeit. lxxv, **n. spp.**
- Chrysin* *beckeri* to *Plusiotis*, BATES, p. 272, Tr. ent. Soc. London 1904.
- Epichalcopletis* **n. g.**, BATES, p. 253, and ARROW, p. 272, for *Pelidnota* *velutipes*, ARROW, Tr. ent. Soc. London 1904.
- Hoplopelidnota* **n. g.** *H. candezei* **n. sp.**, Cayenne, p. 274, BATES, t. c.
- Hoplognathus* *maculatus* (= *Pelidn. bimaculata* Cast.), ARROW, p. 260, Tr. ent. Soc. London 1904.
- Lasiocala* *ohausi*, Colombia, BATES, p. 273, Tr. ent. Soc. London 1904, **n. sp.**

- Mecopelidnota* **n. g.** p. 270, *M. arrowi*, Ecuador, **n. sp.** p. 271, and including *P. cylindrica* Waterh., BATES, t. c.
- Microrutela* **n. g.** for *Chalcentis cerulea* and *lauta*, BATES, p. 250, t. c.
- Paraschizognathus* **n. g.**, p. 125, for *nigripennis* Bl. etc., and *P. prasini-collis*, p. 128, *olivaceus*, p. 132, **n. spp.**, Australia, OHAUS, Stettin Ent. Zeit. lxx.
- Pelidnota quadripunctata*, p. 260, *aciculata*, Cayenne, *kirschi*, p. 261, with var. *tenuistriata*, *dubia*, p. 262, Colombia, *acutipennis*, Venezuela, p. 263, *vittipennis*, Brazil, p. 264, *chiriquina*, Panama, p. 265, *paraguayensis*, Paraguay, p. 266, *championi*, Tucuman, *ancilla*, p. 267, *pallidipennis*, p. 268, *fracida*, Brazil, *cayennensis*, Guiana, p. 269, BATES, Tr. ent. Soc. London 1904, **n. spp.**
- Phalangogonia debilidens*, Costa Rica, OHAUS, p. 271, Stettin Ent. Zeit. lxx, **n. sp.**
- Platycolia inflata*, Bolivia, p. 286, *limbata*, Argentina, p. 288, *steinheili*, Colombia, p. 291, *forcipalis*, Ecuador, p. 293, *occidentalis*, Colombia, p. 296, *abdominalis*, Peru, p. 299, *mesosternalis*, Costa Rica, p. 300, *variolosa*, Colombia, p. 304, *nigrosternalis*, p. 305, with varr. *laevigata*, *pygidialis*, p. 306, *puncticollis*, p. 307, with varr. *bilineata*, *unicolor*, p. 309, *tschudii*, p. 309, *wallisi*, p. 311, *burmeisteri*, p. 312, *unguicularis*, p. 314, *flavoscutellatu*, p. 315, *hirta*, p. 317, *confluens*, p. 318, *chrysofina*, p. 320, *pulchrior*, p. 321, *gaujoni*, p. 323, *rufosignata*, p. 331, N. W. South America, OHAUS, t. c. **n. spp.**
- Plusiotis cupreomarginata*, Costa Rica, BATES, p. 272, Tr. ent. Soc. London 1904, **n. sp.**
- Pseudoschizognathus* **n. g.**, p. 145, *P. variicollis*, p. 146, *schonfeldti*, p. 147, **n. spp.**, Australia, OHAUS, Stettin Ent. Zeit. lxx.
- Rutela varicolor* Latr. = (*Pelidn. venezuelensis* G. & H.), ARROW, p. 260, Tr. ent. Soc. London 1904.
- Saulostomus felschei*, p. 156, *weisei*, p. 157, Australia, OHAUS, Stettin Ent. Zeit. lxx, **n. spp.**
- Schizognathus burmeisteri*, p. 138, *viridieneus*, p. 140, *lucidus*, p. 142, Australia, OHAUS, t. c. **n. spp.**
- Trioplognathus* **n. g.** for *griseopilosus* Oh., OHAUS, p. 133, t. c.
- Xenopelidnota* **n. g.** for *Plusiotis anomala*, BATES, p. 275, Tr. ent. Soc. London 1904.

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- [Cf. BRETHERS (175), BROUN (184), KOLBE (830), STERNBERG (1344).]
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- Aldidosoma siamensis*, and ♂ minor, pl. ix bis fig. 2, p. 51, Mission Pavie iii.
- Cyclocephala tucumana*, p. 330, *andina*, p. 331, Tucuman, BRÈTHES, An. Mus. Buenos Aires xi, **n. spp.**
- Peltonotus morio*, ♂, FAIRMAIRE, p. 88, Mission Pavie iii.
- Pentodon subdilatatus*, *idiota*, note, pp. xv-xvii; *P. reitteri* n. n., p. xvi, JAKOVLEV, Annuaire Mus. St. Petersb. ix.
- Pericoptus frontalis*, New Zealand, BROUN, p. 55, Ann. Nat. Hist. xiv, **n. sp.**
- Temnorhynchus glauvingi*, Lake Tchad, KOLBE, p. 295, Berlin. ent. Zeitschr. xlix, **n. sp.**

### *Cetoniini.*

- [Cf. FAIRMAIRE (473, 474), HAUSER (664), HEATH (668), KOLBE (830, 831), MOSER (964, 965), PIC (1075), PREISS (1106).]
- Structure and classification of *Valgide*, KOLBE, pp. 3-9, Stettin Ent. Zeit. lxx.



- Amaurina polysticta* var. n. *picticollis*, MOSER, p. 66, Berlin. ent. Zeitschr. xlix.
- Anepsiovalgus* n. g., p. 30, *A. mimus* n. sp., Sumatra, p. 32, KOLBE, Stettin Ent. Zeit. lxxv.
- Anochilia suboidua*, p. 227, *laterivirens*, p. 228, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii, n. spp.
- Bothrorrhina nickerli* ♀, HELLER, p. 12, Deutsche ent. Zeitschr. 1904; *B. rufonasuta* Fairm. = (*nickerli* Hell.), HELLER, p. 303, t. c.
- Brachymitra* n. g. near *Compocephalus*, *B. thomasi* n. sp., E. Africa, KOLBE, p. 297, Berlin. ent. Zeitschr. xlix.
- Callinomes rufiventris*, Laos, FAIRMAIRE, p. 86, Mission Pavie iii, n. sp.
- Charitovalgus*, n. g. p. 20 for *Valgus pulcher*, *doriae*, and *C. andamanicus* n. sp., Andamans, p. 22, KOLBE, Stettin Ent. Zeit. lxxv.
- Clinteria usambarica*, E. Africa, MOSER, p. 60, Berlin. ent. Zeitschr. xlix, n. sp.
- Cælorrhina cornuta*, E. Africa, p. 101, fig. 2, HEATH, Entomologist 1904, n. sp.
- Coptomia bontempsi*, characters, FAIRMAIRE, p. 229, Ann. Soc. ent. Belgique xlviii.
- C. castanoptera*, Madagascar, FAIRMAIRE, p. 228, t. c. n. sp.
- Cyclophorus marginicollis*, Sao-Thomé, MOSER, p. 59, Berlin. ent. Zeitschr. xlix, n. sp.
- Dasyvalgus* n. g. p. 34, for part of *Valgus*, and *D. infuscatus*, Borneo, p. 37, *udei*, Sumatra, p. 38, *rollei*, p. 39, *monachus* with subsp. *polyxanthus*, p. 40, Borneo, *dohrni*, Sumatra, p. 41, *eucharis*, Malacca, p. 42, n. spp., KOLBE, Stettin Ent. Zeit. lxxv; *D. pygidialis*, Sumatra, p. 267, *striatipennis*, Perak, p. 268, *bipustulatus*, Borneo, *fraterculus*, Sumatra, p. 269, *piceus*, Tonkin, p. 270, *nigerrimus*, Borneo, p. 271, MOSER, Berlin. Ent. Zeitschr. xlix: n. spp.
- Diphrontis hintzi*, E. Africa, MOSER, p. 70, t. c. n. sp.
- Dischista marginata*, E. Africa, MOSER, p. 6, t. c. n. sp.
- Discopeltis picta*, p. 66, *variabilis*, p. 67, with varr., pp. 68, 69, E. Africa MOSER, t. c. n. spp.
- Euchilia laevicostata*, *satarata*, *protensa*, *externecostata*, Madagascar, FAIRMAIRE, p. 230, Ann. Soc. ent. Belgique xlviii, n. spp.
- Eucosma flavosignata*, Sao-Thomé, MOSER, p. 64, Berlin. Ent. Zeitschr. xlix, n. sp.
- Eudicella immaculata*, Uganda, HEATH, p. 102, fig. 1, Entomologist 1904, n. sp.
- Fornasinus hirthi*, E. Africa, PREISS, p. 15, pl. i, fig. 1, Jahrb. nassau. Ver. lvii, n. sp.
- Goliathopsis lameyi*, pl. ix bis, fig. 5, p. 90, FAIRMAIRE, Mission Pavie iii.
- Goliathus giganteus*, var. n. *connectens*, CSIKI, p. 302, Ann. Mus. Hungar. ii; *G. giganteus*, var. n. *grandis*, VEEN, pp. 64-66, pl., Bull. kol. Mus. Haarlem xxx.
- Hoplitovalgus* n. g. *H. fullaciosus* n. sp., Borneo, KOLBE, p. 49, Stettin Ent. Zeit. lxxv.
- Hybovalgus* n. g. p. 55, *H. bioculatus* n. sp., Tonkin, p. 56, KOLBE, t. c.; *H. tonkinensis*, *fulvosquamosus*, Tonkin, MOSER, p. 272, Berlin. ent. Zeitschr. xlix, n. spp.
- Ischyrocera* n. g. p. 34, *I. darcisi* n. sp., Africa, p. 35, HAUSER, Deutsche ent. Zeitschr. 1904.
- Leucoceclis elegans*, var. n. *ornaticollis*, MOSER, p. 66, Berlin. ent. Zeitschr. xlix.
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- Nannovalgus* n. g. p. 26, *N. pusio* n. sp., Borneo, p. 27, KOLBE, Stettin Ent. Zeit. lxxv.

- Neophædimus metaleucus*, pl. ix bis, fig. 4, p. 89, FAIRMAIRE, Mission Pavie iii.
- Neptunides polychrous* var. n. *marginipennis*, MOSER, p. 59, Berlin. ent. Zeitschr. 1904.
- Oreovalgus* n. g. p. 18, *O. montuosicollis* n. sp., Borneo, p. 19, KOLBE, Stettin Ent. Zeit. lxx.
- Osmoderma brevipennis*, Taurus, PIC, p. 74 & p. 83, Echange xx, n. sp.
- Oxythryea albomaculata*, E. Africa, MOSER, p. 65, Berlin. ent. Zeitschr. xlix, n. sp.
- Pachmoda discolor* var., pl. i, fig. 2, p. 19, PREISS, Jahrb. nassau. Ver. lvii.
- P. testaceipennis*, E. Africa, MOSER, p. 61, Berlin. ent. Zeitschr. xlix; *P. saubertichi*, E. Africa, HAUSER, p. 36, Deutsche ent. Zeitschr. 1904: n. spp.
- Pædivalgus* n. g. p. 14, *P. micros* n. sp., Borneo, p. 15, with varr. *parvus*, *lineellus*, *morio*, p. 17, KOLBE, Stettin Ent. Zeit. lxx.
- Paraleucocelis* n. g. *P. conradsi*, n. sp. E. Africa, pl. i, fig. 3, PREISS, p. 21, Jahrb. nassau. Ver. lvii.
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- Plocovalgus* n. g. *P. waterstradti* n. sp., Borneo and subsp. *rufosquamosa*, KOLBE, p. 45, Stettin Ent. Zeit. lxx.
- Pæcilophila tessellata*, E. Africa, MOSER, p. 69, Berlin. ent. Zeitschr. xlix, n. sp.
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- Ranzania bertolonii minor* subsp. n., KOLBE, p. 298, Berlin. ent. Zeitschr. xlix.
- Sphinctovalgus* n. g. p. 51, *S. conradti* n. sp., Cameroons, p. 53, KOLBE, Stettin Ent. Zeit. lxx.
- Spilovalgus* n. g. for *Valgus modiglianii* Gestro, KOLBE, p. 32, Stettin Ent. Zeit. lxx; *S. biguttatus*, Perak, p. 266, *propygidialis*, Assam, p. 267, MOSER, Berlin. ent. Zeitschr. xlix, n. spp.
- Syngonorvalgus* n. g. p. 28, *S. subnitidus* n. sp., Borneo and Sumatra, p. 29, KOLBE, Stettin Ent. Zeit. lxx.
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- Trichovalgus* subg. n. of *Dasyvalgus* for *niger* Kr., KOLBE, p. 44, Stettin Ent. Zeit. lxx.
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## BUPRESTIDÆ.

[Cf. ABEILLE (1, 5), ESCALERA (467), FAIRMAIRE (473), FAUVEL (486), JAKOVLEFF (752, 753), KERREMANS (786, 787), PIC (1065), RAINBOW (1119), REITTER (1141, 1155), SCHAEFFER (1220), THÉRY (1377, 1378), WATERHOUSE (1491).]

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- Acherusia saundersii*, Brazil, WATERHOUSE, p. 249, Ann. Nat. Hist. xiv, **n. sp.**
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- Actenodes flexicaulis*, Texas, SCHAEFFER, p. 209, t. c. **n. sp.**
- Agrilus chlorophyllus*, Akbès, ABEILLE, p. 223, Bol. Soc. espan. iv; *A. horni*, p. 161, *avrociliatus*, *nalanda*, p. 162, *kandyanus*, *atomus*, p. 163, *motschoulskyi*, p. 164, *walkeri*, p. 165, Ceylon, THÉRY, Ann. Soc. ent. Belgique xlvi; *A. dollii*, Texas, SCHAEFFER, p. 210, J. N. York Ent. Soc. xii : **n. spp.**
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- A. severa*, Syria, id. p. 213, t. c. **n. sp.**
- Anthaxia schah*, Persia, *fulgentipennis*, Algeria, p. 215, *permisa*, Persia, p. 217, ABEILLE, t. c. **n. spp.**
- Astreus caledonicus*, New Caledonia, FAUVEL, p. 116, Rev. Ent. franc. 1904, **n. sp.**
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- A. guttipennis*, Persia, ABEILLE, p. 213, Bol. Soc. espan. iv, **n. sp.**
- Buprestis alternans*, Syria, *escalera*, Persia, ABEILLE, p. 212, t. c. **n. spp.**
- Capnodis miliaris* var. n. *aurata*, ABEILLE, p. 211, t. c.
- Cardiaspis pisciformis*, Mysore, THÉRY, p. 73, Bull. Soc. ent. France 1904, **n. sp.**
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- Cinyra prosternalis*, Texas, SCHAEFFER, p. 205, J. N. York Ent. Soc. xii, **n. sp.**
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- Julodis onopordi* variation, varr. *n. longicollis, derasa*, etc., ABEILLE, pp. 207–210, Bol. Soc. espan. iv.
- J. escalera, monstrosa*, Persia, ABEILLE, p. 206, t. c. **n. spp.**
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- Mastogenius reticulaticollis*, Texas, SCHAEFFER, p. 210, J. N. York Ent. Soc. xii, **n. sp.**
- Melanophila sumptuosa*, Spain, ABEILLE, p. 214, Bol. Soc. espan. iv, **n. sp.**
- Nalanda n. g.* near *Melibeus, N. horni n. sp.*, Ceylon, THÉRY, p. 160, Ann. Soc. ent. Belgique xlviii.
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- Polybothris pulchriventris*, p. 232, *pygidialis*, p. 233, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii, **n. spp.**
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- P. alternans*, Mexico, *regularis*, St Domingo, p. 256, *gossei*, Jamaica, p. 257, *variegata*, Mexico, p. 258, WATERHOUSE, t. c. **n. spp.**
- Ptosima*; only one Pal. species; *P. 11-maculata* var. *n. intermedia*, DEMAISON, p. 285, Bull. Soc. ent. France 1904; *P. amalibis* var. *n. hieroglyphica*, THÉRY, p. 158, Ann. Soc. ent. Belgique xlviii.
- Rheboscelis texana*, Brownsville, SCHAEFFER, p. 211, J. N. York Ent. Soc. xii, **n. sp.**
- Sphenoptera luctifica* *n. n.* for *luctuosa* Jak., JAKOVLEFF, p. 310, Rev. Russe Ent. 1904; *S. perroteti* var. *n. rugosiventris*, THÉRY, p. 159, Ann. Soc. ent. Belgique xlviii.
- S. (Hoplandrocneme) venusta*, Tiflis, JAKOVLEFF, p. 309, Rev. Russe Ent. 1904; *S. longipennis*, Issyk-Kul, p. 174, *cæsia*, Bucharra, p. 175, *luctuosa*, Dsungaria, p. 177, *S. (Hoplística) ligulata*, Persia, p. 178, *grata*, Cairo, p. 180, *S. (Chrysoblemma) seriola*, Algeria, p. 181, *S. (Chilostetha) cauta*, Syria, p. 183, *S. (Deudora) caspica*, p. 184, Caspian, JAKOVLEFF, Horæ Soc. ent. Ross. xxxvii; *S. horni*, Ceylon, THÉRY, p. 159, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Steraspis arabica*, Muscat, WATERHOUSE, p. 348, Ann. Nat. Hist. xiv, **n. sp.**
- Sternocera*; much synonymy, WATERHOUSE, pp. 245–248, t. c.
- S. druryi*, Sudan, *stevensii*, Africa, WATERHOUSE, p. 247, t. c. **n. spp.**
- Stigmodera cydista*, Sydney, RAINBOW, p. 246, Rec. Austral. Mus. v, **n. sp.**
- Strobilodera gustoni*, E. Africa, THÉRY, p. 74, Bull. Soc. ent. France 1904, **n. sp.**
- Trachys horni*, p. 165, *bellicosa*, p. 166, *pretiosus, centrimaculatus*, p. 167, Ceylon, THÉRY, Ann. Soc. ent. Belgique xlviii, **n. spp.**

## EUCNEMIDÆ.

[Cf. BLANCHARD (135), FAIRMAIRE (473), FAUVEL (486).]

- Cephalodendron sicardi*, Madagascar, FAIRMAIRE, p. 235, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Dromæolus hospitalis*, California, BLANCHARD, p. 187, Ent. News Philad. xv, **n. sp.**
- Fornax caledonicus*, p. 121, *ferrugineus, brevicornis, soricinus*, p. 122, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, **n. spp.**

## ELATERIDÆ.

[Cf. CARRET (246), DU BUYSSON (214, 215, 216), DANIEL & DANIEL (349), FAIRMAIRE (473), FAUVEL (486), FLEUTIAUX (518), PIC (1059, 1065), RAINBOW (1119), REITTER (1151, 1152, 1156), SCHWARZ (1265, 1266).]



- Adelocera subaurata*, Ceylon, SCHWARZ, p. 46, Spolia Zeylan. ii, **n. sp.**  
*Eolus dimidiatofasciatus*, Sao Paulo, SCHWARZ, p. 71, Deutsche ent. Zeitschr. 1904, **n. sp.**  
*Agriotus conspicuus*, characters, DU BUYSSON, p. 1, Rev. Ent. franc. xxiii.  
*Agriotus dilataticoxis*, Morocco, DU BUYSSON, p. 42, t. c.; *A. nigropubens*, Asia Minor, REITTER, p. 158, Wien. ent. Zeit. xxiii : **n. spp.**  
*Anoplistichius mutabilis*, variation, SCHWARZ, p. 11, Deutsche ent. Zeitschr. 1904; *A. anguineus* Er. = (*basalis* = *femoralis* Schw.), id. p. 15, t. c.  
*A. mutabilis*, p. 51, *æneipennis*, p. 52, *trivittatus*, p. 53, *punctatissimus*, p. 54, *nigrolaterus*, p. 55, S. America, SCHWARZ, t. c. **n. spp.**  
*Athous unicoloris* varr. n. *gredosanus* and *uhagoni*, REITTER, p. 237, Bol. Soc. espan. iv.  
*A. subvirgatus*, Venetia, K. DANIEL, p. 79, Munchen. Kol. Zeitschr. ii; *A. villardi*, Genoa, CARRET, p. 170, Bull. Soc. ent. France 1904; *A. (Stenagostus) laufferi*, p. 236, *A. (Nomopleus) discors*, p. 237, *martinezi*, *longissimus*, p. 238, *A. (Gripathous) bolivari*, p. 239, Spain, REITTER, Bol. Soc. espan. iv; *A. bagdadensis*, Bagdad, p. 6, *uhagoni*, Spain, p. 7, DU BUYSSON, Rev. Ent. franc. xxiii; for further notes on these and their possible synonymism, cf. t. c. pp. 156, 157; *A. eximius*, p. 58, *insulsus*, p. 59, Amurland, *nadari*, Basses Pyrénées, p. 60, DU BUYSSON, Bull. Soc. ent. France 1904 : **n. spp.**  
*Atractosomus angustus*, p. 59, *pedestris*, p. 60, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1904; *A. testaceipennis*, Brazil, SCHWARZ, p. 70, Deutsche ent. Zeitschr. 1904 : **n. spp.**  
*Campylus korbi*, Amurland, PIC, p. 25, Echange 1904, **n. sp.**  
*Cardiophorus eliasi*, Amanus Mts., PIC, p. 298, Bull. Soc. ent. France 1904; *C. æneipennis*, Madagascar, FLEUTIAUX, p. 12, Bull. Soc. ent. France 1904 : **n. spp.**  
*Cardiorhinus divaricatus*, p. 62, *intermedius*, p. 63, *ruficollis*, p. 64, *infernus*, p. 65, *dimidiatus*, p. 66, *collaris*, p. 67, *cylindricus*, p. 68, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1904, **n. spp.**  
*Clon cerambycinus*, ♀, SEMENOV, p. 120, Rev. Russe Ent. iv.  
*Corymbitodes* subg. n. of *Ludius*, *C. longicollis* **n. sp.**, Amurland, DU BUYSSON, p. 58, Bull. Soc. ent. France 1904.  
*Cosmesus posticinus*, Brazil, SCHWARZ, p. 69, Deutsche ent. Zeitschr. 1904; *C. cruciger*, p. 79, *atomus*, Argentina, *chiliensis*, *minusculus*, Chili, p. 80, SCHWARZ, t. c. : **n. spp.**  
*Didymolophus* **n. g.** near *Dichelonychus*, p. 235. *D. perrieri* **n. sp.**, Madagascar, p. 236, FAIRMAIRE, Ann. Soc. ent. Belgique xlviij.  
*Elater gelincki*, Herzegowina, REITTER, p. 148, Wien. ent. Zeit. xxiii; *E. nigrita*, *frontalis*, p. 128, *marginellus*, p. 129, New Caledonia, FAUVEL, Rev. Ent. franc. 1904 : **n. spp.**  
*Grammophorus bruchi*, Argentina, p. 71, *minor*, Chili, p. 72, SCHWARZ, Deutsche ent. Zeitschr. 1904, **n. spp.**  
*Horistonotus bicolor*, Sydney, RAINBOW, p. 246, Rec. Austral. Mus. v, **n. sp.**  
*Ischiodontus laterus*, p. 55, *testaceus*, p. 56, *æneus*, p. 57, *bivittatus*, p. 58, *ellipticus*, p. 59, S. America, SCHWARZ, Deutsche ent. Zeitschr. 1904, **n. spp.**  
*Isidus*; characters and position, DU BUYSSON, p. 7, Rev. Ent. franc. xxiii.  
*Ludius*, cf. *Corymbitodes*.  
*Melanoxanthus picturatus*, New Caledonia, FAUVEL, p. 131, Rev. Ent. franc. 1904, **n. sp.**  
*Monocrepidius brachypterus*, Lifu, FAUVEL, p. 127, t. c.; *M. chilensis*, Chili, SCHWARZ, p. 70, Deutsche ent. Zeitschr. 1904 : **n. spp.**  
*Ochosternus pacificus*, *cribriceps*, p. 134, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, **n. spp.**  
*Pomachilius brevicornis*, Brazil, SCHWARZ, p. 61, Deutsche ent. Zeitschr. 1904; *P. fulvescens*, *apicatus*, p. 73, *preterminatus*, *scriptus*, p. 74, mul-

*timaculatus*, p. 75, *variegatus*, p. 76, *cinctipennis*, p. 77, *krugi*, *polygrammus*, p. 78, S. America, SCHWARZ, t. c. : **n. spp.**  
*Semiotus subvirescens*, Ecuador, p. 49, *alternatus*, Venezuela, p. 50, SCHWARZ, t. c. **n. spp.**

## RHIPICERIDÆ and DASCILLIDÆ.

[Cf. FAIRMAIRE (474, 476, 478), FAUVEL (486).]

*Agathorhipis* **n. g.** *Rhipiceridæ*, *A. bifossata* **n. sp.**, New Caledonia, FAUVEL, p. 136, Rev. Ent. franc. 1904.  
*Cladotoma bruchii*, Tucuman, FAIRMAIRE, p. 61, Bull. Soc. ent. France 1904; *C. russula*, p. 154, *maculicollis*, p. 155, Brazil, FAIRMAIRE, t. c. : **n. spp.**  
*Eubrianax insignis*, Indo China, FAIRMAIRE, p. 87, Mission Pavie iii, **n. sp.**  
*Pseudolichus nivipictus*, Laos, FAIRMAIRE, p. 86, t. c. **n. sp.**

## MALACODERMIDÆ.

[Cf. BOURGEOIS (160, 161), FAIRMAIRE (473), FAUVEL (486), FIORI (509), PIC (1055, 1058, 1060, 1062, 1065, 1066, 1068, 1071, 1074, 1075, 1077), REITTER (1152), SCHAEFFER (1220), TOWNSEND (1392).]

*Malacodermidæ*, collected by BURCHELL in S. Africa and Brazil, BOURGEOIS (161).

Gigantic larva, *Lampyrides*, described, LUCAS, p. 104, Mission Pavie iii.  
 Light-organ, *Photinus*, TOWNSEND (1392).

*Acanthocnemus* = (*Eurema* Ab. = *Hovacnemus* Fairm.), there is only one species known, BOURGEOIS, pp. 25, 26, Bull. Soc. ent. France 1904.

*Anthonomus* [sic] *martini*, Natal, PIC, p. 27, Echange 1904, **n. sp.**

*Astylus longipennis*, Brazil, PIC, p. 29, t. c. **n. sp.**

*Attalus africanus*, Natal, PIC, p. 28, t. c. ; *A. (Mixis) rufithorax*, S. Africa, PIC, p. 33, t. c. : **n. spp.**

*Balanophorus macleayi*, pl. iv, fig. 8, p. 91 ; LEA, P. Linn. Soc. N. S. Wales xxix.

*Calosotis? barkeri*, Natal, PIC, p. 66, Echange xx, **n. sp.**

*Cantharis livida* var. *n. varendorffi*, REITTER, p. 159, Wien. ent. Zeit. xxiii ;

*C. brachypterus* ♀ ; *malatiensis* var. *n. detectiventris*, PIC, p. 71, Bull. Soc. ent. France 1904.

*C. ponticus, cilicius*, Asia Minor, PIC, p. 9, Echange ix ; *C. raddensis*, Amurland, PIC, p. 26, Echange 1904 : **n. spp.**

*Celetes burchelli*, Brazil, BOURGEOIS, p. 93, Ann. Nat. Hist. xiii, **n. sp.**

*Cenophengus? pallidus*, Texas, SCHAEFFER, p. 213, J. N. York Ent. Soc. xii, **n. sp.**

*Chlamydolycus burchelli*, S. Africa, BOURGEOIS, p. 91, Ann. Nat. Hist. xiii, **n. sp.**

*Cyrtosus subcylindricus*, Syria, PIC, p. 3, Echange 1904 ; *C. diversicornis*, Algeria, PIC, p. 34, t. c. : **n. spp.**

*Danacea martini*, Spain, p. 2, *holtzi*, Taurus, p. 3, PIC, t. c. ; *D. tauricola, nitidissima*, Taurus, PIC, p. 73, t. c. : **n. spp.**

*Dichelotarsus sulcithorax*, Japan, PIC, p. 26, t. c. **n. sp.**

*Drilus? kandyanus*, Ceylon, BOURGEOIS, p. 481, Ann. Soc. ent. France 1903, **n. sp.**

*Ebeomorphus* **n. g.** *E. ramicornis* **n. sp.**, Natal, PIC, p. 28, Echange 1904.

*Ebeus italicus*, Rome, REITTER, p. 159, Wien. ent. Zeit. xxiii ; *E. amurensis*, Amur, PIC, p. 50, Echange xx ; *E. bahiensis*, Brazil, PIC, p. 28, t. c. : **n. spp.**

*Eurema*, cf. *Acanthocnemus*.

- Hapalochrous martini*, Natal, PIC, p. 28, Echange 1904; *H. appendicifer*, Cape Colony, PIC, p. 34, t. c. : **n. spp.**
- Henricopus plumbeus, pilosus*, distinctions, MÜLLER, p. 174, Wien. ent. Zeit. xxiii.
- Hovacnemus*, cf. *Acanthocnemus*.
- Idgia puncticollis*, S. India, BOURGEOIS, p. 483, Ann. Soc. ent. France 1903, **n. sp.**
- Luciola xanthochroa*, Madagascar, FAIRMAIRE, p. 236, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Malachius akbesianus* ♂, PIC, p. 216, Bull. Soc. ent. France 1904.
- M. cressius*, Crete, PIC, p. 10, Echange 1904; *M. elaphus*, ♀, PIC, p. 42, Bull. Soc. ent. France 1904; *M. lusitanicus*, habits, larva, XAMBEU, pp. 58-63, Soc. Pyrenees-or. xlv; *M. arctelimbatus*, p. 287, *japonicus*, p. 288, Japan, PIC, Bull. Soc. ent. France : **n. spp.**
- Malthinus flavicollis*, Spain, PIC, p. 4, Echange 1904; *M. (Progeutes) drurei*, Bagdad, PIC, t. c. : **n. spp.**
- Malthodes (Podistrina) arbaensis*, Tunis, PIC, p. 3, Echange 1904; *M. holtzi*, Crete, PIC, p. 9, t. c.; *M. malcolmi*, Malta, PIC, p. 49, t. c.; *M. (Malthinellus) messenius*, p. 74, *M. (Podistrina) raguse*, p. 75, Sicily, FIORI, Natural. Sicil. xvii : **n. spp.**
- Megalophthalmus ptiliniformis*, Pará, BOURGEOIS, p. 98, Ann. Nat. Hist. xiii, **n. sp.**
- Melyris crenicollis*, Algeria, PIC, p. 90, Echange xx, **n. sp.**
- Neocarphurus impunctatus*, pl. iv, fig. 9, p. 91, LEA, P. Linn. Soc. N. S. Wales xxix.
- Pagurodactylus? apicalis*, Natal, PIC, p. 66, Echange xx, **n. sp.**
- Paraptorthodius n. g.* near *Ptorthodius*, *P. mirabilis n. sp.*, Texas, SCHAEFFER, p. 212, J. N. York Ent. Soc. xii.
- Plateros variocostatus*, Brazil, BOURGEOIS, p. 94, Ann. Nat. Hist. xii, **n. sp.**
- Platycis cosnardi raddensis* subsp. n., PIC, p. 25, Echange 1904.
- Podabrus rosineæ*, Amurland, PIC, p. 25, t. c. **n. sp.**
- Pseudocolotes capensis, notatithorax*, S. Africa, PIC, p. 11, t. c. **n. spp.**
- Rhagonycha ericeti* and allies, PIC, p. 54, t. c.
- Selasia maindroni*, Genji, BOURGEOIS, p. 482, Ann. Soc. ent. France 1903, **n. sp.**
- Semijulistus*, characters and components, SEMENOV, p. 121, Rev. Russe Ent. iv.
- Silis nigrifrons*, Madagascar, FAIRMAIRE, p. 237, Ann. Soc. ent. Belgique xlviii; *S. maindroni*, Nilgiri Hills, BOURGEOIS, p. 480, Ann. Soc. ent. France 1904 : **n. spp.**
- Sphingopalpus martini*, Natal, PIC, p. 12, Bull. Soc. ent. France 1904; *S. barkeri, formicoides, limbatus*, S. Africa, PIC, p. 65, Echange xx : **n. spp.**
- Telephorus fuscus*, larval habits, REMER, pp. 12, 13, Jahresber. Schlesisch. Ges. 1903, zool.-bot. sekt.
- Tylocerus apicalis*, Ceylon, BOURGEOIS, p. 479, Ann. Soc. ent. France 1903, **n. sp.**
- Tythonyx ruficollis*, Texas, SCHAEFFER, p. 214, J. N. York Ent. Soc. xii, **n. sp.**
- Xamerpus rubronotatus*, Madagascar, PIC, p. 11, Echange 1904; *X. obscurus*, Natal, PIC, p. 28, t. c. : **n. spp.**

## CLERIDÆ.

[Cf. FAUVEL (486), HOULBERT & BÉTIS (721), SCHAEFFER (1220), SCHENK-LING (1226).]

- Clerus palmii*, Arizona, SCHAEFFER, p. 218, J. N. York Ent. Soc. xii, **n. sp.**
- Colyphus furcatus*, Texas, SCHAEFFER, p. 218, t. c. **n. sp.**

- Cymatodera peninsularis*, Lower California, p. 214, *obliquefasciata*, p. 215, *fuchsii*, Texas, *latefascia*, Arizona, p. 216, *vandykei*, California, p. 217, SCHAEFFER, t. c. : **n. spp.**
- Enoplum granulatifenne*, p. 220, *nigrescens*, p. 221, Texas, SCHAEFFER, t. c. : **n. spp.**
- Hydnocera tricolor*, Texas, SCHAEFFER, p. 219, t. c. **n. sp.**
- Ommadius diversicollis*, New Caledonia, FAUVEL, p. 146, Rev. Ent. franc. 1904, **n. sp.**
- Peloniium maculicolle*, Texas, SCHAEFFER, p. 219, J. N. York Ent. Soc. xii, **n. sp.**
- Phleocopus*, monograph, SCHENKLING, pp. 169–186, Ann. Mus. Genova xli.
- P. verticalis*, Somaliland, p. 183, *obscurus*, Madagascar, p. 186, id. t. c. **n. spp.**
- Trichodes kraatzi* var. = (*turkestanicus*), HINTZ, p. 420, Deutsche ent. Zeitschr. 1904 ; *T. kraatzi* and *turkestanicus*, distinguished, REITTER, p. 259, Wien. ent. Zeit. xxiii.

## PTINIDÆ.

- [Cf. FAUVEL (486), PÉRINGUEY (1028), PIC (1052, 1054, 1060, 1062, 1064, 1067, 1068), REITTER (1149).]
- Cathorama diversestriata*, p. 56, *rudepunctata*, *argentina*, S. America, *subriventris*, Mexico, p. 57, *thecaoides*, *tijucana*, *holosericea*, *fulvopubens*, *subpubescens*, p. 103, *minutissima*, p. 104, S. America, PIC, Naturaliste 1904 ; *C. baeri*, Peru, PIC, p. 19, Echange 1904 : **n. spp.**
- Ernobius incisus*, S. France, PIC, p. 2, t. c. **n. sp.**
- Eupactus* = (*Thaptor* Gorrh.), PIC, p. 31, t. c.
- E. cribripennis*, *gibbosiceps*, *subopacus*, p. 31, *nigromaculatus*, *brunneonotatus*, *argentifer*, p. 32, Brazil, PIC, t. c. ; *E. subnotatus*, *brunneus*, p. 36, *gounellei*, *barranus*, *bahiensis*, *minasensis*, *brevis*, *nigricolor*, *subattenuatus*, *rufonitens*, *humilis*, p. 37, Brazil, PIC, t. c. ; *E. donckieri*, Mexico, *funki*, *distinctipennis*, S. America, PIC, p. 19, t. c. **n. spp.**
- Eurostus cylindricornis*, Asia Minor, REITTER, p. 81, Wien. ent. Zeit. xxiii, **n. sp.**
- Leptotheca* **n. g.** *Dorcatomini*, p. 151, *laticornis* **n. sp.**, New Caledonia, p. 152, FAUVEL, Rev. Ent. franc. 1904.
- Mesocaelopus rufithorax*, Congo, PIC, p. 12, Echange 1904 ; *M. venezuelensis* ["me parait devoir rentrer dans le genre *Eupactus*"!], Venezuela, *sumatrensis*, Sumatra, PIC, p. 19, Echange 1904 : **n. spp.**
- Ozognathus inarmatus*, *rufescens*, Chili, PIC, p. 18, t. c. **n. spp.**
- Priotoma peruviana*, *flaviventris*, S. America, PIC, p. 19, t. c. **n. spp.**
- Ptinus tectus*, habits, CHAMPION, p. 85, Ent. Mag. xl.
- P. elegans*, Natal, PÉRINGUEY, p. 225, Ann. S. African Mus. iii ; *P. multi-maculatus*, p. 226, *decorsei*, p. 227, Madagascar, PIC, Bull. Mus. Paris 1904 ; *P. falli*, N. America, PIC, p. 19, Echange 1904 ; *P. gandolphei*, *paulonotatus*, N. America, PIC, p. 34, t. c. : **n. spp.**
- Thaptor sublineatus*, Chili, *australiensis*, Australia, *mexicanus*, Mexico, PIC, p. 18, t. c. **n. spp.**
- Theca oneili*, S. Africa, *pruinosa*, Madagascar, PIC, p. 11, t. c. ; *T. figurata*, New Caledonia and New Hebrides, p. 152, *semirufa*, New Caledonia, p. 153, FAUVEL, Rev. Ent. franc. 1904 : **n. spp.**

## BOSTRYCHIDÆ.

[Cf. FAUVEL (486), LESNE (876).]

LESNE gives addenda and corrigenda to his Palearctic *Bostrychidæ*, with 2 *n. spp.*, ABEILLE, pp. 153–168, pls. iii, iv, Abeille xxx.



Catalogue of Australian *Bostr.* with localities, LEA, pp. 91-93, P. Linn. Soc. N. S. Wales xxix.

*Apatodes* Blackb. (= *Xylobosca* Lesne), LEA, p. 92, t. c.

*Coccographis nigrorubra*, pl. ix bis, fig. 6, p. 107, LESNE, Mission Pavie iii.

*Lycetus canaliculatus*, habits, parasites, BEYER, p. 30, J. N. York Ent. Soc. xii.

*L. punctipennis*, New Caledonia, Sumatra, FAUVEL, p. 155, Rev. Ent. franc. 1904, n. sp.

*Sinoxylyon pugnax*, E. India etc., LESNE, p. 159, Abeille xxx, n. sp.

*Xylogenes semenovi*, Centr. Asia, LESNE, p. 158, t. c. n. sp.

### CIOIDÆ.

*Cherostus cornutus*, St. Vincent, p. 31, *jamaicensis*, Jamaica, 32, ARROW, Ann. Nat. Hist. xiv, n. spp. [These Insects, as well as *Rhipidandrus*, are *Tenebrionidæ* and will in future be there recorded. D. S.]

*Cis notatus*, p. 160, *litteratus*, *biscutatus*, p. 161, *cribrellus*, *porcellus*, *micros*, p. 162, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.

*Ennearthron nigricans*, New Caledonia, FAUVEL, p. 163, t. c. n. sp.

### TENEBRIONIDÆ and RHYSOPAUSSIDÆ.

[Cf. ARROW (39), BROUN (184), CHITTENDEN (266), DEMAISON (360), FAIRMAIRE (476), FAUVEL (486), GEBIEN (589, 590), KOLBE (830), MÜLLER (972), PÉRINGUEY (1028, 1029), POPPIUS (1094), REITTER (1155).]

*Rhysopaussidæ*, note on position, WASMANN, p. 5, Jägerskiöld exp. No. 13.

*Acanthomera cursor*, Cape Colony, PÉRINGUEY, p. 252, Ann. S. African Mus. iii, n. sp.

*Acastus seabakuensis*, S. Africa, PÉRINGUEY, p. 260, t. c. n. sp.

*Adelium pustulosum*, New Caledonia, FAUVEL, p. 189, Rev. Ent. franc. 1904, n. sp.

*Adesmia* (*Macropoda*) *khoikoina*, *damara*, p. 226, *A. (Onymachrys) laskeri*, p. 227, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.

*Akis spinosa* var. n. *ragusæ*, REITTER, p. 97, Natural. Sicil. xvii.

*Aleyonotus purpuripennis*, Cameroons, GEBIEN, p. 22, Arkiv Zool. ii, No. 5, n. sp.

*Almyon prolatus* Pasc. (= *Ghaleca leta* Pér.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.

*Alphitophagus obtusangulus*, Dalmatia, MÜLLER, p. 209, Munchen. Kol. Zeitschr. ii, n. sp.

*Amenophis*; table of species; *A fairmairei* (= *mechowi* Kolbe), GEBIEN, p. 17, Arkiv Zool. ii, No. 5.

*A. angustata*, *epipleuralis*, Cameroons, GEBIEN, t. c. n. spp.

*Ametrocera* (= *Idricus* Fairm.), *A. aurita* (= *I. pacificus* Pér.), PÉRINGUEY, p. 296, Ann. S. African Mus. iii.

*Amiantus pusillus*, Transvaal, PÉRINGUEY, t. c. n. sp.

*Anatolica hammarstromi*, Mongolia, POPPIUS, p. 12, Ofv. Finska Forh. xlvi, No. 16, n. sp.

*Anchophthalmus indigus*, *algoensis*, p. 237, *plicipennis*, p. 238, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, n. spp.

*Anomalipus granatus* Fairm. (= *marshalli* Pér.), *A. obscurus* Oliv. (= *notaticollis* Pér.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.

*A. spectandus*, p. 449, *deceptor*, *amplipennis*, *selatinus*, p. 450, Transvaal, PÉRINGUEY, Nov. Zool. xi; *A. mashunus*, pl. xiii, fig. 10, *gasanus*, fig. 9, p. 239, *barbertoniensis*, p. 240, *paucivillus*, *hypocrita*, p. 241, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : n. spp.

- Aphrotus* **n. n.** for *Xenus* Pér., *A. abortus* **n. sp.**, Namaqualand, PÉRINGUEY, p. 252, t. c.
- Arrhenoplita* **n. g.** *ensifera* **n. sp.**, New Caledonia, FAUVEL, p. 173, Rev. Ent. franc. 1904.
- Asemogena* **n. g.** near *Praogena*, *A. simplex*, p. 281, *humilis*, p. 282, **n. spp.**, Cape Colony, PÉRINGUEY, Ann. S. African Mus. iii.
- Bolitotherus cordicollis*, p. 167, *caneroïdes*, p. 168, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, **n. spp.**
- Cædius globosus*, New Caledonia, FAUVEL, p. 166, t. c. **n. sp.**
- Calostega cylindrica*, Congo, GEBIEN, p. 175, Deutsche ent. Zeitschr. 1904, **n. sp.**
- Catamerus manicanus*, p. xiii, fig. 3, p. 250, *gasanus*, fig. 12, p. 251, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, **n. spp.**
- Ceramba* **n. g.** near *Episopus*, *hydrovatina* **n. sp.**, New Caledonia, FAUVEL, p. 206, Rev. Ent. franc. 1904.
- Ceropria*; characters of African; *C. romandi* = (*janthina* Th. = *westermanni* Fahr. = *viridis* Kr.), *C. anthracina* Quedf. nec Lac., pl. ii, fig. 8, GEBIEN, pp. 9, 10, Arkiv Zool. ii, No. 5.
- C. cærulea*, New Caledonia, FAUVEL, p. 171, Rev. Ent. franc. 1904, **n. sp.**
- Cherostus* und *Rhipidandrus*, cf. *Cioidæ*.
- Cilibe asidæformis*, New Caledonia, FAUVEL, p. 188, Rev. Ent. franc. 1904, **n. sp.**
- Cymbeba bavayi*, p. 194, *sulcipennis*, *muscorum*, p. 195, *indigacea*, *plani-pennis*, p. 196, New Caledonia, FAUVEL, t. c. **n. spp.**
- Derosimus* **n. g.** near *Adelostema*, *D. quadricollis* **n. sp.**, Buenos Ayres, FAIRMAIRE, p. 62, Bull. Soc. ent. France 1904.
- Derosphærus globicollis* = (*Nyctobates rotundicollis* Westw. = *Notiolesthus morosus* Motsch.), GEBIEN, p. 18, Arkiv Zool. ii, No. 5.
- Diaclina picta*, New Caledonia, FAUVEL, p. 184, Rev. Ent. franc. 1904, **n. sp.**
- Dichastops mashunus*, S. Africa, PÉRINGUEY, p. 244, Ann. S. African Mus. iii, **n. sp.**
- Diestesoma* **n. g.** near *Strongylium*, p. 271, *D. pulchrum* **n. sp.**, Cape Colony, p. 272, PÉRINGUEY, t. c.
- Dorelogena* **n. g.** near *Praogena*, *D. castanea*, p. 280, *angusta*, p. 281, **n. spp.**, Rhodesia, PÉRINGUEY, t. c.
- Dysgena durbania*, p. 276, *decipiens*, *plebeia*, p. 277, *delagoana*, *foveaticollis*, p. 278, *capicola*, *luctuosa*, *servilis*, p. 279, S. Africa, PÉRINGUEY, t. c. **n. spp.**
- Endustomus sudanensis*, White Nile, WASMANN, pl. i, fig. 3, p. 10, Jägerskiöld exp. No. 13; *E. rhodesianus*, S. Africa, PÉRINGUEY, p. 242, Ann. S. African Mus. iii : **n. spp.**
- Epipedonota strigosicollis*, Catamarca, FAIRMAIRE, p. 63, Bull. Soc. ent. France 1904, **n. sp.**
- Episopus cavipennis*, p. 203, *championi*, *viridipennis*, p. 204, *violaceipennis*, p. 205, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, **n. spp.**
- Eupezus minor*, Cameroons, GEBIEN, p. 25, Arkiv Zool. ii, No. 5, **n. sp.**
- Gonocnemis jaegerskiöldi*, Soudan, WASMANN, p. 7, pl. i, fig. 2, Jägerskiöld exp. No. 13, **n. sp.**
- Hæmus* **n. g.** near *Machla*, p. 228, *H. carinatipennis* **n. sp.**, Rhodesia, p. 229, PÉRINGUEY, Ann. S. African Mus. iii.
- Hemipristis kraatzi*, Tanganyika, GEBIEN, p. 127, Deutsche ent. Zeitschr. 1904, **n. sp.**
- Herpiscius damarinus*, S. Africa, PÉRINGUEY, p. 229, Ann. S. African Mus. iii, **n. sp.**
- Hoplonyx evanescens*, pl. ii, fig. 5, p. 33, *cameruna*, p. 24, Cameroons, GEBIEN, Arkiv Zool. ii, No. 5; *H. termitophilus*, Soudan, WASMANN, pl. i, fig. 7, p. 9, Jägerskiöld exp. No. 13; *H. insignis*, *granulipennis*, p. 255, *perforatus*, *extraneus*, p. 256, *gratulus*, *refertus*, p. 257, *pudens*,

- spectandus*, p. 258, *amœnus*, *probus*, p. 259, *luscus*, p. 260, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : n. spp.
- Hyocis championi*, New Caledonia and New Hebrides, FAUVEL, p. 166, Rev. Ent. franc. 1904, n. sp.
- Hypamarygmus* n. g. p. 27, *H. coccinelloides* n. sp. Cameroons, p. 28, pl. ii, fig. 6, GEBIEN, Arkiv Zool. ii, No. 5.
- Iscanus* n. g. near *Lorelus*, p. 176, *kuniensis* n. sp., New Caledonia, p. 177, FAUVEL, Rev. Ent. franc. 1904.
- Isopus kanak*, p. 198, *obtusus*, p. 199, *productus*, p. 200, *apicipennis*, *sulcifer*, p. 201, *morychoïdes*, p. 202; New Caledonia, FAUVEL, t. c. n. spp.
- Latheticus prosopis*, Arizona etc., CHITTENDEN, p. 167, J. N. York Ent. Soc. xii, n. sp.
- Lorelus ocularis*, New Caledonia, FAUVEL, p. 178, Rev. Ent. franc. 1904, n. sp.
- Lyprochelida picta*, Cameroons, pl. ii, fig. 4, p. 20, GEBIEN, Arkiv Zool. ii, No. 5, n. sp.
- Lyprops mosambicus*, *namaquensis*, S. Africa, PÉRINGUEY, p. 243, Ann. S. African Mus. iii, n. spp.
- Machla mendica* (= *Asida natalica* Pér. = *M. echinodermata* Fairm.), PÉRINGUEY, p. 296, t. c.
- Machleida nodulosa* (= *Asida legitima* Pér.), PÉRINGUEY, p. 296, t. c.
- Melasia apicipennis*, *fortestriata*, p. 180, *punctata*, *microcephala*, p. 181, *opacipennis*, *isoceroïdes*, p. 182, *miriceps*, p. 183, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.
- Menophilus camerunus*, Africa, pl. ii, fig. 2, p. 19, GEBIEN, Arkiv Zool. ii, No. 5, n. sp.
- Metallonotus splendens*, E. Africa, GEBIEN, p. 318, Deutsche ent. Zeitschr. 1904, n. sp.
- Micrantereus capicola*, *procursus*, pl. xiii, figg. 1, 2, p. 245, *zoutpansbergianus*, fig. 8, p. 246, *lydenburgiensis*, fig. 7, *gasanus*, figg. 5, 6, p. 247, *hirsutus*, fig. 4, p. 248, *vicarius*, p. 249, fig. 3, S. Africa; PÉRINGUEY, Ann. S. African Mus. iii, n. spp.
- Mimocellus* n. g. near *Lyprops*, p. 11, *M. trechoïdes*, Sudan, pl. i, fig. 5, *braunsi*, Bothaville, n. spp., p. 12, WASMANN, Jägerskiöld exp. No. 13.
- Moluris mulleri*, to *Psammodes*, PÉRINGUEY, p. 297, Ann. S. African Mus. iii.
- Nannocerus angustulus*, p. 270, *beiranus*, p. 271, Mozambique; PÉRINGUEY, t. c. n. spp.
- Nesogena caffra*, S. Africa, PÉRINGUEY, p. 262, t. c. n. sp.
- Nyetelia grandis*, *vageimpressa*, p. 62, *rotundipennis*, *quadriplicata*, p. 63, S. America, FAIRMAIRE, Bull. Soc. ent. France 1904, n. spp.
- Oochrotus glaber*, Asia Minor, DEMAISON, p. 287, Bull. Soc. ent. France 1904, n. sp.
- Opatrinus opacus*, Cameroons, fig. 2, p. 4, GEBIEN, Arkiv Zool. ii, No. 5, n. sp.
- Païta* n. g. near *Menimus*, *setosella* n. sp., Noumea, FAUVEL, p. 173, Rev. Ent. franc. 1904.
- Palorus lœvipunctus*, New Caledonia, FAUVEL, p. 176, t. c. n. sp.
- Paragonocnemis trœgaordhi*, Soudan, WASMANN, pl. i, fig. i, p. 8, Jägerskiöld exp. No. 13, n. sp.
- Paramarygmus figuratus*, Cameroons, GEBIEN, p. 28, Arkiv Zool. ii, No. 5; *P. gratulus*, *amœnus*, p. 261, *gratiosus*, p. 262, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii : n. spp.
- Paraphylax sternalis*, New Zealand, BROUN, p. 57, Ann. Nat. Hist. xiv, n. sp.
- Perichilus ditissimus*, S. Africa, PÉRINGUEY, p. 270, Ann. S. African Mus. iii, n. sp.
- Pheugonius giganteus*, Borneo, GEBIEN, p. 157, Deutsche ent. Zeitschr. 1904, n. sp.

- Phligra hamaticollis*, p. 235, *minuta*, p. 236, Cape Colony, PÉRINGUEY, Ann. S. African Mus. iii, **n. spp.**
- Phymatosoma rutilans*, Laos, FAIRMAIRE, p. 88, Mission Pavie iii, **n. sp.**
- Platynosum sabulorum*, characters, CHABAUT, p. 283, Bull. Soc. ent. France 1904.
- Platydemus tomentosus, nigrobrunneum*, p. 5, *hollmi*, fig. 3, p. 6, *schroderi*, fig. 4, p. 7, *abnorme*, fig. 5, p. 8, Cameroons, GEBIEN, Arkiv Zool. ii, No. 5, **n. spp.**
- Praogenia cyaneipennis*, p. 273, *ditissima, affinis*, p. 274, *natalensis, capicola, bechuana*, p. 275, *gloriosa, timida*, p. 276, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, **n. spp.**
- Priscoscelis thomsoni*, GEBIEN, p. 148, Deutsche ent. Zeitschr. 1904, **n. sp.**
- Prosodes mithras*, Persia, REITTER, p. 258, Wien. ent. Zeit. xxiii, **n. sp.**
- Psammodes volvulus*=(*adventitus* Pér.), *P. valens* Pér.=(*cinctipennis* Fairm.), *P. rugulosus* Sol.=(*exilis* Pér.), *P. tricostatus* Fahr.=(*præstans* Pér.), *P. junodi* Pér.=(*junodi* Fairm.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.
- P. discrepans*, p. 230, *damarinus, zoutpansbergianus*, pl. xiii, fig. 14, p. 231, *furtus*, p. 232, *illotus*, p. 233, S. Africa, PÉRINGUEY, t. c. : *P. rehbocki*, p. 299, *ertli*, p. 300, *spinocostatus*, p. 302, Africa, KOLBE, Berlin. ent. Zeitschr. xlix : **n. spp.**
- Psectrascelis cariosicollis*, Catamarca, FAIRMAIRE, p. 64, Bull. Soc. ent. France 1904, **n. sp.**
- Pseudelops fossatus, remotus*, p. 191, *annulipes, macellus*, p. 192, *trapezus*, p. 193, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, **n. spp.**
- Pycnocerini* ; revision of the group, GEBIEN, Deutsche ent. Zeitschr. 1904, pp. 101-176 and 305-356. For the synonymy and variation notes in this paper reference must be made to the memoir.
- Pycnocerus rugosus*, p. 343, *gracilis*, p. 344, W. Africa, GEBIEN, t. c. **n. spp.**
- Scythis rectangulus*, Mongolia, POPPIUS, p. 14, Ofv. Finska Forh. xlvii, No. 16, **n. sp.**
- Selinus convexipennis*, fig. 1, p. 2, *calcaripes*, p. 3, Cameroons, GEBIEN, Arkiv Zool. ii, No. 5, **n. spp.**
- Sipirocus kolbei*, Java, GEBIEN, p. 169, Deutsche ent. Zeitschr. 1904, **n. sp.**
- Sphenaria* synonymy, of Semenow's species, REITTER, pp. 24, 25, Wien. ent. Zeit. xxiii.
- Stenocara albicollis*=(*distincta* Pér.), PÉRINGUEY, p. 296, Ann. S. African Mus. iii.
- S. jurgatrix*, Namaqualand, PÉRINGUEY, p. 227, t. c. **n. sp.**
- Strongylium sulcipenne*=(*Xanthotopia fuscocyanescens* Fairm.), PÉRINGUEY, p. 297, t. c. ; *S. cyanipes*=(*nigrum* Dohrn), GEBIEN, p. 29, Arkiv Zool. ii, No. 5.
- S. perturbator, indigenus*, p. 263, *rhodesianum, ovampoense*, p. 264, *laetum, discrepans*, p. 265, *algoense, imitator*, p. 266, *natalense*, p. 267, *auspicatum, plausibile*, p. 268, *laetum, caelatum*, p. 269, S. Africa, PÉRINGUEY, Ann. S. African Mus. iii, **n. spp.**
- Syrphetodes nodosalis*, New Zealand, BROUN, p. 56, Ann. Nat. Hist. xiv, **n. sp.**
- Taraxides sinuatus*, variation and synonymy, GEBIEN, p. 13, 14, Arkiv Zool. ii, No. 5.
- Tenebrio guineensis*=(*foveicollis* Thoms.), GEBIEN, p. 19, t. c.
- Toxicum taurus*=*tenuiclavum* Schauf.=?*nitidifrons* Schauf.), GEBIEN, p. 13, t. c.
- Trachynotideus damarinus*, S. Africa, PÉRINGUEY, p. 233, Ann. S. African Mus. iii, **n. sp.**
- Trachynotidus rufozonatus*=(*manifestus* Pér.), PÉRINGUEY, p. 297, t. c.
- Trachynotus stali*=(*latemarginatus* Pér.), *T. silphoides*=(*plicipennis* Pér.), *T. pygmeus*=(*tantillus* Pér.), *T. frontalis* Haag=(*Epairops levigata* Pér.), PÉRINGUEY, t. c.



- T. resolutus*, Transvaal, PÉRINGUEY, p. 234, t. c. n. sp.  
*Uloma sjoestedti*, Cameroons, fig. 6, p. 10, GEBIEN, Arkiv Zool. ii, No. 5, n. sp.  
*Vutsimus propinquus*, p. 253, *byzacnoides*, p. 254, Transvaal, PÉRINGUEY,  
 Ann. S. African Mus. iii, n. spp.  
*Xanthothoepia delagoae*, Mozambique, PÉRINGUEY, p. 273, t. c. n. sp.  
*Xyloborus crenipennis* Motsch. to *Cherostus*, ARROW, Ann. Nat. Hist. xiv,  
 p. 32.  
*Zophodes tristis*=(*Doryagus talpa* Pasc.), PÉRINGUEY, p. 297, Ann. S.  
 African Mus. iii.

## CISTELIDÆ.

[Cf. GERHARDT (591, 592), PIC (1058, 1065, 1075).]

- Isomira murina* var. n. *æmilia*, BEDEL, p. 211, Bull. Soc. ent. France 1904.  
*I. arenaria*, Germany, GERHARDT, p. 366, Deutsche ent. Zeitschr. 1904,  
 and p. 79, Zeitschr. Ent. Breslau xxix; *I. testaceicornis*, Vladivostock,  
 PIC, p. 26, Echange 1904 : n. spp.  
*Cteniopus sulphureus* L.=(*flavus* Scop.), BEDEL, p. 152, Abeille xxx.  
*C. tokatensis*, Tokat, PIC, p. 26, Echange 1904, n. sp.  
*Microcistela* n. g. *M. rosinae* n. sp., Amurland, PIC, p. 26, t. c.  
*Mycetochara (Ernocharis) striatipennis*, Amanus, PIC, p. 74, t. c. n. sp.  
*Prionychus nitidissimus*, Tokat, PIC, p. 288, Bull. Soc. ent. France 1904,  
 n. sp.

## MELANDRYIDÆ and LAGRIIDÆ.

- Orchesia fusiformis*=(*nadeshde* Sem.), SEMENOW, p. 315, Rev. Russe Ent.  
 1904.  
*Lagria procera*, p. 287, *prædita*, *pustulosu*, p. 288, *mashuna*, *rhodesiana*,  
 p. 289, *imitatrix*, p. 290, *lydenburgiana*, *promontorii*, p. 291, *vittati-*  
*pennis*, p. 292, *capicola*, *elizabethæ*, p. 293, *plumbea*, *impressicollis*,  
 p. 294, *annectens*, p. 295, S. Africa, PÉRINGUEY, Ann. S. African Mus.  
 iii, n. spp.

## ANTHICIDÆ, PEDILIDÆ.

[Cf. CASEY (248), PIC (1053, 1054, 1057, 1060, 1062, 1064, 1068, 1070, 1075,  
 1076, 1078).]

- Anthicus ragazzii* var. n. *micheli*, PIC, p. 121, Bull. Mus. Paris 1904.  
*A. tarifanus*, Spain, PIC, p. 4, Echange 1904; *A. escaleraei*, *uhagoni*, Spain,  
*balearicus*, Balearic Ids., PIC, p. 81, t. c.; *A. boyadjeani*, p. 73,  
*tauricus*, p. 74, Asia Minor, PIC, t. c.; *A. (Aulacoderus) citernii*,  
 Somali Land, PIC, p. 92, Ann. Mus. Genova xli; *A. basinotatus*,  
*tuberculatus*, *cæruleipennis*, S. Africa, PIC, p. 12, Echange 1904; *A.*  
*floridanus*, *plectrinus*, N. America, CASEY, p. 320, Canad. Ent. xxxvi;  
*A. chevaleri*, Niger, *guyanensis*, French Guiana; PIC, p. 121, Bull.  
 Mus. Paris 1904; *A. (Lappus) postobscurus*, *goyasensis*, *A. (Acanthinus)*  
*minasensis*, p. 44, *A. sculptus*, *bicallosus*, *finitimus*, p. 45, Brazil, PIC,  
 Echange xx; *A. decerptus*, Buenos Ayres, PIC, p. 118, Bull. Soc. ent.  
 France 1904 : n. spp.  
*Euvacusus* n. g. p. 318, *E. coloradanus* n. sp., Colorado, p. 319, CASEY,  
 Canad. Ent. xxxvi.  
*Formicomus fortipes* var. n. *anguliceps*, PIC, p. 119, Bull. Mus. Paris 1904;  
*F. elegans*, *posticalis* and *obliquifasciatus* to *Anthicus*, LEA, p. 95,  
 P. Linn. Soc. N. S. Wales xxix.  
*F. armipes*, *decorsei*, Madagascar, *potteri*, Abyssinia, PIC, p. 120, Bull. Mus.  
 Paris 1904, n. spp.

- Hybophilus*; this name cannot be used for *Col.*, CHAMPION, p. 85, Ent. Mag. xl.  
*H. grandis*, S. Africa, PIC, p. 12, Echange 1904; *H. angusticollis, decorsei*, Madagascar, PIC, p. 72, Bull. Soc. ent. France 1904 : **n. spp.**  
*Leptoremus n. g.* p. 314, *L. argenteus n. sp.*, California, p. 315, CASEY, Canad. Ent. xxxvi.  
*Liobaulius n. g.* p. 316, *L. subtropicus, lulingensis, spectans*, p. 317, Texas, *fronterialis*, Mexico, p. 318, **n. spp.**, CASEY, t. c.  
*Macratris decorsei*, Madagascar, PIC, p. 119, Bull. Mus. Paris 1904, **n. sp.**  
*Notoxus oneili*, Cape Colony, PIC, p. 35, Echange 1905; *N. peruvianus*, Peru, PIC, p. 228, Bull. Mus. Paris 1904 : **n. spp.**  
*Scraptia chinensis*, Tien-tsin, PIC, p. 20, Echange 1904, **n. sp.**

## RHIPIPHORIDÆ and STYLOPIDÆ.

[Cf. BROUN (184), CHOBOUT (269), FAIRMAIRE (478), LEA (864), PIC (1074, 1077), PIERCE (1086).]

- Ancholenus acuminatus*, Brazil, FAIRMAIRE, p. 155, Bull. Soc. ent. France 1904, **n. sp.**  
*Blattivorus n. g.* (?) for *Rhipidius lusitanicus*, CHOBOUT, p. 230, Bull. Soc. ent. France 1904.  
*Dunbrodianus n. g.* near *Euctenia*, *D. longicollis n. sp.*, Cape Colony, PIC, p. 66, Echange xx.  
*Emenadia pictipennis*, Queensland, *semipunctata*, N. W. Australia, LEA, p. 97, P. Linn. Soc. N. S. Wales xxix, **n. spp.**  
*Evaniocera pallidipennis*, N. W. Australia, LEA, p. 99, t. c. **n. sp.**  
*Myiodes syriacus*, Amanus, PIC, p. 90, Echange xx, **n. sp.**  
*Myiodites*, characters of N. American, pp. 157-162, *fasciatus* var. **n. brunneus**, p. 160, *solidaginis*, natural history, pp. 172-180, PIERCE, Stud. Univ. Nebraska iv.  
*M. minimus*, Nebraska, id., p. 159, t. c. **n. sp.**  
*Rhipidius*; table of species, CHOBOUT, p. 230, Bull. Soc. ent. France 1904.  
*R. guignoti*, Alpes maritimes, CHOBOUT, p. 228 & p. 284, t. c. **n. sp.**  
*Rhipiphorus*; table of North American, PIERCE, p. 164, Stud. Univ. Nebraska iv.  
*R. acutipennis*, Nebraska, PIERCE, p. 163, t. c. **n. sp.**  
*Rhyppistena cryptarthra*, p. 58, *sulciceps*, p. 59, New Zealand, BROUN, Ann. Nat. Hist. xiv, **n. spp.**  
*Xenos*?, from *Andrena*, p. 169, *X. pulvinipes*, from *Panurginus*, Nebraska, PIERCE, p. 167, Stud. Univ. Nebraska iv, **n. sp.**  
The trianguloids—first larva—of *Rhip.* and *Stylop.*, PIERCE, pp. 170 etc., t. c.

## MORDELLIDÆ.

- Mordella*; variation of Australian, LEA, pp. 95, 96, P. Linn. Soc. N. S. Wales xxix.  
*Mordellistena arabica*, Mazerah, CHOBOUT, p. 244, Bull. Soc. ent. France 1904, **n. sp.**

## CANTHARIDÆ or MELOIDÆ.

[Cf. ESCHERICH (469), PÉRINGUEY (1028), PIERCE (1086), SKINNER (1302).]

- Life-histories and peculiarities of *Meloidæ*, North American triangulins, PIERCE, pp. 154, 170 etc., Stud. Univ. Nebraska iv.  
Embryology of *Meloë*, CZERSKI (340).  
*Calospasta wenzeli*, Arizona, SKINNER, p. 217, Ent. News Philad. xv, **n. sp.**

- Ctenopus lama*, East Turkestan, ESCHERICH, p. 35, Munchen. Kol. Zeitschr. ii, n. sp.
- Decatomia vexator*, *transvaalica*, Transvaal, PÉRINGUEY, p. 284, Ann. S. African Mus. iii, n. spp.
- Epicauta adspersa*, injurious in Argentina, BRÈTHES (182).
- E. abadona*, *alastor*, Arizona, SKINNER, p. 217, Ent. News Philad. xv, n. spp.
- Hapalus (Stenoria) hauseri*, p. 34, *tibetana*, Kuku-noor, *H. (Sitaris) pallens*, p. 35, Turkestan, ESCHERICH, Munchen. Kol. Zeitschr. ii, n. spp.
- Lagorina (?) mus*, Algeria, ESCHERICH, p. 32, t. c. n. sp.
- Lytta pæciloptera* var. n. *satiata*, ESCHERICH, p. 31, t. c.
- L. tibetana*, Kuku-noor, ESCHERICH, p. 30, t. c.; *L. damarina*, *spilotella*, S. Africa, PÉRINGUEY, p. 286, Ann. S. African Mus. iii : n. spp.
- Meloë intermedius*, Turkestan, ESCHERICH, p. 30, Munchen. Kol. Zeitschr. ii; *M. rhodesianus*, S. Africa, PÉRINGUEY, p. 282, Ann. S. African Mus. iii : n. spp.
- Mylabris crux* var. n., *opulenta*, ESCHERICH, p. 33, Munchen. Kol. Zeitschr. ii.
- M. lucens*, p. 32, *voigtsii*, p. 33, *aurora*, p. 34, Turkestan, ESCHERICH, t. c.; *M. (Ceroctis) moscambica*, Lourenço-Marques, PÉRINGUEY, p. 283, Ann. S. African Mus. iii : n. spp.
- Paraectenodia* n. g. near *Actenodia*, *P. parva* n. sp., Cape Colony, PÉRINGUEY, p. 285, Ann. S. African Mus. iii.

## AEGIALITIDÆ, PYROCHROIDÆ, PYTHIDÆ, ŒDEMERIDÆ.

- Ægialitidæ*; validity and position of the family, structure of prosternum, WICKHAM, pp. 356, 357, cuts, Canad. Ent. xxxvi.
- Ægialites*; early stages, taxonomy, WICKHAM, pp. 57-60, pl. ii, t. c.
- Pyrochroa innoraticeps*, Amurland, PIC, p. 26, Échange 1904, n. sp.
- Rhinosimus æneus numidica* subsp. n., PIC, p. 10, t. c.
- Salpingus distincticollis*, *bisbimaculatus*, Madagascar, PIC, p. 72, Bull. Soc. ent. France 1904, n. spp.
- Salpingus oneili*, Cape Colony, PIC, p. 35, Échange 1904, n. sp.
- Chrysanthia distinctithorax*, Taurus, PIC, p. 57, t. c. n. sp.
- Danercus bicolor*, Queensland, LEA, p. 100, pl. iv, fig. 11, P. Linn. Soc. N. S. Wales xxix, n. sp.
- Œdemera hispanica*, Grenada, PIC, p. 91, Échange xx, n. sp.
- Sora* Walker (1859) is prior to *Sora* Hein., PROUT, p. 115, Entomologist 1904.

## CURCULIONIDÆ.

- [Cf. ABEILLE (5), BEDEL (97), BEGUIN-BILLECOQ (98), BROUN (184), CASEY (248), CHAMPION (614), CHITTENDEN (263, 264), CSIKI (329), DANIEL & DANIEL (349), DESBROCHERS (361-365, 367), ENDERLEIN (460), FAIRMAIRE (473), FAUST (481), FORMÁNEK (533, 534), FROGGATT (561), GIRAULT (610), HARTMANN (663), HELLER (674, 675), LEA (862, 864), MARSHALL (915), MCCLENAHAN (930), PETRI (1035-1037), PIC (1060, 1065, 1071, 1076, 1077, 1079), REITER (1148, 1150, 1152), SCHAEFFER (1220), SCHULTZE (1252), SOLARI (1326), WAGNER (1462).]

Development of rostrum, *Balaninus* and *Mononychus*, MCCLENAHAN (930). VITALE continues his account of protective resemblance in *Curculionidæ*, Riv. ital. Sci. Nat. xxiv, pp. 141-145.

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- Acalyptops* n. g. *Anthonomorum*, p. 400, *A. ornatus* n. sp., Usambara, p. 401, HARTMANN, Deutsche ent. Zeitschr. 1904.

- Acherres globicollis*, W. Australia, LEA, p. 114, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
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- B. sellata*, *apicalis*, p. 183, *sjostedti*, p. 184, Cameroons, id. t. c. **n. spp.**
- Cænopsis maroccana*, Tangier, SOLARI, p. 525, Ann. Mus. Genova xli, **n. sp.**
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- Cnemodontus ambitiosus, natalensis*, S. Africa, FAUST, p. 199, Deutsche ent. Zeitschr. 1904, n. spp.
- Cneorhinus depilatus*, Tunis, DESBROCHERS, p. 105, Frelon xii, n. sp.
- Cænoposimorphus tenietensis*, Tunis, *desbrochersi*, Algeria, PIC, p. 91, Echange xx, n. spp.
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- Conotrachelus inexplicatus* Faust, pl. xviii, fig. 28, p. 360, *signatus* Kirsch, fig. 30, p. 361, *cristatus* Fahr., pl. xix, fig. 9, p. 375, *dentiferus* Fahr., fig. 11, p. 376, *cestrotus* Faust, fig. 26, p. 388, *leucophæatus* Fahr. = (*demens* Boh.), pl. xx, fig. 5, p. 394, *subfasciatus* Boh., fig. 27, p. 413, *anaglypticus* Say, pl. xxi, fig. 5, p. 420, *humerosus* Fahr., fig. 11, p. 425, *scapularis* Fahr., fig. 16, p. 430, *serpentinus* Boh., fig. 19, p. 433, *sobrinus* Boh., fig. 22, p. 435, *verticalis* Boh., fig. 25, p. 439, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
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- Crisius dorsalis*, New Zealand, BROUN, p. 123, Ann. Nat. Hist. xiv, **n. sp.**
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- Degorsia*, cf. *Stenopelmus*.
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- D. griseipes*, Madagascar, id. l. c., **n. sp.**
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- Echinocnemus gracilirostris*, Madagascar, FAIRMAIRE, p. 241, t. c. **n. sp.**
- Ectemnorhinus richtersi*, p. 673, *crozetensis*, p. 674, Crozet islds., ENDERLEIN, Zool. Anz. xxvii, **n. spp.**
- Ellimenistes amoenus*, Usambara, HARTMANN, p. 386, Deutsche ent. Zeitschr. 1904, **n. sp.**
- Elytrodon dilaticollis*, Cérigo, PIC, p. 10, Echange 1904; *E. ferox*, Asia Minor, K. DANIEL, p. 82, Munchen. Kol. Zeitschr. ii : **n. spp.**
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- Ethemaia apicalis*, p. 107, *emarginata*, p. 108, *vagans*, N. S. W., *funerea*, Swan Riv., p. 109, LEA, t. c. **n. spp.**
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- E. planidorsum, koenigi, grisescens*, Caucasus, *persicus*, N. Persia, DESBROCHERS, p. 104, Frelon xii, **n. spp.**
- Euthyphasis sordidata*, N. S. W., *lineata*, W. Australia, LEA, p. 82, Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Eutinophæa dispar*, Sydney, p. 79, *falcata*, Queensland, p. 80, LEA, t. c. **n. spp.**
- Evadodes rugiceps*, N. S. Wales, LEA, p. 79, t. c. **n. sp.**
- Evas elliptica*, p. 77, *latipennis*, p. 78, W. Australia, LEA, t. c. **n. spp.**
- Foucartia notatipennis*, Zante, PIC, p. 50, Echange xx, **n. sp.**
- Gonocleonus sculptus*, Algeria and Sicily, FAUST, p. 206, Deutsche ent. Zeitschr. 1904, **n. sp.**
- Gonoropterus n. sp. Scolopterideæ*, for *G. spinicollis n. sp.*, New Zealand, BROUN, p. 122, Ann. Nat. Hist. xiii.
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## SCOLYTIIDÆ.

[Cf. BLANDFORD (614), BROUN (184), HAGEDORN (647-651), HOPKINS (704), KNOCKE (823), LEA (864), POWELL (1104).]

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The generations in *Scolytidæ*, KNOCKE (823).

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*C. flagellifer*, pl. viii, f. 2, p. 255, *luridus*, p. 256, *ptyocerus*, f. 5, p. 257, *comatus*, p. 258, *panamensis*, p. 259, *rubricollis*, p. 260, *collaris*, *parvulus*, p. 261, Central America, *fuscus*, Brazil, *discoideus*, Venezuela, p. 262, id. t. c. n. spp.

*Cryphalus granulatus*, p. 229, var. n. *tredlii*, p. 232, *C. asperatus* Gyll. = (*binodulus* Ratz.) p. 230, HAGEDORN, Munchen. Kol. Zeitschr. ii.

*C. grothii*, Centr. Eur., id. t. c., p. 232 and 372, cut, n. sp.

*Dendroctonus valens*, note on habits, POWELL, p. 239, J. N. York Ent. Soc. xii.

*Dendroterus* n. g. near *Dryocates*, *D. mexicanus*, pl. vii, f. 25, *sallei* n. spp. Mexico, BLANDFORD, p. 233, Biol. Centr.-Amer. Col. iv, pt. 6.

*Glochinoscerus* n. g. *Corthyli*, *G. retusipennis*, pl. ix, figg. 1, 2, p. 266, *gemelus*, p. 267, n. spp., Guatemala, BLANDFORD, t. c.

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*Hylesinus fici*, Sydney, LEA, p. 103, P. Linn. Soc. N. S. Wales xxix, n. sp.

*Hylocurus spinifex*, Mexico, pl. vii, f. 23, p. 225, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6, n. sp.

*Hypothenemus eruditus*, synonymy and habitat, BLANDFORD, pp. 229, 230, t. c.

*H. validus*, Mexico, p. 228, *lævigatus*, Nicaragua, p. 229, id. t. c. n. spp.

*Ips curvidens* and allies, distinctions, BARGMANN, pp. 262-264, Allg. Zeitschr. Ent. ix.

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*Metacorthylus* n. g. *M. nigripennis* n. sp., Panama, pl. viii, f. 10, p. 263, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6.

*Phlæobius vittatus*, ♂, UYTENBOOGAART, p. 143, Ent. Ber. Nederland. i.

*Pityophthorus nigricans*, p. 236, *amœnus*, *confusus*, p. 237, *poricollis*, *acuminatus*, p. 238, *guatemalensis*, p. 239, *diglyphus*, *obtusipennis*, p. 240, *timidus*, *confinis*, p. 241, *cinnatus*, *obsoletus*, p. 242, *P. ? incompositus*, p. 243, *carinifrons*, *politus*, p. 244, *deyrollei*, *incommodus*, p. 245, Central America, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6, n. spp.

*Platypus australis*, sexes, LEA, p. 105, P. Linn. Soc. N. S. Wales xxix.

*P. ocnivorus*, Tasmania, id., p. 104, t. c. n. sp.

*Pterocyclon*, characters and synonymy, BLANDFORD, pp. 288-270, Biol. Centr.-Amer. Col. iv, pt. 6.

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- Scolytoplatypus* and its species discussed, HAGEDORN, pp. 404-413, Stettin Ent. Zeit. lxxv.
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- Xyleborus*, to this belong *Xylopertha compressa*, *hirsuta* and *parva* Lea, LEA, p. 106, P. Linn. Soc. N. S. Wales xxix; *X. perforans*, in *Phyt-elephas* fruit, HAGEDORN, p. 449, Allg. Zeitschr. Ent. ix; *X. dispar*, larval structure, habits, CHAPMAN, pp. 100-102, Tr. ent. Soc. London 1904.
- X. hirtus*, *geminatus*, Darjiling, HAGEDORN, p. 126, Bull. Mus. Paris 1904, n. spp.

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- Larva of *Brenthus lineicollis*, HELLER, p. 397, Stettin Ent. Zeit. lxxv.
- Notes on N. American *Brenthidæ*, BEYER, p. 168, J. N. York Ent. Soc. xii, and corrections, t. c. p. 257.

## ANTHRIBIDÆ.

- [Cf. JORDAN (767-769, 772), PIC (1069), SCHAEFFER (1220), SCHILSKY (1227).]
- Acorynus tonkinianus*, *mosonicus*, Tonkin, JORDAN, p. 232, Nov. Zool. xi, n. spp.
- Allandrus indistinctus*, Bolivia, JORDAN, p. 242, t. c. n. sp.
- Anthrenosoma* n. g. p. 281, *A. tibialis*, *bohlsi*, *gounellei*, p. 282, n. spp., S. America, JORDAN, t. c.
- Anthrribus wallacei philippinensis*, *malaicus* subsp. n., JORDAN, p. 235, t. c.
- A. planatus*, Gold Coast, JORDAN, p. 239, t. c.; *A. macrocerus*, Sikkim, *frontalis*, Sumatra, JORDAN, p. 235, t. c.; *A. furinatus*, *gounellei*, p. 296, *ævipennis*, *picticollis*, p. 297, *frenatus*, *analis*, p. 298, *lineiger*, *collaris*, *inequalis*, p. 299, *plugiatus*, p. 300, S. America, JORDAN, t. c.; *A. bipunctatus*, p. 235, *penicellatus*, p. 236, Texas, SCHAEFFER, J. N. York Ent. Soc. xii : n. spp.
- Apatenia poecila*, p. 85, *gularis*, p. 86, New Guinea, JORDAN, Ann. Mus. Genova xli, n. spp.
- Apolecta tonkiniana*, Manson Mts., p. 236, *diversa*, Borneo, p. 237, JORDAN, Nov. Zool. xi, n. spp.
- Asemorhinus sportella*, Sumatra, Borneo, JORDAN, p. 234, t. c. n. spp.
- Barra* n. g. p. 274, *B. gounellei* n. sp., Bahia, p. 275, JORDAN, t. c.
- Blaberops* n. g. near *Blaberus*, p. 238, *B. macrocerus* n. sp., Usambara, p. 239, JORDAN, t. c.
- Caccorhinus obscurus*, Celebes, JORDAN, p. 236, t. c. n. sp.
- Callanthribus* n. g. near *Sintor*, p. 82, *C. xanthomelus* n. sp., New Guinea, p. 83, JORDAN, Ann. Mus. Genova xli.
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- Dendrotrogus colligens papuanus* subsp. n., JORDAN, p. 84, Ann. Mus. Genova xli.
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- Doticus convexus*, Celebes, p. 90, *planatus*, New Guinea, p. 91, JORDAN, Ann. Mus. Genova xli, **n. spp.**
- Epitaphius lunatus*, E. Africa, JORDAN, p. 240, Nov. Zool. xi, **n. sp.**
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- Eucorynus unicolor*, Ternate, JORDAN, p. 85, Ann. Mus. Genova xli, **n. sp.**
- Eucyclotropis* **n. g.** near *Discotenes*, *E. pustulata*, *striata*, Brazil, p. 273, *pylades*, Mexico, p. 274, **n. spp.**, JORDAN, Nov. Zool. xi.
- Eugigas harmandi*, pl. viii, figg. 15, 16, p. 129, LESNE, Mission Pavie iii.
- Eugonodes* **n. g.** near *Eugonus*, *E. marmoreus*, *brevirostris* **n. spp.**, Brazil, JORDAN, Nov. Zool. xi.
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- Euphlaeobius* **n. g.** near *Phlaeobius*, *E. asellus* **n. sp.**, E. Africa, JORDAN, p. 239, t. c.
- Eusintor* **n. g.** near *Sintor*, p. 80, *E. lorice* **n. sp.**, New Guinea, p. 81, JORDAN, Ann. Mus. Genova xli.
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- Exechontis* **n. g.** near *Gibber*, p. 283, *E. sparsa* **n. sp.**, Brazil, p. 284, JORDAN, t. c.
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- Hypseus vestitus*, Celebes, JORDAN, p. 87, t. c. **n. sp.**
- Lagopezus lugubris*, Rio de Janeiro, JORDAN, p. 275, Nov. Zool. xi, **n. sp.**
- Litocerus histrio fluviatilis* subsp. n., JORDAN, p. 85, Ann. Mus. Genova xli.
- L. sticticus*, Tonkin, JORDAN, p. 233, Nov. Zool. xi, **n. sp.**
- Mecocerus hauseri*, W. Africa, JORDAN, p. 238, t. c.; *M. callosus*, Tonkin, JORDAN, p. 231, Nov. Zool. xi : **n. spp.**
- Mecotropis cylindricus*, Tonkin, JORDAN, p. 230, t. c. **n. sp.**
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- Piezocorynus brevis*, *plagifer*, *compar*, p. 277, *verrucatus*, *suturalis*, p. 278, *dorsalis*, *homæus*, *alternans*, p. 279, *basalis*, p. 280, S. America, JORDAN, t. c. **n. spp.**
- Piezonemus* **n. g.** near *Piezocorynus*, p. 275, *durus*, *lateralis*, p. 276, **n. spp.**, Brazil, JORDAN, t. c.
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- Scymnopsis* **n. g.** *S. suturalis* **n. sp.**, Bolivia, JORDAN, Nov. Zool. xi.
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- Sympaector fruhstorferi*, Tonkin, JORDAN, p. 233, t. c. **n. sp.**
- Toxotropis irroratus*, p. 233, *submetallicus*, p. 234, Texas, SCHAEFFER, J. N. York Ent. Soc. xii, **n. spp.**
- Trachytropis* **n. g.** *T. asper* **n. sp.**, Mexico, JORDAN, p. 266, Nov. Zool. xi.
- Uncifer* **n. g.** near *Gibber*, *U. sticticus* **n. sp.**, Burma, JORDAN, p. 88, Ann. Mus. Genova xli.
- Urodon baudii* = (*granulatus* Schilsky), PIC, p. 218, Bull. Soc. ent. France 1904.
- U. anatolicus*, *rosinae*, Anatolia, PIC, p. 40, Echange 1904; *U. ciliatus*, Buchara, *granulatus*, Algeria, *korbi*, Anatolia, SCHILSKY, p. 78, Wien. ent. Zeit. xxiii, **n. spp.**
- Xenocerus lautus*, Tonkin, JORDAN, p. 230, Nov. Zool. xi; *X. suturalis*, Ron isld., JORDAN, p. 89, Ann. Mus. Genova xli, **n. spp.**

## CERAMBYCIDÆ.

[Cf. AURIVILLIUS (57, 58), BAECKMANN (74), BROUN (184), CHITTENDEN & WEBSTER (1498), CSIKI (330), DANIEL (345, 347), DAVIS (353), DISTANT (382), FAIRMAIRE (473, 474), FELT & JOUTEL (495B), HAUSER (665), HELLER (673), JORDAN (770), LAMEERE (854, 855), NICOLAS (981), PIC (1063, 1072, 1073), SCHAEFFER (1220).]

- LAMEERE continues his revision of *Prionides*, Ann. Soc. ent. Belgique 1904, 9th part, *Callipogonines*; 10th memoir, *Titanines*, t. c. pp. 310-352.
- A monograph of the S. African *Cerambycidae*, in which all the species are figured has been published by DISTANT (382). The new species and genera are described by GAHAN, who also remarks, in various places, on the classification of *Cerambycidae*, and the wing-nervures of *Prionides* and allies. No attempt has been made by the Recorder to deal with the synonymy of this memoir.
- CSIKI continues his papers on the *Cerambycidae* of Hungary, Rev. Lapok xi, pp. 35 etc.
- In Echange xx PIC advertises Part v of his Matériaux pour servir à l'étude des *Longicornes*. I have not seen this work and do not know whether it is a genuine publication. This was denied in the case of previous parts.
- Agaleptus* n. g. for *Closteromerus quadrinotatus* Pér., GAHAN, p. 122, Distant, Ins. Transvaal i.
- Aliturus fusculus*, Madagascar, FAIRMAIRE, p. 254, Ann. Soc. ent. Belgique xlviii, n. sp.
- Anauvesis simplex*, Brit. E. Africa, JORDAN, p. 365, Nov. Zool. xi, n. sp.
- Anisogaster brunneus*, Madagascar, FAIRMAIRE, p. 254, Ann. Soc. ent. Belgique xlviii, n. sp.
- Anoplistes jacobsoni*, SYT-Darja, BAECKMANN, p. 312, Rev. Russe Ent. 1904, n. sp.
- Artelida caligata*, Madagascar, FAIRMAIRE, p. 255, Ann. Soc. ent. Belgique xlviii, n. sp.
- Ataxia spinicauda*, Florida, SCHAEFFER, p. 224, J. N. York Ent. Soc. xii, n. sp.
- Bisaltus bimaculatus*, Bolivia, AURIVILLIUS, p. 207, Ent. Tidskr. xxv, n. sp.
- Cædomæa bluchearvi*, *nebulosa*, p. 259, *griseotincta*, p. 260, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii, n. spp.
- Calanthemis hauseri*, Brit. E. Africa, JORDAN, p. 364, Nov. Zool. xi, n. sp.
- Callergates* subg. n. of *Ergates* for *E. gaillardoti*, of which *akbesianus* Pic is synonym, LAMEERE, p. 47, Ann. Soc. ent. Belgique xlviii.
- Callipogon (Eoxenus)*, natural history and systematic notes, SEMENOV, pp. 220-224, Rev. Russe Ent. iv.
- C. beckeri*, Mexico, p. 56, *C. (Orthomegas) pehlkei*, Peru, p. 60, *C. (Callocomegas) proletarius*, Porto Rico, p. 66, LAMEERE, Ann. Soc. ent. Belgique xlviii, n. spp.
- Callocomegas* subg. n. of *Callipogon*, p. 64, for *C. sericeus* Ol., and *C.*, sp. n., LAMEERE, t. c.
- Caloclytus krantzi*, Transvaal, GAHAN, pl. xi, fig. 19, p. 123, Distant, Ins. Transvaal. i, n. sp.
- Cartallum ebulinum*, natural history, XAMBEU, pp. 45-58, Soc. Pyrenees-or. xlv.
- Ceroplesis millingeni*, Arabia, PIC, Mat. Long. 4 [not seen by Recorder] ? n. sp.
- Closteromerus regalis*, Transvaal, DISTANT, pl. xi, fig. 7, p. 121, Ins. Transvaal. i, n. sp.
- Clytus rhamnii* var. n. *longicollis*, REITTER, p. 82, Wien. ent. Zeit. xxiii.
- C. fulvohirsutus*, *raddensis*, Siberia, PIC, p. 18, Echange 1904; *C. gulekanus*, Taurus, PIC, p. 65, t. c. : n. spp.
- Cochliopselaphus catherina* var. n. *maricovensisi*, DISTANT, p. 141, Ins. Transvaal. i.
- Coptoeme* n. g. near *Temnopis*, p. 313, *C. oculata*, *triguttata* n. spp., Africa, p. 314, AURIVILLIUS, Arkiv Zool. i.
- Coptops nivisparva*, Tonkin, FAIRMAIRE, p. 145, Mission Pavie iii, n. sp.
- Cordylomera elegans*, Transvaal, DISTANT, pl. x, fig. 6, p. 115, Ins. Transvaal. i, n. sp.

- Crossotus bimaculatus*, E. Africa, AURIVILLIUS, p. 323, Arkiv Zool. i; *C. penicillatus*, Transvaal, GAHAN, p. 146, pl. xiv, fig. 10, Distant, Ins. Transvaal. i; *C. hovanus*, Madagascar, FAIRMAIRE, p. 257, Ann. Soc. ent. Belgique xlviii: **n. spp.**
- Ctenoscelis*, *atra*, larva, HELLER, p. 388, Stettin Ent. Zeit. lxy.
- Cymatura spumans*=(*mashuna* Pér.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.
- Cyrtocris* **n. g.** *Theocrides*, p. 321, *C. fulvicornis* **n. sp.**, E. Africa, p. 322, AURIVILLIUS, Arkiv Zool. i.
- Dere nigrata*, Transvaal, GAHAN, pl. xi, fig. 22, p. 124, Distant, Ins. Transvaal. i, **n. sp.**
- Derolus brunneipennis*, Transvaal, GAHAN, pl. x, fig. 5, p. 113, t. c. **n. sp.**
- Desmiphora grisea*, Bolivia, AURIVILLIUS, p. 208, Ent. Tidskr. xxv, **n. sp.**
- Diadelia atomosparsa*, Madagascar, FAIRMAIRE, p. 260, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Diaxenes dendrobii* in N. America, SCHWARZ, p. 21, P. ent. Soc. Washington vi.
- Dityloderus? balteatus*, E. Africa, AURIVILLIUS, p. 316, Arkiv Zool. i, **n. sp.**
- Dorcadion*; PIC, in Mat. Long. 4, ii, 4, [not seen by Recorder] discusses some synonymies and varr. and describes some new species; *D. neilense* Esc. and allies, characters and variation, NICOLAS, pp. 35-40, Bol. Sol. Aragon. Ci. nat. iii; *D.* varr. from Spain, NICOLAS, pp. 82, 83, Echange xx; *D. cervee*, a good species, CSIKI, pp. 189, 199, Rov. Lapok xi.
- D. granulorum*, Spain, PIC, p. 17, Echange 1904; *D. elvira*, Spain, PIC, p. 58, t. c. : **n. spp.**
- Drymochares truquii*, habits, GUERRY, pp. 157-159, Bull. Soc. ent. France 1904.
- Dysphaga tenuipes*, metamorphosis and parasites, GIRAULT, pp. 299, 300, Ent. News Philad. xv.
- Elaphidion* and *Psyrassa*, characters and components, SCHAEFFER, p. 61, J. N. York Ent. Soc. xii.
- E. subdepressum*, Lower California, SCHAEFFER, p. 222, t. c. **n. sp.**
- Enaretta exigua*, Transvaal, GAHAN, p. 152, pl. xv, fig. 7, Distant, Ins. Transvaal. i, **n. sp.**
- Erlandia* **n. g.** near *Dynamostes*, p. 205, *E. inopinata* **n. sp.**, Bolivia, p. 206, AURIVILLIUS, Ent. Tidskr. xxv.
- Eugoides* **n. g.** near *Eugoa*, p. 314, *E. cæruleipennis* **n. sp.**, E. Africa, p. 315, AURIVILLIUS, Arkiv Zool. i.
- Eunidia plagiata*, pl. xiv, fig. 24, p. 149, *aspersa*, fig. 25, *spilota*, fig. 21, *modesta*, fig. 22, p. 150, *euzonata*, fig. 19, *fasciata*, fig. 20, p. 151, Transvaal, GAHAN, Distant Ins. Transvaal. i, **n. spp.**
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- Frea reticulata*, S. Africa, DISTANT, p. 144, pl. xiv, fig. 4, Ins. Transvaal. i, **n. sp.**
- Glenea pygidialis*, E. Africa, *sangirica*, Sanghir, p. 324, *palavensis*, p. 325, *bivittata*, Palawan, *didyma*, Java, p. 326, *glaucescens*, Celebes, *ruficauda*, Sumbava, *bisbivittata*, Java, p. 327, *nigriceps*, Malacca, p. 328, AURIVILLIUS, Arkiv Zool. i, **n. spp.**
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- Hercodera pulchella*, Transvaal, GAHAN, pl. x, fig. 24, p. 115, t. c. **n. sp.**
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- Icariotis alboscutata*, Madagascar, FAIRMAIRE, p. 255, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Iductus fasciculosus*, E. Africa, AURIVILLIUS, p. 318, Arkiv Zool. i, **n. sp.**
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- L. (Sphenalia) ariadne*, Crete, p. 355, *erinnys*, Asia Minor, p. 356, K. DANIEL, Munchen. Kol. Zeitschr. ii, **n. spp.**
- Lygrus testaceus*, Transvaal, GAHAN, p. 109, pl. x, fig. 9, Distant, Ins. Transvaal. i, **n. sp.**
- Lyranela n. g.* near *Lygrus*, p. 109, *L. sulcipennis n. sp.*, Transvaal, pl. x, fig. 22, p. 110, GAHAN, t. c.
- Mallodon spinibarbis*, larva, HELLER, p. 391, Stettin Ent. Zeit. lxxv.
- Mallosia*; revision with varr. *n.* and subg. *ii.* (cf. *Semnosia*), K. DANIEL, pp. 301–314, Munchen. Kol. Zeitschr. ii.
- Marocaulus granicollis*, Madagascar, FAIRMAIRE, p. 254, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Mimocoptops bipenicillatus*, Madagascar, FAIRMAIRE, p. 256, t. c. **n. sp.**
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- Nicarete albolineatus*, p. 257, *vitticollis*, *submaculosus*, p. 258, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Niphoparmena n. g.* near *Mycerinodes*, p. 317, *N. bispinosa n. sp.*, E. Africa, p. 318, AURIVILLIUS, Arkiv Zool. i.
- Oberea rosinae*, Amurland, PIC, p. 17, Echange 1904 : *O. ulmicola*, Illinois, CHITTENDEN, p. 4, habits and metamorphosis, WEBSTER, pp. 5–13, pls. i, ii, Bull. Illinois Lab. vii : **n. spp.**
- Obrivum obscuripenne*, Amurland, PIC, p. 17, Echange 1904 : *O. brunneum*, Lower California, SCHAEFFER, p. 223, J. N. York Ent. Soc. xii : **n. spp.**
- Oemida n. g.* for *Parceme gahani* Dist., GAHAN, p. 106, Distant, Ins. Transvaal. i.
- Oemodana n. g.* *Æ. quadrinotata n. sp.*, Lydenburg, GAHAN, p. 107, pl. xiii, fig. 5, t. c.
- Olenecamptus nubilis*, Brit. E. Africa, JORDAN, p. 365, Nov. Zool. xi; *O. olenus*, Transvaal, GAHAN, p. 143, pl. xiv, fig. 1, Distant, Ins. Transvaal. i : **n. spp.**
- Omphalocera* merged in *Nicarete*, FAIRMAIRE, p. 258, Ann. Soc. ent. Belgique xlviii.
- Oncideres stillata*, Bolivia, AURIVILLIUS, p. 208, Ent. Tidskr. xxv, **n. sp.**
- Oncideres dejeani*, larva, HELLER, p. 395, Stettin Ent. Zeit. lxxv.
- Pachydissus pauper*, Transvaal, GAHAN, pl. x, fig. 8, p. 113, Distant, Ins. Transvaal. i, **n. sp.**
- Parandra glabra*, larva, HELLER, p. 383, Stettin Ent. Zeit. lxxv.
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- Peritragus n. g.* near *Tragiscoschema*, p. 320, *P. nigroapicalis n. sp.*, E. Africa, p. 321, AURIVILLIUS, Arkiv Zool. i.



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- Philematium hottentotum*=(*capense* Pér.), PÉRINGUEY, p. 297, Ann. S. African Mus. iii.
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- Protocallidium* subg. n. for *Callidium angustum*, CSIKI, p. 99, Rov. Lapok xi.
- Psathyrus suturalis*, Transvaal, GAHAN, p. 107, pl. xiii, fig. 1, Distant, Ins. Transvaal. i, **n. sp.**
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Zeitschr. ii; *L. mellyi*, Egypt, *monstrosicornis*, Anatolia, PIC, p. 40, Echange 1904; *L. tonkina*, Tonkin, PIC, p. 42, Echange xx: **n. spp.**  
*Spermophagus eustrophoides*, Florida, SCHAEFFER, p. 228, J. N. York Ent. Soc. xii, **n. sp.**

CHRYSOMELIDÆ [except *Hispides* and *Cassidides*].

[Cf. ABELLE (5), DANIEL (343, 349), FAIRMAIRE (473), JACOBY (742-749), JACOBY & CLAVAREAU (750), LEA (863, 864), PIC (1064, 1072, 1077), REITTER (1147), SCHAEFFER (1220), SEMENOW (1281), WEISE (1502, 1503, 1505).]

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*Agetocera flava*, Khasia hills, JACOBY, p. 394, Ann. Soc. ent. Belgique xlviii, **n. sp.**

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*Aphthona nigroscutellata*, Galicia, REITTER, p. 82, Wien. ent. Zeit. xxiii; *A. bicolorata*, New Guinea, JACOBY, p. 487, Ann. Mus. Genova xli: **n. sp.**

*Apolepis indica*, Nilgiri hills, JACOBY, p. 385, Ann. Soc. ent. Belgique xlviii, **n. sp.**

*Apophyllia (Malaxia) metallica*, India, JACOBY, p. 397, t. c. **n. sp.**

*Argopistes limbatipennis*, New Guinea, JACOBY, p. 491, Ann. Mus. Genova xli, **n. sp.**

*Atropidius robustus*, India, JACOBY, p. 383, Ann. Soc. ent. Belgique xlviii, **n. sp.**

*Aulacophora loriana*, p. 494, *pallidifasciata*, *rigoensis*, p. 495, New Guinea, JACOBY, Ann. Mus. Genova xli, **n. spp.**

*Blepharida flavocostata*, p. 406, *multimaculata*, p. 407, Mexico, JACOBY, P. Z. S. 1904, ii, **n. spp.**

*Brachycyrtus posticalis*, p. 446, *mamillatus*, *aterrimus*, p. 447, Australia, LEA, Tr. ent. Soc. London 1904, **n. spp.**

*Bradamina* **n. g.** *Monoleptides*, *B. plicicollis* **n. sp.**, Madagascar, FAIRMAIRE, p. 268, Ann. Soc. ent. Belgique xlviii.

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*Buphonella murina* Gerst. (as *Apophyllia*) = (*elongata* Jac.), WEISE, p. 166, t. c.

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- Cerophysa andrevesi*, p. 396, *mandarensis*, p. 397, India, JACOBY, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Chaetocnema belli*, India, JACOBY, p. 392, t. c.; *C. lorice*, p. 489, *transversicollis*, p. 490, New Guinea, JACOBY, Ann. Mus. Genova xli : **n. spp.**
- Chalcolampra rufinoda*, Tasmania, LEA, p. 106, P. Linn. Soc. N. S. Wales xxix, **n. sp.**
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- Colasposoma cyaneocupreum* (= *junodi* Pér.), JACOBY, p. 262, t. c.
- C. sheppardi*, p. 258, *pusillum*, p. 259, *piceitarse*, p. 260, *balyi*, *beiraense*, pl. xvii, fig. 10, p. 261, *mirabile*, p. 262, Africa, JACOBY, t. c. **n. spp.**
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- Corynodes plagiatus*, Nyassa, WEISE, p. 162, Arch. Naturg. lxx, i, **n. sp.**
- C. clypeatus*, India, JACOBY, p. 389, Ann. Soc. ent. Belgique xlviii, **n. sp.**
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- anthrax*, *lesicollis*, p. 266, *diversipes*, *cyaneocostatus*, *nedator*, p. 267, *eucharis*, p. 268, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlviii : *C. subcostatus*, India, JACOBY, p. 382, Ann. Soc. ent. Belgique xlviii ; *C. confinis*, *mediocris*, p. 392, *appendiculatus*, p. 393, *vicarius*, p. 394, *blandus*, p. 395, *quadratipennis*, p. 396, *compositus*, p. 397, *aurifer*, *purpureotinctus*, p. 398, *clarus*, p. 399, *melanopus*, p. 400, *variipennis*, p. 401, *clypealis*, p. 402, *rubicundus*, *rutilans*, p. 403, *larinus*, p. 404, *cariniventris*, p. 405, *stenocerus*, p. 406, *sobrinus*, p. 407, *pallens*, p. 408, *liliputanus* (Tasmania), p. 409, *tenebricosus*, *distortus*, p. 410, *rufoterminalis*, p. 412, *conspiciendus*, p. 413, *metallicus*, *bazisonus*, p. 414, *comptus*, p. 415, *minusculus*, p. 416, *T-viridis*, p. 417, *serenus*, p. 418, *scabiosus*, p. 419, *incoctus*, p. 420, *comosus*, *convexicollis*, p. 421, *ornatipennis*, p. 422, *caelestis*, p. 423, *costipennis*, p. 424, Australia, LEA, Tr. ent. Soc. London 1904 ; *C. arizonensis*, Pinal Mts., p. 225, *brunneovittatus*, p. 226, Texas, SCHAEFFER, J. N. York Ent. Soc. xii : **n. spp.**
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- Gynandrophthalma ochropus* Har. = (*Etheomorpha cœrulea* Jac.), WEISE, p. 159, Arch. Naturg. lxx, i.



- G. salisburyensis*, p. 240, *varicolor*, p. 241, *hirtifrons*, p. 242, S. Africa, JACOBY, P. Z. S. 1904, i, **n. spp.**
- Haltica bicolora*, New Guinea, JACOBY, p. 482, Ann. Mus. Genova xli ; *H. boliviana*, S. America, JACOBY, p. 517, Arkiv Zool. i : **n. spp.**
- Haplosoma nilgiriensis*, India, JACOBY, p. 396, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Haptoscelis melanocephala* var. *n. baltica*, GERHARDT, p. 368, Deutsche ent. Zeitschr. 1904.
- Hermesia varicolor*, Argentina, JACOBY, p. 514, Arkiv Zool. i, **n. sp.**
- Hippuriphila catharinæ*, Brazil, JACOBY, p. 412, P. Z. S. 1904, ii, **n. sp.**
- Horatopyga reinecki*, Natal, WEISE, p. 163, Arch. Naturg. lxx, i, **n. sp.**
- Hyperaxix variegata*, India, JACOBY, p. 385, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Isnus suturalis*, Natal, JACOBY, p. 248, P. Z. S. 1904, i, **n. sp.**
- Itylus n. g.* for *Yulenia bicolor*, JACOBY, p. 497, Ann. Mus. Genova xli.
- Jacobyia viridis*, Niger, WEISE, p. 167, Arch. Naturg. lxx, i, **n. sp.**
- Khasia andrewesi*, India, JACOBY, p. 398, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Labidostomis (Chlorostola) nevadensis*, Spain, J. DANIEL, p. 91, Munchen. Kol. Zeitschr. ii ; *L. testaceipes*, p. 93, *delagrangi*, p. 94, Syria, PIC, Echange xx : **n. spp.**
- Lactica nicotinae*, Mexico, p. 396, *decorata*, p. 397, *maculicollis*, *posticata*, p. 398, *discicollis*, *rufobrunnea*, *baeri*, p. 399, *argentinensis*, Tucuman, p. 400, JACOBY, P. Z. S. 1904, ii, **n. spp.**
- Lefevrea fulvicollis*, Natal, JACOBY, p. 263, P. Z. S. 1904, i, **n. sp.**
- Lema weisei*, p. 230, *malvernensis*, *gerstaeckeri*, p. 231, *graminis*, *nigro-frontalis*, p. 232, *athiopica*, p. 233, pl. xvii, fig. 1, *humeronotata*, fig. 2, p. 234, *hirtipennis*, p. 235, Africa, JACOBY, t. c. ; *L. crispatifrons*, Madagascar, FAIRMAIRE p. 262, Ann. Soc. ent. Belgique xlviii ; *L. paradoxa*, Pondicherry, JACOBY, p. 380, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Liniscus interstitialis*, Beira, JACOBY, p. 254, P. Z. S. 1904, i, **n. sp.**
- Lochmæa tropica* redescribed, JACOBY, p. 522, Arkiv Zool. i.
- Longitarsus kanaraensis*, p. 389, *fulvobrunneus*, p. 390, India, JACOBY, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Loxopleurus lateriflavus*, p. 430, *pallidipes*, *lugubris*, p. 431, *mixtus*, p. 433, *acentetus*, p. 434, *castor*, *pollux*, p. 435, *mitificus*, *dolens*, p. 436, *microscopicus*, p. 437, *marginipennis*, p. 438, *castigatus*, p. 439, *inconstans*, p. 440, *virgatus*, *fuscitarsis*, p. 441, *contiguus*, p. 442, *absonus*, p. 443, *immaturus*, 444, *disconiger*, p. 445, Australia or Tasmania, LEA, Tr. ent. Soc. London 1904, **n. spp.**
- Luperodes obesa*, India, JACOBY, p. 398, Ann. Soc. ent. Belgique xlviii ; *L. lateralis*, Solomon Islands, JACOBY, p. 296, Entomologist 1904 : **n. spp.**
- Luperus loræ*, *papuanus*, New Guinea, JACOBY, p. 505, Ann. Mus. Genova xli, **n. spp.**
- Macetes rugicollis*, *pusilla*, Natal, JACOBY, p. 257, P. Z. S. 1904, i, **n. spp.**
- Macrolopha* ; constituents, JACOBY, p. 235, t. c.
- Malacodora n. n.* for *Malacosoma* Chev., BEDEL, p. 236, Abeille xxx.
- Malegia caffer*, Caffraria, PIC, p. 20, Echange 1904 ; *M. pallidipes*, Madagascar, p. 35, *donckieri*, Arabia, p. 36, PIC, t. c. : **n. spp.**
- Mastostethus nigrovarians*, *funereus*, p. 63, *femoratus*, *erichsoni*, p. 64, *lacordairei*, *argentinensis*, p. 65, *nigricollis*, *balyi*, p. 66, *bolivianus*, *quadriplagiatus*, p. 67, S. America, JACOBY, Entomologist 1904, **n. spp.**
- Megalognatha usambarica*, *simplex*, p. 168, *apicalis*, p. 169, Africa, WIESE, Arch. Naturg. lxx, i, **n. spp.**
- Melasoma salicivora* varr. *n. completa*, *defflorata*, JACOBSON, p. xv, Annuaire

- Mus. St. Petersb. viii; *M. spinata, discoidalis, unicolor*, validity queried, WEISE, p. 164, Arch. Naturg. lxx, i.
- Menius brevicornis*, pl. xvii, fig. 11, Beira, JACOBY, p. 251, P. Z. S. 1904, i, n. sp.
- Mimastra suturalis, scutellata*, India, JACOBY, p. 395, Ann. Soc. ent. Belgique xlvi, n. spp.
- Miopristis braunsi*, p. 235, *oneili*, pl. xvii, fig. 8, *zambesiana*, p. 236, *brevitarsis*, p. 237, Africa, JACOBY, P. Z. S. 1904, i, n. spp.
- Monolepta nilgiriensis*, p. 403, *duvivieri, nigrimana*, p. 404, *bimaculicollis*, p. 405, India, JACOBY, Ann. Soc. ent. Belgique xlvi; *M. bicoloripes*, p. 506, *hieroglyphica*, p. 507, *boisduwali*, New Guinea, p. 508, JACOBY, Ann. Mus. Genova xli : n. spp.
- Morokasia* n. g. *M. nigromaculata* n. sp., New Guinea, JACOBY, p. 498, Ann. Mus. Genova xli.
- Mouhotina salomonensis*, Solomon Islands, JACOBY, p. 295, Entomologist 1904, n. sp.
- Myochrous magnus*, Texas, SCHAEFFER, p. 228, J. N. York Ent. Soc. xii, n. sp.
- Nerissella* n. g. *Pseudocolaspinae, N. curculionoides* n. sp., Zambesi, JACOBY, p. 267, P. Z. S. 1904, i.
- Nodonota argentinensis*, Quinta, JACOBY, p. 515, Arkiv Zool. i, n. sp.
- Nodostoma camerunense*, Africa, JACOBY, p. 253, P. Z. S. 1904, i; *N. fulvicorne*, India, JACOBY, p. 387, Ann. Soc. ent. Belgique xlvi; *N. minutum*, New Guinea, JACOBY, p. 473, Ann. Mus. Genova xli : n. spp.
- Nyctiphantus bergi*, Lake Balkash, SEMENOW, p. 194, Horæ Soc. ent. Ross. xxxvii, n. sp.
- Oides straminea*, Cameroons, WEISE, p. 166, Arch. Naturg. lxx, i; *O. kanaraensis*, India, JACOBY, p. 393, Ann. Soc. ent. Belgique xlvi; *O. apicipennis*, p. 492, *loriæ*, p. 493, New Guinea, JACOBY, Ann. Mus. Genova xli : n. spp.
- Oxygona amazonica*, Amazons, *capitata*, Peru, JACOBY, p. 411, P. Z. S. 1904, ii, n. spp.
- Pachybrachis rugifer*, France, ABEILLE, p. 281, Bull. Soc. ent. France 1904, n. sp.
- Panilurus* n. g. near *Arsipoda*, p. 392, *P. nilgiriensis* n. sp., India, p. 393, JACOBY, Ann. Soc. ent. Belgique xlvi.
- Paumomua* n. g. *Atysites, P. sulcicollis* n. sp., New Guinea, p. 513, JACOBY, Ann. Mus. Genova xli.
- Pausiris oneili, longicollis, femoralis*, p. 255, *semirugosus*, p. 256, S. Africa, JACOBY, P. Z. S. 1904, i, n. spp.
- Phaulosis* n. g. near *Timarcha*, p. 162, *P. æneipennis* n. sp., Cape Good Hope, p. 163, WEISE, Arch. Naturg. lxxi.
- Phygasia nigripennis*, India, JACOBY, p. 391, Ann. Soc. ent. Belgique xlvi, n. sp.
- Phyllobroticella straminea* = (*simplicipennis* Jac.), WEISE, p. 167, Arch. Naturg. lxx, i.
- Phyllotreta ruficeps, costulata*, Africa, WEISE, p. 170, t. c. n. spp.
- Plagioderia subparallela*, Cameroons, WEISE, p. 164, t. c. n. sp.
- Platymela fulvoplagiata*, New Guinea, JACOBY, p. 479, Ann. Mus. Genova xli, n. sp.
- Prasona peruviana*, Marcapata, JACOBY, p. 407, P. Z. S. 1904, ii, n. sp.
- Prosmidia amæna*, Rhodesia, *magna*, E. Africa, WEISE, p. 165, Arch. Naturg. lxx, i, n. spp.
- Pseudivongius apicipennis*, Natal, JACOBY, p. 253, P. Z. S. 1904, i, n. sp.
- Pseudocolaspis substriata*, Mesopotamia, WEISE, p. 100, Deutsche ent. Zeitschr. 1904, n. sp.
- Pseudogona argentinensis*, Argentina, JACOBY, p. 520, Arkiv Zool. i; P.

- discoidalis*, Argentina, p. 409, *militaris*, Panama, *pallida*, Costa Rica, p. 410, JACOBY, P. Z. S. 1904, ii : n. spp.
- Pseudosastra* n. g. for *Sastra sulcicollis* Jac., JACOBY, p. 504, Ann. Mus. Genova xli.
- Psylliodes lorice*, New Guinea, JACOBY, p. 488, t. c. n. sp.
- Rhombastus insignitus* to *Syagrus*, JACOBY, p. 253, P. Z. S. 1904, i.
- Rhyparida obscuripennis*, p. 469, *papuana*, p. 470, *humeronotata*, p. 471, *rivularis*, p. 472, New Guinea, JACOBY, Ann. Mus. Genova xli, n. spp.
- Sagra humeralis*, Tonkin, JACOBY, p. 294, Entomologist 1905, n. sp.
- Sastra quadripustulata*, p. 501, *rugicollis*, p. 502, Trobriand Islands, *olivacea*, Fergusson Island, *abdominalis*, N. Guinea, p. 503, JACOBY, Ann. Mus. Genova xli, n. spp.
- Scelodonta rugipennis*, p. 264, *lefevrei*, p. 266, S. Africa, JACOBY, P. Z. S. 1904, i, n. spp.
- Schizosternus delicatulus*, p. 426, *trilineatus*, *marmoratus*, p. 427, Australia, LEA, Tr. ent. Soc. London 1904, n. spp.
- Sclerophædon orbicularis* Suffr., larva, WEISE, pp. 47, 48, Deutsche ent. Zeitschr. 1904.
- Sebaethe pallidicincta*, India, JACOBY, p. 391, Ann. Soc. ent. Belgique xlvi, n. sp.
- Solenia femorata*, *papuana*, p. 511, *intermedia*, p. 512, New Guinea, JACOBY, Ann. Mus. Genova xli, n. spp.
- Sophrænella* n. g. p. 405, *S. fulva* n. sp., Amazons, p. 406, JACOBY, P. Z. S. 1904, ii.
- Sphaeroderma subimpressa*, New Guinea, JACOBY, p. 491, Ann. Mus. Genova xli, n. sp.
- Stethotes lorice*, p. 475, *integra*, *minuta*, p. 476, New Guinea, JACOBY, t. c. n. spp.
- Stigmomela* n. n. for *Stictomela* Weise, CSIKI, p. 85, Wien. ent. Zeit. xxiii.
- Sutrea triplagiata*, p. 484, *semirugosa*, p. 485, *marginipennis*, p. 486, *levipennis*, p. 487, New Guinea, JACOBY, Ann. Mus. Genova xli, n. spp.
- Syagrus fulvimanus*, p. 251, *tristis*, p. 252, Africa, JACOBY, P. Z. S. 1904, i, n. spp.
- Sybricius picipes*, Madagascar, FAIRMAIRE, p. 263, Ann. Soc. ent. Belgique xlvi, n. sp.
- Systema melanocephala*, Peru, *argentinensis*, Tucuman, p. 408, *antennata*, Amazons, p. 409, JACOBY, P. Z. S. 1904, ii, n. spp.
- Terpmochlorus* n. g. near *Antsianaka*, *T. perrieri* n. sp., Madagascar, FAIRMAIRE, p. 269, Ann. Soc. ent. Belgique xlvi.
- Therpis smaragdina*=(*Mesotoma viridipennis* Jac.), WEISE, p. 167, Arch. Naturg. lxx, i.
- Timarchella* n. g. p. 268, near *Timarcha*, *T. braunsi* n. sp., Cape Colony, p. 269, JACOBY, P. Z. S. 1904, i, n. sp.
- Titubæa ciliciensis*, Taurus, PIC, p. 57, Echange xx ; *T. umtaliensis*, p. 238, *parvula*, p. 239, Africa, JACOBY, P. Z. S. 1904, i, n. spp.
- Trichotheca duvivieri*, India, JACOBY, p. 386, Ann. Soc. ent. Belgique xlvi, n. sp.
- Tricliona sulcipennis*, India, JACOBY, p. 388, t. c. n. sp.
- Tricliophora* n. g. *Typophorinae*, p. 478, *T. nigra* n. sp., New Guinea, p. 479, JACOBY, Ann. Mus. Genova xli.
- Vitruvia unicolor* Jac. (as *Encorane*)=(*Glabripennis* Jac.), WEISE, p. 167, Arch. Naturg. lxx, i.
- Xenidea lorice*, *dimidiaticornis*, New Guinea, JACOBY, p. 483, Ann. Mus. Genova xli, n. spp.
- Xenolina* n. g. near *Lina*, *X. marginata* n. sp., New Guinea, JACOBY, p. 481, t. c.
- Yulenia divisa*, New Guinea, JACOBY, p. 496, t. c. n. sp.

## HISPIDÆ and CASSIDIDÆ.

[Cf. FAIRMAIRE (473), GESTRO (595, 596), LESNE (878), MUIR & SHARP (969), SHARP (1285), SPAETH (1327), WEISE (1503, 1504, 1507).]

List of synonyms, *Hispidæ*, WEISE, p. 457, Deutsche ent. Zeitschr. 1904. MUIR & SHARP (969) describe larvæ, larval clothing, oothecæ of S. African *Cassididæ*.

- Acanthodes donckieri*, p. 444, *limbata*, p. 445, *viridipennis*, p. 446, S. America, WEISE, Deutsche ent. Zeitschr. 1904, **n. spp.**
- Agathispa n. g.* type *Hispa dimidiata* OL., WEISE, p. 64, Arch. Naturg. lxxi, i.
- Agonia femoralis*, p. 99, *nigripennis*, p. 100, Sumatra, WEISE, t. c. **n. spp.**
- Amplipalpa*, table of species, WEISE, pp. 50–52, t. c.
- A. fulviceps*, Bolivia, WEISE, p. 49, t. c. **n. sp.**
- Anoplitis vinculata*, p. 70, *discrepans*, p. 71, *regularis*, p. 72, *tesseraria*, *marginella*, p. 73, *lepidula*, *signifera*, p. 74, S. America, WEISE, t. c. **n. spp.**
- Asphalesia tuta*, Usambara, WEISE, p. 172, t. c. **n. sp.**
- Aspidomorpha assimilis* var. *n. elegantula*, SPAETH, p. 75, Ann. Mus. Genova xli; *A. rotunda*, characters and larva, FAIRMAIRE, p. 270, Ann. Soc. ent. Belgique xlvi; *A. puncticosta*, larva, pl. iii, fig. 20, p. 9, ootheca, pl. i, figg. 1–6, 9, p. 2, *A. testa*, larva, pl. iv, fig. 21, p. 10, ootheca, p. 6, *A. confinis*, larva, pl. iv, fig. 22, p. 11, ootheca, pl. ii, figg. 10, 11, p. 6, *A. tigrina*, larva, pl. iv, fig. 23, p. 11, ootheca, pl. ii, figg. 12, 13, p. 7, MUIR & SHARP, Tr. ent. Soc. London 1904.
- A. saravacensis*, Borneo, p. 73, *sumatrana*, p. 74, SPAETH, Ann. Mus. Genova xli, **n. spp.**
- Baliosus n. g.* near *Chalepus*, p. 64, *B. opifer*, p. 74, *hospes*, p. 75, **n. spp.**, S. America, WEISE, Arch. Naturg. lxxi.
- Balyana*, validity and synonymy, GESTRO, p. 459, Ann. Mus. Genova xli.
- Basipta stolidia*, larva, pl. v, fig. 24, p. 12, ootheca, pl. ii, figg. 14–16, p. 7, MUIR & SHARP, Tr. ent. Soc. London 1904.
- Brontispa n. g.* near *Oxycephala*, *B. froggatti n. sp.*, New Britain, SHARP, p. 924, P. Linn. Soc. N. S. Wales xxviii.
- Brontispa* and *Oxycephala*, characters and taxonomy, GESTRO, pp. 455–459, Ann. Mus. Genova xli.
- Callispa unicolor*, Rhodesia, WEISE, p. 171, Arch. Naturg. lxx, i, **n. sp.**
- Cassida unimacula*, larva, pl. v, fig. 26, p. 14, MUIR & SHARP, Tr. ent. Soc. London 1904.
- C. corpulenta*, Cameroons, WEISE, p. 173, Arch. Naturg. lxx, i; *C. muirana*, Natal, SHARP, p. 13, pl. v, fig. 25, ootheca, pl. ii, figg. 18, 19, Tr. ent. Soc. London 1904; *C. exsanguis*, p. 270, *ovoidea*, *plicatula*, *rufomicans*, p. 271, *latecincta*, *latericia*, p. 272, *lyrica*, *dorsomicans*, *nigroscutata*, p. 273, *breviuscula*, *fullaciosa*, *nigrotecta*, p. 274, *funebri*, *nigroguttata*, p. 275, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi; *C. feæ*, Burma, SPAETH, p. 71, Ann. Mus. Genova xli : **n. spp.**
- Cephalodonta soluta*, *cincta*, Brazil, p. 58, *vitticollis*, p. 59, *melanospila*, *munda*, p. 60, *matronalis*, p. 61, *mitis*, p. 62, Brazil, WEISE, Arch. Naturg. lxxi, i; *C. calopteroide*, p. 439, *humerosa*, p. 441, *clara*, p. 442, *bruchii*, *donckieri*, p. 443, Brazil, WEISE, Deutsche ent. Zeitschr. 1904 : **n. spp.**
- Cephalotia rosenbergi*, *nubila*, p. 55, *bifasciata*, p. 56, Ecuador, WEISE, Arch. Naturg. lxxi, i; *C. interstitialis*, *parenthesis*, p. 437, *fasciata*, p. 438, *tucumana*, p. 439, S. America, WEISE, Deutsche ent. Zeitschr. 1904 : **n. spp.**
- Chalepus cincticollis*, p. 64, *forticornis*, p. 65, *consimilis*, *viduus*, p. 66,



- sedulus*, *pullus*, p. 67, *erichsoni*, *peruvianus*, *nigrripes*, p. 68, S. America, *metallescens*, Mexico, p. 69, *faustus*, Brazil, p. 70, WEISE, Arch. Naturg. lxxi, i, **n. spp.**
- Charidotis divisa*, Peru, p. 176, *drakei*, Paraguay, *redimita*, Bolivia, WEISE, p. 177, t. c. **n. spp.**
- Cælenomenodera speciosa*, p. 461, *signifera*, p. 462, Congo, GESTRO, Ann. Mus. Genova xli; *C. sculptipennis*, Madagascar, FAIRMAIRE, p. 269, Ann. Soc. ent. Belgique xlvi : **n. spp.**
- Coptocyclus evanescens* Champ. to *Charidotella*, WEISE, p. 175, Arch. Naturg. lxx, i.
- C. piceidorsis*, *trizonata*, Madagascar, FAIRMAIRE, p. 276, Ann. Soc. ent. Belgique xlvi; *C. championi*, Costa Rica, p. 174, *suturalis*, Brazil, p. 175, WEISE, Arch. Naturg. lxx, i : **n. spp.**
- Ctenochira aberrata*, Costa Rica, WEISE, p. 176, t. c. **n. sp.**
- Cyanaspis* **n. g.** near *Himatidium*, p. 433, *C. testaceicornis* **n. sp.**, Bolivia, p. 434, WEISE, Deutsche ent. Zeitschr. 1904.
- Dactylispa lateralis*, S. Africa, p. 450, *assamensis*, Assam, p. 452, WEISE, t. c.; *D. chinensis*, p. 102, China, *donckieri*, Congo, *pusilla*, India, p. 103, WEISE, Arch. Naturg. lxxi, i : **n. spp.**
- Decatelia* **n. g.** p. 435, near *Charistena*, *D. lema* **n. sp.**, Bolivia, p. 436, WEISE, Deutsche ent. Zeitschr. 1904.
- Demothispa tricolor*, *germaini*, Bolivia, WEISE, p. 54, Arch. Naturg. lxxi, i, **n. spp.**
- Dichirispa funebris*, Fernando Po, GESTRO, p. 518, Ann. Mus. Genova xli, **n. sp.**
- Gonophora hæmorrhoidalis* var. *n. undulata*, WEISE, p. 98, Arch. Naturg. lxxi, i.
- G. funebris*, Borneo, WEISE, p. 99, t. c. **n. sp.**
- Hispa testacea*, larval habits, trophi, LESNE, pp. 68-70, Bull. Soc. ent. France 1904.
- H. aurichalcea*, E. Africa, WEISE, p. 171, Arch. Naturg. lxx, i; *H. opaca*, S. Africa, WEISE, p. 448, Deutsche ent. Zeitschr. 1904; *H. linnei*, N. Guinea, *boutani*, Tonkin, p. 101, *gracilicornis*, Cameroons, p. 102, WEISE, Arch. Naturg. lxxi : **n. spp.**
- Javeta gestroi*, Borneo, WEISE, p. 97, t. c. **n. sp.**
- Lacoptera excavata*, larva, p. 15, *ootheca*, p. 8, MUIR & SHARP, Tr. ent. Soc. London 1904.
- Leptispa latifrons*, Ceylon, *nigra*, Pondichery, WEISE, p. 436, Deutsche ent. Zeitschr. 1904, **n. spp.**
- Megapyga brevis*, Mentawai, SPAETH, p. 69, Ann. Mus. Genova xli, **n. sp.**
- Metriona ferrarii*, Java, SPAETH, p. 77, t. c. **n. sp.**
- Millinaspis* **n. g.** for *Calliaspis cassidioides*, Boh., WEISE, p. 433, Deutsche ent. Zeitschr. 1904.
- Octhispa 4-notata*, p. 81, *proba*, p. 82, *peruana*, p. 83, S. America, WEISE, Arch. Naturg. lxxi, i, **n. spp.**
- Odontionycha sublesta*, Usambara, WEISE, p. 173, t. c. **n. sp.**
- Oxycephala fasciata*, *dilutipes*, New Guinea, WEISE, p. 95, t. c. **n. spp.**
- Pistosia* **n. g.** p. 93, *P. maculata* **n. sp.**, Celebes, p. 95, WEISE, t. c.
- Platypria natalensis* (Pér.), S. Africa, pp. 516, 517, *paucispinosa*, S. Thomé isld., p. 520, *fea*, Principe isld., p. 522, GESTRO, Ann. Mus. Genova xli, **n. spp.**
- Probenia* **n. g.** *Uroplatinorum*, p. 447, for species of *Odontota* and *Uroplata*, WEISE, Deutsche ent. Zeitschr. 1904; *P. variolaris*, p. 76, *tessellata*, p. 77, *vittulosa*, p. 78, *nigritarsis*, *tibiella*, p. 79, *clara*, p. 80, S. America, WEISE, Arch. Naturg. lxxi, i : **n. spp.**
- Promecotheca antiqua*, New Pomerania, WEISE, p. 97, t. c. **n. sp.**
- Prosopodonta balyi* (= *costata* B.), WEISE, p. 58, t. c. **n. sp.**
- Psilurnus donckieri*, Brazil, WEISE, p. 57, t. c. **n. sp.**

- Rhacocassis* n. g. p. 76, for *Coptocyclus flavoplagiata*, with var. n. *modiglianii*, p. 77, SPAETH, Ann. Mus. Genova xli.
- Solenispa* n. g. for *Cophalotia angusticollis* Wat. and *S. impressicollis* n. sp., Bolivia, WEISE, p. 53, Arch. Naturg. lxxi, i.
- Stenispa luridipennis*, Brazil, WEISE, p. 52, t. c. n. sp.
- Thoracispa*, characters, *T. dregei*, figure, GESTRO, pp. 463-465, Ann. Mus. Genova xli.
- T. brunni*, S. Africa, WEISE, p. 449, Deutsche ent. Zeitschr. 1904, n. sp.
- Uroplata krautzi*, p. 83, *gracilis*, p. 84, *postica*, p. 85, *apicicornis*, p. 86, *maculata*, *maculicollis*, p. 87, *ferruginea*, p. 88, *orphanula*, p. 89, *pusilla*, p. 90, *illustris*, *clivata*, p. 91, *soror*, *nupta*, p. 92, S. America, WEISE, Arch. Naturg. lxxi, i, n. spp.

## EROTYLIDÆ.

- Dasydactylus enici*, Texas, SCHAEFFER, p. 201, J. N. York Ent. Soc. xii, n. sp.
- Languria*, N. American, table, SCHAEFFER, pp. 198-200, t. c. ; food-habits of larvæ, N. American, CHITTENDEN, pp. 27-30, J. N. York Ent. Soc. xii.
- L. apicalis*, Texas, SCHAEFFER, p. 198, t. c. n. sp.
- Pharaxonotha kirschi*=(*Thalisella conradti* Gorh.), ARROW, p. 36, Ent. Mag. xl.
- Triplax marseuli* var. n. *discicollis*, REITTER, p. 156, Wien. ent. Zeit. xxiii.
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- Ctenoplectra vagans*, Philippines, COCKERELL, p. 204, *Ann. Nat. Hist.* xiv, **n. sp.**
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- Egypista n. n.* for *Apista* Sm., COCKERELL, p. 357, *Canad. Ent.* xxxvi.
- Energoponus n. g. Anthophoritæ*, p. 406, *E. ameghoini*, p. 407, *strenuus*, p. 408, **n. spp.**, Argentina, HOLMBERG, *An. Mus. Buenos Aires* (3) ii.
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- E. crucis*, p. 39, *beulahensis*, p. 40, New Mexico, *olympiellus*, Washington State, p. 41, COCKERELL, *Ann. Nat. Hist.* xiii; *E. ? baeri*, Tucuman, VACHAL, p. 23, *Rev. Ent. franc.* xxiii : **n. spp.**
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- Eucera flavitarsis* (= *Tetralonia placens* Schlett.), ALFKEN, p. 141, *Revist. chilena* viii.
- E. medusa*, p. 578, *diana*, *E. (Macrocera) phryne*, p. 579, *pomona*, p. 580, *cassandra*, p. 581, India, NURSE, *J. Bombay Soc.* xv, **n. spp.**
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- Exomalopsis verbesina*, New Mexico, COCKERELL, p. 21, *Ann. Nat. Hist.* xiv, **n. sp.**
- Greeleyella n. g. Panurginae*, p. 235, *G. beardsleyi n. sp.*, Colorado, p. 236, COCKERELL, *Entomologist* 1904.

- Habropoda fulvipes*, Khasia hills, CAMERON, p. 211, Ann. Nat. Hist. xiii, n. sp.
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- H.*, VACHAL (1426) describes by tables numerous species that are probably new, though this is not stated, many of the names occur twice, there are upwards of 100, all from South and Central America, ? n. spp.
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- Heriadini* to be used instead of *Trypetini*, TITUS, p. 23, J. N. York Ent. Soc. xii.
- Heriades bruneri*, Costa Rica, TITUS, p. 24, t. c. n. sp.
- Heteranthidium* n. g. type *Anthidium dorsale* Lep., COCKERELL, p. 292, Ent. News Philad. xv.
- Hopliphora velutina*=(*Oxyneidis beroni* Schr.), FRIESE, p. 100, Zeitschr. Hym. Dipt. iv.
- Hoplitis sambuci*, Washington, TITUS, p. 101, P. ent. Soc. Washington vi, n. sp.
- Hoplonomia* n. g. *Andrenidæ*, *H. quadrifasciata* n. sp., Philippines, ASHMEAD, p. 4, J. N. York Ent. Soc. xii.
- Hypanthidium* n. g. type *Anthidium flavomarginatum* Sm., COCKERELL, p. 292, Ent. News Philad. xv.
- Lanthaomelissa* n. g. p. 418, *L. discrepans* n. sp., Argentina, p. 418, HOLMBERG, An. Mus. Buenos Aires (3) ii.
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- Megachile latimanus grindeliarum* subsp. n., COCKERELL, p. 33, Ent. News Philad. xv; *M. lachesis* ♂, SCHULZ, p. 234, Berlin. ent. Zeitschr. xlix; *M. saulcyi* Guér. = *chilensis* Spin., ALFKEN, p. 141, Revist. chilena viii; *M. sparganotes* to *Lithurgus*, FRIESE, p. 99, Zeitschr. Hym. Dipt. iv; *M. dubia* Sich. to *Lithurgus*, FRIESE, p. 304, t. c.; *M.*, analysis of a nest, LUDWIG, p. 225, Allg. Zeitschr. Ent. ix.
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- Melecta interrupta* varr. n. *fallugia*, *rociudensis*, COCKERELL, p. 23, Ann. Nat. Hist. xiv; *M. armata*, habits relations with *Anthophora*, SEMICHON, Bull. Soc. ent. France 1905, p. 188.
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## VESPIDÆ, EUMENIDÆ, RHOPALOSOMIDÆ, MASARIDÆ.

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- P. wagneri*, Tijuca, DU BUYSSON, p. 145, Bull. Soc. ent. France 1904, **n. sp.**
- Polistella* **n. g.** for *Polistes manillensis*, ASHMEAD, p. 133, P. U. S. Mus. xxviii.



- Polistes tepidus novæ-pomeraniæ* subsp. n., p. 227, *P. marginalis papuanus* subsp. n., p. 231, SCHULZ, Berlin. ent. Zeitschr. xlix; *P. crinitus* = (*annularis* and *pallipes* Schrottky), BRÈTHES, p. 24, An. Mus. Buenos Aires (3) ii.
- P. inornatus*, Cameroons, TULLGREN, p. 456, pl. xxv, fig. 15, Arkiv Zool. i; *P. niger*, Brazil, BRÈTHES, p. 20, An. Mus. Buenos Aires (3) ii; *P. gouldii*, p. 368, *biglumoides*, p. 369, *claripennis*, p. 370, *rufiventris*, *occipitalis*, p. 371, S. America, DUCKE, Bol. Mus. Gœldi iv : n. spp.
- Polistoides* n. gr. for pt. of *Polistes*, DALLA TORRE, p. 68, Vespidae.
- Polybia furnaria*, p. 85, *ypiranguensis*, p. 86, IHERING, Bull. Soc. ent. France 1904; *P. jurinei* var. n. *bonaërense*, BRÈTHES, p. 28, An. Mus. Buenos Aires (3) ii.
- P. pseudomimetia*, Amazons, SCHULZ, p. 803, SB. Ak. Munchen 1903; *P. huberi*, *holoxantha*, p. 349, *micans*, *rufitarsis*, p. 351, *vulgaris*, p. 352, *lutea*, p. 353, *obidensis*, p. 354, *lignicola*, *cementaria*, p. 355, *sculpturata*, p. 356, S. America, DUCKE, Bol. Mus. Gœldi iv : n. spp.
- Protapoica* n. n. gr. of *Apoica* pt., DALLA TORRE, p. 79, Vespidae.
- Protodiscalius* n. gr. of *Discalius*, DALLA TORRE, p. 18, Vespidae.
- Rhynchium hemorrhoidale dohertyi* subsp. n., SCHULZ, p. 223, Berlin. ent. Zeitschr. xlix; *R. sirdari*, Khartoum, MORICE, p. 4, Jägerskiöld exp. No. 14, n. sp. (but see Zool. Rec. 1903).
- Synagris trispinosa*, p. 447, pl. xxiv, fig. 9, *rufopicta*, fig. 10, p. 448, *uncata*, fig. 11, p. 449, *4-punctata*, fig. 12, p. 450, Cameroons, TULLGREN, Arkiv Zool. i, n. spp.
- Tetrarthra* n. gr. of *Monobia*, DALLA TORRE, p. 28, Vespidae.
- Triarthra* n. gr. of *Monobia*, DALLA TORRE, p. 28, Vespidae.
- Trimeria buyssoni*, Argentina, BRÈTHES, p. 371, An. Mus. Buenos Aires (3) ii, n. sp.
- Tritodiscalius* n. gr. of *Discalius*, DALLA TORRE, p. 18, Vespidae.
- Vespa*: R. DU BUYSSON completes his monograph of *Vespa*, describing several varr. n. in addition to the new species mentioned below, Ann. Soc. ent. France 1904, pp. 485-556, plates v-x; *V. orbata* var. n. *aurulenta*, *V. rufa intermedia* var. n. p. 591, var. n. *americana*, p. 592, *V. norvegica* var. n. *adulterina*, p. 600, *V. silvestris* var. n. *sumptuosa*, p. 603, *V. germanica* var. n. *stizoides*, p. 615, DU BUYSSON, t. c.; *V. germanica*, nest, census, PECHLANER, Verh. Ges. Wien liv, p. 77; *V. rufa*, nest with *V. austriaca*, BERESFORD, p. 242, Irish Natural. 1904.
- V. barthelemyi*, Cambodia, DU BUYSSON, p. 618, Ann. Soc. ent. France 1904; *V. variabilis*, China, p. 522, *binghami*, Yunnan, p. 523, *eulemoides*, Andaman Islands, p. 530, *mocsaryana*, Malacca, p. 537, *walkeri*, China, p. 539, DU BUYSSON, Ann. Soc. ent. France 1904 : n. spp.
- Wettsteinia* n. g. for *Labus* Sect. II Sauss., DALLA TORRE, p. 13, Vespidae.
- Zethoides* n. g. *Masaridae*, p. 93, *Z. flavolineatus* n. sp., Panama, p. 94, CAMERON, Tr. Amer. ent. Soc. xxx.
- Zethus broomi*, S. Africa, CAMERON, p. 110, Rec. Albany Mus. i; *Z. himalayensis*, p. 13, *3-maculatus*, p. 14, Sikkim, CAMERON, Zeitschr. Hym. Dipt. iv; *Z. corallinus*, p. 135, *dimidiatus*, p. 136, Pará, DUCKE, Zeitschr. Hym. Dipt. iv : n. spp.

## HYMENOPTERA FOSSORIA (or SPHEGOIDEA).

- [Cf. ADLERZ (13, 16), ANDRÉ (28-30), ASHMEAD (44, 46, 47, 48), AURIVILLIUS (59), BRÈTHES (181), DU BUYSSON (219), CAMERON (222, 224, 225, 227-230, 232-234, 238), DUCKE (413), ENDERLEIN (458), GARCIA (587, 588), KOPP (840), MANTERO (904), NURSE (986), PICARD (1080), SAUNDERS (1214, 1215), SAUSSURE (1218), SCHULZ (1253, 1254), TULLGREN (1404, 1405), VIERECK (1445, 1446, 1449, 1453), VIERECK & COCKERELL (1455).]

- Synopsis of the *Fossoria* of Argentina, 57 spp., HOLMBERG, pp. 469–504, An. Mus. Buenos Aires (3) ii.
- Classification of *Mutillidæ* completed, ASHMEAD, pp. 5–9, Canad. Ent. xxxvi; *Mutillidæ*, Ashmead's genera detailed and criticised, ANDRÉ, pp. 27–41, Rev. Ent. franc. xxiii.
- Philanthidæ*, N. American, revision and tables, VIERECK & COCKERELL, J. N. York Ent. Soc. xii, pp. 84, 129 etc.
- The *Sphelidæ* of Sweden, AURIVILLIUS, Ent. Tidskr. xxv, pp. 241–300.
- Localities for Palearctic *Sphelidæ*, SCHULZ (1254).
- Æluroides* n. g. *Thynnidæ*, p. 428, *Æ. sjostedti* n. sp., Cameroons, p. 429, TULLGREN, Arkiv Zool. i.
- Agenia cingulata*, Manila, ASHMEAD, p. 133, P. U. S. Mus. xxviii; *A. lynchii*, Buenos Ayres, HOLMBERG, p. 494, An. Mus. Buenos Aires (3) ii : n. spp.
- Ammophila bolanica* ♂, NURSE, p. 25, J. Bombay Soc. xvi; *A. sabulosa*, habits, KOPP, pp. 344–346, Jahresh. Ver. Wurttemb. lx.
- Ammoplanus ceanothæ*, Pennsylvania, VIERECK, p. 72, Psyche xi, n. sp.
- Ampulex hellmayri*, Amazons, SCHULZ, p. 760, SB. Ak. Munchen 1903, n. sp.
- Anodontyna tricolor* ♀, p. 317, *albofasciata* ♂, p. 318, ANDRÉ, Zeitschr. Hym. Dipt. iv.
- Anoplius johannis*, p. 126, *oneili*, p. 127, *A. (Ferreoia?) gradatus*, *A. (Schizosalius?) melanostomus*, p. 128, *A. argenteodecoratus*, p. 129, *dunbrodyensis*, p. 130, *labialis*, *spilopus*, p. 131, *hirtiscapus*, p. 132, *trichiocephalus*, p. 133, *A. (Homonotus) spilonotus*, p. 134, *A. ? cænoceras*, p. 135, Cape Colony, CAMERON, Rec. Albany Mus. i, n. spp.
- Anothyreus panurgoides*, Pennsylvania, VIERECK, p. 239, Tr. Amer. ent. Soc. xxx, n. sp.
- Apteropompilus dentatus*, Uitenhage, CAMERON, p. 176, Zeitschr. Hym. Dipt. iv, n. sp.
- Astata lucinda*, Quetta, NURSE, p. 25, J. Bombay Soc. xvi, n. sp.
- Aulacophilus eumenoides*, Pará, DUCKE, p. 97, Zeitschr. Hym. Dipt. iv, n. sp.
- Barymutilla alticola*, W. Africa, ANDRÉ, p. 226, Ann. Mus. Genova xli, n. sp.
- Bembex*, characters of Spanish, GARCÍA, pp. 341–356, Bol. Soc. espan. iv.
- B. handlirschi*, p. 343, *miscella*, p. 345, *hispanica*, p. 347, Spain, GARCÍA, t. c.; *B. megadonta*, Darjiling, CAMERON, p. 261, Entomologist 1904; *B. khasiana*, Assam, CAMERON, p. 123, Tr. ent. Soc. London 1904 : n. spp.
- Bembidula simillima* Sm. redescribed, DUCKE, p. 91, Zeitschr. Hym. Dipt. iv.
- Bothynostethus collaris*, Pará, p. 95, *clypealis*, Alemquer, p. 189, DUCKE, t. c. n. spp.
- Cerceris rybensis dittrichi* subsp. n., SCHULZ, p. 93, Zeitschr. Ent. Breslau xxix.
- C. violaceipennis*, p. 292, *latibalteata*, p. 293, N. India, CAMERON, Ann. Nat. Hist. xiii; *C. japonica*, *quinquecincta*, Japan, ASHMEAD, p. 66, J. N. York Ent. Soc. xii; *C. nasica*, *fidelis*, p. 132, *platyrhina*, *macrostieta*, p. 133, *ferruginior*, p. 134, *garciana*, *populorum*, *femur-rubrum*, p. 135, *convergens*, *chilopsidis*, p. 136, *rinconis*, *novomexicana*, p. 137, *crotonella*, *erigoni*, p. 139, *townsendi*, *vicinoides*, p. 140, New Mexico, VIERECK & COCKERELL, J. N. York Ent. Soc. xii; *C. perspicua*, p. 475, *paupercula*, *levigata*, p. 476, *moyanoi*, p. 477, *caridei*, p. 478, *proboscidea*, p. 479, *diademata*, p. 480, *melanogaster*, *gaudebunda*, p. 481, *polychroma*, p. 483, *campestris*, p. 484, *elephantinops* with var. *dissita*, p. 485, *bonaërensis*, p. 486, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : n. spp.
- Ceropales maculata*, parasitic habits, ADLERZ, Bih. Svenska Ak. xxviii, Afd. iv, No. 14, 20 pp.
- C. punctulata*, Cape Colony, CAMERON, p. 138, Rec. Albany Mus. i, n. sp.

- Chlorion cyaneum*, synonymy, FERNALD, p. 120, Ent. News Philad. xv;  
*C. lobatus*, food-habits, MAXWELL-LEFROY, p. 531, J. Bombay Soc. xv.  
*Clytochrysis dubiosus*, Japan, ASHMEAD, p. 65, J. N. York Ent. Soc. xii,  
**n. sp.**  
*Crabro alatus japonicus* subsp. n., SCHULZ, p. 99, Zeitschr. Ent. Breslau  
 xxix.  
*C. trichiosomus*, p. 260, *agycus*, p. 261, Himalaya, CAMERON, Entomologist  
 1904, **n. spp.**  
*Dasyproctus philippinensis*, Manila, ASHMEAD, p. 129, P. U. S. Mus. xxviii,  
**n. sp.**  
*Dielis testaceipes*, Japan, CAMERON, p. 34, Entomologist 1904, **n. sp.**  
*Diodontus gracilipes*, Tenerife, SAUNDERS, p. 202, Ent. Mag. xl; *D. crassi-*  
*cornis*, Oregon, VIERECK, p. 243, Tr. Amer. ent. Soc. xxx : **n. spp.**  
*Dolichomutilla bolamana*, W. Africa, ANDRÉ, p. 223, Ann. Mus. Genova xli,  
**n. sp.**  
*Dolichurus obidensis* var. n. *maranhensis*, DUCKE, p. 91, Zeitschr. Hym.  
 Dipt. iv.  
*Elaphroptera herbsti*, Chile, ANDRÉ, p. 308, Zeitschr. Hym. Dipt. iv, **n. sp.**  
*Entomognathus lenapeorum*, Pennsylvania, VIERECK, p. 239, Tr. Amer. ent.  
 Soc. xxx, **n. sp.**  
*Ephuta (Photopsis) chilicola*, Chile, ANDRÉ, p. 306, Zeitschr. Hym. Dipt. iv,  
**n. sp.**  
*Ephutopsis* **n. g.** *Ephutinae*, type *trinidadensis* Ashm., ASHMEAD, p. 6,  
 Canad. Ent. xxxvi.  
*Eucerceris*, tables of species, VIERECK & COCKERELL, pp. 84-88, J. N. York  
 Ent. Soc. xii.  
*E. striareata*, p. 85, *chapmanae*, p. 86, *simulatrix*, p. 87, New Mexico, iid.  
 t. c. **n. spp.**  
*Euspinolia*, characters and components, ANDRÉ, p. 286, Zeitschr. Hym.  
 Dipt. iv.  
*Gorytes levis aegyptiacus* subsp. n., SCHULZ, p. 96, Zeitschr. Ent. Breslau  
 xxix; *G. scutellaris*=(*Harpactes sanguinans* Dom.), *G. triangularis*  
 Sm., taxonomical characters, DUCKE, p. 92, Zeitschr. Hym. Dipt. iv.  
*Homalothynnus* **n. g.** *Thynnidae*, p. 466, *H. eburneus* **n. sp.**, Adelaide,  
 p. 468, ENDERLEIN, Zool. Anz. xxvii.  
*Ischnolyntus* **n. g.** near *Crabro*, *I. foveolatus* **n. sp.** Argentina, HOLMBERG,  
 p. 472, An. Mus. Buenos Aires (3) ii.  
*Larra bicolorata*, p. 294, *pygidialis*, p. 295, N. India, CAMERON, Ann. Nat.  
 Hist. xiii; *L. apicepennis*, N. India, CAMERON, p. 302, t. c. : **n. spp.**  
*Liris violaceipennis*, N. India, CAMERON, p. 300, Ann. Nat. Hist. xiii, **n. sp.**  
*Macromeris honestus*, Sm. (as *Pompilus*)=(*aureopilosa* Cam.), CAMERON,  
 p. 90, Zeitschr. Hym. Dipt. iv.  
*Megalomma quadricinctum*, Manila, ASHMEAD, p. 132, P. U. S. Mus. xxviii,  
**n. sp.**  
*Meria quadrimaculata* to *Myzine*, CAMERON, p. 90, Zeitschr. Hym. Dipt. iv.  
*Methoca ichneumonoides*, habits, ADLERZ, pp. 255-258, Arkiv Zool. i.  
*Mimesa palliditarsis*, Majorca, SAUNDERS, p. 605, Tr. ent. Soc. London  
 1904, **n. sp.**  
*Monedula surinamensis*, nesting habits, BRÈTHES, pp. 200-204, Revist. Mus.  
 La Plata x.  
*Mutilla alecto*, *M. aestuans* Gerst. is ♀, p. 227, *M. atricolor* ♂, p. 233,  
 var. n. *ochraceomaculata*, p. 234, *M. cyparissa* ♀, p. 236, ANDRÉ,  
 Ann. Mus. Genova xli.  
*M. sordidata*, Cameroons, TULLGREN, p. 427, Arkiv Zool. i; *M. auro-*  
*decorata*, p. 229, *omissa*, p. 231, *ignota*, p. 240, *principis*, p. 242,  
*polyacantha*, p. 245 & var. *dichromatica*, p. 246, *sessiliventris*, p. 246,  
*varians*, p. 247, *spinicollis*, p. 250, W. Africa, ANDRÉ, Ann. Mus.  
 Genova xli; *M. vesta*, India, NURSE, p. 24, J. Bombay Soc. xvi; *M. inoa*,

- p. 279, *artaxa*, *trebia*, p. 280, N. India, CAMERON, Ann. Nat. Hist. xiii; *M. sceva*, p. 6, *gnatia*, p. 7, *tiza*, p. 8, Khasia hills, CAMERON, Zeitschr. Hym. Dipt. iv; *M. semperi*, Manila, ASHMEAD, p. 135, P. U. S. Mus. xxviii : **n. spp.**
- Myrmilla subspinoso*, W. Africa, ANDRÉ, p. 222, Ann. Mus. Genova xli, **n. sp.**
- Myzine*, *Apis fusiformis* De Geer, to this, TULLGREN, p. 462, Arkiv Zool. i. *Nectanebus fischeri fischeri*, and *fischeri algeriensis*, SCHULZ, pp. 9-11, Allg. Zeitschr. Ent. ix.
- Notogonia manila*, Philippines, ASHMEAD, p. 130, P. U. S. Mus. xxviii, **n. sp.**
- Nysson laufferi*, Madrid, GARCÍA, p. 392, Bol. Soc. espan. iv; *N. violaceipennis*, Sikkin, CAMERON, p. 10, Zeitschr. Hym. Dipt. iv; *N. submellipes*, *tramosericus*, p. 237, *daeckei*, p. 238, N. America, VIERECK, Tr. Amer. ent. Soc. xxx; *N. cressoni*, N. Mexico, CAMERON, p. 95, Tr. Amer. ent. Soc. xxx; *N. alfkeni*, Amazons, DUCKE, p. 190, Zeitschr. Hym. Dipt. iv : **n. spp.**
- Ochleroptera* **n. g.** *O. oblita* **n. sp.**, Argentina, HOLMBERG, p. 487, An. Mus. Buenos Aires (3) ii.
- Odontolarra nigra*, Sikkin, CAMERON, p. 12, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Odontophotopsis acmæus*, p. 84, *subtenuis*, *trunculus*, p. 85, *crucis*, p. 86, *sercus*, *alamonis*, p. 87, *avellanus*, p. 88, *fallax*, *indotatus*, p. 89, *augustus*, p. 90, *delodontus*, p. 91, VIERECK, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Odontothynnus* **n. g.** *Thynnides*, p. 161, *O. bidentata*, *lacteipennis*, p. 162, **n. spp.**, S. Africa, CAMERON, Rec. Albany Mus. i.
- Ornepetes albonotata*, Chile, ANDRÉ, p. 314, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Oxybelus platensis*, Buenos Aires, **n. sp.**, p. 195, with notes on habits and instincts, pp. 196-200, pl. i, BRËTHES, Revist. Mus. La Plata x.
- Paniscomima* **n. g.** *Rhopalosomida*, p. 465, for *P. erlangeriano* **n. sp.**, Somaliland, p. 466, ENDERLEIN, Zool. Anz. xxvii.
- Paranothyreus rugicollis*, New Jersey, VIERECK, p. 241, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Paratiphia 12-maculata*, Panama, CAMERON, p. 94, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Passalaccus* (sic) *rivertonensis*, New Jersey, VIERECK, p. 243, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Philanthus camerunensis*, Africa, TULLGREN, p. 444, pl. xxiii, fig. 7, Arkiv Zool. i; *P. punctinudus*, p. 144, *crotoniphilus*, p. 145, New Mexico, VIERECK & COCKERELL, J. N. York Ent. Soc. xii : **n. spp.**
- Piagetia varicornis*, Sikkin, CAMERON, p. 11, Zeitschr. Hym. Dipt. iv; *P. ruficollis*, Singapore, CAMERON, p. 119, J. Straits Asiat. Soc. xli : **n. spp.**
- Pison* *pallidipalpe*, description, SCHULZ, p. 214, Berlin. ent. Zeitschr. xlix.
- P. laguna*, Philippines, ASHMEAD, p. 131, P. U. S. Mus. xxviii, **n. sp.**
- Pisonitus argenteus*, Philippines, ASHMEAD, p. 131, t. c. **n. sp.**
- Podium* (*Parapodium*) *batesianum*, Amazons, SCHULZ, p. 772, SB. Ak. Munchen 1903, **n. sp.**
- Pompilus viaticus*, habits, PICARD, pp. 142-145, Feuille Natural. xxxiv.
- P. doriae*, Tuscany, MANTERO, p. 453, Ann. Mus. Genova xli; *P. poultoni*, Majorca, SAUNDERS, p. 600, Tr. ent. Soc. London 1904; *P. guimarensis*, Tenerife, SAUNDERS, p. 200, Ent. Mag. xl; *P. bifasciatus*, Cameroons, TULLGREN, p. 441, pl. xxiii, fig. 6, Arkiv Zool. i; *P. suspectus*, Cambodia, pl. xii, fig. 4, p. 200, SAUSSURE, Mission Pavie iii; *P. spilopterus*, p. 496, *phœnicogaster*, p. 497, *tobarum*, p. 498, *autrani*, p. 499, *hermannii*, p. 501, *yanketruz*, p. 502, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : **n. spp.**



- Prionocnemis parcedentatus*, Tonkin, pl. xii, fig. 3, p. 200, SAUSSURE, Mission Pavie iii; *P. australis*, p. 490, *pampicola*, *fratellus*, *atelerythrus*, p. 491, *tenuis*, *ignitus*, *fidanzae*, p. 492, *nigrorufus*, *carbonarius*, *silvicola*, p. 493, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : **n. spp.**
- Psen rufobalteata*, Khasia hills, CAMERON, p. 219, Ann. Nat. Hist. xiii, **n. sp.**
- Pseudagenia longitarsis*, p. 135, *robusta*, p. 136, *iridipennis*, *æthiopica*, p. 137, Cape Colony, CAMERON, Rec. Albany Mus. i; *P. lepcha*, N. India, CAMERON, p. 291, Ann. Nat. Hist. xiii; *P. unifasciata*, Philippines, ASHMEAD, p. 7, J. N. York Ent. Soc. xii : **n. spp.**
- Pseudelaphroptera flavomaculata*, Chile, ANDRÉ, p. 311, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Pseudomethoca herbsti*, Chile, ANDRÉ, p. 284, t. c. **n. sp.**
- Pseudosalius n. g.* for *Salius bipartitus* Lep., ASHMEAD, p. 132, P. U. S. Mus. xxviii.
- Pycnomutilla n. g.* type *M. waco* Bl., ASHMEAD, p. 8, Canad. Ent. xxxvi.
- Reedia n. g.* type *Mutilla atripennis* Spin., ASHMEAD, p. 9, t. c.; *Reedia*, characters, p. 288, *R. gayi* ♂, p. 305, ANDRÉ, Zeitschr. Hym. Dipt. iv.
- Rhopalum albocollare*, Manila, ASHMEAD, p. 130, P. U. S. Mus. xxviii; *R. patagonicum*, p. 470, *lynchii*, p. 471, Argentina, HOLMBERG, An. Mus. Buenos Aires (3) ii : **n. spp.**
- Salius ochropus* Stål., description, p. 435, pl. xxii, fig. 1, TULLGREN, Arkiv Zool. i; *S. fulgidipennis* to *Pallosoma*, ASHMEAD, p. 132, P. U. S. Mus. xxviii.
- S. trichiosoma*, p. 289, *frederici*, p. 290, *lugubrinus*, p. 291, N. India, CAMERON, Ann. Nat. Hist. xiii; *S. æneus*, Sikkim, CAMERON, p. 10, Zeitschr. Hym. Dipt. iv; *S. pavianus*, Cambodia, pl. xii, figg. 1, 2, p. 199, SAUSSURE, Mission Pavie iii : **n. spp.**
- Sapyga wagneriella*, Minas Geraes, DU BUYSSON, p. 146, Bull. Soc. ent. France 1904, **n. sp.**
- Schizanoptilus n. g.* *Ceropalinae*, p. 125, *S. violaceipennis n. sp.*, Cape Colony, p. 126, CAMERON, Rec. Albany Mus. i.
- Scolia*, notes on species from Java etc., TULLGREN, pp. 465–472, Arkiv Zool. i; *S. erythrogaster*, p. 459, *leonina*, p. 461, identified and redescribed, TULLGREN, t. c.
- S. (Eliis) propinqua*, p. 432, *deserta*, *æthiopica*, p. 433, Cameroons, TULLGREN, Arkiv Zool. i; *S. magnificus*, p. 437, pl. xxii, fig. 2, *nigricans*, fig. 3, p. 438, *S. (Cyphonyx) camerunensis*, pl. xxiii, fig. 4, p. 439, *nigricornis*, fig. 5, p. 440, Cameroons, TULLGREN, Arkiv Zool. i; *S. (Discolia) erythrotrichia*, N. India, CAMERON, p. 9, Zeitschr. Hym. Dipt. iv; *S. (Triscolia) triangulifer*, p. 466, *S. (Discolia) billitonensis*, p. 467, *S. (Dielis) simillina*, p. 470, *fumata*, p. 471, Java, TULLGREN, Arkiv Zool. i; *S. manila*, Philippines, ASHMEAD, p. 8, J. N. York Ent. Soc. xii : **n. spp.**
- Solenius*, note on habits, KOPP, pp. 348–350, Jahresh. Ver. Wurttemb. lx.
- Soleriella canariensis*, Tenerife, SAUNDERS, p. 201, Ent. Mag. xl; *S. amazonica*, Alemquer, DUCKE, p. 96, Zeitschr. Hym. Dipt. iv : **n. spp.**
- Stenocrabro nelli*, p. 241, *flavitrochantericus*, p. 242, N. America, VIERECK, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Stizus pæcilopterus* ♂, MORICE, p. 2, Jägerskiöld exp. No. 14; *S. tridens* and *cyanescens*, SCHULZ, p. 95, Zeitschr. Ent. Breslau xxix.
- Tachyspex tinctipennis*, N. India, CAMERON, p. 301, Ann. Nat. Hist. xiii; *T. propinquus*, Arizona, VIERECK, p. 87, Ent. News Philad. xv : **n. spp.**
- Tachytes rufipalpis*, p. 296, *assamensis*, *fulvopilosa*, p. 297, *fulvovestita*, p. 298, *maculipennis*, p. 299, N. India, CAMERON, Ann. Nat. Hist. xiii, **n. spp.**
- ThyreospheX n. g.* near *Tachyspex*, *T. stantoni n. sp.*, Philippines, ASHMEAD, Canad. Ent. xxxvi.

- Tiphia clarinerva*, p. 281, *himalayensis*, p. 282, *robusta*, p. 283, *denticula*, p. 284, *tuberculata*, p. 285, *fulvinerva*, p. 286, *simlaensis*, p. 287, *quinquecarinata*, p. 288, N. India, CAMERON, Ann. Nat. Hist. xiii, n. spp.
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## FORMICIDÆ (OR HETEROGYNA).

- [Cf. COOK (309-311), EMERY (452, 453), FIELDE (501-507), FIELDE & PARKER (508), FOREL (523-532), HOLMGREN (701), MAYR (927, 928), MUCKERMANN (968), RUZSKY (1202), WASMANN (1481, 1483, 1484, 1484A), WELLENIUS (1508), WHEELER (1517-1523).]
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- For various papers on habits of ants see p. 87, Ethology.
- Mounds in swamps due to *Formica exsecta*, HOLMGREN, pp. 353-370, cuts, Zool. Jahrb. Syst. xx.
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- C. junodi*, Africa, FOREL, p. 154, Ann. Soc. ent. Belgique xlvi, **n. sp.**
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- C. pylartes*, Texas, WHEELER, p. 147, t. c. **n. sp.**
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- F. adelungi*, Gobi desert, FOREL, p. 385, Annuaire Mus. St. Petersb. viii; *F. montigena*, Colorado, WHEELER, p. 374, Bull. Amer. Mus. xx : **n. spp.**
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- Paltothyreus tarsatus*, offensive odour, POULTON, p. xl, P. ent. Soc. London 1904.
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- S. moelleri*, Blumenau, p. 173, with var. *gracilior*, p. 174, FOREL, Ann. Soc. ent. Belgique xlvi, **n. sp.**



- Stenammas barbarus* var. n. *persicus*, FOREL, p. 175, t. c.; *S. patrule bakeri* subsp. n., WHEELER, p. 270, Bull. Amer. Mus. xx.
- S. (Messor) bugnioni*, Biskra, FOREL, p. 13, Rev. Suisse Zool. xii, n. sp.
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- Annotated list and table of genera and species of *Chrysid.* observed at Parà, DUCKE, pp. 13-48, Bull. Soc. ent. ital. xxxvi.
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- Astomaspis metathoracica*, Manila, ASHMEAD, p. 140, P. U. S. Mus. xxxviii, **n. sp.**
- Atrometus minutus*, Manila, ASHMEAD, p. 144, t. c. **n. sp.**
- Atrophæa clypearia*, Manila, ASHMEAD, p. 143, t. c. **n. sp.**
- Barichneumon heracleane* ♂, MORLEY, p. 37, Ent. Mag. xl.
- Bassus pulchellus* var. n. *alpigena*, STROBL, p. 156, Mt. Ver. Steiermark xl.
- Bathrythrix striatus*, Manila, ASHMEAD, p. 141, P. U. S. Mus. xxviii, **n. sp.**
- Blapticus xanthocephalus*, Admont, STROBL, p. 113, Mt. Ver. Steiermark xl, **n. sp.**
- Cænocryptus remex* Tschek, habits, = (*laticrus* Thoms.), PFANKUCH, p. 225, Zeitschr. Hym. Dipt. iv.
- Camarota madagascariensis*, Madagascar, SZÉPLIGETI, p. 336, Bull. Mus. Paris ix, **n. sp.**
- Campoplex polyxanthus*, p. 59, *rufiventris*, p. 61, *alpinus*, p. 621, Styria, STROBL, Mt. Ver. Steiermark xl, **n. spp.**
- Casiniaria arvensis* ♀, STROBL, p. 71, t. c.
- C. cingulata*, Styria, STROBL, p. 68, t. c. **n. sp.**
- Catadelphus dusmeti*, Escorial, BERTHOUMIEU, p. 161, Bol. Soc. espan. iv, **n. sp.**
- Catomicrus alpigenus*, Styria, STROBL, p. 116, Mt. Ver. Steiermark xl, **n. sp.**
- Charops decipiens* var. n. *nigropetiolatus*, STROBL, p. 65, t. c.
- Cidaphurus flavomaculatus*, Simla, CAMERON, p. 346, Zeitschr. Hym. Dipt. iv, **n. sp.**
- Cœlichneumon deraus* var. n. *pictus*, ROMAN, p. 115, Ent. Tidskr. xxv.
- Cœlojoppa* **n. g.**, p. 163, *C. cariniscutis* **n. sp.**, Darjeeling, p. 208, CAMERON, Entomologist 1904.
- Colpomera flava*, Philippines, ASHMEAD, p. 284, Canad. Ent. xxxvi, **n. sp.**
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- Cremastus dalmatinus*, Dalmatia, STROBL, p. 92, Mt. Ver. Steiermark xl, **n. sp.**
- Cryptus verticalis* Bingh. to *Agrotherentes*, *C. præpes* Bingh. to *Microcryptus*, ASHMEAD, p. 142, P. U. S. Mus. xxviii.
- C. capensis*, Cape Colony, CAMERON, p. 142, Rec. Albany Mus. i; *C. rufopetiolatus*, p. 105, *himalayensis*, *bibulus*, p. 106, Assam, CAMERON, Tr. ent. Soc. London 1904 : **n. spp.**
- Darpasus* **n. g.** *Amblypygi*, *D. pilosus* **n. sp.**, Himalaya, CAMERON, p. 344, Zeitschr. Hym. Dipt. iv.
- Darymna* **n. g.** p. 224, *D. pleuralis* **n. sp.**, Darjeeling, p. 337, CAMERON, t. c.
- Diatora prodeniæ*, Manila, ASHMEAD, p. 141, P. U. S. Mus. xxviii, **n. sp.**
- Enicospilus*, the North American, FELT, pp. 107-113, Bull. New York Mus. lxxvi; *E. unicallosus* ♀, STROBL, p. 54, Mt. Ver. Steiermark xl.
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- Entypoma rugosissimum*, Styria, STROBL, p. 114, Mt. Ver. Steiermark xl, **n. sp.**
- Ephialtes carbonarius*, metamorphosis, XAMBEU, p. 170, Ann. Soc. Linn. Lyon l.

- E. tschitscherini*, Ural, KOKUJEV, p. 200, Rev. Russe Ent. iv, n. sp.  
*Epiurus carpocapse*, St Petersburg, ASHMEAD, p. 102, Canad. Ent. xxxvi, n. sp.  
*Eremotylus*, the North American, FELT, Bull. New York Mus. lxxvi, pp. 101–107.  
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*Gotra fulvipes*, Assam, CAMERON, p. 104, Tr. ent. Soc. London 1904, n. sp.  
*Habrocryptus granicheri*, Wisconsin, VIERECK, p. 333, Ent. News Philad. xv, n. sp.  
*Hadrojoppa fumipennis*, N. India, CAMERON, p. 278, Ann. Nat. Hist. xiii, n. sp.  
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*Hedyjoppa* n. g. p. 219, *H. aurantacea* n. sp., Darjeeling, p. 220, CAMERON, Zeitschr. Hym. Dipt. iv.  
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*Hellwigia obscura* ♂, STROBL, p. 49, t. c.  
*Hemiteles geniculatus*, p. 110, *pulcherrimus, ornatitarsis*, p. 111, Assam, CAMERON, Tr. ent. Soc. London 1904, n. spp.  
*Heterischnus hispanicus*, Ciudad-Real, BERTHOUMIEU, p. 271, Bull. Soc. ent. France 1904, n. sp.  
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- Joppoides* n. g. *xanthomelas* Tosq., BERTHOUMIEU, p. 23, Gen. Ins. fasc. 18.
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- Mesoleius flavipes* ♀, STROBL, p. 153, Mt. Ver. Steiermark xl.
- Mesostenoideus octozonatus*, Manila, ASHMEAD, p. 143, P. U. S. Mus. xxviii; *M. philippinensis*, Manila, ASHMEAD, p. 17, J. N. York Ent. Soc. xii : n. spp.
- Mesostenopsis* n. g., SCHMIEDEKNECHT, p. 561, Opusc. Ent.
- Mesostenus oneili*, Cape Colony, CAMERON, p. 143, Rec. Albany Mus. i; *M. respondens*, p. 112, *brahminus*, p. 113, *missippus*, p. 114, *clarinervis*, p. 115, *reticulatus, caligatus*, p. 116, *salutator*, p. 117, *versatilis*, p. 118, *maculiceps*, p. 119, Assam, CAMERON, Tr. ent. Soc. London 1904 : n. spp.
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- Neomesostenus* n. g., SCHMIEDEKNECHT, p. 562, Opusc. Ent.
- Neotypus cabrerai*, Teneriffe, BERTHOUMIEU, p. 270, Bull. Soc. ent. France 1904, n. sp.
- Nepiesta jugicola*, p. 75, *rufocincta*, p. 76, Styria, STROBL, Mt. Ver. Steiermark xl, n. spp.
- Ogulnia* n. g. near *Haliphera*, *O. fuscitarsis* n. sp., Darjeeling, CAMERON, p. 343, Zeitschr. Hym. Dipt. iv.
- Ophion abnormum*, Colorado, p. 121, *ferruginipennis*, p. 122, N. America, FELT, Bull. N. York Mus. lxxvi, n. spp.

- Olesicampa nigricornis*, Styria, STROBL, p. 81, Mt. Ver. Steiermark xl, n. sp.
- Omorga dispar* ♂, STROBL, p. 79, t. c.
- Oneilella* n. g. for *Cryptus formosus* Br., p. 190, its host *Anaphe reticulata*, p. 191, CAMERON, Zeitschr. Hym. Dipt. iv.
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- Otacustes alboannulus*, Manila, ASHMEAD, p. 140, P. U. S. Mus. xxviii, n. sp.
- Pantisarthrus pseudochropus, rudepunctatus*, Styria, STROBL, p. 137, Mt. Ver. Steiermark xl, n. spp.
- Parabatus nigricarpus* var. n. *semifuscus*, STROBL, p. 50, t. c.
- Paraphylax fasciatipennis*, Manila, ASHMEAD, p. 141, P. U. S. Mus. xxviii, n. sp.
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- Plectiscus quadrierosus*, p. 125, *tenuecinctus*, p. 126, *grossepunctatus*, p. 127, *pseudoproximus*, p. 128, *posticus, petiolifer*, p. 130, Styria, STROBL, Mt. Ver. Steiermark xl, n. spp.
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- Pristomerus schreineri*, St. Petersburg, ASHMEAD, p. 101, Canad. Ent. xxxvi; *P. flavus*, Manila, ASHMEAD, p. 145, P. U. S. Mus. xxviii: n. spp.
- Proclitus fulvocingulatus*, Styria, STROBL, p. 134, Mt. Ver. Steiermark xl, n. sp.
- Protocryptus* n. g. p. 414, SCHMIEDEKNECHT, Opusc. Ent.
- Pyraconon xoridoideus*, p. 72, *aterrimus*, p. 74, Admont, STROBL, Mt. Ver. Steiermark xl, n. spp.
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- Spilopoppa* n. g. p. 208, *S. fulvipes* n. sp., Darjiling, p. 209, CAMERON, Entomologist 1904.
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- Stylocryptus transverseareolatus* var. *nigripes*, STROBL, p. 149, t. c.
- Suvalta annulipes*, p. 220, *pallidinerva*, p. 221, Khasia hills, CAMERON, Ann. Nat. Hist. xiii, n. spp.
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- Synechocryptus* n. g. *oraniensis* n. sp., Algeria, SCHMIEDEKNECHT, p. 427, Opusc. Ent.
- Tanyopoppa* n. g. p. 217, *T. sanguineoplagiata* n. sp., Himalaya, p. 218, CAMERON, Zeitschr. Hym. Dipt. iv.

- Temelucha plutella*, St. Petersburg, ASHMEAD, p. 101, Canad. Ent. xxxvi ;  
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- Thascia* n. g. *T. pilosa* n. sp., Darjeeling, CAMERON, p. 339, Zeitschr.  
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BRACONIDÆ (incl. ALYSIIDÆ).

- [Cf. ASHMEAD (44, 47, 48, 50, 51), BRÈTHES (175, 177), CAMERON (222, 223,  
 224, 225, 231, 234), ENDERLEIN (456), FROGGATT (562), GIARD (599),  
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- Acanthobracon nigromaculata*, Cape Colony, CAMERON, p. 155, Rec. Albany  
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- Dacnusa rondanii*, Argenteuil, GIARD, p. 181, Bull. Soc. ent. France 1904, n. sp.
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- Fœnomorpha* n. g. p. 8, *F. bicolor* n. sp., Peru, p. 9, SZÉPLIGETI, Braconidæ.
- Glyptapanteles manilæ*, Philippines, ASHMEAD, p. 147, P. U. S. Mus. xxviii, n. sp.
- Iphiaulax trægardhi*, White Nile, SZÉPLIGETI, p. 10, Jägerskiöld exp. No. 14 ; *I. capensis*, p. 149, *basimacula*, p. 150, *clanes*, *rubrilineatus*, p. 151, *rubrinervis*, p. 152, *æthiopicus*, p. 153, *odontoscapus*, 12-*fasciatus*, p. 154, Cape Colony, CAMERON, Rec. Albany Mus. i ; *I. soleæ*, p. 164, *whitei*, *spilonotus*, p. 165, S. Africa, CAMERON, t. c. ; *I. baeri*, Peru, SZÉPLIGETI, p. 337, Bull. Mus. Paris ix ; *I. tornovii*, Tucuman, BRÈTHES, p. 334, An. Mus. Buenos Aires xi ; *I. transiens*, *rugulosus*, p. 173, *sicuniensis*, *carpalis*, p. 174, *levigatus*, *ignavus*, p. 175, *apricans*, *peregrinus*, *sculptilis*, *transversalis*, p. 176, *simillinus*, *dubiosus*, Peru, *mercedesiensis*, Argentina, p. 177, *macellus*, *persimilis*, *costatus*, *longulus*, *elegantulus*, Peru, *boliviensis*, Bolivia, p. 178, *luctuosus*, *braconiformis*, p. 179, *braconius*, *pseudobracon*, *paraguayensis*, *latus*, *aptus*, p. 188, *apricans*, *simplex*, Peru, *macretus*, Brazil, p. 181, *pernix*, *agilis*, p. 182, Peru, SZÉPLIGETI, Ann. Mus. Hungar. ii : n. spp.
- Ischiogonus philippinensis*, Manila, ASHMEAD, p. 285, Canad. Ent. xxxvi, n. sp.
- Ischnopus* n. g. *Alysiidæ*, p. 450, *I. bituberculatus* n. sp., Tuscany, p. 451, MARSHALL, Ann. Mus. Genova xli.
- Lisitheria* n. g. *Agathidinae*, *L. nigricornis* n. sp., India, CAMERON, p. 306, Entomologist 1904.
- Macrocentrus philippinensis*, Manila, ASHMEAD, p. 145, P. U. S. Mus. xxviii, n. sp.
- Macrostomion peruvianum*, Peru, SZÉPLIGETI, p. 193, Ann. Mus. Hungar. ii, n. sp.
- Megacentrus* n. g. p. 145, *concolor* n. sp., Kilimanjaro, p. 146, SZÉPLIGETI, Braconidæ.
- Megalomnum flavomaculatum*, Cape Colony, CAMERON, p. 157, Rec. Albany Mus. i, n. sp.



- Megaproctus fumipennis, fuscipennis*, p. 191, Peru, *xanthostigma*, Paraguay, *bifasciatus, affinis*, p. 192, *bicolor*, p. 193, Peru, SZÉPLIGETI, Ann. Mus. Hungar. ii, **n. spp.**
- Megarhogas* **n. g.** p. 83, *longipes, minor* **n. spp.**, Celebes, p. 84, SZÉPLIGETI, Braconidæ.
- Mesoagathis* **n. g.** *M. fuscipennis* **n. sp.**, Grahamstown, CAMERON, p. 172, Rec. Albany Mus. i.
- Meteorus bacoorensis*, Philippines, ASHMEAD, p. 18, J. N. York Ent. Soc. xii; *M. eumenidis*, Argentina, BRÈTHES, p. 53, An. Mus. Buenos Aires (3) ii : **n. spp.**
- Microcentrus* **n. g.** *Dyscoletes similis*, SZÉPLIGETI, p. 155, Braconidæ.
- Microdus bipustulatus*, Cape Colony, CAMERON, p. 158, Rec. Albany Mus. i, **n. sp.**
- Microplitis manila, philippinensis*, Philippines, ASHMEAD, p. 20, J. N. York Ent. Soc. xii, **n. spp.**
- Monarea* **n. g.** *Osmophila fuscipennis*, SZÉPLIGETI, p. 68, Braconidæ.
- Monolexia manilensis*, Philippines, ASHMEAD, p. 20, J. N. York Ent. Soc. xii, **n. sp.**
- Neorhyssa partiti*, p. 187, *ruficeps*, p. 188, Brazil, SZÉPLIGETI, Ann. Mus. Hungar. ii, **n. spp.**
- Opius pedestris*, Peru, SZÉPLIGETI, p. 196, t. c.; *O. philippinensis*, Manila, ASHMEAD, p. 148, P. U. S. Mus. xxviii : **n. spp.**
- Phenocarpa (Idiotexis) coxalis*, Peru, SZÉPLIGETI, p. 197, Ann. Mus. Hungar. ii, **n. sp.**
- Phanerotoma philippinensis*, Bacoor, ASHMEAD, p. 19, J. N. York Ent. Soc. xii, **n. sp.**
- Pseudobracon* **n. g.** p. 48, *africanus* **n. sp.**, Sierra Leone, p. 49, SZÉPLIGETI, Braconidæ.
- Rhogas ruspolii*, p. 413, *citernii*, p. 414, *sciensis*, p. 415, E. Africa, MANTERO, Ann. Mus. Genova xli; *R. fuscipennis, affinis*, Peru, SZÉPLIGETI, p. 194, Ann. Mus. Hungar. ii : **n. spp.**
- Schlettereriella* **n. g.** *Stenophasmus oncophorus* Sch., SZÉPLIGETI, p. 54, Braconidæ.
- Schonlandella* **n. g.** p. 169, position doubtful, *S. nigromaculata*, p. 170, *trimaculata, nigricollis*, p. 171, **n. spp.**, S. Africa, CAMERON, Rec. Albany Mus. i.
- Spathius philippinensis*, Manila, ASHMEAD, p. 148, P. U. S. Mus. xxviii, **n. sp.**
- Stantonia* **n. g.** *Microdini*, p. 146, *S. flava* **n. sp.**, Manila, p. 147, ASHMEAD, t. c.
- Trichiobracon rufus*, p. 168, *maculifrons*, p. 169, S. Africa, CAMERON, Rec. Albany Mus. i, **n. spp.**
- Urogaster philippinensis*, p. 19, *stantoni*, p. 20, Philippines, ASHMEAD, p. 20, J. N. York Ent. Soc. xii, **n. spp.**
- Vipio (Pseudovipio) turcomanicus*, Transcaspian, p. 213, *xanthostigma*, W. Siberia, p. 214, KOKUJEV, Rev. Russe ent. iv, **n. spp.**
- Westwoodiella* **n. g.** *bicolor* **n. sp.**, W. Australia, SZÉPLIGETI, p. 155, Braconidæ.
- Xanthomicrodus* **n. g.** near *Crassomicrodus*, p. 157, *X. iridipennis* **n. sp.**, Cape Colony, p. 158, CAMERON, Rec. Albany Mus. i.

## EVANIIDÆ.

[Cf. ASHMEAD (47), CAMERON (224, 240), HÖPPNER (705), KIEFFER (793).]

*Aulacinus costulatus*, Brazil, KIEFFER, p. 561, Arkiv Zool. i, **n. sp.**

*Aulacus erythrogaster*, Nevada, KIEFFER, p. 561, t. c. **n. sp.**

*Evania striatifrons, versicolor*, p. 543, with var. *erythrogaster*, p. 544,

- quinquelineata*, p. 544, *villosicrus*, Australia, *ferruginea*, Mexico, p. 545, *multicolor*, Java, p. 546, *levigena*, Caffraria, p. 547, *longitarsis*, p. 548, *brevigena*, p. 549, Brazil, *incerta*, S. France, p. 550, KIEFFER, t. c.; *E. annulipes*, Manila, ASHMEAD, p. 139, P. U. S. Mus. xxviii : n. spp.
- Gasteruption krieckbaumeri* var. n. *striaticeps*, KIEFFER, p. 551, Arkiv Zool. i; *G. assectator*, natural history, HÖPPNER, pp. 97-103, Allg. Zeitschr. Ent. ix.
- G. cultrigerum*, p. 552, *sanguineum*, *sjostedti*, p. 553, Cape Good Hope, *lativalva*, Australia, p. 554, *fulvivagina*, Caffraria, p. 555, *micrura* with var. *nigripectus*, *intricatum*, N. America, p. 556, *trifossulatum*, Egypt, p. 557, *leucopus*, Java, *nigromaculatum*, hab.?, p. 558, KIEFFER, Arkiv Zool. i; *G. dunbrodyense*, Cape Colony, CAMERON, p. 159, Rec. Albany Mus. i, n. spp.
- Hyptia argenteiceps*, hab.?, p. 540, *brevicalcar*, Wisconsin, p. 541, *rufosignata*, Buenos Ayres, p. 543, KIEFFER, Arkiv Zool. i, n. spp.
- Pristaulacus flavoguttatus*, Australia, CAMERON, p. 191, Zeitschr. Hym. Dipt. iv; *P. flavipes*, Illinois, p. 559, *muticus*, hab.?, p. 560, KIEFFER, Arkiv Zool. i : n. spp.

## STEPHANIDÆ.

- Megischus ruficeps*, Saigon, pl. xii, fig. 5, p. 201, *borneensis*, Borneo, p. 202, SAUSSURE, Mission Pavie iii, n. spp.

## CHALCIDIDÆ.

[Cf. ASHMEAD (41, 46, 47, 48, 52, 53), CAMERON (223, 230), EMBLETON (450), FYLES (574), HÖPPNER (705), KIEFFER (796), MARCHAL (906, 907), MAYR (928), VASSILIEV (1433).]

ASHMEAD classifies the *Chalcidoidea*, adopting 14 families, tabulating the genera; he also catalogues the S. American forms and describes many new: Mem. Carnegie Mus. i, No. 4, pp. 225-551. For brevity, and as the work will be chiefly used separately, we have cited it below as ASHMEAD, Chalcid.

Bibliography of genera of *Chalcididæ*, ASHMEAD, pp. 365-393, Chalcid.

Anatomy and metamorphosis of *Comys infelix*, eggs, EMBLETON, Tr. Linn. Soc. London (2) ix, pp. 231-254, pls. xi, xii.

Remarkable development of *Ageniaspis fuscicollis*, MARCHAL, Arch. Zool. exp. xxxii, pp. 259-299.

*Acanthometopon* n. g. type *A. clavicornis* Ashm., ASHMEAD, Chalcid. p. 314, *A. clavicorne*, Brazil, pl. xxxviii, fig. 3, p. 498, id. n. sp.

*Acroclisis coccidivora*, Japan, ASHMEAD, p. 158, J. N. York Ent. Soc. xii, n. sp.

*Acroclisis brasiliensis*, Chapada, ASHMEAD, Chalcid. p. 502, n. sp.

*Allochalcis* n. g. p. 256, *A. nervosa* n. sp., Madagascar, p. 257, KIEFFER, Berlin. ent. Zeitschr. xlix.

*Alloderma* n. g. type *A. maculipennis*, Ashm., ASHMEAD, Chalcid. p. 273.

*Alophomyia* n. n. for *Alophus* Ashm., ASHMEAD, p. 126, P. ent. Soc. Washington vi.

*Alophus* n. g. type *A. flavus* Ashm., ASHMEAD, Chalcid. p. 353, *A. brasiliensis*, Brazil, p. 520, id. n. sp.

*Ametallon* n. g. type *A. chapadæ* Ashm., ASHMEAD, Chalcid. p. 344, *A. chapadæ*, Brazil, p. 511, id. n. sp.

*Anacryptus japonicus*, p. 147, *koebeleri*, p. 148, Japan, ASHMEAD, J. N. York Ent. Soc. xii, n. sp.

*Anastatus japonicus*, *gastropachæ*, p. 153, *brevipennis*, *albitarsis*, p. 154,

- Japan, ASHMEAD, J. N. York Ent. Soc. xii, *A. stantoni*, Philippines, ASHMEAD, p. 14, t. c.; *A. auriceps*, p. 493, *coreophagus*, *pleuralis*, *basalis*, *punctiventris*, p. 494, *unifasciatus*, p. 495, Brazil, ASHMEAD, Chalcid. : n. spp.
- Anthrocephalus punctatus*, Madagascar, p. 253, *rufipes*, Nossi-Bé, p. 254, KIEFFER, Berlin. ent. Zeitschr. xlix, n. spp.
- Aphelinus japonicus*, Atami, ASHMEAD, p. 161, J. N. York Ent. Soc. xii, n. sp.
- Aphidencyrus pallidipes*, Philippines, ASHMEAD, p. 15, t. c.; *A. brasiliensis*, Chapada, ASHMEAD, Chalcid. p. 497 : n. spp.
- Aphobetoideus* n. g. type *A. comperei* Ashm., ASHMEAD, Chalcid. p. 328.
- Aphycus albopleuralis*, Japan, ASHMEAD, p. 155, J. N. York Ent. Soc. xii, n. sp.
- Apocryptophagus* n. g. type *Chalcis explorator* Coq., ASHMEAD, Chalcid. p. 238.
- Ardalus howardii*, Brazil, ASHMEAD, Chalcid. p. 517, n. sp.
- Arretocera stantoni*, Manila, ASHMEAD, p. 136, P. U. S. Mus. xxviii, n. sp.
- Asecodes elasmii*, Manila, ASHMEAD, p. 138, t. c. n. sp.
- Aspidiotiphagus aleyrodis*, Manila, ASHMEAD, p. 139, t. c. n. sp.
- Axima koebelei*, *brasiliensis*, *brevicornis*, Brazil, ASHMEAD, Chalcid. p. 459, n. spp.
- Aximogastra* n. g. type *A. bahie* Ashm., ASHMEAD, Chalcid. p. 261, *A. bahie*, Brazil, p. 463, pl. xxxiii, fig. 5, id. n. sp.
- Aximopsis* n. g., ASHMEAD, Chalcid. p. 259, *A. morio*, pl. xxxii, fig. 6, p. 460, Brazil, ASHMEAD, t. c. n. sp.
- Bephrata striatipes*, Brazil, p. 462, pl. xxxiii, fig. 4, ASHMEAD, t. c. n. sp.
- Blatticida* n. g. type *B. pulchra* Ashm., ASHMEAD, t. c. p. 305.
- Bothriothorax brasiliensis*, Chapada, ASHMEAD, t. c. p. 496, n. sp.
- Brachista* Walk. not valid, MAYR, p. 591, Verh. Ges. Wien liv.
- Brachycaudonia* n. g. type *B. californica* Ashm., ASHMEAD, Chalcid. p. 283.
- Brachystira pungens* (Förster), Germany, MAYR, p. 590, Verh. Ges. Wien liv, n. sp.
- Brasema fuscipennis*, Brazil, ASHMEAD, Chalcid. p. 486, n. sp.
- Bruchobius* n. g. type *B. laticeps* Ashm., ASHMEAD, t. c. p. 314.
- Bruchophagus funebris*, natural history, TITUS, pp. 77-83, Bull. U. S. Dep. Agric. Ent. xlv.
- Callismicra* n. g. p. 247, *C. flavocincta* n. sp., Madagascar, p. 248, KIEFFER, Berlin. ent. Zeitschr. xlix.
- Calosoter albitarsis*, Japan, ASHMEAD, p. 153, J. N. York Ent. Soc. xii, n. sp.
- Cecidoxenus* n. g. type *C. nigrocyaneus* Ashm., ASHMEAD, Chalcid. p. 274.
- Cerapteroceroides* n. g. near *Cerapterocerus*, *C. japonicus* n. sp., Atami, ASHMEAD, p. 156, J. N. York Ent. Soc. xii.
- Ceratasmicra* n. g. type *C. petiolata* Ashm., ASHMEAD, Chalcid. p. 251.
- Chalcedectes annulipes*, Brazil, pl. xxxvi, fig. 2, p. 483, ASHMEAD, t. c. n. sp.
- Chalcis flavitarsis*, Madagascar, *tenuicornis*, Nossi-Bé, p. 260, *multicolor*, Madagascar, p. 261, *saussurei*, *rufiventris*, Nossi-Bé, p. 262, *ferox*, p. 263, Nossi-Bé and Bourbon, with var. *coxalis*, p. 264, KIEFFER, Berlin. ent. Zeitschr. xlix; *C. prodenie*, Manila, ASHMEAD, p. 136, P. U. S. Mus. xxviii; *C. albotibialis*, *argentifrons*, Philippines, ASHMEAD, J. N. York Ent. Soc. xii : n. spp.
- Cheiloneurus japonicus*, Gifu, ASHMEAD, p. 156, J. N. York Ent. Soc. xii, n. sp.
- Chryseida ceneiventris*, Brazil, p. 462, pl. xxxiii, fig. 3, ASHMEAD, Chalcid. n. sp.
- Chrysoatomus* n. g. type *C. zealandicus* Ashm., ASHMEAD, t. c. p. 342.
- Chrysonotomyia* n. g. type *Eulophus auropunctatus* Ashm., ASHMEAD, t. c. p. 344.

- Cirrospiloideus* n. g. type *Miotropis platynotæ* How., ASHMEAD, t. c. p. 354.  
*Closterocerus brownii*, Manila, ASHMEAD, p. 138, P. U. S. Mus. xxviii, n. sp.  
*Coccidencyrus manila*, Philippines, ASHMEAD, p. 14, J. N. York Ent. Soc. xii, n. sp.  
*Cælochalcis* n. g. near *Halticella*, *C. carinifrons* n. sp., Sikkim, p. 111, CAMERON, Entomologist 1904.  
*Copidosoma japonicum*, Gifu, ASHMEAD, p. 154, J. N. York Ent. Soc. xii, n. sp.  
*Cryptoprymnus japonicus*, Japan, ASHMEAD, p. 159, t. c. n. sp.  
*Decatomia atamiensis*, Japan, ASHMEAD, p. 151, t. c. n. sp.  
*Decatomothorax* n. g. type *D. gallicola* Ashm., ASHMEAD, Chalcid. p. 273.  
*Derostenus bifoveolatus*, *nawai*, p. 160, *mitsukurii*, p. 161, Japan, ASHMEAD, J. N. York Ent. Soc. xii, n. spp.  
*Diaulomorpha* n. g. type *D. australiensis* Ashm., ASHMEAD, Chalcid. p. 356.  
*Diaulus* n. g. type *D. begini* Ashm., ASHMEAD, t. c. p. 356.  
*Dicelothorax platycerus*, Santarem, pl. xxxv, fig. 3, p. 470, ASHMEAD, t. c. n. sp.  
*Diglyphomorpha* n. g. type *Diglyphus maculipennis* Ashm., ASHMEAD, t. c. p. 352.  
*Dimmockia* n. g. type *Eulophus incongruus* Ashm., ASHMEAD, t. c. p. 357.  
*Eisenia* n. g. type *E. mexicana* Ashm., ASHMEAD, t. c. p. 233.  
*E. flaviscapa*, Parà, ASHMEAD, t. c. p. 394, n. sp.  
*Elachertomorpha* n. g. type *E. flaviceps* Ashm., ASHMEAD, t. c. p. 352.  
*E. flaviceps*, Brazil, p. 518, ASHMEAD, t. c. n. sp.  
*Elachertus atamiensis*, *basilaris*, Japan, ASHMEAD, p. 164, J. N. York Ent. Soc. xii, n. spp.  
*Elasmus atamiensis*, *hakonensis*, p. 159, *japonicus*, p. 160, Japan, ASHMEAD, t. c.; *E. philippinensis*, Manila, ASHMEAD, p. 138, P. U. S. Mus. xxviii; *E. brasiliensis*, p. 502, *peraffinis*, *chapadæ*, p. 503, Brazil, ASHMEAD, Chalcid. : n. spp.  
*Encyrtaspis* n. g. type *E. brasiliensis* Ashm., ASHMEAD, Chalcid. p. 290, *E. braziliensis*, Pernambuco, pl. xxxvii, fig. 4, p. 492, id. n. sp.  
*Encyrtus telenomicida*, Charkov, on *Telenomus*, VASSILIEV, p. 117, Rev. Russe Ent. iv, n. sp.  
*Enneasmicra* n. g. type *Smicra exinamius* Walk., ASHMEAD, Chalcid. p. 252, *E. incerta*, Brazil, ASHMEAD, p. 449, t. c. n. sp.  
*Epipteromalus* n. g. type *E. algonquinensis* Ashm., ASHMEAD, t. c. p. 319.  
*Eufroggattia* n. n. for *Froggattia* Ashm., ASHMEAD, p. 126, P. ent. Soc. Washington vi.  
*Eukoebelia* n. n. for *Kæbelea* Ashm., ASHMEAD, p. 126, t. c.  
*Eulophopteryx* n. g. type *E. chapadæ* Ashm., ASHMEAD, Chalcid. p. 341, *E. chapadæ*, Brazil, pl. xxxviii, fig. 6, p. 506, id. n. sp.  
*Eulophus exiguus* Nees to *Aşynacta*, MAYR, p. 589, Verh. Ges. Wien liv.  
*E. albitarsis*, p. 164, *striatipes*, *japonicus*, p. 165, Japan, ASHMEAD, J. N. York Ent. Soc. xii, n. spp.  
*Euophthalmomyia* n. g. type *E. pallidipes* Ashm., ASHMEAD, Chalcid. p. 339.  
*Eupelmus formosæ*, Formosa, ASHMEAD, p. 154, J. N. York Ent. Soc. xii; *E. koebeli*, *acaudus*, *proximus*, p. 488, *compressiventris*, *aprilis*, *chapadæ*, *santaremensis*, *persimilis*, p. 489, *corumbæ*, *unifasciatus*, *simillimus*, *magniclavatus*, p. 490, Brazil, ASHMEAD, Chalcid. : n. spp.  
*Euptectrus manila*, *philippinensis*, Philippines, ASHMEAD, p. 16, J. N. York Ent. Soc. xii, *E. japonicus*, *nigromaculatus*, Japan, ASHMEAD, p. 163, t. c.; *E. brasiliensis*, p. 516, *corumbæ*, *solitarius*, *chapadæ*, p. 517, Brazil, ASHMEAD, Chalcid. : n. spp.  
*Euryophrys* Först. (= *Calypto* Hal.), ASHMEAD, p. 126, P. ent. Soc. Washington vi.



- Eurytoma rubicola*, natural history, HÖPPNER, pp. 161-171, Allg. Zeitschr. Ent. ix.
- E. infracta*, Dalmatia, p. 580, *timaspidis*, Montpellier, p. 582, MAYR, Verh. Ges. Wien liv; *E. nikkoensis*, *atamiensis*, p. 149, *japonica*, *binotata*, *hakonensis*, *mitsukurii*, p. 150, Japan, ASHMEAD, J. N. York Ent. Soc. xii, *E. manilensis*, Philippines, ASHMEAD, p. 13, t. c. : **n. spp.**
- Eusayia* **n. n.** for *Sayiella* Ashm., ASHMEAD, p. 126, P. ent. Soc. Wash- ington vi.
- Eustypira* **n. g.** type *E. bicolor* Ashm., ASHMEAD, Chalcid. p. 251, *E. bicolor*, pl. xxxi, fig. 4, *sexmaculata*, fig. 5, p. 412, *smithii*, p. 413, Brazil, ASHMEAD, t. c. **n. spp.**
- Exoristobia* **n. g.** *Encyrtidæ*, *E. philippinensis* **n. sp.**, Manila, ASHMEAD, p. 15, J. N. York Ent. Soc. xii.
- Froggattia* **n. g.** type *F. polita* Ashm., ASHMEAD, Chalcid. p. 238.
- Haltichella ludlowæ*, Philippines, ASHMEAD, p. 13, J. N. York Ent. Soc. xii, **n. sp.**
- Halticoptera laticeps*, Japan, ASHMEAD, p. 152, t. c. **n. sp.**
- Hemitorymus* **n. g.** type *H. thoracicus* Ashm., ASHMEAD, Chalcid. p. 243; *H. thoracicus*, Chapada, p. 401, id. t. c. **n. sp.**
- Heptasmicra* **n. g.** type *Smicra obliterata* Walk., ASHMEAD, Chalcid. p. 252; *H. persimilis*, *affinis*, *longicaudata*, *lineaticoxus*, p. 452, *quadrimaculata*, p. 453, Brazil, id. t. c. **n. spp.**
- Herbertia howardi*, pl. xxxv, fig. 6, *brasiliensis*, Brazil, p. 474, ASHMEAD, Chalcid. **n. spp.**
- Hexasmicra* **n. g.** type *Smicra transversa* Walk., ASHMEAD, Chalcid. p. 252; *H. trinidadensis*, *brasiliensis*, Brazil, id. p. 454, t. c. **n. spp.**
- Holcopeltoideus* **n. g.** type *H. petiolata* Ashm., ASHMEAD, Chalcid. p. 341.
- Holochalcis* **n. g.** *H. madagascariensis*, p. 258, Madagascar, *albipes*, p. 259, Nossi-Bé, **n. spp.**, KIEFFER, Berlin. ent. Zeitschr. xlix.
- Homoporus japonicus*, Atami, ASHMEAD, p. 157, J. N. York Ent. Soc. xii, **n. sp.**
- Hontalia cameroni*, pl. xxxii, fig. 4, *kirbyi*, fig. 5, Santarem, ASHMEAD, Chalcid. p. 458, **n. spp.**
- Hoplocrepis bifasciata*, pl. xxxviii, fig. 5, *brasiliensis*, Brazil, p. 505, ASHMEAD, t. c. **n. spp.**
- Horismenus bisulcus*, *brasiliensis*, p. 507, *corumbæ*, *persimilis*, *aneicollis*, p. 508, Brazil, ASHMEAD, t. c. **n. spp.**
- Hubbardiella* **n. g.** type *H. arizonensis* Ashm., ASHMEAD, Chalcid. p. 339.
- Hydrorhoa* **n. g.** *Eucharinæ*, p. 240, *H. striaticeps* **n. sp.**, Madagascar, p. 241, KIEFFER, Berlin. ent. Zeitschr. xlix.
- Hypopteromalus* **n. g.** type *P. tabacum* Fitch, ASHMEAD, Chalcid. p. 320.
- Ischnopsis thoracica*, *cyanea*, Brazil, ASHMEAD, t. c. p. 487, **n. sp.**
- Isosomodes brasiliensis*, pl. xxxiii, fig. 1, p. 460, *nigriceps*, p. 461, fig. 2, Santarem, ASHMEAD, t. c. **n. spp.**
- Kapala furcata*, ♀ described, KIEFFER, p. 243, Berlin. ent. Zeitschr. xlix.
- K. splendens*, Brazil, pl. xxxv, fig. 4, p. 473, ASHMEAD, Chalcid. **n. sp.**
- Koebelea* **n. g.** type *K. australiensis* Ashm., ASHMEAD, t. c. p. 238. [Cf. *Eukoebelea* below.]
- Kradibia brownii*, Philippines, ASHMEAD, p. 342, Ent. News Philad. xv, **n. sp.**
- Lasiokapala serrata*, Brazil, pl. xxxv, fig. 5, p. 474, ASHMEAD, Chalcid. **n. sp.**
- Lathromeris*, parasitising egg of *Chrysopa*, KRYGER, Ent. Meddel. ii. p. 340.
- Lelaps apicalis*, p. 479, *affinis*, *ferruginea*, p. 480, *aneiceps*, *halidayi*, *abdominalis*, pl. xxxvi, fig. 1, p. 481, *bimaculata*, *stylata*, p. 482, Brazil, ASHMEAD, Chalcid. **n. spp.**
- Leptochalcis* **n. g.**, p. 251, *L. flicornis* **n. sp.**, Madagascar, p. 252, KIEFFER, Berlin. ent. Zeitschr. xlix.

- Leucodesmia flaviceps*, Brazil, ASHMEAD, Chalcid. p. 518, n. sp.  
*Leucospis japonica* ♂, ASHMEAD, p. 147, J. N. York Ent. Soc. xii.  
*L. enderleini*, Santarem, ASHMEAD, Chalcid. p. 405, pl. xxxi, fig. 1, n. sp.  
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*Macrorileya* n. g. type *R. acanthi* Ashm., ASHMEAD, t. c. p. 264.  
*Megastigmus japonicus, koebelei*, Japan, ASHMEAD, p. 146, J. N. York Ent. Soc. xii, n. spp.  
*Melanosmicra* n. g. type *M. immaculata* Ashm., ASHMEAD, Chalcid. p. 251, *M. immaculata*, Chapada, p. 448, n. sp.  
*Mesidia pumila*, Aachen, MAYR, p. 588, Verh. Ges. Wien liv, n. sp.  
*Metadontia flavolineata, similis*, p. 453, *affinis*, p. 454, Brazil, ASHMEAD, Chalcid. n. spp.  
*Metopon brasiliense*, p. 497, *magniclavatum*, p. 498, Brazil, ASHMEAD, t. c. n. spp.  
*Microchalcis* n. g. p. 255, *M. quadridens* n. sp., Bitsch, p. 256, KIEFFER, Berlin. ent. Zeitschr. xlix.  
*Microterys japonicus*, Gifu, ASHMEAD, p. 155, J. N. York Ent. Soc. xii, n. sp.  
*Mirocerus* n. g. type *M. pyelæ* Ashm., ASHMEAD, Chalcid. p. 309.  
*Mischosmicra* n. g. type *M. kahlii* Ashm., ASHMEAD, t. c. p. 251.  
*Monodontomerus japonicus*, Nikko, ASHMEAD, p. 83, J. N. York Ent. Soc. xii, n. sp.  
*Mormoniella* n. g. type *M. brevicornis* Ashm., ASHMEAD, Chalcid. p. 316.  
*Nasonia* n. g. type *N. brevicornis* Ashm., ASHMEAD, t. c. p. 317.  
*Neocatolaccus* n. g. type *Cut. tylodermæ* Ashm., ASHMEAD, t. c. p. 320.  
*Neorileya* n. g. type *N. flavipes* Ashm., ASHMEAD, t. c. p. 264; *N. flavipes*, Brazil, p. 466, pl. xxxvi, fig. 2, id. t. c. n. sp.  
*Nesomyia* n. g. type *N. albipes* Ashm., ASHMEAD, t. c. p. 344; *N. albipes, cinctiventris*, Japan, ASHMEAD, p. 161, J. N. York Ent. Soc. xii, n. spp.  
*Notanisomorpha* n. g. type *N. collaris* Ashm., ASHMEAD, Chalcid. p. 356.  
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*Omphale brasiliensis*, Chapada, ASHMEAD, t. c. p. 504, n. sp.  
*Oncochalcis* n. g. p. 161, *O. marginata* n. sp., India, p. 162, CAMERON, Entomologist 1904.  
*Ophelinoideus japonicus*, Hakone, p. 163, pl. viii, fig. 4, ASHMEAD, J. N. York Ent. Soc. xii, n. sp.  
*Ormyrus*, revision of European, with host-galls, variation etc., MAYR, pp. 559-580, Verh. Ges. Wien liv.  
*O. destefanii*, Sicily, p. 566, *wachtli*, Dalmatia, p. 569, MAYR, t. c.; *O. brasiliensis*, Chapada, ASHMEAD, Chalcid. p. 401 : n. spp.  
*Orthochalcis* n. g. for *Euchalcis fertoni*, KIEFFER, p. 265, Berlin. ent. Zeitschr. xlix.  
*Oxycoryphus* n. g. near *Stomatoceras*, p. 109, *O. pilosellus* n. sp., Deesa, p. 110, CAMERON, Entomologist 1904.  
*Pachyneura nawai, mitsukurii, gifuensis*, Japan, ASHMEAD, 158, J. N. York Ent. Soc. xii, n. spp.  
*Pachycrepoides* n. g. type *P. dubius* Ashm., ASHMEAD, Chalcid. p. 329.  
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- Pentarthron brasiliensis*, Bahia, ASHMEAD, t. c. p. 521, **n. sp.**  
*Pestasmicra n. g.* type *P. brasiliensis* Ashm., ASHMEAD, t. c. p. 252.  
*Perilampus japonicus*, Sapporo, ASHMEAD, p. 151, J. N. York Ent. Soc. xii;  
*P. brasiliensis*, Chapada, pl. xxxiv, fig. 4, p. 467, ASHMEAD, t. c. :  
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*Pheidolozenus n. g.* type *P. wheeleri* Ashm., ASHMEAD, t. c. p. 328.  
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*Plesiostigmodes n. g.* type *P. brasiliensis*, Ashm., ASHMEAD, Chalcid. p. 243 ;  
*P. brasiliensis*, Corumba, p. 400, id. t. c. **n. sp.**  
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**n. sp.**  
*Plutothrix forsteri*, Aachen, MAYR, p. 586, Verh. Ges. Wien liv, **n. sp.**  
*Podagrion quinquententatus*, Japan, ASHMEAD, p. 84, J. N. York Ent.  
Soc. xii; *P. cyaneus*, Santarem, ASHMEAD, Chalcid. p. 402, **n. spp.**  
*Polistomorpha nigromaculata*, Panama, CAMERON, p. 96, Tr. Amer. ent.  
Soc. xxx, **n. sp.**  
*Polynema brasiliensis, rufescens*, Brazil, ASHMEAD, Chalcid. p. 521, **n. spp.**  
*Prodecatoma n. g.* type *P. flavescens* Ashm., ASHMEAD, t. c. p. 261; *P.*  
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*Prospaltella n. n.* for *Prospalta* How. 1894, ASHMEAD, p. 126, P. ent. Soc.  
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*Pseudochalcis nigrocyanea*, Brazil, pl. xxxiv, fig. 6, p. 468, ASHMEAD, t. c. ;  
*P. chilensis*, Chile, KIEFFER, p. 242, Berlin. ent. Zeitschr. xlix : **n. spp.**  
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*Psychophagus n. g.* for *Diglochis* Thoms. nec Först., MAYR, p. 598, Verh.  
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*Rileya orbitalis*, Santarem, ASHMEAD, p. 467, Chalcid. **n. sp.**  
*Sayella n. g.* type *Smicra debilis* Say, ASHMEAD, t. c. p. 251.  
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*chapadæ, albomaculata*, p. 432, *santarema, erythrogaster, flavoaxillaris*,  
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*devia*, p. 435, *nigropleuralis, corumbicola*, p. 436, *mulleri, howardi,*  
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*vagabunda, lanceolata, vau, incompleta*, p. 444, *persimilis, hollandi,*  
*corumbæ*, p. 445, *paraguayensis, dimidiata, meridionalis, tripunctata*,  
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- Stibula nigriceps*, Santarem, ASHMEAD, pl. xxxv, fig. 2, p. 468, t. c. **n. sp.**  
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*Stomatoceras hakonensis, clavicornis*, Japan, ASHMEAD, p. 148, J. N. York Ent. Soc. xii, **n. spp.**  
*Stylophorella n. g.* type *S. perplexa* Ashm., ASHMEAD, Chalcid. p. 275.  
*Sycoryctes philippinensis*, Philippines, ASHMEAD, p. 342, Ent. News Philad. xv, **n. sp.**  
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*Sympiesis mikado*, Japan, ASHMEAD, p. 164, J. N. York Ent. Soc. xii, **n. sp.**  
*Sympiesomorpha n. g.* type *S. brasiliensis* Ashm., ASHMEAD, Chalcid. p. 352; *S. brasiliensis, obscura*, Brazil, p. 519, ASHMEAD, t. c. **n. spp.**; *S. japonica*, Gifu, ASHMEAD, p. 163, J. N. York Ent. Soc. xii : **n. spp.**  
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*Taftia n. g.* *Ectromini*, *T. prodeniæ n. sp.*, Manila, ASHMEAD, p. 137, P. U. S. Mus. xxviii.  
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*Tetrastichus philippinensis*, Philippines, ASHMEAD, p. 15, t. c.; *T. hakonensis, atamiensis, tricolor*, Japan, ASHMEAD, p. 162, t. c.; *T. albitarsis, chapadæ, brasiliensis*, pl. xxxix, fig. 2, p. 515, *incongruus*, p. 516, Brazil, ASHMEAD, Chalcid. : **n. spp.**  
*Thaumapus acuminatus*, Santarem, ASHMEAD, p. 448, t. c. **n. sp.**  
*Thaumatella pulchripennis*, Brazil, ASHMEAD, t. c. p. 406, pl. xxxi, fig. 2, **n. sp.**  
*Torymus mesembryanthemi*, S. Africa, CAMERON, p. 109, Rec. Albany Mus. i; *T. japonicus, sapporoensis*, p. 82, *gifuensis*, p. 83, Japan, ASHMEAD, J. N. York Ent. Soc. xii; *T. thomsoni*, Quebec, FYLES, p. 106, Canad. Ent. xxxvi; *T. wickhami*, Utah, ASHMEAD, p. 302, Ent. News Philad. xv; *T. chapadæ, smithi*, p. 398, *sylvicola*, p. 399, Brazil, ASHMEAD, Chalcid. : **n. spp.**  
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*Trichoporus melleus, viridicyaneus, persimilis*, Brazil, ASHMEAD, Chalcid. p. 512, **n. spp.**  
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## PROCTOTRYPIDÆ (incl. BETHYLIDÆ).

[Cf. ASHMEAD (44, 46, 47, 48), BRUES (190), CAMERON (224, 231), KIEFFER (793, 794, 798), KIEFFER & MARSHALL (799), MARCHAL (906), MAYR (928), WASSILIEFF (1489).]

The introductory matter of KIEFFER & MARSHALL, *Proctotrypidæ* of Europe and Algeria, is published (799).

Remarkable development of *Polygnotus minutus*, MARCHAL, Arch. Zool. exp. xxxii, pp. 300-315.

*Allotropia japonica*, Japan, ASHMEAD, p. 74, J. N. York Ent. Soc. xii, n. spp.

*Amblyaspis japonica*, Japan, ASHMEAD, p. 74, t. c. n. sp.

*Anommatium ashmeadi*, Aachen, MAYR, p. 592, Verh. Ges. Wien liv, n. sp.

*Anopedias japonicus*, Japan, ASHMEAD, p. 75, J. N. York Ent. Soc. xii, n. sp.

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- Huphina ethel*, pl. ii, fig. 3, p. 200, FRUHSTORFER. Berlin. ent. Zeitschr. xlix.



- Itaballia* n. g. for *Pieris pandosia* Hew., KAYE, p. 204, Tr. ent. Soc. London 1904.
- Mylothris*, African subspp. n., SUFFERT, pp. 72, 73, Deutsche ent. Zeitschr. Iris xvii.
- M. tirikensis*, Victoria Nyanza, pl. 1, fig. 9, p. 341, NEAVE, Nov. Zool. xi; *M. beethoveni*, p. 70, *schumanni*, p. 71, Africa, SUFFERT, Deutsche ent. Zeitschr. Iris xvii; *M. ertli*, Victoria Nyanza, SUFFERT, p. 127, pl. iii, fig. 6, t. c. : n. spp.
- Nepheronia valeria kungeana* subsp. n., FRUHSTORFER, p. 347, Stettin Ent. Zeit. lxxv.
- Pieris*, African subspp. n., SUFFERT, pp. 80–83, Deutsche ent. Zeitschr. Iris xvii; *P. dentigera ratidengi* subsp. n., SUFFERT, p. 128, Deutsche ent. Zeitschr. Iris xvii; *P. rapæ* ab. n. *carruccii*, ROSTAGNO, p. 123, Boll. Soc. zool. Ital. xii; *P. rapæ* ab. n. *longomaculata*, ROSTAGNO, p. 168, op. cit. xiii; *P. napi* var. *intermedia*, JACHONTOV, pp. 15–18, Rev. Russe Ent. iv; *P. napi* ab. n. *heptapotamica*, KRULIKOVSKY, p. 90, t. c.; *P. brassicæ*, migration southern, in 1903, VERITY, pp. 5, 6, Bull. Soc. ent. Ital. xxxvi; *P. brassicæ*, measurements of wings, AUÉL (56).
- P. leachii*, Ladak, MOORE, p. 150, Lep. ind. vi; *P. glucki, abti*, p. 77, *kuckeni*, p. 78, *wagneri, lortzingi*, p. 79, Africa, SUFFERT, Deutsche ent. Zeitschr. Iris xvii : n. spp.
- Pinacopteryx dixeyi*, Victoria Nyanza, pl. i, fig. 10, p. 341, NEAVE, Nov. Zool. xi, n. sp.
- Saletara panda engania* subsp. n., FRUHSTORFER, p. 347, Stettin Ent. Zeit. lxxv.
- Tachyris ada bandana* subsp. n., FRUHSTORFER, p. 197, Ins. Börse 1902; *T. weiskei*, cf. *Delias*.
- T. cerussa*, Queensland, FRUHSTORFER, p. 157, Ins. Börse 1904, n. sp.
- Teracolus*, African subspp. n., SUFFERT, pp. 128, 129, Deutsche ent. Zeitschr. Iris xvii; *T. bacchus hydrophobus*, *T. ione aurivillii*, subspp. n., SUFFERT, p. 85, t. c.; *T. phleggyas* var., AURIVILLIUS, p. 5, Jägerskiöld exp. No. 8; *T. nouna*, food-plant, WALSHINGHAM, p. 99, Ent. Mag. xl.
- T. flotovi*, p. 83, *schuberti*, p. 84, Africa, SUFFERT, Deutsche ent. Zeitschr. Iris xvii; *T. luderitzi*, p. 129, pl. iii, fig. 8, *wissmanni*, p. 130, pl. iii, fig. 9, E. Africa, SUFFERT, t. c.; *T. xantholeuca*, Africa equat., SHARPE, p. 133, Entomologist 1904 : n. spp.

## DANAIDÆ and ITHOMIIDÆ.

[Cf. FRUHSTORFER (567, 570), KAYE (775), LOWE (887), NEAVE (977), SHELFORD (1289), SUFFERT (1353), SWINHÖE (1364), THIEME (1381).]

Catalogue of *Danaïna*, LOWE (887).

Subfam. *Lycoreanæ*, KAYE, p. 162, Tr. ent. Soc. London 1904.

Numerous subspp. n. from Malay Archipelago, FRUHSTORFER, pp. 291–304, Ent. Meddel. ii.

*Amauris tartarea reata* subsp. n., SUFFERT, p. 13, Deutsche ent. Zeitschr. Iris xvii.

*A. dira*, Victoria Nyanza, pl. i, fig. 1, p. 324, NEAVE, Nov. Zool. xi; *A. mozarti*, Cameroons, SUFFERT, p. 12, Deutsche ent. Zeitschr. Iris xvii : n. spp.

*Betanga moluccana*, Obi, SWINHÖE, p. 417, Ann. Nat. Hist. xiv, n. sp.

*Calliplæa kuhniiana* subsp. n., FRUHSTORFER, p. 157, Ins. Börse 1904; *C.*, subspp. n., FRUHSTORFER, pp. 26, 28, 36, 61, 67, 68, 73, Soc. ent. xix.

*C. phokion*, New Guinea, id. p. 28, *liza*, Dammer isld., *menamoides*, Babber, p. 67, id. t. c. n. spp.

- Euplœa phænareta* n. subsp., FRUHSTORFER, p. 303, Deutsche ent. Zeitschr. Iris xvi; *E. moorei thiemei* subsp. n., FRUHSTORFER, p. 166, Berlin. ent. Zeitschr. xlix; *E. crameri lanista* subsp. n., id. t. c. p. 168; *E. dufresnei nica* subsp. n., FRUHSTORFER, p. 180, Berlin. ent. Zeitschr. xlix; *E. compta adorabilis* subsp. n., FRUHSTORFER, p. 309, Ins. Börse 1904; *E. spiculifera praxithea* subsp. n., p. 73, *E. compta virudha* subsp. n., p. 74, FRUHSTORFER, Soc. ent. xix; *E. climena valeriana* subsp. n., FRUHSTORFER, p. 157, Ins. Börse 1904; *E. deheeri* subsp. n., FRUHSTORFER, pp. 29, 36, Soc. ent. xix; *E. amymome, godarti*, one species, POULTON, p. lxxxvi, P. ent. Soc. London 1904; *E.*, Bugong error, DIXEY, pp. ix-xiii, Tr. ent. Soc. London 1904.
- E. radica*, Obi, FRUHSTORFER, p. 301, Ent. Meddel. ii, n. sp.
- Heterosais ocalea*, egg and larva, GUPPY, p. 225, Tr. ent. Soc. London 1904.
- Leucothyris phenomoe* subsp. n. *burchelli*, pl. vi, figg. 1, 2, SANDERS, p. 315, Ann. Nat. Hist. xiii.
- Lycorea ceres*, ovum and larva, GUPPY, p. 225, Tr. ent. Soc. London 1904.
- Mechanitis vilcanota*, Peru, RÖBER, p. 105, Soc. ent. xix, n. sp.
- Nectaria*, subsp. n., FRUHSTORFER (566); *N., idea*, n. subsp., FRUHSTORFER, p. 205, Ins. Börse 1904.
- Penoa kheili* ♀, THIEME, p. 163, Berlin. ent. Zeitschr. xlix.
- Salpinx assimilata bandana* subsp. n., FRUHSTORFER, p. 36, Soc. ent. xix.
- Stictoplaea dufresnei nica* subsp. n., FRUHSTORFER, p. 344, Stettin Ent. Zeit. lxxv.
- S. convallaria*, Nias isld., THIEME, p. 163, Berlin. ent. Zeitschr. xlix, n. sp.
- Tithorea megara*, early stages, GUPPY, p. 225, pl. xviii, fig. 3, Tr. ent. Soc. London 1904.
- Tronga* and *Menama*, the subspecies, FRUHSTORFER, pp. 167, 168, Berlin. ent. Zeitschr. xlix.

## ACRÆIDÆ and HELICONIDÆ.

[Cf. AURIVILLIUS (61), BETHUNE-BAKER (117), NEAVE (977), SHARPE (1286, 1287), SUFFERT (1353, 1354), TRIMEN (1394).]

- Acræa*, many African subsp. n. described, pp. 18-34, SUFFERT, Deutsche ent. Zeitschr. Iris xvii; *A. doubledayi equatorialis* subsp. n., p. 327, *oreas albimaculata* nov. f., p. 329, NEAVE, Nov. Zool. xi; *A. rahira* and varr., pl. xix, fig. 1, p. 231, TRIMEN, Tr. ent. Soc. London 1904.
- A. cinerea*, pl. i, fig. 16, p. 325, *wigginsii*, fig. 3, p. 326, *mystica, clarei*, fig. 4, p. 327, *byatti*, fig. 17, p. 328, Victoria Nyanza, NEAVE, Nov. Zool. xi; *A. leucopyga*, p. 92, *mairessei*, p. 93, *ertli*, p. 94, Africa, AURIVILLIUS, Ent. Tidskr. xxv, with cuts; *A. diogenes*, p. 14, *brahmsii*, p. 15, pl. iii, fig. 4, *liszti*, p. 17, Africa, SUFFERT, Deutsche ent. Zeitschr. xvii; *A. rohlfsi*, E. Africa, SUFFERT, p. 124, pl. iii, fig. 5, Deutsche ent. Zeitschr. Iris xvii; *A. catori*, Sierra Leone, BETHUNE-BAKER, p. 223, Ann. Nat. Hist. xiv; *A. harrisoni*, Nyangori, SHARPE, p. 132, Entomologist 1904; *A. melanostieta*, Toro, SHARPE, p. 181, Entomologist 1904: n. spp.
- Planema*, numerous subsp. n., SUFFERT, pp. 34-39, Deutsche ent. Zeitschr. Iris xvii.
- P. haydni*, Usambara, id. p. 34, t. c. n. sp.

## NYMPHALIDÆ.

[Cf. ALPHÉRAKY (25), AURIVILLIUS (61), BETHUNE-BAKER (117), DANNATT (351), DYAR (422), FAWCETT (492), FIELD (499, 500), FLETCHER (515, 516), FRUHSTORFER (567), LATHY (860), LEIGH (871), NEAVE (977),

C. OBERTHÜR (1987), ROTHSCHILD (1194, 1197), SHARPE (1286, 1287), SHELFORD (1289), SUFFERT (1353, 1354, 1355A), SWINHOE (1364), THIEME (1379).]

- Acca obiana*, Obi, SWINHOE, p. 418, Ann. Nat. Hist. xiv, n. sp.
- Antanartia amauroptera*, Toro, SHARPE, p. 181, Entomologist 1904, n. sp.
- Apatura ilia* var. n., SCHULTZ, pp. 129-134, Abh. Ges. Gorlitz xxiv.
- Apaturina erminea xanthocera* subsp. n., ROTHSCHILD, p. 452, Nov. Zool. xi ;  
*A. erminia erinna*, p. 329, figg. 3, 4, *erminia octavia*, fig. 5, other subsp. n. pp. 328-332, FRUHSTORFER, Ent. Meddel. ii.
- Argynnis pales* subsp. n., FRUHSTORFER, p. 306, Deutsche ent. Zeitschr. Iris xvi ; *A. paphia*, melanic ♀, OBERTHÜR, p. 175, Bull. Soc. ent. France 1904 ; *A. pandora* ab. n. *fulva*, COSMOVICI, p. 162, Bull. Soc. ent. France 1904 ; *A. adippe norvegica*, SCHULTZ, p. 137, Abh. Ges. Gorlitz xxiv ; *A. paphia valesina*, localisation of, REBEL, p. 119, Verh. Ges. Wien liv.
- A. claudia*, Khamba Jong, pl. ix, fig. 3, p. 136, FAWCETT, P. Z. S. 1904, ii, n. spp.
- Atella alcippe* subsp. n., FRUHSTORFER, pp. 308-312, Ent. Meddel. ii ; *A. alcippe enganica* subsp. n., pl. ii, fig. 1, p. 192, FRUHSTORFER, Berlin. ent. Zeitschr. xlix.
- Basilarchia proserpina*, ? var. or hybrids, the allies, FIELD, Psyche xi, pp. 1-6, pls. i-iii.
- Brenthis thore*, egg and young larva, CHAPMAN, pp. 236-238, pls. ix, x, Ent. Rec. xvi, TRAVIS, t. c. p. 239.
- B. andersoni*, Brit. Columbia, DYAR, p. 39, J. N. York Ent. Soc. xii, n. sp.
- Catagramma audofleda* (= *felderi* var. Hew.), Peru, THIEME, p. 159, Berlin. ent. Zeitschr. xlix, n. sp.
- Charaxes*, African subsp. n., SUFFERT, pp. 122, 123, Deutsche ent. Zeitschr. Iris xvii ; *C. eudoxus mechowi* ♂, NEAVE, p. 334, Nov. Zool. xi ; *C. polyxena enganicus* subsp. n., pl. i, fig. 4, p. 194, FRUHSTORFER, Berlin. ent. Zeitschr. xlix ; *C. polyxena enganicus* subsp. n., FRUHSTORFER, p. 341, Stettin Ent. Zeit. lxxv ; *C. jasius*, larva, no. of moults, imperfect ecdysis, CHRÉTIEN, p. 108, Bull. Soc. ent. France 1904, GIARD, t. c. p. 117 ; *C. jasius*, food, GIARD, p. 178, t. c. ; *C. jasius*, seasonal dimorphism, larva, GIARD, p. 44, t. c.
- C. harrisoni*, Africa equat., SHARPE, p. 133, Entomologist 1904, n. sp.
- Chlorippe godmani*, Venezuela, DANNATT, p. 173, pl. vii, fig. 1, Entomologist 1904, n. sp.
- Cirrochroa malaya* n. subsp., FRUHSTORFER, p. 157, Ins. Börse 1904 ; *C. regina princesa* subsp. n., FRUHSTORFER, p. 75, Soc. ent. xix.
- Cupha lampetia lampetina* subsp. n., p. 316, fig. 2, other subsp. n., pp. 316-318, FRUHSTORFER, Ent. Meddel. ii ; *C. erymanthis dohertyi* subsp. n., FRUHSTORFER, p. 191, Berlin. ent. Zeitschr. xlix ; *C. erymanthis dohertyi* subsp. n., FRUHSTORFER, p. 343, Stettin Ent. Zeit. lxxv.
- Cymothoe theobene nebetheo* subsp. n., SUFFERT, p. 115, Deutsche ent. Zeitschr. Iris xvii.
- C. congoensis*, p. 115, *alexander*, p. 117, *weymeri*, p. 119, Africa, SUFFERT, t. c. n. spp.
- Cynthia asela* var., GREEN, p. 76, cut, Spolia Zeylan. ii ; *C. arsinoe figalea* subsp. n., FRUHSTORFER, p. 26, Soc. ent. xix.
- Cyrestis*, subsp. n., FRUHSTORFER, pp. 323-328, Ent. Meddel. ii ; *C. periander enganicus*, pl. ii, fig. 2, p. 191, FRUHSTORFER, Berlin. ent. Zeitschr. xlix.
- C. giloloensis*, Gilolo, LATHY, p. 71, Entomologist 1904, n. sp.
- Didonis laticlavus*, Ecuador, THIEME, p. 159, pl. i, figg. 1, 2, Berlin. ent. Zeitschr. xlix, n. sp.

- Diestogyna hobleyi*, Victoria Nyanza, NEAVE, p. 334, Nov. Zool. xi ; *D. intermixta*, Congo, *butleri* (= *amaranta* Butl. nec Karsch), AURIVILLIUS, p. 96, Ent. Tidskr. xxv : **n. spp.**
- Dione vanillæ* var. *passifloræ*, COCKERELL, p. 331, Canad. Ent. xxxvi.
- Ergolis pagenstecheri*, E. Africa, SUFFERT, p. 125, Deutsche ent. Zeitschr. Iris xvii, **n. sp.**
- Eulepis delphis* subsp. n., FRUHSTORFER, p. 75, Soc. ent. xix ; *E. pyrrhus antigonus* subsp. n., FRUHSTORFER, p. 140, Ins. Börse 1904 ; *E. dolon* subsp. n., FRUHSTORFER, p. 381, t. c.
- Euphædra edwardsi viridis* subsp. n., SUFFERT, p. 111, Deutsche ent. Zeitschr. Iris xvii.
- E. paradoxa*, Victoria Nyanza, NEAVE, p. 333, Nov. Zool. xi ; *E. paradoxa* ♂, SHARPE, p. 132, Entomologist 1904 ; *E. rattraigi*, p. 182, *christyi*, p. 183, Toro, SHARPE, Entomologist 1904 : **n. spp.**
- Euptera dorothea*, Sierra Leone, BETHUNE-BAKER, p. 223, Ann. Nat. Hist. xiv, **n. sp.**
- Euryphene letitia* subsp. n., SUFFERT, p. 111, Deutsche ent. Zeitschr. Iris xvii.
- E. fulgurata*, Congo, AURIVILLIUS, p. 95, with cut, Ent. Tidskr. xxv, **n. sp.**
- Euryphura porphyron* and *plautilla* subsp. n., SUFFERT, p. 114, Deutsche ent. Zeitschr. Iris xvii.
- E. oliva*, Togo, SUFFERT, p. 112, with subsp. *albula*, p. 113, t. c. **n. sp.**
- Euthalia adona pura* subsp. n., FRUHSTORFER, p. 309, Ins. Börse 1904 ; *E. lubentina* subsp. n., FRUHSTORFER, pp. 438-351, Stettin Ent. Zeit. lxv.
- Grapta gigantea*, melanic var., OBERTHÜR, p. 174, Bull. Soc. ent. France 1904.
- Hematera pyramus* var. n. *rubra*, KAYE, p. 173, pl. xviii, fig. 7, Tr. ent. Soc. London 1904.
- Harma marmorata*, Toro, SHARPE, p. 183, Entomologist 1904, **n. sp.**
- Hypanartia delius nigrescens* subsp. n., SUFFERT, p. 108, Deutsche ent. Zeitschr. Iris xvii.
- Hypolimnas*, African subsp. n., SUFFERT, p. 110, t. c. ; *H. bolina*, variation, WATERHOUSE, p. 493, Tr. ent. Soc. London 1904 ; *H. bolina enganica* subsp. n., FRUHSTORFER, p. 193, Berlin. ent. Zeitschr. xlix ; *H. missippus*, bred varr., LEIGH, pp. 689, 690, pl. xxxii, Tr. ent. Soc. London 1904.
- Issoria*, n. subsp. from Malay Arch., FRUHSTORFER, pp. 312-316, Ent. Meddel. ii.
- Kallima rumia amiru* subsp. n., SUFFERT, p. 111, Deutsche ent. Zeitschr. Iris xvii.
- K. rattraigi*, Toro, SHARPE, p. 182, Entomologist 1904, **n. sp.**
- Limenitis populi* varr., SCHULTZ, Abh. Ges. Gorlitz xxiv, pp. 135, 136.
- Melitæa dejone* and *parthenie* varr., p. 11, pl. i, figg. 5-8, OBERTHÜR, Études comp. i ; *M. didyma* var., ROSTAGNO, p. 169, Boll. Soc. zool. Ital. xiii ; *M. iduna* ab. *suditelmica*, SCHULTZ, p. 137, Abh. Ges. Gorlitz xxiv.
- M. tibetana*, pl. ix, fig. 2, Khamba Jong, FAWCETT, p. 135, P. Z. S. 1904, ii, **n. sp.**
- Messaras mimicus*, New Guinea, pl. iii, fig. 43, ROTHSCHILD, p. 318, Nov. Zool. xi, **n. sp.**
- Mimacraea poultoni*, Victoria Nyanza, pl. i, fig. 18, NEAVE, p. 337, Nov. Zool. xi, **n. sp.**
- Neptis conspicua*, pl. i, fig. 15, p. 329, *clarei*, fig. 2, *ochracea*, fig. 5, p. 330, Victoria Nyanza, NEAVE, t. c. ; *N. livingstonei*, E. Africa, SUFFERT, p. 126, pl. iii, fig. 10, Deutsche ent. Zeitschr. Iris xvii : **n. spp.**
- Parthenos* subsp. n., FRUHSTORFER (566) ; *P. sylvia* subsp. n. ; FRUHSTORFER, pp. 73, 74, Soc. ent. xix.



- Phyciodes hanhami*, Canada, FLETCHER, p. 122, pl. fig., Canad. Ent. xxxvi, and p. 208, Tr. R. Soc. Canada ix, Sect. 4, n. sp.
- Polygonia c-album* var., FUCHS, Jahrb. nassau. Ver. lvii, p. 31, pl. ii, fig. 1.
- Precis*, African subsp. n., SUFFERT, pp. 108, 109, Deutsche ent. Zeitschr. Iris xvii.
- P. adalatrix*, Sumba, FRUHSTORFER, p. 7, SB. Berlin. ent. Zeitschr. xlix, n. sp.
- Prothoë ribbei guizonis* subsp. n., ROTHSCHILD, p. 366, Nov. Zool. xi.
- Protogonius ochraceus*, egg, KAYE, pl. xvii, fig. 3, p. 178, Tr. ent. Soc. London 1904.
- Pseudacraea hobleyi*, p. 331, *tirikensis*, pl. i, fig. 14, *terra*, p. 332, *obscura*, p. 333, Victoria Nyanza, NEAVE, Nov. Zool. xi, n. spp.
- Pyrameis cardui*, swarms, VAN ROSSUM, pp. 112–114, Ent. Ber. Nederland. i; *P. cardui*, swarms, VAN DEN BERGH & VAN ROSSUM, pp. 148–152, Ent. Ber. Nederland. i; *P. cardui*, migration, REBEL, p. 152, Ann. Hofmus. Wien xix; *P. cardui*, migration, Calais, GIARD, p. 67, Feuille Natural. xxxiv; *P. cardui*, migration, Hungary, AIGNER-ABAFI, pp. 6–9, Allg. Zeitschr. Ent. ix.
- P. indica* var. *vulcania* from Canaries and Madeira, FRUHSTORFER & STICHEL, pp. 3, 4, SB. Berlin. ent. Zeitschr. xlix.
- P. gonerilla*, ALFKEN, pl. xxxii, fig. 11, p. 589, *P. ida*, fig. 12, var. *argentata*, fig. 13, p. 602, Zool. Jahrb. Syst. xix.
- Salamis anacardii ansorgei* subsp. n., ROTHSCHILD, p. 452, Nov. Zool. xi.
- S. temora virescens* subsp. n., SUFFERT, p. 109, Deutsche ent. Zeitschr. Iris xvii.
- Symbrenthia* subsp. n., FRUHSTORFER, pp. 319–323, Ent. Meddel. ii.
- Tithorea regalís*, Colombia, STICHEL, p. 18, SB. Berlin. ent. Zeitschr. xlix, n. sp.
- Vanessa*, in the Seine-inférieure, NOEL, pp. 143–146, Naturaliste 1904; *V. antiopa*, habits, PARKER, Mark Anniversary Volume, pp. 455–469, pl. xxxiii; *V. antiopa*, pupation habits, FIELD, pp. 6–9, Ent. News Philad. xv; *V. atalanta*, in New Zealand, PHILPOTT, p. 161, Tr. N. Zealand Inst. xxxvi; *V. cardui*, migration (as recorded by Eagle Clarke), VAN ROSSUM, pp. 141–143, Ent. Ber. Nederland. i; *V. urticae*, oviposition, habits, POULTON & HAMM and others, pp. xli–xlvi, P. ent. Soc. London 1904; *V. urticae nigricaria* ♂, HAVERKAMPF, p. 186, pl. i, Ann. Soc. ent. Belgique xlvi.

MORPHIDÆ, BRASSOLIDÆ, AMATHUSIIDÆ, DISCOPHORIDÆ.

[Cf. KAYE (775), RÖBER (1180), SHELFORD (1289), STICHEL (1346–1348).]

*Brassolinæ* revised and listed, STICHEL, Wytsman Gen. Ins. fasc. xx, 48 pp., v pls. In this work numerous varieties are described, that it is not necessary to enumerate here. The forms described in Ins. Börse by the same writer are in this paper redescribed and some of them figured.

Notes on the doubtful species of *Brassolidæ* of Felder and Boisduval, STICHEL, pp. 197 etc., Ins. Börse 1904.

*Amathusia*, subsp. n., FRUHSTORFER (566).

*Amathusidia amythaon lucida* subsp. n., FRUHSTORFER, p. 189, Berlin. ent. Zeitschr. xlix.

*Brassolis astyra philocala* subsp. n., STICHEL, p. 21, Ins. Börse 1904.

*Caligo*, STICHEL uses numerous names for divisions and subdivisions, *Brassolinæ*, pp. 35–43; *C.*, subsp. n., FRUHSTORFER, p. 145, Soc. ent. xviii; *C. placidianus* var. n. *micans*, *prometheus* var. n. *atlas*, RÖBER,

- p. 146, Soc. ent. xviii; *C.*, notes on, with varr. n., FRUHSTORFER, pp. 313–320, Deutsche ent. Zeitschr. Iris xvi; *C. eurylochus* var. n. *minor*, KAYE, p. 165, Tr. ent. Soc. London 1904; *C. teucer insulanus* subsp. n., STICHEL, p. 21, Ins. Börse 1904.
- C. fruhstorferi*, Honduras, Surinam, STICHEL, p. 21, Ins. Börse 1904; *C. pavo*, p. 145, *hanschi*, Colombia, *phorbis*, p. 146, Ecuador, RÖBER, Soc. ent. xviii; *C. saltus*, Trinidad, KAYE, p. 165, larva, pl. xvii, fig. 1, Tr. ent. Soc. London 1904: **n. spp.**
- Dasyophthalma* varr. n., STICHEL, p. 21, Ins. Börse 1904.
- Dynastor darius ictericus* subsp. n., STICHEL, p. 21, t. c.
- Hyantide* n. family for *Hyantis* and *Morphopsis*, STICHEL, p. 306, Berlin. ent. Zeitschr. xlix.
- Hyantis*, new forms, STICHEL, pp. 310–313, pl. iv, t. c.
- Morphopsis albertisi*, *astrolabensis* race, STICHEL, p. 308, t. c.
- Narope albopunctum*, Peru, *panniculus*, Paraguay, STICHEL, p. 6, Ins. Börse 1904, **n. spp.**
- Nepthrochoria* and *Cyclochoria* **n. nn.** for sects. of *Selenophanes*, STICHEL, p. 29, Brassolinæ.
- Opsiphanes* varr. n., STICHEL, p. 6 and p. 21, t. c.; *O. cassia*, pl. xvii, fig. 2, GUPPY, p. 226, Tr. ent. Soc. London 1904.
- Pseudamathusia masina*, Borneo, FRUHSTORFER, p. 155, Deutsche ent. Zeitschr. Iris xvii, **n. sp.**
- Psilocraspeda*, p. 31, and *Tricothamnodes*, p. 32, **n. nn.** for sects. of *Eryphanis*, STICHEL, Brassolinæ.
- Tenaris artemis*, 9 subsp. n., FRUHSTORFER, p. 389, Ins. Börse 1904; *T. macrops macropina* subsp. n., FRUHSTORFER, p. 26, Soc. ent. xix, *T.*, varr. n., FRUHSTORFER, pp. 129, 139, t. c.
- T. merana*, New Guinea, id. p. 138, t. c. **n. sp.**
- Thaumantis odana* var. n. *cyclops*, RÖBER, p. 105, t. c.

## SATYRIDÆ.

- [Cf. BACHMETJEW (69, 71), DYAR (433), FAWCETT (492), KERSHAW (788), OBERTHÜR (987), REBEL (1122), RÖBER (1179), ROTHSCHILD (1196), SHELFORD (1289), THIEME (1379, 1380), TUTT (1414).]
- Aphysonewra pigmentaria* ♀, SUFFERT, p. 132, Deutsche ent. Zeitschr. Iris xvii.
- Argyrophorus lamna*, Bolivia, THIEME, p. 160, Berlin. ent. Zeitschr. xlix, **n. sp.**
- Bia actorion* var. n. *peruana*, RÖBER, p. 106, Soc. ent. xix.
- Cænonympha arcania-insubrica*, p. 24, pl. i, fig. 12, OBERTHÜR, Études comp. i; *C. arcania*, *tiphon* varr., REBEL, p. 174, pl. v, figg. 9–12, Ann. Hofmus. Wien xix; *C. dorus* varr., MUSCHAMP, p. 302, Ent. Rec. xvi; *C. pamphilus* larva, KLOKMAN, p. 134, Ent. Ber. Nederland. i.
- C. mathewi*, Vigo, TUTT, p. 308, Ent. Rec. xvi, **n. sp.**
- Epinephele*, abb. of Tuscan, VERITY, p. 56, Entomologist 1904; *E. jurtina*, number of eye-spots and damp seasons, BACHMETJEW, pp. 143–147, Allg. Zeitschr. Ent. ix; *E. furtina* (sic) varr., HAVERKAMPF, p. 188, Ann. Soc. ent. Belgique xlvi; *E. jurtina*, parthenogenesis of male, BACHMETJEW, pp. 1–16, Horæ Soc. ent. Ross. xxxvii; *E. lycaon* ab. n. *biocellatus*, RAGUSA, pl. iii, fig. 2, p. 110, Natural. Sicil. xvii; *E. tithonus* varr., cuts, var. n. *albida*, RUSSELL, pp. 125–127, Entomologist 1904.
- Erebia christi* and *pharte* varr., OBERTHÜR, pp. 21–23, pl. ii, figg. 13, 14, 19, 20, and iv, fig. 45, Études comp. i; *E. neoridas* varr. n. *albovittata*, *etrusca*, pl. iv, figg. 6, 7, VERITY, p. 55, Entomologist 1904; *E. manto* var. n. *ocellata*, WAGNER, p. 610, cut, Verh. Ges. Wien liv; *E. evias* and *stygne*, varr. from Guadarrama, *E. penalaræ* var. n., CHAPMAN,

- pp. xlvi-xlviii, P. ent. Soc. London 1904; *E. stygne* and *epistygne*, note, NICHOLL, p. 48, Ent. Rec. xvi; *E. flavofasciata* var. n. *thiemei*, BARTEL, p. 165, Deutsche ent. Zeitschr. Iris xvii; *E. turanica* var. n. *jucunda*, PÜNGELER, p. 286, pl. vi, fig. 1, Deutsche ent. Zeitschr. Iris xvi; *E. glacialis*, larva, KRODEL, pp. 442-447, Allg. Zeitschr. Ent. ix.
- E. palarica*, N. Spain, CHAPMAN, p. lxxxvii, P. ent. Soc. London 1904, n. sp.
- Erites thetis*, Borneo, SHELFORD, p. 99, J. Straits Asiat. Soc. xli, n. sp.
- Heteronympha merope*, *philerope*, variation, KERSHAW, pp. 173-175, Victorian Natural. xx.
- H. solandri*, Australia, WATERHOUSE, p. 466, P. Linn. Soc. N. S. Wales xxix, n. sp.
- Lethe cerama*, Borneo, SHELFORD, p. 96, J. Straits Asiat. Soc. xli, n. sp.
- Lymanopoda acraeida* Butl. ♀, THIEME, p. 160, Berlin. ent. Zeitschr. xlix.
- L. sororcula*, Ecuador, p. 161, *palumba*, Bolivia, p. 462, THIEME, t. c. n. spp.
- Melanitis ismene*, variation, GREEN, p. 75, pl., Spolia Zeylan. ii.
- M. ansorgei*, Aruwimi Forest, ROTHSCHILD, p. 451, Nov. Zool. xi, n. sp.
- Mycalasis barbara mea* subsp. n., pl. iii, fig. 42, p. 319, ROTHSCHILD, t. c.
- Æneis norna*, variation, var. n., SCHULTZ, pp. 138-140, Abh. Ges. Gorlitz xxiv; *O. caryi* n. var., DYAR, p. 142, P. ent. Soc. Washington vi.
- Æ. nahanni*, Mackenzie, id. t. c. n. sp.
- Pararge megaera*, larva, KLOKMAN, p. 134, Ent. Ber. Nederland. i.
- Ragadia simplex*, pl. ix, fig. 1, p. 135, FAWCETT, P. Z. S. 1904, ii.
- Satyrus semele* ab. n. *triocellatus*, RAGUSA, pl. iii, fig. 1, p. 109, Natural. Sicil. xvii; *S. hermione*, larva, TER HAAR, p. 160, Ent. Ber. Nederland. i.
- Tisiphone abeona* var. n. *albifascia*, WATERHOUSE, p. 468, P. Linn. Soc. N. S. Wales xxix.
- Ypthima abnormis*, Borneo, SHELFORD, p. 98, J. Straits Asiat. Soc. xli, n. sp.

ERYCINIDÆ (or RIODINIDÆ), [s. l. incl. ELYMNIAS, etc.]

- [Cf. BETHUNE-BAKER (116), DANNATT (351), DRUCE (405), FRUHSTORFER (571), KAYE (775), LATHY (859, 861), RÖBER (1179), ROTHSCHILD (1194, 1197).]
- Abisara abiplaga avera*, pl. ii, fig. 23, subsp. n. *keiana*, fig. 24, subsp. n. *weiskei* ♀, pl. iii, fig. 28, ROTHSCHILD, p. 317, Nov. Zool. xi; *Abisara* subsp. n., FRUHSTORFER (566).
- A. segestes*, New Guinea, ROTHSCHILD, p. 455, Nov. Zool. xi, n. sp.
- Aricoris striata*, Ecuador, pl. xxxiv, fig. 12, p. 488, DRUCE, P. Z. S. 1904, i, n. sp.
- Calvia fulvimargo*, Peru, LATHY, p. 466, pl. xxvii, fig. 6, T. ent. Soc. London 1904, n. sp.
- Chamelimnas albivitta*, Brazil, LATHY, p. 465, pl. xxvii, fig. 5, t. c. n. sp.
- Charis candiope*, Colombia, pl. xxxiv, fig. 5, *mandosa*, Rio Janeiro, fig. 6, *myrtis*, Paraguay, figg. 6, 7, p. 486, DRUCE, P. Z. S. 1904, i, n. spp.
- Cremna aza*, Colombia, pl. xxxiii, fig. 11, DRUCE, t. c. n. sp.
- Cricosoma coccineata*, Trinidad, pl. xviii, fig. 10, p. 185, KAYE, Tr. ent. Soc. London 1904, n. sp.
- Dicallaneura amabilis*, New Guinea, pl. ii, figg. 21, 22, ROTHSCHILD, p. 318, Nov. Zool. xi; *D. ekeikei*, New Guinea, BETHUNE-BAKER, p. 370, Nov. Zool. xi; *D. milnei*, New Guinea, FRUHSTORFER, p. 147, Deutsche ent. Zeitschr. Iris xvii: n. spp.
- Elymnias esaca*, subspecies, synonymy, SHELFORD & BINGHAM, pp. 487-489, Tr. ent. Soc. London 1904; *E.*, subsp. n., FRUHSTORFER, pp. 321-323, Deutsche ent. Zeitschr. Iris xvi; *E.*, subsp. n., FRUHSTORFER, pp. 53 & 60, Soc. ent. xix.

- E. thyons*, Celebes, id. p. 53; *E. brookei*, Borneo, SHELFORD, p. 102, J. Straits Asiat. Soc. xli : n. spp.
- Emesis guppyi*, Trinidad, pl. xviii, fig. 9, p. 187, KAYE, Tr. ent. Soc. London 1904, n. sp.
- Erycina latifasciata*, Peru, LATHY, pl. xxvii, fig. 3, p. 464, Tr. ent. Soc. London 1904; *E. mendita*, Bolivia, pl. xxxiv, fig. 2, p. 485, DRUCE, P. Z. S. 1904, i : n. spp.
- Eurybia cœrulescens*, pl. xxxiii, fig. 3, *sinuaces*, fig. 4, Peru, DRUCE, p. 482, t. c. n. spp.
- Eurygona ocalea*, Bolivia, pl. xxxiii, fig. 1, *candaria*, Colombia, fig. 2, p. 481, DRUCE, t. c.; *E. subargentea*, Bogota, LATHY, p. 463, pl. xxvii, fig. 1, Tr. ent. Soc. London 1904 : n. spp.
- Helicopsis elegans*, Trinidad, KAYE, p. 182, pl. xviii, fig. 6, Tr. ent. Soc. London 1904, n. sp.
- Ithomiola rubrolineata* (= *celtilla* var. Hew.). Peru, LATHY, p. 465, Tr. ent. Soc. London 1904, n. sp.
- Lemonias auria*, Bolivia, pl. xxxiv, fig. 4, p. 487, DRUCE, P. Z. S. 1904, i; *L. pulchra*, Peru, LATHY, p. 467, pl. xxvii, fig. 8, Tr. ent. Soc. London 1904 : n. spp.
- Libythea fulvescens*, Dominica, LATHY, p. 451, P. Z. S. 1904, i, n. sp.
- Lymnas hillapana*, Peru, RÖBER, p. 106, Soc. ent. xix, n. sp.
- Mesosemia axilla*, Bolivia, pl. xxxiii, fig. 5, *anica*, fig. 6, *paramba*, fig. 7, p. 483, *candara*, fig. 8, *carderi*, fig. 9, p. 484, Peru, *parishi*, Brit. Guiana, fig. 10, p. 485, DRUCE, P. Z. S. 1904, i; *M. elegans*, Peru, LATHY, p. 463, pl. xxvii, fig. 2, Tr. ent. Soc. London 1904 : n. spp.
- Monethe johnstoni*, Brit. Guiana, DANNATT, p. 174, pl. vii, fig. 2, Entomologist 1904, n. sp.
- Nymphidium molpe*, larva, GUPPY, p. 227, Tr. ent. Soc. London 1904.
- N. candace*, pl. xxxiv, fig. 1, Rio Janeiro, *minuta*, Brit. Guiana, fig. 10, p. 487, *augea*, Bolivia, fig. 11, *medusa*, Peru, fig. 3, p. 488, DRUCE, P. Z. S. 1904; *N. completa*, Peru, LATHY, p. 467, pl. xxvii, fig. 9, Tr. ent. Soc. London 1904 : n. spp.
- Rusalkia marathon* var. n. *stenotenica*, RÖBER, p. 106, Soc. ent. xix.
- Siseme peculiaris*, Peru, pl. xxxiv, fig. 9, p. 486, DRUCE, P. Z. S. 1904, i, n. sp.
- Stalachtis canidia*, Matto Grosso, pl. xxxiv, fig. 8, p. 488, DRUCE, t. c. n. sp.
- Symmachia peruviana*, La Merced, LATHY, p. 466, pl. xxvii, fig. 7, Tr. ent. Soc. London 1904, n. sp.
- Synargis* Hübn. valid, KAYE, p. 189, Tr. ent. Soc. London 1904.
- Themone trivittata*, Peru, LATHY, p. 465, pl. xxvii, fig. 4, Tr. ent. Soc. London 1904, n. sp.
- Theope eudocia*, larva, pl. xviii, fig. 1, p. 226, *foliorum*, larva, fig. 2, p. 227, GUPPY, Tr. ent. Soc. London 1904.
- T. fasciata*, hab. ?, LATHY, p. 467, pl. xxvii, fig. 10, Tr. ent. Soc. London 1904, n. sp.

## LYCÆNIDÆ.

[Cf. BETHUNE-BAKER (116-118), CATOR (250), DRUCE (407, 408), DYAR (422), FLETCHER (515, 516), KAYE (775), KRODEL (846), LATHY (861), NEAVE (977), OBERTHÜR (987), SHARPE (1286, 1288), SKINNER (1303), SUFFERT (1353, 1355), TRIMEN (1394), WATERHOUSE & TURNER (1495).]

For suggestive and synonymical notes on Australian *Lycænide* see WATERHOUSE & TURNER, P. Linn. Soc. N. S. Wales 1904, pp. 798-804.

Temperature experiments on pupa of *L. corydon* and *damon*, KRODEL, pp. 49-55, 21 cuts, Allg. Zeitschr. Ent. ix.



- Alæna rollei*, E. Africa, SUFFERT, p. 134, Ins. Börse 1904; *A. rollei*, Usambara, SUFFERT, p. 39, pl. i, fig. 5, Deutsche ent. Zeitschr. Iris xvii; *A. mulsa*, E. Africa, n. sp., but in note = *rollei* Suff., THIEME, p. 164, Berlin. ent. Zeitschr. xlix : n. sp.
- Aphneus drucei*, Victoria Nyanza, pl. i, fig. 6, p. 338, NEAVE, Nov. Zool. xi; *A. ratrayi*, Toro, SHARPE, p. 203, Entomologist 1904 : n. spp.
- Arawacus* n. g. for *Pap. linus* Sulz, KAYE, p. 197, Tr. ent. Soc. London 1904.
- Arhopala halmaheira*, Halmaheira, p. 233, *sublustris*, p. 234, *baluensis*, p. 235, Borneo, BETHUNE-BAKER, Ann. Nat. Hist. xiv, n. spp.
- Candalides pruina*, New Guinea, DRUCE, p. 140, Ann. Nat. Hist. xiii, n. sp.
- Castalius eusemia*, Victoria Nyanza, pl. i, fig. 11, p. 340, NEAVE, Nov. Zool. xi, n. sp.
- Catochrysops nandensis*, Africa, pl. i, fig. 12, p. 339, NEAVE, t. c. n. sp.
- Chrysophanus dispar* var. pl. iv, fig. 12, and ab. n. *nigrolineata*, p. 57, *dorilis* ab. n. *upoleuca*, p. 58, VERITY, Entomologist 1904; *C. gorgon*, eggs, larvæ, GRUNDEL, p. 97, Ent. News Philad. xv.
- Cupido malathana* var. n. *nilotica*, AURIVILLIUS, p. 3, Jägerskiöld exp. No. 8.
- Cyaniris ladon*, food-plant, FLETCHER, p. 4, Canad. Ent. xxvi.
- Deudorix leonina*, Sierra Leone, BETHUNE-BAKER, p. 231, Ann. Nat. Hist. xiv; *D. angelita*, Cameroons, SUFFERT, p. 54, Deutsche ent. Zeitschr. Iris xvii : n. spp.
- Eoöxylides tharis enganicus* subsp. n., FRUHSTORFER, p. 204, Berlin. ent. Zeitschr. xlix; *E. tharis* subsp. n., FRUHSTORFER, pp. 311, 312, Deutsche ent. Zeitschr. Iris xvi.
- Epitola mus, mercedes*, p. 53, *concepcion*, p. 54, Cameroons, SUFFERT, t. c. xvii, n. spp.
- Epitolina catori, dorothea* = (*Phytala leonina*), p. 227, *sublustris*, p. 228, *kholifa*, p. 229, *albomaculata, virginea*, p. 230, Sierra Leone, BETHUNE-BAKER, Ann. Nat. Hist. xiv, n. spp.
- Hypolycæna cæculus obscurus* subsp. n., SUFFERT, p. 60, Deutsche ent. Zeitschr. Iris xvii.
- H. dolores*, E. Africa, SUFFERT, p. 57, t. c.; *H. ugandæ*, Africa, SHARPE, p. 203, Entomologist 1904; *H. moyambina*, Sierra Leone, BETHUNE-BAKER, p. 232, Ann. Nat. Hist. xiv : n. spp.
- Iaspis* n. g. for *Symmachia temesa*, Hew., KAYE, p. 196, Tr. ent. Soc. London 1904.
- Incisalia angustus*, larva, COOK, p. 136, Canad. Ent. xxxvi.
- Iolais silas lasius* subsp. n., SUFFERT, p. 70, Deutsche ent. Zeitschr. Iris xvii.
- I. barbara*, p. 62, *matilda*, p. 64, *elisa*, p. 65, *bertha*, p. 66, *thuraii*, p. 67, *emma*, p. 69, Africa, SUFFERT, t. c.; *I. hemicyanus*, Uganda, p. 203, *albomaculatus*, Toro, p. 204, SHARPE, Entomologist 1904; *I. catori*, Sierra Leone, BETHUNE-BAKER, p. 233, Ann. Nat. Hist. xiv : n. spp.
- Jacoona anasuju* varr., FRUHSTORFER, p. 310, Deutsche ent. Zeitschr. Iris xvi.
- Lampides telicanus*, ab. n. p. 58, *damon* ab. n. *agraphomena*, p. 59, VERITY, Entomologist 1904.
- Larinpoda lagyra gyrata* subsp. n., SUFFERT, p. 49, Deutsche ent. Zeitschr. Iris xvii.
- L. emilia*, Cameroons, SUFFERT, p. 48, t. c. n. sp.
- Liptena angusta*, p. 50, *margarita*, p. 51, Cameroons, SUFFERT, t. c.; *L. albicans*, Sierra Leone, CATOR, p. 76, Ann. Nat. Hist. xiii; *L. diversa*, Sierra Leone, BETHUNE-BAKER, p. 225, Ann. Nat. Hist. xiv : n. spp.
- Lycæna ariana* var. *arene*, pl. ix, fig. 4, p. 137, *L. pheretes* var. *pharis*, fig. 5, p. 138, FAWCETT, P. Z. S. 1904, ii; *L. pseudargiolus* varr. n. *argentata, nigrescens*, FLETCHER, p. 213, Tr. R. Soc. Canad. ix, Sect. 4;

- L. pseudargiolus* var. n. *argentata*, *nigrescens*, FLETCHER, p. 127, *Canad. Ent.* xxxvi; *L. cyllarus* var. n. *punctata*, GOUIN, pp. lxxi & lxxvi, *Pr.-verb. Soc. Linn. Bordeaux* lix; *L. arion* var. n., WAGNER, p. 1, *Soc. ent.* xix; *L. icarus* ab. *celina*, *escheri* ab. *rostagni*, *corydon* ab. *striata*, STEFANELLI, pp. 4, 5, *Bull. Soc. ent. Ital.* xxxvi; *L. escheri* var. n. *splendens*, id. t. c. p. 11; *L. corydon* ab. n. *stefanellii*, *L. bellargus* ab. n. *bellargoides*, VERITY, l. eod.; *L. zephyrus*, *calliopis* varr. pp. 16–19, pl. ii, figg. 15–18 & 21–24, *Études comp.* i; *L. coretas*, characters, JACHONTOV, pp. 96–100, cuts, and p. 218, *Rev. Russe Ent.* iv; *L. argiades*, life-history, FROHAWK, pp. 245–249, *Entomologist* 1904; *L. alcon*, habits and early stages, BRANTS, pp. 137–143, *Tijdschr. Ent.* xlvi.
- L. lerothodi*, Basutoland, TRIMEN, p. 242, pl. xix, fig. 6, *Tr. ent. Soc. London* 1904; *L. (Zizera) zera*, pl. ix, fig. 6, p. 138, *L. (Niphanda) marcia*, fig. 7, p. 139, *Toung-hoo*, FAWCETT, *P. Z. S.* 1904, ii : n. spp.
- Lycenesthes affinis* n. n. for *modestus* Waterh., WATERHOUSE & TURNER, p. 801, *P. Linn. Soc. N. S. Wales* 1904.
- L. hobleyi*, Victoria Nyanza, NEAVE, p. 339, *Nov. Zool.* xi, n. sp.
- Macusia* n. g. for *Thecla satyroides* Hew., KAYE, p. 198, *Tr. ent. Soc. London* 1904.
- Micropentila mabangi*, Sierra Leone, BETHUNE-BAKER, p. 226, *Ann. Nat. Hist.* xiv, n. sp.
- Neolucia* n. g. type *Lycena agricola* Westw., WATERHOUSE & TURNER, p. 803, *P. Linn. Soc. N. S. Wales* 1904.
- Nesolyceana* n. g. type *Holochila albosericea* Misk., WATERHOUSE & TURNER, t. c. p. 801.
- Oxylides feminina*, Uganda, SHARPE, p. 202, *Entomologist* 1904, n. sp.
- Paiwarria* n. g. for *Pap. venulius* Cr., KAYE, p. 199, *Tr. ent. Soc. London* 1904.
- Parachrysops* n. g. *bicolor* n. sp., New Guinea, BETHUNE-BAKER, p. 369, *Nov. Zool.* xi.
- Paralucia* n. g. type *L. pyrodiscus* Ros., WATERHOUSE & TURNER, p. 802, *P. Linn. Soc. N. S. Wales* 1904.
- Paraphneus* n. g. for *Aphneus hutchinsoni*, THIERRY-MIEG, p. 140, *Naturaliste* 1904.
- Parelodina* n. g. near *Candalides*, *P. aroa* n. sp., New Guinea, BETHUNE-BAKER, p. 368, *Nov. Zool.* xi.
- Pentila*, subspp. n., SUFFERT, pp. 46, 47, *Deutsche ent. Zeitschr. Iris* xvii.
- P. hedwiga*, *marianna*, p. 43, *christina*, p. 45, *elfrieda*, p. 46, Africa, SUFFERT, t. c. n. spp.
- Philiris* merged in *Candalides*, BETHUNE-BAKER, p. 369, *Nov. Zool.* xi.
- Polyniphes* n. g. for *Thecla dumenilii* God., KAYE, p. 191, *Tr. ent. Soc. London* 1904.
- Polyommatus admetus rippartii*, oviposition and egg, POWELL, pp. 92–94, *Ent. Rec.* xvi.
- Poultonia* n. g. near *Durbania*, *P. ochraceus* n. sp., Victoria Nyanza, pl. i, fig. 13, NEAVE, p. 336, *Nov. Zool.* xi.
- Purlisa gigantea borneana* subsp. n., FRUHSTORFER, p. 310, *Deutsche ent. Zeitschr. Iris* xvi.
- Pseuderesia moyambina*, p. 224, *catori*, p. 225, Sierra Leone, BETHUNE-BAKER, *Ann. Nat. Hist.* xiv; *P. bakeriana*, p. 73, *nigra*, p. 74, *fusca*, p. 75, Sierra Leone, CATOR, *Ann. Nat. Hist.* xiii; *P. carlota*, Cameroons, SUFFERT, p. 47, *Deutsche ent. Zeitschr. Iris* xvii.
- Rekoa* n. g. for *Pap. meton* Cr., KAYE, p. 198, *Tr. ent. Soc. London* 1904.
- Siderus* n. g. *S. parvnotus* n. sp., Trinidad, KAYE, p. 195, t. c.
- Spindasis nairobiensis*, Africa equat., SHARPE, p. 133, *Entomologist* 1904, n. sp.

- Stugeta maria*, Angola, SUFFERT, p. 60, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Syntaruchoides* n. g. for *Papilio cassius* Cr., KAYE, p. 190, Tr. ent. Soc. London 1904.
- Tajuria lucullus, stigmata*, Borneo, DRUCE, p. 141, Ann. Nat. Hist. xiii, n. spp.
- Talicauda nyseus* var., GREEN, p. 77, Spolia Zeylan. ii.
- Telipna acraea nigra* subsp. n., SUFFERT, p. 42, Deutsche ent. Zeitschr. Iris xvii.
- T. erica*, Cameroons, SUFFERT, p. 41, t. c.; *T. nyanza*, Africa, pl. i, fig. 19, p. 335, NEAVE, Nov. Zool. xi : n. spp.
- Thamala* etc., Indo-Australian subspp. n., FRUHSTORFER (566).
- Thecla strigosa* var. n. *liparops*, FLETCHER, p. 124, cuts, Canad. Ent. xxxvi, and FLETCHER, p. 210, Tr. R. Soc. Canad. ix, sect. 4; *T. critola*, sexes, DYAR, p. 39, J. N. York Ent. Soc. xii; *T. acaciæ* ab. n. *beccarii*, pl. iv, fig. 11, p. 56, VERITY, Entomologist 1904.
- T. oslari*, Arizona, DYAR, p. 40, J. N. York Ent. Soc. xii; *T. heathii*, Manitoba, FLETCHER, p. 125, Canad. Ent. xxxvi, and FLETCHER, p. 212, Tr. R. Soc. Canada ix, sect. 4; *T. johnsoni*, Brit. Columbia, SKINNER, p. 298, Ent. News Philad. xv; *T. subobscura, dominicana*, Dominica, LATHY, p. 452, P. Z. S. 1904, i : n. spp.
- Thestor ballus*, early stages, CHAPMAN, p. 254-260, 277-284, pls. xi-xiii, Ent. Rec. xvi.
- Thysonotis hebes*, New Guinea, DRUCE, p. 140, Ann. Nat. Hist. xiii, n. sp.
- Tmolus unilinea*, p. 192, *perdistincta*, p. 194, pl. xviii, fig. 8, Trinidad, KAYE, Tr. ent. Soc. London 1904, n. spp.
- Zeritis thysbe* var. pl. xix, fig. 3, p. 236, *Z. molomo* redescribed, p. 238, fig. 4, *Z. damarensis*, fig. 5, p. 240, TRIMEN, Tr. ent. Soc. London 1904.
- Z. felthami*, Cape G. H., TRIMEN, p. 233, pl. xix, fig. 2, t. c. n. sp.
- Zizera otis* var., GREEN, p. 77, cut, Spolia Zeylan. ii.

## HESPERIIDÆ.

[Cf. DYAR (420, 422), FLETCHER (515, 516), FRUHSTORFER (568), GRINNELL (634), KAYE (775), MABILLE (898), NEAVE (977), SWINHÖE (1364), TRIMEN (1394), WATERHOUSE (1493).]

WATERHOUSE (1493) criticises Mabilles work regarding Australian *Hesperiidæ*, and gives a list of corrigenda as to habitats and synonymy, for which reference must be made to the paper itself.

- Acromecis* n. g. *neander* Plötz, MABILLE, p. 171, Hesperiidæ.
- Aella* n. g. *dryops* Mab., MABILLE, p. 140, Hesperiidæ.
- Arotis* n. g. *strene* n. sp., Brazil, MABILLE, p. 151, Hesperiidæ.
- Asbolis* n. g. *sandarac* H.-Sch., MABILLE, p. 134, Hesperiidæ.
- Bibla* n. g. near *Taractrocera*, MABILLE, p. 122, Hesperiidæ.
- Chloeria* n. g. *psittacina* Feld., MABILLE, p. 178, Hesperiidæ.
- Chondrolepis* n. g. *murgia* Mab., MABILLE, p. 170, Hesperiidæ.
- Corone oceanica*, Oceania, *tenebricosa*, New Guinea, MABILLE, p. 143, Hesperiidæ, n. spp.
- Cyclopides trisignatus*, Victoria Nyanza, pl. i, fig. 8, p. 343, NEAVE, Nov. Zool. xi, n. sp.
- Dalla* n. g. for part of *Butleria*, Wats., MABILLE, p. 107, Hesperiidæ.
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*Thracides joannisii*, Chiriqui, *phidonides*, Ecuador, MABILLE, p. 179, Hes-  
 periiidæ, **n. spp.**  
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#### CASTNIIDÆ (Vacant) and SPHINGIDÆ.

[Cf. DYAR (420), GRIEP (629), HAMPSON (654), KUSNEZOV (849), OBERTHÜR  
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TUTT, *Ent. Rec.* xvi, pp. 5 etc., etc., reviews Rothschild's and Jordan's  
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- Marumba nympa* ♂, pl. D, fig. 17, p. 640, HAMPSON, J. Bombay Soc. xv.
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## BOMBYCES

(*s. l.*, including CHALCOSIIDÆ, PSYCHIDÆ, HEPIALIDÆ, COSSIDÆ, AGARISTIDÆ, and various families of more or less doubtful position. *Uraniidæ* and *Epiplemidæ*, see GEOMETRIDÆ; *Cymatophoridæ*, see GEOMETRIDÆ; *Thyrididæ*, see PYRALIDÆ).\*

[Cf. AURIVILLIUS (60, 62), BARNES (88), BARTEL (90), BETHUNE-BAKER (116), CHAPMAN (259), DEEGENER & SCHAPOSCHNIKOW (359), DOGNIN (398-401), DRUCE (406), DYAR (422, 427, 428, 431, 432, 435), FEDERLEY (493), HAMPSON (653, 654), HEYLAERTS (682), HEYN (685), JOANNIS (763), JORDAN (771), LITTLE (885), MARSHALL (916), OBERTHÜR (987), PACKARD (1007), PETERSEN (1034), PIEPERS & SNELLEN (1084, 1085), PÜNGELER (1111), REBEL (1121), ROTHSCHILD (1194, 1198), SCHAUS (1225), STEBBING (1337), SWINHOE (1361, 1363, 1364), TSCHET-VERIKOV (1400), TURNER (1411, 1412), WARREN (1475).]

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*Acco* n. g. *Lithosiine*, *A. bicolora*, pl. v, fig. 21, n. sp., New Guinea, BETHUNE-BAKER, p. 418, t. c.

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*Eolusia atropunctata* var. *alba*, pl. xi, fig. 2, p. 155, SNELLEN, Tijdschr. Ent. xlvii.

*Ethria innotata*, Petropolis, SCHAUS, p. 135, Tr. Amer. ent. Soc. xxx, n. sp.

*Aflia oslari*, Arizona and Mexico, DYAR, p. 64, P. ent. Soc. Washington vi, n. sp.

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*Agonis dymus*, Fergusson Is., SWINHOE, p. 155, Tr. ent. Soc. London 1904, n. sp.

*Agylla hampsoni*, Peru, DOGNIN, p. 358, Ann. Soc. ent. Belgique xlviii, n. sp.

\* Owing to diversity of opinion as to position of *Chalcosiidæ*, *Epiplemidæ*, both *Bombyces* and *Geometridæ* should be inspected as regards these insects. As regards *Cymatophoridæ*, *Thyatiridæ*; *Noctuidæ* should also be looked through as well as *Bombyces* and *Geometridæ*.

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- Anthela ekeikei*, New Guinea, BETHUNE-BAKER, p. 403, Nov. Zool. xi; *A. symphona*, Tasmania, p. 480, *achromata*, Queensland, p. 481, TURNER, Tr. ent. Soc. London 1904 : **n. spp.**
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- Apantesis bicolor*, Bahamas, HAMPSON, p. 166, Ann. Nat. Hist. xiv, **n. sp.**
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- Argyrostigma n. g.* for *Lymantria niobe* Weym., AURIVILLIUS, Arkiv Zool. ii, No. 4.
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- Asura lutara*, larva, pl. x, fig. 10, p. 157, *A. senara*, larva, p. 159, *semicirculata*, larva, pl. x, fig. 11, p. 160, *eos*, larva, fig. 12, *uniformeola*, larva, p. 16, PIEPERS, Tijdschr. Ent. xlvii.
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- Celama fuscibasis*, pl. v, fig. 42, *aroua*, figg. 39, 41, New Guinea, BETHUNE-BAKER, t. c. **n. spp.**
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- Dasychiroides* **n. g.** *Lymantriidae*, p. 405, *obsoleta*, pl. vi, fig. 43, *nigrostrigata*, fig. 28, *pratti*, fig. 7, p. 406, *bicolora*, fig. 6, *brunneostrigata*, fig. 8, p. 407, **n. spp.**, New Guinea, BETHUNE-BAKER, t. c.
- Deilemera*, synonymy and taxonomy, pp. 39, 40 (= *Xylecata* Sw.), p. 41, *D. simplex*, larva, cuts, p. 41, AURIVILLIUS, Arkiv Zool. ii, No. 4.
- D. hemixantha*, Cameroons, AURIVILLIUS, p. 41, t. c., *D. ratrayi*, Uganda, SWINHOE, p. 147, Tr. ent. Soc. London 1904; *D. eddela*, Eugano, SWINHOE, p. 420, Ann. Nat. Hist. xiv; *D. kebea*, pl. vi, fig. 36, *dinawa*, fig. 37, p. 411, *pratti*, fig. 38, p. 412, New Guinea, BETHUNE-BAKER, Nov. Zool. xi : **n. spp.**
- Dendrolimus pini* and allies, synonymy, *D. segregatus*, distinct by genitalia, PETERSEN, pp. 163-166, Rev. Russe Ent. iv.
- Diacrisia sanio* var. **n. caucasica**, SCHAPOSCHNIKOV, p. 253, Annuaire Mus. St. Petersb. ix; *D. kasloa*, early stages, DYAR, p. 794, P. U. S. Mus. xxvii.
- D. pratti*, pl. iv, fig. 23, p. 412, *dinawa*, fig. 25, *kebea*, fig. 24, p. 413, New Guinea, BETHUNE-BAKER, Nov. Zool. xi; *D. kasloa*, Kootenay, DYAR, p. 18, P. ent. Soc. Washington vi : **n. spp.**
- Dicentria ravana*, San Salvador, *D. ? hertha*, Tucuman, DOGNIN, p. 116, Ann. Soc. ent. Belgique xlvi, **n. spp.**
- Dicranura vinula*, larval cannibalism, ZANG, p. 225, Allg. Zeitschr. Ent. ix; *D. himalayana*, larva, HAMPSON, p. 150, J. Bombay Soc. xvi.
- Dinawa* **n. g.** *Limacodidae*, *D. rufa*, pl. v, fig. 32, *nigricans*, fig. 11, **n. spp.**, New Guinea, BETHUNE-BAKER, p. 386, Nov. Zool. xi.
- Diversosexus* **n. g.** *Lymantriidae*, p. 402, *D. bicolor*, pl. vi, fig. 4, *aroa*, fig. 3, p. 403, **n. spp.**, New Guinea, BETHUNE-BAKER, t. c.

- Doratifera unicolora* = (*stenora* Turn.), TURNER, p. 241, Tr. R. Soc. S. Austral. xxviii; *D. casta*, larva, RAINBOW, p. 253, pl. xxix, Rec. Austral. Mus. v.
- Duomitus leuconotus*, habits, life-history, STEBBING, pp. 25-30, J. Asiat. Soc. Bengal lxxiii, part 2.
- D. benestriata*, Bahamas, HAMPSON, p. 180, Ann. Nat. Hist. xiv, n. sp.
- Dysauxes punctata* var. n. *ragusaria*, ZICKERT, p. 97, Nat. Sicil. xvii.
- Eilema pulverosa*, Cameroons, AURIVILLIUS, p. 34, Arkiv Zool. ii, No. 4, n. sp.
- Eligma* referred to *Arctiidae*, *E. hypsoides*, larva, p. 36, *E. duplicata*, larva and pupa, cuts, p. 37, AURIVILLIUS, t. c.
- Elysius barnesi*, Cuba, *systron*, Parana, SCHAUS, p. 137, Tr. Amer. ent. Soc. xxx, n. spp.
- Entometa spodopa*, *plinthopa*, Queensland, TURNER, p. 239, Tr. R. Soc. S. Austral. xxviii, n. spp.
- Eohemera* n. g. for *Nyctemera fulleri* Druce, AURIVILLIUS, p. 42, Arkiv Zool. ii, No. 4.
- Epanaphe* n. g. for *moloneyi* Dr., and *carteri* Walsingh., AURIVILLIUS, p. 8, t. c.; *E. clarilla*, Mashonaland, pl. xxxiii, fig. 10, p. 699, AURIVILLIUS, Tr. ent. Soc. London 1904, n. sp.
- Epipyrops navai*, Japan, DYAR, p. 19, P. ent. Soc. Washington vi, n. sp.
- Eragisa viridis*, Rio Janeiro, *E. ? sabulosa*, Chiriqui, SCHAUS, p. 144, Tr. Amer. ent. Soc. xxx, n. spp.
- Eriogaster philippsi*, Haifa, BARTEL, p. 10, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Eucereon cubensis*, *irrorata*, Cuba, SCHAUS, p. 136, Tr. Amer. ent. Soc. xxx, n. spp.
- Euchromia lethe*, larva, AURIVILLIUS, p. 33, Arkiv Zool. ii, No. 4.
- Eucyane gundlachia*, Cuba, SCHAUS, p. 138, Tr. Amer. ent. Soc. xxx, n. sp.
- Eugoa tricolora*, pl. v, fig. 13, *conflua*, fig. 12, New Guinea, BETHUNE-BAKER, p. 427, Nov. Zool. xi, n. spp.
- Eunotela moqui*, Arizona, BARNES, p. 266, Canad. Ent. xxxvi, n. sp.
- Euprepia pudica*, stridulation, POWELL, p. 327, Ent. Rec. xvi.
- Euproctilla* n. g. near *Euproctis*, *E. insignis*, *E. ? disjuncta* n. spp., Cameroons, AURIVILLIUS, p. 54, Arkiv Zool. ii, No. 4.
- Euproctis lyoma*, Cameroons, SWINHOE, p. 131, Ann. Nat. Hist. xiv; *E. sjostedti*, *rubroguttata*, Cameroons, AURIVILLIUS, p. 53, Arkiv Zool. ii, No. 4; *E. lycene*, Borneo, SWINHOE, p. 144, Tr. ent. Soc. London 1904; *E. revera*, New Guinea, SWINHOE, p. 421, Ann. Nat. Hist. xiv; *E. swinhoei*, pl. iv, fig. 20, *virginea*, fig. 16, p. 398, *parallelaria*, *kebec*, fig. 30, *dinawa*, fig. 29, *yulei*, fig. 28, p. 399, *rubroradiata*, fig. 21, *pratti*, fig. 13, *fusciradiata*, pl. vi, fig. 5, p. 400, *aroa*, *nigroapicalis*, pl. iv, fig. 34, *irregularis*, pl. vi, fig. 14, *albociliata*, fig. 2, p. 401, *novoguineensis*, *sublutea*, *flavicaput*, p. 402, New Guinea, BETHUNE-BAKER, Nov. Zool. xi; *E. leptotypa*, *ericycles*, Queensland, TURNER, p. 475, Tr. ent. Soc. London 1904 : n. spp.
- Eupterote jaresia*, Celebes, SWINHOE, p. 152, Tr. ent. Soc. London 1904, n. sp.
- Eustema carama*, Peru, DRUCE, p. 248, Ann. Nat. Hist. xiii, n. sp.
- Fentonia corticicolor*, Cameroons, p. 3, pl.-fig. 11, AURIVILLIUS, Arkiv Zool. ii, No. 4, n. sp.
- Gargetta africana*, Cameroons, AURIVILLIUS, p. 7, t. c. n. sp.
- Garudiniastis aroa*, New Guinea, pl. iv, fig. 37, BETHUNE-BAKER, p. 422, Nov. Zool. xi, n. sp.
- Gastropacha populifolia* var. *flava*, SCHULTZ, p. 185, Soc. ent. xviii; *G. pini*, larva, the blue stripes, CHOLODKOVSKY, p. 556, pl. xxxi, fig. 3, Zool. Jahrb. Syst. xix.

- Geodena quadriguttata* = (*Cypra bimaculata* Walk.), SWINHÖE, p. 148, Tr. ent. Soc. London 1904.
- G. semihyalina*, *bandajoma*, *accra*, p. 149, *suffusa*, *inferna*, *partita*, *surrendra*, p. 150, W. Africa, SWINHÖE, t. c. **n. spp.**
- Gerontia n. g. Megalopygidae*, *G. omayena n. sp.*, British Guiana, SCHAUS, p. 139, Tr. Amer. ent. Soc. xxx.
- Girpa notata* Holl. to *Geodena*, SWINHÖE, p. 151, Tr. ent. Soc. London 1904.
- Gloveria coronada*, Arizona, BARNES, p. 268, Canad. Ent. xxxvi, **n. sp.**
- Gnophæla clappiana*, idiomorph *n. ruidosensis*, COCKERELL, p. 213, Entomologist 1904.
- Grammoa n. g. Lymantriidae*, p. 51, *G. striata n. sp.*, Cameroons, p. 52, AURIVILLIUS, Arkiv Zool. ii, No. 4.
- Graphosia ochracea*, New Guinea, pl. v, fig. 36, BETHUNE-BAKER, p. 415, Nov. Zool. xi, **n. sp.**
- Gunda kebee*, p. 370, pl. iv, fig. 2, *aroa*, p. 371, New Guinea, BETHUNE-BAKER, t. c. **n. spp.**
- Halesidota maculata* var. *n. eureka*, DYAR, p. 19, P. ent. Soc. Washington vi.
- H. albipennis*, Bahamas, HAMPSON, p. 166, Ann. Nat. Hist. xiv; *H. grotei*, *tanamo*, Cuba, SCHAUS, p. 138, Tr. Amer. ent. Soc. xxx: **n. spp.**
- Halone flavopunctata*, pl. v, fig. 28, New Guinea, BETHUNE-BAKER, p. 421, Nov. Zool. xi, **n. sp.**
- Hapigia simplex* = (*ribbei* Druce), SCHAUS, p. 148, Tr. Amer. ent. Soc. xxx.
- H. estrella*, Arizona, BARNES, p. 267, Canad. Ent. xxxvi; *H. directa*, Cuba, p. 148, *curvilinea*, *plateada*, Brit. Guiana, p. 149, SCHAUS, Tr. Amer. ent. Soc. xxx: **n. spp.**
- Heliosia charopa*, Queensland, TURNER, p. 212, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Hemiceras pilacho*, Arizona, BARNES, p. 266, Canad. Ent. xxxvi; *H. costellata*, Costa Rica, *pogoda*, Merida, DOGNIN, p. 118, Ann. Soc. ent. Belgique xlvi; *H. moresca*, p. 147, *truncata*, *angulinea*, p. 148, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx: **n. spp.**
- Hemileuca maia*, marching of larva, MARSHALL, pp. 260-265, Biol. Bull. vi; *H. budleyi*, life-history, SOULE, pp. 118-120, Psyche xi.
- Hepialidae*, Australian, synonymy and notes, TURNER, pp. 245-247, Tr. R. Soc. S. Austral. xxviii.
- Hepialus hectus* var., WOODBRIDGE, Entomologist 1904, p. 9, cut; *H. humuli*, variation in Faroes, ANNANDALE, p. 158, P. Phys. Soc. Edinb.
- Heterocampa dolens*, p. 248, *longula*, *luteilinea*, p. 249, Peru, DRUCE, Ann. Nat. Hist. xiii; *H. baracoana*, *santiago*, p. 145, *albidiscata*, Cuba, *sylvia*, *barensa*, Parana, p. 146, SCHAUS, Tr. Amer. ent. Soc. xxx: **n. spp.**
- Heterogynis*, notes on habits, specific distinctions, larvæ, cocoons, with *H. canalensis n. sp.*, Spain, CHAPMAN, Tr. ent. Soc. London 1904, pp. 71-78, pls. xi-xiv.
- Heteronygmia manicata* Auriv. (as *Lymantria*) = (*rhodapicata* Holl.), SWINHÖE, p. 146, Tr. ent. Soc. London 1904.
- Heterusia semiflava*, New Guinea, JORDAN, p. 447, Nov. Zool. xi, **n. sp.** *Heterusia*, see also *Geometridæ*.
- Hirsutopalpis n. g. Notodontidae*, *H. fasciata n. sp.*, New Guinea, BETHUNE-BAKER, p. 375, Nov. Zool. xi.
- Homococera rhodocera*, Chiriqui, SCHAUS, p. 135, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Homophylotis n. g.* near *Procris*, *H. thyridota n. sp.*, Queensland, TURNER, p. 243, Tr. R. Soc. S. Austral. xxviii.
- Hyaloperina nudiuscula*, Congo, AURIVILLIUS, p. 63, Arkiv Zool. ii, No. 4, **n. sp.**

- Hygochroa intricata*, Peru, DRUCE, p. 248, Ann. Nat. Hist. xiii, **n. sp.**
- Hytemera funesta* Warr. to *Geodena*, SWINHÖE, p. 149, Tr. ent. Soc. London 1904.
- Hyleora inclyta* (= *lacerta* Dr.), TURNER, p. 832, P. Linn. Soc. N. S. Wales 1904.
- Hyperaschra collaris*, Khasia Hills, SWINHÖE, p. 132, Ann. Nat. Hist. xiv, **n. sp.**
- Hypercydas caliloma*, variation, BETHUNE-BAKER, p. 372, Nov. Zool. xi.
- Hypidota* **n. g.** near *Thalesa*, *H. neurias* **n. sp.**, Parana, SCHAUS, p. 137, Tr. Amer. ent. Soc. xxx.
- Hypoprepia miniata*, early stages, DYAR, p. 793, P. U. S. Mus. xxvii.
- Ichthyura transecta*, larva, HAMPSOX, p. 150, J. Bombay Soc. xvi.
- Ilema obliterans*, larva, p. 143, *apicalis*, larva, p. 144, pl. x, fig. 14, *natara*, larva, p. 145, PIEPERS, Tijdschr. Ent. xlvii.
- I. androconia*, E. Africa, HEYN, p. 25, Soc. ent. xix; *I. ekeikei*, pl. v, fig. 16, *dinawa*, fig. 15, *costistrigata*, fig. 30, p. 419, *unicolora*, fig. 31, *hades*, fig. 14, *nivea*, fig. 21, p. 420, New Guinea, BETHUNE-BAKER, Nov. Zool. xi : **n. spp.**
- Illice angelus*, p. 198, *injecta*, *dorsimacula*, *liberomacula*, p. 199, N. America, DYAR, P. ent. Soc. Washington vi, **n. spp.**
- Imaus niveus*, *spodea*, pl. vi, fig. 1, *aroa*, *pratti*, pl. iv, fig. 15, & pl. vi, fig. 12, p. 409, *marginepunctata*, pl. vi, fig. 13, *dubia*, fig. 10, p. 410, *sulphurea*, fig. 11, p. 411, New Guinea, BETHUNE-BAKER, Nov. Zool. xi, **n. spp.**
- Imbrasia epimethea ertli* subsp. n., REBEL, p. 67, pl. iii, Ann. Hofmus. Wien xix; *I. epimethea*, larva, AURIVILLIUS, p. 11, cut, Arkiv Zool. ii, No. 4.
- Iropoca* **n. g.** *Lymantriidae*, for *rotundata* Walk., TURNER, p. 477, Tr. ent. Soc. London 1904.
- Ischnocampa tovia*, Peru, DOGNIN, p. 115, Ann. Soc. ent. Belgique xlvi, **n. sp.**
- Isotigena* **n. g.** *Lasiocampidae*, p. 395, *I. bicellata*, pl. iv, fig. 12, p. 396, **n. sp.**, BETHUNE-BAKER, Nov. Zool. xi.
- Lambula aroa*, *bilineata*, New Guinea, BETHUNE-BAKER, p. 416, t. c. **n. spp.**
- Lasiocampa quercifolia* and larva, habits, SCHUSTER, p. 285, Zool. Garten xlv.
- Lasioceros* **n. g.** *Notodontidae*, p. 380, *L. aroa* **n. sp.**, New Guinea, p. 381, BETHUNE-BAKER, Nov. Zool. xi.
- Lasiochra* **n. g.** *Limacodidae*, *L. pulchra*, pl. v, fig. 49, **n. sp.**, New Guinea, BETHUNE-BAKER, p. 392, t. c.
- Lasiolimacos* **n. g.** *Limacodidae*, *L. pratti*, pl. vi, fig. 32, *kenricki*, fig. 33, p. 388, *ferruginea*, fig. 50, p. 389, **n. spp.**, New Guinea, BETHUNE-BAKER, t. c.
- Lepasta omaiensis*, Brit. Guiana, SCHAUS, p. 144, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Leptonadata* **n. g.** *Notodontidae*, p. 2, *L. sjostedti* **n. sp.**, Cameroons, p. 3, AURIVILLIUS, Arkiv Zool. ii, No. 4.
- Leucoma salicis*, natural history, SCHUSTER, pp. 65-68, Zool. Garten xlv.
- L. semihyalina*, Sumatra, SWINHÖE, p. 421, Ann. Nat. Hist. xiv, **n. sp.**
- Leucophobeton*, characters, DYAR, p. 77, P. ent. Soc. Washington vi.
- Lobeza schausi*, Merida, DOGNIN, p. 117, Ann. Soc. ent. Belgique xlvi, **n. sp.**
- Lobobunaea sjostedti*, characters and sexes, AURIVILLIUS, p. 9, Arkiv Zool. ii, No. 4.
- Lomadonta obscura*, p. 146, *saturata*, p. 147, W. Africa, SWINHÖE, Tr. ent. Soc. London 1904, **n. spp.**
- Lonomia bethulia*, Peru, DRUCE, p. 247, Ann. Nat. Hist. xiii, **n. sp.**



- Lophopteryx cuculla*, life-history, RIDING, pp. 249-252, Ent. Rec. xvi.  
*Ludia obscura*, cut, larva and pupa, AURIVILLIUS, p. 15, Arkiv Zool. ii, No. 4.  
*Lyclene peloa*, Sumatra, SWINHOE, p. 420, Ann. Nat. Hist. xiv, n. sp.  
*Lycomorhodes calopteredion*, Organ Mts., JOANNIS, p. 289, Bull. Soc. ent. France 1904, n. sp.  
*Lymantriidae*, table of Ethiopian genera, AURIVILLIUS, pp. 62-68, Arkiv Zool. ii, No. 4.  
*Lymantria vacillans* ♀, larva and pupa, cuts, AURIVILLIUS, t. c.; *Lymantria*, cf. *Argyrostagma*.  
*L. novaguineensis*, pl. vi, fig. 35, p. 407, *ekeikei*, fig. 18, *kebeæ*, fig. 22, p. 408, New Guinea, BETHUNE-BAKER, Nov. Zool. xi, n. spp.  
*Macaduna bipunctata*, pl. v, fig. 29, *aroa*, New Guinea, BETHUNE-BAKER, p. 421, t. c. n. spp.  
*Macrocne meviridifusa*, Parana, SCHAUS, p. 135, Tr. Amer. ent. Soc. xxx, n. sp.  
*Macrosia fumeola* = (*Lithosia natalica* Möschl.), AURIVILLIUS, p. 35, Arkiv Zool. ii, No. 4.  
*Menas punctatostrigata*, New Guinea, pl. vi, fig. 15, BETHUNE-BAKER, p. 412, Nov. Zool. xi, n. sp.  
*Malacosoma neustria*, variation and colour, and food, DOUGLAS, p. 43, Entomologist 1904.  
*Malocampa epantherioides*, Brit. Guiana, SCHAUS, p. 146, Tr. Amer. ent. Soc. xxx, n. sp.  
*Marthula aurea*, Peru, DRUCE, p. 248, Ann. Nat. Hist. xiii, n. sp.  
*Maschane leechi*, Amazons, p. 249, *neobule*, Costa Rica, p. 250, DRUCE, t. c. n. spp.  
*Megalopyge govana*, *aricia*, *nigrescens*, S. America, SCHAUS, p. 139, Tr. Amer. ent. Soc. xxx; *M. gamelia*, Peru, p. 246, DRUCE, Ann. Nat. Hist. xiii : n. spp.  
*Megapisa* n. g. *Syntomiidae*, p. 29, *M. nigripennis* n. sp., Centr. Africa, p. 30, AURIVILLIUS, Arkiv Zool. ii, No. 4.  
*Melanergon* n. g. *Eupterotidae*, *M. proserpina* n. sp., New Guinea, BETHUNE-BAKER, p. 372, Nov. Zool. xi.  
*Meragisa dasra*, p. 116, *darida*, p. 117, Peru, DOGNIN, Ann. Soc. ent. Belgique xlvi, n. spp.  
*Metarctia nigriceps*, p. 30, *rubrovittata*, *preussi*, p. 31, Cameroons, AURIVILLIUS, Arkiv Zool. ii, No. 4, n. spp.  
*Miltochrista vetusta*, Java, pl. xi, fig. 4, p. 163, SNELLEN, Tijdschr. Ent. xlvii, n. sp.  
*Misogada pallida*, Cuba, SCHAUS, p. 145, Tr. Amer. ent. Soc. xxx, n. sp.  
*Mylantria* n. g. near *Lymantria* for *xanthospila* Plötz, AURIVILLIUS, p. 54, Arkiv Zool. ii, No. 4.  
*Narosa aroa*, New Guinea, BETHUNE-BAKER, p. 386, Nov. Zool. xi, n. sp.  
*Natada monomorpha*, Queensland, TURNER, p. 242, Tr. R. Soc. S. Austral. xxviii, n. sp.  
*Neacerea nigra*, Chiriqui, SCHAUS, p. 136, Tr. Amer. ent. Soc. xxx, n. sp.  
*Nemeophila cervini* varr., pp. 54-59, pl. i, OBERTHÜR, Études comp. i.  
*Nervicompressa* n. g. *Limacodidae*, p. 389, *N. unistrigata*, pl. iv, fig. 5, *lunulata*, fig. 4, p. 390, *albomaculata*, fig. 3, *dubia*, fig. 19, *kebeæ*, fig. 10, p. 391, *aroa*, fig. 6, p. 392, n. spp., New Guinea, BETHUNE-BAKER, Nov. Zool. xi.  
*Nesaca albimacula*, Bahamas, HAMPSON, p. 180, Ann. Nat. Hist. xiv, n. sp.  
*Nishada flabrifera*, larva, pl. x, fig. 3, p. 141, PIEPERS, Tijdschr. Ent. xlvii.  
*N. melanopa*, New Guinea, pl. v, fig. 19, BETHUNE-BAKER, p. 417, Nov. Zool. xi, n. sp.  
*Nola distributa*, larva, pl. x, fig. 1, p. 139, PIEPERS, Tijdschr. Ent. xlvii.

- Notokyba* (?) *bimaculata*, *insolita*, Cameroons, AURIVILLIUS, Arkiv Zool. ii, No. 4, **n. spp.**
- Nudaria discipuncta*, larva, p. 164, PIEPERS, Tijdschr. Ent. xlvii.
- Nudarelia dione*, larva, AURIVILLIUS, p. 10, cut, Arkiv Zool. ii, No. 4.
- Nyctemera* = (*Deilemera*), TURNER, p. 471, Tr. ent. Soc. London 1904; *Nyctemera*, cf. *Eohemera*; *N. simplex*, cf. *Xylecata*.
- Nystalea kayei*, Brit. Guiana, p. 142, *guttulata*, Cuba, *malga*, *corrusca*, Rio Janeiro, p. 143, SCHAUS, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Odonestis pruni* ab. *roseacea*, SCHULTZ, p. 185, Soc. ent. xviii.
- O. centralistrigata*, pl. iv, fig. 7, New Guinea, BETHUNE-BAKER, p. 397, Nov. Zool. xi, **n. sp.**
- Enosanda boisduvalii* ♀ = (*Lomatosticha nigrostriata* Motsch.), TURNER, p. 833, P. Linn. Soc. N. S. Wales 1904.
- Omichlis hamptoni*, pl. v, fig. 2, p. 375, *dinawa*, fig. 3, *ochracea*, fig. 6, p. 376, *griseola*, fig. 7, *pratti*, fig. 5, *rufofasciata*, pl. vi, fig. 17, p. 377, New Guinea, BETHUNE-BAKER, Nov. Zool. xi, **n. spp.**
- Oaonistis bicolora*, New Guinea, pl. vi, fig. 34, BETHUNE-BAKER, p. 420, Nov. Zool. xi, **n. sp.**
- Opodiphthera papuana*, New Guinea, ROTHSCHILD, p. 601, Nov. Zool. xi, **n. sp.**
- Opsirhina aroa*, New Guinea, BETHUNE-BAKER, p. 395, Nov. Zool. xi, **n. sp.**
- Oreta angustipennis*, Niger, WARREN, p. 461, Nov. Zool. xi, **n. sp.**
- Orgyia splendida*, larva, CHAPMAN, pp. 195–198, Ent. Rec. xvi.
- Ormiscodes radama*, *O. ? choba*, Peru, DRUCE, p. 245, Ann. Nat. Hist. xiii **n. spp.**
- Osica glauca* = (*turneri* and *funerea* Bak.), TURNER, p. 834, P. Linn. Soc. N. S. Wales 1904.
- O. turneri*, pl. vi, fig. 31, *funerea*, New Guinea, BETHUNE-BAKER, p. 374, Nov. Zool. xi, **n. spp.**
- Othorene rubra*, *carisma*, p. 141, *subochreatea*, p. 142, Brit. Guiana, SCHAUS, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Pais ansorgei*, Africa, JORDAN, p. 445, Nov. Zool. xi, **n. sp.**
- Paraceryx* **n. g.** *Syntomidae*, *P. aroa* **n. sp.**, New Guinea, BETHUNE-BAKER, p. 384, Nov. Zool. xi.
- Paradohertya* **n. g.** *Lithosiinae*, *P. trifascia*, pl. iv, fig. 36, **n. sp.**, New Guinea, BETHUNE-BAKER, p. 421, t. c.
- Parasa loxoleuca*, Queensland, TURNER, p. 242, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Parazeuzera* **n. g.** *Cossidae*, *P. celæna*, pl. v, fig. 9, *aurea*, fig. 10, **n. spp.**, New Guinea, BETHUNE-BAKER, p. 384, Nov. Zool. xi.
- Peratodonta* **n. g.** *Notodontidae*, *P. brunnea* **n. sp.**, Cameroons, AURIVILLIUS, p. 6, Arkiv Zool. ii, No. 4, **n. spp.**
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- Pseudantheræa discrepans*, pupa, AURIVILLIUS, p. 12, t. c.
- Pseudapiconoma compsa*, *gloriosa*, p. 441, *fenestrata*, p. 442, Angola, JORDAN, Nov. Zool. xi, n. spp.
- Pseudilema* n. g. *Lithosiinae*, p. 418, *P. dinawa*, pl. v, figg. 17, 18, p. 419, n. sp., New Guinea, BETHUNE-BAKER, Nov. Zool. xi.
- Pseudoblabe oophora*, larva, p. 146, pl. x, fig. 5, PIEPERS, Tijdschr. Ent. xlvii.
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## NOCTUIDÆ.

[Cf. ALPHÉRAKY (25), BARNES (88), BARTEL (91), BETHUNE-BAKER (116), DYAR (420, 422, 431, 432, 439), FUCHS (572), HAMPSON (653), HAVERHORST (666), HERZ (680, 680A), HOLE (696), JOANNIS (763), MEYRICK (947, 948), OBERTHÜR (987), PÜNGELER (1110, 1111), REBEL (1122), SCHAUS (1225), SMITH (1312-1314), SWINHÖE (1361, 1364), THURAU (1386), TSCHETVERIKOV (1400), TURNER (1411).]

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The head-shield of pupa, HAVERHORST (666).

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- Angitia pulchra, perplexa*, Venezuela, *A. ? viridans*, Parana, SCHAUS, p. 165, Tr. Amer. ent. Soc. xxx, n. spp.
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- Apatela*, varr. n., DYAR, p. 29, Canad. Ent. xxxvi; *A. dactylina-hesperida*, p. 797, *felina*, p. 798, *leporina-mæsta*, p. 799, *innotata-griseor*, p. 801, *grisea-revellata*, p. 802, *distans-dolorosa*, p. 804, *perdita*, p. 805, *impleta-illita*, p. 807, early stages, DYAR, P. U. S. Mus. xxvii.
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- Collusa ekeikei*, New Guinea, pl. vi, fig. 42, BETHUNE-BAKER, p. 429, Nov. Zool. xi, **n. sp.**
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- Eupalindia magnifica*, p. 165, *rubescens*, p. 166, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Euplexia chloëropis*, Queensland, TURNER, p. 213, Tr. R. Soc. S. Austral. xxviii; *E. leucobasis*, Bahamas, HAMPSON, p. 167, Ann. Nat. Hist. xiv: **n. spp.**
- Eustrotia walta*, p. 153, *penthis*, *editha*, Mexico, *lithodia*, *longena*, p. 154, *vicina*, *marmorata*, *thionaris*, *hermosilla*, p. 155, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Eutelia grabcewskyi*, Nikko, PÜNGELER, p. 289, pl. vi, fig. 5, Deutsche ent. Zeitschr. Iris xvi, **n. sp.**
- Euthisanotia magnifica*, Brazil, SCHAUS, p. 150, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Euxoa pestula*, Calgary, SMITH, p. 150, Canad. Ent. xxxvi, **n. sp.**

- Ecyra semicrocea* var. n. *hubbardiana*, DYAR, p. 59, P. ent. Soc. Washington vi.
- Fagiana parallela*, Bahamas, HAMPSON, p. 168, Ann. Nat. Hist. xiv; *F. niveigutta*, *marginata*, Parana, SCHAUS, p. 150, Tr. Amer. ent. Soc. xxx: n. spp.
- Feltia vancouverensis*, p. 831, *æneipennis*, p. 832, early stages, DYAR, P. U. S. Mus. xxvii.
- Grammodes pulcherrima* Luc.=(*clementi* Swinh.), SWINHOE, p. 142, Tr. ent. Soc. London 1904.
- Graphiphora communis*, early stages, DYAR, p. 868, P. U. S. Mus. xxvii.
- Grotella blanca*, p. 239, *tricolor*, p. 240, Arizona, BARNES, Canad. Ent. xxxvi, n. spp.
- Gustiana guarda*, Mexico, SCHAUS, p. 168, Tr. Amer. ent. Soc. xxx, n. sp.
- Hadena ferrago* ab. n. *umbrata*, HERZ, p. 8, Ofv. Finska Forh. xlv, No. 15; *H. curvata*, p. 810, and *versuta*, p. 811, early stages, DYAR, P. U. S. Mus. xxvii.
- H. maida*, Brit. Columbia, DYAR, p. 30, Canad. Ent. xxxvi; *H. kyune*, Arizona, BARNES, p. 168, Canad. Ent. xxxvi; *H. multicolor*, Victoria, *geminimacula*, New Mexico, DYAR, p. 103, P. ent. Soc. Washington vi: n. spp.
- Heliophila oxygale*, p. 862, *roseola*, p. 863, *heterodoxa*, p. 865, early stages, DYAR, P. U. S. Mus. xxvii.
- Heliothis cora* ab. n. *odenwalli*, HERZ, p. 21, Ofv. Finska Forh. xlv, No. 15.
- H. dipsacea* var. n. *albida*, FUCHS, p. 38, Jahrb. nassau. Ver. lvii.
- Herminodes lignea*, *H.?* *taltula*, Parana, SCHAUS, p. 167, Tr. Amer. ent. Soc. xxx, n. spp.
- Heterographa pungeleri*, Jordan, BARTEL, p. 161, Deutsche ent. Zeitschr. Iris xvii, n. sp.
- Himella infidelis*, Brit. Columbia, DYAR, p. 32, Canad. Ent. xxxvi, n. sp.
- Hiptelia apfelbecki*, p. 228, ♂, pl. v, fig. 14, REBEL, Ann. Hofmus. Wien xix.
- Homohadena fifia*, p. 30, *cocklei*, p. 31, Brit. Columbia, DYAR, Canad. Ent. xxxvi, n. spp.
- Homoptera calycanthata*, early stage, DYAR, p. 879, P. U. S. Mus. xxvii.
- Hyblæa puera*, natural history, injuries to teak, HOLE, pp. 680-697, pls., J. Bombay Soc. xx.
- Hypena humuli*, early stages, DYAR, p. 882, P. U. S. Mus. xxvii.
- H. zarabena*, p. 168, *drucealis*, *tepicalis*, Mexico, *calistalis*, Trinidad, *castricalis*, p. 169, *purpuralis*, *freija*, *syllificalis*, S. America, *bergealis*, Jamaica, *rosealis*, Mexico, p. 170, *dasiatis*, *ricalis*, *jonesalis*, *perialis*, p. 171, *glumalis*, *gozama*, *uvulis*, S. America, *queenealis*, *tossalis*, p. 172, *coatalis*, Mexico, *peruvialis*, *claxalis*, p. 173, *turalis*, *braziliensis*, *veltalis*, *demonalis*, *evanalis*, p. 174, *H.?* *lignea*, Rio Janeiro, *H.?* *ricalis*, Costa Rica, p. 176, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Hypenodes separatalis*, Korea, HERZ, p. 331, pl. i, fig. 7, Annuaire Mus. St. Petersb. ix; *H. arrhæcta*, Kauai, MEYRICK, p. 347, Fauna Hawaiiensis iii; *H. leptoxantha*, Molokai, MEYRICK, p. 130, Ent. Mag. xl: n. spp.
- Hyppa xylinoides* and *indistincta*, early stages, DYAR, pp. 814, 815, P. U. S. Mus. xxvii.
- Iphimorpha aroensis*, p. 152, *chucha*, *ethela*, p. 153, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Ischyia porphyrea*, Thursday isld., TURNER, p. 217, Tr. R. Soc. S. Austral. xxviii, n. sp.
- Isochlora leuconeura*, Centr. Asia, PÜNGELER, p. 131, Soc. ent. xix, n. sp.
- Koraia* n. g. near *Catocala*, p. 313, *K. pirata* sp. n., Korea, p. 314, pl. i, fig. 18, HERZ, Annuaire Mus. St. Petersb. ix.
- Lena* n. g. near *Hyptioxesta*, *L. poppiusi* n. sp., Lena, HERZ, p. 10, Ofv. Finska Forh. xlv.



- Lepidodes pectinata*, Rio Janeiro, SCHAUS, p. 167, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Leptina* ? *petrovna*, Petropolis, SCHAUS, p. 152, t. c. **n. sp.**
- Leucania favicolor* varr. n., TUTT, pp. 252-254, Ent. Rec. xvi ; *L. favicolor* var., BARRETT, p. 61, Ent. Mag. xl.
- L. jordana*, Palestine, BARTEL, p. 158, Deutsche ent. Zeitschr. Iris xvii, **n. sp.**
- Leucanitis sculpta*, Togus-torau, PÜNGELER, p. 292, pl. vi, fig. 8, Deutsche ent. Zeitschr. xvi, **n. sp.**
- Lithacodia castrensis*, Parana, SCHAUS, p. 161, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Lithocampa fatua*, Kuku-Noor, PÜNGELER, p. 288, pl. vi, fig. 4, Deutsche ent. Zeitschr. Iris xvi, **n. sp.**
- Lyncestis macrosticha*, Townsville, TURNER, p. 216, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Makapta argentescens*, Parana, SCHAUS, p. 166, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Mamestra crydina* var. n., DYAR, p. 32, Canad. Ent. xxxvi ; *M.*, early stages of numerous N. American, DYAR, pp. 839-859, P. U. S. Mus. xxvii.
- M. obesula*, p. 151, *dodii*, p. 152, *acutetermina*, p. 153, Calgary, SMITH, Canad. Ent. xxxvi ; *M. elsinora*, p. 197, *hueco*, p. 198, Arizona, BARNES, Canad. Ent. xxxvi ; *M. (Discestra) eremistis*, Centr. Asia, PÜNGELER, p. 130, Soc. ent. xix ; *M. isoloma*, Saravshan, PÜNGELER, p. 286, pl. vi, fig. 2, Deutsche ent. Zeitschr. Iris xvi : **n. spp.**
- Massala narmona*, p. 167, *carthia*, p. 168, Brazil, SCHAUS, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Microcoelia parigana*, *farona*, *mastera*, S. America, SCHAUS, p. 151, t. c. **n. spp.**
- Megalodes hedychroa*, Queensland, TURNER, p. 218, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Moma tybo*, Arizona, BARNES, p. 166, Canad. Ent. xxxvi, **n. sp.**
- Mycterophora longipalpata*, early stages, DYAR, p. 877, P. U. S. Mus. xxvii.
- Nœnia marama*, Venezuela ; SCHAUS, p. 165, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Noctua umbrosa* var. n., DYAR, p. 31, Canad. Ent. xxxvi ; *N. perumbrosa* n. n. for the above, id. t. c. p. 102 ; *N. rosaria*, p. 825, *oblata*, p. 827, *sierræ*, p. 828, early stages, DYAR, P. U. S. Mus. xxvii.
- N. dislocata*, Calgary, SMITH, p. 149, Canad. Ent. xxxvi, **n. sp.**
- Nodaria aneliopsis*, Thursday Isld., TURNER, p. 219, Tr. R. Soc. S. Austral. xxviii ; *N. selenitis*, *diopsis*, Bahamas, HAMPSON, p. 173, Ann. Nat. Hist. xiv : **n. spp.**
- Oncocnemis polingii*, Arizona, BARNES, p. 169, Canad. Ent. xxxvi ; *O. laticosta*, p. 63, *tetrops*, p. 64, Arizona, DYAR, P. ent. Soc. Washington vi : **n. spp.**
- Ophiura analis* an sp. n. ? HERZ, p. 305, Annuaire Mus. St. Petersb. ix.
- Orthosia witzenmanni*, larva, LUCAS, p. 232, Bull. Soc. ent. France 1904 ; *O. witzenmanni*, metamorphosis, CHRÉTIEN, p. 269, Naturaliste 1904.
- O. verberata*, Calgary, SMITH, p. 153, Canad. Ent. xxxvi, **n. sp.**
- Oslaria n. g.* type *Zotheca viridifera* Grote, DYAR, p. 41, J. N. York Ent. Soc. xii.
- Oxycnemis subsimplex*, Arizona, DYAR, p. 42, t. c. **n. sp.**
- Pachetra leucophæa*, larva, etc., DOLLMAN, pp. 225-228.
- Pachnobia hyperborea* varr. p. 60, figg. 9-11, OBERTHÜR, Études comp. i.
- Palthis angulalis*, early stages, DYAR, p. 881, P. U. S. Mus. xxvii.
- Parabasis n. g.* p. 428, *P. pratti*, pl. iv, fig. 26, p. 429, **n. sp.**, New Guinea, BETHUNE-BAKER, Nov. Zool. xi.
- Pericyma acrosticta*, pl. vi, fig. 6, *dispar*, fig. 7, Engeddi, PÜNGELER, p. 290, Deutsche ent. Zeitschr. Iris xvi, **n. spp.**
- Peridroma ypsilon* var. n. *albescens*, CLARK, p. 166, pl. viii, Ent. Rec. xvi ;

- P. subjugata* var. n., DYAR, p. 31, *Canad. Ent.* xxxvi; *P. occulta*, p. 821 and *stricta subjugata*, p. 823, early stages, DYAR, P. U. S. Mus. xxvii.
- Perigrapha achsha*, Brit. Columbia, DYAR, p. 32, *Canad. Ent.* xxxvi, n. sp.
- Photedes apicata*, *virescens*, *costipuncta*, *stenelea*, p. 156, *marita*, *perigeta*, Brazil, *repanda*, *P. ? mochensis*, Mexico, p. 157, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Phyllodes enganensis*, Engano, SWINHOE, p. 424, *Ann. Nat. Hist.* xiv, n. sp.
- Platyja rufiscripta*, Borneo, SWINHOE, p. 141, Tr. ent. Soc. London 1904, n. sp.
- Platyperigea anotha*, Brit. Columbia, DYAR, p. 29, *Canad. Ent.* xxxvi, n. sp.
- Pleroma cinerea*, Oregon, SMITH, p. 56, *Psyche* xi, n. sp.
- Plusia festucae* in New Zealand, PHILPOTT, p. 161, Tr. N. Zealand Inst. xxxvi.
- P. pterygota*, Oahu, MEYRICK, p. 348, *Fauna Hawaiiensis* iii, n. sp.
- Polia maxima*, California, DYAR, p. 40, J. N. York Ent. Soc. xii, n. sp.
- Polychrysis formosa*, larva, KEARFOTT, p. 301, *Ent. News Philad.* xv.
- Polydesma ? striata*, Korea, HERZ, p. 303, pl. i, fig. 4, *Annuaire Mus. St. Petersb.* ix, n. sp.
- Polyphænis sericata* var. n. *viridata*, RAGUSA, p. 18, pl. i, fig. 1, *Natural. Sicil.* xvii.
- Porosagrotis, thanatologia*, British Columbia, DYAR, p. 833, P. U. S. Mus. xxvii, n. sp.
- Praxis alampeta*, Brisbane, TURNER, p. 216, Tr. R. Soc. S. Austral. xxviii, n. sp.
- Prodenia marima*, Parana, SCHAUS, p. 150, Tr. Amer. ent. Soc. xxx, n. sp.
- Prometopus inaseuta* Gn. = (*Caradrina chromoneura* Turn. = *Erastroides lichnomima* Turn.), TURNER, p. 215, Tr. R. Soc. S. Austral. xxviii.
- P. rubrispersa*, Queensland, *xerampelina*, West Australia, p. 214, *nodyna*, Brisbane, p. 215, TURNER, t. c. n. spp.
- Propatria*, characters, TURNER, p. 213, t. c.
- Prothymia rosario*, Arizona, BARNES, p. 264, *Canad. Ent.* xxxvi, n. sp.
- Pseudaglossa shelfordi*, Borneo, SWINHOE, Tr. ent. Soc. London 1904, n. sp.
- Pseudina janeira*, Brazil, SCHAUS, p. 163, Tr. Amer. ent. Soc. xxx, n. sp.
- Pseudoglaea lobata*, Arizona, BARNES, p. 237, *Canad. Ent.* xxxvi, n. sp.
- Pseudotamila avemensis*, Manitoba, DYAR, p. 41, J. N. York Ent. Soc. xii, n. sp.
- Rhesena apicalis*, Borneo, SWINHOE, p. 143, Tr. ent. Soc. London 1904, n. sp.
- Rhizagrotis socorro*, p. 171, *salina*, p. 172, Arizona, BARNES, *Canad. Ent.* xxxvi, n. spp.
- Rhynchagrotis scopeops*, Brit. Columbia, DYAR, p. 31, *Canad. Ent.* xxxvi, n. sp.
- Sarrothripus revayana* var. n. *asiatica*, KRULIKOVSKY, p. 91, *Rev. Russe Ent.* iv.
- Simplicia rectalis*, autumnal var., FUCHS, p. 37, *Jahrb. Nassau. Ver.* lvii.
- Spirama sumbana*, Sumba, p. 422, *kalaensis*, Flores, p. 423, SWINHOE, *Ann. Nat. Hist.* xiv, n. spp.
- Spragueia inversa*, *margarita*, p. 163, *taragma*, *tarasca*, p. 164, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, n. spp.
- Stellidia funerea*, *nivosita*, *diana*, Parana, SCHAUS, p. 166, t. c. n. spp.
- Stibadium ochoa*, Arizona, p. 241, *manti*, Texas, p. 242, BARNES, *Canad. Ent.* xxxvi; *S. viridescens*, Mexico, SCHAUS, p. 153, Tr. Amer. ent. Soc. xxx : n. spp.
- Strabea punctilinea*, Parana, SCHAUS, p. 167, t. c. n. sp.
- Teniocampa communis*, Brit. Columbia, DYAR, p. 32, *Canad. Ent.* xxxvi; *T. terminatissima*, New Mexico, DYAR, p. 104, P. ent. Soc. Washington vi; *T. alamosa*, Arizona, BARNES, p. 201, *Canad. Ent.* xxxvi : n. spp.

- Tarache angularis, triangularis, mediana, puella*, p. 158, *praxina, caterva, villica, violetta*, p. 159, *viridans, T. ? benita*, p. 160, S. America, *T. ? pyralina*, Mexico, p. 159, SCHAUS, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Thalpochares costagna*, p. 161, *guarama, grisella, T. ? nigripalpis, lorna*, S. America, *T. ? mirella*, Mexico, p. 162, SCHAUS, t. c. **n. spp.**
- Thermesia flavilineata*, Bahamas, HAMPSON, Ann. Nat. Hist. xiv, p. 170, **n. sp.**
- Thyria cræsita, satana*, Parana, SCHAUS, p. 164, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Tornacontia, mediatrix*, Arizona, DYAR, p. 62, P. ent. Soc. Washington vi, **n. sp.**
- Toxocampa moellendorffi*, Korea, HERZ, p. 318, pl. 1, fig. 1, Annuaire Mus. St. Petersb. ix, **n. sp.**
- Toxophleps pallida, T. ? bilinia*, S. E. Brazil, SCHAUS, p. 160, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Tricholita chipeta*, Colorado, BARNES, p. 202, Canad. Ent. xxxvi, **n. sp.**
- Trigonophora periculosa*, early stages, DYAR, p. 871, P. U. S. Mus. xxvii.
- Triphæna comes*, broods and var., PROUT, pp. 1-5, Ent. Rec. xvi.
- Vestura n. g. V. adeva n. sp.*, Singapore and Borneo, SWINHOE, p. 142, Tr. ent. Soc. London 1904.
- Xerociris n. n.* for *Ciris* Gr., COCKERELL, p. 76, Ent. News Philad. xv.
- Xylina fletcheri*, p. 56, *ancilla*, p. 57, *vertina, merceda*, p. 58, Canada, Oregon, SMITH, Psyche xi, **n. spp.**
- Xylophasia unita, enigma, rorulenta*, p. 55, Calgary, SMITH, t. c. **n. spp.**
- Zanclognatha ? punctalis*, Korea, HERZ, p. 324, pl. i, fig. 9, Annuaire Mus. St. Petersb. ix, **n. sp.**
- Zosteropoda hirtipes*, early stages, DYAR, p. 866, P. U. S. Mus. xxvii.

#### GEOMETRIDÆ, EPIPLEMIDÆ, URANIIDÆ.

[Cf. CHRÉTIEN (275), DIETZE (380), DOGNIN (398, 399), DYAR (432), HAMPSON (653), HERZ (680, 680A), HIMSL (687), MEYRICK (947), OBERTHÜR (987), PEARSELL (1013), PROUT (1108), PÜNGELER (1110), REBEL (1122), ROTHSCHILD (1194), SWINHOE (1362, 1363), TAYLOR (1369), THIERRY-MIEG (1385), TURNER (1409, 1411), WARREN (1474-1477).]

Larvæ of French species, FRIONNET (555).

DYAR gives notes synonymical etc., on the Hulst collection for which reference must be made to P. ent. Soc. Washington vi, pp. 222-227.

Review, with changes and synonymy, of Hulst's classification of N. American *Geometridæ*, PEARSELL, pp. 208-210, Canad. Ent. xxxvi.

Revision of *Australian Geometridæ*, TURNER, P. Soc. Victoria xvi, synonymy not given in our pages.

*Abraças geometraria* var. *n. minor*, pl. i, fig. 17, p. 353, HERZ, Annuaire Mus. St. Petersb. ix; *A. marginata nigrounicolorata*, HAVERKAMPF, p. 187, pl. i, Ann. Soc. ent. Belgique xlvi.

*A. macularia*, Korea, HERZ, p. 354, pl. i, fig. 16, Annuaire Mus. St. Petersb. ix; *A. transvisata*, Peru, WARREN, p. 543, Nov. Zool. xi : **n. spp.**

*Acidalia*, varr. of European, FUCHS, p. 17, Soc. ent. xix; *A. deversaria* var. *laureata*, pl. ii, fig. 6, *A. diffluata* distinguished, FUCHS, p. 38, Jahrb. Nassau. Ver. lvii; *A. immutata* var. *n. syriacata*, NEUBURGER, p. 115, Soc. ent. xix; *A. emutaria*, egg and young larva, SICH, p. 108, Entomologist 1904; *A. metohiensis*, p. 248, pl. v, fig. 15, REBEL, Ann. Hofmus. Wien xix.

*A. cajanderi*, p. 13, *anaïtaria*, p. 14, Lena, HERZ, Ofv. Finska Forh. xlv, No. 15, **n. spp.**

- Acrosemia dichorda*, Bahamas, HAMPSON, p. 177, Ann. Nat. Hist. xiv, n. sp.  
*Acrotomodes lichenifera*, Peru, WARREN, p. 564, Nov. Zool. xi, n. sp.  
*Æschropteryx flexilinea, olivata*, Mexico, WARREN, p. 128, t. c.; *Æ. præcurvata*, Paraguay, WARREN, p. 564, t. c. n. spp.  
*Agathia elenaria*, Old Calabar, SWINHOE, p. 542, Tr. ent. Soc. London 1904; *A. pauper*, Warri, WARREN, p. 463, Nov. Zool. xi : n. spp.  
*Agia eborata*? = *Cysteopteryx viridata*, TAYLOR & DYAR, pp. 46, 47, J. N. York Ent. Soc. xii.  
*Agraptochlora pallida*, p. 463, *rubriceps*, p. 464, Angola, WARREN, Nov. Zool. xi, n. spp.  
*Alcis huamani*, Peru, DOGNIN, p. 363, Ann. Soc. ent. Belgique xlvi, n. sp.  
*Aletis rubricaput*, Gold Coast, SWINHOE, p. 578, Tr. ent. Soc. London 1904, n. sp.  
*Alex aurantiata*, Obi, WARREN, p. 484, Nov. Zool. xi, n. sp.  
*Amaurinia expallidata*, Trinidad, WARREN, p. 81, t. c.; *A. angulata, brunnea*, p. 525, *commixta*, p. 526, Peru, WARREN, t. c. : n. spp.  
*Ameria seminigra*, Peru, WARREN, p. 81, t. c. n. sp.  
*Amraica superans* var. n. *dubitans*, HERZ, p. 365, pl. i, fig. 14, Annuaire Mus. St. Petersb. ix.  
*Anapalta* n. g. *Hydriomeninae*, p. 43, *perdecora, roseoliva*, Bolivia, p. 44, *sombreira*, Peru, *violetta*, Bolivia, p. 45, n. spp., WARREN, Nov. Zool. xi; *A. subfusca*, Peru, WARREN, p. 576, t. c. n. sp.; *A. ruficoesia*, Argentina, DOGNIN, p. 359, Ann. Soc. ent. Belgique xlvi, n. sp.  
*Anisodes aurantiata, bipunctata*, p. 27, Peru, *flavidiscata*, Huatuxco, *hieroglyphica*, p. 28, *imparistigma*, Peru, *magnidiscata*, Bolivia, p. 29, *mediolineata*, Peru, *ochricomata*, Santa Marta, p. 30, *rhodostigma*, Bolivia, *subænescens*, Peru, p. 31, *torsivena*, Bolivia, p. 32, WARREN, Nov. Zool. xi; *A. decorata*, p. 507, *fulgurata, gigantula*, p. 508, *maculidiscata, multipunctata*, p. 509, *pomidiscata, rufistigma, rufulata*, p. 510, Peru, WARREN, t. c. n. spp.  
*Anisolasia* n. g. *Hydriomeninae*, for *Cataclysmæ napassa* Dogn., WARREN, p. 46, Nov. Zool. xi.  
*Anisoperas adulta*, Colombia, *A. ? aurantiaca*, Ecuador, *A. latibrunnea*, Peru, WARREN, p. 129, t. c.; *A. dentilineata*, Mexico, p. 564, *olivata*, Bolivia, *undilinea*, Argentina, p. 565, WARREN, t. c. : n. spp.  
*Aphilopota ambusta*, Angola, WARREN, p. 472, t. c. n. sp.  
*Apicia*, distinguished from *Caberodes*, *A. fractilineata* ♂, *A. subfasciata* ab. nov. *obscurata*, WARREN, p. 130, t. c.; *A.*, cf. *Loxapicia, Mesedra*.  
*A. bottgeri*, Peru, *citrina*, Venezuela, WARREN, p. 566, Nov. Zool. vi, n. spp.  
*Apiciopsis* n. g. near *Apicia*, *A. angusta*, Peru, *obliquaria*, Bolivia, n. spp., WARREN, p. 131, t. c.  
*Aplodes darwinata*, life-history, DYAR, p. 121, Psyche xi.  
*A. punctata*, Jamaica, WARREN, p. 19, Nov. Zool. xi, n. sp.  
*Aplogompha aurifera*, Peru, THIERRY-MIEG, p. 182, Naturaliste 1904, n. sp.  
*Aplorama* n. g. type *Byssodes nazada* Druce, WARREN, p. 91, Nov. Zool. xi.  
*Archichlora marcescens*, Niger, WARREN, p. 465, t. c. n. sp.  
*Argyrotope ferruginea* var. n. *albinata*, WARREN, p. 93, t. c.  
*Arhodia modesta*, Townsville, WARREN, p. 485, t. c. n. sp.  
*Asestra ustularia*, Bolivia, WARREN, p. 132, t. c. n. sp.  
*Asthena euthecta*, Brisbane, TURNER, p. 243, P. Soc. Victoria xvi, n. sp.  
*Astyochia membranacea*, Peru, WARREN, p. 545, Nov. Zool. xi; *A. subliturata*, Peru, DOGNIN, p. 120, Ann. Soc. ent. Belgique xlvi : n. spp.  
*Atossa alpherakii*, Korea, HERZ, p. 376, pl. i, fig. 8, Annuaire Mus. St. Petersb. ix, n. sp.  
*Axiodes*, def. amended, WARREN, p. 480, Nov. Zool. xi.  
*A. ennomaria*, S. Africa, id. l. c. n. sp.  
*Azelina nigra*, Bolivia, p. 132, *ochriscripta*, Peru, p. 133, WARREN, t. c.; *A. albisecta*, p. 566, *coronata*, p. 567, Peru, WARREN, t. c.; *A. vulpecula*,



- Peru, DOGNIN, p. 369, Ann. Soc. ent. Belgique xlviii; *A. notodontina*, Peru, THIERRY-MIEG, p. 183, Naturaliste 1904 : **n. spp.**
- Bassania fortis*, Peru, WARREN, p. 567, Nov. Zool. xi, **n. sp.**
- Betulodes n. g.* for *Amphidasys crebraria* Gn., THIERRY-MIEG, p. 183, Naturaliste 1904.
- Biston calaria*, E. Africa, SWINHOE, p. 527, Tr. ent. Soc. London 1904, **n. sp.**
- Blechroma conflua, conspersa*, p. 502, *nigricincta*, p. 503, Peru, WARREN, Nov. Zool. xi, **n. spp.**
- Boarmia consortaria* var. *n. marginata*, HERZ, p. 372, pl. i, fig. 6, Annuaire Mus. St. Petersb. ix; *B. selenaria*, larval habits, STEBBING, p. 154, pl. xviii b, J. Linn. Soc. London xxix.
- B. dribaria*, Madagascar, p. 532, *ugandaria*, Africa, p. 533, SWINHOE, Tr. ent. Soc. London 1904; *B. cilicornaria*, Nikko, PÜNGELER, p. 296, pl. vi, fig. 15, Deutsche ent. Zeitschr. Iris xvi; *B. aroensis*, New Guinea, pl. iii, fig. 29, p. 322, ROTHSCHILD, Nov. Zool. xi : **n. spp.**
- Bonatea viridilinea*, Peru, WARREN, p. 568, Nov. Zool. xi; *B. maculata*, Bolivia, DOGNIN, p. 367, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Bordeta aroensis*, New Guinea, pl. iii, fig. 37, p. 319, ROTHSCHILD, Nov. Zool. xi, **n. sp.**
- Brachytenistis n. g. Ennominae*, p. 133, *B. undilinea n. sp.*, Peru, p. 134, WARREN, Nov. Zool. xi.
- Brachystichia n. g.* near *Apicia*, *B. nitida n. sp.*, Paraguay, WARREN, p. 134, t. c.
- Brachytrita n. g. Orthostixinae*, *B. cervinaria n. sp.*, E. Africa, SWINHOE, p. 576, Tr. ent. Soc. London 1904.
- Brabiroides n. g. Tephroclystiinae*, *B. peruviana n. sp.*, Peru, WARREN, p. 528, Nov. Zool. xi.
- Branchelia fumistrotata*, Peru, WARREN, p. 550, t. c. **n. sp.**
- Bryoptera bisignata*, p. 106, *canidentata*, p. 107, Peru, WARREN, t. c.; *B. ruficana, viridirufa*, Peru, WARREN, p. 551, t. c. : **n. spp.**
- Buttia n. g. Prosoplophinae*, *B. noctuodes n. sp.*, S. Africa, WARREN, p. 481, t. c.
- Cabira lignicolor*, Peru, WARREN, p. 125, t. c. **n. sp.**
- Callipia aurata*, Colombia, p. 79, *flagrans, occulta*, Peru, p. 80, WARREN, t. c.; *C. admirabilis*, p. 538, *languescens*, p. 539, Peru, WARREN, t. c.; *C. paradisea, rosetta*, Peru, THIERRY-MIEG, p. 140, Naturaliste 1904 : **n. spp.**
- Callipona n. g.* near *Xenographia*, *C. metabolis n. sp.*, Queensland, TURNER, p. 236, Tr. R. Soc. S. Austral. xxviii.
- Callipseustes strigosa, subsignata*, Bolivia, WARREN, p. 116, Nov. Zool. xi, **n. spp.**
- Callygris n. g.* for *junctilineata* and *compositata* Walk., THIERRY-MIEG, p. 141, Naturaliste 1904.
- Calocalpe mochica*, p. 361, *chimu*, p. 362, Peru, DOGNIN, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Calyptocome conversa, fragmentata*, Brit. Guiana, p. 32, *inornata*, Venezuela, p. 33, WARREN, Nov. Zool. xi, **n. spp.**
- Cambogia anguinata, antiopata*, Bolivia, *bellissima*, p. 82, *delicatula, flaviflava*, p. 83, *funiculata, griseicosta*, p. 84, *lilacina*, Peru, *intacta*, Ecuador, p. 85, WARREN, t. c. **n. spp.**
- Campylona contingens*, Ecuador, WARREN, p. 14, t. c.; *C. brunnea*, Maripa, WARREN, p. 500, t. c. : **n. spp.**
- Caradrinopsis n. g. C. obscuraria n. sp.*, E. Africa, SWINHOE, p. 534, Tr. ent. Soc. London 1904.
- Caripeta interalbicans*, Colorado, WARREN, p. 135, Nov. Zool. xi, **n. sp.**
- Catascia haydenata* ab. nov. *obliterata*, WARREN, p. 115, t. c.
- Celerena substigmatica*, Obi, WARREN, p. 485, t. c. **n. sp.**
- Certima nummiferu* to *Oenothalia*, WARREN, p. 559, t. c.

- C. canisparsa*, Peru, p. 135, *delectans*, *nubifera*, *pallidifrons*, Bolivia, p. 136, WARREN, t. c.; *C. ambusta*, p. 568, *bottgeri*, p. 569, Peru, WARREN, t. c. : **n. spp.**
- Chesias spartiata* var. n. *capriata*, PROUT, p. 60, Entomologist 1904.
- Chlorocheta* n. g. *Geometrinæ*, *C. longipennis* n. sp., Niger, WARREN, p. 464, Nov. Zool. xi.
- Chloroclystis fulminea* Dogn. to *Ischnopteris*, description, WARREN, p. 118, t. c.
- C. sierraria*, W. Africa, SWINHOE, p. 573, Tr. ent. Soc. London 1904; *C. metallospora*, p. 231, *cissocosma*, *mniochroa*, p. 232, *guttifera*, p. 233, *gonias*, *ablechra*, p. 234, Australia, TURNER, P. Soc. Victoria xvi; *C. microptilota*, Peru, WARREN, p. 86, Nov. Zool. xi : **n. spp.**
- Chogada acaciaria* abb. n. *flavipeta*, *fumata*, WARREN, p. 474, t. c.
- Chrysocraspeda rothschildi* (1903), pl. iii, fig. 31, p. 322, ROTHSCHILD, Nov. Zool. xi.
- C. leighata*, Durban, WARREN, p. 466, Nov. Zool. xi; *C. latiflavaria*, p. 562, Nyassaland, *zearia*, *doricaria*, p. 563, *planaria*, p. 564, Madagascar, SWINHOE, Tr. ent. Soc. London 1904 : **n. spp.**
- Cidariophanes mamestrina*, Peru, WARREN, p. 556, Nov. Zool. xi, **n. sp.**
- Cimicodes ruptimacula*, Bolivia, WARREN, p. 137, t. c. **n. sp.**
- Cleora umbrosaria*, characters and position, TAYLOR, p. 135, Canad. Ent. xxxvi.
- C. gracilis*, Jamaica, WARREN, p. 107, Nov. Zool. xi, **n. sp.**
- Cnephora facala*, Peru, DOGNIN, p. 368, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Codonia quercimontaria* and *punctaria* varr., *C. porata* var. *visperaria*, FUCHS, p. 40, Jahrb. nassau. Ver. lviii.
- Cænina dentataria*, Abyssinia, SWINHOE, p. 513, Tr. ent. Soc. London 1905, **n. spp.**
- Cænocalpe elongata*, Peru, DOGNIN, p. 360, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Colpodonta phyllodontaria*, Peru, WARREN, p. 569, Nov. Zool. xi, **n. sp.**
- Comibona flavidisca*, Peru, WARREN, p. 20, t. c. **n. sp.**
- Cophocerotis instar*, Peru, DOGNIN, p. 362, Ann. Soc. ent. Belgique xlviii; *C. argentistriga*, *ebria*, p. 539, *margaritacea*, *submuscosa*, p. 540, Peru, WARREN, Nov. Zool. xi : **n. spp.**
- Coptopteryx nigraria*, W. Africa, SWINHOE, p. 544, Tr. ent. Soc. London 1904, **n. sp.**
- Coremia ferrugata* var., WOODBRIDGE, p. 10, cut p. 9, Entomologist 1904.
- Cosymbia anandaria*, Trop. Africa, SWINHOE, p. 561, Tr. ent. Soc. London 1904, **n. sp.**
- Craspedia cymiphora*, Bahamas, HAMPSON, p. 179, Ann. Nat. Hist. xiv; *C. atridiscata*, p. 33, *conduplicata*, Bolivia, *deaurata*, Ecuador, *dorsinigrata*, Peru, p. 34, *internexata*, Ecuador, *trias* with var. *tincta*, S. America, p. 35, *trygodata*, Bolivia, p. 36, WARREN, Nov. Zool. xi : **n. spp.**
- Cratoptera subcitrina*, Peru, WARREN, p. 137, t. c. **n. sp.**
- Crocopteryx aurora*, Peru, WARREN, p. 570, t. c. **n. sp.**
- Cryptoloba dentifascia*, India, WARREN, p. 489, t. c. **n. sp.**
- Cryptoscopa* n. g. *C. aprepes* n. sp., Queensland, TURNER, p. 238, Tr. R. Soc. S. Austral. xxviii.
- Cusiala? pulverosa*, Natal, WARREN, p. 472, Nov. Zool. xi, **n. sp.**
- Cyllopoda chibcha* ab. n. *cuneifera*, WARREN, p. 15, t. c.
- C. angustistriga*, Peru, WARREN, l. c. **n. sp.**
- Cymatophora commaculata* Warren, to *Melanoseia*, WARREN, p. 555, Nov. Zool. xi.
- C. matilda*, British Columbia, DYAR, p. 907, P. U. S. Mus. xxvii; *C.? chanchani*, Peru, DOGNIN, p. 364, Ann. Soc. ent. Belgique xlviii;

- C. dislocata*, Peru, *muscosa*, Ecuador, WARREN, p. 108, Nov. Zool. xi;  
*C. modesta*, Paraguay, p. 552, *reducta*, *striata*, Peru, p. 553, WARREN,  
 t. c. : **n. spp.**
- Darna rubriplaga*, Ecuador, *volitans*, Peru, WARREN, p. 15, t. c. ; *D. flam-*  
*mifera*, p. 500, *praelata*, p. 501, Peru, WARREN, t. c. : **n. spp.**
- Dasysterna* **n. g.** near *Dasyuris* for *Phytometra tristis* Butl., TURNER, p. 277,  
 P. Soc. Victoria xvi.
- Dasyuris casia*, p. 278, *hedylepta*, p. 279, Victoria, TURNER, t. c.  
**n. sp.**
- Deilinia acrocosma*, Queensland, p. 236, *catharodes*, Hobart, p. 237, TURNER,  
 Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Deinopygia* **n. g.** near *Ptychopoda*, *D. caudata* **n. sp.**, Venezuela, WARREN,  
 p. 511, Nov. Zool. xi.
- Devara*, cf. *Emplocia*.
- Devarodes* **n. g.** *Braccinæ*, *D. albibasis*, p. 96, *semialbata*, Peru, *vestigata*,  
 Bolivia, p. 97, **n. spp.**, WARREN, Nov. Zool. xi; *D. subincta*, Peru,  
 WARREN, p. 544, t. c. **n. sp.**
- Diacinia albinodosa*, Peru, WARREN, p. 46, t. c. **n. sp.**
- Diceratucha* **n. g.** for *Ænone xenopis* Low., SWINHÖE, p. 133, Ann. Nat.  
 Hist. xiv.
- Dichorda obliquata*, *perpendicularata*, Mexico, WARREN, p. 503, Nov.  
 Zool. xi, **n. spp.**
- Dichromatopodia distans*, Santa Marta, WARREN, p. 36, t. c. **n. spp.**
- Diploctena* **n. g.** near *Xanthorhoe*, *D. argocyma* **n. sp.**, Victoria, TURNER,  
 p. 269, P. Soc. Victoria xvi.
- Dolichopyge canioparsa*, Ecuador, p. 46, *fulvistriga*, Bolivia, p. 47, WARREN,  
 Nov. Zool. xi, **n. spp.**
- Drepanodes fulvilinea*, Peru, WARREN, p. 138, t. c. **n. sp.**
- Drucia latimargo*, Peru, WARREN, p. 20, t. c. **n. sp.**
- Durbana* **n. g.** for *Fidonia setinata* Feld., WARREN, p. 470, t. c.
- Dyscia* Hub. = (*Scodionia* auctt.), WARREN, p. 476, t. c.
- D. incondita*, *perplexata*, S. Africa, id. l. c. **n. spp.**
- Dysphania chrysocraspedata*, p. 485, *deflavata*, p. 486, Sumatra, WARREN,  
 t. c. **n. spp.**
- Dysperis parvula*, Brit. Guiana, WARREN, p. 527, t. c. **n. sp.**
- Ectropis subaurata* to *Myrioblephara*, WARREN, p. 475, t. c.
- E. nacaria*, Ashanti, SWINHÖE, p. 530, Tr. ent. Soc. London 1904; *E.?*  
*fulvitincta*, Durban, WARREN, p. 474, Nov. Zool. xi; *E. hemiprosopa*,  
 Queensland, TURNER, p. 230, Tr. R. Soc. S. Austral. xxviii : **n. spp.**
- Elphos picaria*, Celebes, WARREN, p. 490, Nov. Zool. xi, **n. sp.**
- Emmiltis (Craspedia) magnidiscata*, Angola, p. 466, *mombasæ*, E. Africa,  
 p. 467, WARREN, t. c. ; *E. (Craspedia) cinerosaria*, *convergens*, *per-*  
*fumosa*, Peru, WARREN, p. 512, t. c. ; *E. fumosaria*, p. 554, *sinuaria*,  
*caducaria*, *vitiosaria*, *peararia*, p. 556, Trop. Africa, *roezaria*, Mada-  
 gascar, p. 557, *cassaria*, Masai, p. 558, SWINHÖE, Tr. ent. Soc. London  
 1904 : **n. spp.**
- Emplocia* = (*Devara* Walk.), WARREN, p. 96, Nov. Zool. xi.
- E. coliadata*, Peru, WARREN, p. 97, t. c. **n. sp.**
- Encoma* **n. g.** *irisaria* **n. sp.**, Uganda, SWINHÖE, p. 523, Tr. ent. Soc.  
 London 1904.
- Encryphia* **n. g.** *argillina* **n. sp.**, Queensland, TURNER, p. 228, Tr. R. Soc.  
 S. Austral. xxviii.
- Ennomos*, cf. *Tmetomorpha*.
- Entogonia* **n. g.** *Ænochrominæ*, *E. schistacea* **n. sp.**, Bolivia, WARREN, p. 12,  
 Nov. Zool. xi.
- Ephialtas fornax* ab. n. *latimargo*, WARREN, p. 16, t. c.
- Epiplema commixtata*, *pallifrons*, p. 2, *rectilinea*, p. 3, *rostrifera*, *scabra*,  
 p. 4, *vulpecula*, p. 5, Peru, WARREN, t. c. ; *E. dohertyi*, *semipicta*,

- Mombasa, WARREN, p. 462, t. c.; *E. lucisquamata*, Peru, WARREN, p. 494, t. c. : **n. spp.**
- Epirrhoë heliopharia*, Uganda, SWINHOE, p. 569, Tr. ent. Soc. London 1904; *E. limitata*, Peru, WARREN, p. 517, Nov. Zool. xi : **n. spp.**
- Episothalma kabaria*, W. Africa, SWINHOE, p. 541, Tr. ent. Soc. London 1904, **n. sp.**
- Erateina cæruleopicta*, Peru, WARREN, p. 536, Nov. Zool. xi, **n. sp.**
- Ereboclora ruficostaria* ab. n. *semifumata*, WARREN, p. 517, t. c.
- E. ruficostaria* with var. *pernigrata*, p. 47, *sublactea*, p. 48, Peru, WARREN, t. c. **n. spp.**
- Eriophodes indistincta*, Santa Marta, WARREN, p. 173, t. c. **n. sp.**
- Eriopygidia isolata* Kaye (as *Arima*)=(*engelkei* Warr.), p. 517, *E. rufivena* ♀, p. 518, WARREN, t. c.
- E. engelkei*, Santa Marta, *locuples*, p. 49, *rufivena*, p. 50, Peru, WARREN, t. c.; *E. nigrirubrata*, Peru, WARREN, p. 518, t. c.; *E. subignea*, p. 359, *flavisquamata*, p. 360, S. America, DOGNIN, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Erosia dilacerata* Guen. to *Gathynia*, WARREN, p. 495, Nov. Zool. xi.
- Eubolia semilutata* ab. n. *fuscata*, HERZ, p. 374, pl. i, fig. 15, Annuaire Mus. St. Petersb. ix.
- Eubordeta* **n. g.** *E. meeki*, pl. iii, fig. 27, *eichhorni*, figg. 32, 33, *miranda*, fig. 34, New Guinea, **n. spp.** and including *Bord. hypocala*, pl. iii, fig. 26, ROTHSCHILD, Nov. Zool. xi.
- Eucestia neddaria*, Uganda, SWINHOE, p. 574, Tr. ent. Soc. London 1904, **n. sp.**
- Euchloris periphraeta*, p. 219, *argosticta*, *tanygona*, p. 220, *thalassica*, *leucospilata*, p. 221, *callisticha*, p. 222, Australia, TURNER, Tr. R. Soc. S. Austral. xviii; *E. heterospila*, Bahamas, HAMPSON, p. 178, Ann. Nat. Hist. xiv : **n. spp.**
- Euchontha commixta*, *memor*, Peru, WARREN, p. 16, Nov. Zool. xi, **n. spp.**
- Ecymatoge peplodes*, p. 247, *scotodes*, p. 248, Queensland, TURNER, P. Soc. Victoria xvi; *E. ochrosoma*, Peru, WARREN, p. 86, Nov. Zool. xi; *E. albirivata*, p. 528, *decorata*, *longipennata*, p. 529, Peru, WARREN, t. c. : **n. spp.**
- Eudule flavinota*, *malefida*, S. America, WARREN, p. 81, t. c.; *E. arctiata*, *simulans*, Peru, WARREN, p. 541, t. c. : **n. spp.**
- Eugivira flavescens*, San Salvador, *gemina*, Merida, DOGNIN, p. 122, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Eulype albifusa*, Philippines, SWINHOE, p. 134, Ann. Nat. Hist. xiv, **n. sp.**
- Eumilitionia* **n. g.** for *Milionia mediofasciata*, THIERRY-MIEG, p. 183, Naturaliste 1904.
- Euomæa carneata*, S. Africa, WARREN, p. 481, Nov. Zool. xi, **n. sp.**
- Eupagia nigerrima*, Abyssinia, SWINHOE, p. 526, Tr. ent. Soc. London 1904, **n. sp.**
- Eupithecia*; DIETZE figures and notices many varr. of Palearctic, in addition to the **n. spp.** mentioned below, Deutsche ent. Zeitschr. Iris xvi, pp. 362-387, pls. iii, iv, v.
- E. cooptata*, pl. iv, figg. 24-27, South France, p. 335, *vacuata*, p. 336, pl. iii, fig. 2, *rubellata*, figg. 3-5, p. 337, Centr. Asia, *dæmoniata*, Japan, fig. 9, p. 339, *chesiata*, p. 340, figg. 13, 14, *diffisata*, p. 342, fig. 15, *vicariata*, p. 343, fig. 17, with var. *adjunctata*, p. 344, fig. 18, *relictata*, p. 345, fig. 19, *assectata*, p. 346, figg. 20, 21, Centr. Asia, *novata*, Taurus, p. 348, fig. 22, *recens*, p. 349, fig. 26, *scortillata*, p. 351, fig. 28, sp. ? fig. 29, p. 352, *extinctata*, p. 356, fig. 33, *illaborata*, fig. 34, p. 357, Centr. Asia, *dearmata*, Mesopotamia, p. 358, fig. 35, *laterata*, pl. iv, fig. 28, *concremata*, fig. 29, p. 360, Centr. Asia, DIETZE, Deutsche ent. Zeitschr. Iris xvi, **n. spp.**
- Eusenea castanea*, Peru, WARREN, p. 570, Nov. Zool. xi, **n. sp.**



- Eustroma nubilata*, life-history, DYAR, p. 29, Psyche xi.
- Eutomopepla fulgorifera*, Bolivia, WARREN, p. 139, Nov. Zool. xi; *E. brunnea*, Bolivia, DOGNIN, p. 367, Ann. Soc. ent. Belgique xlvi: **n. spp.**
- Exelis extorris*, Natal, WARREN, p. 482, Nov. Zool. xi; *E. ? fumida*, Colorado, WARREN, p. 581, t. c. **n. sp.**
- Fisera perplexata* = (*Criomacha belidearia* Feld.), WARREN, p. 492, Nov. Zool. xi.
- Fulguroides subnotata*, Peru, WARREN, p. 545, t. c. **n. sp.**
- Gabriola n. g. Ennominae*, p. 255, *G. dyari n. sp.*, Vancouver, p. 256, TAYLOR, Canad. Ent. xxxvi.
- Gagitodes plumbinotata*, Peru, WARREN, p. 519, Nov. Zool. xi, **n. sp.**
- Gastrina* Guen. = (*Passa* Walk.), *G. serrata* Walk. (as *Xylina*) = (*denticulata* Swinh.), SWINHOE, p. 133, Ann. Nat. Hist. xiv.
- G. catasticta*, Queensland, TURNER, p. 237, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Gelasma stigmatica*, Peru, WARREN, p. 20, Nov. Zool. xi, **n. sp.**
- Geolyces rufaria*, Old Calabar, SWINHOE, p. 519, Tr. ent. Soc. London 1904, **n. sp.**
- Gnophos obscurata* var. *n. mediorhenana*, pl. ii, fig. 13, p. 41, FUCHS, Jahrb. Nassau. Ver. lvii; *G. lineolaria* ♀, pl. vi, fig. 21, p. 300, PÜNGELER, Deutsche ent. Zeitschr. Iris xvi; *G. obfusca*, *glaucinaria*, distinctions, PROUT, p. 121, Ent. Rec. xvi; *G. pentheri*, p. 282, pl. v, fig. 19, REBEL, Ann. Hofmus. Wien xix.
- G. orbicularia*, p. 297, pl. vi, fig. 16, *exsuctaria*, p. 298, fig. 17, Issyk-kul, PÜNGELER, Deutsche ent. Zeitschr. Iris xvi, **n. spp.**
- Gonanticlea subpilosa*, Batjan, WARREN, p. 488, Nov. Zool. xi, **n. sp.**
- Gonochlora n. g.* near *Iodis*, *G. minutaria n. sp.*, Sierra Leone, SWINHOE, p. 548, Tr. ent. Soc. London 1904.
- Gonodela leighi*, Durban, *interlineata*, p. 478, *transvisata*, p. 479, Angola, WARREN, Nov. Zool. xi, **n. spp.**
- Gonodontis bidentata* var. *n. exsul*, TSCHETVERIKOV, p. 78, Rev. Russe Ent. iv.
- G. azelinaria*, p. 526, *æmoniaria*, p. 527, Trop. Africa, SWINHOE, Tr. ent. Soc. London 1904, **n. sp.**
- Grammicopteryx n. g.* for *Larentia anthocharidaria* Oberth., THIERRY-MIEG, p. 183, Naturaliste 1904.
- Gymnoscelis lophopus*, p. 224, *delocyma*, p. 226, *acidna*, p. 227, Australia, TURNER, P. Soc. Victoria xvi, **n. spp.**
- Gyostega n. g. Palyadinae*, p. 93, *G. floccosa n. sp.*, Peru, p. 94, WARREN, Nov. Zool. xi.
- Habrosyne scripta*, early stages, DYAR, p. 885, P. U. S. Mus. xxvii.
- Hæmulea atridiscata*, Peru, WARREN, p. 37, Nov. Zool. xi, **n. sp.**
- Haggardia n. g.* for part of *Eubyja*, with *H. melanostigma n. sp.*, Angola, WARREN, p. 473, t. c.
- Hammaptera æruginata*, Bolivia, *apicata*, p. 51, *nigrolineata*, Paraguay, *cacuminata*, Peru, p. 52, *subalbata*, Bolivia, p. 53, WARREN, t. c. **n. spp.**
- Hemerophila mailaria*, Congo, SWINHOE, p. 535, Tr. ent. Soc. London 1904; *H. brunnearia*, Korea, HERZ, p. 367, pl. i, fig. 5, Annuaire Mus. St. Petersb. ix; *H. alpinella*, p. 746, *kincaidiella*, p. 747, Brit. Columbia, BUSCK, P. U. S. Mus. xxvii: **n. spp.**
- Hemicopsis n. g.* p. 525, *H. purpuraria n. sp.*, E. Africa, p. 526, SWINHOE, Tr. ent. Soc. London 1904.
- Hemigymnodes*, characters and position, WARREN, p. 17, Nov. Zool. xi.
- Hemioplisis ? alternata*, Peru, p. 5, *metallica*, Trinidad, p. 6, WARREN, t. c. **n. spp.**
- Hemitheia sapoliaria*, Mombasa, SWINHOE, p. 547, Tr. ent. Soc. London 1904, **n. sp.**

- Hemixera* n. g. *Ennominae*, *H. orthosioides* n. sp., Peru, WARREN, p. 139, Nov. Zool. xi.
- Herbita emula, cervina*, Mexico, WARREN, p. 140, t. c. n. spp.
- Hetererannis* n. g. type *Boarmia obliquaria* Grote, WARREN, p. 106, t. c.
- Heterephyra pustulata*, Peru, WARREN, p. 37, t. c. n. sp.
- Heterorachis rubella*, Niger, WARREN, p. 465, t. c. n. sp.
- Heteroleuca* n. g. *Nephodiinae*, *H. albida* n. sp., Peru, WARREN, p. 101, t. c.
- Heterolocha xerophilaria*, Ain-Dschidi, PÜNGELER, p. 295, pl. vi, fig. 13, Deutsche ent. Zeitschr. Iris xvi, n. sp.
- Heterusia amplificata*, Peru, *fractifuscia, liturata*, Ecuador, p. 89, *ludisignata, subspurcata*, p. 90, *thyridata*, p. 91, Peru, WARREN, Nov. Zool. xi; *H. binotata* with var. *suffusa*, p. 536, Peru, *clarimargo*, Costa Rica, *tessellata*, Peru, p. 537, WARREN, t. c.; *H. picata*, Bolivia, DOGNIN, p. 120, Ann. Soc. ent. Belgique xlviii : n. spp.
- Heterusia*, see also *Bombyces*.
- Himeromima* n. g. for *Mecoceras aulis* Druce, WARREN, p. 141, Nov. Zool. xi.
- Hirasa? denticulata*, Natal, WARREN, p. 473, t. c. n. sp.
- Homospora* n. g. near *Arrhodia*, p. 229, *H. procrita* n. sp., Townsville, p. 230, TURNER, Tr. R. Soc. S. Austral. xxviii.
- Hyalopola* n. n. for *Hyalospila* Warr., WARREN, p. 101, Nov. Zool. xi.
- Hyalorrhoe* n. g. near *Prohydata*, *H. stigmatica* n. sp., Costa Rica, WARREN, p. 21, Nov. Zool. xi.
- Hydata diaphana*, Peru, WARREN, p. 86, t. c. n. sp.
- Hydatocapnia subapicata*, Niger, WARREN, p. 469, t. c. n. sp.
- Hydatoscia* n. g. type *Trygodes ategna* Druce, WARREN, p. 101, t. c.
- Hydriomena*, cf. *Rhodomena*.
- Hydriomena psarodes*, p. 253, *callima*, p. 257, *trissophrica*, p. 259, *crocata*, p. 261, *plagiocauستا*, p. 263, *arachnitis*, p. 264, *plesia, loxocyma*, p. 265, Australia, TURNER, P. Soc. Victoria xvi; *H. ochreiplaga*, Colombia, WARREN, p. 53, Nov. Zool. xi; *H. scalata*, Oregon, WARREN, p. 519, t. c. : n. spp.
- Hygrochroma flexilinea*, p. 141, *subusta*, p. 142, Peru, WARREN, t. c.; *H. catenulata*, Bolivia, WARREN, p. 571, t. c. : n. spp.
- Hylemera auridisca*, p. 471, *capitifera*, p. 472, Niger, WARREN, t. c. n. spp.
- Hymenomima carneata, rufata*, p. 109, *schisticolor*, p. 110, Peru, WARREN, t. c. n. spp.
- Hyperitis trianguliferata*, p. 64, *H. amicaria*, p. 65, life-histories, DYAR, Psyche xi.
- Hyperythra rubricata* not a var. of *lutea*, ab. n. *decolor*, WARREN, p. 491, Nov. Zool. xi.
- Hyphedyle subornata*, Peru, WARREN, p. 499, t. c. n. sp.
- Hyphenophora amonia*, Uganda, SWINHOE, p. 498, Tr. ent. Soc. London 1904, n. sp.
- Hypochrosis ationaria*, Madagascar, SWINHOE, p. 522, t. c. n. sp.
- Hypolepis* n. g. near *Psaliodes*, *H. albistriga*, p. 54, *castanea, conspersata, plumbescens*, p. 55, *prunicolor, sordida*, p. 56, *strigosa*, p. 57, n. spp., Peru, WARREN, Nov. Zool. xi; *H. brunneata, completa*, Peru, WARREN, p. 520, t. c. n. spp.
- Hypometalla* n. g. for *Acidalia mimetaria* Feld., WARREN, p. 563, t. c.
- Hyposidra smithi*, Congo, WARREN, p. 480, t. c. n. sp.
- Ira dislocata*, p. 142, *funerea, igniplaga*, p. 143, *ochriplaga, opalizaas*, p. 144, Peru, *somnolenta*, Colombia, *viridirufa*, Peru, p. 145, WARREN, t. c. n. spp.
- Iridopsis schistacea* ab. n. *radiata*, WARREN, p. 554, t. c.
- I. alternata*, p. 553, *striata*, p. 554, WARREN, t. c.; *I. candidata*, Bolivia, p. 110, *schistacea*, Peru, p. 111, WARREN, t. c.; *I. commixtata*,

- Tucuman, DOGNIN, p. 121, Ann. Soc. ent. Belgique xlviii; *I. rectura*, p. 363, *obliquata*, p. 364, Argentina, DOGNIN, t. c. : **n. spp.**
- Ischnopteris abnormipalpis*, p. 116, *albiguttata*, *fidelis*, p. 117, *oppositata*, p. 118, Peru, WARREN, Nov. Zool. xi; *I. albipennis*, p. 556, *discolor*, *festiva*, p. 557, *prælateata* with ab. n. *albirupta*, *viridifascia*, p. 558, Peru, WARREN, t. c. : **n. spp.**
- Ischnopteryx viriosa*, Peru, DOGNIN, p. 365, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Isochromodes atristicta* with ab. *dissipata*, p. 146, *auxilians* with var. *denotata*, p. 147, *crassa*, *fraterna*, p. 148, *grisea*, *latifascia*, p. 149, *pallidifimbria*, *palumbata*, p. 150, *terminata*, *vestigata*, p. 151, Peru, WARREN, Nov. Zool. xi; *I. duplicata*, *maculosata*, p. 572, *miniata*, p. 573, Peru, WARREN, t. c. : **n. spp.**
- Isodiscodes n. g. Hydriomeninæ*, *I. polycyina n. sp.*, Peru, WARREN, p. 521, t. c.
- Josia erectistria*, *longistria*, Ecuador, p. 17, *vulturata*, Peru, p. 18, WARREN, t. c. **n. spp.**
- Lampropteryx trilineata*, Colorado, WARREN, p. 57, t. c. **n. sp.**
- Larentiidae*, review of variation in, PROUT, pp. 151–156, Entomologist 1904.
- Larentia multistrigaria* varr., TUTT, pp. 303–305, Ent. Rec. xvi; *L. corydalaria* var. n. *bogumularia*, REBEL, p. 267, pl. v, figg. 16, 17, Ann. Hofmus. Wien xix; *L. badiata* var. n. *alpestris*, NEUBURGER, p. 20, Soc. ent. xix; *L. corylata* var. n. *albida*, HERZ, p. 17, Ofv. Finska Forh. xlv, No. 15; *L. infidaria*, pl. iii, figg. 33–35, p. 68, *letaria*, fig. 36, *larentiaria*, p. 71, fig. 37, *cyana*, figg. 38, 39, OBERTHÜR, Études comp. i.
- L. expiata*, Aksu, p. 292, pl. vi, fig. 9, *defricata*, Nikko, p. 293, fig. 10, *ocata*, fig. 11, *querulata*, fig. 12, p. 294, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xvi, **n. spp.**
- Lasiops ? puechi*, Peru, DOGNIN, p. 368, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Leucoctenorrhœ n. g.* near *Amaurinia*, p. 526, *L. quadrilinea n. sp.*, Peru, p. 527, WARREN, Nov. Zool. xi.
- Leucolithodes n. g.* for *Bryoptera pantherata* Feld., WARREN, p. 582, t. c.
- Leuconotha persordida*, Bolivia, WARREN, p. 6, t. c. **n. sp.**
- Leucoreas n. g. Enochrominæ*, p. 12, *L. rhodosticta n. sp.*, Peru, p. 13, WARREN, t. c.
- Leuculopsis bilineata*, Peru, WARREN, p. 101, t. c.; *L. approximans*, Peru, DOGNIN, p. 362, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Lignoptera thaumastaria*, p. 278, pl. v, fig. 18, REBEL, Ann. Hofmus. Wien xix.
- Ligonia bottgeri*, Peru, WARREN, p. 513, Nov. Zool. xi, **n. sp.**
- Lipomelia scintillans*, Brit. Guiana, p. 37, *subfuscata*, Bolivia, p. 38, WARREN, t. c. **n. spp.**
- Lissochlora flavilimes*, Peru, WARREN, p. 21, t. c.; *L. punctata*, St. Lucia, WARREN, p. 504, t. c. : **n. spp.**
- Lomographa acutipennis*, *albifrons*, S. America, WARREN, p. 92, t. c. **n. spp.**
- Lophochorista n. g.* near *Hydata*, for *Racheospila calliope* Druce, WARREN, p. 22, t. c.
- Lophopygia n. g.* near *Lophotosoma*, *L. griseata n. sp.*, Peru, WARREN, p. 495, t. c.
- Lophotosoma n. g.* near *Epiplema*, *L. ustanalis n. sp.*, Peru, WARREN, p. 7, t. c.
- Loxapicia n. g.* for part of *Apicia*, *L. humerata*, Bolivia, *straminea*, Ecuador, **n. spp.**, WARREN, p. 152, t. c.
- Loxaspilates bluethgeni*, Nikko, PÜNGELER, p. 299, pl. vi, fig. 19, Deutsche ent. Zeitschr. Iris xvi, **n. sp.**
- Lozogramma carneata*, *erubescens*, *sinuata*, Colorado, WARREN, p. 561, Nov. Zool. xi, **n. spp.**

- Luxiaria pudens*, Niger, SWINHOE, p. 504, Tr. ent. Soc. London 1904, **n. sp.**
- Lycauges dapharia*, p. 552, *sevandaria*, *erinaria*, *commaria*, p. 553, Trop. Africa, SWINHOE, t. c. **n. spp.**
- Lygris prunata* var. *n. digna*, THIERRY-MIEG, p. 141, Naturaliste 1904.
- Macaria minorata* var. *n. incolorata*, DYAR, p. 906, P. U. S. Mus. xxvii.
- M. bifilaria*, Bahamas, HAMPSON, p. 176, Ann. Nat. Hist. xiv, **n. sp.**
- Malacodea regelaria* at St. Petersburg, characters, KUSNEZOV, pp. 40-43, cuts, Rev. Russe Ent. iv, & BLOECKER, p. 210, t. c.
- Marmopteryx elongata*, Peru, THIERRY-MIEG, p. 141, Naturaliste 1904, **n. sp.**
- Mecoceras*, cf. *Himeromima*.
- Melanchroia geometroides*, larva, DYAR, p. 77, P. ent. Soc. Washington vi.
- Melanippe rivata*, *fluctuata* varr., WOODBRIDGE, p. 9, cuts, Entomologist 1904.
- Melanosia n. g.* near *Iridopsis*, p. 111, *M. albimacula*, *felina*, p. 112, *occlusa*, p. 113, **n. spp.**, Peru, WARREN, Nov. Zool. xi.
- Melanophia canadaria* var. *n. subgenericata*, DYAR, p. 910, P. U. S. Mus. xxvii.
- Melinodes contacta*, Bolivia, WARREN, p. 153, Nov. Zool. xi; *M. subapicata*, Peru, p. 573, WARREN, t. c. : **n. spp.**
- Melochlora intermedia*, Peru, WARREN, p. 22, t. c. : *M. albiceps*, Peru, WARREN, p. 504, t. c. : **n. spp.**
- Merocausta purpuraria*, Bahamas, HAMPSON, p. 176, Ann. Nat. Hist. xiv, **n. sp.**
- Mesedra n. g.* including *Apicia venusta* Dogn., *M. confinis*, p. 153, *juvenis*, *munda*, p. 154, *subsequa*, *violacea*, p. 155, **n. spp.**, WARREN, Nov. Zool. xi.
- Mesoleuca simulata* var. *n. otisi*, DYAR, p. 898, P. U. S. Mus. xxvii.
- Metallochloa circumscripta*, Solomon islds., WARREN, p. 486, Nov. Zool. xi, **n. sp.**
- Metanema quercivoria* and *Endropia textrinaria* queried as one, TAYLOR, p. 134, Canad. Ent. xxxvi; *M. quercivoraria* and *textrinaria* are one, PEARSALL, p. 162, Canad. Ent. xxxvi; *M. fuliginosa* to *Mimogonodes*, WARREN, p. 576, Nov. Zool. xi.
- M. fuliginosa*, Peru, WARREN, p. 156, Nov. Zool. xi, **n. sp.**
- Miantonota decorata*, Huatuxco, WARREN, p. 22, Nov. Zool. xi; *M. nigri-squama*, Peru, DOGNIN, p. 119, Ann. Soc. ent. Belgique xlvi: **n. spp.**
- Microdes diplodonta*, Tasmania, TURNER, p. 239, P. Soc. Victoria xvi, **n. sp.**
- Microgonia affinis* ♀, *siccifolia* ♂, p. 574, *umbrosa* var. *n. interclarata*, p. 575, WARREN, Nov. Zool. xi.
- M. distans* and ab. *confusa*, p. 156, Bolivia, *guenei*, p. 157, Mexico, *siccifolia*, *subdecorata* with ab. *prunicolor*, p. 158, Peru, *subdentilinea*, Ecuador, *subductaria*, R. Cachabi, p. 159, *versilinea*, Bolivia, p. 169, WARREN, t. c.; *M. particolor*, Paramaribo, p. 574, *subumbrata*, Peru, p. 575, WARREN, t. c.; *M. diluta*, Paraguay, DOGNIN, p. 366, Ann. Soc. ent. Belgique xlvi: **n. spp.**
- Microxydia? colorata*, p. 160, *M. fulvicollis*, p. 161, Peru, WARREN, Nov. Zool. xi; *M. rufifimbriata*, p. 575, *strigosa*, p. 576, Peru, WARREN, t. c. : **n. spp.**
- Milionia aroensis*, pl. iii, fig. 41, *ventralis*, fig. 38, *parva*, fig. 30, *diva*, figg. 39, 40, New Guinea, ROTHSCHILD, p. 321, Nov. Zool. xi, **n. spp.**
- Milocera n. g.* near *Psilocladia*, *M. horaria n. sp.*, Madagascar, SWINHOE, p. 522, Tr. ent. Soc. London 1904.
- Mimandria insularis*, Madagascar, SWINHOE, p. 541, t. c. **n. sp.**
- Mimoprora n. g.* near *Isochromodes*, *M. rubra n. sp.*, Peru, WARREN, p. 161, Nov. Zool. xi.
- Mimosema flexa*, *rufa*, Peru, WARREN, p. 162, t. c. **n. spp.**
- Micopsis leodorata* Guen. (as *Cirsodes*) = (*Laudosia typtaria* Feld.), WARREN, p. 576, t. c.



- M. bella*, Peru, WARREN, p. 162, t. c.; *M. pulverata*, Peru, WARREN, p. 576, t. c. : **n. sp.**
- Monroa n. g.* for *Cymatophora, quinquelinearia* Pack., WARREN, p. 555, t. c.
- Morphomima n. g.* near *Celura*, p. 7, *M. fulvitacta n. sp.*, Colombia, p. 8, WARREN, t. c.
- Nearcha prosedra*, p. 226, *nephocrossa*, p. 227, Queensland, TURNER, Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Nelo versicolor*, Peru, THIERRY-MIEG, p. 182, Naturaliste 1904, **n. sp.**
- Nematocampa completa*, Ecuador, WARREN, p. 163, Nov. Zool. xi; *N. ? confusa*, *N. cuprina*, Peru, WARREN, p. 577, t. c. : **n. spp.**
- Nemoria afflictaria*, Sierra Leone, SWINHOE, p. 549, Tr. ent. Soc. London 1904, **n. sp.**
- Neobapta n. g.* *Deiliniinæ*, p. 92, *N. indecora n. sp.*, Demarara, p. 93, WARREN, Nov. Zool. xi.
- Neocrasis heterograpta*, Peru, WARREN, p. 23, t. c. **n. sp.**
- Neodirudes n. g.* *N. spurcata n. sp.*, Peru, WARREN, p. 8, t. c.
- Neodezia n. g.* for *Odezia albovittata*, WARREN, p. 541, t. c.
- Neofidonia n. g.* *Ascotince*, *N. nigristigma n. sp.*, Peru, WARREN, p. 113, t. c.; *N. olivescens*, Ecuador, WARREN, p. 555, t. c. : **n. sp.**
- Neonemoria n. g.* near *Neocrasis*, p. 23, *N. plana n. sp.*, Bolivia, p. 24, WARREN, t. c.
- Neoplema n. g.* near *Epiplema*, *N. candidata n. sp.*, Peru, WARREN, p. 496, t. c.
- Neopolita n. g.* *Deiliniinæ*, *N. bisecta n. sp.*, Angola, WARREN, p. 470, t. c.
- Neotaxia n. g.* p. 365, *N. plana n. sp.*, Tucuman, p. 366, DOGNIN, Ann. Soc. ent. Belgique xlvi.
- Nipteria apicilineata* Dogn. to *Heteroleuca*, WARREN, p. 545, Nov. Zool. xi.
- N. astychooides, flavipluga, febilis*, p. 102, *oblitaria*, Peru, *subocellata*, Bolivia, p. 103, *transducta, turpis*, p. 104, Peru, WARREN, Nov. Zool. xi.; *N. basiplaga, dispensa*, p. 546, *exclamationis, nigrisignata, occulta*, p. 547, *pallida, partita*, p. 548, *sibylla, trisecta*, p. 549, *unilinea vestigiata*, p. 550, Peru, WARREN, t. c.; *N. rotundata*, Ecuador, DOGNIN, p. 362, Ann. Soc. ent. Belgique xlvi : **n. spp.**
- Nyssia lapponaria*, COCKAYNE, pl. vi, pp. 149, 150, Entomologist 1904; *N. lapponaria*, variation, COCKAYNE, p. 249, cuts, t. c.
- Ochyria thorenaria*, Madagascar, SWINHOE, p. 570, Tr. ent. Soc. London 1904, **n. sp.**
- Odontopera integraria* Guen. to *Colotois*, WARREN, p. 479, Nov. Zool. xi.
- Odontoptila marginata*, Bolivia, WARREN, p. 38, t. c. **n. sp.**
- Edicentra gerydaria*, Ashanti, SWINHOE, p. 530, Tr. ent. Soc. London 1904, **n. sp.**
- Enone xenopis* cf. *Diceratucha*.
- Enoptila costata, filata, leprosata*, p. 120, *prunicolor*, p. 121, Peru, WARREN, Nov. Zool. xi; *Æ. ignea*, Peru, WARREN, p. 559, t. c. : **n. spp.**
- Oligopleura biplagiata*, Peru, WARREN, p. 58, t. c. **n. sp.**
- Oospila atroviridis*, Peru, WARREN, p. 24, t. c.; *O. restricta*, p. 504, *rufiplaga*, p. 505, Peru, WARREN, t. c. : **n. spp.**
- Ophthalmodes albata*, Sumatra, WARREN, p. 490, t. c. **n. sp.**
- Ophthalmophora contrariata*, p. 94, *lineata, orion*, p. 95, *transversata*, p. 96, Peru, WARREN, t. c. **n. spp.**
- Opisthoxia casta*, Mexico, *latioclava*, Peru, p. 542, *vigilans*, Ecuador, p. 543, WARREN, t. c. **n. spp.**
- Oreonoma n. g.* near *Heterusia*, *O. submarmorata n. sp.*, Peru, WARREN, p. 538, t. c.
- Orsonoba zapluta, luteola*, p. 234, *leucoprepes*, p. 235, Queensland, TURNER, Tr. R. Soc. S. Austral. xxviii, **n. spp.**

- Ortholitha bipunctaria* ab. n. *grisescens*, NEUBURGER, Soc. ent. xix, p. 44 ;  
*O. coarctata*, early stages, habits, BRANTS, pp. 63-68, Tijdschr. ent.  
 xlvii.
- Paracomistis subtractata* ♀, WARREN, p. 163, Nov. Zool. xi.
- P. plumosa*, Peru, WARREN, p. 578, t. c. **n. sp.**
- Paracomucha* **n. g.** near *Entephria*, for *Cidaria chalybearia* Moore, WARREN,  
 p. 488, t. c.
- Paradoxodes* **n. g.** near *Pseustoplaca*, *P. subdecora* **n. sp.**, Peru, WARREN,  
 p. 164, t. c.
- Paraplodes* **n. g.** near *Aplodes*, p. 24, *P. aurata* **n. sp.**, Ecuador, p. 25,  
 WARREN, t. c.
- Paromala* **n. g.** near *Perizoma*, *P. elongata* **n. sp.**, Ecuador, p. 58, WARREN,  
 t. c.
- Parourapteryx* **n. g.** for *Metrocampa sulphuraria* Maassen, THIERRY-MIEG,  
 p. 183, Naturaliste 1904.
- Pergama semiusta* var. ? *latifascia*, WARREN, p. 165, Nov. Zool. xi.
- P. plenilunata*, Peru, WARREN, l. c. **n. sp.**
- Peribolodes* **n. g.** *Fidoniinae*, *P. bicolorata* **n. sp.**, Brit. Guiana, WARREN,  
 p. 126, t. c.
- Perigramma nigricosta*, p. 104, *semipleata*, p. 105, Bolivia, WARREN, t. c.  
**n. spp.**
- Perixera sublutunata*, W. Africa, SWINHOE, p. 560, Tr. ent. Soc. London  
 1904 ; *P. impudens*, Galápagos, *P. ? longidiscata*, Townsville, WARREN,  
 p. 487, Nov. Zool. xi : **n. spp.**
- Perizoma aspersa*, Ecuador, DOGNIN, p. 359, Ann. Soc. ent. Belgique xlviij ;  
*P. amplata*, *aureoviridis*, p. 59, *mirifica*, p. 60, Peru, WARREN, Nov.  
 Zool. xi : **n. spp.**
- Pero olivacea*, Tucuman, WARREN, p. 578, t. c. **n. sp.**
- Perusia complicata*, p. 165, *graphica*, *superstes*, p. 166, Peru, WARREN,  
 t. c. ; *P. subsordida*, Peru, WARREN, p. 579, t. c. : **n. spp.**
- Petelia anagogaria*, *binigrata*, p. 122, *purpurea*, p. 123, Peru, WARREN,  
 t. c. ; *P. glabra*, Niger, WARREN, p. 476, t. c. : **n. spp.**
- Petrodava marginata*, Abyssinia, SWINHOE, p. 503, Tr. ent. Soc. London  
 1904, **n. sp.**
- Phæochlæna bialbifera*, Ecuador, WARREN, p. 18, Nov. Zool. xi, **n. sp.**
- Phellinodes leucophasiata*, Peru, THIERRY-MIEG, p. 182, Naturaliste 1904 ;  
*P. interrupta*, *obstructa*, *uniformis*, Bolivia, WARREN, p. 14, Nov.  
 Zool. xi ; *P. absentimacula*, Ecuador, *albifascia*, Peru, WARREN,  
 p. 499, t. c. : **n. spp.**
- Phlebosphales* **n. g.** near *Anticlea*, p. 60, *P. engelkei*, Santa Marta, **n. sp.**,  
 p. 61, WARREN, t. c.
- Phorodesma triangularia*, Madagascar, SWINHOE, p. 551, Tr. ent. Soc.  
 London 1904, **n. sp.**
- Phrygionis modesta*, Minas Geraës, WARREN, p. 91, Nov. Zool. xi ; *P.*  
*argyrosticta*, Bahamas, HAMPSON, p. 176, Ann. Nat. Hist. xiv : **n. spp.**
- Phylloclonta songaria* = (*semicava* Warr.) var. *n. obscura*, DOGNIN, p. 366,  
 Ann. Soc. ent. Belgique xlviij.
- P. carnea*, p. 166, *puritana*, p. 167, *semicava*, *vivida*, p. 168, Peru,  
 WARREN, Nov. Zool. xi ; *P. pseudonyma*, Peru, WARREN, p. 579,  
 t. c. : **n. spp.**
- Pigia semicostata*, Peru, WARREN, p. 39, t. c. **n. sp.**
- Pisoraca sanguinata*, Durban, WARREN, p. 467, t. c. **n. sp.**
- Plerocymia multilinearis*, E. Africa, SWINHOE, p. 567, Tr. ent. Soc. London  
 1904, **n. sp.**
- Pleurotopha* **n. g.** near *Selidosema*, *P. nebridota* **n. sp.**, Brisbane, TURNER,  
 p. 233, Tr. R. Soc. S. Austral. xxviii.
- Pæcilochlora* **n. g.** *Geometrinae*, p. 505, *P. minor* **n. sp.**, Peru, p. 506, and  
*Neocrasis heterograpta* Warr., WARREN, Nov. Zool. xi.

- Polla quadrilineata* to *Sphacelodes*, WARREN, p. 172, t. c.  
*Polyploca flavicornis haverkampfi*, p. 187, pl. i, HAVERKAMPF, Ann. Soc. ent. Belgique xlviii.  
*Polypoetes picaria*, Peru, WARREN, p. 18, Nov. Zool. xi; *P. fuliginosa*, Bolivia, DOGNIN, p. 119, Ann. Soc. ent. Belgique xlviii : n. spp.  
*Porona fidoniata*, Peru, WARREN, p. 560, Nov. Zool. xi, n. sp.  
*Prasinocyma ampla, pictifimbria*, Angola, WARREN, p. 465, t. c. n. spp.  
*Prasinocyma pulcherrima*, W. Africa, p. 544, *asyllaria*, Madagascar, p. 545, SWINHÖE, Tr. ent. Soc. London 1904, n. spp.  
*Problepsis flavistigma*, Trop. Africa, SWINHÖE, p. 564, t. c. n. sp.  
*Probolosceles punctaria*, Madagascar, SWINHÖE, p. 550, t. c. n. sp.  
*Procypha sillaria*, p. 514, *informis*, p. 515, W. Africa, SWINHÖE, t. c. n. spp.  
*Prorocrania* n. g., p. 225, *argyritis* n. sp., W. Australia, p. 226, TURNER, Tr. R. Soc. S. Austral. xxviii.  
*Prostoma* n. g. *Scotopteryginae*, *P. fragilis* n. sp., WARREN, p. 123, Nov. Zool. xi.  
*Provola* n. g. for *Aletis postica* Walker, SWINHÖE, p. 538, Tr. ent. Soc. London 1904.  
*Psaliodes serratilinea* to *Hypolepis*, WARREN, p. 521, Nov. Zool. xi.  
*P. acutangula*, p. 61, *albidulata, aurativena*, p. 62, *citrinata, clathrata*, p. 63, *fractilinea*, p. 64, *ignivenata, inferna*, p. 65, *miniata* (with varr. *fuscata, pallida*), *nevilinea*, p. 66, *nictitans, ossicolor*, p. 67, *pervasata, picta*, p. 68, Peru, *planiplaga*, Costa Rica, *semivasa*, p. 69, *serratilinea, siennata*, p. 70, Peru, *subfulvescens*, Ecuador, *trilunata*, Bolivia, p. 71, *tripartita*, p. 72, *vinosata*, p. 73, Peru, WARREN, t. c.; *P. analiplaga, lilacina*, p. 522, *nodosa, vulpina*, p. 523, Peru, WARREN, t. c.; *P. luticlara*, Peru, DOGNIN, p. 120, Ann. Soc. ent. Belgique xlviii : n. spp.  
*Psamathia impunctata*, Peru, WARREN, p. 496, Nov. Zool. xi, n. sp.  
*Pseudapicia muscivaria*, p. 169, *sororecula*, p. 170, Peru, WARREN, t. c. n. spp.  
*Pseudasellodes* n. g. near *Asellodes*, p. 39, *P. constellata* n. sp., Peru, p. 40, WARREN, t. c.  
*Pseudocrociniis* n. g. type *Crociniis plana* Butl., SWINHÖE, p. 518, Tr. ent. Soc. London 1904.  
*Pseudosterrha lucidaria*, Trop. Africa, SWINHÖE, p. 566, t. c. n. sp.  
*Pseudoteryna bryophanes*, p. 222, *myriosticta*, p. 223, Queensland, TURNER, Tr. R. Soc. S. Austral. xxviii, n. spp.  
*Psilocerea vestitaria*, Madagascar, *umbrosaria*, Uganda, p. 520, *ancaria, dysonaria*, Madagascar, p. 521, SWINHÖE, Tr. ent. Soc. London 1904, n. spp.  
*Psodopsis* n. g. *P. incommoda* n. sp., Bolivia, WARREN, p. 560, Nov. Zool. xi.  
*Psodos alticolaria faucium*, p. 66, fig. 44, OBERTHÜR, Études comp. i.  
*Pterocypha abbreviata*, Paraguay, WARREN, p. 73, Nov. Zool. xi, n. sp.  
*Ptochophyle subumbrata*, Niger, WARREN, p. 467, t. c. n. sp.  
*Ptychopoda lalasaria, fylloidaria*, Trop. Africa, SWINHÖE, p. 559, Tr. ent. Soc. London 1904; *P. circumsticta, torrida*, Angola, *minimaria*, Mombasa, WARREN, p. 468, Nov. Zool. xi; *P. curtaria*, Jamaica, *griseocostata*, Ecuador, p. 40, *inanis*, Jamaica, *lignicolor*, Colombia, *nepticulata*, Venezuela, p. 42, *nigricosta*, Peru, p. 42, WARREN, t. c.; *P. interalbulata*, N. W. Australia, p. 487, *muricolor*, Tonkin, p. 488, WARREN, t. c.; *P. tæniolata*, Peru, WARREN, p. 513, t. c. : n. spp.  
*Pycnoneura turpis*, Bolivia, WARREN, p. 13, t. c.; *P. convergens*, Inambari, WARREN, p. 493, t. c. : n. spp.  
*Pyrinia formosa*, Peru, p. 170, *junctaria*, Bolivia, p. 171, WARREN, t. c.; *P. derasata*, Peru, WARREN, p. 580, t. c. : n. spp.  
*Racheospila dependens*, p. 25, *molliculata, promontoria*, p. 26, Peru, WARREN, t. c.; *R. conflua*, Peru, WARREN, p. 506, t. c. : n. spp.

- Rambara syllaria*, p. 575, *thearia*, p. 576, W. Africa, SWINHOE, Tr. ent. Soc. London 1904, **n. spp.**
- Rhinura* **n. g.** for *Plemyriopsis variegata* Warr., WARREN, p. 74, Nov. Zool. xi.
- Rhodochlora albigmacula*, St. Lucia, WARREN, p. 506, t. c. **n. sp.**
- Rhodomena* **n. g.** for part of *Hydriomena*, *R. lichenosa*, p. 74, *roseoviridis*, p. 75, **n. spp.**, Peru, WARREN, t. c.
- Rhodophthitus castus*, Angola, WARREN, p. 471, t. c. **n. sp.**
- Rhopalista dismutata*, Tucuman, WARREN, p. 75, t. c. **n. sp.**
- Rhopalodes perfusa*, Peru, WARREN, p. 527, t. c. **n. sp.**
- Sabulodes arcasaria*, life-history, SEIFERT, pp. 103-105, Canad. Ent. xxxvi.
- Saccoploca* **n. g.**, p. 8, *S. consimilis, excisa* **n. spp.**, Peru, p. 9, WARREN, Nov. Zool. xi; *S. ? divergens*, p. 496, *S. sordida*, p. 497, Peru, WARREN, t. c. : **n. spp.**
- Sangala aenea, regia*, Peru, WARREN, p. 98, t. c. **n. spp.**
- Sangalopsis curvifera*, Ecuador, *crecens, ficifera*, Peru, p. 99, *flaviplaga, signigera*, Bolivia, *luteiplaga*, Ecuador, *fulvimedia*, Peru, p. 100, WARREN, t. c.; *S. velutina*, Peru, WARREN, p. 544, t. c. : **n. spp.**
- Sarracena brevilinea*, Peru, WARREN, p. 524, t. c. **n. sp.**
- Scea semifulva*, Ecuador, WARREN, p. 19, t. c. **n. sp.**
- Sciagraphia gilletteata*, Colorado, DYAR, p. 105, P. ent. Soc. Washington vi, **n. sp.**
- Scioglyptis emmelodes*, Queensland, TURNER, p. 232, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Scordylia emporias*, Brisbane, TURNER, p. 245, P. Soc. Victoria xvi; *S. pacifica*, Bolivia, *amica*, Peru, THIERRY-MIEG, p. 183, Naturaliste 1904 : **n. spp.**
- Scotocyma* **n. g.** for *Scotosia albinotata* Walk., TURNER, p. 245, P. Soc. Victoria xvi.
- Scotorhyncha dissotis*, p. 351, *metacrossa*, p. 352, *paratactis*, p. 353, *leptias*, p. 354, Hawaiian islands, MEYRICK, Fauna Hawaiiensis iii, **n. spp.**
- Selidosema humarium* var. *n. emasculatum*, DYAR, p. 910, P. U. S. Mus. xxvii.
- S. combustaria*, Palestine, PÜNGELER, p. 298, pl. vi, fig. 18, Deutsche ent. Zeitschr. Iris xvi; *S. crassata*, Durban, *pinguis*, Angola, WARREN, p. 477, Nov. Zool. xi; *S. symmorpha, leucodesma*, Queensland, TURNER, p. 231, Tr. R. Soc. S. Austral. xxviii : **n. spp.**
- Semaepus signifer*, Bolivia, WARREN, p. 42, Nov. Zool. xi; *S. carnearia*, p. 513, Peru, *incolorata*, Bolivia, p. 514, WARREN, t. c.; *S. micropis*, Bahamas, HAMPSON, p. 179, Ann. Nat. Hist. xiv : **n. spp.**
- Semiothisa sherrata*, Congo, p. 505, *cararia*, p. 507, *tattaria, instructaria*, p. 508, *avidaria, arhoparia*, p. 509, *butaria*, p. 510, E. Africa, SWINHOE, Tr. ent. Soc. London 1904; *S. natalensis*, Durban, WARREN, p. 479, Nov. Zool. xi; *S. indentata, intensata*, Peru, *nigricomma*, Guadalajara, WARREN, p. 127, t. c.; *S. formosa*, Peru, WARREN, p. 562, t. c. : **n. spp.**
- Sicya ennomaria*, Mexico, WARREN, p. 171, t. c. **n. sp.**
- Simopteryx obliterata*, Bolivia, WARREN, p. 172, t. c. **n. sp.**
- Sinoa nubiliaria* var. *knappferi*, HOYNINGEN-HUENE, p. 30, Berlin. ent. Zeitschr. xlix.
- Somatina aceraria*, W. Africa, SWINHOE, p. 565, Tr. ent. Soc. London 1904, **n. sp.**
- Spargania दौरa* Dr. (as *Epirrhoë*)=*bellipicta* Warr., WARREN, p. 76, Nov. Zool. xi.
- S. intensa*, p. 76, *rufifimbria, schistacea*, p. 77, *semipallida*, p. 78, Peru, WARREN, t. c. **n. spp.**
- Spilocraspeda* merged in *Isochromodes*, WARREN, p. 146, t. c.
- Spododes basipunctata*, Mexico, WARREN, p. 580, t. c. **n. sp.**
- Stannodes mirifica*, Peru, THIERRY-MIEG, p. 140, Naturaliste 1904, **n. sp.**



- Stegania minutissima*, E. Africa, p. 500, *rubida*, Madagascar, p. 501, SWINHOE, Tr. ent. Soc. London 1904, **n. spp.**
- Stenalcidia latimedia* ab. n. *circumfumata*, WARREN, p. 556, Nov. Zool. xi.
- S. fumibrunnea, guttata*, Bolivia, p. 114, *latimedia*, Peru, p. 115, WARREN, t. c. ; *S. invenusta*, Tucuman, DOGNIN, p. 121, Ann. Soc. ent. Belgique xlviii : **n. spp.**
- Stenoplastis albifrons*, Bolivia, p. 501, *semimaculata*, Peru, p. 502, WARREN, Nov. Zool. xi, **n. spp.**
- Stenoplastis spumata*, Bolivia, WARREN, p. 19, Nov. Zool. xi, **n. sp.**
- Sterrha hispidata*, Angola, WARREN, p. 469, t. c. **n. sp.**
- Stilbia faille*, fig. 22, *philopalis*, fig. 23, *calberlæ*, fig. 24, PÜNGELER, pl. vi, p. 300, Deutsche ent. Zeitschr. Iris xvi.
- Synelys impunctata*, Colorado, WARREN, p. 514, t. c. **n. sp.**
- Syngria candidata*, Peru, WARREN, p. 497, t. c. **n. sp.**
- Synneuria ditissima*, Peru, THIERRY-MIEG, p. 141, Naturaliste 1904, **n. sp.**
- Syrtodes* limited and redescrbed, WARREN, p. 124, Nov. Zool. xi.
- Systatica* **n. g.** for *Monocentia xanthastis* Low., TURNER, p. 229, Tr. R. Soc. S. Austral. xxviii.
- Tachyphyle subaurata*, Peru, WARREN, p. 27, Nov. Zool. xi ; *T. æretincta*, Peru, WARREN, p. 507, t. c. : **n. spp.**
- Tallegeda montanata* var. n. *magnoliatoidata*, DYAR, p. 889, P. U. S. Mus. xxvii.
- Tanaorhinus humidaria*, Madagascar, SWINHOE, p. 542, Tr. ent. Soc. London 1904, **n. sp.**
- Taxeotis acrothecta*, p. 223, *orphnina, adelpha*, p. 224, *epigæa*, p. 225, Australia, TURNER, Tr. R. Soc. S. Austral. xxviii, **n. spp.**
- Tephрина presbitaria*, p. 511, *olindaria*, p. 512, Trop. Africa, SWINHOE, Tr. ent. Soc. London 1905 ; *T. disparata*, Colorado, WARREN, p. 562, Nov. Zool. xi : **n. spp.**
- Tephrosopsis fragilis*, Peru, WARREN, p. 562, t. c. **n. sp.**
- Tephrocystia breviculata*, natural history, CHRÉTIEN, pp. 5-7, Naturaliste 1904.
- T. tomillata*, Segovia, CHRÉTIEN, p. 133, Bull. Soc. ent. France 1904 ; *T. orbaria*, p. 571, *mendosaria, perculsaria*, p. 572, *lugubriaria*, p. 573, Trop. Africa, SWINHOE, Tr. ent. Soc. London 1904 ; *T. niphadophilata, cootenaiata*, p. 890, *casloata, columbiata, bifasciata*, p. 891, *subfoveata*, p. 892, British Columbia, DYAR, P. U. S. Mus. xxvii ; *T. curvifascia*, Jamaica, *costivallata, rubellicincta*, p. 87, *trigenuata*, Peru, *spurcata*, Chile, p. 88, WARREN, Nov. Zool. xi ; *T. brunneicosta, casta*, p. 530, *cupreata, densicauda, erectinota*, p. 531, Peru, *magnipuncta*, Bolivia, *nigrithorax*, p. 532, *pallidicosta*, p. 533, *seminigra, suffecta, triangulifera*, p. 534, Peru, WARREN, t. c. : **n. spp.**
- Tephronia? novella*, Ecuador, WARREN, p. 115, t. c. **n. sp.**
- Tetracis inquinata*, Peru, WARREN, p. 581, t. c. **n. sp.**
- Thalaina angulosa*, larva and pupa, GOUDIE, p. 111, Victorian Natural. xxi.
- Thalassodes nivestrata* (1903), pl. iii, fig. 36, ROTHSCHILD, Nov. Zool. xi.
- T. satutaria*, Uganda, SWINHOE, p. 544, Tr. ent. Soc. London 1904, **n. sp.**
- Thalera? turpisaria*, W. Africa, SWINHOE, p. 546, t. c. **n. sp.**
- Thamnonoma nubilata*, Colorado, WARREN, p. 563, Nov. Zool. xi, **n. sp.**
- Therina somniaria*, larva, DYAR, p. 76, P. ent. Soc. Washington vi.
- Thyatira dinawa*, pl. v, fig. 43, p. 381, *ekeikei*, pl. iv, fig. 31, p. 382, New Guinea, BETHUNE-BAKER, Nov. Zool. xi ; *T. godalma*, Mexico, SCHAUS, p. 152, T. Amer. ent. Soc. xxx : **n. spp.**
- Thysanocraspeda* **n. g.** *Epipleminæ*, p. 9, *T. geminipuncta, inornata, semicastanea*, p. 10, *squamiplaga*, p. 11, **n. spp.**, Peru, WARREN, Nov. Zool. xi.
- Thysanoctena* **n. g.** for *dormita* Schaus, WARREN, p. 535, t. c.

- Thysanopyga fulvifascia*, Ecuador, p. 124, *suffecta*, Bolivia, p. 125, WARREN, t. c. **n. spp.**
- Tithraustes aliena*, Bolivia, DOGNIN, p. 119, Ann. Soc. ent. Belgique xlvi; *T. subalbata*, Bolivia, DOGNIN, p. 358, t. c. : **n. spp.**
- Tmetomorpha* **n. g.** for *Ennomos bitias* Druce, WARREN, p. 173, Nov. Zool. xi.
- Tracheops bolteri* ♀, DYAR, p. 106, P. ent. Soc. Washington vi.
- Tramindu variegata*, Trop. Africa, SWINHOE, p. 562, Tr. ent. Soc. London 1904, **n. sp.**
- Trichoclystis* **n. g.** near *Tephroclystia*, *T. peregrina* **n. sp.**, Peru, WARREN, p. 535, Nov. Zool. xi.
- Trichosterrha* **n. g.** near *Sterrha*, *T. ? brunneofasciata*, *dentatilinea*, Venezuela, *T. olivata*, Peru, **n. spp.**, WARREN, p. 515, t. c.
- Trigonomelea* **n. g.** *Ascotinea*, *T. semifusca* **n. sp.**, Durban, WARREN, p. 475, t. c.
- Triphosa ochricostata*, *uniplaga*, Peru, WARREN, p. 524, t. c. **n. sp.**
- Trotorhombia* **n. g.** for *Erosia metachromata* Walk., WARREN, p. 498, t. c.
- Uliura* **n. g.** near *Pecilalcis*, *U. pallidimargo* **n. sp.**, Tonkin, WARREN, p. 491, t. c.
- Urocalpe* **n. g.** near *Plemyriopsis*, p. 78, *U. nigriplaga* **n. sp.**, Peru, p. 79, WARREN, t. c.
- Venilia pulcheraria*, Korea, HERZ, p. 362, pl. i, fig. 2, Annuaire Mus. St. Petersb. ix, **n. sp.**
- Xanthomima isabellina*, Isabel Isld., WARREN, p. 489, Nov. Zool. xi, **n. sp.**
- Xanthorhoe agelasta*, p. 272, *clascia*, p. 275, Australia, TURNER, P. Soc. Victoria xvi, **n. spp.**
- Xenostega sinna*, *tyana*, Old Calabar, SWINHOE, Tr. ent. Soc. London 1904, **n. spp.**
- Zamaera diaphanaria*, Askhabad, PÜNGELER, p. 295, pl. vi, fig. 14, Deutsche ent. Zeitschr. Iris xvi, **n. sp.**
- Zamarada ilaria*, *rufilinearia*, p. 516, *ixiaria*, *phrontisaria*, p. 517, Trop. Africa, SWINHOE, Tr. ent. Soc. London 1904, **n. spp.**
- Zeuctoneura subviridis*, Peru, WARREN, p. 43, Nov. Zool. xi, **n. sp.**
- Zeuctophlebia tapinodes*, Queensland, TURNER, p. 228, Tr. R. Soc. S. Austral. xxviii, **n. sp.**
- Zeuctostyla* **n. g.** near *Perigramma*, *Z. rubricollis* **n. sp.**, Peru, WARREN, p. 105, Nov. Zool. xi.

## PYRALIDÆ, THYRIDIDÆ.

[Cf. DOGNIN (398), DYAR (424, 432, 434, 436, 438), HAMPSON (653), HOLE (696), JORDAN (771), MEYRICK (947, 948), PETRY (1039), REBEL (1122), SAUBER (1212), SCHAUS (1225), SWINHOE (1361, 1364), TURNER (1410), VAN DEVENTER (1428), WARREN (1474-1477).]

Revision of Australian *Pyralidæ* and *Thyrididæ*, TURNER, P. Soc. Queensland xviii. The synonymy and taxonomical changes of this memoir are not dealt with below.

DYAR gives notes on the *Phycitinae* of the Hulst collection, for which reference must be made to P. ent. Soc. Washington vi, pp. 227-229.

*Ambesa busckella*, Maryland, DYAR, p. 108, P. ent. Soc. Washington vi, **n. sp.**

*Ampycophora haploschema*, Queensland, TURNER, p. 117, P. Soc. Queensland xviii, **n. sp.**

*Anaclastus* **n. g.** for *Crambus apicistrigellus* Meyr., TURNER, p. 164, t. c.

*Anerastria eurysticha*, Queensland, TURNER, p. 119, t. c. **n. sp.**

*Anerastidia ebenopasta*, Queensland, TURNER, p. 122, t. c. **n. sp.**

- Anisothrix grenadensis*, Grenada, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Arnatula tympanophora*, Queensland, TURNER, p. 193, P. Soc. Queensland xviii, **n. sp.**
- Asopia manihotalis*, early stages, VAN DEVENTER, p. 79, pl. ix, fig. 1, Tijdschr. Ent. xlvi.
- Atascosa quadricolorella*, New Mexico, DYAR, p. 116, P. ent. Soc. Washington vi, **n. sp.**
- Azochis rufidiscalis*, Bahamas, HAMPSON, p. 186, Ann. Nat. Hist. xiv, **n. sp.**
- Banisia salmo*, Borneo, WARREN, p. 483, Nov. Zool. xi, **n. sp.**
- Bonchis magnalis*, Mexico, SCHAUS, p. 177, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Bostra disticha*, Queensland, TURNER, p. 190, P. Soc. Queensland xviii, **n. sp.**
- Bradina opacusalis*, Borneo, SWINHOE, p. 156, Tr. ent. Soc. London 1904, **n. sp.**
- Cabnia n. g. C. myronella n. sp.*, Washington, DYAR, p. 108, J. N. York Ent. Soc. xii.
- Cacotherapia n. g. for Aurora nigrocinereella* Hulst, DYAR, p. 160, P. ent. Soc. Washington vi.
- Caphys titana*, Mexico, SCHAUS, p. 177, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Catadupa viridiplaga*, Parana, SCHAUS, p. 177, t. c. **n. sp.**
- Caudellia n. g. near Unadilla, C. apyrella, albovitella n. spp.*, N. America, DYAR, p. 116, P. ent. Soc. Washington vi.
- Cecidipta abnormalis*, Bolivia, DOGNIN, p. 123, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Ceroprepes mniaropis*, Queensland, TURNER, p. 151, P. Soc. Queensland xviii, **n. sp.**
- Chilo oxyprora*, Victoria, TURNER, p. 167, t. c. **n. sp.**
- Chrysaugæ jonesalis*, Parana, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Coryra asthenitis*, Townsville, TURNER, p. 155, P. Soc. Queensland xviii, **n. sp.**
- Crambus lithargyrellus* var. *n. domaviellus*, pl. v, fig. 20, p. 304, REBEL, Ann. Hofmus. Wien xix.
- C. xerxes*, Anklam, SAUBER, p. 108, Verh. Ver. Hamburg Unterh. xii; *C. plumbijmbrialis, murellus*, British Columbia, DYAR, p. 919, P. U. S. Mus. xxvii : **n. spp.**
- Cryptoblabe plagioleuca, adoceta*, Queensland, TURNER, p. 150, P. Soc. Queensland xviii, **n. spp.**
- Desmia microstictalis*, Bahamas, HAMPSON, p. 184, Ann. Nat. Hist. xiv, **n. sp.**
- Diptychophora stenura*, p. 168, *molydocrossa*, p. 169, *alypophanes, dialeuca*, p. 170, Queensland, TURNER, P. Soc. Queensland xviii, **n. spp.**
- Dysodia flammata*, Zomba, WARREN, p. 461, Nov. Zool. xi, **n. sp.**
- Ecbletodes n. g. near Homæosoma*, p. 124, *E. psephenias n. sp.*, Brisbane, p. 125, TURNER, P. Soc. Queensland xviii.
- Endotricha chionocosma*, p. 182, *psammitis*, p. 183, *hemicausta*, p. 184, Australia, TURNER, t. c. **n. spp.**
- Ephesia cahiritella*, early stage, VAN DEVENTER, p. 80, pl. ix, fig. 2, Tijdschr. Ent. xlvi.
- E. nonparilella*, Arizona, DYAR, p. 113, P. ent. Soc. Washington vi; *E. amarella*, British Columbia, DYAR, p. 921, P. U. S. Mus. xxvii : **n. spp.**
- Ephesiodes benjaminella*, British Columbia, DYAR, p. 922, t. c. **n. sp.**
- Epipashia superantalis*, p. 249, *zelleri*, p. 250, early stages, DYAR, J. N. York Ent. Soc. xii.
- E. crypserythra*, Tasmania, TURNER, p. 198, P. Soc. Queensland xviii, **n. sp.**
- Eurhythma n. g. for Platytes latifasciella* Hamps., TURNER, p. 168, t. c.

- Eurypta viridis*, Parana, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxx, **n. sp.**  
*Eutrichocera n. g. Phycitinae* for *paurolepidalis n. sp.*, Bahamas, HAMPSON, p. 182, Ann. Nat. Hist. xiv.  
*Euzophera gigantella*=(*cinerella* Hulst), DYAR, p. 158, P. ent. Soc. Washington vi.  
*Euzopherodes leptocosma*, Townsville, TURNER, p. 127, P. Soc. Queensland xviii; *E. megalopalis*, Bahamas, HAMPSON, p. 181, Ann. Nat. Hist. xiv : **n. spp.**  
*Gephyra costinotata*, Peru, *galgula*, Parana, SCHAUS, p. 175, Tr. Amer. ent. Soc. xxx, **n. spp.**  
*Glyphodes intermedialis*, Paraguay, DOGNIN, p. 129, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Herculia acerasta*, Queensland, TURNER, p. 189, P. Soc. Queensland xviii, **n. sp.**  
*Heterobella n. g.* near *Macalla*, p. 193, *H. triglochis n. sp.*, Queensland, p. 194, TURNER, t. c.  
*Heteromicta poliostola*, Queensland, TURNER, p. 158, t. c. **n. sp.**  
*Homœosoma stenopsis*, Victoria, *farinaria*, Tasmania, TURNER, p. 126, t. c.; *H. reliquellum*, New Hampshire; DYAR, p. 112, P. ent. Soc. Washington vi : **n. spp.**  
*Hymenia exodias*, Molokai, MEYRICK, p. 150, Ent. Mag. xl, **n. sp.**  
*Hyperectis n. g.*, p. 356, near *Stenia, dioctias n. sp.*, Maui, p. 357, MEYRICK, Fauna Hawaiiensis iii.  
*Hyphantidium apodectum, seminivale*, p. 129, *pamphäes*, p. 130, Queensland, TURNER, P. Soc. Queensland xviii, **n. spp.**  
*Hypolamprus tessellata*, Sumatra, SWINHOE Ann. Nat. Hist. xiv, **n. sp.**  
*Hypolophota n. g. Gallerianæ, H. oödes*, p. 155, *amydrastis*, p. 156, **n. spp.**, Queensland, TURNER, P. Soc. Queensland xviii.  
*Hypsotropa pleurosticha*, p. 115, *icasmopis, rhodosticha*, p. 116, *zophopleura, acidinias*, p. 117, Australia, TURNER, t. c. **n. spp.**  
*Lætulia*=(*Laosticha* Rag.), DYAR, p. 159, P. ent. Soc. Washington vi.  
*L. fiskeella*, N. Carolina, DYAR, p. 221, t. c. **n. sp.**  
*Lepidomys sobria*, Paraguay, DOGNIN, p. 126, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Leucinodes labefactalis*, Borneo, SWINHOE, p. 158, Tr. ent. Soc. London 1904, **n. sp.**  
*Leucochroma neutralis*, Ecuador, DOGNIN, p. 127, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Loxiorkiza n. g.* for *Zeuzerodes cervinalis* Pag., WARREN, p. 494, Nov. Zool. xi.  
*Lygropia fusalis*, Bahamas, HAMPSON, p. 186, Ann. Nat. Hist. xiv, **n. sp.**  
*Macalla zophera*, p. 196, *ebenina*, p. 197, Queensland, TURNER, P. Soc. Queensland xviii; *M. admotalis*, p. 122, *albulatalis*, p. 123, S. America, DOGNIN, Ann. Soc. ent. Belgique xlvi : **n. spp.**  
*Margaronia amicalis*, E. Africa, *cleonadalis*, Borneo, SWINHOE, p. 157, Tr. ent. Soc. London 1904, **n. spp.**  
*Megasis caudellella, piperella*, N. America, DYAR, p. 110, P. ent. Soc. Washington vi, **n. spp.**  
*Meroptera liquidambarella*, Washington, DYAR, p. 108, t. c. **n. sp.**  
*Mesolia scythrastis*, Queensland, TURNER, p. 164, P. Soc. Queensland xviii, **n. sp.**  
*Mestolobes antichora*, Oahu, MEYRICK, p. 361, Fauna Hawaiiensis iii; *M. sicaria*, Molokai, MEYRICK, p. 131, Ent. Mag. xl : **n. spp.**  
*Mimorista longidentalis*, Peru, *pellucidalis*, Ecuador, DOGNIN, p. 128, Ann. Soc. ent. Belgique xlvi, **n. spp.**  
*Morova? innotata*, Townsville, WARREN, p. 483, Nov. Zool. xi, **n. sp.**  
*Nachaba fluella, aromalis, arouva*, p. 176, *N.? violascens*, p. 177, S. America, SCHAUS, Tr. Amer. ent. Soc. xxx, **n. spp.**



- Nacoleia albicinctalis*, p. 184, *infuscalis*, *binocularis*, p. 185, Bahamas, HAMPSON, Ann. Nat. Hist. xiv, **n. spp.**
- Nephoteryx syntaractis*, p. 145, *epicrypha*, p. 147, Queensland, TURNER, P. Soc. Queensland xviii, **n. spp.**
- Niphostola punctata*, Borneo, SWINHOE, p. 156, Tr. ent. Soc. London 1904, **n. sp.**
- Noorda candidalis*, Ecuador, DOGNIN, p. 131, Ann. Soc. ent. Belgique xlvi, **n. sp.**
- Nyctereutica* **n. g.** type *N. asbolopis* **n. sp.**, Queensland, TURNER, p. 192, P. Soc. Queensland xviii.
- Ollia* **n. g.**, p. 107, *O. santaritella* **n. sp.**, Arizona, p. 108, DYAR, J. N. York Ent. Soc. xii.
- Omiodes accepta*, larva, DYAR, p. 65, P. ent. Soc. Washington vi.
- O. antidoxa*, Oahu, MEYRICK, p. 358, Fauna Hawaiiensis iii, **n. sp.**
- Omphaloptera virginialis*, *completalis*, p. 126, *O.? stigmatalis*, p. 127, S. America, DOGNIN, Ann. Soc. ent. Belgique xlvi, **n. spp.**
- Orthaga orchidivora*, Queensland, TURNER, p. 199, P. Soc. Queensland xviii, **n. sp.**
- Ortholepis gillettella*, Colorado, DYAR, p. 107, P. ent. Soc. Washington vi, **n. sp.**
- Pachyzancla fimbrialis*, Ecuador, DOGNIN, p. 130, Ann. Soc. ent. Belgique xlvi, **n. sp.**
- Parabæra* **n. g.** near *Abæra*, *P. nitidalis* **n. sp.**, Ecuador, DOGNIN, p. 125, t. c.
- Paralipsa stenopepla*, Queensland, TURNER, p. 156, P. Soc. Queensland xviii, **n. sp.**
- Passadena* and *Getulia*, synonymy, DYAR, p. 114, P. ent. Soc. Washington vi.
- Pectinigera ardififerella* Hulst, synonymy, DYAR, p. 159, t. c.
- Peoria discostrigella*, Arizona, DYAR, p. 115, t. c. **n. sp.**
- Phlyctænia tilialis*, British Columbia, DYAR, p. 916, P. U. S. Mus. xxvii; *P. lampadius*, Hawaiian islands, MEYRICK, p. 359, Fauna Hawaiiensis iii : **n. spp.**
- Phlyctænodes darwinialis*, Anklam, SAUBER, p. 109, Verh. Ver. Hamburg Unterh. xii, **n. sp.**
- Phryganodes hypoxantha*, Ecuador, DOGNIN, p. 128, Ann. Soc. ent. Belgique xlvi, **n. sp.**
- Phycita corethropus*, p. 138, *adiacritis*, p. 140, *trachystola*, *mixoleuca*, p. 142, *recondita*, *atimeta*, p. 143, Australia, TURNER, P. Soc. Queensland xviii, **n. spp.**
- Pionea arabescalis*, natural history, CHRÉTIEN, pp. 89-92, Naturaliste 1904.
- P. illineatalis*, *viridalis*, Ecuador, DOGNIN, p. 131, Ann. Soc. ent. Belgique xlvi, **n. spp.**
- Polygrammodes interpunctalis*, Peru, DOGNIN, p. 129, t. c. **n. sp.**
- Polyocha rhabdota*, *achrosta*, Queensland, TURNER, p. 122, P. Soc. Queensland xviii, **n. spp.**
- Poujadia callirhoda*, p. 120, *holochra*, p. 121, Australia, TURNER, t. c. **n. spp.**
- Psorosina* **n. g.** near *Psorosa*, *P. angulella* **n. sp.**, Iowa, DYAR, p. 113, P. ent. Soc. Washington vi.
- Pyla hanhamella*, *rainierella*, N. America, DYAR, p. 109, t. c.; *P. pallidella*, Utah, DYAR, p. 107, J. N. York Ent. Soc. xii : **n. spp.**
- Pyralis costalis* var., THURNALL, p. 15, Ent. Mag. xl.
- Pyrausta machoeralis*, natural history, injuries to teak, HOLE, pp. 680-697, J. Bombay Soc. xv; *P. æralis*, Algerian var., CHRÉTIEN, p. 45, Naturaliste 1904.
- P. pyropsalis*, Bahamas, HAMPSON, p. 187, Ann. Nat. Hist. xiv, **n. sp.**

- Rhectosomia? longistrialis*, Ecuador, DOGNIN, p. 130, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Rhodoneura cypholoma*, Queensland, TURNER, p. 112, P. Soc. Queensland xviii, **n. sp.**
- Salebria triplagiella*, Manitoba, DYAR, p. 109, P. ent. Soc. Washington vi, **n. sp.**
- S. bakerella*, p. 105, *furciferella*, *vetustella*, p. 106, N. America, DYAR, J. N. York Ent. Soc. xii, **n. spp.**
- Salobrena phyrea*, Brazil, SCHAUS, p. 175, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Saluria rhodoessa*, Queensland, TURNER, p. 120, P. Soc. Queensland xviii, **n. sp.**
- Sanguesa dyopsata*, Mexico, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Sarata rhoiella*, Colorado, DYAR, p. 105, J. N. York Ent. Soc. xii, **n. sp.**
- Scenidiopis n. g.* for *Persicoptera chionozyga* Low., TURNER, p. 184, P. Soc. Queensland xviii.
- Scirpophaga holophœalis*, Bahamas, HAMPSON, p. 181, Ann. Nat. Hist. xiv, **n. sp.**
- Scoparia liebmanni*, Corsica, PETRY, p. 245, Stettin Ent. Zeit. lxxv; *S. torniplagalis*, Washington, DYAR, p. 105, J. N. York Ent. Soc. xii; *S. normalis*, p. 71, *fernaldalis*, *tricoloralis*, *cinereomedia*, p. 72, N. America, DYAR, Ent. News Philad. xv; *S. gymnopis*, p. 131, *isophœa*, p. 132, Molokai, MEYRICK, Ent. Mag. xl; *S. gonodecta*, p. 362, *catactis*, p. 363, *religiosa*, p. 365, Hawaiian islds, MEYRICK, Fauna Hawaiiensis iii : **n. spp.**
- Selagia lithosella*=(*Honora luteella* Hulst), DYAR, p. 160, P. ent. Soc. Washington vi.
- Semnia mexicanalis*, Mexico, *S.? mirma*, Brazil, SCHAUS, p. 178, Tr. Amer. ent. Soc. xxx, **n. spp.**
- Semniomima mediana*, Parana, SCHAUS, p. 178, t. c. **n. sp.**
- Siculodes triumphans*, Peru, WARREN, p. 1, Nov. Zool. xi; *S. figurata*, *lacteguttata*, Peru, WARREN, p. 493, t. c. **n. spp.**
- Sindris magnifica*, Angola, JORDAN, p. 447, Nov. Zool. xi, **n. sp.**
- Spatulipalpia sophronica*, Queensland, TURNER, p. 149, P. Soc. Queensland xviii, **n. sp.**
- Staudingeria olivacella*, *perluteella*, N. America, DYAR, p. 111, P. ent. Soc. Washington vi, **n. spp.**
- Stenia hieralis*, Borneo, SWINHOE, p. 156, Tr. ent. Soc. London 1904, **n. sp.**
- Stericta multicolor*, *nigrisquama*, S. America, DOGNIN, p. 124, Ann. Soc. ent. Belgique xlviii, **n. spp.**
- Sthenobela n. g.* near *Phycita*, p. 135, *S. niphostibes n. sp.*, Queensland, p. 136, TURNER, P. Soc. Queensland xviii.
- Striglina divisata*, Natuna Ids., WARREN, p. 484, Nov. Zool. xi, **n. sp.**
- Symphonistis n. g.* type *Nephoptyx monospila* Low., TURNER, p. 135, P. Soc. Queensland xviii.
- Tacoma*; characters and components, DYAR, p. 112, P. ent. Soc. Washington vi.
- T. nysæcolella*, N. America, DYAR, p. 112, t. c. **n. sp.**
- Talis isodeta*, *xiphosema*, p. 175, *eucraspeda*, *orthotypa*, p. 176, *haplotypa*, p. 177, Australia, TURNER, P. Soc. Queensland xviii, **n. spp.**
- Tetrastichus leucogramma*, Bahamas, HAMPSON, p. 183, Ann. Nat. Hist. xiv; *T. paula*, Brazil, SCHAUS, p. 177, Tr. Amer. ent. Soc. xxx : **n. spp.**
- Titanoceros poliochyta*, Queensland, TURNER, p. 191, P. Soc. Queensland xviii, **n. sp.**
- Tolima cincaidella*, Wyoming, DYAR, p. 115, P. ent. Soc. Washington vi, **n. sp.**
- Tosale grandis*, Mexico, SCHAUS, p. 176, Tr. Amer. ent. Soc. xxx; *T. filata*, Ecuador, DOGNIN, p. 125, Ann. Soc. ent. Belgique xlviii : **n. spp.**

- Trissonea epiterpes*, p. 132, *capnoëssa*, p. 133, Australia, TURNER, P. Soc. Queensland xviii, **n. sp.**  
*Tylochares sceptucha*, Queensland, TURNER, p. 130, t. c. **n. sp.**  
*Ubidia holomochla*, Queensland, TURNER, p. 165, t. c. **n. sp.**  
*Ulophora brunneella*, p. 106, *tephrosiella*, p. 107, N. America, DYAR, P. ent. Soc. Washington vi, **n. spp.**  
*Varneria n. g.* p. 114, *V. postremella n. sp.*, Kentucky, p. 115, DYAR, t. c.  
*Vitula serratilineella*, generic position, DYAR, p. 158, t. c.  
*Xanthomelaina quinquepuncta*, Borneo, SWINHOE, p. 156, Tr. ent. Soc. London 1904, **n. sp.**  
*Zeuserodes subfulvata*, Ecuador, WARREN, p. 1, Nov. Zool. xi, **n. sp.**  
*Zophodia orobanchella*, Washington, DYAR, p. 111, P. ent. Soc. Washington vi; *Z. aureomaculella*, Texas, DYAR, p. 107, J. N. York Ent. Soc. xii : **n. spp.**

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- Platyptilia ochrodactyla* var. *n. bosniaca*, REBEL, p. 323, Ann. Hofmus. Wien xix; *P. rhododactyla*, metamorphosis, MURTFELDT, p. 334, Canad. Ent. xxxvi.

## TORTRICIDÆ.

- [Cf. DOGNIN (398), DYAR (430, 437), KEARFOTT (776, 777), PETRY (1039).]  
 Instructions for collecting and preparing, KEARFOTT (778).  
 Notes for popular use on the divisions of *Tortricidæ*, ROSTAGNO, Boll. Soc. zool. Ital. xii, pp. 70-76.  
*Acalla decosseana*, pl. ii, figg. 10, 11, p. 41, FUCHS, Jahrb. nassau. Ver. lvii.  
*Aceris britannia*, p. 138, *fragariana*, p. 140, British Columbia, KEARFOTT, Canad. Ent. xxxvi, **n. spp.**  
*Ancylis maritima*, Rhode island, DYAR, p. 221, P. ent. Soc. Washington vi, **n. sp.**  
*Atteria purpurea*, p. 132, *unciana*, *fumipennis*, p. 133, S. America, DOGNIN, Ann. Soc. ent. Belgique xlvi, **n. spp.**  
*Commiphila fuscodorsana*, British Columbia, KEARFOTT, p. 141, Canad. Ent. xxxvi, **n. sp.**  
*Conchylis altocorsicana*, Corsica, PETRY, p. 248, Stettin Ent. Zeit. lxx, **n. sp.**  
*Cydia arctostaphylana*, p. 109, *pseudotsugana*, p. 110, British Columbia, KEARFOTT, Canad. Ent. xxxvi, **n. spp.**  
*Enarmonia cockleana*, British Columbia, KEARFOTT, p. 137, t. c. **n. sp.**  
*Gynandrosoma n. g.* near *Pseudogalleria*, *G. punctidiscanum n. sp.*, N. America, DYAR, p. 60, P. ent. Soc. Washington vi.  
*Hastula hyperana*, larval habits, CHAPMAN, p. lxx, P. ent. Soc. London 1904.  
*Olethreutes betulatana*, food-plant, HAVERHORST, p. 97, Ent. Ber. Nederland i.  
*Opogona fumiceps*, early stages, VAN DEVENTER, p. 83, pl. x, fig. 1, Tijdschr. Ent. xlvi.  
*Setomorpha tineoides*, early stages, VAN DEVENTER, p. 81, pl. ix, fig. 3, t. c.  
*Thiodia artemisiana* var. *n. infimbriana*, DYAR, p. 927, P. U. S. Mus. xxvii.  
*Tortrix ruptimacula*, Ecuador, DOGNIN, p. 132, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Polychrosis viteana*, distinctions, natural history, SLINGERLAND, Bull. Cornell exp. Stat. No. 223, illustrations.  
*Proteopteryx willingana*, Assinaboia, KEARFOTT, p. 306, Canad. Ent. xxxvi; *P. columbia*, p. 112, with varr. *albidorsana*, p. 113, and *mediostriana*, p. 114, British Columbia, KEARFOTT, t. c. : **n. spp.**

## TINEIDÆ, s. l.

[Cf. BUSCK (203-206), CHRÉTIEN (276), DOGNIN (398), FERNALD (497), FUCHS (572), FYLES (576), LOWER (888), MEYRICK (946), PETRY (1038-1040), REBEL (1122), REUTER (1158), SAUBER (1212), TURNER (1411), VAN DEVENTER (1428, 1429), WALSINGHAM (1469, 1470).]

Remarkable larval cases and habits, GREEN, p. 158, *Spolia Zeylan.* ii.

Annotated list of Finland *Tineidæ*, REUTER, *Acta Soc. Faun. Fenn.* xxvi, No. 1, pp. 4-66.

Notes for popular use on the classification of *Tineidæ*, ROSTAGNO, pp. 68-87, *Boll. Soc. zool. Ital.* xiii.

*Achoria* n. g. *A. inopina* n. sp., Sydney, MEYRICK, p. 405, *P. Linn. Soc. N. S. Wales* xxix.

*Acompsia dimorpha*, Pyrenees, PETRY, p. 4, *Deutsche ent. Zeitschr. Iris* xvii, n. sp.

*Adela collicolella*, Tangier, WALSINGHAM, p. 7, *Ent. Mag.* xl, n. sp.

*Eoloscelis aulacosema*, *euphædra*, p. 172, *petrosarca*, *hemicroca*, Australia, LOWER, *Tr. R. Soc. S. Austral.* xxviii, n. spp.

*Allocota* n. g., p. 419, *A. simulacrella* n. sp., Sydney, p. 420, MEYRICK, *P. Linn. Soc. N. S. Wales* xxix.

*Allonomya* n. n. for *Orchemia* Fernald, BUSCK, p. 745, *P. U. S. Mus.* xxvii.

*Anacamptis linella*, Basses Alpes, CHRÉTIEN, p. 151, *Naturaliste* 1904 ;

*A. fragariella*, Washington, BUSCK, p. 760, *P. U. S. Mus.* xxvii : n. spp.

*Anaptilora* n. g. *A. isocosma*, p. 390, *cremias*, p. 391, n. spp., Queensland, MEYRICK, *P. Linn. Soc. N. S. Wales* xxix.

*Anarsia trichodeta*, p. 415, *molybdota*, *leucophora*, p. 417, *epiula*, p. 418, n. spp., Australia, MEYRICK, t. c.

*Apotistatus* n. g. near *Symmoca*, *A. leucostictus* n. sp., Algeria, WALSINGHAM, p. 271, *Ent. Mag.* xl.

*Argyresthia prenjejella*, pl. v, fig. 21, p. 347, REBEL, *Ann. Hofmus. Wien* xix.

*Aristotelia sinistra*, p. 287, *macrothecta*, *furtiva*, p. 288, *thetica*, *tetracosma*, p. 289, *antipala*, *pamphæa*, *epimetalla*, p. 290, Australia, MEYRICK, *P. Linn. Soc. N. S. Wales* xxix ;

*A. natalella*, *harrisonella*, *Brit. Columbia*, BUSCK, p. 756, *P. U. S. Mus.* xxvii : n. spp.

*Arotria* n. g. *A. iophæa* n. sp., Queensland, MEYRICK, p. 387, *P. Linn. Soc. N. S. Wales* xxix.

*Aulacomima* n. g. *A. trinervis* n. sp., Sydney, MEYRICK, p. 395, t. c.

*Batrachodra znochra*, p. 169, *stenosema*, *hypoleuca*, *B. ? lygropis*, Australia, p. 170, LOWER, *Tr. R. Soc. S. Austral.* xxviii, n. spp.

*Borkhausenia amphixantha*, Melbourne, *B. ? erythrocephala*, N. S. W., LOWER, p. 169, t. c. n. spp.

*Brachodes* Gn. = (*Atychia* Latr. nec Ochs.), WALSINGHAM, p. 7, *Ent. Mag.* xl.

*Calicotis microgalopsis*, Queensland, LOWER, p. 171, t. c. n. sp.

*Cerostoma indecorella*, characters, variation, WALSINGHAM, p. 319, *Ent. Mag.* xl.

*Chaliniastis* n. g., p. 301, *C. astrapæa* n. sp., Queensland, p. 302, MEYRICK, *P. Linn. Soc. N. S. Wales* xxix.

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*Clymene aegerifasciella* to *Trichoptera*, BANKS, p. 116, *Ent. News Philad.* xv.

*Coleophora tiliaefoliella* Clem., description, KEARFOTT, p. 324, *Canad. Ent.* xxxvi ;

*C. limosipennella*, natural history, HOOVER, pp. 54-56, *Ent. News Philad.* xv ;

*C.*, cases, habits, TURNER, pp. xxxiv-xxxvi, *P. ent. Soc. London* 1904 ;

*C.*, cases, TURNER, pp. xlix, l, t. c., and t. c. pp. lx-lxiii ;

*C.*, notes on, eggs etc., TURNER, pp. 32-34, *Ent. Rec.* xvi.

*C. benedictella*, Basses Alpes, CHRÉTIEN, p. 163, *Naturaliste* 1904 ;

*C. persimilis*, Prenj, REBEL, p. 365, *Ann. Hofmus. Wien* xix ;

*C. neviusiella*, China, BUSCK, p. 45, *J. N. York ent. Soc.* xii : n. spp.



- Colobodes* n. g. *C. insomnia* n. sp., Sydney, MEYRICK, p. 297, P. Linn. Soc. N. S. Wales xxix.
- Coptodisca arbutiella*, Washington, BUSCK, p. 769, P. U. S. Mus. xxvii, n. sp.
- Coptotelia nigriplaga*, Ecuador, DOGNIN, p. 134, Ann. Soc. ent. Belgique xlviii, n. sp.
- Cosmopteryx vellella*, Washington, BUSCK, p. 768, P. U. S. Mus. xxvii, n. sp.
- Craspedotis* n. g. *C. soloea*, p. 326, *pragmatica*, *thinodes* n. spp., Australia, p. 327, MEYRICK, P. Linn. Soc. N. S. Wales xxix.
- Crocantus diula*, p. 398, *halurga*, p. 399, *glycina*, p. 400, *perigrapta*, p. 402, *zonias*, p. 403, Australia and Tasmania, MEYRICK, t. c. n. spp.
- Crotopola* n. g. for *Atasthalistis euchroa* Low., MEYRICK, p. 410, t. c.
- Cryptolechia sexmaculata*, Ecuador, DOGNIN, p. 133, Ann. Soc. ent. Belgique xlviii, n. sp.
- Cryptophasa alphetodes*, *themerodes*, Queensland, TURNER, p. 244, Tr. R. Soc. S. Austral. xxviii, n. spp.
- Cymatomorpha* n. g., p. 411, *C. euplecta* n. sp., Australia, p. 412, MEYRICK, P. Linn. Soc. N. S. Wales xxix.
- Dectobathra* n. g., p. 299, *D. choristis*, *amethystina*, p. 300, *insignis*, p. 301, n. spp., Australia, MEYRICK, t. c.
- Depressaria heracleana*, food-plant, HAVERHORST, p. 97, Ent. Ber. Nederland. i.
- D. pentheri*, Prenj, REBEL, p. 360, pl. v, fig. 26, Ann. Hofmus. Wien xix ; *D. rosaciliella*, p. 763, *canella*, p. 764, *pallidella*, *alienella*, p. 765, N. America, BUSCK, P. U. S. Mus. xxvii : n. spp.
- Deuteroptila* n. g., p. 418, *D. sphenophora* n. sp., Queensland, p. 419, MEYRICK, P. Linn. Soc. N. S. Wales xxix.
- Dorata lineata* Wals. (as *Pterolonche*)=(*virgatella* Busck), DYAR, p. 178, J. N. York Ent. Soc. xii.
- Dorata* n. g. ? near *Chimabache*, *D. virgatella*, p. 123, *inornatella*, p. 124, n. spp., Arizona, BUSCK, P. ent. Soc. Washington vi.
- Doryphora palustrella*, larva, BARRETT, p. 278, Ent. Mag. xl.
- Dysmasia petrinella*, habits, CHRÉTIEN, p. 119, Bull. Soc. ent. France 1904.
- Ephelictis* n. g., p. 387, *E. megalarthra*, *neochalca*, p. 368, n. spp., Australia, MEYRICK, P. Linn. Soc. N. S. Wales xxix.
- Epibrontis* n. g. for *Gelechia hemichlæna* Low., MEYRICK, p. 324, t. c.
- Epidoca albidella* Reb. to *Symmoca*, WALSINGHAM, p. 272, Ent. Mag. xl.
- Epimastix* n. g. for *Gelechia porphyroloma* Low., MEYRICK, p. 325, P. Linn. Soc. N. S. Wales xxix.
- Epiphthora megalornis*, *balonodes*, p. 261, *drosias*, *thyllias*, *lemurella*, p. 262, *niphaula*, *psychrodes*, *miarodes*, p. 263, *isonira*, *autoleuca*, p. 264, *crylopha*, *leucomichla*, p. 265, *phantasta*, *achnias*, *spectrella*, p. 266, *coniombra*, *microtima harpastis*, p. 267, Australia and Tasmania, MEYRICK, t. c. n. spp.
- Epitheatis delminiella*, Balkans, REBEL, p. 353, Ann. Hofmus. Wien xix, n. sp.
- Eremica* n. g. near *Symmoca*, *E. saharae*, p. 270, *lithochroma* n. spp., Algeria, p. 271, WALSINGHAM, Ent. Mag. xl.
- Eriocrania chrysolepidella*, p. 42, *sanguis*, *kaltenbachii*, p. 43, notes, FUCHS, Jahrb. Nassau. Ver. lvii.
- E. argyrolepidella*, Bornich, id. p. 43, t. c. n. sp.
- Ethmia zelleriella*, larva, DYAR, p. 3, P. ent. Soc. Washington vi ; *E. longimaculella*, larva, DYAR, p. 178, J. N. York Ent. Soc. xii.
- E. caliginosella*, Colorado, BUSCK, p. 44, t. c. n. sp.
- Eucalantica* n. g. for *Calantica polita* Walsingh., BUSCK, p. 750, P. U. S. Mus. xxvii.
- Eumasia* n. g. for *Dysmasia parietariella*, CHRÉTIEN, p. 119, Bull. Soc. ent. France 1904.
- Gelechia pyrenaica*, Pic du Midi, PETRY, p. 3, Deutsche ent. Zeitschr. Iris

- xvii; *G. montivaga*, p. 221, *lacertella*, p. 222, *sinuatella*, p. 223, *erubescens*, p. 265, *cerostomatella*, *nigrorosea*, p. 266, *heligmatodes*, p. 267, Algeria, WALSINGHAM, Ent. Mag. xl; *G. limitanella*, p. 349, pl. v, fig. 22, *G. (Lita) lakatensis*, p. 351, fig. 24, Bosnia, REBEL, Ann. Hofmus. Wien xix; *G. nephelombra*, p. 309, *bathropis*, p. 310, *epactæa*, p. 312, Australia, MEYRICK, P. Linn. Soc. N. S. Wales xxix; *G. mandella*, *monella*, p. 759, *ceanothiella*, p. 760, Brit. Columbia, BUSCK, P. U. S. Mus. xxvii : **n. spp.**
- Glyphidocera septentrionella*, Brit. Columbia, BUSCK, p. 762, t. c. **n. sp.**
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- A. wellcomei*, Nile, THEOBALD, p. 64, pl. iii, fig. 4, and pl. v, fig. 5, 1st Rep. Wellcome Lab.; *A. culiciformis*, Bombay, JAMES & LISTON, p. 122, larva plate xv, *Anopheles* of India; *A. fluviatilis*, p. 31, *jeyporiensis*, p. 32, *immaculata*, p. 35, *stephensi*, p. 45, *pulcherrimus*, p. 48, India, JAMES [in 1902], Sci. Mem. India (n. s.), No. 2; *A. franciscanus*, California, McCracken, p. 12, pl. ii, Ent. News Philad. xv : n. spp.
- Catageomyia* n. g. near *Stegomyia*, *senegalensis* n. sp., Africa, THEOBALD, pp. i, Thompson Yates Lab. Rep. v, Mem. xi App.
- Cellia pharoensis*, p. 70, pl. v, fig. 1, THEOBALD, 1st Rep. Wellcome Lab.
- Conchyliaastes varipes*, Mexico, COQUILLET, p. 10, Canad. Ent. xxxvi, n. sp.

- Corethra*, mode of colouring living larva, KOLMER (832); *C. rufa* Zett. to *Mochlonyx*, *C. culiciformis* (Th. nec De Geer), synonymy, WAHLGREN, pp. 14, 15, Arkiv Zool. ii, No. 7.
- C. ceratopogones*, Gambia, THEOBALD, p. x, Thompson Yates Lab. Rep. v, Mem. x App.; *C. indica*, Moradabad, GILES, p. 49, J. trop. Medicine vii; *C. karnerensis*, p. 347, *lintneri*, p. 353, New York, FELT, Bull. N. York Mus. No. 79 : n. spp.
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- C. pallidocephala*, Nile, p. 73, *dentatus*, Abyssinia, p. 74, pl. vi, fig. 3, THEOBALD, 1st Rep. Wellcome Lab.; *C. anarmostus*, p. vi, *thalassius*, p. vii, *euclastus*, p. viii, Gambia, THEOBALD, Thompson Yates Lab. Rep. v, Mem. x App.; *C. teniorhynchoides*, Angola, GILES, p. 368, J. trop. Medicine vii; *C. nivitarsus*, *pullatus*, N. America, COQUILLET, p. 168, P. ent. Soc. Washington vi; *C. dupreei*, N. America, COQUILLET, p. 10, Canad. Ent. xxxvi; *C. cinereoborealis*, *lazarensis*, *abserratus*, *fitchii*, United States, FELT & YOUNG, p. 312, Science xx; *C. æstivalis*, N. America, DYAR, p. 245, J. N. York Ent. Soc. xii; *C. pretans*, p. 332, *inconspicuus*, p. 333, New Jersey, GROSSBECK, Ent. News Philad. xv; *C. salinarius*, New Jersey, COQUILLET, p. 73, Ent. News Philad. xv; *C. siphonalis*, New Jersey, GROSSBECK, p. 332, Canad. Ent. xxxvi; *C. onondagensis*, p. 305, *absobrinus*, p. 318, *magnipennis*, p. 322, *abfitchii*, p. 381, New York, FELT, Bull. N. York Mus. No. 79 : n. spp.
- Culicada* n. g. for numerous *Culex*, FELT, p. 391b, t. c.
- Culicella* n. g. type *dyari* Coq., FELT, p. 391c, t. c.
- Culiceta* n. g. type *teniorhynchus* Wied., FELT, p. 391b, t. c.
- Culiseta* n. g. type *absobrinus* Felt, FELT, p. 391c, t. c.
- Danielsia* n. g. *Culicina*, THEOBALD, p. 78, *D. alboteniata* n. sp., Kuala Lumpur, LEICESTER, p. 111; Entomologist 1904.
- Desvoidea fusca* var. n. *joloensis*, LUDLOW, p. 236, Canad. Ent. xxxvi.
- Ecculex* n. g. type *sylvestris* Theob., FELT, p. 391c, Bull. N. York Mus. No. 79.
- Etorleptomyia* n. g. *mediolineata* n. sp., Nile, THEOBALD, p. 71, 1st Rep. Wellcome Lab.



- Finlayia*, modified, to include *Orthopomyia*, GILES, p. 366, J. trop. Medicine vii.
- F. albipes*, hab. ?, *flavipennis*, p. 366, *melanoptera*, p. 367, Philippines, GILES, t. c. **n. spp.**
- Grabhamia jamaicensis* in Missouri, larva, pupa, HERRICK, pp. 81-84, pl. viii, Ent. News Philad. xv.
- G. deniedmanni*, Philippines, LUDLOW, p. 234, Canad. Ent. xxxvi, **n. sp.**
- Hodgesia* sp., Philippines, p. 368, cut, GILES, J. trop. Medicine vii.
- Howardina himalayana*, Naini Thal, GILES, p. 384, t. c. **n. sp.**
- Hulecoetomyia* **n. g.** *Culicina*, THEOBALD, *H. trilineata* **n. sp.**, Kuala Lumpur, LEICESTER, p. 165, Entomologist 1904.
- Lasiocnops* **n. g.** near *Culex*, p. viii, *poicilipes* **n. sp.**, West Africa, p. ix, THEOBALD, Thompson Yates Lab. Rep. v, Mem. x App.
- Leicesteria* **n. g.** near *Eretmapodites*, THEOBALD, p. 211, *L. longipalpis* **n. sp.**, Kuala Lumpur, LEICESTER, p. 211, Entomologist 1904.
- Lophoscelomyia* **n. g.** *Anophelina*, THEOBALD, p. 12, *L. asiatica* **n. sp.**, Kuala Lumpur, LEICESTER, p. 13, Entomologist 1904.
- Mansonia uniformis*, pl. vi, fig. 5, p. 76, THEOBALD, 1st Rep. Wellcome Lab.
- Megarhinus rutilus*, *portoricensis*, larvæ, DYAR, p. 20, P. ent. Soc. Washington vi.
- M. lewaldii*, Philippines, LUDLOW, p. 233, Canad. Ent. xxxvi, **n. sp.**
- Mimomyia uniformis*, Nile, THEOBALD, p. 80, 1st Rep. Wellcome Lab. ; *M. chamberlaini*, Philippines, LUDLOW, p. 297, Canad. Ent. xxxvi : **n. spp.**
- Mochlonyx velutinus*, metamorphosis, WIMMER, Rozp. Ceske Ak. Praze ii, xiii, No. 1, pl. 1.
- Myzomyia rossii* var., GILES, p. 1, J. trop. Medicine vii.
- M. nili*, Nile, THEOBALD, p. 66, pl. v, fig. 3, 1st Rep. Wellcome Lab. ; *M. thorntonii*, Philippines, LUDLOW, p. 69, Canad. Ent. xxxvi : **n. spp.**
- Myzorhynchus sinensis*?, larva, GILES, p. 51, J. trop. Medicine vii ; *M. pseudobarbirostris*, correction, LUDLOW, p. 72, Canad. Ent. xxxvi.
- Nyssorhynchus jamesii* and *fuliginosus*, queried as one species, also *N. theobaldi* and *maculipennis*, GILES, p. 22, J. trop. Medicine vii.
- Orthopodomyia* **n. g.** near *Finlaya*, THEOBALD, p. 236, *O. albipes* **n. sp.**, Kuala Lumpur, LEICESTER, p. 237 ; Entomologist 1904.
- Protoculex* **n. g.** type *serratus* Theob., FELT, p. 391d, Bull. N. York Mus. No. 79.
- Psorophora ciliata*, larval habits, DYAR, p. 244, J. N. York Ent. Soc. xii.
- Runchomyia philippinensis*, Philippines, GILES, p. 368, J. trop. Medicine vii, **n. sp.**
- Sayomyia rotundifolia*, p. 366, *hudsoni*, p. 371, New York, FELT, Bull. N. York Mus. No. 79, **n. spp.**
- Scutomyia* **n. g.** *Culicina*, *S. albolineata* **n. sp.**, Kuala Lumpur, THEOBALD, p. 77, Entomologist 1904.
- Stegomyia scutellaris* var. *samarensis*, LUDLOW, p. 71, Canad. Ent. xxxvi.
- S. albocephala*, Gambia, THEOBALD, p. iv, Thompson Yates Lab. Rep. v, Mem. x App. ; *S. desmotes*, *leucomeres*, *striocrura*, Philippines, GILES, p. 367, J. trop. Medicine vii : **n. spp.**
- Tæniorhynchus*, revised, species tabulated, GILES, pp. 381-383, J. trop. Medicine vii ; *T.* var. *n. maculipes*, pl. vi, fig. 4, p. 79, THEOBALD, 1st Rep. Wellcome Lab.
- T. cristatus*, Nile, THEOBALD, p. 78, t. c. ; *T. whitmorei*, Philippines, GILES, p. 367, J. trop. Medicine vii ; *T. nigricans*, Panama, p. 166, *signipennis*, Mexico, p. 167, COQUILLET, P. ent. Soc. Washington vi ; *T. niger*, *antiquæ*, Antigua, GILES, p. 384, J. trop. Medicine vii : **n. spp.**
- Theobaldia spathipalpis*, pl. vi, fig. 1, p. 73, THEOBALD, 1st Rep. Wellcome Lab.

- Toxorhynchites leicesteri*, THEOBALD, p. 36, *metallicus*, LEICESTER, p. 37, Malay States, Entomologist 1904, n. spp.  
*Uranotenia balfouri*, Nile, pl. vi, fig. 6, p. 82, THEOBALD, 1st Rep. Wellcome Lab.; *U. nitidoventer*, Philippines, GILES, p. 368, J. trop. Medicine vii : n. spp.

## PSYCHODIDÆ.

[Cf. EATON (445), WAHLGREN (1463).]

- Clytocyclus* n. g. for part of *Pericoma*, EATON, p. 59, Ent Mag. xl.  
*Logima* n. g. Type *Psychoda erminea* Eat., EATON, p. 58, t. c.  
*Pericoma albomaculata*, Småland, WAHLGREN, p. 16, Arkiv Zool. ii, No. 7, n. sp.  
*Philosepedon* n. g. for *P. humeralis* Meig., EATON, p. 57, Ent. Mag. xl.  
*Phlebotomus* and allies, characters, EATON, pp. 55, 56, t. c.  
*Telmatoscopus* n. g. for part of *Pericoma*, EATON, p. 58, t. c.  
*Threticus* n. g. *T. gemina*, England, *compar*, Britain, Algeria, Madeira, n. spp., EATON, p. 57, t. c.  
*Xenapates* n. g. for part of *Pericoma*, EATON, l. c.

## TIPULIDÆ and RHYPHIDÆ.

[Cf. DE MEIJERE (934), SNODGRASS (1323), WAHLGREN (1463).]

- Revision of Zetterstedt's types of Scandinavian *Tipulidæ*, WAHLGREN, pp. 1-13, Arkiv Zool. ii, No. 7.  
 SNODGRASS describes figures and compares the male genitalia in a large number of N. American *Tipulidæ*, Tr. Amer. ent. Soc. xxx, pp. 179-236, pls. viii-xviii.  
*Ctenophora ornata* and *fluveolata*, habits, GIARD, p. 87, Bull. Soc. ent. France 1904.  
*Eriocera nigripennis*, Java, MEIJERE, p. 92, Bijdr. Dierk. xviii, n. sp.  
*Dicranomyia modesta*, egg-masses, GIARD, p. 107, Feuille Natural. xxxiv.  
*D. aperta*, Scandinavia, WAHLGREN, p. 8, Arkiv Zool. ii, No. 7; *D. kobusi*, Java, MEIJERE, p. 91, pl. viii, figg. 5, 6, Bijdr. Dierk. xviii : n. spp.  
*Pachyrrhina dorsalis*, p. 89, *fallax*, *scurroides*, Java, *dimidiata*, New Guinea, p. 90, pl. viii, fig. 4, MEIJERE, t. c. n. spp.  
*Pseliophora insignis*, *nigrithorax*, p. 87, *stigmatica*, p. 88, pl. viii, fig. 1, Java, MEIJERE, t. c. n. spp.  
*Rhipidia pulchra*, Java, MEIJERE, p. 92, pl. viii, fig. 7, t. c. n. sp.  
*Rhyphus minor* Zett., not valid, WAHLGREN, p. 17, Arkiv Zool. ii, No. 7.  
*Tipula tibetana*, Ta-tsienu, MEIJERE, p. 89, t. c. n. sp.

## SIMULIIDÆ.

- Simulium*, criticism of Zetterstedt's species, WAHLGREN, pp. 17-19, Arkiv Zool. ii, No. 7; *S. tephrodes* n. n. for *cinereum* Bell., SPEISER, p. 148, Ins. Börse 1904.  
*S. notatum*, Arizona, ADAMS, p. 434, Kansas Univ. Sci. Bull. ii, n. sp.

## BIBIONIDÆ.

[Cf. COQUILLET (313, 315), DE MEIJERE (934).]

- Bibio obscuripennis*, Darjiling, MEIJERE, p. 87, Bijdr. Dierk. xviii, n. sp.  
*Bibiodes* n. g. *B. halteralis* n. sp., California, COQUILLET, p. 171, P. ent. Soc. Washington vi.  
*Dilophus fumosus*, *rhyphops*, Nicaragua, COQUILLET, p. 91, t. c. n. spp.  
*Plecia lugubris*, Ta-tsienu, MEIJERE, p. 86, Bijdr. Dierk. xviii, n. sp.

## STRATIOMYIIDÆ and SCENOPINIDÆ.

[Cf. ADAMS (8), COQUILLET (318), HINE (688), DE MEIJERE (934), MELANDER (936).]

*Stratiomyidæ*, tables of N. American, MELANDER, *Canad. Ent.* xxxvi, pp. 14-24.

*Cyphomyia schæfferi*, S. Texas, COQUILLET, p. 32, *J. N. York Ent. Soc.* xii, n. sp.

*Eudmeta brunnea*, Darjiling, MEIJERE, p. 94, pl. viii, fig. 19, *Bijdr. Dierk.* xviii, n. sp.

*Euparyphus obliquus*, British Columbia, HINE, p. 87, *Canad. Ent.* xxxvi, n. sp.

*Hermetia fenestrata*, Palembang, pl. viii, fig. 9, *læta*, Bengal, p. 93, MEIJERE, *Bijdr. Dierk.* xviii, n. spp.

*Macrosargus texanus*, N. America, MELANDER, p. 19, *Canad. Ent.* xxxvi, n. sp.

*Nemotelus abdominalis*, *bellulus*, *kansensis*, *trinotatus*, characters, MELANDER, pp. 33, 34, *Psyche* xi.

*Ptecticus tricolor*, Java, MEIJERE, p. 95, pl. viii, fig. 11, *Bijdr. Dierk.* xviii, n. sp.

*Rosapha bimaculata*, Java, MEIJERE, p. 96, pl. viii, figg. 13, 14, t. c. n. sp.

*Scenopinus mirabilis electa*, Arizona, ADAMS, p. 445, *Kansas Univ. Sci. Bull.* ii, n. spp.

## TABANIDÆ.

[Cf. ADAMS (8), BRUMPT (136), HINE (689, 691), JOHNSON (765), RICARDO (1172), VILLENEUVE (1459), WHITNEY (1525).]

Revision of *Tabaninæ*, RICARDO, *Ann. Nat. Hist.* xiv, pp. 349-372.

*Tabanidæ* of N. America, HINE, pp. 217-249, *Ohio Natural.* v.

*Tabanidæ*, *Chrysops* etc., as transmitters of sleeping sickness, BLANCHARD, *Arch. parasit.* viii, pp. 573-589.

*Tabanidæ* injurious to stock, N. America, HINE, pp. 57-60, *Bull. U. S. Dep. Agric. Ent.* xliv, and xlvi, pp. 23-25, habits, oviposition.

*Chrysops pachycera* ♀, ADAMS, p. 442, *Kansas Univ. Sci. Bull.* ii.

*C. lupus*, *piki*, N. America, WHITNEY, p. 205, *Canad. Ent.* xxxvi; *C. fulvistigma*, *brimleyi*, N. Carolina, HINE, p. 55, *Canad. Ent.* xxxvi; *C. coquillettii*, California, HINE, p. 220, *Ohio Natural.* v : n. spp.

*Diachlorus ferrugatus*, "yellow-fever fly," BANKS, p. 290, *Ent. News Philad.* xv.

*Dichelacera grandis*, Brit. Honduras, RICARDO, p. 371, *Ann. Nat. Hist.* xiv, n. sp.

*Nemorius vitripennis*, habits, VILLENEUVE, p. 235, *Bull. Soc. ent. France* 1904.

*Snowiellus* n. g. *S. atratus* n. sp., Arizona, HINE, p. 230, *Ohio Natural.* v.

*Tabanus hinei* n. n. for *politus* Johns., JOHNSON, p. 15, *Psyche* xi; *T. 4-punctatus* Wied. to *Theriopectes*, SPEISER, p. 148, *Ins. Börse* 1904.

*T. benedictus*, *T. (Theriopectes) typhus*, N. America, WHITNEY, p. 206, *Canad. Ent.* xxxvi; *T. (Theriopectes) whitneyi*, Massachusetts, JOHNSON, p. 15, *Psyche* xi; *T. flavidus*, Texas and Mexico, p. 236, *laticeps*,

California, *laticornis*, Arizona and Mexico, p. 239, *osburni*, Brit. Columbia, p. 241, *productus*, Wyoming, p. 242, HINE, *Ohio Natural.* v :

n. spp.

*Udenocera* n. g. *Tabaninæ*, p. 354, for *U. brunneus* n. sp., Ceylon, p. 355, RICARDO, *Ann. Nat. Hist.* xiv.

## LEPTIDÆ, incl. XYLOPHAGIDÆ.

[Cf. ADAMS (8), COQUILLET (315), DE MEIJERE (934), VILLENEUVE (1459).]

*Chrysopila simplex*, Java, MEIJERE, p. 97, Bijdr. Dierk. xviii; *C. lucifera*, p. 437, *bella*, *flavibarbis*, p. 438, North America, ADAMS, Kansas Univ. Sci. Bull. ii : n. spp.

*Leptis pluralis*, p. 441, *palpalis*, p. 442, Washington, ADAMS, t. c. n. spp.

*Symphoromyia flavipalpes*, Colorado, ADAMS, p. 439, t. c.; *S. securifera*, California, COQUILLET, p. 171, P. ent. Soc. Washington vi : n. spp.

*Xylophagus nitidus*, New Hampshire, ADAMS, p. 435, Kansas Univ. Sci. Bull. ii, n. sp.

## THEREVIDÆ.

[Cf. ADAMS (8), COQUILLET (313, 315), VILLENEUVE (1459).]

*Psilocephala aurantiaca*, California, COQUILLET, p. 177, P. ent. Soc. Washington vi; *P. occipitalis*, p. 443, *lateralis*, p. 444, Arizona, ADAMS, Kansas Univ. Sci. Bull. ii; *P. pruinosa*, Nicaragua, COQUILLET, p. 91, P. ent. Soc. Washington vi : n. spp.

*Thereva*, synonymy and variation, VILLENEUVE, pp. 171, 172, Feuille Natural. xxxiv.

*T. anomala*, Arizona, ADAMS, p. 444, Kansas Univ. Sci. Bull. ii, n. sp.

## ASILIDÆ, MYDASIDÆ.

[Cf. ADAMS (8), BACK (73), BRÈTHES (175), COQUILLET (315, 318), VILLENEUVE (1459).]

CORTI gives the characters of certain unnamed species of Portuguese *Asilidæ*, Rend. Ist. Lombardo xxxvi, pp. 1071-1073.

*Ablautus flavipes*, *rubens*, N. America, COQUILLET, p. 178, P. ent. Soc. Washington vi, n. spp.

*Anisopogon johnsoni*, Colorado, BACK, p. 293, Canad. Ent. xxxvi, n. sp.

*Asilus crabroniformis*, habits and egg, XAMBEU, p. 174, Ann. Soc. Linn. Lyon l.

*Cyrtopogon nigricolor*, *tibialis*, p. 183, *maculosus*, *varipennis*, p. 184, N. America, COQUILLET, P. ent. Soc. Washington vi, n. spp.

*Dasyllis cinerea*, p. 289, *fernaldi*, p. 290, N. America, BACK, Canad. Ent. xxxvi, n. spp.

*Dioctrodes n. g.* near *Dioctria*, *D. flavipes* n. sp., Missouri, COQUILLET, p. 181, P. ent. Soc. Washington vi.

*Dysmachus harpax*, France, VILLENEUVE, pp. 167-173, Feuille Natural. xxxiv, n. sp.

*Erax tuberculata*, S. Texas, COQUILLET, p. 34, J. N. York Ent. Soc. xii, n. sp.

*Holopogon latus*, S. Texas, COQUILLET, p. 33, t. c. n. sp.

*Laphystia flavipes*, *limatula*, *opaca*, N. America, COQUILLET, p. 180, P. ent. Soc. Washington vi, n. spp.

*Leptogaster virgatus*, p. 177, *hirtipes*, p. 178, N. America, COQUILLET, t. c.; *L. tornowii*, Buenos Aires, BRÈTHES, p. 337, An. Mus. Buenos Aires xi : n. spp.

*Metapogon n. g.* near *Cyrtopogon*, p. 181, *M. gilvipes*, *punctipennis* n. spp., N. America, p. 182, COQUILLET, P. ent. Soc. Washington vi.

*Mydas abdominalis*, Arizona, ADAMS, p. 434, Kansas Univ. Sci. Bull. ii, n. sp.



- Myolestes* n. g. near *Allopogon*, p. 338, *A. lynckii* n. sp., Tucuman, p. 339, BRÈTHES, An. Mus. Buenos Aires xi.  
*Ospriocerus albifuscatus*, Florida, BACK, p. 292, Canad. Ent. xxxvi, n. sp.  
*Saropogon rufus*, p. 290, *albifrons*, p. 291, N. America, BACK, t. c.; *S. luteus*, *hyalinus*, p. 185, *semiustus*, p. 186, California, COQUILLET, P. ent. Soc. Washington vi : n. spp.  
*Stenopogon* and *Scleropogon* distinguished, COQUILLET, p. 179, P. ent. Soc. Washington vi.  
*S. nigrifulus*, California, COQUILLET, t. c.; *S. tenebrosus*, *pumilus*, p. 33, *nitens*, p. 34, S. Texas, COQUILLET, J. N. York Ent. Soc. xii : n. spp.

## BOMBYLIIDÆ.

- [Cf. COQUILLET (315, 318), HINE (688), KÜNCKEL (847), VILLENEUVE (1459).]  
*Acreotrichus atratus*, Mexico, COQUILLET, p. 176, P. ent. Soc. Washington vi, n. sp.  
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*Anthrax harveyi*, British Columbia, HINE, p. 88, Canad. Ent. xxxvi, n. sp.  
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- Pelethophila* Hag. is *Psila* Meig. 1803, BEZZI, p. 175, Atti Mus. Milano xliii; *P.*, Palæarctic, table, BECKER, pp. 129-133, Zeitschr. Hym. Dipt. iv.
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- Pseudeurina* n. g. *Chloropinæ*, *maculata* n. sp., Java, pl. viii, figg. 24, 25, MEIJERE, p. 112, Bijdr. Dierk. xviii.
- Psilopa fulvipennis*, Louisiana, HINE, p. 64, Ohio Natural. iv, n. sp.
- Ptilona dunlopi* Wulp to *Rioxa*, MEIJERE, p. 110, Bijdr. Dierk. xviii.
- Rhabdochaeta* n. g. near *Ceratitis*, *R. pulchella* n. sp., Java, pl. viii, figg. 22, 23, MEIJERE, p. 109, t. c.
- Rhagoletis cingulata*, natural history, CHITTENDEN, pp. 70-75, cuts, Bull. U. S. Dep. Agric. Ent. xlv.
- Rivellia frugalis*, Ceylon, *sinuosa*, India, COQUILLET, p. 139, P. ent. Soc. Washington vi, n. spp.
- Sapromyza obscura*, Java, MEIJERE, p. 111, Bijdr. Dierk. xviii; *S. varia*, *albipes*, p. 94, *triseriata*, p. 95, Nicaragua, COQUILLET, P. ent. Soc. Washington vi; *S. picticornis*, Nicaragua, COQUILLET, p. 189, t. c.: n. spp.
- Scutops* n. g. near *Opomyza*, *S. fascipennis* n. sp., Nicaragua, COQUILLET, p. 97, t. c.
- Scyphella pumilio*, Java, MEIJERE, p. 113, pl. viii, fig. 29, Bijdr. Dierk. xviii, n. sp.
- Sepsis javanica*, Java, MEIJERE, p. 107, t. c.; *S. pleuralis*, S. Texas, COQUILLET, p. 35, J. N. York Ent. Soc. xii: n. spp.
- Sinophthalmus* n. g. *Geomyzidæ*, p. 190, *S. pictus* n. sp., California, p. 191, COQUILLET, P. ent. Soc. Washington vi.

- Siphonella nigrirostra*, Grenada, p. 103, *parva*, *quinquelineata*, p. 104, U. S., ADAMS, Psyche xi, **n. spp.**  
*Tephritis dioscurea*, larval habits, TROTTER, p. 5, Marcellia iii.  
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*Urellia flava*, *conjuncta*, p. 451, *occidentalis*, p. 452, N. America, ADAMS, Kansas Univ. Sci. Bull. ii, **n. spp.**  
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*Zygenula albofasciata*, India, MEIJERE, p. 108, pl. viii, fig. 21, t. c. **n. sp.**

## DIPTERA, PUIPIPARA (incl. STREBLIDÆ).

[Cf. RAINBOW (1117), REED (1123), SPEISER (1328-1331).]

- The affinities of *Streblidæ*, and characters of *Trichobius major*, BRUES, pp. 131-134, cuts, Bull. Amer. Mus. xx.  
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*Craterhina pallida* Oliv. (= *lonchoptera* Oliv.), SPEISER, p. 389, Ann. Mus. Hungar. ii.  
*Hippobosca longipennis*, characters, p. 332, *fossulata*, characters and locality, p. 333, *H. rufipes* (= *albonotata* Rond.), p. 334, SPEISER, Ann. Mus. Genova xli.  
*Lipoptena depressa* Say (= *mazamæ* Rond.); SPEISER, p. 334, t. c.  
*L. chalcamelæna*, Sinai on *Capra*, SPEISER, p. 178, Zeitschr. Hym. Dipt. iv, **n. sp.**  
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*Myiophthiria reduvioides* (= *capsoides* Rond.), SPEISER, p. 349, t. c.  
*Nycteribia pteropus*, Carpentaria, RAINBOW, p. 78, Rec. Austral. Mus. v, **n. sp.**  
*Olfersia longipalpis*, characters, (= *longirostris* Wulp), SPEISER, p. 88, Zeitschr. Hym. Dipt. iv; *O. ænescens* Thoms. to *Pseudolfersia*, p. 83, SPEISER, t. c.  
*O. acromialis*, p. 386, *dioxyrhina*, p. 387, New Guinea, SPEISER, Ann. Mus. Hungar. ii; *O. chalcotampra*, New Guinea, SPEISER, p. 335, Ann. Mus. Genova xli : **n. spp.**  
*Ornithoza odontoscelis*, Hungary, on *Saxicola*, SPEISER, p. 392, Ann. Mus. Hungar. ii; *O. pallipes*, Europe, on *Strix*, SPEISER, p. 177, Zeitschr. Hym. Dipt. iv : **n. spp.**  
*Ornithoza*; variability and synonymic difficulties, pp. 339-343, *O. bellardiana*, p. 344, *australasiæ*, p. 345, characters, SPEISER, Ann. Mus. Genova xli; *O. erythrocephala* Leach (= *Ornithomyia gemina* Thoms.), SPEISER, p. 82, Zeitschr. Hym. Dipt. iv.  
*O. vitrina*, Tonga islds., p. 343, *melæna*, Sumatra, p. 347, SPEISER, Ann. Mus. Genova xli, **n. spp.**  
*Ornithoeca stipituri* Schin. (as *Ornithomyia*) (= *distenta* Speiser), SPEISER, p. 86, Zeitschr. Hym. Dipt. iv.  
*Ornithomyia obscurata* Walk., characters, SPEISER, p. 347, Ann. Mus. Genova xli; *O. fringillina* Curt. (= *ptenoletis* Löw.), p. 83, *O. fur* Schin., characters, p. 85, *O. pusilla* Schin. to *Ornithoeca*, localities, pp. 86, 87, *O. avicularia* (= *nigricornis* Er.), p. 87, SPEISER, Zeitschr. Hym. Dipt. iv; *O. brunnea* Oliv. to *Lynchia*, SPEISER, p. 388, Ann. Mus. Hungar. ii.



- O. chilensis*, Concepcion, REED, p. 152, Revist. chilena viii, **n. sp.**  
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*O. anthracina*, Honduras, SPEISER, p. 393, t. c. **n. sp.**  
*Ortholfersia macleayi*, classified and described, SPEISER, p. 390, t. c. **n. sp.**  
*Pseudolfersia* Leach var. = (*Olfersia sulcifrons* Thoms.), SPEISER, p. 82, Zeitschr. Hym. Dipt. iv.  
*Stilbometopa podopostyla*, Rio Grande do Sul, SPEISER, p. 394, Ann. Mus. Hungar. ii, **n. sp.**

## APHANIPTERA, (or SIPHONAPTERA).

[Cf. BAKER (76), KOHAUT (824, 825), OLIVIER (995), RAINBOW (1116), ROTHSCHILD (1191-1193), SEMENOW (1277), TIRABOSCHI (1387, 1388).]

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*Anomiopsyllus n. g.* for *Typhlopsylla nudata* Bak., BAKER, p. 425, P. U. S. Mus. xxvii.

*Ceratophyllus italicus*, Italy, on rats, TIRABOSCHI, p. 266, cuts, Arch. parasit. viii; *C. henleyi*, Egypt, ROTHSCHILD, p. 3, Entomologist 1904; *C. hilli*, Sydney, p. 622, pl. xi, figg. 43, 44, *woodwardi*, W. Australia, p. 623, pl. x, fig. 41, and xi, fig. 42, *thomasi*, Australia, p. 625, pl. xi, figg. 45, 48, *zethi*, Gippsland, p. 626, pl. xi, fig. 50, and xii, fig. 52, *ochi*, Victoria, p. 628, pl. xi, fig. 49, and xii, fig. 54, *novaequinae*, New Guinea, p. 629, pl. xiii, figg. 66, 67, *ahalee*, p. 631, pl. xi, fig. 51, xii, fig. 55, and xiii, fig. 60, *alladinis*, p. 632, pl. xii, fig. 53, India, *endymionis*, Chile, p. 634, pl. xiv, fig. 70, *agrippinae*, p. 634, pl. xii, figg. 56, 57, and xiii, figg. 62, 64, *dorippae*, p. 636, *numae*, p. 637, pl. xii, fig. 58, and xiii, figg. 59, 63, 65, *octavii*, p. 638, pl. xiii, fig. 61, Cape Colony, ROTHSCHILD, Nov. Zool. xi; *C. dentatus*, Idaho, on *Lynx*, p. 390, *perpinnatus*, Queen Charlotte islds., p. 391, *tuberculatus*, Idaho, on *Citellus*, p. 393, *alaskensis*, Alaska, on *Citellus*, p. 394, *californicus*, California, p. 395, *oculatus*, Washington, p. 396, *ciliatus*, California, p. 397, *pseudarctomys*, New York, p. 399, *leucopus*, New York, on *Peromys*, p. 401, *labiatus*, Idaho, on *Lynx*, p. 402, *sexdentatus*, California on *Neotoma*, p. 403, *wagneri*, Idaho, on *Peromyscus*, p. 405, *asio*, Massachusetts, on *Megascops*, p. 406, *canadensis*, Ottawa, p. 407, *vison*, New York, on *Putorius*, p. 408, *lucidus*, Colorado, p. 410, *arctomys*, New York, p. 411, *proximus*, California, p. 412, *idahoensis*, Idaho, p. 413, *petiolatus*, Idaho, on *Lynx*, *eremicus*, Arizona, on *Peromyscus*, *stylosus*, Oregon, on *Aplodontia*, BAKER, P. U. S. Mus. xxvii : **n. spp.**

*Ceratopsylla palposus*, Brit. Columbia, p. 652, ROTHSCHILD, Nov. Zool. xi; *C. wolffsohni*, Paraguay, ROTHSCHILD, p. 147, Revist. chilena viii : **n. spp.**

*Chatopsylla mikado*, Japan, ROTHSCHILD, p. 645, pl. xiv, fig. 76, Nov. Zool. xi, **n. sp.**

*Ctenocephalus serraticeps* var. *murina*, TIRABOSCHI, p. 259, cut p. 260, Arch. parasit. viii.

*Ctenophthalmus pseudagyrtes*, characters, p. 641, pl. xiv, figg. 73, 78, and xv, fig. 81, ROTHSCHILD, Nov. Zool. xi.

- C. pseudagyrtis*, p. 421, *yenalis*, p. 424, N. America, BAKER, P. U. S. Mus. xxvii; *C. wenmanni*, British Columbia, p. 642, pl. xiv, figg. 75, 77, 79, *antiquorum*, Brazil, p. 643, pl. xiv, fig. 72, and xv, figg. 80, 82, ROTHSCHILD, Nov. Zool. xi : **n. spp.**
- Ctenopsyllus granti*, British Columbia, p. 646, pl. xv, figg. 84, 87, and xvii, fig. 91, *aganippes*, Cape Colony, p. 647, pl. xv, fig. 83, and xvi, fig. 90, *brooksi*, British Columbia, p. 649, pl. xv, figg. 86, 88, and xvi, fig. 89, *hygini*, Canada, p. 650, pl. xv, fig. 85, and xvi, figg. 93, 94, *hyrtaci*, British Columbia, p. 652, pl. xvi, figg. 92, 95, ROTHSCHILD, t. c.; *C. hesperomys*, New Hampshire, BAKER, p. 428, P. U. S. Mus. xxvii : **n. spp.**
- Lycopsylla n. g.* near *Pulex*, *L. novus n. sp.*, N. S. Wales, pl. vii, figg. 1-4, ROTHSCHILD, p. 602, Nov. Zool. xi.
- Malacopsylla* (= *Megapsylla* Baker), ROTHSCHILD, p. 603, t. c.
- M. androcli*, Brazil, p. 604, pl. vii, fig. 10 and viii, figg. 11-15, *agenoris*, Argentina, p. 606, pl. vii, figg. 5-9, and viii, fig. 13, ROTHSCHILD, t. c. **n. spp.**
- Pulex irritans, simulans*,? identical, WEBSTER, p. 244, Canad. Ent. xxxvi.
- P. murinus*, Italy on rats (?= *cheopis* Rothschild), TIRABOSCHI, p. 252, cut, p. 251, Arch. parasit. viii; *P. mycerini*, p. 1, *ramesis, pyramidis*, p. 3, Egypt, ROTHSCHILD, Entomologist 1904; *P. creusa*, p. 608, pl. viii, fig. 18, and ix, fig. 25, *erilli*, p. 610, pl. viii, figg. 16, 17, and ix, fig. 22, *eridos*, p. 611, pl. viii, fig. 21, and ix, fig. 23, *riggenbachi*, p. 611, pl. viii, figg. 19, 20, and ix, fig. 24, Cape Colony, *australis*, Mexico and S. America, p. 613, pl. ix, fig. 29, and x, figg. 34, 36, *cleophontis*, Buenos Aires, p. 614, pl. x, fig. 32, *concutus*, p. 615, pl. x, figg. 38, 40; *simonsi*, p. 616, pl. ix, fig. 30, and x, fig. 37, Bolivia, *cocyti*, p. 617, pl. ix, fig. 26, and x, fig. 31, *corfidii*, p. 619, pl. ix, fig. 27, and x, fig. 33, Chile, *klagesi*, Venezuela, p. 620, pl. ix, fig. 28, and x, figg. 35, 39, ROTHSCHILD, Nov. Zool. xi; *P. brasiliensis*, on *Mus*, p. 379, *lutzi*, on *Grison*, p. 380, S. America, *anomalus*, Colorado, p. 381, *affinis*, Arizona on *Lepus*, p. 382, *lynx*, Idaho on *Lynx*, p. 383, BAKER, P. U. S. Mus. xxvii : **n. spp.**
- Sarcopsylla rhynchopsylla*, Italy, on rats, TIRABOSCHI, p. 309, Arch. parasit. viii, **n. sp.**
- Stephanocircus* and *Hystrichopsylla*, distinguished, species of *S.*, synonymy of species found on *Dasyurus maculatus*, RAINBOW, pp. 53-55, Rec. Austral. Mus. v.
- Typhloceras rosenbergi*, Ecuador, p. 639, pl. xiii, figg. 68, 69, and xiv, figg. 71, 74, ROTHSCHILD, Nov. Zool. xi, **n. sp.**
- Typhlopsylla tristis* to *Ceratophyllus*, p. 625, pl. xi, figg. 45, 47, ROTHSCHILD, t. c.
- T. monticola*, Bosnia, KOHAUT, p. 87, Ann. Mus. Hungar. ii, **n. sp.**; also p. 88, Allatt. Kozl. Magyar Tars. iii.
- Xestopsylla n. g.* for *Sarcopsylla gallinacea*, BAKER, p. 374, P. U. S. Mus. xxvii.

## (E.) HEMIPTERA OR RHYNCHOTA.

The trophi, classification, 2 new suborders, *Sandaliorrhyncha* fossil, *Conorrhyncha* for *Thaumatoxena*, BÖRNER (157).

*Conorrhyncha* n. suborder for the following :

*Thaumatoxena* n. g. (?), *T. wasmanni* n. sp., Natal with *Termes natalensis*, BREDDIN & BÖRNER, pp. 84-94, SB. Ges. naturf. Berlin 1904.

*Cimex* : the type of, KIRKALDY & W. T. B., Nature lxi, pp. 464, 465.

KIRKALDY proposes 77 new generic names, and gives a list of others not included in Scudder or Waterhouse ; Entomologist 1904, pp. 279-283.

New *Paleohemiptera*, Permian, Russia, see HANDLIRSCH, Palæontology, p. 125.

Alaska *Heteroptera*, reprint, HEIDEMANN (672).

Effect of stink of *Hemiptera*, CONRADI (306).

Notes on habits and young of 15 species, XAMBEU (1539).

## HEMIPTERA-HETEROPTERA.

## PENTATOMIDÆ.

[Cf. BERGROTH (102, 105), BREDDIN (165, 167, 168, 169, 171), DISTANT (388, 390), HORVÁTH (715, 717), JAKOVLEFF (754, 755, 757), MARTIN (918), REUTER (1163), SCHOUTEDEN (1235-1239), VAN DUZEE (1430).]

The genera of *Scutellerinæ* with lists of the species, SCHOUTEDEN, Scutellerinæ, Wytsman Gen. Ins. fasc. xxiv, 98 pp., 5 plates.

Annotated list of *Pentatomidæ* of America north of Mexico, and descriptions of 12 spp. n., VAN DUZEE, Tr. Amer. ent. Soc. xxx, pp. 1-80.

*Damellera* n. n. for *Damelia*, *Montandoneus* n. n. for *Gabonia*, *Atelias* n. n. for *Ætius*, *Texas* n. n. for *Melanostoma*, *Grimgerda* n. n. for *Macrothyreus*, *Menuthias* n. n. for *Ilerda* ; *Bergthora* n. n. for *Cryptoporus*, *Xosa* n. n. for *Anubis*, *Acanthidiellum* n. n. for *Acanthidium*, *Stictocoris* n. n. for *Stictonotus*, *Liodermion* n. n. for *Lioderma*, *Gueriniellus* n. n. for *Platycoris*, *Burma* n. n. for *Paramecus*, *Eupododus* n. n. for *Pododus*, *Ochisme* n. n. for *Trachyops*, *Dolichisme* n. n. for *Petrisia*, KIRKALDY, p. 280, Entomologist 1904.

*Acanthosoma cruciata* var. n. *cooleyi*, VAN DUZEE, p. 74, Tr. Amer. ent. Soc. xxx.

*A. korolkovi*, Mantchuria, JAKOVLEFF, Rev. russe Ent. 1904 ; *A. atricornis*, Montreal, VAN DUZEE, p. 75, Tr. Amer. ent. Soc. xxx : n. spp.

*Afraniella* n. g. near *Afrania*, for *A. lambaremi* n. sp., Congo, SCHOUTEDEN, p. 137, Ann. Soc. ent. Belgique xlviii.

*Agonoscelis versicolor* var. n. *tibialis*, HORVÁTH, p. 261, table of African *Ag.* p. 262, Ann. Mus. Hungar. ii.

*A. cognata*, E. Africa, HORVÁTH, p. 260, t. c. n. sp.

*Alamprella* n. g. near *Geotomus*, *A. singularis* n. sp., Guinea, HORVÁTH, p. 354, t. c.

*Antestia philippina* n. n. for *confusa* Br., BREDDIN, p. 10, Wien. ent. Zeit. xxi.

*A. gibba*, New Guinea, BREDDIN, p. 10, t. c. n. sp.

- Asaca punctiventris*, Tonkin, BREDDIN, p. 10, t. c. **n. sp.**  
*Aspavia escaleraei*, Cameroons, SCHOUTEDEN, p. 157, Mem. Soc. Espan. i, **n. sp.**  
*Aspideurus metallicus*, Java, BREDDIN, p. 10, Wien. ent. Zeit. xxiii, **n. sp.**  
*Atelides sumatranus*, Sumatra, BREDDIN, p. 18, t. c. **n. sp.**  
*Aspongopus viduatus*, "melon-bug," plate B, p. 43, BALFOUR, 1st Rep. Wellcome Lab.  
*Basicyrptus nigromaculatus*, E. Africa, SCHOUTEDEN, p. 141, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Bathycalia nesophila, malachitica*, St. Thomé isld., HORVÁTH, p. 268, Ann. Mus. Hungar. ii, **n. spp.**  
*Bergrothina n. g. Pentat., camerunensis n. sp.*, W. Africa, SCHOUTEDEN, p. 155, Mem. Soc. espan. i.  
*Brachyaulax oblonga* var. *n. splendens*, SCHOUTEDEN, p. 297, Ann. Soc. ent. Belgique xlvi.  
*Brachyplatys rubromaculatus*, Guinea, SCHOUTEDEN, p. 142, Mem. Soc. espan. i, **n. sp.**  
*Brachyrhamphus haglundii*, Cameroons, SCHOUTEDEN, p. 151, t. c. **n. sp.**  
*Brachystethus coxalis*, Peru, Chiriqui, BREDDIN, p. 178, Soc. ent. xviii, **n. sp.**  
*Brepholoxa n. g. near Liotropis, B. heidemanni n. sp.*, Florida, VAN DUZEE, p. 78, Tr. Amer. ent. Soc. xxx.  
*Brochymena affinis*, California, VAN DUZEE, p. 29, t. c. **n. sp.**  
*Callidea haglundii*, Trop. Africa, p. 42, SCHOUTEDEN, Rhynch. æthiop. **n. sp.**  
*Calliscyta australis*, SCHOUTEDEN, p. 296, Ann. Soc. ent. Belgique xlvi.  
*Carbula teretipes*, Madagascar, HORVÁTH, p. 260, Ann. Mus. Hungar. ii, **n. sp.**  
*Caura excelsa* var. *n. limbata*, HORVÁTH, p. 257, t. c. ; *C. excelsa* = (*insignis* Schout.), SCHOUTEDEN, p. 138, Ann. Soc. ent. Belgique xlvi.  
*Chelysoma glirina*, Brazil, BERGROTH, p. 354, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Chilocoris assmuthi*, p. 407, *solenopsidis*, p. 408, India, myrmecophilous, BREDDIN, Ann. Soc. ent. Belgique xlvi, **n. spp.**  
*Chipatula agilis*, E. Africa, SCHOUTEDEN, p. 135, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Cocalus assimilis*, E. Africa, HORVÁTH, p. 257, Ann. Mus. Hungar. ii, **n. sp.**  
*Coquerellia ventralis*, Madagascar, HORVÁTH, p. 263, t. c. **n. sp.**  
*Corimelæna sayi* n. n. for *albipennis* Say, VAN DUZEE, p. 10, Tr. Amer. ent. Soc. xxx.  
*C. gillettii*, New Jersey, VAN DUZEE, p. 8, t. c. ; *C. major*, Brazil, BREDDIN, p. 49, Soc. ent. xix : **n. spp.**  
*Dalcantha angularis*, Sumatra, p. 18, *alata*, Tonkin, p. 19, BREDDIN, Wien. ent. Zeit. xxiii, **n. spp.**  
*Dalpada perelegans*, Tonkin, BREDDIN, p. 1, t. c. **n. sp.**  
*Dalsira brunni*, Cameroons, SCHOUTEDEN, p. 142, Ann. Soc. ent. Belgique xlvi, **n. sp.**  
*Dandinus n. g.* near *Æschrus*, p. 264, for *D. crassus n. sp.*, N. Queensland, p. 265, DISTANT, Ann. Nat. Hist. xiii.  
*Deroplatx circumducta* varr. and synonymy, SCHOUTEDEN, p. 301, Ann. Soc. ent. Belgique xlvi.  
*Discocephala andina*, Ecuador, BREDDIN, p. 58, Soc. ent. xix, **n. sp.**  
*Dolycoris penicillatus*, Turkestan, HORVÁTH, p. 580, Ann. Mus. Hungar. ii, **n. sp.**  
*Dystus villosus*, Bolivia, BREDDIN, p. 153, Soc. ent. xviii, **n. sp.**  
*Edessa suturata* var. *n. subandina*, p. 135, *E. oxyacantha*, p. 138, *quadridens*, p. 140, *infulata*, p. 143, *metata*, p. 145, *meditabunda*, p. 152, sex characters, BREDDIN, SB. Ges. naturf. Berlin 1904.  
*E. schirmeri, pachyacantha*, p. 136, *leptacantha*, p. 139, *brachyacantha*,



- p. 140, *boernerii*, p. 141, *handlirschi*, p. 142, *leprosula*, p. 144, *boopis*, p. 146, *heymonsi*, p. 147, *verhoeffi*, *perscita*, p. 149, *capito*, p. 151, *cogitabunda*, p. 153, S. America, BREDDIN, t. c.; *E. infulata*, Peru, *oxyacantha*, Bolivia, BREDDIN, p. 50, Soc. ent. xix; *E. vernicosa*, *hædulus*, Ecuador, *hirculus*, Bolivia, BREDDIN, t. c. p. 178 : **n. sp.**
- Elvisura minor*, Trop. Africa, SCHOUTEDEN, Rhynch. æthiop. p. 6, **sp. n.**
- Empysarus n. g. Tesseratominae*, p. 315, *E. depressus n. sp.*, S. India, p. 316, MARTIN, Bull. Mus. Paris 1904.
- Epicoleotichus subg. n. of Coleotichus*, SCHOUTEDEN, p. 6, *Scutellerinae*.
- Eucenaria n. g. near Ænaria*, *E. jucunda n. sp.*, Tonkin, BREDDIN, p. 2, Wien. ent. Zeit. xxiii.
- Eumecopus abdominalis*, p. 263, *pallescens*, p. 264, N. Queensland, DISTANT, Ann. Nat. Hist. xiii, **n. spp.**
- Eurinome armata*, N. Guinea, BREDDIN, p. 4, Wien. ent. Zeit. xxiii, **n. sp.**
- Eurostus heros*, Tonkin, BREDDIN, p. 16, t. c. **n. sp.**
- Eurygaster carinatus*, Utah, VAN DUZEE, p. 18, Tr. Amer. ent. Soc. xxx, **n. sp.**
- Eusarcotis gibbosus*, Corea, JAKOVLEFF, p. 23, Rev. Russe Ent. iv; *E. V-flavum*, Madagascar, HORVÁTH, p. 259, Ann. Mus. Hungar. ii : **n. spp.**
- Eusthenes diomedes*, Tonkin, BREDDIN, p. 15, Wien. ent. Zeit. xxiii, **n. sp.**
- Exithemus mansonicus*, Tonkin, BREDDIN, p. 6, t. c. **n. sp.**
- Fokkeria n. g. Scutellerides*, *F. crassa n. sp.*, N. America, SCHOUTEDEN, p. 301, Ann. Soc. ent. Belgique xlvi.
- Galeacius martini*, Minas Geraes, SCHOUTEDEN, p. 299, t. c.; *G. simplex*, Peru, BREDDIN, p. 49, Soc. ent. xix : **n. spp.**
- Gastrocys n. g. near Diplocys*, p. 257, *G. funerea n. sp.*, E. Africa, p. 258, HORVÁTH, Ann. Mus. Hungar. ii.
- Geomorpha junodi*, Transvaal, DISTANT, p. 350, Ann. Nat. Hist. xiii, **n. sp.**
- Glypsus carinulatus*, Soudan, BERGROTH, p. 32, Rev. Russe Ent. iv; *G. bouvieri*, Congo, p. 140, *kuhlgatzi*, Africa, p. 141, SCHOUTEDEN, Ann. Soc. ent. Belgique xlvi : **n. spp.**
- Gnathoconus elongatus*, Transvaal, DISTANT, p. 349, Ann. Nat. Hist. xiii, **n. sp.**
- Gonaulax n. g.* p. 57, *G. bergrothi n. sp.*, Usambara, p. 59, pl. i, fig. 8, SCHOUTEDEN, Rhynch. æthiop.
- Gonopsis tonkinensis*, Tonkin, BREDDIN, p. 19, Wien. ent. Zeit. xxiii, **n. sp.**
- Haullevillea n. g. near Amauropepla*, *H. denticulata n. sp.*, Trop. Africa, SCHOUTEDEN, p. 126, Rhynch. æthiop.
- Iphiarusa n. g. near Hoffmannseggella*, p. 12, *I. aratrix n. sp.*, Tonkin, p. 13, BREDDIN, Wien. ent. Zeit. xxiii.
- Irochrotus montandoni*, Senegal, p. 88, SCHOUTEDEN, Rhynch. æthiop.; *I. indicus*, Bengal, SCHOUTEDEN, p. 303, Ann. Soc. ent. Belgique xlvi : **n. spp.**
- Kayesia n. g. near Podops*, *K. parva n. sp.*, Soudan, SCHOUTEDEN, p. 114, Rhynch. æthiop.
- Laccophorella n. g. Acanthosominae*, *L. bornemisæ n. sp.*, E. Africa, HORVÁTH, p. 270, Ann. Mus. Hungar. ii.
- Lerida bolivari*, Guinea, SCHOUTEDEN, p. 146, Mem. Soc. espan. i, **n. sp.**
- Lincus securiger*, *dentiger*, Ecuador, BREDDIN, p. 154, Soc. ent. xviii, **n. spp.**
- Lobopelta n. g. Phyllocephalinae*, p. 142, for *L. funebris n. sp.*, Congo, p. 143, SCHOUTEDEN, Ann. Soc. ent. Belgique xlvi.
- Lobothyreus brasiliensis*, Brazil, SCHOUTEDEN, p. 300, t. c. **n. sp.**
- Macroscytus inernipes*, St. Thomé isld., HORVÁTH, p. 253, Ann. Mus. Hungar. ii, **n. sp.**
- Malgassus exiguus*, Madagascar, HORVÁTH, p. 269, t. c. **n. sp.**
- Megadæum*, characters and position, BERGROTH, p. 37, Wien. ent. Zeit. xxiii.
- M. obliquum*, Cameroons, id. p. 39, t. c. **n. sp.**

- Melanodermus dilutipes*, Ecuador, BREDDIN, p. 154, Soc. ent. xviii, **n. sp.**  
*Miopygium n. g.* near *Macropygium*, *M. cyclopetloides n. sp.*, Rio Grande do Sul, BREDDIN, p. 153, t. c.  
*Montandoniella n. g. Plataspidinæ, femorata n. sp.*, Guinea, SCHOUTEDEN, p. 144, Mem. Soc. Espan. i.  
*Morbora hirtula*, Tasmania, *schoutedeni*, Queensland, BERGROTH, p. 356, Ann. Soc. ent. Belgique xlviii, **n. spp.**  
*Moyara martini*, Uganda, SCHOUTEDEN, p. 138, Ann. Soc. ent. Belgique xlviii, **n. sp.**  
*Nealeria diminuta*, Madagascar, HORVÁTH, p. 255, Ann. Mus. Hungar. ii, **n. sp.**  
*Nezara bergrothi*, p. 263, *liturata, valida*, p. 264, Madagascar, *limbosa*, p. 265, *adelpha, macrorhaphis*, p. 266, W. Africa, *rufidorsum*, Madagascar, p. 267, HORVÁTH, t. c. **n. spp.**  
*Ochrorrhaca n. g.* near *Ochrophara*, *O. truncaticornis n. sp.*, Tonkin, BREDDIN, p. 3, Wien. ent. Zeit. xxiii.  
*Odontoscelis balli*, p. 19, *producta*, p. 20, Colorado, VAN DUZEE, Tr. Amer. ent. Soc. xxx, **n. spp.**  
*Oncinoproctus n. g.* near *Eurinome*, *O. griseolus n. sp.*, Sikkim, BREDDIN, p. 5, Wien. ent. Zeit. xxiii.  
*Oncodochilus cruciatulus*, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, **n. sp.**  
*Oplomus cruentus* var. *n. inermis*, SCHOUTEDEN, p. 140, Ann. Soc. ent. Belgique xlviii.  
*O. sagax*, Bolivia, BREDDIN, p. 49, Soc. ent. xix; *O. severus*, Peru, BREDDIN, p. 177, t. c. **n. spp.**  
*Palomena limbata*, Koukou-noor, JAKOWLEW, p. 71, Horae Soc. ent. Ross. xxxvii, **n. sp.**  
*Parabolbocoris n. g. Graphosomatinae, P. signoreti n. sp.*, Bogos, SCHOUTEDEN, p. 106, Rhynch. æthiop.  
*Paracoleotichus* subg. *n. of Coleotichus*, SCHOUTEDEN, p. 6, Scutellerinæ.  
*Parapædicolcoris* subg. *n.*, SCHOUTEDEN, p. 21, t. c.  
*Parochlerus n. g.* near *Ochlerus*, *P. latus n. sp.*, Peru, BREDDIN, p. 153, Soc. ent. xviii.  
*Pentatoma (Rhytidolomia) osborni*, Colorado, VAN DUZEE, p. 37, Tr. Amer. ent. Soc. xxx, **n. sp.**  
*Peribalus tristis*, Vancouver, VAN DUZEE, p. 33, t. c. **n. sp.**  
*Periphymopsis subg. n.*, SCHOUTEDEN, p. 78, Scutellerinæ.  
*Philia regia*=(*leucochalcea* Bredd.) *area*=(*compacta* Bredd.), DISTANT, p. 276, Ann. Nat. Hist. xiii; *P. jactator*=(*fenestrata* Bredd.), DISTANT, p. 66, op. cit. xiv.  
*P. insignis*, N. S. Wales, SCHOUTEDEN, p. 297, Ann. Soc. ent. Belgique xlviii, **n. sp.**  
*Phimodera*, the variation and synonymy, *P. humeralis* var. *n. dalmanni*, p. 6, REUTER, Ofv. Finska Forh. xlv, No. 17, 15 pp.  
*P. corrugata*, Colorado, VAN DUZEE, p. 16, Tr. Amer. ent. Soc. xxx, **n. sp.**  
*Phleæ*, its mimicry, PÉREZ, p. 429, C.R. Soc. Biol. lvi.  
*Platynopus fallax, horvathi*, Africa, SCHOUTEDEN, p. 139, Ann. Soc. ent. Belgique xlviii, **n. spp.**  
*Plisthenes buruensis*, Buru, BREDDIN, p. 179, Wien. ent. Zeit. xxiii, **n. sp.**  
*Podisus cynicus, bracteatus*, distinctions, sex characters, HEIDEMANN, pp. 9, 10, cuts, P. ent. Soc. Washington vi.  
*P. blanditor*, Peru, BREDDIN, p. 46, Soc. ent. xix; *P. carbonarius*, Centr. America, *neniator, carnifex*, S. America, BREDDIN, p. 154, t. c. : **n. spp.**  
*Podops parvulus*, N. America, VAN DUZEE, p. 22, Tr. Amer. ent. Soc. xxx, **n. sp.**  
*Polytes insignis*, Bolivia, SCHOUTEDEN, p. 298, Ann. Soc. ent. Belgique xlviii; *P. cingulicornis*, Brazil, BERGROTH, p. 354, Ann. Soc. ent.

- Belgique xlviij; *P. onca, griseascens*, Peru, BREDDIN, p. 49, Soc. ent. xix :  
**n. spp.**
- Ponsila escalerai*, Guinea, SCHOUTEDEN, p. 142, Mem. Soc. Espan. i, **n. sp.**
- Prionocompastes vicarians*, Java, BREDDIN, p. 14, Wien. ent. Zeit. xxiii,  
**n. sp.**
- Rhynchocoris patulus*, Java, BREDDIN, p. 12, t. c. **n. sp.**
- Runibia picturata*, Peru, BREDDIN, p. 177, Soc. ent. xviii, **n. sp.**
- Sabæus rectispinus*, Java, p. 8, *teretispinus*, Sumbawa, *fortispinus*, Buru ?,  
 p. 9, BREDDIN, Wien. ent. Zeit. xxiii, **n. spp.**
- Scotinophara curvispina*, p. 123, E. Africa, *madagascariensis*, Madagascar,  
 p. 125, SCHOUTEDEN, Rhynch. æthiop. **n. spp.**
- Sepidiocoris n. g.* p. 127, *Graphosomatinae*, *S. noualhieri n. sp.*, W. Africa,  
 p. 128, SCHOUTEDEN, t. c.
- Severinina n. g.* near *Melanophara*, p. 116, *S. bergrothi n. sp.*, Congo,  
 pl. ii, fig. 10, p. 117, SCHOUTEDEN, Rhynch. æthiop.; *Severinina* and  
 allies, characters amended, SCHOUTEDEN, p. 135, Ann. Soc. ent.  
 Belgique xlviij.
- Sibaria andicola*, Ecuador, BREDDIN, p. 49, Soc. ent. xix, **n. sp.**
- Stenozygum bergrothi n. n.* for *bicolor* Sch., SCHOUTEDEN, p. 138, Ann. Soc.  
 ent. Belgique xlviij.
- S. mombasanum*, E. Africa, SCHOUTEDEN, p. 137, t. c.; *S. varelai*, Cameroons,  
 SCHOUTEDEN, p. 158, Mem. Soc. Espan. i : **n. spp.**
- Supputius obscurus*, Ecuador, BREDDIN, p. 154, Soc. ent. xviii, **n. sp.**
- Symphylus enac*, Bolivia, BREDDIN, p. 49, op. cit. xix, **n. sp.**
- Tarisa chloris*, Turkestan, HORVÁTH, p. 580, Ann. Mus. Hungar. ii, **n. sp.**
- Tectocoris lineola*, habits, stages, eggs, DODD, pp. 483-485, Tr. ent. Soc.  
 London 1904.
- Tesseratoma niemensis*, Africa, SCHOUTEDEN, p. 143, Ann. Soc. ent. Belgique  
 xlviij, **n. sp.**
- Tetrochlerus n. g.* near *Ochlerus*, *T. fissiceps n. sp.*, Ecuador, BREDDIN,  
 p. 153, Soc. Ent. xviii.
- Theseus nigrescens*, N. Queensland, DISTANT, p. 263, Ann. Nat. Hist. xiii,  
**n. sp.**
- Thyanta punctiventris*, p. 55, *brevis*, p. 56, Colorado, VAN DUZEE, Tr.  
 Amer. ent. Soc. xxx, **n. spp.**
- Tolumnia ferruginescens*, Tonkin, BREDDIN, p. 7, Wien. ent. Zeit. xxiii, **n. sp.**
- Triplatyx n. g.* near *Eurus*, p. 255, *T. quadraticeps n. sp.*, Madagascar,  
 p. 256, HORVÁTH, Ann. Mus. Hungar. ii.
- Vanduzeeina n. g.* *Odontoscelis balli*, SCHOUTEDEN, p. 85, Scutellerinæ.
- Xerobia stali*, Somaliland, p. 87, SCHOUTEDEN, Rhynch. æthiop. **n. sp.**

## COREIDÆ.

[Cf. BREDDIN (166, 171), DISTANT (388-391), GIARD (597), JAKOVLEFF  
 (754, 755), OSBORN (1001).]

*Althos n. n.* for *Margus*, *Nanichisme n. n.* for *Nesiotes*, *Dersagrena n. n.*  
 for *Dalcera*, *Elachisme n. n.* for *Elathea*, *Ouranion n. n.* for *Bardistus*,  
*Marichisme n. n.* for *Phidippus*, *Hæckelia n. n.* for *Microphyllia*,  
 KIRKALDY, p. 280, Entomologist 1904.

Oviposition of *Pseudophlæus* and *Phyllomorpha*, GIARD, p. 107, Feuille  
 Natural. xxxiv.

*Acanthocephala declivis* var. *n. guianensis*, OSBORN, p. 198, Ohio Natural. v.

*Anasa tristis*, copula eggs, parasite, GIRAULT, Ent. News Philad. xv, p. 335.

*A. jucunda*, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, **n. sp.**

*Carlisis serrabilis*, Transvaal, DISTANT, p. 350, Ann. Nat. Hist. xiii, **n. sp.**

*Coriomeris validicornis*, Transcaucasus, p. 293, *integerrimus*, Nan-shan,  
 p. 294, JAKOVLEFF, Rev. Russe Ent. 1904, **n. spp.**

- Holymeria tibialis, rubiginosa*, S. America, BREDDIN, p. 147, Soc. ent. xviii, **n. spp.**
- Hyalymenus (Tivarbus) calcarator*, Bolivia, BREDDIN, t. c. p. 148, **n. sp.**
- Hypselonotus fuscus*, Bolivia, OSBORN, p. 199, Ohio Natural. v, **n. sp.**
- Kennetus n. g. Mictaria*, p. 303, for *K. alces n. sp.*, Borneo, p. 304, DISTANT, Ann. Nat. Hist. xiii.
- Lycambes sargi*, Guatemala, BREDDIN, p. 306, Ann. Soc. ent. Belgique xlviii, **n. sp.**
- Mercennus n. n.* for *Melania* Dist., DISTANT, p. 304, Ann. Nat. Hist. xiii.
- Mictis loricata*, Congo, DISTANT, p. 61, op. cit. xiv, **n. sp.**
- Mirperus nigrofasciatus, robustus*, Transvaal, DISTANT, p. 352, op. cit. xiii, **n. spp.**
- Myrmus formosus*, Baikal, JAKOVLEV, p. 93, Rev. Russe Ent. iv, **n. sp.**
- Nematopus nigriventris*, Ecuador, *rufipes*, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, **n. spp.**
- Plinachtus trilineatus*, Transvaal, DISTANT, p. 351, Ann. Nat. Hist. xiii, **n. sp.**
- Pomponatus n. g.* near *Chærommatus*, p. 265, for *P. typicus n. sp.*, N. Queensland, p. 266, DISTANT, t. c.
- Trachelium mimeticum*, Bolivia, BREDDIN, p. 147, Soc. ent. xviii, **n. sp.**

## LYGÆIDÆ and PYRRHOCORIDÆ.

[Cf. BREDDIN (170, 171), DISTANT (386, 388, 390), HORVÁTH (714, 717), JAKOVLEFF (754, 756), OSBORN (1001), UHLER (1416).]

- Antilocoris n. n.* for *Pygæus*, *Botocudo n. n.* for *Salacia*, *Probergrothius n. n.* for *Odontopus*, *Peggichisme n. n.* for *Davila*, *Polychisme n. n.* for *Imbrius*, KIRKALDY, p. 280, Entomologist 1904.
- Acroleucus eros, pothus*, Ecuador, BREDDIN, p. 148, Soc. ent. xviii, **n. spp.**
- Anorygma subg. n.* cf. *Phænacantha*.
- Aphanus atomarius*, Transvaal, DISTANT, p. 353, Ann. Nat. Hist. xiii, **n. sp.**
- Brachyphyma n. g.* p. 144, *B. argutum, ochraceum*, p. 145, *papuense*, p. 146, **n. spp.**, New Guinea, HORVÁTH, Ann. Mus. Hungar. ii.
- Calliseidus n. g.* p. 153, *C. nigricollis n. sp.*, Peru, p. 154, HORVÁTH, t. c.
- Chauliops rutherfordi*, Old Calabar, DISTANT, p. 277, Entomologist 1904, **n. sp.**
- Colobasiastes*, insertion of antennæ, p. 245, cut, BREDDIN, Wien. ent. Zeit. xxiii.
- C. similis*, p. 162, *longicornis*, p. 163, *obscurus*, p. 166, *rufiventris*, p. 167, Peru, HORVÁTH, Ann. Mus. Hungar. ii; *C. analis*, Bolivia, BREDDIN, p. 249, Wien. ent. Zeit. xxiii : **n. spp.**
- Colobathristine*, monograph, HORVÁTH, pp. 117–172, Ann. Mus. Hungar. ii.
- Colobathristes egregius*, Brazil, *facetus*, hab.?, HORVÁTH, p. 151, t. c. **n. spp.**
- Diascopæa n. g.* p. 154, *D. discessa*, p. 155, *debilis*, p. 156, **n. spp.**, Peru, HORVÁTH, t. c.
- Dieuches scutellatus, consanguineus*, N. Queensland, DISTANT, p. 268, Ann. Nat. Hist. xiii, **n. spp.**
- Emblethis brevicornis*, Turkestan, HORVÁTH, p. 582, Ann. Mus. Hungar. ii; *E. luridus*, E. Turkestan, JAKOVLEFF, p. 24, Rev. Russe Ent. iv : **n. spp.**
- Fontejanus wasmanni*, amplified description, BREDDIN, pp. 410–412, cut, Ann. Soc. ent. Belgique xlviii.
- Geocoris (Picocoris) chinensis*, Sé-tschuen, JAKOVLEV, p. 170, t. c.; *G. elongatulus*, N. Queensland, DISTANT, p. 267, Ann. Nat. Hist. xiii : **n. spp.**
- Germalus lineolosus*, N. Queensland, DISTANT, p. 266, t. c. **n. sp.**
- Lygæus sulcatus*, Guiana, OSBORN, p. 200, Ohio Natural. v, **n. sp.**



- Microtoma præusta*, Alaï, JAKOVLEFF, p. 23, Rev. Russe Ent. iv, **n. sp.**  
*Narcegaster n. g.* for *Colobathristes geniculatus* St., HORVÁTH, p. 141, Ann. Mus. Hungar. ii.  
*Nysius pilosulus*, Turkestan, HORVÁTH, p. 581, t. c.; *N. rubromaculatus*, Transvaal, DISTANT, p. 352, Ann. Nat. Hist. xiii : **n. spp.**  
*Oxycarenus scabrosus*, New Mexico, UHLER, p. 353, P. U. S. Mus. xxvii, **n. sp.**  
*Pamera picturata*, p. 267, *apicalis*, p. 268, N. Queensland, DISTANT, Ann. Nat. Hist. xiii, **n. spp.**  
*Peruda longiventris*, Peru, HORVÁTH, p. 170, Ann. Mus. Hungar. ii, **n. sp.**  
*Physopelta melanoptera*, W. Africa, DISTANT, p. 61, Ann. Nat. Hist. xiv, **n. sp.**  
*Piptocentrus n. g.* p. 157, *P. pilipes n. sp.*, Peru, p. 158, HORVÁTH, Ann. Mus. Hungar. ii.  
*Phænacantha n. g.* p. 120, *P. biroi*, p. 124, *suturalis*, p. 125, *consobrina*, *ambigua*, p. 126, *femoralis*, p. 127, *unicolor*, *conviva*, p. 128, *mehelyi*, p. 129, New Guinea, *sedula* with var. *melanoscelis*, p. 130, *gestroi*, Sumatra, *strenua*, p. 131, *antennalis*, p. 132, *pilosella*, p. 133, *discrepans*, p. 134, New Guinea, *confusa*, Philippines, p. 135, *pacifica*, Fiji, p. 136, *P. (Anorygma* subg. n., p. 137) *solers*, Burma, *viridipennis*, Tenasserim, p. 139, **n. spp.**, HORVÁTH, t. c.  
*Rhyparochromus compactus*, New Mexico, UHLER, p. 354, P. U. S. Mus. xxvii, **n. sp.**  
*Symphylax n. g.* p. 142, *S. picticollis n. sp.*, with varr. *blandus*, *confluens*, Sumatra, etc., p. 143, HORVÁTH, Ann. Mus. Hungar. ii.  
*Tagalisca* subg. n. of *Phænacantha*, for *Colobathristes pallidus* St., HORVÁTH, p. 140, t. c.  
*Taphrocranium n. g.* for *Colobathristes robustus* Bredd., HORVÁTH, p. 147, t. c.  
*Trichocentrus n. g.* p. 152, *T. gibbosus n. sp.*, Brazil, p. 153, HORVÁTH, t. c.

## TINGIDÆ.

- Corythuca marmorata*, life-history, FELT, pp. 125-129, pls. iii, iv, Bull. N. York Mus. lxxvi.  
*Phyllochisme n. n.* for *Physatochila* L. & S., *Mæcenus n. n.* for *Tingis*, *Gelchossa n. n.* for *Leptostyla*, KIRKALDY, p. 280, Entomologist 1904.

## ARADIDÆ and PHYMATIDÆ.

[Cf. DISTANT (386), HEIDEMANN (670, 671).]

- Aneurus fiskei*, N. Carolina, HEIDEMANN, p. 164, P. ent. Soc. Washington vi, **n. sp.**  
*Aradus uniformis*, p. 231, *hubbardi*, p. 232, N. America, HEIDEMANN, t. c. **n. spp.**  
*Neuroctenus hopkinsi*, North Carolina, HEIDEMANN, p. 163, t. c. **n. sp.**  
*Proxius schwarzii*, Florida, HEIDEMANN, p. 230, t. c. **n. sp.**  
*Glossopelta dudgeoni*, Kangra, DISTANT, p. 277, Entomologist 1904, **n. sp.**

## HYDROMETRIDÆ.

- Gerris thoracicus* var. n. *rapidus*, HORVÁTH, p. 582, Ann. Mus. Hungar. ii.  
*Metrocoris*, table of species, KIRKALDY, p. 61, Entomologist 1904.  
*M. distanti*, Zoutpansberg, id. p. 62, t. c. **n. sp.**  
*Velia brunnea*, Bolivia, OSBORN, p. 204, Ohio Natural. v, **n. sp.**

## REDUVIIDÆ.

[Cf. BERGROTH (103), BREDDIN (167, 171), DISTANT (383, 388, 390), HORVÁTH (717), JAKOVLEFF (754), NOUALHIER (984), OSBORN (1001), VARELA (1431, 1432).]

*Westermannius* n. n. for *Westermannia*, *Isachisme* n. n. for *Algol*, *Peregrinator* n. n. for *Microleptes*, *Mestor* n. n. for *Lamus*, *Brontostoma* n. n. for *Mindarus*, KIRKALDY, p. 280, Entomologist 1904.

BREDDIN notes various forms of larval *Reduviidæ*, found in the nests of Termites and Ants in India and Africa, Ann. Soc. ent. Belgique xlviij, pp. 412–416.

*Acanthaspis* (*Plynus*) *breddini*, Cameroons, VARELA, p. 55, Bol. Soc. espan. iv; *A. sericata*, p. 258, *porrecta*, p. 261, Ceylon, *zebraica*, Burma, p. 264, *siva*, p. 265, *rama*, p. 268, India, DISTANT, Faun. Brit. India Rhynchota ii; *A. varivivens*, Siam, NOUALHIER, p. 174, pl. x, fig. 1, Mission Pavie iii: n. spp.

*Alemana straminipes*, *maculosa*, India, DISTANT, p. 370, Faun. Brit. India Rhynchota ii, n. spp.

*Allæorhynchus bengalensis*, India, DISTANT, p. 394, t. c. n. sp.

*Apiomerus lobulatus*, Ecuador, BREDDIN, p. 148, Soc. ent. xviii, n. sp.

*Arcesius fusculus*, Burma, DISTANT, p. 351, Faun. Brit. India Rhynchota ii, n. sp.

*Audernacus* n. g. for *Santosia atropictus* Dist. and *A. andamanensis* n. sp., Andamans, DISTANT, p. 306, t. c.

*Bayerus* n. g. near *Santosia*, *B. cuneatus* n. sp., Assam, DISTANT, p. 307, t. c.

*Bartacus* n. g. near *Epidaus* for *Cimex spinifex* Thunb., DISTANT, p. 374, t. c.

*Brassivola* n. g. near *Epidaus*, p. 373, *B. hystrix* n. sp., Ceylon, p. 374, DISTANT, t. c.

*Castolus* (*Spinda*) *nigriventris*, Bolivia, BREDDIN, p. 148, Soc. ent. xviii, n. sp.

*Centrocnemis dearmata*, Ceylon, DISTANT, Faun. Brit. India Rhynchota ii, n. sp.

*Cleptria escaleraei*, Guinea, VARELA, p. 134, Mem. Soc. Espan. i, n. sp.

*Conorrhinus megistus*, attacks on man, POULTON, p. lxxvi, P. ent. Soc. London 1904.

*Coranus mongolicus*, E. Mongolia, JAKOVLEFF, p. 26, Rev. Russe Ent. iv, n. sp.

*Croschius melanopterus* = (*Castrucci* *insignis* Dist.), DISTANT, p. 276, Ann. Nat. Hist. xiii.

*Dithmarus* n. g. *Stenopodine*, p. 353, for *D. atromaculatus* n. sp., Transvaal, p. 354, DISTANT, t. c.

*Dodonæus* n. g. near *Nabis*, p. 398, *D. humeralis* n. sp., Sikhim, p. 399, DISTANT, Faun. Brit. India Rhynchota ii.

*Durganda fulvescens*, Tenasserim, DISTANT, p. 283, t. c. n. sp.

*Ectomocoris erebus*, Burma, p. 292, *tibialis*, p. 293, *vishnu*, p. 296, India, DISTANT, t. c.

*Edocla pelia*, Pegu, DISTANT, p. 275, t. c. n. sp.

*Elaphocranus* n. g. *Petalochirine*, p. 357, *tarandus* n. sp., Cameroons, p. 358, BERGROTH, Bol. Soc. espan. iv.

*Endochus cinnamopterus*, *straminipes*, Transvaal, DISTANT, p. 355, Ann. Nat. Hist. xiii; *E. atricapillus*, *umbrinus*, India, DISTANT, p. 367, Faun. Brit. India Rhynchota ii: n. spp.

*Epidaus atrispinus*, Sikhim, *parvus*, Burma, DISTANT, p. 372, t. c. n. spp.

*Eriximachus* n. g. near *Physorhynchus*, p. 323, *E. globosus* n. sp., India p. 324, DISTANT, t. c.

- Euvonymus* n. g. *Acanthaspidinæ*, p. 244, *E. spiniceps* n. sp., Ceylon, p. 245, DISTANT, t. c.
- Godefridus* n. g. *Apiomerinæ*, p. 328, *G. alienus* n. sp., Burma, p. 329, DISTANT, t. c.
- Harpactor geniculatus*, Transcaucasus, JAKOVLEV, p. 94, Rev. Russe Ent. iv; *H. femoralis*, Transvaal, DISTANT, p. 355, Ann. Nat. Hist. xiii; *H. squalus*, Sikhim, DISTANT, p. 333, Faun. Brit. India Rhynchota ii, n. spp.
- Harpagocoris perspectans* varr. = (*bergrothi* and *affinis*), BERGROTH, p. 361, Bol. Soc. espan. iv.
- H. bergrothi*, p. 136, *affinis*, p. 137, *merceti*, *suspectus*, p. 138, W. Africa, VARELA, Mem. Soc. Espan. i, n. spp.
- Havinthus trochanterus*, N. Queensland, DISTANT, p. 269, Ann. Nat. Hist. xiii, n. sp.
- Henricohahnia gallus*, Nilgiri hills, DISTANT, p. 389, Faun. Brit. India Rhynchota ii, n. sp.
- Heteropinus discretus*, Guinea, VARELA, p. 131, Mem. Soc. Espan. i, n. sp.; characters, BERGROTH, op. cit. iv, p. 362.
- Libavius* n. g. near *Mendis*, *L. greeni* n. sp., Ceylon, DISTANT, p. 313, Faun. Brit. India Rhynchota ii.
- Linsbcosteus* n. g. near *Conorhinus*, *L. carnifex* n. sp., N. India, DISTANT, p. 287, t. c.
- Lisarda varelae*, Cameroons, BERGROTH, p. 360, Bol. Soc. espan. iv, n. sp.
- Lorichius* n. g. near *Nabis*, *L. umbonatus* n. sp., Ceylon, DISTANT, p. 402, Faun. Brit. India Reduv. ii.
- Marbodius* n. g. *Epiroderaria*, *M. exemplificatus* n. sp., Ceylon, DISTANT, p. 248, t. c.
- Mastigonomus bolivari*, Guinea, VARELA, p. 136, Mem. Soc. Espan. i, n. sp.
- Nabis cinerascens*, Turkestan, HORVÁTH, p. 582, Ann. Mus. Hungar. ii; *N. tibialis*, Ceylon, p. 400, *funebri*, *nigrescens*, p. 401, India, DISTANT, Faun. Brit. India Rhynchota ii: n. spp.
- Odontogonus* n. n. for *Laphyctes* Stål nec Reich., BERGROTH, p. 361, Bol. Soc. espan. iv.
- Phasmatocoris* n. g. *Emesüni*, *P. spectrum* n. sp., Bolivia, BREDDIN, p. 148, Soc. ent. xviii.
- Phonergates (Clopophora) nuptura*, Cameroons, VARELA, p. 55, Bol. Soc. espan. iv, n. sp.
- Phonoctonus elegans*, Cameroons, VARELA, p. 56, t. c. n. sp.
- Phonolibes bimaculatus*, Transvaal, DISTANT, p. 354, Ann. Nat. Hist. xiii, n. sp.
- Physorhynchus pedestris*, p. 320, *malabaricus*, *talpus*, p. 321, *insignis*, *rubromaculatus*, p. 322, India, DISTANT, Faun. Brit. India Rhynchota ii, n. spp.
- Prostemma siamense*, Siam, NOUALHIER, p. 176, pl. x, fig. 2, Mission Pavie iii, n. sp.
- Quercetanus* n. g. near *Scadra*, p. 310, *Q. atromaculatus*, India, *relatus*, Ceylon, n. spp., p. 311, DISTANT, Faun. Brit. India Rhynchota ii.
- Reduvius transnominalis* n. n. for *debilis* Reut., DISTANT, p. 251, t. c.
- R. knyveti*, p. 251, *esau*, *boyesi*, p. 252, *angiportus*, p. 253, India, DISTANT, t. c. n. spp.
- Rhaphidosoma tuberculatum*, Baluchistan, DISTANT, t. c. p. 330, n. sp.
- Rulandus* n. g. *Nabinæ*, *R. phædrus* n. sp., Burma, DISTANT, p. 396, t. c.
- Santosa finitima*, Cameroons, VARELA, p. 133, Mem. Soc. Espan. i, n. sp.
- Scadra tibialis*, *scutellaris*, Assam, DISTANT, p. 309, Faun. Brit. India Rhynchota ii, n. spp.
- Seridentus* n. g. near *Shaumannia*, *S. denticulatus* n. sp., Bolivia, OSBORN, p. 203, Ohio Natural. v.

- Sminthocoris* **n. n.** for *Smithus* Stål, DISTANT, p. 279, Faun. Brit. India Rhynchota ii.  
*Sphedanolestes dives, variabilis*, India, DISTANT, p. 342, t. c. **n. sp.**  
*Stegius* **n. g.** near *Physorhynchus*, p. 322, *S. pravus* **n. sp.**, Bengal, p. 323, DISTANT, t. c.  
*Sycanus inermis*, Assam, *atrocyaneus*, Burma, DISTANT, p. 356, t. c. **n. spp.**  
*Tragelaphodes* **n. g.** *Petalochirina*, p. 358, *hirculus* **n. sp.**, Cameroons, p. 360, BERGROTH, Bol. Soc. espan. iv.  
*Villanovanus* **n. g.** for *Endochus dichrous*, DISTANT, p. 364, Faun. Brit. India Rhynchota ii.

ANTHOCORIDÆ, CERATOCOMBIDÆ, HENICOCEPHALIDÆ,  
 POLYCTENIDÆ.

Synonymy of Walker's *Anthocoridae*, DISTANT, p. 222, Ann. Nat. Hist. xiv.

- Amphiareus* **n. g.** for *Xylocoris fulvescens* Walk., DISTANT, p. 220, t. c.  
*Arnulphus* **n. g.** for *A. aterrimus* **n. sp.**, Burma, DISTANT, p. 220, t. c.  
*Ceratocombus niger*, p. 361, *lutipennis*, p. 362, New Mexico, UHLER, P. U. S. Mus. xxvii, **n. spp.**  
*Crescentius* **n. g.** *Ceratocombinae*, p. 408, *C. principatus* **n. sp.**, Burma, p. 409, DISTANT, Faun. Brit. India Rhynchota ii.  
*Henicocephalus pugnatorius*, Cape Colony, DISTANT, p. 278, Entomologist 1904, **n. sp.**  
*Lippomanus* **n. g.** *Anthocoridae* for *L. hirsutus* **n. sp.**, Burma, DISTANT, p. 221, Ann. Nat. Hist. xiv.  
*Ostorodias* **n. g.** *Anthocoridae* for *O. contubernalis* **n. sp.**, Himalaya, DISTANT, p. 219, t. c.  
*Phthiroporis* **n. g.** *Henicocephalidae*, p. 786, for *P. antarcticus* **n. sp.**, Crozet Islands, p. 787, ENDERLEIN, Zool. Anz. xxvii.  
*Polyctenes intermedius*, Egypt, SPEISER, p. 373, pl. xx, Zool. Jahrb. Suppl. vii, **n. sp.**  
*Sesellius* **n. g.** *Anthocoridae* for *Anthocoris parallelus* Motsch., DISTANT, p. 221, Ann. Nat. Hist. xiv.  
*Sphigmocephalus* **n. g.** for *Henicocephalus curculio* Karsch., ENDERLEIN, p. 783, Zool. Anz. xxvii.

CAPSIDÆ.

[Cf. DISTANT (383, 387, 388, 391), HORVÁTH (717), JAKOVLEFF (754), KIRKALDY (809), REUTER (1162-1169), UHLER (1416).]

- Metriorrhynchomiris* **n. n.** for *Metriorrhynchus*, *Zanchisme* **n. n.** for *Schizonotus*, *Kalanina* **n. n.** for *Baracus*, *Bertsia* **n. n.** for *Berta*, *Reuterista* **n. n.** for *Brachybasis*, *Ragnar* **n. n.** for *Melanocoris*, *Poronotellus* **n. n.** for *Poronotus*, KIRKALDY, p. 280, Entomologist 1904.

DISTANT gives synonymy and summary of Walker's *Capsidae*; for details refer to the memoir, Ann. Nat. Hist. xiii, pp. 204-206 etc.

- Actinonotus pulcher* varr., REUTER, p. 3, Ofv. Finska Forh. xlvi, No. 14.  
*Adelphocoris funebris*, Corea, REUTER, p. 34, Rev. Russe Ent. iv; *A. funestus*, Mou-Pin, p. 7, *fasciaticollis*, p. 8, *melanocephalus*, p. 9, Pekin, REUTER, Ofv. Finska Forh. xlv, No. 16 : **n. spp.**  
*Agraptocoris* **n. g.** p. 6, *concolor* **n. sp.**, p. 7, Mongolia, REUTER, op. cit. xlvi, No. 4.  
*Æolocoris* **n. g.** near *Acrorrhinius*, *Æ. alboconsersus* **n. sp.**, Obock, pl. i, fig. 5, p. 17, REUTER, op. cit. xlv, No. 6.



- Allæonycha* **n. g.** near *Acrotelus*, p. 8, *mayri* **n. sp.**, Wiesbaden, p. 9, REUTER, op. cit. xlvi, No. 14.
- Allæotomus chinensis*, Pekin, REUTER, p. 20, op. cit. xlv, No. 16, **n. sp.**
- Anapus flavicornis*, Borjom, REUTER, p. 5, op. cit. xlvi, No. 14; *A. pectoralis*, Turkestan, HORVÁTH, p. 584, Ann. Mus. Hungar. ii: **n. spp.**
- Angerianus* **n. g.** *Cylaparia*, p. 437, *A. fractus*, *maurus* **n. spp.**, Tenasserim, p. 438, DISTANT, Faun. Brit. India Rhynchota ii.
- Annona smithi* (= *laberculata* Uhl. nec Dist.), Grenada, *antilleana* (= *Mala decoloris* Uhl.), St. Vincent, DISTANT, p. 62, Ann. Nat. Hist. xiv, **n. spp.**
- Araspus* **n. g.** *Bryocoraria* for *Lopus partilus* Walk., DISTANT, p. 112, op. cit. xiii.
- Arculanus* **n. g.** near *Disphinctus*, for *A. marshalli* **n. sp.**, Mashonaland, DISTANT, p. 198, t. c.
- Argenis* **n. g.** *Cylaparia*, for *Capsus incisuratus* Walk., DISTANT, p. 107, t. c. *A. alborivirescens*, Ceylon, DISTANT, p. 435, Faun. Brit. India Rhynchota ii, **n. sp.**
- Armachanus* **n. g.** *Cyllocoraria*, p. 478, *A. monoceros* **n. sp.**, Ceylon, p. 479, DISTANT, t. c.; *A. spicatus*, N. W. Australia, DISTANT, p. 203, Ann. Nat. Hist. xiii, **n. sp.**
- Atomophora oculata*, p. 10, *maculosa*, p. 12, *suturalis*, p. 13, *albovittata*, p. 14, Transcaspian, REUTER, Ofv. Finska Forh. xlvi, No. 4, **n. spp.**
- Atractotomus brevicornis* ♂, REUTER, p. 17, t. c. No. 14.
- Bothriomiris testaceus*, Burma, DISTANT, p. 470, Faun. Brit. India Rhynchota ii, **n. sp.**
- Callicratides* **n. g.** for *Capsus rama* Kirby, DISTANT, p. 417, t. c.
- Calocoris hispanicus* var. *n. bisignata*, *C. sexguttatus* var. *n. reducta*, REUTER, p. 2, Ofv. Finska Forh. xlvi, No. 14.
- C. dohertyi*, Tenasserim, DISTANT, p. 452, Faun. Brit. India Rhynchota ii, **n. sp.**
- Camponotidea saundersi* var., REUTER, p. 4, Ofv. Finska Forh. xlvi, No. 14.
- Campitobrochis tibialis*, Erythrea, REUTER, p. 12, op. cit. xlv, No. 6; *C. oculatus*, Congo, REUTER, p. 3, op. cit. xlvi, No. 10; *C. esau*, p. 201, *capensis*, p. 202, S. Africa, DISTANT, Ann. Nat. Hist. xiii; *C. orientalis*, p. 460, *tutulentus*, *uniformis*, *similis*, p. 461, Brit. India, DISTANT, Faun. Brit. India Rhynchota ii; *C. signatus*, N. Queensland, DISTANT, p. 274, Ann. Nat. Hist. xiii; *C. brevis*, New Mexico, UHLER, p. 359, P. U. S. Mus. xxvii: **n. spp.**
- Campylognathus fulvus*, Crete, REUTER, p. 18, Ofv. Finska Forh. p. 18, **n. sp.**
- Campylotropis* **n. g.** near *Cyllocoris*, p. 35, for *C. jakolevi* **n. sp.**, Corea, p. 36, REUTER, Rev. Russe Ent. iv.
- Capellanus* **n. g.** *Phytocoraria* Walk., for *Lygus sparsus* Dist., DISTANT, p. 109, Ann. Nat. Hist. xiii.
- Capsus croesus*, *remus*, p. 468, *darsius*, Burma, *pegasus*, Ceylon, p. 469, DISTANT, Faun. Brit. India Rhynchota ii, **n. spp.**
- Chamus* **n. g.** *Cylaparia* for *C. wealei*, Cape Colony, **n. sp.**, DISTANT, p. 197, Ann. Nat. Hist. xiii.
- Charagochilus nigricornis*, Congo, REUTER, p. 2, Ofv. Finska Forh. xlvi, No. 10; *C. duplicatus*, Pekin, REUTER, p. 16, op. cit. xlv, No. 16: **n. spp.**
- Charitocoris* **n. g.** near *Calocoris*, p. 10, *C. pallidus* **n. sp.**, Persia, p. 11, REUTER, Annuaire Mus. St. Petersb. ix.
- Chlorosomella* **n. g.** near *Actorrhinus*, p. 6, *geniculata* **n. sp.**, Congo, p. 7, REUTER, Ofv. Finska Forh. xlvi, No. 10.
- Clapmarius* **n. g.** *Herdoniaria*, p. 419, *C. turgidus* **n. sp.**, Ceylon, p. 420, DISTANT, Faun. Brit. India Rhynchota ii.
- Clivinema rubida*, New Mexico, UHLER, p. 355, P. U. S. Mus. xxvii, **n. sp.**
- Combalus* **n. g.** *Miraria*, *C. novitius* **n. sp.**, Assam, DISTANT, p. 431, Faun. Brit. India Rhynchota ii.

- Cyphodema* ? *junodi*, Transvaal, DISTANT, p. 201, Ann. Nat. Hist. xiii, n. sp.  
*Cyphodemidea* n. g. near *Cyphodema*, p. 17, *C. variegata* n. sp., Mou-Pin, pl. ii, fig. 5, p. 19, REUTER, Ofv. Finska Forh. xlv, No. 16.  
*Cytorrhinus chinensis* Stål, REUTER, p. 22, t. c.  
*Dagbertus* n. g. near *Episcopus* for *Capsus darwini* etc., DISTANT, p. 203, Ann. Nat. Hist. xiii.  
*Deræocorsis rutilus* var. n. *fasciata*, *D. scutellaris* var. n. *ventralis*, REUTER, p. 5, Ofv. Finska Forh. xlvi, No. 14.  
*D. variabilis, rufus, ornandus*, India, DISTANT, p. 467, Faun. Brit. India Rhynchota ii, n. spp.  
*Dichrooscytus consobrinus*, Turkestan, HORVÁTH, p. 583, Ann. Mus. Hungar. ii; *D. elegans*, New Mexico, UHLER, p. 356, P. U. S. Mus. xxvii : n. spp.  
*Diognetus* n. g. *Miraria*, p. 431, *D. intonsus* n. sp., Ceylon, p. 432, DISTANT, Faun. Brit. India Rhynchota ii.  
*Disphinctus elegans*, Tenasserim, DISTANT, p. 445, t. c. n. sp.  
*Estuidus* n. g. near *Malalasta*, p. 272, for *E. foveatus, marginatus* n. spp., N. Queensland, p. 273, DISTANT, Ann. Nat. Hist. xiii.  
*Eucercoris suspectus*, N. Queensland, DISTANT, p. 271, t. c. n. sp.  
*Eucyrtus parvulus*, Djibouti, REUTER, p. 5, pl. i, fig. 2, Ofv. Finska Forh. xlv, No. 6, n. sp.  
*Felisacus* n. n. for *Liocoris* Motsch. p. 438, *F. magnificus* n. sp., Tenasserim, p. 439, DISTANT, Faun. Brit. India Rhynchota ii.  
*Fingulus* n. g. near *Physetonotus*, for *F. atrocæruleus* n. sp., N. Queensland, DISTANT, Ann. Nat. Hist. xiii, p. 275.  
*Fulgentius* n. g. *Herdonaria*, p. 103, for *F. mandarinus* n. sp., China, p. 104, DISTANT, t. c.  
*Gallobelicus* n. g. *Cyllocoraria*, p. 477, *G. crassicornis* n. sp., India, p. 478, DISTANT, Faun. Brit. India Rhynchota ii.  
*Gismunda* n. g. near *Liocoris*, *G. chelonina* n. sp., Sikhim, DISTANT, p. 463, t. c.  
*Glaphyrocoris* n. g. near *Læmocoris*, p. 15, *G. unifasciatus* n. sp., Djibouti, pl. i, fig. 4, p. 16, REUTER, Ofv. Finska Forh. xlv, No. 6.  
*Globiceps parvulus*, Spain, REUTER, p. 51, Ent. Mag. xl, n. sp.  
*Glossopeltis* n. g. near *Pilophorus*, p. 13, *G. coutierei*, Obock, n. sp., pl. i, fig. 3, p. 14, REUTER, Ofv. Finska Forh. xlv, No. 6.  
*Guisardus* n. g. *Cylaparia*, *G. pellucidus* n. sp., Tenasserim, DISTANT, p. 436, Faun. Brit. India Rhynchota ii.  
*Halticus intermedius*, New Mexico, UHLER, p. 360, P. U. S. Mus. xxvii; *H. chrysolepis*, Honolulu, KIRKALDY, p. 179, Entomologist 1904 : n. spp.  
*Harpedona* n. g. *Herdonaria*, p. 418, *H. marginata* n. sp., Ceylon, p. 419, DISTANT, Faun. Brit. India Rhynchota ii.  
*Helopeltis oryx*, Ceylon, DISTANT, p. 441, t. c. n. sp.  
*Hermotinus* n. g. near *Camptobrochis*, *H. signatus* n. sp., Tenasserim, DISTANT, p. 462, t. c.  
*Hilia* n. g. near *Halticus*, *H. fracta* n. sp., Ceylon, DISTANT, p. 480, t. c.  
*Horcias lacteiclavus, albiventris, signatus*, S. America, DISTANT, p. 200, Ann. Nat. Hist. xiii, n. spp.  
*Hyalopeplus spinosus*, Assam, DISTANT, p. 447, Faun. Brit. India Rhynchota ii, n. sp.  
*Isometopus feanus*, Burma, DISTANT, p. 484, t. c. n. sp.  
*Læmocoris zarudnyi*, Persia, REUTER, p. 11, Annuaire Mus. St. Petersb. ix, n. sp.  
*Liocoridia* n. g. near *Lygus*, p. 13, *mutabilis* n. sp., Mou-Pin, pl. ii, fig. 4, p. 14, REUTER, Ofv. Finska Forh. xlv, No. 16.  
*Liocoris myitta, formosus*, Tenasserim, DISTANT, p. 464, Faun. Brit. India Rhynchota ii, n. spp.

- Lopus bimaculatus* Jak., description, REUTER, p. 1, Ofv. Finska Forh. xlvi, No. 14; *L. australis* Walk., referred to *Pantilius* and described, DISTANT, p. 106, Ann. Nat. Hist. xiii.
- Lucitanus* n. g. for *Leptomerocoris punctatus* Kirby, DISTANT, p. 465, Faun. Brit. India Rhynchota ii.
- Lygus australis* n. n. for *innotatus* Walk., p. 110, *æthiops* n. n. for *limbatus* Walk., p. 111, DISTANT, Ann. Nat. Hist. xiii.
- L. abessinicus*, Kupi, p. 7, *vittatus*, Djibouti, p. 8, *perversus*, Scioa, p. 10, *simonyi*, Aden, p. 11, REUTER, Ofv. Finska Forh. xlv, No. 6; *L. schonlandi*, Cape Colony, DISTANT, p. 199, Ann. Nat. Hist. xiii; *L. albescens*, *decoloratus*, p. 455, *pubens*, *inmitis*, p. 456, *catullus*, p. 457, India and Ceylon, DISTANT, Faun. Brit. India Rhynchota ii; *L. flavoscutellatus*, N. Queensland, DISTANT, p. 273, Ann. Nat. Hist. xiii : n. spp.
- Malalasta* n. g. *Capsina*, *M. superba* n. sp., Tenasserim, DISTANT, p. 446, Faun. Brit. India Rhynchota ii.
- Malthacosoma adpersum*, Transcaspiian, REUTER, p. 11, Ofv. Finska Forh. xlvi, No. 14, n. sp.
- Matenesius* n. g. *Miraria*, p. 425, *M. marginatus* n. sp., Ceylon, p. 426, DISTANT, Faun. Brit. India Rhynchota ii.
- Mauroidactylus albidus* var. n. *pallidicornis*, HORVÁTH, p. 585, Ann. Mus. Hungar. ii.
- Megacalum elongatum* to *Pantiliodes*, REUTER, p. 3, Ofv. Finska Forh. xlv, No. 6.
- M. persimile*, Abyssinia, REUTER, p. 4, t. c.; *M. transvaalensis*, Pretoria, DISTANT, p. 196, Ann. Nat. Hist. xiii; *M. relatam*, p. 428, *rubricatum*, Ceylon, *hampsoni*, Nilgiri Hills, p. 429, *picturatum*, Burma, p. 430, DISTANT, Faun. Brit. India Rhynchota ii; *M. modestum*, *townsvillensis*, *suffusum*, N. Queensland, DISTANT, Ann. Nat. Hist. xiii : n. spp.
- Megaloceræa celestium* to *Trigonotylus*, REUTER, p. 1, Ofv. Finska Forh. xlv, No. 16.
- M. graminea*, *antennata*, p. 424, *elongata*, *dohertyi*, p. 425, India and Ceylon, DISTANT, Faun. Brit. India Rhynchota ii; *M. doddi*, N. Queensland, DISTANT, p. 269, Ann. Nat. Hist. xiii : n. spp.
- Megalocolous albidus*, Transcaspiian, REUTER, p. 9, Ofv. Finska Forh. xlvi, No. 4, n. sp.
- Mertila* n. g. *Bryocoraria* for *M. malayensis*, Singapore, *ternatensis*, Ternate, n. spp., DISTANT, p. 113, Ann. Nat. Hist. xiii.
- Mevius* n. g. *M. lewisi* n. sp., Ceylon, DISTANT, p. 453, Faun. Brit. India Rhynchota ii.
- Miris*, the name applied to *Leptopterna* Fieb., REUTER, p. 2, Ofv. Finska Forh. xlvi, No. 15.
- M. ruficeps*, Cape Colony, DISTANT, p. 105, Ann. Nat. Hist. xiii; *M. atkinsoni*, Nilgiri Hills, DISTANT, p. 423, Faun. Brit. India Rhynchota ii : n. spp.
- Mycterocoris* n. g. for *Deræocoris cerachates*, UHLER, p. 358, P. U. S. Mus. xxvii.
- Myrmecophyes korschinskiï*, p. 4, *æneus*, p. 5, Turkestan, REUTER, Ofv. Finska Forh. xlvi, No. 4, n. spp.
- Mystilus* n. g. *Herdoniaria*, *M. priamus* n. sp., Tenasserim, DISTANT, p. 420, Faun. Brit. India Rhynchota ii.
- Nanniella* n. g. *Laboparia*, *N. chalybea* n. sp., Congo, p. 6, REUTER, Ofv. Finska Forh. xlvi, No. 10.
- Nichomachus* n. g. *Herdonaria* for *N. sloggetti* n. sp., Cape Colony, DISTANT, p. 104, Ann. Nat. Hist. xiii.
- Nicostratus* n. g. *Cyllocoraria*, *N. balteatus* n. sp., Ceylon, DISTANT, p. 475, Faun. Brit. India Rhynchota ii.
- Nyctidea* n. g. near *Criocoris*, p. 15, *moesta*, E. Siberia, n. sp., p. 17, REUTER, Ofv. Finska Forh. xlvi, No. 4.

- Nymannus* **n. g.** *Miraria* for *N. typicus* **n. sp.**, Cape Colony, DISTANT, p. 195, Ann. Nat. Hist. xiii.
- Oncotylus cunealis*, Persia, REUTER, p. 14, Annuaire Mus. St. Petersb. ix ; *O. fuscicornis*, Mongolia, REUTER, p. 10, Ofv. Finska Forh. xlvi, No. 14 : **n. spp.**
- Onomaus* **n. g.** *Herdoniaria*, *O. pompeus* **n. sp.**, Assam, DISTANT, p. 416, Faun. Brit. India Rhynchota ii.
- Orthotylus antennalis*, Orotava, p. 6, *pallidulus*, Austria, p. 7, REUTER, Ofv. Finska Forh. xlvi, No. 14, **n. spp.**
- Pantilius gonoceroides*, Mou-Pin, REUTER, p. 4, op. cit. xlv, No. 16, **n. sp.**
- Paracalocoris capensis*, Cape Good Hope, DISTANT, p. 110, Ann. Nat. Hist. xiii ; *P. barretti*, Cape Colony, DISTANT, p. 199, t. c. ; *P. burmanicus*, *erebus*, Burma, *lanarius*, Ceylon, DISTANT, p. 450, Faun. Brit. India Rhynchota ii : **n. spp.**
- Paracarnus grenadensis* (= *mexicanus* Uhler), Grenada, DISTANT, p. 62, Ann. Nat. Hist. xiv, **n. sp.**
- Parapantilius* **n. g.** p. 5, *P. tibetanus* **n. sp.**, pl. ii, fig. 2, p. 6, Mou-Pin, REUTER, Ofv. Finska Forh. xlv, No. 16.
- Pharyllus* **n. g.** for *Leptomerocoris pistacinus* Motsch., DISTANT, p. 434, Faun. Brit. India Rhynchota ii.
- Phytocoris zarudnyi*, p. 8, *lineaticollis*, p. 9, Persia, REUTER, Annuaire Mus. St. Petersb. ix ; *P. longicornis*, p. 1, *maestus*, p. 2, Centr. Asia, REUTER, Ofv. Finska Forh. xlvi ; *P. crinitus*, Ceylon, DISTANT, p. 449, Faun. Brit. India Rhynchota ii : **n. spp.**
- Plagiognathus cinerascens*, Mongolia, REUTER, p. 17, Ofv. Finska Forh. xlvi, No. 14, **n. sp.**
- Pleuroxonotus* **n. g.** p. 7, *nasutus* **n. sp.**, Transcaspian, p. 8, REUTER, t. c., No. 4.
- Pæciloscytus cuneatus* Dist. (as *Lygus*)=(*obscurus* Uhler), DISTANT, p. 62, Ann. Nat. Hist. xiv.
- P. consanguineus*, *pygmæus*, *capitatus*, Burma and Ceylon, DISTANT, p. 459, Faun. Brit. India Rhynchota ii ; *P. antennatus*, *flavipes*, N. Queensland, DISTANT, p. 274, Ann. Nat. Hist. xiii : **n. spp.**
- Polymerus varicornis*, Corea, JAKOVLEV, p. 94, Rev. Russe Ent. iv, **n. sp.**
- Prodromus* **n. g.** *Cylaparia*, p. 436, *P. subglavus*, Ceylon, *clypeatus*, *subviridis*, Tenasserim, p. 437, DISTANT, Faun. Brit. India Rhynchota ii.
- Psallopis*, amended description, REUTER, p. 15, Annuaire Mus. St. Petersb. ix.
- P. basalis*, Persia, id. p. 16, t. c. **n. sp.**
- Psallus proteus* varr., REUTER, pp. 12, 13, Ofv. Finska Forh. xlvi, No. 14.
- P. instabilis*, p. 13, *beckeri*, p. 14, *longiceps*, p. 15, Canaries, REUTER, t. c. ; *P. singalensis*, Ceylon, DISTANT, p. 482, Faun. Brit. India Rhynchota ii : **n. spp.**
- Rhinofulvius*, characters, p. 1, *R. albifrons*, pl. i, fig. 1, p. 2, REUTER, Ofv. Finska Forh. xlv, No. 6.
- Ropaliceschatus* **n. g.** near *Pachypeltis*, p. 1, *R. quadrimaculatus* **n. sp.**, Mou-Pin, pl. ii, fig. 1, p. 3, REUTER, op. cit. No. 16.
- Sabellicus* **n. g.** near *Dereocoris* for *Capsus apicifer*, and *Lopus sordidus* Walk., DISTANT, p. 114, Ann. Nat. Hist. xiii.
- Scirtetellus seminitens*, Turkestan, HORVÁTH, p. 584, Ann. Mus. Hungar. ii, **n. sp.**
- Sophianus* **n. g.** *Isometopinæ*, p. 485, *S. alces* **n. sp.**, Ceylon, p. 486, DISTANT, Faun. Brit. India Rhynchota ii.
- Stenodema*, synopsis of Palearctic, REUTER, Ofv. Finska Forh. xlvi, No. 15, pp. 3-6.
- S. trispinosum*, Siberia, p. 8, *turanicum*, Transcaspian, p. 11, *alpestre*, p. 13, *elegans*, p. 14, *plebeium*, p. 17, *chinense*, p. 19, Setschuan, REUTER, t. c. **n. spp.**



- Tancredus* n. g. *Miraria*, *T. sandaracatus* n. sp., Ceylon, DISTANT, p. 430, Faun. Brit. India Rhynchota ii.
- Tenthecoris bicolor*, characters, DISTANT, p. 202, Ann. Nat. Hist. xiii.
- Trachelonotus* n. g. near *Lamocoris*, p. 12, *T. unifasciatus* n. sp., Persia, p. 13, REUTER, Annuaire Mus. St. Petersb. ix.
- Trichobasis* n. g. near *Pantiliodes*, p. 1, *setosa* n. sp., Congo, p. 2, REUTER, Ofv. Finska Forh. xlvi, No. 10.
- Trigonotylus brevipes*, characters, REUTER, p. 5, Annuaire Mus. St. Petersb. ix.
- Turnebus* n. g. near *Isometopus*, *T. cuneatus* n. sp., Ceylon, DISTANT, p. 485, Faun. Brit. India Rhynchota ii.
- Tylopeltis* n. g. near *Glossopeltis*, p. 4, *albosignata* n. sp., Congo, p. 5, REUTER, Ofv. Finska Forh. xlvi, No. 10.
- Tyraquellus* n. g. for *Leptomerocoris albofasciatus* Motsch. and *T. maculatus* n. sp., Ceylon, DISTANT, p. 471, Faun. Brit. India Rhynchota ii.
- Vokelius* n. g. near *Sahlbergella* for *V. sulcatus* n. sp., N. Queensland, DISTANT, p. 271, Ann. Nat. Hist. xiii.
- Zanchius* n. g. *Cyllocoraria*, *Z. annulatus* n. sp., Ceylon, DISTANT, p. 477, Faun. Brit. India Rhynchota ii.
- Zanessa sanguinolenta*, Nilgiri Hills, DISTANT, p. 432, t. c. n. sp.

## SALDIDÆ.

- Leotichius* n. g. *Leptopinae*, p. 406, *L. glaucopis* n. sp., Burma, p. 407, DISTANT, Faun. Brit. India Rhynchota ii.
- Salda jakowleffi* var. n. *mærens*, HORVÁTH, p. 585, Ann. Mus. Hungar. ii.
- S. dixonii*, India, DISTANT, p. 405, Faun. Brit. India Rhynchota ii, n. sp.
- Valleriola* n. g. p. 405, *V. greeni* n. sp., Ceylon, p. 406, DISTANT, t. c.

## HYDROCORISÆ.

[Cf. DISTANT (386, 391), HORVÁTH (717, 718), KIRKALDY (813).]

- Anatomy of *Ranatra*, breathing organs etc., MARSHALL & SEVERIN, Tr. Wisconsin Ac. xiv, pp. 487-501, pls. xxxiv-xxxvi.
- Annotated catalogue of *Notonectidae*, KIRKALDY, pp. 93-135, Wien. ent. Zeit. xxiii.
- Anisops doris*, p. 112, *stali*, p. 113, *endymion*, p. 114, Australia, *bouvieri*, Cochin China, p. 116, KIRKALDY, t. c. n. spp.
- Buenoa* n. g. type *Anisops antigone* Kirk., p. 120, *B. ida*, Uruguay, p. 121, *salutis*, Brit. Guiana, p. 122, n. spp., KIRKALDY, t. c.
- Cercotmetus fumosus*, Ceylon, DISTANT, p. 278, Entomologist 1904, n. sp.
- Corixa acromelana*, Turkestan, HORVÁTH, p. 585, Ann. Mus. Hungar. ii, n. sp.
- Helotrepes bouvieri*, Celebes, p. 129, *martini*, Sumatra, p. 130, KIRKALDY, Wien. ent. Zeit. xxiii, n. spp.
- Laccotrepes flavovenosa* Dohrn (as *Nepa*)=(*japonensis* Scott), DISTANT, p. 63, Ann. Nat. Hist. xiv.
- L. calcar*, Nigeria, *nyase*, Nyika Mts., DISTANT, p. 64, t. c. n. spp.
- Macrocoris transvaalensis*, Lydenburg, DISTANT, p. 258, Entomologist 1904, n. sp.
- Micronecta haliploides*, Colombo, p. 594, *carbonaria*, New Guinea, p. 595, HORVÁTH, Ann. Mus. Hungar. ii, n. spp.
- Mononyx luteovarius*, Queensland, DISTANT, p. 63, Ann. Nat. Hist. xiv, n. sp.
- Nepa cinerea*, salivary glands, BORDAS, C.R. Soc. Biol. lvii, pp. 667-669.
- Plea japonica*, Akashi, HORVÁTH, p. 594, Ann. Mus. Hungar. ii; *P. buenoi*, Pondicherry, KIRKALDY, p. 128, Wien. ent. Zeit. xxiii : n. spp.

- Ranatra sordidula* = (*unicolor* Scott), DISTANT, p. 66, Ann. Nat. Hist. xiv.  
*R. fuscoannulata*, Ruwenzori, p. 64, *cinnamomea*, *varicolor*, *natalensis*,  
 p. 65, S. Africa, DISTANT, t. c. **n. spp.**  
*Thurselfinus* **n. g.** near *Macrocoris*, *T. greeni* **n. sp.**, Ceylon, DISTANT,  
 p. 259, Entomologist 1904.

## HOMOPTERA.

Catalogue of *Homoptera* (except *Aphid. Coccid.*) of Germany, HUEBER,  
 Jahresh. Ver. Wurttemb. lx, pp. 253-277.

## CICADIDÆ.

[Cf. DISTANT (384, 393), GODING & FROGGATT (613), JACOBI (733, 736),  
 MATSUMURA (922), MELICHAR (937), NOUALHIER (984), RAINBOW  
 (1118).]

DISTANT (393) commences a revision of *Cicadidæ*, preliminary to a  
 synonymic catalogue.

The Palearctic *Cicadidæ* (in Moravian), MELICHAR, Vestnik. Klub. Proste-  
 jove iv, pp. 12-26.

Monograph of Australian *Cicadidæ*, 119 species, GODING & FROGGATT,  
 P. Linn. Soc. N. S. Wales xxix, pp. 561-669, 2 pls.

Copula between *Cyctochila* and *Thopha*, RAINBOW, Rec. Austral. Mus. v,  
 p. 116.

*Angamiana floridula*, Tonkin, DISTANT, p. 299, Ann. Nat. Hist. xiv, **n. sp.**

*Antankaria* **n. g.** type *C. madagascariensis* Dist., DISTANT, p. 429, t. c.

*Arunta* **n. g.** type *C. perulata* Guér., DISTANT, p. 302, t. c.

*Cucama* **n. g.** type *Proarna maura* Dist., DISTANT, p. 429, t. c.

*Cicada vesta*, Bombay, pl. xxx, fig. 4, *nigraus*, Madagascar, fig. 1, DISTANT,  
 p. 673, Tr. ent. Soc. London 1904; *C. pyropa*, Japan, MATSUMURA,

p. 53, pl. iii, fig. 4, Annot. zool. Japon. v; *C. andreysi*, Japan, *umbrosa*,  
 Borneo, p. 330, *boliviana*, Chimali [cf. *Oria* below], p. 331, DISTANT,

Ann. Nat. Hist. xiv; *C. graminea*, Queensland, DISTANT, p. 428, t. c.;  
*C. hieroglyphica*, p. 581, *sylvanella*, p. 582, Australia, GODING &  
 FROGGATT, P. Linn. Soc. N. S. Wales xxix : **n. spp.**

*Cicadetta montana*, in Germany, pp. 283-285, Jahresh. Ver. Wurttemb. lx.

*Cosmopsaltria khadiga*, Pahang, DISTANT, p. 671, pl. xxx, fig. 9, Tr. ent.  
 Soc. London 1904, **n. sp.**

*Cryptotympana holsti*, Formosa, DISTANT, p. 331, Ann. Nat. Hist. xiv; *C.*  
*varicolor*, Sumbawa, DISTANT, p. 430, t. c. : **n. spp.**

*Cystopsaltria* **n. g.** *C. immaculata* **n. sp.**, Queensland, GODING & FROGGATT,  
 p. 661, P. Linn. Soc. N. S. Wales xxix.

*Dundubia spiculata*, Cambodia; NOUALHIER, p. 178, pl. xi, figg. 3, 4,  
 Mission Pavie iii, **n. sp.**

*Fidicina vitellina*, p. 155, *parvula*, p. 157, Brazil, JACOBI, SB. Ges. naturf.  
 Berlin 1904, **n. spp.**

*Gæana paviei*, Tonkin, NOUALHIER, p. 179, pl. xi, fig. 5, Mission Pavie iii,  
**n. sp.**

*Glaucopsaltria* **n. g.** p. 657, *G. viridis* **n. sp.**, Queensland, p. 658, GODING  
 & FROGGATT, P. Linn. Soc. N. S. Wales xxix.

*Hamza* **n. g.** for *Platypleura bouruensis*, DISTANT, p. 674, pl. xxx, fig. 5, Tr.  
 ent. Soc. London 1904.

*Henicopsaltria pygmæa*, S.W. Australia, DISTANT, p. 303, Ann. Nat. Hist.  
 xiv, **n. sp.**

*Ioba* **n. g.** type *P. leopardina* Dist., DISTANT, p. 295, t. c.

*Kanakia congrua*, Queensland, GODING & FROGGATT, P. Linn. Soc. N. S.  
 Wales xxix, **n. sp.**

- Koma* n. g. type *P. bombifrons* Karsch, DISTANT, p. 296, Ann. Nat. Hist. xiv.
- Kongota* n. g. type *P. punctigera* Walk., DISTANT, p. 298, t. c.
- Lacetas annulicornis* Karsch, pl. xlv, fig. 4, p. 769, JACOBI, Zool. Jahrb. Syst. xix.
- Macrotristria nigrovenosa*, N. Queensland, DISTANT, p. 329, Ann. Nat. Hist. xiv; *M. nigrosignata*, W. Australia, pl. xxix, fig. 7, p. 673, DISTANT, Tr. ent. Soc. London 1904 : n. spp.
- Melampsalta spinosa*, p. 635, *kershawi*, p. 636, *castanea*, p. 637, *rubristrigata*, *atrata*, p. 638, *fletcheri*, p. 640, *infusata*, *flava*, p. 641, *binotata*, p. 643, *rubricincta*, p. 644, *nebulosa*, *spretta*, p. 647, *fulva*, p. 648, *rubea*, p. 651, *graminis*, p. 652, *tristrigata*, p. 653, Australia, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix, n. spp.
- Muansa* n. g. type *P. clypealis* Karsch, DISTANT, p. 295, Ann. Nat. Hist. xiv.
- Munza* n. g. type *P. laticlavia* Stål, DISTANT, p. 297, t. c.
- Oria* n. g. type *Cicada boliviana* Dist., DISTANT, p. 429, t. c.
- Parnisa hæmorrhagica*, Brazil, JACOBI, p. 159, SB. Ges. naturf. Berlin 1904, n. sp.
- Pauropsalta* n. g. p. 615, *P. leurensis*, p. 616, pl. xviii, fig. 8, *castanea*, p. 617, *prolongata*, *extensa*, p. 618, *nigristriga*, p. 619, *annulata*, p. 620, *nodicosta*, *dubia*, p. 621, *rubra*, p. 623, *basalis*, p. 625, *emma*, p. 626, *borealis*, p. 627, *minima*, p. 628, Australia, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix, n. spp.
- Platypleura antinorii*, p. 765, cut, JACOBI, Zool. Jahrb. Syst. xix.
- P. laticollis*, E. Africa, MELICHAR, p. 25, Verh. Ges. Wien liv; *P. longula*, Delagoa Bay, p. 332, *mira*, Laos, p. 333, *melania*, *bettoni*, Africa, p. 334, DISTANT, Ann. Nat. Hist. xiv; *P. veligera*, pl. xlv, fig. 1, p. 766, *vitticollis*, fig. 2, p. 767, N.E. Africa, JACOBI, Zool. Jahrb. Syst. xix; *P. mackinnoni*, Mussooree, p. 667, pl. xxix, fig. 1, *makaga*, fig. 4, *adouma*, fig. 2, Congo, p. 668, DISTANT, Tr. ent. Soc. London 1904; *P. arminops*, Siam, NOUALHIER, p. 178, pl. xi, figg. 1, 2, Mission Pavie iii; *P. tepperi*, Australia, GODING & FROGGATT, p. 568, pl. xviii, fig. 5, P. Linn. Soc. N. S. Wales xxx : n. spp.
- Pomponia surya*, pl. xxx, fig. 2, p. 671, *melanoptera*, fig. 3, p. 672, Mussooree, DISTANT, Tr. ent. Soc. London 1904, n. spp.
- Psaltoda plebeia*, N. S. Wales, GODING & FROGGATT, p. 589, P. Linn. Soc. N. S. Wales xxix, n. sp.
- Pycna numa*, Mashonaland, pl. xxix, fig. 3, *hecuba*, E. Africa, fig. 6, DISTANT, p. 670, Tr. ent. Soc. London 1904; *P. celestia*, W. China, DISTANT, Ann. Nat. Hist. xiv : n. spp.
- Rihana* n. g. type *Fidicina ochracea* Walk., *R. virgulata*, Mexico, p. 426, *swalei*, hab. ? p. 427, n. spp., DISTANT, t. c.
- Sadaka* n. g. type *P. virescens* Karsch, DISTANT, p. 296, t. c.
- Terpnosia ganesa*, India, p. 675, pl. xxx, fig. 6, *abdullah*, Pahang, p. 676, fig. 7, DISTANT, Tr. ent. Soc. 1904, n. spp.
- Tettigia variegata*, Townsville, GODING & FROGGATT, p. 594, pl. xviii, fig. 9, P. Linn. Soc. N. S. Wales xxix, n. sp.
- Tibicen sankara*, India, DISTANT, p. 675, pl. xxx, fig. 8, Tr. ent. Soc. London 1904; *T. ruber*, p. 600, *doddi*, p. 602, *rubricinctus*, p. 603, *borealis*, p. 604, *kurandæ*, p. 605, *hirsutus*, p. 607, *occidentalis*, p. 608, *flavus*, p. 610, Australia, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix : n. spp.
- Tosena seebohmi*, Formosa, DISTANT, Ann. Nat. Hist. xiv, n. sp.
- Trismarcha exsul*, N. E. Africa, JACOBI, p. 768, pl. xlv, fig. 3, Zool. Jahrb. Syst. xix, n. sp.
- Ugada* n. g. type *Tettig. limbata* Fabr., DISTANT, p. 299, Ann. Nat. Hist. xiv.

- U. n. g.* for *Platypleura præcellens*, DISTANT, the insect figured, pl. xxix, fig. 9, p. 669, id. Tr. ent. Soc. London 1904.  
*U. nutti*, Tanganyika, DISTANT, p. 336, Ann. Nat. Hist. xiv, **n. sp.**  
*Umjaba n. g.* type *P. evanescens* Butl., DISTANT, p. 298, t. c.  
*Venustria n. g. Tibeceniæ*, p. 595, *V. superba n. sp.*, Queensland, p. 597, pl. xix, fig. 7, GODING & FROGGATT, P. Linn. Soc. N. S. Wales xxix.  
*Xosopsaltria n. n.* for *Pydna*, KIRKALDY, p. 280, Entomologist 1904.  
*Yanga n. g.* type *P. hova* Dist., DISTANT, p. 297, Ann. Nat. Hist. xiv.

## FULGORIDÆ.

[Cf. FOWLER (614), HORVÁTH (716, 717), JACOBI (734, 736), KIRKALDY (809), MELICHAR (937, 938), NOUALHIER (984).]

Catalogue of *Fulgoridæ* of N. America, SWEZEY (1360).

*Kareol n. n.* for *Anagnia*, *Colgorma n. n.* for *Temora*, *Proutista n. n.* for *Assamia*, *Xosophara n. n.* for *Rhinortha*, *Southia n. n.* for *Paulia*, *Florichisme n. n.* for *Pæcilostola*, *Micromasoria n. n.* for *Cona*, *Bergias n. n.* for *Bergia*, *Hesperophantia n. n.* for *Carthæa*, *Thanatophantia n. n.* for *Alisca*, *Gelastophantia n. n.* for *Cyarda*, *Xosias n. n.* for *Eteocles*, *Amfortas n. n.* for *Gastrinia*, *Gelastyra n. n.* for *Cibyra*, *Thanatophara n. n.* for *Colonia*, KIRKALDY, pp. 279, 280, Entomologist 1904.

*Acmonia gerstæckeri*, Brazil, JACOBI, p. 160, SB. Ges. naturf. Berlin 1904, **n. sp.**

*Acrobelus delphinus*, Tonkin, NOUALHIER, p. 182, pl. x, fig. 10, Mission Pavie iii, **n. sp.**

*Aloha n. g.* near *Megamelus*, *A. ipomeæ n. sp.*, Oahu, KIRKALDY, p. 177, Entomologist 1904.

*Amphiscepa calida*, pl. xii, fig. 8, p. 118, *A. subpellucida*, fig. 9, p. 119, Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.

*Anotia smithi*, pl. ix, fig. 3, *marginicornis*, fig. 4, *pellucida*, p. 77, *ruficollis*, fig. 5, *venustula*, fig. 6, *tenella*, fig. 7, p. 78, *invalida*, fig. 8, p. 79, Central America, FOWLER, t. c. **n. spp.**

*Bothriocera tinealis*, pl. ix, figg. 11, 12, *signoreti*, fig. 13, FOWLER, t. c.

*B. venosa*, pl. ix, fig. 14, *excelsa*, fig. 15, *pellucida*, fig. 16, p. 83, *albidipennis*, figg. 17, 18, *nigra*, fig. 19, p. 84, Central America, FOWLER, t. c. **n. spp.**

*Bothrioceroles n. g.* p. 84, *B. variegatus*, pl. ix, fig. 20, *castaneus*, fig. 21, *metallicus*, fig. 22, **n. spp.**, Central America, p. 85, FOWLER, t. c.

*Caliscelis*, table of palæarctic, HORVÁTH, pp. 378–380, Ann. Mus. Hungar. ii.

*C. maroccana*, Tangier, p. 381, *bolivari*, Madrid, p. 382, *peculiaris*, Asia Minor, p. 384, id. t. c. **n. spp.**

*Cedusa n. g.* near *Plectoderes*, *C. funesta*, pl. xi, fig. 28, *venosa*, fig. 29, **n. spp.**, Mexico, FOWLER, p. 112, Biol. Centr.-Amer. Rhynchot. Homopt. i.

*Cixius montanus*, pl. x, fig. 25, *comptus*, fig. 26, p. 96, *flavobrunneus*, fig. 27, *apicatus*, fig. 28, p. 97, Central America, FOWLER, t. c. **n. spp.**

*Cyclumna n. g. Issidæ*, *C. subrotundata*, pl. xii, fig. 5, **n. sp.**, Mexico, FOWLER, p. 116, t. c.

*Cyrene obtusata*, Bangkok, NOUALHIER, p. 182, pl. x, fig. 9, Mission Pavie iii, **n. sp.**

*Delphax conspicua*, Turkestan, HORVÁTH, p. 589, Ann. Mus. Hungar. ii, **n. sp.**

*Dendrophora breviceps*, E. Africa, MELICHAR, p. 30, Verh. Ges. Wien liv, **n. sp.**

*Dictyophara ogadensis*, p. 38, *ufudensis*, p. 29, E. Africa, MELICHAR, t. c. ;



- D. sertata*, p. 162, *multireticulata*, p. 163, Brazil, JACOBI, SB. Ges. naturf. Berlin 1904 : **n. spp.**
- Eparmene n. g. Cixiides*, *E. pulchella*, pl. xi, fig. 6, **n. sp.**, Panama, FOWLER, p. 101, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Fulgura monetaria*, Cambodia, NOUALHIER, p. 180, pl. x, fig. 3, Mission Pavie iii, **n. sp.**
- Grynia nigricoxis*, pl. xi, fig. 9, p. 193, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Haplaxius n. g.* near *Cixius*, p. 97, *H. levis*, pl. x, figg. 29, 30, *frontalis*, fig. 31, p. 98, **n. spp.**, Mexico, FOWLER, t. c.
- Helicopteria sobrina*, pl. xi, fig. 14, var. *albido-variegata*, fig. 15, p. 106, *chiriquensis*, fig. 16, *longiceps*, fig. 17, p. 107, Centr. America, id. t. c. **n. spp.**
- Hemispærius interclusus*, Cambodia, NOUALHIER, p. 181, pl. x, fig. 4, Mission Pavie iii, **n. sp.**
- Hyphancylus n. g. Issida*, *H. falcatus*, pl. xii, fig. 6, *excelsus*, fig. 7, **n. spp.**, Mexico, FOWLER, p. 117, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Hysteropterum sierræ*, pl. xii, fig. 10, p. 119, *angulare*, fig. 11, *montanum*, fig. 12, p. 120, Mexico, FOWLER, t. c. **n. spp.**
- Liburnia campestris*, natural history, and parasite, SWEZEY, pp. 43-46, Bull. U. S. Dep. Agric. Ent. xlv.
- Megamelus leahi*, Oahu, KIRKALDY, p. 176, Entomologist 1904, **n. sp.**
- Metabrixia n. g. M. delicata*, pl. ix, fig. 23, p. 86, *aspersa*, fig. 24, *germana*, fig. 25, p. 87, *tacta*, pl. x, fig. 1, *maculata*, fig. 2, p. 88, **n. spp.**, Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.
- Micraria n. g. Cixiides*, p. 100, *M. costalis*, pl. xi, fig. 5, **n. sp.**, Mexico, p. 101, FOWLER, t. c.
- Microlerida n. g. Cixiides*, *M. asperata*, pl. xi, figg. 1, 2, **n. sp.**, Mexico, FOWLER, p. 99, t. c.
- Mnemosyne planiceps*, pl. xi, figg. 7, 8, p. 102, FOWLER, t. c.
- Œcleus, seminiger*, pl. x, fig. 3, p. 89, *decens*, figg. 6, 7, p. 90, FOWLER, t. c.
- Œ. tenellus*, pl. x, fig. 4, *teape*, fig. 5, p. 89, *pellucens*, figg. 8, 9, *minimus*, fig. 10, p. 90, *brunneus*, fig. 11, *concinus*, fig. 12, *addendus*, fig. 13, p. 91, Central America, FOWLER, t. c. **n. spp.**
- Oliarus hirtus, frontalis*, E. Africa, MELICHAIR, p. 31, Verh. Ges. Wien liv ; *O. cucullatus*, p. 180, pl. xi, figg. 7 & 8, *petasatus*, figg. 9 & 10, p. 181, Cambodia, NOUALHIER, Mission Pavie iii ; *O. excelsus*, pl. x, fig. 14, *concinulus*, fig. 15, p. 92, *propior*, fig. 16, *lacteipennis*, fig. 17, p. 93, *humeralis*, fig. 18, *breviceps*, fig. 19, *chiriquensis*, fig. 20, p. 94, *insignior*, fig. 21, 22, *nigro-alutaceus*, figg. 23, 24, p. 95, Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i : **n. spp.**
- Ornithissus n. g. Issida*, p. 121, *O. cockerelli*, pl. xii, fig. 14, **n. sp.**, Mexico, p. 122, FOWLER, t. c.
- Pachyntheisa n. g. Cixiides*, p. 99, *P. concinna*, pl. xi, fig. 3, *excelsior*, fig. 4, **n. spp.**, Mexico, p. 100, FOWLER, t. c.
- Parapioxys viridifasciatus, hitaris*, E. Africa, MELICHAIR, p. 27, Verh. Ges. Wien liv, **n. spp.**
- Patara marmorata*, Guatemala, pl. ix, fig. 9, p. 79, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i, **n. sp.**
- Peregrinus n. g. Asiracinae*, p. 175, for *Delphax maidis* Ashm., KIRKALDY, Entomologist 1904.
- Perkinsiella saccharicida*, natural history, PERKINS, Rep. exp. Stat. Hawaii 1904, pp. 43-66.
- Phylloscelis atra*, macropterous form, OSBORN, p. 93, cuts, Ohio Natural. iv.
- Plectoderes championi*, pl. xi, fig. 19, p. 108, *basalis*, fig. 20, *excelsus*, fig. 21, *flavovittatus*, fig. 22, p. 109, *notatus*, fig. 23, *montanus*, fig. 24, *asper*, fig. 25, p. 110, *lineatocollis*, fig. 26, *fuscolineatus*, fig. 27, p. 111, Central America, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i, **n. spp.**

- Pochazoides asperatus*, E. Africa, MELICHAR, p. 33, Verh. Ges. Wien liv, n. sp.  
*Proteinissus* n. g. *Issida*, *P. bilimeki*, pl. xii, fig. 13, n. sp., Mexico, FOWLER, p. 121, Biol. Centr.-Amer. Rhynchot. Homopt. i.  
*Pseudohelicoptera* n. g. p. 107, *P. nasuta*, n. sp., Panama, pl. xi, fig. 18, p. 108, FOWLER, t. c.  
*Putala apicata*, E. Africa, MELICHAR, p. 29, Verh. Ges. Wien liv, n. sp.  
*Rhamphixius* n. g. *Cixiides*, *R. championi*, n. sp., Central America, pl. ix, fig. 10, FOWLER, p. 81, Biol. Centr.-Amer. Rhynchot. Homopt. i.  
*Rhinophantia fatua*, E. Africa, MELICHAR, p. 33, Verh. Ges. Wien liv, n. sp.  
*Ricania erlangeri*, E. Africa, MELICHAR, p. 32, t. c.; *R. flabellum*, Cambodia, NOUALHIER, p. 181, pl. xi, fig. 11, Mission Pavie iii : n. spp.  
*Rudia diluta*, pl. xi, fig. 10, p. 104, *bicincta*, fig. 12, p. 105, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. ii.  
*R. proxima*, pl. xi, fig. 11, p. 104, *verticalis*, fig. 13, p. 105, Central America, FOWLER, t. c. n. spp.  
*Seliza squamula*, E. Africa, MELICHAR, p. 34, Verh. Ges. Wien liv, n. sp.  
*Thionia variegata*, pl. xii, figg. 15, 16, p. 122, FOWLER, Biol. Centr.-Amer. Rhynchot. Homopt. i.  
*T. brevior*, pl. xii, fig. 17, *scutellata*, fig. 18, p. 123, *sordida*, fig. 19, *humilis*, fig. 20, *naso*, fig. 21, p. 124, Mexico, FOWLER, t. c. n. spp.  
*Ulixes clypeatus*, pl. xii, fig. 1, p. 114, FOWLER, t. c.  
*U. intermedius*, Mexico, pl. xii, figg. 3, 4, p. 115, FOWLER, t. c. n. sp.

## FLATIDES.

[Cf. JACOBI (734), SCHMIDT (1228, 1228).]

- Atracis dentata*, Benue, SCHMIDT, p. 376, Stettin Ent. Zeit. lxxv, n. sp.  
*Bythopsyrna*, analysis, p. 186, *B. ligata* ♂, p. 189, SCHMIDT, t. c.  
*B. dohrni*, p. 188, *udei*, p. 189, *sumatrana*, p. 191, *violacea*, p. 209, Sumatra, SCHMIDT, t. c.; *B. rabbowi*, Java, SCHMIDT, p. 355, t. c. : n. spp.  
*Cerynia nigropustulata*, Sumatra, SCHMIDT, t. c. n. sp.  
*Copsyrna alma*, Sumatra, SCHMIDT, p. 185, t. c. n. sp.  
*Dascalica punctata*, Pará, p. 373, *unimaculata*, Ecuador, p. 374, SCHMIDT, t. c. n. spp.  
*Doria haenschii*, p. 356, *ecuadoriana*, p. 357, Ecuador, SCHMIDT, t. c. n. spp.  
*Euphanta luridicosta*, p. 359, *rubromarginata*, p. 360, Queensland, SCHMIDT, t. c. n. spp.  
*Flata ferruginea*, Borneo, SCHMIDT, p. 354 and var. *eruginosa*, p. 355, t. c. n. sp.  
*Flatoides simulans*, Ecuador, SCHMIDT, p. 378, t. c. n. sp.  
*Flatoptera virescens*, Borneo, SCHMIDT, p. 358, t. c. n. sp.  
*Flatula bipunctata*, Borneo, SCHMIDT, p. 362, t. c. n. sp.  
*Ormenis maculata*, S. America, p. 363, *panamensis*, Panama, p. 364, *fumata*, Ecuador, p. 365, *pehlkei*, Colombia, p. 366, *teniata*, Sumatra, p. 368, *prasina*, Ceylon, p. 370, SCHMIDT, t. c. n. spp.  
*Nephesa truncaticornis* ♂, SCHMIDT, p. 203, t. c.  
*N. carinulata*, p. 205, *aurantiaca*, p. 211, Sumatra, id. t. c. n. spp.  
*Paratella variegata*, Obi, SCHMIDT, p. 370, t. c. n. sp.  
*Phyma unipunctata*, *pura*, p. 196, *hyalina*, *griseo-punctata*, p. 197, *waterstradti*, p. 211, Sumatra, SCHMIDT, t. c.; *P. subapicalis*, Amboina, SCHMIDT, p. 361, t. c. : n. spp.  
*Pæcilopectera phalaenoides* and allies, table of forms, p. 14, *P. fritillaria* = (*suturata* Mel.), p. 7, *P. melichari* n. n. for *fritillaria* Mel. nec Er., p. 9, *P. phalaenoides* subspp. n. *completa*, p. 12, *parca*, p. 13, JACOBI, SB. Ges. naturf. Berlin 1904.  
*P. miliaria*, Colombia, p. 8, JACOBI, t. c. n. sp.

- Pseudoryxa* n. g. near *Oryxa*, p. 200, *P. carinulata* n. sp., Sumatra, p. 201, SCHMIDT, Stettin Ent. Zeit. lxxv.  
*Sanurus venosus* ♂, SCHMIDT, p. 194, t. c.  
*Sephena tricolor*, Java, SCHMIDT, p. 372, t. c. n. sp.  
*Siphanta rubra*, Queensland, SCHMIDT, p. 358, t. c. n. sp.  
*Uxantia tenia*, Sumatra, SCHMIDT, p. 206, t. c. n. sp.  
*Walkeria melichari*, Sumatra, SCHMIDT, p. 192, t. c. n. sp.

## MEMBRACIDÆ.

The Palæarctic *Membracidæ* and *Cercopidæ* (in Moravian), MELICHAR, pp. 3-34, Vestnik. Klub. Prostejove iv.

*Leptocentrus subflavus*, Cambodia, NOUALHIER, p. 183, pl. x, fig. 5, Mission Pavie iii, n. sp.

## CERCOPIDÆ.

[Cf. BREDDIN (172), GIRAULT (612), JACOBI (733, 735), MATSUMURA (922), NOUALHIER (984).]

*Anomus cornutululus*?, relations with ants, PENZIG, pp. 64-67, pl. ii, Atti Soc. Ligustica xv.

*Aphrophora assimilis* Uhl. (= *Rhinaulax apicalis*), *A. vittata* var. (= *nijimæ* Mats.), MATSUMURA, p. 32, Annot. zool. Japon. v; *A. parallela*, habits, froth-formation, GIRAULT, pp. 44-48, Canad. Ent. xxxvi.

*A. scutellata*, p. 34, pl. ii, fig. 8, *brevis, compacta*, fig. 7, p. 35, *fallax*, p. 36, *abietis*, fig. 6, p. 37, *flavomaculata*, fig. 3, p. 39, *harimaensis*, fig. 11, p. 41, *vitis*, fig. 9, p. 42, *nigricans*, p. 43, Japan, MATSUMURA, Annot. zool. Japon. v, n. spp.

*Callitettix carinifrons*, Siam, NOUALHIER, p. 184, pl. x, fig. 8, and pl. xi, fig. 3, Mission Pavie iii, n. sp.

*Clovina callifera*, pl. xlv, fig. 15, p. 777, JACOBI, Zool. Jahrb. Syst. xix.

*Cosmoscarta undata* var. n. *obscurata*, NOUALHIER, p. 183, pl. x, fig. 6, Mission Pavie iii.

*C. carens*, Tonkin, NOUALHIER, p. 183, pl. x, fig. 7, t. c. n. sp.

*Hemipterus* n. g. p. 777, near *Tremapterus*, *H. decurtatus* n. sp., Kaffa, p. 778, pl. xlv, fig. 16, JACOBI, Zool. Jahrb. Syst. xix.

*Locris amauroptera*, p. 772, pl. xlv, fig. 7, *neumannii*, p. 773, fig. 9, *vestigans*, p. 774, fig. 10, N. E. Africa, JACOBI, t. c.; *L. ochroptera*, E. Africa, JACOBI, p. 16, SB. Ges. naturf. Berlin 1904 : n. spp.

*Mesoptyelus* n. g. p. 48, *M. nigrifrons*, pl. ii, fig. 13, p. 49, n. sp., Japan, MATSUMURA, Annot. zool. Japon. v.

*Oxyrrhacis tarandus*, nymph, JACOBI, p. 17, SB. Ges. naturf. Berlin 1904.

*Peuceptyelus nawæ*, p. 44, pl. ii, fig. 14, *nigroscutellatus*, fig. 16, p. 45, *medius*, fig. 15, *dimidiatus*, p. 47, Japan, MATSUMURA, Annot. zool. Japon. v, n. spp.

*Poophilus terrenus* Walk., pl. xlv, fig. 13, *grisescens*, Schaum, fig. 14, p. 776, JACOBI, Zool. Jahrb. Syst. xix.

*Ptyelus æthiops*, N. E. Africa, JACOBI, p. 775, pl. xlv, fig. 12, t. c.; *P. bipunctulatus*, E. Africa, MELICHAR, p. 36, Verh. Ges. Wien liv : n. spp.

*P. abietis*, pl. ii, fig. 17, p. 50, *guttatus*, pl. iii, fig. 2, p. 51, *glabrifrons*, fig. 3, p. 52, Japan, MATSUMURA, Annot. zool. Japon. v : n. spp.

*Tomaspis invenusta*, Sobat, JACOBI, p. 771, pl. xlv, fig. 6, Zool. Jahrb. Syst. xix; *T. laqueus, erigenea, rhodopepla, nox, illuminatula, phantastica*, p. 58, *ephippiata, tettioniella*, p. 59, Ecuador, BREDDIN, Soc. ent. xix : n. spp.

## JASSIDÆ.

[Cf. ASHMEAD (54), BRÈTHES (175), HORVÁTH (717), JACOBI (733), KIRKALDY (809), MELICHAR (937), MEUNIER (944), NOUALHIER (984), SLINGERLAND (1306).]

For a nov. gen. of *Jassidæ* of secondary epoch, see Palæoent. p. 125.

*Alchisme* n. n. for *Triquetra*, *Mysolis* n. n. for *Norsia*, *Thrasymedes* n. n. for *Phacusa*, *Gelastogonia* n. n. for *Oxygonia*, *Boethoos* n. n. for *Parmula*, *Eteoneus* n. n. for *Anomus*, *Kronides* n. n. for *Argante*, *Sundarion* n. n. for *Pyranthe*, *Zanophara* n. n. for *Davunus*, *Gelastophara* n. n. for *Hypselotropis*, *Hesperophara* n. n. for *Leptophara*, *Dioclophara* n. n. for *Lucilla*, KIRKALDY, p. 279, Entomologist 1904.

*Cicadula clypeata*, E. Africa, MELICHAR, p. 47, Verh. Ges. Wien liv; *C. ungcæ*, Alaska, ASHMEAD, p. 134, Alaska viii : n. spp.

*Deltocephalus stummeri*, Turkestan, HORVÁTH, p. 587, Ann. Mus. Hungar. ii; *D. coronatus*, p. 45, *ageratus*, p. 46, E. Africa, MELICHAR, Verh. Ges. Wien liv; *D. harrimani*, *evansi*, Alaska, ASHMEAD, p. 132, Alaska viii; *D. hospes*, Oahu, KIRKALDY, p. 177, Entomologist 1904 : n. spp.

*Ectomops rubescens*, Siam, NOUALHIER, p. 185, pl. x, fig. 12, Mission Pavie ii, n. sp.

*Eutettix quadripunctatus*, E. Africa, MELICHAR, p. 44, Verh. Ges. Wien liv; *E. perkinsi*, Oahu, KIRKALDY, p. 178, Entomologist 1904 : n. spp.

*Gnathodus punctatus* var. n. *lineolatus*, HORVÁTH, p. 586, Ann. Mus. Hungar. ii.

*G. bipunctatus*, E. Africa, MELICHAR, p. 47, Verh. Ges. Wien liv, n. sp.

*Hecalus dubius*, E. Africa, MELICHAR, p. 36, t. c.; *H. platalea*, Siam, NOUALHIER, p. 184, pl. x, fig. 11, Mission Pavie iii : n. spp.

*Idiocerus almasyi*, Turkestan, HORVÁTH, p. 588, Ann. Mus. Hungar. ii, n. sp.

*Jassus tornowii*, Tucuman, BRÈTHES, p. 344, An. Mus. Buenos Aires xi, n. sp.

*Macropsis serena*, E. Africa, MELICHAR, p. 35, Verh. Ges. Wien liv, n. sp.

*Palicus africanus*, p. 40, *conjunctus*, p. 41, E. Africa, MELICHAR, t. c. n. spp.

*Parabolocratus tenionotus*, Jambo, JACOBI, p. 780, pl. xlv, fig. 17, Zool. Jahrb. Syst. xix, n. sp.

*Pediopsis pictipes*, Turkestan, HORVÁTH, p. 589, Ann. Mus. Hungar. ii, n. sp.

*Phlepsius chloroticus*, p. 38, *fasciolatus*, p. 39, *rhomboides*, p. 40, E. Africa, MELICHAR, Verh. Ges. Wien liv, n. spp.

*Platymetopius niveimarginatus*, E. Africa, MELICHAR, p. 43, t. c. n. sp.

*Scaphoideus strigulatus*, E. Africa, MELICHAR, p. 42, t. c. n. sp.

*Siva bipunctula*, E. Africa, MELICHAR, p. 38, t. c. n. sp.

*Stymphalus? caliger*, E. Africa, MELICHAR, p. 37, t. c. n. sp.

*Tettigometra impressifrons* and *costulata*, habits, SILVESTRI, Ann. Mus. Napoli (n. s.) i, No. 13.

*Tettigoniella* n. n. for *Tettigonia* auctt., JACOBI, p. 778, Zool. Jahrb. Syst. xix.

*Thamnotettix macilentus*, Turkestan, HORVÁTH, p. 586, Ann. Mus. Hungar. ii, n. sp.

*Typhlocyba comes*, the grape leaf-hopper, natural history, SLINGERLAND, Bull. Cornell Exp. Stat. No. 215, illustrations.

## PSYLLIDÆ.

[Cf. ASHMEAD (55), HORVÁTH (717), SCHWARZ (1263).]

Structure formed by larva on leaves, SCHWARZ, pp. 153, 154, P. ent. Soc. Washington vi.



- Aphalara schwarzi*, p. 135, *kincaidi*, *alaskensis*, p. 136, Alaska, ASHMEAD, Alaska viii, **n. spp.**  
*Calophya triozomina*, p. 241, *californica*, p. 242, *flavida*, p. 243, cuts, p. 244, SCHWARZ, P. ent. Soc. Washington vi, **n. spp.**  
*Euphalerus n. g. Apharinae*, p. 238, *E. nidifex n. sp.*, p. 239, Florida, SCHWARZ, t. c.  
*Euphyllura arctostaphyli*, p. 235, and var. *niveipennis*, p. 236, *arbuti*, p. 237, N. America, SCHWARZ, t. c. **n. spp.**  
*Psylla nasuta*, Turkestan, HORVÁTH, p. 590, Ann. Mus. Hungar. ii; *P. alaskensis*, Alaska, ASHMEAD, p. 137, Alaska viii: **n. spp.**  
*Trichohermes n. n.* for *Trichopsylla*, KIRKALDY, p. 280, Entomologist 1904.

## APHIDÆ.

[Cf. BALBIANI (77), CHOLODKOVSKY (273, 274), COCKERELL (288), FLÖGEL (519), FROGGATT (562), PERGANDE (1023-1025), SCHOUTEDEN (1240), STAUFFACHER (1335), STSCHELKANOVZEW (1352), THEOBALD (1375).]

The forms and development of *Aphis ribis*, FLÖGEL, Allg. Zeitschr. Ent. ix, pp. 321-333 and 375-381.

Organ of hearing, *Chermes*, STAUFFACHER (1335).

Sex in *Aphidæ*, BALBIANI (77).

Oogenesis in viviparous *Aphis rosæ*, STSCHELKANOVZEW (1352).

The wax-glands of *Chermes*, CHOLODKOVSKY, p. 557, pl. xxxi, figg. 4-6, Zool. Jahrb. Syst. xix.

*Panaphis n. n.* for *Ptychodes*, *Dryaphis n. n.* for *Dryobius*, *Hamadryaphis n. n.* for *Kessleria*, *Dryopeia n. n.* for *Endeis*, *Hyadaphis n. n.* for *Siphonocoryne* Pass. 1863 not 1860, KIRKALDY, p. 279, Entomologist 1904.

*Aphis persicæ-niger* in Australia, FROGGATT, Agric. Gaz. N. S. W. xv, pp. 603-612.

*A. sorghi*, Sudan, injuring *Sorghum*, THEOBALD, p. 43, plate, 1st Rep. Wellcome Lab. **n. sp.**

*Cerataphis lataniæ*, note, SCHOUTEDEN, p. 5, Hamburg, Magalhaen. Reise vii.

*Chermes*, in Colorado, GILLETTE, p. 81, Canad. Ent. xxxvi; *C. orientalis*, gall, *C. pini* variable in migration, distinction queried, CHOLODKOVSKY, pp. 476-479, Zool. Anz. xxvii.

*Cladobius beaulahensis*, New Mexico, COCKERELL, p. 263, Canad. Ent. xxxvi, **n. sp.**

*Macrosiphum granaria*, *cerealis*, forms, natural history; PERGANDE, p. 13-21, Bull. Dep. Agric. Ent. xlv; *M. ambrosiæ* var., COCKERELL, p. 262, Canad. Ent. xxxvi.

*M. trifolii*, N. America, PERGANDE, p. 21, Bull. U. S. Dep. Agric. Ent. xlv, **n. sp.**

*Phyllocera caryæ-septum* var. *n. perforans*, pl. i, figg. 7, 8, pl. x, figg. 57-60, PERGANDE, P. Davenport Ac. ix.

*P. picta*, pl. ii, fig. 10, pl. ix, fig. 48, pl. x, figg. 61-63, p. 197, *intermedia*, pl. ii, figg. 11-14, pl. x, figg. 64, 65, p. 199, *foveola*, pl. iii, figg. 15, 16, p. 200, *pilosula*, pl. ii, fig. 17, pl. ix, fig. 49, p. 202, *deplanata*, p. 205, pl. iii, figg. 18-20, pl. iv, figg. 21-23, pl. x, figg. 66-70, *rimosalis*, p. 217, pl. iv, fig. 24, pl. ix, fig. 54, *symmetrica*, p. 230, with varr. *vasculosa*, *purpurea*, p. 233, *notabilis*, p. 235, pl. xii, figg. 82-90, *spinuloïda*, p. 247, pl. xvii, figg. 128, 130, *devastatrix*, p. 248, figg. 131-135, *georgiana*, p. 249, pl. xv, figg. 115-117, *perniciosa*, p. 251, pl. viii, fig. 45, pl. xv, figg. 120-123, pl. xviii, figg. 136-140, *querceti*, p. 263, pl. xx, figg. 155-158, *popularia*, p. 266, pl. xxi, figg. 159, 160, *salicicola*, p. 267, pl. xxi, figg. 161-168, *nyssæ*, p. 269, pl. xxi, figg. 169-174, North America, PERGANDE, t. c. **n. spp.**

- Rhopalosiphum acænæ*, Tierra del Fuego, SCHOUTEDEN, p. 4, Hamburg. Magalhaen. Reise vii, **n. sp.**  
*Sipha berlesii*, characters, DEL GUERCIO, p. 4, Bull. Soc. ent. Ital. xxxvi.  
*Siphocoryne avenæ*, natural history, synonymy, PERGANDE, pp. 5-13, Bull. Dep. Agric. Ent. xliv.

## ALEYRODIDÆ.

Descriptions of many species, with account of life-history and habits, BEMIS, pp. 471-537, pls. xxvii-xxxvii.

- Aleyrodes iridescens*, p. 487, *splendens*, p. 489, *pruinosis*, p. 491, *tentaculatus*, p. 494, *kelloggi*, p. 499, *errans*, p. 500, *madroni*, p. 507, *stanfordi*, p. 508, *interrogationis*, p. 510, *merlini*, p. 512, *annicola*, p. 514, *diasemus*, p. 516, *glacialis*, p. 518, *quaintancei*, p. 520, *nigrans*, p. 522, *maskelli*, p. 524, *wellmanæ*, p. 525, *extraniens*, p. 526, *hutchingsi*, p. 532, California, BEMIS, P. U. S. Mus. xxvii, **n. spp.**

## COCCIDÆ.

(Cf. BERLESE (106), COCKERELL (294, 295), EMBLETON (450, 451), FROGGATT (560), GREEN (620, 622-626), KIRKALDY (810, 811), MARCHAL (909, 913), MAZZARELLI (929), REH (1126, 1127), REUTER (1159), SANDERS (1207, 1208), STEBBING (1336).]

The nomenclature of *Hemiptera* and specially of *Coccidæ*; KIRKALDY, pp. 254-258, Entomologist 1904.

GREEN publishes part 3 of the *Coccidæ* of Ceylon; it deals with *Lecanium*; in a supplementary note he deals cautiously with recently proposed transfers of some of the oldest generic names, which would, if effected, be "a grave misfortune."

*Coccidæ* of Orange, table, COCKERELL, Mem. Soc. Ant. Alzate xiii, pp. 349-351.

Notes on methods of research etc., EMBLETON, Knowledge (n. s.) i, pp. 224 etc.

The *Coccidæ* of Ohio, descriptive list, 9 plates, SANDERS (1208).

Notes on the natural history of North European *Coccidæ*, conclusion, 19 spp., list of plants and the species found on them, REH, Allg. Zeitschr. Ent. ix, pp. 12-36.

Distribution and food plants of some *Diaspini*, REH, pp. 171-178.

*Amelococcus* **n. g.** *A. alluaudi* **n. sp.**, Madagascar, MARCHAL, p. 557, Ann. Soc. ent. France 1904.

*Antonina australis*, Hunter River, GREEN, p. 463, pl. xvi, P. Linn. Soc. N. S. Wales xxix, **n. sp.**; *A. australis*, FROGGATT, pp. 407-410, plate, Agric. Gaz. N. S. W. xv.

*Aspidiotus ancylus*, taxonomy, synonymy, variation, COCKERELL, P. Davenport Ac. ix, pp. 61, 62.

*A. (Pseudanonidia) curculiginis*, Java, GREEN, p. 208, Ent. Mag. xl; *A. (Hemiberlesia) immaculatus*, p. 65, *A. (Targionia) subfervens*, p. 66, Victoria, GREEN, Victorian Natural. xxi; *A. piceus*, Ohio, SANDERS, p. 96, pl. viii, fig. 66, Ohio Natural. iv: **n. spp.**

*Asterolecanium variolosum*, galls, DE STEFANI, L'Ora 1904, 8 pp.: cf. Marcellia iii, p. v.

*Chetococcus* and *Antonina*, identical, GREEN, p. 465, P. Linn. Soc. N. S. Wales xxix.

*Chionaspis furfurus*, no. of eggs, GIRAULT, p. 3, Ent. News Philad. xv.

*C. formosa*, Australia, GREEN, p. 462, P. Linn. Soc. N. S. Wales xxix;

- C. angusta*, Victoria, GREEN, p. 67, Victorian Natural. xxi; *C. sylvatica*, Ohio, SANDERS, p. 95, pl. viii, figg. 64, 65, Ohio Natural. iv : n. spp.
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## (F.) NEUROPTERA, s. l.

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## NEUROPTERA-PLANIPENNIA (incl. PANORPIDÆ).

[Cf. BANKS (81, 82), CURRIE (334, 335), FROGGATT (557, 562), KEMPNY (785, 1232), KIRBY (806), NAVÁS (974-976), WEELE (1501), XAMBEU (1539).]

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## PSOCIDÆ.

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- [Cf. CARRIKER (247), KELLOGG & CHAPMAN (784).]  
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*C. gypagi*, pl. vi, fig. 2, p. 171, *extraneum*, fig. 3, p. 173, *luroris*, fig. 4,  
 p. 174, *mirabile*, fig. 5, p. 175, Costa Rica, CARRIKER, t. c. n. spp.  
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*Goniocotes minutus*, pl. iv, figg. 1, 2, p. 155, *aberrans*, figg. 4, 5, p. 157, Costa  
 Rica, CARRIKER, t. c. n. spp.  
*Kelloggia* n. g. p. 153, *brevipes* n. sp. pl. i, fig. 2, p. 154, on *Tinamus*, Costa  
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- Læmbothrium delogramma*, pl. iv, fig. 6, p. 159, *oligothrix*, fig. 7, p. 161, Costa Rica, CARRIKER, t. c. **n. spp.**
- Lipeurus longipes tinami* var. n. p. 146, CARRIKER, t. c.
- L. postmarginatus*, pl. iii, fig. 4, p. 147, Costa Rica, CARRIKER, t. c. **n. sp.**
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- Nirmus fuscus epustulatus* var. n. p. 133, *N. brachythorax ptiliogonis* var. p. 143, CARRIKER, t. c.
- N. rhampasti*, p. 135, pl. ii, fig. 1, *hastiformis*, fig. 2, p. 136, *parabolocybe*, fig. 3, p. 137, *francisi*, fig. 5, p. 139, *melanacocus*, fig. 6, p. 141, *pseudophæus*, pl. iii, fig. 1, p. 142, *caligineus*, fig. 2, p. 144, Costa Rica, CARRIKER, t. c. **n. spp.**
- Nitzschia bruneri*, p. 177 with var. *meridionalis*, p. 178, Costa Rica, CARRIKER, t. c. **n. sp.**
- Ornicholax n. g. robustus n. sp.* on *Tinamus*, Costa Rica, pl. ix, fig. 1, p. 151, CARRIKER, t. c.
- Physostomum jiminezi*, pl. v, fig. 1, p. 163, *doratophorum*, fig. 4, p. 165, *leptosomum*, fig. 2, p. 166, *subangulatum*, fig. 3, p. 168, Costa Rica, CARRIKER, t. c. **n. spp.**

## TERMITIDÆ OF ISOPTERA.

[Cf. DESNEUX (368–373), JACOBSON (741), SILVESTRI (1299), SJÖSTEDT (1301), WASMANN (1485, 1487), WHEELER (1524).]

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- p. 17, *auriceps*, Cameroons, p. 19, SJÖSTEDT, Svenska Ak. Handl. xxxviii, No. 4; *C. militaris*, Ceylon, DESNEUX, p. 146, Ann. Soc. ent. Belgique xlviii; *C. wagneri*, Brazil, DESNEUX, p. 286, t. c. : **n. spp.**
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- Dysphæa basitincta*, Tonkin, MARTIN, p. 218, t. c. **n. sp.**
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[Cf. BÖRNER (157), DANIEL (350), FROGGATT (556).]

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*Euthrips pyri*, San Leandro, DANIEL, p. 294, t. c. n. sp.

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(G.) *APTERA* or *THYSANURA* and  
*COLLEMBOLA*.

[Cf. BRUNTZ (196), ESCHERICH (1485), FOLSOM (522), Klapálek (816), PHILIPTSCHENKO (1045), SILVESTRI (1297, 1300).]

*Aptera*, as ordinal name for *Thysanura*, SHIPLEY, Zool. Anz. xxvii, p. 261.  
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n. sp.

*Campodea*, anatomy, PHILIPTSCHENKO (1045).

*Diplura* n. order for *Thysanura entotropha* Grassi, BÖRNER, p. 525, Zool.  
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*Japyx solifugus*, in Crimea, KUSNEZOV, p. 227, Rev. Russe Ent. iv.

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iii, n. sp.

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iii : n. spp.

*Præmachilis meticolosa*, Umbria, SILVESTRI, p. 7, Redia ii, n. sp.

## COLLEMBOLA.

[Cf. ABSOLON (6, 7), AGREN (18), AXELSON (68, 68A), CARPENTER (243),  
CARPENTER & EVANS (245), HOFFMANN (694), SCHÖTT (1234).]

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*D. violacea*, Moravia, ABSOLON, p. 61, Vestnik. Klub. Prostejove ii, n. sp.  
*Entombrya nivalis* ab. n. *dorsalis*, AGREN, p. 22, figg. 14-16, Arkiv Zool. ii,  
No. 1.

- E. insularis*, Hawaii, pl. ix, figg. 7-11, *kalakaua*, Kauai, figg. 12-16, p. 301, CARPENTER, Fauna Hawaiiensis iii, **n. spp.**
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- I. intermedia*, Sweden, SCHÖTT, p. 25, Bih. Svenska Ak. xxviii, Afd. iv, No. 2; *I. poppiusi*, Siberia, AXELSON, p. 5, pl. figg. 1-4, Ofv. Finska Forh. xlv, No. 20; *I. perkinsi*, Kauai, pl. ix, figg. 17-19, p. 302, CARPENTER, Fauna Hawaiiensis iii : **n. spp.**
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- Papirius rufescens* var. n. *discolor*, SCHÖTT, p. 41, pl. v, figg. 1-5, Bih. Svenska Ak. xxviii, Afd. iv, No. 2.
- Pseudachorutes lapponicus*, Lapland, AGREN, p. 8, fig. 8, Arkiv Zool. ii, No. 1; *P. tuberculatus*, p. 13, *borneri*, p. 14, Sweden, SCHÖTT, Bih. Svenska Ak. xxviii, Afd. iv, No. 2 : **n. spp.**
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(H.) *ORTHOPTERA.*

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*Carcinophora waddyi*, Martinique, BURR, p. 290, t. c.; *C. fusca*, Santiago, BORELLI, p. 1, Boll. Mus. Torino xix, No. 475 : n. spp.

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- Opisthocosmia micheli*, Abyssinia, p. 307, *erroris*, p. 308, *vicina*, Borneo, *nevilli*, p. 309, *brahma*, p. 310, India, *annandalei*, Malay States, p. 311, *shelfordi*, Sarawak, *temora*, Darjiling, p. 312, BURR, t. c. **n. spp.**
- Platylabia gestroi* ♀, BURR, p. 300, t. c.
- P. camerunensis*, p. 570, pl. xxvi, fig. 4, *bihastata*, fig. 5, p. 571, Cameroons, BORG, Arkiv Zool. i, **n. spp.**
- Pyragra paraguayensis*, Asuncion, BORELLI, p. 1, Boll. Mus. Torino xix, No. 479, **n. sp.**
- Sparatta bongiana*, Cameroons, BORG, pl. xxvi, fig. 3, Arkiv Zool. i ; *S. w. signata*, Mexico, BURR, p. 302, Tr. ent. Soc. London 1904 : **n. spp.**
- Spongiphora assiniensis* ♂, BURR, p. 295, t. c.
- S. gayi*, Abyssinia, id. l. c. ; *S. ochracea*, Cameroons, BORG, p. 569, pl. xxvi, fig. 6, Arkiv Zool. i ; *S. vicina*, Paraguay, BORELLI, p. 6, Boll. Mus. Torino xix, No. 479 : **n. spp.**
- Tomopygia* **n. g.** type *Cylindrogaster abnormis*, p. 287, *T. sinensis* **n. sp.**, Pekin, p. 288, BURR, Tr. ent. Soc. London 1904.

## BLATTIDÆ and HEMIMERIDÆ.

[Cf. ADELUNG (11, 12), AGNUS (17), BORG (155), CAUDELL (255), NAVÁS (975), REHN (1128, 1135, 1138), RILEY (1173), REITZENSTEIN (1157), SCUDDER & COCKERELL (1267), SELLARDS (1269, 1270), STERZEL (1345), TEPPER (1370), WASSILIEFF (1488).]

General Catalogue, KIRBY (806A).

Morphology of head of *Blatta*, RILEY (1173).

Salivary glands of *P. orientalis*, LEBEDEFF (866).

Palæozoic *Blattidæ*, see Palæoentomology.

AGNUS states that *Palæoblattina douvillei* is a Trilobite, not a *Blattid*, Naturaliste 1904, p. 80.

*Anaplecta platycephala*, Queensland, REHN, p. 542, P. U. S. Mus. xxvii, **n. sp.**

*Blatta senecta*, S. Africa, REHN, p. 554, t. c. **n. sp.**

*Blattella germanica* injuring books, BRITTON, p. 215, Rep. Connecticut exp. Stat. 1904, pl. iii b.

*Calotampra pedisequa*, Siam, REHN, p. 547, P. U. S. Mus. xxvii, **n. sp.**

*Chorisonewra africana*, Cameroons, BORG, p. 5, Bih. Svenska Ak. xxviii, Afd. iv, No. 10 ; *C. plocea*, S. Carolina, REHN, p. 164, Ent. News Philad. xv : **n. spp.**

- Deropeltis schweinfurthi* var., ADELUNG, p. 327, Annuaire Mus. St. Petersb. viii.
- D. gabonica*, W. Africa, REHN, p. 556, P. U. S. Mus. xxvii; *D. kachovskii*, p. 319, pl. xx, fig. 6, *pallidipennis*, p. 327, Abyssinia, ADELUNG, t. c.; *D. tullbergi*, Cameroons, BORG, p. 16, pl. ii, fig. 6, Bih. Svenska Ak. xxviii, No. 10 : **n. spp.**
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- E. duskei*, S. E. Europe, ADELUNG, p. 127, t. c.; *E. maori*, New Zealand, REHN, p. 541, P. U. S. Mus. xxvii : **n. spp.**
- Ellipsoidion histrionicum*, Australia, REHN, p. 544, t. c. **n. sp.**
- Epilampra camerunensis*, p. 8, pl. i, fig. 3, *electa*, p. 10, fig. 4, *infinita*, p. 11, fig. 1, *sjostedti*, p. 12, fig. 5, *pallida*, p. 13, fig. 6, *minuta*, p. 14, fig. 2, Cameroons, BORG, Bih. Svenska Ak. xxviii, Afd. iv, No. 10; *E. excelsa*, Himalaya, NAVÁS, p. 131, Bol. Soc. Aragon. iii; *E. trongana*, p. 548, *moloch*, p. 549, Siam, REHN, P. U. S. Mus. xxvii : **n. spp.**
- Eustegasta parva*, Cameroons, BORG, p. 31, Bih. Svenska Ak. Afd. iv, No. 10, **n. sp.**
- Gyna aurivillii*, p. 20, pl. ii, fig. 5, *oblonga*, p. 21, fig. 1, Cameroons, BORG, t. c. **n. spp.**
- Heterogamia gestroyana* var. n. *fulvopicta*, ADELUNG, p. 329, pl. xx, fig. 15, Annuaire Mus. St. Petersb. viii.
- Homœogamia subdiaphana*, New Mexico, SCUDDER, p. 19, pl. v, fig. 3, P. Davenport Ac. ix, **n. sp.**
- Isoniscus* n. g. near *Zetobora*, p. 27, *I. sjostedti* **n. sp.**, Cameroons, p. 28, pl. ii, fig. 3, BORG, Bih. Svenska Ak. xxviii, Afd. iv, No. 10.
- Kakérlac schæfferi*, Texas, REHN, p. 72, Psyche xi, **n. sp.**
- Mallatoblatta brachyptera*, Abyssinia, ADELUNG, p. 303, pl. xx, fig. 13, Annuaire Mus. St. Petersb. viii **n. sp.**
- Opistoplatia plicata*, Himalaya, NAVÁS, p. 130, Bol. Soc. Aragon. iii, **n. sp.**
- Oxyhaloa saussurei*, Cameroons, BORG, p. 29, pl. ii, fig. 2, Bih. Svenska Ak. xxviii, Afd. iv, No. 10; *O. nilotica*, Abyssinia, ADELUNG, p. 334, pl. xx, fig. 9, Annuaire Mus. St. Petersb. viii : **n. spp.**
- Panchlora stolata*, p. 23, pl. i, fig. 7, *camerunensis*, p. 24, Cameroons, BORG, Bih. Svenska Ak. xxviii, Afd. iv, No. 10, **n. spp.**
- Panesthia cetrifera*, Australia, REHN, p. 559, P. U. S. Mus. xxvii, **n. sp.**
- Periplaneta lebedinskii*, Abyssinia, ADELUNG, p. 305, Annuaire Mus. St. Petersb. viii; *P. basedowi*, S. Australia, TEPPER, p. 162, pl. xxxii, Tr. R. Soc. S. Austral. xxviii : **n. spp.**
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- Proscratea bilineata*, Philippines, NAVÁS, p. 135, Bol. Soc. Aragon. iii, **n. sp.**
- Pseudoderopeltis discrepans*, p. 312, pl. xx, fig. 14, *gildessa*, p. 314, fig. 4, *saussurei*, p. 316, fig. 5, Abyssinia, ADELUNG, Annuaire Mus. St. Petersb. viii, **n. spp.**
- Rhincoda desidiosa*, Siam, REHN, p. 552, P. U. S. Mus. xxvii, **n. spp.**
- Stylopyga flavilutera* var. n. *castanea*, ADELUNG, p. 309, Annuaire Mus. St. Petersb. viii.
- Temnopteryx deropeltiformis* and *Ischnoptera uhleriana*, habits, CAUDELL, p. 78, P. ent. Soc. Washington vi.
- Theganopteryx nitida*, Cameroons, BORG, p. 4, pl. i, fig. 8, Bih. Svenska Ak. xxviii, Afd. iv, No. 10, **n. sp.**
- Thyrsocera tessellata*, Siam, REHN, p. 545, P. U. S. Mus. xxvii, **n. sp.**

## MANTIDÆ.

[Cf. CAUDELL (255), CESNOLA (256B), KIRBY (804), NAVÁS (975), REHN (1129, 1136), TEPPER (1370), WERNER (1509), WILLIAMS (1530).]

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*Carvilia costalis*, Abyssinia, KIRBY, p. 85, Ann. Nat. Hist. xiii, n. sp.

*Centromantis* n. g. for part of *Eremiaphila*, n. spp. named but not described, WERNER, p. 404, Anz. Ak. Wiss. xxvii.

*Hapalopeza maculata*, Ceylon, KIRBY, p. 84, Ann. Nat. Hist. xiii, n. sp.

*Harpagonyx carlottæ*, Costa Rica, REHN, p. 568, P. U. S. Mus. xxvii, n. sp.

*Heterochæta orientalis*, E. Africa, KIRBY, p. 87, Ann. Nat. Hist. xiii, n. sp.

*Humbertiella ocularis* ♂, KIRBY, p. 82, t. c.

*H. ? brunneri*, Lombok, KIRBY, p. 83, t. c. n. sp.

*Mantis religiosa* in N. France, VUILLEMIN, pp. 27-29, Feuille Natural. xxxv; *M. religiosa*, value of dimorphic colour, CESNOLA, Biometrika iii, p. 58.

*Oxyopsis* n. n. for *Oxyops* Sauss., CAUDELL, p. 184, J. N. York Ent. Soc. xii.

*Paramusonia* n. n. for *Musonia* Sauss. & Z., REHN, p. 567, P. U. S. Mus. xxvii.

*Photina gracilipes*, Para?, KIRBY, p. 86, Ann. Nat. Hist. xiii, n. sp.

*Polyspilota elegans*, Himalaya, NAVÁS, p. 132, Bol. Soc. Aragon. iii, n. sp.

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*Pyrgomantis jonesi*, W. Africa, KIRBY, p. 83, Ann. Nat. Hist. xiii, n. sp.

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*Theopompa westwoodi*, W. Africa, KIRBY, p. 81, Ann. Nat. Hist. xiii, n. sp.

*Vates townsendi*, Mexico, REHN, p. 573, P. U. S. Mus. xxvii, n. sp.

## PHASMIDÆ.

[Cf. CAUDELL (251, 255), KIRBY (805), REHN (1130, 1131), SCUDDER & COCKERELL (1267).]

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*Acanthomina* n. g. for *Anophelepis rhipheus* Westw., KIRBY, p. 438, t. c.

- Anchiale naevia, stollii* etc., note, REHN, p. 88, P. Ac. Philad. lvi.  
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*A. similis*, Swan isld., p. 65, *achalus*, Porto Rico, p. 68, REHN, t. c. n. spp.  
*Arrhideoxys apalamnus*, Obi, REHN, p. 85, t. c. n. sp.  
*Aruanoidea aruana* ♂ and varr., REHN, p. 79, t. c.  
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*Bacteria, ferula* is type, p. 61, *B. cubensis* ♀, p. 62, REHN, P. Ac. Philad. lvi; *B. tridens* Burm. to *Pseudosermyle*, REHN, p. 51, t. c.  
*Bactricia ridleyi*, Singapore, KIRBY, p. 429, Ann. Nat. Hist. xiii, n. sp.  
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*Bacunculus stramineus*, New Mexico, SCUDDER, p. 20, pl. i, fig. 1, P. Davenport Ac. ix; *B. dubia*, Paraguay, CAUDELL, p. 186, J. N. York Ent. Soc. xii : n. spp.  
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*C. maculata*, Penang, KIRBY, p. 435, Ann. Nat. Hist. xiii, n. sp.  
*Carausius bracteus*, Siam, p. 42, *mammatus*, p. 44, *obiensis*, p. 46, Obi, REHN, P. Ac. Philad. lvi, n. spp.  
*Ceratiscus* n. g. *Clitumninae*, *C. laticeps* n. sp., Paraguay, CAUDELL, p. 188, J. N. York Ent. Soc. xii.  
*Ceroys bigibbus*, Nicaragua, REHN, p. 48, P. Ac. Philad. lvi, n. sp.  
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*Haaniella* n. n. for *Heteropteryx*, Haan nec Gray, KIRBY, p. 444, t. c.  
*Haploides eadne*, characters, cuts, CAUDELL, p. 950, P. U. S. Mus. xxvii.  
*Heliasius sumichrasti* var. n. *rosea*, CAUDELL, p. 951, t. c.  
*Heteronemia ignava*, Costa Rica, REHN, p. 54, P. Ac. Philad. lvi, n. sp.  
*Ignacia* n. g. for *Pseudophasma* Bol. nec Kirb., REHN, p. 95, t. c.;  
*I. appendiculata*, Nauta, KIRBY, p. 446, Ann. Nat. Hist. xiii, n. sp.  
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*N. tonkinensis*, Tonkin, id. p. 437, t. c. n. sp.  
*Neohirasea* n. g. for *Parapachymorpha japonica*, REHN, p. 84, P. Ac. Philad. lvi.  
*Oncotophasma* n. g. for part of *Bostra*, REHN, p. 59, t. c.  
*Oreophates* n. g. near *Heteronemia* for *Bacteria peruana* Sauss., REHN, p. 56, t. c.  
*Orxines, xiphias* Westw. is type, REHN, p. 71, t. c.  
*Oxyartes lamellatus*, Tonkin, KIRBY, p. 374, Ann. Nat. Hist. xiii, n. sp.  
*Olycyphides iridescens*, Trinidad, KIRBY, p. 445, t. c. n. sp.  
*Orthoneoscia* n. n. for *Neroscia* Brunn., with *O. pulcherrima*, Borneo, p. 436, *ruficeps*, Solomon islds., p. 437, n. spp., KIRBY, t. c.  
*Pardeptynia* n. g. near *Baculum*, *P. fosteri* n. sp., Paraguay, CAUDELL, p. 187, J. N. York Ent. Soc. xii.  
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- Phasma*, type is *P. empusa*, KIRBY, p. 439, t. c.  
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*Sipyloidea pæciloptera*, Obi, REHN, p. 77, t. c. n. sp.  
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*Stælonchodes* n. g. (*Lonchodes pars*), p. 372, *S. gracillimus* n. sp., Tonkin, p. 373, KIRBY, t. c.  
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*Xerosoma glyptomerion*, Costa Rica, REHN, p. 101, P. Ac. Philad. lvi, n. sp.

## GRYLLIDÆ.

[Cf. BRUNER (195), REHN (1131), SCUDDER & COCKERELL (1267), VOSS (1461), WALKER (1465).]

- Phagocytic organs in *Gryllidæ*, DAWYDOFF (356).  
 Spermatogenesis, peculiar, *Gryllus*, VOINOV (1460).  
*Ectatoderus borealis*, New Mexico, pl. iv, fig. 4, p. 58, SCUDDER, P. Davenport Ac. ix, n. sp.  
*Myrmecophila acervorum* ♂, CSIKI, pp. 85, 88, Allatt. Kozl. Magyar. Tars. iii; *M. acervorum, ochracea*, habits, SILVESTRI, Ann. Mus. Napoli (n. s.) i, No. 13.  
*Nemobius fasciatus* var. n. *abortivus*, CAUDELL, p. 248, Canad. Ent. xxxvi.  
*N. griseus*, p. 182, *angusticollis*, p. 186, Ontario, WALKER, Canad. Ent. xxxvi; *N. brevicaudus*, Colorado, BRUNER, p. 57, Bull. Exp. Stat. Colorado 94: n. spp.  
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## LOCUSTIDÆ or TETTIGONIIDÆ.

- [Cf. COCKERELL (290), GILLETTE (605), HANCOCK (655), HUTTON (729), KRAUSZE (843, 844), NAVÁS (975), REHN (1131, 1132, 1139), SCUDDER & COCKERELL (1267), TEPPER (1370), WALKER (1466).]  
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- Arethaca carita*, New Mexico, pl. iv, fig. 5, p. 52, SCUDDER, P. Davenport Ac. ix, **n. sp.**
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- Conocephalus ultimus*, Tonkin, KRAUSZE, p. 213, *Ins. Börse* 1904, **n. sp.**
- Ceuthophilus aridus*, Colorado, BRUNER, p. 57, Bull. Exp. Stat. Colorado 94 ; *C. virgatipes*, Georgia, REHN & HEBARD, p. 798, P. Ac. Philad. 1904 ; *C. politus*, pl. iv, fig. 3, p. 56, *ater*, p. 57, New Mexico, SCUDDER, P. Davenport Ac. ix ; *C. macropus*, Mexico, REHN, p. 545, P. Ac. Philad. lvi : **n. spp.**
- Cyphoderris monstrosa*, characters, natural history, var. *n. piperi*, CAUDELL, pp. 47-53, J. N. York Ent. Soc. xii.
- Dichopetada brevicauda*, New Mexico, pl. iv, fig. 1, p. 51, SCUDDER, P. Davenport Ac. ix, **n. sp.**
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- E. pantingana*, Spain, NAVÁS, p. 191, Bol. Soc. Aragon. iii, **n. sp.**
- Eremopedes popeana*, New Mexico, pl. iv, fig. 2, p. 54, SCUDDER, P. Davenport Ac. ix, **n. sp.**
- Gammaroparnops crassicuris*, ALFKEN, pl. xxxii, figg. 5-9, Zool. Jahrb. Syst. xix.
- Gryllacris scripta*, Philippines, NAVÁS, p. 138, Bol. Soc. Aragon. iii ; *G. atrofrons*, S. Australia, TEPPER, p. 167, Tr. R. Soc. S. Austral. xxviii : **n. spp.**
- Gymnoplectron stephensiensis*, ALFKEN, pl. xxxii, fig. 10, p. 588, Zool. Jahrb. Syst. xix.
- Hexacentrus stali*, Tonkin, KRAUSZE, p. 213, *Ins. Börse* 1904, **n. sp.**
- Holochlora stali*, Tonkin, KRAUSZE, p. 29, t. c. **n. sp.**
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- Pycnogaster brevipes* ♀, NAVÁS, pl. iv, Bol. Soc. Aragon. iii.
- Pyrrhizia brunneri*, Tonkin, KRAUSZE, p. 29, *Ins. Börse* 1904, **n. sp.**
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- Stipator grandis*, Mexico, REHN, p. 544, P. Ac. Philad. lvi, **n. sp.**

## ACRIDIIDÆ.

[Cf. BOLÍVAR (144-147), BRUNER (195, 614), EWING (472), FROGGATT (558), HANCOCK (655), LYNCH ARRIBALZAGA (897), MORSE (961, 962), NAVÁS (975), REHN (1131-1133, 1137), REHN & HEBARD (1134), RÖHLER (1185), TEPPER (1370).]

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## XIV. ECHINODERMA.

BY

F. A. BATHER.

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## INTRODUCTION.

I. TITLES. The total 303 is thus made up: 1891, 1; 1892, 3; 1896, 2; 1898, 2; 1899, 2; 1900, 3; 1901, 10; 1902, 12; 1903, 27; 1904, 239; 1905, 2. The sudden decline in both the total and the number for the year is partly due to a change in the method of obtaining the titles, partly to the fact that longer working hours at the British Museum (Nat. Hist.) render it more difficult for members of the staff to utilize the library of that establishment. In these circumstances the task of copying titles, indexing names, and sorting slips has been mainly performed by Miss Grant, to whose intelligent care I am deeply indebted. Making further allowance for the usual deficiency, the following numbers of writings dealing with Echinoderms in the years 1891–1904 inclusive, prove a genuine increase in the annual output: 189, 171, 166, 155, 172, 219, 198, 230, 264, 318, 314, 289, 317, 240. That this has *not* been accompanied by increase in the length of the Record is clear from comparison of my predecessor's

1891 Record (devoting 91 pages to 186 papers and a few abstracts) with the 1902 Record (where 307 papers with many notes and abstracts are indexed in 88 pages). The length of a Record for a given year depends less on the number of titles than on the proportion of large monographs, and in such works 1904 was peculiarly rich.

II. BIOLOGY. The Echinoderm volume of DELAGE & HÉROUARD'S 'Traité de Zoologie concrète' (54) gives an admirable summary of the morphology, especially of living forms, the Phylum as a whole and each Class being described in terms of an ideal type. This method, though LAMBERT'S criticism of it is most just, forms a valuable complement to the evolutionary method adopted in the corresponding volume of Lankester's 'Treatise' (Zool. Rec. 1900, No. 19). There is, however, a chapter on phylogeny, in which the authors adopt as at least ben trovato the Pelmatozoic theory elaborated in that treatise. They add full accounts of the Physiology and Embryology of each extant Class. In a separate paper (121) HÉROUARD puts forth his own hypothesis of the origin of Echinoderms from a metamerically segmented Dipleuraea. A more elaborate speculation is started by E. MEYER (190): a typically segmented Annelid, taking to a half-sedentary, partly tubicolous life gives rise to the three groups of Prosopygia—Sipunculoidea, Phronoidea, and Bryozoa; at an early stage in this history branched off the hypothetical *Astrelminthes*, of which the Dipleurula is the ontogenetic equivalent; these possessed a terminal anus, an anterior pair of nephridia with internal openings near the diaphragm, a crown of tentacles with ciliated grooves round the terminal mouth, and a pair of symmetric diaphragm-sacks as precursors of the ambulacral system. SIMROTH (256) dismissing all other theories as fantastic, and brushing aside palaeontology, considers that the Echinoderms are derived from their own parasites, the Myzostomes, in this way "dass je ein Darmblindsack in eine Sinnesknospe hineinwucherte und sich mit dieser verband. Das dürfte das ganze Geheimnis sein."

**Anatomy.**—A large number of important details, beautifully illustrated, are contributed by AGASSIZ (3) to our knowledge of the Echinoid test, principally in abyssal Spatangoids. Since this memoir suffers from the absence of an index, a list of the genera dealt with is given under III, A, iv. A similar assemblage is handled by DE MEJERE (57), but the structural features which appeal to him are so different that the two authors scarcely seem to treat of the same class of animals. The anatomy of the test also receives elucidation from MORTENSEN (194–195), who specially discusses the homologies of pedicellariae. TORNQUIST'S study of the apex in *Schizaster* (268) will help the classification of this difficult genus; I regret my inability to record his paper on Eocene fossils from Madagascar. The existence of an inner and outer series of plates in the ambulacrum of *Palaeodiscus*, as maintained by Sollas, is confirmed by SPENCER (264) who also confirms the views of Roemer, Meek, and Jaekel as to the structure of the food-groove in *Agelacriniidae*. The paper deserved better proof-reading than papers seem to get with our leading society.

**Physiology, Bionomics, Auxology.**—OESTERGREN (204) publishes an interesting note, and UEXKULL (274) a profound and fascinating study, of Ophiurid arm-movements. The reproduction of Starfish from isolated rays is convincingly proved by MONKS (193) & KELLOGG (139). SCHMIDT'S (246) exact description of the early stages in *Echinus* larva should be useful for comparison with experimental results, while DELAGE'S account (52) of *Asterias* larvae, though based on parthenogenetic individuals, contains facts of value to the morphologist, who will of course also read MACBRIDE (172) on *Ophiothrix*, and should glean something from the numerous descriptions of minute individuals and of growth-stages in various Echinoids which enrich the pages of AGASSIZ (3). Miss KLEM'S (142) criticism of Jackson & Jaggard's work on the growth of *Melonites* is not

immediately intelligible. Among papers on experimental embryology one cannot refrain from noting the beautiful experiments of GARBOWSKI (94) and the startling fact incidentally announced by JANSSENS (136) that all the experts at Naples, trying all methods on all manner of material for a whole breeding season could not get a solitary case of parthenogenesis.

III. DISTRIBUTION. The chief interest of the following papers is faunistic. On the Ophiurids collected by the 'M. Sars' GRIEG (106) bases an interesting discussion of the cold-water fauna of the North Sea and its limits, and deals in similar manner with the *Crinoidea* (107). CLARK (38) revises and describes the Echinoderm fauna of Woods Hole. KOEHLER's study of 'Siboga' Ophiurids (143) extends the range of many species and emphasizes the wide bathymetric limits of others. FOURTAU (83) gives an interesting account of the recent and Pleistocene Echinoid fauna of the Gulf of Suez, and draws conclusions as to its connections with the Indian Ocean and the Mediterranean.

ROWE (235) extends his zoning of the English Chalk to the Yorkshire coast which presents several remarkable features of Echinoderm distribution, e. g. *Zeuglopleurus rowei* in Marsupites zone, *Infulaster rostratus* from zone of *M. cortestudinarium* to that of *Actinocamax quadratus*, and *Cardiaster ananchytis* from *M. coranguinum* to *A. quadratus* zone. The bionomics of Solenhofen Echinoderms are studied by WALTHER (281). FRAIPONT (85) publishes photographs of Echinoderms from the Black Marble of the Belgian Carboniferous, a fauna hitherto undescribed and unfortunately too ill preserved for satisfactory determination. *Hemiaster cubicus* has been largely quoted from Sinai, but in the collections at his disposal NEWTON (196) finds only *Linthia oblonga*.

IV. SYSTEMATIC. The classification of *Echinoidea* both recent and fossil, down to subgenera, given by DELAGE & HÉROUARD (54) is valuable as giving a more complete list of names than can be found in any existing work on the subject, with an index showing synonyms and even misprints. The adoption of such groups as *Palasteridae* and *Euasteridae*, or *Palophiuridae* and *Colophiuridae*, the separation of *Synapta* from all other Holothurians, and the division of Inadunate Crinoids into *Larviformida* and *Fistulida* are steps possibly warranted but certainly retrograde. The formation of Family names by the addition of *-inae* to the full name of a genus (e. g. *Ophiohelusinae*) accords neither with etymology nor the custom of systematists. These and similar vagaries of nomenclature, though indexed in this Record, are not emphasized as novelties. Under *Asteroidea*, however, the authors propose the new generic names *Echinodiscaster* for *Echinodiscus* Stüertz, and *Calvasterias* for *Calveria hystrix* [better known as *Korethraster hispidus*], while they mention *Goniodon*, as well as the Ophiurid *Astrodia*, now first indexed as new genera. The details of their classification of *Echinoidea* are largely due to MORTENSEN.

Miss KLEM's (142) bibliography and list of palaeozoic Echinoids is a useful aid to the memory, but should not be trusted implicitly. Among recent sea-urchins BELL (22) finds *Eobrissus*, a new Spatangoid. The memoir on Panamic deep-sea Echinoids by AGASSIZ (3) is less systematic than morphological; it contains a new genus, *Pilematechinus*, also *Centrocidaris*, a new subgenus of a genus not stated, and much condemnation of De Meijere & Mortensen. The latter (195) in describing Regular Echinoids collected in the Gulf of Siam, gives a fresh classification of the Subclass, and a most careful study of *Diadematidae* and *Tennopleuridae*; in the matter of new genera his restraint is commendable. His taxonomic methods are followed by DE MEIJERE (57), who describes new species of Echinoids and one new genus, *Selenechinus*, from the Malay Archipelago, and redescribes the interesting *Echinocorytidae* and *Pourtalesidae* introduced in his preliminary note; his summary of results is welcome to those who cannot stomach the details of spines and spicules. In describing new

species of *Plesiolampas* and *Hemiaster* from the Eocene of N. Nigeria, BATHER (18) considers the nature of the heteronomy more important for classification than the fascioles. P. DE LORIOI (162) describes many species, new and old from Patagonia, among them a new Asteroid genus *Lahillea*, a name perilously close to *Lahillia* Cossmann 1899; also an Echinoid fauna from Honduras similar to that in the Comanche series of Texas; finally he believes that he has discovered the type-specimen of that contentious species *Scutella striatula* M. de Serres.

The type-specimens of many inadequately described or figured species of Ophiurids are redescribed by KOEHLER (144). Among 151 species of deep-sea Ophiurids collected by the 'Siboga,' the same author (143) finds 112 new species and the new genera *Ophiopallas*, *Ophiocirce*, *Ophiomoeris*, *Ophiocrates*, *Ophiomidas*, *Ophioleuce*, *Ophiochrysis*, *Ophiodoris*, *Ophiomytis*, and *Astrocharis*.

Following up the observations of Mortensen, GRIEG (107) shows the systematic value of genital pinnules and other small points in *Antedon*. American Crinoids of Devonian age are revised and described by Miss WOOD (291), who finds the new genera *Tripleurocrinus* and *Tylocrinus*. In a valuable study of various Devonian and Silurian Cystidea of N. America, SCHUCHERT (249) introduces the new genera *Tetracystis* and *Trimerocystis*; his discussion of *Camarocrinus* is the most convincing yet published.

The following table gives the numbers of the new names proposed, so far as can be ascertained from ordinary perusal of the works recorded.

	New genera	Altered generic names	New sub-genera	New species	Altered specific names	New varr.
Holothurioidea	0	0	0	7	0	0
Echinoidea	3	0	1	50	0	4
Asteroidea	2	2	0	9	0	0
Ophiuroidea	11	0	0	114	0	1
Crinoidea	2	0	0	32	1	8
Cystidea	2	0	0	11	0	1
Blastoidea	0	0	0	0	0	0
Total	20	2	1	223	1	14

#### CORRIGENDA in previous Records.

Record for 1894, vol. XXXI:—

p. 43. *Freyella spinosa*. For 'Soudan' read 'N.E. of C. Verd Is.'

Record for 1901, vol. XXXVIII:—

p. 10. No. 22. BEEDE, J. W. Reference should read "Tr. Kansas Ac. xvi, pp. 70-84 (June, 1899)."

p. 11. No. 36. BOESE, E. After "vertiente" insert "oriental."

Record for 1903, vol. XL:—

p. 32. No. 282. SAVIN, L. This is an abstract of SAVIN (247) Zool. Rec. 1902.

The Recorder is always glad to receive corrections, and would be specially grateful if Authors, Editors, or Publishers would occasionally enable him to remove the asterisk indicating that a work has not been seen.

Further personal remarks by the Recorder are placed in [ ].



## I. TITLES.\*

- ABDERHALDEN, E. See FUEHNER, H. (90).
1. ABRIC, P. A propos de la fécondation spermatozoïdale et chimique et de la parthénogénèse. C.R. Soc. Biol. lvii, pp. 271, 272. (28 Oct.)  
[II, F, viii.]
  - ACKERMANN, A. (2) Zool. Rec. 1902. Abstract by H. LUDWIG, Zool. Centrbl. ix, p. 839. (30 Dec. 1902.)
  2. ACLAND, H. D. On a new cave on the eastern side of Gibraltar. Quart. J. Geol. Soc. lx, pp. 30-36, 2 text-figg., pl. vi. (15 Feb.)  
[III, B, ii, b.]
  3. AGASSIZ, A. The Panamic deep sea Echini (being No. 32 of Reports on an exploration...by the U. S. ss. "Albatross," during 1891...) Mem. Mus. Harvard, xxxi, x+246 pp. (5 blank), cxii pls., 319 text-figg. (Nov.) [II, A, iii : B, i, c, 2, 5 ; ii, c ; iii, a : c, vii : F, vi, c, 5 ; vii, c. III, A, i, ii, iv. IV, C.]  
Abstract : in LUDWIG (166).
  - AIRAGHI, C. (2 & 3) Zool. Rec. 1903. Abstracts : by VINASSA, Geol. Centrbl. iv, p. 729 (1 Mar. 1904) & vi, p. 310 (15 Mar. 1905).
  4. ALBERT [HONORÉ CHARLES] (Prince de MONACO). Sur la 5<sup>e</sup> campagne scientifique de la Princesse Alice II. C.R. Ac. Sci. cxxxviii, pp. 1398-1400. (June.) [III, A, ii.]
  5. ALBERT, F. Los perjuicios que causan las estrellas de mar a la pesquería. Act. Soc. Chili, xii, pp. 279-284. (Jan. 1903.) [II, E, ii.]
  6. ALBRECHT, E. Ueber die Bedeutung myelinogener Substanzen im Zelleben. Verh. Deutsch. path. Ges. vi, pp. 95-109. [II, F, iii, c.]
  7. AMI, H. M. Preliminary lists of the organic remains occurring in the various geological formations comprised in the map of the Ottawa district, including formations in the provinces of Quebec and Ontario, along the Ottawa River. Appendix to Report on the geology and natural resources of the area included in the map of the city of Ottawa and vicinity, by R. W. ELLS. Rep. Geol. Surv. Canada (n. s.), xii, pp. 49G-77G. (1901.) [III, B, iv, h.]
  8. —. Lists of fossils obtained from the several formations along the Ottawa River pertaining to the report on sheet No. 121, Quebec and Ontario (Grenville sheet). Appendix to Report on the geology of Argenteuil, Ottawa and part of Pontiac counties, &c., by R. W. ELLS. Rep. Geol. Surv. Canada (n. s.), xii, pp. 139J-143J. (1901.)  
[III, B, iv, h.]
  9. ANDERSSON, K. A. ... "Brutpflege bei *Antedon hirsuta*"... [read before] Naturvetenskapliga Studentsällskapet, Upsala. Zool. Anz. xxvii, p. 662. (14 June.)  
Preliminary to ANDERSSON (10).
  10. —. Brutpflege bei *Antedon hirsuta* Carpenter. Wiss. ergebn. Schwedisch. Südpolar Expedition 1901-1903. Bd. v, Lief. 1, 8 pp., ii pls. [II, B, i, f, 12 ; iii, c : F, iii, f ; iv, f ; vii, f.]  
Abstract : in LUDWIG (166).

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Paper or Work referred to.

The Symbols in [ ] refer to the divisions of the Subject-Index, II, III, IV. Those referring to the Systematic portion [IV, A-K] are inserted only when some question of definite importance to the systematist is dealt with in the work. The names of the genera mentioned in any work can generally be gathered from the lists given under Distribution [III, A or B], and the species can then be traced by turning to Section IV. Only where this was not possible have names been inserted after the title.

11. ANDREWS, E. A. Notes on the fauna of Jamaica. Johns Hopkins Univ. Circ. xi, pp. 72-77. (April, 1892.) [II, F, iv. III, A, ii.]
12. [ANON.] A retrospect of palaeontology in the last forty years. Geol. Mag. (n. s.) dec. v, vol. i, pp. 49-56. (Feb.) [II, E, iv.]
- ARIOLA, V. (11) Zool. Rec. 1902. Also appeared as Boll. Mus. Genova, 1901, No. 111. pl. ix. (1901.) Abstract by H. LUDWIG, Zool. Centrbl. x, p. 78 (10 Feb. 1903).
13. —. La merogonia e l' ufficio del centrosoma nella fecondazione merogonica. Atti Soc. Ligustica, xv, pp. 40-50. (Mar.) [II, F, viii.]
14. ARMASCHEWSKY, P. Obshchaya gheologhicheskaya Karta Rossii. List 46-1 Poltava-Khar'kov-Oboyan. (Allgemeine geologische Karte von Russland. Blatt 46. Poltawa-Charkow-Obojan.) Trudui geol. Kom. xv, No. 1, vi+318 pp., 1 map. (1903.) [III, B, iii, b, 1.]
- ARNOLD, R. See HAEHL, H. L. (110).
- BAERTLING, R. See FOLLMANN, O.
15. BARRON, T. On the occurrence of Lower Miocene beds between Cairo and Suez. Geol. Mag. (n. s.), dec. v, vol. i, pp. 603-608. (Dec.) [III, B, ii, d.]
- BARTHEL, P. (14) Zool. Rec. 1902. Abstract by H. LUDWIG, Zool. Centrbl. x, p. 79. (10 Feb. 1903.)
16. BASEDOW, H. Note on Tertiary exposures in the Happy Valley District, with description of a new species of *Septifer*. Tr. R. Soc. S. Austral. xxviii, pp. 248-252, 1 text-fig. [III, B, ii, f.]
17. BATHER, F. A. How sea-urchins are turned into flint. [In illustration of] Labelling of objects in the Geological Department, British Museum of Natural History. Geol. Mag. (n. s.), dec. v, vol. i, pp. 218-219. (May.) [II, D, x: E, i, c.]
18. —. Eocene echinoids from Sokoto. Geol. Mag. (n. s.) dec. v, vol. i, pp. 292-304, pl. xi. (July.) [II, B, i, c, 2, 5. III, B, ii, f. IV, c.]  
See also remarks by Author and by R. B. NEWTON, Geogr. J. 1904, pp. 518-522 (Nov. 1904); by A. DE LAPPARENT, C.R. Ac. Sci. cxxxix, p. 1186 (Jan. 1905).  
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- See also FOX, H. (84), GRÖNWALL, K. A. (109).
19. BAUMBERGER, E. Fauna der untern Kreide im westschweizerischen Jura. I. Teil. Stratigraphische Einleitung. Abh. Schweiz. Ges. xxx, 60 pp., iii pls. (1903.) [III, B, iii, b, 2.]
20. —. Beiträge zur Kenntnis der Kreidebildungen auf dem Tessenberg und im Jorat (Bernerkreide). Mt. Ges. Bern 1903, pp. 6-16. 4 text-figg. [III, B, iii, b, 2.]
21. BEEDE, J. W. & ROGERS, A. F. Coal Measure faunal studies. III—Lower Coal Measures. Kansas quart. xii, pp. 459-473 [=Kansas Univ. Bull. ii, No. 15]. (June.) [II, B, iv, d.]
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22. —. Description of a new genus of Spatangoids. Ann. Nat. Hist. (7), xiii, pp. 236-237. (March.) [III, A, iii. IV, c, *Eobrissus*.]  
Abstract in J. R. Micr. Soc. 1904, p. 311 (June).

- 22A. [BELL, F. J.] The Echinoderma found off the coast of South Africa. Part I. Echinoidea. Marine investigations in S. Africa, vol. iii, pp. 167-175 (5 Oct.). [II, B, iii, b. III, A, iii. IV, c.]
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24. BERG, L. Zamyetka o verkhne-myelov'ikh Otlozheniyakh na bereghakh Aral'skagho morya. (Eine Notiz über Obercretaceische Ablagerungen an den Ufern des Aralsees [Vorläufige Mitteilung].) Bull. Soc. Moscou, 1903, Beilage, pp. 8-12. [III, B, iii, b, I.]  
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27. BERTRAND, G. Recherches sur l'existence normale de l'arsenic dans l'organisme. Res. Camp. Scient. Monaco, xxiv, 30 pp. (1 Sept. 1903.) [II, c, vii: e, i, b.]
- BLANCKENHORN, M. See FOURTAU, R. (83).
28. BOEHM, J. Ueber die Obertriadische Fauna der Bäreninsel. Svenska Ak. Handl. xxxvii, No. 3, 76 pp., vii pls. (1903 [i.e. 1904].) [III, B, iii, e.]
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- BURNE, R. H. See ROYAL COLLEGE OF SURGEONS (237).
33. BURNET, A. The Upper Chalk of North Lincolnshire. Geol. Mag. (n. s.), dec. v, vol. i, pp. 172-176. (April.) [III, B, iii, b, I.]
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39. CLARK, W. B. Systematic paleontology of the Miocene deposits of Maryland. Echinodermata. Maryland geol. Surv. Miocene, pp. 430-433, pls. cxix, cxx. [III, B, ii, d.]
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49. DAINELLI, G. La fauna eocenica di Bribir in Dalmazia. Parte 1<sup>a</sup>. Palæontogr. ital. x, pp. 141-274, pls. xv-xvii. [III, B, ii, f.]



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## II. BIOLOGY.

### (A.) EVOLUTION.

- i. **General Principles**:—Vacant.
- ii. **Relations of Echinoderma**:—Morphology explained by descent from a *Dipleuraea* with preoral vesicle and 10 metameric segments, of which the posterior 5 pass forward and are applied to the anterior 5, forming the 'Pentasomaea'; HEROUARD (121).—Descent from a worm-like ancestor, already possessing rudiment of water-vascular system, general criticism of views of Semon (1888), Bütschli ('92), Seeliger ('93), Lang ('94), Bury ('95), Haeckel ('96), MacBride ('96), Bather (1900), and Perrier ('02); MEYER (190).—*Myzostoma asteriae* is of all organisms the nearest to the primitive Echinoderm, detailed comparison; SIMROTH (256).—Origin from pelagic worms, pelmatozoic theory criticised; PERRIER (211) p. 259.
- iii. **Phylogenies of smaller groups**:—Phylogeny of *Echinoderma*, general discussion of theories and acceptance of the Pelmatozoic theory as formulated by Bather; DELAGE (54) p. 431–437.—Primary Echinoderm larva derived from *Anomocystidae*, *Hol.* from *Amphoridea*, another branch of which leads to *Cyst.* & *Crin.*, from

*Agelocystidae* comè *Ast.* & *Oph.*, and from *Cystoblastidae* descend *Ech.*; HALLER (111A) p. 112.—*Ech.* derived from *Ast.*, and neither from *Edrioasteroidea*; SPENCER (264).—General relations of groups of *Ech.*; DOUVILLÉ (66) p. 72.—Anterior ambulacrum of Spatangoids, its gradual specialization (p. 217), Evolution of plastron in Spatangoids; AGASSIZ (3).—Origin of *Pourtalesidae*; DE MEIJERE (57) p. 157.—Evolution of apical system in *Schizaster*, this and *Linthia* derived from *Periaster*; TORNQUIST (268).

## (B.) MORPHOLOGY.

## i. Anatomy:—

a. *ECHINODERMA.*

1. General Accounts:—Mainly recent Echinoderms, with original diagr. *Ast.*, *Oph.*, *Crin.* arm-sections, pedicellariae, otocyst, *Asterias* dissect., *Ech.* section, &c.; HALLER (111A).—Anatomy of Echinoderm type (p. 1–19, pls. i–x) comparative (p. 417–427); DELAGE (54).
2. Symmetries:—Plant-like appearance and geometric regularity of certain Echinoderms due to sedentary life; LANG (149).
3. Homologies of Classes:—Vacant.
4. Skeletal tissue or Stereom:—Crystalline nature; DOUVILLÉ (66) p. 71.
- 5–8. Vacant.
9. Nervous system and Sense-organs:—General account with examples from *Ophiocoma*, *Echinus*, and *Holothuria*; ROY. COLL. SURGEONS (237).
- 10–12. Vacant.

b. *HOLOTHURIOIDEA.*

1. General Account; DELAGE (54), p. 274–303, pls. xxxvi–xl.
- 2–8. Vacant.
9. Nervous System and Sense-organs:—See II, B, i, a, 9.
- 10, 11. Vacant.
12. Genital System:—Cords of germinal cells in *Holothuria* homologous with genital cord of *Ast.* and axial organ of *Crin.*; POLARA (220).

c. *ECHINOIDEA.*

1. General Account; DELAGE (54), p. 160–201, pls. xxvi–xxxv.
2. Symmetries:—Shape of test in *Cidaridae*, orientation of pentagons; AGASSIZ (3) p. 1.—*Hemiaster* not bilaterally symmetrical; BATHER (18) p. 300.—Ditto *Linthia*; NEWTON (196).
3. Homologies:—Vacant.
4. Stereom:—Structure of radioles; COMBES (45).
5. Skeletal Anatomy:—Chief modifications in relation to mode of life; DOUVILLÉ (66) p. 72.—Morphology of Pourtalesid test discussed; DE MEIJERE (57) p. 157–171.—Ditto (p. 121), anal snout *Spatangoidea* (p. 148), apical system, *Salenidae* (p. 35); AGASSIZ (3).—Ditto, *Schizaster*; TORNQUIST (268).—Ambital plates lengthened in various Spatangoids, cf. *Melonites*; AGASSIZ (3) p. 184.—Interambulacrals, splitting of, *Astropyga* and *Chaetodiudema*; MORTENSEN (195) p. 25.—Plastron of *Pilematechinus* compared with that of *Offaster*, *Abatus*, *Cardiaster*, *Stegaster*, et al., amphisternal derived from meridosternal; AGASSIZ (3) p. 163.—Sternum, *Echinocorytidae* and *Spatangoidea*; DE MEIJERE (57) p. 153.—Heteronomy, *Spatangoidea*, *Pourtalesidae*, &c.; op. cit. p. 161: normal in *Hemiaster*, ancient in *Linthia*; BATHER (18) p. 298: explanation of phenomenon; LAMBERT in Review.—Ambulacra, types of struc-

ture; MORTENSEN (195) p. 42.—Ambulacral plates, jaw-apparatus, *Palaeodiscus*; SPENCER (264).—Tubercles, crenelation and perforation, classificatory value; MORTENSEN (195) p. 42.—Fascioles, migration and modification; BATHER (18) p. 298: AGASSIZ (3) p. 179: DE MEIJERE (57) p. 165, 241.

Pedicellariae,—origin from radioles; HALLER (111A) p. 126.—Tetradactylous, origin of; MORTENSEN (194).—Origin of globiferæ (p. 33), no *Ech.* pedicellariae derived from or homologous with radioles (p. 39); MORTENSEN (195).—In many spp.; DE MEIJERE (57) passim, main results p. 244–248.—In *Toxopneustes pileolus*; HERDMAN (120) p. 140.—Podia, giant with large disc, their skeleton described, in *Micropyga*; DE MEIJERE (57) p. 60, 243.

6. Hydrocoel &c.:—See last entry.
- 7, 8. Vacant.
9. Nervous System:—See II, B, i, a, 9.
- 10, 11. Vacant.
12. Generative System:—Vide II, F, iii.—Chemical constitution of ovum in *Strongylocentrotus*; BERTOLO (26).
- d. **ASTEROIDEA.**
1. General Account; DELAGE (54) p. 32–63, pls. xi–xvii.
- 2–4. Vacant.
5. Skeletal Anatomy:—Pedicellariae may in some cases be transformed radioles, and in so far are not homologous with *Ech.* pedicellariae; MORTENSEN (195) p. 39.
- 6–12. Vacant.
- e. **OPHIUROIDEA.**
1. General Account; DELAGE (54) p. 106–136, pls. xviii–xxv.
- 2–4. Vacant.
- 5 & 10. Musculature and arm-skeleton, *Ophioglypha*; UEXKUELL (274).
- 6–8. Vacant.
9. Nervous System:—See II, B, i, a, 9.
10. Mesodermal tissues (exc. skeletal):—Vide e, 5.
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12. Vide II, F, iii.—Gonads in arms of *Astroschema ferox*; KOEHLER (143) p. 163.
- f. **CRINOIDEA.**
1. General Account:—As type of *Pelmatozoa*, based on *Antedon bifida*; DELAGE (54) p. 339–364, pls. xli–l.—Of Class [applicable only to recent forms]; HAMANN (112) p. 1415.
- 2–4. Vacant.
5. Skeleton:—Cirrals, syzygies, genital pinnules in *Antedon* spp.; GRIEG (107) p. 24.—IBB in a Senonian *Isocr.*, first discovery in the genus; JAEKEL (139) [but see BIGOT, 1899].—Stem, BB., and union of Br. in *Bathycr.*; GRIEG (107) p. 8.—Loboliths,—nature and function; FRIČ (88): Structure in *Camarocer.*; SCHUCHERT (249): explained by hollow roots of various *Crin.*, perhaps contained gonads; JAEKEL (132).
- 6–11. Vacant.
12. Gonads:—*Metaer.*; SPERRY (265): *Antedon hirsuta*; ANDERSSON (10).
- g. **CYSTIDEA.**
1. General Account; DELAGE (54) p. 403–405.
5. Skeletal anatomy:—Plates of subjective groove in *Agelaer.* and *Lepidodiscus*; SPENCER (264).
- h. **BLASTOIDEA.**
- General Account; DELAGE (54) p. 396–400.

## ii. Variation :—

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- a. In form:—size, &c., in *Melonites* due to local conditions; KLEM (142) p. 7.
- b. In form and surface characters:—Common in Echinoderms, esp. *Ophiothrix* and *Astropecten*; BELL in HERDMAN (120) p. 149, 150.—Size, number of rays, of madreporites, of mouths, of ani, position of exit of gonads, in *Phataria*; MONKS (193).—Spines and scales, *Ophiactis abyssicola*, *Ophiothrix fragilis*; GRIEG (106).
- c. In colour:—Colour in life,—many Echinoderms at Woods Hole (see list III, A, ii); CLARK (38): deep-sea *Ech.* (see list III, A, iv), with coloured drawings of *Phormosoma hispidum*, *Pourtalesia tanneri*, and *Cystechinus loveni*; AGASSIZ (3) passim, pls. A, B: various *Ech.*, its specific value (see list III, A, iii, iv); MORTENSEN (195): *Diadema*, *Stomopneustes*, *Toxopneustes*, *Culcita*; HERDMAN (120): various *Oph.* (see III, A, iii); KOEHLER (144): *Ophiura albida*, *Ophiocten*; GRIEG (106): spp. *Antedon* and *Actinometra*; CHADWICK (35).—In life and spirit, various Echinoderms from Patagonia (see III, A, ii); LORIOL (162).—(In spirit?) of numerous spp. of *Ech.* dredged by Siboga (see III, A, iii); DE MEIJERE (57).—In spirit, various *Oph.* (see III, A, iii); KOEHLER (143).
- d. Meristic variation :—
  1. Variation from pentamerous symmetry:—6 rays, *Ophiodera* sp.; KOEHLER (143) p. 154.—5 madreporites, but 1 stone-canal, *Gorgonocephalus*; CLARK (38) p. 562.
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- e. Abnormalities :—*Pseudodiadema*; LISSAJOUS (153) p. 159, 160.—Apex, *Schizaster*; TORNQUIST (268) p. 387.—2 gonopores in madreporite, *Stephanocidaris*; MORTENSEN (195).—Fusion of rays, *Ctenodiscus*; MICHAÏLOVSKIJ (192) p. 171.—Ray bifurcate, *Ophiomusium*; KOEHLER (143) p. 64.—*Megistocr.* (p. 62), *Tylocr.* (p. 68), *Dolatochr.* (p. 72, 78), *Gennaeocr.* (p. 80), and remarks (p. 82); WOOD (291).—*Pseudocr.* (p. 230): *Coelocystis*, plates vertically divided (p. 248); SCHUCHERT (249).—Inferradial in *Pentremites*, and extra plate in radial circlet in *Nucleocr.*; ROWLEY in GREENE (105) p. 190.

## iii. Secondary Sexual Characters :—

- a. Differences of Form or Structure:—*Porocidaris milleri*; AGASSIZ (3) p. 27.
- b. Differences of Colour:—? *Echinus angulosus*; BELL (22A).
- c. Protection of Young:—*Cycethra verrucosa*; MEISSNER (186).—*Antedon hirsuta* on cirri; ANDERSSON (10).—Complete account; LUDWIG (164): Addendum; (165).

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- i. General :—*Echinoderma* in general (p. 19–23), comparative (p. 427), *Hol.* (p. 303–309), *Ech.* (p. 201–203), *Ast.* (p. 63–68), *Oph.* (p. 136–139), *Crin.* (p. 364–366); DELAGE (54).—Exhaustive account of chemical physiology, esp. blood, respiration, nutrition, excretion, poisons, muscles, stereom, pigments, gonads, and conditions of existence; FUERTH (91).



- ii. **Circulation** :—Regulated by osmosis in *Strongylocentrotus*, *Sphaerechinus*, *Spatangus*, *Holothuria*, and *Stichopus*; HENRI (116).
- iii. **Respiration** :—Vide c, i.
- iv. **Alimentation and Digestion** :—Ferments, *Holothuria*, *Spatangus*, *Asterias*, last strongest; CLERC (41).
- v. **Excretion and its Products** :—Pigments,—nature of; MANDOU (182) p. 370: products of metabolism without selective value; HARGITT (113) p. 143.  
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- vi. **Sensation** :—Discussion of consciousness in action of Echinoderms; LUKAS (167).—Sense-organs on podia, *Ophiopholis aculeata*; ÖSTERGREN (204) p. 564.—Sensibility of spines, reaction to light, *Ophioglypha*; UEXKUELL (274) p. 4.
- vii. **Miscellanea and Experimental Physiology** :—Functions of podia, *Oph.* (vide II, D, vi); ÖSTERGREN (204).—Movement of stomach-muscle, *Ophioglypha*; UEXKUELL (274) p. 4.—Solution of lime in test of deep-sea *Ech.*, *Urechinus*, *Cystechinus*, *Pilematechinus*; AGASSIZ (3) p. 153, 159, 166.—Freezing-point of body-fluid in *Echinus* and *Cucumaria*; DEKHUYZEN (51).—Effect of artificial sea-water on *Asterias*; TRUE (270).—Poisoning *Ophioglypha* by slate bottom; UEXKUELL (274) p. 3.  
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## (D.) BIONOMICS.

- i. **General Accounts** :—Vacant.
- ii. **Special habits** :—Boring,—in coral; FINCKH (78) p. 141: of *Echinostrephus molare* induces spiral twist in actinal radioles; HERDMAN (120) p. 139.
- iii. **Habitat** :—(a) Various spp.,—in N. polar basin (see list III, A, v); MICHAÏLOVSKIÏ (192): Dröbaksund (vide III, A, ii); KIAER (140): near Plymouth; MAR. BIOL. ASS. (184).—*Hol.*, *Ech.*, *Oph.*, atoll of Minikoi; GARDINER (95) p. 44, 47, 338. (c) *Ech.* :—Influence on classification; DOUVILLÉ (66) p. 72.—*Stomopneustes variolaris*, *Echinostrephus molare*; HERDMAN (120).—*Psammochinus verruculatus*, *Gymnechinus pumilio*, & *Echinoneus cyclostomus* on *Lithothamnion*; DEMELJERE (57) p. 89, 92, 140.—Boring in platform of coral reef; FINCKH (78) p. 141. (e) *Oph.* :—Change of, acts as poison; UEXKUELL (274) p. 3. (f) *Crin.* :—Diverse views as to *Holopus* and *Cyathidium*; HENNIG (115) p. 55; RAVN (223).
- iv. **Feeding** :—(b) *Hol.*, not on coral or seaweed, but on microscopic organisms in coarse sand; GARDINER (95) p. 338; FINCKH (78) p. 141.—Diatoms in gut of *Holothuria* at Civita Vecchia; LANZI (151). (c) *Ech.* same as *Hol.* (supra); GARDINER (95). (e) *Ophioglypha*; UEXKUELL (274) p. 3, 12.—*Astrophytida*, on plankton; ÖSTERGREN (204) p. 564.
- v. **Defence and Protection** :—Vacant (but see next entry).
- vi. **Locomotion** :—Resting position and movements of *Ophioglypha* (p. 4), its locomotion (p. 6), turning over (p. 10), protective (p. 15); UEXKUELL (274).—Podia serve for fixation and so assist locomotion by flexure of rays, in *Ophiocoma*, *Amphiura*, *Ophiopholis*, and *Ophiura*, so also in *Hol.*; ÖSTERGREN (204).—*Geocoma* and *Saccocoma*, their tracks in Solnhofen Plattenkalk; WALTHER (281) p. 200, 201 and fig.

- vii. **Autotomy and Regeneration**:—(a) See under heading 'Physiologic' passim; DELAGE (54). (d) Illustrated by photographs of specimens in collection F. D. Snyder, Ashtabula, O.; McCLURE (173).—Regen. of complete starfish from ray broken off at a distance from the body in *Linckia diplax* and *L. pacifica*; KELLOGG (139).—Autot. of rays, also regen. of new rays from rays cut off at a distance from the disc, in *Phataria*; MONKS (193). (e) Autot. *Ophioderma*, *Ophioglypha*; UEXKUELL (274) p. 13.—Regen. of rays in *Ophioglypha* is quicker the more rays are removed, except when all are removed; ZELENY (297).—Loss of dorsal covering of disc; BELL in HERDMAN (120) p. 148. (f) Regen. viscera, *Antedon indica*; CHADWICK (35).—Loss of arms without regen., *Megistocr.*; WOOD (291) p. 66.—Regen. arms, *Barycr.* and *Platy-cr.*; WHITFIELD (286).
- viii. **Parasites and Commensals**:—(b) *Cystobia*, gregarine, spp. parasitic in *Holothuria* and *Cucumaria*; WOODCOCK (292).—*Tetrarhynchus*, cestode, in holothurian, ? *Molpadia*; SHIPLEY (253) p. 147.—Numerous mollusca in gut of *Stichopus* et al.; KIAER (140) p. 70, 71.—*Synapticola*, lamellibranch in *Synapta inhaerens* and comparison with similar cases; MALARD (180).—*Pinnotheres villosissimus*, brachyuran in cloaca of *Muelleria lecanora*; DOFLEIN (64) p. 126. (c) *Anophrys*, ciliate protozoon in intestine of *Strongylocentrotus*, *Sphaerechinus*, and *Arbacia*; DI MAURO (63).—*Siphonostoma* and *Scalesetosus*, polychaetes on *Echinus*; *Montacuta*, mollusc on *Spatangus*; *Tellimya*, mollusc on *Echinocardium*; MAR. BIOL. ASS. (184) p. 210, 211.—*Ichthyonema* (olim *Echinonema* Gemm. non v. Linst.) nematode in perivisceral cavity of *Echinus esculentus*; GEMMILL & LINSTOW (99): GEMMILL (98).—Parasitic mollusc?, in radiole, *Astropyga radiata* (p. 22), gastropod and crab on *Salmacis bicolor* (p. 66), crab on *Toxopneustes pileolus* (p. 120); MORTENSEN (195).—*Arete*, alpheid on oral surface of *Heterocentrotus*; COUTIERE (48). (e) *Mucronalia*, gastropod on *Ophiothrix deposita* and *O. crassispina*; KOEHLER (143) p. 146, 147.
- ix. **Echinoderms as Food**:—Of man, *Cucumaria frondosa*; CLARK (38) p. 548.—Of Genoese, *Ech.*; PARONA (207) p. 384.—Of fish, *Echinurachnius*, *Ophiopholis*, *Amphiura*, and *Hol.*; CLARK (38) p. 549.—Of crabs or fish, *Tetrodiscus* (= *Echinodiscus*) *auritus*; FOURTAU (83) p. 425.
- x. **Echinoderms in Geological Aspect**:—Coral reefs degraded by *Hol.*; GARDINER (95) p. 166, 338: by *Ech.*, but not *Hol.*; FINCKH (78) p. 141.—*Ech.* holes in the reef at Mamangúape (p. 53, pl. xliii), at Pernambuco (p. 62, pl. 1), at Itaparica, Bahia (p. 247, pl. lxxix), at Maceio due to *Echinometra subangularis* (p. 271); BRANNER (32).  
*Ech.* fossils in flint; BATHER (17).—Impregnation of *Ech.* tests in chalk with crystalline silica; MEUNIER (189).  
*Echinocardium cordatum* in lumps of shelly limest. and sandst. now forming in Danish waters; NORDMANN (200).—"Echinoderm conglomerate," chiefly remaniée *Ech.* from top of Cretaceous; GRÖNWALL (109) p. 28 & (108) p. 428.—Plates of *Ech.* in Lower Cretaceous reef-rock; CAYEUX (34) p. 96, 97.—*Crin.* limest.—Lower and Mid. Lias, important in Swiss and French Alps; LORY (163).—Bathonian; LEUTHARDT (152).—Composition, mode of occurrence in Bajocian, Mont d'Or; RICHE (228) passim and pl. B; SCHARDT (243) p. 304.—Lenticles 80 cm. thick of *Crin.* pinnulars; MAIRE (178).—*Sphaeronis* as rock former; HOLM (126) p. 47.  
Association of sand and *Crin.* stems in St. Louis beds and modern Atlantic; UDDEN (272) p. 391.

## (E.) MISCELLANEOUS.

i. **Research and Instruction:—**

- a. **Preservation:—**Killing and preservation of Echinoderms; CLARK (38) p. 549.—Collecting, especially on coral-reefs, and preservation in natural position of *Hol.*, *Ech.*, *Crin.*; PLATE (219).—*Hol.*, killed by methyl blue; MADER (175) p. 208: Preservation expanded; TULLBERG (271).
- b. **Methods of research:—**Toxic action of ordinary distilled water on ova of *Arbacia*, but artificial sea-water made with purer distilled water is better than natural sea-water, perhaps owing to absence of ammonia; LYON (170).—Rearing *Ast.* larvae; DELAGE (52): on culture of alga, *Chlorella*; HÉROUARD (122).—Preparation of complete series *Ech.* larvae 10–46 hours; SCHMIDT (246).—Methods of identifying Echinoderms, esp. *Hol.*; CLARK (38) p. 549.—Examination of *Ast.* and *Ech.* for arsenic; BERTRAND (27).
- c. **Museum Exhibits and Collections:—**Museum label, *Ech.* in flint; BATHER (17).—Nantes Museum, Gourdon coll. Pyrenean *Ech.* Senonian and Eocene (qq.v.); GOURDON (102).—List of type-specimens of *Ech.* and *Crin.* in museums and private collections of Grenoble; REBOUL (224).—*Echinoderma* in Naturhist. Mus. Hamburg, and works dealing therewith; KRAEPELIN (146).—Fossil Echinoderms added to U. S. Nat. Mus.; SCHUCHERT (247, 248).
- d. **Instruction:—**Text-books,—WEYSSE (284) pp. 85–104: advanced; DELAGE (54): comp. anat.; HALLER (111A).

ii. **Economics:—**see II, D, ix, Echinoderms as food of man.—Of Woods Hole Echinoderms; CLARK (38) p. 548.—*Ast.* damage to fisheries, summary; ALBERT (5).

iii. **Bibliography:—**General selected; DELAGE (54) p. 442–460.—Palaeozoic *Ech.*; KLEM (142) p. 76–97.—*Crin.* [*? Pelmatozoa*] begun; HAMANN (112) p. 1420.—Echinoderms in Rumpf's "Rariteitkamer"; MARTENS (185) p. 131.—Literature for 1892 abstracted; BERGMANN (25): for 1904; LUDWIG (166).

iv. **Historical, Popular notions, &c.:—**Summary of papers on fossil Echinoderms in Geol. Mag. 1864–1903; ANON. (12) p. 52–53.—History of research on brood-protection; LUDWIG (164).—Names applied to Class *Crin.*; HAMANN (112) p. 1419.—The fate of G. Troost's collection and the MS. of his monograph on Crinoids of Tennessee (p. 219), history of *Camaroocr.* = *Lobolithus* (p. 254); SCHUCHERT (249).—'Abou-Chokah,' father of thorns, Bedouin name for *Diadema setosum* (p. 413), 'Halaouan' for *Echinometra lucunter* (p. 416); FOURTAU (83).

## (F.) AUXOLOGY.

i. **General Principles:—**Vacant.

ii. **General Accounts:—**Echinoderma in general (p. 23–30, pls. vii–x) comparative (p. 428–431), *Hol.* (p. 310–318), *Ech.* (p. 203–215), *Ast.* (p. 68–82), *Oph.* (p. 139–144), *Crin.* (p. 366–375); DELAGE (54).

iii. **Formation of Gonads:—**Myelin in nucleus and nucleolus of *Ech.* ovum; ALBRECHT (6) p. 99, 108.—Plasmodia in ovaries, *Arbacia*, *Echinus*, *Asteracanthion*; JANSSENS (136) p. 263.—Spermatozoa, *Ophiura*, *Ophiothrix*, *Echinus*; RETZIUS (226) p. 27–28, pl. xii.—Structure and formation of ova, *Antedon*; ANDERSSON (10).

iv. **Oviposition, Fertilisation, and Segmentation:—**Breeding period,—*Ech.* *Oph.* *Ast.* *Hol.* Jamaica; ANDREWS (11) p. 76: *Ophiothrix*, *Ophiura* at la Hougue; MALARD (179) p. 192.—Copu-

lation (?) and fertilisation of ova, *Antedon hirsuta*; ANDERSSON (10).—Fertilisation due to entrance of water into ovum, not to sperm; SCHUECKING (250).—Fertilisation and segmentation, general discussion; HARTOG (114).—Rhythmic production of CO<sub>2</sub> from sperm-ova of *Arbacia* during cleavage, also resistance to KCN; LYON (169).—Electrical potential developing ova of Turtle and *Fundulus*, changes compared with rhythms previously observed in Echinoderm ova; HYDE (130).—Outer protoplasmic layer, nature of mitosis in *Echinus*, *Strongylocentrotus*, *Ophiothrix*; ZIEGLER (298).—Morula and gastrula to first rudiment of coelom, mesenchyme cells becoming skeletogenous, *Ophiothrix*; MACBRIDE (172).—Blastula to Pluteus of *Echinus microtuberculatus* exact time-stages, studied by sections; SCHMIDT (246).

v. **Larval Stages**:—(a) Generalised diagr.; HALLER (111A) p. 110.—Rearing larvae; HÉROUARD (122). (d) Parthenogenetic larvae of *Asterias* reared to early Brachiolaria stage and described; DELAGE (52). (f) Fixed stage, *Antedon*; GRIEG (107) p. 19, 37.

vi. **Organogeny**:—(c) *Echinoidea*:—

5. Development of coronal plates, *Arbacia*; AGASSIZ (3) p. 54.

vii. **Post-larval Growth-stages**:—(b) Growth-changes,—*Thyone briareus*; CLARK (38) p. 568: *Cucumaria*; MICHAILOVSKIJ (192). (c) Growth-changes,—test of *Cidaridae*, shape, anal system, coronal plates, peristomial plates, tubercles (p. 1–18), *Dorocidaris panamensis* (p. 21, 22), *Porocidaris cobosi* (p. 30), *Salenia miliaris* (p. 42), *Arbacia* (p. 54), *Dermatodiadema* (p. 60, 64), *Echinothuridae* (p. 75), *Phormosoma* (p. 86, 109), *Asthenosoma* (p. 113), *Brissopsis* (p. 190); AGASSIZ (3): *Mellita pentapora*; CLARK (38) p. 565.—Young,—of *Cidaris elegans*, descr. (p. 25), *Phormosoma* (p. 28), *Podocidaris* (p. 68); DE MEIJERE (57): *Hemiaster*, *Arbacia*; LORIOL (162): *Stephanocidaris* (p. 8), *Salmacis* (p. 71, 73), Protechinus stage, *Phormosoma* (p. 54 & fig.); MORTENSEN (195).—Growth in *Melonitidae*, criticism of JACKSON & JAGGER; KLEM (142) p. 2. (d) Growth-stages,—*Leptoptychaster*; MICHAILOVSKIJ (192).—Growth of *Asterias rubens* in given time; KIAER (140) p. 74.—Brepheic *Asterias*, absence of specific distinction; CLARK (38) p. 551. (e) Association of different aged *Ophiura* in warm areas but not in cold; GRIEG (106) p. 22.—Growth-changes,—*Gorgonocephalus lincki*; GRIEG (106) p. 38: *Ophiopleura*; MICHAILOVSKIJ (192). (f) Stalked young, *Antedon hirsuta*; ANDERSSON (10).—Young *Megistocr.*; WOOD (291) p. 59. (g) Growth-stages in *Pseudocr.* (p. 236) in *Sphaerocystis* (p. 250, 252); SCHUCHERT (249).

viii. **Developmental mechanics and Experimental Embryology**:—Degeneration of ovules, *Strongylocentrotus*; DUBUISSON (73).—Asters in *Toxopneustes* and *Echinarachnius*, observations by N. YATSU, reply to PETRUNKEWITSCH; WILSON (288).—Mechanism of epithelium-formation illustrated from *Ech.* blastulae; ZUR STRASSEN (300).

Giant and monster larvae produced by fusion of one or more morulae with plasmodia, *Arbacia*; JANSSENS (136).—Blastomeres of *Psammechinus* cut apart, stained *intra vitam*, and reunited to form morulae of new individuality, which proceed with development; GARBOWSKI (94).—Abnormal development often due to nature of gonads, not to environment; VIGUIER (279).—Fertilisation, normal or artificial, produces difference between osmotic pressure and surface-tension, equilibrium restored by cleavage; SPAULDING (262).

The determination of variation, account of Author's experiments on *Ech.* sperm-ova, (163) Zool. Rec. 1895, (214) Zool. Rec. 1898, (240) Zool.



Rec. 1899, (337 & 338) Zool. Rec. 1900; VERNON (276) p. 105, 168, 190, 217, 229, 296.—Vitality of the ovum, reaction to external stimuli, summary of recent work; LOISEL (160).—Susceptibility to heat and cold of *Arbacia* sperm-ovum and production of carbon dioxide, vary in rhythms; LYON (171).—Ovulase, i.e. extract of spermatozoa of *Strongylocentrotus lividus* and *Echinus esculentus*, action on ova; PIERI (218).—Poison-effect of alcohols on *Psammechinus* ova; FUEHNER (89).—Influence of alcohols of differing strengths on *Psammechinus* and *Strongylocentrotus* development; FUEHNER (90).—Action of potassium cyanide on *Ech.* ovum; JACKSON (131).—Antagonistic poisons and development of *Ech.* and *Ast.* embryos; SOLLMANN (259).—Effect of anisotonic solutions and saponin on ova of *Asterias* and *Arbacia*; SOLLMANN (260).—Influence of alkaline and acid sea-water on fertilization of *Ech.* ova; LOEB (159).—Immunity of *Ech.* sperm-ova to ether, H Cl, K Cl, and Na Cl increases up to segmentation; SPAULDING (263).—Solutions in which *Ech.* ova can develop; LOEB (157).—Role of Chlorine, OH, Natrium, Kalium, Calcium, SO<sub>4</sub>, Carbonate, and Magnesium in developing larvae *Ech.* and *Ast.*; HERBST (117).

Hybridization:—*Strongylocentrotus purpuratus* ♀ × *Asterias capitata* ♂, *A. ochracea* ♂, *Pycnopodia spuria* ♂, *Asterina* ♂, and an *Ophiurid* ♂, in normal, alkaline, and acid sea-water, development of hybrids; LOEB (155, 158, 159): Note on the preceding; ABRIC (1).—*Strongylocentrotus* ♂ × *Sphaerechinus* ♀, and vice versa; VIGUIER (277).—BOVERI (31) maintains the observations and conclusions of his paper (23) Zool. Rec. 1903 against the criticism of DRIESCH (69) Zool. Rec. 1903.

Artificial Parthenogenesis:—Critical summary of recent work; BOHN (29): reply; VIGUIER (278).—General discussion of results on *Ech.* ovum; KOSTANECKI (145) p. 86: ditto from standpoint of chemical physiology; FUERTH (91) p. 602.—*Strongylocentrotus*, and *Psammechinus*, relation of chromosomes; PETRUNKEWITSCH (217).—Induced by drying ova, in *Asterias rubens*; GIARD (100),—carbonic acid after shaking, ova of *Strongylocentrotus*; DELAGE (53).—Carbonic acid larvae of *Asterias* reared; DELAGE (52).—Induced in *Arbacia* ova by concentration of sea-water, description of mitosis and following stages; HUNTER (128).—Vitelline membrane produced on unfertilised ova of *Echinus* and *Strongylocentrotus* by traces of silver salts and followed by incomplete segmentation; HERBST (119).—Difference between *Ast.* and *Ech.*, membrane formation and cytolysis in *Ech.*, nature of stimulus; LOEB (156).—Merogony, experiments on *Arbacia pustulosa* and *Sphaerechinus granularis*; ARIOLA (13).—*Asterias*; GARBOWSKI (93).—Total failure of all experiments at Naples, Jan.—June 1903; JANSSENS (136) p. 250.

### III. DISTRIBUTION\*.

#### A. GEOGRAPHICAL.

- i. **General**:—Distrib. of *Ech.* in general, its methods, ocean transport; AGASSIZ (3) p. 219.—Distrib. of larvae as bearing on distrib. of adults; GARDINER (96).—The bathymetric and geographic distrib. of each genus is given by DELAGE (54).—Distrib. of brood-protecting Echinoderms; LUDWIG (164).—Distrib. of genera of *Ech.* continued from 1903; MEISSNER in HAMANN (112).—Abundance of *Crin.* individuals in northern seas contrasted with paucity of genera and spp., vice versa in southern seas; GRIEG (107).

\* For the species found, refer to generic names under IV.

## ii. Atlantic Ocean and adjacent Seas:—

North Sea, Cold-water area, *Oph.* fauna discussed, also other Echinoderms (pp. 5–15) *Oph.* collected “M. Sars” here and Norway coasts, also Arctic to Spitzbergen, distrib. of each sp. discussed, *Ophiopleura*, *Ophiura*, *Ophiocten*, *Amphiura*, *Amphilepis*, *Ophiactis*, *Ophiopus*, *Ophiopholis*, *Ophiacantha*, *Ophiothrix*, *Ophioscolex*, *Asteronyx*, *Gorgonocephalus*, *Bathybiaster*, *Pourtalesia*; GRIEG (106).—General discussion of *Crin.* fauna, esp. of Norway coasts, distrib. of each sp., *Bathycr.*, *Rhizocr.*, *Antedon*; GRIEG (107).

Norway,—Trondhjem, *Psolus* n. sp.; ØSTERGREN (203).—Dröbaksund, *Stichopus*, *Mesothuria*, *Strongylocentrotus*, *Amphidetus*, *Asterias*, *Astropecten*, *Archaster*, *Ophioglypha*, *Ophiopholis*, *Ophiothrix*; KIAER (140).

British coasts,—Ayrshire, common Echinoderms; SMITH (257).—Firth of Clyde, numbers of each species; MCINTOSH (174).—Mouth of R. Colne, *Henricia*; COLE (43).—Plymouth, list with locc. of *Hol. Ech. Ast. Oph. Crin.*; MAR. BIOL. ASS. (184): *Cucumaria*; PACE (205).

French Coast,—La Hougue, variations in benthos, *Hol.*, *Ech.*, *Oph.*; MALARD (179) p. 192, 195.—B. of Biscay, *Ech.*, *Ast.*; ALBERT (4).

Portugal, Echinoderm fauna,—N.; (198): Š.; (199): NOBRE.

Mediterranean—near Capri,—plankton, larval *Synapta*, on mud *Ankyroderma*, *Echinocardium*; LO BIANCO (154).

Black Sea, *Amphiura*, *Synapta*, *Cucumaria*; SOVINSKIĬ (261).

America,—Woods Hole, shallow-water Echinoderm fauna, *Asterias*, *Cribrella*, *Solaster*, *Ophiura*, *Ophioglypha*, *Ophiopholis*, *Amphipholis*, *Gorgonocephalus*, *Arbacia*, *Strongylocentrotus*, *Echinarachnius*, *Melita*, *Cucumaria*, *Thyone*, *Caudina*, *Trochostoma*, *Synapta*; CLARK (38).—Bathymetric and geographic range of W. Indian *Ech.* fauna; AGASSIZ (3) p. 218.—Jamaica, *Ech. Oph. Ast. Hol.*; ANDREWS (11) p. 76.—Argentine Patagonia, E. coast, *Hemiasiter*, *Arbacia*, *Echinus*, *Encope*, *Cycethra*, *Asterina*, *Echinaster*, *Lahillea*, *Gastraster*, *Asterias*, *Ophiactis*, *Ophioceramis*; LORIOL (162).

## iii. Indian Ocean and adjacent Seas:—S. Africa, S. &amp; E. coasts,

various locc., *Ech.*, esp. *Astropyga*, *Phormosoma*, *Echinus* n. sp., *Palaeolampas*, *Urechinus*; BELL (22A).—G. of Suez, *Ech.* fauna, *Rhabdocidaris*, *Diadema*, *Heterocentrotus*, *Echinometra*, *Echinus*, *Clypeaster*, *Tetradiscus*, *Echinolampas*, *Lovenia*, *Metalia*, *Schizaster*, *Moiria*; FORTAU (83).—Oman, *Eobrissus*; BELL (22).—Ceylon, *Cidaris*, *Stephanocidaris*, *Phyllacanthus*, *Diadema*, *Echinothrix*, *Stomopneustes*, *Pseudoboletia*, *Echinostrephus*, *Temnopleurus*, *Salmacis*, *Toxopneustes*, *Fibularia*, *Clypeaster*, *Echinanthus*, *Laganum*, *Echinodiscus*, *Echinoneus*, *Echinolampas*, *Maretia*, *Lovenia*, *Schizaster*, *Astropecten*, *Luidia*, *Stellaster*, *Anthenea*, *Goniodiscus*, *Pentaceros*, *Culcita*, *Asterina*, *Ophidiaster*, *Linckia*, *Nardoa*, *Metrodira*, *Retaster*, *Echinaster*, *Pectinura*, *Ophiura*, *Amphiura*, *Ophionereis*, *Ophiocnemis*, *Ophiocoma*, *Ophiarachna*, *Ophiothrix*, *Ophiomaza*, *Ophiopteron*, *Ophiomyxa*; HERDMAN (120): *Antedon*, incl. 1 n. sp., and *Actinometra*, coll. Herdman; CHADWICK (35).—B. of Bengal, *Phormosoma* n. sp.; MORTENSEN (194).—G. of Siam, *Stephanocidaris*, *Diadema*, *Astropyga*, *Chaetodiadema*, *Echinothrix*, *Salmacis*, *Pleurechinus*, *Gymnechinus*, *Toxopneustes*, *Parasalenia*; MORTENSEN (195).

Malay Archipelago,—zoogeographic remarks (p. 218), complete list of *Ech.* (p. 201–214) with special notes or descriptions of spp. of *Cidaris*, *Phormosoma*, *Asthenosoma*, *Calveria*, *Araeosoma*, *Hapalosome*, *Hygrosoma*, *Tromikosoma*, *Sperosoma*, *Salenia*, *Aspidodiadema*, *Dermatodiadema*, *Diadema*, *Echinothrix*, *Chaetodiadema*, *Astropyga*, *Micropyga*, *Hemipedinia*, *Coelopleurus*, *Podocidaris*, *Prionechinus*,

*Trigonocidaris*, *Genocidaris*, *Pleurechinus*, *Temnopleurus*, *Salmacis*, *Mespilia*, *Stomopneustes*, *Psammechinus*, *Gymnechinus*, *Toxopneustes*, *Triopneustes*, *Pseudoboletia*, *Parasalenia*, *Selenechinus* n. g., *Echinometra*, *Heterocentrotus*, *Echinocyamus*, *Fibularia*, *Laganum*, *Alexandria*, *Clypeaster*, *Echinodiscus*, *Echinonema*, *Echinobrissus*, *Aphanopora*, *Echinolampas*, *Neolampas*, *Stereopneustes*, *Stegaster*, *Sternopatagus*, *Pourtalesia*, *Palaeostoma*, *Palaeopneustes*, *Plesiozonus*, *Linopneustes*, *Hemiaster*, *Faorina*, *Moira*, *Schizaster*, *Brissus*, *Metalia*, *Brissopsis*, *Maretia*, *Breytia*, *Lovenia*, *Aerope*, *Aceste*, *Homolampas*, *Phrissocystis*, and *Palaeotropus* (vide IV, c); DE MEIJERE (57) passim, list of n. spp. p. 238.—Deep-sea *Oph.* of 'Siboga,' *Pectinura*, *Ophiopeza*, *Ophiopyren*, *Ophioconis*, *Ophiopallas*, *Ophiocirce*, *Ophiotrochus*, *Ophioceramis*, *Ophiomoeris*, *Ophiocrates*, *Ophiernus*, *Ophiolytus*, *Ophiozona*, *Ophiomidas*, *Ophiomastus*, *Ophiopyrgus*, *Ophioleuce*, *Ophiochrysis*, *Ophioglypha*, *Ophiomusium*, *Ophioplax*, *Ophiochiton*, *Ophiodoris*, *Amphiura*, *Ophiactis*, *Ophiotholia*, *Ophiomyces*, *Ophiacantha*, *Ophioplinthaca*, *Ophiomitrella*, *Ophiocamax*, *Ophiothamnus*, *Ophiomytis*, *Ophiotoma*, *Ophioscolex*, *Ophiothrix*, *Ophiobyrsella*, *Ophiodera*, *Astrotoma*, *Astrogomphus*, *Astroceras*, *Astrocharis*, *Astrochema*, *Ophiocreas*, *Astronyx*; KOEHLER (143).—Amboina, Echinoderms described by Rumpf; MARTENS (185) p. 131: list of new Echinoderms collected by SEMON; SEMON (252): *Oph.* descr. by Brock and other *Oph.* mostly this region revised, vide *Ophiopaepale*, *Ophiothyreus*, *Ophioglypha*, *Ophiactis*, *Amphiura*, *Ophiocnida*, *Ophionereis*, *Ophiomastix*, *Ophiocoma*, *Ophiarachna*, *Ophiothrix*, *Litkenia*, *Ophiocathrops*, *Ophiosphaera*, *Ophiolophus*; KOEHLER (144).

iv. **Pacific Ocean and adjacent Seas**:—Various locc., n. spp. of *Chaetodiadema*, *Opechinus*, *Pleurechinus*, *Microcyphus*, *Gymnechinus*; MORTENSEN (195).

Japan, *Araeosoma* n. sp., *Asthenosoma*, *Calveria*; MORTENSEN (194).

Panama, deep sea *Ech.* specially discussed, also others and some from other regions, see especially *Abatus*, *Acrosalenia*, *Aerope*, *Agassizia*, *Amphipneustes*, *Araeosoma*, *Arbacia*, *Archaeopneustes*, *Argopatagus*, *Aspidodiadema*, *Asthenosoma*, *Atelospatangus*, *Bothriocidaris*, *Brisopsis*, *Calveria*, *Calymne*, *Cassidulus*, *Centrocidaris*, *Cidaris*, *Conolampas*, *Cystechinus*, *Dermatodiadema*, *Dialithocidaris*, *Dorocidaris*, *Echinochrysis*, *Echinolampas*, *Gauthieria*, *Genicopatagus*, *Goniocidaris*, *Histocidaris*, *Homolampas*, *Hoplosoma*, *Hygrosoma*, *Kamptosoma*, *Lambertia*, *Lepidechinus*, *Linopneustes*, *Lysechinus*, *Melonites*, *Moira*, *Nacospatangus*, *Neolampas*, *Oligoporus*, *Palaeobrissus*, *Palaeotropus*, *Paleopneustes*, *Parabrissus*, *Periaster*, *Petalocidaris*, *Phormosoma*, *Phrissocystis*, *Pilematechinus* n. g., *Plesiodiadema*, *Plesiozonus*, *Plexechinus*, *Porocidaris*, *Pourtalesia*, *Rhynchopyrgus*, *Salenia*, *Schizaster*, *Spatagocystis*, *Spatagodesma*, *Sperosoma*, *Sternopatagus*, *Temnechinus*, *Tetracidaris*, *Toxobrissus*, *Urechinus*; Bathymetric and geographic range of Panamic *Ech.* fauna (p. 218); AGASSIZ (3).

Australia,—Victoria, *Goniocidaris*, *Strongylocentrotus*, *Microcyphus*, *Amblypneustes*, *Holopneustes*, *Echinocyamus*, *Eupatagus*, *Echinocardium*, *Linthia*; HALL (111).

New Zealand, list of *Echinoderma*; HUTTON (129).—*Cucumaria*; PERRIER (213).

v. **Arctic Ocean and adjacent Seas**:—*Ast.* fauna, esp. *Asterias*, *Bathybiaster*, *Ilyaster*, *Rhegaster*, *Poraniomorpha*, *Lasiaster*, *Solaster*, *Stichaster*; ÖSTERGREN (202).—Between Nova Zembla and Franz-Josef's Ld. *Elpidia*, *Cucumaria*, *Phyllophorus*, *Psolus*, *Eupyrigus*, *Trochostoma*, *Myriotrochus*, *Strongylocentrotus*, *Schizaster*, *Pourtalesia*, *Asterias*, *Cribrella*, *Hymenaster*, *Pteraster*, *Lophaster*, *Solaster*, *Crossaster*, *Rhegaster*, *Leptoptychaster*, *Ctenodiscus*, *Pontaster*, *Pluto-*



- naster*, *Ophiopleura*, *Ophiura*, *Ophioglypha*, *Ophiocten*, *Amphiura*, *Ophiopholis*, *Ophiucantha*, *Ophioscolex*, *Gorgonocephalus*, *Antedon*; MICHAÏLOVSKIÏ (192).—Spitzbergen, Echinoderms chiefly on W. coast; ROEMER (229): *Trochoderma elegans*, *Ophioglypha nodosa*, and remarks on records of other echinoderms; MICHAÏLOVSKIÏ (191).
- vi. **Antarctic Ocean and adjacent Seas**:—Complete list of litoral *Ast.* from American subregion of South Sea, esp. *Diplasterias*, *Asterias*, *Cribrella*, *Cycethra*, and comparison with their distrib. in Australian and African subregions, and with corresponding spp. in N. hemisphere; MEISSNER (186).—C. Horn and neighbourhood, *Synallactes*, *Holothuria*, *Cucumaria*, *Thyone*, *Psolidium*, *Psolus*, *Caudina*, *Trochodota*, *Chiridota*; PERRIER (212).—Magellan Str., *Chiridota* n. sp.; PERRIER (214).

## B. GEOLOGICAL.

## (i) GENERAL.

Evidence of *Echinoderma* for connection of Antilles with Mediterranean in Oligocene time contradicted by *Mollusca*, possible explanation; REID (225).—Strata of Pyrenees, Cambrian to Pleistocene, with lists of Echinoderms; ROUSSEL (234).—Brief systematic account of genera of *Cidaridae* and *Salenidae* with special reference to French fossils (86), ditto, *Diademata* (87); FRITEL.

## (ii) CAINOZOIC.

- a. **General**:—Spp. of *Schizaster*, horizon correlated with mutations of apex; TORNQUIST (268).—Tertiary *Ech.* & *Crin.* Victoria, S. Australia, and Tasmania, list with locc.; DENNANT (58).
- b. **Pleistocene**:—Denmark, —Stone-age, *Psammechinus*; PETERSEN (215) p. 81: Yoldia clay, Esbjerg, *Psolus*, *Ophioglypha*; MADSEN (177) p. 530.—Cave-breccia, Gibraltar, *Strongylocentrotus*; ACLAND (2).—Nettuno, Italy, *Ech.*; MELI (187) p. xli.—Ischia, —Astian, Mt. Epomeo, *Fibularia*, *Brissopsis*, *Schizaster*, *Amphidetus* (p. 5), Saharian, volcanic agglomerate, Valle di Mezzavia, *Fibularia* (p. 8); BELLINI (23).—Raised beaches, G. of Suez, *Rhabdocidarina*, *Heterocentrotus*, *Echinometra*, *Echinus*, *Clypeaster*, *Tetrodiscus*, *Metalia*, *Fibularia*, *Brissus*; FOURTAU (83) p. 444.—Bore-hole in coral reef, Funafuti, *Cidaris*, *Ech. radioles*, and *Hol.* plates; HINDE (124) p. 329.
- c. **Pleiocene**:—*Ech.* in tuff near Nettuno; DE VESCOVI (61) p. 67: not this rock; MELI in Abstr.—Near Borgamanero, *Encrinus* [*Cidaris*, *Echinus*, *Echinocyamus*, *Schizaster*]; PATRINI (208) p. 743.—Upper:—Suez Canal, *Temnopleurus*, *Laganum*; FOURTAU (83) p. 444. Purisima formation, California, *Astrodapsis*, *Scutella*; HAEHL (110) p. 24.—New Zealand, *Echinus*; LORIOL (162) p. 20.
- d. **Meiocene**:—Tagliacozzo, Italy, *Cidaris*; LUPI (168).—Upper:—Redonian, Rennes, *Echinocyamus*; DOLLFUS (65) p. 662.—(Or Middle), Pontilevian, —Haguineau (Maine-et-Loire) *Toxopneustes*, *Echinus*, *Psammechinus*, *Cidaris*, *Echinolampas*, *Echinocyamus*; COUFFON (46): near Saumur, list of *Ech.*; COUFFON (47) p. 218.—Middle, —Helvetian, —‘calcaire à moellons de l’Hérault,’ *Scutella*; LORIOL (162) p. 68: Suabia, Echinoderm fauna compared with other locc., *Sphaeraster*, *Astropecten*, *Antedon*, *Cidaris*, *Psammechinus*, *Stirechinus*, *Scutella*, *Amphiope*, *Fibularia*, *Hemiaster*, *Spatangus*, *Sphaerites*, *Echinolampas*, *Brissopsis* [sic], *Schizaster*, *Echinocardium*; SCHUETZE (251).—Lower, —Algeria, *Schizaster*; SAVORNIN (241) p. 146.—15 km. E. of



Dêr el Beda, near Suez, *Scutella*, *Brissopsis*; BARRON (15) p. 607.—Burdigalian, near Chambéry, France, *Echinolampas*, *Spatangus*, *Psammechinus*; DOUXAMI (69).

Maryland, *Echinocardium*, *Scutella*, *Ophioderma* (?), horizons and locc.; CLARK (39).

e. **Oligocene** :—Vacant.

f. **Eocene** :—Pyrenees, *Maretia*, *Macropneustes*, *Linthia*, *Schizaster*, *Trachyaster*, *Ditremaster*, *Holcopneustes*, *Prenaster*, *Cyclaster*, *Amblypygus*, *Oriolampas*, *Pygorhynchus*, *Echinolampas*, *Conoclypeus*, *Cidaris*, *Rhabdocidaris*, *Leiosoma*, *Micropsis*, *Epiaster*, *Euspatangus*, *Hemiaster*, *Coelopleurus*; GOURDON (102).—Bribir, Dalmatia, *Porocidaris*, *Micropsis*, *Leiopedina*, *Schizaster*, *Macropneustes*, *Trachypatagus*, *Euspatangus*; DAINELLI (49).—Upper,—near Termini-Imerese, Italy, *Cidaris*, *Porocidaris*; CHECCHIA (37).—Bartonian, Biarritz and Gaas, *Pentacr. didactylus*, *Porocidaris*; DOUVILLÉ (67).—Middle,—Ostrovica-bara in Dalmatia, *Porocidaris*, *Micropsis*, *Leiopedina*, *Schizaster*, *Macropneustes*, *Trachypatagus*, *Euspatangus*; DAINELLI (50).—(? Mid.) Garadimi and Tamaské in Sokoto, *Plesiolampas* & *Hemiaster* n. spp., inferences on p. 303; BATHER (18): *Plesiolampas* suggests Lower rather than Middle (p. 283) but on p. 253 “scheint der Schluss auf Mitteleozän allerdings durchaus berechtigt”; OPPENHEIM (201).—Nummulitic of Gschlifgraben and Traunsee, Austria, *Ech.*; FUGGER (92) p. 339, 345.—Paleocene Denmark, *Ananchytes*, *Bourguetier.*, *Goniaster*, derived from Danian; GRÖNWALL (109) p. 28–31, figg.: same with addition of *Ophiura*; GRÖNWALL (108) p. 428.

Near Adelaide, S. Austral., *Schizaster*, *Macropneustes*; BASEDOW (16).

### (iii) MESOZOIC.

a. **General** :—Vacant.

b. **Cretaceous** :—Yorkshire, lists of Echinoderms; STRANGWAYS (266).—Portugal, list of horizons with *Ech.*; MALLADA (181).

1. Upper :—*Hemiaster* various spp. discussed; LAMBERT (147).—Upper Chalk of England, Echinoderm fauna, special notes on spp. of *Micraster*, *Pseudodiadema*, *Cidaris*, *Holaster*; JUKES-BROWNE (137) p. 20, 455, 497 et passim.—*Echinothuria* and other Chalk *Ech.* as drift in Aller Vale gravel pit near Torquay, and in flints at Great Haldon, Devonshire; SALTER (240) p. 19 & figg.—Podolia, *Holaster*, *Cidaris*; RADKEVICH (222).—Stage IX, Isengebirge, *Phymosoma*, *Catopygus*, *Nucleolites*, *Caratomus* (p. 18), *Cardiaster* (p. 44), general list (p. 149); ZAHÁLKA (296).—Egypt,—principal locc. and fossils there found, names of *Ech.*; FOURTAU (82): *Nardoa*, *Anthenea*; LORIOU (162).—Madagascar, *Noetlingia*; BOULE (30).—N. S. Wales, *Isocr.*; ETHERIDGE (74).

Danian,—Craniakalk, harbour of Copenhagen, *Bourguetier.*, *Pentacr.*, *Ophiura*, *Goniaster*; GRÖNWALL (108) p. 424.—*Cyathidium* evidence for a gulf-stream; HENNIG (115) p. 55.

Danian and Senonian, Scania, *Ech.* & *Crin.*; TÖRNEBOHM (267) p. 136, 143.—Denmark, common *Ech.*; USSING (275) p. 85.

Senonian,—Yorkshire, zones of *Micraster cortestudinarium* to *Actinocamax quadratus*, *Bourguetier.*, *Marsupites*, *Uvintacr.*, *Ophiura*, *Cidaris*, *Salenia*, *Zeuglopleurus*, *Echinocorys*, *Micraster*, *Infulaster*, *Holaster*, *Cardiaster*; ROWE (235).—Near Ste-Ménéhould, *Micraster*, *Epiaster*, *Cidaris*; COLLET (44) p. 80.—Pyrenees, *Micraster*, *Coraster*, *Echinocorys*, *Echinoconus*; GOURDON (102): *Micraster*, *Hemiaster*, *Pyrina*, *Clypeolampas*, *Salenia*, *Orthopsis*, *Cyphosoma*; ROUSSEL (232): *Pyrina*, *Hemiaster*, *Salenia*, *Clypeolampas*, *Orthopsis*, *Micraster*

*Cyphosoma*; ROUSSEL (233).—Near Poltawa, Russia, *Ananchytes*, *Cidaris*, *Holaster*; ARMASCHEWSKY (14) p. 84, 273.—N. Caucasus, *Ananchytes*; KARAKASH (138).—Nierenthaler Schichten of Gschlifgraben, Austria, *Ech.*; FUGGER (92) p. 339.

Upper Senonian,—Aral Sea, *Cardiaster*, *Cyphosoma*, *Ananchytes*, *Cassidulus*; BERG (24).—Algeria, *Heterolampas*; SAVORNIN (241) p. 150.—Quadraten-Kreide, Lägerndorf, Holstein, *Isocr.* n. sp.; JAEKEL (133).—*Marsupites* zone near Croydon, England,—*Bourquetier.*, *Uintacr.*, *Echinocorys*; DIBLEY (62): *Marsupites*, *Uintacr.*, *Echinoconus*; WRIGHT (294): *Cidaris*, *Cyphosoma*, *Echinocorys*, *Galerites*, *Micraster*, *Bourquetier.*, *Marsupites*, *Uintacr.*; HINDE (125).—Nanaimo group (? = Niobrara), Vancouver Id. and Salt Spring Id., *Uintacr.* & *Hemiaster* n. sp.; WHITEAVES (285).

Lower Senonian,—Querum bei Braunschweig, *Stereocidaris*; WOLLEMANN (289).—Saxony, *Cardiaster*, *Catopygus*; PETRASCHECK (216).—Silesia, *Cardiaster*; FLEGEL (79).—Priesener-Schichten, E. Bohemia, new locc., *Cidaris*, *Micraster*, *Holaster*, *Hemiaster*; JAHN (134).

Senonian to Turonian,—near Croydon, Eng., *Ech.*, *Ast.*, *Crin.*; HOLMES (127).—Zones of *Holaster planus* and *Micraster cortestudinarium* in N. Lincolnshire, *Micraster*, *Infulaster*, *Holaster*, *Ananchytes*, *Cidaris*; BURNET (33).—Mungo Limest., Cameroons, *Cidaris*, *Hemiaster*?, and a Galeritid (p. 223), sandy shale of same age, indeterminable Spatangids (p. 234); SOLGER (258).—(Turonian?) Phosphatic Chalk, between Somme and Oise, *Ananchytes*; RABELLE (221).

Turonian,—Yorkshire, zones of *T. gracilis* and *Holaster planus*, *Bourquetier.*, *Pentacr.*, *Cidaris*, *Cyphosoma*, *Salenia*, *Echinocorys*, *Hemiaster*, *Holaster*; ROWE (235).—Near Ste-Ménéhould, *Discoidea*, *Glyphosoma*, *Cyphosoma*, *Cidaris*, *Peltastes*, *Goniaster*, *Bourquetier.*, *Apiocr.*, *Pentacr.*; COLLET (44) p. 77.

Upper Turonian,—Dresden, *Holaster*, *Phymosoma*; PETRASCHECK (216).—Silesia, *Micraster*; FLEGEL (79).

Turonian or Cenomanian, S. Patagonia, *Cardiaster*; WILCKENS (287).

Cenomanian,—vallée de l'Oison, *Peltastes*; FORTIN (81).—St. Jouin, Normandy, list of *Ech.*; NIBELLE (197).—Near Brunswick, *Holaster*, *Pseudodiadema*, *Discoidea*; WOLLEMANN (290).—Bohemia, *Cidaris*, *Pentacr.*; JAHN (135).

Upper Cenomanian,—near Ste-Ménéhould, *Holaster*, *Cidaris*; COLLET (44) p. 70.—Sinai, *Linthia*; NEWTON (196).

Lower Cenomanian,—“Gaize,” Ste-Ménéhould, *Hemiaster*, *Epiaster*, *Holaster*, COLLET (44) p. 44.

Albian,—Algeria, *Epiaster*; SAVORNIN (241) p. 141.—N. Caucasus, *Pseudodiadema*; KARAKASH (138).

1 & 2. Cenomanian and Aptian, Switzerland, *Hemiaster*, *Heteraster*; SCHARDT (244).

2. Lower:—W. Swiss Jura, horizons and locc., lists of *Ech.*; BAUMBERGER (19).—Nauplia, Greece, remains of *Ech.*; CAYEUX (34) p. 96, 97.—Madagascar, *Epiaster*, *Peltastes*; DOUVILLÉ (68) p. 214.

Aptian,—Upper Gault, Barnwell near Cambridge, *Cidaris*, *Pentacr.*; FEARNSIDES (76).

Neocomian,—Isère, *Pentacr.* n. spp.; LORIOL (162).—Greensand, Whitehead near Belfast, *Ech.*; WELCH (282).—Barremian, Bulgaria, *Peltastes*, *Echinobrissus*, *Cidaris*, *Pseudocidaris*, *Psammechinus*; ZLATARSKĪ (299).—Jorat, Bernese Jura, Hauterivian *Goniaster*, *Toxaster*, *Holaster* (p. 15), Berriasian *Toxaster*, *Phyllobrissus*; BAUMBERGER (20) p. 14.

- Comanche series, Washita group, Texas, *Diplopodia*, *Pyrina*, *Holcetypus*, *Epiaster*; RICHARDSON (227) p. 48.—Shafter beds, Shafter, Texas, *Toxaster*, *Diadema*, *Holcetypus*; UDDEN (273) p. 35, 37.—Honduras, *Enallaster*, *Epiaster*, *Diplopodia*, *Pseudosalenia*, *Cidaris*; LORIOI (162).
- c. **Jurassic**:—Yorkshire, lists of Echinoderms; STRANGWAYS (266).
1. Upper:—Madagascar, *Apiocr.*; DOUVILLÉ (68) p. 213. Portlandian (= Tithonian),—Aquitaine, *Hemicidaris*, *Echinobrissus*, *Acrosalenia*; GLANGEAUD (101) p. 57.—Solagna in Vicentine, *Metaporhinus*, *Collyrites*, *Hemicidaris*, *Phyllocr.*; DEL CAMPANA (55). Kimmeridgian, —near Macon, *Pseudodiadema*, *Pygurus*, *Collyrites*; LISSAJOUS (153).—Nattheim-Wettinger beds, remains of near Basle, *Cidaris*, *Pentacr.*, *Apiocr.*, *Hemicidaris*; ROLLIER (230).—Solenhofen Plattenkalk, list of *Ech.*, *Ast.*, *Oph.*, *Crin.*, *Saccocoma* n. sp.; WALTHER (291). Sequanian, —Upper, —Astartian near Macon, *Pseudodiadema*, *Glypticus*, *Stomechinus*; LISSAJOUS (153).
  - 1 & 2. Kimmeridgian and Oxfordian, Poland, *Apiocrinus*, *Pentacrinus*, *Sphaeraster*, *Cidaris*, *Rhabdocidaris*, *Stomechinus*, *Hyboclypeus*, *Echinobrissus*, *Collyrites*, *Dysaster*; SIEMIRADZKI (255).
  2. Middle:—Rauracian, Upware, Cambridgesh. *Desorella*; WOODS (293).—Lower Rauracian, Le Preslot, Hte-Saone, *Cidaris*, *Diplocidaris*, *Hemicidaris*, *Diplopodia*, *Pedina*, *Apiocr.*, *Milleric.*, *Eugeniocr.*, *Pentacr.*; MAIRE (178).—Oxfordian, Deux-Sèvres, *Dysaster*, *Stomechinus*, *Cidaris*; WELSCH (283).—Near Macon, —Rauracian, *Cidaris*, *Pseudodiadema*, *Diplopodia*, *Holcetypus*, *Collyrites*, *Dysaster*: Oxfordian, *Pseudodiadema*, *Diplopodia*, *Magnosia*, *Holcetypus*, *Echinobrissus*, *Collyrites*, *Dysaster*: Callovian, *Pseudodiadema*, *Diplopodia*, *Cidaropsis*, *Pedina*, *Holcetypus*, *Hyboclypeus*, *Echinobrissus*, *Pygurus*, *Collyrites*, *Dysaster*; LISSAJOUS (153).—Zone of *Parkinsonia parkinsoni* near Neuchatel, *Clypeus*, *Collyrites*; SCHARDT (243) p. 257.
  3. Lower:—Bathonian, Neuchatel, Vaud, and Ain, *Clypeus*, *Holcetypus*, *Collyrites*, *Acrosalenia*, *Pseudodiadema*; CLERC (42).—Bathonian and Vesulian near Neuchatel, Pentacrinid limestone 30 m. and 15 m.; SCHARDT (243) p. 304.—Hauptrogenstein, Liestal near Basle, *Isocr.*, *Ophiomusium*; LEUTHARDT (152).—Lower Bathonian?, Greenland, *Pentacr.* [i.e. *Isocr.*]; MADSEN (176).—Near Macon, —Bathonian, *Pseudodiadema*, *Hemipedina*, *Pedina*, *Echinobrissus*, *Pygurus*, *Collyrites*: Bajocian, *Pseudodiadema*, *Hemipedina*, *Magnosia*, *Pedina*, *Pseudopedina*, *Stomechinus*, *Holcetypus*, *Hyboclypeus*, *Galeropygus*, *Pyrina*, *Echinobrissus*, *Clypeus*, *Collyrites*; LISSAJOUS (153).—“Zone à *Lioceras concavum* du Mont d’Or Lyonnais,” *Cidaris*, *Pentacr.*; RICHE (228).—Bajocian, Madagascar, *Stomechinus*; DOUVILLÉ (68) p. 215.
- d. **Lias**:—near Estagel, France, *Crin.*; MENGEL (188) p. 266. Middle, or Pliensbachian (= Charmouthian):—Seeberg, Gotha, *Cidaris*, *Pentacr.*, *Cotylederma*; SCHAEFER (242).—Bulgaria, *Pentacr.*; ZLATARSKĪ (299).—Zone of *Amm. costatus*, Freistadt in Moravia, *Pseudodiadema*, *Balanocr.*, *Pentacr.*; RZEHAČ (238) p. 148: *Balanocr.* (239).—Domerian, W. Lombardy, *Milleric.*, *Pentacr.*, *Cidaris*; MARIANI (183) p. 153, 154. Lower, or Sinemurian:—Seeberg, Gotha, *Asterias*, *Pentacr.*; SCHAEFER (242).—Mt. Campo dei Fiori, Lombardy, *Pentacr.*; MARIANI (183) p. 138. Rhaetic:—Redland, Bristol, *Cidaris*, *Pentacr.*; SHORT (254).—Hettangian, —of Vendée, n. spp. of *Acrosalenia*, *Pseudodiadema*, *Hessotiara*, *Palaeopedina*, in coll. Chartron; LAMBERT (148): near Macon, *Diademopsis*; LISSAJOUS (153).



- e. **Trias**:—Bulgaria, *Encrinus*; ZLATARSKĪ (299).  
 Upper,—Bear Id., Arctic, *Pentacr.*, *Ophioderma*, *Cidaris*; BOEHM (28).—Of Kosticia, Montenegro, *Encrinus*; DEL CAMPANA (56).—Arlbergsschichten near Bludenz, *Encrinus*; FIEDLER (77).  
 Middle,—Supposed Lias of Theben-Neudorf, Austria, *Encrinus*; TOULA (269).—Upper Muschelkalk, Seeberg, Gotha, *Cidaris*, *Encrinus*; LANGENHAN (150).—Ditto and Ladinian near Sarajevo, *Encr.*, *Cidaris* (p. 576, 579, 645, 703), Lower, *Dadocr.* (p. 539); KITTL (141).

## (iv) PALAEOZOIC.

- a. **General**:—Lower Palaeozoic *Crin.* Australia, historical summary; ETHERIDGE (75).  
 b. **Permian**:—Cibolo limest., Shafter, Texas, *Archaeocidaris*, & *Crin.* UDDEN (273) p. 20–22, large *Crin.* columnals fig. 4.  
 c. **Permo-Carboniferous**:—Irwin R., W. Australia, columnals of (?) *Actinocrinidae*; CHAPMAN (36) p. 323.  
 d. **Upper Carboniferous**:—Sumatra, *Poteriocr.* and *Crin.* indett.; VOLZ (280) p. 108.—Lower Coal Measures, Kansas, various horizons and locc., *Archaeocidaris* (p. 464, 467, 470, 472), *Erisocr.* (p. 467); BEEDE & ROGERS (21).  
 e. **Lower Carboniferous**:—Dumfries, *Palaechinus*, *Archaeocidaris*, *Poteriocr.*, *Hydreionocr.*, *Forbesocr.*; PEACH (209).—Near Sarajevo, *Poteriocr.*? at Prača (p. 666, 681), *Bellerophon* beds, *Archaeocidaris*, *Eocidaris*? (p. 684); KITTL (141).—Yoredale beds, Yorkshire, *Archaeocidaris* (p. 186, 188), Carbonif. Limest., Newbrough, *Archaeocidaris*, *Poteriocr.* (p. 192); HIND (123).—Visean, Culm, near Giessen, *Archaeocidaris* n. sp.; PARKINSON (206).—Lower Visean, VIa Belgium, —Denée (Namur) *Scaphiocr.*, *Taeniaster*, *Palaechinus*, *Rhoechinus*, *Oligoporus*, *Archaeocidaris*; FRAIPONT (85): Pair (Clavier), *Platyocr.*; DESTINEZ (59) p. M 145.  
 St Louis Limest., Iowa, *Pentremites*, *Archaeocidaris*; UDDEN (272) p. 380, 390.—Indiana, —Warsaw Limest., *Batocr.* n. spp. (103), *Batocr.*, *Tricoelocr.*, *Pentremites* (105), Keokuk Limest., *Actinocr.* n. var. (105): ROWLEY in GREENE.—Hueco formation, Texas, *Archaeocidaris*; RICHARDSON (227) p. 37.  
 f. **Devonian**:—Upper,—Psammites du Condroz, Belgium, list of Echinoderms with locc.; DESTINEZ (60).—? Lower,—Epphaven, Cornwall, *Ophiurina*?; BATHER in FOX (84) p. 752.—Lower,—Siegener Schichten, Westerwald, *Crin.* cf. *Poteriocr. patulus*; DREVERMANN (71) p. 281.  
 N. Amer. esp. Michigan, n. spp. of *Tripleurocr.* n. g., *Megistocr.*, *Tylocr.* n. g., & *Dolatocr.*, also spp. of *Stereoocr.*, *Gennaeocr.*, *Gilbertsoocr.*, *Vasoocr.*, *Taxoocr.*, *Arthracantha*; WOOD (291).—Thunder Bay series, Michigan, *Dolatocr.*, *Megistocr.*, *Codaster*, *Pentremites*, *Nucleocr.*; GRABAU (102A) p. 193–196.—Ontario Co., N. Y., lists of *Crin.* and *Blast.* from all horizons; CLARKE & LUTHER (40).—Upper,—Tully Limest. W. New York, *Pentremites*; LOOMIS (161) p. 907. Hamilton Group, Indiana, *Megistocr.*, *Stereoocr.*, *Gennaeocr.* n. sp. & *Botryocr.* n. sp., first occurrence of last genus in America [but see BATHER *Crin.* Gotland, p. 103] (104), ditto Clark co., *Nucleocr.* (105); Upper Helderberg, Falls of Ohio, *Arachnoocr.*, *Megistocr.* (104), ditto, *Dolatocr.* (105): ROWLEY in GREENE.—Lower Devonian, U. S. A., *Anomalocystis*, *Lepadocr.*, *Camaroocr.*; SCHUCHERT (249).  
 g. **Silurian**:—source of R. d'Os, Pyrenees, *Scyphocr.*; ROUSSEL (233) p. 16.



Upper,—Ekwan R., N. E. Canada, *Crin.* columnals; DOWLING (70) p. 17, 39.—Upper,—N. Amer., *Apiocystis*, *Lepadocr.*, *Hallicystis*, *Tetracystis* n. g., *Jaekelocystis*, *Pseudocr.*, *Trimerocystis* n. g., *Callocystis*, *Coelocystis*, *Sphaerocystis*, *Camerocr.*; SCHUCHERT (249).—Missouri,—Lower Helderberg, Delthyris Limest., *Stribalocystis?* *Troostocr.?* and *Melocr.* n. sp.: Clinton group, n. spp. of *Calceocr.*, *Glyptocr.*, *Gissocr.?* and *Lampterochr.?*: Niaganan, *Pisocr.*, *Cyathocr.?*, *Lecanocr.*, *Cordylocr.?*, all n. spp., and *Stribalocystis*; ROWLEY (236).—Osgood and Laurel Limestones, various locc. Indiana, *Crin.*, *Cyst.*; FOERSTE (80) p. 341, 342.

Yass, N. S. W., *Pisocr.* n. sp.; ETHERIDGE (75).

**h. Ordovician**:—Upper,—Chasmops Lst., Kinnekulle, *Echinosphaera* (p. 56).—Middle,—Orthoceras Lst., *ibid.*, *Sphaeronis* (p. 47); HOLM (126).—D<sub>2</sub> near Prag, *Lobolithus?* FRIČ (88).

Trenton Limestone, Ottawa, *Stenaster*, *Agelacr.*, *Glyptocr.*, *Rhodocr.*, *Archaeocr.*, *Periglyptocr.*, *Dendrochr.*, *Cleiochr.*, *Heterocr.*, *Lichenocr.*, *Iocr.* (pp. 61–69), Black River Formation, *ibid.*, *Glyptocr.* (p. 71); AMI (7).—Chazy Formation, Ottawa River, *Malocystis*, *Glyptocystis*, *Palaeocystis*, *Bolboporites*; AMI (8) p. 140.

## IV. SYSTEMATIC†.

### (A.)—ECHINODERMA IN GENERAL.

*Echinoderma* thus classified: Sub-phylum *Eleutherozoa*, with Classes 1. *Asteridia*, 2. *Ophiuridia*, 3. *Echinidia*, 4. *Holothuridia*; Sub-phylum *Pelmatozoa*, with Classes 1. *Crinoidia*, 2. *Blastoidia*, 3. *Cystoidia*; DELAGE (54).—Recent Echinoderms divided into “1. Holothurien (*a*) Aspidochiroten (*b*) Dentrechiroten; 2. Crinoiden; 3. Echiniden; 4. Anthodiaten (*a*) Asteriden (*b*) Ophiuren”; HALLER (111A).

### (B.)—HOLOTHURIOIDEA.

*Holothuridia* divided into Orders 1. *Actinopodida* with Suborders *Dendrochiro-*, *Aspidochiro-*, and *Molpad-idae*, 2. *Paractinopodida*; DELAGE (54).

*Acanthotrochus*; DELAGE (54) p. 338, fig.

*Achlyonice*; DELAGE (54) p. 329.

*Actinocucumis*; DELAGE (54) p. 320, fig.

*Actinopodida* defined; DELAGE (54) p. 318.

*Allantis*; DELAGE (54) p. 324, fig.

*Amphigynas*; DELAGE (54) p. 327.

*Ananus*; DELAGE (54) p. 323.

*Anapta*; DELAGE (54) p. 337.

*Ankyroderma*; DELAGE (54) p. 332, figg. *A. musculus*; LO BIANCO (154) p. 61, pl. xl.

† A dagger prefixed to the name of a species indicates that it is fossil; prefixed to the name of the author, it denotes that the reference is to the species in a fossil state; prefixed to the name of a genus, it indicates that all species in the same paragraph are fossil, and the † is therefore not repeated before each name. The abbreviations *l. c.* and *op. cit.* refer only to the place or work quoted *immediately before*. *Ibid.* refers only to locality or, in the case of fossils, to horizon and locality.

A name and reference quoted without further statement [*e.g.* *Ankyroderma musculus*; LO BIANCO (154) p. 61] indicate that the quoted author's statement refers to a question of no systematic importance. Further information can usually be gleaned from the cross-references under TITLES.

- †*Annulina*; DELAGE (54) p. 337.  
*Apodogaster*; DELAGE (54) p. 328.  
*Aspidochirotidae* defined as Suborder (p. 319), with Fam. *Holothuri-*,  
*Synallact-*, *Elasipod-*, & *Pelagothuri-inae* (p. 322); DELAGE (54).  
*Bathyherpystikes*; DELAGE (54) p. 323.  
*Bathyplores*; DELAGE (54) p. 323.  
*Benthodytes*; DELAGE (54) p. 328.  
*Benthogone*; DELAGE (54) p. 326.  
*Benthothuria*; DELAGE (54) p. 323.  
*Capheira*; DELAGE (54) p. 327, figg.  
*Caudina*; DELAGE (54) p. 331, figg. *C. arenata*; WEYSSE (284) p. 104,  
 fig.: descr., range; CLARK (38) p. 569, pls. xi, xii. *C. pigmentosa*,  
 Tierra del Fuego, & *C. rugosa*, Picton Id., **n. spp.**; PERRIER (212) p. 16.  
*Chiridota*; DELAGE (54) p. 337, figg. *C. contorta*; LUDWIG (164) p. 690:  
 PERRIER (212) p. 17. *C. marenzelleri* **n. sp.**, Magellan Str.; PERRIER  
 (214). *C. pisanii*; PERRIER (212) p. 17. *C. rotifera*; LUDWIG (164)  
 p. 690.  
*Chiridotinae*, Sub-fam.; DELAGE (54) p. 337.  
*Colochirus*; DELAGE (54) p. 319: doubted, vide *Cucumaria*; PERRIER  
 (213) p. 370. *C. montagui*; MALARD (179) p. 195.  
*Cucumaria*, descr.; DELAGE (54) p. 319, figg. *C. brunnea*; MAR. BIOL.  
 ASS. (184) p. 206. *C. convergens*, vide sub *Psolidium*. *C. crocea*  
 (p. 687), *C. curata* (p. 688); LUDWIG (164). *C. filholi*, perhaps only  
 var. of *C. alba*; PERRIER (213) p. 367. *C. frondosa*; DEKHUYZEN  
 (51): growth stages; MICHAÏLOVSKIJ (192) p. 159: descr., range,  
 that recorded from Florida reef probably *C. japonica*; CLARK (38)  
 p. 566, pls. xi, xii. *C. glacialis*; LUDWIG (164) p. 688: MICHAÏLOVSKIJ  
 (192) p. 159. *C. hyndmani*; MAR. BIOL. ASS. (184) p. 206. *C.*  
*laevigata*; LUDWIG (164) p. 688: PERRIER (212) p. 14. *C. lefevrei*;  
 PACE (205). *C. leonina*, sclerites; PERRIER (212) p. 14. *C. montagui*  
 Flem. non Norman; PACE (205). *C. normani* **n. sp.**, Plymouth,  
 10 fm., incl. 'Holothuria pentactes var.' Montagu 1808 & '*C. montagui*'  
 Norm. 1893, specimen A.; PACE (205) p. 309: MAR. BIOL. ASS. (184)  
 p. 206. *C. ocnoides* redescr.; PERRIER (213). *C. parva*; LUDWIG  
 (164) p. 688: PERRIER (212) p. 14. *C. pentactes*; WOODCOCK (292):  
 Linne's sp. indeterminate, name rejected; PACE (205). *C. planci*;  
 WOODCOCK (292): NOBRE (199). *C. pulcherrima*, descr., range;  
 CLARK (38) p. 567, pls. xi, xii. *C. saxicola*, MAR. BIOL. ASS. (184)  
 p. 206: incl. '*C. montagui*' Norm. 1893, specimens B, C; PACE  
 (205). *C. tabulifera* **n. sp.**, Franklin B., Punta Arenas; PERRIER  
 (212) p. 14.  
*Deima* described; DELAGE (54) p. 324, figg.  
*Deimatinae*, Subfam.; DELAGE (54) p. 325.  
*Dendrochirotidae* defined as Suborder, with Fam. *Dendrochirot-* &  
*Rhopalodin-inae*; DELAGE (54) p. 319.  
*Dendrochirotinae*, defined with list of genera; DELAGE (54) p. 319.  
*Elasipodinae* defined with list of genera; DELAGE (54) p. 324.  
*Elpidia*; DELAGE (54) p. 328. *E. glacialis*, minor variations; MICHAÏLOVSKIJ  
 (192) p. 158, 184.  
*Elpidiidae*, Subfam.; DELAGE (54) p. 328.  
*Enypniastes*; DELAGE (54) p. 329.  
*Euphronides*; DELAGE (54) p. 328, figg.  
*Eupyrigus*; DELAGE (54) p. 331. *E. scaber*; MICHAÏLOVSKIJ (192) p. 161.  
*Gastrothuria*; DELAGE (54) p. 323.  
*Haplodactyla*; DELAGE (54) p. 331, fig.  
 †*Hemisphaerantus*; DELAGE (54) p. 337.  
*Holothuria* descr.; DELAGE (54) p. 322. *Holothuria* [sic] sp.; NOBRE  
 (198) p. 56. *H. atra*; GARDINER (95) p. 339. *H. forskali*; WOOD-

COCK (292). *H. maculata*; GARDINER (95) p. 339, 392. *H. nigra*; MAR. BIOL. ASS. (184) p. 207; ROY. COLL. SURGEONS (237) p. 5. *H. (?) patagonica* n. sp., Santa Cruz, Patagonia; PERRIER (212) p. 13. *H. poli*; POLARA (220). *H. tubulosa*; l. c.: CLERC (41): HENRI (116) p. 17-20; LANZI (151).

*Holothuriinae* defined with list of genera; DELAGE (54) p. 322.

*Ilydaemon*; DELAGE (54) p. 326, figg.

*Ira*; DELAGE (54) p. 328.

*Kolga*; DELAGE (54) p. 329, figg.

*Labidodemas*; DELAGE (54) p. 322.

*Labidoplax*; DELAGE (54) p. 337.

*Laetmogone*; DELAGE (54) p. 326, figg.

*Laetmophasma*; DELAGE (54) p. 326.

*Ludwigia* Reiffen; DELAGE (54) p. 320: rejected; PERRIER (213) p. 370.

*Meseres*; DELAGE (54) p. 323.

*Mesothuria*; DELAGE (54) p. 324. *M. interstitialis*; KIAER (140).

*Molpadia* descr.; DELAGE (54) p. 331.

*Molpadiidae* defined as Suborder; DELAGE (54) p. 319.

*Muelleria*; DELAGE (54) p. 323. *M. lecanora*; DOFLEIN (64) p. 126.

*Myriotrochinae*, Subfam.; DELAGE (54) p. 337.

*Myriotrochus*; op. cit. p. 338, figg. *M. rinkii*; MICHAILOVSKIJ (192) p. 162.

*Oneirophanta*; DELAGE (54) p. 325, figg.

*Orcula*; DELAGE (54) p. 320.

*Orphnurgus*; DELAGE (54) p. 326.

*Paelopatides*; DELAGE (54) p. 323.

*Pannychia*; DELAGE (54) p. 326.

*Parelpidia*; DELAGE (54) p. 328.

*Paroriza*; DELAGE (54) p. 323.

*Pelagothuria* descr.; DELAGE (54) p. 329, figg.

*Pelagothuriinae* defined with list of genera; DELAGE (54) p. 329.

*Peniagone* descr.; DELAGE (54) p. 328.

*Pentadactyla*; DELAGE (54) p. 322.

*Phyllophorus*; DELAGE (54) p. 320, fig. *P. drummondi*; MALARD (179) p. 195; MICHAILOVSKIJ (192) p. 160; ÖSTERGREN (203). *P. urna*; LUDWIG (164) p. 689.

†*Priscopodatus*; DELAGE (54) p. 323.

*Protankyra*; DELAGE (54) p. 337.

*Pseudocucumis*; DELAGE (54) p. 320. *P. mixta*, ÖSTERGREN (203).

*Pseudopsolus*; DELAGE (54) p. 321.

*Pseudostichopus*; DELAGE (54) p. 324.

*Psolidium*; DELAGE (54) p. 320. *P. convergens* (Herouard sub *Cucumaria*);

*P. dorsipes*; PERRIER (212) p. 15. *P. nutriens*; LUDWIG (164) p. 689.

*Psolus*; DELAGE (54) p. 320. *P. antarcticus*; LUDWIG (164) p. 689: distinct from *P. squamatus*; PERRIER (212) p. 15. *P. ephippifer*; LUDWIG (164) p. 689. *P. fabricii*; †MADSEN (177) p. 530; MICHAILOVSKIJ (192) p. 160. *P. phantapus*; l. c. *P. squamatus* var.; PERRIER (212) p. 15. *P. valvatus* n. sp., Trondhjem fjord, 40-100 m.; ÖSTERGREN (203).

*Psychotrepes*; DELAGE (54) p. 328.

*Psychropotes* descr.; DELAGE (54) p. 327, fig.

*Psychropotidae* Subfam.; DELAGE (54) p. 327.

*Rhabdomolgus*, probably young *Synapta*; DELAGE (54) p. 337.

*Rhipidothuria*; DELAGE (54) p. 328.

*Rhopalodina* descr.; DELAGE (54) p. 321.

*Rhopalodininae*, defined with list of genera; DELAGE (54) p. 321.

*Scotoanassa*; DELAGE (54) p. 329, figg.

*Scotodeima*; DELAGE (54) p. 326.

*Scotoplanes*; DELAGE (54) p. 328, fig.

*Semperia drumondi* Hérouard ; PACE (205).

*Stichopus* ; DELAGE (54) p. 322, figg. *S. chloronotus* ; GARDINER (95) p. 339.

*S. regalis* ; BERTRAND (27) : DUBOIS (72) : HENRI (116) p. 19. *S. tremulus* ; KIAER (140).

*Synallactes* descr. ; DELAGE (54) p. 323. *S. moseleyi*, not a *Bathyplotes* ; PERRIER (212) p. 13.

*Synallactinae*, defined with list of genera ; DELAGE (54) p. 323.

*Synapta* descr. ; DELAGE (54) p. 332, figg. : *auricularia* ; LO BIANCO (154)

p. 55, pl. xxxiv. *S. digitata* ; MAR. BIOL. ASS. (184) p. 206. *S. inhaerens* ;

l. c. : MALARD (180) : descr., range ; CLARK (38) p. 571, pls. xi, xiv.

*S. cf. ooplax* ; GARDINER (95) p. 338. *S. roseola*, descr., range ; CLARK (38) p. 571, pls. xi, xiv. *S. vivipara* ; LUDWIG (164) p. 689.

*Synaptinae* Subfam. ; DELAGE (54) p. 337.

*Theelia* ; DELAGE (54) p. 320.

*Thyone* ; DELAGE (54) p. 320, figg. *T. briareus*, descr., range, habits ;

CLARK (38) p. 567, pls. xi, xiii. *T. fusus* ; MALARD (179) p. 195 : MAR.

BIOL. ASS. (184) p. 206. *T. lechleri*, sclerites ; PERRIER (212) p. 15.

*T. raphanus* ; MALARD (179) p. 195. *T. rubra* ; LUDWIG (164) p. 689.

*T. scabra*, descr., range ; CLARK (38) p. 568, pls. xi, xiii. *T. spectabilis*,

calcareous ring ; PERRIER (212) p. 15. *T. unisemita*, descr., range ;

CLARK (38) p. 569, pls. xi, xii.

*Thionepsolus* [sic. err. pro *Thyonepsolus*] ; DELAGE (54) p. 320.

*Trochoderma* ; DELAGE (54) p. 337. *T. elegans* ; MICHAÏLOVSKIJ (191).

*Trochodota* ; DELAGE (54) p. 337. *T. purpurea* ; PERRIER (212) p. 17.

*Trochostoma* ; DELAGE (54) p. 332, fig. *T. boreale* ; MICHAÏLOVSKIJ (192)

p. 161. *T. oöliticum*, incl. *T. boreale* but not *T. arcticum* or *T. turgidum*,

descr., range ; CLARK (38) p. 570, pls. xi, xiii.

*Ypsilothuria* ; DELAGE (54) p. 321.

### (C).—ECHINOIDEA.

Classification of *Ech.*, phylogenetic, causes of change ; DOUVILLÉ (66) p. 72.

*Echinidia* divided into Subclass 1. *Regulariae* with Orders *Palechinida*,

*Echinothurida*, *Cidarida*, & *Diademida*, 2. *Irregulariae* with Orders

*Holactypida*, *Clypeastrida*, & *Spatangida* ; DELAGE (54). Diagnoses

of Orders, Families, and Genera, with lists of spp. and distrib., con-

tinuing *Regularia* from *Temnopleuridae*, and all *Irregularia* ; MEISSNER

in HAMANN (112) [for scheme of classification down to Sub-famm. see

Introduction to last year's Record, p. 6]. *Echinoidea Regularia*,

classifications of Pomel, Duncan, Lambert, Gregory, and Bell discussed,

following proposed : Order I *Entobranchiata*, with one Suborder,

*Cidaroida*, Famm. *Archaeocidaridae* & *Cidaridae* ; Order II, *Ecto-*

*branchiata* with Suborders 1, *Streptosomata*, Famm. *Lepidocentridae*,

*Echinothuridae*, 2, *Stereosomata*, Tribus i *Diademina*, Famm. *Aspido-*

*diademata*, *Diademata*, *Pseudodiademata*, *Micropyg-*, *Pedin-*, *Hemicidar-*

*idae*, Tribus ii *Salenina*, Fam. *Salenidae*, Tribus iii, *Phymosomina*,

Famm. *Arbaci-*, *Phymosomat-*, ? *Stomechinidae*, Tribus iv, *Echinina*,

Famm. *Stomopneust-*, *Temnopleur-*, *Echin-*, *Toxopneust-*, *Echinometr-*

*idae* ; MORTENSEN (195) p. 47 [for smaller divisions see under Fam.

names ; N.B. that Mortensen's Tribus are Superfamilies, whereas

Lambert's are Sub-subfamilies]. Palaeozoic *Ech.* classified and revised,

see further sub *Palaeëchinoidea* ; KLEM (142). Key to spp. of *Ech.* in

East Indian Archipelago, see list III, A, iii ; DE MEIJERE (57) p. 220-

237.

Taxonomic value of the following characters :—Pedicellariae, Mortensen's

classification discussed by DE MEIJERE (57) p. 248, ridiculed by



- AGASSIZ (3) passim. Crenulation of tubercles, slight value; DE MEIJERE (57) p. 24. Radioles, in *Clypeastroidea*; op. cit. p. 104. Fascioles, not safe; BATHER (18) p. 298: doubtful; DE MEIJERE (57) p. 165, 241: Subanal, in Spatangoids; AGASSIZ (3) p. 179.
- Abatus cavernosus*, specimen 1.6 mm. long descr.; AGASSIZ (3) p. 211, pl. xcix.
- Acanthocidaris*; DELAGE (54) p. 227.
- Aceste* diagnosis; MEISSNER in HAMANN (112) p. 1393: descr.; DELAGE (54) p. 271, fig. *A. bellidifera*, radioles; DE MEIJERE (57) p. 196, pl. xxiii.
- †*Acrocidaris granulosa*, not this genus; LAMBERT in Review of LISSAJOUS (153).
- †*Acrosalenia*; DELAGE (54) p. 231. *A. chartroni* n. sp., Hettangian of Vendée; LAMBERT (148) p. 538, pl. xviii. *A. decorata*; STRANGWAYS (266) p. 40, 49. *A. koenighi* [sic]; GLANGEAUD (101) p. 33. *A. spinosa*; CLERC (42) p. 99: apical system, ambulacra; AGASSIZ (3) p. 37, 41, & fig.
- Ærope*; DELAGE (54) p. 272: diagnosis; MEISSNER in HAMANN (112) p. 1393: retained among *Brissina*, but with ananchytid affinities; AGASSIZ (3) p. 197. *A. fulva* descr. and compared with *A. rostrata*; op. cit. p. 194, pls. lv, lxi, lxii: radioles, pedicellariae; DE MEIJERE (57) p. 195, pl. xxiii.
- Æropidae* discussed; DE MEIJERE (57) p. 243.
- Agassizia*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1392: apical system (p. 173, f. 287, pl. cviii), *A. excentrica* compared with *Spatagoderma* (p. 198, figg., pl. cviii); AGASSIZ (3).
- Alexandria* discussed; DE MEIJERE (57) p. 136: diagnosis; MEISSNER in HAMANN (112) p. 1383.
- Amblypneustes*; DELAGE (54) p. 241: distinguished from *Microcyphus* & *Holopneustes* (p. 102), *A. formosus*, pedicellariae, radioles, &c. (p. 103, pl. ii, vi, vii); MORTENSEN (195). *A. griseus*; op. cit. p. 105: great variation, probably incl. *A. formosus*, *pallidus*, & *ovum*; HALL (111) p. 72. *A. grossularia*, holotype examined, pedicellariae &c. (p. 105, pl. vi, vii), *A. ovum*, pedicellariae &c., distinguished from *A. formosus* and from various spp. wrongly referred here by Bell, Ramsay, et al. (p. 103, pl. vii); MORTENSEN (195): vide etiam sub *Microcyphus zigzag*. *A. pallidus*? pedicellariae, radioles, &c. (p. 104, pl. ii, vi, vii). *A. vegae*, syn. of *Mespilia globulus* (p. 106); op. cit.
- †*Amblypygus dilatatus*; GOURDON (102) p. 221.
- Amphidetus cordatus*; †BELLINI (23) p. 5: KIAER (140): MALARD (179) p. 194.
- †*Amphiope*:—*A.* sp. ind. fragments (p. 175, pl. iv), *A. bioculata*, specimen figd. Quenstedt, 1875, descr. incl. *A. bisperforata* Parkinson non Leske, distrib. (p. 173); SCHUETZE (251).
- Amphipneustes*; DELAGE (54) p. 273: discussed; AGASSIZ (3) p. 178: DE MEIJERE (57) p. 240: diagnosis; MEISSNER in HAMANN (112) p. 1388.
- †*Ananchites* (vel *Ananchytes*), vide *Echinocorys*.
- Ananchytinae*; DELAGE (54) p. 266.
- Anochanus* diagnosis; MEISSNER in HAMANN (112) p. 1386. *A. sinensis*; LUDWIG (164) p. 691.
- Anomalanthus* diagnosis; MEISSNER in HAMANN (112) p. 1382.
- Anthechinus roseus*; MORTENSEN (195) p. 98.
- Anthocidaris*; DELAGE (54) p. 245: diagnosis; MEISSNER in HAMANN (112) p. 1374.
- Aphanopora*; DELAGE (54) p. 264: diagnosis; MEISSNER in HAMANN (112) p. 1386: ditto, & *A. echinobrissoides* descr.; DE MEIJERE (57) p. 142, pls. vi, xix.
- †*Aplodiadema* validity questioned; LISSAJOUS (153) p. 114.

- †*Arachniopleurus*; MORTENSEN (195) p. 112.
- Arachnoides* diagnosis; MEISSNER in HAMANN (112) p. 1382: name rejected, should be *Echinodiscus*; FOURTAU (83) p. 424. *A. placenta*; DE MEIJERE (57) p. 137, pl. xix: MARTENS (185).
- Araeosoma* descr.; DELAGE (54) p. 223, fig.: criticised; AGASSIZ (3) p. 83. *A. ousteni* (corr. *ovstoni*) n. sp., Sagami B., 50 fm.; MORTENSEN (194) p. 82, pl. ii, v. *A. tessellatum*, radioles, pedicellariae, spicules; DE MEIJERE (57) p. 35, 250, pl. xiii: ? juv. = *Asthenosoma gracile* A. Ag. Challenger Stat. 219; MORTENSEN (194) p. 86, pl. iv.
- Arbacia*; DELAGE (54) p. 237: versus *Echinocidaris*, discussed; LORIOL (162) p. 13: development of coronal plates; AGASSIZ (3) p. 54, pls. liii, liv: experiments on sperm-ovum; LYON (171). *A. dufresnii*, incl. *A. schytei* & *A. alternans*, descr., with young; LORIOL (162) p. 8, pl. ii. *A. nigra*; DE MEIJERE (57) p. 207. *A. punctata*, pluteus; WEYSSE (284) p. 100, fig. *A. punctulata*, descr., range; CLARK (38) p. 563, pl. vii. *A. pustulosa*; DI MAURO (63). *A.* [? *pustulosa*?]; JANSSENS (136).
- Arbaciinae* defined with list of genera; DELAGE (54) p. 237.
- Arbacina* diagnosis; MEISSNER in HAMANN (112) p. 1367. *L. forbesiana* referred to *Prionechinus* (q. v.); DE MEIJERE (57) p. 71.
- †*Archaeocidaridae* defined; KLEM (142) p. 45.
- †*Archaeocidaris*; DELAGE (54) p. 218: defined, synn. *Echinocrinus*, *Palaeocidaris*; KLEM (142) p. 45. *A.* sp.; BEEDE & ROGERS (21): HIND (123) pp. 186, 188: ?; KITTL (141) p. 685, pl. xxii: Etheridge 1892, Julien 1896, Meek 1859, & Stacke 1877; KLEM (142) p. 65. *A. aculeatus* (p. 45), *A. agassizi* (p. 46), & *A. biangulatus* (p. 47) descr.; KLEM (142). *A.* cf. *biangulata*; RICHARDSON (227) p. 37. *A. cratis* (p. 47), *A. dininni*, & *A. edgarensis* (p. 48) descr., *A. glabrispina* (p. 62), *A. gracilis* descr. (p. 49), *A. grueneri* (p. 62); KLEM (142). *A. harteiana* vide *Perischodomus hartei*. *A. illinoisensis* (p. 49) & *A. keokuk* (p. 50) descr.; KLEM (142). *A. keyserlingi*, radioles; KITTL (141) p. 684. *A. konincki*; KLEM (142) p. 63. *A. ladina*; l. c.: radioles; KITTL (141) p. 684. *A. legrandensis* (p. 50), *A. longispinus*, *A. megastylus* (p. 51), *A. mucronatus* (52), *A. nerii* [sic], incl. *Cidaris protei* (p. 52), *A. newberryi* (p. 53), *A. norwoodi*, *A. ornatus* (p. 54), all descr., *A. ourayensis*, *A. priscus* (p. 63); KLEM (142). *A. regimontana* n. sp., Visean of Königsberg near Giessen, interambulacral; PARKINSON (206) p. 365, pl. xv. *A. rossicus* descr. (p. 55), var. *schellwieni*, *A. scotica* Smith [!, i.e. J. Young], *A.* (?) *selwyni* (p. 64), *A. shumardanus* descr. (p. 56), *A. spinoclaratus* descr. (p. 57), *A. tennesseae*, *A. tirolensis* (p. 64), *A. trautscholdi* (p. 65), *A. triplex* descr. (p. 57), *A. triserialis* & *A. triserratus* descr. (p. 58), *A. tudifer* descr. (p. 59); KLEM (142). *A. urei*; FRAIPONT (85) p. 11, pl. i: HIND (123) p. 192: PEACH (209) p. 848: descr.; KLEM (142) p. 59. *A. vetustus* descr.; KLEM (142) p. 61. *A. wervekei*; FRAIPONT (85) p. 11, pl. i: KLEM (142) p. 65. *A. wortheni* descr.; KLEM (142) p. 61.
- Archaeocidarisinæ* defined with list of genera; DELAGE (54) p. 218.
- Archaeopneustes*, genotype *A. hystrix* is syn. of *Paleopneustes*, but [*A. abruptus*] is more allied to *Amphipneustes*; AGASSIZ (3) p. 186.
- Argopatagus*, diagnosis; MEISSNER in HAMANN (112) p. 1401: & *Geniopatagus* compared with *Palaeotropus*, *Homolampas*, *Phrissocystis*, & *Palaeobrissus* (p. 172), *A. vitreus* (p. 172, 183, pl. xci); AGASSIZ (3).
- Aspidodiadema*; DELAGE (54) p. 230, fig. *A. antillarum*, tubercles, pedicellariae, referred to *Dermatodiadema* (q. v.) = *Plesiodiadema* (p. 37, pl. iii-v), *C. jacobyi*, spicules, pedicellariae, & *A. microtuberculatum*, specimen fr. Challenger Stat. 134 taken as genotype, tubercles, pedicellariae, referred to *Dermatodiadema* (q. v.) = *Plesiodiadema* (p. 36, pl. iii-v); MORTENSEN (195). *A. nicobaricum*, descr.; DE MEIJERE

- (57) p. 44, pls. iii, xiii: pedicellariae; MORTENSEN (195) p. 36. *A. tonsum*, pedicellariae, distrib.; op. cit. p. 34, pl. iii, v: radioles, pedicellariae, spicules; DE MEIJERE (57) p. 44, pl. xiii.
- Aspidodiadematae* accepted; MORTENSEN (195) p. 43.
- Aspidodiademina* defined with list of genera; DELAGE (54) p. 230.
- Asterostoma* discussed; DE MEIJERE (57) p. 242.
- Asthenosoma* descr.; DELAGE (54) p. 222, figg. *A. coriaceum*, abactinal area; AGASSIZ (3) p. 115, pl. lii. *A. gracile*, vide sub *Calveria* et *Araeosoma tessellatum*. *A. grubei* compared with *A. varium*; DE MEIJERE (57) p. 33, pl. xii. *A. heteractis* (p. 88), *A. ijimai*, madreporite, pedicellariae, spicules, radioles (p. 87, pl. iii, v); MORTENSEN (194). *A. longispinum* vide *Calveria gracilis*. *A. pellucidum* juv. descr.; AGASSIZ (3) p. 113, pl. li. *A. varium*; MARTENS (185) p. 132. *A.* (err. pro *Phormosoma*) *zealandiae* (q. v.); AGASSIZ (3) p. 76.
- Astrictypeus* diagnosis; MEISSNER in HAMANN (112) p. 1384.
- †*Astrodapsis* sp. nondescr.; HAEHL (110) p. 24.
- Astropyga*; DELAGE (54) p. 232. *A. denudata*, descr.; DE MEIJERE (57) p. 57, pls. iv, xiv. *A. elastica*, holotype syn. of *A. radiata*, but Bell 1899 is a *Micropyga*; MORTENSEN (195) p. 20. *A. pulvinata*; DE MEIJERE (57) p. 206: pedicellariae, specimens recorded fr. western Pacific are *A. radiata* or *Chaetodiadema*; MORTENSEN (195) p. 20, pl. iii, iv. *A. radiata*; BELL (22A): MARTENS (185) p. 132: DE MEIJERE (57) p. 206, and young, p. 56: incl. *A. elastica*, *freudenbergi*, *mossambica*, tubercles, radioles, spicules, pedicellariae; MORTENSEN (195) p. 18, pl. iii-v.
- †*Atelospatangus*; AGASSIZ (3) p. 200: DELAGE (54) p. 268. *Boletia bizonata* is a *Psammechinus*; MORTENSEN (195) p. 120.
- †*Bothriocidaridae* defined, as Fam.; KLEM (142) p. 14: as Suborder; DELAGE (54) p. 217.
- †*Bothriocidaris* descr.; DELAGE (54) p. 217, fig.: compared to *Phormosoma* juv.; AGASSIZ (3) p. 79, 80: defined; KLEM (142) p. 14. *B. globulus*, descr.; KLEM (142) p. 15: anal system and interambulacrals; AGASSIZ (3) p. 80. *B. phaleni* [sic] descr.; KLEM (142) p. 15.
- †*Bothriocidaroida* defined; KLEM (142) p. 14.
- Breyntia*; DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1400. *B. australasiae*, fascioles; DE MEIJERE (57) p. 192.
- †*Brissoma*; DELAGE (54) p. 270.
- †*Brissopneustes suecicus*; TÖRNEBOHM (267) p. 143.
- Brissopsis* (seu *Bryssopsis*); DELAGE (54) p. 270, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1395. †*B.* sp. nondescr.; BARRON (15) p. 607. *B. columbaris* compared with *B. lyrifera* & *Toxobrissus*; AGASSIZ (3) p. 190, pls. c, cii, ciii. *B. luzonica*, pedicellariae, spicules, young, comparison with *B. lyrifera*; DE MEIJERE (57) p. 188, pls. v, xxiii: criticised; AGASSIZ (3) p. 192. *B. lyrifera*; BELL (22A). †*B. nicoleti*; SCHUETZE (251) p. 185. †*B. pechiolii*; BELLINI (23) p. 5.
- Brissus* (seu *Bryssus*); DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1394. *B. carinatus*; DE MEIJERE (57) p. 184: †FOURTAU (83) p. 444.
- Bryssopsis* & *Bryssus*, vide *Brissopsis* & *Brissus*.
- Caenopedina*; DELAGE (54) p. 233. *C. mirabilis*, spicules, pedicellariae; MORTENSEN (195) p. 34, pl. iii, iv.
- Calveria* W. Thoms.; DELAGE (54) p. 223: name not applicable to an *Echinothurid* because originally given to an *Asterid*; AGASSIZ (3) p. 84. *C. gracilis*, radioles, pedicellariae; DE MEIJERE (57) p. 34, 205, pl. xiii: incl. *Asthenosoma longispinum* Yosh.; MORTENSEN (194) p. 89.
- Calymne* descr.; DELAGE (54) p. 265: diagnosis; MEISSNER in HAMANN (112) p. 1403: plastron; AGASSIZ (3) p. 154.
- †*Caratomus*:—*C.* sp. radioles; SCHLUETER (245). *C. laubei*; ZAHÁLKA (296) p. 18, 149. *C. peltiformis*; TÖRNEBOHM (267) p. 136.



- †*Cardiaster*:—*C. ananchytis*; FLEGEL (79): ZAHÁLKA (296) p. 44, 149: (olim *Micraster* cf. *cortestudinarium*); PETRASCHECK (216): great size, radioles attached; ROWE (235) p. 252, 262, 294. *C. cotteaui*; ROWE (235) p. 248, 293. *C. patagonicus* Steinm. MS.; WILCKENS (287). *C. pilula*; BERG (24): ROWE (235) p. 239, 265, 294.
- Cassidulinae* defined with list of genera in Subfam. *Echinon-*, *Nucleolit-*, *Echinolamp-inae*; DELAGE (54) p. 263.
- †*Cassidulus* [fig. 340, called *C. lapiscanceri* is really *Leodia hexapora*, fide LAMBERT]; DELAGE (54) p. 264, figg. *C. elongatus*; BERG (24). *C. eugeniae*, apical system: AGASSIZ (3) p. 120, fig.
- †*Catopygus*:—*C. albensis*; PETRASCHECK (216): ZAHÁLKA (296) p. 18, 71, 149. *C. fastigatus*; op. cit. p. 149. *C. minor*, *C. rotundus*; TÖRNEBOHM (267) p. 136.
- Centrocidaris* n. sg. [of *Goniocidaris*?] for *G. canaliculata* & *G. doederleini* (p. 32), the latter descr. (p. 33, pls. v, xiv), shape of test (p. 1) anal plates in young (p. 7, f. 25); AGASSIZ (3).
- Centrostephanus*; DELAGE (54) p. 232. *C. longispinus*, spicules, pedicellariae (p. 32, pl. iv, v); *C. rodgersi*, spicules, pedicellariae (p. 33, pl. iii-v); MORTENSEN (195).
- Chaetodiadema*; DELAGE (54) p. 232. *C. granulatum*, descr., also young; DE MEIJERE (57) p. 54, 206, pls. iii, xi, xiv: detailed descr., also young fr. Maldives; MORTENSEN (195) p. 22, pl. i, iii, iv, v. *C. japonicum* n. sp. Sagami B., 30 fm.; op. cit. p. 28, pl. ii.
- Chondrocidaris* (vide et. *Cidaris*); DELAGE (54) p. 227.
- †*Chrysmelon pictum* vide *Leiopedina tallavignesi*.
- †*Chuniola caroliniae*, Gagel's pl. xxiv, f. 3, not this sp.; LAMBERT in Review of GAGEL.
- Cidarida* defined (p. 216) descr. (p. 225), with Fam. *Cidarisinae* (p. 226); DELAGE (54).
- Cidaridae*, brief systematic account; FRITEL (86). Vide *Centrocidaris*.
- Cidaris* (vide etiam s.-gg. *Centro-*, *Chondro-*, *Disco-*, *Doro-*, *Gonio-*, *Leio-*, *Podo-*, *Poro-*, *Rhabdo-*, *Stephano-*, *Stereo-cidaris*, and *Phyllacanthus*) descr.; DELAGE (54) p. 226, figg.: sensu Mortensen, heterogeneous; AGASSIZ (3) p. 23. *C. sp.*; BELL (22A). †*C. sp.*; BOEHM (28) p. 8, pl. i: BURNET (33): USSING (275) p. 84, fotogr.: KITTL (141) p. 703. †*C. abichi*; SIEMIRADZKI (255) p. 140. †*C. acicularis*; CHECCHIA (37). *C. affinis*; AGASSIZ (3) p. 22. †*C. amalthei*; SCHAEFER (242) p. 34. †*C. andreae*; LISSAJOUS (153) p. 181: allied to *C. cucumifera*; LAMBERT in Review. *C. annulifera* Lam. is var. or close ally of *C. baculosa*; MORTENSEN (195) p. 6. †*C. asperula*; COLLET (44) p. 70. †*C. avenionensis*; COUFFON (46) p. 42: radioles, measurements, distrib.; SCHUETZE (251) p. 162, pl. ii: differs fr. this sp. in shape and size; LAMBERT in Review. *C. baculosa*; MARTENS (185):=*pistillaris*, compared with *C. annulifera*, divided according to radioles into var. *typica*, *annulifera*, *brevicollis* var. nov. and others; DE MEIJERE (57) p. 9, pls. ii, xi. †*C. berthelini*; COLLET (44) p. 70. *C. cf. biformis*; KITTL (141) p. 703. *C. (Stephanocidaris) bispinosa*, notes chiefly on radioles, comparison with *Rhabdocidaris annulifera*; DE MEIJERE (57) p. 4, 204, pls. i, ii, †*C. blumenbachi* & †*C. cervicalis*; MAIRE (178): ROLLIER (230) p. 466, 467. †*C. clavigera*; ROWE (235) p. 252, 293. †*C. coronata*; FÜGGER (92) p. 339; MAIRE (178): SIEMIRADZKI (255) p. 140. †*C. cragini* n. sp., Lower Cretaceous, Honduras, radiole only; LORIOL (162) p. 58, pl. iv. †*C. cucumifera*; RICHE (228) p. 208. †*C. curvata*; ROLLIER (230) p. 464. †*C. dissimilis*; STRANGWAYS (266) p. 80. †*C. aff. dorsata*; KITTL (141) p. 579. †*C. edwardsi*?; SHORT (254). *C. (Histocidaris) elegans*, both crenulate and smooth tubercles, radioles, pedicellariae, spicules &c. (p. 24, pl. xii) also young of 3-7 mm. diam. (p. 25, pls. ii, xii); DE MEIJERE (57). †*C. erbaensis*; MARIANI (183) p. 154. †*C. filograna*; SIEMIRADZKI (255) p. 140. *C. (Petalocidaris?) fimbriata*



**n. sp.** off Ceram, 567 m.; DE MEIJERE (57) p. 22, pls. iii, xii. †*C. florigemma*, MAIRE (178): SIEMIRADZKI (255) p. 140: var. *philastarte*; ROLLIER (230) p. 466. *C. (Petalocidaris) florigera*, radioles, spicules, pedicellariae; DE MEIJERE (57) p. 21, pl. xii. †*C. fusiformis*; COLLET (44) p. 77. †*C. gaultina*; FEARNSIDES (76): STRANGWAYS (266) p. 78. †*C. gibberula*; COLLET (44) p. 76. *C. (Chondrocidaris) gigantea* (p. 204), *C. glandulosa* **n. sp.** Java Sea, 69 m. (p. 13, pl. i); DE MEIJERE (57). †*C. gourdoni*; GOURDON (102) p. 222. †*C. grandaeva*; LANGENHAN (150). *C. (Stereocidaris) grandis*, radioles; DE MEIJERE (57) p. 17. †*C. helenae*, discussed; LAMBERT in Review of VINASSA. *C. (Discocidaris?) hirsutispinus* **n. sp.** Gilolo Passage, 469 m.; DE MEIJERE (57) p. 20, pl. xii. †*C. hirudo*; COLLET (44) p. 70: HINDE (125): ROWE (235) p. 256, 266, 293. †*C. histricoides*; ROLLIER (230) p. 464: WALTHER (281) p. 158. *C. (Phyllacanthus) imperialis*, incl. *P. dubius*, varr. *typica* & *fustigera* associated (p. 22). *C. (Stereocidaris) indica*, perhaps = *S. alcocki* (p. 18, pls. i, xi, xii), *C. (S.) japonica*, radioles & pedicellariae (p. 16, pl. xi); DE MEIJERE (57). †*C. lo[a]eviuscula*; LISSAJOUS (153) p. 181. †*C. cf. limaria*, radiole; SCHUETZE (251) p. 165, pl. ii. *C. luetkeni*, syn. of *Stephanocid. bispinosa*; MORTENSEN (195). *C. maculicollis*, descr.; DE MEIJERE (57) p. 15, pls. iii, xi. †*C. marginata* (p. 181), *C. aff. martini* (p. 180); LISSAJOUS (153). *C. metularia*; HERDMAN (120) p. 138: notes on radioles in young and adult; DE MEIJERE (57) p. 7: var. *spuria*; MARTENS (185) p. 132. *C. (Histocidaris) misakiensis*, descr. & compared with *Porocidaris milleri*; DE MEIJERE (57) p. 27, pls. ii, xii. *C. papillata*; †JAHN (135): NOBRE (198) p. 54. †*C. cf. papillata*; LUPI (168). †*C. perlata*; COLLET (44) p. 80. †*C. perornata*; BURNET (33): HINDE (125). *C. pistillarlis*; MARTENS (185). †*C. pomeli*; GOURDON (102) p. 222. †*C. pretiosa*; ZLATARSKI (299). †*C. propinqua*; SIEMIRADZKI (255) p. 140. †*C. regnyi* **n. sp.**, Norian of Sutorman, Montenegro, based on radioles figd. VINASSA DE REGNY (315) Zool. Rec. 1903; LAMBERT in Review. *C. reini*, small individuals, notes chiefly on radioles; DE MEIJERE (57) p. 5, pls. i, xi. †*C. reussi*; JAHN (134) p. 86. †*C. roemeri*; KITTL (141) p. 645. †*C. scptrifera*; BURNET (33): COLLET (44) p. 77: JAHN (134) pp. 81, 86: ROWE (235) p. 252, 256, 266, 293. *C. serrata*; †COLLET (44) p. 76: (*Discocidaris?*), spicules & pedicellariae figd.; DE MEIJERE (57) p. 19, pl. xii. †*C. smithi*; STRANGWAYS (266) p. 40, 49, 54, 59. †*C. sorigneti*; JAHN (134) p. 86, & (135): distinguished from *C. clavigera*; JUKES-BROWNE (137) p. 456. †*C. spinulosa*; RICHE (228) p. 209. †*C. striato-granosa*; CHECCHIA (37). †*C. subularis*; CHECCHIA (37). †*C. subvesiculosa*; JAHN (134) pp. 81, 82, 86: ROWE (235) p. 252, 256, 266, 293. †*C. cf. tessurata*; PATRINI (208). *C. verticillata*; MARTENS (185) p. 132: notes on radioles; DE MEIJERE (57) p. 8. †*C. vesiculosa*; ARMASCHEWSKY (14): JAHN (135): STRANGWAYS (266) p. 80. †*C. zschokkei*; RICHE (228) p. 209.

*Cidarosinae* defined with list of genera; DELAGE (54) p. 226.

†*Cidaropsis minor*; LISSAJOUS (153) p. 166.

*Cionobrissus* (seu *-bryssus*); DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1399.

*Clypeaster* descr.; DELAGE (54) p. 254, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1381: diagnosis, incl. *Echinorodum*; FOURTAU (83) p. 417. *C. audouini* **n. sp.** G. of Suez, on reefs; op. cit. p. 418, pl. i. *C. humilis* (= *rosaceus*); HERDMAN (120) p. 141. †*C. priemi*; FOURTAU (83) p. 421, fig. *C. rarispinus*, descr., distinguished from *Alexandria magnifica*; DE MEIJERE (57) p. 134, pls. vi, xviii, xix. *C. reticulatus* Leske, vide *C. scutiformis*. *C. rosaceus* L. (= *humilis* Leske, q. v.), pedicellariae & spicules, also young; DE MEIJERE (57) p. 133, pl. xviii: incl. *C. humilis*, G. of Suez & †beaches, distinguished fr. *C. priemi*;

- FOURTAU (83) p. 420, fig. *C. scutiformis*; HERDMAN (120) p. 141: radioles, pedicellariae, spicules; DE MEIJERE (57) p. 131, pl. xviii: incl. *C. reticulatus* Leske, G. of Suez & †beaches; FOURTAU (83) p. 422. *C. testudinarius*; MARTENS (185).
- Clypeastrida* defined (p. 248) descr. (p. 249) with Famm. *Fibul-*, *Clypeastr-*, & *Scutell-inae* (p. 254); DELAGE (54).
- Clypeastrinae* defined with list of genera; loc. cit.
- Clypeastroida* systematic value of various characters, esp. radioles; DE MEIJERE (57) p. 103.
- †*Clypeolampas lesteli*; ROUSSEL (232) p. 15, & (233) p. 28.
- †*Clypeus*:—*C. altus*; LISSAJOUS (153) p. 176: distinguished from *C. ploti*; CLERC (42) p. 95. *C. deshayesi*; LISSAJOUS (153) p. 176. *C. ploti*; CLERC (42) p. 95. *C. subulatus*; STRANGWAYS (266).
- Coelopleurus* descr.; DELAGE (54) p. 237. †*C. aequis*, †*C. isabellae*; GOURDON (102) p. 224. *C. maillardi* incl. *Salmacis ?elegans* Bell; DE MEIJERE (57) p. 68.
- †*Collyrites*; DELAGE (54) p. 266, fig. *C. acuta* (p. 179), *C. analis* incl. *C. ovalis* pars. (p. 178); LISSAJOUS (153). *C. bicordata*; op. cit. p. 179: STRANGWAYS (266) p. 30, 40, 49. *C. capistrata* & *C. elliptica*; LISSAJOUS (153) p. 179. *C. fribourgensis*; DEL CAMPANA (55) p. 267. *C. ovalis*, incl. *C. analis*; CLERC (42) p. 98. *C. ringens*; op. cit. p. 97: incl. *C. eudesi*; LISSAJOUS (153) p. 177. *C. thermarum*; SIEMIRADZKI (255) p. 142. *C. verneuli*; DEL CAMPANA (55) p. 267.
- Colobocentrotus*; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1377.
- †*Conoclypus* (vel -eus) descr.; DELAGE (54) p. 249. *C. conoideus*; FUGGER (92) p. 339, 345; GOURDON (102) p. 222. *C. pyrenaicus*; loc. cit.
- †*Conoclypinae* defined with list of genera; DELAGE (54) p. 249.
- Conolampas* diagnosis; MEISSNER in HAMANN (112) p. 1387: maintained (p. 117), apical system (p. 173, pl. lxxv), *C. sigsbei*, details of test (p. 117, fig., pl. lxxv); AGASSIZ (3).
- Conulus*, vide *Echinoconus*.
- †*Coraster margaritae*; GOURDON (102) p. 217.
- Cottaldia forbesiana* referred to *Prionechinus* (q. v.); DE MEIJERE (57) p. 71.
- †*Cyclaster gourdoni*; GOURDON (102) p. 221.
- †*Cyphosoma* [incl. *Phymosoma*]; DELAGE (54) p. 238. *C. archiaci*; ROUSSEL (233) p. 36. *C. corollare*; ROWE (235) p. 252, 266, 293. *C. gregoirei*; ROUSSEL (232) p. 15. *C. koenigi*; HINDE (125). *C. radiatum*; BERG (24); ROWE (235) p. 241, 293: et. sub *Phymosoma*; PETRASCHECK (216); ZAHÁLKA (296) p. 18, 149. *C. regulare*, *C. tenuistriatum*; COLLET (44) p. 76.
- Cyphosomina* defined with Famm. *Arbaci-*, & *Cyphosom-inae*; DELAGE (54) p. 237.
- Cyphosominae* defined with list of genera; DELAGE (54) p. 238.
- Cytechinus* diagnosis; MEISSNER in HAMANN (112) p. 1402: discussed, †*C. crassus* probably not this genus (p. 157), *C. loveni* descr. (p. 158, pls. B, lxxv-lxxix), actinal area (p. 122, 123, 130, figg.), *C. wyvillei*, actinal area (p. 122, 123, 130, pl. lxxx); AGASSIZ (3).
- †*Cystocidaridae* defined as Suborder; DELAGE (54) p. 217.
- †*Cystocidaroida* defined; KLEM (142) p. 12.
- Dermatodiadema* Al. Ag. 1898, incl. *Aspidodiadema microtuberculatum*, which is genotype of *Plesiodiadema* Pomel 1883 non Duncan 1885; MORTENSEN (195) p. 38: discussed, incl. also *Aspidodiadema antillarum*; AGASSIZ (3) p. 58: descr.; DELAGE (54), p. 230. *D. amphigymnum*; MORTENSEN (195) p. 38: descr.; DE MEIJERE (57) p. 47, pl. xiv. *D. globulosum* descr. (p. 60, pls. xxiv, xxvi, xxviii, xxix), *D. horridum* descr. (p. 63, pls. xxiv-xxix); AGASSIZ (3). *D. indicum*;

- MORTENSEN (195) p. 38 : descr. ; DE MEIJERE (57) p. 46, pls. iii, xiv.  
*D. molle*; MORTENSEN (195) p. 38.
- †*Desorella* discussed (?incl. *Pachyclypeus*; LAMBERT in Review) & *D. elata*  
 descr. & figd.; WOODS (293).
- Diadema* descr.; DELAGE (54) p. 231 : diagnosis; FOURTAU (83) p. 411.  
*D. antillarum*, descr. (p. 14, pl. iii, v) [v. et. sub *Dermatodiadema*].  
*D. globulosum* [ditto], distinguished from *D. saxatile*, but probably  
 syn. of *D. savignyi* (p. 17, pl. iii), *D. lamarki* Rouss., syn. of *D.*  
*saxatile* (p. 17), *D. mexicanum* descr. (p. 15), *D. paucispinum*, perhaps  
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 MORTENSEN (195). *D. saxatile*; BELL (22A): HERDMAN (120) p. 139:  
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 p. 49, pl. xiv : incl. *D. setosum*, distinguished from *D. antillarum* & *D.*  
*savignyi*, descr., esp. pedicellariae, spicules, & radioles; MORTENSEN  
 (195) p. 9, pl. iii-v. *D. setosum*, incl. *D. savignyi*; FOURTAU (83)  
 p. 412. †*D. texanum*; UDDEN (273) p. 37.
- Diademataidae*, brief systematic account; FRITEL (87): classification of  
 genera, value of various characters, Fam. should include *Diadema*,  
*Echinothrix*, *Astropyga*, *Chaetodiadema*, *Centrostephanus*, *Lissodiadema*,  
*Placodiadema*, *Helikodiadema*; MORTENSEN (195) p. 40.
- Diademida* defined (p. 216) descr. with Tribes *Diadem-*, *Salen-*, *Cyphosom-*,  
*Echin-ina* (p. 229); DELAGE (54).
- Diademina* defined with Famm. *Aspidodiadem-*, *Diadem-*, *Micropyg-*,  
*Pedin-*, & *Hemicidaridinae*; DELAGE (54) p. 230.
- Diademinae* defined with list of genera; loc. cit.
- †*Diademopsis*:—*D. bucalis* Dumortier non Ag. is syn. of *D. serialis*, &  
*D. nuda* Dum. is syn. of *Palaeopedina globulus*; LAMBERT (148) p. 544.  
*D. serialis*; LISSAJOUS (153) p. 165.
- Dialithocidarid*; DELAGE (54) p. 237: diagnosis (p. 55), *D. gemmifera*  
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- †*Dictyopleurus*; MORTENSEN (195) p. 112.
- †*Diplocidarid*; DELAGE (54) p. 229. *D. gigantea*; MAIRE (178).
- †*Diplopodia*; DELAGE (54) p. 235. *D. aequale* (p. 165), *D. areolatum*  
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 LAMBERT in Review. *D. martini* n. sp. Lr. Callovian, Mancey nr.  
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- Diplopodidae* rejected; MORTENSEN (195) p. 44.
- Diploporus* Trosch., rejected (p. 75) but might be used for *Salmacis*  
*dussumieri* (p. 76); MORTENSEN (195).
- Diplotheacanthus* diagnosis; MEISSNER in HAMANN (112) p. 1382.
- Discocidarid* (vide etiam sub *Cidarid*); DELAGE (54) p. 227.
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- †*Dysaster*:—*D. granulatus*; WELSCH (283) p. 27; LISSAJOUS (153) p. 180.  
*D. moeschi*; loc. cit. *D. siliceus*; SIEMIRADZKI (255) p. 142.



- Dysasterinae*; DELAGE (54) p. 266.
- Echinanthus testudinarius*; HERDMAN (120) p. 141.
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- Echinina* defined with Famm. *Temnopleurus*-, *Stomopneustes*-, *Echinus*-, *Toxopneustes*-, & *Echinometr-inae*; DELAGE (54) p. 239.
- Echininae*; DELAGE (54) p. 242.
- Echinobrissus*, vide etiam *Nucleolites*. †*E. amplus* juv.; LISSAJOUS (153) p. 175. †*E. clunicularis*; loc. cit.: STRANGWAYS (266) p. 23, 49. †*E. depressus*, †*E. dimidiatus*; op. cit. p. 40. *E. (Oligopodia) epigonus*, descr., compared with *Catopygus recens*; DE MEIJERE (57) p. 141, pl. xix. †*E. goldfussi*; SIEMIRADZKI (255) p. 141. †*E. aff. olfersii*; ZLATARSKI (299). †*E. orbicularis*; LISSAJOUS (153) p. 176: STRANGWAYS (266) p. 23. †*E. peroni*; GLANGEAUD (101) p. 13. †*E. scutatus*; LISSAJOUS (153) p. 176: STRANGWAYS (266) p. 49, 54 & fig. †*E. terquemi*; LISSAJOUS (153) p. 175.
- Echinocardium*; DELAGE (54) p. 267, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1399. *E. sp.* juv.; LO BIANCO (154) p. 61, pl. xl. *E. australe*; BELL (22A): HALL (111) p. 73. *E. cordatum*; MAR. BIOL. ASS. (184) p. 211: NOBRE (198) & (199): NORDMANN (200). †*E. deikeyi*; SCHUETZE (251) p. 185. *E. flavescens*; BELL (22A): MAR. BIOL. ASS. (184) p. 211. †*E. orthonotum*; CLARK (39) p. 430, pl. cxix. *E. penatijidum*; MAR. BIOL. ASS. (194) p. 211.
- Echinocidaris* vide *Arbacia*.
- †*Echinoconus* (seu *Galerites* [melius *Conulus*]):—*E. conicus*; ROWE (235) p. 251: WRIGHT (294). *G. globulus*; HINDE (125). *E. roemeri*; GOURDON (102) p. 218. *G. vulgaris*; USSING (275) p. 86, fig.
- †*Echinocorys* (seu *Ananchites*):—*A. gibba*; RABELLE (221). *A. ovata*; ARMASCHIEWSKY (14): FUGGER (92) p. 339: KARAKASH (138) p. 26: TÖRNEBOHM (267) p. 132: USSING (275) p. 85, fig.: var. *pyramidata*; BERG (24). *E. pyramidatus*; ROWE (235) p. 256. *A. scutatus*; BURNET (33). *E. scutatus*, cum varr. *pyramidatus* et *striatus*; HINDE (125). *A. sulcata*; GRÖNWALL (109) p. 29, & (108) p. 429: TÖRNEBOHM (267) p. 143 & fig. *E. vulgaris*; DIBLEY (62): GOURDON (102) p. 218: ROWE (235) p. 239, 243, 247, 250, 255, 265, 293.
- Echinocorytidæ* discussed; DE MEIJERE (57) p. 152.
- Echinocrepis*; DELAGE (54) p. 267: diagnosis; MEISSNER in HAMANN (112) p. 1405. *E. cuneata*, actinal area (p. 124, 130), *E. setigera* descr. (p. 144, pls. lxvi-lxix also p. 124, 125, 127, 128, 130, 131); AGASSIZ (3).
- Echinocyamus* descr.; DELAGE (54) p. 254, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1380. *E. sp.*; HALL (111) p. 72. *E. crispus* descr. & compared with *E. pusillus* (p. 105, pls. vi, xvii), *E. protractus*, descr. (p. 109, pls. vi, xvii, xviii); DE MEIJERE (57). *E. pusillus*; MAR. BIOL. ASS. (184) p. 210: NOBRE (198) p. 55, & (199): †DOLLFUS (65) p. 662: †PATRINI (208) p. 741. †*E. pyriformis*; COUFFON (46) p. 43. *E. scaber n. sp.*, Malay Archipelago, 120-1886 metres; DE MEIJERE (57) p. 108, pls. vi, xvii.
- †*Echinocystidæ* defined; KLEM (142) p. 13.
- †*Echinocystis* descr.; DELAGE (54) p. 217: syn. *Cystocidaris*, defined, *E. pomum*, incl. *E. uva*, descr.; KLEM (142) p. 13.
- Echinodiscus* Leske; DELAGE (54) p. 255: diagnosis; MEISSNER in HAMANN (112) p. 1383. *E. auritus*; HERDMAN (120) p. 142: radioles, pedicellariæ, &c.; DE MEIJERE (57) p. 138, pl. xix.
- †*Echinodiscus* Worth. & Miller, vide iv, g.
- Echinolampas*; DELAGE (54) p. 264: diagnosis; FOURTAU (83) p. 427: MEISSNER in HAMANN (112) p. 1387: apical system; AGASSIZ (3) p. 173, pl. lxx. *E. depressa*, details of test; op. cit. p. 118, pl. lxiv, lxx:



radioles, pedicellariae, compared with *E. alexandri* & *E. blanchardi*; DE MEIJERE (57) p. 144, pl. xix. + *E. ellipsoidalis*; GOURDON (102) p. 221. + *E. hemisphaericus*; COUFFON (46) p. 42: DOUXAMI (69) p. 188, 561. + *E. hovelacquei*; GOURDON (102) p. 221. *E. oviformis*; FOURTAU (83) p. 428: HERDMAN (120) p. 142. + *E. scutiformis*; DOUXAMI (69) p. 188, 561: SCHUETZE (251) p. 185. + *E. subsimilis*; FUGGER (92) p. 345.

*Echinolampinae*; DELAGE (54) p. 264.

*Echinometra* descr.; DELAGE (54) p. 246: diagnosis; FOURTAU (83) p. 415: MEISSNER in HAMANN (112) p. 1377. *E. lucunter*; MARTENS (185) p. 131: G. of Suez & beaches; FOURTAU (83) p. 415. *E. mathaei* (= *lucunter* Leske), compared with *E. oblonga*; DE MEIJERE (57) p. 101. *E. oblonga*, probable new genus; DELAGE (54) p. 246: formerly confused by Mortensen with *E. mathaei*, now distinguished; MORTENSEN (195) p. 123, pl. v, vii. *E. subangularis*; BRANNER (32) p. 271.

*Echinometridæ*, vide *Selenechinus*.

*Echinometrinae* defined with list of genera; DELAGE (54) p. 246.

*Echinoneus* descr.; DELAGE (54) p. 263: diagnosis; MEISSNER in HAMANN (112) p. 1385. *E. cyclostomus*; HERDMAN (120) p. 142: radioles &c.; DE MEIJERE (57) p. 139: a sand-feeder; GARDINER (95) p. 340. *E. minor*; MARTENS (185).

*Echinoninae*; DELAGE (54) p. 263.

*Echinorodum* vide *Clypeaster*.

*Echinosoma*; DELAGE (54) p. 223.

+ *Echinospatagus cordiformis*; STRANGWAYS (266) p. 72, 76.

*Echinostrephus*; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1376. *E. molare*; HERDMAN (120) p. 139.

*Echinothrix*; DELAGE (54) p. 232. *E. calamaris*, incl. *E. desori*; DE MEIJERE (57) p. 51: fr. Redang, ambulacral radiole, pedicellariae; MORTENSEN (195) p. 30, pl. iii-v. *E. diadema*; HERDMAN (120) p. 139: MARTENS (185) p. 132: (= *turcarum*), radioles, pedicellariae; DE MEIJERE (57) p. 50, pl. xiv: pedicellariae, spicules; MORTENSEN (195) p. 31, pl. iii, iv.

+ *Echinothuria* sp.; SALTER (240).

*Echinothurida* defined (p. 216) descr. (p. 219) with Fam. *Echinothuriinae* (p. 221); DELAGE (54).

*Echinothuridae* maintained, relations discussed, derived from *Lepidocentridae*; MORTENSEN (195) p. 51.

*Echinothuriinae* defined with list of genera; DELAGE (54) p. 221.

*Echinus* descr.; DELAGE (54) p. 242, & figg.: diagnosis; FOURTAU (83) p. 416: MEISSNER in HAMANN (112) p. 1369. *E. acutus*; MAR. BIOL. ASS. (184) p. 210. *E. albocinctus* descr., distinguished from *E. magellanicus*, also in + Pliocene; LORIOU (162) p. 18, pl. i. *E. angulosus*; BELL (22A). *E. armatus* vide *Selenechinus*. *E. elegans*; DE MEIJERE (57) p. 208. *E. esculentus*; DEKHUYZEN (51): GEMMILL & LINSTOW (99): MAR. BIOL. ASS. (184) p. 210: NOBRE (198) p. 55 & (199): section of radial cord figd.; ROY. COLL. SURGEONS (237) p. 4. *E. gilchristi* n. sp., 33-700 fm., S. African coast, various locc.; BELL (22A) p. 170. + *E. lineatus*; WALTHER (281) p. 158. *E. magellanicus*, descr., is not *Sterechinus*, distinguished from *E. margaritaceus*; LORIOU (162) p. 13, pl. i. *E. microtuberculatus*; HERBST (117 & 119): development; SCHMIDT (246): vide etiam sub *Parechinus*. *E. miliaris*; HERBST (117): JANNSENS (136): MAR. BIOL. ASS. (184) p. 210: RETZIUS (226) p. 28: ZIEGLER (298): vide etiam sub *Parechinus*. + *E. molinis* [*monilis*]; COUFFON (46) p. 41. *E. neglectus*; RETZIUS (226) p. 28. *E. norvegicus* not bipolar; MEISSNER (186) p. 27. *E. saxatilis*; PARONA (207) p. 384. *E. trizonalis* is a *Psammechinus*; MORTENSEN (195) p. 120. *E. verrucosus*

*latus*, distinct from *E. angulosus*, G. of Suez and †beaches; FOURTAU (83) p. 416.

*Echinusinae* defined with lists of genera; DELAGE (54) p. 242.

†*Enallaster*:—*E. boehmi* n. sp. Lower Cretaceous, Honduras, also in Texas (p. 49, pl. iv), *E. sapperi* n. sp. ibid. (p. 47, pl. iv), *E. texanus*, descr., ibid. (p. 52, pl. iv); LORIOU (162).

*Encope*; DELAGE (54) p. 255, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1383. *E. emarginata*; LORIOU (162) p. 21.

*Eobrissus* n. g. of Prynmodermid Spatangoids, genotype *E. townsendi* n. sp., coast of Oman; BELL (22).

†*Eocidaris* defined; KLEM (142) p. 67. *E.?* sp.; KITTL (141) p. 685, pl. xxii. *E.* sp. Julien 1874 (p. 72); *E. blairi* descr. (p. 67); *E. drydenensis* (p. 71); *E. forbesianus* (p. 67), *E. hallianus*, *E. keyserlingi* (p. 68), *E. laevispinus*, *E. muensterianus* (p. 69), all descr.; *E. scrobiculata* (p. 71); *E. verneuillianus* descr. (p. 70): KLEM (142).

†*Eotiaria*; KLEM (142) p. 74.

†*Epiaster*:—*E. cuevasensis* n. sp., Lower Cretaceous, Honduras; LORIOU (162) p. 54, pl. iv. *E. distinctus*; COLLET (44) p. 44. *E. elegans*; RICHARDSON (227) p. 48. *E. gibbus*; GOURDON (102) p. 223. *E. cf. incisus*; SAVORNIN (241) p. 141. *E. renoti*; COLLET (44) p. 80.

*Eupatagus* (seu *Euspatagus*, seu *Euspatangus*); DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1397. *E. formosus*; DAINELLI (49) p. 197 & (50). *E. ornatus* GOURDON (102) p. 223. *E. valenciennesii*; HALL (111) p. 73.

*Faorina*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1391. *F. chinensis*; DE MEIJERE (57) p. 183.

*Fibularia*; DELAGE (54) p. 254: diagnosis; MEISSNER in HAMANN (112) p. 1380. *F. australis?*, 12–15 petal-pores; HERDMAN (120) p. 141. *F. cribrellum*, descr.; DE MEIJERE (57) p. 112, pls. vi, xviii. †*F. ovata* (Münst. sub *Echinoneus*), descr.; SCHUETZE (251) p. 178, pl. ii. †*F. oviformis*; BELLINI (23) p. 8. *F. ovulum*, radioles and pedicellariae; DE MEIJERE (57) p. 111, pl. xviii. †*F. tarentina*; BELLINI (23) p. 5, 8. †*F. ursendorffensis* (K. Miller, sub *Echinocyranus* [sic]) descr.; SCHUETZE (251) p. 176, pl. ii. *F. volva*; DE MEIJERE (57) p. 111: †FOURTAU (83) p. 444.

*Fibulinae* defined with list of genera; DELAGE (54) p. 254.

*Galerites*, vide *Echinoconus*.

†*Galeropygus*:—*G. marcovi*, *G. nodoti*, *G. sulcatus*; LISSAJOUS (153) p. 174.

†*Gauthieria*, apical system; AGASSIZ (3) p. 40.

*Genicopatagus* (v. etiam sub *Argopatagus*); DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (112) p. 1389. *G. affinis*; AGASSIZ (3) p. 172, 183, pl. xci.

*Genocidaris* descr.; DELAGE (54) p. 240, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1367. *G.* sp. (p. 202), *G. decipiens* n. sp., Flores Sea, 40 m. (p. 76, pl. xvi), *G. monolini*, descr. (p. 74, pls. iv, xvi); DE MEIJERE (57).

*Glyphocyphinae* Duncan, discussed; DELAGE (54) p. 240.

†*Glyphocyphus*; MORTENSEN (195) p. 112.

†*Glyphosoma* [err. pro *Cyphosoma*] *radiatum*; COLLET (44) p. 76.

†*Glypticus hieroglyphicus*, incl. *G. magniflora* Étallon; LISSAJOUS (153) p. 169.

*Glyptocidaris*; DELAGE (54) p. 238. *G. crenularis* referred to *Phymosomatidae*; MORTENSEN (195) p. 47.

*Goniocidaris*; DELAGE (54) p. 227, fig. *G. canaliculata*, juv., anal system (f. 15) generic position discussed, includes *G. nutrix* (p. 4); AGASSIZ (3): vide etiam *Centrocidaris*. *G. doederleini*, ditto. *G. tubaria*; DE MEIJERE (57) p. 204: Victoria, probably incl. *G. geranioides*; HALL (111) p. 70.

*Goniopneustes*; DELAGE (54) p. 241: maintained; MORTENSEN (195) p. 102.

*Gymnechinus*; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1371. *G. darnleyensis*, differences from type, pedicellariae; DE MEIJERE (57) p. 89, pl. xvii, but see p. 203: apical system, auriculae (p. 117), De Meijere's specimens are not this sp. (p. 116), *G. inconspicuus* n. sp. Funafuti (p. 118, pl. vi, vii); MORTENSEN (195). *G. pulchellus* n. sp., G. of Siam, 1-15 fm.; op. cit. p. 113, pl. i, ii, vii: DE MEIJERE (57) p. 203. *G. pumilio* n. sp. Malay Archipelago, 22-45 m.; op. cit. p. 90, pl. xvii, but = *Salmacis rufa* Bell, p. 203: is *Psammechinus*; MORTENSEN (195) p. 117. *G. versicolor* n. sp., Macclesfield Bank, = "*Temnopleurus reynaudi*" Bell; op. cit. p. 116, pl. vii.

*Gymnopatagus*; DELAGE (54) p. 268: diagnosis; MEISSNER in HAMANN (112) p. 1397.

*Hapalosoma* (vide etiam *Hoplosoma*); DELAGE (54) p. 223, fig.: relations to *Athenosoma*; MORTENSEN (194) p. 85. *H. pellucidum*, pedicellariae; DE MEIJERE (57) p. 37, pl. xiii.

†*Hecistocyphus*; DELAGE (54) p. 233.

*Heliocidaris*, descr.; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1376.

*Hemiaster*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1390: discussed with *H. bufo* as genotype, with *Trachyaster* as subgenus (genotype *T. globulus*), its distinction from *Linthia* based on heteronomy of IR 1; BATHER (18) p. 297. †*H. affinis* distinguished (p. 22), †*H. angustipneustes*, incl. *H. stella* d'Orb. (p. 30); LAMBERT (147). †*H. bufo*; COLLET (44) p. 44. *H. cavernosus*; LUDWIG (164) p. 692. †*H. cubicus*; FOURTAU (82) p. 233: distinguished from *Linthia oblonga*; NEWTON (196). †*H. depressus*; JAHN (134) p. 81. *H. gallegosensis* n. sp. R. Gallegos, Patagonia, and young; LORIOLO (162) p. 5, pl. i. †*H. gauthieri*; ROUSSEL (232) p. 15, & (233) pp. 28, 36. *H. gibbosus*; DE MEIJERE (57) p. 182. †*H. ligeriensis* distinguished; LAMBERT (147) p. 29. †*H. minimus*; ROWE (235) p. 241, 294. †*H. cf. minimus*; SCHARDT (244) p. 155. †*H. nasutus* descr., is *Peroniaster*; LAMBERT (147) p. 22, 23. †*H. pellati*; GOURDON (102) p. 223. †*H. pisum* (p. 25), †*H. prunella* distinguished (p. 21, 30), †*H. punctatus* distinguished, horizon (p. 26), †*H. cf. punctatus*, Garumnian (p. 28), †*H. pusillus* young of *H. nasutus* (p. 22), †*H. stella* Morton is *Bolbaster* (p. 31); LAMBERT (147). †*H. sudanensis* n. sp. Eocene, Garadimi and Tamaské in Sokoto; BATHER (18) p. 299, pl. xi: probably *Linthia*; LAMBERT in Review. †*H. suevicus*; SCHUETZE (251) p. 180. †*H. tamulicus*; LAMBERT (147) p. 29. †*H. vancouverensis* n. sp. Nanaimo group, Upper Cretaceous, Cowichan R. and Shopland, Vancouver Id., cotypes internal casts in Mus. Geol. Surv. Ottawa; WHITEAVES (285) p. 289. †*H. verneuxi*; ROUSSEL (233) p. 36. †*H. verticalis*; FUGGER (92) p. 345.

†*Hemicidaris*, descr.; DELAGE (54) p. 234. *H. crenularis*; MAIRE (178). *H. intermedia*; op. cit.: ROLLIER (230) p. 466; STRANGWAYS (266) p. 59. *H. purbeckensis*; GLANGEAUD (101) p. 33. *H. undulata*; MAIRE (178). *H. zignoi*; DEL CAMPANA (55) p. 267.

*Hemicidarinae* defined with list of genera; DELAGE (54) p. 234.

*Hemipatagus mascareignarum* discussed; DE MEIJERE (57) p. 191.

*Hemipedina*, systematic position; DE MEIJERE (57) p. 67. †*H. chalmasi*, †*H. granulata*? juv., †*H. icaunensis*; LISSAJOUS (153) p. 166. *H. indica*, descr., esp. radioles & pedicellariae; DE MEIJERE (57) p. 65, pls. iii, xv, xvi. †*H. lorioli* n. sp., Bathonian, Davayé; LISSAJOUS (153) p. 167, pl. ii. †*H. woodwardi*; STRANGWAYS (266) p. 23.

†*Hessotiarra minor* n. sp., Hettangian of Vendée; LAMBERT (148) p. 542, pl. xviii.



- Heteraster* compared with *Enallaster*; LORIOL (162) p. 48. +*H. oblongus*; SCHARDT (244) p. 136.
- Heterocentrotus*; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1377: ditto, incl. *Acrocladia*; FOURTAU (83) p. 413. *H. mamillatus*; COUTIÈRE (48): DE MEIJERE (57) p. 102; MARTENS (185) p. 132: entrance to G. of Suez and raised beaches, but not at Port Said as cited by Gauthier; FOURTAU (83) p. 414. *H. trigonarius*; DE MEIJERE (57) p. 102.
- +*Heterolampas maresi*; SAVORNIN (241) p. 150.
- +*Heterosalenia* discussed; DELAGE (54) p. 234.
- Histocidaris* (vide etiam sub *Cidaris*); DELAGE (54) p. 228: rejected; AGASSIZ (3) p. 24.
- +*Holaster*; DELAGE (54) p. 265, fig. *H. carinatus*; RADKEVICH (222): WOLLEMAN (290). *H. favensis*; TÖRNEBOHM (267) p. 143. *H. laevis*; STRANGWAYS (266) p. 80: WOLLEMAN (290). *H. nodulosus*; COLLET (44) pp. 44, 47, 70. *H. placenta*; BURNET (33): JAHN (134) pp. 83, 84, 86, 89: ROWE (235) p. 248, 294: distinguished from *H. planus*; JUKES-BROWNE (137) p. 458. *H. planus*; BURNET (33): PETRASCHECK (216): ROWE (235) p. 241, 243, 293: distinguished from *H. laevis*; JUKES-BROWNE (137) p. 457. *H. rotundus*; STRANGWAYS (266) p. 80. *H. scanensis*; TÖRNEBOHM (267) p. 132. *H. subglobosus*; STRANGWAYS (266) p. 80: WOLLEMAN (290): Lambert quoted; COLLET (44) pp. 70, 74. *H. suborbicularis* (p. 78), *H. trecencis*? (p. 80); STRANGWAYS (266).
- Holasterinae* defined with list of genera in Subfam. *Ananchytinae* & *Collyritinae*; DELAGE (54) p. 265.
- +*Holocypneustes gourdoni*; GOURDON (102) p. 220.
- Holectypida* defined with Fam. *Holectyp-*, & *Conoclyp-inae*; DELAGE (54) p. 248.
- Holectypinae* defined with list of genera; DELAGE (54) p. 248.
- +*Holectypus* descr.; DELAGE (54) p. 248, fig. *H. corallinus*; LISSAJOUS (153) p. 172. *H. depressus*; CLERC (42) p. 96: STRANGWAYS (266) p. 23: var.; LISSAJOUS (153) p. 172, pl. ii. *H. hemisphaericus*; op. cit. p. 171: incl. *H. devauxianus*, resemblance to *H. depressus* in young; CLERC (42) p. 97. *H. oblongus*; STRANGWAYS (266) p. 40. *H. planatus*; UDDEN (273) p. 37. *H. scutatus*; STRANGWAYS (266) p. 40. *H. texanus*; RICHARDSON (227) p. 48.
- Holopneustes*; DELAGE (54) p. 241. *H. inflatus*, holotype examined; MORTENSEN (195) p. 107. *H. porosissimus*; HALL (111) p. 72: measurements; MORTENSEN (195) p. 107. *H. purpurascens*, holotype descr.; op. cit. p. 106, pl. ii, vii.
- Homolampas* (v. etiam sub *Argopatagus*); DELAGE (54) p. 270: diagnosis; MEISSNER in HAMANN (112) p. 1401. *H. fragilis*, *H. fulva* (p. 175, figg.), *H. gracilis* (p. 176), *H. hastata* descr. (p. 175, pls. lv, lxiii, lxiv); AGASSIZ (3). *H. rostrata* descr.; DE MEIJERE (57) p. 196, pl. xxiii.
- Hoplosoma* [err. pro *Hapalosoma*], rejected; AGASSIZ (3) p. 85.
- +*Hyboctypus* (seu -eus):—*H.* sp.; SIEMIRADZKI (255) p. 141. *H. gibberulus*, difference between Callovian & Bathonian forms; *H. ovalis*: LISSAJOUS (153) p. 173.
- Hygrosoma*; DELAGE (54) p. 223: rejected; AGASSIZ (3) p. 85. *H. hoplakantha*, radioles, pedicellariae, spicules, also young specimens; DE MEIJERE (57) p. 37, pl. xiii.
- +*Hypodiadema balsami* Stopp., probably *Acrosalenia*; LAMBERT (148) p. 540.
- Hypsiechinus* descr.; DELAGE (54) p. 239, figg. *H. coronatus*; LUDWIG (165).
- +*Iheringiana*; DELAGE (54) p. 255.
- +*Infulaster*:—*I. excentricus*; BURNET (33): FUGGER (92) p. 339: ROWE



- (235) p. 251. *I. rostratus*, enlarged range; op. cit. p. 248, 249, 256, 266, 294.
- Irregulariæ* [sic] defined (p. 215) descr. (p. 247) with Orders *Hoelectyp-*, *Clypeastr-*, & *Spatang-ida* (p. 248); DELAGE (54).
- Kamptosoma*; DELAGE (54) p. 224. *K. indistinctum* n. sp., Challenger Station 272 = *Phormosoma tenue?* of Chall. Rep., descr.; AGASSIZ (3) p. 110, pl. 1.
- +*Koninckocidaris*; KLEM (142) p. 74.
- Lagana decagona* Blainv. = *Laganum decagonale*; DE MEIJERE (57) p. 117.
- Laganum*; DELAGE (54) p. 254, fig. : diagnosis; MEISSNER in HAMANN (112) p. 1381 : various specific characters discussed; DE MEIJERE (57) p. 113. *L. anale* n. sp., Moluccas, 90-141 m. : op. cit. p. 129, pls. vi, xviii. *L. bonani*; FOURTAU (83) p. 423; MARTENS (185) : radioles, &c.; DE MEIJERE (57) p. 114, pl. xviii. *L. conicum* n. sp., near Macassar, 450 m. (p. 120, pls. vi, xviii), *L. (Peronella) decagonale*, descr. (p. 117, pls. vi, xviii); DE MEIJERE (57). *L. decagonum*; MARTENS (185). *L. depressum*; HERDMAN (120) p. 141 : radioles, position of gonopores; DE MEIJERE (57) p. 114, pls. vi, xviii : †var. *sinaiticum*; FOURTAU (83) p. 444. *L. fragile*, *L. fudsiyama* (p. 130) *L. lesueurii* distinguished from *L. decagonale* and descr., also young, incl. *L. elongatus*, *L. rostratum*, & *Peronella rubra* (p. 122, pls. vi, xviii), *L. minutum* n. sp., Sulu Archipelago, 13-23 m. (p. 125, pls. vi, xviii); DE MEIJERE (57). *L. orbiculare*; MARTENS (185) : distinguished from *L. decagonale* and descr., also young, perhaps incl. *Peronella ludwigi* Pfeffer; DE MEIJERE (57) p. 116, 126, pls. vi, xviii. *L. (Peronella) peronii* & *L. putnami* discussed (p. 116), *L. solidum* n. sp., Sulu Sea & Timor, 73-350 m. (p. 121, pl. vi); op. cit.
- +*Lambertia*; AGASSIZ (3) p. 200.
- Leiocidaris pistillaris* vide sub *Cidaris baculosa*.
- +*Leiopodina tallavignesi*; DAINELLI (50) : descr., incl. *Chrysomelon pictum*; DAINELLI (49) p. 193.
- +*Leiosoma* :—*L. bahezrei*, *L. gourdoni*; GOURDON (102) p. 223.
- Leodia*, vide sub *Cassidulus*.
- +*Lepidechinus* defined; KLEM (142) p. 20. *L. imbricatus* descr.; op. cit. p. 21 : interambulacrals; AGASSIZ (3) p. 79, 80. *L. rarispinus* descr.; KLEM (142) p. 21.
- +*Lepidesthes* defined, syn. *Hybochinus*, *L. colletti* descr. (p. 24), *L. coreyi* descr. (p. 25), *L. devonians* (p. 26), *L. formosus* descr. (p. 25), *L. laevis* (p. 27), *L. spectabilis* descr. (p. 26), *L. wortheni* descr. (p. 28); KLEM (142).
- +*Lepidesthesinae* defined with list of genera; DELAGE (54) p. 218.
- +*Lepidesthidae*; KLEM (142) p. 22.
- +*Lepidocentridae* defined; KLEM (142) p. 16.
- +*Lepidocentrus*; DELAGE (54) p. 218 : defined, *L. eifelianus* descr. (p. 16), *L. muelleri* & *L. rhenanus* descr. (p. 17); KLEM (142).
- +*Lepidocentrusinae* defined with list of genera; DELAGE (54) p. 218.
- +*Lepidocidaris* defined & *L. squamosus* descr.; KLEM (142) p. 72.
- +*Lepitechinus* & *L. gracilis*; KLEM (142) p. 74.
- Linopneustes*; DELAGE (54) p. 268 : diagnosis; MEISSNER in HAMANN (112) p. 1398 : discussed; AGASSIZ (3) p. 178. *L. excentricus*; op. cit. p. 183 : descr.; DE MEIJERE (57) p. 180, 240, pls. x, xxii. *L. longispinus* (p. 178-185, 204, & figg., pl. xciii, xciv), *L. murrayi* (p. 178, 183); AGASSIZ (3).
- Linthia* (v. etiam sub *Hemiaster*); DELAGE (54) p. 271 : diagnosis; MEISSNER in HAMANN (112) p. 1391 : distinguished from *Schizaster* & *Periaster*; TORNQUIST (268) p. 392. †*L. aragonensis* & †*L. arizensis*; GOURDON (102) p. 219. *L. australis*; HALL (111) p. 73. †*L. bisulca*,

- †*L. cotteaui*, †*L. dubia*, & †*L. ducrocqui* distinguished from *Hemiaster sudanensis*; BATHER (18) pp. 302, 303. †*L. heberti* (p. 218), †*L. hovelacquei* (p. 219); GOURDON (102). †*L. irregularis*; FUGGER (92) p. 339. †*L. oblonga*, Cenomanian, Sinai, descr. and figd., distinguished from *Hemiaster cubicus*; NEWTON (196). †*L. orbigny*, †*L. poblae*; GOURDON (102) p. 219. †*L. pomeli*, †*L. sindensis*; BATHER (18) p. 302.
- Lissodiadema*; DELAGE (54) p. 232.
- Lobophora bifissa*; MARTENS (185). *L. truncata* vide *Tretodiscus bisperforatus*.
- Lovenia*; DELAGE (54) p. 268: diagnosis; FOURTAU (83) p. 428: MEISSNER in HAMANN (112) p. 1400. *L. elongata*; BELL (22A): DE MEIJERE (57) p. 193: HERDMAN (120) p. 142: measurements, incl. *Spatangus crux Andreeae* Audouin non Lam.; FOURTAU (83) p. 429. *L. gregalis*, tubercles, young (p. 194, pl. x), *L. subcarinata* (p. 194); DE MEIJERE (57).
- Loxechinus* diagnosis; MEISSNER in HAMANN (112) p. 1369. *L. albus*; DE MEIJERE (57) p. 208, 230.
- †*Lysechinus*; DELAGE (54) p. 219: origin of interambulacral; AGASSIZ (3) p. 82.
- †*Macropneustes* diagnosis; MEISSNER in HAMANN (112) p. 1397. *M. brissoides*; DAINELLI (49) p. 195 & (50). *M. decipiens*; BASEDOW (16). *M. pulvinatus*; FUGGER (92) p. 345. *M. trutati*; GOURDON (102) p. 218.
- †*Magnosia*:—*M. decorata* (p. 169), *M. forbesi* (p. 168); LISSAJOUS (153).
- Maretia*; DELAGE (54) p. 268, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1396. *M. alta*; DE MEIJERE (57) p. 192: HERDMAN (120) p. 142. †*M. aragonensis*; GOURDON (102) p. 218. *M. planulata*; HERDMAN (120) p. 142: variation in fascioles; DE MEIJERE (57) p. 190, pl. xxiii. †*M. zisei* incl. some specimens referred by Gagel to *Spatangus gottschei*; LAMBERT in Review of GAGEL.
- Melobosis* Girard, rejected; MORTENSEN (195) p. 75.
- Mellita* descr.; DELAGE (54) p. 255, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1384. *M. pentapora*, descr., range, young; CLARK (38) p. 565, pl. x.
- Mellitella* diagnosis; MEISSNER in HAMANN (112) p. 1384.
- †*Melonites*; DELAGE (54) p. 219, fig.: defined, synn. *Melonechinus*, *Mel-echinus*; KLEM (142) p. 40: interambulacral; AGASSIZ (3) p. 80. *M.* sp. Julien, 1874, & Tornquist, 1897 (p. 44), *M. crassus* & *M. dispar* descr. (p. 41), *M. etheridgii* (p. 44), *M. irregularis* descr. (p. 41), *M. multiporus* (incl. *M. indianensis*, *M. giganteus*, & *Oligoporus sulcatus*) descr. (p. 42, pls. i-vi), *M. septenarius* descr. (p. 43); KLEM (142).
- †*Melonitesinae* defined with list of genera; DELAGE (54) p. 219.
- †*Melonitidae* defined syn. *Palaechinidae*, *Melonechinidae*; KLEM (142) p. 27.
- Meoma*; DELAGE (54) p. 270, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1394.
- Mespilia*; DELAGE (54) p. 241. *M. globulus*, DE MEIJERE (57) p. 87: pedicellariae, &c.; MORTENSEN (195) p. 96, pl. vi, vii. *M. levituberculata* (p. 98), *M. whitmaei* syn. of *M. globulus* (p. 97); MORTENSEN (195).
- Metalia*; DELAGE (54) p. 270: diagnosis; MEISSNER in HAMANN (112) p. 1394: diagnosis, incl. *Prometalia* & *Plagiobrissus*; FOURTAU (83) p. 430; *M. maculosa*, G. of Suez & †beaches, measurements, growth-changes; op. cit. p. 431. *M. spatagus* (= *maculosa*); DE MEIJERE (57) p. 184. *M. sternalis*, young, compared with *M. robillardii* & *Xanthobrissus garetti*; op. cit. p. 185, pls. xxii, xxiii: & ? var. nov. minor, G. of Suez; FOURTAU (83) p. 432.

†*Metamorphinus convexus*; DEL CAMPANA (55) p. 267.

†*Micraster*; DELAGE (54) p. 268, fig. *M. spp.*; ROWE (235) p. 266. *M. antiquus*; ROUSSEL (234) p. 37. *M. breviporus*; COLLET (44) p. 80: FLEGEL (79). *M. brevis*; GOURDON (102) p. 217: ROUSSEL (232) p. 13, 18. *M. cf. brevis*; ROUSSEL (233) p. 29, 33. *M. coranguinum*; COLLET (44) p. 80: FUGGER (92) p. 339: HINDE (125): ROWE (235) p. 250, 251, 293: diagnosis; JUKES-BROWNE (137) p. 27. *M. corbovis*, diagnosis; op. cit. p. 22. *M. cor-columbarium*; GOURDON (102) p. 217. *M. cortestudinarium*; BURNET (33): COLLET (44) p. 80: JAHN (134) p. 81: diagnosis; JUKES-BROWNE (137) p. 26. *M. de lorioli*; JAHN (134) pp. 81, 83, 89. *M. gibbus* (?); FUGGER (92) p. 339. *M. gourdoni*; GOURDON (102) p. 217. *M. heberti*; ROUSSEL (233) p. 29, 33. *M. incan-nensis* [sic]; COLLET (44) p. 80. *M. leskei*; BURNET (33): diagnosis; JUKES-BROWNE (137) p. 24. *M. praecursor*; ROWE (235) p. 245, 294: diagnosis; JUKES-BROWNE (137) p. 24. *M. senonensis*; COLLET (44) p. 80. *M. testudinarum* [sic]; FUGGER (92) p. 339.

*Microcyphus*; DELAGE (54) p. 241: distinguished from *Amblypneustes*; MORTENSEN (195) p. 101. *M. annulatus* n. sp., Bass Str. 40 fm. (p. 100, pl. v, vi), *M. elegans* n. sp., Port Philip, = "*M. zigzag*" Bell 1888 (p. 99, pl. vi, vii), *M. maculatus*, pedicellariae, radioles (p. 98, pl. ii, vi, vii) & var. (p. 99), *M. rousseaui* (p. 98); MORTENSEN (195). *M. zigzag*; HALL (111) p. 71: pedicellariae, radioles, &c., incl. specimens named *Amblypneustes ovum*; MORTENSEN (195) p. 9, pl. ii.

†*Micropsis*:—*M. frossardi*; GOURDON (102) p. 223. *M. stachei*; DAINELLI (50): cf. *M. veronensis*; DAINELLI (49) p. 192.

*Micropyga* discussed; DELAGE (54) p. 232: spicules distinct fr. *Astropyga* (p. 19), pedicellariae (p. 32, pl. iv, v); MORTENSEN (195). *M. tuberculata*, radioles, podia & spicules, pedicellariae (p. 59, pls. xiv, xv), *M. violacea*, descr. (p. 63, pls. iv, xv); DE MEIJERE (57).

*Micropygidae* n. fam. for *Micropyga*; MORTENSEN (195) p. 45.

*Micropyginae* [=preceding] defined; DELAGE (54) p. 232.

*Moira*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1392: diagnosis, its claim to the name *Schizaster* rejected, the genotype of the latter thus becoming †*S. studeri*; FOURTAU (83) p. 440. *M. sp.*, radioles, spicules; DE MEIJERE (57) p. 183: this specimen is perhaps young of *M. stygia*; AGASSIZ (3) p. 216. *M. clotho* details of test, compared with *M. atropos*; op. cit. p. 214, pl. cix. *M. stygia*, descr.; FOURTAU (83) p. 441, pl. i.

*Moiropsis* diagnosis; MEISSNER in HAMANN (112) p. 1393.

*Moulinisia* diagnosis; op. cit. p. 1385: perh. young *Encope*; DELAGE (54) p. 255.

†*Myriastiches* & *M. gigas*; KLEM (142) p. 74.

*Nacospatangus*; AGASSIZ (3) p. 200: diagnosis; MEISSNER in HAMANN (112) p. 1398. *N. gracilis* additional details of test; AGASSIZ (3) p. 202, pl. xcvi.

*Neolampas* diagnosis; MEISSNER in HAMANN (112) p. 1387: apical system; AGASSIZ (3) p. 173, pl. lxiv. *N. rostellata*, details of test; op. cit. p. 119–121, pl. lxiv. *N. tenera*, descr.; DE MEIJERE (57) p. 146, pl. vi, xix.

*Neopneustes* diagnosis; MEISSNER in HAMANN (112) p. 1399.

†*Noetlingia* sp.; BOULE (30).

*Nucleolites* (vide etiam *Echinobrissus*); DELAGE (54) p. 264: diagnosis; MEISSNER in HAMANN (112) p. 1385. †*N. bohemicus*; ZAHÁLKA (296) p. 18, 149.

*Nucleolitinae*; DELAGE (54) p. 263.

†*Offaster*, vide sub *Cardiaster*.

*Oligopodia* diagnosis; MEISSNER in HAMANN (112) p. 1386.

†*Oligoporus* defined (p. 37), *O. coreyi* descr. (p. 38), *O. danae* descr. (p. 37),



*O.?* *minutus* (p. 40); KLEM (142). *O. missouriensis* descr.; KLEM (142) p. 38: interambulacra; AGASSIZ (3) p. 79, 80. *O. mutatus*, *O. nobilis* (p. 39), *O. parvus* (p. 40), all descr.; KLEM (142). *O. soreili* n. sp. Viséan, Belgium; FRAIPONT (85) p. 10, pls. iii, iv, v.

*Opechinus*; DELAGE (54) p. 240: maintained for *Pleurechinus variabilis* Doed. & *O. rousseaui*, *hookeri*, *costatus*, *tuberculosis*, *valenciennesi*, *percutus*, *affinis*, all Tertiary, India; MORTENSEN (195) p. 92. *O. spectabilis* n. sp., Kei Is., New Guinea, 129 fm., is the *Temnopleurus hardwicki* of Challenger Rep. p. 107 (p. 94, pl. i, v-vii), *O. variabilis*, *pedicellariae*, *spicules*, &c. (p. 94, pl. vi, vii); MORTENSEN (195).

†*Oppenheimia*; DELAGE (54) p. 268.

†*Oriolampas* (v. etiam sub *Plesiolampas*):—*O. lorioli*; GOURDON (102) p. 221.

*Orthopsidae* Greg., criticised; MORTENSEN (195) p. 44.

†*Orthopsis miliaris*; ROUSSEL (232) p. 15 & (233) pp. 28, 36.

†*Palaechinus* defined, syn. *Typhlechinus* (p. 31), *P.* sp. Julien, 1874, & *P.* sp. Mitchell, 1897 (p. 36), *P.* sp. Tornquist 1897 (p. 37), *P. ellipticus* descr. (p. 31), *P. gigas* descr. (p. 32); KLEM (142). *P. globosus*; PEACH (209) p. 842. *P. intermedius* descr., *P. konincki* [i.e. *koenigi* M<sup>c</sup>Coy, confused with *konincki* Julien], descr.; KLEM (142) p. 33. *P. konincki* (p. 9, pl. iii), *P. lacazei* (p. 9, pls. i, ii); FRAIPONT (85): descr.; KLEM (142) p. 34. *P. paradoxus*, *P. phillipsiae* (p. 35), *P. robineti*, *P. rutoti* (p. 36), *P. sphericus*, descr. (p. 34); KLEM (142).

†*Palechinida* defined with Suborders *Bothriocidaridae*, *Cystocidaridae*, & *Perischoechinidae*; DELAGE (54) p. 216.

†*Palaëchinoida* as Sub-class, principles of classification, divided into Orders, A. *Cystocidaroida* with Famm. *Palaëodiscidae* & *Echinocystidae*, B. *Bothriocidaroida* with Fam. *Bothriocidaris*, C. *Perischoëchinoida* with Famm. *Lepidocentr-*, *Lepidesth-*, *Melonit-*, & *Archaeocidaridae*; KLEM (142).

*Palaëobrissus* (seu *-bryssus*) (vide etiam sub *Argopatagus*); DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (112) p. 1390: ambulacra & apical system; AGASSIZ (3) p. 174.

†*Palaëodiscidae* defined; KLEM (142) p. 12.

†*Palaëodiscus* descr.; DELAGE (54) p. 218: defined, & *P. ferox*, descr.; KLEM (142) p. 12: anatomy; SPENCER (264).

*Palaëolampas crassa*; BELL (22A).

†*Palaëopedina*? sp.; LAMBERT (148) p. 543, pl. xviii.

*Palaëopneustes* descr.; DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (p. 112) p. 1389: discussed; DE MEIJERE (57) p. 240 & AGASSIZ (3) p. 178. *P. cristatus*; op. cit. p. 178, 180, 183, & figg., pl. xcv, xcvi. *P. fragilis*; op. cit. p. 183: descr.; DE MEIJERE (57) p. 175, 240, pls. ix, xxi, xxii. *P. hemingi* (p. 182), *P. hystrix* details of test, is not to be separated as *Archaeopneustes* (p. 179-186, & figg., pl. xcvi); AGASSIZ (3). *P. spectabilis*; op. cit. p. 180, 183: descr.; DE MEIJERE (57) p. 172, 240, pls. viii, xxi.

*Palaëopneustidae*, as sub-fam. [of *Spatangidae*] incl. *Palaëopneustes*, *Lino-pneustes*, *Homolampas*, *Phrissocystis*, *Argopatagus*, *Genicopatagus*, *Palaëotropus*, & *Palaëobrissus* (p. 131), as fam. of "Ananchytid *Spatangoids*" (p. 150); AGASSIZ (3).

*Palaëostoma* descr.; DELAGE (54) p. 272: diagnosis; MEISSNER in HAMANN (112) p. 1402. *P. mirabile*; DE MEIJERE (57) p. 172.

*Palaëotropus* (v. etiam sub *Argopatagus*); DELAGE (54) p. 270: diagnosis; MEISSNER in HAMANN (112) p. 1401. *P. hironellei* distinctive characters (p. 170), *P. josephinae* (p. 171, figg.); AGASSIZ (3). *P. loveni*; DE MEIJERE (57) p. 200: redescr.; AGASSIZ (3) p. 168, pl. lxxxvii.

*Parabrissus*; AGASSIZ (3) p. 200.



- Paracentrotus* descr. ; DELAGE (54) p. 243, fig. : diagnosis ; MEISSNER in HAMANN (112) p. 1370. *P. lividus* ; DELAGE (54) p. 243.
- Parasalenia* descr. ; DELAGE (54) p. 245 : diagnosis ; MEISSNER in HAMANN (112) p. 1375. *P. gratiosa*, compared with *P. pöhlii*, pedicellariae ; DE MEIJERE (57) p. 97, pl. xvii : pedicellariae, incl. *P. pöhlii*, young, specimen recorded from Zanzibar, Bell 1903, is *Stomopneustes variolaris* ; MORTENSEN (195) p. 121, pl. v.
- Parasaleniniinae* ; DELAGE (54) p. 245.
- Paraster* discussed ; FOURTAU (83) p. 435.
- Parechininae* ; DELAGE (54) p. 242.
- Parechinus* descr. ; loc. cit., figg. : diagnosis ; MEISSNER in HAMANN (112) p. 1368. *P. microtuberculatus*, *P. miliaris* ; DELAGE (54) p. 242.
- †*Pedina* ; DELAGE (54) p. 233. *P. arenata* (p. 170), *P. gigas* (p. 169) ; LISSAJOUS (153). *P. lithographica* ; WALTHER (281) p. 167. *P. sublaevis* ; MAIRE (178) : LISSAJOUS (153) p. 169 : not typical form ; LAMBERT in Review.
- Pedinidae* should include *Pedina*, *Caeno-*, *Pseudo-*, *Micro-*, *Leio-*, *Echino-*, *Hemi-*, *Phymo-*, & *Palaeo-pedina*, *Mesodiadema*, *Echinopsis*, *Diademopsis*, *Hecistocyphus*, *Orthopsis*, *Miorthopsis*, *Gymnodiadema* ; MORTENSEN (195) p. 46.
- Pedininae* defined with list of genera ; DELAGE (54) p. 233.
- †*Pedinothuria* ; DELAGE (54) p. 235 : referred to *Pseudodiadematidae* ; MORTENSEN (195) p. 52.
- †*Pelanechinus* descr. ; DELAGE (54) p. 224.
- †*Peltastes* :—*P. clathratus* ; COLLET (44) p. 77. *P. stellulatus* ; STRANGWAYS (266). *P. aff. stellulatus* ; ZLATARSKĪ (299). *Peltaster* [sic] *umbrella* ; FORTIN (81).
- Periaster* ; DELAGE (54) p. 271 : distinguished ; TORNQUIST (268) p. 392. *P. limicola* not this genus ; loc. cit. : of Challenger Rep. pl. xxxvb, f. 1-4 is not this sp. ; AGASSIZ (3) p. 210. †*P. oblongus* vide sub *Linthia*. *P. tenuis* descr., compared with *P. limicola* & *Hemiaster bufo* ; AGASSIZ (3) p. 209, pls. ciii-cv.
- Peripatagus*,—*Perypatagus* [sic] ; DELAGE (54) p. 271 : diagnosis ; MEISSNER in HAMANN (112) p. 1391.
- †*Perischodomus* defined, synn. *Perischocidaris*, *Homotoechus*, *Tretechinus* (p. 18), *P. biserialis* descr. (p. 18), *P. hartei* descr. (p. 19), *P. illinoiensis* descr., *P. magnus* (p. 20) ; KLEM (142).
- †*Perischoechinidae* defined as Suborder with Famm. *Lepidocentrus*, *Lepidesthes*, *Archaeocidaris*, *Melonites*, & *Tiarechinus-inae* ; DELAGE (54) p. 217, 218.
- †*Perischoechinoida* defined ; KLEM (142) p. 15.
- †*Permocidaris* ; KLEM (142) p. 74.
- Peronella* discussed, merged in *Laganum* (q. v.), *P. pellucida* ; DE MEIJERE (57) p. 130.
- †*Peroniaster nasutululus*, vide sub *Hemiaster*.
- Petalocidaris* vide sub *Cidaris* ; DELAGE (54) p. 227 : rejected ; AGASSIZ (3) p. 22.
- †*Pholidocidaris* defined (p. 22), *P. gaudryi* (p. 23), *P. irregularis* incl. *P. meeki*, descr. (p. 22), *P. tenuis* (p. 23) ; KLEM (142).
- Phormosoma* descr. ; DELAGE (54) p. 221 & fig. *P. sp.* ; BELL (22A). *P. sp.* (p. 32, pl. xii), *P. alternans* descr. (p. 31, pls. iii, xii), *P. bursarium*, young individuals, discussion of Agassiz' figures of young *Phormosoma* (p. 28) ; DE MEIJERE (57). *P. hispidum* descr., growth changes (p. 86, pls. A, B, xxx-xlix, also p. 76-79), *P. panamense* descr. (p. 101, figg.) ; AGASSIZ (3). *P. placenta* juv. descr. ; op. cit. p. 100, pls. xliii, xlvi : protechinus stage ; MORTENSEN (195) p. 54, fig. *P. verticillatum* n. sp., B. of Bengal, 678 fm. ; MORTENSEN (194) p. 90, pl. iv, v. *P. zealandiae* n. sp., Challenger Station 169 = *Asthenosoma gracile* ? of Chall. Rep. ; AGASSIZ (3) p. 105, pl. li.

- Phrissocystis* (v. etiam sub *Argopatagus*); DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (112) p. 1403: discussed; AGASSIZ (3) p. 186. *P. aculeata* descr.; op. cit. p. 187, pls. lxxx-xc. *P. humilis* descr.; DE MEIJERE (57) p. 198, pls. x, xxiii: criticised; AGASSIZ (3) p. 187.
- Phyllacanthus* (v. etiam sub *Cidaris*); DELAGE (54) p. 227. *P. australis*; DE MEIJERE (57) p. 12. *P. baculosa* (p. 138). *P. imperialis* (p. 139); HERDMAN (120).
- †*Phymosoma*, vide sub *Cyphosoma*.
- Pilematechinus* n. g. of *Urechinidae* for *Cystechinus rathbuni* A. Ag. genotype and *C. vesica* A. Ag. (p. 163), *P. rathbuni* descr. (p. 165, pls. lxxxv-lxxxvi, also p. 122, 124, 130); AGASSIZ (3).
- Plagiobrissus*, vide *Metalia*.
- Platybrissus* (seu *-bryssus*); DELAGE (54) p. 273: diagnosis; MEISSNER in HAMANN (112) p. 1388.
- Plesianthus*, diagnosis; MEISSNER in HAMANN (112) p. 1382.
- Plesiadiadema* Pomel, rejected in favour of *Dermatodiadema* A. Ag.; AGASSIZ (3) p. 59: replaces *Dermatodiadema* (q. v.); MORTENSEN (195) p. 38.
- †*Plesiolampas* discussed; BATHER (18) p. 292: probably not to be separated from *Oriolampas*; LAMBERT in Review. *P. saharæ* n. sp., Eocene, Garadimi & Tamaské in Sokoto; BATHER (18) p. 293 & figg., pl. xi: see also OPPENHEIM (201) p. 253, 283.
- Plesiozonus*; DELAGE (54) p. 273: diagnosis; DE MEIJERE (57) p. 177 & MEISSNER in HAMANN (112) p. 1389: discussed; AGASSIZ (3) p. 183. *P. hirsutus*, descr.; DE MEIJERE (57) p. 178, 240, pls. vii, xxii.
- Pleurechinus*; DELAGE (54) p. 241: distinguished fr. *Temnopleurus*; MORTENSEN (195) p. 91. *P. bothryoides*, descr., probably incl. *Temnopleurus toreumaticus*? juv. Sladen 1879, and *Temnechinus scillae* Mazzetti 1894; DE MEIJERE (57) p. 77, pl. xvi, but see p. 202: holotype descr., pedicellariae, spicules, &c.; MORTENSEN (195) p. 83, pls. vi, vii. *P. doederleini* n. sp., G. of Siam, 5-9 fm.; op. cit. p. 77, pls. i, ii, vi, vii. *P. maculatus* n. sp., Macclesfield Bank, = "*Temnopleurus bothryoides*" Bell, and other Indo-Pacific locc.; op. cit. p. 89, pl. i: also with *P. reticulatus* n. sp.; MORTENSEN in DE MEIJERE (57) p. 202, 228. *P. ruber*, maintained (p. 82), pedicellariae, &c. (p. 84, pl. vi, vii), *P. scillae* (Mazzetti sub *Temnechinus*) holotype examined, species redescr., incl. *P. reticulatus* Mortnsn in Meijere (p. 86, pls. i, ii, vi, vii); MORTENSEN (195). *P. siamensis* n. sp., G. of Siam, 3-38 fm., and other Indo-Pacific locc., n. var. *pulchellus*, Amirante and Maldive Is.; op. cit. p. 79, pls. i, ii, vi, vii: also MORTENSEN in DE MEIJERE (57) pp. 202, 228. *P. variabilis*; DE MEIJERE (57) p. 79, 202: these specimens are partly *Genocidaris* sp. nondescr. (p. 94), but the species is an *Opechinus* (p. 82), *P. variegatus* n. sp., Formosa Channel and Japanese Seas (p. 84, pls. i, ii); MORTENSEN (195).
- Plexechinus*; DELAGE (54) p. 267: diagnosis; MEISSNER in HAMANN (112) p. 1405: discussed, compared with *Urechinus* et al.; AGASSIZ (3) p. 148. *P. cinctus*, descr.; op. cit. p. 150, pls. lv, lviii-lx, also p. 130.
- Podocidaris*; DELAGE (54) p. 237. *P.* sp., young, compared with *P. prionigera* and *P. sculpta*; DE MEIJERE (57) p. 68, pl. xvi.
- Porocidaris*; DELAGE (54) p. 228, fig.: discussed; AGASSIZ (3) p. 24. *P. cobosi*, shape of test (p. 1, f. 4), size of actinal system (p. 3, f. 13), anal plates in young (p. 6, f. 20, 21), growth of coronal plates (p. 11, f. 30-42), descr. and discussed (p. 29, pls. ix-xiii); AGASSIZ (3). *P. maculicollis*, vide *Cidaris*. *P. milleri*; DE MEIJERE (57) p. 27: shape of test (p. 1, f. 6), growth of ambulacrals (p. 2, f. 7-10), size of actinal system (p. 3, f. 11) anal plates in young (p. 5, f. 16-19), descr. and discussed (p. 25, pls. vi-viii, x); AGASSIZ (3). †*P. pseudoserrata*; CHECCHIA (37). †*P. schmideli*; DAINELLI (49) p. 192, & (50).
- Pourtulesia*, descr.; DELAGE (54) p. 266, figg.: diagnosis; MEISSNER in

- HAMANN (112) p. 1405 : suggested sections, (a) typical for *P. miranda*, *tanneri*, *laguncula*, & *jeffreysi*, (b) *P. phiale*, (c) *P. ceratopyga* & *rosea*, (d) *P. hispida* (p. 141); AGASSIZ (3). *P. carinata*; BELL (22A): actinal area (p. 127, 128), ditto of *P. ceratopyga* (p. 128) & of *P. hispida* (p. 128, 129); AGASSIZ (3). *P. jeffreysi*, distrib.; GRIEG (106) p. 14 : measurements, slight variations; MICHAILOVSKIJ (192) p. 163, 184, fig. : actinal area, anal, and apical systems; AGASSIZ (3) p. 126, 128, 129, 134, 135, 137, 138. *P. laguncula*, radioles; DE MEIJERE (57) p. 171, pl. xxi : actinal area; AGASSIZ (3) p. 129, 135. *P. miranda*, older individuals descr. (p. 139, figg.), *P. phiale*, actinal area (p. 129), *P. tanneri*, descr. (p. 132, pls. B, lv-lvii, also p. 125-129); AGASSIZ (3).
- Pourtalesiae* A. Ag., morphology of test (p. 121-132), suggested exclusion of *Urechinidae* & *Paleopneustidae*, and limitation to *Pourtalesia*, *Echinoceps*, *Spatagocystis*, *Plexechinus*, & *Sternopatagus* (p. 131); AGASSIZ (3).
- Pourtalesidae*, fully discussed; DE MEIJERE (57) p. 157-171.
- †*Prenaster alpinus*; FUGGER (92) p. 339; GOURDON (102) p. 220.
- Prionechinus*, discussed; DELAGE (54) p. 240, fig. : diagnosis; MEISSNER in HAMANN (112) p. 1367. *P. forbesianus*, descr. (p. 71, pls. iv, xvi), *P. sagittiger*, descr. (p. 70, pl. xvi); DE MEIJERE (57).
- †*Procidaris*; DELAGE (54) p. 228.
- Progonolampas*; DELAGE (54) p. 265.
- Prometalia* vide *Metalia*.
- †*Proterocidaris* & *P. giganteus*; KLEM (142) p. 74.
- †*Protocidaris*; KLEM (142) p. 75: perh. young *Echinocystis*; DELAGE (54) p. 217. *P. acuaris*; KLEM (142) p. 75.
- †*Protoechinus* & *P. anceps*; KLEM (142) p. 75.
- Psammechinus* descr.; DELAGE (54) p. 243: diagnosis; MEISSNER in HAMANN (112) p. 1371. †*P. dubius*; DOUXAMI (69) p. 561: descr., distrib.; SCHUETZE (251) p. 166, pl. iii. †*P. gillieronii*; ZLATARSKI (299). *P. microtuberculatus*; PARONA (207) p. 384: vide etiam sub *Parechinus*. *P. miliaris*; FUEHNER (89) & (90): GARBOWSKI (94): †determined by T. MORTENSEN; PETERSEN (215) p. 81: vide etiam sub *Parechinus*. †*P. peroni*; COUFFON (46) p. 41. *P. rufus* (Bell sub *Salmacis*) incl. *Gynnechinus pumilio*; MORTENSEN (195) p. 122, pl. v, vii. *P. variegatus*; DELAGE (54) p. 243. *P. verruculatus*, colour; MORTENSEN (195) p. 123: pedicellariae; DE MEIJERE (57) p. 88, pl. xvii.
- †*Pseudasterostoma* discussed; DE MEIJERE (57) p. 242.
- Pseudechinus* descr.; DELAGE (54) p. 246, fig. : diagnosis; MEISSNER in HAMANN (112) p. 1375: rejected; LORIOL (162) p. 20.
- Pseudoboletia*; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1373. *P. indiana* syn. of *P. maculata*; DE MEIJERE (57) p. 208. *P. maculata*; HERDMAN (120) p. 139: pedicellariae; DE MEIJERE (57) p. 96, pl. xvii.
- Pseudocentrotus*; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1373.
- †*Pseudocidaris clunifera*; ZLATARSKI (299).
- †*Pseudodiadema*; DELAGE (54) p. 235: distinct from *Diadema*; MORTENSEN (195) p. 47. *P. aspera*; WALTHER (281) p. 167. *P. bourgueti*; KARAKASCH (138) p. 15. *P. bronquiarti*, distinguished from *P. variolare*; JUKES-BROWNE (137) p. 455. *P. conforme*; LISSAJOUS (153) p. 161. *P. depressum*; op. cit. p. 159: STRANGWAYS (266) p. 15: ?; CLERC (42) p. 99. *P. inaequale*, compared with *P. wrighti*, a deformity; LISSAJOUS (153) p. 159. *P. jauberti* Cott. is *Hessotiarra*; LAMBERT (148) p. 543. *P. jobae*; LISSAJOUS (153) p. 159. *P. mackiei*, maintained; JUKES-BROWNE (137) p. 456. *P. mamillanum* (p. 162),



- P. neglectum* (p. 161); LISSAJOUS (153). *P. pentagonum*; CLERC (42) p. 100; STRANGWAYS (266) p. 23. *P. primaevum* n. sp., Hettangian of Vendée; LAMBERT (148) p. 540, pl. xviii. *P. princeps*, *P. priscum* (p. 161), *P. subcomplanatum* (p. 159), *P. superbum*, with a swelling (p. 160, pl. ii); LISSAJOUS (153). *P. vagans*; STRANGWAYS (266) p. 15, 23. *P. variolare*; WOLLEMANN (290). *P. versipora*; STRANGWAYS (266) p. 40, 54, 59. *P. wrighti*; LISSAJOUS (153) p. 159.
- +*Pseudodiadematidae* doubtfully accepted; MORTENSEN (195) p. 46.
- +*Pseudodiadematinae*, with list of genera; DELAGE (54) p. 234.
- +*Pseudopedina divionensis*?; LISSAJOUS (153) p. 170.
- +*Pseudosalenia cuevasensis* n. sp., Lower Cretaceous, Honduras; LORIOI (162) p. 57, pl. iv.
- +*Pygaster*:—*P. semisulcatus*; STRANGWAYS (266) p. 9; LISSAJOUS (153) p. 172. *P. trigeri*; op. cit. p. 173.
- Pygastrides* diagnosis; MEISSNER in HAMANN (112) p. 1379.
- +*Pygorhynchus aragonensis*; GOURDON (102) p. 221.
- +*Pygurus*:—*P. depressus* incl. *P. michelini*; LISSAJOUS (153) p. 177. *P. pentagonalis*; STRANGWAYS (266) p. 40, 49. *P. royeri*; LISSAJOUS (153) p. 177.
- +*Pyrina*:—*P. carinata*; FUGGER (92) p. 339; *P. freuchenii*; TÖRNEBOHM (267) p. 143. *P. guerangeri*; LISSAJOUS (153) p. 174: this is a *Menopygus* (*Pyrinodia*); LAMBERT in Review. *P. ovulum*; ROUSSEL (232) p. 15 & (233) p. 28. *P. parryi*; RICHARDSON (227) p. 48. *P. petrocariensis*; ROUSSEL (232) p. 15 & (233) pp. 28, 36.
- Ravenellia*; DELAGE (54) p. 255.
- Regulariae* [sic] defined, with Orders *Palechin-*, *Echinothur-*, *Cidar-*, & *Diadem-ida*; DELAGE (54) p. 215.
- Rhabdobrissus* (seu- *bryssus*); DELAGE (54) p. 268; diagnosis; MEISSNER in HAMANN (112) p. 1398.
- Rhabdocidaris*; DELAGE (54) p. 228; diagnosed, and adopted in sense of de Loriol 1882; FOURTAU (83) p. 409. *R. annulifera*, vide sub *Cidaris bispinosa*, *baculosa*. *R. baculosa*, G. of Suez, also † near Suez; FOURTAU (83) p. 410. †*R. caprimontana*; SIEMIRADZKI (255) p. 141. †*R. delgadoi* Loriol 1887 non 1889, radioles descr.; LORIOI (162) p. 65, pl. iv. †*R. heuvelini*, distinguished from *R. ferryi*; LAMBERT in Review of LISSAJOUS (153). *R. imperialis* incl. *R. dubia*, G. of Suez also † at entrance of gulf; FOURTAU (83) p. 411. †*R. maxima*; STRANGWAYS (266) p. 15 & fig. †*R. nobilis*; SIEMIRADZKI (255) p. 141. †*R. phillipsi*; STRANGWAYS (266) p. 59. †*R. pouechi*; GOURDON (102) p. 222. †*R. remus*, †*R. suevica*; SIEMIRADZKI (255) p. 141.
- Rhinobryssus*, diagnosis; MEISSNER in HAMANN (112) p. 1395.
- +*Rhoechinus* defined (p. 27), *R.* sp. Duncan 1889 (p. 30), *R. burlingtonensis* descr. (p. 27); KLEM (142). *R. elegans*; FRAIPONT (85) p. 10, pl. ii: descr.; KLEM (142) p. 28. *R. gracilis* (p. 29), *R. irregularis*, *R. quadriserialis* (p. 30), all descr.; KLEM (142).
- Rhynchopygus*, diagnosis; MEISSNER in HAMANN (112) p. 1386. *R. caribaeorum*, details of text; AGASSIZ (3) p. 119, figg. †*R. marmini*; TÖRNEBOHM (267) p. 136. *R. pacificus*, ambulacrals; AGASSIZ (3) p. 118, 121.
- Rotula* descr.; DELAGE (54) p. 255; diagnosis; MEISSNER in HAMANN (112) p. 1384.
- Rumphia orbicularis*; MARTENS (185).
- Salenia* descr.; DELAGE (54) p. 235, fig. †*S. areolata*; TÖRNEBOHM (267) p. 136. †*S. bourgeoisi*; ROUSSEL (232) p. 15 & (233) pp. 28, 36. †*S. colleti*, Lambert's description quoted; COLLET (44) p. 64, pl. ii. *S. goesiana*, discussed; AGASSIZ (3) p. 36. †*S. granulosa*; ROWE (235) p. 241, 252, 256, 293. *S. hastigera*; AGASSIZ (3) p. 37, pl. xx: radioles; DE MEIJERE (57) p. 43. *S. miliaris* descr., growth-stages; AGASSIZ



- (3) p. 36, 41, pls. xiv-xx. *S. pattersoni*, structural details; op. cit. p. 37, 46, pl. xx: radioles, colour, &c.; DE MEIJERE (57) p. 43. *S. varispina*, holotype very young, redescr. (p. 35, pl. xxi), comparison with *S. miliaris* (p. 45 et sqq. & figg.); AGASSIZ (3).
- Salenidae*, relations to *Cidaridae* & *Echinidae*; AGASSIZ (3) p. 34: brief systematic account; FRITEL (86).
- Saleniinae* defined with list of genera; DELAGE (54) p. 235.
- Salenia* defined with Fam. *Saleniinae*; DELAGE (54) p. 235.
- Salmacis*; DELAGE (54) p. 241: distinguished from *Temnopleurus*; MORTENSEN (195) p. 76. *S. bicolor*; DE MEIJERE (57) p. 85, 203; HERDMAN (120) p. 140: & var. *rarisipina*, pedicellariae & spicules, incl. *S. globatrix*, but excl. various specimens placed here by authors; MORTENSEN (195) p. 65, pls. vi, vii. *S. desmoulini* Dujardin & Hupé, err. typ. pro *S. dussumieri*; op. cit. p. 74. *S. dussumieri*; HERDMAN (120) p. 140: radioles, pedicellariae, & young; DE MEIJERE (57) p. 85: spicules; MORTENSEN (195) p. 72, pl. vii. *S. ?elegans* Bell 1899 is *Coelopleurus maillardii*; DE MEIJERE (57) p. 68 & MORTENSEN (195) p. 74. *S. globator*; l. c. *S. rarisipina*, descr., also young; DE MEIJERE (57) p. 83, pl. v: holotype examined, not specifically distinct fr. *S. bicolor*; MORTENSEN (195) p. 67. *S. rubrotinctus*; op. cit. p. 74. *S. rufa* Bell, incl. *Gymnechinus pumilio* (q. v.), & is probably *Psammechinus* (q. v.); DE MEIJERE (57) p. 203. *S. sphaeroides*, radioles, pedicellariae, & young; op. cit. p. 82, pl. xvii: incl. *S. sulcata* Ag. & Des., pedicellariae, spicules, buccal membrane, also var. *pyramidata*, but var. *belli* is distinct sp.; MORTENSEN (195) p. 70, pls. v, vi: var. *belli*; DE MEIJERE (57) p. 203. *S. sulcata*; HERDMAN (120) p. 140: Auctt., synn. of various spp.; MORTENSEN (195) p. 74. *S. varius*; l. c. *S. virgulata*, holotype examined, pedicellariae, spicules, incl. *S. conica*, & var. *alexandri*; MORTENSEN (195) p. 68, pls. vi, vii: radioles, pedicellariae (p. 83, pl. xvii), var. *alexandri* (p. 202); DE MEIJERE (57). *S. woodsi*, probably a monstrosity; MORTENSEN (195) p. 74.
- Salmacopsis*; DELAGE (54) p. 241. *S. olivacea*, pedicellariae &c.; MORTENSEN (195) p. 96, pl. vi, vii.
- Schizaster* descr.; DELAGE (54) p. 270, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1392, & FOURTAU (83) p. 433 (vide etiam sub *Moiria*): list of spp. according to apical system, distinguished from other genera, esp. *Linthia*; TORNQUIST (268). †*Schizaster* sp. (= *scillae* Desor); SCHUETZE (251) p. 185. †*S. abductus*; BASEDOW (16). †*S. acuminatus*; TORNQUIST (268) p. 383. *S. canaliculata*; AGASSIZ (3) p. 207, fig. *S. canaliferus*; TORNQUIST (268) p. 376, pl. †*S. aff. degrangei*; GOURDON (102) p. 220. *S. fragilis*; AGASSIZ (3) p. 207, fig.: BELL (22A); TORNQUIST (268) p. 375, pl.: measured; MICHAILOVSKIJ (192) p. 163. *S. gibberulus*; HERDMAN (120) p. 142: L. Ag.'s holotype now destroyed was the specimen figd. by Savigny, pl. vii, f. 5, not f. 6; FOURTAU (83) p. 434, fig. †*S. globulus*; DAINELLI (49) p. 195 & (50). †*S. hova* nondum descr.; TORNQUIST (268) p. 378, pl. [Tornquist refers to a paper by himself at press in Abh. Senckenberg. Nat. Ges. 1904. So far I have been unable to see, borrow, or buy this]. *S. japonicus*, radioles, spicules; DE MEIJERE (57) p. 183, pl. xxii. †*S. lacunosus*; BELLINI (23) p. 5. *S. latifrons* descr., young; AGASSIZ (3) p. 205, pl. cii. *S. limicola*; MARTENS (185). †*S. major*; PATRINI (208). *S. philippii*; AGASSIZ (3) p. 206, figg. †*S. rousseli*; GOURDON (102) p. 220. *S. savignyi* n. sp. pro *S. gibberulus* A. Ag. non L. Ag., Savigny pl. vii, f. 6, G. of Suez (p. 436, pl. i, & fig.) var. *nov. major*, Bay of Mirsa Thelme (p. 439, pl. i), types in Mus. hist. nat. Paris; FOURTAU (83). †*S. spado*; TORNQUIST (268) p. 387, pl. *S. townsendi* descr., young; AGASSIZ (3) p. 207, pls. c, ci. †*S. vicinalis*; GOURDON (102) p. 219.
- Schizechininae*; DELAGE (54) p. 244.

- Schizocidaris*; DELAGE (54) p. 228.
- †*Scutella* descr.; DELAGE (54) p. 254. *S. aberti*; CLARK (39) p. 432, pls. cxix, cxx. *S. deflersi*; BARRON (15) p. 607. *S. helvetica*; SCHUETZE (251) p. 172. *S. interlineata*; HAEHL (110) p. 24. *S. cf. paulensis*, descr., distrib. of sp.; SCHUETZE (251) p. 170, pl. iv. *S. striatula*, single specimen in coll. M. de Serres, from l'Hérault, is same as *S. ja[c]quemeti* Lor., which name should be used?; LORIOI (162) p. 67.
- Scutellinae* defined with list of genera; DELAGE (54) p. 254.
- Selenechinus*; DELAGE (54) p. 246: n.g. of *Echinometridae*, not diagnosed, but with genotype *S. armatus* n. sp., Sulu Sea?, compared with *Heliocidaris* & *Pseudechinus*; DE MEIJERE (57) p. 99, pls. v, xvii.
- Spatangida* defined (p. 248) descr. (p. 256) with Famm. *Cassidul-, Holaster-, & Spatanginae* (p. 263); DELAGE (54).
- Spatangidae*, vide *Eobrissus*.
- Spatanginae* defined with list of genera in groups *Prymnodesminae, Prymnadetinae, Adetinae*; DELAGE (54) p. 267.
- Spatagocystis*; l. c.: diagnosis; MEISSNER in HAMANN (112) p. 1405. *S. challengerii*, additional details from an undescribed Challenger specimen; AGASSIZ (3) p. 141, pls. lxx, lxxi also p. 122, 123, 127, 128, 130.
- Spatagodesma*; DELAGE (54) p. 271: diagnosis; MEISSNER in HAMANN (112) p. 1406: compared with *Agassizii* (p. 198), apical system (p. 173, f. 289, pl. cvi). *S. diomedae* descr. (p. 200, pls. cvi, cvii); AGASSIZ (3).
- †*Spatangopsis*, & *S. costata*; KLEM (142) p. 75.
- Spatangus* descr.; DELAGE (54) p. 267, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1396. †*S. delphinus*; DOUXAMI (69) p. 561: descr., distinguished from *S. desmaresti*, comparative measurements, distrib.; SCHUETZE (251) p. 181, pl. v: differs from Burdigalian type; LAMBERT in Review. †*S. deydieri*; DOUXAMI (69) p. 561. †*S. gottschei* Gagel is a *Maretia*; LAMBERT in Review of GAGEL. †*S. ocellatus*; SCHUETZE (251) p. 185. †*S. prunella*; LAMBERT (147) p. 21, 22. *S. purpureus*; CLERC (41); HENRI (116) p. 13: MAR. BIOL. ASS. (184) p. 211. *S. raschi*; BELL (22A).
- Sperosoma* descr.; DELAGE (54) p. 224, fig.: origin of ambulacrals; AGASSIZ (3) p. 81. *S. quincunciale* n. sp., S. of Timor, 883 m.; DE MEIJERE (57) p. 40, pl. xiii.
- Sphaerechinus* descr.; DELAGE (54) p. 244, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1373. *S. australiae* is young of *Pseudoboletia maculata*; DE MEIJERE (57) p. 208. *S. granularis*; DI MAURO (63): HENRI (116) p. 13: HERBST (117): VIGUIER (277).
- †*Spilecchia*, placed in *Arbaciinae*; DELAGE (54) p. 238.
- Stegaster*; DE MEIJERE (57) p. 170.
- †*Stenonia* discussed; DE MEIJERE (57) p. 242.
- Stephanocidaris* (vide etiam sub *Cidaris*); DELAGE (54) p. 228. *S. bispinosa*; HERDMAN (120) p. 138: incl. *Cidaris luetkeni*, holotypes examined, descr., young; MORTENSEN (195) p. 6, pl. iii-v.
- Sterechinus*; DELAGE (54) p. 243: diagnosis; MEISSNER in HAMANN (112) p. 1370: discussed and restricted to *S. antarcticus*; LORIOI (162) p. 16. *S. magellanicus*; DE MEIJERE (57) p. 208.
- Stereocidaris* (vide etiam sub *Cidaris*); DELAGE (54) p. 227, fig.: cause of absence of apical radioles; DE MEIJERE (57) p. 6. *S. canaliculata* (p. 691), *S. nutrix* (p. 690); LUDWIG (164). †*S. sceptrifera*; WOLLEMAN (289).
- Stereopneustes*; DELAGE (54) p. 265: diagnosis; MEISSNER in HAMANN (112) p. 1403: diagnosis (p. 147) compared with *Urechininae* (p. 151) & *Echinocorytidae* (p. 152), *S. relictus*, described (p. 148, 239, pls. v, xix, xx); DE MEIJERE (57).
- Sternopatagus*; DELAGE (54) p. 267: discussed; AGASSIZ (3) p. 131:

diagnosis; MEISSNER in HAMANN (112) p. 1404: diagnosis (p. 154) systematic position discussed (p. 160), *S. sibogae* descr. (p. 155, 239, pls. vii, xx, xxi); DE MEIJERE (57).

†*Stirechinus suevicus* n. sp., Helvetian, Bryozoa sand of Ursendorf, Suabia; SCHUETZE (251) p. 169, pl. iii.

"Stomechinien" Pomel, discussed; DELAGE (54) p. 238.

†*Stomechinus*:—*S.* spp. nondescr.; WELSCH (283) p. 27. *S. aroviensis*; SIEMIRADZKI (255) p. 141. *S. germinans*; LISSAJOUS (153) p. 170. *S. perlatus*; WALTHER (281) p. 167. Ditto?, *S. serratus*, *S. sulcatus*; LISSAJOUS (153) p. 171.

*Stomopneustes* descr.; DELAGE (54) p. 241. *S. variolaris*; DE MEIJERE (57) p. 87; HERDMAN (120) p. 139.

*Stomopneustesinae* defined with list of genera; DELAGE (54) p. 241.

*Stomopneustidae* maintained; MORTENSEN (195) p. 47.

*Strongylocentrotinae*; DELAGE (54) p. 245.

*Strongylocentrotus* descr.; DELAGE (54) p. 245, figg.: diagnosis; MEISSNER in HAMANN (112) p. 1374. *S. drobachiensis*; BERTRAND (27): KIAER (140): MICHAJLOVSKIJ (192) p. 162: descr., range; CLARK (38) p. 563, pl. ix. *S. erythrogrammus*; HALL (111) p. 71. *S. lividus*; †ACLAND (2): see II, c, vii; BERTOLO (26): DI MAURO (63): DUBUISSON (73): FUEHNER (90): HENRI (116) p. 11-13: HERBST (117) & (119): NOBRE (198) p. 55 & (199): PETRUNKEWITSCH (217): VIGUIER (277): ZIEGLER (298): vide etiam sub *Paracentrotus*. *S. purpuratus*; LOEB (155, 156, 158, 159).

*Studeria* diagnosis; MEISSNER in HAMANN (112) p. 1387.

*Temnechininae*, sub-fam. of *Temnopleuridae* (q. v.) replaces *Trigonocidarinae*; MORTENSEN (195) p. 112.

*Temnechinus*, no proof of viviparity; AGASSIZ (3) p. 220. †*T. gajensis*, †*T. stellulatus*; MORTENSEN (195) p. 93.

†*Temnocidaris danica*; TÖRNEBOHM (267) p. 143.

*Temnopleuridae*, classification discussed (p. 56) subfam. 1. *Temnechininae* for *Hypsiechinus*, *Prionechinus*, *Genocidaris*, *Trigonocidaridaris*, *Temnechinus*, *Opechinus*, *Orthotophus*, *Paradoxechinus*, *Coptophyma*, *Lepidopleurus*, 2. *Temnopleurinae* for *Temnopleurus*, *Pleurechinus*, *Salmacis*, *Salmacopsis*, *Mespilia*, *Microcyphus*, *Amblypneustes*, *Goniopneustes*, *Holopneustes* (p. 113); MORTENSEN (195).

*Temnopleurinae*, as Fam.; DELAGE (54) p. 241: as subfam. of *Temnopleuridae* (q. v.); MORTENSEN (195) p. 113.

*Temnopleurus* distinguished from *Salmacis* (p. 76), *T. cavernosus* is *Pleurechinus*, perhaps *P. bothryoides* (p. 64), *T. hardwicki* maintained, though cotypes are doubtful, incl. *T. japonicus* (p. 61), *T. reevesi*, incl. *T. reynaudi* A. Ag. et Aucutt., non Ag. & Desor, pedicellariae & spicules descr. (p. 62, pls. vi, vii); MORTENSEN (195). *T. reynaudi*, pedicellariae & young; DE MEIJERE (57) p. 81, pls. xvi, xvii. *T. toreumaticus*; HERDMAN (120) p. 140: †FOURTAU (83) p. 444: radioles, pedicellariae; DE MEIJERE (57) p. 80, 202, pl. xvi: incl. *T. reynaudi*, *T. granulatus*, but not *T. hardwicki*, also excl. many specimens placed here by authors, pedicellariae and spicules descr.; MORTENSEN (195) p. 58, pl. vi, vii.

*Temnopleurusinae* defined with list of genera; DELAGE (54) p. 239.

*Temnotrema* rejected, *T. sculpta*; MORTENSEN (195) p. 61.

†*Tetracidaris*; DELAGE (54) p. 229: origin of interambulacra; AGASSIZ (3) p. 82.

*Tetrodiscus* diagnosis, incl. *Echinodiscus* & *Lobophora* (p. 423), *T. auritus*, variations, G. of Suez and †beaches (p. 425), *T. bisperforatus* (= *biforis*), G. of Suez and †beaches, the latter confused by Walther with *Amphiope fuchsi*, measurements, incl. *Lobophora truncata* (p. 426); FOURTAU (83).

- †*Thylechinus*; DELAGE (54) p. 238.  
 †*Tiarechinus*; DELAGE (54) p. 219.  
 †*Tiarechinusinae* defined, incl. *Lysechinus*; DELAGE (54) p. 219.  
 †*Tiarinae*; DELAGE (54) p. 234.  
 †*Tipocidaris*:—*T. clavigera* (p. 76), *T. hirudo* (pp. 70, 77); COLLET (44).  
*Toreumatica* rejected (p. 61) but might be used for *Temnopleurus reevesi* (p. 76); MORTENSEN (195).  
 †*Toxaster*:—*T. complanatus*; STRANGWAYS (266) p. 73. *T. texanus*; UDDEN (273) p. 35, 37.  
*Toxobrissus* distinguished from *Brissopsis* (p. 193), *T. pacificus* descr. (p. 192, pls. ciii, cv); AGASSIZ (3).  
*Toxocidaris*; DELAGE (54) p. 246: diagnosis; MEISSNER in HAMANN (112) p. 1376.  
*Toxonpeustes* descr.; DELAGE (54) p. 244, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1372. †*T. delaunayi*; COUFFON (46) p. 41. *T. lividus*, vide sub *Paracentrotus*. *T. pileolus*; HERDMAN (120) p. 140: radioles, spicules, pedicellariae; DE MEIJERE (57) p. 92, pl. xvii: distinguished from *Echinus trizonalis* & *Boletia bizonata*; MORTENSEN (195) p. 120. *T. variegatus*, vide sub *Psammechinus*.  
*Toxonpeustesinae* defined with list of genera; DELAGE (54) p. 243.  
 †*Trachygaster* (v. etiam sub *Hemiaster*):—*T. gourdoni*, *T. trutati*; GOURDON (102) p. 220.  
 †*Trachypatagus meneghini*; DAINELLI (50), & descr. (49) p. 197, pl. xv.  
*Tretocidaris*; DELAGE (54) p. 228.  
*Trigonocidarinae*; DELAGE (54) p. 240.  
*Trigonocidaris* descr.; DELAGE (54) p. 240, fig.: diagnosis; MEISSNER in HAMANN (112) p. 1367. *T. albida*, Sulu Is., var. (p. 73, 202), *T. monolini* referred to *Genocidaris* (q. v.) (p. 74); DE MEIJERE (57).  
*Tripneustes* descr.; DELAGE (54) p. 244: diagnosis; MEISSNER in HAMANN (112) p. 1372. *T. gratilla*; MARTENS (185) p. 131: (= *variegatus* & *angulosus* Leske), colour, spicules; DE MEIJERE (57) p. 95.  
*Tripylus*; DELAGE (54) p. 271, fig.  
*Tromikosoma*; DELAGE (54) p. 223, fig. *T. mordens* n. sp., S. of Timor, 2050m.; DE MEIJERE (57) p. 39, pl. xiii.  
*Urechinidae*, n. fam. for *Urechinus*, *Cystechinus*, *Calymne*, *Phrissocystis*; MEISSNER in HAMANN (112) p. 1402: as sub-fam. [of *Spatangidae*?], incl. *Urechinus*, *Cystechinus*, *Pilematechinus* n. g., & *Calymne* (p. 131), as fam. of "Ananchytid Spatangoids" (p. 150), as sub-fam. of *Ananchytidae* (p. 152); AGASSIZ (3).  
*Urechinus* diagnosis; MEISSNER in HAMANN (112) p. 1402. *U. giganteus* descr.; AGASSIZ (3) p. 152, pls. lxxii-lxxiv, also p. 130. *U. naresianus*; BELL (22A): actinal area (p. 122, 130, 154 & figg.) apical system (p. 156 & fig., pl. lxxiv); AGASSIZ (3).  
 †*Xenocidaris*, *X. clavigera*, *X. conifera*, *X. cylindrica*; KLEM (142) pp. 75-76.  
 †*Zeuglopleurus*; MORTENSEN (195) p. 112. *Z. rowei*, in *Marsupites* zone; ROWE (235) p. 255, 256, 293.

## (D).—ASTEROIDEA.

- Asteridia* divided into Subclass 1, *Palasteridiae*, 2, *Euasteridiae*, the latter alone into Orders 1, *Phanerozonida*, 2, *Cryptozonida*, each with its Families; DELAGE (54) p. 82 sqq.  
*Acantharchaster*; DELAGE (54) p. 86.  
*Acanthaster*; op. cit. p. 102. *A. solaris*; MARTENS (185).  
*Acanthasterinae*; DELAGE (54) p. 102.



- Acodontaster*; DELAGE (54) p. 87.  
*Amphiaster*; DELAGE (54) p. 93.  
*Anasterias*; op. cit. p. 103. *A. belgicae*, *A. chirophora*; LUDWIG (164) p. 699. *A. perrieri*; MEISSNER (186) p. 12. *A. studeri*; loc. cit.: LUDWIG (164) p. 698.  
*Anthenea*, descr.; DELAGE (54) p. 91. *A. sp.*; HERDMAN (120) p. 144. †*A. schlumbergeri* descr.; LORIOI (162) p. 63, pl. iv.  
*Antheneinae*, defined, with list of genera; DELAGE (54) p. 91.  
*Antheniaster*; DELAGE (54) p. 91.  
*Anthenoides*; DELAGE (54) p. 91.  
*Archaster* descr.; DELAGE (54) p. 85. *A. sp.*; KIAER (140).  
*Archasteridae*, vide *Goniodon*.  
*Archasterinae* defined, with list of genera; DELAGE (54) p. 85.  
*Asteracanthion rubens*; JANNSENS (136).  
*Asterias* (vide etiam sub *Diplasterias*): descr.; DELAGE (54) p. 103, figg.: brachiolaria; WEYSSE (284) p. 91, 92, figg. *A. sp.*; LUDWIG (164) p. 697, 698. *A. antarctica*; loc. cit.: descr.; LORIOI (162) p. 36, pl. iv: incl. all S. American monacanthid spp.; MEISSNER (186) p. 10, pl. i. *A. austera*, descr., range; CLARK (38) p. 555, pls. ii, iv. *A. capitata*; LOEB (158, 159). *A. compta*, syn. of *A. tenera*; CLARK (38) p. 554. *A. (Polyasterias) fernandensis*, descr.; LORIOI (162) p. 41, pl. iii. *A. forbesi*, descr., range; CLARK (38) p. 552, pls. i, iv. *A. glacialis*; CLERC (41): DELAGE (52): GARBOWSKI (93): HERBST (117): HÉROUARD (122): MAR. BIOL. ASS. (184) p. 208: NOBRE (198) p. 52, & (199). *A. lincki*; MICHAÏLOVSKIJ (192) p. 165. †*A. cf. lumbricalis*; SCHAEFER (242) p. 31. *A. (Cosmasterias) lurida* descr.; LORIOI (162) p. 39, pl. iii. *A. muelleri*; LUDWIG (164) p. 697: northern var., probably = *A. hyperborea* Dan. & Kor.; MICHAÏLOVSKIJ (192) p. 165. *A. ochracea*; LOEB (158, 159). *A. pallida*, homonym of *A. vulgaris*; CLARK (38) p. 554. *A. panopla*; MICHAÏLOVSKIJ (192) p. 165. *A. perrieri*; LUDWIG (164) p. 698. *A. polaris*; ÖSTERGREN (202). *A. rubens*; DUBOIS (72): GIARD (100): KIAER (140): MAR. BIOL. ASS. (184) p. 208: NOBRE (198) p. 53, & (199). *A. tenera*, incl. *A. compta*, descr., range; CLARK (38) p. 554, pls. ii, iv. *A. tenuispina*; NOBRE (199). *A. vulgaris*; WEYSSE (284) p. 94, fig.: descr., range; CLARK (38) p. 553, pls. i, iv.  
*Asteriasinae*, defined with list of genera; DELAGE (54) p. 103.  
*Asterina*, descr.; DELAGE (54) p. 94, figg. *A. cepheus*; HERDMAN (120) p. 145: MARTENS (185). *A. coronata*, *A. exigua*, op. cit. *A. fimbriata*; MEISSNER (186) p. 16. *A. gibbosa*; MAR. BIOL. ASS. (184) p. 207: NOBRE (198) p. 53 & (199). *A. perrieri* n. sp., Port San Antonio, Patagonia; LORIOI (162) p. 27, pl. ii. *A. stellifera*; MEISSNER (186) p. 16.  
*Asterinininae*, defined as Fam. with list of genera (p. 94), as sub-fam. (p. 95); DELAGE (54).  
*Asteroderma*; DELAGE (54) p. 103.  
*Asterodiscus*; DELAGE (54) p. 93.  
*Asterodon*; DELAGE (54) p. 86.  
*Asteropsis*; DELAGE (54) p. 94.  
*Astrella* young of *Luidia*; DELAGE (54) p. 88.  
*Astrogoniinae*; DELAGE (54) p. 91.  
*Astrogonium*; loc. cit. *A. patagonicum*; MEISSNER (186) p. 18.  
*Astropecten* descr.; DELAGE (54) p. 87, figg. *A. andromeda*; KIAER (140). *A. aurantiaca*; NOBRE (199). †*A. elegans*; WALTHER (281) p. 166. *A. euryacanthus*; HERDMAN (120) p. 143. †*A. helveticus*; SCHUETZ (251) p. 156. *A. hemprichi*; HERDMAN (120) p. 143: incl. *A. zebra*, & ? *A. notograptus*; BELL in op. cit. p. 149. *A. indicus*; op. cit. p. 143. *A. irregularis*; NOBRE (198) p. 53: MAR. BIOL. ASS. (184) p. 207. †*A. leckenbyi*; STRANGWAYS (266) p. 15. *A. polyacanthus*;

- HERDMAN (120) p. 143. †*A. rectus* (p. 40), †*A. scarburgensis* (p. 15); STRANGWAYS (266). *A. subinermis*; NOBRE (199). *A. velitaris*; BELL in HERDMAN (120) p. 150. *A. zebra*; op. cit. p. 143: photograph of 3 cotypes, see *A. hemprichi*; BELL in op. cit. p. 149.
- Astropecteninae* defined as Fam., with list of genera; DELAGE (54) p. 87.
- Astropectininae* as Subfam.; DELAGE (54) p. 88.
- Bathybiaster*; loc. cit. *B. loripes*; MEISSNER (186) p. 19. *B. pallidus* syn. of *B. vexillifer*; GRIEG (106) p. 14: incl. *B. vexillifer* & *Ilyaster mirabilis*; ÖSTERGREN (202).
- Benthaster*; DELAGE (54) p. 99.
- Blakia*; DELAGE (54) p. 86.
- Brisinga*, descr.; DELAGE (54) p. 104.
- Brisingaster*; DELAGE (54) p. 104.
- Brisinginae*, defined, with list of genera; loc. cit.
- Bunaster*; DELAGE (54) p. 98.
- Calliaster*; DELAGE (54) p. 91.
- Calliderma*; DELAGE (54) p. 91.
- Calvasterias*; DELAGE (54) p. 103.
- Calveria*; DELAGE (54) p. 100.
- Calveria* **nom. nov.** pro *Calveria* Carp., Jeffr., & Thomson 1870, non Thomson 1873; DELAGE (54) p. 100.
- Calycaster*; DELAGE (54) p. 103.
- Calyptraster*; DELAGE (54) p. 99.
- Caulaster*; DELAGE (54) p. 89.
- Chaetaster*; DELAGE (54) p. 99 & fig.
- Chaetasterinae*; DELAGE (54) p. 99.
- Cheiraster*; DELAGE (54) p. 86 & fig.
- Chitonaster*; DELAGE (54) p. 91.
- Choriaster*; DELAGE (54) p. 93.
- Cnemidaster*; DELAGE (54) p. 102 & fig.
- Colpaster*; DELAGE (54) p. 105.
- Coronaster*; op. cit. p. 103. *C. octoradiatus*; MEISSNER (186) p. 5.
- Cosmasterias*, vide sub *Asterias* et *Diplasterias*.
- Craspidaster*; DELAGE (54) p. 88.
- Crenaster* Perr.; DELAGE (54) p. 86.
- Cribra*; op. cit. p. 101. *C. sladeni*; MEISSNER (186) p. 13.
- Crib[r]ella*; DELAGE (54) p. 101. *C. oculata*; NOBRE (199). *C. pagenstecheri*, incl. all Antarctic spp.; MEISSNER (186) p. 13. *C. sanguinolenta*; LUDWIG (164) p. 697: descr., range; CLARK (38) p. 555, pls. iii, iv: formae *laevior* and *scabrior* not clearly separated; MICHAÏLOVSKIJ (192) p. 166.
- Crossaster*, descr.; DELAGE (54) p. 100. *C. australis*; MEISSNER (186) p. 17. *C. papposus*, 2 forms distinguished; MICHAÏLOVSKIJ (192) p. 169.
- Cryptaster*; DELAGE (54) p. 99.
- Cryptozonida*, defined, with Fam. *Linck-*, *Pteraster-*, *Solaster-*, *Echinaster-Zoroaster-*, *Stichaster-*, *Heliaster-*, *Pedicellaster-*, *Asterias-*, *Brisinginae*; DELAGE (54) p. 96-105.
- Ctenaster*; DELAGE (54) p. 100.
- Ctenodiscus*; op. cit. p. 89. *C. australis*; MEISSNER (186) p. 18. *C. corniculatus*; MICHAÏLOVSKIJ (192) p. 171. *C. procurator*; MEISSNER (186) p. 18.
- Culcita*, descr.; DELAGE (54) p. 93, figg. *C. schmideliana*, living appearance; HERDMAN (120) p. 144.
- Cycethra*; DELAGE (54) p. 95. *C. electilis*, descr. (p. 23, pl. ii), *C. lakillei* n. sp., San Mathias Gulf, Patagonia (p. 25, pl. ii), *C. simplex*, descr., distinguished from *Goniodiscus verrucosus* Phil. (p. 21, pl. ii); LORIOLO (162). *C. verrucosa*, incl. *C. simplex*; MEISSNER (186) p. 14.
- Dermasterias*; DELAGE (54) p. 94.

*Dictyaster* ; DELAGE (54) p. 101.

*Diplasterias* (vide etiam sub *Asterias*) *alba* (p. 9), *D. brandti*, incl. *Asterias neglecta*, *belli*, and *glomerata*, and all probably synn. of *D. meridionalis* (p. 7), *D. georgiana* (p. 9), *D. germani* (p. 7), *D. loveni* (p. 9) ; MEISSNER (186). *D. luetkeni* ; loc. cit. : LUDWIG (164) p. 698. *D. lurida*, incl. *Asterias obtusispinosa* (p. 8), *D. meridionalis* (p. 8), *D. philippii* (p. 9), *D. spinosa* (p. 9) ; MEISSNER (186). *D. steineni* ; loc. cit. : LUDWIG (164) p. 698.

*Diplopteraster* ; DELAGE (54) p. 99.

*Dipsacaster* ; DELAGE (54) p. 88.

*Disasterina* ; DELAGE (54) p. 95.

*Dorigona* ; DELAGE (54) p. 91.

*Dytaster* ; DELAGE (54) p. 86.

*Echinaster* descr. ; op. cit. p. 101, figg. *E. antonioensis* (p. 29, pl. ii), *E. lepidus* (p. 30, pl. ii), **n. spp.**, Port San Antonio, Patagonia ; LORIOL (162). *E. oculatus* ; NOBRE (199). *E. purpureus* ; HERDMAN (120) p. 145. *E. sepositus* ; NOBRE (199).

*Echinasterinae*, defined as Fam. with list of genera, also as Subfam. ; DELAGE (54) p. 101. Vide etiam *Lahillea*.

+*Echinodiscaster* **nom. mut.** pro *Echinodiscus* Stürtz non Ag. ; DELAGE (54) p. 84.

*Eugoniaster* ; DELAGE (54) p. 90.

*Ferdina* ; DELAGE (54) p. 98.

*Freyella* ; DELAGE (54) p. 105.

*Fromia* ; DELAGE (54) p. 98.

*Ganeria* ; op. cit. p. 95, *G. falklandica* ; MEISSNER (186) p. 14.

*Ganeriinae* ; DELAGE (54) p. 95.

*Gastraster* ; op. cit. p. 103 : discussed (p. 35), *G. studeri* **n. sp.**, Port San Antonio, Patagonia (p. 34, pl. iv) ; LORIOL (162).

*Gnathasterinae* ; DELAGE (54) p. 86.

+*Goniaster arduennensis* ; COLLET (44) p. 77.

*Goniodiscinae* ; DELAGE (54) p. 91.

*Goniodiscus* ; loc. cit. : *G.*? sp. juv. ; HERDMAN (120) p. 144. *G. verrucosus* ; LORIOL (162) p. 22.

*Goniodon* **n. g.** of *Gnathasterinae*, Subfam. of *Archasteridae* ; PERRIER (92) Zool. Rec. 1894, Stellérides du Travailleur, p. 244, non HERRICK, Bull. Denison Univ. 1888, a Mollusc : DELAGE (54) p. 87.

*Goniopecten* ; DELAGE (54) p. 86.

*Gymnasterias*, descr. ; DELAGE (54) p. 93, fig.

*Gymnasteriasinae*, defined with list of genera ; loc. cit.

*Gymnobrisinga* ; DELAGE (54) p. 104.

*Hacelia* ; DELAGE (54) p. 98, fig.

*Heliaster*, descr. ; DELAGE (54) p. 103.

*Heliasterinae*, defined with list of genera ; loc. cit.

*Henricia sanguinolenta* ; COLE (43) : MAR. BIOL. ASS. (184) p. 208 : NOBRE (199).

*Hexaster* ; DELAGE (54) p. 99. *H. obscurus* ; LUDWIG (164) p. 696.

*Hippasteria* ; DELAGE (54) p. 92. *H. hyadesi* ; MEISSNER (186) p. 18.

*Hoplaster* ; DELAGE (54) p. 87.

*Hymenaster* ; DELAGE (54) p. 99, fig. *H. nobilis* ; LUDWIG (164) p. 697. *H. pellucidus* ; MICHAJLOVSKIJ (192) p. 167. *H. praecoquis* ; LUDWIG (164) p. 697.

*Hyphalaster* ; DELAGE (54) p. 89 & fig.

*Iconaster* ; DELAGE (54) p. 91.

*Ilyaster* ; DELAGE (54) p. 88.

*Korethraster* ; DELAGE (54) p. 100. *K. hispidus* ; MICHAJLOVSKIJ (192) p. 185.

*Korethrasterinae* ; DELAGE (54) p. 100.

- Labidiaster*; op. cit. p. 104, figg. *L. radiosus*; MEISSNER (186) p. 4.  
*Lahillea* n. g. of *Echinasteridae* (p. 32) with genotype *L. mira* n. sp., San Mathias Gulf, Patagonia (p. 33, pl. iii); LORIOL (162).  
*Lasiaster*; DELAGE (54) p. 94. *L. hispidus* is *Poraniomorpha* (q. v.); ÖSTERGREN (202).  
*Lebrunaster*; DELAGE (54) p. 95. *L. paxillosus*; MEISSNER (186) p. 16.  
*Leiaster*; DELAGE (54) p. 98.  
*Leptasterias*, rejected; CLARK (38) p. 555.  
*Leptogonaster*; DELAGE (54) p. 87.  
*Leptogonasterinae*; DELAGE (54) p. 87.  
*Leptoptychaster*; op. cit. p. 88. *L. arcticus*; MICHAILOVSKIJ (192) p. 170.  
*L. kerguelenensis*; LUDWIG (164) p. 695.  
*Linckia*, descr.; DELAGE (54) p. 97, fig. *L. diplax*; KELLOGG (139). *L. laevigata*; MARTENS (185); HERDMAN (120) p. 145: *L. multiforis*; loc. cit. *L. pacifica*; KELLOGG (139): var *diplax*; HERDMAN (120) p. 145.  
*Linckinae* subfam.; DELAGE (54) p. 98.  
*Linckinae*, defined as Fam., with list of genera; op. cit. p. 97.  
*Litonotaster*; DELAGE (54) p. 90.  
*Lonchotaster*; DELAGE (54) p. 86.  
*Lophaster*; op. cit. p. 100. *L. furcifer*; MICHAILOVSKIJ (192) p. 168. *L. pentactis*, *L. stellans*; MEISSNER (186) p. 16.  
*Lophopteraster*; DELAGE (54) p. 99.  
*Luidia*, descr.; op. cit. p. 88, fig. *L. bellonae*; MEISSNER (186) p. 19.  
*L. hardwickii*, and young?, *L. maculata*; HERDMAN (120) p. 143. *L. sarsi*; MAR. BIOL. ASS. (184) p. 207.  
*Luidiaster*; DELAGE (54) p. 86.  
*Luidiinae*; DELAGE (54) p. 88.  
*Lytaster*; DELAGE (54) p. 103.  
*Marginaster*; DELAGE (54) p. 94.  
*Marsipaster*; DELAGE (54) p. 99.  
*Mediaster*; DELAGE (54) p. 91.  
*Metopaster*; DELAGE (54) p. 91.  
*Metrodira*; op. cit. p. 99. *M. subulata*; HERDMAN (120) p. 145.  
*Metrodirinae*; DELAGE (54) p. 99.  
*Mittelephaster*; DELAGE (54) p. 91.  
*Mimaster*; DELAGE (54) p. 87.  
*Mimasterinae*; DELAGE (54) p. 87.  
*Mithrodia*; DELAGE (54) p. 102.  
*Mithrodiinae*; DELAGE (54) p. 102.  
*Moiraster*; DELAGE (54) p. 88.  
*Myxaster*; DELAGE (54) p. 100.  
*Narcissia*; DELAGE (54) p. 99.  
*Nardoa*; op. cit. p. 98. †*Nardoa? fourtavi* n. sp., Santonian, Abou Roach, Egypt; LORIOL (162) p. 65, pl. iv. *N. tuberculata*; HERDMAN (120) p. 145.  
*Nectria*; DELAGE (54) p. 91.  
*Neomorphaster*; DELAGE (54) p. 102.  
*Nepanthia*; DELAGE (54) p. 95.  
*Nidorellia*; DELAGE (54) p. 92.  
*Nymphaster*; DELAGE (54) p. 91.  
*Odinia*; DELAGE (54) p. 104.  
*Odontaster*; op. cit. p. 86. *O. belli*, *O. granulatus* (p. 20), *O. penicillatus*, *O. singularis* (p. 19); MEISSNER (186).  
*Ogmaster*; DELAGE (54) p. 91.  
*Ophidiaster*; op. cit. p. 98, fig. *O. cylindricus*, *O. helicostichus*, juv.; HERDMAN (120) p. 145.  
†*Palaeaster*; DELAGE (54) p. 83, figg.



- Palmipedinae*; DELAGE (54) p. 95.  
*Palmipes*, descr.; loc. cit., figg. *P. placenta*; MAR. BIOL. ASS. (184) p. 207.  
*Paragonaster*; DELAGE (54) p. 91.  
*Pararchaster*; DELAGE (54) p. 86.  
*Pararchasterinae*; DELAGE (54) p. 86.  
*Patiria*; DELAGE (54) p. 95.  
*Paulia*; DELAGE (54) p. 93.  
*Pectinaster*; DELAGE (54) p. 86.  
*Pedicellaster*, descr.; op. cit. p. 103. *P. sarsi*, *P. scaber*; MEISSNER (186) p. 5. *P. sexradiatus*; BERTRAND (27).  
*Pedicellasterinae*, defined with list of genera; DELAGE (54) p. 103.  
*Peltaster*; DELAGE (54) p. 90.  
*Pentacerospis*; DELAGE (54) p. 93. *P. obustatus*; MARTENS (185).  
*Pentaceros*, descr.; DELAGE (54) p. 92, figg. *P. sp. juv.*; HERDMAN (120) p. 144. †*P. jurassicus*; WALTHER (281) p. 166. *P. lincki* (p. 144, 147, fig.), *P. mammillatus* (p. 144); HERDMAN (120). *P. nodosus*; loc. cit.: MARTENS (185). †*P. pustuliformis*; WALTHER (281) p. 167. *P. reticularis*; WEYSSE (284) p. 93, fig. *P. turritus*; MARTENS (185) p. 133.  
*Pentacerosinae*, defined, with list of genera; DELAGE (54) p. 92.  
*Pentagonaster*, descr.; op. cit. p. 89, figg. *P. austro-granularis* (p. 17), *P. patagonicus* (p. 18); MEISSNER (186).  
*Pentagonasterinae*, defined, as Fam. with list of genera (p. 89), as subfam. (p. 90); DELAGE (54).  
*Peribolaster*; op. cit. p. 100. *P. folliculatus*; MEISSNER (186) p. 17.  
*Perknaster*; DELAGE (54) p. 101.  
*Persephonaster*; DELAGE (54) p. 86.  
*Phaneraster*; DELAGE (54) p. 91.  
*Phanerozonida*, **nom. mut.** pro *Phanerozonia*, defined with Famm. *Archaster*-, *Astropecten*-, *Porcellanaster*-, *Pentagonaster*-, *Anthene*-, *Pentaceros*-, *Gymnasterias*-, *Asterininae*-, DELAGE (54) p. 84–96.  
*Pharia*; DELAGE (54) p. 98.  
*Phataria*; loc. cit. *P. unifascialis* var. *bifascialis*; MONKS (193).  
*Pholidaster*; DELAGE (54) p. 102.  
*Phoxaster*; DELAGE (54) p. 88.  
*Platasterias*; DELAGE (54) p. 88.  
*Plectaster*; DELAGE (54) p. 101.  
*Plutonaster*; op. cit. p. 86, fig. *P. parelii*; MICHAILOVSKIJ (192) p. 171.  
*Plutonasterinae*; DELAGE (54) p. 86.  
*Polyasterias*, vide sub *Asterias*.  
*Pontaster*; DELAGE (54) p. 86. *P. tenuispinus*; MICHAILOVSKIJ (192) p. 171.  
*Porania*; DELAGE (54) p. 94. *P. antarctica*; MEISSNER (186) p. 17. *P. pulvillus*; MAR. BIOL. ASS. (184) p. 207.  
*Poraniomorpha*; DELAGE (54) p. 94. *P. hispida* incl. *P. rosea* as var., & *L. villosus* as young of var., also ?*P. borealis*; ÖSTERGREN (202).  
*Poraniopsis*; DELAGE (54) p. 94. *P. echinasteroides*; MEISSNER (186) p. 17.  
*Porcellanaster*, descr.; DELAGE (54) p. 89 & figg.  
*Porcellanasterinae*, defined, with list of genera; loc. cit.  
*Prionaster*; DELAGE (54) p. 86.  
*Prognaster*; DELAGE (54) p. 102.  
*Pseudarchaster discus*; MEISSNER (186) p. 20.  
*Pseudaster*; DELAGE (54) p. 89.  
*Pseudoreaster*; DELAGE (54) p. 92.  
*Psilaster*; op. cit. p. 88. *P. fleuriensis*; MEISSNER (186) p. 19.  
*Pteraster*, descr.; DELAGE (54) p. 99. *P. ingouffi* (p. 13), *P. lebruni*

- (p. 14); MEISSNER (186). *P. militaris*; LUDWIG (164) p. 696 :  
 MICHAÏLOVSKIJ (192) p. 168. *P. pulvillus*; loc. cit.  
*Pterasterinae*, defined, with list of genera; DELAGE (54) p. 99.  
*Pycnospodia*; op. cit. p. 104. *P. spuria*; LOEB (155, 158, 159).  
*Pyrenaster*; DELAGE (54) p. 90.  
*Pythonaster*; DELAGE (54) p. 99.  
*Radiaster*; DELAGE (54) p. 100.  
*Randasia*; DELAGE (54) p. 93.  
*Retaster*; op. cit. p. 99. *R. cribrus*; HERDMAN (120) p. 145: ? juv.;  
 BELL in op. cit. p. 150. *R. gibber*; MEISSNER (186) p. 14. *R. insignis*;  
 BELL in HERDMAN (120) p. 150. *R. verrucosus*; MEISSNER (186)  
 p. 14.  
*Rhegaster*; DELAGE (54) p. 94, fig. *R. tumidus* incl. *R. murrayi*;  
 ÖSTERGREN (202); var. *tuberculata*; MICHAÏLOVSKIJ (192) p. 170.  
*Rhipidaster*; DELAGE (54) p. 100.  
*Rosaster*; DELAGE (54) p. 91.  
*Scaphaster*; DELAGE (54) p. 94.  
*Sideriaster*; DELAGE (54) p. 88.  
*Solaster*; op. cit. p. 100. *S. affinis* syn. of *S. papposus*; ÖSTERGREN  
 (202). *S. endeca*; MICHAÏLOVSKIJ (192) p. 168: descr., range; CLARK  
 (38) p. 556, pls. iii, iv. *S. glacialis* is 7-rayed *S. endeca*; ÖSTERGREN  
 (202). *S. papposus*; MAR. BIOL. ASS. (184) p. 208): var. *squamata*  
 is distinct sp.; ÖSTERGREN (202). *S. regularis*; MEISSNER (186)  
 p. 17. *S. syrtensis* is valid sp.; ÖSTERGREN (202).  
*Solasterinae*, defined, as Fam. with list of genera, also as Subfam.;  
 DELAGE (54) p. 100.  
 +*Sphaeraster*, history, *S. molassicus* n. sp., Helvetian, Suabia; SCHUETZE  
 (251) p. 155, pl. ii. *S. punctatus*; SIEMIRADZKI (255) p. 139.  
 +*Sphaerites* vide *Sphaeraster*.  
*Stegaster*; DELAGE (54) p. 96.  
*Stellaster*; op. cit. p. 91. *S. incei*; HERDMAN (120) p. 143.  
 +*Stenaster salteri*; AMI (7) p. 61.  
*Stephanaster*; DELAGE (54) p. 90.  
*Stichaster*, descr.; op. cit. p. 102. *S. albus*; MICHAÏLOVSKIJ (192)  
 p. 166. *S. arcticus*, syn. of *S. roseus*; ÖSTERGREN (202). *S. aurantiacus*;  
 MEISSNER (186) p. 12. *S. nutrix*; loc. cit.; LUDWIG (164) p. 696. *S.*  
*roseus*; KIAER (140).  
*Stichasterinae*, defined, with list of genera; DELAGE (54) p. 102.  
*Styracaster*; DELAGE (54) p. 89.  
 +*Taeniaster* (?) *fournieri* n. sp., Visean, Belgium, placed in *Oph.*, but is  
 perhaps *Ast.* [*Taeniaster* is an Ordovician Asteroid]; FRAIPONT (85)  
 p. 7, pl. i.  
*Tarsaster*; DELAGE (54) p. 103.  
*Thoracaster*; DELAGE (54) p. 89.  
*Tremaster*; DELAGE (54) p. 96.  
*Tylaster*; DELAGE (54) p. 94.  
*Uniophora*; DELAGE (54) p. 103.  
*Valvaster*; DELAGE (54) p. 102.  
*Valvasterinae*; DELAGE (54) p. 102.  
*Zoroaster*, descr.; DELAGE (54) p. 102, fig.  
*Zoroasterinae*, defined, with list of genera; loc. cit.

## (E.)—OPHIUROIDEA.

*Ophiuridia* divided into Subclass 1. *Palophiuridiae* with Orders *Lysophiurida* & *Streptophiurida*, 2. *Colophiuridiae* with Orders *Zygophiurida* & *Cladophiurida*; DELAGE (54).  
*Amphilepis*; op. cit. p. 153. *A. mobilis* n. sp., Timor & Java sea, 216-

330 m. ; KOEHLER (143) p. 94, pl. xx. *A. norvegica* ; GRIEG (106) p. 28. *A. protecta* n. sp., G. of Boni, Celebes, 1158 m. ; KOEHLER (143) p. 94, pl. xxiii.

*Amphiodia*, vide sub *Amphiura*.

*Amphioplus*, vide sub *Amphiura*.

*Amphipholis*, vide etiam sub *Amphiura*. *A. squamata*, descr., range ; CLARK (38) p. 560, pls. vi, vii.

*Amphiura* descr. ; DELAGE (54) p. 152, figg. *A. sp.* ; HERDMAN (120) p. 146. *A. agitata* n. sp., Sulu Archipel, 275 m. ; KOEHLER (143) p. 79, pl. xiii. *A. candida*, holotype & Marktanner's neotype redescr. ; KOEHLER (144) p. 66 & figg. *A. canescens* referred to *Ophiactis* (p. 96), *A. (Amphioplus) caulleryi* (p. 91) ; KOEHLER (143). *A. chijaji* ; GRIEG (106) p. 27 : MAR. BIOL. ASS. (184) p. 209 : ÖSTERGREN (204). *A. concinna*, Molucca sea, 2081 m. (p. 77, pl. xiii), *A. (Amphioplus) confinis*, G. of Boni, Celebes, 1158 m. (p. 89, pl. xiv), *A. (Amphiodia) crassa*, Macassar & Molucca sea, 450-2291 m. (p. 83, pl. xv), *A. (Amphioplus) debilis*, G. of Boni, Celebes, 1158 m. (p. 88, pl. xiv) : all n. spp. ; KOEHLER (143). *A. denticulata*, new to European waters, descr. ; GRIEG (106) p. 27. *A. (Amphiodia) diomedea* (p. 86), *A. duplicata* referred to *Ophiactis* (p. 96) ; KOEHLER (143). *A. elegans* ; NOBRE (198) p. 54, & (199) : MAR. BIOL. ASS. (184) p. 209. *A. filiformis* ; loc. cit. *A. (Amphioplus) firma* n. sp., Gilolo passage, 411 m. (p. 87, pl. xii), *A. (Amphioplus) gentilis* n. sp., Gilolo passage, 835 m. (p. 86, pl. xvi), *A. grandis* (p. 81), *A. (Amphiodia) grata* n. sp., G. of Boni, Celebes, 1158 m. (p. 85, pls. xviii, xix), *A. hilaris* n. sp., Macassar Str., 1301 m. (p. 80, pl. xv) ; KOEHLER (143). *A. integra*, a cotype redescr. ; KOEHLER (144) p. 65 & figg. *A. iris* (p. 81), *A. (Amphioplus) lorioli* (Koehl. sub *Ophiactis*) (p. 91, pl. xv) ; KOEHLER (143). *A. magellanica* ; LUDWIG (164) p. 694. *A. (Amphipholis) misera* (p. 83), *A. nociva* n. sp., Banda sea, 204 m. (p. 78, pl. xv) ; KOEHLER (143). *A. ochroleuca*, holotype, is an *Amphiodia* not an *Amphipholis* (p. 63, figg.), *A. oerstedii*, holotype redescr. (p. 68, figg.), *A. olivacea*, a cotype descr. (p. 64, figg.) ; KOEHLER (144). *A. papillata*, vide sub *Ophiodoris*. *A. partita*, vide sub *Ophiactis*. *A. patagonica* ; LUDWIG (164) p. 694. *A. scripta* n. sp., coast of Oman, Persian gulf, 4-6 fm. ; KOEHLER (144) p. 70 & figg. *A. securigera* ; GRIEG (106) p. 28. *A. (Amphiodia) servata*, Banda sea, 560 m. (p. 84, pl. xv), *A. (Amphioplus) spinulosa*, Flores Id., 247 m. (p. 92, pl. xvii) : n. spp. ; KOEHLER (143). *A. squamata* ; LUDWIG (164) p. 693. *A. sundevalli* ; GRIEG (106) p. 27 : individual without tentacle-scales ; MICHAÏLOVSKIJ (192) p. 173. *A. (Amphioplus) tessellata*, Timor, 918 m. (p. 89, pl. xiii), *A. (Amphioplus) trepida*, Java sea, 289 m. (p. 93, pl. xiv), *A. uncinata*, Bima B. & Java sea, 250-330 m. (p. 76), *A. (Amphipholis) vitax*, Flores Id., 247 m. (p. 82, pl. xiii) : all n. spp. ; KOEHLER (143).

*Amphiuridae*, vide *Ophiodoris*.

*Amphiurinae* defined with list of genera ; DELAGE (54) p. 152.

*Astroceras* ; op. cit. p. 158. *A. compar* n. sp., Banda sea, 204-304 m. (p. 158, pls. xxii, xxx, xxxii), *A. pergamena* (p. 159) ; KOEHLER (143).

*Astrocharis* n. g. of *Astro[s]chemidae*, with genotype *A. virgo* n. sp., Sulu Archipel & Gilolo passage, 522-1089 m. ; KOEHLER (143) p. 160, pls. xx, xxx.

*Astrochele* ; DELAGE (54) p. 158.

*Astrochema* [sic passim ! pro *Astroschema*] ; KOEHLER (143).

*Astrocladus* ; DELAGE (54) p. 159.

*Astroclon* ; DELAGE (54) p. 158.

*Astrocnida* ; DELAGE (54) p. 158.

*Astrocreas* Verrill probably err. typ. pro *Astroceras* Lym. [this is so] ; DELAGE (54) p. 159.

- Astrodia* Verrill, 1899, probably err. typ. pro *Astrocnida*; loc. cit. [This is wrong: although not so stated by Verrill and therefore not so entered in Zool. Rec., *Astrodia* was n. g. of *Astronycidae* first mentioned VERRILL (244) Zool. Rec. 1899, p. 74, first diagnosed VERRILL (341) Zool. Rec. 1900, p. 371.]
- Astrogeron*; DELAGE (54) p. 155.
- Astrogomphus*; op. cit. p. 158. *A. munitus* n. sp., Gilolo passage, 1089 m.; KOEHLER (143) p. 157, pls. xxii, xxxii.
- Astronycidae*, vide *Astrodia*.
- Astronyx* (seu *Asteronyx*); DELAGE (54) p. 158. *A. loveni*; GRIEG (106) p. 33; KOEHLER (143) p. 167.
- Astrophiuura* descr.; DELAGE (54) p. 159.
- Astrophyton*; loc. cit. *A. sculptum*, *A. verrucosum*; MARTENS (185).
- Astroporpa*; DELAGE (54) p. 157.
- Astroschema* descr.; loc. cit. *A. fastosum*, Minahassa, 1200 m. (p. 161, pls. xxviii, xxxii, xxxiii, xxxiv), *A. ferox*, Banda sea, 204 m. (p. 162, pls. xxxii, xxxiii), *A. migrator*, Macassar Str., 1301 m. (p. 164, pls. xxiv, xxx, xxxv): all n. spp.; KOEHLER (143).
- Astroschematidae*, vide *Astrocharis*.
- Astroscheminae*, defined with list of genera; DELAGE (54) p. 157.
- Astrotoma*; op. cit. p. 158. *A. bellator*, Sulu Archipel., 275 m. (p. 154, pls. xix, xxiii, xxviii), *A. vecors*, Banda sea & Timor, 204-520 m. (p. 155, pls. xxi, xxvii, xxxii): n. spp.; KOEHLER (143).
- Brachyophiuridae*, defined, with Famm. *Ophiiderm-*, *Ophiolepis-inae*; DELAGE (54) p. 148.
- Cladophiuridae*, defined with Famm. *Astroschem-*, *Trichaster-*, *Euryaleinae*; DELAGE (54) p. 157.
- Colophiuridae* defined; DELAGE (54) p. 144 & 147.
- Euryale*; op. cit. p. 159. *E. ludwigi*; MARTENS (185).
- Euryaleinae*, defined, with list of genera; DELAGE (54) p. 158.
- †*Geocoma*:—*G. carinata*, *G. planata*; WALTHER (281) p. 166.
- Gorgonocephalus* descr.; DELAGE (54) p. 158, fig. *G. agassizi*; GRIEG (106) p. 35; MICHAJLOVSKIJ (192) p. 175: descr., range; CLARK (38) p. 561, pls. vi, vii. *G. arborescens*; NOBRE (199). *G. eucnemis*; GRIEG (106) p. 35 & (107) p. 4; MICHAJLOVSKIJ (192) p. 174. *G. lamarcki* (p. 33), *G. lincki*, variations descr. (p. 35, fig.); GRIEG (106).
- Gymnolophus*; DELAGE (54) p. 157.
- Gymnophiuura*; DELAGE (54) p. 149.
- Hemipholis*; op. cit. p. 153. *H. cordifera*; LUDWIG (164) p. 693.
- Luetkenia* Brock; DELAGE (54) p. 156: validity questioned, *L. cataphracta*, holotype; KOEHLER (144) p. 114, figg.
- †*Lysophiurida* defined; DELAGE (54) p. 145.
- Nectophiuridae*, defined, with Famm. *Amphiur-*, *Ophiohelus-*, *Ophiacant-*, *Ophiocom-*, *Ophiotrix-inae*; DELAGE (54) p. 152.
- Ophiacantha* descr.; op. cit. p. 154, figg.: Verrill's divisions reduced to subgenera; KOEHLER (143) p. 101. *O. abyssicola*; GRIEG (106) p. 31. *O. anomala*; LUDWIG (164) p. 694. *O. augusta* n. sp. Minahassa & Timor, circa 1200 m.; KOEHLER (143) p. 105, pl. xix. *O. bidentata*; GRIEG (106) p. 31; MICHAJLOVSKIJ (192) p. 174. *O. clandestina* n. sp. Macassar Str., 655-724 m. (p. 108, pl. xix), *O. composita*, norm differs from holotype (p. 120, pl. xxiii), *O. congesta* n. sp., Macassar & Gilolo passage, 450-798 m. (p. 103, pl. xxiv), *O. cosmica* (p. 108), *O. (Ophientodia) dilecta* n. sp., Macassar Str. & Java sea, 724-794 m. (p. 117, pl. xxii), *O. duplex* (p. 109), *O. (Ophientodia) eximia* n. sp., Malay Archipel., 724-1788 m. (p. 116, pl. xxi), *O. fausta* n. sp., Banda sea, 304 m. (p. 104, pl. xx), *O. ficta* n. sp. ibid. 204 m., link w. *Ophiomitrella* (p. 121, pl. xvi); KOEHLER (143). *O. imago*; LUDWIG (164) p. 695. *O. (Ophiopristis) imperita* n. sp. Arru Id., 1788 m. (p. 114,



- pl. xvii), *O. (Ophiotreta) inutilis* n. sp. Java & Banda sea, 238-397 m. (p. 111, pl. xxi), *O. (Ophiopristis) luctuosa* n. sp. Timor, 216 m. (p. 115, pl. xx); KOEHLER (143). *O. marsupialis*; LUDWIG (164) p. 695. *O. (Ophiectodia) matura* n. sp., Banda sea, 797 m. (p. 112, pl. xxiii), *O. normanni* (p. 107), *O. pentagona* (p. 110), *O. (Ophiolimna) perfida* n. sp., Malay Archipel., 411-959 m. (p. 118, pl. xxiii), *O. (Ophiopristis) procera* n. sp., Banda sea, 595 m. (p. 113, pl. xxii), *O. relicta* n. sp., Malay Archipel., 538-1624 m. (p. 106, pl. xvii), *O. tenuis* n. sp., Banda sea, 304 m. (p. 102, pl. xvi), *O. valenciennesi* (p. 110); KOEHLER (143). *O. vivipara*; LUDWIG (164) p. 694. *O. vorax*; KOEHLER (143) p. 109.
- Ophiacanthidae*, vide *Ophiomytis*.
- Ophiacantinae* defined with list of genera; DELAGE (54) p. 154.
- Ophiactis*; op. cit. p. 153. *O. abyssicola*; GRIEG (106) p. 29. *O. asperula*; LORIOL (162) p. 43; LUDWIG (164) p. 693. *O. balli*; MAR. BIOL. ASS. (184) p. 209: descr.; GRIEG (106) p. 29. *O. dissidens* n. sp. Macassar Str. 1301 m. (p. 98, pls. xvii, xviii), *O. flexuosa* var. *perplexa* Koehl. (olim sp.) (p. 95); KOEHLER (143). *O. kröyeri*; LUDWIG (164) p. 693. *O. lorioli* vide sub *Amphiura*. *O. modesta* (p. 63, figg.), *O. parata* n. sp., Gilolo passage, 469 m. (p. 97, pl. xxiv), *O. partita* (Koehl. sub *Amphiura*), & young (p. 96); KOEHLER (143).
- Ophiambyx*; DELAGE (54) p. 153.
- Ophiarachna*; op. cit. p. 155. *O. affinis* cotypes, & a cotype of the syn. *O. clavigera* Brock, redescr.; KOEHLER (144) p. 76. *O. incrassata*; HERDMAN (120) p. 146.
- Ophiarthrum*; DELAGE (54) p. 155.
- Ophiernus*; op. cit. p. 150. *O. adpersus*; KOEHLER (143) p. 20.
- Ophioaethiops*; DELAGE (54) p. 156. *O. unicolor*; KOEHLER (144) p. 115 & figg.
- Ophioblenna*; DELAGE (54) p. 155.
- Ophiobyrsella erinaceus* n. sp., Sulu Archipel., 275 m.; KOEHLER (143) p. 152, pl. xxvi.
- Ophiocamax*; DELAGE (54) p. 153 & figg. *O. rugosa* n. sp., Malay Archipel., 204-520 m.; KOEHLER (143) p. 139, pl. xxvi.
- Ophiocampsis*; DELAGE (54) p. 156.
- Ophiocentrus*; DELAGE (54) p. 155.
- Ophioceramis*; op. cit. p. 150. *O. clausa*, vide *Ophiomoeris*. *O. declinans* n. sp., Banda Sea, 204 m.; KOEHLER (143) p. 15, pl. iii. *O. januarii*; LORIOL (162) p. 44. *O. obstricta* & *O. tenera*, vide *Ophiomoeris*.
- Ophiochaeta*; DELAGE (54) p. 150.
- Ophiochiton*; op. cit. p. 153: spp. in two sections; KOEHLER (143) p. 68. *O. ambulator*, ?incl. *O. carinatus* Lüttk. & Mort. (p. 70), *O. bispinosus* n. sp., Java Sea & Macassar Str., 538-655 m. (p. 71, pl. xi), *O. commixtus* n. sp., Macassar Str., 1301 m. (p. 69, pl. xi), *O. inaequalis* n. sp., Gilolo passage, 835 m. (p. 70, pl. xi); KOEHLER (143).
- Ophiochrysis* n. g. of *Ophiolepididae*, with genotype *O. ornata* n. sp., Timor, 1224 m.; KOEHLER (143) p. 35, pl. vi.
- Ophiochytra*; DELAGE (54) p. 153.
- Ophiocirce* n. g. of *Ophiodermatidae*, with genotype *O. inutilis* n. sp., Timor, 112 m.; KOEHLER (143) p. 13, pl. iii.
- Ophiocnemis*; DELAGE (54) p. 156. *O. marmorata*; HERDMAN (120) p. 146.
- Ophiocnida*; DELAGE (54) p. 153. *O. albo-viridis*, holotype descr.; KOEHLER (144) p. 71, figg. *O. brachiata*; MAR. BIOL. ASS. (184) p. 209.
- Ophiocoma* descr.; DELAGE (54) p. 155. *O. canaliculata*, holotype redescr.; KOEHLER (144) p. 75 & figg. *O. echinata*, section of ray figd.; ROY. COLL. SURGEONS (237) p. 2. *O. nigra*; MAR. BIOL. ASS. (184) p. 209: ÖSTERGREN (204) fig. *O. scolopendrina*; HERDMAN (120) p. 146.

- Ophiocominae* defined with list of genera; DELAGE (54) p. 155.
- Ophioconis*; op. cit. p. 149. *O. grandisquama* n. sp., Gilolo passage, 469 m.; KOEHLER (143) p. 11, pl. ii.
- Ophiocopa*; DELAGE (54) p. 155.
- Ophiocrates* n. g. of *Ophiolepididae* with genotype *O. lenta* n. sp., Macassar Str.; KOEHLER (143) p. 19, pl. iv.
- Ophiocreas*; DELAGE (54) p. 158. *O. oedipus* (p. 166), *O. sibogae* n. sp., Malay Archipel., 204–1089 m. (p. 165, pls. xxxii, xxxvi); KOEHLER (143).
- Ophiocrene*, ? young *Astrophyton*; DELAGE (54) p. 159.
- Ophiocten*; op. cit. p. 152, figg. *O. depressum*, vide *Ophioleuce*. *O. sericeum*; MICHAILOVSKIJ (192) p. 173: cold water & warm water varr., latter = *Ophioglypha gracilis* Sars; GRIEG (106) p. 26.
- Ophiocymbium*; DELAGE (54) p. 155.
- Ophiodera neglecta* n. sp., Malay Archipel., 469–595 m.; KOEHLER (143) p. 153, pl. xxviii.
- Ophioderma*, descr.; DELAGE (54) p. 148 & fig. †*O. sp.*; BOEHM (28) p. 8, pl. i. *O. longicauda*; NOBRE (199).
- Ophiodermatidae*, vide *Ophiocirce*, *Ophiopallas*.
- Ophiodermatinae*, defined with list of genera; DELAGE (54) p. 148.
- Ophiodoris* n. g. of *Amphiuridae* (p. 72), including *O. contrarius*, 1158–1301 m. (p. 75), *O. errans*, 595 m. (p. 74), *O. malignus*, 450 m. (p. 73), all n. spp., Malay Archipelago (pl. xii), & ? *Amphiura papillata* Lütik. & Mort.; KOEHLER (143).
- Ophiogeron*; DELAGE (54) p. 155.
- Ophiogona*; DELAGE (54) p. 149.
- Ophioglypha*, classification of spp. discussed, two divisions suggested according as second buccal pores open into mouth or not (p. 36), *O. aequalis* (p. 55); KOEHLER (143). *O. albida*; KIAER (140). *O. clemens* n. sp., Malay Archipel., 694–1633 m. (p. 51, pl. viii), *O. distincta* n. sp., Timor & Java sea, 216–794 m. (p. 44, pl. ix), *O. flagellata* (p. 56); KOEHLER (143). *O. hexactis*; LUDWIG (164) p. 692. *O. humilis* n. sp., Sulu Archipel., 120–400 m. (p. 39, pl. vii), *O. imbecillis* (p. 40), *O. improba* n. sp., Banda sea, 1595 m. (p. 48, pl. viii); KOEHLER (143). *O. indica*, a cotype redescr.; KOEHLER (144) p. 61, figg. *O. inornata*, incl. *O. divisa*, variations (p. 40), *O. insolita* n. sp., Banda sea & Gilolo, 204–397 m. (p. 47, pl. vii); KOEHLER (143). *O. lacertosa*; KIAER (140): NOBRE (199): UEXKUELL (274). *O. latro* n. sp., Banda sea, 204 m. (p. 41, pl. ix), *O. laudata* n. sp., Sulu Archipel., 450 m. (p. 43, pl. viii), *O. lenta* n. sp., Malay Archipelago (p. 53, pl. viii), *O. liberata* n. sp., Gilolo passage, 835 m. (p. 46, pl. vii), *O. prisca* n. sp., Banda sea, 1595 m. (p. 38, pl. vi), *O. radiata* (p. 55), *O. remota* n. sp., Flores sea, 2798 m. (p. 54, pl. ix); KOEHLER (143). *O. robusta*, descr., range; CLARK (38) p. 558, pls. vi, vii. †*O. sarsi*?; MADSEN (177) p. 530. *O. solida* (p. 43, pl. viii), *O. sordida* (p. 47), *O. urbana* n. sp., Gilolo passage, 469 m. (p. 50, pl. vii); KOEHLER (143).
- Ophiogymna*; DELAGE (54) p. 156.
- Ophiohelix*; op. cit. p. 157: syn. of *Ophioaethiops*; KOEHLER (144) p. 115.
- Ophiohelus* descr.; DELAGE (54) p. 153, figg.
- Ophiohelusinae* defined with list of genera; loc. cit.
- Ophiolebes*; DELAGE (54) p. 155.
- Ophiolepididae*, vide *Ophiokrysis*, *Ophiocrates*, *Ophioleuce*, *Ophiomidas*, *Ophiomoeris*.
- Ophiolepis*; op. cit. p. 149. †*O. leckenbyi*, †*O. murrayi*; STRANGWAYS (266) p. 15.
- Ophiolepisinae*, defined with list of genera; DELAGE (54) p. 149.
- Ophioleuce* n. g. of *Ophiolepididae* (p. 32) for *Ophiocten depressum* Lym., & *O. seminudum* n. sp., Sulu Archipel. & Ceram, 120–1633 m.; KOEHLER (143) p. 33, pl. ii.

- Ophiolipus* (seu *-lypus*); DELAGE (54) p. 150. *O. granulatus* (p. 21), *O. levis* n. sp., Gilolo passage, 469–835 m. (p. 21, pl. iv); KOEHLER (143).
- Ophiolophus*; DELAGE (54) p. 156. *O. novarae*, holotype redescri.; KOEHLER (144) p. 117 & figg.
- Ophiomastix*; DELAGE (54) p. 155. *O. venosa*, topotype descr.; KOEHLER (144) p. 73, figg.
- Ophiomastus*; DELAGE (54) p. 152, figg. *O. perplexus* n. sp., G. of Boni & Timor, 828–1158 m. (p. 29, pl. iii), *O. tumidus* (p. 30); KOEHLER (143).
- Ophiomaza*; DELAGE (54) p. 156. *O. cacaotica*; HERDMAN (120) p. 147.
- Ophiomidas* n. g. of *Ophiolepididae* (p. 26) for *O. alatum*, Macassar Str., 1301 m. (p. 26, pl. v) & *O. reductum*, near Simbawa Id., 2060 m. (p. 27, pl. v), n. spp., also *Ophiozona dubia* (p. 28); KOEHLER (143).
- Ophiomitra*; DELAGE (54) p. 154: Verrill's division into *Ophiomitra*, *Ophioplinthaca*, & *Ophiomitrella*, accepted; KOEHLER (143) p. 122.
- Ophiomitrella* rediagnosed (p. 123), *O. barbara*, Banda sea, 310 m. (p. 133, pls. xxvi, xxvii), *O. languida*, Macassar, 450 m. (p. 135, pl. xxix), *O. moniliformis*, Molucca sea, 2081 m. (p. 136, pl. xxvii), *O. mutata*, Banda sea, 204–304 m. (p. 134, pl. xxx), *O. placida*, Timor & Banda sea, 204–304 m. (p. 137, pl. xxxi): all n. spp.; KOEHLER (143).
- Ophiomoeris* n. g. of *Ophiolepididae* (p. 16), with genotype *O. spinosa* n. sp., Sulu and Banda seas, 204–1901 m. (p. 17, pl. iv), also *Ophioceramis clausa*, *obstricta*, and *tenera*; KOEHLER (143).
- Ophiomusium*; DELAGE (54) p. 150, fig. *O. altum* n. sp., Macassar Str., 2029 m. (p. 57, pl. x), *O. elegans*, discussed (p. 66), *O. fallax* n. sp., Gilolo passage, 469 m. (p. 56, pls. ix, x); KOEHLER (143). †*O. ferrugineum*, redescri.; LEUTHARDT (152) p. 110, pl. ii. *O. impurum* n. sp., Banda sea, 120–400 m. (p. 64, pl. x), *O. lunare*, *O. lymani* (p. 58), *O. properum* n. sp., N. of Sumbawa & Macassar Str., 695–724 m. (p. 62, pl. x), *O. relictum* n. sp., Gilolo passage, 469 m. (p. 61, pl. x), *O. sanctum* n. sp., Molo Str. and Timor, 54–216 m. (p. 59, pl. xi), *O. scalare*, discussed (p. 65), *O. serratum* (p. 66), *O. validum*, and young, compared with *O. lunare* (p. 59); KOEHLER (143).
- Ophiomyces*; DELAGE (54) p. 153. *O. delata* n. sp., Sulu Archipel. and Banda sea, 350–4239 m.; KOEHLER (143) p. 100, pls. xvii, xviii.
- Ophiomytis* n. g. of *Ophiacanthidae*, with genotype *O. weberi* n. sp., Timor, 520 m.; KOEHLER (143) p. 142, pl. xviii.
- Ophiomyxa*, descr.; DELAGE (54) p. 146 & fig. *O.?* juv.; HERDMAN (120) p. 147. *O. brevispina*; MARTENS (185). *O. vivipara*; LUDWIG (164) p. 695.
- Ophioncus*; DELAGE (54) p. 148.
- Ophionema*; DELAGE (54) p. 155.
- Ophioneptlys*; DELAGE (54) p. 155.
- Ophionereis*; op. cit. p. 153. *O.?* sp.; HERDMAN (120) p. 146. *O. fusca*, a cotype; KOEHLER (144) p. 72 & figg.
- Ophiopaepale*; DELAGE (54) p. 150. *O. goesiana*, holotype redescri.; KOEHLER (144) p. 57 & figg.
- Ophiopallas* n. g. of *Ophiodermatidae*, with genotype *O. paradoxa* n. sp., Macassar, Gilolo Passage, and Banda sea, 204–450 m.; KOEHLER (143) p. 12, pl. iii.
- Ophiopeza*; DELAGE (54) p. 149. *O. aequalis* (p. 10), *O. custos*, referred to *Ophioplax* (p. 67); KOEHLER (143).
- Ophiopezella*; DELAGE (54) p. 149.
- Ophiopholis*; op. cit. p. 153. *O. aculeata*; GRIEG (106) p. 30; KIAER (140); MICHAÏLOVSKIJ (192) p. 173; ÖSTERGREN (204): descr., range; CLARK (38) p. 559, pls. v, vii.
- Ophiophragmus*; DELAGE (54) p. 153.
- Ophiophtirius*; DELAGE (54) p. 157.

- Ophiophyllum* ; DELAGE (54) p. 150 & figg.  
*Ophiopanax* ; DELAGE (54) p. 149.  
*Ophioplax* ; op. cit. p. 153. *O. custos* (Koehl. sub *Ophiopeza*) discussed ; KOEHLER (143) p. 67.  
*Ophiopleura* ; DELAGE (54) p. 150. *O. aurantiaca*, descr., compared with *O. borealis* ; GRIEG (106) p. 17 & fig. *O. borealis* ; op. cit. p. 15 : MICHAÏLOVSKIJ (192) p. 171.  
*Ophioplinthuca*, diagnosis (p. 123), *O. chelys* (p. 131), *O. citata* n. sp., Banda sea and Gilolo Passage, 204-469 m. (p. 130, pl. xxiv), *O. miranda* n. sp., Banda sea, 984 m. (p. 123, pl. xxxi), *O. mitis* n. sp., ibid., 204-304 m. (p. 127, pl. xxv), *O. pulchra* n. sp., Malay Archipel., 304-522 m. (p. 125, pl. xxvii), *O. rudis* (Koehl. sub *Ophiomitra*) (p. 132), *O. vicina* n. sp., Banda sea, 1595 m. (p. 129, pl. xxv) ; KOEHLER (143).  
*Ophioplinthus* ; DELAGE (54) p. 150.  
*Ophioplocus* ; DELAGE (54) p. 150.  
*Ophiopsammium* ; DELAGE (54) p. 156.  
*Ophiopsila* ; op. cit. p. 153. *O. aranea* ; MAR. BIOL. ASS. (184) p. 209.  
*Ophiopteris* ; DELAGE (54) p. 155.  
*Ophiopteron* ; op. cit. p. 156, figg. *O. elegans* ; HERDMAN (120) p. 147 : wide distrib. ; BELL in op. cit. p. 148.  
*Ophiopus* ; DELAGE (54) p. 153. *O. arcticus* ; GRIEG (106) p. 30.  
*Ophiopyren* ; DELAGE (54) p. 149, fig. *O. delatum* n. sp., Java sea, 538 m. ; KOEHLER (143) p. 10, pl. iii.  
*Ophiopyrgus* ; DELAGE (54) p. 150, figg. *O. depressus*, Macassar Str., 2029 m. (p. 31, pl. iv), *O. trispinosus*, Malay Archipelago, 120-1914 m. (p. 30, pl. v) : n. spp. ; KOEHLER (143).  
*Ophiosciasma* ; DELAGE (54) p. 155.  
*Ophioscolex* ; loc. cit. *O. glacialis* ; GRIEG (106) p. 32 : slight variations ; MICHAÏLOVSKIJ (192) p. 174. *O. pertinax* n. sp., Banda sea, 404 m. ; KOEHLER (143) p. 145, pl. xxv. *O. purpureus* ; GRIEG (106) p. 32.  
*Ophiosphaera* ; DELAGE (54) p. 157 : systematic position uncertain (p. 117), *O. insignis*, a cotype descr. (p. 116, figg.) ; KOEHLER (144).  
*Ophiostigma* ; DELAGE (54) p. 153.  
*Ophiothamnus* ; op. cit. p. 154. *O. stultus* n. sp., Malay Archipel., 794-1158 m. ; KOEHLER (143) p. 141, pls. xxv, xxvi.  
*Ophiothela* ; DELAGE (54) p. 156.  
*Ophiotholia* ; op. cit. p. 153. *O. multispina* n. sp., Malay Archipel., 216-567 m. ; KOEHLER (143) p. 99, pl. xxxiii.  
*Ophiothrichoides* ; DELAGE (54) p. 156.  
*Ophiothrix*, descr. ; op. cit. p. 155, figg. : variability ; BELL in HERDMAN (120) p. 150. *O. aristulata* ; KOEHLER (143) p. 151. *O. ? aspidota* ; HERDMAN (120) p. 146 : holotype redescr., also specimen fr. Ceylon, Brock's specimen referred to *O. bedoti* ; KOEHLER (144) p. 87, figg. *O. capillaris*, variations ; KOEHLER (143) p. 151. *O. carinata*, a cotype redescr. (p. 90, figg.), *O. ciliaris*, cotypes redescr. (p. 100, figg.) ; KOEHLER (144). *O. clarescens* n. sp., Banda sea, 304 m. ; KOEHLER (143) p. 150, pls. xxix, xxx. *O. comata*, holotype redescr., distinguished fr. specimens so named by Marktanner, de Loriol, & Koehler ; KOEHLER (144) p. 105, figg. *O. crassispina*, Sumbawa Id., 274 m. (p. 147, pls. xxviii-xxx), *O. deposita*, Malay Archipel., 204-520 m. (p. 146, pl. xxix) : n. spp. ; KOEHLER (143). *O. elegans*, holotype redescr. ; KOEHLER (144) p. 110 & figg. *O. fragilis* ; GRIEG (106) p. 32 : KIAER (140) ; MACBRIDE (172) ; MALARD (179) p. 192 : MAR. BIOL. ASS. (184) p. 210 : NOBRE (198) p. 54, & (199) : RETZIUS (226) p. 27 : ZIEGLER (298). *O. fumaria*, holotype redescr. (p. 77 & figg.), *O. marenzelleri* n. sp., Japan, referred to *O. stelligera* by Marktanner (p. 103, figg.), *O. merguensis*, holotype distinguished fr. *O. ciliaris* (p. 102) ; KOEHLER (144). *O. ? nereidina* ; HERDMAN (120) p. 146.



- O. picteti*, holotype compared with Brock's *O. foveolata*, which is syn. (p. 110), *O. proteus* n. sp., based on *O. comata* Koehler, 'Investigator' coll. (p. 109), *O. roseo-coerulans*, cotypes redescr. (p. 97, figg.), *O. smaragdina*, a cotype redescr. (p. 92, figg.), *O. spongicola*, redescr. (p. 95, figg.), *O. stabilis* n. sp., S. E. Japan (p. 84, figg.), *O. tenera*, holotype redescr. (p. 113, figg.), *O. triglochis*, redescr. (p. 81, figg.); KOEHLER (144). *O. viator* n. sp., Banda sea, 304 m.; KOEHLER (143) p. 148, pl. xxxi. *O. virgata*, Brock's specimen desc.; KOEHLER (144) p. 80 & fig.
- Ophiothyreus*; DELAGE (54) p. 150. *O. goesii*, cotypes redescr.; KOEHLER (144) p. 59 & figg.
- Ophiotoma*; DELAGE (54) p. 155. *O. assimilis* n. sp., Ceram & Timor, 567-918 m.; KOEHLER (143) p. 144, pl. xxviii.
- Ophiotrema*; DELAGE (54) p. 155.
- Ophiotriaxinae*, defined with list of genera; DELAGE (54) p. 155.
- Ophiotrochus*; op. cit. p. 150. *O. panniculus*; KOEHLER (143) p. 15.
- Ophiotypa*; DELAGE (54) p. 152.
- Ophiozona*; op. cit. p. 150, fig. : content discussed (p. 25), *O. casta* n. sp., Banda sea, 560 m. (p. 22, pls. v, vi), *O. depressa* n. var. *media*, N. Celebes & Timor, 918-1264 m. (p. 24, pl. iv); KOEHLER (143). *O. dubia*, vide *Ophiomidas*. *O. molesta* n. sp., Sulu Archipel., 1270 m.; KOEHLER (143) p. 23, pl. vi.
- Ophiura*, desc.; DELAGE (54) p. 149, figg. *O.* sp.; HERDMAN (120) p. 146 : RETZIUS (226) p. 27 : †ROWE (235) p. 293. *O. albida*; GRIEG (106) p. 21 : MALARD (179) p. 192 : MAR. BIOL. ASS. (184) p. 208 : ÖSTERGREN (204). *O. brevispina*, desc., range; CLARK (38) p. 558, pls. v, vii. *O. ciliaris*; GRIEG (106) p. 21 : MAR. BIOL. ASS. (184) p. 208 : NOBRE (199). *O. divisa*, syn. of *O. inornata*; KOEHLER (143) p. 4, 41. *O. nodosa*; GRIEG (106) p. 26 : MICHAÏLOVSKIJ (191) & (192) p. 173. *O. robusta*; GRIEG (106) p. 26 : MICHAÏLOVSKIJ (192) p. 172. *O. sarsi*; loc. cit. : a cold area var.; GRIEG (106) p. 21.
- †*Ophiurella speciosa*; WALTHER (281) p. 166.
- Ophiurina*?; BATHER in FOX (84) p. 752 [proves to be a new genus, 1905].
- Ophiuropsis*; DELAGE (54) p. 158.
- †*Palophiuridae*, desc.; DELAGE (54) p. 144 et sq.
- Paramphiura*; DELAGE (54) p. 152.
- Pectinura*; op. cit. p. 149. *P. conspicua*; KOEHLER (143) p. 9, pl. i. *P. gorgonia*; HERDMAN (120) p. 146. *P. heros* (p. 9), *P. honorata* n. sp., Banda sea, 304 m. (p. 8, pl. ii); KOEHLER (143). *P. intermedia*; HERDMAN (120) p. 146. *P. modesta* n. sp., Java sea, 330 m.; KOEHLER (143) p. 7, pl. ii.
- †*Protaster*, desc.; DELAGE (54) p. 146.
- Sthenocephalus*; DELAGE (54) p. 159.
- Streptophiurida*, defined; DELAGE (54) p. 145 & 146.
- Trichaster*, desc.; DELAGE (54) p. 158 & figg.
- Trichasterinae*, defined, with list of genera; loc. cit.
- Zygophiurida*, divided into Suborders *Brachy-*, and *Nect-ophiuridae*; DELAGE (54) p. 148.

## (F.) CRINOIDEA\*.

- Diagnosis of class; HAMANN (112) p. 1415. *Crinoidea*, defined and classified in Orders, 1. *Larviformida*, 2. *Fistulida*, 3. *Camerida*, 4. *Articulida*; DELAGE (54) p. 375.
- †*Acrocrinus*; DELAGE (54) p. 383, fig.

\* Names that are sometimes given the termination *-ites* (e.g. *Pentacrinites*) are here treated as always ending in *-us*.

- †*Actinocrinus* descr. ; op. cit. p. 385. *A. multiramosus* n. var. *altidorsatus*, Keokuk, Washington co. Ind. ; ROWLEY in GREENE (105) p. 187, pl. lvii.
- †*Actinocrinusinae*, defined with list of genera ; DELAGE (54) p. 385. *Actinometra* ; op. cit. p. 395, fig. *A. multiradiata*, syzygies (p. 157), *A. notata*, variations from type (p. 157), *A. parvicirra*, variations from type (p. 158, pl.) ; CHADWICK (35).
- †*Aesiocrinus* ; SCHUCHERT (247) pl. ci.
- †*Allagecrinus* ; DELAGE (54) p. 377.
- †*Allegecrinusinae*, defined, with list of genera ; loc. cit.
- †*Ancyrocrinus* ; JAEKEL (132). *A. bulbosus* ; CLARKE & LUTHER (40) p. 52.
- Antedon* descr. ; DELAGE (54) p. 339, 394, figg. ; SCHUETZE (251) p. 157. *A. anceps* ; CHADWICK (35) p. 157. *A. barentsi* vide *A. eschrichti*. *A. bella* & var. *brunnea* ; CHADWICK (35) p. 155. *A. bifida* ; MAR. BIOL. ASS. (184) p. 207 : NOBRE (198) p. 52 : measurements ; GRIEG (107) p. 23, fig. : v. etiam *A. rosacea*. *A. carinata* ; CHADWICK (35) p. 154. *A. celtica* vide *A. eschrichti*. *A. eschrichti* incl. *A. celtica*, *quadrata*, *barentsi*, fixed stage, measurements ; GRIEG (107) p. 13, 23 : incl. *A. barentsi*, local variations ; MICHAÏLOVSKIÏ (192) p. 175. †*A. formosus* ; WALTHER (281) p. 165. *A. hirsuta* ; ANDERSSON (10). *A. indica*, *A. marginata*, *A. milberti*, syzygies (p. 154), *A. okelli* n. sp. of *Palmata* group, W. coast Ceylon & G. of Manaar, 8-36 fm. (p. 155, pl.) ; CHADWICK (35). *A. petasus*, measurements (p. 23, fig.), *A. phalngium* (p. 6, 23) ; GRIEG (107). †*A. pinnatus* ; WALTHER (281) p. 158, 165. *A. proluxa* ; MICHAÏLOVSKIÏ (192) p. 176 : measurements, comparison with *A. tenella* et al., cirrals, syzygies, genital pinnules ; GRIEG (107) p. 20, 22, & fig. *A. quadrata*, provisionally kept distinct from *A. eschrichti* (q. v.) ; MICHAÏLOVSKIÏ (192) p. 176. *A. reynaudi*, redescr. ; CHADWICK (35) p. 156, pl. †*A. rhodanicus*, Suabia, comparative measurements ; SCHUETZE (251) p. 156, pl. ii. *A. rosacea* ; LUDWIG (164) p. 699 : v. etiam *A. bifida*. *A. serripinna*, Ceylon, variations from type ; CHADWICK (35) p. 153, pl. *A. tenella*, measurements, v. sub *proluxa*, fixed stage ; GRIEG (107) p. 20, 22 & fig. *A. variipinna* ; CHADWICK (35) p. 157.
- Antedoninae* defined, with list of genera ; DELAGE (54) p. 394.
- †*Aorocrinus* :—*A. cauliculus*, *A. pocillum*, *A. praecursor* ; CLARKE & LUTHER (40) p. 52.
- †*Apiocrinus* :—*A. milleri* ; SIEMIRADZKI (255) p. 139. *A. munsterianus*, *A. polycyphus* ; MAIRE (178). *A. rosaceus* ? ; ROLLIER (230) p. 464.
- †*Apiocrinusinae*, defined, with list of genera ; DELAGE (54) p. 390.
- †*Arachnocrinus extensus*, divergences from type, which came as this from Upper Helderberg ; ROWLEY in GREENE (104) p. 180, 184, pl. liv.
- †*Archaeocrinus* ; DELAGE (54) p. 386, fig. *A. desideratus* (p. 63), *A. microbasalis* (p. 62), *A. pyriformis* (p. 61, 62, 63) ; AMI (7).
- †*Arthracantha punctobrachiata*, arms ; WOOD (291) p. 81, pl. xvi.
- Articulida*, Order, defined (p. 376) descr. & divided into Suborders 1. *Flexibilidae*, 2. *Canaliculidae* (p. 387) ; DELAGE (54).
- †*Austinocrinus meyeri*, *rothpletzi*, *zitteli* may all be from one sp. of *Isocr.* ; JAEKEL (133).
- †*Balanocrinus*, vide sub *Pentacrinus*.
- †*Barrandeocrinus* ; DELAGE (54) p. 384, fig.
- †*Barycrinus hoveyi* ; WHITFIELD (286) pls.
- Bathycrinus* discussed ; DELAGE (54) p. 391, figg. *B. carpenteri*, measurements, stem, basals, union of Br. ; GRIEG (107) p. 8.
- †*Batocrinus* descr. ; DELAGE (54) p. 384, fig. *B. crassitestus* n. sp., Warsaw Limest., Lanesville, Ind. (p. 172, pl. li), *B. davisi*, redescr. with n. varr. *lanesvillensis* et *sculptus* ; ibid. (p. 171, 172, 174, pl. li),

- B. icosidactylus*, redescri. (p. 173, 174, pl. li), *B. irregularis*, redescri. (p. 171, pl. li), *B. magnirostris* n. sp., Warsaw Limest., Lanesville, Ind. (p. 170, pl. li); ROWLEY in GREENE (103). *B. spergenensis*; ROWLEY in GREENE (105) p. 188, pl. lvii.
- †*Batocrinusinae*, defined with list of genera; DELAGE (54) p. 384.
- †*Botryocrinus americanus* n. sp., Hamilton group, Charlestown, Ind.; ROWLEY in GREENE (104) p. 184, pl. liv.
- †*Bourquetierinus*:—*B.* sp., dwarf; ROWE (235) p. 256, 266, 293. *B.* sp. (nipple-headed); DIBLEY (62). *B. ellipticus*; COLLET (44) p. 77: HINDE (125): TÜRNEBOHM (267) p. 143.
- †*Cainocrinus andreae* vide sub *Pentacrinus*.
- Calamocrinus* descr.; DELAGE (54) p. 390, figg.
- †*Calceocrinus*; op. cit.; DELAGE (54) p. 379, fig. *C. alleni* n. sp., Clinton group, Pike co., Mo.; ROWLEY (236) p. 275, pl. xvi. *C. clarus*; CLARKE & LUTHER (40) p. 55.
- †*Calceocrinusinae*, defined with list of genera; DELAGE (54) p. 379.
- †*Callicrinus*; DELAGE (54) p. 384, fig.
- †*Camarocrinus* (et err. *Camerocr.*), syn. *Lobolithus*; FRIČ (88): JAEKEL (132): history of opinion, mode of occurrence in America and Bohemia, diagnosis, incl. *Lobolithus* but not *Scyphocr.*, believed to be a float (p. 253–269), *C. saffordi*, descr. (p. 270, pl. xl), *C. stellatus*, descr. (p. 269, pl. xlv), *C. ulrichi*, descr. (p. 271, pls. xli–xliii) with n. var. *stellifer*, Lower Helderberg (p. 272, pls. xl, xli); SCHUCHERT (249).
- †*Camerida*, Order, defined (p. 376) descr. (p. 382) with Famm. *Platycrinus*-, *Glyptocrinus*-, *Batocrinus*-, *Actinocrinus*-, *Rhipidocrinusinae*; DELAGE (54).
- Canaliculidae*, Sub-Order, defined (p. 388) with Famm. *Encrinus*-, *Uintacrinus*-, *Apiocrinus*-, *Rhizocrinus*-, *Holopus*-, *Saccocom*-, *Pentacrinus*-, *Antedoninae* (p. 389); DELAGE (54).
- †*Catillocrinus*; DELAGE (54) p. 379.
- †*Catillocrinusinae*, defined, with list of genera; loc. cit.
- †*Cleiocrinus grandis*; AMI (7) p. 63.
- †*Cococrinus*; DELAGE (54) p. 377.
- †*Compsocrinus*; DELAGE (54) p. 384, fig.
- †*Cordylocrinus? dubius* n. sp., Niagaran, Ste. Genevieve co., Mo.; ROWLEY (236) p. 272, pl. xvi.
- †*Cothocrinus*; DELAGE (54) p. 392.
- †*Cotylederma* sp.; SCHAEFER (242) p. 34.
- †*Crotalocrinus*; DELAGE (54) p. 380, figg.
- †*Cupressocrinus*; DELAGE (54) p. 380, fig.
- †*Cyathidium holopus*, habitat; HENNIG (115) p. 55: RAVN (223) p. 351: TÜRNEBOHM (267) p. 143.
- †*Cyathocrinus* descr.; DELAGE (54) p. 379, fig. *C. bulbosus*; CLARKE & LUTHER (40) p. 43. *C.? ovalis* n. sp., "almost certainly not *Cyathocr.*", Niagaran, Ste. Genevieve co., Mo.; ROWLEY (236) p. 271, pl. xvi. *C. ramosus?*; KITTL (141) p. 686.
- †*Cyathocrinusinae*, defined with list of genera; DELAGE (54) p. 379.
- †*Dadocrinus gracilis*; KITTL (141) p. 539.
- †*Decadocrinus*; DELAGE (54) p. 381, fig.
- †*Dendrocrinus* descr.; DELAGE (54) p. 380. *D. acutidactylus*, *D. congregatus*, *D. conjugans*; AMI (7) p. 62.
- †*Dendrocrinusinae*, defined with list of genera; DELAGE (54) p. 380.
- †*Dimerocrinus* [fig. 479, showing dorsal nerve-cords is not this genus but *Encrinus*, belonging to a different Order]; op. cit. p. 386.
- †*Dolathocrinus*, small value of arm-branching in classification (p. 69), *D.* sp. (p. 73, fig.), *D. amplus* (p. 78), *D. asterias* n. sp., Devonian, Upper Traverse Limest., Michigan, & abnormality (p. 71, pl. xvi), *D. caelatus* (p. 77), *D. charlestownensis* (p. 74), *D. costatus* n. sp., Devonian,

Mid. Traverse Limest., Michigan (p. 70, pl. xvi); WOOD (291). *D. excavatus*; op. cit. p. 78: variations in IBr.; ROWLEY in GREENE (105) p. 191, pl. lviii. *D. glyptus*; CLARKE & LUTHER (40) p. 49, 52: WOOD (291) p. 76. *D. grandis* (p. 79), *D. greenei*, discussed (p. 74), *D. hammelli* (p. 75), *D. indianensis* (p. 77); WOOD (291). *D. intermedius*; CLARKE & LUTHER (40) p. 52. *D. lacus*; WOOD (291) p. 73. *D. liratus*; CLARKE & LUTHER (40) p. 49, 52. *D. major* (p. 76), *D. ornatus*, distinguished from *D. glyptus* (p. 76), *D. pulchellus* (p. 79), *D. salebrosus*, variation (p. 78); WOOD (291). *D. triadactylus*; GRABAU (102A) p. 193, 194: incl. *D. aplatus*; WOOD (291) p. 74. *D. troosti*; CLARKE & LUTHER (40) p. 52. *D. venustus* (p. 79), *D. wachsmuthi* **nom. nov.** pro *D. lyoni* W. & Sp. non Mill. & Gurl. (p. 77); WOOD (291).

†*Ederocrinus pyriformis*; CLARKE & LUTHER (40) p. 43.

†*Enercinus* descr. [vide sub *Dimerocr.*]; DELAGE (54) p. 389. *E. cassianus*; FIEDLER (77): KITTL (141) p. 703 & cf. *cassianus*, p. 645. *E. granulatus*; op. cit. p. 579, 703, & cf. *granulosus*, p. 576. *E. liliiformis*; LANGENHAN (150): ZLATARSKĪ (299). *E. cf. moniliformis*; DEL CAMPANA (56) p. 554. *E. silesiacus*; ZLATARSKĪ (299).

†*Enercinusinae* defined with list of genera; DELAGE (54) p. 389.

†*Erisocrinus* sp.; BEEDE & ROGERS (21).

†*Eugeniocrinus*; DELAGE (54) p. 392, fig. *E. hoferi*; MAIRE (178).

†*Euspirocrinus*; DELAGE (54) p. 380.

*Fistulida*, Order, defined (p. 375), descr. (p. 377) with Fam. *Hyboocrinus*-, *Heterocrinus*-, *Calceocrinus*-, *Catillocrinus*-, *Cyathocrinus*-, *Dendrocrinus*-, *inae*; DELAGE (54).

†*Flexibilidae*, Suborder, defined with Fam. *Ichthyocrinus*-, *Marsupitesinae*; DELAGE (54) p. 388.

†*Forbesocrinus*:—*F.* sp.; PEACH (209) p. 850. *F. lobatus*; CLARKE & LUTHER (40) p. 55.

*Gasterocomidae*, vide *Tripleurocrinus*.

†*Gennaeocrinus*:—*G. carinatus*; WOOD (291) p. 80. *G. eucharis*; CLARKE & LUTHER (40) p. 52. *G. kentuckiensis*, extra IBr.; WOOD (291) p. 80 & fig. *G. nyssa*; CLARKE & LUTHER (40) p. 52. *G. simulans* **n. sp.**, Hamilton group, Charlestown, Ind.; ROWLEY in GREENE (104) p. 183, pl. liv.

*Gephyrocrinus*; DELAGE (54) p. 393.

†*Gilbertocrinus*; op. cit. p. 386, fig. *G. indianensis*; WOOD (291) p. 81. *G. spinigerus*; CLARKE & LUTHER (40) p. 52.

†*Gissocrinus?* *problematicus* **n. sp.**, Clinton group, Louisiana, Mo.; ROWLEY (236) p. 277, pl. xvi.

†*Glyptocrinus*; DELAGE (54) p. 383. *G. insperatus* **n. sp.** (p. 275) & **n. varr. pentagonus** (p. 276), *carinatus* (p. 278), Clinton group, Pike co., Mo.; ROWLEY (236) pl. xvi. *G. cf. priscus* (p. 71), *G. ramulosus* (p. 61, 62); AMI (7).

†*Glyptocrinusinae* defined with list of genera; DELAGE (54) p. 383.

†*Haplocrinus* descr.; DELAGE (54) p. 377, figg.

†*Haplocrinusinae* defined; DELAGE (54) p. 377.

†*Herpetocrinus* [fig. 450 "*Bras de H. fletcheri*" is really a view of the whole animal]; DELAGE (54) p. 379.

†*Heterocrinus*; DELAGE (54) p. 379. *H. simplex canadensis*; AMI (7) p. 64.

†*Heterocrinusinae* defined with list of genera; DELAGE (54) p. 379.

*Holopus* descr.; op. cit. p. 392, figg. *H. rangi*, habitat; HENNIG (115) p. 57.

†*Holopusinae* defined with list of genera; DELAGE (54) p. 392.

†*Hyboocrinus* descr.; DELAGE (54) p. 378.

†*Hyboocrinusinae* defined with list of genera; loc. cit.

†*Hydreionocrinus globularis*; PEACH (209) p. 850.



- Hyocrinus* descr.; DELAGE (54) p. 392.  
*Hyocrinusinae* defined with list of genera; loc. cit.
- †*Hystricrinus depressus*; CLARKE & LUTHER (40) p. 65.  
 †*Ichthyocrinus*; DELAGE (54) p. 388.  
 †*Ichthyocrinusinae* defined with list of genera; loc. cit.  
 †*Iocrinus subcrassus*; AMI (7) p. 65.  
*Isocrinus* vide sub *Pentacrinus*.
- †*Lampetrocrinus? comptus* n. sp., detached plates, Clinton group, Louisiana, Mo.; ROWLEY (236) p. 279, pl. xvi.  
 †*Larviformida*, Order, defined (p. 375) with Famn. *Haplocrinus*-, *Allagecrinus*-, & *Stephanocrinus*-inae (p. 377); DELAGE (54).  
 †*Lecanocrinus hemisphericus* n. sp., Niagaran, Ste. Genevieve co., Mo.; ROWLEY (236) p. 271, pl. xvi.  
 †*Lichenocrinus*; JAEKEL (132). *L. crateriformis*; AMI (7) p. 65.  
*Lobolithus* (vide etiam *Camarocr.*), *L. sp.*; FRIČ (88): Probably a nodule; PERNER in Abstract.
- †*Mariacrinus*; DELAGE (54) p. 383 & fig.  
 †*Marsupites*; JAEKEL (132): descr.; DELAGE (54) p. 388. *M. testudinarius*; HINDE (125): ROWE (235) p. 293: WRIGHT (294).  
 †*Marsupitesinae* defined with list of genera; DELAGE (54) p. 388.  
 †*Megistocrinus*; op. cit. p. 385, fig. *M. abnormis*, ornament; WOOD (291) p. 63, pl. xv. *M. circulus?*, divergences from type; ROWLEY in GREENE (104) p. 181, pl. liv. *M. concavus*; WOOD (291) p. 65. *M. depressus*; CLARKE & LUTHER (40) p. 52, incl. *M. ornatus* (p. 64), *M. expansus*, loss of arms (p. 66), *M. farnsworthi* (p. 64), *M. latus* (p. 66), *M. multidecoratus* (p. 65), *M. nodosus*, variations fr. type (p. 65); WOOD (291). *M. ontario*; CLARKE & LUTHER (40) p. 48, 52. *M. regularis* n. sp., Devonian, Mid. Traverse Limest., Michigan (p. 59, pl. xv), *M. rugosus*, variations fr. type (p. 63), *M. sphaeralis* n. sp., Devonian, Mid. Traverse Limest., Michigan, also abnormality (p. 60, pl. xv); WOOD (291). *M. spinosulus*; op. cit. p. 65: notes; ROWLEY in GREENE (104) p. 182, pl. liv. *M. tuberatus* n. sp., Devonian, Upper Traverse Limest., Michigan, also young; WOOD (291) p. 57, pls. xv, xvi.
- †*Melocrinus*; DELAGE (54) p. 383, fig. *M. clarkei* (p. 62), *M. gracilis* (p. 52); CLARKE & LUTHER (40). *M. wittenbergensis* n. sp., Delthyris Limest., Silurian, Wittenberg, Mo.; ROWLEY (236) p. 274, pl. xvi.  
*Metacrinus rotundus* incl. *M. interruptus*; SPERRY (265).  
 †*Millericrinus*:—*M. cf. adneticus*; MARIANI (183) p. 153, 154. *M. echinatus*; STRANGWAYS (266) p. 40, 49. *M. escheri*, *M. goupilianus*; MAIRE (178). *M. hausmanni*; MARIANI (183) p. 154. *M. horridus*; MAIRE (178). *M. longimanus*, *M. mespiliformis*, *M. nobilis*; WALTHER (281) p. 165. *M. nodotianus*, *M. regularis*; MAIRE (178). *M. rosaceus*; WALTHER (281) p. 165.
- †*Myrtillocrinus*; DELAGE (54) p. 380, fig. *M. americanus*; CLARKE & LUTHER (40) p. 43.  
 †*Parisocrinus*; DELAGE (54) p. 380, figg.  
 †*Pentacrinus* [including *Balanocr.*, *Cainocr.*, *Isocr.*]; op. cit. p. 394, figg. *P. sp.*; BOEHM (28) p. 7, pl. i. *P. sp.* columnars of special shape; ROWE (235) p. 243, 293. *P. alternans* d'Orb; LORIOLE (162) p. 62. *P. amblyscalaris*; MAIRE (178): SIEMIRADZKI (255) p. 139. *Cainocr. andreae* & var. nov. *major*, descr.; LEUTHARDT (152) p. 93, pl. ii, fig. *P. cf. andreae*; MADSEN (176) pp. 172, 200, pl. vi. *P. angulatus*; SCHAEFER (242) p. 31. *P. annulatus?*; STRANGWAYS (266) p. 67, 73. *Isocr. australis*, n. var. *albascopularis*, Upper Cretaceous, White Cliffs, N.S.W.; ETHERIDGE (74) p. 251, pl. xxviii. *P. bajocensis*; RICHE (228) p. 210. *P. basaltiformis*; MARIANI (183) p. 153, 154: SCHAEFER (242) p. 34: ZLATARSKI (299). *P. buchi*; COLLET (44)

p. 77, 79. *P. desori*; SIEMIRADZKI (255) p. 139. *P. fittoni*; FEARN-SIDES (76); STRANGWAYS (266) p. 78. *P. fossilis*; SCHUCHERT (247) pl. cii. *P. gevreyi* n. sp., Valangian, Malleval, Isère, columnals only; LORIOU (162) p. 59, pl. iv. *Isocr. holsaticus* n. sp., Senonian, Holstein; JAEKEL (133) p. 195. *P. lanceolatus*; JAHN (135). *P. leuthardi*, redescr.; LEUTHARDT (152) p. 102, pl. iii. *P. lissajouxi* n. sp., Hauterivian, St. Pierre de Cherenne, Isère, columnals only (p. 63, pl. iv), *P. mallevalensis* n. sp., Neocomian, Malleval, Isère, columnals only (p. 60, pl. iv), *P. neocomiensis* d'Orbigny non Desor is perhaps *P. mallevalensis* (p. 61), *P. peyroulensis* n. sp., Hauterivian, Peroules, Basses-Alpes, columnals only (p. 62, pl. iv); LORIOU (162). *P. cf. punctiferus*; ZLATARSKĪ (299). *P. scalaris*; SCHAEFER (242) p. 32. *P. sigmaringensis*; ROLLIER (230) p. 464. *P. subangularis*; SCHAEFER (242) p. 34; SCHUCHERT (247) pl. ci. *P. subteroides*; SCHAEFER (242) p. 34: sub *Balanocr.*; RZEHAK (238) p. 148, & (239). *P. tuberculatus*; MARIANI (183) p. 138; SCHAEFER (242) p. 31. *P. vulgaris*; STRANGWAYS (266) p. 9, 15. *P. wiesbauri* n. sp., Mid. Lias, Moravia, columnals; RZEHAK (238) p. 148, pl. i.

*Pentacrinusinae* defined with list of genera; DELAGE (54) p. 394.

*Periechocrinidae*, vide *Tylocrinus*.

†*Periglyptocrinus billingsi*; AMI (7) p. 62, 63.

†*Petalocrinus*; DELAGE (54) p. 380, fig.

†*Phyllocrinus* aff. *nutantiformis*; DEL CAMPANA (55) p. 268.

†*Pisocrinus*:—*P. glabellus* n. sp., Niagaran, Ste. Genevieve co., Mo. (p. 270, pl. xvi), *P. globosus*? "if distinct might be called *P. sphaericus*," ibid. (p. 270, pl. xvi), *P. gorbysi*?, descr. (p. 269, pl. xvi), *P. granulatus* n. sp., Niagaran, Ste Genevieve co., Mo. (p. 269, pl. xvi); ROWLEY (236). *P. sphaericus* n. sp.? vide *P. globosus*. *P. (?) yassensis* n. sp. with n. var. *lobata* Silurian near Yass, N.S.W.; ETHERIDGE (75).

†*Platycrinus* descr.; DELAGE (54) p. 383, figg. *P. eboraceus*; CLARKE & LUTHER (40) p. 48, 55. *P. laevis*, *P. ornatus*; DESTINEZ (59) p. M 145. *P. striobrachiatus*; WHITFIELD (286).

†*Platycrinusinae* defined with list of genera; DELAGE (54) p. 383.

†*Plicatocrinus fraasi*; WALTHER (281) p. 158.

†*Porocrinus*; DELAGE (54) p. 380 & fig.

†*Poteriocrinus*:—*P?* sp.; KITTL (141) pp. 666, 681. *P. crassus*; PEACH (209) pp. 842, 849, 850. *P. diffusus*; CLARKE & LUTHER (40) p. 52. *P. fusiformis*; HIND (123) p. 192. *P. nereus*, *P. nycteus*; CLARKE & LUTHER (40) p. 52.

†*Reteocrinus*; DELAGE (54) p. 386, fig.

†*Rhipidocrinus* descr.; DELAGE (54) p. 385.

†*Rhipidocrinusinae* defined with list of genera; loc. cit.

*Rhicrinus* descr.; op. cit. p. 391, figg. *R. lofotensis*; GRIEG (107) p. 12.

†*Rhizocrinusinae* defined with list of genera; DELAGE (54) p. 391.

†*Rhodocrinus*:—*R. gracilis*, *R. nodulosus*; CLARKE & LUTHER (40) p. 52. *R. pyriformis*; AMI (7) p. 61. *R. spinosus*; CLARKE & LUTHER (40) p. 52.

†*Saccocoma* descr.; DELAGE (54) p. 393. *S. pectinata* (p. 165), *S. schwertschlageri* n. sp., Kimmeridgian, Solenhofen Plattenkalk (p. 166, fig.), *S. tenella* (p. 158, 165); WALTHER (281).

†*Saccocominae* defined with list of genera; DELAGE (54) p. 393.

†*Scaphiocrinus longicaudatus* n. sp., Viséan, Belgium; FRAIPONT (85) p. 7, pl. i.

†*Scyphocrinus* (vide etiam *Lobolithus*); DELAGE (54) p. 383. *S. elegans*; ROUSSEL (238) p. 16.

†*Solanocrinus gracilis*; WALTHER (281) p. 165.

†*Stephanocrinus*; DELAGE (54) p. 377.

†*Stephanocrinusinae* defined; loc. cit.

- †*Stereocrinus*:—*S. barrisi*; WOOD (291) p. 79. *S.?* *indianensis*, notes; ROWLEY in GREENE (104) p. 182, pl. liv.
- †*Strotocrinus*; DELAGE (54) p. 385, fig.
- †*Synerocrinus*; DELAGE (54) p. 388, fig.
- †*Taxocrinus*; loc. cit., fig. *T. lobatus*; WOOD (291) p. 81.
- Thaumatoocrinus*; DELAGE (54) p. 395, fig.
- †*Thylacocrinus*; DELAGE (54) p. 386, fig. *T. clarkei*; CLARKE & LUTHER (40) p. 52.
- †*Tripleuroocrinus* n. g. of *Gasterocomidae* (p. 56), with genotype *T. levis* n. sp., Onondaga Limest., New York (p. 57 pl. xvi); WOOD (291).
- †*Tylocrinus* n. g. of *Periechocrinidae*, with genotype *T. novus* n. sp., Devonian, Upper Traverse Limest., Michigan, abnormality; WOOD (291) p. 66, pl. xvi.
- †*Uintacrinus*; JAEKEL (132): descr.; DELAGE (54) p. 389. *U.* sp.; DIBLEY (62); HINDE (125); ROWE (235) p. 293; WRIGHT (294). *U. socialis*; SCHUCHERT (248) pl. ciii; WHITEAVES (285).
- †*Uintacrinusinae* defined; DELAGE (54) p. 389.
- †*Vasocrinus sculptus*; WOOD (291) p. 81.

## (G.) †CYSTIDEA\*

(including EDRIOASTEROIDEA).

- Cystoidia* divided into Orders *Amphorida*, *Rhombiferida*, *Diploporida*, *Edrioasterida*; DELAGE (54) p. 405.
- Agelacrinus*; DELAGE (54) p. 415, fig. *A. chapmani*; AMI (7) p. 61. *A. cincinnatiensis*, anat.; SPENCER (264).
- Amphorida* Order defined, with Famm. *Aristocystis*-, *Anomalocystis*-, *Malocystis*-, & *Comarocystis*-*inae*; DELAGE (54) p. 405.
- Anomalocystis*, diagnosis, alleged anus, distinguished from *Ateleocystis* & *Plucocystis* (p. 205), *A. cornutus* descr. (p. 206, pl. xl, fig.), *A. (?) disparilis* descr. (p. 207, fig.); SCHUCHERT (249).
- Anomalocystisinae* defined with list of genera; DELAGE (54) p. 407.
- Apiocystinae*, vide *Tetracystis*.
- Apiocystis*, diagnosis, distinguished from *Lepocrinites* [*Lepadocr.*] & credited with *A. pentrematoides*, *Pseudocr. oblongus* pars, & *A. elegans*; SCHUCHERT (249) p. 210. *A. canadensis*, vide *Callocystis*. *A. elegans*, specimen from Hamilton, Ont., descr. (p. 212, pl. xxxiv), *A.?* *huronensis*, holotype descr. (p. 212); SCHUCHERT (249). *A. imago*, vide *Hallicystis*. *A.?* *tecumseth*, rejected; SCHUCHERT (249) p. 211.
- Aristocystis* descr.; DELAGE (54) p. 407, figg.
- Aristocystisinae* defined with list of genera; DELAGE (54) p. 407.
- Asteroblastus*; DELAGE (54) p. 413, figg.
- Blastoidocrinus*; DELAGE (54) p. 413.
- Bolboporites americanus*; AMI (8) p. 140.
- Calix*; DELAGE (54) p. 407 & fig.
- Callocystis* diagnosis, incl. *Anthocystis* (p. 242), *C. canadensis* (Bill. sub *Apiocystis*) incl. *C. tripectinatus* Ringueb. (p. 245, pl. xxxiv), *C. jewettii* descr. (p. 243 & fig., pl. xxxiv); SCHUCHERT (249).
- Carpoidea*, summary of Jaekel's classification, which is rejected; DELAGE (34) p. 406.
- Caryocrinusinae* defined with list of genera, DELAGE (54) p. 411.
- Caryocystis*; DELAGE (54) p. 410, fig.

† All extinct.

\* Names that are sometimes given the termination *-ites* (e.g. *Anomalocystites*) are here treated as always ending in *-us*, *-a*, or *-is*, as the case may be.

- Coelocystis*, diagnosis, genotype in *Hemicosmites subglobosus* Hall incl. *Sphaerocystis dolomiticus* Jaekel (p. 246), *C. subglobosus* descr., abnormality (p. 248, figg.); SCHUCHERT (249).
- Comarocystis*; DELAGE (54) p. 408.
- Comarocystisinae* defined; loc. cit.
- Cryptocrinus*; DELAGE (54) p. 412.
- Cryptocrinusinae* defined; loc. cit.
- Cyathocystis*; DELAGE (54) p. 415 & fig.
- Cyclocystoides*; DELAGE (54) p. 416, fig.
- Cystaster*; DELAGE (54) p. 415, fig.
- Cystoblastus*; DELAGE (54) p. 411, figg.
- Dendrocystis*; DELAGE (54) p. 408, fig.
- Diploporida* Order defined (p. 405) with Famm. *Sphaeronites*-, *Glyptosphaerites*-, *Mesocystis*-, *Gomphocystis*-inae (p. 412); DELAGE (54).
- Discocystis*, vide *Echinodiscus*.
- Echinodiscus* Worth. & Miller [i.e. *Discocystis* Greg.], treated as *Ech.*, *E. kaskaskiensis*, *E. optatus*, *E. sampsoni*; KLEM (142) p. 73.
- Echinoencrinus* descr.; DELAGE (54) p. 411, fig. *E. fenestratus* n. sp. Niaganan, Decatur co., Tenn., Troost MS. 1849, now first published & referred to *Tetracystis* (q. v.); SCHUCHERT (249) p. 219.
- Echinosphaera* descr.; DELAGE (54) p. 410, figg. *E. aurantium*; HOLM (126) p. 56, fig. : WEYSSE (284) p. 89, fig.
- Echinosphaeritesinae* defined with list of genera; DELAGE (54) p. 410.
- Edrioaster* descr.; DELAGE (54) p. 414, figg.
- Edrioasterida*, Order defined (p. 405) descr. (p. 414); DELAGE (54).
- Ericystis*; DELAGE (54) p. 412, fig.
- Glyptocystisinae* defined with list of genera; DELAGE (54) p. 411.
- Glyptosphaerites* descr.; DELAGE (54) p. 412.
- Glyptosphaeritesinae* defined with list of genera; loc. cit.
- Gomphocystis*; DELAGE (54) p. 413, fig.
- Gomphocystisinae* defined with list of genera; loc. cit.
- Halicystis*, diagnosis (p. 216), *H. elongata* (p. 217), *H. imago* (p. 216, fig.); SCHUCHERT (249).
- Hemicosmites* descr.; DELAGE (54) p. 411.
- Jaekelocystis* diagnosis (p. 222), *J. avellana* n. sp., Manlius formation, Keyser, W. Va. (p. 226 & fig., pl. xxxvii), *J. hartleyi*, descr. (p. 224 & fig., pl. xxxvii), *J. papillatus* n. sp., Manlius formation, Keyser W. Va. (p. 225, pl. xxxvii); SCHUCHERT (249).
- Lepadocrinus*, spelling *Lepocrinites* adopted, diagnosis (p. 213), *L. ? angelini* (p. 214), *L. gebhardi*, anal area (p. 215), *L. manlius* n. sp., Manlius formation, Keyser, W. Va. (p. 214 & fig., pl. xxxvii, xxxix); SCHUCHERT (249).
- Lepidodiscus*; DELAGE (54) p. 415, fig. *L. pileus*, anat.; SPENCER (264).
- Lepocrinites*, vide *Lepadocrinus*.
- Macrocystella* descr.; DELAGE (54) p. 410.
- Macrocystellinae* defined with list of genera; loc. cit.
- Malocystis*; DELAGE (54) p. 408. *M. murchisoni*; AMI (8) p. 140.
- Malocystisinae* defined with list of genera; DELAGE (54) p. 408.
- Mesocystis* descr.; DELAGE (54) p. 413, figg.
- Mesocystisinae* defined with list of genera; loc. cit.
- Mitrocystis* descr.; DELAGE (54) p. 407, figg.
- Palaeocystis tenuiradiatus*; AMI (8) p. 140.
- Placocystis* descr.; DELAGE (54) p. 407.
- Pleurocystis*; DELAGE (54) p. 411, figg.
- Proteroblastus*; DELAGE (54) p. 413, fig.
- Protoocrinus*; DELAGE (54) p. 413, fig.
- Pseudocrinus*, diagnosis (p. 226), *P. abnormalis* n. sp., Manlius formation, Keyser, W. Va., "a monstrosity" (p. 231 & fig., pl. xxxv), *P. clarki*,



- descr. (p. 233, pls. xxxvi, xxxix), *P. claypolei* n. sp., Manlius formation, Clark's Mills, New Bloomfield, Pa. (p. 232, pl. xxxvii), *P. elongatus* n. sp., Manlius formation, Martin's Mt., Bedford co., Pa. (p. 235 & fig., pl. xxxv), *P. gordonii*, descr. (p. 229 & fig., pls. xxxvi, xxxix), *P. perdewi*, descr., growth-stages (p. 236 & fig., pls. xxxvi, xxxix), *P. stellatus*, descr. (p. 232, pls. xxxv, xxxix), *P. subquadratus* n. sp., Manlius formation, near Cumberland, Md. (p. 234, pl. xxxv); SCHUCHERT (249).
- Rhombiferida* Order defined (p. 405) descr. with Famm. *Echinosphaerites*-, *Macrocyttell*-, *Glyptocystis*-, *Caryocrinus*-, *Cryptocrinus-inae* (p. 408); DELAGE (54).
- Sphaerocystis*, diagnosis (p. 248), *S. bloomfieldensis* n. sp., Manlius formation, New Bloomfield, Pa. (p. 251), *S. globularis* descr. with n. var. *ovalis* (p. 252 & fig., pl. xxxviii), *S. multifasciatus* descr. (p. 250 & figg., pls. xxxviii, xxxix); SCHUCHERT (249).
- Sphaeronis* descr.; DELAGE (54) p. 412, figg. *S. pomum*; HOLM (126) p. 47, figg.
- Sphaeronitesinae* defined with list of genera; DELAGE (54) p. 412.
- Staurocystinae*, vide *Trimerocystis*.
- Staurocystis*, distinguished from *Pseudocr.* & *Lepadocr.*; SCHUCHERT (249) p. 240.
- Steganoblastus*; DELAGE (54) p. 416, fig.
- Stribalocystis?* *elongatus*, "almost certainly not *Stribalocystis*," *S. missouriensis*, descr.; ROWLEY (236) p. 273, pl. xvi.
- Stromatocystis*; DELAGE (54) p. 415, fig.
- Tetracystis* n. g. of *Apiocystinae* (p. 217) with genotype *T. chrysalis* n. sp., Manlius formation, Keyser, W. Va. (p. 218 & fig., pl. xxxiv, xl), *T. fenestratus* (Troost sub *Echinoencr.*) now first published & figd. (p. 219 & fig., pl. xxxiv); SCHUCHERT (249).
- Trimerocystis* n. g. of *Staurocystinae* (p. 237), with genotype *T. peculiaris* n. sp. (p. 239 & fig., pl. xxxv), Manlius formation, Keyser, W. Va.; SCHUCHERT (249).

## (H.) +BLASTOIDEA.

- Blastoidia* classified A. *Regulares* with Famm. *Codaster*-, *Pentremites*-, *Troostocrinus*-, *Granatoblastus-inae*, B. *Irregulares*; DELAGE (54) p. 400. Castigation of HAMBACH (126) Zool. Rec. 1903; ROWLEY in GREENE (105) p. 192-197.
- Acentrotremites*; DELAGE (54) p. 401, fig.
- Codaster* descr.; op. cit. p. 400, figg. *C. cf. canadensis*; GRABAU (102A) p. 194. *C. pyramidatus*; CLARKE & LUTHER (40) p. 43.
- Codasterinae* defined with list of genera; DELAGE (54) p. 400.
- Cryptoschisma*; DELAGE (54) p. 400, fig.
- Eleutheroocrinus* descr.; DELAGE (54) p. 402, figg. *E. whitfieldi*; CLARKE & LUTHER (40) p. 52.
- Granatoblastusinae* defined with list of genera [the generic name *Granatoblastus* being rejected, this Fam. name cannot possibly stand]; DELAGE (54) p. 401.
- Granatocrinus* sp.; WEYSSE (284) p. 89, fig.
- Metablastus*, vide *Tricoelocrinus*.
- Nucleocrinus* descr.; DELAGE (54) p. 401, figg. *N. angularis*, abnormal (p. 190, pl. lvii), *N. imitator* (p. 191, pl. lvii); ROWLEY in GREENE (105). *N. lucina*; op. cit. p. 192, pl. lvii; CLARKE & LUTHER (40) p. 46, 49, 52, 55.

† All extinct.

*Orbitremites* ; DELAGE (54) p. 401, fig.

*Orophocrinus* ; DELAGE (54) p. 400, fig.

*Pentremites* ; loc. cit. figg. *P. koninckanus* ; UDDEN (272) p. 380, 390 : abnormal ; ROWLEY in GREENE (105) p. 190, pl. lvii. *P. leda* ;

CLARKE & LUTHER (40) p. 52 : dwarf ; LOOMIS (161) p. 907, pl. i.

*Pentremitesinae* defined ; DELAGE (54) p. 400.

*Phaenoschisma* ; DELAGE (54) p. 400, figg.

*Tricoelocrinus bipyramidalis*, incl. *T. wortheni*, and not to be distinguished as *Metablastus* (p. 189, pl. lvii), *T. meeki* is young of *T. woodmani*, *T. obliquatus* is syn. of *T. woodmani*, *T. varsouwiensis* is young of another sp. (p. 189), *T. woodmani*? (p. 189, pl. lvii) ; ROWLEY in GREENE (105).

*Troostocrinus* descr. ; DELAGE (54) p. 400, fig. *T.?* *dubius* descr. ;

ROWLEY (236) p. 274, pl. xvi. *T. nitidulus* is young of a *Tricoelocrinus* ; ROWLEY in GREENE (105) p. 189.

*Troostocrinusinae* defined with list of genera ; DELAGE (54) p. 400.

*Zygocrinus* ; DELAGE (54) p. 402, fig.

#### (K.) INCERTAE SEDIS.

List of doubtful or imaginary forms ; DELAGE (54) p. 416.

+*Paropsonema cryptophya* ; CLARKE & LUTHER (40) p. 63.







## XV. VERMES.

BY

ALICE L. EMBLETON, B.Sc., F.L.S.

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## INTRODUCTION.

THE total number of titles for the year 1904 is about 480. Some of them were not published technically during that year, several foreign publications, though of an earlier date, having only reached this country in 1904. Some of the works here recorded have only an incidental interest for workers in *Vermes*; but many of the papers are important, and mark a genuine advance in the literature of the subject. A monograph on *Oligochæta* by DITLEVSEN (126) is worthy of mention, and also one by EHLERS (130) on the Annelids of New Zealand, while FAUVEL (137) reports on the *Polychæta* from Senegal. LUTHER'S (284) monograph on the *Eumesostomidae* contains much interesting work, and BURGER (61) in his monograph of *Nemertina* gives a very useful classification.

Faunistic studies are numerous and valuable this year. One of the most important contributions is by IKEDA (207) who describes the *Gephyrea* of Japan, many of which are new to science. COGNETTI (92-99) has several papers on *Lumbricidae* from various parts of the world, including many new species. The collections at the Museums of St Petersburg and of Colombo have been described by LINSTOW (267, 268, 260-266) who has written other papers on Helminthology this year. A faunal study of the marine *Turbellaria* from European coasts is published by GRAFF (170), while JOHNSON (220) writes on the fresh-water Nereids from the Pacific coast and Hawaii. Several additions to the Turbellarian Fauna of Russia (Kharkow and Poltava) have been made by MARKOW (293). The third part of SOULIER'S (426) revision of the Annelids from the region of Cete has appeared. MELL (303, 304) discusses the land Planarians from North East Africa and Madagascar, while MICHAELSEN (307) deals with the *Oligochæta* of Ceylon. Passing to the Bermudas, we find important additions made by VERRILL (459-461) to the literature of Turbellarians, *Nemertinae* and Annelids, with revisions of some New England genera and species. From MOORE (313, 314) we have several faunistic papers on *Polychæta* from North America, and HÉRUBEL (194, 195) gives accounts of *Priapulidae*, especially those from the west coast of Scandinavia. GIARD'S (159-162) papers are on *Gastrotricha* from Pas-de-Calais, and BRETSCHER'S (51, 52) are on the *Enchytræide* of Switzerland. It is of interest to add that MRÁZEK (325) records a new polypharyngeal Planarian from Montenegro.

Many important observations have been made this year in anatomy and histology, some of them dealing with matters of wider, biological significance. GOLDSCHMIDT'S (167) paper on the histology and cytology of *Nematoda* may be mentioned under this head, and HEIN'S (189) useful addition to histology in his description of the epithelium of *Trematoda*. Two papers by FUHRMANN (150, 151) deal with the anatomy of Trematodes, and RITTER & DAVIS (375) have studied the geology, morphology, and the immature forms of some *Enteropneusta* from western North America. SPENGLER (428-433) has again given us much valuable work on the *Enteropneusta* and BERGENDAL (24) has finished his third contribution on the anatomy and histology of *Carinoma oudemans*, with some systematic notes on *Nemertina* in general. The *Paramphistomidae* form the subject of two memoirs by FISCHOEDER (141, 142), and ASHWORTH'S (14) account of the lugworm is certainly worthy of mention. OSBORN'S (341) observations are on the habits and structure of *Cotylaspis insignis*, from Lake Chautauqua. LIVANOW (270) has investigated the morphology of *Hirudinea* and LÜHE (282, 283) describes many species of *Echinorhynchus*. Five papers by CAMERANO (64-68) go to swell the literature of *Oligochæta*, and a new genus has been added to *Hemichorda* by CAULLERY

& MESNIL (76). As regards the structure of special organs BRASIL (44) writes on the digestive apparatus of *Polygordius*, and SPIESS (434, 435) on that of *Aulostoma gula* and *Hæmopsis sanguisuga*, while JORDAN (222) gives an account of the same organs, from rather a physiological standpoint, in *Aphrodite aculeata*. Important observations have been made by ROSSETER (382) on the genital organs of *Tænia sinuosa* and JAGERSKIÖLD (214) on those of a Distomum. GUNGL (176) carefully describes the blood vessels in the *Lumbricidæ*, while ARNESEN (13) writes a somewhat similar paper on those in the *Rhynchobdellidæ*. SCHEPOTIEFF (398) has worked at the structure of the "pockets" of setæ in some *Polychaeta* and also (399) on the organization of *Rhabdopleura*. SCHNEIDER'S (402) notes on the sense organs of *Eunice viridis* are interesting, and, as usual, the so-called "body-cavity urns" in *Sipunculus* receive a good deal of attention; see KUNSTLER & GRUDEL (238), LADREY (239, 240). A phylogenetic discussion of considerable importance comes from HUBRECHT (203, 204) in which he deals with the relationships of Annelids and Chordates, of Platyhelminths and Ctenophores. Some suggestive ideas are put forward on the subject of asymmetry in certain lower organisms, and its biological significance, by JENNINGS (219) who draws many of his observations from Rotifers.

Physiology is represented by very few memoirs, but it is to be noted that BOHN (30-34) is still working at movement in Annelids. ISSEL (208) refers to Rotifers being found endoparasitic in *Enchytreidæ*, and DÉVÉ (121-123) records the occurrence of *Echinococcus* in rather unusual circumstances. The origin of pearls is a rather attractive subject, and there are papers on it this year by HERDMAN (193), GIARD (157) and BOUTAN (38).

One of the most valuable papers this year is by NELSON (329) on the early development of *Dinophilus*. There are many additions to Embryological literature. WOLTERECK (473) describes the development of *Polygordius* and VAN BENEDEN (456) that of *Phoronis*. MATTIESEN'S (299) work has been on the embryology of fresh-water Dendroceles, and MONTGOMERY (310) writes on the structure and development of the larva of *Paragordius*. KATHARINER'S (226) attention has been given to the development of *Gyrodactylus elegans*, and LONGCHAMPS (274) describes the post-embryonal development of *Phoronis*, with notes on its affinities. TORREY'S (447) is an exhaustive treatise on the embryology of *Thalassema* and GEROULD (155, 156) has two papers on the development of *Sipunculus*. Experimentalists will be interested in BULLOR'S (58, 59) work on artificial parthenogenesis and regular segmentation in *Ophelia*, and also in YATSU'S (479) work on the development of egg-fragments in *Cerebratulus*. The spermatogenesis of *Ascaris megaloccephala* has been followed in detail by TRETJAKOFF (449, 450).

Again this year there are numerous papers on regeneration and regulation. See CHILD (84), SCHULTZ (408, 409), ZELENY (480), MORGAN (319-323), NUSBAUM (337, 338), HARPER (186), ORLANDI (340). MORGAN writes also on organic polarity and axial heteromorphosis (322).

A good deal of attention is being paid to Filarial disease, see BRUMPT (55-57), BOYCOTT (42), WELLMANN (467). As regards ankylostomiasis in the Cornish miners, see HALDANE (180-182); and for sleeping sickness CLARKE (85-89).

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- Phascolosoma vulgare*, *P. gouldii*, embryology, GEROULD, Mark Anniv. Vol. pp. 439-452, pl. xxxii; *P. strombi*, spermatozoa, RETZIUS, Biol. Untersuch. xi, p. 11, pl. iv, figg. 1-9.
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## OLIGOCHÆTA.

[The following memoirs relate to *Oligochæta*:—APATHY (11), BORTOLLOTTI (37), BOVARD (39), BRETSCHER (51, 52), CAJAL (63), CAULLERY & MESNIL (78), COGNETTI (92-99), DITLEVSEN (126), ENTZ (132), FAUVEL (139), GOLDSCHMIDT (166), GUNGL (176), HANEL (185), HARPER (186), HOLMGREN (201), HUBRECHT (203), ISSEL (209), KORSCHLITZ (235), MALAQUIN (290), MICHAELSEN (306, 307), MOREIRA (318), MORGAN (321), NUSBAUM (338), PIERANTONI (351), RAYMOND & FULLER (365), REEKER (366), ROSA (377, 378, 379), SANDOR (394), SCHNEE (401), SMITH & BARRETT (422), THEOBALD (445), TRUMBULL (451), UDE (452), VERRILL (461).]



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## HIRUDINEA.

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## PLATYHELMINTHES.

## NEMERTINEA.

[The following memoirs relate to *Nemertinea*:—BERGENDAL (24), BURGER (61), JOUBIN (223), RETZIUS (371), VERRILL (459), WILSON (471), YATSU (479).]

## GENERAL BIOLOGY.

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Structure of *Carinoma oudemans*, BERGENDAL (24).

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## SYSTEMATIC.

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*Taniosoma curtum*, Bermudas, VERRILL, Tr. Connect. Ac. x (2), p. 597, pl. lxx, fig. 3.

## TURBELLARIA.

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- Tetracelis marmorosum*, anatomy, LUTHER, Zeitschr. wiss. Zool. lxxvii, p. 166, figg.
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LINSTOW (260, 267), MACCALLUM (286), MACLAREN (287), MIRANDA RIBEIRO (309), OSBORN (341), PRATT (357), PRENANT (358), RENDALL (370), ROSS (381), RUGE (387), SCHNEIDER (402), SCOTT (412), THEOBALD (444), WORTH (477).]

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- Mode of infection, KENNARD (229).  
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 A leech parasitised by a n. gen. and sp. of Nematode, SCHUBERG (407).  
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- Myenchus* **n. gen.** for *M. bothryophorus* **n. sp.** in muscle cells of *Nepheleis vulgaris* (= *Herpobdella atomaria* Carena), anatomy, SCHUBERG, Verh. Ver. Heidelb. vii, pp. 629-632; *M. bothryophorus*, in muscle of *Nepheleis*, SCHUBERG & SCHRÖDER, Zeitschr. wiss. Zool. lxxvi, pp. 409-421, pl. xxx : **n. spp.**
- Neomermis* **n. gen.** for *N. macrolaimus* **n. sp.**, Saratow, LINSTOW, Arch. mikr. Anat. lxix, 3, p. 491, figg. 13-15.
- Oxyspirura mansoni* of chickens, symptoms, treatment, anatomy, life history and development, RANSOM, Bull. U. S. Dep. Agric. Animal Ind. lx, 25 pp., 18 figg.; *O. anacanthura*, p. 21, figg. 10 & 11, *O. anolabiata*, fig. 12, *O. brevipennis*, p. 22, fig. 13, *O. brevisubulata*, p. 23, *O. cephaloptera*, p. 23, figg. 14 & 15, *O. heteroclitia*, p. 24, *O. mansoni*, p. 25, fig. 1-9, *O. ophthalmica*, p. 26, fig. 16-18, *O. papillosa*, p. 27, figg. 19 & 20, *O. siamensis*, p. 28, fig. 21, *O. stereura*, p. 29, *O. sygmoidea*, fig. 22, in eyes of birds, anatomy, synonymy, RANSOM, t. c.
- Oxyuris vermicularis*, occurrence, SCHNEIDER, Centrbl. Bakter. xxxvi, pp. 550-554; *O. tuberculata*, Australia, LINSTOW, Arch. Naturg. 1904, i, p. 300, fig. 9; *O. poculum* in horses, *O. acanthura* from *Calotes versicolor*, Ceylon, LINSTOW, Spolia Zeylan. i, 4, p. 101, pl. ii, fig. 19-22, **n. spp.**

- Parachordodes wolterstorffii*, *P. pleskei*, anatomy, CAMERANO, Boll. Mus. Torino xix, No. 470.
- Phyllodoctylus europeus*, variations, CAMERANO, op. cit. No. 471, 28 pp.
- Physaloptera acuticauda*, *P.* sp. Parona, in eyes of birds, RANSOM, Bull. U. S. Dep. Agric. Animal Ind. lx, pp. 42 & 43, figg. 35-37.
- P. caucasica* in *Homo sapiens*, Caucasus, LINSTOW, Annuaire Mus. St. Petersb. viii, p. 273, figg. 6-8, **n. sp.**
- Plectus (Plectoïdes) patagonicus*, Patagonia, anatomy, MAN, Ber. Senckenberg. Ges. 1904, pp. 41-46, 6 figg, **n. sp.**
- Polygordius* larvæ, Gulf of Triest, JANOWSKY, Arb. Inst. Wien xv, 2, pp. 197-212, 2 pls.
- P. neapolitanus*, Naples, *P. lacteus*, Helgoland, development, from egg to youngest trochophore stage, WOLTERECK, Arch. Entwicklmech. xviii, pp. 377-403, pls. xxii & xxiii + 11 figg.
- Rictularia paradoxa* in *Lemmus*, *Erinaceus* etc., LINSTOW, Annuaire Mus. St. Petersb. viii, p. 272, fig. 5, **n. sp.**
- Spiroptera tenuicauda* in eyes of *Crax tomentosa*, RANSOM, Bull. U. S. Dep. Agric. Animal Ind. lx, p. 39, fig. 31; *S. sanguinolenta* causing tumours in dogs, PORTA, Atti Soc. Modena (4) iv, 35, p. 40.
- S. abdominalis*, Madagascar, in *Otis melanogaster*, LINSTOW, Arch. Naturg. 1904, i, p. 299, fig. 7; *S. dentata* from *Sus cristatus* Cnilaw, p. 95, pl. i, figg. 5-7, *S. triangulum* from *Calotes ophiomachus*, Colombo, p. 96, fig. 8, LINSTOW, Spolia Zeylan. i, 4, **n. spp.**
- Strongylus gigas* in the kidney of a dog, CASELLA, Parma. Zerbini 1903, 3 pp.
- S. pigmentatus* from *Lepus nigricollis*, Ceylon, LINSTOW, Spolia Zeylan. i, 4, p. 98, pl. i, figg. 12 & 13; *S. quadriradiatus*, United States, in a pigeon, SALMON, Bull. U. S. Dep. Agric. Animal Ind. xlvii, 6 pp., 10 figg. : **n. spp.**
- Syngamus lari*, in eyes of birds, anatomy, RANSOM, Bull. U. S. Dep. Agric. Animal Ind. lx, p. 43, fig. 38-40.
- Tanqua* **n. gen.** for *Otenocephalus* Linstow, BLANCHARD, Arch. parasit. viii, p. 478.
- Trichina*, at Homberg, epidemic, SCHLEIP, Verh. Ges. deutsch. Naturf. 1904, ii, pp. 59-62.
- Trichocephalus* in typhoid fever, BLANCHARD, Arch. parasit. ix, pp. 122-128.
- Tylenchus bioculatus*, on tea plants, Java and Ceylon, ZIMMERMANN, Ber. Land. Forstw. Deutsch. Ostafrika ii, pp. 11-36, pls. i-v.

## ACANTHOCEPHALA.

[The following memoirs relate to *Acanthocephala*:—GIARD (158), LINSTOW (264, 267), LÜHE (282, 283), MARVAL (298), ROHDE (376), SCHNEIDER (403, 404).]

### GENERAL BIOLOGY.

- Anatomy of *Echinorhynchus*, spp., LÜHE (283).  
 Structure of the cell, ROHDE (376).  
 Fish parasites, SCHNEIDER (404).  
 Frogs parasitised by *Echinorhynchus hæruca*, GIARD (158).

### DISTRIBUTION.

- North Russia, *n. sp.*, LINSTOW (267).  
 Finland, fish parasites, SCHNEIDER (403).  
 West Africa, *n. sp.*, LINSTOW (264).

## SYSTEMATIC.

- Echinorhynchus* spp. described, LÜHE, Zool. Ann. i, 2, pp. 139–250; *E.* spp. anatomy and occurrence, LÜHE, t. c. pp. 139–250; *E. globulosus*, *E. acus*, p. 22, *E. angustatus*, p. 23, fig. 9, *E. clavula*, p. 27, *E. strumosus*, p. 29, Finland, anatomy, SCHNEIDER, Acta Soc. Faun. Fenn. xxvi, No. 3; *E. hæruca*, in frogs, GIARD, Feuille Natural. (4) xxxiv, p. 108.
- E. phoenix*, Finland, anatomy, SCHNEIDER, Acta Soc. Faun. Fenn. xxvi, No. 3, p. 25, fig. 10; *E. cestodicola*, from *Sebastes norvegicus*, Murman Coast, LINSTOW, Annuaire Mus. St. Petersb. viii, p. 278, figg. 11–14; *E. cestodiformis*, West Africa, from *Erinaceus albiventris*, LINSTOW, Centrbl. Bakter. xxxvi, p. 380, figg. 3 & 4: **n. spp.**
- Gigantorhynchus mirabilis*, in birds, MARVAL, Rev. Suisse Zool. xii, pp. 573–583, **n. sp.**

## CHÆTOGNATHA.

[The following memoirs relate to *Chaetognatha*:—APÁTHY (11), BROWNE (54), FOWLER (146), HERDMAN (192), PAULSEN (346), STEVENS (436).]

## GENERAL BIOLOGY AND DISTRIBUTION.

- Phosphorescence phenomenon in the Indian Ocean, HERDMAN (192).  
 Ovogenesis of *Sagitta*, STEVENS (436).  
 Iceland, plankton, PAULSEN (346).  
 Bay of Biscay forms, FOWLER (146).

## SYSTEMATIC.

- Krohnia hamata*, Bay of Biscay, FOWLER, Nature lxix, p. 381.
- Sagitta*, connected with phosphorescence phenomenon in the Indian Ocean, HERDMAN, Rep. Brit. Ass. 1903–1904, pp. 695 & 696; *S. elegans*, *S. bipunctata*, ovogenesis, STEVENS, Zool. Jahrb. Anat. xxi, pp. 242–252, pl. xvi; *S. serratodentata*, Bay of Biscay, FOWLER, Nature lxix, p. 381.
- Spadella*, Iceland, PAULSEN, Medd. Komm. Havund. i, p. 40; *S.*, Scilly Isles, BROWNE, J. Inst. Cornwall xvi, 1, pp. 120–132.

## ROTIFERA.

[The following memoirs relate to *Rotifera*:—BEAUCHAMP (22), BREHM & ZEDERBAUER (49), CHANCEY (82), COLLIN (102), DADAY (109), GARRARD (153), HURRELL (206), ISSEL (208), JENNINGS (219), LINDER (259), LORD (278), MEISSNER (302), MURRAY (327), SKORIKOV (418, 419), SMITH (421), WEIGELT (466), YAKHONTOV (478), ZSCHOKKE (482, 483).]

## GENERAL BIOLOGY.

- Asymmetry and its biological significance, JENNINGS (219).  
 Summer plankton of the Neva, SKORIKOV (419).  
 Bibliography for 1896, COLLIN (102).

## DISTRIBUTION.

- River Neva, lists of spp. found, SKORIKOV (419).  
 Lake Baical, list of spp. found, YAKHONTOV (478).

- Scotland, collections, MURRAY (327).  
 Manchester, n. sp., LORD (278).  
 Norfolk, ponds, collections, HURRELL (206).  
 Paris, n. sp., BEAUCHAMP (22).  
 Lac de Bret, n. spp., LINDER (259).  
 Plön, collections, ZSCHOKKE (482).  
 Geneva, n. sp., parasitic in *Trichodrilus*, ISSEL (208).  
 Louisiana, n. sp., SMITH (421).

## SYSTEMATIC.

- Balatro anguiformis*, genera, from *Trichodrilus*, ISSEL, Arch. Zool. ii, 1, pp. 1-9, pl. 1, n. sp.  
*Bdelloidea*, Scotland, collections, MURRAY, Ann. Scott. Nat. Hist., No. 51, 1904, pp. 160-166.  
*Cælopus inermis*, Lac de Bret, LINDER, Rev. Suisse Zool. xii, p. 240, fig. 9, n. sp.  
*Diaptomus denticornis* in Alpine lakes, BREHM & ZEDERBAUER, Verh. Ges. Wien 1904, p. 54.  
*Diaschiza crassipes*, Manchester, LORD, Tr. Manchester Micr. Soc. 1903, pp. 78-80, fig. 3, n. sp.  
*Drilophaga delagei*, Paris, BEAUCHAMP, Bull. Soc. zool. France xxix, pp. 157-160, 3 figg., n. sp.  
*Gastropus bretensis*, Lac de Bret, LINDER, Rev. Suisse Zool. xii, p. 237, fig. 5, n. sp.  
*Mastigocera blanci*, Lac de Bret, LINDER, t. c. p. 238, fig. 7, n. sp.  
*Melicerta ringens*, WEIGELT, Mem. Cour. Ac. Belgique lxiv, p. 517, fig. 85.  
*Notops falcipes*, Lac de Bret, LINDER, Rev. Suisse Zool. xii, p. 238, fig. 6, n. sp.  
*Rattulida*, biological significance of asymmetry, JENNINGS, Mark Anniv. Vol. pp. 317-337.  
*Rotifer vulgaris*, WEIGELT, Mem. Cour. Ac. Belgique lxiv, p. 517, fig. 84.  
*Synchaeta bicornis*, Louisiana, anatomy, SMITH, Tr. Amer. Micr. Soc. xxv, pp. 121-126, pl. xviii, n. sp.

## GASTROTRICHA.

[The following memoirs relate to *Gastrotricha*:—COLLIN (102), GIARD (159, 160), ZSCHOKKE (482).]

## GENERAL BIOLOGY AND DISTRIBUTION.

- Bibliography for 1896, COLLIN (102).  
 Plön, collections, ZSCHOKKE (482).  
 France, Pas-de-Calais, n. sp., GIARD (159).  
 France, Pas-de-Calais, n. genera and spp., GIARD (160).

## SYSTEMATIC.

- Chaetonotus marinus*, River Ambleteuse, Pas-de-Calais, GIARD, C.R. Soc. Biol. lvi, p. 1062, figg. 1-3, n. sp.  
*Philosyrtis* n. gen. for *P. monotoides* n. sp., River Ambleteuse, Pas-de-Calais, GIARD, t. c. p. 1065, fig. 2.  
*Zelinkia* n. gen. for *Z. plana* n. sp., River Ambleteuse, Pas-de-Calais, GIARD, t. c. p. 1063, fig. 1.



## MESOZOA.

NERESHEIMER (331).

*Lohmannella catenata*, at Villafranca, NERESHEIMER, Zeitschr. wiss. Zool. lxxvi, pp. 137-166, pls. x & xi.

## HEMICHORDA.

[The following memoirs relate to *Hemichorda*:—BENEDEN (456), BROWNE (54), CAULLERY & MESNIL (76), LONGCHAMPS (274), RITTER & DAVIS (375), SCHEPOTIEFF (398), SCHULTZ (409), SPENGLER (428-433).]

## GENERAL BIOLOGY.

Anatomy of *Ptychodera* spp., SPENGLER (428-433).

Ecology, morphology, and speciology of the young of some Western North American Enteropneusta, RITTER & DAVIS (375).

Regeneration in *Phoronis*, SCHULTZ (409).

Development and anatomy, VAN BENEDEN (456).

## DISTRIBUTION.

Heligoland, *Phoronis* n. sp., LONGCHAMPS (274).

## SYSTEMATIC.

*Actinotrocha branchiata*, p. 33, *A. pallida*, p. 45, LONGCHAMPS, Wiss. Meeresuntersuch. vi, 1.

*Asymmetron orientale*, *A. macricaudatum*, Florida, PARKER, Bull. Mus. Harvard xlvi, 2, pp. 46 & 47, pl. i, fig. 4, pl. ii, fig. 7, n. spp.

*Branchiostoma pelagicum*, Florida, PARKER, t. c. p. 40, pl. i, figg. 1 & 2, n. sp.

*Glossobolanus elongatus*, Gulf of Naples, SPENGLER, Zool. Jahrb. Anat. xx, pp. 315-362, pls. xx-xxii, n. sp.

*Heteropleuron agassiz*, *H. parvum*, pp. 43 & 44, pl. ii, figg. 5 & 6, Florida, PARKER, Bull. Mus. Harvard xlvi, 2, n. spp.

*Phoronis*, development, VAN BENEDEN, Bull. Ac. Belgique 1903, pp. 1216-1232; *P.*, regeneration, SCHULTZ, Biol. Centrbl. xxiv, pp. 310-317; *P.*, Scilly Isles, BROWNE, J. Inst. Cornwall xvi, pp. 120-132; *P. gracilis*, anatomy, LONGCHAMPS, Wiss. Meeresuntersuch. vi, 1, p. 25.

*P. mülleri*, Heligoland, LONGCHAMPS, t. c. p. 9, pl. i, n. sp.

*Protobalanus* n. n. for *Bolanocephalus koehleri* Caull. and Mesn., CAULLERY & MESNIL, Zool. Jahrb. Anat. xx, pp. 227-256, pls. xii & xiii.

*Ptychodera flava*, *Pt. erythraea*, anatomy, SPENGLER, Zool. Jahrb. Anat. xviii, pp. 271-326, pls. xxiv-xxix, xx, pp. 1-18, pls. i-ii, pp. 413-428, pp. 315-362, pls. xx-xxii.

*Tornaria ritteri* Spengel, Western North America, morphology, ecology, RITTER & DAVIS, Univ. Calif. Publ. Zool. i, 5, pp. 171-198, pls.

*T. hubbardi*, Western North America, morphology and ecology, RITTER & DAVIS, t. c. p. 198, pls., n. sp.



# XVI. CŒLEENTERATA.

By

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## INTRODUCTION.

THE output of Cœlenterate literature this year is thoroughly satisfactory both as regards the number of memoirs and also from the point of view of the interest of the work published. There are ten more titles recorded this year than last, and most branches of the subject are well represented.

There are several very good morphological contributions this year by DUERDEN (49-52); he discusses septal sequence in the *Madreporaria*, and also the development and relationships of the rugose corals. The

Craspedote medusa, *Olindias*, and some of its allies forms the subject of a paper by GOTO (79), and GRAVIER (81) describes a pelagic Cerianthe from the Gulf of California, *Dactylactis benedeni* n. sp. HARGITT (94) adds to Hydroids a new species from Long Island Sound; in a second paper he deals with some *Hydromedusæ* from the Bay of Naples. There is a monograph by JUNGENSEN (125) on the *Pennatulidæ*, and JANOVER (122) has devoted much work to the study of the genus *Solenocaulon*. NUTTING'S (170) monograph on the *Sertularidæ* of America has appeared during the year, and TORREY (209, 210) has reported on the *Hydroids* and *Ctenophora* of the San Diego region. Additions are made by VERRILL (220-225) to the *Anthozoa* and *Hydrozoa* of the Bermudas, West Indies and Brazil; he also has published some notes on the genus *Acropora*. The faunistic work of the year includes MAYER'S (155) paper on the Medusæ of the Bahamas, and McMURRICH'S (157) on the Actiniæ of the Plate Collection. HINDE (104) writes on the structure and affinities of the genus *Porosphaera*, and KINGSLEY (128) on *Cerianthus borealis*. From Japan (KISHINOUE (130)) we have some useful notes on the natural history of corals, and KITAHARA (131) reports on the coral fishery of Japan. The results of the dredging operations on the West Coasts of Central America and California have been given by MARENZELLER (152), and include a description of a new species of symbiotic Hydrocoralline. SWENANDER (206) describes the athecous Hydroids from Drontheim Fiord, and THOMSON (210) has a note on the gonostyles of two Antarctic *Siphonophora*. Hydroids collected in various parts of the world (outside Europe) are described by JÄDERHOLM (118) from the Swedish National Museum; he also has written on the Hydroids collected by the Swedish Antarctic Expedition of 1901-1903. DENNANT'S (35-38) four papers are descriptive of Australian recent and fossil forms; he gives many new species from the Australian Tertiaries.

There is a physiological paper by PRATT (177) on the assimilation and distribution of nourishment in *Alcyonium digitatum*. KREMPF (136) has noticed a transformation of the tentacle apparatus in certain species of *Madreporaria*. A chapter on Coral-reefs occurs in BRANNER'S (17) work on the stone corals of Brazil, while CROSSLAND (29) has studied the coral formations of Zanzibar and East Africa.

Matters of a wider biological interest are to be found in HUBRECHT'S (109, 110) papers on the relationships of various invertebrate phyla, of Annelids and Chordates, of Ctenophores and Platyhelminths. This is also touched upon by MICHAELSEN (159), and JENNINGS (123) work is upon asymmetry in certain lower organisms and its biological significance.

There are many papers again on regeneration and regulation. BORING (16) writes upon the closure of the longitudinally split Tubularian stems. CARLGRÉN'S (20) work on the correlation between regeneration and symmetry in Actiniæ is perhaps some of the most important that has appeared in this field of work this year. CHILD (24, 25) has written on form-regulation in *Cerianthus*, and GODLEWSKI (75) in *Tubularia mesembryanthemum*, while KING (127) did somewhat similar experiments on *Tubularia crocea*. HARGITT (93, 95) has published a note on regeneration in *Scyphomedusæ* and also on the budding tentacles of *Gonionemus*. It has been found, by LOEB (144), that sea-water has much influence on the regeneration and growth of Tubularians. MORGAN (162, 163) continues his work on regeneration and gives an analysis of organic polarity. YERKES (238) writes on the reaction time of *Gonionemus murbachii*. SCHULTZ (200, 201) also writes on regeneration. TORREY'S (208) work is on the habits and reactions, regeneration and non-sexual reproduction of *Sagartia davisii*. BILLARD (12) contributes to the study of multiplication, regeneration, grafting and variations in Hydroids, and DAVENPORT (34) discusses the variation in the stripes on the sea-anemone *Sagartia lucia*.



Cytologists will be interested in GORICH'S (76) memoir on spermatogenesis in Sponges and *Cælayerata*. GUENTHER (84) has carried on an allied enquiry in *Hydra viridis*; RETZIUS (183) too has worked on this subject. SCHNEIDER (199) has written an interesting note on the origin of the genital cells of Ctenophores.

Paleontological contributions are numerous. BOGATIREW (14) adds a new genus and six new species of Devonian forms from the Ural district. ELLES & WOOD (54) have now added another part to their monograph on British Graptolites. Graptolites from Sweden are described by HOLM (105, 106) and some new species from New York are recorded by RUEDEMANN (196), while HALL (87, 88) reports on those of Victoria. Swedish geological notes by HUENE (112) include a description of a medusa from the lower Silurian. FELIX (58-61) has given three memoirs on fossils from Egypt and also from the Jura region. Paleozoic corals are discussed by GRABAU (80).

Embryology is represented by some very good work this year. Students of this subject will be interested in HARGITT'S (91, 92) papers on the early development of *Eudendrium* and *Pennaria tiarella*. RUEDEMANN (195) describes the mode of growth and development of *Goniograptus thureauii*, and WOLTERECK (233) has followed the development of *Veleva*.

## ERRATA.

In Zool. Rec. 1903, p. 19, for *Turbularia* read *Tubularia*.

## I. TITLES.\*

1. [ANON.] Classification. Natural. Canad. xxxi, pp. 210-218. [*Cælayerata*, pp. 216-218, 4 figg.]
2. [ANON.] Marine Biological Association. Plymouth marine invertebrate fauna, being notes of the local distribution of species occurring in the neighbourhood. Compiled from the records of the laboratory of the Marine Biological Association. J. Mar. Biol. Ass. vii, 2, pp. 155-298, 1 chart. [*Cælayerata*, pp. 187-206.]
3. [ANON.] Use of Coral. Note in Tr. Woolhope Club 1900-1902, p. 102.
4. [ANON.] Borings into a coral reef. Nature lxi, pp. 582-585, 2 figg. Review of the report of the coral reef committee of the Royal Society. "The Atoll of Funafuti," 428 pp., 19 maps.
5. ABRIC, P. Sur le fonctionnement des nématocystes des Cælayerés. C.R. Soc. Biol. lvi, pp. 1008-1010.
6. ——. Sur les nématoblastes et les nématocystes des Eolidiens. Op. cit. lvii, pp. 7-9.
7. ANNANDALE, N. *Porpita* in the Indian Seas. Nature lxx, p. 531.
8. ARKHANGHELSKII, A. D. Paleotzenovliza otlozheniya Saratovskagho Povolzhya i ikhzh fauna. Mat. Gheol. Rossii xxii, 1. *Cælayerata*, p. 61.
9. BANCROFT, FRANK W. Note on the galvanotropic reactions of the Medusa *Polyorchis penicillata* A. Agassiz. Univ. Calif. publ. Physiol. ii, pp. 43-46, 4 text-figg.

\* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

10. BEEDE, J. W. & ROGERS, A. J. Coal measure faunal studies, III. Lower Coal Measures. Kansas Univ. Sci. Bull. ii, 15, pp. 459-473.
11. BEMMELEN, v. J. F. Het ontstaan en de geaardheid van Koraalriffen en -eilanden. Bull. kol. Mus. Haarlem 1904, No. 30, p. 37.
12. BILLARD, A. Contribution à l'étude des Hydroïdes (multiplication, régénération, greffes, variations). Ann. Sci. nat. (8) xx, pp. 1-236, 6 pls.
13. ——. Développement de Phydranthe des *Campanulariidae* et des *Plumulariidae*. C.R. Ac. Sci. cxxxix, 2, pp. 1038-1040.
14. BOGATIREW, N. Korallen der devonischen Schichten im Ural. Trudui Kazan. Univ. xxxii, 5, 71 pp., 1 pl.
15. BOLTON, H. The palæontology of the Lancashire Coal Measures. Tr. Manchester Geol. Soc. xxviii. I. pp. 378-420. II. pp. 578-650. III. pp. 668-689.
16. BORING, ALICE M. Closure of longitudinally split Tubularian stems. Biol. Bull. vii, pp. 154-159.
17. BRANNER, J. C. The stone reefs of Brazil, their geological and geographical relations, with a chapter on the coral reefs. Bull. Mus. Harvard xlv, 285 pp., 97 pls.
18. BROWNE, E. T. & VALLENTIN, R. On the marine fauna of the Isles of Scilly. I. The pelagic fauna, E. T. BROWNE, pp. 120-128. II. The shore fauna, R. VALLENTIN, pp. 128-132. J. Inst. Cornwall xvi, 1.
19. CAPEDEP, G. Sulla *Paronipora penicillata*, nuovo genere di corallario fossile, appartenente alla famiglia delle Favositidi. Riv. ital. Pal. x, 1, dp. 58-61, pls. ii & iii.
20. CARLGRÉN, O. Studien über Regenerations- und Regulationserscheinungen I. Über die Korrelationen zwischen der Regeneration und der Symmetrie bei den Actiniarien. Svenska Ak. Handl. xxxvii, No. 8, 105 pp., 11 pls., 23 text-figg.
21. ——. Jahresbericht über die Anthozoen für das Jahr 1894. Arch. Naturg. 1897, ii, 3 [published in 1904].
22. CARY, L. R. Notes on a peculiar Actinozoan larva. Biol. Bull. vii, pp. 75-78, 4 figg.
23. CAULLERY, M. & MESNIL, F. Sur les affinités des Actinomyxidies. C.R. Soc. Biol. lvi, pp. 411-413.
24. CHILD, C. M. Form regulation in *Cerianthus*. iv. Biol. Bull. vi, pp. 55-75, 266-287, 7 figg.; part v, vii, pp. 127-154; part vi, vii, pp. 193-215; part vii, vii, pp. 263-280.
25. ——. Form-regulation in Cœlentera and *Turbellaria*. Smithson. Collect. xlv, pp. 134-143.
26. CLARKE, J. M. Limestones of Central and Western New York interbedded with bituminous shales of the Marcellus stage, with notes on the nature and origin of their faunas. Rep. N. York Mus. lv, pp. 115-138. [List of fossils, p. 133.]
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(i.e. works relating to *Caelenterata* collectively).

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- +*Dendrograptus* n. sp. [unnamed, undescribed], New York, RUEDEMANN, t. c. pp. 555 & 570.



- †*Dicellograptus* spp., ELLES & WOOD, Pal. Soc. Mon. lviii, pp. 135–163, figg. 83–102; *D. complanatus*, p. 139, fig. 84, pl. xx, figg. 1 & 2, **n. var. ornatus**, fig. 85, *D. anceps*, p. 141, pl. xx, fig. 3, *D. divaricatus*, p. 143, pl. xx, fig. 5, **n. var. salopiensis**, p. 145, fig. 7, *D. intortus*, p. 146, fig. 4, *D. patulosus*, p. 147, pl. xxi, fig. 5, *D. pumilus*, p. 149, fig. 3, *D. forchammeri* p. 150, pl. xxii, fig. 1, *D. sextans*, p. 153, pl. xxi, fig. 1, **n. var. exilis**, p. 155, fig. 2, *D. morrisoni*, p. 155, pl. xxi, fig. 6, *D. moffatensis*, p. 157, pl. xxiii, fig. 1, *D. elegans*, p. 159, fig. 2, var. *rigens*, p. 161, fig. 3, *D. caducens*, p. 161, fig. 4, Britain, ELLES & WOOD, t. c.
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- †*Phyllograptus angustifolius*, HOLM, Sveriges geol. Unders. Afh. 172, p. 37, fig. 31; *P. ilicifolius*, mode of growth, RUEDEMANN, Rep. N. York Mus. lv, p. 590, fig. 19.
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## XVII. SPONGIÆ.

BY

W. WOODLAND.

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## INTRODUCTION.

I. The record of Sponge literature for 1904 comprises 61 publications (including 53A), exclusive of abstracts or reviews. This number is one more than that of last year, but not all of these publications belong to the year 1904 as will be seen by the list appended below.

II. Sponge literature has during 1904 chiefly been enriched by the four splendid monographs of IJIMA (24), SCHULZE (43), TOPSENT (50) and WILSON (60)—monographs principally of systematic value, though the last three authors also provide general accounts of the skeleton and other portions of sponge structure. The monograph of IJIMA continues his important researches on Japanese Hexactinellids (*Rossellidæ*); SCHULZE describes the Hexactinellid sponges of the "Valdivia" expedition; TOPSENT describes sponges from the Azores and WILSON sponges obtained by the "Albatross" in the Pacific Ocean. Other systematic memoirs of importance are those of HINDE (18, 19) on the genus *Porosphæra*, MINCHIN (36) on the genus *Leucosolenia*, SEELY (45), SZYMAŃSKI (47) and THUM (49). The number of new genera and new species described in 1904 is considerable.

III. Some of the chief features of morphological importance to be noticed are the proof of the sponge nature and the description of the intimate structure of *Porosphæra* by HINDE (18); the description of the huge basal spicule of *Monoraphis chuni* by SCHULZE (43), who also gives a general account of Hexactinellid morphology, and, amongst other things, the description of Sollas' membrane in *Pacillastra* and *Penares*, and of the reticular skeletal septa crossing the gastral cavity of *Euplectella* and *Chonelasma* by WILSON (60).

IV. In Physiology, Bionomics and Economics, there is little to record. MAAS (31, 32) describes the results of rearing Calcareous sponges in water deprived of calcium salts; COBB (5) gives an account of the sponge fishery in Florida; COTTE (6) continues his studies on nutrition in sponges, and certain phenomena, which may be classed under the heading of Bionomics, are described by CUENOT (7), DUERDEN (9), GRUVEL (15), HERDMAN (17), TOPSENT (50) and WILSON (60). In connection with the Reproduction of Sponges, GÖRICH (14) further contributes to our knowledge of spermat- and ovogenesis in sponges, and IJIMA (24), SCHULZE (43), TOPSENT (50) and WILSON (60) also supply information concerning gemmule-formation, larvæ and vegetative budding in several genera of siliceous sponges.

V. Under the heading of Geographical Distribution, the most important contributions are the four large systematic monographs mentioned above, which describe sponges from the Japanese seas, Atlantic and Indian Oceans, Azores and South Pacific Ocean respectively. Sponges from waters adjacent to the Atlantic Ocean are also described by IAKHONTOFF (23), by SOWINSKY (46), and by SZYMAŃSKI (48). Calcareous sponges from the Antarctic Seas are described by VANHÖFFEN (56). The chief palæontological memoirs are those of HINDE (18, 19), JUKES-BROWNE & HILL (26) and ROWE (41).

Sponge memoirs, hitherto unrecorded, belonging to years decidedly previous to 1904 are those of CLARKE (3), GRUVEL (15), HOLLICK (21), IAKHONTOFF (23), REMEŠ (40) and SEELY (45).

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## II. BIOLOGY.

### A. EVOLUTION (PHYLOGENY, VARIATION, &c.).

- Phylogenetic relation between *Lyssacina* and *Dictyonatia*: IJIMA (24) p. 211.—Descent Theory illustrated by Sponges: LENDENFELD (28).—Variation in Siliceous sponges, remarks on, pp. 8-11; distinction of species in sponges, remarks on: WILSON (60) pp. 11, 12.

### B. MORPHOLOGY.

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#### (ii) *External Characters.*

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#### (iii) *Anatomy of the Soft Tissues. Canal-System.*

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## C. PHYSIOLOGY.

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(b) **Germinal budding.**—Origin of the larva from archæocyte-congeries in *Vitrollula fertilis* : IJIMA (24) pp. 53-55.—Gemmules of *Tetilla longipilis*, n. sp. : TOPSENT (50) p. 98.

## F. MISCELLANEOUS.

**Bibliography.**—Record of Sponge literature for 1903 : BIBL. ZOOL. ix, pp. 9, 57, 190, 304, 423.—Titles of 27 memoirs upon sponges, with abstracts : MAAS (33).—List of memoirs on sponges published in the years 1901, 1902, with summaries under different headings of the more important additions to scientific knowledge of the Porifera : WELTNER (58).—Abstracts of certain sponge memoirs (1900-1904) : LENDENFELD (30).

**Technique.**—Methods of displaying spicules of fossil siliceous sponges : LENDENFELD (29).—Methods of preparing sponges : MARPMANN (35).—Method of preparation of calcareous spicules : MINCHIN (36) p. 356.

**Economics.**—Full account of the Sponge fishery of Florida in 1900 : COBB (5).



**Classification.**—Classification, general remarks on: TOPSENT (50) pp. 17-19.

**Chemistry of Sponges.**—Spongosterin from *Suberites*, &c.: HENZE (16).

### III. DISTRIBUTION.

#### A. GEOGRAPHICAL.

##### α. MARINE.

(i) **General.**—General distribution of Sponges, remarks on: M'INTOSH (36).—Horizontal and bathymetrical distribution of Hexactinellids: SCHULZE (43) pp. 257-265.

(ii) **Atlantic Ocean and Adjacent Seas.**—Golfe de Gascogne, sponges from: GRUVEL (15).—Lake Baical, *Veluspa baicalensis*, D., *V. fusifera*, *Spongilla microgemmata*, S., *Lubomyrskia irregularis*, S., from: IAKHONTOFF (23) p. 3.—Plymouth, sponge fauna of: MAR. BIOL. ASS. (34).—Atlantic Ocean, Hexactinellids from: SCHULZE (43).—Ponto-Aralo-Kaspian marine basin, sponges from: SOWINSKY (46) pp. 173, 289, 328.—Aegina and Brioni bei Pola, horny sponges from: SZYMAŃSKI (48).—Azores archipelago, lists of sponges obtained from: TOPSENT (50).—Îles du Cap-Vert, *Sarostegia oculata* from: TOPSENT (51).

(iii) **Indian Ocean and Adjacent Seas.**—Indian Ocean, Hexactinellids from: SCHULZE (43).

(iv) **Pacific Ocean and Adjacent Seas.**—Sagami Sea, Hexactinellids from: IJIMA (24).—San Diego, Southern California, sponges from: KOFOID (27).—West coasts of Mexico, Central and South America and off the Galapagos Islands, sponges collected from, pp. 5, 6; *Thenea fenestrata* now recorded for the Pacific, p. 91: WILSON (60).

(v) **Arctic Seas.**—Vacant.

(vi) **Antarctic Seas.**—Antarctic Seas, calcareous sponges from: VANHÖFFEN (56).

##### β. FRESHWATER SPONGES.

*Spongilla lacustris* from Chambilly: GILLOT (13).

#### B. GEOLOGICAL.

##### (i) GENERAL.

Vacant.

##### (ii) CAINOZOIC.

Swabian sandstone, sponges from: SCHUTZE (44).—Diluvial deposits of Lübeck, *Spongilla lacustris*, L. from: RANGE (39) p. 238.—Fossil (Cainozoic) sponges from Victoria, South Australia and Tasmania: DENNANT & KITSON (8) p. 136.

##### (iii) MESOZOIC.

Untern Kreide im westschweizerischen Jura, sponges from: BAUMBERGER (1) p. 21.—Muschelkalk, *Scyphia roemeri*, n. sp., *S. sp.*, *S. caminensis*, from the: ECK (10).—Cretaceous rocks, New South Wales, *Purisiphonia clarkei*,

B. from: ETHERIDGE (11).—Oolitic and cretaceous rocks south of Scarborough, sponges from: FOX-STRANGWAYS (12) p. 40 et seq.—English Chalk, zonal distribution of species of *Porosphaera* in: HINDE (18) pp. 6–10.—*Cephalites longitudinalis*, *Pharetrospongia strahani*, *Plinthosella squamosa*, *Plocoscyphia convoluta*, *P. sp.*, *Porosphaera globularis*, *P. nuciformis*, *P. patelliformis* from the Surrey Chalk: HINDE (19).—English Chalk, *Placotrema cretaceum*, *Ventriculites decurrens*, *V. impressus*, *V. alcyonoides*, *V. radiatus*, *Plocoscyphia*, *Camerospongia*, *Porosphaera pileolus*, *P. sp.* from the: HOLMES (20).—Kreideformation, fossil sponges from the: JAHN (25).—Upper, Lower and Middle English Chalk, list of fossil sponges from: JUKES-BROWNE & HILL (26).—Chalk of Yorkshire Coast, *Ventriculites radiatus*, *V. cribrosus*, *V. impressus*, *V. infundibuliformis*, *V. convolutus*, *V. decurrens*, *Plocoscyphia convoluta*, *Porochonia simplex*, *Coscinopora infundibuliformis*, *Guettardia stellata*, *Leptophragma marchisoni*, *Cœloptychium agaricoides*, *Callopegma obconicum*, *Heterostinia obliqua*, *Siphonia konigi*, *Stelletta inclusa*, *Cliona cretacea*, *Porosphaera globularis*, *P. globularis* var. *nuciformis*, *P. pileolus*, *P. pileolus* var. *patelliformis*, *P. pileolus* var. *arrecta*, from: ROWE (41) pp. 292, 293.—Flint, Denmark, fossil sponges from: USSING (55).—Solnhofener Plattenkalke, *Ammonella quadrata*, n. g., n. sp., *Phyllospongia lumbricaria*, *P. acuminata*, *P. elongata*, *P. rubarticulata*, *P. latifrons*, *P. varius*, from the: WALTHER (57) pp. 162, 163.

## (iv) PALÆOZOIC.

Silurian of Rio Trombetas, Para, Brazil, sponges from: CLARKE (3).

## IV. SYSTEMATIC.

[A name of a species, followed only by a reference to a name from the list of titles, is a record of occurrence pure and simple. The approximate locality (or horizon) can be ascertained by looking up the author's name attached to the particular species in the above (section III).]

## A. PORIFERA, GENERAL.

## B. CALCAREA.

## (i) HOMOCÆLA.

## Family CLATHRINIDÆ.

*Clathrina coriacea*, *C. lacunosa*: MAR. BIOL. ASS. (34).

## Family LEUCOSOLENIIDÆ.

*Leucosolenia botryoides*, *L. complicata*, *L. variabilis*: MAR. BIOL. ASS. (34).—*L. complicata*, *L. variabilis*, *L. botryoides* redefined and re-described in full: MINCHIN (36) pp. 360–394.

## (ii) HETEROCÆLA.

## Family SYCETTIDÆ.

*Sycon* seu *Sycandra raphanus*, spermatogenesis in: GÖRICH (14).—*S. compressum*, *S. coronatum*: MAR. BIOL. ASS. (34).—*S. setosa* grown in water deprived of calcium salts: MAAS (31, 32).—*S. setosum*, *S. coronata*: SOWINSKY (46) p. 289.

+*Tremacystia d'orbigny*, *T. siphonoides*: JUKES-BROWNE & HILL (26) p. 505.

## Family PHARETRONIDÆ seu PHARETRONES.

- +*Bactronella parvula*, *B. australis*: DENNANT & KITSON (8).  
 +*Blastinia aspera*: FOX-STRANGWAYS (12) p. 40.  
 +*Corynella* sp.: JAHN (25).  
 +*Discoelia peronni*: BAUMBERGER (1) p. 21.  
 +*Elasmoiera sequana*, *E. crassa*: BAUMBERGER (1) p. 21.  
 +*Elasmostoma consobrinum*, *E. crassum*, *E. scitulum*, *E.* sp.: JUKES-BROWNE & HILL (26) p. 504.—*E.* sp.: JAHN (25).  
 +*Holcospongia* (*Spongia*) *floriceps*, *H. polita* (*Stellispongia corallina*): FOX-STRANGWAYS (12) p. 40.  
 +*Manon marginatum*: JUKES-BROWNE & HILL (26) p. 506.  
 +*Oculospongia* sp.: BAUMBERGER (1) p. 21.  
 +*Peronidella recta*, *H.*: FOX-STRANGWAYS (12) p. 40.  
 +*Pharetrospongia strahani*: JUKES-BROWNE & HILL (26) p. 504.—*P. strahani*: HINDE (19).  
 +*Plectroninia balbi*: DENNANT & KITSON (8).  
 +*Porosphaera*, history, and full description of genus and species, pp. 1–25; *P. globularis*, *P. nuciformis*, *P. woodwardi*, *P. pileolus* redescribed, pp. 19–23; *P. patelliformis*, **n. sp.**, *P. arrecta*, **n. sp.** described, pp. 23, 24: HINDE (18).—*P. globularis*, *P. nuciformis*, *P. patelliformis*: HINDE (19).—*P. pileolus*, *P.* sp.: HOLMES (20).—*P. globularis*: JAHN (25).—*P. globularis*, *P. globularis* var. *nuciformis*, *P. pileolus*, *P. pileolus* var. *patelliformis*, *P. pileolus* var. *arrecta*: ROWE (41) p. 293.  
 +*Siphonocelia crassa*: BAUMBERGER (1) p. 21.  
*Sparsispongia gemmata*: BAUMBERGER (1) p. 21.  
 +*Spongia* [*Holcospongia*] *floriceps*: FOX-STRANGWAYS (12) p. 49.  
 +*Stellispongia salevensis*: BAUMBERGER (1) p. 21.  
 +*Tretocalia pezica*: DENNANT & KITSON (8).  
 +*Tremospongia* sp. BAUMBERGER (1) p. 21.  
 +*Woodwardi*: JUKES-BROWNE & HILL (26) p. 505.

## C. HEXACTINELLIDA.

## (i) LYSSACINA.

- Hexasterophora, characters of sub-order: SCHULZE (43) p. 172.  
 Amphidiscophora, characters of suborder: SCHULZE (43) pp. 180, 181.

## Family EUPLECTELLIDÆ.

- Euplectellidæ*, characters of family with list of genera: SCHULZE (43) pp. 172, 173.  
*Euplectella*, characters of genus, p. 132; *E. suberea* W. T., redescribed, pp. 9–15; *E. nobilis* F. E. S. **n. sp.**, described, pp. 15–17; *E. aspergillum* R. O., redescribed, pp. 17–21; *E.* (? *simplex* F. E. S.), redescribed, pp. 21, 22: SCHULZE (43).—*E. suberea* W. T., redescribed: TOPSENT (50) pp. 38, 39.—*E.*, sp., described: WILSON (60) pp. 33, 34.  
*Holascus*, characters of genus, p. 130; *H. tenuis* F. E. S. **n. sp.**, described, pp. 3–7; *H. obesus* F. E. S. **n. sp.**, described, pp. 7, 8; *H. fibulatus* F. E. S., redescribed, pp. 8, 9: SCHULZE (43).  
*Malacosaccus floricomatus* T., redescribed: TOPSENT (50) pp. 33–38.—*M. unguiculatus* F. E. S., redescribed: TOPSENT (53A).  
*Regadrella*, characters of genus, p. 134; *R.* (? *phœnix* O. Sch.), described, pp. 22, 23: SCHULZE (43).—*R. phœnix* Sch., redescribed: TOPSENT (50) pp. 39, 40; (53A).—*R.*, sp., described, pp. 35, 36; *R. delicata*, **n. sp.**, diagnosed and described, pp. 36–42: WILSON (60).

## Family HERTWIGIDÆ.

*Hertwigia*, characters of genus, p. 135; *H. fulcifera* O. Sch., redescribed, pp. 23, 34: SCHULZE (43).

## Family CAULOPHACIDÆ.

*Caulophacidae*, characters of family with list of genera: SCHULZE (43) p. 173, 174.

*Caulophacus*, characters of genus, p. 137; *C. valdiviæ* F. E. S., redescribed, pp. 25-28: SCHULZE (43).—*C. schulzei*, n. sp., diagnosed and described, pp. 43-50; *C.*, sp., described, p. 50: WILSON (60).

## Family HYALONEMATIDÆ.

*Compsocalyx*, characters of n. g., pp. 164, 165; *C. gibberosa* F. E. S., n. sp., described, pp. 99-103: SCHULZE (43).

*Hyalonematidæ*, characters of family with list of genera, p. 181: SCHULZE (43).

*Hyalonema*, characters of genus, p. 162; *H. thomsonis* W. M., redescribed, pp. 67-69; *H. calix* F. E. S., n. sp., described, pp. 69-73; *H. somalicum* F. E. S., n. sp., described, pp. 73, 74; *H. globiferum* F. E. S., redescribed, pp. 75-77; *H. solutum* F. E. S., n. sp., described, pp. 77, 78; *H. valdiviæ* F. E. S., n. sp., described, pp. 78-80; *H. rapa* F. E. S. juv., redescribed, pp. 80-82; *H. validum* F. E. S., n. sp., described, pp. 82, 83; *H. tulipa* F. E. S., n. sp., described, pp. 83-85; *H. simile* F. E. S., n. sp., described, pp. 85-88; *H. coniforme* F. E. S., n. sp., described, pp. 88, 89; *H. urna* F. E. S., n. sp., described, pp. 89-91; *H. apertum* F. E. S., redescribed, pp. 91-95; *H. molle* F. E. S., n. sp., described, pp. 95, 96; *H. proximum* F. E. S., n. sp., described, pp. 64-67: SCHULZE (43).—*H. ovuliferum* F. E. S., redescribed, pp. 16-19; *H. pedunculatum*, n. sp., diagnosed and described, pp. 19-22; *H. bianchoratum*, n. sp., diagnosed and described, pp. 22-25; *H.*, species diversæ described, pp. 25-28; *H. pateriferum*, n. sp., diagnosed and described, pp. 28-33: WILSON (60).—*H. thomsoni* W. M., redescribed, p. 31; *H. infundibulum* T., redescribed, p. 32: TOPSENT (50).

*Pheronema*, characters of genus, p. 151; *P. carpenteri* (W. T.), redescribed, pp. 50-52; *P. raphanus* F. E. S., redescribed, pp. 52-58: SCHULZE (43).—*P. grayi* S. K., redescribed, pp. 29-31: TOPSENT (50).

*Platylistrum*, n. g., characters of genus, p. 165; *P. platessa* F. E. S., n. sp., described, pp. 59-64: SCHULZE (43).

†*Stauractinella cretacea*: JUKES-BROWNE & HILL (26), p. 508.

## Family SEMPERELLIDÆ.

(SEMPERELLINÆ removed from HYALONEMATIDÆ to form a distinct family.)

*Semperellidæ*, characters of family with list of genera: SCHULZE (43) p. 181.

*Semperella*, characters of genus, p. 167; *S. cucumis* F. E. S., redescribed, pp. 103-110; *S. spicifera* F. E. S., redescribed, pp. 110-112: SCHULZE (43).

*Monoraphis*, characters of n. g., pp. 167, 168; *M. chuni* F. E. S., n. sp., described, pp. 112-121; *M. divis* F. E. S., n. sp., described, pp. 121-125: SCHULZE (43).



## Family LEUCOPSACIDÆ.

*Leucopsacidæ*, characters of family with list of genera, p. 175 : SCHULZE (43).

*Leucopsacus scoliodocus* Ij., **n. var. retroscissus**, described : TOPSENT (54).  
*Chamnangium*, characters of **n. g.**, p. 138 ; *C. crater* F. E. S., **n. sp.**, described, pp. 31-33 ; *C. sp.*, F. E. S., described, pp. 33, 34 : SCHULZE (43).

*Placopegma*, characters of genus, p. 137 ; *P. solutum* F. E. S., redescribed, pp. 28-31 : SCHULZE (43).

## Family ROSSELLIDÆ.

Diagnosis of the family, subdivided into *Lanuginellinæ*, *Rossellinæ*, and *Acanthascinæ* : IJIMA (24) pp. 1, 2 ; SCHULZE (43) pp. 175, 176.

*Rossellinæ*, diagnosis of sub-family and key to genera : IJIMA (24) pp. 16-19 ; SCHULZE (43) p. 176.

*Lanuginellinæ*, diagnosis of sub-family and key to genera and species : IJIMA (24) pp. 2, 3 ; SCHULZE (43) p. 176.

*Acanthascinæ*, diagnosis of sub-family, general organization and key to genera : IJIMA (24) pp. 127-139 ; SCHULZE (43) p. 177.

*Acanthascus* F. E. S., diagnosis of genus with key to species, pp. 139, 140 ; *A. cactus* F. E. S., redescribed, pp. 140-158 ; *A. alani* Ij., redescribed, pp. 158-162 : IJIMA (24).

*Asconema setubalense* S. K., redescribed : TOPSENT (50) p. 41.

*Aulosaccus* Ij., diagnosis of genus with key to species, pp. 107-110 ; *A. mitsukurii* Ij., redescribed, pp. 117-127 ; *A. schulzei* Ij., redescribed, pp. 110-117 : IJIMA (24).

*Bathydorus levis spinosus*, **n. subsp.**, diagnosed and described : WILSON (60) pp. 51-54.

*Bolosoma*, **nom. nov.**, substituted for *Placosoma* : IJIMA (24) p. 305.

*Crateromorpha* J. E. Gray, diagnosis of genus and key to species, pp. 55-57 ; *C. meyeri* J. E. G., redescribed with descriptions of two new sub-species *C. m. tuberosa* Ij., **n. subsp.** and *C. m. rugosa* Ij., **n. subsp.**, pp. 57-74 ; *C. pachyactina* Ij., redescribed, pp. 74-78 ; *C. corrugata* Ij., redescribed, pp. 78-86 : IJIMA (24).

*Hyalascus* Ij., diagnosis of genus and key to species, pp. 87, 88 ; *H. sagamiensis* Ij., redescribed, 88-96 ; *H. giganteus* Ij., redescribed, pp. 100-107 ; *H. similis*, **n. sp.**, described, pp. 96-100 : IJIMA (24).

*Lanuginella pupa* O. S., redescribed : IJIMA (24) pp. 3-16, pl. i.

*Rhabdocalyptus* F. E. S., diagnosis of genus and key to species, pp. 236-238 ; *R. victor* Ij., redescribed, pp. 238-253 ; *R. unguiculatus*, **n. sp.**, described, pp. 268-276 ; *R. capillatus* Ij., redescribed, pp. 276-291 ; *R. mollis* F. E. S., redescribed, pp. 253-268 : IJIMA (24).—*R.*, characters of genus, p. 140 ; *R. baculifer* F. E. S., **n. sp.**, described, pp. 34-36 : SCHULZE (43).

*Scyphidium* F. E. S., diagnosis of genus and key to species, pp. 20, 21 ; *S. namiyei*, **n. nom.** for *Vitrollula namiyei* Ij., redescribed, pp. 32-37 ; *S. longispina*, **n. nom.** for *Rossella longispina* Ij., redescribed, pp. 22-31 : IJIMA (24).

*Stavrocalyptus* Ij., diagnosis of genus and key to species, pp. 162-168 ; *S. raperi* F. E. S., redescribed, pp. 168-172 ; *S. dowlingi* L. M. L., redescribed, pp. 172-175 ; *S. tubulosus*, **n. sp.**, described, pp. 175-180 ; *S. affinis*, **n. sp.**, described, pp. 180-191 ; *S. entacanthus*, **n. sp.**, described, pp. 191-202 ; *S. heteractinus* Ij., redescribed, pp. 218-222 ; *S. pleorhaphides* Ij., redescribed, pp. 222-230 ; *S.* (sp. ?), described, pp. 231-236 ; *S. microchetus* Ij., redescribed, pp. 202-206 ; *S. glaber* Ij.,

redescribed, pp. 207-218: IJIMA (24).—*S.*, sp., described, WILSON (60) pp. 54-56.

*Vitrollula* Ij., characters of the genus, p. 37; *V. fertilis* Ij., redescribed, pp. 38-55: IJIMA (24).

(ii) *DICTYONINA.*

## Family COSCINOPORIDÆ.

*Coscinoporidæ*, characters of family: SCHULZE (43) p. 178.

*Bathyxiphus*, sp., described: WILSON (60) pp. 75-77.

*Chonelasma schulzei*, T. redescribed, pp. 51-53; *C. ijimai* T., redescribed, pp. 53-55: TOPSENT (50).—*C. calyx* F. E. S. (sp.?), redescribed: WILSON (60) pp. 74, 75.

+*Coscinopora infundibuliformis*, *C. quincuncialis*, *C.* sp.: JUKES-BROWNE & HILL (26) p. 506.—*C. infundibuliformis*: ROWE (41).

+*Guettardia stellata*: ROWE (41).—*G. angularis*, *G. stellata*: JUKES-BROWNE & HILL (26) p. 506.

+*Leptophragma murchisoni*: ROWE (41).—*L. fragilis*, *L. murchisoni*: JUKES-BROWNE & HILL (26) p. 506.

+*Pleurostoma radiatum*: JUKES-BROWNE & HILL (26) p. 507.—*P. bohemicum*, *P. scyphus*: JAHN (25).

## Family TRETICALYCIDÆ (formerly TRETODICTYIDÆ, Schulze).

*Tretocalycidæ* (formerly *Tretodictyidæ* F. E. S.), characters of family with list of genera: SCHULZE (43) pp. 179, 180.

*Hexactinella labyrinthica*, n. sp., diagnosed and described, pp. 77-82; *H. ventilabrum* Carter (sp.?), described, pp. 82, 83; *H. tubulosa* F. E. S. (sp.?), described, pp. 83, 84: WILSON (60).—*H. filholi*, n. sp., described: TOPSENT (53).—*H. grimaldii* T., redescribed: TOPSENT (53A).

*Sclerothamnopsis compressa*, n. g. et sp., diagnosed and described: WILSON (60) pp. 84-87.

## Family AULOCYSTIDÆ.

Characters of family: SCHULZE (43) p. 180.

## Family DACTYLOCALYCIDÆ.

Characters of family, with list of genera: SCHULZE (43) p. 180.

*Auloplax*, characters of genus, pp. 148, 149; *A. auricularis* F. E. S., redescribed, pp. 47-50: SCHULZE (43).

## Family EURETIDÆ (includes FARREIDÆ).

Characters of family with list of genera: SCHULZE (43) pp. 177, 178.

+*Ammonella quadrata*, n. g., n. sp., described: WALTHER (57) pp. 162, 163.

+*Craticularia vulgata*, *C. subseriata*: JAHN (25).—*C. fittoni*, *C. subseriata*, *C.* sp.: JUKES-BROWNE & HILL (26) p. 506.

+*Cribrospongia subreticulata*: JAHN (25).

*Eurete*, characters of genus, p. 143; *E.* sp., described, pp. 37, 38: SCHULZE (43).—*E. erectum tubuliferum*, n. subsp., diagnosed and described,

pp. 63–68; *E. erectum mucronatum*, n. subsp., diagnosed and described, pp. 68, 69; *E. erectum gracile*, n. subsp., diagnosed and described, pp. 69–72: WILSON (60).—*E. alicei* T., redescribed, p. 45: TOPSENT (50).

*Farrea*, characters of genus: SCHULZE (43) p. 142.—*F. occa* B., n. var., *laminaris*, redescribed, p. 43; *F. weltneri* T., redescribed, p. 43: TOPSENT (50).

*F. occa claviformis*, n. subsp., diagnosed and described, pp. 57–59; *F. mexicana*, n. sp., diagnosed and described, pp. 60–62; *F.* sp., described, p. 62: WILSON (60).

*Ramella*, n. g., characters of, p. 144; *R. tubulosa* F. E. S., n. sp., described, pp. 38, 39: SCHULZE (43).

*Sarostegia oculata*, n. g., n. sp., described: TOPSENT (51).—*S. oculata* T., redescribed: TOPSENT (54).

†*Strephinia convoluta*, *S. retiformis*: JUKES-BROWNE & HILL (26) p. 508.

†*Verrucocalia tubulata*, *V. vectensis*, *V.* sp.: JUKES-BROWNE & HILL (26) p. 509.

### Family MELLITIONIDÆ (APHROCALLISTIDÆ).

*Aphrocallistide*, characters of family: SCHULZE (43) pp. 178, 179.

*Aphrocallistes*, characters of genus, p. 148; *A. beatrix* J. E. G., redescribed, pp. 39–47: SCHULZE (43).—*A. azoricus* T., redescribed: TOPSENT (50) pp. 48–50.—*A. vastus* F. E. S. (sp.?), redescribed: WILSON (60) p. 73.—*A.* sp.: JUKES-BROWNE & HILL (26) p. 505.

†*Stauronema carteri*, *S. lobatum*, *S. planum*: JUKES-BROWNE & HILL (26) p. 508.

### Family MÆANDROSPONGIDÆ.

†*Callodictyon angustatum*: JUKES-BROWNE & HILL (26) p. 505.

†*Camerospongia*: HOLMES (20).—*C. aperta*, *C. campanulata*, *C. capitata*, *C. subrotunda*: JUKES-BROWNE & HILL (26) p. 505.

†*Diplodictyon bayfieldi*: JUKES-BROWNE & HILL (26) p. 506.

†*Etheridgea* sp.: JUKES-BROWNE & HILL (26) p. 506.

†*Plocoscyphia convoluta*, *P.* sp.: HINDE (19).—*P.*: HOLMES (20).—*P. pertusa*: JAHN (25).—*P. convoluta*, *P. elegans*, *P. fenestrata*, *P. flexuosa*, *P. foliacea*, *P. labrosa*, *P. meandrina*, *P. labyrinthica*, *P. reticulata*, *P. subrutata*, *P. vagans*: JUKES-BROWNE & HILL (26) pp. 507, 508.—*P. convoluta*: ROWE (41).

†*Poroclonia simplex*: JUKES-BROWNE & HILL (26) p. 508.—*P. simplex*: ROWE (41).

†*Toulminia obliqua*: JUKES-BROWNE & HILL (26) p. 509.

†*Tremabolites perforatus*: JUKES-BROWNE & HILL (26) p. 509.

### Family STAURODERMIDÆ.

†*Cincliderma quadratum*: JUKES-BROWNE & HILL (26) p. 505.

†*Ophrystoma micrommatum*: JUKES-BROWNE & HILL (26) p. 507.

†*Placotrema cretaceum*: HOLMES (20).—*P. cretaceum*: JUKES-BROWNE & HILL (26) p. 507.

†*Porostomia (Porospongia)* sp.: BAUMBERGER (1) p. 21.

†*Purisiphonia clarkei*: ETHERIDGE (11).

### Family CÆLOPTYCHIDÆ.

†*Cæloptychium agaricoides*, *C. decimimum*, *C.* sp.: JUKES-BROWNE & HILL (26) p. 506.—*C. agaricoides*: ROWE (41).

## Family VENTRICULITIDÆ.

- †*Cephalites longitudinalis*: HINDE (19).—*C. alternans*, *C. benettiae*, *C. bullatus*, *C. catinifer*, *C. compressus*, *C. guttatus*, *C. longitudinalis*, *C. paradoxus*, *C. perforatus*: JUKES-BROWNE & HILL (26) p. 505.
- †*Polyplastidium racemosum*, *P. tuberosum*: JUKES-BROWNE & HILL (26) p. 508.
- †*Rhizopoterion cervicorne*: JAHN (25).
- †*Sestrocladia furcatus*: JUKES-BROWNE & HILL (26) p. 508.
- †*Sporodoscinia capax*, *S. micrommata*: JUKES-BROWNE & HILL (26) p. 508.
- †*Ventriculites decurrens*, *V. impressus*, *V. alcyonoides*, *V. radiatus*: HOLMES (20).—*V. alcyonoides*, *V. alternans*, *V. infundibuliformis*, *V. augustatus*, *V. convolutus*, *V. cribrusosus*, *V. decurrens*, *V. impressus*, *V. mammillaris*, *V. moniliferous*, *V. radiatus*, *V. quincuncialis* (see *Coscinopora*), *V. simplex* (see *Porochonia*): JUKES-BROWNE & HILL (26) p. 509.—*V. marginatus*, *V. radiatus*, *V. odontostoma*: JAHN (25).—*V. radiatus*, *V. cribrusosus*, *V. impressus*, *V. infundibuliformis*, *V. convolutus*, *V. decurrens*: ROWE (41).

## D. DEMOSPONGIÆ.

## (i) TETRAXONIDA.

## (a) Order CARNOSA.

## Sub-order MICROTRIÆNOSA.

- Corticella geodioides* (Carter) T., redescribed: TOPSENT (50) pp. 77-79.
- Thrombus abyssi* (Carter) S., n. var. *niger*, described: TOPSENT (50) pp. 100-102.

## Sub-order MICROSCLEROPHORA.

## Family PLAKINIDÆ.

- Placinastrella oxæata*, n. sp., described: TOPSENT (50) pp. 102, 103.

## (b) Order TTRACTINELLIDA.

## (1) Sub-order CHORISTIDA.

## Tribe SIGMATOPHORA.

## Family TETILLIDÆ.

- Chrotella amphiacantha*, n. sp., described: TOPSENT (50) pp. 96, 97.
- Craniella cranium* (Müller) S., redescribed, pp. 99, 100; *C. disigma*, n. sp., described: TOPSENT (50) p. 100.
- Tetilla longipilis*, n. sp., described: TOPSENT (50) pp. 97-99.

## Tribe ASTROPHORA.

## Family GEODIDÆ.

- Cydonium gigas*, nutrition in: COTTE (6).
- Erylus nummulifer* T., redescribed, pp. 71, 72; *E. granularis*, n. sp., described, pp. 72, 73; *E. mammillaris* (Schmidt) G., redescribed, pp. 73-75; *E. chavesi*, n. sp., described, p. 75: TOPSENT (50).



*Isops pachydermata* S., redescribed : TOPSENT (50) p. 67.

*Geodia eosaster* (Sollas) T., redescribed, pp. 67-69; *G. echinastrella*, n. sp., described, p. 70; *G. sphaerastrella*, n. sp., described, pp. 70, 71 : TOPSENT (50).—*G. stelloso* : SOWINSKY (46) p. 289.—*G. baretti* : SCHEPOTIEFF (42) p. 3.

### Family STELLETTIDÆ.

†*Ophiraphidites anastomosans* : JUKES-BROWNE & HILL (26) p. 507.

*Penares foliaformis*, n. sp., diagnosed and described : WILSON (60) pp. 111-114.—*P. sclerobesa* S. E. G., redescribed : TOPSENT (50) pp. 82, 83.

*Pilochrota inermis*, n. sp., described, pp. 79, 80; *P. ventricosa*, n. sp., described, pp. 80, 81; *P. lactea* (Carter) S., redescribed, pp. 81, 82 : TOPSENT (50).

†*Stelletta inclusa* : JUKES-BROWNE & HILL (26) p. 508 and ROWE (40) p. 293.—*S. tuberosa* T., redescribed, TOPSENT (50) pp. 75-77.

*Stryphnus fortis* (Vosmaer) S., redescribed : TOPSENT (50) pp. 83-85.

†*Tethyopsis cretaceus* : JUKES-BROWNE & HILL (26) p. 508.

### Family THENEIDÆ.

*Thenea fenestrata* (Sch.) S., redescribed, pp. 88-91; *T. echinata*, n. sp., diagnosed and described, pp. 91-94; *T. lamelliformis*, n. sp., diagnosed and described, pp. 95-98; *T. pyriformis*, n. sp., diagnosed and described, pp. 98-100 : WILSON (60).—*T. schmidtii* S., redescribed, p. 85 : TOPSENT (50).

### Family PACHASTRELLIDÆ.

TOPSENT (46) includes the *Theneidæ* and *Pachastrellidæ* in the family *Asterostreptidæ*.

*Characella pachastrelloides* (Carter) S., redescribed : TOPSENT (50) pp. 95, 96.

*Nethea amygdaloides* (Carter) T., redescribed : TOPSENT (50) p. 94.

*Pæcillastra compressa* (Bowerbank) S., redescribed, pp. 89, 90; *P. symbiotica* T., redescribed, pp. 90-92 : TOPSENT (50).—*P. tricornis*, n. sp., diagnosed and described, pp. 101-105; *P. cribraria*, n. sp., diagnosed and described, pp. 105-110 : WILSON (60).

*Pachastrella monilifera* S., redescribed : TOPSENT (50) pp. 92-94.—†*P. convoluta* : JUKES-BROWNE & HILL (26) p. 507.

*Sphinctrella gracilis* S., redescribed, pp. 88, 89; *S. horrida* S., redescribed, p. 86; *S. ornata* S., redescribed, p. 87 : TOPSENT (50).

### Family PLACOSPONGIDÆ.

*Rhaxella perforata* H. : FOX-STRANGWAYS (12) p. 40.

## (2) LITHISTIDA.

### Tribe HOPLOPHORA

### Family CLADOPELTIDÆ.

*Siphonidium ramosum* Sch., redescribed : TOPSENT (50) p. 63.

## Family CORALLISTIDÆ.

*Corallistes noli tangere* Sch., redescribed : TOPSENT (50) pp. 59, 60.

*Macandrewia azorica* J. E. G., redescribed, pp. 60, 61; *M. robusta*, n. sp., described, pp. 61, 62; *M. ramosa*, n. sp., described, p. 62 : TOPSENT (50).

## Family TETRACLADIDÆ.

+*Aulaxinia costata* : JUKES-BROWNE & HILL (26) p. 505.

+*Bolospongia constricta*, *B. globata* : JUKES-BROWNE & HILL (26) p. 505.

+*Callopegma ficoideum*, *C. obconicum*, *C.* sp. : JUKES-BROWNE & HILL (26) p. 505.—*C. obconicum* : ROWE (41).

*Discodermia ramifera* T., redescribed : TOPSENT (50) pp. 57, 58.

+*Hallirhoa agariciformis*, *H. costata* : JUKES-BROWNE & HILL (26) p. 506.

+*Jerea cordiformis*, *J. excavata*?, *J. websteri*, *J.* sp. : JUKES-BROWNE & HILL (26) p. 506.

+*Nelumbia tuberosa*, *N.* sp. : JUKES-BROWNE & HILL (26) p. 506.

+*Pholidocladia dichotoma*, *P. ramosa* : JUKES-BROWNE & HILL (26) p. 507.

+*Phymatella intumescens*, *P. reticulata* : JUKES-BROWNE & HILL (26) p. 507.

+*Phymaplectia cribrata*, *P. irregularis*, *P. scitula*, *P. spinosa* : JUKES-BROWNE & HILL (26) p. 507.

+*Plinthosella compacta*, *P. convoluta*, *P. nodosa*, *P. squamosa*, *P.* sp. : JUKES-BROWNE & HILL (26) p. 507.—*P. squamosa* : HINDE (19).

+*Polyjerea arbuscula*, *P. lobata* : JUKES-BROWNE & HILL (26) p. 508.

*Racodiscula clava* (Sch.) T., redescribed : TOPSENT (50) p. 58.

+*Ragadinia clavata*, *R. compressa*, *R. sulcata* : JUKES-BROWNE & HILL (26) p. 508.

+*Siphoneudea truncata* : BAUMBERGER (1) p. 21.

+*Siphonia ficus*, *S. kænigi*, *S. tulipa* : JUKES-BROWNE & HILL (26) p. 508.—*S. kænigi* : ROWE (41).

+*Thamnospongia clavellata*, *T. glabra*, *T. reticulata*, *T.* sp. : JUKES-BROWNE & HILL (26) pp. 508, 509.

+*Thecosiphonia nobilis*, *T. turbinata* : JUKES-BROWNE & HILL (26) p. 509.

+*Trachysycon sulcatum* : JUKES-BROWNE & HILL (26) p. 509.

+*Turonia variabilis* : JUKES-BROWNE & HILL (26) p. 509.

## Family DESMANTHIDÆ.

*Monocrepidium* T., definition of genus, p. 47; *M. vermiculatum* T., redescribed, p. 148 : TOPSENT (50).

## Family PLEROMIDÆ.

+*Doryderma ramosum*, *D. rameri*, *D.* sp. : JUKES-BROWNE & HILL (26) p. 506.

+*Heterostinia obliqua* : JUKES-BROWNE & HILL (26) p. 506.—*H. obliqua* : ROWE (41).

+*Isoraphinia tecta* : JUKES-BROWNE & HILL (26) p. 506.

+*Nematinion calyculum*, *N.* sp. : JUKES-BROWNE & HILL (26) p. 507.

## Tribe ANOPLIA.

## Family AZORICIDÆ.

*Azorica pfeifferæ* C., redescribed : TOPSENT (50) p. 64.

+*Jereica clava* : JUKES-BROWNE & HILL (26) p. 506.

*Petromica grimaldii* T., redescribed : TOPSENT (50) pp. 64–66.

+*Verruculina astrea*, *V. miliaris*, *V. papillata*, *V. plicata*, *V. pustulosa*, *V. reussi*, *V.* sp. : JUKES-BROWNE & HILL (26) p. 509.

## Family ANOMOCLADIDÆ.

†*Astylospongia præmorsa* F. R., redescribed: REMEŠ (40).

†*Scytalia fastigiata*, *S. radiceformis*, *S. terebrata*: JUKES-BROWNE & HILL (26) p. 508.

## Family RHIZOMORINIDÆ.

†*Ctenendopora callodictya* (?): JUKES-BROWNE & HILL (26) p. 505.

†*Pachinion scriptum*: JUKES-BROWNE & HILL (26) p. 507.

†*Seliscothion explanatus*, *S. planus*: JUKES-BROWNE & HILL (26) p. 508.

†*Stachyspongia spica*: JUKES-BROWNE & HILL (26) p. 505.

†*Stichophyma tumidum*, *S. sp.*: JUKES-BROWNE & HILL (26) p. 508.

## (ii) MONAXONIDA.

## (a) Order HADROMERINA.

## 1. Sub-order ACICULINA.

## Family COPPATIIDÆ.

*Jaspis johnstoni* (Schmidt) T., redescribed, p. 128; *J. johnstoni* (Schmidt), var. *incrustans* T., redescribed, p. 128; *J. dendyi* (Sollas) T., redescribed, pp. 129, 130: TOPSENT (50).

*Spongosorites placenta* T., redescribed: TOPSENT (50) pp. 130, 131.

*Topsentia*, definition of genus, p. 131; *T. glabra* (Topsent) B., redescribed, pp. 131, 132; *T. pachastrelloides* T., p. 133: TOPSENT (50).

## Family STYLOCORDYLIDÆ.

*Oxycordyla*, n. g., definition of genus, p. 135; *O. pellita*, n. sp., described, pp. 135, 136: TOPSENT (50).

## Family TETHYIDÆ.

*Heteroxya*, definition of genus, p. 133; *H. corticata* T., redescribed, pp. 133-135: TOPSENT (50).

*Tethya lyncurium*: MAR. BIOL. ASS. (34).—*T. newberyi*: DENNANT & KITSON (8).

## 2. Sub-order CLAVULINA.

## Family CLIONIDÆ.

*Alectona millari* C., redescribed: TOPSENT (50) pp. 111, 112.

*Cliona labyrinthica* H., redescribed, p. 105; *C. levispira* T., redescribed: TOPSENT (50) pp. 105-107.—*C. duvernoyi*, *C. nardoii*, *C. studeri*: SCHÜTZE (44).—*C. celata*: MAR. BIOL. ASS. (34).—†*C. cretacea*: ROWE (41) p. 293.—†*C. cretacea*, *C. glomerata*: JUKES-BROWNE & HILL (26) p. 505.—*C. pontica*, *C. typica*, *C. stationis*, *C. sp.?* (Czern): SOWINSKY (46) p. 289.—*Clione*, pearls originated by: HERDMAN (17).

*Dotona pulchella* C., redescribed: TOPSENT (50) pp. 108, 109.

*Thoosa armata* T., redescribed: TOPSENT (50) pp. 109-111.

## Family POLYMASTIDÆ.

- Polymastia corticata* R. & D., redescribed: TOPSENT (50) pp. 119, 120.—  
*P. mamillaris*: MAR. BIOL. ASS. (34).—*P. mœandria*, n. sp., diagnosed and described: WILSON (60) pp. 115–117.  
*Rhaphidorus*, definition of genus, p. 120; *R. setosus* T., redescribed, pp. 120–122: TOPSENT (50).  
*Thecophora semisuberites*: SCHEPOTIEFF (42) p. 3.  
*Tylexocladius*, definition of genus, p. 122; *T. joubini* T., redescribed, pp. 122, 123: TOPSENT (50).

## Family SPIRASTRELLIDÆ.

- Hymedesmia unistellata* T., n. var. *aspera*, redescribed, pp. 112, 113;  
*H. chondrilloides* T., redescribed, pp. 113, 114; *H. stelligera* C., redescribed, p. 114: TOPSENT (50).  
*Latrunculia biannulata* T., redescribed, p. 115; *L. insignis* T., redescribed, pp. 115–117: TOPSENT (50).  
*Sceprintus*, definition of genus, p. 117; *S. richardi* T., redescribed, pp. 117–119: TOPSENT (50).

## Family SUBERITIDÆ.

- Ficulia* [*Ficulina*?] *ficus* contains eggs of *Sepia*: GRUVEL (15).  
*Suberites laticeps*, n. sp., described, pp. 124, 125; *S. gibbosiceps*, n. sp., described, pp. 125, 126: TOPSENT (50); *S. domuncula*: MAR. BIOL. ASS. (34).—*S. domuncula*, spongosterin obtained from: HENZE (16).—  
*S. prototipus*, *S. domuncula*: SOWINSKY (46) p. 289.  
*Rhizaxinella biseta*, n. sp., described, pp. 126, 127; *R. uniseta*, n. sp., described, pp. 127, 128: TOPSENT (50).

## (b) Order HALICHONDRINA.

## Family HAPLOSCLERIDÆ.

- Amorphina caspia*, *A. protochalina*, *A. dubia*, *A. grossa*: SOWINSKY (46) pp. 173, 289.  
*Cacochalina digitata*, *C. irregularis*: SOWINSKY (46) p. 289.  
†*Ceraochalina reteplax tenuis*, n. var., described, *C. nuda* var. *oxyus* L., redescribed: THUM (49) pp. 15–17.  
*Chalinidæ*, nutrition in: COTTE (6).  
*Chalina oculata*: MAR. BIOL. ASS. (34).  
†*Chalinissa elongata* L., redescribed, p. 13; *C. communis tenuis*, n. var., described, p. 14: THUM (49).  
†*Chalinopora typica*, var. *tenuispina* L., redescribed: THUM (49) p. 11.  
†*Cladochalina euplax* L., redescribed: THUM (49) pp. 11, 12.  
*Cladocroce spathiformis*, n. sp., described: TOPSENT (50) pp. 242, 243.  
†*Euchalina exigua*, var. *arborea* L., redescribed: THUM (49) pp. 20, 21.  
*Gelliodes bifacialis*, n. sp., described, pp. 229, 230; *G.*, sp., described, pp. 230, 231: TOPSENT (50).  
*Gellius angulatus* (Bowerbank) R. and D., redescribed, p. 231; *G. fibulatus* (Schmidt) S., redescribed, p. 231; *G. flagellifer* R. and D., redescribed: TOPSENT (50) pp. 231, 232.—*G. perforatus*, n. sp., diagnosed and described, pp. 130, 134: WILSON (60).  
*Halichondria fibrosa* (Friedstedt) L., redescribed, p. 247; *H. leuconoides* T., redescribed, pp. 247–249: TOPSENT (50).—*H. panicea*: MAR. BIOL. ASS. (34).—*H. panicea*, bionomics: CUENOT (7).



- Lubomyrskia irregularis*: IAKHONTOFF (23) p. 3.  
*Metschnikovia spinispiculum* (Carter) T., redescribed, p. 243; *M. filholi* T., redescribed, pp. 243, 244: TOPSENT (50).—*M. tuberculata*, *M. intermedia*: SOWINSKY (46) p. 173.  
*Oceanapia* N., remarks on genus, pp. 127, 128; *O. bacillifera*, **n. sp.**, diagnosed and described, pp. 128–130: WILSON (60).—*O. robusta* (Bowerbank) N., redescribed: TOPSENT (50) pp. 228, 229.  
*Pachychalina acapulcensis*, **n. sp.**, diagnosed and described: WILSON (60) pp. 124–127.  
*Pellina semitubulosa*, *P. longispicula*, *P. foraminosa*: SOWINSKY (46) p. 289.  
*Petrosia crassa* (Carter) L., redescribed: TOPSENT (50) pp. 240, 241.—*P. variabilis crassa*, **n. subsp.**, diagnosed and described, pp. 118–121; *similis densissima*, **n. subsp.**, diagnosed and described, pp. 121–124: WILSON (60).  
*Phlæodictyon fistulosum* B., redescribed, pp. 235, 236; *P. coriaceum*, **n. sp.**, described, p. 237; *P. elongatum* (Topsement) L., redescribed, p. 238; *P. reticulatum*, **n. sp.**, described, pp. 238, 239; *P. æreum*, **n. sp.**, described, pp. 239, 240: TOPSENT (50).  
†*Phylosiphonia pumila* L., redescribed: THUM (49) pp. 17, 18.  
*Protoschmidtia grimmi*, *P. simplex*, *P. transitans*, *P. foraminosa*: SOWINSKY (46) pp. 173, 328.  
*Renieridae*, nutrition in: COTTE (6).  
*Reniera implexa* Sch., redescribed, p. 244; *R. foraminosa*, **n. sp.**, described, p. 245; *R. spongiosa*, **n. sp.**, described, p. 245; *R. utriculus*, **n. sp.**, described, p. 246; *R.*, sp., described, p. 246: TOPSENT (50).—*R. simulans*, nutrition in: COTTE (6).—*R. flava*, *R. alba*, *R. aqueductus*, *R. informis*, *R. inflata*, *R. palmata*, *R. nigricans*: SOWINSKY (46) pp. 173, 289.  
*Rhaphisia spissa* T., redescribed: TOPSENT (50) pp. 233–235.  
*Schmidtia intermedia*: SOWINSKY (46) p. 289.  
†*Spinosella sororia*, var. *dilatata* D., redescribed, pp. 18, 19; *S. sororia*, var. *elongata* D., redescribed, pp. 19, 20: THUM (49).  
*Spongillides* from Roumania: CHIRICA (2).  
*Spongilla lacustris*, external characters described: GILLOT (13).—*S. fluviatilis*, spermatogenesis in: GORICH (14).—*S. microgemmata*: IAKHONTOFF (23) p. 3.—*S. lacustris*: RANGE (39) p. 238.  
*Veluspa baicalensis*, *V. fusifera*: IAKHONTOFF (23) p. 3.

### Family AXINELLIDÆ.

Description of family: TOPSENT (50) p. 137.

- †*Acanthoraphis intertextus*: JUKES-BROWNE & HILL (26) p. 505.  
*Axinella vasonuda*, **n. sp.**, described, pp. 140, 141; *A. vellerea*, **n. sp.**, described, 141, 142; *A. frustra* T., redescribed, pp. 139, 140: TOPSENT (50).—*A. rugosa*: SCHEPOTIEFF (42), p. 3.  
*Auletta sycinularia* Sch., redescribed, pp. 143, 144; *A. sessilis*, **n. sp.**, described, p. 144, 145: TOPSENT (50).—*A. dendrophora*, **n. sp.**, diagnosed and described: WILSON (60) pp. 158–161.  
*Halicnemia constellata* T., redescribed, *azorica* var. **n.**: TOPSENT (50) p. 149.  
*Higginsia thielei* T., redescribed: TOPSENT (50) p. 150, 151.  
*Hymeniacion sanguineum*, bionomics: CUENOT (7).—*H. sanguineum*, MAR. BIOL. ASS. (34).  
*Phakellia robusta* B., redescribed, p. 143; *P. lamelligera*, **n. sp.**, diagnosed and described, pp. 155–158: WILSON (60).—*P. ventilabrum*: SCHEPOTIEFF (42) p. 3.

- Sollasella hystrix* T., redescribed: TOPSENT (50) pp. 142, 143.  
*Syringella humilis* T., described, p. 138; *S. falcifera* T., redescribed, pp. 138, 139: TOPSENT (50).  
*Tragosia infundibuliformis* T. *polypoides*: MAR. BIOL. ASS. (34).

### Family PÆCILOSCLERIDÆ.

- Acarnus tortilis* T., redescribed: TOPSENT (50) p. 171.  
*Artemisina erecta*, **n. sp.**, described: TOPSENT (50) pp. 214, 215.  
*Biemma rosea* (Fristedt) L., redescribed, pp. 226, 227; *B. grimaldii* T., redescribed, pp. 227, 228: TOPSENT (50).  
*Bubaris vermiculata* (Bowerbank) G., redescribed, pp. 145, 146; *B. mastophora* (Schmidt) T., redescribed, p. 146; *B. sosia*, **n. sp.**, described, p. 147: TOPSENT (50).  
*Cerberis* T., definition of genus, p. 160; *C. torquata* T., redescribed, pp. 160, 161: TOPSENT (50).  
*Chondrocladia gutteli*, **n. sp.**, described: TOPSENT (50) pp. 207-209.  
*Dendoryx dentata*, **n. sp.**, described: TOPSENT (50) pp. 172, 173.  
*Desmacella inornata* B., redescribed: TOPSENT (50) pp. 225, 226.  
*Desmacidon peltatus*, **n. sp.**, described, p. 204; *D. abyssi*, **n. sp.**, described, pp. 204, 205: TOPSENT (50).  
*Dragnetyle*, **n. g.**, defined, p. 195; *D. lictor*, **n. sp.**, described, p. 195: TOPSENT (50).  
*Esperia stepanowi*, *E. irregularis*, *E. muscoides*, *E. contarenii*, *E. foraminosa*, *E. dubia*: SOWINSKY (46) p. 289.  
*Esperella fascijibula*, **n. sp.**, described, p. 201; *E. tunicata* (Schmidt) V., redescribed, pp. 200, 201: TOPSENT (50).—*E. ægagropila*, bionomics: CUENOT (7).  
*Esperiopsis villosa* C., redescribed, pp. 211, 212; *E. decora*, **n. sp.**, described, p. 212; *E. prædita* T., redescribed, p. 212; *E. glomeris*, **n. sp.**, described, pp. 213, 214: TOPSENT (50).  
*Forcepia* C., definition of genus, p. 177; *F. bulbosa* (Carter) V., redescribed, pp. 179, 180; *F. imperfecta*, **n. sp.**, described, p. 180: TOPSENT (50).  
*Guitarra voluta*, **n. sp.**, described: TOPSENT (50) pp. 209-211.  
*Hamacantha johnsoni* (Bowerbank) G., redescribed, pp. 215-217; *H. schmidti* (Carter) L., redescribed, pp. 217, 218; *H. carteri*, **n. sp.**, described, pp. 218-220; *H. lundbecki*, **n. sp.**, described, pp. 220, 221; *H. implicans* L., **n. var. azorica**, redescribed, pp. 221, 222; *H. integra*, **n. sp.**, described, pp. 222, 223; *H. clavisæpta* T., redescribed, pp. 223, 224: TOPSENT (50).  
*Heteroclathria hallezi*, **n. g.**, described: TOPSENT (50).  
*Hymenaphia* B., definition of genus, p. 161; *H. clavata* B., redescribed, p. 161; *H. viridis* T., redescribed, p. 162; *H. spinispinosa*, **n. sp.**, described, p. 162; *H. affinis* T., redescribed, p. 163; *H. pilosella*, **n. sp.**, described, pp. 163, 164; *H. hispidula*, **n. sp.**, described, pp. 164, 165; *H. mucronata*, **n. sp.**, described, pp. 165, 166; *H. peachi* (Bowerbank) T., redescribed, p. 166; *H. mutabilis*, **n. sp.**, described, pp. 167, 168: TOPSENT (50).  
*Hymenhabdia* T., definition of genus, p. 159; *H. oxytrunca*, **n. sp.**, described, pp. 159, 160: TOPSENT (50).  
*Hymetrochota*, **n. g.**, definition of genus, p. 168; *H. rotula*, **n. sp.**, described, p. 168: TOPSENT (50).  
*Iophon lamella*, **n. sp.**, diagnosed and described, pp. 146-149; *I. lamella indivisus*, **n. subsp.**, diagnosed and described, pp. 149-151; *I. indentatus*, **n. sp.**, diagnosed and described, pp. 151-154; *I. chelifer osti magna*, **n. subsp.**, diagnosis and description, pp. 143-146: WILSON (60).

- Joyeuxia* T., diagnosis of genus, p. 205; *J. viridis* T., redescribed, p. 206; *J. tubulosa*, n. sp., described, pp. 206, 207: TOPSENT (50).
- Leptolabis*, n. g., definition of genus, pp. 181, 182; *L. forcipula*, n. sp., described, p. 182; *L. forcipula*, n. var. *brunnea*, described, p. 183; *L. arcuata*, n. sp., described, pp. 183, 184; *L. luciensis* T., redescribed, pp. 184, 185: TOPSENT (50).—*L. luciensis*: MAR. BIOL. ASS. (34).
- Leptosia* T., definition of genus, p. 185; *L. occulta* (Bowerbank) T., redescribed, pp. 186, 187; *L. pecqueryi* T., redescribed, pp. 187, 188; *L. kœhleri* T., redescribed, p. 189; *L. schmidti* T., redescribed, pp. 190, 191; *L. baculifera* T., redescribed, p. 191; *L. biscutella*, n. sp., described, pp. 191, 192; *L. umbellifera*, n. sp., described, p. 192; *L. raphigena*, n. sp., described, pp. 192, 193; *L. obtusata*, n. sp., described, p. 193; *L. acerata*, n. sp., described, pp. 193, 194: TOPSENT (50).
- Leptostraea*, n. g., definition of genus, p. 194; *L. constellata*, n. sp., described, pp. 194, 195: TOPSENT (50).
- Lissodendoryx simplex*, n. sp., described, p. 173; *L. fertilior*, n. sp., described, pp. 173, 174: TOPSENT (50).
- Melonanchora elliptica* C., redescribed: TOPSENT (50) p. 177.
- Microciona atrasanguineum*, bionomics: CUENOT (7).
- Myxilla paupertas* (Bowerbank) V., redescribed with list of synonyms, pp. 168, 169; *M. mariana* R. & D., n. var. *polysigma*, described, pp. 169, 170: TOPSENT (50).
- Phlyctenopora*, n. g., definition of genus, pp. 198, 199; *P. bitorquis*, n. sp., described, pp. 199, 200: TOPSENT (50).
- Plocamia ambigua* (Bowerbank) T., list of synonyms and descriptions, pp. 154, 155; *P. coriacea* (Bowerbank), var. *elegans* R. & D., redescribed, p. 155: TOPSENT (50).
- Plocamiopsis*, n. g., definition of genus, p. 155; *P. signata*, n. sp., described, pp. 155–157: TOPSENT (50).
- Protoesperia simplex*, *P. lobimana*: SOWINSKY (46) p. 328.
- Rhabdermia* T., description of genus and species, pp. 151, 152; *R. minutula* (Carter) T., redescribed, pp. 152, 153: TOPSENT (50).
- Rhabdoploca*, n. g., definition of genus, pp. 157, 158; *R. curvispiculifera* (Carter), redescribed, pp. 158, 159: TOPSENT (50).
- Rhaphidotheca* S. K., definition of genus, p. 202; *R. loricata* T., redescribed, pp. 202, 203: TOPSENT (50).
- Stelodoryx*, n. g., definition of genus, p. 174; *S. procera*, n. sp., described, pp. 174–176: TOPSENT (50).
- Stylostichon repens*, n. sp., described: TOPSENT (50) p. 170.
- Stylotella jullieni* T., redescribed: TOPSENT (50) p. 225.
- Suberotelites demonstrans* T., redescribed: TOPSENT (50) p. 157.
- Tedania suctorica* Sch., redescribed, p. 176; *T. commixta* R. & D., redescribed, pp. 176, 177: TOPSENT (50).
- Trachyforcepia*, n. g., definition of genus, p. 181; *T. grœnlandica* (F.), redescribed, p. 181: TOPSENT (50).
- Tylodesma* T., remarks on genus, pp. 135, 136; *T. alba*, n. sp., diagnosed and described, pp. 136–138; *T. vestibularis*, n. sp., diagnosed and described, pp. 139–142: WILSON (50).
- Yvesia pertusa* T., redescribed, p. 196; *Y. alecto* T., redescribed, pp. 196–198; *Y. carnosâ*, n. sp., described, p. 198: TOPSENT (50).

## (iii) KERATOSA.

## (a) DICTYOCERATINA.

## Family SPONGIDÆ.

- Aplysinopsis massa*, n. sp., described; *A. tuberosa*, n. sp., described: SZYMAŃSKI (47).

*Cacospongia*, remarks re genus : SZYMAŃSKI (48).

*Hircinia variabilis*, n. var. *fistulata*, remarks on : SZYMAŃSKI (47, 48) ;

*H. vestibulata*, n. sp., described : SZYMAŃSKI (48).

†*Phyllospongia lumbricaria*, *P. acuminata*, *P. elongata*, *P. subarticulata*,  
*P. latifrons*, *P. varius* : WALTHER (57).

†*Spongites saxonicus* : JAHN (25).

### Family SPONGELIDÆ.

*Spongelia ramosa*, nutrition in : COTTE (6).—*S. elegans*, *S. incrustans*, *S. palescens* : SOWINSKY (46) p. 289.

*Spongillides* from Roumania : CHIRICA (2).

## (b) DENDROCERATINA.

### Family DARWINELLIDÆ.

*Darwinella simplex* T., redescribed : TOPSENT (50) pp. 55, 56.

### Family APLYSILLIDÆ.

†*Dendrospongia* vide *Craticularia* : JUKES-BROWNE & HILL (26) p. 506.

### (iv) MYXOSPONGIDA.

### Family HALISARCIDÆ.

*Halisarca dujardini*, *H. lobularis* : SOWINSKY (46) p. 289.—*H. dujardini* :  
MAR. BIOL. ASS. (34).

## E. OCTACTINELLIDA.

Vacant.

## F. HETERACTINELLIDA.

Vacant.

## G. INCERTÆ SEDIS.

†*Brachiolites*, vide *Craticularia* : JUKES-BROWNE & HILL (26) p. 505.

†*Cupulochonia cupuliformis*, *C. sp.*, *C. sabaudiana* : BAUMBERGER (1)  
p. 21.

†*Hippalimeudon sp.* : BAUMBERGER (1) p. 21.

†*Monotheles stellata* : BAUMBERGER (1) p. 21.

*Pellinula* (?) *cribosa*, *P. schmidti* : SOWINSKY (46) p. 328.

†*Scyphia romeri*, *S. caminensis*, *S. sp.* : ECK (10).—*S. pedunculata* : JAHN  
(25).—*S. pedunculata* : JUKES-BROWNE & HILL (26) p. 508. (*Scyphia*  
is a Dictyonine.)

†*Strephochetus*, n. g., described : SEELY (45).

†*Satratrus brainerdi*, *S. ocellatus*, *S. prunus*, n. spp., described : SEELY  
(45).

†*Talpina dendrina*, *T. ramosa*, *T. solitaria* : JUKES-BROWNE & HILL (26)  
p. 508.

*Tedaniella cylindrigera* : SOWINSKY (46) p. 328.



## XVIII. PROTOZOA.

BY

H. M. WOODCOCK, D.Sc. (Lond.).

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## INTRODUCTION.

THE number of Titles in the *Protozoa* Record for 1904 shows some falling off compared with that for the previous year, being 371 instead of 433. The Recorder attributes this diminution partly to the fact that the references were collected (by the Searcher) much earlier in the year than has hitherto been the case. It is notorious that many periodicals are not received by our Libraries until several months after publication; hence it is quite likely that there will be a certain influx into next year's Record of 1904 papers received too late for insertion in the present one. Nevertheless, allowance being made for the above circumstance, there seems little doubt that fewer, rather than more, Protozoan memoirs appeared in 1904. From many journals in which there were several papers in 1903 few or none have to be recorded this year. To give one example only: instead of over a dozen from the *Forschber. Plon*, two or three at most have been culled.

If, however, the present Record exhibits some loss in respect of the quantity of material, this is certainly not true of the quality. As regards the Flagellates, at any rate, the year 1904 must undoubtedly rank as one of the most important in the history of the group up till now. And not of this class alone has one's entire conception to be fundamentally modified as the result of last year's research! Rarely, if ever, the Recorder imagines, has the Protozoa division of the Zoological Record contained a memoir of such far-reaching—indeed, almost inestimable—significance as is herein included. By general consensus of opinion the stupendous revelation of SCHAUDINN (301) “inaugurates a new era in the history of the Sporozoa and Flagellates.”

For the benefit of any who are not already cognizant of this epoch-marking investigation, the main facts elucidated may be here stated. The author describes the complete life-cycle of two distinct organisms, one a Trypanosome, the other possessing the typical characters of a *Spirochæta*, both parasitic in the blood of the Little Owl. The latter parasite, far from being a Bacterium, is, in all essentials, a Trypanosome, and Schaudinn finds that the same is true for other so-called *Spirochæta*. Both these Flagellates have an alternation of hosts and of generations, the “carrier,” a gnat, being a true definitive host in which—and only in which—sexual conjugation takes place. Moreover, for part of the time spent in the blood of the bird, the Flagellate is intracellular, acquires a gregariniform condition, and becomes, in the case of the Trypanosome, what has hitherto been known as a species of *Halteridium*, and, in the case of the “*Spirochæta*,” what has previously been described as a “*Hæmamæba*” or “*Leucocytozoon*.” In other words, two characteristic Hæmosporidian parasites are, respectively, only a transient phase in the life-history of a particular Hæmoflagellate!

So revolutionizing are these discoveries that, in view of the difficulty of the subject and the impossibility of following one and the same individual through its various phases, one might almost feel inclined to doubt the correctness of Schaudinn's interpretation of his observations; were it not for the fact that this author has already contributed such valuable additions to our knowledge of the complicated life-history of parasitic Protozoa. It is, therefore, casting no reflection on one who may be fittingly termed a “prince of protistologists,” to say that the corroborative evidence—in more than one direction—which is already forthcoming, is highly welcome (vide, for instance, MESNIL [234], BILLET [20], LÉGER [184 & 185], BRUMPT [48], and ROGERS [286]). In short, the whole tendency of research at present points to a very close connection between the Hæmosporidia and parasitic Flagellates.

Scarcely less important is the work of PROWAZEK (277 & 278) and of LÉGER. The former minutely describes the complicated life-history of several other parasitic Flagellates, and his memoirs are of great value to students of the group. Thanks to these contributions and that of Schaudinn, the pronounced scepticism of Klebs, Senn, and others with regard to the occurrence of a sexual process in this class, which has hitherto considerably hampered real progress, is now completely refuted, and the views of Kent and of Dallinger and Drysdale are at length vindicated.

To LÉGER are due practically all the data we possess to aid us in arriving at a correct idea of the phylogeny of the Hæmoflagellates. From his most fortunate redescription (180 & 181) of *Trypanoplasma borreli*, on the one hand, and from the instructive series of Herpetomonadine forms which he reveals (186 & 187) on the other hand, it seems abundantly clear that a heterophyletic origin must be assigned to the parasites included in the designation of "Trypanosomes."

There yet remain one or two researches on parasitic Flagellates which ought not to be passed over without mention. The Recorder refers to the interesting and particularly well-illustrated accounts by FOA (110) and GRASSI & FOA (126) of the process of division in members of the curious group of the *Trichonymphidæ*.

Although memoirs dealing with the Flagellates occupy by far the most important place in the section for Morphology and Development, there are, nevertheless, certain others to which allusion must be made. PÉNARD (260) has had an opportunity of examining *Chlamydomyxa*, and helps to clear up several disputed points, e.g., the nature of the "travelling corpuscles." Other Gymnomyxan papers are those by CALKINS (57), who produces evidence in favour of a sexual cycle in *Amæba proteus* and strongly inclines to the belief that the sexual phases are represented by "Pelomyxa"-forms, and ZÜLZER (369), who contributes a full account of *Diffugia urecolata*. In (113) FOWLER supplements his work on the Triplarian *Planktonetta* with a note on the anatomy of *Gazelletta*.

Turning to the Sporozoa, a useful comparative description of the growth and development of Gregarines up to the adult trophozoite-phase is furnished by LÜHE (209); and LÉGER & DUBOSCQ (192) bring forward additional original observations dealing with this subject. A most interesting description of the formation of gametes and conjugation in *Stylorhynchus* is given by LÉGER (188). An important Myxosporidian paper is that of STEPELL (336) on the development of the cyst and spores in *Glugea anomala*. WOODCOCK (361) has studied "diffuse infiltration" in *G. stephani*, and offers an explanation of this condition, as there seen. Welcome additions to our knowledge of the Actinomyxidæ are contributed by CAULLERY & MESNIL (64 & 65) and LÉGER (182 & 183). Finally, the occurrence of a remarkable parasite is noted by WOODCOCK (362), who has, unfortunately, been unable so far to learn much concerning its life-history and affinities.

Apart from the conscientious description of conjugation in *Paramæcium* by HAMBURGER (134), research on the Ciliates has been chiefly with respect to their minute structure. LÉGER—to whom Protozoology, this year, owes much indeed!—and DUBOSCQ (193–195), after a consideration of certain parasitic *Opalinidæ*, come to the conclusion that the *Astomata* do not represent a natural group. The numerous papers of FAURÉ have proved a veritable thorn in the flesh to the Recorder. No less than five (95, 98–101), are taken up in describing the contractile fixative apparatus of the Vorticellids, and the labour required to piece them together and obtain a definite idea of the whole is by no means slight. It is the more pity that the author did not combine these scrappy fragments into a finished memoir, since the conclusion to which he comes with regard to



the origin of the *Discotricha* distinctly merits attention. MITROPHANOW (239, 241), minutely describes the formation and structure of the trichocysts of *Paramœcium*, and thinks that they subserve an excretory purpose.

Protozoan Physiology has certainly been enriched by CALKIN'S studies on *Paramœcium*. At the close of a remarkably painstaking series of researches this writer comes to the conclusion (56) that, in the long run, conjugation is essential for the continuance of the race. From JENNING'S work (152) it would appear that, between living protoplasm and the most artful of physical imitations, there lies a gulf, to bridge which will require much more than, for instance, Mr Burke's "radiobes."

To mention *Actinosphærium* is to think of R. HERTWIG, and his investigations on the relation between cell-metabolism and functional degeneration, which have been largely worked out on this form, are fully recounted in (138). Too much importance cannot be attached, in the Recorder's opinion, to this author's highly suggestive ideas concerning the real nature of malignant tumours, in which the cells lose their "organotypic" growth and activity, and retain only that of a "cytotypic" character.

The rôle played by Protozoa in medical parasitology still gains in importance. The etiology of various Oriental maladies, such as Kala-Azar, tropical splenomegaly, Delhi sore, and bouton d'Orient, is now explained by the discovery of parasites closely allied to *Piroplasma* (vide CHRISTOPHERS (73-75), DONOVAN (83), LAVERAN & MESNIL (173), LEISHMAN (196), MESNIL, NICOLLE & REMLINGER (235), WRIGHT (367), and others). Moreover, it appears not unlikely that the once dreadful scourge of small-pox is also to be ascribed to the ravages of a minute Sporozoan parasite. CALKINS (58) gives a detailed account of the bodies known as "*Cytoryctes variolæ*," considers them as phases of a distinct organism allied to *Lymphosporidium*, and constructs a complex life-history for the parasite. This much, at any rate, may be said. In view of the fact that Calkins is a most competent protozoologist, far more weight must be attached to his research than is necessary in many cases where the Protozoan nature of cell-inclusions is confidently asserted!

For various works on Geographical Distribution the reader is referred to the papers by CASH, GILSON, GOUGH, HÄCKER, HUTTON, JENSEN, MILLETT, MONTI, NOBRE, PENARD, SIDEBOTTOM & WORTH, and on Geological Distribution to those by BAGG, BRÜCKMANN, CHAPMAN, FORNASINI, HOLLAND, JUKES-BROWNE, LEARDI, MARTELLI, MARTIN, PREVER, READE, SCHLUMBERGER, SCHUBERT, SILVESTRI and others.

The rich Gymnomyxan fauna of the Lake of Geneva has supplied PENARD with material for his paper (259) on some new Rhizopods, and also for his monographic work (262) on fresh-water Heliozoa. That there is no lack of interesting forms nearer home is shown by CASH (60). Coming to the Foraminifera, an important memoir on *Lepidocyclina* is contributed by LEMOINE & DOUVILLÉ (201). The *Orbitoideæ* have been well looked after by PREVER (272 & 274), PREVER & RZEHA (276) and SCHLUMBERGER (305), attention having been paid chiefly to the genus *Orthophragmina*. PREVER also continues (in 275) his study on the forms included in the term "*Nummulites*." MILLETT (236 & 237) at length concludes his description of Recent Malayan Foraminifera. There are several other Systematic papers on this order which should not be neglected, e.g., those of BRÜCKMANN (46), CHAPMAN (69-71), CHECCHIARISPOLI (72), and SCHLUMBERGER & CHOFFAT (306).

As a result of the German plankton and deep-sea expeditions, rather more Radiolarian memoirs than of late have to be chronicled. BORGERT (28), HÄCKER (132), and IMMERMANN (148) deal with the Tripylaria, the last-named contributing a useful account of the *Aulacanthidæ*. POPOFSKY (270) has produced a bulky work on the *Acanthometrea*. It may be very

important, but the Recorder confesses that the chief point about it which struck him is the manifest desire of the author to tack on his name (in the abbreviated form of "Pop.") to every nomenclaturic change or addition suggested. Nowhere in his description is n. g., n. sp., or the like to be found. Fortunately for the Recorder the Acantharia do not seem to have been previously honoured by Popofsky's attention, so he has felt justified in replacing "Pop." by the correct designation, so far as he was able to ascertain it from the context.

Many new Hæmogregarines have been observed, chiefly by BILLET (21-24), CASTELLANI & WILLEY (63), NICOLLE (247-249), SERGENT (314), and SOULIÉ (327); also, usually associated with new Trypanosomes, by BRUMPT & LEBAILLY (50) and LEBAILLY (179). Lastly, a full account of Trypanosomes known up to the time of writing is given by LAVERAN & MESNIL (176). This work, compiled as it is very largely from original papers by the authors, affords a good idea of the amount of research bestowed by them upon these all-important parasites.

Besides the works on Ciliates above referred to, mention may be made of FAURÉ'S paper (105) on new *Operculariæ*. The systematic list of the Infusoria is, however, much shorter than last year, while the sole entry under Tentaculifera is that of *Astrophrya*, a new genus described by AVERINTZEV (6).

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1. [ANON.] Section "Protozoa" in Intern. Cat. Scient. Lit. 1904 (ii), pp. 415-433. [See II. G. 3.]
2. —. The Sporozoa in relation to disease in man and animals. *Lancet* 1904, i, pp. 736, 889, 950, 1009, 1296, 1371, 1443.  
Abstracts of series of Lectures delivered by Prof. Minchin at University College, London.
3. —. Protozoaires. In *Suppl. to Natural. Canad.* xxxi (n. s. 11), pp. 220-222.  
Short popular account.
4. —. Ueber Trypanosomen. *Zeitschr. ang. Mikr.* x, pp. 85-95, 114-120. [See II. G. 1.]  
General review of present knowledge.
5. ARKHANDHLSKIĪ, A. D. Paleotzenoviya otlozhenia, saratovskagho povolzh'ya, i ikh'fauna. *Mater. Gheol. Rossii* xxii, i, 207 pp., 11 pls. (Resumé in French, pp. 201-203.)
6. AVERINTZEV, S. *Astrophrya arenaria*, nov. gen., nov. spec. *Zool. Anz.* xxvii, pp. 425 & 426, 1 text-fig.  
Abstract in *J. R. Micr. Soc.* 1904, p. 313.
7. —. Ueber die Theilung bei *Amæba proteus* Pall. sp. (Vorläufige Mittheilung). *T. c.* pp. 399 & 400.  
Abstract in *Bull. Inst. Pasteur* ii, p. 379.
8. —. Protistodoghicheskaya zamyetki. *Trudui St. Peterb. Obshch.* xxxiii, iv, pp. 21-41. [In Russian.]  
Concerns Foraminifera; evidently treats of the structure of their shells.

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\* An asterisk prefixed to a quotation indicates that the recorder has not seen the Journal or Work referred to.

9. BAGG, R. M. Foraminifera. Maryland geol. Survey (Miocene). Baltimore, 1904, pp. 460-483, pls. 131-133.
10. BARRATT, J. O. W. Die Reaktion des Protoplasmas in ihrem Verhältniss zur Chemotaxis. Zeitschr. allg. Physiol. iv, pp. 87-104, 1 pl.
11. ——. Die Wirkung von Säuren und Basen auf lebende Paramäcien. T. c. pp. 438-484, 12 tables.
12. \*BARROIS, C. Sur les Foraminifères des phanites carbonifères du Boulonnais. Ann. Soc. geol. Nord xxxi (1902), pp. 40-42.
13. BASTIAN, C. H. On the Origin of Flagellate Monads and of Fungus-germs from minute masses of Zoogloea. Nature lxxi, pp. 77-81, 12 text-figg.
14. ——. Studies in Heterogenesis. London (Williams & Norgate), 1903, pp. (iv+354+xxxvii), 19 pls. [Among other things, on the transformation of certain Rotifers into Infusoria!]
 

Review in Nature lxix, p. 385.
15. DE BEAUCHAMP, P. Sur la fixation à l'état d'extension des animalcules contractiles et spécialement des Vorticelles. Bull. Soc. zool. France xxix, pp. 26 & 27. [See II. G. 2.]
16. BENTLEY, C. A. Notes upon Kala-Azar and the new parasite. Brit. Med. J. 1904, ii, pp. 653-655.
17. \*———. A short note on the parasite of Kala-Azar. Indian Med. Gaz. xxxix, pp. 81 & 82, 1 fig.
18. BERESTNEFF, N. Ueber das "*Leucocytozoon*" *danilewskyi*. Arch. Protistenk. iii, pp. 376-386, pl. 15.
 

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## II. BIOLOGY.

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On the hydrostatic apparatus of the *Acanthometrea*, SCHEWIAKOFF (303).

Plastogamy in *Diffugia urceolata*; detailed account of the chromidial substance in this form, ZÜLZER (369).

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On the rôle played by Protozoa in the purification of rivers, by feeding on organic material, Bacteria, etc., WEIGELT (354).

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Relations between general metabolism and the process of division in *Stentor*, and the different liquids (solutions of salts, infusions, etc.) in which the animals were maintained, PETERS (265).

Hunger-periods associated with conjugation in *Dileptus*, HERTWIG (139).

The trichocysts of *Paramecium* function as an excretory apparatus, MITROPHANOW (239).

Investigations on *Spirostomum* lead to the conclusion that respiration goes on only in the cytoplasmic constituent of the cell, and not in the nucleus, VERWORN (351).

Adipogenic function in *Vorticella convallaria*; associated production of a pigment (lipochrome?) and abundant fat grains, and subsequent expulsion "en masse"; epidemic occurrence of this "*V. citrina*"-phase, FAURÉ (102).

### 2. Locomotion.

Remarks on the movement of Gregarines, LÜHE (209).

Locomotion in *Ocyglossa*, a new Flagellate, is principally by the con-

traction of a median, tongue-like, posterior prolongation of the body, GIARD (116).

Considerations with regard to the movement of *Trypanophis*, KEYSSELITZ (156).

### 3. Response to stimuli; effect of reagents.

Physiological experiments on *Trypanosoma brucei* and *T. equinum*; action of warmth, disinfectants, conservation-media, etc. on the parasites, JAKIMOFF (150).

Vitality of *T. granulorum* in human and other sera; destructive effect of water and other hypotonic liquids on the parasites, SABRAZÈS & MURATET (296).

Human serum has a slight action on the *T.* of horses in Gambia (*T. dimorphon*) but none on the human parasite (*T. gambiense*); arsenic acid exerts some influence on the latter, however, LAVERAN (164).

"Trypanoth" has little or no permanent effect on Trypanosomes, especially on *T. gambiense*, LAVERAN (166).

Cytoplasmic reactions of *Paramœcium* (as indicated by staining propensity) to chemotactic influences, BARRATT (10); effects of acids and bases on *P.*, id. (11).

Relation of the physical structure of the protoplasm in *Paramœcium* to the reactions of the organism towards thermal, chemical and electrical stimuli, GREELEY (127).

Effects of chemical and electrical stimuli on the myonemes of the hydrostatic apparatus in the *Acanthometrea*, SCHEWIAKOFF (303).

"Galvanotropism" (movement, or change in direction of movement, induced by electric current) and "galvanotaxis" (change of position, axial direction) in various Infusoria, STATKEWITSCH (333).

Galvanotaxis in *Spirostomum*; reactions of the Infusorian towards electric currents of different strengths, WALLENGREN (352).

Physiological effects of radium on various Protozoa (*Amœba*, *Nassula*, *Trypanosoma*), SALOMONSEN & DREYER (297).—Action of radium on *Opalina ranarum*, VENEZIANI (348).

Action of light-rays (mostly chemical) on Infusoria (*Paramœcium* and *Colpidium*), HERTEL (137).—The significance of pigment in light-perception by the Protozoan cell, HALBEN (133).

## C. BIONOMICS.

### 1. Plankton.

Protozoan plankton (mostly Peridinida) collected in the North Atlantic (57°–60°), OSTENFELD & PAULSEN (255).—Atlantic plankton, *Tripylaria*, many n. spp., BORGERT (28).—Plankton distribution in the Atlantic: of the *Aulacanthida*, IMMERMANN (148); of the *Acanthometrea*, POPOFSKY (270).

Abundant occurrence of *Noctiluca miliaris*, forming a great shoal, off the Scilly Isles, BROWNE (45).—Tay Basin, Protozoan plankton occurring, mostly Peridinida, MURRAY (245 & 246).

Dinoflagellate plankton from Iceland, PAULSEN (258).—In plankton from North Sea and Skagerack, two new marine species of Heliozoa, OSTENFELD (254).—Protozoan plankton of Danish seas, WESENBERG-LUND (356).

Plankton from Ausgraben lakelets near Plön (Dinoflagellates), LEMMERMANN (198).—Protozoan plankton from various ponds and lakelets in Thuringia, Saxony, and elsewhere, ZACHARIAS (368).—*Ceratium hirsutinella* in plankton, Alpine lakelets, BREHM & ZEDERBAUER (42).

Radiolarian plankton, Gulf of Capri, LO BIANCO (205).

Plankton from Quarnero (Hungary), chiefly Tintinnids, ENTZ (93).

Protozoan plankton from : river Seim (tributary of the Dnieper), ZYKOFF (370); Lake Selig (Gov. Twer), id. (371); the Neva and Lake Ladoga, SKORIKOW (324).

In plankton from the Volga (Woloshka), *Astrophrya*, a new Suctorian, AVERINTZEV (6).

Plankton from : Turkestan, Protozoa, listed, v. DADAY (79); River Murgab (Merv, Turkestan), Protozoa, MEISSNER (233).

Protozoan plankton collected on a voyage to and from Bombay, CLEVE (76).

In plankton, Lake Erie, a new *Chlamydomonas*, SNOW (326).

## 2. Parasitism, effects on host: relation to disease.

[For infection, transmission, see II. G. 1; and for hosts, III. C.]

Biological peculiarity of *Chlamydomyxa montana*. This organism, though itself no longer actually parasitic or saprophytic, always occurs in the putrid liquid around decaying and half-decomposed *Hypnum*-moss. PENARD (260) looks upon this habitat as reminiscent of an ancestral parasitic or saprophytic one.

Destruction of nucleus in *Amæba* by fungal parasite, GRUBER (128).

Gregarinosis:—

Relations between growing Gregarines and the intestinal host-cells, LÉGER & DUBOSCQ (192).

Relations between *Urospora lagidis*, in the trophic and sporulating phases, and the cœlomic phagocytes of its host, *Audouinia*; healthy parasites appear quite uninjured by the phagocytes, BRASIL (41).

Coccidiosis:—

Harmful effects of *Diplocystis clerci* on its host, when strongly infected, LÉGER (189).—Attachment of *Doliocystis pellucida* to its intestinal host-cell, BRASIL (41).

Haemosporidiosis:—

Karyolysis of the blood-corpuscles brought about by *Hæmogregarina viperini* and *H. sergentium*, BILLET (22) & NICOLLE (248); relation of *H. curvirostris* to the nucleus of the corpuscle, BILLET (24).

The occurrence of paranuclear corpuscles in the hæmatids of tortoises infected with *Hæmogregarines* perhaps stands in relation with the presence of these parasites, even though not all the hæmatids exhibiting this karyolysis are actually parasitized, BILLET (25).

Piroplasmosis:—

The different piroplasmoses of cattle, with figures of the parasites (unspecified), DSCHUNKOWSKY & LUHS (86).

Canine piroplasmosis, general account, GALLI-VALERIO (115).—A study of canine piroplasmosis and the tick which conveys the disease, BOWHILL & LE DOUX (38), also NUTTALL (252).—On the immunization of dogs against *Piroplasma canis*, THEILER (341).

Can *Piroplasma bigeminum* live in the human blood? Difficulty of distinguishing certain forms of this parasite from certain of those exhibited by the parasite of benign tertian malaria, LINGARD (203).

Good figures showing the relation of *Piroplasma donovani* to the leucocytes and blood-corpuscles are given by DONOVAN (83).—Minute forms of *P. d.*, free or endoglobular, in the peripheral circulation, LAVERAN & MESNIL (173).

“Leishman-Donovan” bodies (*Piroplasma donovani*) in persons suffering from tropical splenomegaly; their relation to the splenic cells and leucocytes of the host; nature of the “matrix”; comparison with other *Piroplasmata* and involution forms of Trypanosomes, CASTELLANI (61), CHRISTOPHERS



(73-75), LEISHMAN (196), MANSON & LOW (219 & 220), and MARCHAND & LEDINGHAM (223).

Kala-Azar, general account of the disease and its parasite, RUATA (293).

Delhi boil, "bouton d'Alep," and like maladies caused by a Protozoan parasite ("*Helcosoma tropicum*, WRIGHT [367]); this parasite is almost certainly a *Piroplasma*, and closely allied to *P. donovani*, MESNIL, NICOLLE & REMLINGER (235).

Account of "spotted fever" or "tick-fever" of the Rockies; a true human piroplasmosis caused by *P. hominis* n. sp., WILSON & CHOWNING (360).

**Trypanosomosis**:—(BLANCHARD (27) maintains that the term *trypanosomosis* is the correct one to use for diseases due to Trypanosomes, for the following reasons:—(a) it has priority over all others, having been proposed by BRUMPT, 1901; (b) it is pure and not a latinized hybrid like *trypanosomiasis*; (c) it agrees with the nomenclature of all other Protozoan diseases. [The Recorder lays stress on this point, which he has consistently supported.]

Sleeping-sickness and other trypanosomoses (general review), D'ESPINE & YUNG (94).—Trypanosomes and sleeping-sickness, BRODEN (43 & 44), HODGES (142), and SAMBON (298).—Sleeping sickness, its parasite and transmissive agent, STEPHENS (338).—Human trypanosomosis; general account of the parasite, its relation to others, and the course of the disease, RUATA (292).—Trypanosomoses (including sleeping-sickness) and tse-tse flies, BLANCHARD (27).

Sleeping-sickness experimentally produced in many animals (e.g. mice, rats, guinea-pigs, rabbits, dogs, monkeys); the behaviour of the trypanosomes and their effect upon the hosts agrees with the observations of Dutton & Todd on the parasite of *T.*-fever; hence one and the same Trypanosome is concerned in both cases, BRUMPT & WURTZ (51-53).—Essentially similar pathogenic behaviour of *T. gambiense* Dutton and *T. ugandense* Castellani, LAVERAN (165).—The Trypanosome of sleeping-sickness in Uganda and Congo Free State identical with *T. gambiense*, DUTTON, TODD & CHRISTY (89), also THOMAS & LINTON (343).

The trypanosomosis known as Aino, occurring in Somaliland (Ogaden) is, BRUMPT (47) thinks, probably the same as Nagana.—A trypanosomosis of Dromedaries in Algeria allied to Mbori (Timbuctoo); effects of the parasites on different animals, SERGENT (311 & 312).—Trypanosomoses in French West Africa, LAVERAN (168).—Existence of an equine trypanosomosis (probably a distinct variety) in French Guinea, id. (169).—A trypanosomosis among cattle, horses, mules, donkeys in Mauritius, EDINGTON (91).—Trypanosomosis in a rabbit, PETRIE (266).

The trypanosomes of Surra and Mbori appear to be identical and animals immunized against the one disease are immune to the other, VALLÉE & PANISSET (347).

Nagana-infection (*T. brucei*) in the guinea-pig, MARKL (225).—Nagana and *T. brucei*, full account of, SCHILLING (304).

Infection of rats and mice with *T. equiperdum* of Dourine; remarks on Algerian trypanosomoses, ROUGET (291).—The lesions of Dourine and the relation of the parasite (*T. equiperdum*) to them, LINGARD (204).

Effects of *T. dimorphon* on horses, LAVERAN & MESNIL (174).

*T. theileri* (?) in cattle in German East Africa, PANSE (257).

Immunity of *Cynocephalide* against various trypanosomoses; activity of their serum on the parasites, LAVERAN (167).

Detailed account of the relation between *Trypanosoma noctua* and the cells and tissues of its hosts, both Avian and Insectan; endoglobular phases; also for *Spirochata ziemanni*, SCHAUDINN (301).—*T. inopinatum* certainly penetrates the red blood corpuscles of the frog, becoming endo-

globular, BILLET (26).—Observations pointing to an endoglobular phase in the life-history of a Trypanosome (not unlike *Piroplasma donovani*), MOORE (243).

Myxosporidiosis:—

*Thelohania menadis* does not appear to injure to any extent the infected *Carcinus*, though the host's muscles may be infested with it, PEREZ (263).

Severe epidemics of "Drehkrankheit" (characterized by spasmodic irregular movement) in young rainbow-trout, due to *Lentospora cerebralis*; relation of the parasites to the host's tissue [see also III. c.], PLEHN (269).

Relation between the host's tissue and the parasitic invasion in the case of *Glugea stephani*; "pseudocysts" the result of a condition of diffuse infiltration, WOODCOCK (361).

Protozoa and other diseases:—

The development of the Amœba of tropical dysentery (*Entamoeba histolytica*) shews that it is distinct from *E. coli*, LESAGE (202).—*Amœba coli* and its relation to so-called tropical dysentery and hepatic abscess, VERDUN (350).—Amœbic dysentery in Ceylon, CASTELLANI (62).

Cysts of *Trichomonas intestinalis* and *Megastoma entericum* in human fœces, UCKE (346).

*Cytoryctes variolæ* certainly seems to be the cause of small-pox; relation of the parasite to the cells and nuclei of the lesions in this disease fully described, CALKINS (58).—The "vaccine" bodies are phases of an organism very closely allied to *Cytoryctes variolæ* if not identical; the difference between the effects in the two cases (small-pox and vaccinia) is apparently due to the fact that in the latter the parasite does not become intranuclear, TYZZER (345).

Inoculation of Monkeys (*Rhœsus* and *Macacus*) with small-pox virus; occurrence of different forms of the parasite (*Cytoryctes*) which are described, MAGRATH & BRINCKERHOFF (218).

Photomicrographs of the small-pox parasite, shewing its relation to the cells and nuclei, COUNCILMAN, MAGRATH & BRINCKERHOFF (78).

The supposed Protozoan parasite of vaccinia (cow-pox and horse-pox)—[most unsuitably termed "*Plasmodium*" *vaccinæ*]  
—and its relation to the malady discussed, BOSC (32 & 33).

DE KORTÉ (161) describes what he considers as the Protozoan parasite of small-pox and vaccinia, terming it "*Amœba variolæ*."

SIEGEL (318) considers the cause of vaccinia to be a peculiar spore-forming parasite of Sporozoan affinity, readily found in the kidney-tissue.

BOSC (29-31) maintains the parasitic nature of the inclusions in cancerous cells, regarding them as Protozoa. He compares these organisms [?] with the bodies he has found in "clavelée," small-pox, vaccinia, etc.

SCHUBERG (308) points out that Feinberg [Zool. Rec. 1903 (109)] has mistaken for "intestinal cysts filled with Coccidia" what are really *Cysticerci* of a tape-worm! It would follow, therefore, that much reliance cannot be placed upon the Protozoan nature of his cancer-inclusions.

The "one and only true cancer parasite" has again revealed itself, this time to SCHÜLLER (310), who regards it as a Protozoan and gives numerous unconvincing figures of it.

According to LUZZANI (214) a Protozoan parasite has been observed in a case of hydrophobia, and is considered to be the cause.

#### D. REPRODUCTION.

Comparative review of the different modes of reproduction in the Protozoa, and their classification, HARTMANN (135).

### 1. Asexual: fission, schizogony, etc.

Schizogony in *Adelea transita* n. sp., LÉGER (189).—Schizogony of *Klossiella* described and compared with that of *Caryotropha mesnili*, WOODCOCK (363).

Schizogony of: *Hæmogregarina biretorta*, NICOLLE (249); *H. mauritanica* n. sp., 8 merozoites being formed, SERGENT (314).

Meronts and merogony in *Thelohania legeri*, HESSE (141).—Schizogonous multiplication in *T. mænadis* n. sp., PEREZ (263).

Asexual multiplication (binary fission and multiple rosette-formation) in *Herpetomonas muscæ-domesticeæ*, PROWAZEK (277).—Multiplication by longitudinal fission of *H. subulata*, LÉGER (186).—Process of division described: in *Joenia annectens*, GRASSI & FOA (126); in *Trichonympha agilis*, FOA (110).—Multiplication of *Trypanosoma granulosum* by unequal division, SABRAZÈS & MURATET (295).

Fission in *Anophrys echini* n. sp., DI MAURO (231).—Division in *Discophrya* and *Opalina intestinalis*, COHN (77).

### 2. Sexual: gametes and conjugation.

On the general significance of conjugation, CALKINS (56).—Notes on conjugation ("exogamy") in certain Protozoa, HARTOG (136).

"Association" and conjugation in *Diffugia urceolata*, ZÜLZER (369).—Evidences pointing to sexual (*Pelomyxa*-) forms in the life-history of *Amœba proteus*, CALKINS (57).

Formation of gametes (sporoblasts) in *Gregarina ovata*, PAEHLER (256).—Markedly anisogamous conjugation in *Stylorhynchus*; certain very motile, spermatozoon-like, male elements are sterile and have acquired a subsidiary function, LÉGER (188).

Two types of form (micro- and megagametocytes?) and multiplication (micro- and megagamete-formation?) in *Joyeuxella*, BRASIL (41). [These two types of multiplication seem to the Recorder to possess a certain agreement with what occurs in *Schaudinnella* (Nusbaum, Zool. Rec. 1903 [282]) and suggest that the affinities of *J.* may be sought in that direction.]

Micro- and megagametocytes in *Adelea transita*, LÉGER (189); (association observed but not actual gamete-formation).—Micro- and megagametocytes and microgametes of *Angeiocystis*, a new Coccidian, described, BRASIL (40).

Distinction of male and female forms (gametocytes) in "*Leucocytozoon*" *danilewskyi*, BERESTNEFF (18).

Important account of the sexual process in certain parasitic Flagellates; autogamy (or self-fertilization) in *Trichomastix*, and heterogamy (true sexual conjugation) as well as autogamy in *Bodo*; comparison with the heterogamy of *Trichomonas*, PROWAZEK (278).—Sexual processes (fertilization, "etho-genesis" or male autogamy, and parthenogenesis) in *Herpetomonas muscæ-domesticeæ*, id. (277).

True conjugation in *Trypanosoma noctuæ* and *Spirochaeta ziemanni*, taking place in the gnat, described, SCHAUDINN (301).

Note on conjugation in *Dileptus gigas*, HERTWIG (139).—Conjugation in *Paramœcium bursaria* described, HAMBURGER (134).

### 3. Nuclear division: directive centres, etc.

Description of nuclear division in *Amœba proteus*, AVERINTZEV (7).—Nuclear changes, fragmentation, and the significance of the multinucleate condition in *Amœba proteus*, CALKINS (57).—Behaviour of the nuclei and chromidial substance during conjugation and also during encystment in *Diffugia urceolata*, ZÜLZER (369).

Nuclear changes during sporoblast-formation in *Gregarina ovata*; curious "maturation"-process, PAEHLER (256).—Nuclear changes and multiplication during sexual reproduction in *Stylorhynchus*; the nuclei are dis-

tinguishable into somatic and germinal (sexual) nuclei, the former of which take no part in gamete-formation; karyokinetic division, LÉGER (188).—Nuclear multiplication in sporulating cysts of *Urospora*, BRASIL (41).

Nuclear multiplication and behaviour of the chromatin in *Thelohania mœnudis*, PEREZ (263).

Nuclear behaviour during the various phases of the life-history of *Herpetomonas muscae-domesticee*, PROWAZEK (277).—Nuclear differentiation, reduction, and fission in *Trichomastix* and *Bodo*, PROWAZEK (278).

Nuclear complexity and differentiation in *Trypanosoma noctuæ* and *Spirochata ziemanni*; the so-called "blepharoplast" is more than a centrosome—a kinetic nucleus of equal functional importance with the larger or trophic nucleus, SCHAUDINN (301).

Nuclear changes during conjugation in *Opalina intestinalis*; comparison in this respect with other ciliates, COHN (77).—Nuclear multiplication in *O. saturnalis*, LÉGER & DUBOSCQ (194).—Nuclear maturation or purification during division in *Opercularia stenostoma* associated with "recuperation," FAURÉ (103).

## E. DEVELOPMENT; LIFE-CYCLE.

Encystment, and formation of little flagellate embryos, in *Chlamydomyxa montana*, PENARD (260).

Encystment in *Diffugia urceolata* follows after conjugation; it is not merely protective or for resting-purposes, but plays an important part in further development, ZÜLZER (369).

Development and growth of various intestinal Gregarines of Tracheates; different types of development, LÉGER & DUBOSCQ (192).—Comprehensive comparative account of the growth and development of Gregarines from the sporozoite-stage, LÜHE (209).

Cysts and spores of *Diplocystis clerici* n. sp., LÉGER (189).—Development and growth of the young individuals in *Gregarina ovata* from sporozoites, PAEHLER (256).—Spores and sporozoites of *Urospora lagidis*, BRASIL (41).

Development of oocysts and spores in *Adelea transita*, LÉGER (189).—Oocysts, spores, and sporozoites of *Angeiocystis* n. g., BRASIL (40).

Ookinetes of *Hemogregarina bagensis* observed in *Placobdella catenigera* with two nuclear bodies, one much resembling the "centrosome" of a Trypanosome, BRUMPT (48).

Development of the different forms of *Trypanosoma noctuæ* and *Spirochata ziemanni* from different types of ookinete; complex life-history, a true Hæmosporidian (*Halteridium*) phase alternating with the Trypanosome phase, SCHAUDINN (301).

Further evolution of *Trypanosoma barbatulæ* in *Piscicola*, along the lines revealed by Schaudinn, and, similarly, of *Trypanoplasma varium* in *Hemiclepsis*, described by LÉGER (184 & 185).

Evidence pointing to ontogenetic relationship between *T. inopinatum* and a *Drepanidium* of the green frog, which probably both represent phases in one complete life-cycle; forms transitional between "sporozoites" [probably merozoites] and *Spirochata*-like Trypanosomes, BILLET (26).—Important experiments tending to prove that the *Trypanosoma*, in a leech, gives rise to the *Drepanidium*, in the frog, id. (20).

Development of a flagellate (Trypanosome) phase in the splenic parasites of Kala-azar (*Piroplasma donovani*), ROGERS (286).

Notes on pansporoblasts and spores of various *Microsporidia*, LUTZ & SPLENDORE (213).—Development and growth of the cyst, "sporonts" [pansporoblasts] and spores in *Glugea anomala*, STEPELL (336).—Cysts and spores of *G. stephani*, WOODCOCK (361).—Sporonts and development of spores in *Thelohania legeri*, HESSE (141).

Formation and development of the cyst, spores, and sporozoites in



*Sphaeractinomyxon* n. g., CAULLERY & MESNIL (64); in *Triactinomyxon* LÉGER (182).

Detailed account of the complicated life-history of *Cytoryctes variolæ*, CALKINS (58).

Cyst-formation, development, and life-history of *Herpetomonas muscæ-domestica*, PROWAZEK (277).—Life-cycle of *Trichomastix* and *Bodo lacertæ* (particularly complex in this form) described, id. (278).

Varieties of encystment in the *Opalina*, LÉGER & DUBOSCQ (193 & 195).

## F. GROUP RELATIONSHIPS; CLASSIFICATORY CHANGES.

*Chlamydomyxa* is to be placed in the Mycetozoa, being probably allied to the *Mycetozoidæ* (*Euplasmoidæ*), PENARD (260).

POPOFSKY (270) considerably amplifies the classification of the *Acanthometrea*, introducing especially several new families and sub-genera.

Relationship of the Actinomyxidia to the Myxosporidia, CAULLERY & MESNIL (65) & LÉGER (183).

CALKINS (58) creates the family *Cytoryctidæ* for *Cytoryctes*, *Caryoryctes* n. g., and *Lymphosporidium*, which he places in the sub-order *Microsporidia*, though with reservations. [The Recorder fails to see much resemblance between these forms and a typical Microsporidian. Considering, for one thing, the very different character of the nucleus (of the "distributed" type in his family), it seems much better to leave these forms in the Serosporidia, where, indeed, *Lymphosporidium* has been hitherto placed.]

On the affinities of *Trypanoplasma* and *Trypanosoma* and the derivation of the latter, LÉGER (181).

Affinities of Trypanosomes with the flagellum morphologically anterior (type *T. noctuæ*, after Schaudinn) with Herpetomonads, LÉGER (187).

The *Astomata* so-called do not represent a natural group; the *Opalina* are very different from the other members and should be placed in a distinct family, LÉGER & DUBOSCQ (193).

Basing his views on a comparative study of the fixative apparatus of *Vorticellidæ*, FAURÉ (100) derives the Discotricha (or Peritricha) directly from the Holotricha, through forms like *Scyphidia* and *Hemispeira*, which are to be regarded as primitive. This has more in its favour than a Hypotrichous origin through the *Urceolaridæ*.

## G. MISCELLANEA.

### 1. Cultivation and infection.

Artificial cultivation of the Amœba of tropical dysentery, LESAGE (202).

On the artificial cultivation of Trypanosomes, ANON. (4); on the artificial cultivation of *Trypanosoma brucei*, NOVY & McNEAL (251).

Culture media for Infusoria, STATKEWITSCH (332).

*Piroplasma hominis* is conveyed by a tick, *Dermacentor reticulatus*, WILSON & CHOWNING (360).

Transmission of *Trypanosoma noctuæ* and *Spirochæta ziemanni* by the gnat *Culex*, which is a true alternate host; hereditary infection of the same, SCHAUDINN (301).

After his investigations on leeches as the alternate hosts of piscine Trypanosomes and Hæmogregarines, BRUMPT (49) is fully convinced that the *Glossinæ* are true alternate hosts of mammalian Trypanosomes.

White rats found naturally infected with *T. lewisi*; infection undoubtedly conveyed by fleas or lice, LAVERAN & MESNIL (175).

Probably a mosquito transmits *Trypanosoma equinum* from the native host (*Hydrochærus*) to domestic animals, at the hour of drinking, ELMASSIAN & MIGONE (92).

In *Hemiclepsis marginata* infected with Trypanosomes, the ova and embryos are not parasitized. Hence BRUMPT (48) concludes that hereditary infection does not occur in this case.

Hereditary (ovarian) infection of the common house-fly with *Herpetomonas muscae-domestice*, PROWAZEK (277).

## 2. Technique.

Description of Steenstrup's apparatus for collecting plankton, OSTENFELD & PAULSEN (255).

On a method of obtaining *Amæbæ* for the laboratory, WEYSSE (358).

On the preparation of Foraminifera, MARPMANN (226).—On a method of taking internal casts of Foraminifera, QUILTER (280).

Effect of media of different consistency in hindering and limiting the movement of Infusoria, STATKEWITSCH (332).

On a method of fixing Infusoria (*Vorticella*, *Carchesium*) nicely expanded, DE BEAUCHAMP (15).

A method of demonstrating the external discharge of the contractile vacuole in *Paramæcium* and other Infusorians, JENNINGS (151).

On the "neutrophile" staining character of Protozoan nuclei, MARINO (224).

Laveran's Borrel-blue method used as a stain for dysenteric *Amæbæ*, VERDUN (349).—Simplification and improvement of his methylene-blue-cosin stain for Hæmatozoa, GIEMSA (117).—On a modification of Romanowsky's stain which will stain Trypanosomes, etc., in sections, LEISHMAN (197).

## 3. Bibliography, etc.

Protozoan bibliography for 1903, with abstracts of several papers, MAYER (232).

List of Protozoan literature for 1904 (1st part), SCHAUDINN (302).

Protozoan bibliography for 1901, ANON. (1).

Useful bibliography of the Gregarines, LÜHE (209).

Changes in nomenclature for the different types of Protozoan reproduction suggested, HARTMANN (135).

ROSS & BOYCE (290) maintain that Forde and Dutton first discovered the human Trypanosome.

# III. DISTRIBUTION.

## A. GEOGRAPHICAL.

Distribution (geographical and bathymetrical) of the *Tripylaria* found by the German Deep-Sea Expedition ("Valdivia"), HÄCKER (132).

**Europe**:—England (Cheshire and Essex), new Rhizopods, CASH (60).

Plymouth Sound and neighbourhood, list of Foraminifera occurring in, WORTH (366).

Lough Larne district, Foraminifera from, including *Bulima elongata* new to British seas, GOUGH (124).

Coast of Antrim, off Rathlin Island, an unusually large specimen of *Astrorhiza*, WELCH (355).

Belgian coast, Foraminifera, GILSON (118).

Ambleteuse (Pas-de-Calais), from diatomaceous sand, *Ocyglossa velox*, a new Flagellate, GIARD (116).

Lagos, and Southern Portugal, marine Foraminifera from, NOBRE (250).

Lake of Geneva and neighbourhood, new Rhizopods, PENARD (259); Heliozoa, id. (262).

Various Italian Alpine lakelets, Protozoa from, MONTI (242).  
Coast around Delos (Grecian Archipelago), Foraminifera, SIDEBOTTOM (317).

**Asia**:—Malay Archipelago, Foraminifera, MILLETT (236 & 237).

Seas around Japan, list of *Ceratia* from, OKAMURA & NISHIKAWA (253).

**Australasia**:—Australia, Foraminifera from, JENSEN (153).

New Zealand, complete list of Protozoan fauna of, HUTTON (147).

**America**:—Gulf of Mexico, Biological Station, Protozoan fauna from neighbourhood of, SMITH (325).

## B. GEOLOGICAL.

**Quaternary**:—Post-glacial beds, Altcar, Lancs., Foraminifera, READE (282).

Glacial sands, Malone (Belfast), Foraminifera from, GOUGH (125).

**Tertiary**:—Miocene, Italy, distribution of *Textularidæ* in, FORNASINI (112).

Miocene, Piedmont, new Foraminifera, SILVESTRI (321).

Miocene, Maryland, Foraminifera, BAGG (9); Radiolaria, MARTIN (228).

Miocene (?), Andalusia (Guadalquivir), Foraminifera (*Lepidocyclina* and *Discospirina*), DOUVILLÉ (84).

Tertiary (Miocene?) Wels, Austria, Foraminifera, SCHUBERT (309).

Upper Eocene and Oligocene, Brown's Creek, Victoria, Foraminifera, CHAPMAN (71).

Eocene, Maritime Alps and Pyrenees, *Orbitoidæ*, many n. spp., SCHLUMBERGER (305).

Eocene, S. Genesisio (Turin), Foraminifera, LEARDI (177 & 178).

Eocene, Mt. Judica and district of Catenanuova (Catania), Foraminifera, CHECCHIA-RISPOLI (72).

Middle Eocene, Dardanelles, *Nummulites* from, HOLLAND (145).

Eocene (*Nummulites*-chalk), Austria, various *Nummulitidæ* and *Orbitoidæ*, PREVER & RZEHAK (276).

Eocene ("Flysch"), Montenegro, Foraminifera, mostly *Nummulitidæ*, MARTELLI (227).

Tertiary, table of comparative distribution of the chief forms of *Nummulites* sens. lat. in, PREVER (275).

Tertiary, Valley of the Guadalquivir, *Nummulitidæ*, CALDERON (55).

Early Tertiary limestones, Batjan and Obi (Malay Archipelago), occurrence of Foraminifera, MARTIN (229).

Tertiary, Saratow (region of Volga), *Nodosaria raphanistrum*, ARKHANGELSKII (5).

**Secondary**:—Cretaceous to Miocene, Galicia, Foraminifera, listed, FRIEDBERG (114).

Upper Cretaceous, England, Foraminifera, JUKES-BROWNE (154).

Cretaceous, Eastern Bohemia, Foraminifera, JAHN (149).

Cretaceous, Bisbee, Arizona, *Orbitolina texana*, STANTON (331).

Cretaceous, Pondoland, South Africa, Foraminifera, CHAPMAN (69).

Lower Cretaceous, Spain, new *Orbitoides* and *Orthophragminæ*, PREVER (272).

Jurassic (lower Oolite), W. Australia, Foraminifera, CHAPMAN (70).

Jurassic, Memel (Königsberg), Foraminifera, BRÜCKMANN (46).

**Primary**:—Coal measures, Mississippi Valley, *Triticites*, a new Foraminiferan, GIRTY (120).

Coal-measures, in the pollen chambers of *Stephanospermum*, Infusoria allied to *Cinetoconia*, RENAULT (284).

Carboniferous limestone, Bisbee, Arizona, *Fusulina cylindrica*, GIRTY (121).

Carboniferous, Colorado, *Fusulina cylindrica*, GIRTY (122).

Permo-Carboniferous, Kansas, Foraminifera, SPANDEL (329).

### C. PARASITIC (including commensalism).

**Algae**:—In the cells of *Valonia* (one of the Siphonæ), *Nassula* sp., KÜSTER (162).

**Protozoa**:—In *Amœba viridis*, nucleus, a Fungus, GRUBER (128).

In *Paramœcium caudatum*, meganucleus, *Caryoryctes cytoryctoides* n. g., n. sp., CALKINS (58).

**Echinodermata**:—In *Cucumaria pentactes* and *C. planci*, respiratory trees and celome, *Cystobia minchinii* n. sp., WOODCOCK (364).

In *Sphærechinus granularis* and *Strongylocentrotus lividus*, intestine, *Anophrys echini* n. sp., DI MAURO (231).

**Chaetopoda**:—In *Audouinia tentaculata*, "cardiac body," *Angeiocystis audouinii* n. g., n. sp., BRASIL (40); in *A. t.*, intestine, *Anoplophrya brasili* n. sp., LÉGER & DUBOSCQ (193).

In marine *Tubificide* (*Clitellio arenarius* and *Hemitubifex benedii*), intestine, *Spheractinomyxon stolci* n. g., n. sp., CAULLERY & MESNIL (64).

In *Tubifex tubifex*, chloragogenous cells, a Sporozoan unidentified (either a Coccidian or a Gregarine), LÉGER (183).

**Hirudinea**:—In digestive tube of various Hirudinea parasitic on fishes (*Placobdella soleæ*, *P. scorpionii*, *Branchellion torpedinis*, *Trachelobdella lubrica*), bodies very like ookinetes of *Hæmogregarines*, BRUMPT (48).

Ectoparasitic on *Clepsine bioculata*, *Opercularia clepsinis* n. sp., POPOV (271).

In *Helobdella algira*, digestive tube, *T. inopinatum*, BILLET (20).

In *Hemiclepsis marginata*, digestive tube, *Trypanoplasma varium* n. sp., LÉGER (185); in *H. m.* (ectoparasitic on fish), digestive tube, small, active Trypanosomes, BRUMPT (48).

In *Placobdella catenigera*, digestive tube, *Hæmogregarina bagensis*, BRUMPT (48).

In *Piscicola* sp., digestive tube, *Trypanosoma barbatulæ* n. sp., LÉGER (184).

**Crustacea**:—In *Carcinus mœnas*, musculature, *Thelohania mœnadis* n. sp., PEREZ (263).

**Myriapoda**:—In *Chordeuma sylvestre*, intestine, *Stenophora chordeumæ* n. sp., LÉGER & DUBOSCQ (192).

In *Craspedosoma rawlinsonii simile*, intestine, *Stenophora aculeata* n. sp., LÉGER & DUBOSCQ (192).

In intestine of *Julus albipes*, *J. londinensis*, *Schizophyllum mediterraneum* and *S. sabulosum*, *Stenophora juli*, LÉGER & DUBOSCQ (192).

In *Lysiopetalum fetidissimum*, intestine, *Stenophora silene* n. sp., LÉGER & DUBOSCQ (192).

In *Pachyjulus varius*, intestine, *Stenophora producta* n. sp., LÉGER & DUBOSCQ (192).

**Insecta**:—In the following Lepidoptera, new *Glugeidæ*, viz.: *Halesidotis* sp.,—*Glugea halesidotis*, *Cœculia* sp.,—*G. cœculia*, *Hydria* sp.—*G. hydria*, *Heliotis armigera*—*G. heliotidis*, *Micrattacus nana*—*G. micrattaci*, LUTZ & SPLENDRE (213).

In *Anopheles maculipennis* (larvæ), fat bodies only, *Thelohania legeri* n. sp., HESSE (140).



In *Embia solieri*, intestine, *Gregarina marteli* n. sp., body cavity, *Diplocystis clerici* n. sp., and *Adelea transita* n. sp., LÉGER (190 & 189).

In *Olocrates gibbus*, intestine, *Stylorhynchus oblongatus*, LÉGER (188).

In *Periplaneta orientalis*, cœlome, *Diplocystis schneideri*, WOODCOCK (364).

In *Sarcophaga hæmorrhoidalis*, digestive tube, *Herpetomonas sarcophagæ* n. sp., PROWAZEK (277).

In *Scaurus tristis*, intestine, *Stylorhynchus longicollis*, LÉGER (188).

In *Tabanus glaucopis* (probably also in *Hæmatopota italica*), digestive tube, *Herpetomonas subulata* n. sp., LÉGER (186).

**Pisces:**—In blood of marine Teleosteans, new Hæmatozoa, as follows: *Platessa vulgaris*—*Trypanosoma platessæ* and *Hæmogregarina p.*, *Flesus vulgaris*—*T. flesi* and *H. f.*, *Platophrys laterna*—*T. laternæ* and *H. l.*, LEBAILLY (179); also in *Blennius pholis*—*T. delagei*, *Callionymus dracunculus*—*T. callionymi*, *H. c.* and *H. quadrigemina*, *Cottus bubalis*—*T. cotti* and *H. c.*, *Gobius niger*—*T. gobii*, *H. g.* and *H. blanchardi*, *Limanda platesoides*—*T. limandæ*, BRUMPT & LEBAILLY (50).

In *Box boops*, rectum, *Opalina saturnalis* n. sp., LÉGER & DUBOSQ (193).

In blood of: bream, *Trypanosoma abramis* n. sp.; carp, *T. danilewskyi* n. sp.; *Tinca tinca*, *T. tincæ* n. sp., LAVERAN & MESNIL (176).

In carp, blood, *Trypanosoma danilewskyi*, LAVERAN (172).

In *Cobitis barbatula*, blood, *Trypanosoma barbatulæ* n. sp., and *Trypanoplasma varium* n. sp., LÉGER (184 & 185).

In *Phoxinus lævis* (minnow), blood, *Trypanoplasma borreli*, LÉGER (180)

In plaice and flounders, lymph channels (dermal and mesenteric) *Lymphocystis johnstonei* n. g., n. sp., WOODCOCK (362).

In *Pleuronectes platessa*, gut-wall, *Glugea stephani*; otic capsule, *Sphærospora platessæ* n. sp., WOODCOCK (361).

In *Pseudopleuronectes americanus* (winter-flounder), gut-wall, *Glugea stephani*, WOODCOCK (361).

In *Rhombus triacanthus* (butter-fish), liver, *Pleistophora* sp., WOODCOCK (361).

In rainbow-trout, skeletal and connective tissue, principally of the head region (auditory organ), but not the brain itself, *Lentospora* (nom. nov.) *cerebralis*, PLEHN (269).

**Amphibia:**—In *Rana esculenta*, blood, *Trypanosoma inopinatum* n. sp., SERGENT (313).

In the blood of a frog (undetermined), *Trypanosoma nelspruitense* n. sp., LAVERAN (171).

**Reptilia:**—In *Bufo mauritanicus*, blood, *Hæmogregarina tunisiensis* n. sp., NICOLLE (247).

In *Emys leprosa*, blood, *Hæmogregarina bagensis* n. sp., DUCLOUX (88).

In *Gongylus ocellatus*, blood, *H. sergentium* n. sp., NICOLLE (248).

In *Hemidactylus leschenaultii* (a gecko), blood, *Hæmocystidium simondi* n. g., n. sp., CASTELLANI & WILLEY (63).

In *Lacerta muralis*, cloaca and rectum, *Trichomonas lacertæ* n. sp., PROWAZEK (278); in *L. ocellata*, blood, *Hæmogregarina curvirostris* n. sp., BILLET (24), and *H. biretorta* n. sp., NICOLLE (249).

In *Nicoria trijuga* (a tortoise), blood, *Hæmogregarina nicoriæ* n. sp., CASTELLANI & WILLEY (63).

In *Psammodromus algirus*, blood, *H. psammodromi* n. sp., SOULIÉ (327).

In *Testudo mauritanica*, blood, *H. mauritanica* n. sp., SERGENT (314).

In *Tropidonotus piscator*, blood, *H. mirabilis* n. sp., CASTELLANI & WILLEY (63).

In *Tropidonotus viperinus*, blood, *H. viperini* n. sp., BILLET (22).

**Aves:**—Occurrence of "*Hæmamæbæ*" and Trypanosomes in the blood of various Algerian birds, and their relative abundance, SERGENT (315).

In *Padda oryzivora*, blood, *Trypanosoma paddæ* n. sp., LAVERAN & MESNIL (176).

In *Scops bakkamæna* (an owl), blood, *Halteridium danilewskyi*, CASTELLANI & WILLEY (63).

**Mammalia**:—In *Mus musculus*, intestine, *Dicercomonas muris* and *D. intestinalis*, FOA (109).

In white rats, blood, *Trypanosoma lewisi*, LAVERAN & MESNIL (175).

In the rat, intestine, *Octomitus intestinalis* n. sp., PROWAZEK (278).

In a rabbit, blood, a Trypanosome, PETRIE (266).

In man, blood (free and endoglobular), *Piroplasma hominis* n. sp., WILSON & CHOWNING (360); (probably *Spermophilus columbianus*, in whose blood the parasites also occur, is the "natural" vertebrate host).

In buccal cavity of man, in relation with the teeth (caries, cement), *Entamæba buccalis* n. sp., PROWAZEK (279).

#### IV. SYSTEMATIC.

[Note. Only new forms, forms whose occurrence is of special interest, and forms described and figured are mentioned specifically.]

##### A. PROTOZOA IN GENERAL.

[For lists of Protozoa from various localities, see under Plankton (II. c. 1) and Distribution (III. A.).]

Protozoa, their rôle in purifying rivers, WEIGELT (354) pp. 507-514, with figg. 57-77 illustrative of different forms.

##### B. GYMNOMYXA.

###### 1. MYCETOZOA.

###### (a) Protomyxidea:—

*Biomyxa vagans*, note on occurrence, SMITH (325) p. 48.

*Vampyrella flabellata* n. sp., occurrence and description, CASH (60) p. 224, pl. xxvi, figg. 5 & 6.

###### (b) Mycetozoidea:—

Allied to Mycetozoidea.

*Chlamydomyxa montana*, general account of, PENARD (260) pp. 296-334, 19 text-figg.

###### 2. RHIZOPODA.

###### (a) Lobosa:—

*Amœba coli*, of so-called tropical dysentery, specific characters described, VERDUN (350) pp. 184 & 185; *A. dumetosa* n. sp., p. 392, 6 text-figg., *A. pulverulenta* n. sp., p. 395, 4 text-figg., occurrence and diagnoses, PENARD (259); *A. pilosa* n. sp., occurrence and description, CASH (60) p. 219, pl. xxvi, fig. 8; *A. proteus*, evidences of a sexual cycle in the life-history of, CALKINS (57) pp. 1-16, 3 pls., 1 text-fig.; *A. p.*, division, especially of the nucleus, described, AVERINTZEV (7) pp. 399 & 400; *A. terricola*, discharge of the contractile vacuole in, described, PENARD (261) pp. 659-662, 2 text-figg.; *A. viridis*, notes on, and nuclear infection of, by a Fungal parasite, GRUBER (128) pp. 67-76, pl. vii.

*Cochliopodium ambiguum* n. sp., p. 405, 4 text-figg., *C. spumosum* n. sp., p. 401, 5 text-figg., occurrence and diagnoses, PENARD (259).

- Diffugia minutissima* n. sp. occurrence and diagnosis, PENARD (259) p. 410, 2 text-figg.; *D. urceolata*, full account of, with special reference to the chromidial substance, conjugation, and the nature of encystment, ZÜTZER (369) pp. 240-295, pls. x-xii, 2 text-figg.
- Diffugiella* n. g. diagnosed, p. 224, *D. apiculata* n. sp., occurrence and description, CASH (60) p. 225, pl. xxvi, fig. 7.
- Entamæba buccalis* n. sp., from buccal cavity of man, described, PROWAZEK (279) pp. 42-44; *E. histolytica* (of tropical dysentery) shewn by its development to be quite distinct from *E. coli*, LESAGE (202) pp. 1237-1239.
- Gringia filiformis*, note on, SMITH (325) p. 47.
- Pelomyxa fragilis* n. sp., occurrence and diagnosis, PENARD (259) p. 397, 4 text-figg.
- Penardia* n. g. diagnosed, p. 223, *P. mutabilis* n. sp., occurrence and description, CASH (60) p. 223, pl. xxvi, figg. 1 & 2.
- Pseudochlamys arcelloides* n. sp., occurrence and diagnosis, PENARD (259) p. 408, 4 text-figg.
- Pseudodiffugia virescens* n. sp., occurrence and diagnosis, PENARD (259) p. 421, 2 text-figg.

## (b) Foraminifera:—

Foraminifera, structural characters of the shell of floating forms; their adaptation to this mode of life, KEMNA (155) pp. cix-cxxvii.

Foraminifera from:—Belgian coast, GILSON (118) p. 33; Lough Larne district, with mention of less common forms, GOUGH (124); Australia, listed, JENSEN (153); Malay Archipelago, occurrence and notes on, MILLETT (236 & 237); Lagos and Southern Portugal, NOBRE (250), p. 153; coast of the Island of Delos (Grecian Archipelago), SIDEBOTTOM (317); Plymouth Sound and neighbourhood, listed, WORTH (366) pp. 174-185.

†Foraminifera, mostly lists, from:—Tertiary, Valley of the Guadalquivir (*Nummulitidae*), CALDERON (55); Eocene, Mount Judica and district of Catenanuova (Catania), described, CHECCHIA-RISPOLI (72); Miocene (?), Andalusia, occurrence (*Lepidocyclina* and *Discospirina*), DOUVILLÉ (84); Cretaceous to Miocene, Galicia, FRIEDBERG (114); Glacial sands, Malone (Belfast), GOUGH (125) p. 258; Cretaceous, Eastern Bohemia, JAHN (149) p. 89; Upper Chalk, England, including several unnamed n. spp., JUKES-BROWNE (154) pp. 303-5, 308, 316, 318, 323, 324, 328-337, 340, 343, 347-353, 366, 371-375 & 510-519; Eocene, near Turin, notes on, LEARDI (177); Eocene ("Flysch"), Montenegro, mostly *Nummulitidae*, MARTELLI (227); early Tertiary limestones, Batjan and Obi (Malay peninsula), occurrence, MARTIN (229); Eocene, Austria, *Nummulitidae* and *Orbitoidæ*, PREVER & RZEHAKE (276); Post-glacial beds, Altcar, Lancs., READE (282) pp. 361-368; Tertiary (Miocene?), Wels, Austria, notes on, SCHUBERT (309).

†*Ammodiscus concavus* n. sp., Permo-Carboniferous, Kansas, diagnosed, SPANDEL (329), p. 179, fig. 1; *A. incertus* var. *macilentata* n. var., occurrence and diagnosis, CHAPMAN (71) p. 228, pl. xxii, fig. 5; *A. nidiformis* n. sp., Jurassic, Memel, described, BRÜCKMANN (46) p. 29, pl. iii, figg. 22 & 23.

†*Anomalina grosserugosa*, Miocene, Maryland, described, BAGG (9) p. 466, pl. cxxxi, fig. 11.

*Articulina lineata*, p. 17, pl. v, fig. 1, *A. sagra*, p. 17, pl. iv, figg. 18-20, text-fig. 6, *A. sulcata*, p. 16, pl. iv, figg. 16 & 17, text-fig. 5, notes on, SIDEBOTTOM (317).

†*Assilina depressa*, p. 397, pl. xiv, fig. 9, *A. discoidalis* varr., p. 396, pl. xiv, fig. 8, *A. nitida*, p. 397, pl. xiv, fig. 11, *A. radiolata*, p. 397, pl. xiv, fig. 12, *A. undata*, p. 397, pl. xiv, fig. 10, forms originally described by

D'Orbigny in the "Prodrome," notes on, FORNASINI (111), figures taken from the "Planches inédites"; *A. leymeriei*, p. 194, pl. i, figg. 9-17, *A. placentula*, p. 193, pl. i, figg. 1-8, Eocene, Austria, described, PREVER & RZEHAK (276); *A. spira* (A-form), occurrence and note on, CHECCHIA-RISPOLI (72) p. 53, pl. ii, fig. 3.

*Astrorhiza* sp., occurrence of an unusually large specimen off Rathlin Island (Antrim), WELCH (355) p. 27.

†*Baculogypsina*, remarks on the genus, p. 117, *B. sphaerulata*, fig. 14, *B.* sp., figg. 12 & 13, occurrence, PREVER (274); *B. sphaerulata* (Pkr. & J.), Eocene, S. Genesio, described, LEARDI (178), p. 185, pl. v, figg. 6-14.

†*Bathysiphon filiformis*, p. 412, pl. xix, fig. 13, *B. taurinensis*, p. 412, pl. xix, figg. 10-12, Tertiary, Wels, Austria, notes on, SCHUBERT (309).

†*Bigenerina agglutinans*, Jurassic, Memel, described, BRÜCKMANN (46) p. 29, pl. iv, fig. 25; *B. eximia*, Perino-Carboniferous, Kansas, note on, SPANDEL (329) p. 181, fig. 2; *B. robusta*, Tertiary, Austria, note on, SCHUBERT (309) p. 415, pl. xix, fig. 9.

*Bilocolina elongata* d'Orb., note on, SIDEBOTTOM (317) p. 3, pl. ii, fig. 8; *B. sphaera*, in plankton, Capri, Lo BIANCO (205) p. 62, pl. xli, fig. 179.

†*Bolivina beyrichii* var. *alata*, Miocene, Maryland, described, BAGG (9) p. 473, pl. cxxxii, fig. 14.

†*Brugueria (Camerina) laevigata*, Eocene, Austria, note on, PREVER & RZEHAK (276) p. 197, pl. ii, fig. 35; *B. libyca* n. sp., diagnosis and synonymy, PREVER (273) p. 32.

*Bulima elongata*, occurrence in British seas (Lough Larne), GOUGH (124) p. 37.

†*Bulimina affinis* var. *tenuissimestriata* n. var., p. 416, pl. xix, fig. 5, *B. elegans*, var. *gibba* n. var., p. 416, pl. xix, fig. 6, *B. rotula* n. sp., p. 416, pl. xix, fig. 7, Tertiary, Austria, diagnosed, SCHUBERT (309); *B. gregorii* n. sp., Oolite, W. Australia, diagnosed, CHAPMAN (70) p. 187, pl. xxii, fig. 3; *B. trigonula* nom. nov., var. *inornata* n. var., Cretaceous, Pondoland, diagnosed, id. (69) p. 224, pl. xxix, fig. 3.

†*Calcarina tetraëdra*, occurrence and remarks on, CHECCHIA-RISPOLI (72) p. 31, pl. ii, fig. 12.

†*Camerina laevigata*, p. 34, *C. italica* (A-form), p. 37, pl. ii, figg. 28 & 29, occurrence and remarks on, CHECCHIA-RISPOLI (72).

*Carpenteria proteiformis* Goës, note on, MILLETT (236) p. 496, pl. x, figg. 1 & 2.

†*Chapmania aegyptiensis*, occurrence in Tuscany (Cretaceous) and note on, SILVESTRI (323) pp. 117-119, 3 text-figg.

†*Conulites aegyptiensis* Chapman, Eocene, S. Genesio, described, LEARDI (178) p. 182, pl. v, figg. 1-4.

†*Cristellaria baltica* n. sp., p. 13, pl. ii, fig. 13, *C. bronni*, p. 17, pl. ii, figg. 5-12, *C. cornucopiae*, p. 17, pl. ii, figg. 17-19, *C. flagellum*, p. 14, pl. ii, fig. 14, *C. harpa*, p. 18, pl. ii, figg. 20-22, *C. hauerina*, p. 19, pl. ii, fig. 25, *C. lithuanica* n. sp., p. 15, pl. ii, fig. 15, *C. manubrium*, p. 19, pl. ii, figg. 23 & 24, *C. mitellata* n. sp., p. 22, pl. ii, figg. 26 & 27, *C. rotulata*, p. 14, pl. ii, figg. 1-4, pl. iii, figg. 1-5, *C. virgata* n. sp., p. 16, pl. ii, fig. 16, Jurassic, Memel, described, BRÜCKMANN (46); *C. colligata* n. sp., p. 20, pl. iii, figg. 6 & 7, *C. flexuosa* n. sp., p. 20, pl. iii, fig. 8, *C. italica*, p. 21, pl. iii, figg. 10-12, *C. mamilligera*, p. 16, pl. iii, fig. 17, *C. osnabrugensis*, p. 15, pl. iii, figg. 14-16, *C. reniformis*, p. 21, pl. iii, fig. 13, *C. subangulata*, p. 22, pl. iii, fig. 9, Jurassic, Memel, described, id. (46); *C. costata* var. *compressa* n. var., p. 194, pl. xxii, fig. 14, *C. c.* var. *seminuda* n. var., p. 195, pl. xxii, fig. 15, *C. daintreei* n. sp., p. 194, pl. xxii, fig. 13, *C. decipiens*, p. 193, pl. xxii, fig. 12, *C. limata*, p. 195, pl. xxii, fig. 16, *C. prominula*, p. 193, pl. xxii, fig. 11, *C. rotulata*, p. 192, pl. xxii, fig. 9, *C. subalata*, p. 193, pl. xxii, fig. 10,



- Oolite, W. Australia, remarks on, CHAPMAN (70); *C. cultrata*, p. 474, pl. cxxxii, fig. 15, *C. wetherellii* p. 475, pl. cxxxii, fig. 16, Miocene, Maryland, described, BAGG (9); *C. josephina* var. *umbonata* n. var., Tertiary, Austria, diagnosed, SCHUBERT (309) p. 418, pl. xix, fig. 4; *C. subalata*, Cretaceous, note on, CHAPMAN (69) p. 227, pl. xxix, fig. 10; *C. n. sp.*, Eocene, Turin, diagnosed, LEARDI (177) p. 163.
- Cyclammina cancellata*, microspheric form of (recent and fossil), described, SILVESTRI (320) pp. 180-185, 4 text-figg.
- †*C. complanata* n. sp., p. 228, pl. xxii, fig. 7, *C. paupera* n. sp., p. 229, pl. xxii, fig. 6, Oligocene, Victoria, diagnosed, CHAPMAN (71); *C. gracilis*, Tertiary, Austria, notes on, SCHUBERT (309) p. 414, pl. xix, figg. 1-3.
- †*Dentalina bradyi* n. sp., Permo-Carboniferous, KANSAS, diagnosed, SPANDEL (329) p. 190, fig. 9; *D. communis*, p. 29, pl. iii, figg. 30, 32 & 33, *D. punginculus*, p. 28, pl. iii, figg. 29 & 31, Jurassic, Memel, BRÜCKMANN (46).
- †*Dicyclina schlumbergeri*, Cretaceous, Berre, note on, SCHLUMBERGER & CHOFFAT (306) p. 362, 2 text-figg.
- †*Discorbina orbicularis*, Miocene, Maryland, described, BAGG (9) p. 463, pl. cxxxi, fig. 5; *D. rosacea*, Oolite, W. Australia, note on, CHAPMAN (70) p. 198, pl. xxii, fig. 23.
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- Ellipsopleurostomella pleurostomella* n. sp., p. 8, figg. 4 & 5, *E. rostrata* n. sp., p. 7, fig. 3, *E. schlichti* n. sp., p. 5, figg. 1 & 2, occurrence and description, SILVESTRI (321).
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- †*Flabellina dilatata*, Oolite, W. Australia, remarks on, CHAPMAN (70) p. 196, pl. xxii, fig. 18.
- †*Frondicularia*, diagnosis of the genus, p. 6, *F. borussica* n. sp., p. 11, pl. i, fig. 5, *F. distorta* n. sp., p. 11, pl. i, fig. 23, *F. glandulinoides*, p. 12, pl. i, fig. 27, *F. molleri*, p. 7, pl. i, figg. 1-4, 6-8, *F. nikitini*, p. 9, pl. i, figg. 9-14, *F. schellureni* n. sp., p. 10, pl. i, figg. 15-17, *F. spatulata*, p. 13, pl. i, figg. 18-22, *F. supracalloviensis*, p. 12, pl. i, figg. 24, 26, Jurassic, Memel, described, BRÜCKMANN (46).
- †*Fusulina cylindrica*, occurrence, Carboniferous limestone, Bisbee, Arizona, GIRTY (121) p. 50, pl. xi, fig. 1; *F. c.*, Carboniferous, Colorado, note on, GIRTY (122) p. 317; *F. regularis*, Permo-Carboniferous, diagnosed, SPANDEL (329) p. 192, fig. 10.
- †*Geinitzina postcarbonica* n. sp., Permo-Carboniferous, Kansas, diagnosed, SPANDEL (329) p. 189, fig. 8.
- †*Glandulina lahuseni*, Jurassic, Memel, described, BRÜCKMANN (46) p. 27, pl. iii, fig. 28.
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- †*Laharpeia* (*Camerina*) *gassinensis* n. sp., Eocene, Roc di Gassino, diagnosed, PREVER (275) p. 477, figg. 1 & 2.
- †*Lenticulina garganica* (A) p. 38, pl. ii, figg. 7 & 8, var. *samnitica* (A) p. 39, pl. ii, fig. 30, *L. curvispira*, p. 40, pl. ii, fig. 31, *L. kaufmanni*, p. 42, pl. ii, fig. 32, *L. irregularis* (B) p. 44, *L. ramondi* (A) p. 44, *L. beaumonti* (B) p. 45, *L. guettardi*, p. 47, pl. ii, figg. 4-6, *L. contorta* (B) p. 51, pl. ii, fig. 1, *L. budensis*, p. 52, pl. ii, fig. 2, occurrence and remarks on, CHECCHIA-RISPOLI (72).
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- †*N. scapha*, Miocene, Maryland, described, BAGG (9) p. 460, pl. cxxxi, figg. 1-3.
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- †*Nummulites* sens. lat. (see Prot. Rec. 1902, p. 66), general considerations of, and its sub-divisions, distribution in space and time, PREVER (275) pp. 461-487, 7 text-figg., 1 table; *N. distans* (A and B forms) p. 293, pl. xxv, figg. 5 & 6, *N. dufrenoyi* (A & B) pp. 292 & 293, pl. xxv, figg. 1-4, Middle Eocene, Dardanelles, described, HOLLAND (145).
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- †*Orbitolina texana*, occurrence, Cretaceous, Bisbee, Arizona, STANTON (331) p. 70, pl. xvi, fig. 4.
- Orbulina universa*, occurrence, plankton, Capri, Lo BIANCO (205) p. 58, pl. xxxvii, fig. 157.
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- †*Paronaea contorta*, p. 192, pl. ii, figg. 28-34, *P. ramondi*, p. 192, pl. i, figg. 18-20, pl. ii, figg. 21 & 22, *P. subramondi*, p. 193, pl. ii, figg. 23-27, Eocene, Austria, described, PREVER & RZEHAK (276); *P. curvispira* (Mugh.), subdivided into four sections, *P. curvispira* sensu stricto (diagnosis and synonymy, p. 31), and *Bruguieria libyca* n. sp., *Gümbelia sub-montis fractii* n. sp., and *G. sub-oosterii* De la H. (qq. v.), PREVER (273).
- Pelosina distoma* n. sp., diagnosed, MILLETT (237) p. 608, pl. xi, figg. 5 & 6. *Planispirina schlumbergeri* n. sp., p. 20, pl. v, figg. 9-11, text-fig. 10, *P. striata* n. sp., p. 21, pl. v, figg. 12-14, text-fig. 9, diagnosed, SIDEBOTTOM (317).
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- †*P. burdigalensis*, p. 196, pl. xxii, fig. 19, *P. compressa*, p. 197, pl. xxii, figg. 21 & 22, *P. gutta*, p. 197, pl. xxii, fig. 20, Oolite, W. Australia, notes on, CHAPMAN (70); *P. compressa*, p. 476, pl. cxxxiii, fig. 1, var. *striata* n. var., p. 476, pl. cxxxiii, fig. 2, *P. elegantissima*, p. 476, pl. cxxxiii, fig. 3, *P. gibba*, p. 477, pl. cxxxiii, fig. 4, *P. lactea*, p. 477, pl. cxxxiii, figg. 5 & 6, *P. regina*, p. 478, pl. cxxxiii, fig. 7, Miocene, Maryland, described, BAGG (9); *P. gibba*, Cretaceous, Pondoland, note on, CHAPMAN (69) p. 228, pl. xxix, fig. 11; *P. irregularis* n. sp., Cretaceous, Galicia, mentioned, FRIEDBERG (114) p. 22; *P. oolithica*, Jurassic, Memel, described, BRÜCKMANN (46) p. 31, pl. iii, figg. 24-26.
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- †*P. striatopunctata*, Miocene, Maryland, described, BAGG (9) p. 462, pl. cxxxi, fig. 4.
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- †*Rhabdogonium pericardium* n. sp., Jurassic, Memel, described, BRÜCKMANN (46) p. 32, pl. iv, fig. 26.
- Rheophax euveta* n. sp., Australian sands, diagnosed, JENSEN (153) p. 821, pl. xxiii, figg. 5-7.
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- p. 505, pl. x, fig. 7, *R. schrøeteriana* Park. & J., var. *inflata* n. var., p. 504, pl. x, fig. 5, notes on, MILLETT (236).
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- Sigmoidina ovata* n. sp., diagnosed, SIDEBOTTOM (317) p. 6, pl. ii, figg. 12 & 13, text-fig. 1.
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- †*Spirocyclina choffati*, history, description, and synonymy of, SCHLUMBERGER & CHOFFAT (306) pp. 358-368, pls. ix & x.
- Spiroloculina impressa* Terq., note on, SIDEBOTTOM (317) p. 5, pl. ii, figg. 9-11.
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- †*Textularia abbreviata*, p. 470, pl. cxxxii, fig. 4, *T. agglutinans*, p. 470, pl. cxxxii, fig. 5, *T. articulata*, p. 471, pl. cxxxii, figg. 6 & 7, *T. carinata*, p. 472, pl. cxxxii, fig. 10, *T. gramen*, p. 471, pl. cxxxii, figg. 8 & 9, *T. sagittula*, p. 472, pl. cxxxii, figg. 11 & 12, *T. subangulata*, p. 473, pl. cxxxii, fig. 13, Miocene, Maryland, described, BAGG (9); *T. crater* n. sp., Oolite, W. Australia, diagnosed, CHAPMAN (70) p. 187, pl. xxii, fig. 2; *T. gibbosa*, Permo-Carboniferous, Kansas, note on, SPANDEL (329) p. 185, fig. 5.
- †*Textulariæ*, distribution of, in Miocene of Italy, FERNASINI (112) pp. 89-116.
- Thuramina favosa* Flint, occurrence and note, MILLETT (237) p. 608, pl. xi, fig. 7.
- †*Triticites* n. g., described, for *T. (Miliolites) secalicus*, Carboniferous, Mississippi Valley, GIRTY (120) pp. 234-240, 5 text-figg.
- †*Trochammina bifaciata* n. sp., *T. mirabilis* n. sp., *T. simplex* n. sp., *T. variegata* n. sp., Cretaceous, Galicia, mentioned, FRIEDBERG (114) p. 22.
- †*Truncatulina lobatula*, p. 464, pl. cxxxi, figg. 7 & 8, *T. variabilis*, p. 465, pl. cxxxi, figg. 9 & 10, Miocene, Maryland, described, BAGG (9); *T. schloenbachi*, Cretaceous, Pondoland, note on, CHAPMAN (69) p. 229, pl. xxix, fig. 16; *T. wuellerstorfi*, Oolite, W. Australia, note on, id. (70) p. 198, pl. xxii, fig. 24.
- †*Uvigerina canariensis*, p. 478, pl. cxxxiii, fig. 8, *U. pygmæa*, p. 479, pl. cxxxiii, fig. 9, *U. tenuistriata*, p. 479, p. cxxxiii, fig. 10, Miocene, Maryland, diagnosed, BAGG (9).
- †*Vaginulina humilis*, p. 226, pl. xxix, fig. 7, *V. intumescens*, p. 227, pl. xxix, fig. 9, *V. legumen*, p. 226, pl. xxix, fig. 8, Cretaceous, Pondoland, notes on, CHAPMAN (69); *V. intumescens*, p. 191, pl. xxii, fig. 8, *V. lata*, p. 190, pl. xxii, fig. 6, *V. schloenbachi*, var. *interrupta* n. var., p. 190, pl. xxii, fig. 5, *V. strigillata*, p. 191, pl. xxii, fig. 7, Oolite, W. Australia, remarks on, id. (70); *V. mosquensis*, p. 30, pl. iii, figg. 18 & 19, *V.* sp., p. 30, pl. iii, fig. 20, Jurassic, Memel, described, BRÜCKMANN (46).
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## 3. HELIOZOA.

Full account of the Heliozoa and "Pseudo-Heliozoa" of Lake Geneva and neighbourhood, with text-figg. of all species described; classification of genera and species, PENARD (262).

(a) **Aphrothoraca**:—

*Actinophrys sol* var. *fusca* **n. var.**, Lake of Geneva, diagnosed, PENARD (262) p. 113, 5 figg.

*Actinosphaerium arachnoideum* **n. sp.**, Lake of Geneva, diagnosed, PENARD (262) p. 137, 1 fig.; *A. eichhorni*, full description of cytological changes in, indicative of physiological degeneration, HERTWIG (138) pp. 307–342, pls. ix–xii; *A. e.* var. *majus* **n. var.**, Lake of Geneva, diagnosed, PENARD (262) p. 130, 1 text-fig.

(b) **Chlamydomphora**:—

*Astrodisculus laciniatus* **n. sp.**, p. 146, 1 fig., *A. zonatus* **n. sp.**, p. 142, 1 fig., Lake Geneva, diagnosed, PENARD (262).

*Heterophrys glabrescens* **n. sp.**, p. 161, 6 figg., *H. myriopoda* var. *holochlora* **n. var.**, p. 154, 4 figg., Lake Geneva, diagnosed, PENARD (262).

(c) **Chalarothoraca**:—

*Acanthocystis pelagica* **n. sp.**, occurrence and diagnosis, OSTENFELD (254) p. 4, figg. 4–7; *A. mimetica* **n. sp.**, p. 229, 4 figg., *A. pantopoda* **n. sp.**, p. 255, 1 fig., *A. rubella* **n. sp.**, p. 232, 1 fig., Lake of Geneva, diagnosed, PENARD (262).

*Lithocolla flavescens* **n. sp.**, Lake Geneva, diagnosed, PENARD (262) p. 220, 1 fig.

*Pompholyxophrys ovuligera* **n. sp.**, Lake Geneva, diagnosed, PENARD (262) p. 214, 1 fig.

*Raphidiophrys ambigua* **n. sp.**, p. 179, 3 figg., *R. caerulea* **n. sp.**, p. 187, 1 fig., *R. intermedia* **n. sp.**, p. 183, 1 fig., *R. symmetrica* **n. sp.**, p. 181, 1 fig., Lake Geneva, diagnosed, PENARD (262); *R. marina* **n. sp.**, occurrence and diagnosis, OSTENFELD (254) p. 4, figg. 1–3.

*Raphidocystis* **n. g.**, p. 189, *R. glutinosa* **n. sp.**, p. 199, 3 figg., *R. stellata* **n. sp.**, p. 191, 3 figg., *R. tubifera* **n. sp.**, p. 193, 1 fig., Lake Geneva, diagnosed, PENARD (262).

(d) **Desmothoraca**:—

*Choanocystis* **n. g.**, *lepidula* **n. sp.**, Lake Geneva, diagnosed, PENARD (262) p. 288, 1 fig.

*Hedriocystis reticulata* **n. sp.**, Lake Geneva, diagnosed, PENARD (262) p. 284, 4 figg.

## 4. RADIOLARIA.

(a) **Periphyllaria**:—

†*Acanthosphæra parvula*, Miocene, Maryland, diagnosed, MARTIN (228) p. 458, pl. cxxx, fig. 21.

†*Cannartidium* sp., Miocene, Maryland, note on, MARTIN (228) p. 456, pl. cxxx, fig. 18.

†*Cannartiscus amphicylindricus*, p. 457, pl. cxxx, fig. 19, *C. marylandicus* **n. sp.**, p. 457, pl. cxxx, fig. 20, Miocene, Maryland, diagnosed, MARTIN (228).

†*Cenosphaera porosissima*, Miocene, Maryland, diagnosed, MARTIN (228) p. 459, pl. cxxx, figg. 24 & 25.

*Collozoum inerme*, plankton, Capri, LO BIANCO (205) p. 58, pl. xxxvii, fig. 158.

- †*Dictyocoryne profunda*, Miocene, Maryland, diagnosed, MARTIN (228) p. 454, pl. cxxx, figg. 11–13.
- †*Hexalonche microsphaera*, Miocene, Maryland, diagnosed, MARTIN (228) p. 458, pl. cxxx, fig. 22.
- †*Hexastylus simplex*, Miocene, Maryland, diagnosed, MARTIN (228), p. 459, pl. cxxx, fig. 23.
- †*Phacodiscus calvertanus* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 456, pl. cxxx, fig. 17.
- †*Porodiscus concentricus*, Miocene, Maryland, diagnosed, MARTIN (228) p. 455, pl. cxxx, fig. 16.
- †*Rhopalodictyum calvertense* n. sp., p. 455, pl. cxxx, fig. 15, *R. marylandicum* n. sp., p. 455, pl. cxxx, fig. 14, Miocene, Maryland, diagnosed, MARTIN (228).
- Sphaerozoum punctatum*, in plankton, Capri, LO BIANCO (205) p. 58, pl. xxxvii, fig. 159.
- †*Spongasteriscus marylandicus* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 453, pl. cxxx, fig. 10.
- Spongosphæra streptacantha*, in plankton, Capri, LO BIANCO (205) p. 59, pl. xxxviii, fig. 165.
- Thalassicolla pelagica*, in plankton, Capri, LO BIANCO (205) p. 58, pl. xxxvii, fig. 160.

(b) **Acantharia**:—

- The *Acanthometrea*, classification of the group, many alterations and amplifications suggested, POPOFSKY (270) pp. 28–45; occurrence and description, id. pp. 47–115; nature of skeleton and hydrostatic apparatus in, fully described, illustrated from various genera (*Acanthometra*, *Amphilonche*, *Acanthonia*, etc.), SCHEWIAKOFF (303) 40 pp., 4 pls.
- Acanthapophysia* n. subg. (of *Acanthometron*) diagnosed, POPOFSKY (270) p. 64.
- Acanthochiasma cruciata*, p. 52, pl. iv, fig. 2, *A. decacantha* n. sp., p. 53, *A. bicuspidata* n. sp., p. 53, pl. v, fig. 1, *A. plana* n. sp., p. 53, pl. iv, fig. 7, *A. torta* n. sp., p. 54, pl. iv, fig. 6, *A. quadrangula* n. sp., p. 54, pl. iv, fig. 4, *A. hertwigi* n. sp., p. 54, pl. iv, fig. 5, occurrence and diagnoses, POPOFSKY (270).
- Acanthochiasmariium* n. subg. (of *Acanthochiasma*) diagnosed, POPOFSKY (270) p. 51.
- Acanthochiasmidium* n. subg. (of *A.*) diagnosed, POPOFSKY (270) p. 53.
- Acanthochiasmonium* n. subg. (of *A.*) diagnosed, POPOFSKY (270) p. 54.
- Acantholonche* n. subg. (of *Amphilonche*) diagnosed, POPOFSKY (270) p. 113.
- Acanthometra* sp., in plankton, Capri, LO BIANCO (205) p. 59, pl. xxxviii, fig. 162; [see also under *Acanthrometron*].
- Acanthometridæ* (sensu nov.) diagnosed, POPOFSKY (270) p. 59.
- Acanthometron* n. subg., diagnosed, POPOFSKY (270) p. 60.
- Acanthometron* (as genus = *Acanthometra*) p. 60, *A. bifidum*, p. 62, pl. iii, fig. 7, *A. cordiforme* n. sp., p. 62, pl. vi, fig. 2, *A. sphaericum* n. sp., p. 62, pl. vi, fig. 1, *A. piriforme* n. sp., p. 63, pl. v, fig. 5, *A. armatum* n. sp., p. 64, pl. iv, fig. 3, *A. arachnoide* n. sp., p. 64, pl. vi, fig. 4, *A. spinosum* n. sp., p. 66, pl. viii, fig. 5, occurrence and diagnosis, POPOFSKY (270).
- Acanthonia* n. subg. diagnosed, POPOFSKY (270) p. 84.
- Acanthonia* (sensu nov.) *abscisa* n. sp., p. 86, *A. quadricorna* n. sp., p. 89, pl. vii, fig. 6, occurrence and diagnoses, POPOFSKY (270).
- Acanthonidæ* n. fam., diagnosis, POPOFSKY (270) p. 84.
- Acanthonidium* n. g., p. 91, *A. echinoides*, p. 91, pl. i, fig. 2, *A. claparedei*, p. 91, pl. i, fig. 3, *A. acutum* n. sp., p. 93, pl. vii, fig. 7, *A. astroide* n. sp., p. 99, pl. vii, fig. 8, *A. tetrapterum*, p. 100, pl. vii, fig. 9, occurrence and diagnoses, POPOFSKY (270).

- Acanthoptera* n. g., p. 104, for *A. (Lithoptera) mülleri*, p. 104, *A. (L.) do-decaptera*, p. 104, pl. viii, fig. 4, diagnoses, POPOFSKY (270).
- Acolonche* n. subg. (of *Acanthonia*) diagnosis, POPOFSKY (270) p. 90.
- Actinastridae* n. fam., diagnosed, POPOFSKY (270) p. 57.
- Actinelius minimus* n. sp., diagnosis and occurrence, POPOFSKY (270) p. 49.
- Amphiacantha* n. subg. (of *Acanthonidium*) diagnosis, POPOFSKY (270) p. 100.
- Amphilonche* n. subg. p. 106, diagnosis, POPOFSKY (270).
- Amphilonche* (genus) *belonoides*, p. 107, pl. x, figg. 1 & 2, *A. pertenuis* n. sp., p. 108, pl. viii, fig. 8, pl. x, fig. 10, *A. elongata*, p. 109, pl. x, figg. 3-6, pl. ix, fig. 4, *A. heteracantha*, p. 109, pl. x, figg. 7-9, *A. quadrialata* n. sp., p. 109, pl. x, fig. 13, *A. atlantica* n. sp., p. 110, pl. iii, figg. 1-6, *A. anomala*, p. 110, pl. ix, fig. 7, *A. nodulosa* n. sp., p. 111, pl. vii, figg. 9 & 10, *A. mira* n. sp., p. 111, pl. ix, fig. 8, pl. x, fig. 12, *A. amphihastata* n. sp., p. 112, pl. viii, fig. 7, *A. biformis* n. sp., p. 113, pl. ii, fig. 8, *A. rara* n. sp., p. 113, pl. ix, fig. 6, occurrence and diagnoses, POPOFSKY (270).
- Amphilonchidium ellipsoide* n. sp., p. 114, pl. viii, fig. 11, pl. ix, fig. 5, *A. haeckeli* n. sp., p. 115, pl. ix, fig. 3, *A. nationalis* n. sp., p. 114, pl. x, fig. 11, occurrence and diagnoses, POPOFSKY (270).
- Amphimetron* n. subg. (of *Acanthometron*) diagnosed, POPOFSKY (270) p. 65.
- †*Lithasteriscus radiatus*, Miocene, Maryland, note on, MARTIN (228) p. 453, pl. cxxx, fig. 9.
- Lithoptera* n. subg., diagnosed, POPOFSKY (270) p. 103.
- Lithoptera* (genus) *fenestrata*, p. 103, pl. viii, fig. 3, occurrence and diagnosis, POPOFSKY (270).
- Phyllolonche* n. subg. (of *Phyllostaurus*) diagnosed, POPOFSKY (270) p. 68.
- Quadrinetron* n. subg. (of *Acanthometron*) p. 64, diagnosed, POPOFSKY (270).
- Quadristaurus* n. subg. (of *Acanthonia*) diagnosed, POPOFSKY (270), p. 90.
- Rosetta* n. g., p. 55, *R. elegans* n. sp., p. 56, pl. v, fig. 3, *R. triangularis* n. sp., p. 56, pl. v, fig. 2, occurrence and diagnoses, POPOFSKY (270).
- Rosettidae* n. fam., diagnosed, POPOFSKY (270) p. 55.
- Stellacantha* n. subg. (of *Acanthonidium*) diagnosed, POPOFSKY (270) p. 99.
- Stellolonche* n. subg. (of *Zygacantha*) diagnosed, POPOFSKY (270) p. 75.
- Trizona* n. g., p. 56, *T. brandti* n. sp., p. 56, pl. v, fig. 4, occurrence and diagnoses, POPOFSKY (270).
- Trizonidae* n. fam., diagnosed, POPOFSKY (270) p. 56.
- Zygacantha* n. subg., diagnosed, POPOFSKY (270) p. 71.
- Zygacantha* (genus) *latifolia* n. sp., p. 71, pl. vi, figg. 6 & 7, *Z. concreta* n. sp., p. 72, pl. v, fig. 6, *Z. septentrionalis* n. sp., p. 72, *Z. rotunda* n. sp., p. 75, *Z. elegans* n. sp., p. 75, pl. ix, fig. 2, occurrence and diagnoses, POPOFSKY (270).
- Zygacanthidae* n. fam., diagnosed, POPOFSKY (270) p. 69.
- Zygacanthidium longum* n. sp., p. 76, pl. vii, fig. 3, *Z. hastatum* n. sp., p. 77, pl. vii, fig. 4, *Z. gladiusum* n. sp., p. 77, pl. vii, fig. 1, *Z. atlanticum* n. sp., p. 83, pl. vii, fig. 5, occurrence and diagnoses, POPOFSKY (270).
- Zygapophysia* n. subg. (of *Zygacantha*), diagnosed, POPOFSKY (270) p. 73.
- Zygalonche* n. subg. (of *Amphilonche*) diagnosed, POPOFSKY (270) p. 112.
- Zygalonchidium* n. subg. (of *Amphilonchidium*) diagnosed, POPOFSKY (270) p. 114.
- Zygoptera* n. g., p. 104, for *Z. (Lithoptera) quadrata*, p. 104, pl. viii, fig. 5, diagnosed, POPOFSKY (270).

## (c) Monopylaria:—

- †*Anthocyrtium doricum*, Miocene, Maryland, diagnosed, MARTIN (228) p. 451, pl. cxxx, fig. 8.
- †*Eucyrtidium calvertense* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 450, pl. cxxx, fig. 5.



†*Lithocampe marylandica* n. sp., Miocene, Maryland, diagnosed, MARTIN (228) p. 450, pl. cxxx, fig. 4.

†*Stichocapsa macropora*, Miocene, Maryland, diagnosed, MARTIN (228) p. 451, pl. cxxx, figg. 6 & 7.

(d) **Tripylaria** or **Phæodaria**:—

Tripylaria from Atlantic plankton, notes on, BORGERT (28); found by the German Deep-sea Expedition, general account of, HÄCKER (132) pp. 122-156.

*Aulacantha*, p. 47, *A. scolymantha*, p. 47, pl. i, figg. 1-3, occurrence and description, IMMERMANN (148); *A. s.*, in plankton, Capri, LO BIANCO (205) p. 58, pl. xxxvii, fig. 161.

*Aulacanthidæ*, description and classification of the family, IMMERMANN (148) pp. 35-39.

*Aulastrum meridionale* n. sp., Atlantic plankton, diagnosed, BORGERT (28) p. 737, fig. c.

*Aulatractus* (?) *proteus*, Atlantic plankton, note on, BORGERT (28) p. 736, fig. B.

*Auloceros*, p. 49, *A. arborescens* var. *dichodendrum* n. var., p. 51, pl. v, figg. 11 & 12, *A. spathillaster* var. *birameus* n. var., p. 50, pl. v, fig. 10, occurrence and description, IMMERMANN (148).

*Aulocoryne*, p. 58, *A. candelabrum*, p. 59, pl. vi, figg. 5-7, *A. dentata*, p. 59, pl. vi, fig. 8, *A. pulvinata*, p. 60, pl. vi, fig. 9, *A. zetesios*, p. 61, pl. vii, fig. 1, occurrence and description, IMMERMANN (148).

*Aulographis*, p. 52, *A. pandora*, p. 53, pl. v, fig. 6, *A. tetrancistra*, p. 56, pl. v, fig. 7, *A. tridactylus* n. sp., p. 55, pl. v, fig. 9, *A. uncinata* n. sp., p. 55, pl. v, fig. 8, occurrence and description, IMMERMANN (148).

*Aulokleptes* Immerm., p. 39, *A. corona* n. sp., p. 41, pl. vi, fig. 1, *A. flosculus* var. *pistillum* n. var., p. 42, pl. v, fig. 1, var. *inermis* n. var., p. 42, pl. iii, fig. 1, var. *tridentatus* n. var., p. 43, pl. vi, fig. 3, var. *typicus* n. var., p. 43, pl. v, fig. 2, pl. vi, fig. 2, var. *confluens* n. var., p. 43, pl. vi, fig. 4, *A. gemmascens*, p. 44, var. *bi(tri-)partitus* n. var., p. 44, pl. v, fig. 3, var. *typicus* n. var., p. 44, pl. v, fig. 4, var. *sceptrum* n. var., p. 45, pl. v, fig. 5, *A. ramosus* n. sp., p. 45, var. *longispina* n. var., p. 46, pl. iii, figg. 4 & 5, pl. iv, figg. 1-3, var. *multituberculatus* n. var., p. 46, pl. iii, fig. 3, occurrence and description, IMMERMANN (148).

*Aulophyton* n. g., p. 57, *A. tetronyx* n. sp., p. 57, pl. vi, fig. 10, occurrence and description, IMMERMANN (148).

*Aulospathis*, p. 62, *A. bifurca*, p. 62, pl. vii, fig. 2, *A. monodon* n. sp., p. 63, pl. vii, fig. 3, *A. triodon*, p. 64, pl. vii, fig. 4, occurrence and description, IMMERMANN (148); *A. pinus* n. sp., diagnosed, p. 127, fig. 3, *A. variabilis*, notes on the different subspp. or varieties of, p. 125, fig. 2, HÄCKER (132).

*Aulosphaera* sp., in plankton, Capri, LO BIANCO (205) p. 59, pl. xxxviii, fig. 166.

*Cadium inauris* n. sp., Atlantic plankton, diagnosed, BORGERT (28), p. 747, fig. o.

*Castanarium schütti* n. sp., Atlantic plankton, diagnosed, BORGERT (28) p. 750.

*Castanissa dahli* n. sp., p. 752, *C. hanseni* n. sp., p. 751, fig. P, Atlantic plankton, diagnosed, BORGERT (28).

*Challengeria naresii*, fig. 4a, *C. thomsoni*, fig. 4c, *C. tridens*, fig. 4d, *C. xiphodon*, fig. 4b, notes on, HÄCKER (132) p. 134.

*Challengeron radians* n. sp., p. 743, fig. J, *C. sp.*, p. 744, fig. K, Atlantic plankton, notes on, BORGERT (28); *C. willemasii*, notes on, HÄCKER (132) p. 136, figg. 5a-c.

*Cælechinus* n. g., a form intermediate between the *Cælodendridæ* and the

- Cælographidæ*, for *C. wapiticornis* **n. sp.**, diagnosed, HÄCKER (132) p. 123, fig. 1.
- Celodendrum gracillimum*, p. 59, pl. xxxviii, fig. 163, *C. ramosissimum*, p. 59, pl. xxxviii, fig. 164, in plankton, Capri, LO BIANCO (205).
- Conchellium lenticula* **n. sp.**, Atlantic plankton, diagnosed, BORGERT (28) p. 753, fig. q.
- Conchidium argiope*, p. 755, fig. r, *C. caudatum*, p. 756, fig. s, Atlantic plankton, diagnosed, BORGERT (28); *C. rhynchonella*, note on, HÄCKER (132) p. 136, fig. 7.
- Conchopsis* sp., note on, HÄCKER (132) p. 136, fig. 6.
- †*Dictyochoa fibula* (?), Miocene, Maryland, diagnosed, MARTIN (228) p. 449, pl. cxxx, fig. 3.
- †*Distephanus crux*, Miocene, Maryland, diagnosed, MARTIN (228) p. 448, pl. cxxx, figg. 1 & 2.
- Entocannula circularis*, p. 745, fig. L, *E. infundibulum*, p. 745, fig. M, Atlantic plankton, notes on, BORGERT (28).
- Gazelletta* cf. *viridis*, notes on the anatomy of, compared with that of *Planktonetta*, FOWLER (113) pp. 483-488, 3 text-figg.
- Pharyngella gastrula*, Atlantic plankton, note, BORGERT (28) p. 746, fig. N.
- Protocystis alata* **n. sp.**, p. 739, fig. E, *P. gravida* **n. sp.**, p. 741, fig. G, *P. nautiloides* **n. sp.**, p. 738, fig. D, *P. tridentata* **n. sp.**, p. 742, fig. H, *P. varians* **n. sp.**, p. 740, fig. F, Atlantic plankton, diagnoses, BORGERT (28).
- Sagenarium* sp., Atlantic plankton, note on, BORGERT (28) p. 735, fig. A.
- Tuscaridium lucie* **n. sp.**, diagnosis and note, HÄCKER (132) pp. 140 & 149, fig. 8.
- Tuscarora bisternaria*, p. 141, fig. 9, *T. braueri* **n. sp.**, p. 143, fig. 11, var. *triangula* **n. var.**, p. 143, fig. 11a, *T. campanella* **n. sp.**, p. 143, fig. 13, *T. galeata* **n. sp.**, p. 145, fig. 12, *T. nationalis* **n. sp.**, p. 142, fig. 18, *T. scutellum* **n. sp.**, p. 143, fig. 10, occurrence and diagnoses, HÄCKER (132).
- Tuscarusa aëronauta* **n. sp.**, p. 146, fig. 16, *T. ampulla* **n. sp.**, p. 147, fig. 15, *T. chuni* **n. sp.**, p. 148, fig. 17, *T. globosa* **n. sp.**, p. 142, *T. passercula* **n. sp.**, p. 145, fig. 14, occurrence and diagnoses, HÄCKER (132).

## C. SPOROZOA.

- A Sporozoan, unidentified (either a Coccidian or a Gregarine), occurrence and note on, LÉGER (183) p. 847.
- A new Sporozoan parasite of uncertain affinity, *Lymphocystis* **n. g. johnstonei** **n. sp.**, occurrence and preliminary description of, WOODCOCK (362) pp. 63-72, pl. 3.

### 1. TELOSPORIDEA.

#### (a) Gregarinidea:—

- Comparative account of development and growth in the Gregarines; their classification according to habitat, LÜHE (209) pp. 88-198, 31 text-figg.
- Cystobia irregularis* and *C. minchinii* **n. sp.**, habitat, occurrence and precocious association, or "neogamy," briefly described, WOODCOCK (364) pp. 125-128.
- Diplocystis clerici* **n. sp.**, short description of, LÉGER (189) pp. 360 & 361, text-figg. 3-5.
- Doliocystis pellucida*, attachment to intestinal host-cell described, BRASIL (41) pp. 233 & 234, text-figg. 20-22.

- Gregarina cuneata*, p. 357, text-figg. 5 & 7, *G. polymorpha*, p. 355, fig. 6, notes on development of, LÉGER & DUBOSCQ (192); *G. marteli* n. sp., occurrence and short account of, LÉGER (189) pp. 358-360, text-figg. 1 & 2; *G. ovata*, general account of, PAEHLER (256) pp. 64-87, pls. v & vi.
- Steinina ovalis*, growth and development of, LÉGER & DUBOSCQ (192) p. 352, text-figg. 3 & 4.
- Stenophora aculeata* n. sp., p. 368, pl. xiv, figg. 5, 14, *S. chordeumæ* n. sp., p. 372, pl. xiv, figg. 11 & 15, *S. juli* (Frantz.), p. 363, pl. xiv, figg. 1-3, 13, *S. polyxeni* L. & D., p. 370, pl. xiv, fig. 6, *S. producta* n. sp., p. 375, pl. xiv, figg. 7-10, *S. silene* n. sp., p. 371, pl. xiv, figg. 4, 12, habitat and development described, LÉGER & DUBOSCQ (192).
- Stylorhynchus longicollis*, pl. xiv, *S. oblongatus*, pl. xv, sexual conjugation fully described in, LÉGER (188) pp. 303-357, also 8 text-figg.; *S. l.*, pp. 336-344, pl. xiii, figg. 1-16, text-figg. 1 & 2, *S. oblongatus*, pp. 344-350, pl. xiii, figg. 17-28, development and growth described, LÉGER & DUBOSCQ (192).
- Urospora lagidis*, description of trophic and sporulating phases, BRASIL (41) pp. 213-225, pl. viii, figg. 70-80, text-figg. 18.

## (b) Coccidiidea:—

- Adelea transitia* n. sp., life-cycle partly described, LÉGER (189) pp. 361-365, text-figg. 6 & 7.
- Angeiocystis* n. g. *audouinii* n. sp., occurrence and brief description, BRASIL (40) pp. 645 & 646.
- Klossiella muris* Smith and Johnson, redescribed; its schizogony compared with that of *Caryotropha mesnili*, WOODCOCK (363) pp. 153-163, 2 text-figg.

## (c) Hæmosporidia:—

- Hæmocystidium* n. g. *simondi* n. sp., occurrence and diagnosis, CASTELLANI & WILLEY (63) p. 84, figg. 10-16.
- Halteridium danilewskyi*, occurrence and note on, CASTELLANI & WILLEY (63) p. 83, figg. 7-9; *H. noctuæ*, see under *Trypanosoma* n.
- Hæmogregarina bivertata* n. sp., diagnosis and occurrence, NICOLLE (249) pp. 912-914, 8 text-figg.; *H. sergentium* n. sp., diagnosis and occurrence, id. (248) pp. 608 & 609; *H. tunisiensis* n. sp., diagnosis and occurrence, id. (247) pp. 330-332; *H. bagensis* n. sp., diagnosis and occurrence, DUCLOUX (88) pp. 564 & 565; *H. b.*, further notes on, BILLET (23) pp. 602 & 603, 8 text-figg.; *H. curvirostris* n. sp., diagnosis and occurrence, id. (24) pp. 741-743, 10 text-figg.; *H. tunisiensis*, notes on, id. (21) pp. 482-484, 8 text-figg.; *H. (Karyolysus) viperini* n. sp., occurrence and diagnosis, id. (22) pp. 484 & 485, 6 text-figg.; *H. callionymi* n. sp., p. 614, *H. cotti* n. sp., p. 614, *H. blanchardi* n. sp., p. 614, *H. gobii* n. sp., p. 615, and *H. quadrigemina* n. sp., p. 615, occurrence and diagnosis, BRUMPT & LEBAILLY (50); *H. flesi* n. sp., p. 577, *H. laternæ* n. sp., p. 577, and *H. platessæ* n. sp., p. 576, occurrence and diagnoses, LEBAILLY (179); *H. mauritanica* n. sp. (near to *H. stepanowi*), from a land tortoise, described, SERGENT (314) pp. 130 & 131; *H. mirabilis* n. sp., p. 86, figg. 28-38, *H. nicoriæ* n. sp., p. 85, figg. 17-27, occurrence and diagnoses, CASTELLANI & WILLEY (63); *H. psammodromi* n. sp., allied to *H. sergentium*, described, SOULIÉ (327) pp. 371-373.
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- "*Leishmania*" **nom. nov.** proposed for the Leishman-Donovan parasite of Dum-dum fever [*Piroplasma donovani*], ROSS (289) pp. 79-82, 1 pl.
- "*Leucocytozoon*" *danilewskyi*, distinction of male and female forms in, BERESTNEFF (18) pp. 381-386, pl. xv.
- Piroplasma bigeminum*, p. 349, *P. canis*, p. 351, *P. equi*, p. 350, and *P. ovis*, p. 349, occurrence in Spanish animals and notes on, DIAZ VILLAR (82); *P. donovani*, relation to leucocytes and blood-corpuses, excellent figures of, DONOVAN (83) 1 pl.; *P. d.*, minute forms, free or endoglobular, in peripheral circulation, LAVERAN & MESNIL (173) pp. 187-189; *P. d.*, (the "Leishman-Donovan bodies") development of a flagellate (Trypanosome) phase in, in cases of Kala-Azar, etc., ROGERS (286) pp. 367-377, pl. xxv; *P. hominis* **n. sp.**, causing "spotted fever" or tick-fever in man, description of, WILSON & CHOWNING (360) pp. 46-48, pl. ii.

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- Glugea* [= *Nosema*] *anomala*, general description of growth and development in, STEMPELL (336) pp. 1-42, pls. i-iii; *G. ceculie* **n. sp.**, p. 646, fig. 16, *G. halesidotidis* **n. sp.**, p. 645, fig. 15, *G. heliotidis* **n. sp.**, p. 645, fig. 14, *G. hydrie* **n. sp.**, p. 646, fig. 26, *G. micrattaci* **n. sp.**, p. 646, fig. 27, from Brazilian Lepidoptera, notes on spores, LUTZ & SPLENDRE (213); *G. stephani*, description of, chiefly with regard to the nature of the parasitic invasion, WOODCOCK (361) pp. 126-142, pl. ii.
- Lentospora* **nom. nov.** for *Myxobolus cerebralis* Hofer, occurrence, diagnostic characters and description of, PLEHN (269) pp. 145-166, pl. v, 7 text-figg.
- Nosema*, see under *Glugea*.
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(b) **Actinomyxidia**:—

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- Triactinomyxon*, notes on the genus, LÉGER (183) pp. 846 & 847; *T. ignotum*, sporulation of, described, LÉGER (182) pp. 844-846, 4 text-figg.

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*Euglena deses*, note on, LORD (207) pp. 75 & 76, pl. iii, fig. 2.

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*Hexamitus*. See under *Dicercomonas*.

*Jænia annectens*, description of, and processes of division in, GRASSI & FOA (126) pp. 241–253, 17 text-figg.

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*Phyllomonas anylophagus*, occurrence and note on, SMITH (325) p. 48.

*Spirochaeta* ("Hæmamæba") *ziemannii*, full account of, both in trypaniform and hæmosporidian phases, SCHAUDINN (301) pp. 429–435, 5 text-figg.

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*Trypanoplasma borreli*, redescription and affinities of, LÉGER (180) pp. 824 & 825 & (181) pp. 856–859, 5 text-figg.; *T. varium* n. sp., and its further evolution in a leech, described, id. (185) pp. 345–347; *T.* of the minnow (Léger [180]) is identical with *T. borreli* of the rudd, LAVERAN (172) p. 250.

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(b) **Dinifera**:—

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*Dileptus gigas*, hunger-periods and conjugation in, HERTWIG (139) pp. 1-3.

*Discophrya gigantea*, from hind-gut of *Discoglossus pictus*, general description of, COHN (77) pp. 43-53, pl. iv, figg. 1-8.

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## CORRIGENDA.

- GEN. SUB., p. 46, Title 805, for "SOHOETENSACK" read "SCHOETENSACK."
- INSECTA, p. 133, line 6 from bottom, for "*Annommatophilus*" read "*Anommatophilus*."
- „ p. 145, line 4, for "*Blatrodromus*" read "*Blattodromus*."
- „ p. 173, line 17 from bottom, for "*Centorrhynchus*" read "*Ceutorrhynchus*."
- „ p. 217, line 11, for "*Sympheisole*" read "*Sympheidole*."
- „ p. 231, line 2, for "*Pestasmicra*" read "*Pentasmicra*."

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