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BEING

RECORDS OF ZOOLOGICAL LITERATURE

RELATING CHIEFLY TO THE YEAR

1903.

BY D. SHARP, R. LYDEKKER, R. BOWDLER SHARPE, G. A. BOULENGER, W. T. CALMAN, E. R. SYKES, E. A. SMITH, ALICE L. EMBLETON, F. A. BATHER, E. A. MINCHIN, 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.

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THE fortieth Volume of the Zoological Record has been prepared by the same staff of Recorders that produced the last Volume. The constantly increasing labour of preparation, due to the greater amount of literature that must be examined, causes the appearance of the Volume to be deferred to a little later in the year than the Editor would desire.

The list of periodicals has been revised and the Editor thanks the Librarians who have assisted him in this part of his task.

During the forty years that have elapsed since the inception of the Record the Annual Volume has almost doubled in size, and the labour involved in its preparation has greatly increased. The increase has been most marked in the latter part of the period. The literature dealt with is now very extensive and is constantly increasing. The price of the work has however never been augmented.

In future, however, an increase in the charge for the volumes must take place, lest the loss in which the publication involves the Zoological Society should lead to the abandonment of the work. It has been decided, therefore, beginning with Volume 41, to increase the charge by ten shillings to both subscribers and the public. Full particulars are given

in the prospectus appended to this Volume, and an explanatory letter, covering amended Banker's Orders will shortly be posted to each subscriber.

The issue of separate copies of each division of the Record enables any specialist to obtain the part of the Record that chiefly interests him, for a small sum. The prices of the separate divisions were recently fixed, and will remain unchanged.

P. CHALMERS MITCHELL,  
*Secretary Zool. Soc.*

D. SHARP,  
*Editor Zool. Rec.*

LONDON,  
*November, 1904.*

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ALPHABETICAL INDEX OF NEW NAMES OF GENERA AND SUBGENERA.  
By the EDITOR.



ALPHABETICAL LIST  
OF THE  
ABBREVIATIONS  
USED IN THE  
ZOOLOGICAL RECORD, VOL. XL, 1903,  
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, after C, or (C) = Cambridge Balfour, or Woodwardian Museum, or Physiological 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 königlichen 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 matematicko-přirodověcke 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. Specialkarte 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.
- 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.) R. Z.
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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.
- 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.
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- Arb. Inst. Würzburg*—Arbeiten aus dem zoologisch-zootomischen Institut in Würzburg. (Wiesbaden, 8vo.) Nz. K. R. Z. L. C, b. O.
- Arb. Lab. Warsaw*—[Vide *Rabot. Lab. Warsaw*.]
- Arb. Ver. Riga*—Arbeiten des Naturforscher-Vereins zu Riga. Neue Folge. (Riga, 8vo.) N.
- Arch. Anat.*—Archiv für Anatomie und Entwicklungsgeschichte. Anatomische Abtheilung des Archives für Anatomie und Physiologie [His.]. (Leipzig, 8vo.) K. R. Z. C, b, p, y. 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 1903.

### 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.

UPWARDS of 800 works are included in this Section "General Subjects." The scope of the Section was briefly described in the Introduction to it last year. It is clearly impossible that the Recorder should do justice to all the works included in this Record, and in the following brief review, he is aware that he is merely giving expression to opinions that he has been obliged to form with too great rapidity.

LOEB (450) makes some brief but very sensible remarks on abiogenesis and the assumed limitations of biological research.

METSCHNIKOFF's work, of which an English translation has appeared, by P. CHALMERS MITCHELL (501), contains but little zoological matter, and may be briefly described as a slightly optimistic view by a biologist of the future of man: the original work is reviewed at length by DELAGE in the *Année biologique* vii, pp. 588-595.

Three or four general works have appeared during the year. The second edition of DELAGE's *Heredity* (178) has been partially brought up to date by means of footnotes, and references to abstracts that have appeared in his "*Année biologique*."

LE DANTEC's work (427) includes a theory of sex, which he supposes underlies all biological phenomena. The work is specially intended to demonstrate the importance of the physico-chemical study of life, as to the cell, in contrast with morphological views and "*choses figurées*." His guess as to the nature of cellular processes assumes that each molecule is composed of two halves, a male and a female half, and that the power of assimilation depends on the processes started by the polarities of the molecules. There are some very clearly written chapters dealing with other matters, e.g. the relations of biology and sociology.

Another general work is the second part of Professor GIGLIO-TOS' *problèmes de la vie* (273). This part deals with ontogenesis. The Recorder regrets that he has not had time to become acquainted with it, as a slight inspection leads him to suppose that it is a valuable work.

One of the most important works on phylogeny is that of LANG (415) on Annelids. He maintains his views opposing the Trochophore theory, and insists that the Trochophore is truly a larval form, not an ancestral form; he gives a "trophocol" theory of the origin of the vascular and lymphatic system of Articulata.

The two volumes of letters of Charles Darwin, DARWIN & SEWARD (173), contain a great deal of matter interesting to both naturalist and historian. In aids to work, we should note the Catalogue of Books of the British Museum Natural History, LANKESTER (419). It is, however, unfortunately confined to the works actually in the Library, so that some classes of biological literature are very inadequately represented.

There are no new expeditions to report, though several of those that have previously been recorded have received accessions to their literature. (See II, b, p. 56.) We may mention, however, that RACOVITZA (621) discusses the occurrence of the "sea-serpent" in Indian waters, and that ALLUAUD (5) gives a note on the supposed appearance of a kindred creature in Lake Victoria Nyanza, as recorded by Sir Harry Johnston.

In the physiological section we welcome VON FURTH's work (254) on the chemical physiology of Invertebrate animals. C. PÉREZ has described the metamorphoses of *Formica rufa*, and attempts an explanation of histolysis on the base of "a struggle for existence between the plastids of an organism" (583). KEEBLE & GAMBLE have continued their work on the physiology of coloration (257, 273). CLAPARÈDE (138) gives a valuable dissertation on recent variety of opinion as to animal psychology.

Works of a cytological character are very numerous. ROHDE (640) has published the first part of a study of the cell: it is devoted to the nucleus. FARMER (230) in Lankester's treatise of Zoology gives an epitome of cytology, with a brief historical account, which will be acceptable to many students, though it is only fair to say that it is objected to by Delage as containing no reference to French work on the subject. SCHUBERG (674) discusses the connections between cells; and RHUMBLER (631, 632) gives us an interesting dissertation as to the resemblance of the appearances during cell-division to those of inorganic magnetic figures.

Of the two papers (78, 79) by T. BOVERI the second is an amplified edition of the first, and is therefore included in this Record although it was perhaps not published till the beginning of 1904; the preface being dated July 1903. It is of wider scope than is indicated by the title "Ergebnisse über die Konstitution der chromatischen Substanz des Zellkerns." (The chromosomes are here treated as "the chromatic substance.") He gives a clear account of numerous very interesting Karyokinetic histories, and maintains the "individuality" of the chromosome. He does not however make us clearly comprehend what connotations he intends the term individuality to carry in this connection; and, looking to the zoological difficulties that attend the use of this term in other cases, we cannot consider that this point of Boveri's is of much importance. He also discusses the interpretation of Mendelian facts, and concludes with a valuable recognition of the results that may be obtained in the future by "nicht Chemie, doch etwas von der Wesen chemischer Forschung." So that he is not really opposed to the view that physico-chemical research may shew that some, if not all, of the properties we assign to the "chromatic substance" may be due to the modes of building up of that substance. Modes that appear to be of the first importance when we bear in mind the enormous increase in the quantity of chromatic substance that, in many cases, occurs in the course of a single generation. He thus confirms the view that the morphological and physiological views of cytology are only diverse because they contemplate different aspects of a single complicated process. The work is an extremely interesting one.

Papers on subjects connected with the continuity of the generations are very numerous; the cytological aspects of heredity being in fact the subject in which most interest is at present displayed. J. LOEB'S (451, 452, 454) experiments on hybrid-fertilisation are of interest as a fresh field of experiment. VOINOV (766) discusses the autonomy of the centrosome. VEJDOVSKY & MRAZEK give an elaborate study of maturation and fertilisation in *Rhynchelmis* (757); VOINOV has undertaken the study of the genesis of the two forms of spermatozoa in Dytiscidæ, and gives the first part (764, 765) of his results. It includes a review of the "accessory chromosome" of Arthropods; he does not support the view that it is a determinant of sex. MEVES' accounts (503, 504) of the formation of polar bodies in the spermatogenesis of social Hymenoptera and of distinctions in the processes will no doubt receive due attention.

A large contribution has been made to HERRWIG'S work on the development of Vertebrates (321). W. ROUX (648) discusses the sequence and relation of the processes of development immediately ensuing on the fertilisation of the frog's egg. KORSCHLIT & HEIDNER'S Text-book (401) of the development of Invertebrates has been completed.

The subject of parthenogenesis is also attracting much attention, and from its wide bearing is likely to become of increasing importance. PETRUNKEWITSCH considers that he has now proved (590) that the polar bodies in the parthenogenetic egg producing a drone bee do not disappear as they do in fertilised eggs; the first and second polar bodies conjugate before passing into the interior of the egg, and there give rise to the sex-gland. He has examined a large number of cases, and is sure that this



process is normal for these parthenogenetic eggs. GARBOWSKI has an article on parthenogenetic developments of Asteridæ (258). PHILLIPS' review of parthenogenesis (593) is accompanied by a valuable bibliographic list of about 600 works. PFLÜGER makes some remarks (592) on views as to parthenogenesis in Insects.

The section 8 c, p. 66, includes numerous memoirs relating to "Mendel's laws"; the scope of the laws is however still uncertain, and opinions as to their explanation are necessarily at present vague and diverse. The numerous memoirs on regeneration, 8 d, p. 67, are devoted, most of them, to special cases, some of which are interesting because of their exceptional nature.

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II.—SUBJECT-INDEX.

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 General biology, DELAGE (178).  
 Treatise on biology, nature of sex and heredity, relations of Biology and Sociology, LE DANTEC (427).  
 Problems of biology, pt. 2, ontogenetic, GIGLIO-TOS (273).  
 The nature of man, with some comparative Zoological observations, METCHNIKOFF (501).  
 General works, BRONN (88), SCHULTZE (680).  
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 Text-book of Zoology, 6th Edition, HERTWIG (326).—Hertwig's Manual of Zoology, 5th Edition, translation, KINGSLEY (385).—Text-book of Zoology, COLTON (144).—Elementary text-book, DODGE (194).—Elementary text-book, laboratory, WEED & CROSSMANN (783).—Condensed text-book, MAYER (493). Précis of Nat. Hist. PIZON (597).  
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## II. MAMMALIA.

BY

R. LYDEKKER.

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## INTRODUCTION.

By far the most important event—an event besides which all others in this branch of zoology fade into insignificance—which the Recorder has to chronicle is the description by ANDREWS of the evolution and phylogeny of the *Proboscidea*. Next in importance is the evidence brought together by the same palæontologist in favour of affinity between *Proboscidea* and *Sirenia*. Perhaps the third place in relative importance may be assigned, if the inference be true, to WORTMAN's description of an American Eocene Lemuroid believed to be allied to the Malagasy Aye-aye. A highly important piece of work is BENSLEY's Memoir on the "radiation" and affinities of the Australasian Marsupials.

Special attention may also be directed to the papers by DUBLIN, OSBURN, and SHIMER on the adaptation of Mammals to particular modes of life. In this connection reference may be made to the observations of RACOVITZA in regard to the sleep of whales, and the depths to which those animals descend. During the year the subject of coloration has been discussed by BARRETT-HAMILTON, POCOCK, and the Recorder. ELLIOT-SMITH has contributed several important memoirs on brain-structure;—a subject which has also engaged the attention of other observers.

Reverting to palæontology, the description by DAWKINS of remains of Pliocene age in a British cave is an event of the first importance. Two other palæontological memoirs—namely the one by SCHLOSSER on the Tertiary Mammals of China, and that by SCOTT on the Loricated Edentates of Patagonia, likewise claim special notice.

Systematic work has progressed rapidly during the year, Transatlantic zoologists continuing work on the fauna of the Old World. Among notable novelties, reference may be made to the description by MATSCHIE of a gorilla from East Central Africa, and to THOMAS's identification of a new species of *Rhinopithecus*.

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12. —. Mammals collected in New Mexico and Durango, with descriptions of new species and subspecies. T. c. pp. 587-612. [*Chiroptera*, *Carnivora*, *Rodentia*, *Artiodactyla*.]
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## II. GENERAL BIOLOGY (INCL. ANATOMY).

[† 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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## 3. S.E. ASIA and ASIATIC ARCHIPELAGO.

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## 4. NORTH AMERICA.

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 U. S. and Mexico ; ELLIOT (103-109).  
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## 5. CENTRAL AND SOUTH AMERICA.

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 French Guiana ; MENEGAUX (200).  
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## 6. AUSTRALASIA.

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## 7. ANTARCTIC.

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- †*Griphopithecus*, n. g. for *G. suessi*, Leithakalk, Vienna, n. sp., ABEL, t. c. pp. 177 and 1177.
- †*Dryopithecus darwini*, Leithakalk, Vienna, ABEL, t. c. pp. 179 and 1185, n. sp.
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- Rhinopithecus brelichi*, Central China, THOMAS, P. Zool. Soc. London 1903, i, p. 224, pl. xxi, n. sp.

- Macacus fuscus*, Is. off Sumatra, P. U. S. Mus. xxvi, p. 476, *pugensis*, p. 61, *phaeura*, p. 63, Malaysia, Smithson. Collect. xlv, MILLER, n. spp.  
*Lophocebus*, n. nom. for *Semnocebus* Gray, 1870, nec Lesson, 1840, PALMER, Science (2) xvii, p. 873.  
*Cercocebus fuliginosus* and *Lagothrix humboldti*, visceral anatomy, BRADLEY, P. R. Soc. Edinb. xxiv, p. 505.  
*Papio*, cranial abnormality, VRAM, Boll. Soc. zool. Ital. (2) iv, p. 36.  
*Cebus imitator*, Chiriqui, THOMAS, Ann. Nat. Hist. (7) xi, p. 376, n. sp.  
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*Neocothurus*, n. nom. for *Cothurus* Palmer, 1899 (= *Brachyurus* Trouessart, nec Fisher), nec Champion, 1891, PALMER, Science (2) xvii, p. 873.  
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*Callithrix* Erxleben (nec Geoffroy) replaces *Hapale* Illiger, THOMAS, t. c., p. 457.

## LEMUROIDEA.

- Brain, ZIEHEN, Anat. Anz. xxii, p. 505, SMITH, Tr. Linn. Soc. London viii (2), p. 312, and J. Linn. Soc. xxix, p. 80; N American Eocene forms, WORTMAN, Amer. J. Sci. (4) xv, p. 163 et seq. and xvi, p. 345; semeniferous organs, BRANCA, C.R. Soc. Biol. lv, pp. 1034-1120.  
 †*Metachiomys*, n. g. for *M. marshi*, Eocene, N. America, n. sp., WORTMAN, op. cit. xvi, p. 347.

## II. CHIROPTERA.

- Bats of Poland, DYBOWSKI, Kosmos polski xxviii, p. 219; brain and nerves, DRÄSEKE, Zool. Anz. xxiii, pp. 449 and 571; genital canal, GROSSER, Verh. Anat. Ges. xxiii, p. 129; genital apparatus, RAUTHER, Anat. Anz. xxiii, p. 495; hibernation, MERZBACHER, Arch. ges. Physiol. xvii, p. 569, and c, p. 568.  
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 †*Archaeopterus*, n. g. for *A. transiens*, Miocene, Monteviale, Italy, n. sp., MESCHINELLI, Atti Ist. Veneto lxii, p. 1329, pl. ix.  
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*Euderma maculatum*, a second specimen, MILLER, P. Soc. Washington xvi, p. 105.  
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*Chilonatalus tumidifrons*, Bahamas, MILLER, P. Soc. Washington xvi, p. 119, n. sp.  
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- Nyctinomus fulminans*, Madagascar, p. 501, *cisturus*, p. 502, *demonstrator*, p. 504, Mangala, N. of Gondokoro, *thersites*, Cameroons, p. 634, THOMAS, t. c. n. spp.
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- Rhinopoma cystops*, Egypt, p. 496, *sumatrae*, Sumatra, p. 497, *muscatellum*, Muscat, p. 498, THOMAS, t. c. n. spp.
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- Lonchophylla*, n. g., p. 458, for *L. mordax*, Bahia, n. sp., p. 459, THOMAS, op. cit. xii.
- Hylonycteris*, n. g., p. 286, for *H. underwoodi*, Costa Rica, p. 287, n. sp., THOMAS, op. cit. xi.
- Choeronycteris godmani*, Guatemala, THOMAS, t. c. p. 288, n. sp.
- †*Necromycteris*, n. nom. for *Necromantis* Weithofer, 1887, nec *Necromantes* Gistel, 1841, PALMER, Science (2) xvii, p. 873.
- Diphylla centralis*, Chiriqui, THOMAS, Ann. Nat. Hist. (7) xi, p. 378, n. sp.

## III. INSECTIVORA.

- Generative organs, RAUTHER, Jena. Zeitschr. xxxi, p. 377.
- Galeopithecus pumilus*, p. 46, *aoris*, p. 47, *gracilis*, p. 49, *natunæ*, p. 50, *saturatus*, p. 51, *tuancus*, p. 53, Malaysia, MILLER, Smithson. Collect. xlv, n. spp.; brain, ZIEHEN, Anat. Anz. xxii, p. 505.
- Tupaia castanea*, p. 54, *pulonis*, p. 56, *tephrura*, p. 57, *chrysogaster*, p. 58, *cervicalis*, p. 59, Malaysia, MILLER, Smithson. Collect. xlv, n. spp.
- Petrodomus venustus*, Nyasaland, THOMAS, Ann. Nat. Hist. (7) xii, p. 340, n. sp.
- Erinaceus orientalis*, Vladivostok, ALLEN, Bull. Amer. Mus. xix, p. 179, n. sp.; *europæus*, hibernating gland of, CARLIER & EVANS, J. Anat. Physiol. norm. path. xxxviii, p. 15.
- Nannospalax*, n. nom. for *Microspalax* Nehring, 1898, nec Trouessart, 1885, PALMER, Science (2) xvii, p. 873.
- Sorex buxtoni*, N.E. Siberia, ALLEN, Bull. Amer. Mus. xix, p. 181; *oreinus*, Low. California, ELLIOT, Field Mus. Zool. iii, p. 172, n. spp.
- Crocidura russula cyprica*, Cyprus, BATE, P. Zool. Soc. London 1903, i, p. 344, n. subsp.
- Crocidura doriana guineensis*, Spanish Guinea, CABRERA, Mem. Soc. espan. i, p. 22, pl. i, n. subsp.
- Talpa europæa*, habits, number of mammæ, etc., ADAMS, Mem. Manchester Soc. xlvi, art. 4; (?) †*platybrachys*, Tertiary, Montana, DOUGLASS, Ann. Carnegie Mus. ii, p. 171, n. sp.

## IV. CARNIVORA.

Mode of killing prey, WALLINGER, J. Bombay Soc. xv, p. 312.

## FELIDÆ, VIVERRIDÆ, HYÆNIDÆ.

- †*Machærodus crenatidens*, from Pliocene Cave, Derbyshire, DAWKINS, Quart. J. Geol. Soc. lix, p. 111; *horribilis*, Tertiary, China, SCHLOSSER, Abh. Bayer. Ak. xxii, i, p. 37, n. sp.
- Felis ricketti*, Foochow, p. 374, *ingrami*, Central China, p. 474, *villosa*, Amur Bay, p. 475, BONHOTE, Ann. Nat. Hist. (7) xi; *glauacula*, Mexico, p. 235, *pardinoides oncilla*, Costa Rica, p. 237, *p. andina*,

- Ecuador, p. 238, *salinarum*, Cordova, p. 237, THOMAS, *ibid.* xii; *aztecus browni*, Arizona, MERRIAM, P. Soc. Washington xvi, p. 73, n. spp. & subspp.; *tigris*, a recent immigrant into India, STEWART, P. Zool. Soc. London 1903, i, p. 109, BONHOTE, t. c. p. 192, Sanskrit name of *saine*, RAMANAN, *ibid.* ii, p. 318; *leo*, former range, MEYER, Zool. Garten xlv, p. 65; *domestica*, perforation of vein by artery, WEYSSE, Amer. Natural. xxxvii, p. 489; *catus*, muscular abnormality in, PEARL, Biol. Bull. v, p. 336.
- Lynx chrysomelanotis*, contrasted with *Felis chaus furax*, NEHRING, SB. Ges. naturf. Berlin 1902, p. 147.
- Eucervaria*, n. nom. for *Cervaria* Gray, 1867, nec Walker, 1866, PALMER, Science (2) xvii, p. 873.
- Lynx rufus escuinapæ*, Sinaloa, Mexico, ALLEN, Bull. Amer. Mus. xix, p. 614, n. subsp.
- Genetta hararensis*, *matschiei*, *guardafuensis*, Somaliland, *terra-sanctæ*, Palestine, NEUMANN, SB. Ges. naturf. Berlin 1902, p. 183; *mossambica*, Mozambique, p. 1138, *pulchra*, Okavango, *rhodanica*, S. France, p. 1139, *bella*, Angola, *neumannii*, Ugogo, *schraderi*, Massaua, p. 1140, *dubia*, W. Africa, *zambesiana*, Zambesia, p. 1141, *thierryi*, Haussaland, *gleimi*, Loanda, p. 1142, *suhelica*, Swahililand, p. 1143, MATSCHIE, Verh. Congr. Zool. 1901 (1902); †*plesictoides*, Pleistocene, Cyprus, BATE, P. Zool. Soc. London 1903, ii, p. 121 : n. spp. & subspp.
- Hemigale minor*, Pugi Is., Sumatra, MILLER, Smithson. Collect. xlv, p. 43, n. sp.
- Paradoxurus lignicolor*, *ibid.*, MILLER, t. c. p. 44; *minor*, Malacca, BONHOTE, Fascic. Malay. Zool. i, p. 9 : n. spp.
- Herpestes hosei*, Borneo, JENTINK, Notes Leyden Mus. xxiii, p. 226; *ruddi*, Namaqualand, THOMAS, Ann. Nat. Hist. (7) xii, p. 466 : n. spp.; *albicauda almodovari*, figured, CABRERA, Mem. Soc. espan. i, pl. ii.
- †*Progenetta certa*, n. nom. for *P. incerta* Déperet, MAJOR, Geol. Mag. (4) x, p. 534.
- †*Leptoplesictis*, n. g. for *Herpestes filholi* Gaillard, MAJOR, t. c. p. 534.
- Hyena crocuta fspelæa*, dentition and osteology, REYNOLDS, British Pleistocene Mammalia ii, pt. i, Mon. Pal. Soc. 1902; †*gigantea*, Tertiary, China, SCHLOSSER, Abh. Bayer. Ak. xxii, i, p. 35, n. sp.

## CANIDÆ.

- Canis anthus sudanicus*, Kordofan, THOMAS, P. Zool. Soc. London 1903, i, p. 295; *clepticus*, San Pedro Martir Mts., ELLIOT, Field Mus. Zool. iii, p. 225; *thous* (= *cancrivorus*) *angulensis*, Brazil, THOMAS, Ann. Nat. Hist. (7) xii, p. 460; *impavidus*, Durango, Mexico, ALLEN, Bull. Amer. Mus. xix, p. 609; *amblyodon*, p. 157, *maullinicus*, *trichodactylus*, p. 158, *albigula*, *torquatus*, p. 159, Chili, PHILIPPI, Arch. Naturg. 1903, i, p. 155; *sladeni*, Matto Grosso, THOMAS, P. Zool. Soc. London 1903, ii, p. 235, n. spp. & subspp.; *familiaris*, ancestry, KELLER, Vierteljahrshchr. Ges. Zurich xlvi, p. 1, STUDER, Mt. Ges. Bern 1903, p. 1, ALBRECHT (7); *albus*, figured, MADSEN, Zool. Garten xlv, p. 201; *familiaris*, growth of skull, SCHMITT, Arch. Naturg. 1903, i, p. 69, splenic circulation, MALL, Amer. J. Anat. ii, p. 315, nerve-centres, LAPINSKY, Arch. Physiol. 1903, Suppl. p. 427.
- Urocyon cinereoargenteus borealis*, New Hampshire, *catalinae*, p. 74, *clemente*, *titoralis sanctacruzae*, Santa Barbara Ids., p. 75, MERRIAM, P. Soc. Washington xvi, n. spp. & subspp.
- Vulpes anadyrensis*, E. Siberia, ALLEN, Bull. Amer. Mus. xix, p. 167; †*sinensis*, Tertiary, China, SCHLOSSER, Abh. Bayer. Ak. xxii, i, p. 24; *arsipus*, California, ELLIOT, Field Mus. Zool. iii, p. 256 : n. spp.
- †*Daphenus*, osteology, HATCHER, Mem. Carnegie Mus. i, p. 65.

- †*Proamphicyon*, n. g. for *P. nebrascensis*, Oligocene, Nebraska, n. sp., HATCHER, t. c. p. 95.  
 †*Protemnocyon*, n. g. for *P. inflatus*, *ibid.*, n. sp., HATCHER, t. c. p. 99.  
 †*Hyaenognathus*, n. g. for *H. pachyodon*, Tertiary, California, n. sp., MERRIAM, Bull. California Univ. iii, p. 278.  
 †*Porthocyon*, n. g. for *P. dubius*, Tertiary, California, n. sp., MERRIAM, t. c. p. 283.  
 †*Mesocyon* (?) *drummondanus*, Tertiary, Montana, DOUGLASS, Ann. Carnegie Mus. ii, p. 164, n. sp.  
 †*Elurodon* (?) *brachygnathus*, *Ibid.* DOUGLASS, t. c. p. 173, n. sp.  
 †*Dinocyon ossifragus*, *Ibid.* DOUGLASS, t. c. p. 192, n. sp.

## MUSTELIDÆ.

- Galictis andina*, Peru, THOMAS, Ann. Nat. Hist. (7) xii, p. 462, n. sp.; *canaster*, from Mexico, BANGS, P. New England Zool. Club iii, p. 101.  
*Mustela foina syriaca*, Palestine, f. (†) *paleosyriaca*, Cavern, Lebanon, NEHRING, SB. Ges. naturf. Berlin 1902, p. 145; *americana kenaiensis*, Alaska, ELLIOT, Field Mus. Zool. iii, p. 151 : n. subsp.  
*Putorius* †*minor*, Tertiary, Montana, DOUGLASS, Ann. Carnegie Mus. ii, p. 192; *pygmaeus*, N.E. Siberia, p. 176, *microtis*, B. Columbia, p. 563, ALLEN, Bull. Amer. Mus. xix; *streatori leptus*, Colorado, MERRIAM, P. Soc. Washington xvi, p. 76; *vison melampeplus*, Alaska, ELLIOT, Field Mus. Zool. iii, p. 170 : n. spp. & subsp.  
*Lutreola* (†) *macrodon*, Prehistoric, Maine, PRENTISS, P. U. S. Mus. xxvi, p. 888, n. sp.  
*Meles* (†) *taxipater*, Tertiary, China, SCHLOSSER, Abh. Bayer. Ak. xxii, i, p. 28, n. sp.; *taxus*, gestation, COCKS, Zoologist (4) vii, p. 441.  
 †*Trocharon*, n. g. for *T. albanense*, Miocene, Grive-St-Alban, n. sp., MAJOR, Geol. Mag. (4) x, p. 536.  
 †*Trochichtis depereti* and *pusilla*, Grive-St-Alban, MAJOR, t. c. p. 537, n. spp.  
*Gulo luteus*, Mt. Whitney, ELLIOT, Field Mus. Zool. iii, p. 260, n. sp.  
*Spilogale arizonæ martirensis*, Lower California, ELLIOT, t. c. p. 170, n. subsp.  
*Conepatus hunti*, Peru, THOMAS, Ann. Nat. Hist. (7) xii, p. 461, n. sp.  
*Lutra matschiei*, Spanish Guinea, CABRERA, Bol. Soc. espan. ii, p. 182, and Mem. Soc. espan. i, p. 30, pl. iii; (†) *brachygnathus*, Tertiary, China, SCHLOSSER, Abh. Bayer. Ak. xxii, i, p. 26; n. spp.  
*Helictis pierreii*, Cochin China, BONHOTE, Ann. Nat. Hist. (7) xii, p. 592, n. sp.

## PROCYONIDÆ and URSIDÆ.

- Bassariscus sumichrasti notinus*, Chiriqui, THOMAS, Ann. Nat. Hist. (7) xi, p. 379; *albipes*, Mexico, ELLIOT, Field Mus. Zool. iii, p. 258 : n. sp. & subsp.  
*Ursus maritimus*, cause of death of London specimen, SALAMAN, P. Zool. Soc. London 1903, ii, p. 348; cranium, CAMERANO (67); *altifrontalis*, Washington, p. 234, *machetes*, Mexico, p. 235, *hylodromus*, N.W. Territory, p. 257, ELLIOT, Field Mus. Zool. iii, n. spp.; *arctus*, *tibetanus*, *japonicus*, *revi*, etc., notes on, NOACK, Zool. Anz. xxvii, p. 87; †*speleus*, in Italy, FLORES, Riv. ital. Pal. ix, p. 10.

## PINNIPEDIA.

- Sealing in 1902, SOUTHWELL, Zoologist (4) vii, p. 53; unrecorded bone in occiput, CLELAND, Rep. Brit. Assoc. 1902, p. 646; Italian fossil, UGOLINI, Atti Soc. Toscana xix, p. 80.



- Callotaria curilensis* Jordan & Clark, 1899, stands in place of *Phoca nigra* Pallas, in consequence of preoccupation of latter name, ALLEN, P. Soc. Washington xvi, p. 49.
- Odobæus obesus*, brain, FISH, P. U. S. Mus. xxvi, p. 675; skull of this species and *rosmarus*, CAMERANO (68).
- Phoca foetida*, remains from Arctic regions, CAMERANO (65); *groenlandica* at Teignmouth, on March 10th, JOURDAIN, Zoologist (4) vii, p. 312.

## †CREODONTIA.

- Pterodon africanus*, Eocene, Egypt, ANDREWS, Geol. Mag. (4) x, p. 341, n. sp.
- Pachyæna*, sp. from Eocene of Vaurigard, BOULE, Mem. Soc. geol. France, Pal. x, pt. 4.

## V. RODENTIA.

Derivation from *Multituberculata*, AMEGHINO, An. Mus. Buenos Aires ix, p. 81; generative organs, RAUTHER, Jena. Zeitschr. xxxi, p. 377; supra-renal capsule of Mice, ROUD, Bull. Soc. Vaudoise (4) xxxviii, p. 187.

## SCIURIDÆ.

- Sciurus aschantiensis*, Ashanti, p. 175, *keniæ*, Mt Kenia, p. 176, *palliatulus suahelicus*, German E. Africa, *p. tanæ*, Tana Valley, *p. barawensis*, Somaliland, p. 178, *emini ugandæ*, Uganda, p. 180, NEUMANN, SB. Ges. naturf. Berlin 1902; *castus*, Paraguay, xi, p. 488, *roberti*, Pernambuco, xii, p. 463, THOMAS, Ann. Nat. Hist. (7); (*Microsciurus*) *boquelensis*, Panama, NELSON, P. Soc. Washington xvi, p. 121; *mansalensis*, *bancarus*, p. 451, *saturatus*, p. 453, *pretiosus*, p. 454, *ubericolor*, p. 455, *erebus*, p. 456, N.W. Sumatra, MILLER, P. U. S. Mus. xxvi, p. 18; *fremonti lychnuchus*, New Mexico, STONE & REHN, P. Ac. Philad. 1903, p. 18; *robinsoni*, Malacca, BONHOTE, Fascic. Malay. Zool. i, p. 24; *bilimitatus*, p. 8, *pemangilensis*, p. 9, *aoris*, *peninsularis*, p. 10, *pannovianus*, p. 11, *istericus*, p. 12, *atratus*, p. 13, *piniensis*, *balæ*, p. 14, *pumilus*, p. 15, *lancavensis*, p. 16, *adangensis*, *sullivanus*, p. 17, *domelicus*, p. 18, *bentincanus*, *matthæus*, p. 19, *lucas*, *casensis*, p. 20, *altinsularis*, p. 21, *rubeculus*, p. 22, Malaysia, Smithson. Collect. xlv, *decemlineatus*, Low. Siam, P. Soc. Washington xvi, p. 147, MILLER; *tarctomyoides*, Tertiary, Montana, DOUGLASS, Ann. Carnegie Mus. ii, p. 181; n. spp. & subsp.; *douglasi orarius* Bangs, a distinct form, BANGS, P. Soc. Washington xvi, p. 99; *mollipilosus* and the above, note on, ALLEN, t. c. p. 126.
- Ratufa insignis*, p. 4, *conspicua*, p. 5, *balæ*, p. 6, *masce*, p. 7, *piniensis*, p. 8, Malaysia, Smithson. Collect. xlv, *femoralis*, p. 447, *nigrescens*, p. 448, *lanata*, p. 449, N.W. Sumatra, P. U. S. Mus. xxvi, MILLER, n. spp.
- Funambulus rostratus*, p. 24, *peninsulæ*, p. 25, Malaysia, MILLER, Smithson. Collect. xlv; *insignis jatoransis*, Malacca, BONHOTE, Fascic. Malay. Zool. i, p. 25 : n. spp. & subsp.
- Tamias townsendi littoralis*, Oregon, ELLIOT, Field Mus. Zool. iii, p. 154, n. subsp.
- Eutamias canicaudus*, Washington, MERRIAM, P. Soc. Washington xvi, p. 77; *durangæ*, Durango, Mexico, ALLEN, Bull. Amer. Mus. xix, p. 594 : n. spp.
- Spermophilus citellus*, ovum, REJSEK, Arch. mikr. Anat. lxii, p. 259, development of diaphragm, VÖLKER, Bull. Internat. (Rozp. Ceske Ak.



- Praze) vii, Médecine, p. 26; nervus cochlearis, WEIGNER, t. c. p. 65; *pallidicauda*, Gobi-Altai, SATUNIN, Annuaire Mus. St Petersburg, vii, p. 551, n. sp.
- Citellus grammurus utah*, Utah, p. 77, *adocetus*, Mexico, p. 79, MERRIAM, P. Soc. Washington xvi; *plesius ablusus*, p. 25, *nebulicola*, p. 26, Alaska, OSGOOD, t. c.; *buxtoni*, E. Siberia, p. 137, *stejnegeri*, Kamchatka, p. 142, *stonei*, Alaska, p. 537, *grammurus rupestris*, Durango, Mexico, p. 595, ALLEN, Bull. Amer. Mus. xix; *vinnulus*, p. 241, *chlorus*, p. 242, *eremonomus*, p. 243, California, ELLIOT, Field Mus. Zool. iii: n. spp. & subsp.
- Arctomys marmotta*, habits, GIRTANNER, Zool. Garten xlv, p. 126; hibernation, BLANCHARD, C.R. Zool. Biol. lv, pp. 734 & 1120.
- †*Palaearctomys*, n. g. p. 182 for *P. montanus*, p. 183, and *macrorhinus*, p. 184, Tertiary, Montana, n. spp., DOUGLASS, Ann. Carnegie Mus. ii.
- Sciuropterus bueckneri*, Gansu, SATUNIN, Annuaire Mus. St Petersburg, vii, p. 549; *moerens*, Sumatra, MILLER, Smithsonian. Collect. xlv, p. 26: n. spp.
- Petaurista batuana*, Sumatra, MILLER, t. c. p. 27, n. sp.

## GLIRIDÆ, CASTORIDÆ and †MYLAGAULIDÆ.

- Myoxus intermedius*, note on, p. 1, *glis orientalis*, Asia Minor, p. 187, n. subsp., SB. Ges. naturf. Berlin 1903, *dryas*, distribution, Zool. Anz. xxvii, p. 42, NEHRING.
- Eliomys gymnesicus*, Minorca, xi, p. 494, *lerotinus tunetæ*, Tunis, p. 495, *l. occidentalis*, Sahara, xii, p. 300, THOMAS, Ann. Nat. Hist. (7), n. spp. & subsp.
- Castor fiber*, fossil in Yorkshire, SPEIGHT, Naturalist 1903, p. 108, SHEPPARD, t. c. p. 109; in Russia, GREVE, Zool. Garten xlv, pp. 73 & 105.
- †*Dipoides majori*, Tertiary, China, SCHLOSSER, Abh. Bayer. Ak. xxii, art. 1, p. 40, n. sp.
- †*Mylagaulus* (?) *pristinus*, p. 187, *proximus*, p. 189, Tertiary, Montana, DOUGLASS, Ann. Carnegie Mus. ii, n. sp.

## MURIDÆ.

- Gerbillus kozlovi*, p. 553, *tamaricinus satschouensis*, p. 555, *turfanensis*, p. 557, *opimus nigrescens*, p. 560, Central Asia, SATUNIN, Annuaire Mus. St Petersburg, vii; *agag*, Kordofan, P. Zool. Soc. London 1903, i, p. 296, *riggerbachii*, Sahara, Ann. Nat. Hist. (7) xii, p. 301, THOMAS; *latastei*, Tunisia, THOMAS & TROUËSSART, Bull. Soc. zool. France xxviii, p. 172: n. spp. & subsp.
- Meriones blackleri*, Smyrna, THOMAS, Ann. Nat. Hist. (7) xii, p. 189, n. sp.
- Dipodillus henleyi*, Egypt, DE WINTON, Nov. Zool. x, p. 284, n. sp.
- Pachyuromys duprasi natronensis*, Egypt, DE WINTON, t. c. p. 285, n. subsp.
- Hyomys*, n. g. for *H. meeki*, New Guinea, n. sp., THOMAS, P. Zool. Soc. London 1903, ii, p. 199.
- Anisomys*, n. g. p. 199, for *A. imitator*, New Guinea, p. 200, n. sp., THOMAS, t. c.
- Mus vicereus*, Simla, Ann. Nat. Hist. (7) xi, p. 473, *jalorensis*, p. 29, *griseiventer annandalei*, p. 30, Malacca, Fascic. Malay. Zool. i, BONHOTE; *simalurensis*, p. 458, *domitor*, p. 461, *catellifer*, p. 464, N.W. Sumatra, P. U. S. Mus. xxvi, *stridens*, p. 28, *matthæus*, *stridulus*, p. 29, *lucas*, *soccatus*, p. 30, *mase*, p. 32, *bale*, *lugens*, p. 33, *julianus*, p. 34, *gilbiventer*, p. 35, *luteolus*, p. 36, *umbridorsum*, p. 37, *bentincanus*, *casensis*, p. 38, *domelicus*, *pugensis*, p. 39, Malaysia, Smithsonian. Collect. xlv,

- MILLER; *gigas*, p. 561, *gansuensis*, p. 562, *turkestanicus*, p. 588, Centr. Asia, SATUNIN, Annuaire Mus. St. Petersb. vii; *mystacinus smyrnensis* Smyrna, p. 188, *hypoxanthus bacchante*, B. E. Africa, p. 342, *h. unyori*, Unyoro, p. 343, THOMAS, Ann. Nat. Hist. (7) xii : n. spp. and subsp.; *atradorsum*, n. nom. for *M. atratus* Miller, 1902, nec Philippi, 1900, MILLER, P. Soc. Washington xvi, p. 50; *rattus*, spinal nerves, HATAI, Biol. Bull. iii, p. 140; diffusion of in Italy, TIRABOSCHI, Boll. Soc. zool. Ital. (2) iii, p. 173, in Massachusetts, MEARNs, P. Soc. Washington xiii, p. 167, 1900; *musculus*, colour-heredity in domesticated breeds, BATESON, P. Zool. Soc. London 1903, ii, p. 7; *norvegicus*, abnormal dentition, WIEDERSHEIM, Anat. Anz. xxii, p. 569; *musculus*, heredity of pigment in, CUENOT, C.R. Soc. Biol. Iv, pp. 298-304; *sylvaticus wintoni* in Suffolk, SOUTHWELL, Zoologist (4) vii, p. 150.
- Nesocia argyropus*, Persia, CARRERA, Bol. Soc. espan. i, p. 118, 1901, n. sp.
- Acomys nesotes*, Cyprus, BATE, Ann. Nat. Hist. (7) xi, p. 565, n. sp.; see also MITCHELL, P. Zool. Soc. London 1903, ii, p. 260.
- Arvicanthus dunni*, Kordofan, THOMAS, P. Zool. Soc. London 1903, i, p. 297, n. sp.
- Leggada tenella*, Roseres, Blue Nile, THOMAS, t. c. p. 298, n. sp.
- Lenothrix*, n. g. for *L. canus*, Pulo Tuangku, Sumatra, n. sp., MILLER, P. U. S. Mus. xxvi, p. 466.
- Moschomys*, n. nom. for *Megalomys* Trt. 1881, nec *Megamys* Laurillard, 1848, TROUËSSART, Ann. Nat. Hist. (7) xi, p. 386; type, *Mus pilorides*.
- Kannabateomys amblyonyx pallidior*, Paraguay, THOMAS, Ann. Nat. Hist. (7) xi, p. 489, n. subsp.
- Chiropodomys nadis*, Nias I. Sumatra, MILLER, Smithson. Collect. xlv, p. 40, n. sp.
- Dendromys messorius*, Cameroons, p. 340, *insignis*, Brit. E. Africa, p. 341, THOMAS, Ann. Nat. Hist. (7) xii, n. spp.
- Fiber occipitalis*, Oregon, ELLIOT, Field Mus. Zool. iii, p. 162, n. sp.
- Neotoma navus*, p. 47, *goldmani*, p. 48, MERRIAM, *distincta*, p. 89, BANGS, Mexico, P. Soc. Washington xvi; *bella felipensis*, San Felipe, California, p. 217, *fuscipes mohavensis*, p. 246, *desertorum grandis*, p. 247, California, ELLIOT, Field Mus. Zool. iii; *intermedia durangæ*, Durango, Mexico, ALLEN, Bull. Amer. Mus. xix, p. 602 : n. spp. & subspp.
- Nelsonia goldmani*, Mexico, MERRIAM, P. Soc. Washington xvi, p. 80, n. sp.
- Teonoma cinerea acrata*, California, ELLIOT, Field Mus. Zool. iii, p. 247, n. sp.
- Teanopus*, n. g. for *T. phenax*, Sonora, n. sp., MERRIAM, P. Soc. Washington xvi, p. 81.
- Cricetus vulgaris babylonius*, Bagdad, NEHRING, SB. Ges. naturf. Berlin 1903, p. 360, n. subsp.
- Cricetulus phæus griseiventris*, p. 566, *dichrootis*, p. 567, *roborovskii*, p. 571, Central Asia, SATUNIN, Annuaire Mus. St. Petersb. vii, n. spp. & subsp.
- Urocricetus*, n. g. for *U. kamensis*, N.E. Tibet, n. sp., SATUNIN, t. c. p. 574.
- Oxymycterus questor*, Brazil, p. 227, *delator*, Paraguay, p. 489, THOMAS, Ann. Nat. Hist. (7) xi; *microtis*, Patagonia, ALLEN, Bull. Amer. Mus. xix, p. 189 : n. spp.
- Peromyscus leucurus gadovii*, p. 484, *beatæ*, p. 485, *cecilii*, p. 486, Mexico, THOMAS, Ann. Nat. Hist. (7) xi; *perimеkurus*, Oregon, p. 156, *hemionotus*, *gaurus*, p. 157, *homochroia*, p. 158, *oresterus*, p. 159, Low. California, *catalina*, Catalina Id., p. 160, *petraius*, *parasiticus*, p. 242, California, *metallicola*, p. 245, Mexico, ELLIOT, Field Mus. Zool. iii; *paulus*, p. 598, *texanus flaccidus*, p. 599, Durango, Mexico, ALLEN, Bull. Amer. Mus. xix : n. spp. & subspp.
- Oryzomys sublineatus*, Brazil, THOMAS, Ann. Nat. Hist. (7) xii, p. 240, n. sp.

- Onychomys macrotis*, p. 155, *pulcher*, p. 245, California, ELLIOT, Field Mus. Zool. iii, p. 155; *ruidosæ*, New Mexico, STONE & REHN, P. Ac. Philad. 1903, p. 22 : n. spp.
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- Euoneomys petersoni*, Patagonia, ALLEN, t. c. p. 192, n. sp.
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- Eosacomys*, n. nom. for *Saccostomus* Peters, 1846, nec Fitzinger, 1843, PALMER, Science (2) xvii, p. 873.
- Hypogeomys* (†) *australis*, Pleistocene (?), Madagascar, GRANDIDIER, Bull. Mus. Paris 1903, p. 13, n. sp.
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- Lemmus obensis chrysogaster*, E. Siberia, ALLEN, t. c. p. 153, n. sp.

## JACULIDÆ and SPALACIDÆ.

- Sminthus tianschanicus*, Thian Shan, SALENSKY, Annuaire Mus. St. Petersb. viii, p. 17, n. sp.
- Cardiocranius*, n. g., p. 582, for *C. paradoxus*, Nan-Shan, n. sp., p. 584, SATUNIN, Annuaire Mus. St. Petersb. vii.
- Jaculus gordonii*, Kordofan, THOMAS, P. Zool. Soc. London 1903, i, p. 299, n. sp.
- Alactaga williamsi laticeps*, Asia Minor, NEHRING, SB. Ges. naturf. Berlin 1903, p. 357, n. subsp.
- Spalax dolbrogeæ*, Rumania, p. 161, *berytensis*, Syria, p. 162, MILLER, P. Soc. Washington xvi, n. spp.
- Fornarina*, n. g. for *Heterocephalus phillipsi*, THOMAS, P. Zool. Soc. London 1903, ii, p. 336.
- Heterocephalus ansorgei*, Somaliland, THOMAS, loc. cit., n. sp.



## GEOMYIDÆ and HETEROMYIDÆ.

- Platygeomys tylosrhinus angustirostris*, Mexico, MERRIAM, P. Soc. Washington xvi, p. 81, n. subsp.  
*Thomomys helleri*, Oregon, p. 165, *aphrastus*, Low. California, p. 219, ELLIOT, Field Mus. Zool. iii, n. spp.  
*Perognathus helleri*, p. 166, *baileyi rudinoris*, p. 167, *femoralis mesopolis*, p. 168, *knekus*, p. 169, *mesembrinus*, p. 251, *elibatus*, *pericalles*, p. 252, California, *hispidus maximus*, p. 253, Oklahoma Territory, ELLIOT, t. c., n. spp. & subsp.  
*Heteromys (Liomys) paralius*, Mexico, ELLIOT, Field Mus. Zool. iii, p. 233, n. sp.  
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*Proechi[no]mys vacillator*, Brit. Guiana, THOMAS, t. c. p. 490, n. sp.  
*Ctenomys azarae*, Buenos Aires, THOMAS, t. c. p. 228 & xii, p. 243; *robustus*, p. 185, *sericeus*, p. 187, *colburni*, p. 188, Patagonia, ALLEN, Bull. Amer. Mus. xix : n. spp.

## HYSTRICIDÆ and ERETHIZONTIDÆ.

- Atherura zygomatica*, Palo Aor, Johor, MILLER, Smithson. Collect. xlv, p. 42, n. sp.  
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*Myoprocta*, n. g. for *Dasyprocta acouchy* (Linn.), THOMAS, op. cit. xii, p. 464.  
*Cavia aperea*, brain, WALLENBERG, Anat. Anz. xxiv, p. 199.

## LEPORIDÆ and OCHOTONIDÆ.

- Lepus creticus*, Crete, p. 126, *cyprius*, Cyprus, p. 127, HAMILTON, Ann. Nat. Hist. (7) xi; *harterti*, Sahara, Nov. Zool. x, p. 301, *capensis centralis*, Cape Colony, Ann. Nat. Hist. (7) xii, p. 344, THOMAS; *gichiganus*,



- N. E. Siberia, p. 155, *texianus micropus*, p. 605, *gaillardi battyi*, p. 607, *arizonæ major*, p. 608, *durangæ*, p. 609, Durango, Mexico, ALLEN, Bull. Amer. Mus. xix; *parnassius*, Greece, MILLER, P. Soc. Washington xvi, p. 145; *laticinctus, l. rufipes*, p. 254, *l. perplicatus*, p. 255, California, ELLIOT, Field Mus. Zool. iii: n. spp. & subsp.
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- Ochotona kolymensis*, Kolyma, ALLEN, Bull. Amer. Mus. xix, p. 154, n. sp.

## †RODENTIA INCERTÆ SEDIS.

- Mytagaulodon*, n. g. for *M. angulatus*, n. sp. Tertiary, Oregon, SINCLAIR, Amer. J. Sci. (4) xv, p. 143.
- Odontomysops* (n. g.) *spiniferus*, *Promysops* (n. g.) *acuminatus*, p. 84, *primarius*, p. 85, *Propolymastodon* (n. g.) *caroli-amegheni*, p. 100, *cardatus*, p. 105, Tertiary, Santa Cruz, Patagonia, AMEGHINO, An. Mus. Buenos Aires ix, n. spp.

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- †*Protetraceros*, n. g. for *P. gaudryi*, Tertiary, China, n. sp., SCHLOSSER, Abh. Bayer. Ak. xxii, i, p. 136.
- Oreotragus schillingsi*, Kilimanjaro district, p. 172, *somalicus*, Somaliland, p. 174, NEUMANN, SB. Ges. naturf. Berlin 1902, n. spp.
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- +*Palæoreas sinensis*, Tertiary, China, SCHLOSSER, Abh. Bayer. Ak. xxii, i, p. 140, n. sp.
- Strepsiceros* (+) *præcursor*, p. 148, (+) *annectans*, p. 150, Tertiary, China, SCHLOSSER, t. c. n. spp.
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- +*Plesiaddax*, n. g. for *P. depereti*, n. sp., Tertiary, China, SCHLOSSER, t. c. p. 146.
- +*Pseudobos* [?= *Criotherium*, p. p.] n. g. for *P. gracilidens*, *intermedius*, Tertiary, China, n. spp., SCHLOSSER, t. c. p. 148.

## GIRAFFIDÆ, CERVIDÆ, &amp;C.

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## CAMELIDÆ and TRAGULIDÆ.

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*Poatrephes*, n. g. for *P. paludicola*, Ibid. DOUGLASS, t. c. p. 176, n. sp.  
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## SUIDÆ, DICOTYLIDÆ, &amp;C.

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- †*Protohippus* from Russia, PAVLOW, Bull. Soc. Moscou 1903, p. 173.
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- †*Anchilophus desmaresti*, brain, WEINBERG, Zeitschr. wiss. Zool. lxxix, p. 491.
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## HYRACOIDEA and †CONDYLARTHRA.

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- †*Pareutatus*, n. g. for *Eutatus distans* Ameghino, Tertiary, Patagonia, SCOTT, t. c. p. 68.
- †*Euclinepeltus complicatus*, Tertiary, Patagonia, BROWN, Bull. Amer. Mus. xix, p. 453, n. sp.
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- †*Tytoconus*, n. nom. for *Microconodon* Osborn, 1866, nec *Microconodus* Traquair, 1877, PALMER, l. c.
- †*Plesiofelis* (n. g.) *schlosseri*, p. 154, *cretaceus*, *Eutrochodon* (n. g.) *inceptus*, p. 155, fossil, Patagonia, ROTH, Revist. Mus. La Plata xi, n. spp.

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MATTHEW, W. D. The fauna of the *Titanotherium* beds at Pipestone Springs, Montana. Bull. Amer. Mus. xix, pp. 197-226, figg. [*Insectivora*, *Carnivora*, *Rodentia*, *Artiodactyla*.]

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The species and genera dealt with in the two memoirs must stand over till next year, the papers having been received only after this Record was in type.

## III. AVES.

BY

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

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## INTRODUCTION.

THERE is no work calling for special mention this year, though great progress has been made with some of those in course of publication. The number of titles increases with each year. Once more I have to thank Mr Charles Chubb for his assistance.

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2. ALEXANDER, BOYD. Descriptions of new species of birds from Fernando Po. *Bull. B. O. C.* xiii, pp. 33-38. [*Columbiformes, Halcyones, Cypseli, Trogones, Meropes, Indicators, Pici, Hirundinidae, Muscicapidae, Pycnonotidae, Sylviidae, Timeliidae, Turdidae, Lanidae, Nectariniidae, Ploceidae, Fringillidae.*]
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  12. —. Migration of Richardson's Grouse (*Dendragapus obscurus richardsoni*). Auk xx, pp. 24-27.
  13. APLIN, O. V. On the courting of the Robin. Ibis 1903, pp. 132 & 133. [*Turdidae*.]
  14. —. On the Dotterel in Wales. T. c. pp. 133-135. [*Charadriiformes*.]
  15. —. Notes on the Ornithology of Oxfordshire. Zoologist 1903, pp. 5-22, 59-68, 444-453.
  16. —. Migration of Jays (*Garrulus glandarius*). T. c. p. 28. [*Corvidae*.]
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  18. —. Additional notes on the birds of Lleyn. T. c. pp. 201-213.
  19. —. Breeding habits of the Pied Woodpecker (*Dendrocopos major*). T. c. pp. 214 & 215. [*Pici*.]
  20. —. Tufted Duck (*Fuligula cristata*) in Merionethshire. T. c. p. 316. [*Anseriformes*.]
  21. —. Birds mentioned by Aristotle. T. c. p. 318.
  22. —. The Hobby (*Falco subbuteo*) in South Warwickshire. T. c. p. 351. [*Accipitriformes*.]
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37. —. A new Wren from San Miguel Island, Bay of Panama. T. c. pp. 3 & 4. [*Troglodytidae*.]
38. —. The Louisiana Cardinal. T. c. pp. 5-7. [*Fringillidæ*.]
39. —. A new race of *Vireosylva josephæ* from Chiriqui. T. c. pp. 9 & 10. [*Vireonidæ*.]
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Cf. MEYER, A. B. (431).
63. BENT, A. C. Black Vulture (*Catharista urubu*) at Taunton, Mass. Auk xx, p. 67. [*Cathartidiformes*.]
64. BERGE, R. *Turdus torquatus*, L. als Brutvögel im Erzgebirge. Ornith. Monber. xi, pp. 139 & 140. [*Turdidae*.]
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66. ——. On the genera *Xenerpestes* and *Metopothrix*. Ibis 1903, pp. 108 & 109. [*Dendrocolaptidae*.]
67. ——. On the nomenclature of some Peruvian Birds. T. c. pp. 135-137. [*Tanagridae*, *Formicariidae*.]
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**Literature.** ALLEN (7), DAVIS (162), DORAN (169), DUBOIS (175), EVANS (191), HELLMAYR (361), RHOADS (540), SHERBORNE (630), STONE (650), TROTTER (671), TSCHUSI (672).

**Migratory.** APLIN (16), BERNEY (71), COCHRANE (142), HAIGH (266), HEGEYFOKY (298), HENDERSON (309), KOPMAN (365), LAIDLAW (369), SERVICE (601), VEZENYI (685), WINGE (708), WINKENWERDER (709).

## III. SYSTEMATIC.

### Sub-class RATITÆ.

#### Order STRUTHIONIFORMES.

*Struthio karatheodori*, notes on; MARTIN, P. Zool. Soc. London 1903, pp. 203-210, text-figg. 30-34.

#### Order CASUARIIFORMES.

*Dromæus novæhollandiæ*, an egg from Tasmania; LE SOUËF, Emu iii, pp. 114 & 115: *D. ater*, notes on; RENSCHAW, Zoologist 1903, pp. 81-88 cum fig.; LE SOUËF, p. 461: *D. irroratus*, is not distinct from *D. novæ-hollandiæ*, id. t. c. p. 461.

#### Order DINORNITHIFORMES.

*Dinornis*, record of known eggs; MEYER, Ibis 1903, pp. 188-196: remarks on Moa eggs; BENHAM, t. c. pp. 632-634.



## Sub-class CARINATÆ.

## Order TINAMIFORMES.

*Crypturus tataupa* breeding in confinement; SETH-SMITH, Bull. B. O. C. xiv, pp. 22 & 23.

## Order GALLIFORMES.

- Gallinæ* of Central America; GODMAN, Biol. Centr.-Amer. Aves iii, pp. 281-314, pls. lxxii-lxxvi.
- Craz pinima* Pelz., male described; GOELDI, Ibis 1903, pp. 491-495: Is identical with *C. fasciolata*, Spix., id. t. c. p. 494.
- Phasianidæ*, contributions to the biology of; GHIGI, Arch. zool. ital, i, pp. 289-338, tav. 13-17.
- Francolinus mulemæ*, n. sp., Mulema, Uganda; GRANT, Bull. B. O. C. xiv, pp. 30 & 31: *F. bottegi*, figured; REICHENOW, Vög. Afrikas ii, Taf.
- Perdix perdix caucasica*, n. subsp., W. Caucasus; id. J. Ornith. 1903, p. 543.
- Coturnix coromandelica*, in captivity; SETH-SMITH, Avicult. Mag. (2) i, pp. 366-368.
- Excalfactoria trinkutensis*, n. sp., Trinkut Id., Nicobars; RICHMOND, P. U. S. Mus. xxv, p. 310 (1902): *E. chinensis* and *E. lineata*, Nestlings; SETH-SMITH, Bull. B. O. C. xiii, p. 72.
- Ithaginis sinensis michaëlis*, n. subsp., Nan-shan; BIANCHI, Annuaire Mus. St. Petersb. viii, pp. 1-10: *I. sinensis berezowskii*, n. subsp., Kan-su; id. t. c. pp. 1-10.
- Gennæus*; revision of the genus; GHIGI, Arch. zool. ital. i, pp. 320-336: Notes on the species; OATES, Ibis 1903, pp. 93-106: *G. jonesi*, n. sp., Shan States and Yun-nan; id. t. c. p. 97: *G. nisbeti*, n. sp., Kachin Hills; id. t. c. p. 99: *G. affinis*, n. sp., Namli River, Upper Burma; OATES, Ann. Nat. Hist. (7) xi, p. 231.
- Phasianus principalis* introduced into England; TEGETMEIER, Bull. B. O. C. xiv, p. 33: *P. brandti* = *P. mongolicus* Pall.; ROTHSCHILD, op. cit. xiii, p. 43: *P. torquatus pallasii*, n. subsp.; id. t. c. p. 43: *P. hagenbeckii* in the London Markets; TEGETMEIER, t. c. p. 63.
- Gallus gallus*, observations and experiments on the Japanese Long-tailed Fowl; CUNNINGHAM, P. Zool. Soc. London 1903, i, pp. 227-250, text-figg. 41 & 42.
- Chalcurus inopinatus*, n. sp., Ulu Pahang, Malay Peninsula; ROTHSCHILD, Bull. B. O. C. xiii, p. 41: Figured; id. Nov. Zool. x, pl. ii.
- Lophortyx californicus vallicolus*, habits of; WILLIAMS, Condor v, pp. 146-148.
- Colinus*, notes on species; GRANT, Ibis 1903, pp. 110 & 111.
- Cyrtonyx montezumæ mearnsi*, note on; FOWLER, Condor v, pp. 68 & 69; FUERTES, t. c. pp. 113-116: *C. merriami* and *C. mearnsi*, notes on; GRANT, Ibis 1903, pp. 111-113.
- Dactylortyx thoracicus sharpei*, n. subsp., Apazote, Campeche, Mexico; NELSON, P. Soc. Washington xvi, p. 152.
- Odontophorus guttatus* and *O. veraguensis*, intergrading in Chiriqui; BANGS, P. New England Zool. Club iii, p. 22 [1902].

## Order HEMIPODII.

*Turnix tanki*, breeding in captivity; SETH-SMITH, Avicult. Mag. (2) i, pp. 317-324, cum tab.: its plumages, eggs, and young; id. Bull. B. O. C. xiii, pp. 71 & 72.

## Order COLUMBIFORMES.

- Osmotreron chloroptera andamanica*, n. subsp., Macpherson Strait, S. Andamans; RICHMOND, P. U. S. Mus. xxv, p. 308 (1902).
- Ptilopus centralis*, n. sp., Celebes; MEYER, Notes Leyden Mus. xxiii, pp. 188 & 189.
- Ptilinopus melanocephala* and its allies; HARTERT, Nov. Zool. x, pp. 33 & 34: *P. m. aurescentior*, n. subsp.; Tukang-Besi Is., id. t. c. p. 33: *P. m. talauntensis*, n. subsp., Talaut Is., id. t. c. p. 34; *P. granulifrons*, notes on; id. t. c. p. 15.
- Carpophaga concinna* and *C. separata*, notes on; id. t. c. p. 34.
- Columba albertisii exsul*, n. subsp., Batchian Id., Moluccas; id. t. c. pp. 60 & 61: *C. phasma*, nom. emend. pro *C. grisea* Bp. (nec Bonn.); RICHMOND, P. U. S. Mus. xxvi, p. 490: *C. livia*, in the Cheddar cliffs, Somerset; LEWIS, Zoologist 1903, p. 108: APLIN, t. c. p. 153: LEWIS, t. c. p. 230: APLIN, t. c. p. 317.
- Domestic Pigeon, ♂, × *Columbaenas*, ♀; SERVICE, t. c. p. 73.
- Columbaenas*, in the Isle of Man; GRAVES, t. c. pp. 316 & 317: NELSON, t. c. pp. 391 & 392: *C. fasciata*, notes on the nesting; SHARP, Condor v, p. 16; FOWLER, t. c. p. 69: note on; GILMAN, t. c. pp. 134 & 135: *C. palumbus*, notes on hybridization; PODMORE, Zoologist 1903, pp. 401-406, pl. vii: nesting on the ground; TAIT, Ann. Scott. Nat. Hist. 1903, p. 186.
- Turacæna manadensis sulaensis*, n. subsp., Sula Id.; HARTERT, Nov. Zool. x, p. 35.
- Ectopistes migratorius*, recent records in Canada; FLEMING, Auk xx, p. 66.
- Turtur douraca* Hodgs. = *Columba decaocta* Friv.; DRESSER, Ibis 1903, pp. 89 & 90.
- Haplopelia hypoleuca*, n. sp., Anno-Bom; SALVADORI, Mem. Acc. Torino (2) liii, pp. 96 & 97: *H. poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 33: = *H. simplex* (Hartl.); id. Ibis 1903, p. 396.
- Leptoptila jamaicensis*, breeding in captivity; ALDERSON, Avicult. Mag. (2) i, pp. 393-399: op. cit. (2) ii, pp. 28-30.
- Geotrygon sabæ*, n. sp., Saba Island, West Indies; RILEY, P. Soc. Washington xvi, pp. 13 & 14: *G. albifacies rubida*, n. subsp., Omilteme, Guerrero; NELSON, t. c. pp. 151 & 152.

## Order RALLIFORMES.

- Rallidæ* of Central America; GODMAN, Biol. Centr.-Amer. Aves iii, pp. 315-331, pl. lxxvii.
- Rallidæ* of Hawaii; PERKINS, Fauna Hawaiiensis i, pp. 453-456.
- Rallus aquaticus*, nesting in the Isle of Man; GRAVES, Zoologist 1903, p. 317.
- Hypotaenidia wakensis*, n. sp., Wake Id. (19° N. Lat., 167° E. Long.); ROTHSCHILD, Bull. B. O. C. xiii, p. 78: *H. kuehni* and its allies; HARTERT, Nov. Zool. x, p. 36.
- Porzana parva*, in Co. Kildare; WILLIAMS, Zoologist 1903, p. 460.
- Porzanula palmeri*, nest and eggs described; FISHER, Auk xx, pp. 392-396, pl. xv.
- Monias*, n. g. type *M. benschi*, n. sp., Vorondreo, Madagascar; OUSTALET & GRANDIDIER, Bull. Mus. Paris 1903, pp. 10-12.
- Gallinula chloropus* laying in the nest of *Trypanocorax frugilegus*; PARKIN, Bull. B. O. C. xiii, pp. 63 & 64: note on albinos; SOUTHWELL, Zoologist 1903, pp. 351 & 352.
- Porphyriola alleni* near Catania; CECILIA, Avicula 1903, p. 116.

## Order PODICIPEDIFORMES.

The walking-powers of Grebes ; FINN, Bull. B. O. C. xiv, p. 33.

## Order COLYMBIFORMES.

*Colymbus septentrionalis*, incubation ; GOEBEL, Ornith. Jahrb. xiv, p. 94 :  
*C. glacialis*, in the island of Coll in July ; IRBY, Ann. Scott. Nat.  
Hist. 1903, p. 244 : BISSHOPP, t. c. p. 246.

## Order HESPERORNITHIFORMES.

*Hesperornis gracilis*, notes on ; LUCAS, P. U. S. Mus. xxv, pp. 545-552,  
figg. 1-4: type of *Hargeria*, n. g. ; LUCAS, op. cit. xxvi, p. 552.  
*Baptornis advenus*, note on ; id. t. c. pp. 553-555, figg. 6-8.

## Order PROCELLARIIFORMES.

*Procellariidae* of Hawaii ; PERKINS, Fauna Hawaiiensis i, pp. 462 & 463.  
*Cymochorea leucorrhoea*, in Somerset ; READ, Zoologist 1904, p. 29.  
*Oceanodroma melania* and *O. socorroensis*, nesting habits ; GRINNELL &  
DAGGETT, Auk xx, pp. 30-32 : a correction ; BREWSTER, t. c. pp. 63 &  
64.  
*Puffinus griseus*, in Stromness harbour ; CLARKE, Ann. Scott. Nat. Hist.  
1903, pp. 25 & 26 : in the Firth of Forth ; EVANS, t. c. pp. 26-28.  
*Bulweria bulweri* in Sussex ; TICEHURST, Bull. B. O. C. xiii, p. 51.  
*Diomedeidae* of Hawaii ; PERKINS, Fauna Hawaiiensis i, pp. 463 & 464.  
*Diomedea nigripes* and *D. albatrus* in the North Pacific Ocean ; BARRETT-  
HAMILTON, Ibis 1903, pp. 320-324.  
*Thalassogeron carteri*, n. sp., Point Cloates, N.W. Australia ; ROTHSCHILD,  
Bull. B. O. C. xiv, p. 6.

## Order ALCIFORMES.

*Alle alle*, on Long Island, N. Y. ; BURTIS, Auk xx, p. 209.  
*Uria troile*, note on ; WARREN, Zoologist 1903, p. 194 : SAXBY, t. c.  
pp. 230 & 231 : TUCK, t. c. pp. 275 & 276 : *U. troile californica*, note  
on ; KEADING, Condor v, p. 123 cum fig.  
*Cepphus columba*, note on ; id. t. c. p. 127 cum fig.  
*Ptychoramphus aleuticus*, notes on ; ROBERTSON, t. c. pp. 96 & 97.  
*Lunda cirrhata*, note on ; KEADING, t. c. p. 122 cum fig.

## Order LARIFORMES.

*Laridae* of Central America ; GODMAN, Biol. Centr.-Amer. Aves iii,  
pp. 397-424.  
*Laridae* of Hawaii ; PERKINS, Fauna Hawaiiensis i, pp. 464 & 465.  
*Hydrochelidon nigra*, in the Isle of Man ; RALFE, Zoologist 1903, pp. 460 &  
461 : in Cheshire ; OLDHAM, t. c. p. 393 : *H. nigra surinamensis*, in  
Nova Scotia ; DWIGHT, Auk xx, p. 440.  
*Sterna caspia*, breeding in Pomerania ; NEHRING, Ornith. Monber. xi,  
pp. 165 & 166 : *S. hirundo*, at San Francisco ; LITTLEJOHN, Condor v,  
p. 81.  
*S. zimmermanni*, n. sp., Kiautschou, China ; REICHENOW, Ornith. Monber.  
xi, p. 82.  
*S. fuliginosa*, note on the species at Oyster Bay ; CORNWALL, Emu iii,  
pp. 45-47, pl. iv.



- Procelsterna saxatilis*, n. sp., Necker Id., Hawaiian group; FISHER, P. U. S. Mus. xxvi, pp. 559-563.
- Xema sabinei*, near Scarborough; CLARKE, Zoologist 1903, p. 394: in Yorkshire; TUCK, t. c. pp. 353, 394 & 395, 436.
- Larus minutus*, in the Clyde district; PATERSON, Ann. Scott. Nat. Hist. 1903, p. 119: at Long Id., N. Y.; BRAISLIN, Auk xx, p. 52: *L. melanocephalus*, supposed occurrence at Perth; LAIDLAW, Ann. Scott. Nat. Hist. 1903, pp. 119 & 120: *L. ridibundus*, notes on the nidification; Zoologist 1903, pp. 128 & 129: *L. marinus*, in Oneida County, N. Y.; JOHNSON, Auk xx, p. 303: *L. fuscus* and *L. argentatus*, notes on the nesting; MILLS, Zoologist 1903, pp. 317 & 318: HARVIE-BROWN, t. c. p. 352: ELMS, t. c. pp. 352 & 353: *L. occidentalis*, note on; KEADING, Condor v, pp. 124 & 125 cum figg.: *L. argentatus*, capturing a Bat; RODGER, Ann. Scott. Nat. Hist. 1903, p. 51: notes on the life-history; DUTCHER & BAILY, Auk xx, pp. 417-431, pls. xxi & xxii: *L. canus*, breeding at high levels; WATT, Ann. Scott. Nat. Hist. 1903, p. 246: *L. glaucus*, near Judenburg in Steiermark; STROINIGG, Ornith. Jahrb. xiv, pp. 231 & 232: *L. leucopterus*, in Co. Londonderry; PATTERSON, Irish Natural. xii, p. 198.
- Rissa tridactyla*, incubation; GOEBEL, Ornith. Jahrb. xiv, p. 96.
- Stercorarius pomatorhinus*, on the Nith; SERVICE, Ann. Scott. Nat. Hist. 1903, p. 51: at Loch Lomond; KIRK, t. c. p. 51: *S. crepidatus*, wintering in Shetland; GODFREY, t. c. p. 120: in Valparaiso Bay; first record for Pacific coast of South America; NICOL, Bull. B. O. C. xiv, p. 18.
- Lestris richardsoni*, incubation; GOEBEL, Ornith. Jahrb. xiv, p. 95.
- Stercorarius parasiticus* (L.) is the proper name of *S. catarrhactes*, auct.; LÖNNBERG, Zoologist 1903, p. 341: *S. longicaudus*, must stand as the specific name of *Stercorarius parasiticus*, auct.; id. t. c. p. 342.

## Order CHARADRIIFORMES.

- Charadriidae* of Hawaiian Islands; PERKINS, Fauna Hawaiiensis i, pp. 449 & 450.
- Limicola* of Central America; GODMAN, Biol. Centr.-Amer. Aves iii, pp. 338-396: osteology of; SHUFELDT, Ann. Carnegie Mus. ii, pp. 15-70, pl. i, text-figg. 1-27.
- Arenaria interpres*, in the Mid-Pacific; BRYAN, Auk xx, pp. 210 & 211.
- Chettusia leucura*. Its eggs; WITHERBY, Bull. B. O. C. xiii, pp. 62 & 63.
- Eudromias morinellus*, in Cheshire; CUMMINGS, Zoologist 1903, p. 230: breeding in Wales; APLIN, Ibis 1903, pp. 133-135.
- Ægialitis hiaticula*, notes on the nidification; GURNEY, Zoologist 1903, pp. 129 & 130, pl. iii: KELSO, t. c. p. 193: *Æ. nivosa*, on Long Island, Bahamas; RILEY, Auk xx, p. 433: *Æ. meloda*, earliest spring record; KING, t. c. p. 305.
- Numenius arquata*, a spotless egg; SWAINSON, Zoologist 1903, p. 352.
- Limosa lapponica*, nestlings from Russian Lapland; PEARSON, Bull. B. O. C. xiv, p. 22: *L. belgica*, occurrence in Scotland; CLARKE, Ann. Scott. Nat. Hist. 1903, pp. 24 & 25: in Tiree; HARVIE-BROWN, t. c. pp. 50 & 51.
- Micropalama himantopus*, in Knox County, Maine; SPINNEY, Auk xx, p. 65: in Nova Scotia; DWIGHT, t. c. p. 440.
- Totanus fuscus* and *T. glareola*, nestlings; PEARSON, Bull. B. O. C. xiv, pp. 31 & 32: *T. calidris*, carrying her young; ROPE, Zoologist 1903, p. 275.
- Pavonella pugnax*, breeding in confinement; ST QUINTIN, Avicult. Mag. (2) i, pp. 400 & 401: albinistic variety; FINN, P. Zool. Soc. London 1903, ii, pp. 3 & 4.



- Bartramia longicauda*, dates of breeding in Massachusetts; DURFEE, Auk xx, pp. 65 & 66.
- Tringa minuta*, inland in Cheshire; OLDHAM, Zoologist 1903, pp. 392 & 393: in Treen late in February; IRBY, Ann. Scott. Nat. Hist. 1903, p. 50: *T. striata*, in Anglesey; CUMMINGS, Zoologist 1903, p. 154.
- Gallinago gallinago raddei*, n. subsp., E. Siberia; BUTURLIN, Kul. Ross. Imp. 1902.
- Gallinago stenura*, note on the nidification; LEWIS, Spolia Zeylan. i, pp. 66 & 67 cum fig.
- Neoscolopax rochussenii* from Obi Id. Notes on; HARTERT, Nov. Zool. x, p. 17.
- Scolopax rusticola*, habits of; HART, Irish Natural. xii, p. 220: breeding in Kent; BALSTON, Zoologist 1903, pp. 193 & 194: Buff variety; LORT PHILLIPS, Bull. B. O. C. xiii, p. 72: *S. saturata*, breeding in Java; BARTELS, J. Ornith. 1903, pp. 287 & 288.
- Philohela minor*, note on; MACKAY, Auk xx, p. 210.
- Phalaropus hyperboreus*, breeding in Ireland; WILLIAMS, Irish Natural. xii, pp. 41-45, pl. i: note on; HARVIE-BROWNE, t. c. pp. 96-98.
- Jacana gymnostoma*, skeleton figured; SHUFELDT, Ann. Carnegie Mus. ii, pl. 1.
- Glareola pratincola* in Kent and *G. melanopectera* in Kent, first record of the species in England; TICEHURST, Bull. B. O. C. xiii, p. 78: *G. melanopectera* in Rye Harbour, Sussex; ALEXANDER, Bull. B. O. C. xiv, p. 17: in Romney Marsh; KENT, id. t. c. p. 17: in Sussex, BUTTERFIELD, Zoologist 1903, p. 392.
- Odicnemus scolopax*, in Merioneth, N. Wales; FORREST, t. c. p. 154.
- Otis tarda*, in Ireland (Co. Tipperary); WILLIAMS, t. c. pp. 153 & 154: courting habits; PYCRAFT, Knowledge (2) xviii, pp. 1-3, figs. 1 & 2: *O. barrovii* near Port Retief, Transvaal; SCLATER, Bull. B. O. C. xiv, pp. 24 & 25.
- Eupodotis australis*, notes on the breeding; BERNEY, Emu iii, pp. 68 & 69.

## Order GRUIFORMES.

- Gruidæ* of Central America; GODMAN, t. c. pp. 332-338.
- Anthropoides virgo*, breeding in captivity; ST QUINTIN, Avicult. Mag. (2) i, pp. 390-393.
- Balcarica pavonina*, notes on the species in captivity; GREGORY, t. c. pp. 159 & 195 cum tab.
- Aramus giganteus*, in the Bahamas; BONHOTE, Auk xx, p. 175.

## Order ARDEIFORMES.

- Comatibis eremita* in Europe; KLEINSCHMIDT, J. Ornith. 1903, pp. 126-128: notes on: HERMAN, Aquila x, pp. 35-65, tab. i.
- Plegadis falcinellus* in Yorkshire; ARUNDEL, Ibis 1903, p. 136: in Roxburghshire; STEEL, Ann. Scott. Nat. Hist. 1903, p. 49: in Islay; KIRK, t. c. p. 50: in Scotland; MACLEAY, t. c. p. 186.
- Lampribus olivacea* Dubus, described from Prince's Island, with full synonymy; SALVADORI, Ibis 1903, pp. 178-188: *L. rara* Rothschild, Hartert & Kleinschmidt = *L. olivacea*, id. t. c. p. 187 distinct; REICHENOW, Ornith. Monber. xi, p. 132: *L. splendida*, n. sp., Liberia, SALVADORI, t. c. pp. 184 & 185.
- Theristicus olivaceus* and its allies; REICHENOW, t. c. pp. 132-136: heads of *T. rarus*, *T. olivaceus*, and *T. splendidus* figured; id. t. c. p. 133: *T. cupreipennis*, n. sp., Camaroons; id. t. c. p. 134.

- Tantalus loculator*, in Montana in October; COOLEY, Auk xx, p. 210: in Colorado; FELGER, t. c. p. 65.
- Dissura* [i.e. *Dissoura*] *mortoni*, figured [= *D. stormsi* Blasius. Cf. FINSCH, Ornith. Monber. 1904, p. 94]; GRANT, Ibis 1903, pp. 145-148, pl. v.
- Ciconia alba*, breeding in Lorraine in 1902 and 1903; HECHT, Bull. Soc. zool. France xxviii, pp. 159-164.
- Ardea herodias cognata*, n. subsp., Indefatigable Id., Galapagos; BANGS, P. New England Zool. Club iii, pp. 99 & 100: *A. purpurea*, in Hertfordshire; STEELE-ELLIOTT, Zoologist 1903, p. 107.
- Herodias alba* from Jülich on the Rhine; LE ROI, Ornith. Monber. xi, pp. 163-165: *H. alba*, not *H. timoriensis*, in Fohkien; RICKETT, Ibis 1903, p. 221: *H. eulophotes* distinct from *Demiégretta sacra*; id. t. c. pp. 220 & 221.
- Ardea bahamensis* Brewster, at Nassau, Bahamas; BONHOTE, Auk xx, p. 174.
- Heterocnus bolivianus*, n. sp., Bolivian Chaco; LONNBERG, Ibis 1903, pp. 461-464.
- Dupetor flavicollis* and allies. Notes on; HARTERT, Nov. Zool. x, pp. 63 & 64.
- Botaurus lentiginosus* from the Bahamas; BONHOTE, Bull. B. O. C. xiii, p. 50: in the Scilly Isles in 1903; DORRIEN SMITH, op. cit. xiv, p. 32.

## Order ANSERIFORMES.

- Nettapus coromandelianus*, in Sind; PARRINGTON, J. Bombay Soc. xv, p. 143.
- Chen hyperboreus*, in Ireland; WILLIAMS, Zoologist 1903, p. 459: *C. rossii*, breeding in confinement; BLAAUW, Ibis 1903, pp. 245-247.
- Anser rubirostris*, notes on; COBURN, Zoologist 1903, pp. 46-52, 273 & 274: *A. fabalis*, notes on the variation; LÖNNBERG, Zoologist 1903, pp. 164-169: *A. brachyrhynchus*, *A. albifrons* and *A. segetum*, notes on; ROBINSON, Zoologist 1903, pp. 268-273: *A. segetum*, in the Outer Hebrides; HARVIE-BROWN, Ann. Scott. Nat. Hist. 1903, p. 119: *A. segetum* and *A. arvensis*, notes on the specific differences; FROHAWK, Zoologist 1903, pp. 41-45, pl. ii, figg. 1-4: *A. oatesi*, in Fohkien; RICKETT, Ibis 1903, p. 222.
- Philacte canagica*, in Hawaii; HENSHAW, Auk xx, pp. 164-167.
- Bernicla canadensis*, in the Outer Hebrides; GUTHRIE, Ann. Scott. Nat. Hist. 1903, p. 119.
- Anas boscas*, variability in the colour; BONHOTE, Zoologist 1903, p. 107: note on the migration; SERVICE, Ann. Scott. Nat. Hist. 1903, p. 50: *A. boscas* × *Dafila acuta*; FELGER, Auk xx, pp. 303 & 304: *A. boscas* × *Nettion carolinensis*; STONE, t. c. pp. 209 & 210: *A. laysanensis*, nest and eggs described; FISHER, Auk xx, pp. 396 & 397, pl. xvi: *A. superciliosa*, nest and eggs obtained; MILLIGAN, Emu iii, pp. 9 & 19, pl. i: *A. zonorhyncha*, in India; BAKER, J. Bombay Soc. xv, p. 142: *A. boscas*, figured; id. t. c. pl. xv: *A. pæcilorhyncha*, figured; id. t. c. pl. xvi.
- Mareca americana*, in the Bahamas; BONHOTE, Bull. B. O. C. xiii, p. 50.
- Querquedula crecca*, nesting in Lewis; HARVIE-BROWN, Ann. Scott. Nat. Hist. 1903, p. 245.
- Dafila acuta*, inland in Cheshire; OLDHAM, Zoologist 1903, pp. 229, 230 & 274.
- Querquedula querquedula*, from the Philippines; MCGREGOR, Bull. Philippine Mus. i, p. 5.
- Spatula clypeata*, nesting in South Uist; HARVIE-BROWN, Ann. Scott. Nat. Hist. 1903, p. 245: note on; CORBIN, Zoologist 1903, pp. 274 & 275: in the Philippines; MCGREGOR, Bull. Philippine Mus. i, p. 5.

- Aythya valisneria*, young in down figured; BROOKS, *Auk* xx, p. 278, pl. x, fig. 2; *A. collaris*, fig. 5, *A. affinis*, fig. 6.
- Fuligula cristata*, nesting in South Uist; HARVIE-BROWN, *Ann. Scott. Nat. Hist.* 1903, p. 245: in Merionethshire; APLIN, *Zoologist* 1903, p. 316.
- Clangula glaucion*, note on; STUART BAKER, *J. Bombay Soc.* xv, pp. 348 & 349.
- Glaucionetta islandica*, young in down figured; BROOKS, *Auk* xx, pl. x, fig. 4.
- Charitonetta albeola*, note on and young figured; BROOKS, t. c. p. 279, pl. x, fig. 1.
- Harelda glacialis*, incubation; GOEBEL, *Ornith. Jahrb.* xiv, p. 96.
- Oedemia fusca*, near Dumfries; SERVICE, *Ann. Scott. Nat. Hist.* 1903, p. 50.
- Somateria mollissima*, incubation of; GOEBEL, *Ornith. Jahrb.* xiv, pp. 81-93: at Malahide, Ireland; WILLIAMS, *Irish Natural.* xii, p. 112.
- Polysticta* Eyton has priority over *Eniconetta* Gray; RICHMOND, *P. Soc. Washington* xvi, p. 128.
- Erismatura jamaicensis*, young in down figured; BROOKS, *Auk* xx, p. 280, pl. x, fig. 3.
- Mergus serrator*, in Cheshire; OLDHAM, *Zoologist* 1903, pp. 459 & 460: incubation; GOEBEL, *Ornith. Jahrb.* xiv, p. 95.

## Order GASTORNITHIFORMES.

*Diatryma*, on the position of; LUCAS, *P. U. S. Mus.* xxvi, p. 230.

## Order PELECANIFORMES.

- Cormorants of New Zealand; HUTTON, *Emu* iii, pp. 1-8.
- Phalacrocorax carbo*, in the Philippines; MCGREGOR, *Bull. Philippine Mus.* i, p. 5: *P. graculus*, early nesting; RÆBURN, *Zoologist* 1903, p. 153: BLATHWAYT, t. c. pp. 192 & 193: a pale variety; SINCLAIR, *Ann. Scott. Nat. Hist.* 1903, pp. 118 & 119: *P. mexicanus*, nesting habits; NELSON, *Condor* v, pp. 139-145 cum figg.: *P. dilophus albociliatus*, note on; KEADING, *Condor* v, p. 126 cum fig.: *P. nigrogularis*, figured; GRANT & FORBES, *Nat. Hist. Sokotra and Abd-El-Kuri, Aves*, pl. vi.

## Order CATHARTIDIFORMES.

- Sarcorhamphus patreus*, n. sp. [fossil], Bolivia; LÖNNBERG, *Bull. Geol. Inst. Upsala* vi, No. 2, Pt. I, 1902, pp. 1-11, text-fig. 1-4.
- Cathartes aura*, at Moose Factory, James Bay; FLEMING, *Auk* xx, p. 66.
- Catharista urubu*, at Taunton, Mass.; BENT, t. c. p. 67.

## Order ACCIPITRIFORMES.

- Accipitres*, On the modifications of structure in the Syrinx, with remarks upon other points of the anatomy; BEDDARD, *P. Zool. Soc. London* 1903, vol. ii, pp. 157-163, text-fig. 16-20.
- Accipitres*, of S. Africa; SCLATER, *Birds S. Africa* iii, pp. 263-406.
- HENNICKE, *Die Raubvögel Mittel-Europas*, Gera, 4to, 1903.
- Pseudogyps africanus schillingsi*, n. subsp., German East Africa; ERLANGER, *Ornith. Monber.* xi, p. 22: *P. a. fülleborni*, n. subsp., Nyasa-land to Angola; id. t. c. p. 22: *P. a. zechi*, n. subsp., Togo Land; id. t. c. p. 22.



- Polyboroides pectoralis*, n. sp., Camaroons; SHARPE, Bull. B. O. C. xiii, p. 50.
- Circus cyaneus*, in Dorset; BANKES, Zoologist 1903, pp. 152 & 153: in Nottinghamshire; WHITAKER, t. c. p. 459. *C. assimilis*, notes on; CARTER, Emu iii, pp. 31 & 32. *C. gouldi*, note on the nesting; LE SOUËF, t. c. p. 222 & 223, pl. xii. *C. cineraceus* in Derbyshire; Fox, Zoologist 1903, p. 268.
- Parabuteo unicinctus harrisi*, nesting habits; BAILEY, Condor v, pp. 66-68.
- Astur obsoletus*, n. sp., Katchal Is., Nicobars; RICHMOND, P. U. S. Mus. xxv, pp. 306 & 307 (1902): *A. lopezi*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 49: *A. gentilis arrigoni*, n. subsp., Sardinia; KLEINSCHMIDT, Ornith. Monber. xi, pp. 152 & 153: *A. meyerianus*, from Ceram-Laut; HARTERT, Nov. Zool. x, p. 233: *A. griseigularis obiensis*, n. subsp., Obi Major Is., Moluccas; id. t. c. p. 3: *A. torquatus* and its allies; id. t. c. pp. 20 & 21.
- Accipiter batesi*, n. sp., Camaroons; SHARPE, Bull. B. O. C. xiii, p. 50: *A. erythrauchen*, from the Obi Is., Moluccas; HARTERT, Nov. Zool. x, p. 3: *A. atricapillus*, nesting in Southern New Hampshire; HOFFMANN, Auk xx, pp. 211 & 212.
- Buteo ferox*, near Lyon in October; ARRIGONI, Bull. Soc. zool. France xxviii, pp. 138 & 140: note on; SCHULZ, Ornith. Jahrb. xiv, pp. 63 & 64: *B. borealis umbrinus*, from the Bahamas, resident and breeding; BONHOTE, Ibis 1903, pp. 296 & 297.
- Uroaëtus audax*, breeding habits; BERNEY, Emu iii, pp. 123 & 124: notes on; CARTER, t. c. p. 32.
- Aquila chrysaëtus*, in middle Southern Ohio; HENNINGER, Auk xx, p. 67.
- Buteo lagopus*, large flight near Scarborough; MORLEY, Zoologist 1903, p. 433: in Nottinghamshire; WHITAKER, t. c. p. 459: in Derbyshire; Fox, Zoologist 1903, p. 268.
- Hieraëtus fasciatus*, carrying off young chickens; CUMMING, J. Bombay Soc. xv, pp. 145 & 146.
- Spilornis abbotti*, n. sp., Simalur Is., Sumatra; RICHMOND, P. U. S. Mus. xxvi, pp. 492 & 493: *S. klossi*, n. sp., Great Nicobar; id. op. cit. xxv, pp. 304 & 305 [1902].
- Haliaeetus albicilla*, near Ipswich; TUCK, Zoologist 1903, p. 107: *H. leucogaster*, notes on the nesting; CARTER, Emu iii, pp. 32 & 33.
- Milvus iclinus*, in Wales; SALTER, Zoologist 1903, pp. 228 & 229: *M. migrans*, in Italy; ARRIGHI-GRIFFI, Avicula 1903, pp. 33 & 34: ANGELINI, t. c. pp. 89-93.
- Pernis apivorus*, in Argyllshire; KIRK, Ann. Scott. Nat. Hist. 1903, p. 49: in Forfarshire; HARVIE-BROWN, t. c. p. 49: in Cheshire; OLDHAM, Zoologist 1903, p. 315: in Nottinghamshire; WHITAKER, t. c. p. 459.
- Falco peregrinus* and its allies; ERLANGER, J. Ornith. 1903, pp. 289-304: *F. p. britannicus*, n. subsp., Great Britain; id. t. c. pp. 296 & 297: *F. peregrinus*, notes on; GOUGH, Zoologist 1903, pp. 433-435: *F. atriceps*, in Fohkien; RICKETT, Ibis 1903, p. 218: *F. barbarus* and its allies; ERLANGER, J. Ornith. 1903, pp. 291-295: *F. barbarus fasciinucha*, notes on; id. t. c. p. 292: *F. barbarus arabicus*, n. subsp., S. Arabia; id. t. c. p. 293: *F. barbarus germanicus*, n. subsp., Germany; id. t. c. p. 294: *F. subbuteo*, in Warwickshire; APLIN, Zoologist 1903, p. 351: *F. columbarius richardsonii*, on the coast of South Carolina; WAYNE, Auk xx, p. 67: *F. candicans*, in Orkney; GRANT, Ann. Scott. Nat. Hist. 1903, p. 185: in the Outer Hebrides; HARVIE-BROWN, t. c. p. 186.
- Hierofalco gyrfalco* and its allies; ERLANGER, J. Ornith. 1903, pp. 289-301: *H. labradorus*, adult plumage described; MENZBIER & SUSHKIN, Ibis 1903, pp. 242-245.
- Falco mexicanus*, nesting habits; COHEN, Condor v, pp. 117-121.



- Falco tinnunculus*, note on; CORBIN, Zoologist 1903, pp. 767 & 268.  
*Tinnunculus orientalis* Meyer & Wigglesw. = *T. moluccensis* Bp. *T. occidentalis* is distinct; HARTERT, Nov. Zool. x, p. 2.  
*Pandion haliaetus*, notes on; CASH, Ann. Scott. Nat. Hist. 1903, pp. 129-135: in Nottinghamshire; WHITAKER, Zoologist 1903, p. 459: *P. leucocephalus*, note on the nesting; CARTER, Emu iii, p. 34.  
*Polioaetus* = *Ichthyophaga* Less.; RICHMOND, P. U. S. Mus. xxvi, p. 492.

## Order STRIGIFORMES.

- Morphology; PYCRAFT, Tr. Linn. Soc. London, Zool. (2) ix, pp. 1-46, pls. i & ii.  
 Generic names of North American Owls; STONE, Auk xx, pp. 272-276.  
*Asio otus*, note on; SCHUSTER, Ornith. Jahrb. xiv, pp. 64-66: *A. accipitrinus*, taken at sea; BRYAN, Auk xx, pp. 212 & 213.  
*Bubo kiautschensis*, n. sp., Kiautschou, China; REICHENOW, Ornith. Monber. xi, p. 85.  
*Pulsatrix maximiliani*, figured; DUBOIS, Syn. Av. p. 892, pl. xvi (1902).  
*Pisorhina scops zarudnyi*, n. subsp., Sarepta; TSCHUSI, Ornith. Jahrb. xiv, p. 139: *P. balia*, n. sp., Camaroons; REICHENOW, Ornith. Monber. xi, p. 40: *P. manudensis kalidupa*, n. subsp., Kalidupa, Tukang-Besi Id.; HARTERT, Nov. Zool. x, pp. 21 & 22: *P. umbra*, n. sp., Simalur Id., Sumatra; RICHMOND, P. U. S. Mus. xxvi, pp. 494 & 495.  
*Scops fœa*, n. sp., Anno-Bom; SALVADORI, Mem. Acc. Torino (2) liii, pp. 95 & 96: *S. socotranus*, figured; GRANT & FORBES, Nat. Hist. Sokotra and Abd-El-Kuri, Aves, pl. v.  
*Megascops maxwellie*, in Larimer County, Colorado; BURNETT, Condor v, p. 156.  
*Ninox rufostriata* from the Obi Id., Moluccas; HARTERT, Nov. Zool. x, p. 4.  
*Syrnium occidentale lucidum*, n. subsp., Tancitaro, Michoacan, Mexico; NELSON, P. Soc. Washington xvi, pp. 152 & 153: *S. uralense sibiricum*, n. subsp., Tomsk, W. Siberia; TSCHUSI, Ornith. Jahrb. xiv, pp. 166-170.  
*Nyctala tengmalni richardsoni*, in Illinois; DEANE, Auk xx, pp. 305 & 433.  
*Athene noctua bactriana* in S. W. Persia; WITHERBY, Ibis 1903, p. 559: *A. chiaradæ*, an aberration of *A. noctua*; GIGLIOLI, Ibis 1903, pp. 1-18, 136-138, figured, pl. i: Sternum; BALDUCCI, Arch. zool. ital. i, pp. 375-380, figg. 1-4.  
*Photodilus badius*, its pterylography; PYCRAFT, Ibis 1903, pp. 36-48, pl. ii: Key to the *Asionidæ*; id. t. c. pp. 47 & 48.  
*Strix pratincola*, in northern Ohio; HENNINGER, Auk xx, p. 67: on Long Island, N. Y.; DWIGHT, t. c. p. 434: BURTIS, t. c. p. 212: *S. novæ-hollandiæ*, in nestling plumage; LE SOUËF, Emu iii, p. 113, pl. vi: note on the nesting; D'OMBRAIN, t. c. p. 184: note on the habits; M'GOWAN, t. c. p. 61.

## Order PSITTACIFORMES.

- Parrakeets. A handbook to the imported species; SETH-SMITH, D. (606).  
*Ptilosclera* not separable from *Psittenteles*, which again is not separable from *Trichoglossus*. *T. johnstoniæ*, n. sp., Mindanao; HARTERT, Bull. B. O. C. xiv, pp. 10 & 11.  
*Ptilosclera versicolor*, eggs described; LE SOUËF, Emu iii, p. 55: notes on; PHILLIPPS, Avicult. Mag. (2) i, pp. 287-291 cum tab.  
*Calyptorhynchus baudini*, nest; MILLIGAN, Emu iii, pp. 12 & 19, pl. ii.  
*Myiopsittacus monachus*, breeding in the New Forest; RAWNSLEY, Zoologist 1903, pp. 1-4.

- Psittacula modesta*, note on; ALLEN, Auk xx, p. 213: *P. modesta sclateri* is a subsp.; id. t. c. p. 213.  
*Prioniturus platurus*, note on; SETH-SMITH, Avicult. Mag. (2) i, pp. 345-347 cum tab.  
*Tanygnathus megalorhynchus viridipennis*, n. subsp., Tukang-Besi Id.; HARTERT, Nov. Zool. x, pp. 22 & 23.  
*Polytelis melanura*, breeding in confinement; JOHNSTONE, Avicult. Mag. (2) ii, pp. 66-68.  
*Platycercus amathusia*, eggs described; LE SOUËF, Emu iii, p. 55: *P. macgillivrayi* from the Gulf of Carpentaria, note on; SCLATER, Bull. B. O. C. xiii, p. 51.

## Order CORACIIFORMES.

OATES, Cat. Eggs iii, pp. 23-96, pl. i.

## Sub-order PODARGI.

Notes on the Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 198-202.

*Ægotheles rufescens* = *Æ. salvadorii*; iid. t. c. p. 200.

## Sub-order CORACIÆ.

Notes on the Papuan species; iid. t. c. pp. 196-198.

*Coracias garrula* in Suffolk; BIDWELL, Bull. B. O. C. xiii, p. 39.

## Sub-order HALCYONES.

- Halcyones*, the osteology and systematic position; SHUFELDT, Amer. Natural. xxxvii, pp. 697-725, text-figg. 1-3.  
*Pelargopsis simalurensis*, n. sp., Simalur Id., Sumatra; RICHMOND, P. U. S. Mus. xxvi, pp. 498 & 499: *P. sodalis*, n. sp., Pulo Tuangku, Banjak Id., Sumatra; id. t. c. p. 499.  
*Alcedo ispida*, in the Island of Coll; IRBY, Ann. Scott. Nat. Hist. 1903, p. 244; BISSHOPP, t. c. p. 246: in Islay; LUMSDEN, t. c. p. 245.  
*Alcyone ochrogaster*, n. sp., German New Guinea; REICHENOW, J. Ornith. 1903, p. 149.  
*Halcyon lopezi*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 33.  
*Tanysiptera*. Synopsis of the species; HARTERT, Nov. Zool. x, pp. 48-50.

## Sub-order BUCEROTES.

- Penelopides talisi*, n. sp., Cagayan, North Luzon; FINSCH, Notes Leyden Mus. xxiii, pp. 190-193.  
*Orthotophus*, review of the genus with a key to the species; id. t. c. pp. 195-205.

## Sub-order UPUPÆ.

- Irrisor erythrorhynchus niloticus*, n. subsp., White Nile; O. NEUMANN, Ornith. Monber. xi, p. 181: *I. e. abyssinicus*, n. subsp., Anseba Valley; id. t. c. pp. 181 & 182: *I. damarensis granti*, n. subsp., Ukamba, British East Africa; id. t. c. p. 182.  
*Scoptelus brunneiceps*, n. sp., Camaroons; SHARPE, Bull. B. O. C. xiv, p. 19.

## Sub-order MEROPES.

Notes on the Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 196.

*Merops marionis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 33.

*Meropogon forsteri centralis*, n. subsp., Poaná Mts., Celebes; MEYER, Notes Leyden Mus. xxiii, p. 186.

## Sub-order CAPRIMULGI.

*Chordeiles virginianus*, migration in New Hampshire; HOWE, Auk xx, pp. 434 & 435: *C. virginianus vicinus*, n. subsp., Bahamas; RILEY, Auk xx, p. 432 & 433: *C. jonesi*, figured; GRANT & FORBES, Nat. Hist. Sokotra and Abd-El-Kuri, Aves, pl. iv: *C. griseatus* Wald. ♂ ♀ described; MCGREGOR, Bull. Mus. Philippine i, pp. 6 & 7.

## Sub-order CYPSELI.

*Macropteryx perlonga*, n. sp., Simalur Id., Sumatra; RICHMOND, P. U. S. Mus. xxvi, pp. 502 & 503.

*Tachornis infumata*, in the Philippines; MCGREGOR, Bull. Mus. Philippine i, pp. 5 & 6.

*Cypselus apus*, nesting on Lochnagar; WATT, Ann. Scott. Nat. Hist. 1903, p. 244: late occurrence in Scotland; PAYNE, Zoologist 1903, pp. 350 & 351: unusual number in South Hants.; CORBIN, t. c. pp. 266 & 267.

*C. poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 33: *C. pallidus*, near Tranto; DE CEGLIE, Avicula 1903, pp. 121-123.

## Sub-order TROCHILI.

*Phaëthornis guy coruscus*, n. subsp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 26 & 27 [1902].

*Campylopterus hemiteucurus mellitus*, n. subsp., Chiriqui, Panama; id. t. c. p. 28 [1902].

*Sporadinus riccordi* from Abaco Is., Bahamas; BONHOTE, Bull. B. O. C. xiii, p. 51.

*Calypte nana*, nesting notes; CHAMBERS, Condor v, p. 133.

*Dorichia evelynæ*, near the Cuban coast.

## Order TROGONES.

OATES, Cat. Eggs in Brit. Mus. iii, pp. 97-100, pl. ii.

*Trogon ambiguus*, note on; FOWLER, Condor v, pp. 69 & 70: *T. auran-tiventris*, note on; BANGS, P. New England Zool. Club iii, pp. 31 & 32 [1902].

*Heterotrogon francisci*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 33.

## Order COCCYGES.

OATES, Cat. Eggs iii, pp. 101-131, pl. ii.

## Sub-order MUSOPHAGI.

*Ruwenzorornis*, n. g., type *R. johnstoni* (Sharpe); NEUMANN, Bull. B. O. C. xiv, pp. 14 & 15.

## Sub-order CUCULI.

- Cuculiformes*, Osteology of; PYCRAFT, P. Zool. Zoc. London 1903, vol. i, pp. 258-291, pl. xxii, text-figg.
- Clamator* Kaup, 1829, vice *Coccytes* Gloger, 1834; STEJNEGER, P. Soc. Washington xv, p. 37 [1902].
- Cuculus canorus*, late occurrence in Scotland; PAYNE, Zoologist 1903, pp. 350 & 351: WATT, t. c. p. 391: BIRD, t. c. p. 433: TUCK, t. c. p. 433: Its habits in Samarkand; HOFFMANN, Ornith. Monber. xi, pp. 119 & 120: *C. canorus johanseni*, n. subsp., Tomsk, W. Siberia; TSCHUSI, Ornith. Jahrb. xiv, pp. 165 & 166: *C. leptodetus* in Palestine; MERRILL, Ibis 1903, p. 324.
- Coccyzus americanus*, parasitic on *Merula migratoria*; EDWARDS, Auk xx, p. 68.
- Eudynamis*, notes on the species, ten of which are differentiated; HARTERT, Nov. Zool. x, pp. 235-239.
- Centropus phasianus*, note on; BERNEY, Emu ii, p. 211.
- Phœnicophaeus calorhynchus rufiloris*, n. subsp., Tukan-Besi Id.; HARTERT, Nov. Zool. x, p. 24.
- Geococcyx californicus*, nesting notes; KELSEY, Condor v, pp. 132 & 133 cum. figg.
- Diplopterus* Boie = *Tapera* Thunberg; LÖNNBERG, Ibis 1903, pp. 239 & 240.

## Order SCANSORES.

## Sub-order INDICATOIRES.

OATES, Cat. Eggs iii, pp. 132-137.

- Indicator poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 33: Key to species; id. Ibis 1903, p. 393.

## Sub-order CAPITONES.

- Lybius rubrifacies*, figured; REICHENOW, Vög. Afrikas ii: *L. undatus gardullensis*, n. subsp., Gardulla west of Lake Gandjule, S. Ethiopia; NEUMANN, Bull. B. O. C. xiv, pp. 15 & 16: *L. undatus salvadorii*, n. subsp., Harar Mts.; id. t. c. p. 16: remarks on *L. undatus* and its allies; id. t. c. p. 16: *L. thiogaster*, n. sp., Bogos Land and N. Abyssinia; id. Ornith. Monber. xi, p. 59.
- Tricholœma alexandri*, n. sp., Nyasaland; SHELLEY, Bull. B. O. C. xiii, p. 61: *T. flavibuccale* and *T. massaicum*, figured; REICHENOW, Vög. Afrikas ii.
- Barbatula kandti*, n. sp., Lake Kiwu; REICHENOW, Ornith. Monber. xi, p. 23.

## Sub-order PICI.

OATES, Cat. Eggs iii, pp. 137-160.

- Gecinus citrino-cristatus*, in Fohkien; RICKETT, Ibis 1903, p. 216.
- Picus canus zimmermanni*, n. subsp., Kiautschou, China; REICHENOW, Ornith. Monber. xi, p. 86.
- Chloronerpes simplex allophyeus*, n. subsp., Honduras; BANGS, Bull. Mus. Harvard xxxix, p. 145.
- Camptothera poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 33.
- Chrysophlegma ricketti*, in Fohkien; RICKETT, Ibis 1903, p. 217.



- Melanerpes portoricensis*, its food; BOWDISH, Auk xx, p. 194: *M. carolinus*, in Harford County, Maryland; FISHER, t. c. pp. 305 & 306.
- Centurus nyeanus*, note on a second specimen; RILEY, t. c. p. 434.
- Dendrocopos major*, in East Lothian; BONAR, Ann. Scott. Nat. Hist. 1903, p. 49: in Roxburghshire; SIMPSON, t. c. p. 245: note on the breeding; APLIN, Zoologist 1903, pp. 214 & 215: migration in the Kurische Nehrung in September; THIENEMANN, Ornith. Monber. xi, p. 169.
- Dendrocopos villosus extimus*, n. subsp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 33 & 34 [1902].
- Xenopicus gravirostris* Grinnell not recognised by A. O. U. Committee, Auk xx, p. 362.
- Mesopicus goertæ koenigi*, n. subsp., R. Nile (Atbara R. to Khartum); O. NEUMANN, Ornith. Monber. xi, p. 181.
- Microstictus intermedius*, n. sp., Celebes; MEYER, Notes Leyden Mus. xxiii, p. 186.
- Picus martius*, supposed occurrences in England in 1903; PIGOTT, Bull. B. O. C. xiv, p. 32.
- Picumnus dimotus*, n. sp., Honduras; BANGS, Bull. Mus. Harvard xxxix, pp. 146 & 147.

## Order EURYLÆMIFORMES.

- OATES, Cat. Eggs iii, pp. 160-163, pl. ii.
- Serilophus lunatus polionotus*, n. subsp., Mt. Wuchi, Hainan; ROTHSCHILD, Bull. B. O. C. xiv, p. 7: notes on *S. lunatus*, id. t. c. p. 7.

## Order MENURIFORMES.

- OATES, Cat. Eggs iii, pp. 163 & 164, pl. iii.
- Menura victorie*, male bird incubating; LE SOUEF, Emu ii, pp. 173 & 174.

## Order PASSERIFORMES.

## Famm. PTEROPTOCHIDÆ, CONOPHAGIDÆ, FORMICARIIDÆ.

- OATES, Cat. Eggs iii, pp. 165-170, pl. iii.
- Thamnophilus*, notes on genus; HELLMAYR, Verh. Ges. Wien liii, pp. 216-218: *T. nigriristatus difficilis*, n. subsp., Rio Claro, S. E. Brazil; id. t. c. pp. 216 & 217: *T. tephrogaster*, n. sp., Bahia; OBERHOLSER, P. U. S. Mus. xxv, pp. 59 & 60 [1902].
- Myrmotherula*, notes on the genus, *M. boliviana* Berl. = *M. menetriesi* D'Orb., *M. berlepschi*, n. sp., Salto do Girao, Rio Madeira; id. t. c. pp. 211 & 212.
- Herpsilochmus roraimae*, n. sp., Roraima; id. t. c. pp. 208-210.
- Cyphorhinus cinctus* (Pelz.) and *Dichrozona zononota* are synonymous. The genus *Dichrozona* allied to *Myrmeciza*; HELLMAYR, J. Ornith. 1903, pp. 535 & 536.
- Formicivora alticincta*, n. sp., San Miguel Ids., Bay of Panama; BANGS, P. New England Zool. Club iii, pp. 71 & 72 [1902]: *F. leucophthalmus* Pelz. is a *Myrmotherula*; HELLMAYR, Verh. Ges. Wien liii, p. 213.
- Terenura xanthonota* Chapm. = *T. sharpei* Berl.; BERLEPSCH, Ibis 1903, p. 136.
- Phlogopsis trivittata* is ♀ of *P. erythroptera* Gould; HELLMAYR, Verh. Ges. Wien liii, p. 215.
- Grallaria varia cinereiceps*, n. subsp., Marabitanas, Rio Negro; HELLMAYR, t. c. p. 218: *G. berlepschi*, n. sp., Engenho do Gama, Matto Grosso; id. t. c. pp. 218 & 219.

- Myrmeciza*, notes on species; HELLMAYR, t. c. pp. 213-215.  
*Grallaricula vegeta*, n. sp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 42 & 43 [1902].

## Family DENDROCOLAPTIDÆ.

- OATES, Cat. Eggs iii, pp. 171-184, pl. iii.  
*Cinclodes heterurus*, n. sp., Venezuela; MADARASZ, Ann. Mus. Hungar. i, p. 462.  
*Synallaxis occipitalis*, n. sp., Venezuela; id. t. c. p. 463.  
*Synallaxis spizi notius*, n. subsp., Argentine Republic; OBERHOLSER, P. U. S. Mus. xxv, pp. 60 & 61 [1902].  
*Siptornis rufigenis*, note on; BANGS, P. New England Zool. Club iii, pp. 43 & 44 [1902]: *S. certhia*, n. sp., Venezuela; MADARASZ, Ann. Mus. Hungar. i, p. 463.  
*Metopothrix aurantiacus* Scl. & Salv., belongs to the family *Dendrocolaptidæ* [near *Xenerpestes*]; BERLEPSCH, Ibis 1903, p. 108.  
*Synallaxis singularis*, is a *Xenerpestes*; BERLEPSCH, Ibis 1903, pp. 106-108.  
*Philydor rufipileatus* Pelz. and allies, *P. r. maynanus*, n. subsp., Maynas, N. E. Peru; HELLMAYR, Verh. Ges. Wien liii, p. 220.  
*Xenicopsis percnopterus*, n. sp., Alto da Serra, Brazil; OBERHOLSER, P. U. S. Mus. xxv, p. 61 [1902].  
*Sclerurus mexicanus pullus*, n. subsp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 45 & 46 [1902].  
*Sittasomus levis*, n. sp., Chiriqui, Panama; id. t. c. pp. 46 & 47 [1902].  
*Dendroornis nana confinis*, n. subsp., Honduras; BANGS, Bull. Mus. Harvard xxxix, pp. 150 & 151: *D. lachrymosa eximia*, Veragua to Costa Rica; HELLMAYR, J. Ornith. 1903, pp. 537 & 538: *D. chunchotambo* (Tchudi) and *D. ocellata* quite distinct species, and types compared; id. t. c. pp. 538 & 539.  
*Dendrocercastes berlepschi*, n. sp., Venezuela; MADARASZ, Ann. Mus. Hungar. i, pp. 464 & 465 [= *Dendrocolaptes validus* (Tsch.); id. op. cit. ii, p. 116].  
*Xiphocolaptes emigrans omiltemensis*, n. subsp., Omilteme, Guerrero, Mexico; NELSON, P. Soc. Washington xvi, p. 153.  
*Picolaptes bivittatus bahiae*, n. subsp., Bahia; HELLMAYR, Verh. Ges. Wien liii, p. 219.

## Family TYRANNIDÆ.

- OATES, Cat. Eggs iii, pp. 185-217, pls. iii-v.  
*Ochthocca rufimarginata acrophila*, n. subsp., Rio Napo, Ecuador; OBERHOLSER, P. U. S. Mus. xxv, pp. 61 & 62 [1902].  
*Mecocerculus alutus*, n. sp., Ecuador; id. t. c. p. 62: *M. stictopterus euplastus*, n. subsp., Maraynioc, Peru; id. t. c. p. 63 [1902].  
*Rhynchocyclus scotius*, n. sp., Brazil; id. t. c. pp. 63 & 64. Notes on the genus *R. poliocephalus sclateri*, n. subsp., Barra do Rio Negro, Brazil; HELLMAYR, Verh. Ges. Wien liii, pp. 207 & 208: *R. flaviventer borbae*, n. subsp., Borba, Rio Madeira; id. t. c. p. 208.  
*Euscarthmus nattereri*, n. sp., Paraná, S. Brazil; id. t. c. pp. 204 & 205.  
*Perisotriccus*, n. g., type *P. caudatus* (d'Orb. & Laf.); OBERHOLSER, P. U. S. Mus. xxv, p. 64 [1902].  
*Hemitriccus pammictus*, n. sp., ?S.E. Brazil; id. t. c. p. 64 [1902].  
*Pogonotriccus alleni*, n. sp., Rio Cauca, Colombia; id. t. c. p. 65 [1902].  
*Myiopagis placens accola*, n. subsp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 35 & 36 [1902].

- Elainea gularis*, n. sp., Venezuela; MADARASZ, Ann. Mus. Hungar. i, p. 462 [= *Mecocerculus setophagoides* (Bp.); id. op. cit. ii, p. 116].
- Elainea flavogaster* (Thunberg) [potius *E. flaviventris*], correct name for *E. pagana* (Licht.); LÖNNBERG, Ibis 1903, pp. 241 & 242.
- Sublegatus fasciatus* (Thunberg), correct name for *S. platyrhynchus* ScL. & Salv.; id. t. c. p. 241.
- Sirystes sibilator atimastus*, n. subsp., Chapada, Matto Grosso; OBERHOLSER, P. U. S. Mus. xxv, p. 66 [1902].
- Sayornis amnicola*, n. sp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 37 & 38 [1902].
- Empidonax aculeatus*, on migration in the Bahamas; BONHOTE, Auk xx, p. 174: *E. traillii alnorum*, breeding near Plainfield, New Jersey; MILLER, t. c. p. 68: *E. bommeus* (Thunberg), correct name for *E. bimaculatus* (D'Orb. & Lafr.); LÖNNBERG, Ibis 1903, p. 242.
- Blacicus blancoi*, nest described; BOWDISH, Auk xx, p. 11: its food; id. t. c. p. 195.
- Myiarchus antillarum*, its food; id. t. c. pp. 194 & 195.
- Tyrannus dominicensis*, nest described; id. t. c. p. 10: its food; id. t. c. p. 194.

## Family PIPRIDÆ.

- OATES, Cat. Eggs iii, pp. 217 & 218, pl. vi.
- Masius*, review of the genus; HARTERT & HELLMAYR, Ornith. Monber. xi, pp. 33-35: *M. chrysopterus bellus*, n. subsp., Colombia; iid. t. c. p. 35.
- Metopothrix aurantiacus*, transferred to *Dendrocolaptidæ*; BERLEPSCH, Ibis 1903, p. 108.
- Pipra isidorei leucopygia*, n. subsp., Huambo, N. Peru; HELLMAYR, Verh. Ges. Wien liii, p. 200: *P. gracilis*, n. sp., Engenho do Gama, Matto Grosso; id. t. c. p. 202: *P. opalizans*, ♀ described; id. t. c. p. 201.
- Manacus candei electilis*, n. subsp., Buena Vista, Vera Cruz, Mexico; BANGS, P. New England Zool. Club iii, pp. 105 & 106.
- Scotothorus*, notes on genus *S. sulphureiventer*, n. sp., Matto Grosso; HELLMAYR, Verh. Ges. Wien liii, pp. 202 & 203.
- Sapayoa*, n. g., type *S. enigma*, N. W. Ecuador; HARTERT, Nov. Zool. x, pp. 117 & 118.

## Famn. COTINGIDÆ, PHYTOTOMIDÆ.

- OATES, Cat. Eggs iii, pp. 219-224, pl. vi.

## Family PITTIDÆ.

- OATES, Cat. Eggs iii, pp. 224-228, pl. vi.
- Pitta nympa* in Fohkien; RICKETT, Ibis 1903, p. 217: *P. rufiventris*, its habitat (Batchian, Halmahera and Obi Major); HARTERT, Nov. Zool. x, p. 13: *P. reichenowi* (fig. 1), *P. longipennis* (fig. 2), figured; SHARPE, Ibis 1903, pl. iv: *P. pulih* Fraser, is a distinct species; FINSCH, Notes Leyden Mus. xxiii, pp. 211 & 212: *P. abbotti*, n. sp., Great Nicobar; RICHMOND, P. U. S. Mus. xxv, pp. 298 & 299 [1902].

## Family PHILEPITTIDÆ.

- OATES, Cat. Eggs iii, p. 229.

## Family HIRUNDINIDÆ.

- OATES, Cat. Eggs iii, pp. 229-249, pl. vii.
- Chelidonaria urbana*, note on the species in Croatia; MAREK, Ornith. Jahrb. xiv, pp. 226-231: its early arrival; RIVIERE, Zoologist 1903, p. 152: at Eastbourne in November; BANNERMAN, t. c. pp. 455 & 456.
- Riparia riparia*, nesting in sawdust; TORREY, Auk xx, pp. 436 & 437.
- Lamprochelidon*, n. g., type *L. melanoleuca* (Max.); RIDGWAY, P. Soc. Washington xvi, p. 106.
- Hirundo rustica*, in Ireland in March; USSHER, Irish Natural. xii, p. 198: *H. erythrogaster palmeri* Grinnell, is not a subspecies; A. O. U. Comm. Auk xx, p. 363: *H. neoxena*, note on; CARTER, Emu iii, p. 93.
- Diplochelidon*, n. g., type *D. euchrysea* (Gosse); RIDGWAY, P. Soc. Washington xvi, p. 106.
- Progne subis floridana* Mearns, is not distinguishable from *P. subis*; A. O. U. Comm. Auk xx, p. 363: *P. dominicensis*, migration in Porto Rico; BOWDISH, Auk xx, p. 15.
- Orochelidon*, n. g., type *O. murina* (Cassin); RIDGWAY, P. Soc. Washington xvi, p. 106.
- Petrochelidon lunifrons tachina*, n. subsp., Langtry, Texas; OBERHOLSER, P. Soc. Washington xvi, pp. 15 & 16.
- Psalidoprocne poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 34 = *P. fuliginosa* Shelley; id. Ibis 1903, p. 388.
- Alopochelidon*, n. g., type *A. fucata* (Temm.); RIDGWAY, P. Soc. Washington xvi, p. 106.
- Stelgidopteryx salvini*, n. sp., Dueñas, Guatemala; id. t. c. p. 107.

## Family MUSCICAPIDÆ.

- OATES, Cat. Eggs iii, pp. 250-292, pls. vii-ix.
- Micræca griseiceps occidentalis*, n. subsp., Arfak Mts.; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 471.
- Alseonax poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiv, p. 17.
- Muscicapa parva*, note on; HERMAN, Aquila x, pp. 252 & 253.
- Siphia hoëvelli*, n. sp., Takala Mts., Celebes; MEYER, Notes Leyden Mus. xxiii, pp. 186 & 187.
- Niltava sundara*, figured; HUMPHRYS, Avicult. Mag. (2) ii, pl. to p. 21.
- Muscicapula hyperythra pallidipectus*, n. subsp., Batchian Id. Moluccas; HARTERT, Nov. Zool. x, pp. 52 & 53.
- Gerygone neglecta dohertyi*, n. subsp., Kapaur, N. New Guinea; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 473.
- G. poliocephala*, *G. giulianetti*, and *G. maforensis* referred to the genus *Cryptolopha*; iid. t. c. p. 475.
- Heteromyias armiti* figured; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 467, pl. xiii, fig. 3.
- Pæcilodryas aethiops* Scl. = *Pratincola atrata* Kelaart; iid. t. c. p. 468: *P. minor* Meyer = *P. hypoleuca* (Gray) ♀ et juv.; iid. t. c. p. 468: *Monarcha viridis* De Vis = *P. albifacies* Sharpe, iid. t. c. p. 469: *P. salvadorii* Madar. = *P. melanogenys* Meyer; iid. t. c. p. 469: *P. salvadorii* R. & H. and *P. cyanopsis* Sharpe = *P. subcyaneus* De Vis; iid. t. c. p. 470.
- Alcippe stictigula*, n. sp., Nyasaland [near *Lioptilus abyssinicus*]; SHELLEY, Bull. B. O. C. xiii, p. 61.
- Lioptilus claudoi*, n. sp., Fernando Po; ALEXANDER, t. c. p. 34.
- Polioptila cærulea*, at West Manchester, Mass.; ALLEN, Auk xx, p. 69: *P. bilineata andina*, n. subsp., Cajabamba, N. Peru; HELLMAYR, Verh.



- Ges. Wien liii, pp. 224-226: *P. nelsoni*, n. sp., Oaxaca City, Mexico; RIDGWAY, P. Soc. Washington xvi, pp. 109 & 110: *P. bairdi*, n. sp., Nicaragua and Costa Rica; id. t. c. p. 110: *P. superciliaris magna*, n. subsp., Costa Rica; id. t. c. p. 110.
- P. buffoni* ScL. = *P. livida* (Gm.); id. t. c. p. 223. Notes on the genus; id. t. c. pp. 223-226.
- Batis poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 34.
- B. puella soror*, n. subsp., C. E. Africa; REICHENOW, Vög. Africas ii, p. 485.
- Diaphorphyia chlorophrys*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 34.
- Smithornis sharpei*, n. sp., Fernando Po; ALEXANDER, t. c. p. 34: figured; id. Ibis 1903, pl. vii: *S. zenkeri*, n. sp.; Camaroons; REICHENOW, Ornith. Monber. xi, p. 41.
- Todopsis cyanocephalus dohertyi*, n. subsp., N. coast of New Guinea; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 477.
- Rhipidura nigrocinnamomea*, n. sp., Mindanao; HARTERT, Bull. B. O. C. xiv, p. 12.
- Rhipidura torrida* from the Obi Isl.; id. Nov. Zool. x, p. 8: *R. phasiana* and *R. dryas*, nests and eggs described; LE SOUËF, Emu iii, pp. 54 & 55: *R. fallax* Ramsay, *R. cinnamomea* Meyer, and *R. meyeri* Rüttik = *R. atra* Salvad.; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 465 & 466: *R. tricolor motacilloides*, distinct from the true *R. tricolor*; HARTERT, t. c. p. 52: *R. diemenensis*, note on; LITTLER, Emu iii, pp. 26 & 27.
- Tchitrea procera*, n. sp., Simalur Id., Sumatra; RICHMOND, P. U. S. Mus. xxvi, pp. 510 & 511.
- Rhinomyias nicobarica*, n. sp., Pulo Kunyi, Great Nicobar; id. op. cit. xxv, pp. 295 & 296 (1902).
- Myiagra galeata* and its allies; HARTERT, Nov. Zool. x, p. 9: *M. galeata* is from Batchian, Halmahera, Ternate and Obi Major: *M. galeata goramensis* Sharpe is from Goram and Ceram-laut: *M. galeata buruensis*, n. subsp., Buru Id.; id. t. c. p. 9.
- Cryptolopha waigiensis*, n. sp., Waigiu; HARTERT, Bull. B. O. C. xiii, p. 70: *C. herberti*, n. sp., Fernando Po; ALEXANDER, t. c. p. 35: *C. mindanensis*, n. sp., Mindanao; HARTERT, op. cit. xiv, p. 13: *C. everetti waterstradti*, n. subsp., Batchian and Obi Major Id.; id. Nov. Zool. x, pp. 9 & 10.
- Arses telescopthalmus* and its allies; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 460-462: *A. orientalis* Salvad., *A. fenicheli* Madar., and *A. lauterbachii* Reichenow, all apparently the same as *A. henkei* Meyer; id. t. c. x, pp. 461 & 462.
- Bathmisyrrma rufum* Reichenow = *Monarcha rubiensis*; iid. t. c. p. 460.
- Monarcha inornata* and its allies; HARTERT, t. c. p. 26: *M. inornata kisserensis*, from Tukang Besi Id.; id. t. c. p. 26: *M. bimaculata* and its allies; id. t. c. pp. 51 & 52: *M. castus* ScL. on Kilsoein Id. Koer Id.; id. t. c. p. 242: *M. diadematus*, its sequence of plumages; id. t. c. pp. 7 & 8.
- Stoparola panayensis* (Sharpe) in Obi Major Id.; id. t. c. p. 10.

#### Family CAMPOPHAGIDÆ.

OATES, Cat. Eggs. iii, pp. 292-301, pl. ix.

Notes on Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 203-210.

*Graucalus babiensis*, n. sp., Pulo Babi, Sumatra; RICHMOND, P. U. S. Mus. xxvi, p. 513: *G. simalurensis*, n. sp., Simalur Id., Sumatra; id. t. c.

- pp. 513 & 514: *G. temmincki tonkeanus*, n. subsp., R. Koro, Celebes; MEYER, Notes Leyden Mus. xxiii, pp. 187 & 188: *G. parvirostris*, note on; LITTLER, Emu iii, pp. 24-26: *G. cornix* Reichen. = *G. longicauda* De Vis; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 202.
- Edoliusoma melas tommasonis*, n. subsp., Jobi Id., *E. m. meeki*, n. subsp., S. E. New Guinea to the Fly River; iid. t. c. pp. 206 & 207: *E. meyeri sharpei*, n. subsp., N. New Guinea; iid. t. c. p. 209: *E. obiense* probably occurs on the Tukang-Besi Id.; HARTERT, t. c. p. 27.
- Campephaga compta*, n. sp., Simalur Id., Sumatra; RICHMOND, P. U. S. Mus. xxvi, pp. 514 & 515.

## Family PYCNONOTIDÆ.

OATES, Cat. Eggs iii, pp. 302-322, pl. x.

- Hypsipetes psaroides*, in captivity; PAGE, Avicult. Mag. (2) i, pp. 209-211.
- Cerasophila thompsoni*, figured; BINGHAM, Ibis 1903, pl. xii.
- Criniger lucasi*, n. sp., Obi Major Id., Moluccas; HARTERT, Nov. Zool. x, p. 13: *C. gracilirostris percivali*, n. subsp., Kikuju; NEUMANN, Ornith. Monber. xi, p. 185.
- Iole icterica*, note on the nesting; BETHAM, J. Bombay Soc. xv, pp. 346 & 347.
- Bleda batesi*, n. sp., Camaroons; SHARPE, Bull. B. O. C. xiv, p. 19: *B. alfredi*, n. sp., Nyasa-land; SHELLEY, op. cit. xiii, p. 61.
- Andropadus insularis subalaris*, n. subsp., Malindi, E. Africa; REICHENOW, J. Ornith. 1903, p. 545.
- Steldigillas poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 35: *S. gracilirostris* distinct from *S. poensis*, the former being from the mainland, and not from Fernando Po as alleged; ALEXANDER, Ibis 1903, pp. 363 & 364.
- Phyllostrophus poensis*, n. sp., Fernando Po; id. Bull. B. O. C. xiii, p. 35: *P. cabanisi succosus*, n. subsp., Equatorial Africa; REICHENOW, J. Ornith. 1903, p. 544.
- Pycnonotus salvadorii* Sharpe = *P. erythrophthalmus* (Hume); RICHMOND, P. U. S. Mus. xxvi, p. 507.

## Family TIMELIIDÆ.

- Notes on Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 225-231.
- Clitonyx* and *Certhiparus*, notes on; HUTTON, Ibis 1903, pp. 318 & 319.
- Eupetes*, notes on the species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 229-231.
- Trochalopteron canorum owstoni*, n. subsp., Mt Wuchi, Hainan; ROTHSCHILD, Bull. B. O. C. xiv, p. 8.
- Trichostoma finschi* from the Tukang-Besi Ids.; HARTERT, Nov. Zool. x, p. 30.
- Pomatorhinus tickelli hainanus*, n. subsp., Hainan; ROTHSCHILD, Bull. B. O. C. xiv, p. 9.
- Crateropus smithi lacuum*, n. subsp., Lake Abassi, S. of Shoa; NEUMANN, Bull. B. O. C. xiv, p. 15: *C. smithi omoensis*, n. subsp., Omo River district; id. t. c. p. 15.
- Calamanthus montanellus*, n. sp., Stirling Ranges, Western Australia; MILLIGAN, Emu ii, pp. 200 & 201, iii, p. 13, pl. iii.
- Pyctorhis sinensis*, figured; PHILLIPPS, Avicult. Mag. (2) i, pp. 83-87 cum tab.
- Pellorneum ruficeps*, nest and eggs described; BETHAM, J. Bombay Soc. xv, p. 347.

- Macrosphenus poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 36.
- Turdinus albipectus* and *T. rufipennis* = *T. fulvescens*; ALEXANDER, Ibis 1903, pp. 365 & 366: *T. bocagei*, n. sp., Fernando Po; SALVADORI, Boll. Mus. Torino xviii, No. 442: *T. reichenowi*, nom. emend. pro *T. rufiventris* Reichen. (nec Salvad.); SHARPE, Handl. B. iv, p. 33.
- Bathmocercus fuscipennis*, n. sp., Cumaroons; SHARPE, Bull. B. O. C. xiv, p. 19.
- Æthostoma witmeri*, nom. emend. pro *Æ. umbratile*, auct. (nec Strickl.); SHARPE, Handl. B. iv, pp. 38 & 358.
- Proparus sordidior*, n. sp., W. Yun-nan; RIPPON, Bull. B. O. C. xiii, p. 60.
- Stachyris guttata swinhoei*, n. subsp., Mt. Wuchi, Hainan; ROTHSCHILD, op. cit. xiv, p. 8.
- Stachyridopsis ruficeps goodsoni*, n. subsp., Mt. Wuchi, Hainan; id. t. c. p. 8: Notes on *S. ruficeps* and its allies; id. t. c. pp. 8 & 9.
- Mixornis pileatus* Blyth vice *Motacilla gularis* Raffl. (nec Shaw); RICHMOND, P. U. S. Mus. xxvi, p. 507.
- Cyanoderma fulviventris*, n. sp., Pulo Tuangku, Banjak Id., Sumatra; id. t. c. pp. 507 & 508.
- Myiophoneus temmincki*, notes on in captivity; ASTLEY, Avicult. Mag. (2) i, pp. 196-201 cum tab.
- Pseudoxenicus superciliaris* breeding in Java; BARTELS, J. Ornith. 1903, pp. 286 & 287.
- Malacias capistrata*, notes on; PHILLIPPS, Avicult. Mag. (2) i, pp. 255-262 cum tab.
- Mesia argentauris*, nestling described; FINN, Bull. B. O. C. xiv, p. 24: figured; PHILLIPPS, Avicult. Mag. (2) i, pp. 379-390 cum tab.; op. cit. (2) ii, pp. 36-45.
- Suthora craddocki*, n. sp., Mekong Valley; BINGHAM, Bull. B. O. C. xiii, pp. 54 & 55: figured; id. Ibis 1903, pl. xi, fig. 1: *S. thompsoni*, n. sp., Loilong; BINGHAM, Bull. B. O. C. xiii, p. 63: figured; id. Ibis 1903, pl. xi, fig. 2: *S. styani*, n. sp., W. Yun-nan; RIPPON, Bull. B. O. C. xiii, p. 54: *S. oatesi*, nom. emend. pro *Chleusiscus ruficeps*, nec *Suthora ruficeps*; SHARPE, Handl. B. iv, p. 70.
- Psittiparus gularis hainanus*, n. subsp., Mt. Wuchi, Hainan; ROTHSCHILD, Bull. B. O. C. xiv, p. 7.

## Family TROGLODYTIDÆ.

SHARPE, Hand-list B. iv, pp. 71-99.

- Heleodytes nelsoni*, n. sp., Southern Mexico; RIDGWAY, P. Soc. Washington xvi, p. 111: *H. alticola* Nelson = *H. megalopterus* (Lafr.); id. t. c. p. 111.
- Thryophilus albipectus bogotensis*, notes on; OBERHOLSER, P. U. S. Mus. xxv, pp. 66 & 67 [1902].
- Thryophilus galbraithi conditus*, n. subsp., San Miguel, Bay of Panama; BANGS, P. New England Club iv, pp. 3 & 4: *T. modestus elutus*, n. subsp., Chiriqui, Panama; id. op. cit. iii, pp. 51 & 52 [1902]: *T. sinaloa russeus*, n. subsp., Acahnizotla, Guerrero; NELSON, P. Soc. Washington xvi, pp. 157 & 158: *T. pleurostictus rarus*, n. subsp., San Juan del Sur, Nicaragua; RIDGWAY, t. c. p. 167: *T. modestus pusillus*, n. subsp., Huehuetan, Chiapas; id. t. c. pp. 167 & 168: *T. leucopogon*, from S. Javier, N. Ecuador, a very distinct species; HELLMAYR, J. Ornith. 1903, pp. 534 & 535: *T. longirostris bahiæ*, n. subsp., Bahia; id. t. c. pp. 535 & 536.
- Thryothorus tudovicianus*, in Massachusetts; DURFEE, Auk xx, p. 69: *T. coraya* and its allies; HELLMAYR, J. Ornith. 1903, pp. 532-534.



- Telmatodytes palustris iliacus*, n. subsp., Knox County, Indiana; RIDGWAY, P. Soc. Washington xvi, p. 110: *T. palustris thyrophilus*, n. subsp., Sabine, Texas; id. t. c. p. 149 & 150.
- Cistothorus palustris plesius*, in California; GRINNELL, Condor v, pp. 133 & 134: *C. polyglottus lucidus*, n. subsp., Panama; RIDGWAY, P. Soc. Washington xvi, p. 169.
- Troglodytes browni*, n. sp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 53-55 [1902]: probably generically distinct; HELLMAYR, J. Ornith. 1903, p. 534: *T. brunneicollis nitidus*, n. subsp., Zempoaltepec, Oaxaca, Mexico; NELSON, P. Soc. Washington xvi, p. 158.
- Urocichla reptata*, n. sp., Mekong Valley; BINGHAM, Bull. B. O. C. xiii, pp. 55 & 56.
- Salpinctes maculatus*, n. sp., Northern Guatemala; RIDGWAY, P. Soc. Washington xvi, p. 169: *S. obsoletus exsul*, n. subsp., Revillagigedo Islands; id. t. c. p. 169: *S. obsoletus notius*, n. subsp., Southern Mexico; id. t. c. p. 168.
- Anorthura cypristes*, n. sp., Cyprus; BATE, Bull. B. O. C. xiii, p. 51.
- Catherpes*, review of the genus. *C. mexicanus polioptilus*, n. subsp., Chisos Mts., Texas; OBERHOLSER, Auk xx, p. 196-198.
- Hemiura leucogastra musica*, n. subsp., Teapa, Tebasco, Mexico; NELSON, P. Soc. Washington xvi, p. 159.
- Hemicorhina*, notes on the genus; HELLMAYR, J. Ornith. 1903, pp. 528-532: *H. inornata*, n. sp., N.W. Ecuador (Lita, Bulun); id. t. c. pp. 528 & 529: *H. prosthelauca* from Chiapas to Chiriqui; id. t. c. p. 529; *H. pittieri* Cherrie = *H. prosthelauca*; id. t. c. p. 529: *H. leucophrys venezuelensis*, n. subsp., Mts. of Venezuela (Caripè: Tucuyo); id. t. c. p. 530: *H. anachoreta* Bangs = *H. guttata* (Hartl.); id. t. c. pp. 530 & 531: *H. mexicana* Nelson, distinct from *H. leucophrys*; id. t. c. p. 531; *H. hilaris*, notes on; id. t. c. p. 531: list of the known species; id. t. c. p. 531: *H. leucophrys castanea*, n. subsp., Eastern Guatemala; RIDGWAY, P. Soc. Washington xvi, p. 168: *H. leucophrys berlepschi*, n. subsp., Western Ecuador; id. t. c. p. 168: *H. hilaris bangsi*, n. subsp., Santa Marta, Colombia; id. t. c. pp. 168 & 169: *H. leucophrys festiva*, n. subsp., Omilteme, Guerrero, Mexico; NELSON, t. c. p. 158: *H. collina*, n. sp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 55 & 56 [1902].
- Dichrozona zononota* = *Cyphorhynchus cinctus* Pelz., but is a Formicarian bird; HELLMAYR, J. Ornith. 1903, pp. 535 & 536.
- Microcerculus acentetus*, n. sp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 56 & 57 [1902].
- Pnoepyga lepida*, breeding in Java; BARTELS, J. Ornith. 1903, pp. 285 & 286.

### Family CINCLIDÆ.

- Cinclus aquaticus*, nesting in a tree about twelve feet from the ground; TAIT, Ann. Scott. Nat. Hist. 1903, p. 185: *C. kiborti*, n. sp., Krasnojarsk, C. Siberia; MADARASZ, Ann. Mus. Hungar. i, pp. 559 & 560: *C. caucasicus*, n. sp., Caucasus; id. t. c. p. 560: *C. siemsseni*, n. sp., Foochow, S. E. China; MARTENS, Ornith. Monber. xi, pp. 186 & 187: *C. olympicus*, n. sp., Cyprus; MADARASZ, Ornith. Monber. xi, p. 6.

### Family MIMIDÆ.

- Mimus polyglottus*, in Nova Scotia; DWIGHT, Auk xx, p. 440: now resident on the Bahama Is. (Little Abaco); BONHOTE, Ibis 1903, p. 276: *M. saturninus frater*, n. subsp., Ypanema, S. Paulo; HELLMAYR, Verh.



Ges. Wien liii, pp. 220 & 221: *M. longicaudatus punensis*, n. subsp., Puna Island; id. t. c. pp. 222 & 223.  
*Margarops fuscatus*, note on; BOWDISH, Auk xx, p. 20.

### Family TURDIDÆ.

Cf. KLEINSCHMIDT, J. Ornith. 1903, pp. 315-393, 441-465.

*Merula merula*, nesting sites; SERVICE, Zoologist 1903, pp. 69 & 70; nesting on the ground; GODFREY, t. c. p. 70; READ, Zoologist 1903, p. 23: *T. merula syriaca* in S.W. Persia; WITHERBY, Ibis 1903, p. 551.

*Merula phaopygopsis*, nom. emend. pro *M. phaopygoides*, Seeb.; SHARPE, Handl. B. iv, p. 122: *M. baraka*, n. sp., Ruwenzori; id. Bull. B. O. C. xiv, p. 19: *M. relicta*, n. sp., Turkestan; ZARUDNY & KOREJEW, Ornith. Monber. xi, pp. 129 & 130: *M. aterrima*, n. sp., Caucasus; MADARASZ, Ornith. Monber. xi, p. 186: *M. algira*, n. sp., Algeria; MADARASZ, Ann. Mus. Hungar. i, p. 559.

*Turdus poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 37: *T. whitei*, in Halifax; CRABTREE, Halifax Natural. vii, pp. 101-103.

*Ægithocichla*, nom. emend. pro *Cichlopasser* Bp.; SHARPE, Handl. B. iv, p. 134.

*Ixoreus* cannot supersede *Hesperocichla*; SCLATER, Ibis 1903, p. 142.

*Geocichla macrorhyncha*, note on; LITTLER, Emu iii, pp. 81 & 82.

*Turdus viscivorus*, strange nesting place; WHITAKER, Zoologist 1903, p. 226; PENTLAND, t. c. p. 312.

*Turdus naumanni*, *T. auritus*, *T. hortulorum*, *T. pallidus*, eggs figured; DRESSER, Ibis 1903, pl. iii.

*Turdus torquatus* breeding in the Hartz Mts.; BERGE, Ornith. Monber. xi, p. 140.

*Turdus musicus*, nesting sites; SERVICE, Zoologist 1903, pp. 69 & 70; breeding in November; BARRETT-HAMILTON, Irish Natural. xii, p. 138.

*Ruticilla nigra*, n. sp., Sardinia; GIGLIOLI, Bull. B. O. C. xiii, p. 79; id. Ibis 1903, p. 581 [= *R. titys*, var. *melan.*]; HARTERT, t. c. p. 79.

*Erithacus cairii* = *E. titys*; BAU, Ornith. Monber. xi, pp. 113 & 114.

*Ruticilla titys*, in Dorsetshire; PICKARD-CAMBRIDGE, Zoologist 1903, pp. 454 & 455.

*Cyanecula suecica*, near Eastbourne; ARNOLD, Zoologist 1903, p. 389.

*Cyanecula wolffi*, British examples; NELSON, Zoologist 1903, p. 23; NICOLL, t. c. p. 431; TUCK, t. c. p. 455.

*Daulias lusciniæ*, late arrival in Somerset; LEWIS, Zoologist 1903, p. 226.

*Erithacus rubecula*, courting attitudes; APLIN, Ibis 1903, pp. 132 & 133.

*Callene poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 37.

*Callene sharpei* and *C. macclounii*, nn. spp., Nyasa Land; SHELLEY, Bull. B. O. C. xiii, pp. 60 & 61.

*Callene roberti*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 37.

*Erythacus gutturalis*, white-breasted form in Southern Persia; WITHERBY, Bull. B. O. C. xiii, p. 62.

*Alethe hypoleuca* (Reichen.) and *A. alexandri* = *A. poliocephala* (Bp.); ALEXANDER, Ibis 1903, p. 378.

*Alethe moori*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 37.

*Pratincola rubetra margaretae*, n. subsp., Tomsk, W. Siberia; JOHANSEN, Ornith. Jahrb. xiv, pp. 232-234.

*Pratincola rubetra dalmatica*, n. subsp., Dalmatia; KOLLIBAY, Ornith. Jahrb. xiv, pp. 43 & 44.

*Saxicola albicollis* and *S. caterinæ*, their synonymy; WHITAKER, Ibis 1903, pp. 408-410.

- Saxicola albicollis* and *S. amphileuca*, *S. lugens* and *S. halophila*, notes on; DRESSER, Ibis 1903, pp. 90 & 91: *S. chrysopygia*, egg figured; id. t. c. pl. x, fig. 15.
- Catharus gracilirostris accentor*, n. subsp., Chiriqui, Panama; BANGS, P. New England Zool. Club iii, pp. 50 & 51 [1902].
- Sialia mexicana australis*, n. subsp., Mt. Tancitaro, Michoacan, Mexico; NELSON, P. Soc. Washington xvi, p. 159.
- Megalurus striatus*, n. sp., Lake Yanchepe, Western Australia; MILLIGAN, Emu ii, pp. 201 & 202.
- Calamocichla poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 37.
- Calamocichla cunensis*, n. sp., Cunene N., Damara Land; HARTERT, Bull. B. O. C. xiii, p. 62.

## Family SYLVIIDÆ.

SHARPE, Hand-list B. iv, pp. 185-246.

- Locustella naevia*, in the Isle of Man; GRAVES, Zoologist 1903, p. 313.
- Acrocephalus aquaticus*, in Ireland; BARRINGTON, Irish Natural. xii, p. 300:
- A. phragmitis*, note on; ELLISON, Zoologist 1903, p. 189: *A. turdoides* in Sussex; NICOLL, Bull. B. O. C. xiv, p. 18: *A. orientalis celebensis*, in South Celebes; MEYER, Notes Leyden Mus. xxiii, p. 188: *A. celebensis*, n. sp., Makassar; HEINROTH, J. Ornith. 1903, p. 125: *A. palustris* breeding in Sussex; FIELD, Bull. B. O. C. xiv, p. 23: *A. familiaris*, nest and eggs described; FISHER, Auk xx, pp. 390-392, pl. xiv.
- Lusciniola mimica*, n. sp.; MADARASZ, Vortr. einen neuen Rohrsänger 1903, pp. 1-4.
- Orthotomus chloronotus*, female described; MCGREGOR, Bull. Mus. Philippine i, p. 8.
- Heliolais* nom. emend. pro *Dybowskia* Oust (nec Dall); SHARPE, Handl. B. iv, p. 193.
- Cisticola cisticola mauritanica*, n. subsp., Algeria and Tunis; WHITAKER, Bull. B. O. C. xiv, pp. 19 & 20.
- Spiloptila malopensis*, n. sp., Mashona Land; SHARPE, op. cit. xiii, p. 80.
- Phlexis lopezi*, n. sp., Fernando Po; ALEXANDER, t. c. p. 48.
- Sylvia orpheus* in Sussex; BUTTERFIELD, op. cit. xiv, pp. 16 & 17: *S. curruca*, at the Sule Skerry Lighthouse; CLARKE, Ann. Scott. Nat. Hist. 1903, p. 24: in Cardiganshire; SALTER, Zoologist 1903, pp. 226 & 227: *S. undata*, in Shropshire; FORREST, t. c. pp. 349 & 350: its northern breeding range; JOURDAIN, t. c. pp. 423-425.
- Lusciniola indica*, nest and eggs figured; DRESSER, Ibis 1903, pp. 404 & 405, pl. x, figg. 14 & 16: *L. neglecta*, the nest; WITHERBY, Bull. B. O. C. xiii, p. 62: id. Ibis 1903, pp. 537 & 538.
- Phylloscopus*, notes on the genus; KLEINSCHMIDT, J. Ornith. 1903, pp. 469-507.
- P. borealis* in Russian Lapland; PEARSON, Bull. B. O. C. xiv, p. 22: *P. viridanus*, at the Sule Skerry Lighthouse in Sept.; CLARKE, Ann. Scott. Nat. Hist. 1903, pp. 22-24.
- Acanthiza robustirostris*, n. sp., Murchison, Western Australia; MILLIGAN, Emu iii, pp. 71 & 72: *A. robustirostris*, *A. tenuirostris*, and *A. uropygialis*, nestlings and nests described; MILLIGAN, t. c. pp. 102-104: *A. chrysorrhoa*, note on; MILLIGAN, t. c. p. 17: *A. pallida*, n. sp., and *A. rufifrons*, Murchison, Western Australia; id. t. c. pp. 111 & 112: *A. magnirostris*, nn. spp., King Island, Bass Strait; CAMPBELL, op. cit. ii, pp. 202 & 203.
- Sericornis pusilla*, n. sp., Richardson Range, S. E. New Guinea; ROTHSCHILD

- & HARTERT, Nov. Zool. x, p. 228 [= *S. olivacea* Salvad. iid. t. c. p. 480]:  
*S. sylvia* Reichenow = *Glycichera fallax*, iid. t. c. p. 435.  
*Apalis lopezi*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 35:  
 figured; id. t. c. p. 373, pl. ix, fig. 1: *A. olivacea* Strickl. = *A.*  
*rufigularis* (Fraser); ALEXANDER, Ibis 1903, pp. 371-373.  
*Euprinodes sclateri*, n. sp., Fernando Po; id. Bull. B. O. C. xiii, p. 36.  
*Urolais*, n. g., type *U. mariae*, n. sp., Fernando Po; id. t. c. p. 35; figured;  
 id. Ibis 1903, pl. viii.  
*Poliolais*, n. g., type *P. helenoræ*, n. sp., Fernando Po; id. t. c. p. 36.  
*Camaroptera granti*, n. sp., Fernando Po; id. t. c. p. 36.  
*Stiphromis xanthogaster*, n. sp., Camaroons; SHARPE, op. cit. xiv, p. 19.  
*Hylia poensis*, n. sp., Fernando Po; ALEXANDER, op. cit. xiii, p. 36 = *H.*  
*prasina*; id. Ibis 1903, p. 368.  
*Phyllergates*, a species of this genus in Batchian Id., Moluccas [may be  
*P. everetti dumasi* of Buru]; HARTERT, Nov. Zool. x, p. 58.  
*Cettia cetti semenovi*, n. subsp., Tedschen, Transkaspiä; ZARUDNY &  
 LOUDON, Ornith. Jahrb. xiv, p. 174.  
*Saya superciliaris*, note on the eggs; HARRINGTON, J. Bombay Soc. xv, p. 140.  
*Malurus gouldi*, note on; LITTLER, Emu iii, pp. 27-30: *M. elizabethæ*, note  
 on; CAMPBELL, Emu ii, p. 206, pl. x, fig. 1: *M. elizabethæ*, *M. whitei*,  
*M. assimilis*, figured; id. t. c. pl. x, figg. 1-3: *M. pulcherrimus* and  
 allies, notes on; MILLIGAN, op. cit. iii, pp. 14-16, pl. iii; CAMPBELL,  
 t. c. p. 58.

#### Family VIREONIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 247-258.

- Vireo calidris barbatula* and *V. latimeri*, nesting habits; BOWDISH, Auk  
 xx, pp. 16 & 17: *V. insularis*, n. sp., San Miguel Id., Bay of Panama;  
 BANGS, P. New England Zool. Club iii, p. 73: *V. philadelphicus*, nest  
 and eggs figured; BREWSTER, Auk xx, pp. 369-376, pl. xi: *V.*  
*solitarius*, note on; id. t. c. pp. 437 & 438: *V. bellii*, in Colorado;  
 SMITH, t. c. p. 438: *V. bellii medius*, n. subsp., Boquillas, Texas;  
 OBERHOLSER, P. Soc. Washington xvi, pp. 17 & 18: *V. huttoni cognatus*,  
 n. subsp., Lower California; RIDGWAY, P. Soc. Washington xvi, p. 107:  
*V. huttoni mexicanus*, n. subsp., S. Mexico to Guatemala; id. t. c. p.  
 107: *V. bellii arizonæ*, n. subsp., Arizona, Texas and N. W. Mexico;  
 id. t. c. p. 108: *V. latimeri*, its food; BOWDISH, Auk xx, p. 195: *V.*  
*mailliardorum*, n. sp., Santa Cruz Island, California; GRINNELL,  
 Condor v, p. 157.  
*Vireosylvia gilva brewsteri*, n. subsp., Chihuahua, N. W. Mexico; RIDGWAY,  
 P. Soc. Washington xvi, p. 107: *V. josephæ costaricensis*, n. subsp.,  
 Highlands of Costa Rica; id. t. c. p. 107: *V. josephæ chiriquensis*,  
 n. subsp., Boquete, Chiriqui, Panama; BANGS, P. New England Zool.  
 Club iv, pp. 9 & 10.  
*Pachysylvia* Bonap. vice *Hylophilus* Temm. (nec Hübner); OBERHOLSER,  
 P. Soc. Washington xvi, pp. 101 & 102.  
*Pachysylvia ochraceiceps pallidipectus*, n. subsp., Angostura, Costa Rica;  
 RIDGWAY, t. c. p. 108.  
*Vireolanus melitophrys goldmani*, n. subsp., Huitzilac, Morelos, Mexico;  
 NELSON, t. c. pp. 155 & 156: *V. pulchellus viridiceps*, n. subsp.,  
 Panama; RIDGWAY, t. c. p. 108.

#### Family AMPELIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 259 & 260.

- Ampelis garrulus*, in Co. Antrim; WRIGHT, Zoologist 1903, p. 456: near  
 Ramsgate; GRANT, Bull. B. O. C. xiv, p. 31: breeding in captivity;



PHILLIPPS, Avicult. Mag. (2) i, pp. 357-366; ST QUINTIN, op. cit. (2) ii, pp. 22-25: *A. phenicoptera*, a rare straggler to Fohkien; RICKETT, Ibis 1903, p. 216.

#### Family ARTAMIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 260-262.

*Artamus*; notes on the Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 112.

#### Family VANGIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 262-264.

#### Family PRIONOPIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 264-275.

Notes on the Papuan species, Cf. ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 93-101.

*Tephrodoris pelvicus* in Fohkien; RICKETT, Ibis 1903, p. 216.

*Pitohui* Less. supersedes *Rhectes* Reichenb.; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 93: *P. dohertyi*, n. sp., Ron Is.; Geelvink Bay, N. W. New Guinea; iid. t. c. p. 95: *P. meyeri*, n. sp., Takau, N. W. New Guinea; iid. t. c. p. 96.

*Collyriocincla rectirostris*, note on; LITTLER, Emu iii, pp. 23 & 24.

*Pinarolestes megarhyncha madaraszi*, n. subsp., German New Guinea (Sattelberg Mts.); ROTHSCHILD & HARTERT, Nov. Zool. x, p. 100: *P. m. despectus*, n. subsp., S. E. New Guinea; iid. t. c. pp. 100 & 101.

#### Family AEROCHARIDÆ.

Cf. SHARPE, Hand-list, B. iv, p. 275.

#### Family LANIIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 276-315.

Notes on the Papuan species, cf. ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 92, 93, 101-109.

*Gymnorhina tibicen*, sequences of the moult; DEGEN, Tr. Zool. Soc. London xvi, pp. 367-409: *G. hyperleuca*, note on; LITTLER, Emu iii, pp. 82-85: *G. longirostris*, n. sp., Ashburton river, North-Western Australia; MILLIGAN, t. c. pp. 96-99, pl. v: *G. dorsalis*, notes on; id. t. c. pp. 99-102.

*Cracticus cinereus*, note on; LITTLER, t. c. pp. 85 & 86.

*Lanius*, Die Phylogenese der *Lanius*-Arten; SCHIEBEL, Ornith. Monber. xi, pp. 105-112.

*Lanius minor*, notes on; id. Ornith. Jahrb. xiv, pp. 140-143: *L. excubitor*, in Kincardineshire; SIMPSON, Ann. Scott. Nat. Hist. 1903, pp. 185 & 244: in West Suffolk; TUCK, Zoologist 1903, pp. 151 & 152: *L. ludovicianus mearnsi*, n. subsp., Islands of Lower California; RIDGWAY, P. Soc. Washington xvi, p. 108.

*Malaconotus gladiator* & *M. olivaceus hypopyrrhus*, figured; REICHENOW, Vög. Afrikas ii.

*Chlorophoneus preussi*, *C. reichenowi* and *C. nigrifrons*, figured; REICHENOW, t. c.

*Pelcinus cruentus hilgerti*, n. subsp., N. & S. Somali Land; NEUMANN, Ornith. Monber. xi, pp. 182 & 183.



- Dryoscopus poensis*, n. sp., Fernando Pq.; ALEXANDER, Bull. B. O. C. xiii, p. 37.
- Telephonus jamesi mandanus*, n. subsp., Manda Is.; NEUMANN, Ornith. Monber. xi, p. 183.
- Pachycephala dahl*, notes on; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 101 & 102: *P. finschi* and *P. aurea*, notes on; iid. t. c. pp. 102 & 103: *P. gutturalis*, figured; SETH-SMITH, Avicult. Mag. (2) ii, pp. 61-63 cum tab.: *P. johni* [potius *johannis*], n. sp., Obi Is.; HARTERT, Nov. Zool. x, p. 12: *P. cinerascens*, notes on the species in Batchian; id. t. c. pp. 54 & 55: *P. moroka*, n. sp., Moroka Distr. British New Guinea; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 106: figured; iid. t. c. pl. xii, fig. 2: *P. fortis*, and its allies, *P. trobriandi* and *P. discolor*, notes on; iid. t. c. pp. 107 & 108.
- Eopsaltria flaviventris*, nom. emend. pro *E. flavigaster* Verr. and Des Murs.; SHARPE, Handl. B. i, p. 315.

## Family PARIDÆ.

- Cf. SHARPE, Hand-list B. iv, pp. 316-342: HELLMAYR, Tierreich, Lief. 18 *Paridæ*, pp. 1-167, text-figg. 1-52.
- Parus palustris* and its allies. Important notes on synonymy; HELLMAYR, J. Ornith. 1903, pp. 396 & 397: *P. lathamii* Steph., note on; HELLMAYR, J. Ornith. 1903, p. 397: *P. carolinensis impiger*, n. subsp., Deep Creek, Florida; BANGS, P. New England Zool. Club iv, p. 1 & 2: *P. cristatus*, in Lower Strathspey; KINNEAR, Ann. Scott. Nat. Hist. 1903, pp. 48 & 49: *P. moltchanovi*, n. sp., Crimea; MENZBIER, Bull. B. O. C. xiii, p. 49: *P. atlas*, figured; MEADE-WALDO, Ibis 1903, p. 207, pl. vi: *P. sardus*, n. sp., Sardinia; KLEINSCHMIDT, Ornith. Monber. xi, p. 186: *P. cyanus*, in Bohemia; TSCHUSI, Ornith. Jahrb. xiv, p. 64: *P. tianschanicus*, distinct from *P. cyanus*; HELLMAYR, J. Ornith. 1903, p. 397: *P. major* and *P. aphrodite*, notes on; id. t. c. pp. 141, 398, 399: *P. corsus*, n. sp., Corsica; KLEINSCHMIDT, Ornith. Monber. xi, pp. 6 & 7.
- Bæolophus*, should be employed for the American species of *Lophophanes*; RIDGWAY, Auk xx, p. 308.
- Bæolophus inornatus restrictus*, n. subsp., Oakland, California; RIDGWAY, P. Soc. Washington xvi, p. 109: *B. inornatus murinus*, n. subsp., Lower California; id. t. c. p. 109.
- Periparus ater* var. *derjugini*, n. subsp., Caucasus; ZARUDNY & LOUDON, Ornith. Monber. xi, p. 129.
- Ægithaliscus talifuensis*, n. sp., W. Yun-nan; RIPPON, Bull. B. O. C. xiv, p. 18.
- Psaltriparus*. Synopsis of the genus; OBERHOLSER, Auk xx, pp. 198-201: *P. minimus saturatus*, n. subsp., British Columbia; RIDGWAY, P. Soc. Washington xvi, p. 109.
- Ægithalus roseus* (Blyth) = *Æ. europæus* (Herin.); HELLMAYR, J. Ornith. 1903, p. 399: *Æ. caucasicus* Lorenz = *Æ. major* (Radde); id. t. c. p. 400; *Mecistura swinhoi* Pelz. = *Æ. glaucogularis* (Moore); id. t. c. p. 400.
- Acredula*, review of the genus; BIANCHI, Annuaire Mus. St. Petersb. vii, pp. 147-151 [1902]: *A. caudata*, nesting habits; STEELE-ELLIOTT, Zoologist 1903, p. 350: *A. rosea taurica*, n. subsp., Crimea; MENZBIER, Bull. B. O. C. xiii, p. 49.
- Anthoscopus smithi* (J. & S.), distinct from *A. minutus* (Shaw); SHARPE, Bull. B. O. C. xiii, pp. 59 & 60.
- Xerophila castaneiventris*, n. sp., Murchison, Western Australia; MILLIGAN, Emu iii, pp. 70 & 71: nest and eggs described; CAMPBELL, t. c. p. 120.

- Finschia*, n. g., type *F. novaezealandiae* [*Certhiparus*, auct. nec Lafr.]; HUTTON, Ibis 1903, pp. 318 & 319.  
*Certhiparus*, Notes on its systematic position; HELLMAYR, J. Ornith. 1903, pp. 401 & 402.

## Family CHAMÆIDÆ.

Cf. SHARPE, Hand-list B. iv, p. 343.

*Chamaea fasciata rufula*, n. subsp., Central California; RIDGWAY, P. Soc. Washington xvi, p. 109.

## Family REGULIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 343-345.

*Regulus cristatus* Vieill. 1807 = *R. ignicapillus* Temm. and not *R. satrapa* as Stejneger suggests; HELLMAYR, J. Ornith. 1903, p. 395: *R. ignicapillus*, in Lancashire; COLLINS, Zoologist 1903, p. 455.

## Family SITTIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 346-353: HELLMAYR, Tierreich, Lief. 18 *Sittidæ*, pp. 168-203, text-figg. 54-63.

*Sitta*, Notes on the species; HELLMAYR, J. Ornith. 1903, pp. 402 & 403: *S. europæa persica*, n. subsp., S. W. Persia; WITHERBY, Ibis 1903, pp. 531 & 532: *S. albinucha* nom. emend. pro *S. leuconucha* Anthony; SHARPE, Hand-list B. iv, p. 350.

*Neositta*, Notes on some of the species; HELLMAYR, J. f. O. 1903, pp. 403 & 404.

*Sittella tenuirostris*, from Murchison, Western Australia; MILLIGAN, Emu iii, p. 114.

## Family HYPOSITTIDÆ, nov.

For the characters of this new Family cf. RIDGWAY, P. Soc. Washington xvi, p. 125.

## Family CERTHIIDÆ.

Cf. SHARPE, Hand-list B. iv, pp. 353-357: HELLMAYR, Tierreich, Lief. 18 *Certhiidæ*, pp. 204-229, text-figg. 64-75.

*Certhia familiaris*, Notes on the Creeper of Cyprus; BATE, Ibis 1903, p. 577: *C. khamensis*, n. sp., W. China and S. E. Tibet; BIANCHI in Sharpe's Hand-list B. iv, pp. 355-360.

## Family ZOSTEROPIDÆ.

*Zosterops goodfellowi*, n. sp., Mindanao; HARTERT, Bull. B. O. C. xiv, p. 13:

*Z. whiteheadi*, n. sp., Lepanto district, Luzon; id. t. c. p. 13: *Z.*

*whiteheadi vulcani*, n. subsp., Mindanao; id. t. c. p. 14: *Z. flavissima*,

n. sp., Tukang-Besi Is.; id. t. c. pp. 29 & 30: *Z. schoana*, n. sp.,

Shoa; NEUMANN, Ornith. Monber. xi, p. 185: *Z. ventralis*, n. sp.,

Car Nicobar; RICHMOND, P. U. S. Mus. xxv, pp. 288 & 289 (1902).

*Speirops brunnea*, n. sp., Fernando Po; SALVADORI, Boll. Mus. Torino

xviii, No. 442.

*Hypocryptadius*, n. g., type *H. cinnamomeus*, n. sp., Mindanao; HARTERT,

Bull. B. O. C. xiv, p. 13.

## Family DICÆIDÆ.

Notes on Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 214-217.

*Dicaeum geelvinkianum diversum*, n. subsp., N. coast of Dutch New Guinea; iid. t. c. p. 215: *D. pulchrius* Sharpe = *D. rubrocoronatum* Sharpe, juv.: *D. kühni*, n. sp., Tukang-Besi Is.; HARTERT, Nov. Zool. x, p. 28.

## Family NECTARINIIDÆ.

Notes on Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 211-214.

*Nectarinia salvadorii*, n. sp., Nyasa-land; SHELLEY, Bull. B. O. C. xiii, p. 61.

*Nectarinia baraka* Sharpe = *Cinnyris purpureiventer* Reichenow; SHARPE, t. c. p. 50: *C. chloropygia bineschensis*, n. subsp., Binescho, W. of Kaffa; NEUMANN, Ornith. Monber. xi, p. 185: *C. frenata flava*, n. subsp., Bismarck Archipelago; HEINROTH, J. Ornith. 1903, pp. 85 & 86 [= *B. frenata* Rothsch. & Hart., Nov. Zool. x, p. 213]: *C. infrenata*, n. sp., Tukang-Besi Is.; HARTERT, Nov. Zool. x, p. 29: *C. morotensis* Shelley = *C. auriceps* (Gray); id. t. c. p. 55.

*Cyanomitra poensis*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 38: *C. ursulae*, n. sp., Fernando Po; id. t. c. p. 38: figured; id. Ibis 1903, pl. ix, fig. 2.

*Arachnechthra klossi*, n. sp., Great Nicobar; RICHMOND, P. U. S. Mus. xxv, pp. 297 & 298 (1902).

*Anthreptes fraseri* and *A. idius*, Notes on; ALEXANDER, Ibis 1903, pp. 344-346.

## Family MELIPHAGIDÆ.

Cf. PERKINS, Fauna Hawaiiensis i, pp. 440-445.

*Myzomela*, List of known species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 217-224: *M. simplex rubrotincta*, from the Obi Is., its systematic position; HARTERT, Nov. Zool. x, p. 13: *M. simplex mortyana*, n. subsp., Morty Is., Moluccas, id. t. c. p. 56: *M. batjanensis*, n. sp., Batchian Is., Moluccas; id. t. c. p. 58: *M. kuehni*, n. sp., Wetter Is.; ROTHSCHILD, Bull. B. O. C. xiii, p. 42: *M. ramsayi* Finsch = *M. pammelæna* Sel.; HEINROTH, J. Ornith. 1903, pp. 84 & 85.

*Meliphreptes leucogenys*, n. sp., Mount Mongerup, Western Australia; MILLIGAN, Emu ii, pp. 160 & 161: note on; id. op. cit. iii, pp. 13 & 14.

*Sericornis sylvia* Reichenow = *Glycichæra fallax* Salvad.; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 435.

*Ptilotis aruensis sharpei*, n. subsp. [*P. analoga* Sharpe, nec Reichenb.], New Guinea; iid. t. c. p. 442: *P. lacrimans* De Vis = *P. salvadorii* Hartert; iid. t. c. p. 443: *P. marmorata* Sharpe = *P. cinerea* Sel.; iid. t. c. p. 444: *P. chrysolis saturator*, n. subsp., Aru Id.; iid. t. c. p. 445: *P. c. madaraszi*, n. subsp., German New Guinea; iid. t. c. p. 446: *P. finschi*, n. sp., British New Guinea; iid. t. c. p. 448: *P. flavigularis*, note on; LITTLER, Emu iii, pp. 86-88: *P. auricomis* and allies, Notes on; CAMPBELL, Avicult. Mag. (2) i, pp. 347-353: *P. leucotis*, notes on the plumages; HALL, Emu iii, pp. 43-45.

*Acanthocera inauris*, note on; LITTLER, t. c. pp. 88 & 89.

- Melipotes atriceps* Grant = *M. fumigatus* Meyer; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 439.  
*Eafa*, n. g., type *E. maculata*, n. sp., British New Guinea; iid. t. c. pp. 448 & 449.

## Family MNIOTILTIDÆ.

- Helinaia swainsonii*, nest and eggs; CLECKLEY, Auk xx, pp. 438 & 439.  
*Helminthophila laurencei*, on Long Id., N. Y.; BRAISLIN, t. c. p. 53.  
*Sylvia cœrulea* Wilson, note on; ALLEN, t. c. pp. 216-218.  
*Dendroica œstivâ brewsteri*, n. subsp., Oregon to Southern California; GRINNELL, Condor v, pp. 72 & 73.  
*Dendroica gundlachi* from Abaco Id., Bahamas; BONHOTE, Bull. B. O. C. xiii, p. 50.  
*Geothlypis trichas scirpicola* Grinnell = *G. trichas arizela*; A. O. U. Comm. Auk xx, p. 363; *G. restricta* Maynard = *G. trichas* (L.); BONHOTE, Ibis 1903, pp. 282 & 283; *G. maynardi* Bangs = *G. rostrata* Bryant; id. t. c. pp. 283-285; *G. tanneri*, doubtfully distinct from *G. rostrata*; id. t. c. pp. 285 & 286; *G. rostratus*, *G. maynardi*, *G. tanneri* are identical; BONHOTE, Bull. B. O. C. xiii, p. 51; *G. chapatensis*, n. sp., Ocotlan, Jalisco, Mexico; NELSON, P. Soc. Washington xvi, pp. 156 & 157; *G. formosa*, in Nova Scotia; DWIGHT, Auk xx, pp. 439 & 440.

## Family MOTACILLIDÆ.

- Motacilla lugubris*, nesting three times in one season; BUTLER, Zoologist 1903, p. 313; *M. alba*, in the Isle of Man; RALFE, t. c. p. 266; migration in Ireland; BARRINGTON, Irish Natural. xii, p. 198; at Bartragh Id., Killala Bay; WARREN, Zoologist 1903, p. 190; *M. alba* var. *orientalis*, n. subsp., N. Turkestan; ZARUDNY & KOREJEV, Ornith. Monber. xi, p. 130.  
*Motacilla subpersonata* and *M. personata* [*M. alba*], heads figured; MEADE-WALDO, Ibis 1903, p. 238, figg. a & b.  
*M. forwoodi*, figured; GRANT & FORBES, Nat. Hist. Sokotra and Abd-El-Kuri, Aves, pl. vii, fig. 2; *M. flava*, breeding in Sussex; TICEHURST, Bull. B. O. C. xiii, p. 78; *M. borealis*, near Halifax, Yorks.; CLARKE, t. c. pp. 68 & 69; in Sussex; BUTTERFIELD, t. c. p. 69; *M. feldeggi*, in Sussex; id. t. c. p. 69.  
*Budytes flavus alascensis*, n. subsp., Western Alaska; RIDGWAY, P. Soc. Washington xvi, p. 105; *B. flavus dombrowskii*, n. subsp., Roumania; TSCHUSI, Ornith. Jahrb. xiv, p. 161.  
*Dendronanthus* Blyth, has priority over *Limonidionus* Gould; RICHMOND, P. U. S. Mus. xxvi, p. 504.  
*Anthus similis*, eggs figured; DRESSER, Ibis 1903, pl. x, figg. 12 & 13; *A. pratensis* and *A. cervinus*, incubation; GOEBEL, Ornith. Jahrb. xiv, p. 97; *A. campestris*, in Sussex; NICOLL, Bull. B. O. C. xiv, p. 18 and Zoologist 1903, pp. 431 & 432; *A. steindachneri* from Antipodes Id., nest and eggs; SHARPE, Bull. B. O. C. xiii, p. 59.

## Family ALAUDIDÆ.

- Certhilauda somalica*, n. sp., Dibbit, Somali Land; WITHERBY, Bull. B. O. C. xiv, p. 29.  
*Otocoris alpestris enthyimia* Oberholser, *O. alpestris ammophila* Oberholser, and *O. alpestris leucansiptila* Oberholser. Characters not distinguishable; A. O. U. Comm. Auk xx, p. 362.



- Alauda arvensis scotica*, n. subsp., Scotland; TSCHUSI, Ornith. Jahrb. xiv, p. 162: *A. cinerea*, n. sp., Barnaul, Siberia; EHMEKE, J. Ornith. 1903, pp. 149 & 150: *A. subalpina*, n. sp., Alps of Savoy; id. t. c. pp. 150 & 151: *A. flavescens*, n. sp., Roumania; id. t. c. pp. 151 & 152.
- Galerida cristata ivanowi*, n. subsp., Syr-Darya; LOUDON & ZARUDNY, Ornith. Jahrb. xiv, pp. 171 & 172: *G. cristata magdæ*, n. subsp., Baku and Lenkoran; id. t. c. pp. 172-174.
- Ptilocorys*, n. g. type *P. cristata* (Linn.); MADARASZ, Die Vog. Ungarns p. 48: *P. senegalensis* (P. L. S. Muller), is a subspecies; id. t. c. p. 50, tab. i.
- Corydus*, n. g. Dresser, Man. Palæarctic Birds i, p. 390 = *Ptilocorys* Madar. 1899; DRESSER, Ibis 1903, p. 90.
- Lullula flavescens*, n. sp., Roumania; EHMEKE, J. Ornith. 1903, pp. 152 & 153.
- Ammodramus heterura*, n. sp., E. Persia; MADARASZ, Ornith. Monber. xi, p. 91.
- Pyrhulauda butleri* and *P. lacteoidorsalis*, nn. spp., Khartoum district; SHELLEY, Bull. B. O. C. xiii, p. 73.

#### Family FRINGILLIDÆ.

- Geospiza* and *Cocornis*, notes on anatomy; SNODGRASS, Auk xx, pp. 402-417, pls. xvii-xx.
- Chloris sinica ussuriensis*, n. subsp., Sidemi, E. Siberia; HARTERT, Vög. Pal. Faun. pp. 64 & 65.
- Eophona melanura migratoria*, n. subsp., Sidemi, E. Siberia; HARTERT, t. c. p. 59, fig. 17.
- Coccothraustes vulgaris*, in North Dumfriesshire; BARTHOLOMEW, Ann. Scott. Nat. Hist. 1903, pp. 184 & 185: *C. vespertinus*, breeding in captivity; FLEMING, Auk xx, pp. 213-215: *C. vespertinus montanus*, nesting near Chihuahua, Mexico; BRENINGER, Auk xx, pp. 68 & 69.
- Pycnorhamphus carneipes*, nest and eggs figured; DRESSER, Ibis 1903, pp. 406 & 407, pl. x, figg. 9-11.
- Loxigilla portoricensis*, nest described; BOWDISH, Auk xx, pp. 13 & 14.
- Cardinalis cardinalis*, nesting in a conservatory; HARVEY, Auk xx, pp. 54-57, pl. i: *C. cardinalis magnirostris*, n. subsp., Louisiana; BANGS, P. New England Zool. Club iv, pp. 5-7.
- Fringilla caelebs*, males only in the Caucasus in winter; HOFFMANN, Ornith. Monber. xi, pp. 70 & 71.
- Carduelis elegans*, status in Britain; HARVIE-BROWN, Zoologist 1903, pp. 23-26: FORREST, t. c. pp. 71 & 72: D'URBAN, t. c. pp. 104 & 105: APLIN, t. c. pp. 152 & 190: ELLISON, t. c. p. 191: in Australia; LE SOUËF, t. c. p. 191: in South Africa; BUTLER, t. c. pp. 227 & 228: DISTANT, t. c. p. 432: variety from Siberia; FINN, Bull. B. O. C. xiii, p. 79: id. P. Zool. Soc. London 1903, ii, pp. 3 & 4.
- Acanthis carduelis britannicus*, n. subsp., Great Britain; HARTERT, Vög. Pal. Faun. p. 68: *A. carduelis africanus*, n. subsp., Morocco; id. t. c. p. 69: *A. flavirostris stoliczkae*, n. subsp., Gilgit; id. t. c. p. 77: *A. cannabina mediterranea*, n. subsp., Dalmatia; TSCHUSI, Ornith. Jahrb. xiv, p. 139.
- Linota rufescens*, nesting in Middlesex; READ, Zoologist 1903, p. 26: note on the breeding habits; BLATHWAYT, t. c. pp. 26 & 27: BUTTERFIELD, t. c. p. 72: CUMMINGS, t. c. pp. 105 & 106: GYNGEL, t. c. p. 106: in Cardiganshire; SALTER, t. c. pp. 106 & 107.
- Chrysomitris spinus*, breeding in Co. Wicklow; WRIGHT, Zoologist 1903, pp. 456 & 457.
- Astragalinus psaltria hesperophilus*, n. subsp., San Bernardino, California; OBERHOLSER, P. Soc. Washington xvi, p. 116.

- Erythrospiza githaginea amantum*, n. subsp., Oliva, Fuertaventura; HARTERT, Vög. Pal. Faun. p. 89.
- Petronia dentata*, laying in confinement; BUTLER, Avicult. Mag. (2) i, pp. 204-298.
- Passer montanus*, breeding in Shetland; SAXBY, Zoologist 1903, p. 462: in the Isle of Man; GRAVES, Zoologist 1903, pp. 313 & 314: *P. hispaniolensis arrigonii*, n. subsp., Sardinia; TSCHUSI, Ornith. Jahrb. xiv, pp. 8 & 9: *P. hispaniolensis washingtoni*, n. subsp., Asia Minor; id. t. c. pp. 9 & 10: *P. hispaniolensis palaestinae*, n. subsp., Palestine; id. t. c. pp. 11 & 12: *P. enigmaticus*, n. sp., Persian Baluchistan; ZARUDNY, Ornith. Monber. xi, pp. 130 & 131: *P. hemileucus*, figured; GRANT & FORBES, Nat. Hist. Sokotra and Abd-El-Kuri, Aves, pl. vii, fig. 1: *P. yatei*, eggs figured; DRESSER, Ibis 1903, p. 405, pl. x, figg. 1-4: *P. ammodendri*, eggs figured; id. t. c. p. 406, pl. x, figg. 5-8.
- Alario leucolama*, n. sp., Great Namaqualand; SHARPE, Bull. B. O. C. xiii, p. 80.
- Serinus shelleyi*, n. sp., E. Africa, NEUMANN, Ornith. Monber. xi, p. 184: *S. leucopygius* and *S. icterus*, nesting in confinement; BUTLER, Avicult. Mag. (2) i, pp. 327-329.
- Crithagia imberbis* Cab. is an *Anomalospiza*; SHELLEY, Bull. B. O. C. xiv, p. 30.
- Anomalospiza rendalli* (Tristr.) = *A. imberbis* (Cab.); REICHENOW, Ornith. Monber. xi, p. 168.
- Pyrhroplectes epauletta* ♂ figured; ROTHSCHILD & HARTERT, Nov. Zool. x, pl. xiii, fig. 1.
- Carpodacus mexicanus frontalis*, note on; FISHER, Auk xx, pp. 167 & 168, pl. vii.
- Pyrhrospiza camerunensis*, n. sp., Mt. Victoria, Camaroons; ALEXANDER, Bull. B. O. C. xiii, p. 38: = *P. olivacea* (Fraser); id. Ibis 1903, pp. 347 & 348.
- Loxia guillemardi*, n. sp., Cyprus; MADARASZ, Ornith. Monber. xi, pp. 4 & 5: *L. bifasciata*, in Kent; TICEHURST, Bull. B. O. C. xiii, p. 51: *L. leucoptera elegans*, note on; TSCHUSI, Ornith. Jahrb. xiv, pp. 163 & 164.
- Emberiza pusilla*, in Durham; NELSON, Ibis 1903, p. 139: *E. citrinella* and *E. leucocephala*, heads figured; KLEINSCHMIDT, J. Ornith. 1903, p. 145, Taf. vii: *E. cirrus*, notes on the incubation; RASPAIL, Bull. Soc. zool. France xxviii, pp. 154-158: in Flintshire; CUMMINGS, Zoologist 1903, p. 350: *E. buchanani* var. *obscura*, n. subsp., Turkestan and Persia; ZARUDNY & KOREJEW, Ornith. Monber. xi, p. 130: *E. cia*, in Sussex; SHARPE, Bull. B. O. C. xiii, p. 38.
- Emberiza calandra thanneri*, n. subsp., Teneriffe; TSCHUSI, Ornith. Jahrb. xiv, pp. 162 & 163.
- Fringillaria socotrana* and *F. insularis*, figured; GRANT & FORBES, Nat. Hist. Sokotra and Abd-El-Kuri, Aves, pl. iii.
- Chondestes grammacus*, in Nova Scotia; DWIGHT, Auk xx, p. 440.
- Zonotrichia leucophrys*, nest and eggs described; RAY, t. c. p. 188.
- Junco hyemalis thurberi*, nest and eggs described; id. t. c. p. 189: *J. oregonus shufeldti*, nesting habits; BOHLMAN, Condor v, pp. 94 & 95.
- Ammodramus australis* (Maynard) = *A. savannarum passerinus*; A. O. U. Comm. Auk xx, p. 362.
- Melospiza coronatorum*, n. sp., Los Coronados Ids., Lower California; GRINNELL & DAGGETT, t. c. pp. 34-36: *M. sanaka* McGregor = *M. cinerea*; A. O. U. Comm. Suppl., Auk xx, p. 362; *M. fasciata ingersolli* McGregor, not distinguishable from *M. cinerea merrilli*; A. O. U. Comm. Suppl., t. c. p. 362; *M. melodia santacruis* Grinnell, is not worthy of subspecific rank; A. O. U. Comm., t. c. p. 363.
- Pipilo aberti*, note on the nesting; GILMAN, Condor v, pp. 12 & 13.

- Spiza americana*, in Nova Scotia; DWIGHT, *Auk* xx, p. 440.  
*Paroaria capitata* and *P. cervicalis*, in captivity; BUTLER, *Avicult. Mag.*  
 (2) ii, pp. 63-66.

#### Family DREPANIDIDÆ.

- Drepanididæ*, key to the genera; PERKINS, *Fauna Hawaiiensis* i, pp. 396-398: distribution of the species; id. t. c. p. 390.  
*Paroreomyza*, subg. n., type *P. maculata* (Cab.); id. t. c. pp. 397 & 417.  
*Himatione freethi*, notes on; FISHER, *Auk* xx, pp. 389 & 390.  
*Oreomystis*, nomen emend. pro *Oreomyza* Stejneger (nec Pokorny); STEJNEGER, *P. Soc. Washington* xvi, p. 11.  
*Telespiza cantans*, notes on; FISHER, *Auk* xx, pp. 387-389, pl. xii.

#### Family CÆREBIDÆ.

- Cæreba portoricensis*, nest and eggs described; BOWDISH, *Auk* xx, p. 17.  
*Certhidia*, notes on the anatomy; SNODGRASS, t. c. pp. 402-417, pls. xvii-xx.

#### Family TANAGRIDÆ.

- Chlorochrysa fulgentissima* Chapm. = *C. hedvigæ* Berl. & Stolzm.; BERLEPSCH, *Ibis* 1903, p. 135.  
*Callospiza cyanocephala corallina*, subsp. n., Bahia, Brazil; BERLEPSCH, *Ornith. Monber.* xi, pp. 18 & 19: *C. festiva* (Shaw) = *C. cyanocephala* (Müll.), its distribution; id. t. c. p. 19.  
*Tanagra palmarum melanopectera*, note on; CLARK, *Auk* xx, pp. 398-402.  
*Spindalis townsendi*, distinct from *S. zena*; BONHOTE, *Bull. B. O. C.* xiii, p. 50: *Ibis* 1903, pp. 288 & 289.  
*Piranga ludoviciana*, an unusual flight; EMERSON, *Condor* v, pp. 64-66.  
*Cyanicterus venustus*, in Amazonia; SCLATER, *Bull. B. O. C.* xiv, p. 31.  
*Malacothraupis castaneiceps* Chapm. = *M. gustavi* Berl.; BERLEPSCH, *Ibis* 1903, p. 136.  
*Chlorospingus novicus*, n. sp., Chiriqui, Panama; BANGS, *P. New England Zool. Club* iii, pp. 67 & 68 [1902].  
*C. hedvigæ* = *C. fulgentissima*, question of priority of nomenclature; BERLEPSCH, *Ibis* 1903, p. 135.  
*Arremonops conirostris centratus*, n. subsp., Honduras; BANGS, *Bull. Mus. Harvard* xxxix, pp. 156 & 157.

#### Family PLOCEIDÆ.

- Coliuspasser delamerei*, n. sp., British Equatorial Africa; SHELLEY, *Bull. B. O. C.* xiii, p. 73.  
*Urobrachya phænicea quanxæ*, n. subsp., Quanza River, Angola; HARTERT, t. c. p. 56.  
*Pyromelana taha intercedens*, n. subsp., Arusa, Galla Land; ERLANGER, *Ornith. Monber.* xi, p. 23.  
*Pseudonigrita*, n. g., type *P. arnaudi* (Bp.); REICHENOW, *J. Ornith.* 1903, p. 149.  
*Cryptospiza elizæ*, n. sp., Fernando Po; ALEXANDER, *Bull. B. O. C.* xiii, p. 38.  
*C. ocularis* Sharpe, and *C. elizæ* Alex. = *C. reichenowi* (Hartl.); ALEXANDER, *Ibis* 1903, pp. 351 & 352.  
*Nesocharis*, n. g., type *N. shelleyi*, n. sp., Fernando Po; ALEXANDER, *Bull. B. O. C.* xiii, p. 48.



- Spermestes nigriceps minor*, n. subsp., S. Somali Land; ERLANGER, Ornith. Monber. xi, pp. 22 & 23.
- Lagonosticta brunneiceps ruberrima*, Victoria Nyansa; REICHENOW, Ornith. Monber. xi, p. 24.
- Hypargyus harterti*, n. sp. [= *nitidula* Hartl. 1880, nec Hartl. 1865], Angola; SHELLEY, Bull. B. O. C. xiv, p. 30.
- Pytelia jessei*, n. sp., Bogos Land; id. op. cit. xiii, p. 76: *P. kirki*, n. sp., Lamu, E. Africa; id. t. c. p. 76.
- Coccygyia bocagei*, n. sp., Benguela; id. t. c. p. 56: *C. clarkei*, n. sp., Natal; id. t. c. p. 75.
- Nigrita lucieni* is the ♀ of *N. luteifrons*; ALEXANDER, Ibis 1903, p. 350.
- Uroloncha topela*, nesting in the Southern Shan States; HARRINGTON, J. Bombay Soc. xv, pp. 140 & 141.
- Estrilda elizæ*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 55: *E. minor* Cab. = *E. occidentalis* Jard.; id. Ibis 1903, p. 353.
- Estrilda*, notes on the genus, and 'key' to the species: *E. sanctæ helenæ*, n. sp., S. Helena, *E. peasei*, n. sp., S. Abyssinia; SHELLEY, Bull. B. O. C. xiii, pp. 74 & 75: *E. angolensis*, figured; PHILLIPPS, Avicult. Mag. (2) i, pp. 120-124 cum tab.
- Heterhyphantes melanogaster*, ♂ described; ALEXANDER, Bull. B. O. C. xiii, p. 49.
- Sycobrotus poensis*, n. sp., Fernando Po; id. t. c. p. 38 [= *S. tephronotus* Reichenow]; id. Ibis 1903, p. 356.
- Phormoplectes*, n. g., type *P. insignis* (Sharpe); REICHENOW, J. Ornith. 1903, p. 149.
- Hypermegethes*, n. g., type *H. grandis* (Gray); id. t. c. p. 149.
- Melanopteryx maxwelli*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 55.
- Ploceus finschi*, n. sp., Mossamedes; REICHENOW, Ornith. Monber. xi, pp. 23 & 24: *P. megarhynchus*, notes on living specimens; HARPER, Bull. B. O. C. xiv, pp. 23 & 24: *P. orthocephalus*, n. sp., S. Somali Land; ERLANGER, Ornith. Monber. xi, p. 23.
- P. reichenowi*, *P. stuhlmanni*, *P. aurantius*, *P. olivaceices*, and *P. schillingsi*, figured; REICHENOW, Vög. Afrikas ii.
- Neospiza*, n. g., type *N. concolor* (Bocage); SALVADORI, Mem. Acc. Torino (2) liii, p. 26 [= *Linurgus*; SHELLEY, Bull. B. O. C. xiv, pp. 29 & 30].

## Family ICTERIDÆ.

- Ostinops decumanus*, its nesting near Pará; GOELDI, Ibis 1903, pp. 630-632.
- Icterus galbula*, in Nova Scotia; DWIGHT, Auk xx, p. 440: *I. bullocki*, unusual nests; SHARP, Condor v, pp. 38-42: *I. pyrrhopterus compsus*, n. subsp., Cuyaba, Matto Grosso; OBERHOLSER, P. U. S. Mus. xxv, p. 68 [1902]: *I. p. argoptilus*, n. subsp., Conchitas, Buenos Ayres; id. t. c. p. 68.
- Euphagus* Cassin vice *Scolecophagus* Swainson (nec Geoffroy); RICHMOND, P. Soc. Washington xvi, p. 128.
- Quiscalus brachypterus*, nest described; BOWDISH, Auk xx, pp. 12 & 13.

## Family ORIOLIDÆ.

- Cf. REICHENOW, Vög. Afrikas ii, pp. 653-662.
- Notes on the Papuan species; ROTHSCHILD & HÄRTERT, Nov. Zool. x, p. 111.
- Oriolus percivali*, n. sp., Kikuyu; GRANT, Bull. B. O. C. xiv, p. 18: *O. meneliki* is distinct from *O. monachus*; NEUMANN, J. Ornith. 1903,



p. 307: *O. mundus*, n. sp., Simalur Id., Sumatra; RICHMOND, P. U. S. Mus. xxvi, p. 517: *O. albiloris* Grant, male described; MCGREGOR, Bull. Mus. Philippine i, pp. 7 & 8: *O. broderipi oscillans*, n. subsp., Tukang-Besi Id.; HARTERT, Nov. Zool. x, p. 32.

#### Family DICRURIDÆ.

Cf. REICHENOW, Vög. Afrikas ii, pp. 646-652.

Notes on the Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 109-111.

*Dicrurus meeki*, n. sp., Guadalcanar, Solomon Ids.; ROTHSCHILD & HARTERT, Nov. Zool. x, p. 110: *D. afer* in Fernando Po, notes on; ALEXANDER, Ibis 1903, p. 359.

*Chibia cuyensis*, n. sp., Cuyo Is., Philippines; MCGREGOR, Bull. Mus. Philippine i, p. 5.

*Dissemurus malabaricus otiosus*, n. subsp., Laurence and Little Andaman Ids.; RICHMOND, P. U. S. Mus. xxv, p. 290 (1902).

#### Family EULABETIDÆ.

Notes on the Papuan species; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 112-116.

*Goodfellowia*, n. g., type *G. miranda*, n. sp., Mindanao; HARTERT, Bull. B. O. C. xiv, p. 11.

*Streptocitta albicollis* from the Tukang-Bessi Is.; HARTERT, Nov. Zool. x, p. 31.

*Amydrus creaghi*, n. sp., Abd-El-Kuri; GRANT & FORBES, Nat. Hist. Sokotra and Abd-El-Kuri, Aves, p. 58: *A. elgonensis* in Fernando Po; distinct from *A. walleri*; ALEXANDER, Ibis 1903, p. 358: *A. fulgidus harterti*, n. subsp., Gold Coast; NEUMANN, Ornith. Monber. xi, p. 183: *A. gracilirostris*, n. sp., "Cap-land"; id. t. c. pp. 183 & 184: Notes on the genus *Amydrus*; id. t. c. p. 184: *A. nabouroup benguelensis*, n. subsp., Benguela; id. t. c. p. 184.

*Lamprocolius chubbi*, n. sp., Fernando Po; ALEXANDER, Bull. B. O. C. xiii, p. 48.

*Pyrrhocheira nabouroup* var. *intensetincta*, Port Elizabeth, S. Africa; REICHENOW, Vög. Afrikas ii, p. 697.

#### Family STURNIDÆ.

Cf. REICHENOW, Vög. Afrikas ii, pp. 664-713.

*Sturnus vulgaris*, migration of old and young; HELM, J. Ornith. 1903, pp. 259-270: *S. vulgaris granti*, n. subsp., Graciosa, Azores; HARTERT, Vög. Pal. Faun. pp. 43 & 44.

*Sturnia erythropygia katchalensis*, n. subsp., Katchal, Nicobars; RICHMOND, P. U. S. Mus. xxv, pp. 293 & 294 (1902).

*Psaroglossa spiloptera*, in captivity; BUTLER, Avicult. Mag. (2) i, pp. 276 & 277.

#### Family PTILONORHYNCHIDÆ.

*Chlamydodera orientalis*, distinct from *C. nuchalis*; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 68 & 69: *C. guttata*, note on; CARTER, Emu iii, pp. 36 & 37.

## Family PARADISEIDÆ.

Cf. ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 65-89.

*Paradisea mirabilis* Reichenow is an *Ianthothorax*; ROTHSCHILD, Bull. B. O. C. xiii, p. 32: FINSCH, Ornith. Monber. xi, p. 167: *P. minor*, in captivity; RENSHAW, Avicult. Mag. (2) ii, pp. 26 & 27.

*Loborhamphus nobilis*, figured; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 72 & 73, pl. i.

*Diphylloides magnifica* and its allies; iid. t. c. pp. 78-80.

*Manucodia ater* [potius *atra*] *altera*, n. subsp., Louisiade Is. British New Guinea, Aru Is.; iid. t. c. pp. 84 & 85.

## Family CORVIDÆ.

Cf. REICHENOW, Vög. Afrikas ii, pp. 631-645: PERKINS, Fauna Hawaiiensis i, pp. 272 & 273.

Notes on the species of the Papuan Islands; ROTHSCHILD & HARTERT, Nov. Zool. x, pp. 89-92.

*Trypanocorax frugilegus*, roosting habits; CRUMP, Halifax Natural. viii, pp. 5-8, 37 & 38: migration of; GURNEY, Zoologist 1903, pp. 122 & 123.

*Corvus frugilegus tshusii*, n. subsp., Gilgit; HARTERT, Vög. Pal. Faun. pp. 14 & 15.

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*Garzola typica* from Buton, Tukang-Besi Id.; HARTERT, Nov. Zool. x, pp. 31 & 32.

*Nucifraga caryocatactes rothschildi*, n. subsp., South of Issik-Kul; HARTERT, Vög. Pal. Faun. p. 27.

*Cyanopica cyanus swinhoei*, n. subsp., Kiukiang, China; id. t. c. p. 24.

*Cissa katsumatae*, n. sp., Mt. Wuchi, Hainan; ROTHSCHILD, Bull. B. O. C. xiv, p. 9.

*Garrulus glandarius*, migration of; APLIN, Zoologist 1903, p. 28: MORRIS, t. c. pp. 27 & 28: *G. glandarius rufitergum*, n. subsp., Great Britain; HARTERT, Vög. Pal. Faun. p. 30: *G. glandarius kleinschmidti*, n. subsp., South Spain; id. t. c. p. 30: *G. glandarius whitakeri*, n. subsp., Tangier; id. t. c. p. 33: *G. glandarius sardus*, n. subsp., Sardinia; TSCHUSI, Ornith. Jahrb. pp. 139 & 140: *G. ichnusæ*, n. sp., Sardinia; KLEINSCHMIDT, Ornith. Monber. xi, p. 92.

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- A. guerrerensis*, n. sp., Omilteme, Guerrero, Mexico; NELSON, P. Soc. Washington xvi, pp. 154 & 155.
- Cyanolyca mirabilis*, n. sp., Omilteme, Guerrero, Mexico; id. t. c. p. 154.
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# IV. REPTILIA AND BATRACHIA.

BY

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

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- Dipsadomorphus barnesii*, Gthr. Note by WILLEY, Spolia Zeylan. i, p. 81, fig.; *D. pallidus*, sp. n., BOULENGER, in ANNANDALE & ROBINSON, Fascic. Malay. Zool. i, p. 164, fig., Jalor, Malay Peninsula.
- Oxyrhopus doliatus*, D. & B. var. n. *viperina*, WERNER, Zool. Anz. xxvi, p. 250, Brazil.
- Mimometopon*, g. n., near *Thamnodynastes*, and resembling *Fleischmannia*, Bttgr., for *M. sapperi*, sp. n., WERNER, Abh. Bayer. Ak. xxii, ii, p. 349, pl. —, figg. 3 & 4, Guatemala.
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- Mimophis mahafalensis*, Grand., var. n. *albiceps*, JOURDRAN, Ophid. Madag. p. 51, pl. xiv, Madagascar.
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- Apostolepis pygni*, sp. n., BOULENGER, Ann. Nat. Hist. (7) xii, p. 353, Brazil.
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- Platurus muelleri*, Blgr. = *P. laticaudatus*, L. WALL, P. Z. S. 1903, i, p. 96.
- Pseudelaps muelleri*, var. n. *lineaticollis*, WERNER, Zool. Anz. xxvi, p. 251, New Guinea.
- Toxicocalamus longissimus*, Blgr., figured by BOULENGER, P. Z. S. 1903, ii, pl. xiii, fig. 2; *T. stanleyanus*, sp. n., id. ibid. p. 128, pl. xiii, fig. 3, Brit. New Guinea.
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## DINOSAURIA.

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p. 6, pls. i-vi, and *H. utterbacki*, **sp. n.**, id. t. c. p. 27, figg., Jurassic of  
Colorado.
- Astrodon johnstoni*, Leidy (*Pleurocelus nanus*, Marsh). Note by HATCHER,  
Ann. Carnegie Mus. ii, p. 9, figg.
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- Gavialis*, **sp.** (foss.). On a tooth from the Eocene of Tarnocz, Hungary,  
A. KOCH, Foldtani Kozl. xxxiii, p. 158, pl. ii, fig. 28.
- Teleosaurus*, Geoffr. (foss.). On remains from Buñol, Valencia, E. BOSCA,  
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- On various forms from the Trias of California and Nevada, J. C. MERRIAM,  
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xi, *alexandrae*, p. 96, pls. xii & xiii, *careyi*, p. 98, pl. xvi, figg. 3 & 4, and  
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- On the osteology of *Embolophorus dollovianus*, Cope, with a restoration of the whole skeleton, E. C. CASE, J. Geol. xi, p. 1, figg.

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- On the development of *Sphenodon punctatus*, Gray, SCHAUINSLAND, Zoologica xvi, pp. 1-4, 41-57, pls. i-xi, pp. 134-143, pls. xlv-xlix, pp. 162-167, pls. lv & lvi.
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- On the development of the truncus arteriosus, GREIL, Verh. Anat. Ges. 1903, pp. 91-105, figg.
- J. B. JOHNSTON, Biol. Bull. v, pp. 28-34, figg., writes on the origin of the heart endothelium.
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- E. GRYNFELT, C.R. Ac. Sci. cxxxvii, pp. 77-79, remarks on the histological structure of the suprarenal capsule.
- A. PRENANT, C.R. Soc. Biol. lv, pp. 1044-1046, remarks on the morphology of the ciliated epithelial cells covering the hepatic peritoneum.
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- W. RUBASCHKIN, Arch. mikr. Anat. lxii, pp. 207-243, pls. xii & xiii, has a paper on the morphology of the brain.
- J. CAMERON, Anat. Anz. xxiii, pp. 394 & 395, remarks on the origin of the pineal body.
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- F. LIVINI, Monit. Zool. ital. xiv, pp. 6-19, pls. i & ii, has investigated the hypobranchial duct in embryos of *Bufo vulgaris*.
- R. H. MARCELIN, Rev. Suisse Zool. xi, pp. 369-392, pl. xii, has studied the histogenesis of the intestinal epithelium in *Rana esculenta*.
- L. GIANELLI, Monit. Zool. ital. xiv, pp. 33-46, figg., has investigated the first phases in the development of the pancreas in *Rana esculenta*.
- V. WIGERT & H. EKBERG, Anat. Anz. xxii, pp. 364-368, figg., and Arch. mikr. Anat. lxii, pp. 740-744, pl. xxx, describe peculiar canalicules in certain epithelial cells of the kidneys of Frogs.
- C. CIACCIO, Anat. Anz. xxiii, pp. 95-105, figg., describes peculiar cells in the suprarenal capsule.
- A. POLICARD, C.R. Ass. Franc. xxxi, ii, pp. 746-751, figg., has histological notes on Bidder's organ in *Bufo vulgaris*.
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- R. G. HARRISON, Arch. mikr. Anat. lxiii, pp. 35-149, figg., pls. iii-v, has investigated the development of the sense-organs of the lateral line in grafted embryos of Frogs.
- T. H. MORGAN & ALICE M. BORING, Arch. Entwicklmech. xvi, pp. 680-690, pl. xxii, have investigated the relation of the first plane of cleavage and the grey crescent to the median plane of the embryo of the Frog.



- W. ROUX, *Anat. Anz.* xxiii, pp. 65-91, 113-150, 160-180, figg., has a paper on the orientation of the embryo in the Frog ovum.—Remarks by F. KEIBEL, t. c. p. 224.
- T. H. MORGAN, *Arch. Entwicklmech.* xvi, pp. 691-712, pls. xxiii & xxiv, has made experiments on the effect of Lithium Chloride in solution on the development of the embryo of the Frog.
- HELEN D. KING, *Biol. Bull.* v, pp. 218-231, figg., has made experiments on the effects of heat on the development of the eggs of *Bufo lentiginosus*.
- G. BOHN, *C.R. Soc. Biol.* lv, pp. 639-641, remarks on the locomotion in newly-hatched larvæ of *Rana* and *Bufo*.
- C. PHISALIX, *C.R. Ac. Sci.* cxxxvii, pp. 1082-1084, and *C.R. Soc. Biol.* lv, pp. 1645 & 1646, has discovered a functional correlation between the dermal poison-glands and the ovaries in *Bufo vulgaris*.
- L. VON MÉHELY, *Termes. Kozl. Magyar Tars.* xxxv, pp. 425-457, figg., reviews our knowledge of the nursing habits.

## RANIDÆ.

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- Arthroleptis leucomystax*, sp. n., BOULENGER, t. c. p. 62, pl. v, figg. 1 & 2, Gaboon.
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- Rhacophorus nigropalmatus*, Blgr., figured by BOULENGER, in ANNANDALE & ROBINSON, *Fascic. Malay. Zool.* i, pl. vi, fig. 1; *R. robinsonii*, sp. n., BOULENGER, *op. cit.* p. 136, pl. v, fig. 2, Bukit Besar, Malay Peninsula; *R. corticalis*, sp. n., BOULENGER, *Ann. Nat. Hist.* (7) xii, p. 188, Tonkin.
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- Hylambates cassinoides*, sp. n., BOULENGER, *Ann. Nat. Hist.* (7) xii, p. 556, Gambia.

## ENGYSTOMATIDÆ.

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*Ornithoides*, g. n., p. 104, for *Hylopus* (?) *trifidus*, Daws., fig. 6.  
*Baropezia*, g. n., p. 105, for *Sauropus sydneyensis*, Daws., fig. 1.  
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## V. PISCES.

BY

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

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## II. GENERAL SUBJECT.

Fascicle 6 of E. PERRIER'S *Traité de Zoologie* (Paris, 1903, 8vo), deals with the Fishes.

L. MAGGI, Rend. Ist. Lombardo (2) xxxvi, pp. 903-918, remarks on the præfrontal bones.

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R. WIEDERSHEIM, Anat. Anz. xxii, pp. 522-535, figg., compares the laryngo-tracheal nomenclature of Dipneusti, Crossopterygii, and Ganoidei.

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A. WEBER, Arch. anat. micr. v, pp. 494-520, writes on the development of the liver and pancreas.

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C. SCHREINER & A. DE MIRANDA RIBEIRO, Arch. Mus. Rio xii, pp. 1-41, give a list (first part) of the Fishes in the National Museum of Rio Janeiro.

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- Maldivé Islands.* On the Fishes: C. T. REGAN, in J. S. GARDINER, Faun. Mald. and Laccad. Archip. i, pp. 272-281.
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*Florida.* On a small collection of Fishes, showing the life-colouration: H. W. FOWLER, P. Ac. Philad. lv, pp. 328-336.

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*Mexico.* On the distribution of the freshwater Fishes: S. E. MEEK, Amer. Natural. xxxvii, pp. 771-784, figg.

*Nicaragua.* On a few fishes from the Mosquito Coast: H. W. FOWLER, P. Ac. Philad. lv, pp. 346-350.

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*Peru and Chili.* STEINDACHNER, Zool. Jahrb. Suppl. vi, pp. 201-214, gives a supplement to his account of the collection made by Dr Plate.

F. T. DELFIN, Revist. chilena vii, pp. 154-192, 220-225, 268-273, has further contributions to the ichthyology of Chili.

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*Queensland.* On the habits, development, etc., of the common marine food-fishes, with figures of the principal species: J. R. TOSH, Marine Biologist's Report (Brisbane, 1903).—On new or little-known Fishes: J. DOUGLAS OGILBY, P. Soc. Queensland xviii, pp. 7-27.

*East Coast of Australia.* Records of Rare Fishes by WAITE, Rec. Austral. Mus. v, pp. 56-61, pl. vi.

*New South Wales.* On the Sharks of Sydney Harbour: SCHNEE, Zool. Garten xlv, pp. 17-20.

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## IV. PALÆONTOLOGY.

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*Carboniferous rocks of Edinburgh district.* On the distribution of fossil Fish-remains: R. H. TRAUQUAIR, Tr. R. Soc. Edinb. xl, pp. 687-707, 2 pls.

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*Carboniferous, Yorkshire.* On fossil remains from the Millstone Grit rocks: WELLBURN, P. Yorksh. geol. Soc. (2) xv, pp. 70-78.

*Eocene, London Basin.* List of Fish teeth from the Bagshot Sands: COOMÁRASWÁMY, P. Geol. Ass. xviii, pp. 83 & 84.

*Lower Eocene of Belgium.* Remarks on the Fish-fauna, by M. LERICHE, C.R. Ac. Sci. cxxxvi, pp. 103-105, & 527.

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*Lower Devonian of Gemünden, Germany.* On the Fishes: TRAQUAIR, Tr. R. Soc. Edinb. xl, pp. 723-739, 7 pls., and Rep. Brit. Ass. 1902, p. 610.

*Upper Jurassic of Lerida, Catalonia.* On the Fishes: SAUVAGE, Mem. Ac. Barcel. (3) iv, No. 35, 32 pp., 4 pls.

*Tertiary of Hungary.* On some Fish-remains: GORJANOVIĆ-KRAMBERGER, Mt. Ungar. geol. Anstalt xiv, pp. 4-10.

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*Upper Cretaceous of Mount Lebanon.* Remarks on the Fish-fauna: O. P. HAY, Amer. Natural. xxxvii, pp. 685-695.—On a collection of Fishes: O. P. HAY, Bull. Amer. Mus. xix, pp. 395-452, figg., pls. xxiv-xxxvii.

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*Eocene of Egypt.* On Selachian teeth from the Mokattam hills: E. STROMER, N. Jahrb. Min. 1903, i, pp. 29-40, pl. i.

*Cretaceous of North America.* On Teleostean and Ganoid remains: O. P. HAY, Bull. Amer. Mus. xix, pp. 1-95, figg., pls. i-v.

*Trias of North America.* On the collection of Fishes in the Yale Museum: G. F. EATON, Amer. J. Sci. (4) xv, pp. 259-268, pls. v & vi.

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*Devonian of the Ohio Basin.* On the Fish-fauna: E. W. CLAYPOLE, Amer. Geol. xxxii, pp. 312-322, 335-352.

## V. REFERENCES ARRANGED SYSTEMATICALLY.

### TELEOSTOMI.

#### TELEOSTEI.

E. GAUPP, Verh. Anat. Ges. 1903, pp. 113-123, figg., has a contribution to our knowledge of the development of the Teleostean skull.

E. P. ALLIS, J. Morphol. xviii, pp. 1-328, pls. i-xii, gives an exhaustive description of the skull, and the cranial and first spinal muscles and nerves in *Scomber scombrus*.

A. SABATIER, C.R. Ac. Sci. cxxxvii, pp. 893-896, remarks on the composition of the pectoral arch of Teleosteans.

E. ZANDER, Zeitschr. wiss. Zool. lxxv, pp. 233-257, figg., has studied the gill-rakers of freshwater Teleosteans, from the anatomical and physiological points of view.

W. S. ROWNTREE, Tr. Linn. Soc. London (2) ix, pp. 63-72, remarks on the ductus pneumaticus and its relations in Physostomous Fishes.

E. H. GREGORY, Anat. Hefte, Arb. xx, pp. 151-230, figg., pls. vii-xv, has a paper on the development (cephalic mesoderm, heart, and hypophysis) in *Salmo* and *Esox*.



G. H. PARKER, Bull. Mus. Harvard xl, pp. 221-242, pl. —, writes on the optic chiasma in Teleosts and its bearing on the symmetry of the Pleuronectids.

E. HOLMGREN, Anat. Anz. xxiii, pp. 37-49, figg., remarks on the nerve-cells of *Lophius piscatorius*.

J. BOEKE, P. Ac. Amsterdam vi, pp. 218-225, 1 pl., has studied the development of the heart-muscle (myocard) in Teleosteans.

F. GUITAL, Arch. zool. exp. Notes (4) i, pp. xcv-c, writes on specific and sexual variations in the kidneys of the French species of *Lepadogaster*.

D. V. SRDINKO, Arch. mikr. Anat. lxii, pp. 773-802, figg., pl. xxxii, has studied the structure and development of the suprarenal capsules in the Lophobranchs.

J. RENNIE, J. Anat. Physiol. norm. path. (2) xvii, pp. 375-378, fig., writes on the occurrence of a "principal islet" in the pancreas of Teleosteans.

J. NUSBAUM, Anat. Anz. xxiii, pp. 339-351, figg., writes on the lymph-sacs of Cyprinoid Fishes.

F. LOEWE, Arch. mikr. Anat. lxiii, pp. 313-342, pls. xiii-xv, has investigated the phenomena of development and regression in the ovary of *Clupea alosa*.

N. CZERMAK, Anat. Anz. xxii, pp. 393-400, figg., has a preliminary note on the centrosome in the egg of *Salmo*.

J. JOHNSTONE, Tr. Liverp. biol. Soc. xvii, pp. 181-186, has supplied a translation of HEINCKE & EHRENBAUM'S table for the determination of N. European pelagic Fish-Eggs.

F. B. BROWN, J. Mar. Biol. Ass. (2) vi, pp. 598-625, pl. iii, reports on eggs and larvæ of Teleosteans observed at Plymouth.

J. D. F. GILCHRIST, Mar. invest. S. Africa ii, pp. 181-201, 4 pls., describes and figures the eggs and larvæ of various South African Teleostean Fishes. Also Rep. S. African Ass. 1903, p. 310.

H. H. LANE, Biol. Bull. vi, pp. 38-54, figg., remarks on viviparism in Teleostean Fishes.

O. H. BROWN, Amer. J. Physiol. ix, pp. 111-115, writes on the immunity of the eggs and embryos of the Cyprinodont *Fundulus* to electrical stimulation.

E. NINNI, Boll. Soc. zool. Ital. (2) iv, pp. 117-121, figg., remarks on some monstrous specimens of Fishes (*Morone labrax*, *Mugil chelo*, *M. capito*, *Anguilla vulgaris*).

J. F. GEMMILI, P. Z. S. 1903, 1903, ii, pp. 4-23, pls. i-iv, has a paper on the anatomy of double Trout embryos.

J. NUSBAUM, Anat. Anz. xxii, pp. 358-363, fig., writes on the regeneration of the tail in advanced embryos of *Salmo irideus*.

F. B. BROWN, J. Mar. Biol. Ass. (2) vi, p. 623, remarks on hybridism in marine Fishes.

A. SCHÖNDORFF, Arch. Naturg. lxix, i, pp. 399-425, pl. xxii, has studied the pigment and the colour-changes in *Salmo fario*.

On the temperature of *Thynnus alalunga*: P. PORTIER, Bull. Soc. zool. France xxviii, pp. 79-81.

On Fishes living in hot-water springs: R. BLANCHARD, C.R. Soc. Biol. iv, pp. 947 & 1069. Remarks by A. GIARD, t. c. pp. 1003 & 1144.

Further remarks on the flight of *Exocoetus*, by BARRETT-HAMILTON, Ann. Nat. Hist. (7) xi, p. 389.

### PLECTOGNATHI.

On the characters of the suborder, which is divided into two divisions:  
*Sclerodermi* (*Triacanthidæ*, *Triodontidæ*, *Balistidæ*, and *Ostraciontidæ*),



- and *Gymnodontes* (*Tetrodontidae*, *Diodontidae*, *Molidae*), C. T. REGAN, P. Z. S. 1902, ii, p. 284.
- Triacanthus*, Cuv. Revision of the species by REGAN, P. Z. S. 1903, i, p. 180; *T. indicus*, sp. n., id. ibid. p. 184, Coasts of India and Ceylon.
- Balistes aculeatus*, L., redescribed by H. W. FOWLER, P. Ac. Philad. lv, p. 162; *B. naufragium*, Jord. and Starks, and *castaneus*, Richards., Notes by REGAN, P. Z. S. 1902, ii, p. 297; *B. mauritianus*, sp. n., id., Rev. Suisse Zool. xi, p. 414, pl. xiii, fig. 4, Mauritius.
- Pseudomonacanthus punctulatus*, p. 298, pl. xxv, fig. 2, Tahiti, *multi-maculatus*, p. 298, pl. xxv, fig. 1, Tahiti, and *degeni*, p. 299, pl. xxiv, fig. 1, Melbourne, spp. nn., REGAN, P. Z. S. 1902, ii.
- Brachaluteres baueri*, Rich., redescribed and figured by WAITE, Rec. Austral. Mus. v, p. 38, pl. iii, fig. 2.
- Alutera armata*, sp. n., S. GARMAN, Bull. Mus. Harvard xxxix, p. 240, pl. v, fig. 1, Fiji.
- Tetrodon acrostaticus*, Jen., and *immaculatus*, Schneid., redescribed by H. W. FOWLER, P. Ac. Philad. lv, pp. 164 & 165; *T. inermis*, Schl., p. 299, *ocellatus*, L., p. 301, *bimaculatus*, Richards., p. 302, *pleurostictus*, Gthr., p. 302, *fluviatilis*, Ham. Buch., p. 302, and *pustulatus*, Murr. Notes by REGAN, t. c.; *T. pleurogramma*, p. 300, pl. xxiv, fig. 2, Australia, *brevipinnis*, p. 300, Indian Ocean, *maclellandi*, p. 301, China, and *borneensis*, p. 303, pl. xxiv, fig. 3, Borneo, spp. nn., id. ibid.
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### PEDICULATI.

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- Lophius piscatorius*, L. On its distribution, growth, and food, T. W. FULTON, Rep. Fisher. Board Scotland xxi, iii, p. 186; *L. vaillanti*, sp. n., REGAN, t. c. p. 285, Azores and Cape Verde Ids.
- Chirolophius*, g. n., for *Lophius naresii*, Gthr., and allies, REGAN, t. c. p. 279; *C. moseleyi*, N. of New Guinea, and *murrayi*, Admiralty Ids. spp. nn., id. ibid. p. 280.
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### OPISTHOMI.

- Mastacembelus loenbergi*, Blgr. Noticed and figured by BOULENGER, P. Z. S. 1902, ii, p. 329, pl. xxix, fig. 3; *M. sclateri*, sp. n., id. P. Z. S. 1903, i, p. 28, pl. v, fig. 2, S. Cameroon; *M. victoriæ*, sp. n., id. Ann. Nat. Hist. (7) xii, p. 218, Victoria Nyanza.

### ACANTHOPTERYGII.

#### OPHIDIIDÆ.

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- Lycodes rossii*, Malmgr., redescribed by COLLETT, *Arch. Naturv. Christian.* xxv, No. 2, p. 14.  
*Selachophidium*, g. n., near *Catatyx*, for *S. guentheri*, sp. n., GILCHRIST, *Mar. invest. S. Africa* ii, p. 209, off Cape of Good Hope, 250 faths.  
*Petrotyx*, g. n., allied to *Catatyx*, for *P. hopkinsi*, sp. n., HELLER & SNODGRASS, *P. Washington Ac.* v, p. 222, pl. xviii, Galapagos Archipelago.  
*Eutyx*, g. n., allied to *Grammonus*, Gill, for *E. diagrammus*, sp. n., HELLER & SNODGRASS, t. c. p. 224, pl. xix, Galapagos Archipelago.  
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## BLENNIIDÆ.

- Blennius canescens*, sp. n.; S. GARMAN, *Bull. Mus. Harvard* xxxix, p. 236, pl. iv, fig. 1, Fiji.  
*Salarias simonyi*, Stdr., described and figured by STEINDACHNER, *Denk. Ak. Wien* lxxi, p. 148, pl. i, fig. 2; *S. sertatus*, sp. n., S. GARMAN, *Bull. Mus. Harvard* xxxix, p. 237, pl. iv, fig. 2, Fiji.  
*Petroscirtes obliquus*, sp. n., S. GARMAN, t. c. p. 237, pl. iv, fig. 3, Fiji.  
*Aspidontus tractus*, sp. n., H. W. FOWLER, *P. Ac. Philad.* lv, p. 170, Zanzibar.  
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*Chasmodes maculipinna*, sp. n., REGAN, *Ann. Nat. Hist.* (7) xii, p. 630, N. W. Ecuador.  
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## GÖBIÆSOCIIDÆ.

- Arbacioida truncata*, sp. n., HELLER & SNODGRASS, *P. Washington Ac.* v, p. 216, pl. xiv, Galapagos Archipelago.

## CALLIONYMIDÆ.

- On the Japanese species: JORDAN & FOWLER, *P. U. S. Mus.* xxv, pp. 941-959, figg.  
*Callionymus flagris*, p. 952, fig., *calliste*, p. 954, fig., and *virgis*, p. 957, fig., spp. nn., JORDAN & FOWLER, t. c., Japan.  
*Calliurichthys*, g. n., for *Callionymus japonicus*, Houtt., JORDAN & FOWLER, t. c. p. 941; *C. doryssus*, sp. n., iid. *ibid.* p. 945, fig., Japan.

## DRACONETTIDÆ.

- A new family, described as apparently connecting the *Leptoscopidæ* with the *Callionymidæ*, JORDAN & FOWLER, *P. U. S. Mus.* xxv, p. 939.  
*Draconetta*, g. n., for *D. xenica*, sp. n., JORDAN & FOWLER, t. c. p. 939, fig., Suruga Bay, Japan, 100 faths.

## LEPTOSCOPIDÆ.

*Embolichthys*, *g. n.*, for *Bleekeria mitsukurii*, Jord. and Everm., JORDAN, P. U. S. Mus. xxvi, p. 693.

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## TRIGLIDÆ.

*Merulinus salmonicolor*, *sp. n.*, H. W. FOWLER, P. Ac. Philad. lv, p. 333, Florida.

*Peristedion altipinnis*, *sp. n.*, REGAN, P. Z. S. 1903, ii, p. 65, pl. viii, fig. 1, Rio Janeiro.

## CYCLOPTERIDÆ.

*Cottunculus brephocephalus*, *sp. n.*, JORDAN & STARKS, P. U. S. Mus. xxvi, p. 689, fig., Japan.

## COTTIDÆ.

*Cottus nikolskii*, Berg, redescribed by L. BERG, Annuaire Mus. St. Petersb. viii, p. 112; *C. kuznetzovi*, *sp. n.*, id. ibid. p. 110, L. Baikal.

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## COMEPHORIDÆ.

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## SCORPÆNIDÆ.

*Scorpena erinacea*, *sp. n.*, S. GARMAN, Bull. Mus. Harvard xxxix, p. 231, pl. i, fig. 2, Fiji.

*Pontinus strigatus*, *sp. n.*, HELLER & SNODGRASS, P. Washington Ac. v, p. 208, Galapagos Archipelago.

*Cocotropus altipinnis*, *sp. n.*, WAITE, Rec. Austral. Mus. v, p. 41, pl. v, fig. 2, Lord Howe Id.

- Centropogon*, Gthr. On the Australian species, DOUGLAS OGILBY, P. Soc. Queensland xviii, p. 7.  
*Notesthes*, g. n., for *Centropogon robustus*, Gthr., DOUGLAS OGILBY, t. c. p. 17.  
*Liocranium*, g. n., allied to *Centropogon*, DOUGLAS OGILBY, t. c. p. 23;  
*L. prepositum*, sp. n., id. ibid. p. 25, Coast of Queensland.  
*Pterois miles*, Benn. = *P. muricata*, C. & V., = *P. volitans*, L. POPTA, Notes Leyden Mus. xxiv, p. 169; *P. lunulata*, Schl., redescribed by H. W. FOWLER, P. Ac. Philad. lv, p. 166.

## GOBIIDÆ.

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*Gobioides totoyensis*, sp. n., S. GARMAN, Bull. Mus. Harvard xxxix, p. 235, pl. iii, figg. 1 & 2, Fiji.  
*Gobiodon atrangulatus*, sp. n., S. GARMAN, t. c. p. 234, pl. ii, fig. 2, Fiji.  
*Cotylopus cocoensis*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 211, p. xi, Cocos Id.  
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*Synaptura*, Cantor, Notes on the species by REGAN, Ann. Nat. Hist. (7) xi, p. 56; *S. smithii*, p. 57, pl. vi, fig. 1, Japan, and *callizona*, p. 57, pl. vi, fig. 2, Arafura Sea, spp. nn., id. ibid.  
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## ZEIDÆ.

- Zeus scopus*, sp. n., WAITE, Rec. Austral. Mus. v, p. 30, fig., Lord Howe Id.  
*Zen*, g. n. for *Cyttopsis itea*, Jord. & Fowl., JORDAN, P. U. S. Mus. xxvi, p. 694.  
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## BRAMIDÆ.

- Pteraclis macropus*, sp. n., BELLOTTI, Atti Mus. Milano xlii, p. 137, pl. vii, Japan.

## TRICHIURIDÆ.

- Machærope latispinis*, Ogilby, noticed and figured by WAITE, Rec. Austral. Mus. v, p. 24, pl. iv, fig. 2.

## SCOMBRIDÆ.

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*Seriota quinqueradiata*, Temm. & Schleg., figured by OTAKI, FUJITA & HIGURASHI, Fishes Japan; *S. foncki*, sp. n., DELFIN, Revist. chilena vii, p. 222, fig., Chili.  
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*Scombromorus cavalla*, C. & V., and *immaculatus*, C. & V. Notes by REGAN, t. c. p. 67.

## SCARIDÆ.

- Scarus noyesi*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 206, pl. ix, Galapagos Archipelago.  
*Pseudoscarus arabicus*, Stdr., described by STEINDACHNER, Denk. Ak. Wien lxxi, p. 152; *P. eques*, sp. n. (?), id. ibid. p. 151, S. Arabia.

## LABRIDÆ.

- Pseudolabrus luculentus*, Rich., noticed and figured by WAITE, Rec. Austral. Mus. v, p. 29, pl. iv, fig. 1.  
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*Coris picta*, Bl. Schn. (?), redescribed and figured by WAITE, Rec. Austral. Mus. v, p. 26, pl. v, fig. 1.

## POMACENTRIDÆ.

- Pomacentrus redemptus*, p. 200, pl. vi, and *arcifrons*, p. 202, pl. vii, spp. nn., HELLER & SNODGRASS, P. Washington Ac. v, Galapagos Archipelago.  
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*Acara sapayensis*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 628, N. W. Ecuador.  
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*Biotodoma*, n. n. for *Mesops*, preoccupied, EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 533; *B. trifasciatus*, sp. n., id. ibid. p. 536, Paraguay.  
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- Pterophyllum altum*, sp. n., PELLEGRIN, t. c. p. 125, Orinoco.  
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## TEUTHIDIDÆ.

- Teuthis dussumieri*, C. & V. Note by JORDAN, P. U. S. Mus. xxvi, p. 695.

## CHÆTODONTIDÆ.

- Chaetodon trifasciatus*, M. P., var. *arabica*, Stdr., described and figured by STEINDACHNER, Denk. Ak. Wien lxxi, p. 138, pl. ii, fig. 3; *C. eques*, sp. n., STEINDACHNER, Anz. Ak. Wiss. xl, p. 18, SB. Ak. Wien cxii, p. 18, pl., fig. 1, Yucatan; *C. howensis*, sp. n., WAITE, Rec. Austral. Mus. v, p. 33, fig., Lord Howe Id.  
*Heniochus diphrentes*, sp. n., JORDAN, P. U. S. Mus. xxvi, p. 694, fig., Japan.  
*Platax vespertilio*, Bl., redescribed by H. W. FOWLER, P. Ac. Philad. lv, p. 161.

## SCORPIDIDÆ.

- Aipichthys formosus*, sp. n. (foss.), O. P. HAY, Bull. Amer. Mus. xix, p. 445, pl. xxxii, figg. 2 & 3, Cretaceous of Mount Lebanon.

## MULLIDÆ.

- Parupeneus notospilus*, Klunz. = *P. pleurotænia*, Playf. & Gthr. = *P. dispilurus*, Playf. & Gthr., STEINDACHNER, Denk. Ak. Wien lxxi, p. 138.

## SPARIDÆ.

- Dentex lineopunctatus*, sp. n., BOULENGER, Ann. S. African Mus. iii, p. 66, pl. vi, Coast of Natal.  
*Chrysophrys berda*, Forsk., redescribed by STEINDACHNER, Denk. Ak. Wien lxxi, p. 135; *C. intermedius*, sp. n. (foss.), GORJANOVIĆ-KRAMBERGER, Mt. Ungar. geol. Anstalt xiv, p. 12, pl. iii, Miocene, Styria.  
*Pagrus nigripinnis*, sp. n., BOULENGER, Ann. S. African Mus. iii, p. 67, pl. vii, Coast of Natal.  
*Pagellus affinis*, Blgr., redescribed and figured by STEINDACHNER, Denk. Ak. Wien lxxi, p. 134, pl. ii, fig. 1.  
*Box lineatus*, Blgr., redescribed and figured by STEINDACHNER, t. c. p. 135, pl. ii, fig. 2.

## PRISTIPOMATIDÆ.

- Conodon plumieri*, Bl., redescribed by H. W. FOWLER, P. Ac. Philad. iv, p. 348.  
*Pomadasys dussumieri*, C. & V., redescribed by STEINDACHNER, Denk. Ak. Wien lxxi, p. 131.  
*Diagramma cavifrons* C. & V. On its synonymy: REGAN, P. Z. S. 1903, ii, p. 62.  
*Mylacrodon*, g. n., REGAN, t. c. p. 62; *M. goeldii*, sp. n., id. ibid. p. 63, pl. vii, Rio Janeiro.

## GERRIDÆ.

On the genera, REGAN, P. Z. S. 1903, ii, p. 63.

- Gerres*, Cuv. On the American species, REGAN, t. c. p. 64; *G. socotranus*, Sldr., described by STEINDACHNER, Denk. Ak. Wien lxxi, p. 137; *G. maldivensis*, sp. n., REGAN, Faun. Mald. and Laccad. Archip. i, p. 279, Maldives.

## SCIÆNIDÆ.

- Sciæna heinii*, Sldr., described and figured by STEINDACHNER, Denk. Ak. Wien lxxi, p. 141, pl. i, fig. 4; *S. perissa*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 197, Galapagos Archipelago; *S. peruana*, sp. n., STEINDACHNER, Zool. Jahrb. Suppl. vi, p. 203, Coquimbo.  
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*Macrodon*, Schinz, should be used for *Ancylodon*, Cuv., GILL, P. U. S. Mus. xxvi, p. 1015.  
*Corvina crawfordi*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 627, Montevideo.  
*Corvula eurymesops*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 195, Galapagos Archipelago.

## SILLAGINIDÆ.

- Sillago bassensis*, C. & V., described and figured, with an account of its habits and development, by J. R. TOSH, P. Soc. Queensland xvii, p. 175, pls. viii-xiv.

## CIRRHITIDÆ.

- Malaccoctenus zonogaster*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 217, pl. xv, Galapagos Archipelago.  
*Lepisoma jenkinsi*, sp. n., HELLER & SNODGRASS, t. c. p. 219, pl. xvi, Galapagos Archipelago.

## CEPOLIDÆ.

- On the Japanese species, JORDAN & FOWLER, P. U. S. Mus. xxvi, pp. 699-702, fig.

## PSEUDOCROMIDIDÆ.

- Latilus sinensis*, Lacep., figured by OTAKI, FUJITA & HIGURASHI, Fishes Japan.



## SERRANIDÆ.

- Lateolabrax japonicus*, C. & V., figured by OTAKI, FUJITA & HIGURASHI, Fishes Japan.
- Dinoperca queketti*, sp. n., BOULENGER, Ann. S. African Mus. iii, p. 63, pl. ii, Coast of Natal.
- Epinephelus rivulatus*, C. & V., redescribed and figured by STEINDACHNER, Denk. Ak. Wien lxxi, p. 125, pl. i, fig. 1; *E. grammatophorus*, p. 64, pl. iii, *albomarginatus*, p. 65, pl. iv, and *andersoni*, p. 66, pl. v, spp. nn., BOULENGER, Ann. S. African Mus. iii, Coast of Natal.
- Hypoplectrodes armatus* (Casteln.), Waite = *Epinephelus leai*, D. Ogilby, DOUGLAS OGILBY, P. Soc. Queensland xviii, p. 26.
- Acanthistius pictus*, Tsch., redescribed by STEINDACHNER, Zool. Jahrb. Suppl. vi, p. 201.
- Serranus auriga*, C. & V., and *flaviventris*, C. & V., redescribed by REGAN, P. Z. S. 1903, ii, p. 61.
- Anthias cooperi*, sp. n., REGAN, Faun. Mald. and Laccad. Archip. i, p. 273, Maldives.
- Plesiops ultivelis*, sp. n., STEINDACHNER, SB. Ak. Wien cxii, p. 17, Nias.
- Priacanthus arenatus*, C. & V., redescribed by STEINDACHNER, Denk. Ak. Wien lxxi, p. 127.
- Centropomus atridoralis*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 627, N. W. Ecuador.
- Lates niloticus*, L. On Egyptian mummies, LORTET & GAILLARD, Arch. Mus. Lyon viii, p. 185, figg.; *L. croaticus*, sp. n. (foss.), GORJANOVIĆ-KRAMBERGER, Mt. Ungar. geol. Anstalt xiv, p. 11, pl. iv, fig. 1, Upper Miocene near Agram, Croatia.
- Chilodipterus affinis*, Poey. The male nurses the eggs in the buccopharyngeal cavity, VAILLANT, Bull. Mus. Paris 1903, p. 207.
- Apogon atrodorsatus*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 192, pl. iii, Galapagos Archipelago; *A. nubilus*, p. 229, pl. i, fig. 1, and *crassiceps*, p. 230, spp. nn., S. GARMAN, Bull. Mus. Harvard xxxix, Fiji; *A. queketti*, sp. n., GILCHRIST, Mar. invest. S. Africa ii, p. 206, off Coast of Natal.
- Galeagra*, g. n., near *Apogon*, for *G. pammelas*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 193, pl. iv, Galapagos Archipelago.
- Ambassis gymnocephalus*, Lacep., redescribed by STEINDACHNER, Denk. Ak. Wien lxxi, p. 129; *A. bouleengeri*, sp. n., VOLZ, Zool. Anz. xxvi, p. 553, and Zool. Jahrb. Syst. xix, p. 352, pl. xxv, Sumatra.
- Histioporus*, Rich. Synopsis of the species by WAITE, Rec. Austral. Mus. v, p. 61.
- Prosoplismus*, g. n., for *Histioporus recurvirostris*, Rich., which is figured, WAITE, t. c. p. 59, pl. vi.
- Pentaceropsis* [g. n.], Stdr. & Döderl. 1883 (omitted from Zool. Record), superseded *Prosoplismus*, Waite, 1903, WAITE, Ann. Nat. Hist. (7) xii, p. 288.

## PERCIDÆ.

- Etheostoma lepidum*, B. & G., recorded from New Mexico by COCKERELL, P. Soc. Washington xvi, p. 49; *E. arcus-celestis*, sp. n., CREVECEUR, Tr. Kansas Ac. xviii, p. 177, Kansas.
- Hadropterus evermanni*, sp. n., MOENKHAUS, Bull. Ind. Univ. i, p. 19, and P. Indiana Ac. 1902, p. 113, Tippecanoe Lake, Indiana.

## BERYCIDÆ.

- Trachichthodes*, g. n., GILCHRIST, Mar. invest. S. Africa ii, p. 203; *T. spinosus*, sp. n., id. ibid. p. 204, off Cape of Good Hope.  
*Plectromus macrophthalmus*, sp. n., GILCHRIST, t. c. p. 205, off Cape of Good Hope, 360 faths.  
*Pycnosterinx levispinosus*, sp. n. (foss.), O. P. HAY, Bull. Amer. Mus. xix, p. 444, pl. xxxvi, fig. 4, Cretaceous of Mount Lebanon.

## ANACANTHINI.

- On the systematic position and classification, C. T. REGAN, Ann. Nat. Hist. (7) xi, p. 459, figg. The families *Macruridæ*, *Gadidæ*, and *Murænolepididæ* are defined.
- A. W. BROWN, P. R. Soc. Edinb. xxiv, pp. 437 & 438, has observations on the young scales of *Gadus morrhua*, *æglefinus*, and *merlangus*.  
H. W. TIMS, Rep. Brit. Ass. 1902, pp. 660 & 661, has investigated the structure of the scales in *Gadus morrhua*.  
*Gadus saida*, Lepech. Statistical investigation of its characters by CAMERANO, Osserv. Scientif. Sped. Luigi Amedeo di Savoia, p. 609.  
*Merluccius gayi*, Guich., redescribed and figured by DELFIN, Revist. chilena vii, p. 269, fig.  
*Læmonemodes*, g. n., near *Læmonema*, Gthr., for *L. compressicauda*, sp. n., GILCHRIST, Mar. invest. S. Africa ii, p. 208, off Cape of Good Hope, 300-400 faths.  
*Tripterophycis gilchristi*, Blgr., described and figured by BOULENGER, Mar. invest. S. Africa ii, p. 168, pl. xii.  
*Motella fusca*, Risso, recorded from Plymouth by W. GARSTANG & F. B. BROWN, J. Mar. Biol. Ass. (2) vi, p. 626.  
*Onus granti*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 346, Azores.  
*Melanobranchus*, g. n., for *Bathygadus melanobranchus*, Vaill., REGAN, op. cit. xi, p. 459.  
*Gadomus*, g. n., for *Bathygadus longifilis*, Goode & Bean, REGAN, t. c. p. 459.

## PERCESOCES.

## ANABANTIDÆ.

- Anabas pleurostigma*, sp. n., BOULENGER, P. Z. S. 1903, i, p. 27, pl. v, fig. 1, S. Cameroon.

## OPHIOCEPHALIDÆ.

- Ophiocephalus studeri*, sp. n., VOLZ, Zool. Anz. xxvi, p. 555, and Zool. Jahrb. Syst. xix, p. 376, pl. xxvi, fig. 2, Sumatra.

## STROMATEIDÆ.

- On the British and Irish species, HOLT & BYRNE, Rep. Fisher. Ireland for 1901, Pt. ii, p. 70, pls. iv & v.  
*Lirus medusophagus*, Cocco, and *perciformis*, Mitch., described and figured by HOLT & BYRNE, t. c. pp. 72 & 73, pl. iv.  
*Centrolophus niger*, Gm., described and figured by HOLT & BYRNE, t. c. p. 75, pl. v.

## SPHYRÆNIDÆ.

On the specimens preserved in the Museum of the Academy of Philadelphia,  
H. W. FOWLER, P. Ac. Philad. lv, pp. 749-752, pl. xlvi.

*Sphyræna tome*, sp. n., FOWLER, t. c. p. 750, pl. xlvi, Brazil?

*Agriosphyræna*, subg. n., for *Sphyræna barracuda*, Walb., FOWLER, t. c. p. 749.

## POLYNEMIDÆ.

*Polydactylus rhadinus*, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv,  
p. 351, fig., Formosa.

## MUGILIDÆ.

On the specimens preserved in the Museum of the Academy of Philadelphia,  
H. W. FOWLER, P. Ac. Philad. lv, pp. 743-749, figg., pl. xlv.

*Liza alosoides*, sp. n., FOWLER, t. c. p. 746, pl. xlv, Gaboon.

## ATHERINIDÆ.

On the specimens preserved in the Museum of the Academy of Philadelphia,  
H. W. FOWLER, P. Ac. Philad. lv, pp. 727-742, pls. xli-xlv.

*Atherina*, Art. On the species of W. Europe, L. ROULE, C.R. Ac. Sci. cxxxvi, p. 824, and cxxxvii, pp. 1276 & 1277; *A. sardinella*, sp. n., FOWLER, t. c. p. 729, pl. xli, Coast of Italy.

*Atherinomorus*, subg. n., for *Atherina laticeps*, POCY, FOWLER, t. c. p. 730.

*Bedotia*, g. n., near *Atherina*, for *B. madagascariensis*, sp. n., REGAN, Rev. Suisse Zool. xi, p. 416, pl. xiv, fig. 2, Madagascar.

*Ischnomembras*, g. n., near *Atherina*, FOWLER, t. c. p. 730; *I. gabunensis*, sp. n., id. ibid. p. 731, pl. xlii, R. Gaboon.

*Phoxargyrea*, g. n., near *Atherina*, for *P. dayi*, sp. n., FOWLER, t. c. p. 732, pl. xli, India.

*Atherinops magdalena*, sp. n., FOWLER, t. c. p. 740, pl. xlii, Magdalene Bay, Lower California.

*Atherinichthys brasiliensis*, Q. & G. Note by REGAN, P. Z. S. 1903, ii, p. 60; *A. sallei*, sp. n., id. ibid., Mexico.

## SCOMBRESOCIDÆ.

Revision of the Japanese species by JORDAN & STARKS, P. U. S. Mus. xxvi, pp. 525-544.

*Belone fluviatilis*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 626, N. W. Ecuador.

*Hyporhamphus kurumeus*, sp. n., JORDAN & STARKS, P. U. S. Mus. xxvi, p. 534, fig., Japan.

*Zenarchopterus maculosus*, sp. n., S. GARMAN, Bull. Mus. Harvard xxxix, p. 239, pl. v, fig. 4, Fiji.

*Exocoetus*, L. On their habits and capture, SCHNEE, Zool. Garten xlv, p. 93; *E. socotranus*, sp. n. (?), STEINDACHNER, Denk. Ak. Wien lxxi, p. 155, Sokotra.

*Evolantia*, g. n., for *Exocoetus micropterus*, C. & V., HELLER & SNODGRASS, P. Washington Ac. v, p. 189.

## CATOSTEOMI.

- Lampris*, Retz. On the shoulder-girdle and on the systematic position, T. GILL, P. U. S. Mus. xxvi, p. 915, figg.
- M. SIEDLECKI, C.R. Ac. Sci. cxxxvii, pp. 469-471, & 525-527, records his experiments on the resistance of *Gastrosteus aculeatus* to changes of osmotic pressure, and on the toxic effects of certain salts.
- L. COHN, Anat. Anz. xxiv, pp. 192-199, figg., has investigated the structure of the brood-pouch of *Syngnathus typhle*.
- Syngnathus conspicillatus*, Jen., figured by S. GARMAN, Bull. Mus. Harvard xxxix, pl. v, fig. 2.
- Doryichthys multiannulatus*, sp. n., REGAN, Rev. Suisse Zool. xi, p. 413, pl. xiii, fig. 3, Mauritius.
- Solenostoma paradoxum*, Pall. Note by REGAN, Faun. Mald. and Laccad. Archip. i, p. 278.

## HETEROMI.

- Encheliophis jordani*, sp. n., HELLER & SNODGRASS, P. Washington Ac. v, p. 220, pl. xvii, Galapagos Archipelago.
- Notacanthus annectens*, sp. n., BOULENGER, Mar. invest. S. Africa ii, p. 167, pl. xi, off Cape of Good Hope, 250 faths.
- Dercetis laticutatus* and *maximus*, spp. nn., A. S. WOODWARD, Foss. Fish. Engl. Chalk, pp. 65 & 66, pl. v, Chalk of England.
- Leptotrachelus longipinnis*, Cope (foss.), figured by O. P. HAY, Bull. Amer. Mus. xix, pl. iv, fig. 3 and pl. v, fig. 4.
- L. serpentinus*, sp. n. (foss.), O. P. HAY, t. c. p. 419, pl. xxxii, fig. 1, Chalk of Mount Lebanon.

## HAPLOMI.

## CYPRINODONTIDÆ.

- Haplochilus cameronensis*, sp. n., BOULENGER, Ann. Nat. Hist. (7) xii, p. 440, S. Cameroon; *H. peruanus*, sp. n., REGAN, t. c. p. 626, Peru.
- Fundulus loennbergii*, sp. n., BOULENGER, t. c. p. 440, S. Cameroon; *F. (?) paraguayensis*, sp. n., EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 530, Paraguay.
- Girardinus zonatus*, sp. n., SCHREINER & MIRANDA RIBEIRO, Arch. Mus. Rio xii, p. 7, Brazil?
- Pæcilia limantouri*, Jord. & Snyder. On the life colouration, H. W. FOWLER, P. Ac. Philad. lv, p. 320.

## SCOPELIDÆ.

- Centrobranchus*, g. n., close to *Rhinoscopelus*, Lütke., for *C. chærocephalus*, sp. n., H. W. FOWLER, P. Ac. Philad. lv, p. 754, Sandwich Ids.
- Macristium*, g. n., allied to *Bathysaurus*, Gthr., for *M. chavesi*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 345, Azores.
- Enchodus*, Ag. (foss.). On remains of several species from the Cretaceous of North America, O. P. HAY, Bull. Amer. Mus. xix, p. 66, figg.; *E. savus*, sp. n., id. ibid. p. 76, fig., Cretaceous of Kansas.
- Stratodus oxygogon*, Cope (foss.). Type specimen noticed and figured by O. P. HAY, Bull. Amer. Mus. xix, p. 80, figg.
- Empo nepaholica*, Cope (foss.). Remarks by O. P. HAY, t. c. p. 81, figg., pl. i, fig. 4.



- Tricentaspis virgulatus*, Cope (foss.), figured by O. P. HAY, t. c. pl. v, fig. 1.  
*Leptosomus*, Marck (foss.). Remarks by O. P. HAY, t. c. p. 91, with figures of type specimens of species described by Cope, pls. iv & v.  
*Sardinius? imbellis*, sp. n. (foss.), O. P. HAY, t. c. p. 93, pl. iv, fig. 9, Cretaceous of Dakota.  
*Rhinellus tenuirostris*, Cope (foss.). Type specimen noticed and figured by O. P. HAY, t. c. p. 94, pl. iv, figg. 7 & 8.

## ENCHODONTIDÆ.

- Enchodus longipinnatus*, sp. n. (foss.), GORJANOVIĆ-KRAMBERGER, Mt. Ungar. geol. Anstalt xiv, 1902, p. 16, pl. ii, fig. 1, Cretaceous, Brazza, Dalmatia.

## GALAXIIDÆ.

- H. H. SWINNERTON, Zool. Jahrb. Anat. xviii, p. 61, fig., describes the osteology of *Galaxias*.

## APODES.

- L. FACCIOLÀ, Monit. Zool. ital. xiv, pp. 185-198, reviews our knowledge of the structure of the larval forms (*Leptocephali*).  
 E. P. ALLIS, Int. J. Anat. xx, pp. 127-170, pls. vi & vii, describes the lateral sensory system in *Ophichthys*, *Myrus*, and *Conger*.  
 L. VAILLANT, C.R. Soc. Biol. lv, pp. 749 & 750, remarks on the chemical composition of the Eel at different stages of development.  
*Anguilla vulgaris*, Turt. On its structure and habits, PORTA, Album der Natuur 1903, pp. 89 & 129; *A. bostoniensis*, Le Sueur, 1821 = *A. chrisypa*, Raf., A. H. CLARK, P. Soc. Washington xvi, p. 52.  
*Ahlia egmontis*, Jord. Noticed and figured by B. A. BEAN, P. U. S. Mus. xxvi, p. 963, fig.  
*Urenchelys limhamnensis*, Davies (foss.). Note by A. S. WOODWARD, Ann. Nat. Hist. (7) xii, p. 254; *U. germanus*, sp. n. (foss.), O. P. HAY, Bull. Amer. Mus. xix, p. 434, pls. xxxvi, fig. 1, and xxxvii, fig. 7, Cretaceous of Mount Lebanon.  
*Enchelion*, g. n., type of a new family, *Encheliidæ*, described as Apodes destitute of paired and median fins, O. P. HAY, Bull. Amer. Mus. xix, p. 441; *E. montium*, sp. n. (foss.), id. ibid. pl. xxxvii, figg. 2-6, Cretaceous of Mount Lebanon.  
*Ophichthys versicolor*, Rich., redescribed and figured by WAITE, Rec. Austral. Mus. v, p. 22, pl. iii, fig. 1; *O. bleekeri*, sp. n., VOLZ, Zool. Jahrb. Syst. xix, p. 418, Sumatra; *O. (Pisodontophis) brevipinnatus*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 622, R. Vaqueira, N. W. Ecuador.  
*Muræna helena*, L. Note by REGAN, P. Z. S. 1903, ii, p. 60; *M. grandimaculis*, sp. n., REGAN, Rev. Suisse Zool. xi, p. 418, pl. xiv, fig. 3, Rio Janeiro.  
*Gymnomuræna brevicauda*, sp. n., REGAN, t. c. p. 414, pl. xiii, fig. 1, Mauritius.

## OSTARIOPHYSI.

## ASPREDINIDÆ.

- Bunocephalus rugosus*, sp. n., EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 498, Paraguay.

## LORICARIIDÆ.

- Plecostomus boulengeri*, **sp. n.**, EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 502, Paraguay or Matto Grosso.  
*Chetostomus anomalus*, **sp. n.**, REGAN, Ann. Nat. Hist. (7) xi, p. 599, Venezuela.  
*Pterygoplichthys anisitsi* and *juvens*, **spp. nn.**, EIGENMANN & KENNEDY, t. c. pp. 503 & 504, Paraguay.  
*Arges*, C. & V. Synopsis of the species by BOULENGER, Ann. Nat. Hist. (7) xi, p. 602; *A. orientalis*, **sp. n.**, id. *ibid.* p. 601, Venezuela.

## SILURIDÆ.

- On the Japanese species, JORDAN & FOWLER, P. U. S. Mus. xxvi, pp. 897-911, figg.  
 A. CARRUCCIO, Boll. Soc. zool. Ital. (2) iv, pp. 76-84, 159-163, has general remarks on the principal groups of *Siluridæ*.  
*Clarias kingsleyæ*, **sp. n.**, GÜNTHER, P. Z. S. 1902, ii, p. 334, Gold Coast [= *C. læviceps*, Gill.—REC.]; *C. carsonii*, **sp. n.**, BOULENGER, Ann. Nat. Hist. (7) xii, p. 362, Brit. C. Africa; *C. pachynema*, **sp. n.**, id. *ibid.* p. 438, Ja R., Cameroon.  
*Allabenchelys brevior*, **sp. n.**, BOULENGER, t. c. p. 439, Ja R., Cameroon.  
*Plotosina*. Synopsis of the genera by VAILLANT, Bull. Mus. Paris 1903, p. 119.  
*Plotosus nigricans*, C. & V. On one of the type specimens, VAILLANT, t. c. p. 117.  
*Bagarius lica*, **sp. n.**, VOLZ, Zool. Anz. xxvii, p. 557, and Zool. Jahrb. Syst. xix, p. 391, Sumatra.  
*Fluvidraco*, **g. n.**, for *Pseudobagrus ransonneti*, Sldr., JORDAN & FOWLER, P. U. S. Mus. xxvi, p. 904.  
*Chrysichthys lagoensis*, Gthr. Note by GÜNTHER, P. Z. S. 1902, ii, p. 335, figg.  
*Pimelodus (Pimelodella) tamiophorus*, Matto Grosso, and *griseus*, N. W. Ecuador, **spp. nn.**, REGAN, Ann. Nat. Hist. (7) xii, p. 625.  
*Amphilius platychir*, Gthr. Note by GÜNTHER, P. Z. S. 1902, ii, p. 336; *A. longirostris*, Blgr., figured by BOULENGER, P. Z. S. 1903, i, pl. i, fig. 3.  
*Notoglanidium*, **g. n.**, near *Auchenoglanis*, Gthr., GÜNTHER, P. Z. S. 1902, ii, p. 336; *N. walkeri*, **sp. n.**, id. *ibid.* p. 337, pl. xxxii, Gold Coast.  
*Macrones bleekeri*, **sp. n.**, VOLZ, Zool. Anz. xxvi, p. 556, and Zool. Jahrb. Syst. xix, p. 387, pl. xxv, fig. 3, Sumatra.  
*Arius marinus*, Mitch., redescribed by H. W. FOWLER, P. Ac. Philad. iv, p. 346.  
*Corydoras*, Lacep. Synopsis of the species by EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 505; *C. microps* and *aurofrenatus*, **spp. nn.**, *ibid.* pp. 506 & 507, Paraguay.  
*Doras nebulosus*, **sp. n.**, EIGENMANN & KENNEDY, t. c. p. 500, Paraguay or Matto Grosso.  
*Synodontis zambezensis rukwaensis*, subsp. n., HILGENDORF & PAPPENHEIM, SB. Ges. naturf. Berlin 1903, p. 267, L. Rukwa; *S. fuelleborni*, **sp. n.**, *ibid.* p. 265, L. Rukwa; *S. melanopterus*, **sp. n.**, BOULENGER, P. Z. S. 1902, ii, p. 327, pl. xxix, fig. 1, Niger Delta.  
*Microsynodontis*, **g. n.**, near *Synodontis*, BOULENGER, P. Z. S. 1903, i, p. 26; *M. batesii*, **sp. n.**, id. *ibid.* p. 26, pl. iv, S. Cameroon.  
*Phractura longicauda*, **sp. n.**, BOULENGER, Ann. Nat. Hist. (7) xii, p. 439, S. Cameroon.  
*Malopterurus*, Lacep. On the application of the name *Torpedo* to this Fish, T. GILL, P. U. S. Mus. xxvi, p. 697.

- Trichomycterus vittatus*, p. 623, E. Peru, *retropinnis*, p. 624, Colombia, and *meridae*, p. 624, Venezuela, **spp. nn.**, REGAN, Ann. Nat. Hist. (7) xii.  
*Pygidium rivulatum*, C. & V. On an anomalous specimen with bifid barbel, EIGENMANN & KENNEDY, Biol. Bull. iv, p. 228.

## CYPRINIDÆ.

- On the Japanese species: JORDAN & FOWLER, P. U. S. Mus. xxvi, pp. 765-774, 811-862, figg.
- Labeo*, Cuv. Synopsis of the African species by BOULENGER, Ann. Nat. Hist. (7) xii, p. 355; *L. fulcipinnis*, n.n. for *L. fulcifer*, Blgr. nec C. & V., id. ibid. p. 360; *L. kirkii*, **sp. n.**, id. ibid. p. 360, Rovuma, E. Africa; *L. walkeri*, **sp. n.**, GÜNTHER, P. Z. S. 1902, ii, p. 338, pl. xxxiii, Gold Coast [= *L. brachypoma*, Gthr.—REC.]; *L. amnectes*, **sp. n.**, BOULENGER, P. Z. S. 1903, i, p. 23, pl. ii, fig. 1, S. Cameroon; *L. victorianus fuelleborni*, subsp. n., HILGENDORF & PAPPENHEIM, SB. Ges. naturf. Berlin 1903, p. 269, L. Rukwa.
- Schizothorax kozlovi*, **sp. n.**, NIKOLSKI, Annuaire Mus. St. Petersb. viii, p. 90, Dza-tju, C. Asia.
- { *Barbus fluviatilis*, Ag. Its eggs poisonous to man, PELLEGRIN & GLAIZE, Bull. Soc. zool. France xxviii, p. 143; *B. nigeriensis*, **sp. n.**, BOULENGER, P. Z. S. 1902, ii, p. 327, pl. xxviii, fig. 3, Niger Delta; *B. progenys*, p. 24, pl. iii, fig. 1, *tenuurus*, p. 24, pl. ii, fig. 2, and *batesii*, p. 25, pl. iii, fig. 2, **spp. nn.**, BOULENGER, P. Z. S. 1903, i, S. Cameroon; *B. percivali*, p. 52, fig. 1, *tumiensis*, p. 52, fig. 2, *lineomaculatus*, p. 53, fig. 3, and *amphigramma*, p. 53, fig. 4, **spp. nn.**, BOULENGER, Ann. Nat. Hist. (7) xi, pl. v, Kilimanjaro district E. Africa; *B. radcliffei*, **sp. n.**, id. op. cit. xii, p. 218, Victoria Nyanza; *B. jae*, **sp. n.**, id. ibid. p. 437, Ja R., Cameroon; *B. neglectus*, p. 532, *miolepis*, p. 532, *anema*, p. 533, and *stigmatopygus*, p. 533, **spp. nn.**, id. ibid., Nile.
- Ptychobarbus kasnakovi*, **sp. n.**, NIKOLSKI, Annuaire Mus. St. Petersb. viii, p. 91, Dza-tju, C. Asia.
- Achilognathus cyanostigma*, **sp. n.**, JORDAN & FOWLER, P. U. S. Mus. xxvi, p. 820, fig., Japan.
- Abbottina*, **g. n.**, near *Gobio*, for *A. psegma*, **sp. n.**, JORDAN & FOWLER, t. c. p. 835, fig., Japan.
- Bivia*, **g. n.**, for *Pseudogobio zezera*, Ishikava, JORDAN & FOWLER, t. c. p. 838.
- Leuciscus cephalus*, L. and *L. dobula*, L. On varieties from the Adour basin: L. ROULE and CARDAILLAC DE SAINT-PAUL, C.R. Ass. Franc. xxxi, ii, p. 731; *L. phalacrocorax*, **sp. n.**, JORDAN & FOWLER, P. U. S. Mus. xxvi, p. 845, fig., Japan.
- Notropis microstomus*, Gir., recorded from New Mexico by COCKERELL, P. Soc. Washington xvi, p. 49; *N. brimleyi*, **sp. n.**, B. A. BEAN, P. U. S. Mus. xxvi, p. 913, North Carolina.
- Rasbora elegans* and *caudimaculata*, **spp. nn.**, VOLZ, Zool. Anz. xxvii, pp. 558 & 559, and Zool. Jahrb. Syst. xix, pp. 402 & 403, pl. xxvi, figg. 4 & 5, Sumatra.
- Zezeza*, **g. n.**, for *Sarcochilichthys hilgendorfi*, Ishikava, JORDAN & FOWLER, P. U. S. Mus. xxvi, p. 837.
- Elxis*, **g. n.**, allied to *Misgurnus*, for *E. nikkonis*, **sp. n.**, JORDAN & FOWLER, t. c. p. 768, fig., Japan.
- Nemachilus fedtschenkove*, **sp. n.**, NIKOLSKI, Annuaire Mus. St. Petersb. viii, p. 93, Murgal, Transcaspia.
- Orthrias*, **g. n.**, allied to *Nemachilus*, for *O. oreas*, **sp. n.**, JORDAN & FOWLER, t. c. p. 769, fig., Japan.

*Acanthophtalmus shelfordii*, sp. n., POPTA, Notes Leyden Mus. xxiii, p. 231, fig., Borneo.

## GYMNOTIDÆ.

*Sternopygus limbatus*, sp. n., SCHREINER & MIRANDA RIBEIRO, Arch. Mus. Rio xii, p. 5, Amazon.

## CHARACINIDÆ.

On various points in the soft anatomy: W. S. ROWNTREE, Tr. Linn. Soc. London (2) ix, pp. 47-81, pls. iii & iv.

*Hoplias*, n. n. for *Macrodon*, J. Müll. nec Schinz, GILL, P. U. S. Mus. xxvi, p. 1016.

*Piabucini astrigata*, p. 622, N. W. Ecuador, and *pleurotania*, p. 623, Venezuela, spp. nn., REGAN, Ann. Nat. Hist. (7) xii.

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*Markiana*, g. n., for *Tetragonopterus nigripinnis*, Perugia, EIGENMANN, Smithson. Collect. xlv, p. 145.

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*Pecilurichthys scabripinnis*, Jen., and *multiradiatus*, Stdr., Notes by EIGENMANN & KENNEDY, t. c. p. 521; *P. moenkhausii*, sp. n., iid. ibid. p. 522, Paraguay.

*Brycon hilarii*, C. & V., redescribed by EIGENMANN & KENNEDY, t. c. p. 523.

*Orthophanes*, g. n., for *Brycon labiatus*, Stdr., EIGENMANN, Smithson. Collect. xlv, p. 145.

*Bryconodon*, g. n., for *Brycon orthotania*, Gthr., EIGENMANN, t. c. p. 146.

*Chirodon interruptus*, Jen., and *insignis*, Stdr. Notes by EIGENMANN & KENNEDY, P. Ac. Philad. 1903, pp. 514 & 515; *C. anhe*, sp. n., iid. ibid. p. 515, S. America.

*Holoshesthes*, g. n., for *Chirodon pequirá*, Stdr., EIGENMANN, Smithson. Collect. xlv, p. 144.

*Holopron*, g. n., for *Chirodon agassizii*, Stdr., EIGENMANN, t. c. p. 145.

*Stichonodon*, n. n. for *Luetkenia*, Stdr. nec Claus., EIGENMANN, t. c. p. 146.

*Characinus squamosus*, sp. n., EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 525, Paraguay.



- Xiphorhamphus jenynsii*, Gthr. On a specimen with a supernumerary ventral fin, EIGENMANN & KENNEDY, Biol. Bull. iv, p. 228, figg.
- Acestrorhynchus*, n. n. for *Xiphorhynchus*, Ag. nec Swains., EIGENMANN, Smithson. Collect. xlv, p. 146.
- Acestrorhamphus*, g. n., for *Hydrocyon hepsetus*, Cuv., EIGENMANN, t. c. p. 146.
- Boulengerella*, g. n., for *Xiphostoma lateristriga*, Blgr., EIGENMANN, t. c. p. 147.
- Gilbertella*, g. n., for *Anacyrtus alutus*, Stdr., EIGENMANN, t. c. p. 147.
- Evermannella*, g. n., for *Cynopotamus biserialis*, Garth., EIGENMANN, t. c. p. 146.
- Odontostilbe paraguayensis* and *trementina*, spp. nn., EIGENMANN & KENNEDY, P. Ac. Philad. 1903, pp. 512 & 513, Paraguay.
- Psectogaster curviventris*, sp. n., EIGENMANN & KENNEDY, t. c. p. 509, Paraguay.
- Myleus tiete*, Eigenm. & Norris. Note by EIGENMANN & KENNEDY, t. c. p. 529.
- Acnodon*, g. n., for *Myleus oligacanthus*, M. & T., EIGENMANN, Smithson. Collect. xlv, p. 147.
- Myleocollops*, subg. n., for *Metynnus goeldii*, Eigenm., EIGENMANN, t. c. p. 147.
- Piaractus*, g. n., for *Myletes brachypomus*, Cuv., EIGENMANN, t. c. p. 148.
- Orthomyleus*, subg. n., for *Myletes ellipticus*, Gthr., EIGENMANN, t. c. p. 148.
- Colossoma*, g. n., for *Myletes oculus*, Cope, EIGENMANN, t. c. p. 148.
- Mylossoma*, g. n., for *Myletes albiscopis*, Cope, EIGENMANN, t. c. p. 148.
- Metynnina mola*, sp. n., EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 528, Paraguay.
- Pyrhulina australe*, sp. n., EIGENMANN & KENNEDY, t. c. p. 508, Paraguay.
- Nannocharax intermedius*, sp. n., BOULENGER, Ann. Nat. Hist. (7) xii, p. 437, S. Cameroon.
- Hemiodus orthonops*, sp. n., EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 511, Paraguay.
- Anisistia*, g. n., allied to *Hemiodus*, for *Anodus notatus*, Schomb., EIGENMANN, Smithson. Collect. xlv, p. 144.
- Lahiliella*, subg. n. of *Anostomus*, for *A. nasutus*, Kner., EIGENMANN, t. c. p. 144.
- Curimatella alburnus*, var. n. *australe*, EIGENMANN & KENNEDY, P. Ac. Philad. 1903, p. 510, Paraguay.
- Curimatus elegans*, var. n. *paraguayensis*, EIGENMANN & KENNEDY, t. c. p. 510, Paraguay; *Curimatus gillii*, sp. n., EIGENMANN & KENNEDY, t. c. p. 510, Paraguay.
- Gymnocharacinus*, g. n., scaleless and without adipose fin, for *G. bergii*, sp. n., STEINDACHNER, SB. Ak. Wien cxii, p. 20, pl. —, fig. 2, S. Argentina.

## MALACOPTERYGII.

## CROMERIIDÆ.

- H. H. SWINNERTON, Zool. Jahrb. Anat. xviii, p. 58, figg., describes the osteology of *Cromeria nilotica*, Blgr., which he suggests shows no affinity to *Galaxias*.—*Cromeria* is referred by GILL to the Kneriida, Science (2) xviii, p. 338.

## SALMONIDÆ.

- Salmo salar*, L. On October Salmon in the sea, N. PATON, P. R. Soc. Edinb. xxiv, p. 486, pls. xxiv & xxv; *S. furio*, L. On the colour-

- changes, A. SCHÖNDORFF, Arch. Naturg. lxi, i, p. 399; *S. salvelinus*, L., var. n. *profundus*, FUHRMANN, Arch. Sci. Nat. (4) xv, p. 332, L. of Neuchâtel.
- Colegonus*, L. On the nomenclature of the Swiss species, NÜSSLIN, Zool. Anz. xxvi, p. 393, figg. and on the distinctive characters of *C. macrophthalmus*, Nüssl., id. op. cit. xxvii, p. 156.—On the species of the Lake of Constance, KLUNZINGER, Jahresh. Ver. Württemb. lix, p. 255, pls. ix & x.

## CLUPEIDÆ.

- Clupea harengus*, L. On its habits on the Boulonnais coast, GIARD, C.R. Soc. Biol. lv, p. 573; *C. hungarica*, sp. n. (foss.), GORJANOVIC-KRAMBERGER, Mt. Ungar. geol. Anstalt xiv, p. 5, pl. i, fig. 1, and pl. iv, fig. 2, Tertiary, Rakos near Budapest.
- Sardinella piquitinga* and *pernambucana*, spp. nn., SCHREINER & MIRANDA RIBEIRO, Arch. Mus. Rio xii, p. 6, Bahia and Pernambuco.
- Pristigaster (Opisthopterus) effulgens*, sp. n., REGAN, Ann. Nat. Hist. (7) xii, p. 621, R. Vaqueria, N. W. Ecuador.
- Coilia polyfilis*, sp. n., VOLZ, Zool. Anz. xxvi, p. 559, and Zool. Jahrb. Syst. xix, p. 410, Sumatra.
- Chanos gardineri*, sp. n., REGAN, Faun. Mald. and Laccad. Archip. i, p. 280, Maldives.

## SAURODONTIDÆ.

- Saurocephalus*, Harl. (foss.). On remains of several species from the Cretaceous of North America, O. P. HAY, Bull. Amer. Mus. xix, p. 48, figg.
- Ichthyodectes anaides*, Cope, and *multidentatus*, Cope (foss.). Notes by O. P. HAY, t. c. pp. 54 & 57, figg.
- Eubiodectes*, g. n., for *Chirocentrites libanicus*, Pict. & Humb. (foss.), O. P. HAY, Bull. Amer. Mus. xix, p. 415, pl. xxx, fig. 1.

## CTENOTHRISSIDÆ.

- Ctenothrissa signifer*, sp. n. (foss.), O. P. HAY, Bull. Amer. Mus. xix, p. 417, pl. xxxi, figg. 1 & 2, Cretaceous of Mount Lebanon.

## MORMYRIDÆ.

- Mormyrops bozai*, sp. n., PELLEGRIN, Bull. Mus. Paris 1903, p. 327, Uellé, Congo.
- Petrocephalus ansorgii*, sp. n., BOULENGER, P. Z. S. 1902, ii, p. 325, pl. xxviii, fig. 2, Niger Delta.

## ALBULIDÆ.

- Anogmius*, Cope (foss.). Description of various remains from the Cretaceous of North America, O. P. HAY, t. c. p. 26, figg.

## ELOPIDÆ.

- Spaniodon sinus*, Cope (foss.). Notes and figures of the type specimens by O. P. HAY, Bull. Amer. Mus. xix, p. 47, pl. iv, figg. 1 & 2.
- Osmeroides pontivagus* and *ornatus*, spp. nn. (foss.), O. P. HAY, t. c. pp. 424 & 426, pl. xxxiii, Cretaceous of Mount Lebanon.

- Acrognathus dodgei*, **sp. n.** (foss.), O. P. HAY, t. c. p. 427, pl. xxxiv, fig. 3, Cretaceous of Mount Lebanon.
- Microceelia dayi*, **sp. n.** (foss.), O. P. HAY, t. c. p. 430, pls. xxxi, fig. 3, and xxxiv, fig. 1, Cretaceous of Mount Lebanon.
- Rhinellus delicatus*, **sp. n.** (foss.), O. P. HAY, t. c. p. 432, Cretaceous of Mount Lebanon.
- Pachyrhizodus caninus*, Cope (foss.), redescribed and figured by O. P. HAY, t. c. p. 60, figg., pl. iii, figg. 1 & 2.
- Oricardinus sheareri*, Cope, and *tortus*, Cope (foss.). Notes by O. P. HAY, t. c. pp. 64 & 65, figg.

## LEPTOLEPIDIDÆ.

- Æthalion vidali* and *gigas*, **spp. nn.**, SAUVAGE, Mem. Ac. Barcel. (3) iv, No. 35, pp. 13 & 14, pl. ii, fig. 2, and pl. iii, fig. 2, Upper Jurassic, Lerida, Catalonia.
- Vidalia*, **g. n.**, for *V. catalunica*, **sp. n.**, SAUVAGE, t. c. p. 15, pl. i, fig. 4, and pl. iv, fig. 3, Upper Jurassic, Lerida, Catalonia.

## INCERTÆ SEDIS.

- Anguillavus*, **g. n.**, type of a new family, *Anguillavidae*, referred to the Apodes but distinguished by the presence of abdominal ventral fins, O. P. HAY, Bull. Amer. Mus. xix, p. 436; *A. quadripinnis*, p. 437, pl. xxxvi, figg. 2 & 3, and *bathshebae*, p. 439, pl. xxxvii, fig. 1, **spp. nn.** (foss.), id. *ibid.*, Cretaceous of Mount Lebanon.

## GANOIDEI.

## HOLOSTEI.

- K. FÜRBRINGER, Morphol. Jahrb. xxxi, pp. 620 & 621, remarks on the morphological value of the gular plates of Crossopterygians.
- H. PIPER, Arch. Anat. 1903, pp. 27 & 28, figg., makes a rectification to his paper on the development of *Amia calva*, published in 1902.
- Megalurus woodwardi*, **sp. n.** (foss.), SAUVAGE, Mem. Ac. Barcel. (3) iv, No. 35, p. 12, pl. iv, fig. 2, Jurassic, Lerida, Catalonia.
- Protosphyrena*, Leidy (foss.). On remains of several species from the Cretaceous of North America, O. P. HAY, Bull. Ann. Mus. xix, p. 2, figg., pl. i; *P. sequax*, **sp. n.**, id. *ibid.* p. 20.
- Caturus terraconensis*, **sp. n.** (foss.), SAUVAGE, Mem. Ac. Barcel. (3) iv, No. 35, p. 11, pl. iv, fig. 1, Upper Jurassic, Lerida, Catalonia.
- Pycnodus pellei*, **sp. n.** (foss.), PRIEM, Bull. Soc. geol. France (4) iii, p. 402, pl. xiii, fig. 5, Lower Eocene, Tunisia.
- Coccodus insignis*, **sp. n.** (foss.), O. P. HAY, Bull. Amer. Mus. xix, p. 410, pl. xxix, figg. 2-5, Cretaceous of Mount Lebanon.
- Cœlodus gasperinii*, **sp. n.** (foss.), GORJANOVIĆ-KRAMBERGER, Mt. Ungar. geol. Anstalt xiv, 1902, p. 19, pl. iv, fig. 3, Cretaceous, Brazza, Dalmatia; *C. priemi*, n. n. for *C. latus*, Leriche nec Kramberger, LERICHE, Rev. paleozool. vii, p. 129.
- Propterus vidali*, **sp. n.** (foss.), SAUVAGE, Mem. Ac. Barcel. (3) iv, No. 35, p. 9, pl. ii, fig. 1, Upper Jurassic, Lerida, Catalonia.
- Lepidotus ilergetis*, **sp. n.** (foss.), SAUVAGE, t. c. p. 8, pl. i, fig. 3, Upper Jurassic, Lerida, Catalonia.
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## CHONDROSTEI.

- E. P. ALLIS, Zool. Jahrb. Anat. xvii, pp. 659-678, figg., pl. xxviii, writes on certain features of the lateral canals and cranial bones of *Polyodon*.
- Catopterus*, Redfield (foss.). Note on the scales, EATON, Amer. J. Sci. (4) xv, p. 267.
- Stenoprotome*, g. n. (*Belonorhynchid* ?), for *S. hamata*, sp. n. (foss.), O. P. HAY, Bull. Amer. Mus. xix, p. 407, pls. xxvi, fig. 2, and xxvii, fig. 2, Cretaceous of Mount Lebanon.
- Elonichthys disjunctus*, sp. n. (foss.), EASTMAN, Bull. Mus. Harvard xxxix, p. 191, pl. iii, fig. 31, Carboniferous of Illinois; *E. obliquus*, sp. n. (foss.), WELLBURN, P. Yorksh. geol. Soc. (2) xv, p. 73, Carboniferous (Millstone Grit rocks) of Yorkshire.
- Rhadinichthys elegans*, sp. n. (foss.), WELLBURN, t. c. p. 72, Carboniferous (Millstone Grit rocks) of Yorkshire.
- Acrolepis molyneuxi*, sp. n. (foss.), A. S. WOODWARD, Quart. J. Geol. Soc. lix, p. 285, pl. xx, Carboniferous, S. Rhodesia.

## DIPNEUSTI.

- L. NEUMAYER, Verh. Anat. Ges. 1903, pp. 139-142, has studied the development of the intestine of *Ceratodus forsteri*.
- G. KERR, Rep. Brit. Ass. 1902, pp. 655-657, remarks on the early development of muscles and motor nerves in *Lepidosiren*.
- Protopterus annectens*, Ow. Notes on the habits, B. DEAN, Pop. Sci. Monthly 1903, p. 33, figg.; Young noticed and figured by BOULENGER, P. Z. S. 1902, ii, p. 325, pl. xxviii, fig. 1.
- Neoceratodus forsteri*, Krefft. Notes on the habits by SEMON, Im Australischen Busch, p. 96, figg.
- Sagenodus cristatus*, sp. n. (foss.), EASTMAN, Bull. Mus. Harvard xxxix, p. 188, pl. iii, fig. 30, Carboniferous of Illinois; *S. pertennis*, sp. n. (foss.), EASTMAN, Amer. Natural. xxxvii, p. 493, Permian of Texas.

## CROSSOPTERYGII.

- Polypterus*, Geoffr. On the function of the spiracles, BUDGETT, P. Z. S. 1903, i, p. 10.
- Undina lerida*, sp. n. (foss.), SAUVAGE, Mem. Ac. Barcel. (3) iv, No. 35, p. 7, pl. i, fig. 2, and pl. iv, fig. 6, Upper Jurassic, Lerida, Catalonia.
- Celacanthus summiti*, sp. n. (foss.), WELLBURN, P. Yorksh. geol. Soc. (2) xv, p. 71, Carboniferous (Millstone Grit rocks) of Yorkshire.

## ARTHRODIRA.

- Coccosteus angustus*, Traq., described and figured by TRAQUAIR, Tr. R. Soc. Edinb. xl, p. 732, pl. vi, figg. 1 & 2.
- Phlyctenaspis germanica*, sp. n., TRAQUAIR, t. c. p. 733, pl. i, fig. 4, Lower Devonian of Gemünden, Germany.
- Pachyosteus bulla*, g. n., sp. n., for a Coccosteid skull from the Upper Devonian of Wildungen near Cassel, JAEKEL, SB. Ges. naturf. Berlin p. 39, fig.



## OSTRACOPHORI.

- On the relations of the Ostracophori to other Fishes, DOLLO, C.R. Ac. Sci. cxxxvi, p. 700.
- W. PATTEN, Amer. Natural. xxxvii, pp. 223-242, figg., remarks on various points in the structure of *Tremataspis*.—Remarks by EASTMAN, t. c. p. 572.
- W. PATTEN, t. c. pp. 827-865, figg., pls. i & ii, also writes on the structure of the Pteraspidae and Cephalaspidae.
- On the discovery of remains of *Cephalaspis*, *Pteraspis*, and *Cyathaspis* at Pernes, Pas-de-Calais, LERICHE, Ann. Soc. geol. Nord xxxii, p. 190.
- Cephalaspis*, Ag. On the discovery of remains in the Lower Devonian of Podolia, NIEDZWIEDZKI, Kosmos polski xxviii, p. 564.
- Pteraspis*, Kner. On the discovery of remains in the Devonian of Pas-de-Calais and in the Belgian Ardennes, GOSSELET, C.R. Ac. Sci. cxxxvi, p. 540, and DOLLO, t. c. p. 699; *P. crouchi*, Lank. Description and figure of specimens discovered at Liévin, Pas-de-Calais, LERICHE, Ann. Soc. geol. Nord xxxii, p. 161, pls. v & vi.
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## CHONDROPTERYGII.

- K. FÜRBRINGER, Morphol. Jahrb. xxxi, pp. 360-445, pls. xvi-xviii, and pp. 620-622, writes on the skeleton of the visceral arches in Chondropterygians (*Notidanidae*, *Chlamydoselachidae*, *Spinacidae*, *Cestraciontidae*, *Chimeridae*), and, pp. 623-627, figg., on superficial cartilaginous elements (Extraseptalia) in the gill-skeleton of the *Batoidei*.

## HOLOCEPHALI.

- B. DEAN, Biol. Bull. iv, pp. 270-286, figg., describes the egg-case and the development of *Chimera colliei*, Jen.
- On the development of *Callorhynchus antarcticus*, SCHAUINSLAND, Zoologica xvi, pp. 58-89, pls. xii-xxiv.
- P. STEPHAN, C.R. Soc. Biol. lv, pp. 265-267, figg., remarks on spermatogenesis in *Chimera monstrosa*.

## ICHTHYOTOMI.

- Phoebodus knightianus*, sp. n., EASTMAN, Bull. Mus. Harvard xxxix, p. 169, pl. iv, fig. 40, Permo-Carboniferous of Nebraska; *P. dens-neptuni*, sp. n., id. ibid. p. 196, pl. iv, fig. 39, Carboniferous of Iowa.

## PLAGIOSTOMI.

- H. HELBING, Anat. Anz. xxii, pp. 400-407, figg., writes on differences in the intestine of various Plagiostomes.
- O. STEINHARD, Arch. Naturg. lxix, i, pp. 1-43, pls. i & ii, has examined the placoid scales in the buccal and pharyngeal cavities.
- E. GRYNFELT, Bull. Sci. France Belgique xxxviii, pp. 1-136, figg., pls. i-vii, has investigated the anatomy and histology of the suprarenal bodies. Abstract, C.R. Ass. Franc. xxxi, i, p. 236.

- H. POLL, Arch. mikr. Anat. lxii, pp. 138-174, figg., pl. viii, has investigated the development of the suprarenal bodies.
- E. LAGUESSE, Arch. anat. micr. vi, pp. 99-169, figg., pl. v, has a paper on the spleen-capsule in embryos of *Acanthias*. Abstract, C.R. Soc. Biol. Iv, pp. 1107 & 1108.
- J. EISMOND, Verh. Anat. Ges. 1903, pp. 106-112, figg., writes on the behaviour of the periblast in the gastrulation of *Scyllium*.
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- F. H. QUIX, Tijdschr. Nederland. Dierk. Ver. (2) viii, pp. 35-61, has made experiments on the function of the labyrinth in Plagiostomes.
- M. CAVALLÉ, C.R. Soc. Biol. Iv, pp. 1386-1388, remarks on the bile-vesicle and its arterial circulation in *Scyllium*, *Galeus*, and *Torpedo*.
- IDA H. HYDE, Amer. J. Physiol. x, pp. 236-258, figg., has made experiments on the respiratory nervous centre in *Raia*.
- C. R. EASTMAN, Mem. Mus. Harvard xxvi, pp. 184-188, pls. i & ii, notices and figures fossil Sharks' teeth dredged from the Tropical Pacific.
- Lamna obliqua*, Ag. (foss.), and *vincenti*, Winkl. (foss.). Teeth described and figured by G. DE ALESSANDRI, Atti Mus. Milano xli, pp. 443 & 450, pl. xii; *L. tarnocziensis*, sp. n. (foss.), A. KOCH, Foldtani Kozl. xxxiii, p. 151, pl. i, fig. 16, Eocene of Tarnocz, Hungary.
- Oxyrhina neogradensis*, sp. n. (foss.), A. KOCH, t. c. p. 155, pl. ii, fig. 23, Eocene of Tarnocz, Hungary.
- Mitsukurina owstoni*, Jord. Note by B. DEAN, Science (2) xvii, p. 630.
- Ginglymostoma blanckenhorni*, sp. n. (foss.), STROMER, N. Jahrb. Min. 1903, i, p. 34, pl. i, figg. 1-5, Eocene of Egypt.
- Cephaloscyllium umbratile*, sp. n., JORDAN & FOWLER, P. U. S. Mus. xxvi, p. 602, fig., Japan.
- Orodus intermedius*, sp. n. (foss.), EASTMAN, Bull. Mus. Harvard xxxix, p. 183, pl. iv, figg. 35 & 36, Carboniferous of Missouri River Valley.
- Homacanthus delicatulus* and *acinaciformis*, spp. nn. (foss.), EASTMAN, t. c. p. 218, pl. iii, fig. 28, and pl. v, figg. 58 & 59, Carboniferous of Iowa and Pennsylvania.
- Streblodus angustus*, sp. n. (foss.), EASTMAN, t. c. p. 182, pl. ii, fig. 20, Carboniferous of Nebraska.
- Physonemus asper*, n. n., for *P. arcuatus*, Leidy nec McCoy (foss.), EASTMAN, t. c. p. 183.
- Helodus incisus*, sp. n. (foss.), EASTMAN, t. c. p. 204, pl. v, fig. 54, Sub-carboniferous of Indiana.
- Physonemus hamus-piscatorius* and *pandatus*, spp. nn. (foss.), EASTMAN, t. c. p. 207, pl. v, figg. 44-46, Carboniferous of Iowa.
- Erismacanthus barbatus*, sp. n. (foss.), EASTMAN, t. c. p. 211, pl. v, fig. 47, Carboniferous of Iowa.
- Stetacanthus erectus*, sp. n. (foss.), EASTMAN, t. c. p. 217, pl. iii, fig. 29, Carboniferous of Iowa.
- Notidanus paucidens*, sp. n. (foss.), A. KOCH, Foldtani Kozl. xxxiii, p. 145, pl. i, fig. 3, Eocene of Tarnocz, Hungary.
- Acanthias*. *Squalus mitsukurii*, sp. n., JORDAN & FOWLER, P. U. S. Mus. xxvi, p. 629, fig., Japan.
- Zameus*, g. n., for *Centrophorus squamulosus*, Gthr., JORDAN & FOWLER, t. c. p. 632.
- Centroscyllium ritteri*, sp. n., JORDAN & FOWLER, t. c. p. 635, fig., Japan.
- Fissodus dentatus*, sp. n. (foss.), EASTMAN, Bull. Mus. Harvard xxxix, p. 175, pl. ii, fig. 12, Carboniferous of Kansas.
- Janassa maxima* and *unguicula*, spp. n. (foss.), EASTMAN, t. c. pp. 172 & 173, pl. ii, figg. 21 & 13, Carboniferous of Nebraska.
- Sclerorhynchus solomonis*, p. 399, pl. xxv, *hiram*, p. 401, pl. xxvi, fig. 1, and

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# VI. TUNICATA.

BY

W. T. CALMAN, D.Sc.

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- Oligotrema* n. g. (*Molgulidæ*) *psammites*, New Britain, 50 fath.; BOURNE, Quart. J. Micr. Sci. (n. s.) xlvii, n. sp.
- Paramolgula*, p. 130, key to Arctic spp., p. 131, *symmetrica*, p. 131, *arctica*, p. 131, *rara*, p. 132; HARTMEYER, Fauna Arctica iii.
- Pelonia*, p. 203, *corrugata*, p. 203, pl. v, fig. 14; HARTMEYER, t. c.
- Phallusia* (?) *sutherlandi*, p. 295; HARTMEYER, t. c.: *P. mamillata* and *mentula*, regeneration at different stages of development; DRIESCH, Arch. Entwicklmech. xvii, pp. 54-63, 3 figg. in text.
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- Polyclinidæ*, p. 315; HARTMEYER, t. c.
- Polyclinum*, p. 316, key to Arctic spp., p. 316, *pannosum*, p. 316, *globosum*, p. 317; HARTMEYER, t. c.
- Polyzoine* n. subfam. of *Styelidæ*, p. 257; HARTMEYER, t. c.
- Rhizomolgula*, p. 167, *ritteri*, Baffin's Bay, p. 168, pl. vi, fig. 1, pl. ix, figg. 5-9 and text-fig.; HARTMEYER, t. c., n. sp.
- Salpa*, pulsation of heart; REEKER, Jahresber. Westfal. Ver. xxx, pp. 45-47: *S. africana*, digestive ferments; HENRI, C.R. Ac. Sci. cxxxvii, pp. 761-763, and C.R. Soc. Biol. lv, p. 1318: *S.* spp., structure and development of heart; HEINE, Zeitschr. wiss. Zool. lxxiii, p. 429, pls. xxix-xxxi.
- S.* (*Stephanosalpa*) *polyzona*, Strait of Ormuz, p. 622; BONNIER & PÉREZ, C.R. Ac. Sci. cxxxvi, n. sp.
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- Sarcobotrylloides*, p. 263, *aureum*, p. 263, pl. vi, figg. 15, 16 & 20, pl. xi, figg. 13-19, text-figg. 17-21; HARTMEYER, Fauna Arctica iii.
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- Styela*, p. 206, key to spp., p. 206, *bathybia*, p. 206, *gelatinosa*, p. 207, *clavata*, p. 208, *loveni*, p. 209, pl. v, figg. 4-6, pl. xi, figg. 6-9, text-figg. 6-11, *partita*, p. 216, pl. xi, figg. 1-5, *rustica*, pp. 217, 373, pl. v, figg. 2 & 3, *cylindriciformis*, p. 224, *finmarkensis*, p. 224, *villosa*, p. 225; HARTMEYER, Fauna Arctica iii.
- Styelidæ*, p. 201; HARTMEYER, t. c.
- Styelina*, p. 202, key to gen. p. 203; HARTMEYER, t. c.
- Styelopsis*, p. 253, *grossularia*, p. 253, pl. v, figg. 12 & 13; HARTMEYER, t. c.
- Synicum*, p. 346, key to Arctic spp., p. 348, *turgens*, p. 349, *irregulare*, p. 350, pl. vi, fig. 10, pl. xiv, fig. 1, *incrustatum*, p. 352, pl. vi, fig. 11, pl. xiv, fig. 5, *haeckeli*, pp. 353, 374, pl. vi, fig. 12, pl. xiv, figg. 2-4, text-figg. 50-52; HARTMEYER, t. c.





## VII. MOLLUSCA.

BY

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

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## INTRODUCTION.

ADVANTAGE has been taken of the separate issue of portions of the Record to complete the 'Mollusca' at an earlier date than in any past year. Some periodicals have, as yet, proved inaccessible, but it is felt that the advantage gained by prompt publication largely outweighs the delay of a year in recording a few papers, most of which will prove to be of minor importance. As usual, it has not been thought necessary to include in the list of 'Titles' something like fifty minor notes, many of these being anonymous; all have however been duly inserted in their proper places elsewhere.

The completion of DALL'S (126) 'Tertiary Fauna of Florida' is an event upon which that author is to be heartily congratulated and the work will prove of great value to the systematist. TRYON'S (535) Manual has, in Mr Pilsbry's hands, made good progress, five parts having appeared which practically complete the monograph of the *Urocoptidae*. The 'Conchylien-Cabinet' of MARTINI & CHEMNITZ (339) has been issued as usual, dealing with *Helix*, the *Agnatha*, *Chitonidae* and *Vermetidae*. A further part of his 'Essais de Paléoconchologie' has been published by COSSMANN (112), in which he has considered the *Muricidae*, *Purpuridae*, *Cypræidae*, &c. To HIDALGO (234) we owe a further part of his 'Obras', commencing his study of the Pelecypoda of the Philippine Islands.

The descriptive papers dealing with non-marine Molluscs have been fairly numerous. Japan has, as in past years, received attention from PILSBRY (401, &c.), both separately and with HIRASE, the former author also having written upon the American fauna. A number of species from Indo-China have been described by BAVAY & DAUTZENBERG (32), the latter author having also (138) dealt with collections from the Islands of Obi and Iolo. COLLINGE (107, 108) has written accounts of collections from Borneo and the Malay Peninsula, while BLANFORD (49) has catalogued some species from Siam, and a very useful list of the Helicoid fauna of Asia has been compiled by GUDE (219). SMITH (488) has reviewed the fauna of Sokotra, CAZIOT (82) that of Corsica, and ANCEY (11) has listed the shells of Cocos Island. TAYLOR (524) has published a further part of his 'Monograph' of the British fauna, and WOODWARD (573) has given a convenient working list, with systematic notes. An elaborate French local fauna may be found under GERMAIN (198), while GRANGER (212) has made an attempt to reduce the vast number of *Helicidae* described from that country to their proper numerical dimensions.

WESTERLUND (556) has written a classification of the European non-marine fauna, Kobelt has continued ROSSMAESSLER'S (450) work, giving also with MOELLENDORFF (299) a list of the *Buliminidae*, modelled on the monograph in the 'Conchylien-Cabinet.'

Perhaps the most salient feature of the literature of the past year is the number of valuable papers describing marine collections formed by various expeditions. We have to chronicle MARTENS' (331) account of the Gastropods collected by the German deep-sea expedition, which includes some very interesting forms; HEDLEY'S (224) continuation of the results of the 'Thetis' expedition, dealing with Gastropods and Scaphopods; JOUBIN'S (265) notes on the Cephalopods of the 'Belgica'; PELSENER'S (391) report on the residue of the collections, except the Pelecypods; STURANY'S (510) addition to our knowledge of the Gastropods and Amphineura of the Red Sea; SMITH'S (487) account of the Molluscs from the Maldivé and Laccadive Archipelagoes; and KNIPOWITSCH'S (290) completion of his review of the forms collected during the Russian expedition to Spitzbergen. KOBELT (291) has continued his account of the European fauna; while with regard

to British Molluscs we may refer to MARSHALL'S (330) additional notes, mainly on known forms, and an interesting little contribution from FARRAN (175), dealing with Nudibranchs. The South African fauna has received a number of additions through the useful critical list given by SMITH (482), while SOWERBY (492) has described some new forms, a number being from fairly deep water. MELVILL (348) has, separately and with STANDEN (351, 352), added to our knowledge of the Molluscs inhabiting the region of the Persian Gulf. The Australian fauna has received attention from HEDLEY (223), while GATLIFF (195), both separately and with PRITCHARD (430-432) has continued his work on the Victorian Molluscs. A considerable amount of information of interest to students of the American fauna will be found in the paper by ARNOLD (18) reviewing the Pleistocene and Pliocene fauna of California. ELIOT (166) has added to our knowledge of the Nudibranchiate Molluscs of Eastern Africa.

The first part of HERDMAN'S (231) 'Pearl Oyster Report' leads one to notice a considerable number of minor scattered papers and notes dealing with pearls, their origin, and occurrence.

Specific variation has proved attractive to several authors and we may name DAVENPORT (139) on *Pecten*, BAKER (23) on rib-variation in *Cardium*, and BIGELOW & RATHBUN (41) on *Littorina*. The nepionic stage of the shell has been studied by KESTEVEN (283), amongst others.

DALL (133, 135) has dealt with the classification of the *Astartidæ* and *Cyrenacea* and DOUVILLÉ (150) with *Radiolites*.

Turning to the more strictly anatomical papers, we have first to note the valuable paper by RIDWOOD (443) on the Pelecypod gill. He has given a detailed account of its structure in many forms and proposes to remodel the classification now most commonly in use, namely that of Pelseneer; in which connection a paper by that authority himself (392) should be studied. SASSI (456) has dealt with the anatomy of *Anomia*; BLOOMER (52-56) with some *Solenidæ*; while BURNE (75) has written a note on the renal organs of *Nucula*. The anatomy of *Cryptoplax* has been described by WETTSTEIN (557). A detailed account of *Patella* has been published by DAVIS & FLEURE (140). Amongst papers relating to the Gastropods we may specially notice that on the development of *Trochus* by ROBERT (444), as also SCHNABEL'S (465) account of the development of the radula, and the work by THIELE (527) describing a number of marine forms from the German deep-sea expedition. ANCEL (8, 9) and BRUYNE (70) have also worked on the structure of the genitalia, and RAMANAN (436) has given an interesting account of the habits of *Ampullaria*. The literature on Cephalopods has been fairly prolific and we may note BERGMANN'S (37, 38) works relating to the sexual organs, several papers by CHUN (91-93), and HAMLIN-HARRIS' (221) account of the statocysts.

No salient change has been made in the Record this year, and, in conclusion, it is only desired to renew the appeal, made last year, for copies of papers with the original pagination indicated.

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#### CORRIGENDA IN ZOOLOGICAL RECORD FOR 1902, VOL. xxxix.

p. 43, line 1. For *Quadrula resupinatum* read *Q. salafrutum*.

p. 45, line 3. For *Tornatellina hopkinsi* read *T. biolleyi*.

p. 50. Transfer entry in No. 18 of Bahamas to No. 17, Caribbean Province.

p. 50. Transfer entry in No. 18 of Washington and Oregon to No. 12, Californian Province, on p. 49.

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ADAMS, L. E. [See WOODWARD & ADAMS (580).]
2. AIRAGHI, C. Nuovi cefalopodi del calcare di Esino. Palæontogr. ital. viii, pp. 21-41, pls. iv & v.
3. ALDRICH, T. H. New Species of Tertiary Fossils from Alabama, Mississippi and Florida. Nautilus xvi, pp. 97-101, pls. iii & iv.
4. —. A new *Conus* from the Tertiary of Florida. T. c. pp. 131 & 132, fig.
5. —. Two new species of Eocene Fossils from the Lignitic of Alabama. Op. cit. xvii, pp. 19 & 20, figg.
6. ALESSANDRI, G. DE. Il gruppo del Monte Misma. Atti Soc. Ital. xlii, pp. 229-279.
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9. —. Histogénèse et structure de la glande hermaphrodite d'*Helix pomatia* (Linn.). Arch. Biol. xix, pp. 389-652, pls. xii-xviii.
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12. —. On some new land Mollusca [*Streptostyla*] from Middle America. Nautilus xvii, pp. 56 & 57.
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17. \*—. Eine durch Perlenproduction in höherem Grade ausgezeichnete Süßwassermuschel, *Unio pseudolitoralis* Clessin. Prometheus xiv, p. 63. [Fide Bibl. Zool. viii, p. 94.]
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20. —. Pleistocene Mollusks of White Pond, New Jersey. *Op. cit.* xvii, pp. 38 & 39.
21. —. A partial list of the Marine Mollusks of San Salvador, Bahamas. *T. c.* p. 57.
22. —. Note on *Murex marcoensis* Sowerby. *T. c.* pp. 88 & 89.
23. —. Rib variation in *Cardium*. *Amer. Natural.* xxxvii, pp. 481-488.
24. BALDWIN, D. D. Descriptions of new species of *Achatinellidæ* from the Hawaiian Islands. *Nautilus* xvii, pp. 34-36.
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38. —. Ueber den Bau des Ovariums bei Cephalopoden und einige Nachträge zur Eibildung derselben. *Arch. Naturg.* lxi, pp. 227-236, pl. xi & fig.
39. BIDENKAP, O. Undersøgelser over Lyngenfjordens evertibratfauna. *Tromsø Mus. Aarsh.* xx, pp. 81-103 [1899].

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44. —. A proposed study of *Goniobasis*. *Op. cit.* xvii, pp. 22-24.
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51. \*BLATCHLEY, W. S. & DANIELS, L. E. On some Mollusca known to occur in Indiana. In *27 Ann. Rep. Dep. Geol. Nat. Resources of Indiana*, 100 pp. [Fide *Nautilus* xvii, p. 93.]
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p. 318.—Hertford: List of fauna; WOODWARD (577).—Worcestershire: List of fauna; WOODWARD (576).—Northampton: List of fauna; WOODWARD & ADAMS (580).—Nottingham: *Opeas clavulus* (?) and *Zonitoides minusculus* found in a hothouse; WOODWARD, P. Malac. Soc. London v, p. 344.—Cheshire: Notes on Molluscs from Leasowe; STANDEN, J. Conch. x, p. 249.—Lancashire: Molluscs from Bardsley; TAYLOR, J. Conch. x, p. 308: Occurrence of *Vertigo alpestris* at Holker; MOORE, t. c. p. 312: Landshells of Turton District; BALDWIN, t. c. p. 367: White var. of *Arion ater* at Swarthdale; PETTY, Naturalist 1903, p. 460: Mollusca of Southport district; CHASTER (87).—Derbyshire: Landshells from Miller's Dale; JACKSON, J. Conch. x, p. 303.—Yorkshire: Notes on Molluscs from Tag Lock; CROWTHER, Halifax Natural. vii, p. 97: Two-banded *Helicigona arbutorum* from Wensleydale; KEW (284): Shells from Hornsea Mere; SHEPARD, Naturalist 1902, p. 366: List of Mollusca from Halifax; CROWTHER (124).—Cumberland: List of fauna; WOODWARD (574).

Scotland:—Mid-Perth: *Vertigo pygmaea*; GODFREY, Ann. Scott. Nat. Hist. 1903, p. 246.—*Helix lamellata* in Midlothian and *Planorbis spirorbis* in Fife; EVANS, t. c. p. 120.—Linlithgowshire: *Pupa anglica*; EVANS, t. c. p. 53.—Outer Hebrides: On some non-marine Molluscs; KNIGHT (289).—Orkney: Mollusca from Stromness; WATERSTON, Ann. Scott. Nat. Hist. 1903, p. 52.

Ireland:—*Vertigo heldi* in Antrim; TOMLIN (530).—Notes on *Clausilia bidentata* and *Balea perversa*; WELCH, J. Conch. x, p. 312.—Landshells in 'pockets' at Portstewart; WELCH (552).—*Vertigo liljeborgi* at Ballynahinch; CHASTER & TOMLIN (88).—Mollusca of Co. Kilkenny; GRIERSON (216).—*Succinea oblonga* at Mallow and *Cecilianella* in Waterford; GRIERSON, Irish Natural. xii, p. 54.—*Vertigo heldi* in Antrim; TOMLIN, t. c. p. 110.—Notes on a few land shells; WELCH, Rep. Belfast Club iv, p. 427.

Channel Is.:—Review of fauna; TOMLIN & MARQUAND (531).—Guernsey: Varieties of *Helix pisana*; COOPER, J. Conch. x, p. 299.

France:—Revision of *Helix*; GRANGER (212).—Gastropod fauna of the 'Maine-et-Loire,' with *Vivipara locardi*, n. sp., and n. varr.; GERMAIN (198).—*Lartetia umbilicata*, n. sp.; LOCARD (316).—Note on distribution of *Unio margaritifera*; LETACQ (312).—Fauna of Caves of Lot; VIRÉ, Bull. Mus. Paris 1902, pp. 601–607.—On some freshwater molluscs from Nîmes; CAZIOT (84).

Sweden:—Fauna of lake Fureso; WESENBERG-LUND (554).

Denmark:—On freshwater fauna of Denmark; SELL (470).

Finland:—Land and freshwater Gastropod fauna; LUTHER (325).

Germany:—Distribution of *Helix obvia*; WÜST (581).—Wurtemberg: Notes on land and freshwater shells; GEYER (200).—*Helix prestii* and *Pupa edentula* at Reichenhall; MARTENS (336).—East Prussia: List of land and freshwater Molluscs; PROTZ (433).

Lithuania:—*Cycladidae*; DYBOWSKI (161).

Russia:—Fauna of Charkow and neighbourhood; ROSEN (448).—Land and freshwater shells from Reval; LUTHER (324).

East Siberia:—Notes on some landshells; DYBOWSKI (160).

Kamtschatka:—Notes on fauna, with n. varr., and n. spp. of *Planorbis* and *Valvata*; DYBOWSKI (163).

## 2. *Circum-Mediterranean Region.*

Europe:—Monograph of fauna continued; KOBELT in ROSSMAESSLER (450).

France:—Distribution of *Helix niciensis* and allied species; CAZIOT (85).



- Majorca:—Few non-marine shells; MIQUEL (358).
- Corsica:—Fauna, with new names, n. varr., and n. spp. of *Ancylus*, *Helix*, *Hyalinia*, *Limnæa*, and *Valvata*; CAZIOT (82).
- Italy:—N. spp. of *Helix*; KOBELT (294): New species of *Helix*; KOBELT in ROSSMAESSLER (450).
- Tirol:—*Campylæa wiedermayeri*, n. sp.; KOBELT in ROSSMAESSLER (450): Few shells mentioned; GREDLER (214).
- Hungary:—Occurrence of *Unio pictorum*; DUDINSZKY (158).
- Bulgaria and Roumania:—Occurrence of *Helix pomatia*; WOHLBEREDT (565).
- Montenegro and Albania:—Supplement to fauna, with *Pomatias arnautorum*, n. sp.; WOHLBEREDT (564).
- Greece:—List of some species, with *Zonites naxius*, n. sp.; MARTENS (338).
- Caucasus:—*Pomatia sieversi*, n. sp.; KOBELT (297).
- Caucasus and Central Asia:—Reprinted diagnoses of land and freshwater shells; ROSEN (449).
- Asia Minor:—On some land and freshwater shells, with n. spp. of *Buliminus*, *Helix*, *Lithoglyphus*, and *Zonites*; NÆGELE (364): *Zonites anthesi*, n. sp.; KOBELT (294): On fauna, with n. spp. of *Buliminus* and *Helix*; STURANY (509): New species of *Helix* and *Zonites*; KOBELT in ROSSMAESSLER (450).
- Palestine (?):—*Pomatia dickhauti*, n. sp.; KOBELT (297).
- Cilicia:—*Pomatia blumi*, n. sp.; KOBELT (297).
- Syria:—*Helix pseudopomatia*, n. sp.; KOBELT (297).
- Egypt:—Notes on fauna, with n. spp. of *Helix*, *Leucochroa*, *Limnæa*, *Pseudamnicola*, and *Valvata*; PALLARY (380).
- Algeria:—New species of *Leucochroa* and *Xerophila*; KOBELT in ROSSMAESSLER (450).
- Oranese Sahara:—*Leucochroa liedtkei*, n. sp.; KOBELT (297).
- Morocco:—*Macularia riffsensis*, n. sp.; KOBELT in ROSSMAESSLER (450).

### 3. Central Asiatic Region.

[None.]

### 4. Chinese Region.

[None.]

### 5. Japanese Region.

Japanese Empire:—On *Clausilia*, with n. spp.; PILSBRY (412): N. spp. of *Ganesella* and *Pristiloma*; PILSBRY & HIRASE (423): Occurrence of *Zonitoides arboreus*; PILSBRY (401): N. spp. of *Chloritis*, *Eulota*, and *Ganesella*; PILSBRY & HIRASE (417): N. spp. of *Helicina* and *Microcystina*; PILSBRY & HIRASE (418): N. spp. of *Arinia*, *Chloritis*, and *Eulota*; PILSBRY & HIRASE (419): Sale catalogue of land fauna; HIRASE (239): N. spp. of *Chloritis*, *Japonia*, and *Kaliella*; PILSBRY & HIRASE (420): N. spp. of *Eulota*, *Hirasea*, and *Kaliella*; PILSBRY & HIRASE (421): N. spp. of *Kaliella*, *Sitala*, and *Tornatellina*; PILSBRY & HIRASE (422).

### 6. Atlantidean Region.

[None.]



## b. PALÆOTROPICAL AFRICAN ZONE.

7. *Central African Region.*

Upper Nile:—Land and freshwater shells, with n. spp. of *Corbicula*, *Lanistes*, *Spatha*, *Spathella*, and *Unio*; PALLARY (381).

Lake Tsad:—Freshwater shells, with n. spp. of *Corbicula*, *Unio*, and *Vivipara*; MARTENS (333).

Tanganyika:—On the fauna; MOORE (360).

East Africa:—New species of *Ennea*, *Limicolaria*, *Martensia*, *Opeas*, *Pyramidula*, and *Subulina*; SMITH (483).

German East Africa:—*Ennea oleucea*, n. sp.; FULTON (193).

8. *West African Region.*

Cameroons:—Occurrence of *Limicolaria aurora*; MARTENS (331).

9. *South African Region.*

South Africa:—Note on *Limnæa natalensis*; MARTENS (331): New species of *Achatina*, *Ancylus*, *Buliminus*, *Chondrocyclus*, *Ennea*, *Fauxulus*, *Isidora*, *Opeas*, *Physa*, *Planorbis*, *Trachycystis*, *Tropidophora*, and *Zonitoides*; MELVILL & PONSONBY (350).

Cape Colony:—*Tropidophora plurilirata*, n. sp.; FULTON (193).

10. *Malugasy Region.*

Madagascar:—*Tropidophora perfecta*, n. sp.; FULTON (193).

Seychelles:—Three landshells; MARTENS (331).

11. *Afro-Arabian Region.*

Abyssinia:—N. spp. of *Cerastus*; KOBELT (293).

Aden:—*Cerastus dinshawi*, n. sp.; SYKES (514).

Sokotra:—Review of fauna, with figg., and n. spp. of *Buliminus* and *Succinea*; SMITH (488): Notes on some terrestrial species; GODWIN-AUSTEN (209).

Abd-el-Kuri:—Review of fauna, with figg.; SMITH (488): Notes on some terrestrial species; GODWIN-AUSTEN (209).

## c. PALÆOTROPICAL ORIENTAL ZONE.

12. *Indian Region.*

India:—N. spp. of *Streptaxis*; GUDE (218): *Cyathopoma peilei*, n. sp.; PRESTON (426).

Ceylon:—*Cyathopoma serendibense*, n. sp.; PRESTON (426): *Catantulus connectens*, n. sp.; FULTON (193).

13. *Indo-Chinese Region.*

Lists of Helicoid fauna; GUDE (219).

Tonkin:—Figures of known forms, with n. varr., and n. spp. of *Boysidia*, *Clausilia*, *Diplommatina*, *Ennea*, *Helicomorpha*, *Kaliella*, *Microcystina*, *Platyrhaphé*, *Prosopæas*, *Pupina*, *Sitala*, *Spiraxis*, and *Streptaxis*; BAVAY & DAUTZENBERG (32).

Malay Peninsula:—List of a collection of land Mollusca, with n. spp. of *Atopos*, *Damayantia*, and *Parnarion*; COLLINGE (108): List of some

species, with n. spp. of *Diplommatina*, *Ditropis*, *Lagochilus*, *Opisthostoma*, *Pterocyclos*, *Rhaphaulus*, and *Rhiostoma*; SYKES (521): Lists of Helicoid fauna; GUDE (219).

Perak:—*Coptocheilus perakensis*, n. sp.; FULTON (193).

Siam:—*Streptaxis prestoni*, n. sp.; GUDE (218): Collection of land and freshwater shells, with n. spp. of *Ampullaria*, *Melania*, and *Paludomus*; BLANFORD (49).

Andamans:—*Macrochlamys subconvallata*, n. sp. (?); FULTON (193).

#### 14. Indo-Malay Region.

Lists of the Helicoid fauna; GUDE (219).

Sumatra:—Two freshwater shells; MARTENS (331): N. spp. of *Chloritis* and *Dyakia*; GUDE (217).

Java:—*Xesta dwipana*, n. sp.; GUDE (217).

Borneo:—Note on a species of *Microparmarion*; COLLINGE (106): Notes on slugs with n. spp. of *Atopos*, *Collingea*, *Damayantia*, and *Parmarion*; COLLINGE (107): On non-marine shells, with n. varr., and n. spp. of *Batissa*, *Clausilia*, *Cyclotus*, and *Helix*; MARTENS (337).

Flores:—*Leptopoma placidum*, n. sp.; FULTON (193).

Sumba:—*Leptopoma albicans*, n. sp.; FULTON (193).

I. Roma, near Alor:—N. spp. of *Chloritis* and *Xestina*; MOELLENDORFF (359).

#### 15. Philippine Region.

Palawan:—*Amphidromus waterstraati*, n. sp.; ROLLE (447).

Iolo I. (Sulu Arch.):—List of a few shells; DAUTZENBERG (138).

#### d. AUSTRALIAN ZONE.

#### 16. Austro-Malayan Region.

Lists of the Helicoid fauna; GUDE (219).

Waigiu:—N. spp. of *Leptopoma*, *Omphalotropis*, *Palaina*, and *Papuina*; SYKES (517, 518).

Batchian:—*Planispira buelowi*, n. sp.; ROLLE (446).

Molu:—*Conulinus tener*, n. sp.; KOBELT (295).

Talaut:—*Helicostyla talautana*, n. sp.; GUDE (217).

Obi I.:—N. spp. of *Ameria* and *Miratesta*; ROLLE (446): On fauna with n. spp. of *Helix* and *Leptopoma*; DAUTZENBERG (138): N. spp. of *Planispira* and *Xesta*; SYKES (517, 518).

Halmahera:—N. spp. of *Papuina* and *Planispira*; SYKES (517, 518).

New Britain:—*Helicarion* (?) *willejana*, n. sp.; GODWIN-AUSTEN (207).

Santa Cruz Is.:—*Helicina varians*, n. sp.; SYKES (517, 518).

#### 17. Australian Region.

South Australia:—*Thersites meridionalis*, n. sp.; GUDE (217).

New South Wales:—*Assimineia pagodella*, n. sp.; HEDLEY (223).

#### 18. Austro-Polynesian Region.

Loyalty Is.:—*Helicarion* (!) *woodwardi*, n. sp.; GODWIN-AUSTEN (207).

#### 19. Polynesian Region.

Hawaiian Is.:—*Physa* does occur; DALL (128): *Limnaea hawaiiensis*, n. sp.; PILSBRY (416): N. spp. of *Amastra*; BALDWIN (24): *Leptachatina henshawi*, n. sp.; SYKES (516).

20. *Neozelanian Region.*

New Zealand:—Indeterminate species of *Arion*; COLLINGE (106).

Auckland Is.:—*Ranfurlya constanceae*, n. gen. and sp.; SUTER (511).

## e. NEANTARCTIC ZONE.

21. *Patagonian Region.*

Kerguelen:—Occurrence of *Helix hookeri*; MARTENS (331).

22. *Chilian Region.*

[None.]

## f. NEOTROPICAL ZONE.

23. *Peruvian Region.*

Peru:—*Epiphragmophora orophila*, n. sp.; ANCEY (13).

Peru (?):—*Strophocheilus separabilis*, n. sp.; FULTON (193).

24. *Colombian Region.*

Colombia (?):—*Porphyrobaphe sarcostoma*, n. sp.; ANCEY (13).

New Granada:—*Streptaxis dacostæ*, n. sp.; GUDE (218).

25. *Brazilian Region.*

Bolivia:—*Bulimulus blanfordianus*, n. sp.; ANCEY (13).

Brazil:—*Odontostomus toleratus*, n. sp.; FULTON (193): Review of *Melanoidæ*, with n. spp. of *Doryssa*; IHERING (251).—Matto Grosso: Three species of *Bulimulidæ* noted; SMITH (486).

26. *Mexican Region.*

Central America (?):—*Streptostyla clavulata*, n. sp.; ANCEY (12).

Panama:—*Leptarionta venusta*, n. sp.; GUDE (217).

Cocos I.:—*Guppya fultoni*, n. sp.; GUDE (217): Fauna; ANCEY (11).

Mexico:—Collection of shells from, with figg. of known forms, and n. spp. of *Amnicola*, *Epirobia*, *Glandina*, *Guppya*, *Leptinaria*, *Omphalina*, *Pyramidula*, *Salasiella*, *Sphaerium*, *Spiraxis*, and *Thysanophora*; PILSBRY (415): *Streptostyla sumichrasti*, n. sp.; ANCEY (12).

New Mexico:—Occurrence of *Ashmunella thomsoniana*; COCKERELL, *Nautilus* xvii, p. 36: *Pisidium ashmuni*, n. sp.; STERKI (505).

Southern California:—Notes on fauna; STEARNS (497).

27. *Caribbean Region.*

Haiti:—New species of *Brachypodella* and *Macroceramus*; PILSBRY in TRYON (535).

Cuba:—New species of *Urocoptis*; PILSBRY in TRYON (535).

Jamaica:—New species of *Anoma*, *Brachypodella*, and *Spirostemma*; PILSBRY in TRYON (535): *Colobostylus nuttii*, n. sp.; PILSBRY (406): Distribution of *Colobostylus*; JARVIS (259).

Barbados:—List of non-marine shells; BROWN (68).

Curacao:—Notes on land shells; PILSBRY (405).

## g. NEARCTIC ZONE.

28. *American Region.*

United States:—Shells from Mississippi; BAKER (19).—Notes on *Ancylus* of Eastern States, with *A. kirklandi*, n. sp.; WALKER (547).

Western Arkansas and Missouri: Notes on fauna with *Polygyra blandiana*, n. sp.; PILSBRY (411).—Florida: *Guppya miamiensis*, n. sp.; PILSBRY (409).—Idaho: *Zacoleus idahoensis*, n. gen. and sp.; PILSBRY (414).—Indiana: *Pisidium danielsi*, n. sp., and occurrence of *P. obtusale*; STERKI (505): Notes on fauna; BLATCHLEY & DANIELS (51): List of Mollusca; DANIELS (137).—Michigan: N. spp. of *Pisidium*; STERKI (506).—Minnesota: *Pisidium cuneiforme*, n. sp.; STERKI (506).—Montana: On land and freshwater shells; ELROD (169): Notes on forms of *Pyramidula strigosa*; ELROD (169).—New York: On the squid supposed to occur in Onondaga Lake; ORTMANN (374).—North Carolina: *Planorbis magnificus*, n. sp.; PILSBRY (408): Notes on landshells, with n. var. of *Omphalina rugeli*; VANATTA (539).—Ohio: *Pisidium ohioense*, n. sp.; STERKI (504).—Pennsylvania: Exotic Mollusca in Conservatory at Pittsburgh; CLAPP (94).—South Carolina: List of landshells from Calhoun Falls; BILLUPS (43).—Washington: Shells from Douglas Co., Central Washington; PILSBRY (410).

Bermuda Is.:—Notes on fauna; VERRILL (542).

29. *Californian Region.*

California:—*Sonorella walcottiana*, n. sp.; BARTSCH (27): *Pisidium rowelli*, n. sp.; STERKI (506).

30. *Canadian Region.*

Canada:—Occurrence of *Helix hortensis* at Perce, Gulf of St Lawrence; H. A. P., *Nautilus* xvii, p. 71.—Niagara Falls: Few freshwater shells; L., *Ottawa Natural*, xvi, p. 205.

## MARINE MOLLUSCA.

Dead shells may be distributed by floating on surface; KROGH (301).

Study of Fauna of European Seas continued; KOBELT (291).

European Seas:—Review of *Cerithiidae*, with n. spp. of *Cerithium*; LOCARD (317): On Pteropods; LOCARD (318).

1. *Arctic Province.*

Spitzbergen:—Account of Gastropods collected by Russian Expedition; KNIPOWITSCH (290).

Greenland:—*Astarte soror*, n. sp.; DALL (133).

2. *Boreal Province.*

Mollusca from the Lyngen Fjord; BIDENKAP (39).

Norway:—*Scala sarsii*, n. sp.; KOBELT (291).

Nova Scotia:—*Chetoderma canadense*, n. sp.; NIERSTRASZ (367).

3. *Celtic Province.*

Denmark:—Plankton off the Danish Coasts; JOHANSEN & LEVINSEN (261).

Helsingfors:—Occurrence of *Alderia modesta*; LUTHER (326).



British Isles:—Notes on some *Eulima*, with *E. collinsi*, Guernsey, n. sp.; SYKES (515): Addenda to fauna, with n. varr., and *Utricularius tomlinianus*, n. sp.; MARSHALL (330): Some notes on nomenclature; ANON., J. Conch. x, p. 280.—Notes on Molluscs trawled between the Start and Exmouth; TODD (529).—Essex: Occurrence of *Bulla hydatis*; SORBY, Essex Natural. xiii, p. 116.—Walton-on-Naze: Occurrence of *Petricola* and *Acera*; COOPER, Essex Natural. xiii, p. 92.—List of Molluscs from Essex; GARSTANG & SORBY (194).—Cephalopoda from Essex; COLE, Essex Natural. xiii, p. 37.—Mollusca of Great Yarmouth District; PATTERSON (385).—Yorkshire: Notes on *Fusi*; HEY, Naturalist 1903, p. 128.—Scarborough and Filey: Shore Mollusca; HEY (233).—Molluscs from Filey; PETCH, Naturalist 1903, p. 352.—N.-E. England: List of some shells; BRADY (64).—Occurrence of *Neomenia carinata* (?) off Sunderland; BRADY (65).—Northumberland: *Xylophaga præstans*, n. sp.; SMITH (481).—Few molluscs from Humber district; PETCH (397).—Mollusca of Southport district; CHASTER (87).—Aberdeen and Kincardineshire: Fauna, including *Pecten islandicus*, and n. var. of *Fusus turtoni*; SIMPSON (478).—Outer Hebrides: Lists of marine Molluscs; KNIGHT (289).—Donegal: Mollusca of Narin Strand; MASSY, Irish Natural. xii, p. 22.—Ireland: Nudibranchs found on the West coast, with *Doris beaumonti*, n. sp.; FARRAN (175).

#### 4. Lusitanian Province.

Atlantic Ocean:—*Rhynchoteuthis*, n. gen. of Cephalopoda; CHUN (91).  
 Channel Is.:—*Eulima collinsi*, n. sp.; SYKES (515).  
 France:—List of shells from Val-André (Côtes-du-Nord); LAVEZZARI (309).—Marine Molluscs from Normandy; KERVILLE (280).  
 Mediterranean:—Notes on Cephalopods; JATTA (260): *Parthenina dollfusi*, n. sp.; KOBELT (291): Acclimatisation of *Margaritifera*; DUBOIS (156).  
 Majorca:—Few marine shells; MIQUEL (358).  
 Capri:—Occurrence of *Mitra zonata*; BELLINI (36): List of Plankton and other Mollusca, with *Echinospira compressa*, n. sp., and *Kruppomienia minima* (Nierstrasz), n. gen. and sp.; LO BIANCO (315).  
 Gulf of Naples:—Nudibranchs; MAZZARELLI (346): *Uncimenna neapolitana*, n. gen. and sp.; NIERSTRASZ (367): Shells, with n. varr., and *Trochocochlea castricola*, n. sp.; BELLINI (34).  
 Egypt:—Marine Molluscs found with mummies; LORTET & GAILLARD (321).  
 Tunis:—Note on pearl oyster; DUBOIS, C.R. Soc. Biol. lv, p. 1638.  
 Off the Azores:—Heteropods collected by the 'Hirondelle' and 'Princesse Alice,' with new names but no diagnoses; VAYSSIÈRE (541): On some Cephalopods, with (apparently) new names, but no diagnoses; JOUBIN (266).  
 Canaries:—*Rossia caroli*, n. sp.; JOUBIN (266).

#### 5. Arulo-Caspian Province.

Caspian:—*Andrusovia dybowskii*, n. gen. and sp.; WESTERLUND (556).

#### 6. West African Province.

West Africa:—Gastropods collected by 'Chun Expedition,' with *Mangelia descendens*, n. sp.; MARTENS (331): *Purpura eudeli*, n. sp.; SOWERBY (490).  
 Cape Verdes:—*Cirroteuthis richardi*, n. sp.; JOUBIN (266): List of Molluscs collected; NOBRE (368).

## 7. South African Province.

Distribution of Molluscs on West and South African Coasts; MARTENS (334).

South Africa:—Notes on fauna, with addenda, and n. spp. of *Astrarium*, *Calliostoma*, *Cancellaria*, *Chiton*, *Conus*, *Cypræa*, *Dentalium*, *Epidromus*, *Mangilia*, *Minolia*, *Nassa*, *Pleurotoma*, *Scala*, and *Solariella*; SOWERBY (492): Gastropods collected by the 'Chun Expedition,' with n. spp. of *Cyclostrema*, *Euthria*, and *Nassa*; MARTENS (331): Long list of addenda to fauna, with critical notes, and n. spp. of *Bittrium*, *Clanculus*, *Corbula*, *Dentalium*, *Kellia*, *Latiaxis*, *Latirus*, *Marginella*, *Nassa*, *Natica*, *Oxynoe*, *Purpura*, *Siphonaria*, *Sistrum*, *Terebra*, *Turbonilla*; SMITH (482).

## 8. Indo-Pacific Province.

E. Africa and Zanzibar:—On some Nudibranchs, with n. spp. of *Baelidia*, *Ceratophyllidia*, n. gen.; *Cerberilla*, *Ercolania*, and *Pleurophyllidiella*, n. gen.; ELIOT (166).

East Africa and Indian Ocean:—Gastropods collected by the 'Chun Expedition,' with n. spp. of *Cassis*, *Cocculina*, *Drillia*, *Ianthina*, *Mangilia*, *Marginella*, *Mitra*, *Pyramidella*, *Solarium*, *Surcula*, *Voluta*, and *Volvula*; MARTENS (331).

Wasin I., E. Africa:—*Doridium reticulatum*, n. sp.; ELIOT (165).

Zanzibar:—New species of *Chelidonura*; ELIOT (165).

Seychelles:—*Columbella seychellarum*, n. sp.; MARTENS (331).

Red Sea:—Gastropods and Amphineura, with figg. of known spp. and notes, and n. spp. of *Atys*, *Capulus*, *Clathurella*, *Elusa*, *Emarginula*, *Euchelus*, *Eulina*, *Mangilia*, *Mitra*, *Pleurotoma*, *Stylifer*, *Syrnola*, and *Triforis*; STURANY (510).

Persian Gulf and Gulf of Oman:—New species of *Actæopyramis*, *Adeorbis*, *Atys*, *Calliostoma*, *Cerithium*, *Clathurella*, *Cyclostrema*, *Cylichna*, *Cythara*, *Daphnella*, *Drillia*, *Emarginula*, *Enida*, *Erato*, *Euchelus*, *Eulina*, *Eulimella*, *Fluxina*, *Homalaxis*, *Kleinella*, *Leptothyra*, *Liotia*, *Mangilia*, *Marginella*, *Mathilda*, *Metula*, *Mitra*, *Mormula*, *Murex*, *Nassa*, *Peristernia*, *Pleurotoma*, *Retusa*, *Rissoina*, *Scala*, *Scissurella*, *Solariella*, *Solarium*, *Syrnola*, *Terebra*, *Trichotropis*, and *Tritonidea*; MELVILL & STANDEN (351): Review of *Scala*, with n. spp.; MELVILL & STANDEN (352).

Persian Gulf and North Arabian Sea:—Revision of *Columbellidæ*; MELVILL (348).

Indian Ocean:—*Schizobrachium polycotylum*, n. gen. and sp. of Pteropoda; MEISENHEIMER (347): *Rhynchoteuthis*, n. gen. of Cephalopoda; CHUN (91).

Maldive and Laccadive Is.:—Collection of Nudibranchs, with n. spp. of *Dictyodoris*, *Hexabranchnus*, *Notodoris*, and *Staurodoris*; ELIOT (167): Collection of Molluscs, with notes, and n. spp. of *Amussium*, *Cardium*, *Cryptophthalmus*, *Ethalia*, *Ischnochiton*, *Janira*, *Liotia*, *Mitra*, *Murex*, *Nassa*, *Pecten*, *Scala*, *Thalotia*, and *Triforis*; SMITH (487).

Laccadive Is.:—*Entosiphon deimatis*, n. gen. and sp.; KOEHLER & VANEY (300).

Arabian Sea, off Bombay:—New species of *Cancellaria* and *Fossarus*; MELVILL & STANDEN (351).

Bombay:—*Columbella calliope*, n. sp.; MELVILL (348).

Gulf of Manaar:—On some Polyplacophora, with n. spp. of *Callochiton*, *Ischnochiton*, and *Tonicia*; SYKES (522).

Andaman Is.:—*Marginella lateritia*, n. sp.; MELVILL & SYKES (353).

Lower Siam:—*Modiola evansi*, n. sp.; SMITH (485).

Philippines:—Revision of Pelecypoda, with new names and n. spp. of *Machæra* and *Tellina*; HIDALGO (234): *Spondylus occidentens*, n. sp.; SOWERBY (490).

- Malaccas:—*Spondylus reesianus*, n. sp.; SOWERBY (490).  
 Java Seas, etc.:—New species, with no exact habitats given, of *Clione*, *Clionopsis*, *Cymbulicia*, *Cymbulioopsis*, *Paraclione* (n. gen.), *Paraclio*, and *Pneumonoderma*; TESCH (526).  
 New Guinea, Ceram, etc.:—Three n. spp. of *Oliva*; SCHEPMAN (463).  
 Amboina:—*Proneomenia amboinensis*, n. sp.; THIELE (528).  
 Hawaiian Islands:—*Stylobates aeneus*, n. gen. and sp.; DALL (132).  
 Rotuma:—*Doridium gardineri*, n. sp.; ELIOT (165).  
 Rotuma I.:—*Doridomorpha gardineri*, n. gen. and sp.; ELIOT (167).  
 Marshall Is.:—Few littoral shells mentioned; SCHNEE, Zeitschr. Naturw. lxxv, p. 373.  
 Pleasant I., Gilbert Group:—Shells from; HEDLEY (225).  
 Surprise I.:—Small collection of shells; SYKES (520).  
 New Hebrides:—*Oliva rubrolabiata*, n. sp.; FISCHER (177).  
 New Caledonia:—*Pecten coudeini*, n. sp.; BAVAY (29): Notes on *Columbellidae*; PACE (377).  
 Torres Straits:—*Purpura pseudamygdala*, n. sp.; HEDLEY (223).

### 9. Australo-Zealandic Province.

- N.-W. Australia:—*Nassa optima*, n. sp.; SOWERBY (490).  
 Queensland:—Sixteen species of *Rissoidea*, new to the State; KESTEVEN (281); *Leiostraca loddereæ*, n. sp.; HEDLEY (224).  
 North Queensland:—List of Molluscs; HEDLEY in ROTH (451).  
 New South Wales:—Scaphopoda and Gastropoda trawled by 'Thetis,' with critical notes, new names, and n. spp. of *Bathytoma*, *Cocculina*, *Crossea*, *Cylichna*, *Daphnella*, *Dentalium*, *Drillia*, *Eulima*, *Fascinus* (n. gen.), *Fusus*, *Leiostraca*, *Leucosyrinx*, *Liotia*, *Lotorium*, *Marginella*, *Mathilda*, *Minolia*, *Murex*, *Myxa* (n. gen.), *Omalaxis*, *Pedicularia*, *Philine*, *Pleurotoma*, *Pseudorissoina*, *Purpura*, *Scissurella*, *Scrobs*, *Syrnola*, *Tornatina*, *Trophon*, *Typhis*, *Vermetus*, and *Volvula*; HEDLEY (224): Additions to, and notes on, fauna, with n. spp. of *Cæcum*, *Purpura*, and *Triphora*; HEDLEY (223).  
 Victoria:—Notes on *Chione*, with n. spp. of *Modiola* and *Zenatia*; PRITCHARD & GATLIFF (431): Critical review of fauna continued; PRITCHARD & GATLIFF (430, 432): Additions to fauna; GATLIFF (195).  
 New Zealand:—List of shells from Totaranui Bay, Nelson; PARK (383).

### 10. Japonic Province.

- Japan:—*Pleurotomaria hirasei*, n. sp.; PILSBRY (404, 413): N. spp. of *Gibbula*, *Monilea*, and *Phasianella*; PILSBRY (407): N. spp. of *Aclis*, *Cardita*, *Ethalia*, *Felania*, *Minolia*, *Murex*, *Nerita*, *Omphalius*, *Pectunculus*, *Pentadactylus*, *Scalaria*, *Tellina*, and *Triforis*; SOWERBY (491).

### 11. Aleutian Province.

- Alaska and Bering Sea:—New species of *Astarte*; DALL (133).

### 12. Californian Province.

- West America:—Notes on *Cypræide*; BUTON (76).  
 California:—Notes on fauna, with figures of many species, and n. spp. of *Bittium*, *Mitromorpha*, *Odostomia*, *Pleurotoma*, and *Turbonilla*; ARNOLD (18): New species of *Actæon*, *Clathurella*, *Ischnochiton*, *Lunatia*, *Macromphalina*, *Mangilia*, *Mitra*, *Murex*, and *Scala*; DALL (136): *Metzgeria californica*, n. sp.; DALL (130): *Trivia ritteri*, n. sp.; RAYMOND (440).  
 San Nicholas, Santa Barbara Is.:—Notes on fauna; LOWE (322).



13. *Panamic Province.*

Lower California:—*Echinochama californica*, n. sp.; DALL (133).  
 Mexico:—*Odostomia terricola*, n. sp.; ARNOLD (18).  
 Gorgona Is., Gulf of Panama:—*Sigaretus arnheimi*, n. sp.; DALL (129).  
 Galapagos:—*Tonicia arnheimi*, n. sp.; DALL (129).

14. *Peruvian Province.*

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15. *Antarctic Province.*

New Amsterdam:—Gastropods collected by the 'Chun Expedition,' with n. spp. of *Natica*, *Scalaria*, and *Spirotropis*; MARTENS (331).  
 Kerguelen:—Gastropods collected by the 'Chun Expedition,' with n. spp. of *Lachesis* (?) and *Odostomiopsis* (n. gen.); MARTENS (331).  
 Antarctic:—Cephalopoda collected during Voyage of 'Belgica'; JOUBIN (265): Molluscs (except Cephalopoda) collected during Voyage of 'Belgica,' with n. spp. of *Adacnarca* (n. gen.), *Bathyarca*, *Callocardia*, *Capulus*, *Cyamium*, *Cyclostrema*, *Dacrydium*, *Lævilittorina*, *Leda*, *Leptochiton*, *Limopsis*, *Margarita*, *Pecten*, *Philobrya*, *Rissoa*, *Scissurella*, *Sipho*, *Tergipes*, and *Tharsis*; PELSENEER (391).

16. *Argentine Province.*

Patagonia:—*Scissurella dalli*, n. sp.; BARTSCH (26).

17. *Caribbean Province.*

Brazil:—*Crassatellites brasiliensis*, n. sp.; DALL (133).  
 Gulf of Mexico:—*Astarte hogona*, n. sp.; DALL (133).  
 [Gulf of Mexico]:—*Voluta dohrnii*, n. sp.; SOWERBY (490).  
 Horn Island, Mississippi:—List of shells; VANATTA (540).  
 Bahamas:—Molluscs from San Salvador; BAKER (21).

18. *Transatlantic Province.*

Bermuda Is.:—Notes on fauna; VERRILL (542).  
 Western Florida:—List of shells, with n. spp. of *Cuna*, *Erycina*, and *Vitrinella*; VANATTA (540).  
 Maine:—Shells from Casco Bay; WEEKS, *Nautilus* xvi, p. 119.

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N.B.—The remarks given at the beginning of the preceding section, p. 37, also apply here.

Manual of Palæontology; STEINMANN (500).—Manual of Invertebrate Palæontology; WOODS (568).—New Edition of Zittel's 'Palæontology'; ZITTEL (588).—Manual of French Palæontology; FRITEL (188).

Types of some Mollusca figd.; PALÆONTOLOGIA UNIVERSALIS (379).—Sculpture of *Productus abichi*; NOETLING (369).—Classification of several families of Gastropoda, with new genera, sections, and species; COSSMANN (112).—New specific and generic names; COSSMANN (114).—Boring by *Saxicava* found in Limestone rocks 450 feet above sea-level; SMITH, *Geol. Mag.* x, p. 525.—Notes on some *Hippurites*; TOUCAS, *Bull. Soc. geol. France* iii, p. 137; GROSSOUVRE, t. c. p. 185.—On the date of appearance



of *Belemnites*; HAUG, Bull. Soc. geol. France iii, pp. 245, 248; KILIAN, t. c. p. 249; FABRE, l. c.—Classification of *Hippurites*, with n. spp.; TOUCAS (534).—On type of *Pseudomonotis*; DIENER (145).—Notes on *Nemertites sudeticus*; WALTER, Centrbl. Mineral. 1903, p. 76.—On *Eurydesma* and *Leiomyalina*; BOEHM (58).

British Isles:—Fossils from near Dublin; LAMPLUGH, ETC., Mem. geol. Surv. Ireland, No. 112.—Lists of fossils from Torquay, Chichester, Isle of Man, South Wales, Cheadle, Reading, and Leicester; AUTHORS in Mem. U. K. Geol. Survey.

Europe:—Palæontological fauna of the 'Corbières Orientales,' with many n. spp.; DOUCIEUX (148).—Palæontology of the 'Gorges de l'Arcuse'; SCHARDT & DUBOIS (459).—Few fossils from various strata of Hainaut; DOLLFUS, Feuille Natural. xxxiii, p. 18.—Fossils from various formations of Monte Misma; ALESSANDRI (6).

Asia:—Ammonites from Nagato; YOKOYAMA, J. geol. Soc. Tokyo ix, p. 441.

### I. POST-TERTIARY.

Europe:—Quaternary fauna of North Europe; FRECH (184).

British Isles:—Postpliocene Mollusca from Kesh Caves, Co. Sligo; KENNARD & WOODWARD (278).—Occurrence of *Planorbis marginatus* and *Limnæa pereger* at Bognor; REYNELL (442).—Occurrence of *Neritina grateloupiana* in Pleistocene of Thames valley; KENNARD & WOODWARD (273).—Pleistocene Mollusca from Portland and Holocene Mollusca from Wilts., Cambs., Dorset, and Kent; BULLEN (72).—Holocene Mollusca from Clifton Hampden, nr. Oxford, including *Dreissensia*; KENNARD & WOODWARD (274).—Molluscs from River Lea alluvium at Walthamstow; KENNARD & WOODWARD (275).—Shells in Lea Valley at Canning Town; KENNARD & WOODWARD (276).—Few fossils from Cornwall; JOHNSON (264).—Fossils from Thames alluvium at Bermondsey; KENNARD & WARREN (272).—Fossils from Blown Sands of Newquay; KENNARD & WARREN (271).—Post-tertiary Molluscs from Harlyn Bay; BULLEN (73).—Notes on fauna of Raised Beaches of Devon; HUNT (249).—Post-tertiary shells from the Walbrook near London Wall; KENNARD (270).—List of fossils from near Uxbridge; KENNARD, P. Geol. Ass. xviii, p. 188.

Belgium:—Quaternary fauna; ENGERRAND (171).

Germany:—*Paludina diluviana* in Mecklenburg; METZMACHER (355).—Pleistocene shells from Thuringia and the Harz; WÜST (582).—Pleistocene shells near Bottendorf; WÜST (583).—Pleistocene freshwater shells found with brackish-water Ostracods in Germany; WÜST, Centrbl. Mineral. 1903, p. 586.—Diluvial non-marine shells in South Hanover; MENZEL, Zeitschr. Deutsch. geol. Ges. liv, Protok. p. 195.—Shells from Main Valley; WITTICH (563).

Iceland:—Few fossils in boulder clay; PJETURSSON, Quart. J. Geol. Soc. lix, p. 359.

Spitzbergen:—Post-pliocene shells; KNIPOWITSCH (290).

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Spain:—Quaternary fossils from Barcelona, with *Helix almerai*, n. sp.; ALMERA & BOFILL Y POCH (7).

Italy:—The Post-pliocene Mollusca of Southern Italy; STEFANO (498).

Hungary:—Few diluvial fossils from Budapest; SCHAFARZIK (458).

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Polynesia:—N. spp. of *Amastra* from Hawaii; BALDWIN (24).

America:—Pleistocene fauna from San Pedro, Cal., with n. spp.; ARNOLD (18).—Molluscs of White Pond, New Jersey; BAKER (20).—*Pisidium costatum*, n. sp., Michigan; STERKI (504).—New variety of *Ashmunella thomsoniana*, New Mexico; COCKERELL (100).

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Notes on the species of *Bauxia*; CAZIOT (83).—*Fusus arnoldi*, n. n. for *E. rugosus*, Trask nec Lamk.; COSSMANN, Rev. paleozool. vii, p. 215.—On *Lucina volderi*; VINCENT (544).—List of Paris basin fauna continued; CHÉDEVILLE (89).—New species of *Ferussacina* from the Paris Basin; DOUVILLÉ (152).—Few fossils from Tarnocz; KOCH, Földtani Kozl. xxxiii, p. 139.—Fauna of the older beds of Sremu; PAVLOVIĆ (387).—Fossils from localities in Balkans, with n. spp.; PAVLOVIĆ & PETKOVICH (389).

British Isles:—Fossiliferous Oldhaven Beds at Ipswich; BASSETT, Geol. Mag. x, p. 453.—Few fossils from St Erth; JOHNSON (264).

Belgium:—Fauna of the Upper Pliocene; STEFANO (498).—Notes on the Sparnacian in Belgium and its fauna; ERTBORN, Ann. Soc. malac. Belgique xxxviii, Bull. p. iv.

Germany:—Notes on German fauna, with n. spp.; OPPENHEIM (371).—Species of *Vallonia* from lower Miocene of Mainz and some fossils from Frankfurt; BOETTGER (59).—New species of *Carychium* and *Hyalinia* from Hochheim; BOETTGER (60).

France:—Helvetian fossils from Touraine, etc., with n. spp.; PEYROT (400).—*Cardita chaylai*, n. sp., Étampes; MEUNIER (356).—Fauna of Cotentin continued, with many n. spp.; COSSMANN & PISSARRO (116, 117).—Notes on *Venus fallax* Millet, from Miocene of Anjou; DOLLFUS (146).

Spain:—Lists of fossils from various localities near Barcelona; ALMERA, Bol. Com. geol. espan. xxxvii, Excurs.

Italy:—Mollusca from Naples with a n. sp. of *Radula*; BELLINI (35).—Pliocene fossils from near Borgamanero; PATRINI (384).—*Pecten estheris*, n. sp., Italy; CREMA (119).—Few fossils from Spalato, with n. sp. of *Pecten*; MARTELLI, Palæontogr. ital. viii, p. 95.—New species of *Pectinidæ* from Italy; UGOLINI (536).—Neogene *Rissoidæ* of Messina, with n. spp.; SEGUENZA (469).—On some *Trochidæ* and *Solariidæ* from Messina; SEGUENZA (468).

Austro-Hungary:—Few fossils from Przemyśl; WOJCIKA, Kosmos polski xxviii, p. 295.—New species of *Melanopsis* and *Neritina* from Hungary; BRUSINA (69).—Miocene fossils from Rzeszow; FRIEDBERG (185).—Forms of *Limnocardium* from Pontic Croatia; GORJANOVIĆ-KRAMBERGER (210).—Few Pontic fossils from Lower Austria; FUCHS, SB. Ak. Wien cxi, Abth. i, p. 449.—Few fossils from Vienna; FUCHS, SB. Ak. Wien cxi, Abth. i, p. 454.—Fossils from Moravia, including Pteropod; FUCHS (189).—Few fossils from Eggenburg; FUCHS, SB. Ak. Wien cxi, Abth. i, p. 63.—New *Cerithiidæ* from Mittelsteiermark; HOERNES (242).—Occurrence of *Papyrotheca* in the 'Congerienschichten' of Lower Austria; RZEHAK, Verh. geol. Reichsanst. 1903, p. 258.—Lists of fossils from Hungary; LÖRENTHEY (319).—List of fossils from Budapest; SCHAFARZIK (458).

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Servia:—On the fauna, with many n. spp.; PAVLOVIĆ (388).

Greece:—Fossils from Thebes, showing Cretaceous characters, with n. spp.; OPPENHEIM (373).

Russia:—Sarmatian fossils from South Russia, with n. spp.; ANDRUSOV (15).—Few species from Western Caucasus; MIKHAILOVSKI (357).

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Asia Minor:—Notes on Syrian species of *Vola*; BLANCKENHORN (48).

Africa:—Upper Tertiary Pelecypoda from Egypt, with many n. spp.; OPPENHEIM (372).—Gastropods and Scaphopods from Egypt; MAYER-EYMAR (343).—*Turritellidæ* from Egypt; MAYER-EYMAR (342).—Notes on Egyptian *Ampullaria*; MAYER-EYMAR (344).—Notes on Egyptian species,

of *Vola*; BLANCKENHORN (48).—Fossils from Tunis; PERVINQUIÈRE (396).—Fossils from Algiers; GENTIL (196).—Few fossils from Cameroons; OPPENHEIM, Centrbl. Mineral. 1903, p. 373.

America:—Fauna of Florida completed, with new genera, sections, and many n. spp.; DALL (126).—N. spp. of *Gastrochæna* and *Umbraculum* from Alabama; ALDRICH (5).—*Conus waltonensis*, n. sp., Florida; ALDRICH (4).—New species of Molluscs from Alabama, Mississippi, and Florida; ALDRICH (3).—On Conrad Collection of Vicksburg fossils, with n. genn. and n. spp.; CASEY (81).—Pliocene fauna from San Pedro, Cal., with n. spp.; ARNOLD (18).

Australasia:—New species from Miocene of Edithburg; BASEDOW (28).—List of Australian *Pleurotomaria*, with n. spp.; PRITCHARD (429).—New species of Pelecypods from older Tertiary of Victoria; PRITCHARD (428).—Few Cainozoic fossils from Western Victoria; KITSON, Victorian Natural. xx, p. 91.

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Mesozoic fossils from the Oural; ILOVAISKY, Bull. Soc. geol. France iii, p. 292.—Secondary fossils from the Cordilleras, with many n. spp.; BURCKHARDT (74).—Secondary fossils from Monte Clapsavon; TOMMASI, Rend. Ist. Lombardo xxxvi, p. 431.—On *Lytoceras crebricosta*; FUGINI (192).—Secondary fossils from Conca Aquilana; CHELUSSI, Atti Soc. Ital. xlii, p. 58.—Secondary fossils from Palermo, with new names but no diagnoses; SCALIA (457).—Few fossils from Chili, with a n. sp. of *Radiolites*; IHERING (252).—Fossils from Tunis; PERVINQUIÈRE (396).—Fauna of strata between the Cretaceous and Eocene in Baluchistan; NOETLING, Centrbl. Mineral. 1903, p. 514.

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Denmark:—Scaphopods, Gastropods, and Cephalopods, with n. spp.; RAVN (437).—Stratigraphical distribution of Danish Mollusca; RAVN (438).

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France:—Study of Lower Cretaceous Ammonite Fauna of Chatel-Saint-Denis completed, with n. spp.; SARASIN & SCHÖNDELMAYER (454).—New species of fossils from France; COSSMANN (115).—Silicified fossils in Turonian of Lot; DOUVILLÉ, Bull. Soc. geol. France iii, p. 93.—Fossils from Neocomian of Gard; PELLAT, t. c. p. 119.—Fossils from the Hauterivian of Dauphiné; SAYN, t. c. p. 142.

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Asia:—Few fossils from Salt Range of N. India; SEELEY, Rep. Brit. Ass. 1902, p. 604.—Cephalopods from the Hokkaido, with n. spp.; YABE (584).

Africa:—Fossils from Conducia, E. Africa, with n. spp.; CHOFFAT (90).—Fossils from near Cairo, with n. spp.; DACQUE (125).—Fossils from Libya, with n. spp.; QUAAS (435); WANNER (549).—Few fossils from Mozambique; CHOFFAT, Bull. Soc. geol. France ii, p. 400.

America:—Few fossils from Fort Benton group; DOUGLAS (149).—Fauna of the Buda Limestone, with n. spp.; SHATTUCK (472).—Fossils from Turonian of New Mexico, with n. spp.; JOHNSON (263).—Fossils of Pacific Coast of United States, with n. spp.; ANDERSON (14).—New species of freshwater shells from Montana; STANTON (496).—*Cyrena albertensis*, n. sp., from the Laramie formation; WHITEAVES (559).—Fossils from South America, with n. spp.; PAULCKE (386).

Australasia:—Monograph of New South Wales Fauna, with n. gemm. and n. spp.; ETHERIDGE (172).—Catalogue of Australian species; ETHERIDGE & DUN (173).—*Desmoceras jonesi*, n. sp., Queensland; GREGORY & SMITH (215).

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Germany:—Lists of fossils from the White Jura; SCHMIERER (464).—Few species from Katzenbuckel; FREUDENBERG, Ber. Oberrhein. geol. Ver. xxxvi, p. 28.

France:—Upper Jurassic fossils from near Bourges, with n. spp.; PERON (394).—Kimmeridgian fossils from Saint-Adresse; MARCHAND & FORTIN, Bull. Soc. Rouen xxxvii, p. 123.

Italy:—Fauna of strata with *Aspidoceras acanthicum* near Camerino, continued; CANAVARI (78).—Upper Jura fossils; CAMPANA (77).

Russia:—Oxfordian and Sequanian fossils from Moscow and Riasan, with n. spp.; ILOVAISKY (255).

Asia:—*Trigonia* from Cutch, with many n. spp.; KITCHIN (287).—On Gray's type-specimens of *Ammonites* from India; CRICK (120); BLANFORD (50).—On a collection from Borneo, with *Trigonia molengraaffi*, n. sp.; NEWTON (366).

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Germany:—Few Lias and Rhætic fossils; MÜLLER, Centrbl. Mineral. 1903, p. 722.

Switzerland:—Lower Lias fossils from the 'Comasker Alpen,' with many n. spp.; BISTRAM (45).

Italy:—Many n. spp. of Cephalopoda from Monte di Cetona; FUCINI (190, 191).



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Italy:—Dolomite fauna of Lombardy, with many n. spp.; TOMMASI (532).

Austro-Hungary:—Few fossils from the Dolomites of Lienz; GEIYER, Verh. geol. Reichsanst. 1903, p. 165.—Cephalopoda from Dalmatia, etc., with n. genn. and n. spp.; KITTL (288).—Pelecypoda from Bosnia, Dalmatia, and Venetia, with n. spp.; BITTNER (46).—Occurrence of *Nautilus* in Steiermark; HOERNES (244).

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N. America:—Fauna of New Jersey, with many n. spp.; WELLER (554).—List of figured types in New York State Museum; CLARKE (96).

Australia:—*Hyolithes leptus*, n. sp., Victoria; CHAPMAN, P. Soc. Victoria xv, p. 119.

**Permian:—**Dyas fossils; FRECH (182).

**Carboniferous:—**Note on *Vestinautilus crassimarginatus*; CRICK (123).

British Isles:—Notes on some British fossils; HIND, ETC., Rep. Brit. Ass. 1902, p. 210.—Monograph of British Pelecypoda continued, with n. genn. and n. spp.; HIND (236).—Monograph of Irish Cephalopods completed, with classification, n. subgenn. and n. spp.; FOORD (178).—*Solenomorpha major*, n. sp., from Pendleside series of Lancashire; HIND (237).

Belgium:—On some fossils; DESTINEZ (141).

Italy:—Fossils from *Fusulina*-chalk near Forni Avoltri; GORTANI, Riv. ital. Pal. ix, p. 35.

Russia:—Fossils from the Eastern Urals, with many n. spp.; JANIS-CHEWSKY (258).

Africa:—Few Pelecypoda from Sengwe Coalfield, Rhodesia; HIND, Quart. J. Geol. Soc. liv, p. 287.

America:—Notes on fossils from the Kansas Section; ADAMS, GIRTZ, & WHITE (1).—Fossils from Kansas and Nebraska; BEEDE (33).—Ammonoids of America, with n. genn. and many n. spp.; SMITH (489).

**Devonian:—**Note on *Modiomorpha precedens*; WALDSCHMIDT (545).—Notes on *Triaenoceras costatum*, Verneuil; DREVERMANN (153).

Germany:—Lower Devonian fossils, with n. spp.; WALTHER (548).—Fossils from Neuweilnau, with n. spp.; MAURER (341).

Russia:—Fauna of the Urals, with n. spp.; KAZANSKY (268).

North America:—Fauna of Hamilton Formation of Central New York, with n. spp.; CLELAND (99).—Fossils from Stafford Limestone of New York; TALBOT (523).—Notes on *Panenka*, with a n. sp. from Ontario; WHITEAVES (558).—Fauna of Hamilton Group, Ontario, with new forms; SHIMER & GRABAU (476).—Fossils from Ohio Basin; CLAYPOLE (97).

##### **Silurian:—**

France:—The fauna of the peninsula of Crozon; KERFORNE (279).

Belgium:—List of fossils; MALAISE, Ann. Soc. geol. Belgique xxv bis, p. 217.

Bohemia:—Study of the *Patellidae* and *Bellerophonitidae*, with n. genn. and many n. spp.; PERNER (393).—Few fossils from Bohemia; ZELIZKO, Verh. geol. Reichsanst. 1903, p. 61.

Asia:—Nautiloidea from between Cambrian and Silurian from North China; CRICK (122).

America:—Notes on *Lituites undatus* from the Black River Limestone, Quebec; WHITEAVES, Ottawa Natural. xvii, pp. 117, 161.—N. sp. of *Matheria* from Trenton Limestone at Ottawa; WHITEAVES (560).—Fossils from Calciferous formation of the Mohawk Valley, with n. spp.; CLELAND (98).

**Cambrian**:—Phylogenic stage of Gastropods; SARDESON (455).

America:—Notes on Canadian fossils; MATTHEW (340).

### III. SYSTEMATIC.†

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*Argonauta argo*, abnormal specimen; SMITH (480).

*Cirroteuthis grimaldii*, Azores, p. 100, *richardi*, Cape Verdes, p. 101;

JOUBIN, C.R. Ac. Sci. cxxxvi : n. spp.

*Dosidicus gigas*, notes on; STEINHAUS, Verh. Ver. Hamburg. naturw. x, p. xliv.

*Enoploteuthis margaritifera*, juv., figd.; LO BIANCO (315).

*Histiopsis atlantica*, juv., figd.; LO BIANCO (315).

*Illex illecebrosus*, notes on; ORTMANN (374).

*Loligo eblana*, of which *Todaropsis veranyi* is a synonym, notes on type; HOYLE (248).

*Octopus*, receptaculum seminis; BERGMANN (37).

*Rhyncoteuthis*, apparently as n. gen. with no type named, Atlantic and Indian Oceans; CHUN, Zool. Anz. xxvi, p. 716, fig. [?non D'Orbigny, 1846].

*Rossia moelleri*, figd., with radula; KNIPOWITSCH (290).

*Rossia caroli*, Canaries; JOUBIN, C.R. Ac. Sci. cxxxvi, p. 101 : n. sp.

*Scaerurgus tetracirrus*, juv., figd.; LO BIANCO (315).

† This sign is prefixed to fossil forms.

## AMMONEA.

- †*Aconeceras*, n. gen., type *Amm. nisus*, Orb., Cretaceous, France; HYATT, Mon. U.S. Geol. Surv. xlv, p. 100.
- †*Acompsoceras*, n. gen., type *Amm. bockumensis*, Schl., Cretaceous, Germany; HYATT, t. c. p. 111.
- †*Beyrichoceras*, n. subgen. of *Glyphioceras*, for *G. obtusum*, Phill., etc.; FOORD (178), p. 163.
- †*Bittnerites*, n. subgen. of *Tirolites* for *T. malici*, n. sp., etc., Trias, Dalmatia; KITTL, Abh. geol. Reichsanst. xx, p. 66.
- †*Canavaria*, Buckman nec Oppenheim, renamed *Canavariceras*, q. v.
- †*Canavariceras*, n. n. for *Canavaria*, Buckman nec Oppenheim; COSSMANN, Rev. paleozool. vii, p. 227.
- †*Carstenia*, n. gen. for *Amm. caicedi*, Karsten, Cretaceous, N. America, and others; HYATT, Mon. U.S. Geol. Surv. xlv, p. 133.
- †*Choffaticeras*, n. gen., type *Pseudotissotia meslei*, Peron, Cretaceous, North Africa; HYATT, t. c. p. 37.
- †*Coilopoceras*, n. gen. for *C. colleti*, n. sp., Cretaceous, Mexico, and others; HYATT, t. c. p. 91.
- †*Dalmatites*, n. gen. for *D. morlaccus*, n. sp., Trias, S. Europe; KITTL (288), p. 72.
- †*Eulophoceras*, n. gen., type *E. natalense*, n. sp., Cretaceous, S. Africa; HYATT, Mon. U.S. Geol. Surv. xlv, p. 85.
- †*Gerhardtia*, n. gen., type *Amm. galeatoides*, Karsten, Cretaceous, N. America; HYATT, t. c. p. 135.
- †*Holobolus*, n. subgen. of *Tirolites*, for *T. monoptychus*, n. sp., Trias, Dalmatia; KITTL, Abh. geol. Reichsanst. xx, p. 32.
- †*Mantelliceras*, n. gen., type *Amm. mantelli*, Sby., Cretaceous, England; HYATT, Mon. U.S. Geol. Surv. xlv, p. 113.
- †*Metasigiloceras*, n. gen., type *Amm. rusticus*, Sby., Cretaceous, British Isles; HYATT, t. c. p. 106.
- †*Metatissotia*, n. gen. for *Buchicerasourneli*, Bayle, Cretaceous, North Africa, and others; HYATT, t. c. p. 45.
- †*Metengonoceras*, n. gen. for *M. inscriptum*, n. sp., Cretaceous, Texas, and others; HYATT, t. c. p. 179.
- †*Metoicoceras*, n. gen. for *Amm. swallowi*, Shumard, Cretaceous, N. America, and others; HYATT, t. c. p. 116.
- †*Nicklesia*, n. gen., type *Amm. dumasianus*, Orb., Cretaceous, S. America; HYATT, t. c. p. 138.
- †*Paratissotia*, n. gen. for *P. regulare*, n. sp., Cretaceous, Peru, and others; HYATT, t. c. p. 50.
- †*Pseudaspidoceras*, n. gen., type *P. footeanum*, Stol., Cretaceous, India; HYATT, t. c. p. 106.
- †*Schluetericeras*, n. gen., type *Amm. nodosoides*, Schl., Cretaceous, Germany; HYATT, t. c. p. 110.
- †*Schuchertites*, n. gen. for *S. grahami*, n. sp., Carboniferous, America; SMITH, Mon. U.S. Geol. Surv. xlii, p. 49.
- †*Sharpeiceras*, n. gen., type *Amm. laticlavus*, Sharpe, Cretaceous, England; HYATT, Mon. U.S. Geol. Surv. xlv, p. 111.
- †*Shumardites*, n. gen., type *S. simondsi*, n. sp., Carboniferous, America; SMITH, Mon. U.S. Geol. Surv. xlii, p. 134.
- †*Sphenoceras*, n. subgen. of *Glyphioceras*, for *G. sphaericum*, Martin, etc.; FOORD (178), p. 154.
- †*Stacheites*, n. gen. for *S. prionoides*, n. sp., Trias, S. Europe; KITTL (288), p. 27.
- †*Stantonoceras*, apparently n. gen. for *S. pseudocostatum*, n. sp., Cretaceous, New Mexico; JOHNSON (263).

- †*Styracoceras*, n. gen., type *Amm. balduri*, Keyserling, Cretaceous, N. Russia; HYATT, Mon. U.S. Geol. Surv. xlv, p. 244.  
 †*Subpulchellia*, n. gen. for *Amm. oehlerti*, Nickles, Cretaceous, S. Europe, and others; HYATT, t. c. p. 139.  
 †*Subtissotia*, n. gen., type *Tissotia tissoti* var. *inflata*, Peron, Cretaceous, North Africa; HYATT, t. c. p. 43.  
 †*Svilajites*, n. subgen. of *Trochites* for *T. cingulatus*, *tietzei*, n. spp., Trias, Dalmatia; KITTL, Abh. geol. Reichsanst. xx, p. 65.  
 †*Tegoceras*, n. gen., type *Amm. mosensis*, Orb., Cretaceous, France; HYATT, Mon. U.S. Geol. Surv. xlv, p. 84.  
 †*Tolypeceras*, n. gen., type *Amm. marcoussanus*, Pictet and Campiche, Cretaceous, Switzerland; HYATT, t. c. p. 103.

## TETRABRANCHIATA.

*Nautilus*, nervous system; GRAVIER (213).

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Retina of the eye; HESSE (232).  
 Nepionic stage in Gastropods; KESTEVEN (283).  
 Development of the radula; SCHNABEL (465).

## PULMONATA.

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## TESTACELLIDÆ and SELENITIDÆ.

- Daudebardia* should be *Audebardia*; DOLLFUS, J. Conchyl. li, p. 278.  
*Ennea densecostulata*, Mlldff., figd.; BAVAY & DAUTZENBERG (32): *E. iwakawa*, n. var.; PILSBRY & HIRASE, Nautilus xvii, p. 53.  
*Ennea (Elma) tonkiniana*, p. 204, (*E. messageri*), p. 205, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, figg.: *E. unilirata*, *commoda*, *insolita*, p. 315, *prodigiosa*, *columella*, p. 316, E. Uganda; SMITH, J. Conch. x, figg.: *E. oleacea*, German East Africa; FULTON, J. Malac. x, p. 99, figg.: *E. calopasa*, p. 596, *claustraria*, *craterodon*, p. 597, *dædalea*, *genialis*, p. 598, *himerothales*, *montana*, *sylvia*, p. 599, *triglochis*, *virgo*, p. 600, *warrenii*, p. 601, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, figg.: n. spp.  
*Glandina*, several spp. figd., with n. varr. of *G. delicata*, *oblonga*; PILSBRY (415).  
*Glandina hiungensis*, p. 770, *victoriana*, *delicata*, p. 771, Mexico; PILSBRY, P. Ac. Philad. 1903, figg.: n. spp.  
*Paryphanta louisadarum*, Mlldff., figd.; MOELLENDORFF in MARTINI & CHEMNITZ (339): *P. busbyi*, anatomy; MURDOCH (362): *P. urnula*, *hochstetteri*, anatomy; MURDOCH (361).  
*Rhytida (Eurhytida) wynyardensis*, Pettord, figd.; MOELLENDORFF in MARTINI & CHEMNITZ (339): *R. greenwoodi*, anatomy; MURDOCH (361).  
*Salasiella perpusilla*, *modesta*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 773.  
*Salasiella minima*, p. 773, *subcylindrica*, p. 774, Mexico; PILSBRY, t. c. figg.: n. spp.  
*Streptaxis*, supplement to catalogue, with figg. of *S. thebawi*, *porrectus*, *obtusus*; GUDE (218): *S. costulatus*, Mlldff., with n. varr., *cristatellus*, Mlldff., figd.; BAVAY & DAUTZENBERG (32).



- Streptaxis (Odontartemon) mabillei*, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 203, figg.: *S. dacostae*, New Grenada, *prestoni*, Siam, p. 322, *latior*, p. 323, *pleurostomoides*, India, p. 324; GUDE, P. Malac. Soc. London v, figg.: n. spp.  
*Streptostyla novoleonis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 274.  
*Streptostyla sumichrasti*, Mexico, *clavulata*, Central America (?); ANCEY, Nautilus xvii, p. 56 : n. spp.

## LIMACIDÆ, PHILOMYCIDÆ, and ZONITIDÆ.

- Notes on Russian slugs; SIMROTH (479).  
*Collingea*, critical notes on; GODWIN-AUSTEN (208).  
*Collingea eranna*, Borneo; COLLINGE, J. Malac. x, p. 80, fig.: n. sp.  
*Conulinus tener*, Molu; KOBELT, Nachrbl. Deutsch. malak. Ges. 1903, p. 91 : n. sp.  
*Damayantia*, critical notes on; GODWIN-AUSTEN (208).  
*Damayantia minima*, Malay Peninsula; COLLINGE, Fascic. Malay. Zool. ii, p. 206, fig.: *D. simrothi*, p. 79, *rugosa*, p. 80, Borneo; COLLINGE, J. Malac. x, figg.: n. spp.  
*Dyakia smithiana*, Sumatra; GUDE, J. Malac. x, p. 47, fig.: n. sp.  
*Fametesta mirabilis*, figd.; PILSBRY, Nautilus xvi, p. 137.  
*Guppya miamiensis*, Florida; PILSBRY, Nautilus xvii, p. 77: *G. micra*, Mexico; PILSBRY, P. Ac. Philad. 1903, p. 769, fig.: *G. fultoni*, Cocos I.; GUDE, P. Malac. Soc. London v, p. 265, fig.: n. spp.  
*Helicaron willeyana*, New Britain, p. 296, *woodwardi*, Loyalty Is., p. 298; GODWIN-AUSTEN, P. Malac. Soc. London v, figg.: n. spp.  
*Hemiplecta salangana*, n. var.; COLLINGE (108), p. 209: *H. densa*, n. var.; MARTENS, SB. Ges. naturf. Berlin 1903, p. 422.  
*Hirasea profundispira*, figd.; PILSBRY, Nautilus xvi, p. 137.  
*Hirasea planulata*, Japan; PILSBRY & HIRASE, op. cit. xvii, p. 45: n. sp.  
*Hirasiella clara*, figd.; PILSBRY, op. cit. xvi, p. 137.  
*Hyalinia chiatraensis*, Corsica; CAZIOT (82), p. 82: n. sp.  
*Isselentia*, critical notes on; GODWIN-AUSTEN (208).  
*Kaliella tongkingensis*, Mlldff., figd. with n. var.; BAVAY & DAUTZENBERG (32): *K. harimensis*, n. var.; PILSBRY & HIRASE, Nautilus xvii, p. 46: *K. prealta*, n. var.; PILSBRY & HIRASE, t. c. p. 54.  
*Kaliella nesiotica*, Japan; PILSBRY & HIRASE, t. c. p. 55: *K. ordinaria* (Ancey), Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 210, fig.: *K. xemica*, Japan; PILSBRY & HIRASE, Nautilus xvii, p. 32: *K. incensa*, Japan; PILSBRY & HIRASE, t. c. p. 46 : n. spp.  
*Limacidae*, locomotion; KÜNKELE (302).  
*Limax agrestis*, mucous threads; BALLERSTEDT (25): *L. flavus*, nest and eggs; ROEBUCK, Naturalist 1903, p. 319: *L. umbrosus*, Phil., is a valid species of *Amalia*; COLLINGE (106).  
*Macrochlamys perfragilis*, n. var.; PILSBRY & HIRASE, Nautilus xvi, p. 129.  
*Macrochlamys subconvallata*, doubtfully proposed for shell which may be *M. bathycharax*, Andamans; FULTON, J. Malac. x, p. 99, fig.: n. sp.  
*Martensia percivali*, E. Africa; SMITH, J. Conch. x, p. 317, fig.: n. sp.  
*Microcystina messageri* (Ancey), Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 207, fig.: *M. higashiyamana*, Japan; PILSBRY & HIRASE, Nautilus xvi, p. 129 : n. spp.  
*Microparmarion brunneopallenscens*, figd.; COLLINGE, J. Malac. x, p. 26.  
*Monochroma*, its relation to *Paralimax*; SIMROTH (479).  
*Omphalina montereyensis*, figd. with n. var.; PILSBRY, P. Ac. Philad. 1903, p. 767: *O. rugeli*, n. var.; VANATTA, Nautilus xvi, p. 106.  
*Omphalina martensiana*, Mexico; PILSBRY, P. Ac. Philad. 1903, p. 766, fig.: n. sp.

- Paravitrea*, critical notes with spp. figd., and n. var. of *V. capsella*; PILSBRY (411).
- Parmarion shelfordi*, Borneo; COLLINGE, J. Malac. x, p. 81, fig.: *P. malayana*, Malay Peninsula; COLLINGE, Fascic. Malay. Zool. ii, p. 206, fig. : n. spp.
- Philomycus fruhstorferi, dendriticus*, figd.; COLLINGE (105).
- Pristiloma japonica*, Japan; PILSBRY & HIRASE, Nautilus xvii, p. 79: n. sp.
- Sitala acutecarinata*, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 208, fig.: *S. nijimana*, Japan; PILSBRY & HIRASE, Nautilus xvii, p. 55 : n. spp.
- Trachycystis centrifuga, glebaria, laticostata, oreina*, p. 602, *patera, permeata, scolopendra*, p. 603, *simplex*, p. 604, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, figg. : n. spp.
- Vitrea helvetica, alliaris*, figd.;, WOODWARD (572).
- Vitrea rogersi*, England; WOODWARD, J. Conch. x, p. 310, fig.: n. sp.
- Vitrina* depositing eggs; CLAPP (95): *V. baringoensis*, habits; SMITH, P. Malac. Soc. London v, p. 310.
- Xesta sulcatula*, Obi; SYKES, J. Malac. x, pp. 64, 78, fig.: *X. dwipana*, Java; GUDE, P. Malac. Soc. London v, p. 264, fig. : n. spp.
- Xestina rugosissima*, I. Roma; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1903, p. 156 : n. sp.
- Zonites anthesi*, Asia Minor; KOBELT, Nachrbl. Deutsch. malak. Ges. 1903, p. 88 [also in ROSSMAESSLER (450), p. 69, fig.]: *Z. insignis*, Cilicia; NAEGELE, Nachrbl. Deutsch. malak. Ges. 1903, p. 169: *Z. nazius*, Greece; MARTENS, Arch. Naturg. lxix, p. 372, fig. : n. spp.
- Zonitoides cupido*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 601, fig. : n. sp.

## ARIONIDÆ.

- Arion empiricorum*, variation in colour of foot-fringe; COLLINGE (106).
- Zacoleus*, n. gen. for *Z. idahoensis*, n. sp., Idaho; PILSBRY, P. Ac. Philad. 1903, p. 626.

## ENDODONTIDÆ.

- Endodonta melbournensis, subdepressa, otwayensis, tamarensis*, figd.; HEDLEY (223).
- Helix rotundata*, sinistral; JACKSON, J. Conch. x, p. 284.
- Pyramidula elrodi*, notes on; ELROD, Nautilus xvi, p. 109: *P. strigosa*, notes on with n. var.; ELROD (169): *P. strigosa*, notes on; COCKERELL, Nautilus xvi, p. 106.
- Pyramidula victoriana*, Mexico; PILSBRY, P. Ac. Philad. 1903, p. 769, fig.: *P. (Gonyodiscus) ugandana, (G.) imitata, (G.) lamellifera*, E. Uganda; SMITH, J. Conch. x, p. 317, figg. : n. spp.
- Ranfurlya*, n. gen. for *R. constancea*, n. sp., Auckland Is.; SUTER, J. Malac. x, p. 62, fig.

## HELICIDÆ.

- Ambigua*, n. gen., type *Helix tetrazona*, Jan.; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 96.
- Ashmunella*, variation in; COCKERELL (104).
- Aulaca*, apparently n. gen. of *Helicidæ*, no type; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 89.
- Campylæa apfelbeckeri, pantheri*, figd.; KOBELT in ROSSMAESSLER (450).
- Campylæa wiedermayeri*, Tyrol; KOBELT in ROSSMAESSLER (450), p. 4, fig.: n. sp.

- Chloritis unguiculina*, Marts., *albodentata*, Smith, figd.; GUDE, J. Malac. x, p. 48: *C. waterstraati*, *obiana*, are synonyms of *Helix pubicepa*, Marts., and *H. obiensis*, Marts.; DAUTZENBERG (138).
- Chloritis romaensis*, I. Roma; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1903, p. 156: *C. echizenensis*, Japan; PILSBRY & HIRASE, Nautilus xvi, p. 116: *C. tosanus*, Japan; PILSBRY & HIRASE, t. c. p. 134; also op. cit. xvii, p. 31: *C. (Trichochloritis) tabularis*, Sumatra; GUDE, J. Malac. x, p. 48, fig.: n. spp.
- Cochlostyla delicatula*, loc. incert.; FULTON, J. Malac. x, p. 100, fig.: n. sp.
- Codringtonia*, n. gen. for *Helix codringtoni*, Gray; KOBELT, Studien zur Zoogeographie ii, pp. 208, 306 [omitted, 1898].
- Epiphragmophora turtoni*, note on; ANCEY, Nautilus xvii, p. 82.
- Epiphragmophora orophila*, Peru; ANCEY, t. c. p. 82: n. sp.
- Euhadra callizona*, *senckenbergiana*, figd.; PILSBRY, Nautilus xvi, p. 137.
- Eulota kiusiuensis*, n. var.; PILSBRY & HIRASE, Nautilus xvi, p. 115: *E. friedeliana*, n. var.; PILSBRY & HIRASE, t. c. p. 45: *E. quaesita*, p. 52, *connivens*, *submandarina*, p. 53, n. varr.; PILSBRY & HIRASE, t. c.: *E. lukwana*, n. var.; PILSBRY & HIRASE, op. cit. xvii, p. 78.
- Eulota (Euhadra) sadoensis*, Japan; PILSBRY & HIRASE, Nautilus xvi, p. 115: *E. (Coelorus) cavitectum*, Japan; PILSBRY & HIRASE, t. c. p. 134: *E. (Euhadra) euterpe*, (*Plectotropis*) *marginata*, p. 44, (*P.*) *conomphala*, p. 45, Japan; PILSBRY & HIRASE, op. cit. xvii: n. spp.
- Gaetulia*, n. gen. for *Helix raymondi*, M.-T.; KOBELT, Studien zur Zoogeographie ii, pp. 208, 357 [omitted, 1898, nom. præocc.].
- Ganesella procera*, Gude, figd.; GUDE, P. Malac. Soc. London v, p. 266: *G. cardiostoma*, n. var.; PILSBRY & HIRASE, Nautilus xvi, p. 116: *G. largillierti*, *myomphala*, figd.; PILSBRY, t. c. p. 137.
- Ganesella notoensis*, Japan; PILSBRY & HIRASE, t. c., p. 116: *G. moellendorffiana*, Japan; PILSBRY & HIRASE, op. cit. xvii, p. 78: n. spp.
- Helicella barbara*, on the so-called appendix; OVERTON (375).
- Helicigona arbustorum*, new two-banded var.; KEW (284).
- Helicostyla*, note on name; PILSBRY, Nautilus xvii, p. 58.
- Helicostyla (Calocochleas) talautana*, Talaut; GUDE, J. Malac. x, p. 49, fig.: n. sp.
- Helix*, monograph continued; KOBELT in MARTINI & CHEMNITZ (339): *H. pila*, n. n. for *H. pilula*, Locard nec Reeve, p. 172, *bonifaciensis*, n. n. for *H. jaspidea*, Mab. nec Pfr., p. 221; CAZIOT (82): *H. omissa*, Dtz., *obiensis*, Dtz., are synonyms of *H. obiensis*, Marts., and *H. piliscus*, Marts.; DAUTZENBERG (138): *H. adanensis*, n. var., *xerekia*, notes on; NÆGELE, Nachrbl. Deutsch. malak. Ges. 1903, p. 170: *H. pomatia*, breeding from sinistral specimens; KÜNKEL (303): *H. niciensis*, Fér., n. varr.; CAZIOT (85), pp. 13, 35: *H. pomatia*, notes on; NÆGELE, Nachrbl. Deutsch. malak. Ges. 1903, p. 24: *H. brocardi*, p. 124, *donata*, pp. 127 & 128, *erratica*, pp. 198-200, *halmyris*, p. 231, n. varr.; CAZIOT (82): Critical revision of French species; GRANGER (212); *H. pomatia*, olfactory sense; YUNG (586): *H. cincta*, p. 115, *ambigua*, n. subsp., *nucula*, p. 118, figd.; KOBELT in MARTINI & CHEMNITZ (339): *H. nemoralis* and *hortensis*, their association; PEARCE (390): WELCH (551): *H. aspersa*, parasite in genitalia; CONTE & BONNET (109): *H. pomatia*, habits; SPIESS (494): *H. pomatia*, kidney; STIASNY (508): *H. ligata*, p. 6, *fuvidensis*, p. 8, figd., *radiosa*, p. 68, *pomacella*, p. 70, n. varr.; KOBELT in ROSSMAESSLER (450): *H. subangulata*, Pfr., is a young *Planispira zonalis*; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 604: *H. pomatia*, spermatogenesis; PROWAZEK (434): *H. pyramidata*, n. var.; STURANY (509).
- Helix (Papuina) pseudolanceolata*, p. 11, (*P.*) *groulti*, p. 12, Obi I.; DAUTZENBERG, J. Conchyl. li, figg.: *H. (Eremina) fourtauvi*, Egypt; PALLARY, Bull. Inst. Egypt. ii, p. 242, fig.: *H. (Iberus) circeja*, pp. 89,



- 146, (*I. melii*), pp. 90, 146, Italy; KOBELT, Nachrbl. Deutsch. malak. Ges. 1903: *H. (Helicogena) pseudopomatia*, Syria, p. 150, (*H.*) *critica*, loc. incert., p. 151; KOBELT, t. c.: *H. (Pomatia) dorylaensis*, p. 172, (*Jacosta*) *subcalcarata*, p. 173, Asia Minor; NAEGELE, t. c.: *H. thomasinae*, p. 103, *bastitensis*, p. 105, *guittoni*, p. 106, *marcii*, p. 128, *venacensis* (Pollonera), p. 142, *submendranoi*, p. 167, *albovariegata*, p. 174, *scita*, p. 178, *tortaginiana*, p. 182, *duminyi*, p. 200, *restonica*, p. 202, *fertoni*, p. 204, *falcucci*, p. 207, *pseudohalmyris*, p. 231, Corsica; CAZIOT (82), all figg. except nos. six and seven: *H. (Iberus) gauri*, p. 9, (*I.*) *potentia*, p. 13, (*I.*) *basilicate*, (*I.*) *wullei*, p. 14, Italy, (*Pomatia*) *dorylaensis*, p. 15, Asia Minor, (*Iberus*) *circeja*, p. 62, (*I.*) *melii*, Italy; KOBELT in ROSSMAESSLER (450), figg.: *H. (Xerophila) dichesthemena*, Asia Minor; STURANY, SB. Ak. Wien cxi, p. 128, fig.: *H. (Chloritis) brachystoma*, p. 422, (*Planispira* ?) *semiquadrivolvis*, p. 423, East Borneo; MARTENS, SB. Ges. naturf. Berlin 1903: n. spp. *Iberus surrentinus*, Schmidt, seven n. varr.; KOBELT in ROSSMAESSLER (450).
- Isaurica*, n. sect. of *Helix*, type *H. praecellens*, Naegle; KOBELT, Iconogr. Europ. Moll. ix, p. 35, 1901 [omitted].
- Labyrinthus baeri*, n. var.; GUDE, P. Malac. Soc. London v, p. 262.
- Leptarionta venusta*, Panama; GUDE, t. c. p. 263, fig.: n. sp.
- Leucochroa insularis*, Btg., figd.; KOBELT in ROSSMAESSLER (450).
- Leucochroa arabica*, Egypt; FALLARY, Bull. Inst. Egypt. ii, p. 240, fig.: *L. liedtkei* [also in Nachrbl. Deutsch. malak. Ges. 1903, p. 145], p. 72, Algerian Sahara, *rugosa*, p. 73, Algeria; KOBELT in ROSSMAESSLER (450), figg.: n. spp.
- Macularia jordaniana*, *myristigmaea*, *punctata*, *hieroglyphicula*, figd. with n. varr.; KOBELT in ROSSMAESSLER (450).
- Macularia rifensis*, Morocco; KOBELT in ROSSMAESSLER (450), p. 37, fig.: n. sp.
- Mandarina mandarina*, figd.; PILSBRY, Nautilus xvi, p. 167.
- Massylaea*, n. sect. of *Helix* for *H. massylaea* and *punica*; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1898, p. 120 [omitted, non *Massyla*, Ad.].
- Mesodon exoleta*, sinistral; CALL, Nautilus xvi, p. 119.
- Papuina pseudosatumana*, Mlldff., is a synonym of *Helix piliscus*, Marts.; DAUTZENBERG, J. Conchyl. li, p. 14.
- Papuina callosa*, Halmahera, *wallaceana*, *pyrgus*, Waigiou; SYKES, J. Malac. x, pp. 65, 78, figg.: n. spp.
- Planispira quadrifasciata*, n. var.; GUDE, J. Malac. x, p. 48, fig.
- Planispira (Cristigibba) albopicta*, Halmahera and Obi; SYKES, J. Malac. x, pp. 64, 78, fig.: *P. buelowi*, Batchian; ROLLE, Nachrbl. Deutsch. malak. Ges. 1903, p. 23: n. spp.
- Plectotropis elegantissima*, figd.; PILSBRY, Nautilus xvi, p. 137.
- Polygyra profunda*, sinistral; BILLUPS, Nautilus xvi, p. 119: *P. supra-zonata*, *rhoadsii*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 763: *P. albolabris*, n. var., p. 200, *pilsbryi*, p. 201, *labrosa*, *uncifera*, p. 202, figd.; PILSBRY, t. c.
- Polygyra blandiana*, Missouri; PILSBRY, t. c. p. 203, fig.: n. sp.
- Pomatia frivaldskyi*, p. 147, loc. incert., *dickhauti*, Palestine?, p. 148, *sieversi*, Caucasus, *blumi*, Cilicia, p. 149; KOBELT, Nachrbl. Deutsch. malak. Ges. 1903: n. spp.
- Praticolella strebeliana*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 762.
- Sciaphila*, n. sect. of *Hygromanes*, type *Helix limbata*, Drap.; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 92.
- Sonorella walcottiana*, California; BARTSCH, P. Soc. Washington xvi, p. 103: n. sp.
- Spermodea*, n. sect. of *Aulaca* (q. v.), types *Helix lamellata*, Jeff., and *spermatia*, Castro; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 90.



- Tachea vindobonensis*, n. var.; WOHLBEREDT, Nachrbl. Deutsch. malak. Ges. 1903, p. 84.  
*Thersites supracostulata*, figd.; GUDE, J. Malac. x, p. 49.  
*Thersites (Badistes) meridionalis*, South Australia; GUDE, P. Malac. Soc. London v, p. 262, fig.: n. sp.  
*Thysanophora proxima*, figd., p. 763, with *T. tatei*, n. n. for *Helix blakeana*, Tate non Newc., p. 764; PILSBRY (415).  
*Thysanophora fischeri*, Mexico; PILSBRY, P. Ac. Philad. 1903, p. 763, fig.: n. sp.  
*Trishoplita lischkeana, mesogoni*, n. varr.; PILSBRY & HIRASE, Nautilus xvi, p. 135.  
*Tropidocochlis acitula*, p. 214, *conica*, p. 217, n. varr.; CAZIOT (82).  
*Xerophila rhabdota*, figd.; KOBELT in ROSSMAESSLER (450).  
*Xerophila (Jacosta) mortilleti*, Oran, Algeria; KOBELT in ROSSMAESSLER (450), p. 12, fig.: n. sp.

## BULIMIDÆ and BULIMULIDÆ.

- Amphidromus perukensis*, n. var.; COLLINGE (108), p. 211: *A. laevis, inconstans*, n. varr.; ROLLE, Nachrbl. Deutsch. malak. Ges. 1903, p. 157: *A. inconstans v. rollei*, n. var.; GUDE, J. Malac. x, p. 130: *A. martensi, adamsi*, n. varr. with figg.; MARTENS, SB. Ges. naturf. Berlin 1903, p. 425.  
*Amphidromus waterstraati*, Palawan; ROLLE, Nachrbl. Deutsch. malak. Ges. 1903, p. 156: n. sp.  
*Bulimulus (Drymaeus) nubilus*, Costa Rica; PRESTON, J. Malac. x, p. 4, fig.: *B. blanfordianus*, Bolivia; ANCEY, Nautilus xvii, p. 90: n. sp.  
*Odontostomus (Moricandia) toleratus*, Brazil; FULTON, J. Malac. x, p. 100, fig.: n. sp.  
*Porphyrobaphe galactostoma, victor* (of which *augusti*, Jouss., is a synonym), notes on; ANCEY (13).  
*Porphyrobaphe sarcostoma*, Colombia (?); ANCEY, Nautilus xvii, p. 83: n. sp.  
*Strophocheilus (Borus) separabilis*, Peru (?); FULTON, J. Malac. x, p. 100, fig.: n. sp.

## BULIMINIDÆ, UROCOPTIDÆ, and PUPIDÆ.

- Anisospira recticosta*, n. var.; PILSBRY in TRYON (535), xv, p. 299.  
*Anoma nitens*, p. 16, *levis*, p. 22, *nigrescens*, p. 40, n. varr.; PILSBRY in TRYON (535), xvi.  
*Anoma adamsi*, p. 11, *jarvisi*, p. 12, Jamaica; PILSBRY in TRYON (535), xvi, figg.: n. spp.  
*Archegocoptis*, n. gen., type *Cylindrella crenata*, W. & M.; PILSBRY in TRYON (535), xv, p. 301.  
*Boysidia messageri*, p. 211, *gereti*, p. 212, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, figg.: n. spp.  
*Brachypodella laterradii*, p. 56, *gouldiana*, p. 63, *alba*, pp. 104, 105, n. varr.; PILSBRY in TRYON (535), xvi.  
*Brachypodella (Brevipedella)*, n. subgen. *imitatrix*, Haiti, p. 47, *diminuta* (Ad.), Jamaica, p. 100; PILSBRY in TRYON (535), xvi, figg.: n. spp.  
*Brevipedella*, n. subgen. of *Brachypodella*, type *B. imitatrix*, n. sp.; PILSBRY in TRYON (535), xvi, p. 47.  
*Buliminide*, catalogue of the family; KOBELT & MOELLENDORFF (299): Some spp. figd.; STURANY (509): *B. andersonianus*, n. var.; PILSBRY & HIRASE, Nautilus xvi, p. 130: *B. passamaianus*, p. 112, n. var., *baylei*, n. n. for *Ernea balfouri*, G.-Aust., p. 114, *balfouri*, p. 122, n. var., with figg. of Sokotran species; SMITH (488): *B. kotschyi*,

- p. 26, *schweinfurthi*, p. 52, n. var.; KOBELT in ROSSMAESSLER (450): *B. balfouri*, G.-A., and *B. socotorensis*, Pfr., partial anatomy and radulae; GODWIN-AUSTEN (209), p. 171, figg.
- Buliminus* (*Napæus*) *armenicus*, p. 174, (*Brephulus*) *prusanus*, p. 175, Asia Minor; NAEGELE, Nachrbl. Deutsch. malak. Ges. 1903: *B. (Chondrula) werneri*, Asia Minor; STURANY, SB. Ak. Wien cxj, Abth. i, p. 134, fig.: *B. (Achatinelloides) mistus*, p. 120, (*A.*) *densicostulatus*, p. 121, Sokotra; SMITH (488), figg.: *B. (Pachmodus) burnupi*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 605, figg. : n. spp.
- Cerastus dinshawi*, Aden; SYKES, P. Malac. Soc. London v, p. 338, fig.: *C. amatia*, Schedama, p. 33, *ellerbecki*, Ginir, *moellendorffi*, Schoa, p. 34, *daroliensis*, River Darol, p. 35; KOBELT, Nachrbl. Deutsch. malak. Ges. 1903 : n. spp.
- Chondrulus heptodon*, figd.; PALLARY (380): *C. kollyi*, Retowski, figd.; KOBELT in ROSSMAESSLER (450), p. 35.
- Clausilia porroi*, n. var.; CAZIOT (82), p. 288: *C. martensi*, figd.; PILSBRY, Nautilus xvi, p. 137: *C. shikokuensis*, p. 316, *bilabrata*, p. 318, *japonica*, p. 319, n. varr.; PILSBRY, P. Ac. Philad. 1903: *C. bicarinata*, n. var.; NAEGELE, Nachrbl. Deutsch. malak. Ges. 1903, p. 176: *C. duella*, Mab., figd.; BAVAY & DAUTZENBERG (32).
- Clausilia auregani*, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 213, fig.: *C. [as Clusilia, err. typ.] filialis*, East Borneo; MARTENS, SB. Ges. naturf. Berlin 1903, p. 425: *C. (Hemiphaedusa) sadoensis*, p. 315, (*H. sus*, (*H.*) *aratorum*, p. 316, (*H. cenea*, p. 317, (*H.*) *platyderula*, (*Stereophaedusa*) *echigoensis*, p. 318, Japanese Empire; PILSBRY, P. Ac. Philad. 1903, figg. : n. spp.
- Colocion*, n. subgen. of *Perrieria* for *P. australis*, Forbes; PILSBRY in TRYON (535), xvi, p. 190.
- Eua* should replace *Buliminus*; WOODWARD (571).
- +*Eomegaspira*, n. gen., type *Megaspira exarata*, (Michaud) Desh.; PILSBRY in TRYON (535), xvi, p. 187.
- Epirobia (Gyrocion) mirabilis*, Mexico; PILSBRY, P. Ac. Philad. 1903, p. 765, fig. : n. sp.
- Fauxulus crawfordianus*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 605, fig. : n. sp.
- Fibricutis*, n. sect. of *Urocoptis* for *U. scabrosa* (Gundl.), Pfr.; PILSBRY in TRYON (535), xv, p. 186.
- Gyraxis*, n. subgen. of *Brachypodella*, type *B. brooksiana* (Gundl.), Pfr.; PILSBRY in TRYON (535), xvi, p. 58.
- Gyrocion*, n. subgen. of *Urocoptidae*, type *Epirobia mirabilis*, n. sp.; PILSBRY, P. Ac. Philad. 1903, p. 765.
- Lauria umbilicata*, n. var.; CAZIOT (82), p. 278.
- Liparotes*, n. subgen. of *Brachypodella*, type *B. obesa*, W. & M.; PILSBRY in TRYON (535), xvi, p. 56.
- Macroceramus signatus*, p. 122, *richaudi*, pp. 124, 125, *tenuiplicatus*, p. 128, n. varr.; PILSBRY in TRYON (535), xvi.
- Macroceramus gabbi*, p. 125, *subcylindricus*, p. 134, Haiti; PILSBRY in TRYON (535), xvi, figg.: n. spp.
- Megaspiridae*, review of, with n. var. of *M. elatior*; PILSBRY in TRYON (535).
- Microceramus* forms a new subfamily, with n. varr. of *M. gosseii*, p. 161, *petitianus*, p. 166; PILSBRY in TRYON (535), xvi.
- Paracallonia*, n. sect. of *Urocoptis*, type *U. albocrenata*, (Gundl.) Pfr.; PILSBRY in TRYON (535), xv, p. 197.
- Pupa*, critical notes on name; WOODWARD (573): *P. sardoa*, Cantr., note on; E. M. (164).
- Simplicervix*, n. subgen. of *Brachypodella*, type *B. inornata*, Ad.; PILSBRY in TRYON (535), xvi, p. 94.

- Siphonolemus*, n. subgen. of *Brachypodella*, type *B. minuta*, (Gundl.) Pfr.; PILSBRY in TRYON (535), xvi, p. 58.
- Speleoconcha paganetti*, Sturany, figd.; KOBELT in ROSSMAESSLER (450), p. 23.
- Spirostemma belleuensis*, n. n. for *Cylindrella propinqua*, Vendryes nec Arango; PILSBRY in TRYON (535), xv, p. 288.
- Spirostemma ipswichensis*, Jamaica; PILSBRY in TRYON (535), xv, p. 291, fig.: n. sp.
- Tetrentodon*, n. sect. of *Urocoptis*, type *U. plicata*, Poey; PILSBRY in TRYON (535), xv, p. 267.
- Thaumasia*, ? n. gen., type *Buliminus goebeli*, West.; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 104 [nom. præocc.].
- Urocoptidæ*, monograph completed, with n. varr. of *U. baquieana*, p. 142, *soverbyana*, p. 163, *poeyana*, p. 179, *humboldtiana*, p. 193, *discors*, p. 250, *rugeli*, p. 276, *bahamensis*, p. 280; PILSBRY in TRYON (535), xv.
- Urocoptis oligomesus*, p. 207, *fraterna*, p. 228, *gonzalesi*, *joaquinii*, p. 248, *diaphana* (Wright), p. 251, *baculum*, p. 265, *ischna*, p. 271, Cuba; PILSBRY in TRYON (535), xv, figg.: n. spp.

## STENOGYRIDÆ and ACHATINELLIDÆ.

- Achatina parthenia*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 605, fig.: n. sp.
- Achatinella*, popular notes on; MANGER, P. South London Soc. 1902, p. 1.
- Amastra henshawi*, *saxicola*, Hawaii; BALDWIN, Nautilus xvii, p. 34 : n. spp.
- Gomphroa*, n. sect. of *Zua*, type *Z. boissyi*, Dupr.; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 114.
- Hypolysia florentie*, figd.; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 596.
- Leptachatina henshawi*, Hawaii; SYKES, J. Malac. x, p. 2, fig.: n. sp.
- Leptinaria tamaulipensis*, Mexico; PILSBRY, P. Ac. Philad. 1903, p. 776, fig.: n. sp.
- Limicolaria keniana*, E. Africa; SMITH, J. Conch. x, p. 318, fig.: n. sp.
- Opeas rhoadsæ*, *odiosum*, *patzcuarensis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 775.
- Opeas mcbeani*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 604, fig.: *O. lenta*, *venusta*, E. Uganda; SMITH, J. Conch. x, p. 319, figg.: n. spp.
- Plicaxis*, n. gen. for *Rhodina* (?) *mirabilis*, probably equalling *Rhodina*, de Morgan nec Guénee; SYKES, J. Malac. x, p. 1.
- Prosopeus macilentum* (Aucey), Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 220, fig.: n. sp.
- Pseudosubulina berendti*, *texoloensis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 774.
- Rhodina*, de Morgan, see under *Plicaxis*.
- Spiraxis uruapamensis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 775.
- Spiraxis* (?) *borealis*, Mexico; PILSBRY, P. Ac. Philad. 1903, p. 775, fig.: *S. pilsbryi* (Aucey), p. 218, *permira* (Aucey), p. 219, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, figg.: n. spp.
- Stenogyra*, Sokotran species figd.; SMITH (488).
- Subulina uncta*, East Africa, p. 318, *dohertyi*, p. 319, E. Uganda; SMITH, J. Conch. x, figg.: n. spp.
- Tornatellina kitaiwojimana*, Japan; PILSBRY & HIRASE, Nautilus xvii, p. 53 : n. sp.



## SUCCINEIDÆ and VERONICELLIDÆ.

- Aneitia*, account of the genus; GLAMAN (205).  
*Aneitella*, account of the genus; GLAMAN (205).  
*Atopus maximus*, Malay Peninsula; COLLINGE, Fascic. Malay. Zool. ii, p. 213, fig.: *A. shelfordi*, Borneo; COLLINGE, J. Malac. x, p. 82, fig.: n. spp.  
*Succinea Italpamensis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 776.  
*Succinea sokotrensis*, Sokotra; SMITH (488), p. 112, fig.: n. sp.  
*Veronicella fruhstorferi, himerta*, figd.; COLLINGE, J. Malac. x, p. 17.

## BASOMMATOPHORA.

## LIMNÆIDÆ and PHYSIDÆ.

- Classification of the Basommatophora; DYBOWSKI (162).  
*Ameria obtiana*, Obi; ROLLE, Nachrbl. Deutsch. malak. Ges. 1903, p. 23: n. sp.  
*Ancylus*, æstivation; NORDENSKIÖLD (370): On Eastern North American species; WALKER (547).  
*Ancylus kirklandi*, Eastern North America; WALKER, Nautilus xvii, p. 29, fig.: *A. guidoni*, p. 271, *letteroni*, p. 272, Corsica; CAZIOT (82), figg.: *A. (Ferrissia) gordonensis*, p. 606, (*F. stenochorias*, p. 607, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, figg.: n. spp.  
*Diplodiscus*, n. n. for *Gyrorbis*, Agassiz non Fitz.; WESTERLUND, Act. Soc. Faun. Fenn. xiii, No. 7, p. 115, 1898 [omitted].  
*Ferrissia*, n. sect. of *Ancylus*, type *A. rivularis*, Say; WALKER, Nautilus xvii, p. 15.  
*Gyrorbis*, Agassiz, renamed *Diplodiscus*, q.v.  
*Heterodiscus*, n. sect. of *Planorbis*, type *P. libanicus*, West.; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 120.  
*Isidora compta*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 606, fig.: n. sp.  
*Lævaper*, n. sect. of *Ancylus*, type *A. fuscus*, Ads.; WALKER, Nautilus xvii, p. 15.  
*Limnæa peregra*, n. var.; SELL, Nachrbl. Deutsch. malak. Ges. 1903, p. 106: *L. auricularia, peregra*, n. varr.; DYBOWSKI (163): *Limnæa peregra*, p. 248, *truncatula*, p. 258, n. varr., with *L. parva*, n. n. for *L. parvula*, Locard nec Haz., p. 252; CAZIOT (82).  
*Limnæa sikenbergerei*, Egypt; PALLARY, Bull. Inst. Egypt. ii, p. 243, fig.: *L. hawaiiensis*, Hawaiian Is.; PILSBRY, P. Ac. Philad. 1903, p. 790, fig.: *L. aradasi* (Brgt.), Corsica; CAZIOT (82), p. 256, fig.: n. spp.  
*Miratesta schmalziana*, Obi; ROLLE, Nachrbl. Deutsch. malak. Ges. 1903, p. 23: n. sp.  
*Omphalotimus*, n. subgen. of *Limnæa* for *O. lagorii*, n. sp. [nom. nud.]; DYBOWSKI, Nachrbl. Deutsch. malak. Ges. 1903, p. 143.  
*Physa* occurs in the Hawaiian Islands; DALL (128): *P. subopaca*, n. var. figd.; PALLARY (381).  
*Physa zuluensis*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 606, fig.: n. sp.  
*Planorbis*, embryonic shell; VAN STONE (538): *P. vortex*, self-fecundation; CHADWICK (86): *P. maroticus*, Let., figd.; PALLARY (381): *P. philippianus* (Monts.), n. n. for *P. subangulatus*, Phil. nec L.; CAZIOT (82), p. 262.  
*Planorbis moellendorffi*, Kamtschatka; DYBOWSKI, Annuaire Mus. St. Petersb. viii, p. 46, fig.: *P. leucochilus*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 607, fig.: *P. magnificus*, North Carolina; PILSBRY, Nautilus xvii, p. 75: n. spp.



## SIPHONARIIDÆ.

*Siphonaria nigerrima, tenuicostulata*, S. Africa; SMITH, P. Malac. Soc. London v, p. 356, figg. : n. spp.

## OPISTHOBRANCHIATA.

## NUDIBRANCHIATA.

- Nematocysts in Nudibranchs; GLASER (206).  
 Nudibranchs from Gulf of Naples; MAZZARELLI (346).  
 Notes on some families of Nudibranchs; ELIOT (167).  
*Beolidia major*, Zanzibar; ELIOT, P. Zool. Soc. London 1903, i, p. 252 : n. sp.  
*Ceratophyllidia*, n. gen. for *C. africana*, n. sp., Wasin, E. Africa; ELIOT, t. c. p. 250.  
*Cerberilla africana*, Zanzibar; ELIOT, t. c. p. 254 : n. sp.  
*Coryphella stimpsoni*, n. var., with radula; KNIPOWITSCH, Annuaire Mus. St. Petersb. vii, p. 391.  
*Dictyodoris maculata*, Maldive Is.; ELIOT (167), p. 556 : n. sp.  
*Doridomorpha*, n. gen. for *D. gardineri*, n. sp., Rotuma I.; ELIOT (167), p. 544, fig.  
*Doris beaumonti*, West of Ireland; FARRAN, Rep. Fish. Ireland for 1901, Part ii, p. 126, fig. : n. sp.  
*Ercolania zanzibarica*, Zanzibar; ELIOT, P. Zool. Soc. London 1903, i, p. 256 : n. sp.  
*Hernæa minor*, Bgh., figd.; ELIOT (167), p. 571.  
*Hexabranchnus digitatus*, Maldive Is.; ELIOT (167), p. 546 : n. sp.  
*Notodoris gardineri*, Maldive Is.; ELIOT (167), p. 548, fig. : n. sp.  
*Pleuroleura waltheri*, figd.; KNIPOWITSCH (290).  
*Pleurophyllidiella*, n. gen. for *P. horatii*, n. sp., Wasin, E. Africa; ELIOT, P. Zool. Soc. London 1903, i, p. 251.  
*Stauodoris pecten*, Maldive Is.; ELIOT (167), p. 557 : n. sp.  
*Tergipes antarcticus*, Antarctic; PELSENER (391), p. 15, fig. : n. sp.  
*Tritonia palmeri*, notes on; COCKERELL, Nautilus xvi, p. 117.

## TECTIBRANCHIATA (including PTEROPODA).

- Actæon æthiopicus*, figd.; MARTENS (331), p. 129.  
*Actæon (Rictaxis) painei*, California; DALL, P. Soc. Washington xvi, p. 172 : n. sp.  
*Aplysia*, maturation and fertilization of the egg; BOCHENEK (57).  
*Atys millepunctatus*, figd.; MARTENS (331), p. 15.  
*Atys (Roxania) lithensis*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 235, fig. : *A. flavovirens*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 321, fig. : n. spp.  
*Cheledonura hirundinina*, n. var.; ELIOT, P. Malac. Soc. London v, p. 336.  
*Cheledonura varians*, p. 335, *philinopsis*, p. 336, Zanzibar; ELIOT, t. c. : n. spp.  
*Clione punctata*, hab. not stated; TESCH, Tijdschr. Nederland. Dierk. Ver. viii, p. 116 : n. sp.  
*Clionopsis microcephalus*, hab. not stated; TESCH, t. c. p. 115 : n. sp.  
*Cryptophthalmus minikoensis*, Maldive Is.; SMITH (487), p. 600, fig. : n. sp.  
*Cylichna bizona*, Ad., figd.; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 320.  
*Cylichna thetidis*, p. 395, *protumida*, p. 396, New South Wales; HEDLEY, Mem. Austral. Mus. iv, figg. : *C. jecoralis*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 320, fig. : n. spp.

- Cylindrobulla fischeri*, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 604.
- Cymbulia peronii*, on the ripening and fructification of the egg; NEKRASSOFF (365).
- Cymbulia sibogæ*, hab. not stated; TESCH, Tijdschr. Nederland. Dierk. Ver. viii, p. 113: n. sp.
- Cymbulioopsis intermedia*, hab. not stated; TESCH, t. c. p. 113: n. sp.
- Doridium*, notes on, with special reference to *D. pilsbryi* and *cyaneum*; ELIOT (165).
- Doridium gardineri*, Rotuma, p. 332, *reticulatum*, E. Africa, fig., p. 335; ELIOT, P. Malac. Soc. London v: n. spp.
- †*Eosinica*, n. sect. of *Umbraculum* for *U. elevatum*, n. sp., Eocene, Alabama; ALDRICH, Nautilus xvii, p. 19, fig.
- Kleinella sympiasta*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 320, fig.: n. sp.
- Odotomiopsis*, n. gen. for *O. typica*, p. 68, *circumrosa*, p. 69, n. spp., Kerguelen; THIELE in MARTENS (331): Anatomy; THIELE (527). [Probably a Tectibranch.]
- Oxyne natalensis*, S. Africa; SMITH, P. Malac. Soc. London v, p. 359, fig.: n. sp.
- Paradione*, n. gen. for *P. pelseneeri*, n. sp., hab. not stated; TESCH, Tijdschr. Nederland. Dierk. Ver. viii, p. 117.
- Peracis rissoides*, p. 111, *moluccensis*, p. 112, hab. not stated; TESCH, t. c. n. spp.
- Philine teres*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 398, fig.: n. sp.
- Pneumonoderma heterocotylum*, p. 114, *pygmæum*, p. 115, hab. not stated; TESCH, Tijdschr. Nederland. Dierk. Ver. viii: n. spp.
- Retusa omanensis*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 321, fig.: n. sp.
- Ringicula æthiopica*, figd.; MARTENS (331), p. 129.
- Scaphander cancellatus*, figd.; MARTENS (331), p. 131.
- Schizobrachium*, n. gen. for *S. polycotylum*, n. sp., Indian Ocean; MEISENHEIMER, Zool. Anz. xxvi, p. 410, fig.
- Tornatina exserta*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 393, fig.: n. sp.
- Utricularius tomlinianus*, Scotland; MARSHALL (330), p. 35: n. sp.
- Volvula flavotincta*, radula; THIELE (527).
- Volvula flavotincta*, East Africa; MARTENS (331), p. 130, fig.: *V. rostrata*, p. 394, *tragula*, p. 395, New South Wales; HEDLEY, Mem. Austral. Mus. iv, figg.: n. spp.

## NUCLEOBRANCHIATA.

- Carinaria*, renal organ; FAHRINGER (174).
- Pterotrachea*, its auditory organ; RETZIUS (441).

## PROSOBRANCHIATA.

### PECTINIBRANCHIATA.

#### TOXOGLOSSA.

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

- Acus*, renamed *Oxymeris*, q.v.
- Bathytoma biconica*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 385, fig.: n. sp.

- Bela gigantea*, *woodiana*, radula; KNIPOWITSCH (290).  
*Borsonia epigona*, figd.; MARTENS (331), p. 91.  
*Brachytoma griffithi*, radula; THIELE (527); *B. subsuturalis*, figd.; MARTENS (331), p. 85.  
*Cancellaria verreauxi*, radula; THIELE (527); *C. scalurina*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 253.  
*Cancellaria (Trigonostoma) lusciniæ*, off Bombay; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 319, fig.: *C. producta*, South Africa; SOWERBY (492), p. 220, fig.: n. sp.  
*Clathurella anceps*, n. var.; MARSHALL (330), p. 18; *C. tineta*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 251.  
*Clathurella dichroma*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 252, fig.: *C. lowei*, California; DALL, P. Soc. Washington xvi, p. 172; *C. opsimathes*, Persian Gulf, *sykesii*, Gulf of Oman, p. 314, *quisquilia*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, figg.: n. spp.  
*Clavatula subspirata*, figd.; MARTENS (331), p. 6.  
*Columbarium*, spp. figd.; MARTENS (331).  
*Conus*, critical notes on several species; SMITH (487): *C. torquatus*, figd.; MARTENS (331), p. 75; *C. nicholii*, Wilson, is a synonym of *C. prometheus*; ANON., Nautilus xvi, p. 143; *C. aculeiformis*, *planiliratus*, n. varr.; STURANY, Denk. Ak. Wien lxxiv, p. 227.  
*Conus boubeceæ*, loc. incert.; SOWERBY, J. Malac. x, p. 76, fig.: *C. eucononatus*, *gilchristi*, p. 217, *patens*, p. 218, South Africa; SOWERBY (492), figg.: n. spp.  
*Cythara elegantissima*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 319, fig.: n. sp.  
*Daphnella angasi*, n. n. for *Clathurella sculptilis*, Ang., with fig. of the sp. and also of *Cl. brencchleyi*, Ang., *brazieri*, Ang.; HEDLEY (224): *D. ticaonica*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 252.  
*Daphnella vestalis*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 390, fig.: *D. (Pleurotomella) nereidum*, p. 315, (*P.*) *amphitrites*, *thygatrica*, Gulf of Oman, *thia*, Persian Gulf and Gulf of Oman, p. 316, *buccinulum*, *epicharia*, p. 317, *hedya*, Persian Gulf, *euphrosyne*, Gulf of Oman, p. 318; MELVILL & STANDEN, Ann. Nat. Hist. xii, figg.: n. spp.  
*Drillia howitti*, Pritch. & Gatliff, is a synonym of *D. woodsi*, Bedd., with *D. prosuavis*, n. n. for *D. suavis*, Smith, and figg. of that sp. and *multilirata*, Sm., and *tricarinata*, Ten.-Woods; HEDLEY (224): *D. elachistoma*, p. 81, *bisinuata*, p. 82, figd.; MARTENS (331).  
*Drillia sesquitertia*, East Africa; MARTENS (331), p. 82, fig.: *D. dilecta*, *nenia*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 387, figg.: *D. dives*, Persian Gulf and Gulf of Oman, *philotina*, p. 311, *continua*, *granatella*, p. 312, *lithoria*, Persian Gulf, *audax*, Gulf of Oman, p. 313; MELVILL & STANDEN, Ann. Nat. Hist. xii, figg.: n. spp.  
† *Exechoptychia*, n. gen., type *Cancellaria conradiana*, Dall, Pliocene; COSSMANN (112), p. 189.  
*Genota*, several spp. figd.; MARTENS (331).  
*Leucosyrinx*, spp. figd.; MARTENS (331): *L. vepallida*, radula; THIELE (527).  
*Leucosyrinx recta*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 386, fig.: n. sp.  
*Mangilia rubida*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 251.  
*Mangilia (Eucythara) africana*, South Africa; SOWERBY (492), p. 216, fig.: *M. fancheræ*, California; DALL, P. Soc. Washington xvi, p. 172; *M. pertabulata*, p. 231, (*Glyphostoma*) *epicharis*, p. 251, Red Sea; STURANY, Denk. Ak. Wien lxxiv, figg.: *M. comideleuca*, Persian Gulf; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 313, fig.: *M. descendens*, West Africa, p. 7, (*Cithara*) *verhoffeni*, Indian Ocean West of Sumatra, p. 91; MARTENS (331), figg.: n. spp.



- †*Microdrillia*, n. gen. for *Pleurotoma infans*, Meyer, and others; CASEY, P. Ac. Philad. 1903, p. 276.
- Oxymeris*, n. n. for *Acus*, nom. preocc.; DALL, P. U. S. Mus. xxvi, p. 951 (footnote).
- †*Phandella*, n. gen. for *P. nepionica*, n. sp., Tertiary, Vicksburg; CASEY, P. Ac. Philad. 1903, p. 272.
- Pleurotoma*, several spp. figd.; STURANY (510): *P. carinata, talismani*, radula; THIELE (527): *P. brachystoma*, n. var.; MARSHALL (330), p. 23: *P. chuni* is a *Pontiothauma*, with fig., p. 86, and spp. figd.; MARTENS (331).
- Pleurotoma* (?) *beblammena*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 231, fig.: *P. vepratrica*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 384, fig.: *P. (Gemmula) navarchus*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 310, fig.: *P. (Spirotropis) smithi*, loc. not stated [? W. America]; ARNOLD, Mem. Calif. Ac. iii, p. 216, fig.: *P. (Surcula) lobata*, p. 213, (*Drillia*) *fossata*, (*D.*) *scitecostata*, p. 214, (*Clavatula*) *turriplana*, (*Clavus*) *lignaria*, p. 215, (*Genotia*) *belaeformis*, p. 216, South Africa; SOWERBY (492), figg.: n. spp.
- Pontiothauma mirabile* and *P. abyssicola*, Smith, anatomy; PACE (378).
- Spirotropis limula*, New Amsterdam; MARTENS (331), p. 61, fig.: n. sp.
- Surcula*, some spp. figd.; MARTENS (331).
- Surcula exstructa*, Indian Ocean near Nicobars; MARTENS (331), p. 81, fig.: n. sp.
- Terebra casta*, n. var.; SMITH, P. Malac. Soc. London v, p. 360: *T. andamanica*, Melv. & Sykes, is a synonym of *T. amæna*, Desh.; SMITH (487), p. 603: *T. assimilis*, Angas, is a synonym of *T. fictilis*, Hinds; HEDLEY, Mem. Austral. Mus. iv, p. 384.
- Terebra helichrysum*, Persian Gulf; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 310, fig.: *T. loise*, S. Africa; SMITH, P. Malac. Soc. London v, p. 360, fig.: n. sp.
- Trophon hanleyi, australis, assisi, squamosissima*, are all forms of *Kalydon paive*, Crosse; HEDLEY, Mem. Austral. Mus. iv, p. 380.

## RACHIGLOSSA.

## OLIVIDÆ, MARGINELLIDÆ, VOLUTIDÆ, and MITRIDÆ.

- Ancilla contusa*, Rve., figd.; SOWERBY (492).
- Ancillaria lanceolata*, radula; THIELE (527): *A. hasta*, p. 37, *lanceolata*, p. 110, figd.; MARTENS (331).
- Cylindra crenulata*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 245.
- Fusivoluta anomala*, figd., and *Fusus pyrrostomus* belongs here; MARTENS (331), p. 107: *F. anomala, pyrrostoma*, radula; THIELE (527).
- Marginella picturata*, Nev., note with fig.; SMITH (487), p. 604: *M. zeyheri*, p. 34, *reevei*, p. 35, *multizonata*, p. 36, figd.; MARTENS (331): *M. ventricosa*, n. n. for *M. ovuleformis*, Tate and May, with note that *M. valida*, Watson, *stanislas*, Ten.-Woods, are respectively synonyms of *laevigata*, Braz., *mustelina*, Ang.; HEDLEY (224): *M. gigas*, radula; THIELE (527).
- Marginella fischeri*, loc. incert.; BAVAY, J. Conchyl. I, p. 407, fig.: *M. kemblensis*, p. 365, *stilla*, p. 367, New South Wales; HEDLEY, Mem. Austral. Mus. iv, figg.: *M. (Glabella) alchymista*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 309, fig.: *M. (Marginellona)*, n. subgen.) *gigas*, Indian Ocean off the Nicobars; MARTENS (331), p. 108, fig.: *M. fallax*, S. Africa; SMITH, P. Malac. Soc. London v, p. 365, fig.: *M. (Glabella) lateritia*, Andaman Is.; MELVILL & SYKES, t. c. p. 410, fig.: n. spp.



- Marginellona*, n. subgen. of *Marginella* for *M. gigas*, n. sp.; MARTENS (331), p. 108.
- Melo diadema*, neanic stage; KESTEVEN (283): *M. indicus*, nepionic shell; WOODWARD (569).
- Mitra triplicata*, radula; THIELE (527): *M. tenuis*, n. var., p. 244, *amabilis*, figd., p. 245; STURANY (510).
- Mitra* (*Pheomitra*) *triplicata*, East Africa; MARTENS (331), p. 106, fig.: *M. (Costellaria) angustissima*, Maldives Is.; SMITH (487), p. 605, fig.: *M. lowei, dolorosa*, California; DALL, P. Soc. Washington xvi, p. 173: *M. (Thala?) gonatophora*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 225, fig.: *M. (Costellaria) diaconalis*, Persian Gulf; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 308, fig.: n. spp.
- Mitromorpha intermedia*, W. America (?); ARNOLD, Mem. Calif. Ac. iii, p. 223, fig.: n. sp.
- Neptuneopsis*, radula; THIELE (527).
- Oliva*, notes on the determination of species; BRIDGEMAN (67).
- Oliva rubrolabiata*, New Hebrides; FISCHER, J. Conchyl. l, p. 409, fig.: *O. rufofulgurata*, p. 67, Bima, West coast of New Guinea, Celebes, Kei Is., *dubia*, Madura Strait, N. Celebes, and Kei Is., *ceramensis*, p. 68, Ceram; SCHEPMAN, Tijdschr. Nederland. Dierk. Ver. viii : n. spp.
- Voluta abyssicola*, radula; THIELE (527): *V. minima*, Sby., is a synonym of *Microvoluta australis*, Ang.; HEDLEY, Mem. Austral. Mus. iv, p. 371.
- Voluta epigona*, East Africa; MARTENS (331), p. 106, fig.: *V. dohrnii*, [Gulf of Mexico], p. 74, (*Lyria planicostata*, loc. incert., p. 75; SOWERBY, J. Malac. x, figg. : n. spp.

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

- Antimurex*, n. n. for *Crassilabrum*, Jouss. nec Megerle; COSSMANN (112), p. 12.
- Buccinum ovum, ciliatum*, figd.; KNIPOWITSCH (290).
- Bullia tenuis*, radula; THIELE (527).
- Cantharus fumosus*, p. 221, *puncticulatus*, p. 242, figd.; STURANY (510).
- Chlanidota vestita*, radula; THIELE (527).
- †*Cochlespirella*, n. gen. for *Fusus nanus*, Lea, *insignifica*, Heilprin; CASEY, P. Ac. Philad. 1903, p. 279.
- Columbella*, on New Caledonian species, with *C. hervieri*, n. n. for *C. peasei*, p. 420; PACE (377): Revision of Persian Gulf and North Arabian Sea species; MELVILL (348): Several spp. figd.; STURANY (510): *C. solidula*, n. var.; ARNOLD, Mem. Calif. Ac. iii, p. 236.
- Columbella* (*Nitidella*) *seychellarum*, Seychelles; MARTENS (331), p. 105, fig.: *C. calliope*, Bombay; MELVILL, J. Malac. x, p. 29, fig.: n. spp.
- Coralliophilidæ*, classification; COSSMANN (112).
- Crassilabrum*, Jouss., renamed *Antimurex*, q. v.
- Engina natalensis*, Melv., is a synonym of *E. perlata*, Küster; SMITH, P. Malac. Soc. London v, p. 372.
- Eupleura muriciformis*, n. var.; ARNOLD, Mem. Calif. Ac. iii, p. 248.
- Euthria eburnea*, Sby., is a synonym of *Peristernia leucothea*; SMITH, P. Malac. Soc. London v, p. 369.
- Euthria pura*, South Africa; MARTENS (331), p. 25, fig.: n. sp.
- Fascinus*, n. gen. for *F. typicus*, n. sp., New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 375, fig.
- Fasciolaria rutila*, figd. with radula; SOWERBY (492).
- Fulgur*, phylogeny; GRABAU (211): Critical notes on genus; JOHNSON (262): *F. africanus*, Sby., is a *Fusus*, with fig.; SMITH, P. Malac. Soc. London v, p. 368.

- Fusus*, radula of several spp.; THIELE (527): *F. pyrrothostomus*, Watson, is a *Neptuneopsis*, with radula; SOWERBY (492): *F. pyrrothostomus*, Watson, is a *Fusivoluta* [cf. *Volutidae*], with fig., p. 32, n. var. of *F. verrucosus*, p. 101, and spp. figd.; MARTENS (331): *F. turtoni*, n. var.; SIMPSON (478): *F. bifrons*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 220.
- Fusus waitei*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 373, fig.: n. sp.
- †*Hexacorda*, n. subgen. of *Hadriania*, type *Murex tenellus*, Mayer, Miocene; COSSMANN (112), p. 47.
- Lachesis* (?) *australis*, Kerguelen; MARTENS (331), p. 62, fig. [Radula; THIELE (527)]: n. sp.
- †*Levityphis*, n. sect. of *Typhis*, type *T. coronarius*, Desh., Eocene; COSSMANN (112), p. 59.
- Latiaxis rosaceus*, S. Africa; SMITH, P. Malac. Soc. London v, p. 376, fig.: n. sp.
- Latirus imbricatus*, Sby., is a synonym of *L. abnormis*; SMITH, t. c. p. 369; SOWERBY (492).
- Latirus singularis*, loc. incert.; SOWERBY, J. Malac. x, p. 74, fig.: n. sp.
- Macron*, notes on genus and species; MELVILL (349): SMITH (484).
- Melapium lineatum*, radula; THIELE (527).
- Metula daphnelloides*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 307, fig.: n. sp.
- Metzgeria californica*, California; DALL, Nautilus xvii, p. 51: n. sp.
- Muricidea*, classification; COSSMANN (112): *M. contractus*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 238: *M. marcoensis*, Sby., is a variety of *M. messorius*; BAKER, Nautilus xvii, p. 88.
- Murex* (*Ocenebra*?) *painei*, California; DALL, P. Soc. Washington xvi, p. 174: *M. gallinago*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 496: *M. damicornis*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 378, fig.: *M. (Ocenebra) marjorieae*, Persian Gulf; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 308, fig.: *M. submissus*, Maldive Is.; SMITH (487), p. 609, fig.: n. spp.
- Nassa*, spp. figd.; MARTENS (331): Several spp. figd.; STURANY (510): *N. circumtexta*, *babylonica*, radula; THIELE (527): *N. versicolor*, n. var.; ARNOLD, Mem. Calif. Ac. iii, p. 236.
- Nassa (Amycla) circumtexta*, South Africa; MARTENS (331), p. 27, fig.: *N. natalensis*, S. Africa; SMITH, P. Malac. Soc. London v, p. 373, fig.: *N. optima*, N.W. Australia; SOWERBY, J. Malac. x, p. 73, fig.: *N. desmoulioides*, *analogica*, South Africa; SOWERBY (492), p. 219, figg.: *N. (Alectryon) hmeroessa*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 306, fig.: *N. maldivensis*, p. 606, *mulukuensis*, *subtranslucida*, *disparilis*, p. 607, Maldive Is.; SMITH (487), figg.: n. spp.
- Nassaria teres*, figd.; MARTENS (331), p. 98.
- †*Nemofusus*, n. gen., type *Murex fusulus*, Brocchi, Pliocene; COSSMANN (112), p. 195.
- Neobuccinum eatoni*, radula; THIELE (527).
- Neptunea latericea*, *despecta*, figd.; KNIPOWITSCH (290).
- Pentadactylus japonicus*, *paucimaculatus*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 496: n. spp.
- Peristernia corallina*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 308, fig.: n. sp.
- Pisania ignea*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 242.
- Plicopurpura*, n. n. for *Purpurella*, Dall nec Desv.; COSSMANN (112), p. 69.
- Pseudamycla*, note on genus and species; PACE (376).
- Pseudoliva*, notes on genus and species; MELVILL (349).
- Purpuridae*, classification; COSSMANN (112): Formation of dye; DUBOIS (154).
- Purpura eudeli*, West Africa; SOWERBY, J. Malac. x, p. 74, fig.: *P. sertata*,

- New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 382, fig. : *P. pseudamygdala*, New South Wales to Torres Straits; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 599, fig. : *P. pura*, S. Africa; SMITH, P. Malac. Soc. London v, p. 376, fig. : n. sp.
- Purpurella*, Dall, renamed *Plicopurpura*, q. v.
- Rapana fusiformis*, figd.; MARTENS (331), p. 96.
- Sipho antarctidis*, Antarctic; PELSENEER (391), p. 22, fig. : n. sp.
- Siphonalia maxima*, Tryon, figd.; HEDLEY, Mem. Austral. Mus. iv, p. 374.
- Sistrum squamiliratum*, S. Africa; SMITH, P. Malac. Soc. London v, p. 377, fig. : n. sp.
- Sycotypus*, phylogeny; GRABAU (211).
- Sylvanocochlis*, n. gen. for *Pseudoliva ancilla*, Hanley; MELVILL, J. Conch. x, p. 325.
- Tritonidea natalensis*, Sm., is a synonym of *T. carinifera*, Kuster; SMITH, P. Malac. Soc. London v, p. 371.
- Tritonidea soverbyana*, Gulf of Oman, and Mekran Coast; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 306, fig. : n. sp.
- Trophon stuarti*, n. var. : ARNOLD, Mem. Calif. Ac. iii, p. 253: *T. albolabratulus*, radula; THIELE (527): *T. gouldi*, n. n. for *Murex crispus*, Gould; COSSMANN (112), p. 54.
- Trophon simplex*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 380, fig. : n. sp.
- Turbinella triangularis*, Sm., is a synonym of *T. truncata*, Sby.; SMITH, P. Malac. Soc. London v, p. 370.
- Typhis transcurrens*, figd.; MARTENS (331), p. 94.
- Typhis syringianus*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 381, fig. : n. sp.

#### TÆNIOGLOSSA.

#### LOTORIIDÆ, CASSIDIDÆ, DOLIIDÆ, and CYPRÆIDÆ.

- Aryobuccinum proditor*, figd.; MARTENS (331), p. 64.
- †*Austrocypræa*, n. sect. of *Cypræa*, type *C. contusa*, M'Coy, Oligocene; COSSMANN (112), p. 164.
- †*Austrotriton*, n. subgen. of *Tritonium*, type *T. radialis*, Tate, Oligocene; COSSMANN (112), p. 98.
- Cassididæ*, classification; COSSMANN (112): *C. bituberculosa*, figd.; MARTENS (331), p. 111.
- Cassidea turgida*, Rve., *thomsoni*, Braz. (a var. of *pyrum*, Lamk.), figd., with notes; HEDLEY, Mem. Austral. Mus. iv, pp. 340, 341.
- Cassis microstoma*, East Africa; MARTENS (331), p. 112, fig. : n. sp.
- Cryotritonium*, n. sect. of *Tritonium* for *Lampusia murrayi*, Smith; MARTENS (331), p. 38.
- Cypræidæ*, classification; COSSMANN (112): Popular notes on; MANGER, P. South London Soc. 1902, p. 10: *C. asellus*, n. var.; GERET, J. Conchyl. li, p. 28.
- Cypræa fultoni*, South Africa; SOWERBY (492), p. 218, fig. : n. sp.
- Doliidæ*, classification; COSSMANN (112).
- †*Eocypræa*, n. sect. of *Cypræa*, type *C. inflata*, Lamk., Eocene; COSSMANN (112), p. 162.
- Epidromus crebriliratus*, South Africa; SOWERBY (492), p. 220, fig. : n. sp.
- Erato recondita*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 302, fig. : n. sp.
- Fasitriton*, n. subgen. of *Priene*, type *Triton cancellatus*, Lamk.; COSSMANN (112), p. 109.
- Lotorium pumilio*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 339, fig. : n. sp.



- Pedicularia stylasteris*, New South Wales; HEDLEY, t. c. p. 342, fig.: n. sp.  
 †*Semitriton*, n. gen., type *Plesiotriton dennanti*, Tate, Eocene; COSSMANN (112), p. 102.  
 †*Semitrivia*, n. sect. of *Cypræa*, type *Trivia erigata*, Tate, Oligocene; COSSMANN (112), p. 172.  
*Septa*, notes on name; DALL, Nautilus xvii, p. 55.  
*Tritonidae*, classification; COSSMANN (112).  
*Tritonium murrayi*, radula; THIELE (527): *T. streptum*, n. n. for *Triton distortum*, Schulz and Wagner; COSSMANN (112), p. 93.  
*Trivia ritteri*, California; RAYMOND, Nautilus xvii, p. 85: n. sp.

CERITHIIDÆ, TRICHOTROPIDIDÆ, VERMETIDÆ, TURRITELLIDÆ,  
 and CÆCIDÆ.

- Bittium williamsoni*, California; ARNOLD, Mem. Calif. Ac. iii, p. 295, fig.:  
*B. quadricinctum*, S. Africa; SMITH, P. Malac. Soc. London v, p. 381,  
 fig.: n. spp.  
*Cœcum lilianum*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales  
 xxvii, p. 603, fig.: n. sp.  
*Cerithiolinum*, n. gen. for *Cerithium metula*, Lov., and others; LOCARD,  
 Ann. Soc. Agric. Lyon x, p. 110.  
*Cerithiopsis barleei*, n. var.; MARSHALL (330), p. 9.  
*Cerithium*, several spp. figd.; STURANY (510): *C. zebrum*, notes on with  
 many n. varr.; VIGNAL (543): *C. tubulus*, Dkr., is a synonym of *C.*  
*serotina*, A. Ad.; HEDLEY, Mem. Austral. Mus. iv, p. 346.  
*Cerithium verecundum*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat.  
 Hist. xii, p. 300, fig.: *C. exilissimum*, p. 103, *submediterraneum* (Monts.),  
 p. 106, Mediterranean; LOCARD, Ann. Soc. Agric. Lyon x: n. spp.  
*Mathilda carystia*, Persian Gulf; MELVILL & STANDEN, Ann. Nat. Hist.  
 xii, p. 321: *M. decorata*, New South Wales; HEDLEY, Mem. Austral.  
 Mus. iv, p. 352, fig.: n. spp.  
 †*Protocerithium*, n. gen., type *Cerithium lugdunense*, Dum., Lias; BISTRAM,  
 Ber. Ges. Freiburg xiii, p. 70.  
*Serpulus siphon*, Lamk., note on; HEDLEY, P. Linn. Soc. N. S. Wales xxvii,  
 p. 602.  
*Trichotropis pulcherrima*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat.  
 Hist. xii, p. 296, fig.: n. sp.  
*Triforis picturatus*, Sby., is a synonym of *T. elegans*, Hinds; SMITH (487),  
 p. 613.  
*Triforis abnormalis*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 498: *T.*  
 (*Viriola*?) *senafrensis*, Red Sea; STURANY, Denk. Ak. Wien lxxiv,  
 p. 262, fig.: *T. lilaceocinctus*, *excellens*, p. 613, *gracilior*, *pura*, p. 614,  
 Maldives Is.; SMITH (487), figg.: n. spp.  
*Triphora* is the correct form of *Triforis*, with figg. of several Australian  
 spp. and note on *T. torquata*; HEDLEY (223).  
*Triphora regina*, *innobilis*, p. 608, *albovittata*, p. 609, *cinerea*, p. 612,  
*nocturna*, p. 613, *maculosa*, p. 614, *ampulla*, p. 615, *kesteveni*, p. 618,  
 New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, figg.:  
 n. spp.  
*Turritella punctulata*, p. 43, *declivis*, p. 44, figd.; MARTENS (331): *T.*  
*reticulata*, n. var.; KNIPOWITSCH, Annuaire Mus. St. Petersb. vii,  
 p. 364: *T. oxyacris*, Tate, *lamellosa*, Watson, are synonyms of *T.*  
*subsquamosa*, Dkr.; HEDLEY, Mem. Austral. Mus. iv, p. 347: *T.*  
*auricincta*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 233.  
*Vermetidae*, monograph continued; CLESSIN in MARTINI & CHEMNITZ (339).  
*Vermetus waiti*, New South Wales; HEDLEY, Mem. Austral. Mus. iv,  
 p. 346, fig.: n. sp.



*Vulgocerithium*, Cossm., is a synonym of *Thericium*, Rochbr.; COSSMANN, Rev. paleozool. vii, p. 37.

MELANIIDÆ, PLEUROCIDÆ, LITTORINIDÆ, and FOSSARIDÆ.

*Campeloma milesii* and allies, the first is probably a species; WALKER (546).

*Claviger*, Haldeman, renamed *Clavigerina*, q. v.

*Clavigerina*, n. n. for *Claviger*, Haldeman, nom. preocc.; MARTENS (331), p. 14 [fide errata is a synonym of *Pachymelania*, Smith].

*Doryssa schuppi*, p. 659, *rixosa*, p. 662, Brazil; IHERING, Revist. Mus. Paulista v, figg. : n. spp.

*Fossarus* (*Couthouyia*) *unicarinalis*, off Bombay; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 301, fig. : n. sp.

*Goniobasis*, proposed study of; BILLUPS (44); HINKLEY (238).

*Hemisinus tenuilabris*, Rve., figd.; IHERING, Revist. Mus. Paulista v, p. 168.

*Lacuna pallidula*, n. var.; MARSHALL (330), p. 53.

*Levilittorina elongata*, Antarctic; PELSENEER (391), p. 14, fig. : n. sp.

*Littorinidae*, notes on; KESTEVEN (282): *L. reticulata*, figd.; MARTENS (331), p. 117: *L. litorea*, erosion and variation; BIGELOW & RATHBUN (41).

*Melania*, review of Brazilian species; IHERING (251).

*Melania binodosa*, Siam; BLANFORD, P. Malac. Soc. London v, p. 282, fig. : n. sp.

*Paludomus siamensis*, Siam; BLANFORD, t. c. p. 283, fig. : n. sp.

*Peasiella tantilla*, radula and operculum; KESTEVEN (282).

*Pellilittorina*, radula; THIELE (527).

*Risella melanostoma*, anatomy; KESTEVEN (282).

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

*Acinulus* (Monts.), n. subgen. of *Acinus*, type *Rissoa cimicoides*, Forbes; SEGUENZA, Palæontogr. ital. ix, p. 48.

*Ammicola panamensis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 781.

*Ammicola tryoni*, Mexico; PILSBRY, t. c. p. 781, fig. : n. sp.

*Ampullaria globosa*, respiratory and locomotory habits; RAMANAN (436).

*Ampullaria dalyi*, Siam; BLANFORD, P. Malac. Soc. London v, p. 281, fig. : n. sp.

*Andrusovia* (Brus.), n. gen., type *A. dybowskii*, n. sp. [nom. nud.], Caspian; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 133.

*Assiminea pagodella*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 603, fig. : n. sp.

*Bithinia inflata*, figd.; DYBOWSKI, Annuaire Mus. St. Petersb. viii, p. 45.

*Epigrus*, n. gen., type *Rissoa ischna*, Tate, with fig. of that sp. and *E. verconis*, Tate; HEDLEY, Mem. Austral. Mus. iv, p. 355.

*Flemingia*, Jeffreys, renamed *Taramellia*, q. v.

*Fluxina dalliana*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 298, fig. : n. sp.

*Homalaxis cornucammonis*, p. 298, *rotulacatharinaea*, p. 299, Gulf of Oman; MELVILL & STANDEN, t. c. figg. : n. spp.

*Lanistes innesi*, Upper Nile; PALLARY, Bull. Inst. Egypt. iii, p. 91, fig. : n. sp.

*Lartetia umbilicata*, France; LOCARD, Bull. Soc. Nimes xxix, p. 10, fig. : n. sp.

*Lithoglyphus minutus*, Asia Minor; NÆGELE, Nachrbl. Deutsch. malak. Ges. 1903, p. 176 : n. sp.

- Omalaris meridionalis*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 351, fig.: n. sp.
- Paludina costae fasciata*, figd.; STURANY (509).
- †*Polygyrata*, n. gen. for *P. sinistra*, n. sp., Ordovician, New Jersey; WELLS (554), p. 130 [non *Polygyratia*, Gray].
- Pseudamnicola sinaica*, Egypt; PALLARY, Bull. Inst. Egypt. ii, p. 243, fig.: n. sp.
- Pyrgulopsis patzcuarensis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 780.
- Rissoia parva*, monstrosity; SYKES (513).
- Rissoia (Setia) inflata*, (*S.*) *columna*, (*Ceratia?*) *subtruncata*, Antarctic; PELSENEER (391), p. 21, figg.: n. spp.
- Rissoina cretacea*, Ten.-Woods, figd.; HEDLEY, Mem. Austral. Mus. iv, p. 353.
- Rissoina isosceles*, p. 302, (*Zebina*) *registomoides*, p. 303, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, figg.: n. sp.
- Scrobs pyramidatus*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 354, fig.: n. sp.
- Solarium maximum*, protoconch; HEDLEY, t. c. p. 349.
- Solarium supraradiatum*, Indian Ocean off the Nicobars; MARTENS (331), p. 118, fig.: *S. (Torinia) cerdaleum*, Persian Gulf, *abyssorum*, p. 297, figg., (*T.*) *admirandum*, p. 322, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii: n. spp.
- Taramellia*, n. n. for *Flemingia*, Jeffreys non de Koninck; SEGUENZA, Palæontogr. ital. ix, p. 53.
- Valvata humeralis*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 778: *V. piscinalis*, n. var.; SELL, Nachrbl. Deutsch. malak. Ges. 1903, p. 110.
- Valvata hagemmulleri*, Corsica; CAZIOT (82), p. 325, fig.: *V. inhesi*, Egypt; PALLARY, Bull. Inst. Egypt. ii, p. 243, fig.: *V. stelleri*, Kamtschatka; DYBOWSKI, Annuaire Mus. St. Petersb. viii, p. 46, fig.: n. spp.
- Vivipara gracilior*, Lake Tsad; MARTENS, S.B. Ges. naturf. Berlin 1903, p. 7: *V. locardi*, France; GERMAIN, Bull. Soc. Ouest France iii, p. 218, fig.: n. spp.

## CYCLOPHORIDÆ and CYCLOSTOMATIDÆ.

- Alycaeus harimensis*, n. var.; PILSBRY & HIRASE, Nautilus xvi, p. 129.
- Arinia japonica*, Japan; PILSBRY & HIRASE, t. c. p. 136: n. sp.
- Cataulus*, note on anatomy; DIGBY (144): Notes on name; SYKES, J. Malac. x, p. 2: *C. greeni*, n. var.; FULTON, t. c. p. 102.
- Cataulus connectens*, Ceylon; FULTON, t. c. p. 102, fig.: n. sp.
- Chondrocyclus exsertus*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 608, fig.: n. sp.
- Chondropoma martensianum*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 780.
- Colobostylus*, distribution of Jamaican species; JARVIS (259).
- Colobostylus nuttii*, Jamaica; PILSBRY, Nautilus xvii, p. 65: n. sp.
- Coptocheilus perakensis*, Perak; FULTON, J. Malac. x, p. 102, fig.: n. sp.
- Cryptaulus*, apparently n. gen. (no species quoted); BAVAY, Bull. Soc. zool. France xxviii, p. 141.
- Cyathopoma peilei*, India, (*Jerdonia*) *serendibense*, Ceylon; PRESTON, P. Malac. Soc. London v, p. 340, figg.: n. spp.
- Cyclophorus hirasei*, figd.; PILSBRY, Nautilus xvi, p. 137.
- Cyclostomatida*, Sokotran species figd.; SMITH (488).
- Cyclotopsis*, distribution of species; GODWIN-AUSTEN (209), p. 170.
- Cyclotus peramplas*, (*Platyraphe*) *bicolor*, East Borneo; MARTENS, S.B. Ges. naturf. Berlin 1903, p. 421: n. spp.
- Diplommatina balansai*, Morlet, n. varr., *belonis*, Mlldff., figd.; BAVAY & DAUTZENBERG (32): *D. nahensis*, Gredler, name is preocc.; SCHEPMAN, Nachrbl. Deutsch. malak. Ges. 1903, p. 22.

- Diplommatina skeati, laidlawi*, Malay Peninsula; SYKES, P. Zool. Soc. London 1903, i, p. 198, figg.: *D. debilis*, p. 223, (*Sinica*) *messageri* (Ancey), p. 224, *granum*, p. 225, *lemyrei, æsopus*, p. 226, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, figg. : n. spp.
- Ditropis cavernæ*, Jalor, Malay Peninsula; SYKES, P. Zool. Soc. London 1903, i, p. 195, fig. : n. sp.
- Ericia mauretanicæ*, Pallary, figd.; KOBELT in ROSSMAESSLER (450), p. 71.
- Guillemia*, distribution of species, with animal and radula of *G. grata*; GODWIN-AUSTEN (209).
- Helicomorpha scularioides*, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 228, fig. : n. sp. [Type of *Messageria*, q.v.]
- Japonia sadoensis*, Japan; PILSBRY & HIRASE, Nautilus xvii, p. 31 : n. sp.
- Lagochilus kobelti*, Jalor, Malay Peninsula; SYKES, P. Zool. Soc. London 1903, i, p. 194, fig. : n. sp.
- Leptopoma diplochilus, (Leucoptychia) lamellatum*, Waigiou; SYKES, J. Malac. x, pp. 66, 78, figg.: *L. fulgurans*, p. 15, *altius*, p. 16, Obi I.; DAUTZENBERG, J. Conchyl. li, figg.: *L. placidum*, Flores, *albicans*, Sumba; FULTON, J. Malac. x, p. 101, figg. : n. spp.
- Lithidion*, distribution of species, with animal and radula of *L. lithidion, souleyetianum*; GODWIN-AUSTEN (209).
- Messageria*, n. gen. for *Helicomorpha scularioides*, n. sp., q. v.; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 229.
- Omphalotropis waigiouensis*, Waigiou; SYKES, J. Malac. x, pp. 67, 78, fig. : n. sp.
- Opisthostoma annandalei*, Malay Peninsula; SYKES, P. Zool. Soc. London 1903, i, p. 198, fig. : n. sp.
- Otopoma*, distribution of species, with partial anatomy of *O. naticoides, clathratulum*; GODWIN-AUSTEN (209): *O. clausum* and *yemenicum*, notes on; SYKES (514).
- Palaina ponsonbyi*, Waigiou; SYKES, J. Malac. x, pp. 66, 78, fig. : n. sp.
- Platyrhaphæ*, notes on, with figg. of *P. sordida*, Pfr., *leucacme*, Milddf.; BAVAY & DAUTZENBERG (32).
- Platyrhaphæ vatheleti*, Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 235, fig. : n. sp.
- Pomatias arnautorum* (Milddf.), Albania and Montenegro; WOHLBEREDT, Nachrbl. Deutsch. malak. Ges. 1903, p. 85 : n. sp.
- Pterocyclos subalatus*, Malay Peninsula; SYKES, P. Zool. Soc. London 1903, i, p. 195, fig. : n. sp.
- Pupina brachysoma* (Ancey), Tonkin; BAVAY & DAUTZENBERG, J. Conchyl. li, p. 230, fig. : n. sp.
- Pupinella oshimæ*, figd.; PILSBRY, Nautilus xvi, p. 137.
- Rhaphaulus perakensis*, n. var.; SYKES, P. Zool. Soc. London 1903, i, p. 197.
- Rhaphaulus ascendens*, Malay Peninsula; SYKES, t. c. p. 196, fig. : n. sp.
- Rhiostoma jalorensis*, Malay Peninsula; SYKES, t. c. p. 196, fig. : n. sp.
- Tropidophora unifasciata, betsileoensis*, radula; GODWIN-AUSTEN (209).
- Tropidophora comburens*, South Africa; MELVILL & PONSONBY, Ann. Nat. Hist. xii, p. 608, fig. : *T. perfecta*, Madagascar, p. 102, *plurilirata*, Cape Colony, p. 103; FULTON, J. Malac. x, figg. : n. spp.

HIPPONYCIDÆ, CAPULIDÆ, NARICIDÆ, NATICIDÆ and  
ADEORBIIDÆ.

- Adeorbis axiotinus*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 301, fig. : n. sp.
- Capulus australis*, note on; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 600.



- Capulus subcompressus*, Antarctic; PELSENER (391), p. 20, fig.: *C. camar-ensis*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 256, fig.: n. sp.
- Echinospira compressa*, off I. of Capri; LO BIANCO, Mt. Stat. Neapel xvi, p. 179, fig.: n. sp.
- Hipponyx lissus*, radula; THIELE (527).
- Lunatia draconis*, California; DALL, P. Soc. Washington xvi, p. 174: n. sp.
- Macromphalina californica*, California; DALL, t. c. p. 175: n. sp.
- Natica*, several spp. figd.; MARTENS (331): *N. grisea*, *fertilis*, radula; THIELE (527): *N. effossa*, Watson, is a synonym of *N. beddomei*, Johnston; HEDLEY, Mem. Austral. Mus. iv, p. 358.
- Natica (Polinices) burnupi*, S. Africa; SMITH, P. Malac. Soc. London v, p. 385, fig.: *N. strigosa*, New Amsterdam, p. 64, *pliculosa*, East Africa, p. 113; MARTENS (331), figg.: n. spp.
- Sigaretus noyesii*, Gorgona Is.; DALL, Nautilus xvii, p. 37: n. sp.
- Thyca ectoconcha*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 257.

## PTENOGLOSSA.

## SCALIDÆ and IANTHINIDÆ.

- Actis biteniata*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 498: n. sp.
- Crossea carinata*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 345, fig.: n. sp.
- Ianthina auriculata*, Indian Ocean; MARTENS (331), p. 142, fig.: n. sp.
- Pseudacirsa*, n. subgen. of *Scala* for *S. coarcata*, Jeff., and *sarsii*, n. sp.; KOBELT (291), p. 26.
- Scalidæ* of European seas reviewed; KOBELT (291).
- Scala* (*Pseudacirsa*, n. subgen.) *sarsii*, Norway; KOBELT (291), p. 28, fig.: *S. (Cirsotrema) texta*, Maldive Is.; SMITH (487), p. 616, fig.: *S. tenebrosa*, South Africa; SOWERBY (492), p. 220, fig.: *S. sawinae*, California; DALL, P. Soc. Washington xvi, p. 175: *S. (Constantia) intertexta*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 305, fig.: *S. amathusia*, *calidea*, p. 341, *cerdanta*, *continens*, p. 342, *deifica*, *eclectica*, *emiliae*, p. 343, *goniophora*, *laidlawi*, p. 344, *melior*, p. 345, *rissoinaeformis*, *sykesii*, *thelcteria*, p. 346, *townsendi*, p. 347, (*Opalia*) *xenicima*, (*Cirsotrema*) *corolla*, p. 348, (*C.*) *mammosa*, p. 349, (*C.*) *optima*, p. 350, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, J. Conch. x, figg.: n. spp.
- Scalaria unilateralis*, figd.; MARTENS (331), p. 118.
- Scalaria instricta*, New Amsterdam; MARTENS (331), p. 69, fig.: *S. eusculpta*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 497: n. sp.

## GYMNOGLOSSA.

## EULIMIDÆ and PYRAMIDELLIDÆ.

- Acteopyramis latitia*, *brevicula*, Persian Gulf; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 305, fig.: n. sp.
- Elysa halaibensis*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 259, fig.: n. sp.
- Entosiphon*, n. gen. for *E. deimatis*, n. sp., Laccadive Is.; KOEHLER & VANEY, Rev. Suisse Zool. xi, p. 23, fig.
- Eulimidæ* of European seas reviewed; KOBELT (291): Notes on several species, with *E. platyacme*, n. n. for *E. solida*, Jeff. nec Sby., p. 352; SYKES (515): *E. lactea*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 258.
- Eulima decagyra*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist.



- xii, p. 302, fig.: *E. munita*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 358, fig.: *E. collinsi*, Guernsey; SYKES, P. Malac. Soc. London v, p. 349, fig.: *E. muellerica*, *orthophyes*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 258, figg.: n. spp.
- Eulinella carmanica*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 303, fig.: n. sp.
- Ivara*, n. subgen. of *Odostomia*, for *O. terricola*, D. & B., Mexico, n. sp.; ARNOLD, Mem. Calif. Ac. iii, p. 285, fig.
- Leiostraca lodderae*, New South Wales and Queensland; HEDLEY, Mem. Austral. Mus. iv, p. 360, fig.: n. sp.
- Mormula persarum*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 304, fig.: n. sp.
- Myxa*, n. gen. for *M. evessa*, n. sp., New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 362.
- Odontostomia nugatoria*, New South Wales; HEDLEY, t. c. p. 363, fig.: n. sp.
- Odostomia*, critical notes on name; WOODWARD (573).
- Odostomia (Oscilla) grammatospira* (D. & B.), California, (*Ivara*, n. subgen.) *terricola* (D. & B.), Mexico; ARNOLD, Mem. Calif. Ac. iii, p. 285, fig.: n. spp.
- Parthenina alleryi*, n. n. for *Odostomia brevicula*, Monts. nec. Jeffreys; KOBELT (291), p. 134.
- Parthenina dollfusi*, Mediterranean; KOBELT (291), p. 120, fig.: n. sp.
- Pseudorissoina exigua*; New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 361, fig.: n. sp.
- Pyramidellidae* of European Seas reviewed; KOBELT (291).
- Pyramidella (Syrnola) nisoides*, East Africa; MARTENS (331), p. 119, fig.: n. sp.
- Stylifer thielei*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 258, fig.: n. sp.
- Syrnola macrocephala*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 362, fig.: *S. trivittata*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 259, fig.: *S. mussandamica*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 304, fig.: n. spp.
- Turbonilla manora* is a *Pyrgulina*; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 305, fig.: *T. scalpidens*, figd.; HEDLEY, Mem. Austral. Mus. iv, p. 362.
- Turbonilla similans*, S. Africa; SMITH, P. Malac. Soc. London v, p. 386, fig.: *T. (Strioturbonilla) stearnsii* (Dall & Bartsch), p. 271, (*Lancea pentalopa* (D. & B.), (*Pyrgiscus auricoma* (D. & B.), p. 274, (*Pyrgo-lampros lowei* (D. & B.), p. 278, California; ARNOLD, Mem. Calif. Ac. iii, figg.: n. spp.

## SCUTIBRANCHIATA.

## RHIPHIDOGLOSSA.

## HELICINIDÆ.

- Helicina sowerbyana*, figd., *H. zephyrina*, n. var.; PILSBRY (415): *H. japonica* and allies, with n. var.; PILSBRY (402).
- Helicina gemma*, Costa Rica; PRESTON, J. Malac. x, p. 4, fig.: *H. sadoensis*, Japan; PILSBRY & HIRASE, Nautilus xvi, p. 128: *H. varians*, Santa Cruz Is.; SYKES, J. Malac. x, pp. 67, 78, fig.: n. spp.
- Schasicheila*, several spp. figd., with n. var. of *S. vanattai*; PILSBRY (415).
- Trochatella simpsoni*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 782.

NERITIDÆ, TURBINIDÆ, TROCHIDÆ, CYCLOSTREMATIDÆ,  
STOMATIDÆ, and COCCULINIDÆ.

- Astrarium andersoni*, Sm., figd.; SOWERBY (492).  
*Astrarium (Cyclocantha) gilchristi*, South Africa; SOWERBY (492), p. 221, fig.: n. sp.  
*Basilissa*, several spp. figd., with n. var. of *B. ottoi*; MARTENS (331): Radula of several spp.; THIELE (527).  
*Calcar henicum*, radula; THIELE (527).  
*Calliostoma tiratum*, Sby., is a synonym of *C. multiliratum*; SMITH, P. Malac. Soc. London v, p. 389.  
*Calliostoma thrincoma*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 296, fig.: *C. perfragile*, (*Lischkeia*) *granoliratum*, p. 222, (*Astele*) *iridescens*, p. 223, South Africa; SOWERBY (492), figg.: n. spp.  
*Calliotropis*, n. subgen. of *Calliostoma*, type *C. ottoi*, Phil.; SEGUENZA, Boll. Soc. geol. Ital. xxi, p. 462.  
*Clanculus gemmulifer*, n. var.; PILSBRY, Nautilus xvii, p. 71.  
*Clanculus mixtus*, S. Africa; SMITH, P. Malac. Soc. London v, p. 389, fig.: n. sp.  
†*Climacia*, n. subgen. of *Teinostoma* for *T. calliglyptum*, Dall, Pliocene; DALL, Tr. Wagner Inst. iii, expln. pl. lx.  
*Cocculina*, anatomy of genus, which forms a distinct group of Rhipidoglossa; THIELE (527).  
*Cocculina meridionalis*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 331, fig.: *C. lævis*, p. 128, *radiata*, p. 129, Indian Ocean west of Sumatra; THIELE in MARTENS (331), figg.: n. spp.  
*Cyclostrema inscriptum*, Tate, figd.; HEDLEY, Mem. Austral. Mus. iv, p. 337.  
*Cyclostrema (Tubiola) semisculptum*, South Africa; MARTENS (331), p. 49, fig.: *C. decussatum*, *tiratum*, p. 19, *humile*, p. 20, Antarctic; PELSENEER (391), figg.: *C. hengamense*, *supremum*, p. 291, Persian Gulf, *annellarium*, *prominulum*, *euchlopteron*, Gulf of Oman, p. 292; MELVILL & STANDEN, Ann. Nat. Hist. xii, figg.: n. spp.  
*Enida persica*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 294, fig.: n. sp.  
*Eithalia rhodomphala*, Maldive Is.; SMITH (487), p. 618, fig.: *E. floccata*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 500: n. spp.  
*Euchelus erythrænsis*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 266, fig.: *E. townsendianus*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 295, fig.: n. spp.  
*Gibbula umbilicaris, ardens*, n. varr.; BELLINI, Boll. Soc. Napoli xvi, p. 24: *G. affinis*, n. var.; PILSBRY, Nautilus xvii, p. 69.  
*Gibbula vittata*, p. 69, *incarnata*, p. 70, Japan; PILSBRY, Nautilus xvii: n. spp.  
*Leptothyra rubens*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 296, fig.: n. sp.  
*Liotia tasmanica*, n. var.; HEDLEY, Mem. Austral. Mus. iv, p. 336: *L. bicarinata*, figd.; MARTENS (331), p. 46.  
*Liotia romalea, echinacantha*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 293, figg.: *L. squamicostata*, Maldive Is.; SMITH (487), p. 617, fig.: *L. disjuncta*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 336, fig.: n. spp.  
*Margarita optabilis, parcipicta*, n. varr.; ARNOLD, Mem. Calif. Ac. iii, pp. 332 & 333.  
*Margarita lamellosa*, Antarctic; PELSENEER (391), p. 18, fig.: n. sp.

- Minolia levissima*, Martens, figd.; SOWERBY (492): *M. dilecta*, p. 15, *undata*, p. 47, figd.; MARTENS (331).
- Minolia arata*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 333, fig.: *M. (Macheroplax) congener*, South Africa; SOWERBY (492), p. 223, fig.: *M. ornata*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 499: n. spp.
- Monilea (Rossiteria) nucleolus*, Japan; PILSBRY, Nautilus xvii, p. 70: n. sp.
- Nerita proxima*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 498: n. sp.
- Neritina fluviatilis*, anatomy; LENNEN (311): *N. subocellata*, notes on; SCHEPMAN, Nachrbl. Deutsch. malak. Ges. 1903, p. 20.
- Ninnia* (Brus.), n. sect. of *Neritina*, type *N. schultzei*, Grimm.; WESTERLUND, Rad. Jugoslav. Ak. cli, p. 133.
- Omphalius comptus*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 499: n. sp.
- Phasianella tristis*, Japan; PILSBRY, Nautilus xvii, p. 69: n. sp.
- Photinula violacea*, anatomy; PELSENER (391).
- Solariella illustris*, figd.; STURANY, Denk. Ak. Wien lxxiv, p. 234: *S. infundibulum*, p. 49, *levissima*, p. 49, *periomphalia*, p. 70, *biradiatula*, *infralavis*, p. 123, figd.; MARTENS (331): *S. biradiatula*, radula; THIELE (527).
- Solariella persculpta*, South Africa; SOWERBY (492), p. 223, fig.: *S. zacalles*, Persian Gulf and Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 295, fig.: n. spp.
- Stomatella exquisita*, loc. incert.; SOWERBY, J. Malac. x, p. 76, fig.: n. sp.
- Stylobates*, n. gen. for *S. aeneus*, n. sp., Hawaiian Islands; DALL, Nautilus xvii, p. 62.
- Thalotia maldivensis*, Maldive Is.; SMITH (487), p. 617, fig.: n. sp.
- Tharsis globosa*, Antarctic; PELSENER (391), p. 18, fig.: n. sp.
- Trochocochlea castriotæ*, Naples; BELLINI, Boll. Soc. Napoli xvi, p. 24, fig.: n. sp.
- †*Trochosolarium*, n. gen. for *Gibbula solarioides*, Seg.; SEGUENZA, Boll. Soc. geol. Ital. xxi, p. 461.
- Trochidae*, development; ROBERT (444): *T. sublevis*, radula; THIELE (527): *T. sublevis*, Sm., n. var.; MARTENS (331), p. 121.
- Vitrinella mooreana*, Florida; VANATTA, P. Ac. Philad. 1903, p. 758, fig. n. sp.

HALIOTIDÆ, PLEUROTOMARIIDÆ, BELLEROPHONTIDÆ, and  
FISSURELLIDÆ.

- †*Bellerophonitideæ*, classification; PERNER (393).
- †*Celocyclus*, n. sect. of *Bellerophon* for *B. rarissimus*, Barr., Silurian, Bohemia, and others; PERNER (393), p. 139.
- †*Cyrtodiscus*, n. subgen. of *Oxydiscus*, for *O. procer*, n. sp., Silurian, Bohemia, and others; PERNER (393), p. 74.
- †*Donaldiella*, n. n. for *Goniospira*, Donald nec COSSMANN; COSSMANN, Rev. paleozool. vii, p. 68.
- Emarginula harmilensis*, Red Sea; STURANY, Denk. Ak. Wien lxxiv, p. 235, fig.: *E. undulata*, *camilla*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 290, figg.: n. spp.
- Pleurotomaria hirasei*, Japan; PILSBRY, P. Ac. Philad. 1903, p. 496, fig. [also as n. n.; PILSBRY, Nautilus xvii, p. 30]: n. sp.
- †*Prosotychus*, n. sect. of *Bellerophon* for *B. plebeius*, Barr., Silurian, Bohemia, and others; PERNER (393), p. 141.
- †*Ptychosphæra*, n. gen. for *P. constricta*, Barr., Silurian, Bohemia, and others; PERNER (393), p. 143.
- Puncturella ethiopica*, radula; THIELE (527): *P. henniana*, Braz., is a synonym of *Cemoria harrissoni*, Bedd.; HEDLEY, Mem. Austral. Mus. iv, p. 330: *P. analoga*, p. 70, *ethiopica*, p. 128, figd.; MARTENS (331).



- Schismope carinata*, Watson, is a synonym of *Scissurella atkinsoni*, Ten-Woods; HEDLEY, Mem. Austral. Mus. iv, p. 329.
- Scissurella rimuloides*, Cptr., is a *Schismope*; PILSBRY, Nautilus xvii, p. 84.
- Scissurella dalli*, Patagonia; BARTSCH, Nautilus xvii, p. 90: *S. ætheria*, Gulf of Oman; MELVILL & STANDEN, Ann. Nat. Hist. xii, p. 300, fig.: *S. australis*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 329, fig.: *S. euglypta*, Antarctic; PELSENEER (391), p. 17, fig.: n. spp.
- +*Sinuutopsis*, n. gen. for *S. neglecta*, n. sp., Silurian, Bohemia, and others; PERNER (393), p. 67.
- +*Sphærocyclus*, n. sect. of *Bellerophon* for *B. bohemicus*, Barr., Silurian, Bohemia, and others; PERNER (393), p. 131.
- +*Tremagyrus*, n. gen., type *T. scaber*, n. sp., Silurian, Bohemia; PERNER (393), p. 128.

## DOCOGLOSSA.

## ACMÆIDÆ, and PATELLIDÆ.

- +*Calloconus*, n. subgen. of *Palæoscurria* for *P. humilis*, n. sp., Silurian, Bohemia, and others; PERNER (393), p. 48.
- Nacella ænea*, bifid tentacle; PELSENEER (391).
- +*Palæoscurria*, n. gen. for *P. calyptata*, n. sp., Silurian, Bohemia, and others; PERNER (393), p. 46.
- Patella hepatica*, n. n. for *Acmaea striata*, Pilsbry nec Quoy & Gaimard; PRITCHARD & GATLIFE, P. Soc. Victoria xv, p. 194: *P. vulgata*, detailed anatomy; DAVIS & FLEURE (140).
- +*Ptychopeltis*, n. gen. for *P. incola*, n. sp., Silurian, Bohemia; PERNER (393), p. 42.

## III. SCAPHOPODA.

- Dentalium regulare*, S. Africa; SMITH, P. Malac. Soc. London v, p. 393, fig.: *D. inflexum*, *africanum*, p. 224, *exasperatum*, p. 225, South Africa; SOWERBY (492), figg.: *D. thetidis*, p. 327, *virgula*, p. 328, New South Wales; HEDLEY, Mem. Austral. Mus. iv, figg.: n. spp.
- Schizodentalium*, variation shews slits not to be generic; SOWERBY (492).

## IV. PELECYPODA.

- Classification of Pelecypoda by their gill-structure; PELSENEER (391).
- Classification by, and structure of, the gill; RIDWOOD (443).
- Morphology of Pelecypoda; RUEDEMANN (452).

## SEPTIBRANCHIATA.

- Structure of the gill; RIDWOOD (443).
- +*Bowdenia*, n. subgen. of *Cuspidaria*, type *C. distira*, n. sp., Oligocene; DALL, Tr. Wagner Inst. iii, p. 1504.
- Cetoconcha scapha*, Dall, figd.; DALL, P. U. S. Mus. xxvi, p. 951.



*EULAMELLIBRANCHIATA.*

## ANATINACEA.

Structure of the gill; RIDEWOOD (443).

*Allogramma*, n. sect. of *Lyonsia*, type *L. formosa*, Jeff.; DALL, Tr. Wagner Inst. iii, p. 1514.

*Aporema*, n. gen., type *Pholadomya arata*, Verrill; DALL, t. c. p. 1532.

*Heteroclidus*, n. subgen. of *Pandora*, type *Clidiophora punctata*, Conrad; DALL, t. c. p. 1518.

## PHOLADACEA.

Structure of the gill; RIDEWOOD (443).

*Fistulana clava* piercing *Mitra*; SOWERBY & FULTON (493).

*Pholas candida*, n. var.; MARSHALL (330), p. 52.

*Xylophaga*, on known species; SMITH (481).

*Xylophaga prestantis*, Northumberland; SMITH, P. Malac. Soc. London v, p. 328, fig.: n. sp.

## MYACEA and CARDIACEA.

Structure of the gill; RIDEWOOD (443).

*Cardium*, variation of ribbing in one species; BAKER (23).

*Cardium levisulcatum*, Maldive Is.; SMITH (487), p. 624, fig.: n. sp.

*Ceratisolen*, anatomy; BLOOMER (52): *C. legumen*, malformed specimen; BLOOMER (55).

*Corbula rugifera*, S. Africa; SMITH, P. Malac. Soc. London v, p. 399, fig.: n. sp.

*Echinochama californica*, Lower California; DALL, P. U. S. Mus. xxvi, p. 950, fig.: n. sp.

†*Hippurites*, evolution and classification; TOUCAS (534).

*Machera quadrasi*, Philippines; HIDALGO (234), p. 26: n. sp.

†*Mouretia*, n. sect. of *Radiolites* for *M. arnaudi*, n. sp., Santonian; DOUVILLÉ, Bull. Soc. geol. France ii, p. 480.

*Parvicardium exiguum*, n. varr.; BELLINI, Boll. Soc. Napoli xvi, p. 26.

*Pharella orientalis*, anatomy; BLOOMER (56).

†*Præradiolites*, n. gen., type *Radiolites fleuriauvi*; DOUVILLÉ, Bull. Soc. geol. France x, p. 476.

*Solecurtus*, anatomy; BLOOMER (52).

*Solen*, classification of British species; BLOOMER (53).

†*Solenomorpha*, n. n. for *Solenopsis*, McCoy nec Westwood; COCKERELL, Nature lxvii, p. 559.

†*Solenopsis* renamed *Solenomorpha*, q.v.

*Tagelus rufus*, anatomy; BLOOMER (56).

*Tridacna lamarcki*, n. n. for *T. gigas*, Lam. nec Linn., p. 385, *reevei*, n. n. for *T. elongata*, Rve. nec Lam., p. 389; HIDALGO (234).

## VENERACEA and TELLINACEA.

Structure of the gill; RIDEWOOD (443).

*Callista subdiaphana*, n. var.; ARNOLD, Mem. Calif. Ac. iii, p. 144.

*Cardilia reeveana*, n. n. for *C. inermis*, Rve. nec Desh.; HIDALGO (234), p. 371.

*Caryatis reeveana*, n. n. for *Cytherea citrina*, Sby. nec Lam.; HIDALGO (234), p. 200.

- Chione*, three Victorian spp. figd.; PRITCHARD & GATLIFF (431): *C. lagopus*, Lamk., note on; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 596.
- Lioconcha castrensis*, n. subsp.; HIDALGO (234), p. 213.
- Mactra abbreviata*, Lamk., note on with fig.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 597.
- Parmulina*, n. sect. of *Circe*, type *C. corrugata*, Desh.; DALL, Tr. Wagner Inst. iii, p. 1250.
- Psammobia bertini*, n. n. for *P. pulchella*, Reeve nec Lam.; HIDALGO (234), p. 86 [synonym of *P. reevei*, Marts.; HIDALGO, p. 102].
- Semele pulchra*, n. var.; ARNOLD (18), p. 166.
- Tellina panayensis*, n. n. for *T. truncatula*, Hanley nec Sby.; HIDALGO (234), p. 142: *T. corbis*, Sby., *strangei*, Desh., are synonyms of *T. carnicolor*, Hanley; SMITH (487), p. 627.
- Tellina consanguinea*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 500: *T. taslensis*, p. 143, *quadrasii*, p. 144, Philippines; HIDALGO (234): n. spp.
- Tivela alucinans*, Sby., is a synonym of *T. natalensis*, Dkr.; SMITH, P. Malac. Soc. London v, p. 397.
- Venus mercenaria*, habits and growth; KELLOGG (269): *V. malonei*, Vanatta, is a synonym of *V. arakanensis*; SMITH, P. Malac. Soc. London v, p. 397: *V. neoclathrata*, n. n. for *V. clathrata*, Desh.; DOLLFUS, J. Conchyl. I, p. 428.
- Zenatia victoriae*, Victoria; PRITCHARD & GATLIFF, P. Soc. Victoria xvi, p. 92, fig.: n. sp.

## SUBMYTILACEA.

- Structure of the gill; RIDWOOD (443).
- Anodonta cygnea*, nervous system; LATTER (308).
- †*Ashtarotha*, n. sect. of *Astarte*, type *A. undulata*, Say, Miocene; DALL, Tr. Wagner Inst. iii, p. 1487: also DALL, P. U. S. Mus. xxvi, p. 936.
- Astarte*, revision of N. American species, with figg. and n. var. of *A. subæquilatera*, p. 948; DALL (133).
- Astarte polaris*, p. 945, *alaskensis*, Alaska, *bennettii*, Bering Sea, p. 946, (*laurentiana*, var.?) *soror*, p. 947, Greenland, *liogona*, nr. delta of Mississippi, *vernica*, Bering Sea, p. 948; DALL, P. U. S. Mus. xxvi, figg.: n. spp.
- Aurora*, Simpson, renamed *Diaurora*, q.v.
- Axinus croulinensis*, n. var.; MARSHALL (330), p. 50.
- Batissa schmidti*, East Borneo; MARTENS, SB. Ges. naturf. Berlin 1903, p. 426, fig.: n. sp.
- Callocardia laevis*, Antarctic; PEELSENER (391), p. 27, fig.: n. sp.
- Cardita (Carditamera) guppyi*, Trinidad; DALL, Tr. Wagner Inst. iii, p. 1413, fig.: *C. abbreviata*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 500: n. spp.
- Corbicula (Cyrenodonax*, n. sect.) *formosana*, Formosa; DALL, Tr. Wagner Inst. iii, p. 1450: *C. tsadiana*, Lake Tsad; MARTENS, SB. Ges. naturf. Berlin 1903, p. 9: *C. artini*, Upper Nile; PALLARY, Bull. Inst. Egypt. iii, p. 93, fig.: n. spp.
- Corbiculina*, n. sect. of *Corbicula*, type *C. angasi*, Prime; DALL, Tr. Wagner Inst. iii, p. 1449: Also DALL, P. Soc. Washington xvi, p. 6.
- Corneocyclas*, notes on name; WOODWARD (573).
- Crassatellites brasiliensis*, Brazil; DALL, Nautilus xvi, p. 102 [figd.]; DALL, P. U. S. Mus. xxvi, p. 950]: n. sp.
- †*Cryptomactra*, n. gen. for, type *Lucina pesanseris*, Mayer-Eymar, Sarmanian, Russia; ANDRUSOV, Verh. Russ. Mineral. Ges. xxxix, p. 474.

- Cuna dalli*, Florida; VANATTA, P. Ac. Philad. 1903, p. 759, fig.: n. sp.  
*Cyamium subquadratum*, Antarctic; PELSENEER (391), p. 15, fig.: n. sp.  
*Cycladiidae* of Lithuania; DYBOWSKI (161).  
*Cyclas* (Brug.) Link, is the proper generic name for the *Venus islandica* of Linn.; DALL, P. Soc. Washington xvi, p. 8.  
*Cyclocalyx*, n. sect. of *Corneocyclas*, type *Pisidium scholtzii*, Clessin; DALL, Tr. Wagner Inst. iii, p. 1463: also DALL, P. Soc. Washington xvi, p. 7.  
*Cymatocyclas*, n. sect. of *Corneocyclas*, type *Pisidium compressum*, Prime; DALL, Tr. Wagner Inst. iii, p. 1463: also DALL, P. Soc. Washington xvi, p. 7.  
*Cypricardia sowerbyi*, n. n. for *C. oblonga*, Sby. nec Linn.; HIDALGO (234), p. 364.  
*Cyrenidae*, classification; DALL (135).  
*Cyrenodonax*, n. sect. of *Corbicula*, type *C. formosana*, n. sp., Formosa; DALL, Tr. Wagner Inst. iii, p. 1450: also DALL, P. Soc. Washington xvi, p. 6.  
†*Cyrenopsis*, n. gen., type *Maetra meeki*, Eth., Cretaceous, N. S. Wales; ETHERIDGE, Mem. geol. Surv. N. S. Wales, Pal., No. 11, p. 28.  
†*Cyrtodontarca*, n. gen. for *C. bakewelliioides*, n. sp., Palaeozoic, Russia; JAKOWLEW, Mem. Com. geol. St. Petersb., n. s., Lim. 4, p. 12.  
*Dallia*, Simpson, renamed *Simpsonella*, q. v.  
*Diaurora*, n. n. for *Aurora*, Simpson nec Rag.; COCKERELL, Nautilus xvi, p. 118.  
*Erycina floridana*, Florida; VANATTA, P. Ac. Philad. 1903, p. 758, fig.: n. sp.  
*Felania minor*, Japan; SOWERBY, Ann. Nat. Hist. xii, p. 501: n. sp.  
*Fischeria*, Bernardi, renamed *Profischeria*, q. v.  
†*Fissilunula*, n. gen., type *Cytherca clarkei*, Moore, Cretaceous, N. S. Wales; ETHERIDGE, Mem. geol. Surv. N. S. Wales, Pal., No. 11, p. 31.  
*Kellia natalensis*, S. Africa; SMITH, P. Malac. Soc. London v, p. 396, fig.: n. sp.  
*Lampsida ventricosus*, visual area; LANDACRE (307).  
*Lampsilis rovirosai*, figd.; PILSBRY, P. Ac. Philad. 1903, p. 788.  
*Lascea rubra*, anatomy; PELSENEER (391).  
*Miodon*, Cptr., renamed *Miodontiscus*, q. v.  
*Miodon*, Sandb., renamed *Miodontopsis*, q. v.  
*Miodontiscus*, n. n. for *Miodon*, Cptr. non Dumeril; DALL, Tr. Wagner Inst. iii, pp. 1409, 1417: also DALL, Nautilus xvi, p. 143.  
*Miodontopsis*, n. n. for *Miodon*, Sandberger non Carpenter; DALL, P. Soc. Washington xvi, p. 5.  
*Mytilus edulis*, frequency of pearls; McINTOSH (327): *M. galloprovincialis*, formation of pearls; DUBOIS (155).  
*Pisidium baicalense*, *maculatum*, *raddei*, *trigonoides*, figd.; KOBELT in ROSSMAESSLER (450): *P. walkeri* var. *mainense* is a species; STERKI, Nautilus xvii, p. 21.  
*Pisidium ohioense*, Ohio; STERKI, Nautilus xvii, p. 20: *P. complanatum*, Michigan, p. 79, *rowelli*, California, p. 80, *cuneiforme*, Michigan and Minnesota, p. 81; STERKI, t. c.: *P. ashmuni*, New Mexico, *danielsi*, Indiana; STERKI, t. c. p. 42: n. spp.  
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*Profischeria*, n. n. for *Fischeria*, Bernardi non Robineau Desvoidy; DALL, P. Soc. Washington xvi, p. 6: also as n. sect. of *Egeria*, type *Fischeria delesserti*, Bernardi; DALL, Tr. Wagner Inst. iii, p. 1455.  
*Pseudokellya*, n. gen. for *Kellia cardiformis*, Sm.; PELSENEER (391), p. 48.  
*Simpsonella*, n. n. for *Dallia*, Simpson nec Cossmann; COCKERELL, Nautilus xvi, p. 118.



- Spatha innesi*, Upper Nile; PALLARY, Bull. Inst. Egypt. iii, p. 97, fig.: n. sp.
- Spathella fourtaui*, Upper Nile; PALLARY, t. c. p. 96, fig.: n. sp.
- Sphaeriidae*, classification; DALL (135): *Sphaerium*, several Mexican spp. figd.; PILSBRY (415): *S. tenellum*, n. n. for *S. fragile*, Clessin non Meek & Hayden; DALL, Tr. Wagner Inst. iii, p. 1458: *S. ssorense*, Dybowski, p. 32, *S. (Cyrenastrum) korotnievii*, *S. (Scaldiana) westerlundii*, p. 33, *S. (Corneola) baicalense*, p. 34, figd.; KOBELT in ROSS-MAESSLER (450).
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- +*Tellinoocyclas*, n. sect. of *Corbicula*, type *Cyrena tellinella*, Desh.; DALL, Tr. Wagner Inst. iii, p. 1449: also DALL, P. Soc. Washington xvi, p. 6.
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- Unio (Grandidieria) tsadianus*, Lake Tsad; MARTENS, SB. Ges. naturf. Berlin 1903, p. 8: *U. fourtaui*, Upper Nile; PALLARY, Bull. Inst. Egypt. iii, p. 95, fig.: n. spp.
- Venericardia armilla, gouldii, incisa*, Dall, and others, figd.; DALL, P. U. S. Mus. xxvi, p. 951.

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- Structure of the gill; RIDWOOD (443).
- Amussium paucilirata*, Maldive Is.; SMITH (487), p. 622, fig.: n. sp.
- Avicula albina*, Lamk., note on; DUBOIS, C.R. Soc. Biol. lv, p. 1638.
- Dacrydium albidum*, Antarctic; PELSENER (391), p. 26, fig.: n. sp.
- +*Deuteromya*, n. n. for *Dimya*, Rouault nec Menke; COSSMANN, Rev. paleozool. vii, p. 68: Criticism; DALL, t. c. p. 180: Reply; COSSMANN, t. c. p. 181.
- Janina gardineri*, Maldive Is.; SMITH (487), p. 622, fig.: n. sp.
- Lima gwyni*, n. n. for *L. elliptica*, Jeff. non Whiteaves; SYKES, J. Malac. x, p. 104.
- +*Mytiloperna*, n. gen. for *Perna americana*, Forbes; IHERING, Revist. chilena vii, p. 123.
- +*Nathorstella*, n. gen. for *N. semiplicata*, n. sp., Devonian, Spitzbergen; KAYSER, Bih. Svenska Ak. xxxvii, Afd. iv, No. 2, p. 10 [omitted in 1902].
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- +*Odontoperna*, ? n. subgen. of *Gervillea* for *G. exilis*, Stopp., Trias, S. Europe; FRECH, Centrbl. Mineral. 1902, p. 613.
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- Philobrya sublævis*, Antarctic; PELSENEER (391), p. 25, fig.: n. sp.  
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# VIII. BRACHIOPODA.

BY

E. R. SYKES, B.A.

ASSISTED BY

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

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Europe:—Occurrence of *Spiriferina octoplicata*, Sby., Belgium; LOHEST, Bull. Soc. Belge Geol. xxx, p. 109.—Brachiopods from Santa Lucia; OEHLERT (34).—Lower Devonian fossils from Germany, with n. spp.; WALTHER (45).—Few fossils from Neuweilnau; MAURER, Ber. Senckenberg. Ges. 1902, p. 65.—On the fauna of the Urals, with n. spp.; KAZANSKY (26).

America:—Fossils from Western Tennessee; FOERSTE, J. Geol. xi, p. 706.—Fauna of Hamilton Formation in Central New York; CLELAND (12).—Fossils from Ohio Basin; CLAYPOLE (11).—Fauna of Hamilton Group, Ontario, with new forms; SHIMER & GRABAU (43).—Few fossils from Stafford Limestone of New York; TALBOT, Amer. J. Sci. xvi, p. 148.—Lists of North American species; WILLIAMS (48).

**Silurian:—**

Europe:—List of species from Belgium; MALAISE, Ann. Soc. geol. Belgique xxv bis, p. 217.

America:—Fossils from Manlius formation of New York, with *Rhynchonella litchfieldensis*, n. sp.; SCHUCHERT (42).—Fauna of the Trenton formation at type section and Newport, N. Y.; RAYMOND (38).—Fossils from Calceiferous formation of the Mohawk Valley, with *Lingula ovata*, n. sp.; CLELAND (13).—Fossils from Western Tennessee; FOERSTE, J. Geol. xi, p. 706.

Australia:—New species from Victoria; CHAPMAN (8).

**Cambrian:—**

New species from Europe and N. America; WALCOTT (44).

Notes on Canadian species, with n. spp.; MATTHEW (30A).

## III. SYSTEMATIC.

Animal, habits, and anatomy of several species; MORSE (31).

Notes on Brachiopods; SCHUCHERT (41).

Development and evolution of *Platystrophia*; CUMINGS (14).

†*Broggeria*, n. subgen. of *Obolus*, type *O. salteri*, Holl.; WALCOTT, P. U. S. Mus. xxv, p. 605.

*Chlidonophora*, n. subgen. of *Terebratulula*, type *Terebratulina* (?) *incerta*, Davidson; DALL, Tr. Wagner Inst. iii, p. 1538.

*Crania patagonica*, figd.; DALL, P. U. S. Mus. xxvi, p. 950.

†*Eunoa*, n. gen. for *E. accola*, n. sp., Palæozoic, New York; CLARKE (9).

†*Linnarsonella*, n. gen., type *L. girtyi*, n. sp., Cambrian, N. America; WALCOTT, P. U. S. Mus. xxv, p. 601.

†*Stolzenburgiella*, n. subgen. of *Spirigera*, type *S. bukowskii*, n. sp., Trias, S. Europe; BITTNER, Jahrb. geol. Reichsanst. lii, p. 508.

## IX. BRYOZOA.

BY

ALICE L. EMBLETON, B.Sc.

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## INTRODUCTION.

THIS year an important addition has been made to Bryozoa literature in the Monograph by JULLIEN & CALVET (48) on the Bryozoa collected by the Prince of Monaco's yacht "Hirondelle" in the Gulf of Gascony, and the Azores. It includes descriptions of new genera and species, and has 18 valuable plates. Classification is given with tables of where each sp. was found and also a full bibliographic list.

Many new species are described by WATERS (96) from the Antarctic and sub-Antarctic regions, from Chili and other parts of South America, and NORMAN (67 & 68) gives an account of the species found in East Finmark, which include many new forms. He has erected several new genera, composed of species already described. He also discusses Zoocium-building in the *Cribrilinidæ*, and deals at length with the synonymy of *Bryozoa*.

NORDGAARD (66) has published the results of his work on the forms from West Norway.

MAPLESTONE (59) has given some further descriptions of new Tertiary species from Victoria; and also a paper on the Victorian fossil *Selenariidæ*, in which are given descriptions of some new species.

BASSLER (3) has added 15 new species to the genus *Homotrypa*, from Cincinnati.

ROBERTSON (79) has written on the embryology and embryonic fission in *Crisia*.

NEVIANI (64) has this year continued his bibliographic work.

## I. TITLES.\*

1. ADAMS, G. J., GIRTY, G. H. & WHITE, D. Stratigraphy and paleontology of the Upper Carboniferous rocks of the Kansas Section. Bull. U. S. Geol. Surv. No. 211, 123 pp.
2. BARNES, J. On a fossil *Polyzoa*, from the mountain limestone, Castleton. Tr. Manchester Geol. Soc. xxviii, pp. 243-245.
3. BASSLER, R. S. The structural features of the Bryozoan genus *Homotrypa*, with descriptions of species from the Cincinnati group. P. U. S. Mus. xxvi, pp. 565-591, 6 pls.
4. BEEDE, J. W. Fauna of the Shawnee Formation (Haworth), the Wabaunsee Formation (Prosser), the Cottonwood Limestone. Coal Measures Faunal Studies ii. J. W. Beede & Austin J. Rogers. Kansas Quart. i, pp. 163-181.
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BREEMEN, P. J. VAN. [See REDEKE & BREEMEN (76).]
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———. [See also JULLIEN & CALVET (48).]
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12. ———. Contributions à l'étude des Bryozoaires fossiles. T. c. pp. 659-661, pl. xxi.
13. ———. Note sur la constance de la faune de la craie de Villedieu. T. c. pp. 265-268.
14. CHAPMAN, F. New or little-known Victorian fossils in the National Museum. II. Some Silurian Molluscoidea. P. Soc. Victoria xvi, pp. 60-82, 3 pls.
15. CLELAND, H. F. Further notes on the calciferous (Beckmanton) formation of the Mohawk Valley, with descriptions of new species. [None for *Bryozoa*.] Bull. Amer. Pal. xviii, 20 pp.

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

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Review by MEISENHEIMER, Zool. Zentrbl. x, p. 917.
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Lists of spp. found.
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[In Russian.]



## II. SUBJECT INDEX.

## (a) GENERAL BIOLOGY.

## BRYOZOA collectively or of more than one division.

- Text-books: GOETTE (34), HERTWIG (44), KORSCHOLT & HEIDER (51), MUDGE (62), PRATT (74).  
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 Methods of preservation, LO BIANCO (54).  
 †Terminology; correlation of geological faunas, WILLIAMS (98).  
 Italian bibliography of living and fossil forms, NEVIANI (64).  
 Sea-bottom deposits, BOEGGILD (6).  
 Distribution of spp., CANU (11).

## CYCLOSTOMA.

- Structure of genus, *Homotrypa*, BASSLER (3).  
 Embryology and embryonic fission in *Crisia* spp., ROBERTSON (79).  
 †Possibility of correlation of Australian formations with those of the Northern Hemisphere, HALL (39).  
 Classification and synonymy of spp. from Gulf of Triest, GRAEFFE (37).

## CHEILOSTOMA.

- Development of the cryptocyst and of the compensating sac, OSTROUMOFF (69).  
 Zoecium-building in *Cribrilinidae*, NORMAN (67 & 68).  
 †Possibility of correlation of Australian formations with those of the Northern Hemisphere, HALL (39).  
 Classification, NORMAN (67 & 68).  
 Classification and synonymy of spp. from the gulf of Triest, GRAEFF (37).

## (b) GEOGRAPHICAL.

## ENTOPROCTA.

- Spitzbergen, fauna, RÖMER (80).  
 Northern Europe, plankton, list of spp. [KNUDSEN] (50).  
 †Russia, Devonian forms of the sub-provinces, SCHUCHERT (86).  
 Gulf of Gascony and Azores, n. genera and n. spp., JULLIEN & CALVET (48).  
 †British Carboniferous rocks, life-zones, HIND (45).  
 †Charmouth, fossiliferous bed in the Selbornian, LANG (53).  
 Exmouth; spp. serving as fish-food, TODD (91).  
 †Devon and Yorkshire, collections of fossils from the white chalk zones of the English coasts, ROWE (81).  
 †Zealand and Brabant, collections, LORIÉ (56).  
 †Belgium, fauna of the "granite," DESTINEZ (22).  
 Hamburg, fauna of the Elbe, VOLK (95).  
 †Königsberg, near Giessen, collections, PARKINSON (71).  
 †Budapest, collections, SCHAFARZIK (82).  
 Gulf of Triest, faunistic, GRAEFFE (37).  
 †Jura, lists of spp. with localities, SCHARDT & DUBOIS (83).  
 †Studies in the old formations of the Pyrenées, BRESSON (7).  
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A † is prefixed to the references to fossil forms.

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*Crisia* spp., embryology and embryonic fission, ROBERTSON, Univ. Calif. publ. Zool. i, No. 3, pp. 115-156, pls. xii-xv.

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- Cheilostoma*; development of the cryptocyst and compensating sac, OSTROUMOFF, Zool. Anz. xxvii, pp. 96 & 97.
- †*Cheilostoma*, Villedieu, constancy of chalk fauna, CANU, Bull. Soc. geol. France (4) iii, pp. 265-268.
- Adeonella insidiosa*, n. n. for *Microporella violacea* Hincks, JULLIEN & CALVET, Resultats Monaco xxiii, p. 54, pl. vi, fig. 4.
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- Ammatophora* n. gen. (= *Membranipora nodulosa* Hincks), type = *A. nodulosa*, East Finmark, NORMAN, Ann. Nat. Hist. (7) xii, p. 88, pl. viii, figg. 5-7.
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- Antropora* n. gen. (= *Membranipora granulifera* Hincks), type = *A. granulifera*, East Finmark, NORMAN, Ann. Nat. Hist. (7) xii, p. 87, pl. viii, fig. 4.
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- Cribrilina nitido-punctata*, West Norway, NORDGAARD, Meeresf. Bergen. 1903, p. 84, pl. i, fig. 7; *C. annulata* nov. var. *spitsbergensis*, East Finmark, NORMAN, Ann. Nat. Hist. (7) xii, p. 103, pl. viii, figg. 10 & 11.
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- Doryporella* n. gen. for *D.* (= *Lepralia*) *spatulifera* (Smitt), East Finmark, NORMAN, Ann. Nat. Hist. (7) xii, p. 106.
- Ellisina* (*Membranipora*) *levata* Hincks, NORMAN, Ann. Nat. Hist. (7) xi, p. 596.
- Escharoides biformata*, Antarctic, WATERS, Resultats Belgica, p. 72, pl. vii, fig. 5, n. sp.
- †*Evactinopora castletoniensis*, BARNES, Tr. Manchester Geol. Soc. xxviii, pp. 243-245, n. sp.

- Farciminaria alicae*, Azores, JULLIEN & CALVET, Resultats Monaco xxiii, p. 36, pl. iv, fig. 1a-c, n. sp.
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- Lepralia*, validity of name discussed, NORMAN, Ann. Nat. Hist. (7) xii, pp. 99 & 100; *L. nitida*, East Finmark, occurrence, NORMAN, t. c. p. 100, pl. viii, fig. 8; *L. smitti*, synonymy, Nordgaard's *Smittia levinsemi*, id. t. c. p. 123; *L. variolosa*, cf. *Smittia*; *L. polita*, West Norway, NORGAARD, Meeresf. Bergen. 1903, p. 87, pl. i, figg. 8 & 9.
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- Phonicosia cecilii* n. n. for *Flustra cecilii* Audouin, JULLIEN & CALVET, t. c. p. 85.
- †*Phylactella cribrosa*, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xvi, pl. xvi, fig. 3, n. sp.
- Porella struma*, *P. compressa*, West Norway, NORDGAARD, Meeresf. Bergen. p. 89, pl. i, figg. 10-12.
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- Ramphonotus minax* (Busk), NORMAN, Ann. Nat. Hist. (7) xi, p. 597, pl. xiii, fig. 7.
- Retepora beuniana*, *R. wallichiana*, West Norway, NORDGAARD, Meeresf. Bergen. 1903, p. 95, pl. ii, figg. 20-23.
- Retepora grimaldii*, Gulf of Gascony, JULLIEN & CALVET, Resultats Monaco xxiii, p. 62, pl. viii, fig. 1; *R. antarctica*, p. 80, pl. vi, fig. 1, *R. protecta*, p. 81, pl. vi, fig. 2, *R. frigida*, p. 82, pl. vi, fig. 4, *R. laevigata*, p. 82, pl. vi, fig. 5, *R. lepralioides*, p. 83, pl. vi, fig. 3, *R. gelida*, p. 84, pl. vi, fig. 7, *R. hippocrepis*, p. 84, pl. vi, fig. 10, Antarctic, WATERS, Resultats Belgica; †*R. uniserialis*, p. 143, pl. xvi, fig. 8, *R. aivensis*, p. 144, pl. xvii, fig. 9, *R. delicatula*, fig. 10, *R. aborescens*, fig. 11, *R. complanata*, p. 145, fig. 12, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xvi : n. spp.



- Reteporella dichotoma* n. n. for *Cellepora dichotoma* Hincks, JULLIEN & CALVET, Resultats Monaco xxiii, p. 67, pl. ix, fig. 2.
- Sarsiflustra* n. gen. for *S. abyssicola* (= *Flustra abyssicola* Sars), JULLIEN & CALVET, Resultats Monaco xxiii, p. 43, pl. v, fig. 6.
- +*Schismopora circumvallata*, *S. otwayensis*, Victoria, Tertiary, MAPLESTONE, P. Soc. Victoria xvi, p. 142, pl. xvi, figg. 4 & 5, n. spp.
- Schizoporella coronopus*, p. 82, pl. xiii, fig. 7, *S. armata*, p. 83, *S. ramulosa*, p. 83, *S. avicularis*, p. 84, *S. costazii*, p. 84, n. n. for *Cellepora costazii*, JULLIEN & CALVET, Resultats Monaco xxiii.
- S. nomismata*, Gulf of Gascony, p. 80, pl. x, fig. 3, *S. guttata*, Azores, p. 81, fig. 4, *S. glebula*, Gulf of Gascony, p. 81, fig. 5, *S. fayalensis*, p. 139, pl. xvi, fig. 5, *S. richardi*, p. 140, fig. 6, *S. cucullata* nov. var. *labiosa*, p. 141, pl. xvi, fig. 7, *S. lepralioides*, p. 142, pl. xvi, fig. 8, *S. jullieni*, pl. xvii, fig. 1, *S. triaviculata*, p. 143, pl. xvii, fig. 2, Azores, JULLIEN & CALVET, t. c.; *S. gelida*, Antarctic, WATERS, Resultats Belgica, p. 52, pl. iii, fig. 12 : n. spp.
- Scrupocellaria scabra* nov. var. *paenulata* nov. var. *septentrionalis* sub. var. *congesta*, East Finmark, NORMAN, Ann. Nat. Hist. (7) xi, p. 579.
- S. antarctica*, Antarctic, WATERS, Resultats Belgica, p. 25, pl. i, fig. 5, pl. viii, fig. 2; *S. grimaldii*, p. 34, pl. iii, figg. 1-1b, *S. aquitanica*, Gulf of Gascony, p. 35, figg. 2-2b, *S. hirsuta*, Azores, p. 35, figg. 3a-c, JULLIEN & CALVET, Resultats Monaco xxiii : n. spp.
- Selenaria punctata*, pp. 208 & 212, pl. xxiv, fig. 2, MAPLESTONE, P. Soc. Victoria xvi.
- S. magnipunctata* n. n. for *S. punctata* Waters, p. 212, pl. xxiv, fig. 1, +*S. bimorphocella* n. sp., p. 213, fig. 3, *S. partipunctata* n. sp., p. 214, fig. 4, +*S. hexagonalis* n. sp., p. 214, fig. 5, Victoria, MAPLESTONE, t. c.
- +*S. otwayensis*, Victoria, MAPLESTONE, t. c. p. 216, pl. xxv, fig. 8, n. sp.
- Sertella* n. gen. for *S. couchi* (= *Retepora couchii* Hincks), *S. gracilis*, p. 58, pl. vi, fig. 5, JULLIEN & CALVET, Resultats Monaco xxiii, p. 57.
- Sertella oceanica*, p. 59, pl. vii, fig. 1, *S. aquitanica*, Gulf of Gascony, p. 60, fig. 2, *S. tristis*, Azores, p. 60, pl. viii, fig. 4 and p. 132, pl. xvi, fig. 3, JULLIEN & CALVET, t. c., n. spp.
- +*Solenopora* n. g. for *S. tubulifera* n. sp., Victoria, Tertiary, MAPLESTONE, P. Soc. Victoria xvi, p. 143, pl. xvi, fig. 7.
- Strophoella* n. gen. for *S. tuberigera* n. sp., Gulf of Gascony, JULLIEN & CALVET, Resultats Monaco xxiii, p. 66, pl. ix, fig. 1.
- Smittia lineata*, East Finmark, NORMAN, Ann. Nat. Hist. (7) xii, p. 122, pl. ix, figg. 14 & 15; *S. arctica*, p. 90, pl. i, figg. 16 & 17, *S. reticulata*, p. 91, pl. ii, figg. 18 & 19, West Norway, NORDGAARD, Meeresf. Bergen. 1903; *S. concinna*, p. 150, pl. xvii, fig. 4, *S. cervicornis*, p. 151, pl. xvii, fig. 6, *S. ?coccinea* n. n. for *Cellepora*, Abildgaard, p. 153, JULLIEN & CALVET, Resultats Monaco xxiii; *S. variolosa* n. n. for *Lepralia variolosa* Johnston, JULLIEN & CALVET, t. c. p. 97; *S. kahleri* Calvet referred to *Cryptella*, JULLIEN & CALVET, t. c. p. 77, pl. vii, fig. 4, p. 135, pl. xvi, fig. 4; *S. levinseni* n. n. *S. reticulata* Bidentkap, NORDGAARD, Meeresf. Bergen. 1903, p. 92.
- S. crozetensis*, p. 64, pl. viii, fig. 15, *S. antarctica*, p. 65, pl. iv, fig. 1, *S. conspicua*, p. 66, pl. iv, fig. 3, *S. tripora*, p. 67, pl. iv, fig. 2, *S. praestita*, p. 67, pl. viii, fig. 10, *S. inclusa*, p. 68, pl. iv, fig. 5, *S. directa*, p. 69, pl. iv, fig. 10, *S. crassatina*, p. 70, pl. iv, fig. 9, pl. iii, fig. 7, *S. pileata*, pl. iv, fig. 7, *S. gelida*, p. 71, pl. iv, fig. 6, *S. dentata*, pl. iv, fig. 8, *S. reptans*, p. 72, pl. iv, fig. 11, Antarctic, WATERS, Resultats Belgica; *S. grimaldii*, Gulf of Gascony, p. 99, pl. xi, fig. 1, *S. azorensis*, Azores, fig. 5, *S. colletti*, p. 100, pl. xii, fig. 3, *S. dicipiens*, Gulf of Gascony, p. 101, pl. xii, fig. 5, *S. ensifera*, Azores, p. 102, pl. xii, fig. 4, p. 149, pl. xvii, fig. 5, *S. fallax*, fig. 6, *S. guernei*, Gulf of Gascony, pl. xiii, fig. 1, *S. schlumbergeri*, Terre-neuve, p. 103, pl. xiii,



- fig. 2, *S. robusta*, p. 104, fig. 5, *S. immersa*, p. 105, fig. 6, *S. gemmata*, Gulf of Gascony, fig. 4, JULLIEN & CALVET, Resultats Monaco xxiii : n. spp.
- Smittina* n. n. for *Smittia* Hincks (partim), *S. jeffreysi*, *S. arctica*, East Finmark, NORMAN, Ann. Nat. Hist. (7) xii, pp. 120 & 121.
- Systenopora* n. gen. for *S. contracta* n. sp., Antarctic, WATERS, Resultats Belgica, p. 55, pl. v, fig. 1.
- Tessaradoma gracile*, Azores, JULLIEN & CALVET, Resultats Monaco xxiii, p. 74, pl. iii, fig. 4, pl. xiv, fig. 2.
- Umbonula verrucosa*, JULLIEN & CALVET, t. c. p. 147, pl. xvii, figg. 7a-b.

## CTENOSTOMA.

- Alcyonidium gelatinosum*, North Sea, REDEKE & BREEMEN, Tijdschr. Nederland. Dierk. Ver. (2) viii, p. 146 ; *A. hirsutum*, West Norway, NORDGAARD, Meeresf. Bergen. 1903, p. 101, pl. ii, fig. 4.
- A. antarcticum*, Antarctic, WATERS, Resultats Belgica, p. 85, pl. vii, fig. 7 ; *A. brucei*, Kolguev Is., N. Russia, CALVET, Bull. Soc. zool. France xxviii, pp. 33-36, 4 figg. : n. spp.
- Bowerbankia pusilla*, Gulf of Gascony, JULLIEN & CALVET, Resultats Monaco xxiii, p. 31, pl. ii, fig. 6, n. sp.

## PHYLACTOLÆMA.

- Russia, fauna, ZYKOFF (102).

# X. CRUSTACEA.

(Including GIGANTOSTRACA AND PYCNO-  
GONIDA.)

BY

W. T. CALMAN, D.Sc.

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## INTRODUCTION.

THE Record of Crustacean Literature for 1903 is considerably less in bulk than was that for 1902, owing, in part, to the smaller number of papers dealt with (280 as against 316), and, in part, to the fact that an unusual number of large systematic works were recorded last year.

Among the most important contributions to Carcinology published during 1903 is MAYER'S (145) Report on the *Caprellidae* of the "Siboga" Expedition, which includes a revision of the entire family, based on very extensive collections from all parts of the world. It forms a supplement to the author's well-known monographs of 1882 and 1890 and, though chiefly of systematic interest, it includes many additional observations on morphology and bionomics. One of the most interesting discoveries of recent years is recorded in HANSEN'S paper (101) on the *Ingolfiellidae*, a new family of *Amphipoda*, for which he proposes to establish a new suborder, *Ingolfiellina*. The history of this discovery as related in HANSEN'S paper carries with it a moral which may be heartily recommended for consideration by the over-hasty writers of preliminary notices. The same author discusses (100) some points in the morphology of the aberrant Isopods *Bathynomus* and *Anuropus*, and in connection with a much-needed revision of the "Challenger" *Sergestidae* (102), describes luminous organs, hitherto unknown in Decapods, in a species of *Sergestes*. BERNDT (13) has reinvestigated the anatomy of the aberrant Cirripede *Alcippe* and (14) describes a second species of the very rare *Cryptophialus*.

THIENEMANN'S (230) discovery of statocysts in the Isopod *Anthura* raises some interesting questions, both morphological and physiological. BÖRNER (19) attempts to compare the segmentation of the limbs in the various classes of Arthropoda, but his treatment of the Crustacea will hardly commend itself to students of that group. CARPENTER (41) in a suggestive and interesting paper deals with the relations between Crustacea and other Arthropods, and PACKARD (172) gives his views on the same subject.

Among many papers on Physiology, BRUNTZ (35) has an important one on the excretory organs of Arthropoda, which has also a morphological interest.

THOMPSON'S two papers (234 & 235) on the larval development of *Eupagurus* and of *Naushonia*, and WILLIAMSON (256) on the larval stages of *Carcinus* are the chief embryological works of the year.

BORRADAILE publishes useful revisions of the genera of *Dromiida* (20) and *Thalassinidea* (21), and proposes a new classification of a portion of the Decapoda (24). His papers (22-24) also contain numerous interesting notes on the bionomics of tropical marine Decapods. BÜRGER (36) describes an interesting case of commensalism between a crab and a sea-anemone. WOLF (260) discusses the various modes of resisting drought in freshwater Copepods. STEUER (227) gives a full account of the parasitic *Mytilicola*, of which a preliminary description appeared last year. Another interesting parasitic form is the Ostracod *Entocythere* described by MARSHALL (143).

DOFLEIN (62) discusses the structure of the eyes in deep-sea *Brachyura*, and LANKESTER (130) redescribes the remarkable case of modification of the eye peduncles in *Cymonomus* to which NORMAN first called attention.

Among purely systematic works we may mention the voluminous report on *Copepoda* from Ceylon by the late I. C. THOMPSON and ANDREW SCOTT (233). SARS has several papers on exotic *Entomostraca* (197-200) and continues the publication of his great work on the Crustacea of Norway (196). GRUVEL (91-94) contributes several important memoirs on *Cirripedia*, in the course of which the symbol "n. sp." is appended to some species which are being described for the second or even for the third time, usually without any hint of previous publication.

The Recorder is under obligations to many authors who have sent him copies of their papers, some of which are not yet accessible in the London libraries. There are, however, many works stated to have been published during the year which he has been unable to see, and he would earnestly appeal for further assistance in bringing the Record up to date.

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- General account of fossil *Malacostraca*; FRITEL (78-80).  
 Catalogue of type-specimens of fossil Crustacea in New York State  
 Museum; CLARKE & RUEDEMANN (48).  
 List of types and figured specimens of *Decapoda* and *Ostracoda* in  
 Senckenberg Museum; KINKELIN (117).  
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## IV. SYSTEMATIC.†

[In addition to papers quoted below, see ALZONA (3), BÖRNER (19), †CLARKE & RUEDEMANN (48), CLEVE (52), DAVENPORT (60), †FRITEL (78-80), GASKELL (81), GAUTRELET (83), JENSEN, JOHANSEN & LEVINSSEN (111), KEISSLER (116), KOFOID (120), MANDOUL (141), MARSSON (144), MAZIARSKI (146), PÉREZ (173), PETCH (174), RICHARD (190), SÆRS (199), SCOTT, T. (210 & 211), STEUER (226), VALLENTIN (240), ZACHARIAS (266-272).]

*Pancarida*, new phylum including the single class Crustacea, p. 151; PACKARD, P. Amer. Phil. Soc. xlii.

Phylogeny and relationships of Crustacea; CARPENTER, P. Irish Ac. xxiv, B (4), pp. 320-360.

Review of recent morphological work; HOWES, Rep. Brit. Ass. lxxii, 1902 (1903) pp. 618-638.

## A. MALACOSTRACA.

## 1. DECAPODA.

[See also, BIEDERMANN (15), CAULLERY & MESNIL (43), CUÉNOT (54), DAVENPORT (60), DHÉRE (61), †ETHERIDGE & DUN (72), GAUTRELET (82), KINKELIN (117), KOLTZOFF (121 & 122), LABBÉ (124), LAUNOY (131 & 132), LOEB, L. (137), MONACO (149), MOORE (152), MOREIRA (155), PORTER (177), SCHNEE (203), SEURAT (215-217), TODD (238), VERRILL (241), WACKE (246).]

Classification of reptant sub-orders of *Decapoda* :

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Tribes, *Hippidea*, *Galatheidea*, *Thalassinidea*, *Paguridea* (sub-tribes *Pagurinea* and *Lithodinea*);

with phylogenetic table and keys, p. 690; BORRADAILE, Fauna Maldive ii.

## a. BRACHYURA.

[See also ALMERA (2), CAREZ (39), CARLSON (40), †JUKES-BROWNE (113), MOREIRA (153), NOBILI (161), SENNA (214).]

Classification of *Brachyura* :

Sub-tribes *Oxystomata*, *Dromiacea*, *Brachygnatha* (Legions, *Brachyrhyncha* **nom. nov.**, and *Oxyrhyncha*), with keys to families and sub-families; BORRADAILE, Fauna Maldive i, pp. 424-429.

Structure of eyes in deep-sea *Brachyura*; DOFLEIN, Biol. Centrbl. xxiii, pp. 570-593, 8 figg. in text.

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† 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.

- Habits &c., key to families, p. 681; BORRADAILE, Fauna Maldive ii.
- Etamena gracilis*, Maldive Ids., p. 684, text-fig. 122; BORRADAILE, t. c. n. sp.
- Halimus espinosus*, Maldive Ids., p. 688, pl. xlvii, fig. 4; BORRADAILE, t. c. n. sp.
- Huenia proteus*, variation, protective resemblance to *Halimeda* weed, p. 686, text-fig. 124, pl. xlvii, figg. 1 & 2; BORRADAILE, t. c.
- Lambrus (Rhinolambrus) turriger*, p. 690, pl. xlvii, fig. 5, (*Aulacolambrus sculptus*, p. 690, pl. xlvii, fig. 6; BORRADAILE, t. c.
- Naxioides spinigera*, Maldive Ids., p. 687, pl. xlvii, fig. 3; BORRADAILE, t. c. n. sp.
- Ocinopus aranea*, p. 685, text-fig. 123; BORRADAILE, t. c.
- †*Phrynomambrus corallinus*, Tertiary, Hungary, p. 110, pl. ii, figg. 4-6; LÖRENTHEY, Math. naturw. Ber. Ungarn xviii; cf. also Math. term. Kozlem. Magyar Ak. xxvii (5) (1901).

## CYCLOMETOPA.

- Cæcopilumnus* [see Catometopa].
- Cancer pagurus*, migrations; MEEK, Rep. Northumberland Sea Fisheries Committee for 1903, pp. 33-35: structural changes accompanying ecdysis; WITTEN, t. c. pp. 42-48, 1 pl., 1 fig. in text.
- †*C. breweri*, p. 345; ARNOLD, Mem. Calif. Ac. iii.
- Carcinus menas*, larval and early young stages and rate of growth; WILLIAMSON, Rep. Fish. Board Scotland xxi (3), pp. 136-177, pls. vii-xiii.
- Galene granulata*, p. 32; NOBILI, Boll. Mus. Torino xviii, No. 455.
- Melia tessellata*, habits; GIARD, Rev. Scient. (4) xix, p. 667.
- Ozius hawaiiensis*, Hilo, Hawaii, p. 76, figg. 3 & 4; RATHBUN, P. U. S. Mus. xxvi, n. sp.
- †*Phlyctenodes steinmanni*, Tertiary, Hungary, p. 111, pl. i, fig. 4; LÖRENTHEY, Math. naturw. Ber. Ungarn xviii; cf. also Math. term. Kozlem. Magyar Ak. xxvii (5) (1901), n. sp.
- Portunida*, notes on spp. from Japan, p. 25; RATHBUN, P. U. S. Mus. xxvi: notes on spp. from Singapore, p. 29; NOBILI, Boll. Mus. Torino xviii, No. 455.
- Parathelphusa tridentata*, p. 1, fig. B; NOBILI, t. c. No. 444.
- P. modigliani*, Mentawai Id., p. 1, fig. A; NOBILI, t. c. n. sp.
- Potamon* [see also *Telphusa*], notes on spp., p. 14; NOBILI, t. c. No. 447: *P. (Potamonautes) africanum*, p. 42, pl. ix, figg. 7-9; DE MAN, P. Zool. Soc. London 1903, i: *P. leschenaudii*, p. 18; NOBILI, Boll. Mus. Torino xviii, No. 452: *P. socotrensis*, p. 212, text-figg. a-d; POCOCK, Nat. Hist. Sokotra.
- P. (Potamonautes) latidactylum*, Ashanti, p. 41, pl. ix, figg. 1-6; DE MAN, P. Zool. Soc. London 1903, i: *P. (Geotelphusa) cognettii*, Borneo, p. 18; NOBILI, Boll. Mus. Torino xviii, No. 447: n. spp.
- Telphusa* [see also *Potamon*] *fluvialis* in hot springs, Algiers; BLANCHARD, C.R. Soc. Biol. iv, p. 947; GIARD, t. c. p. 1145: commensal *Rotifera*; PROVANELLI, Monit. Zool. ital. xiv, pp. 345-349.
- †*Titanocarcinus raulinianus*, p. 113, pl. ii, fig. 1; LÖRENTHEY, Math. naturw. Ber. Ungarn xviii; cf. also Math. term. Kozlem. Magyar Ak. xxvii (5) (1901).



## CATOMETOPA.

- Cæcopilumnus*, systematic position, p. 431; BORRADAILE, Fauna Maldive i.  
*Cyclograpsus henshawi*, Hilo, Hawaii, p. 75, figg. 1 & 2; RATHBUN, P. U. S. Mus. xxvi, n. sp.  
*Dilocarcinus septemdentatus*, Paraguay, infested by *Temnocephala microdactyla* n. sp.; MONTICELLI, Boll. Mus. Torino xviii, No. 439.  
*D. lævifrons*, Pernambuco, p. 48, pl. iv, figg. 1-4; MOREIRA, Arch. Mus. Rio Janeiro xi, n. sp.  
*Dissodactylus crinitichelis*, Rio Grande do Sul, p. 37, pl. iii; MOREIRA, t. c. n. sp.  
*Dotilla profuga*, Borneo, p. 22; NOBILI, Boll. Mus. Torino xviii, No. 447: *D. malabarica*, Mahé, p. 20, fig. 6; NOBILI, t. c. No. 452: n. spp.  
*Gecarcinus lagostoma* H. M.-E.? non Miers, p. 9; WHITELEGGE, Rec. Austral. Mus. v (1).  
*Gelasimus* [*Uca*] *tangieri*, autotomy and regen. of large claw, fishery, p. 341; BAUDOUIN, Bull. Mus. Paris ix: *G. pugilator*, statistical examination of asymmetry; DUNCKER, Biometrika ii (3), pp. 307-320.  
*Litoeira inermis*, Male Atoll, p. 430, text-fig. 111; BORRADAILE, Fauna Maldive i, n. sp.  
*Macrophthalmus latipes*, S. Nilandu Atoll, p. 433, text-fig. 114; BORRADAILE, t. c. n. sp.  
*Ocyroda urvillei*, habitats &c. in Gambier Archip., p. 381; SEURAT, Bull. Mus. Paris ix.  
*Paracleistostoma*, key to spp., p. 25, *eriphorum*, Borneo, p. 23; NOBILI, Boll. Mus. Torino xviii, No. 447, n. sp.  
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*Sylviocarcinus devillei*, p. 47, pl. iv, figg. 5-7 and pl. v; MOREIRA, Arch. Mus. Rio Janeiro xi.  
†*Telphusograpsus* n. g., p. 115, *lævis*, Tertiary, Hungary, p. 115, pl. ii, figg. 2 & 3; LÖRENTHEY, Math. naturw. Ber. Ungarn xviii; cf. also Math. term. Kozlem. Magyar Ak. xxvii (5) (1901), n. sp.  
*Uca* [see *Gelasimus*].

## OXYSTOMATA.

- Notes on habits, key to families, p. 434; BORRADAILE, Fauna Maldive i.  
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*Cymonomus quadratus*, p. 453, fig. 10, *granulatus*, p. 455, pl. xxiii, figg. 2-6, pl. xxxiv, figg. 7, 9, 12 & 13; LANKESTER, Quart. J. Micr. Sci. (n. s.) xlvii.  
*C. normani*, N. Atlantic, p. 457, pl. xxxiii, fig. 1, pl. xxxiv, figg. 8, 10 & 11, *valdiviæ*, E. Africa, p. 459, text-fig. 11; LANKESTER, t. c. n. spp.  
*Dorippe dorsipes*, p. 439, pl. xxii, fig. 1; BORRADAILE, Fauna Maldive i: *D. facchino* var. *alcocki* n. var., p. 25; NOBILI, Boll. Mus. Torino xviii, No. 455: *D. granulata*, p. 31; RATHBUN, P. U. S. Mus. xxvi.  
*D. histrio*, Singapore, p. 24, pl.; NOBILI, Boll. Mus. Torino xviii, No. 455, n. sp.  
*Ebalia maldivensis*, Maldive Ids., p. 437, text-fig. 116; BORRADAILE, Fauna Maldive i, n. sp.

- Hepatus chilensis*, symbiosis with *Antholoba reticulata* (Actinozoa); BÜRGER, Biol. Centrbl. xxiii, pp. 678 & 679.  
*Leucosilia maldivensis*, Maldive Ids., p. 438, text-fig. 117; BORRADAILE, Fauna Maldive i, n. sp.  
*Myra intermedia*, Maldive Ids., p. 438; BORRADAILE, t. c. n. sp.  
*Philyra*, notes on spp., p. 10; NOBILI, Boll. Mus. Torino xviii, No. 447.  
†*Ranina* cf. *speciosa*, p. 196; OPPENHEIM, Zeitschr. Deutsch. geol. Ges. lv.  
†*R. bittneri*, Tertiary, Hungary, p. 104, pl. i, figg. 1 & 2; LÖRENTHEY, Math. naturw. Ber. Ungarn xviii: cf. also Math. term. Kozlem. Magyar Ak. xxvii (5) (1901), n. sp.  
*Tlos latus*, Male Atoll, p. 437, text-fig. 115; BORRADAILE, Fauna Maldive i, n. sp.

DROMIACEA.

- Habits &c., key to legions and families, p. 575; BORRADAILE, Fauna Maldive ii.  
*Dromiidae*, revision of genera, definitions, phylogeny; BORRADAILE, Ann. Nat. Hist. (7) xi, pp. 297-303.  
*Cryptodromia hirsuta*, Maldive Ids., p. 577, pl. xxxiii, fig. 3; BORRADAILE, Fauna Maldive ii, n. sp.  
*Cryptodromiopsis* n. g. (*Dromiidae*), p. 299, *tridens* (not descr.), p. 300; BORRADAILE, Ann. Nat. Hist. (7) xi: *C. tridens*, Maldive Ids., p. 578, pl. xxxiii, fig. 4; BORRADAILE, Fauna Maldive ii: n. sp.  
*Dromia rumphii*, p. 576, pl. xxxiii, fig. 1; BORRADAILE, t. c.  
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*D. tridentatus*, Maldive Ids., p. 576, pl. xxxiii, fig. 2; BORRADAILE, t. c. n. sp.  
*Homolodromia bouvieri* (not descr.), structure of eye, p. 578; DOFLEIN, Biol. Centrbl. xxiii, n. sp.

INCERTÆ SEDIS.

- Cryptochirus coralliodytes*, at Gambier Archip., p. 380; SEURAT, Bull. Mus. Paris ix.

b. ANOMURA.

[See also, SENNA (214), MOREIRA (153).]

GALATHEIDEA.

- Cervimunida johni*, Coquimbo, p. 274, pl. xvii, text-fig. 9; PORTER, Revist. chilena vii, n. sp.  
*Galathea squamifera*, spermatogenesis; KOLTZOFF, C.R. Soc. Biol. lv, pp. 135-137.  
†*Palaemonida* n. g. (*Galatheidae*), p. 101, *defecta*, Tertiary, Hungary, p. 103, pl. i, fig. 3; LÖRENTHEY, Math. naturw. Ber. Ungarn xviii: cf. also Math. term. Kozlem. Magyar Ak. xxvii (5), (1901), n. sp.

PAGURIDEA.

- Notes on spp. from Singapore, p. 15; NOBILI, Boll. Mus. Torino xviii, No. 455.  
*Paguridae* (g. and sp. not stated), sense of touch &c.; BOHN, Bull. Soc. ent. France 1903, pp. 289-291.

- Clibanarius longitarsis* var. *trivittata* n. var., Malay Peninsula, p. 365; LANCHESTER, P. Zool. Soc. London 1902, ii.
- C. japonicus*, Hokkaido, p. 35, figg. 2-5; RATHBUN, P. U. S. Mus. xxvi, n. sp.
- Cænobita cavipes*, p. 8, *violascens*, p. 9; NOBILI, Boll. Mus. Torino xviii, No. 447.
- Cryptolithodes expansus*, p. 32, fig. 1; RATHBUN, P. U. S. Mus. xxvi.
- Dardanus* Paulson = *Pagurias* Benedict = *Pagurus* auctt., p. 33, *D. haanii* n. nom. for *Pagurus asper* de Haan non Milne-Edwards, p. 34; RATHBUN, t. c.
- Diogenes*, key to some spp. p. 367, *desipiens*, p. 366, pl. xxxiv, figg. 1 & 1a, *mixtus*, p. 367, pl. xxxiv, figg. 2a & b, Penang; LANCHESTER, P. Zool. Soc. London 1902, ii, n. spp.
- Eupagurus longicarpus* and *annulipes*, metamorphosis; THOMPSON, P. Boston Soc. xxxi, pp. 147-209, pls. iv-x: *E. bernhardus*, "pyrenolysis" in hepatic cells; LAUNOY, C.R. Ac. Sci. cxxxvi, pp. 109-112: *E. prideauxii*, parasitic gregarine; LÉGER & DUBOSQ, Arch. zool. exp. Notes (4) i, pp. cxlvii-cli, 6 figg. in text: variation; SCHUSTER, Biometrika ii, pp. 191-210, 1 fig.
- Lithodide* of Chile; PORTER, Revist. chilena vii, pp. 257-267, 2 figg.
- Pagurias* [see *Dardanus*].
- Paguristes longirostris*, p. 20; NOBILI, Boll. Mus. Torino xviii, No. 455.
- Pagurus* [see *Dardanus*] *striatus*, regeneration of eye; ARIOLA, Monit. Zool. ital. xiv, p. 316.
- P. loxochelis*, Bahia, p. 24, pl. ii; MOREIRA, Arch. Mus. Rio Janeiro xi, n. sp.
- Troglopagurus jubatus*, Singapore, p. 17; NOBILI, Boll. Mus. Torino xviii, No. 455, n. sp.

## HIPPIDEA.

- Hippa asiatica*, p. 16; NOBILI, Boll. Mus. Torino xviii, No. 452.
- Lepidopa*, key to spp., p. 891, *venusta*, p. 892, fig. 2, *myops*, p. 892, figg. 1 & 4, *scutellata*, p. 894, fig. 6; BENEDICT, P. U. S. Mus. xxvi.
- L. websteri*, N. Carolina, p. 892, fig. 3, *deamae*, G. of Tehuantepec, p. 893, fig. 5, *mearnsi*, W. Centr. America, p. 895, fig. 7, *richmondi*, Greytown, Nicaragua, p. 895, fig. 8; BENEDICT, t. c. n. spp.

## c. MACRURA.

- [See also, †JUKES-BROWNE (113), LO BIANCO (135), MOREIRA (153).  
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- Astacus fluviatilis*, histology of nervous system; HALPERN, Arb. Inst. Wien xiv, pp. 423-442, 12 figg. in text: structure of egg; HENSCHEN, Anat. Anz. xxiv, p. 16, figg. 1 & 2: histology of nervous system; PRENTISS, Arch. mikr. Anat. lxii, pp. 592-606, pl. xxvi: histology of heart; STECKA, Kosmos polski xxviii, pp. 21-43, 1 pl.: parasitic Trematode; WARREN, Quart. J. Micr. Sci. (n.s.) xlvi, pp. 273-301, pls. xxiv-xxvi.

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 †*Pemphix suevii*, p. 16, pl. xii, fig. 1; LANGENHAN, Versteinerungen der deutschen Trias.  
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Keys to Atlantic N. American spp.; HOLMES, Amer. Natural. xxxvii, pp. 267-292.

## GAMMARINA.

- Acanthogammarus labbei*, Lake Baikal, p. 224; CHEVREUX, Bull. Mus. Paris ix, n. sp.
- Allorchestes pernix*, Serra de Mantiqueira, Rio de Janeiro, 2240 metres above sea, p. 187; pls. i & ii; MOREIRA, Arch. Mus. Rio Janeiro xii, n. sp.
- Ampelisca macrocephala* occurring in Antarctic Seas, p. 53, pl. ix, figg. 58-61 & 61\*; WALKER, J. Linn. Soc. xxix: *A. sp.*, p. 222, pl. xiv A, figg. 6a & 6b; WALKER & SCOTT, Nat. Hist. Sokotra.
- A. compressa*, N. E. America, p. 273; HOLMES, Amer. Natural. xxxvii, n. sp.
- Apherusa gracilis*, N. E. America, p. 287; HOLMES, t. c. n. sp.
- Atyopsis latipalpus*, Abd-el-Kuri, p. 222, pl. xiv A, figg. 7-7l; WALKER & SCOTT, Nat. Hist. Sokotra, n. sp.
- Atylus antarcticus*, Cape Adare, p. 58, pl. xi, figg. 91-97; WALKER, J. Linn. Soc. xxix, n. sp.
- Audulla chelifera*, p. 225, pl. xiv B, figg. 2a & 2b; WALKER & SCOTT, Nat. Hist. Sokotra.
- Autonoe smithi*, N. E. America, p. 290; HOLMES, Amer. Natural. xxxvii, n. sp.
- Batea secunda*, N. E. America, p. 284; HOLMES, t. c. n. sp.
- Cerapus flindersi*, p. 229, pl. xiv B, figg. 6-6g; WALKER & SCOTT, Nat. Hist. Sokotra.
- Cheirimedon fougneri*, 78° 35' S., p. 41, pl. vii, figg. 1-6, *hansoni*, Cape Adare, p. 42, pl. vii, figg. 7-12; WALKER, J. Linn. Soc. xxix, n. spp.
- Cyclocaris tahitensis*, recorded from Cape Verde Ids., 1477 metres, p. 89; CHEVREUX, Bull. Soc. zool. France xxviii.
- Cyphocaris anonyx*, p. 232, pl. xviii, fig. 14; WALKER, Ann. Nat. Hist. (7) xii.
- Elasmopus sokotrae*, Abd-el-Kuri, p. 223, pl. xiv B, figg. 1-1i; WALKER & SCOTT, Nat. Hist. Sokotra, n. sp.
- Epimeria inermis*, Cape Adare, p. 54, pl. x, fig. 69; WALKER, J. Linn. Soc. xxix, n. sp.
- Eusirus laevis* (locality ?), p. 55, pl. x, figg. 70-76; WALKER, t. c. n. sp.
- Gammarus*, poisonous effects of various salts on; LOEB, J., Arch. gcs. Physiol. xcvi, pp. 394-409: *G. duebeni* in coal mine; MEEK, Rep. Northumberland Sea Fisheries Committee for 1903, pp. 51-53.
- Grubia longicornis*, p. 226, pl. xiv B, figg. 3a-3e; WALKER & SCOTT, Nat. Hist. Sokotra.
- Guerinia nicæensis*, occurrence in Gulf of Genoa; BRIAN, Boll. Nat. xxiii, pp. 41 & 42.
- Hippomedon bidentatus*, Mediterranean, 2500 metres, p. 87, fig. 4; CHEVREUX, Bull. Soc. zool. France xxviii; *H. serratus*, N. E. America, p. 278; HOLMES, Amer. Natural. xxxvii: n. spp.
- Hoplonyx stebbingi*, Cape Adare, p. 52, pl. ix, figg. 52-57 & 57\*; WALKER, J. Linn. Soc. xxix, n. sp.
- Hyale nilsoni* var., p. 219, pl. xiv A, figg. 3a-3e; WALKER & SCOTT, Nat. Hist. Sokotra.

- Hyalella faxoni*, Costa Rica, p. 928, pl. lxi; STEBBING, P. U. S. Mus. xxvi, n. sp.
- Jassa marmorata*, N. E. America, p. 289; HOLMES, Amer. Natural. xxxvii: *J. goniamera*, Cape Adare, p. 61, pl. ii, figg. 98-106a; WALKER, J. Linn. Soc. xxix: n. spp.
- Kuria* n. g. (incert. sedis, near *Bircenna*), p. 228, *longimanus*, Abd-el-Kuri, p. 228, pl. xiv B, figg. 5-5n; WALKER & SCOTT, Nat. Hist. Sokotra, n. sp.
- Lysianax urodus*, Abd-el-Kuri, p. 220, pl. xiv A, figg. 4-4g; WALKER & SCOTT, t. c. n. sp.
- Lysianopsis* [?n. g.] *alba*, N. E. America, p. 276; HOLMES, Amer. Natural. xxxvii, n. sp.
- Melita parvimana*, N. E. America, p. 279; HOLMES, t. c. n. sp.
- Monoculodes edwardsi*, N. E. America, p. 275; HOLMES, t. c. n. sp.
- Niphargus* sp. in Lough Mask, Ireland; KANE & NORMAN, Irish Natural. xii, pp. 273 & 274: *N. plateaui*, feeding habits, p. 279; VIRÉ, Bull. Mus. Paris ix.
- Normanion abyssii*, Mediterranean, 2368 metres, p. 82, fig. 1; CHEVREUX, Bull. Soc. zool. France xxviii, n. sp.
- Ediceros newnesi*, Cape Adare, p. 53, pl. ix, figg. 62-66, pl. x, figg. 67 & 68; WALKER, J. Linn. Soc. xxix, n. sp.
- Oradarea* n. g. (*Calliopiidae*), p. 56, *longimana*, Cape Adare, p. 56, pl. x, figg. 77-89; WALKER, J. Linn. Soc. xxix, n. sp.
- Orchestia tucurana* and *O. tucuratinga* Fritz Müller, notes, p. 926; STEBBING, P. U. S. Mus. xxvi.
- Orchestiidae*, death-feigning habit; HOLMES, Biol. Bull. iv, pp. 191-196.
- Orchomenella dilatata*, Corsica, 2276 metres, p. 90, fig. 5; CHEVREUX, Bull. Soc. zool. France xxviii: *O. pinguides*, Cape Adare, p. 46, pl. viii, figg. 24-30, *franklini*, Franklin Id., p. 47, pl. viii, figg. 31-36; WALKER, J. Linn. Soc. xxix: n. spp.
- Orchomenopsis proxima*, Cape Verde Is., 700-1300 metres, p. 93, fig. 6, *excavata*, Atlantic, 4000 metres, p. 94, fig. 7; CHEVREUX, Bull. Soc. zool. France xxviii: *O. nodimanus*, Cape Adare, p. 44, pl. vii, figg. 13-17, *rossi*, 78° 35' S., p. 45, pl. vii, figg. 18-23; WALKER, J. Linn. Soc. xxix: n. spp.
- Paracallisoma* n. g. (*Lysianassidae*) *alberti*, Azores and Madeira, 2500 metres, p. 84, figg. 2 & 3; CHEVREUX, Bull. Soc. zool. France xxviii, n. sp.
- Parambasia* n. g. (*Lysianassidae*), p. 221, *forbesii*, Abd-el-Kuri, p. 221, pl. xiv A, figg. 5-5m; WALKER & SCOTT, Nat. Hist. Sokotra, n. sp.
- Paraphoxus spinosus*, N. E. America, p. 276; HOLMES, Amer. Natural. xxxvii, n. sp.
- Pereionotus testudo*, p. 227, pl. xiv B, figg. 4a & 4b; WALKER & SCOTT, Nat. Hist. Sokotra.
- Stenothoe cypris* and *minuta*, N. E. America, p. 278; HOLMES, Amer. Natural. xxxvii, n. spp.
- Talorchestia longicornis*, characters, variation, habits; SMALLWOOD, Cold Spring Harb. Monogr. i, 27 pp., 3 pls., 3 text-figg.
- T. fritzi*, Cocos Id., Costa Rica, p. 925, pl. lx; STEBBING, P. U. S. Mus. xxvi, n. sp.
- Tryphosa adarei*, Cape Adare, p. 49, pl. viii, figg. 38-44, *murrayi* (locality?), p. 50, pl. ix, figg. 45-51; WALKER, J. Linn. Soc. xxix, n. spp.

## HYPERINA.

- Hyperioides longipes*, p. 229, pl. xix, figg. 7-13; WALKER, Ann. Nat. Hist. (7) xii.
- Sphaeronectes* n. g. not described, p. 447; WOLTERECK, Zool. Anz. xxvi.



*Thaumatops*, notes on external and internal anatomy, p. 447, characters of spp., p. 452, *magna*, Indian Ocean, p. 455, pl. ii, fig. 2, text-fig. 3, *bovallii*, Atlantic, p. 457, *coalita* [*oblita* on plate], p. 458, pl. ii, fig. 4, with subspp. *atlantica* and *indica* n. subspp., p. 458; WOLTERECK, t. c. n. spp.

## CAPRELLINA.

*Caprellidae*, revision of the family, with keys to genera and notes on characters and distribution of all species; MAYER, Caprell. Siboga. Only the n. gg., spp. and varr. are noted below.

*Aciconula* n. g. (*Caprellidae*), p. 43, *miranda*, Singapore and G. of Siam, p. 43, pl. vi, figg. 64-67, pl. ix, figg. 8 & 33, pl. x, fig. 10; MAYER, t. c. n. sp.

*Caprella alaskana*, N. W. America, p. 92, pl. iii, figg. 35-37, *angulosa*, Kamtschatka, p. 93, pl. iii, fig. 39, pl. vii, fig. 70, *anomala*, California, p. 93, pl. iii, fig. 38, pl. vii, figg. 71 & 72, pl. ix, fig. 74, *bacillus* (? E. Asia), p. 94, pl. iii, figg. 41 & 42, pl. vii, fig. 73, *brevirostris*, China Seas, California, p. 95, pl. iii, fig. 45, pl. vii, figg. 74-76, *carina*, Arctic Seas, p. 96, pl. iii, fig. 40, pl. vii, figg. 78 & 79, *chelimana*, China Sea, p. 96, pl. iii, figg. 43 & 44, pl. viii, figg. 1 & 2, *cicur*, Table Bay, p. 97, pl. iv, figg. 5-7, pl. viii, figg. 3-5, *constantina*, Alaska, p. 98, pl. iv, figg. 8 & 9, *corvina*, Alaska, p. 99, pl. iv, fig. 10, *falsa*, False Bay, p. 101, pl. iv, fig. 15, *ferrea*, California, p. 102, pl. iv, fig. 16, pl. viii, fig. 6, *gigantochir*, Japan, p. 103, pl. iv, fig. 14, pl. viii, figg. 7-9, *iniquilibra*, E. Asia, p. 105, pl. iv, figg. 17-19, *innocens*, Gibraltar, p. 105, pl. iv, fig. 21, *lavipes*, S. Africa, p. 108, pl. v, fig. 2, pl. viii, figg. 14-16, *laviuscula*, N. W. America, p. 109, pl. v, fig. 3, pl. viii, figg. 17 & 18, *mendax*, California, p. 114, pl. v, figg. 9-11, pl. viii, fig. 22, *mixta*, Vladivostok, p. 116, pl. v, fig. 4, *paulina*, Alaska &c., p. 116, pl. v, figg. 5-8, *rhinoceros*, Alaska &c., p. 117, pl. v, fig. 12, *simia*, Japan &c., p. 123, pl. v, fig. 31, pl. viii, fig. 25, *singularis*, Behring Sea, p. 124, pl. v, figg. 29 & 30, *striata*, N. W. America, p. 124, pl. v, figg. 22-28, pl. viii, fig. 26, *subtilis*, Korea, p. 126, pl. v, fig. 32, pl. viii, fig. 27, *ungulina*, Galapagos, Alaska &c., p. 127, pl. v, fig. 36, pl. viii, figg. 30 & 31, *unica*, N. E. America, p. 127, pl. v, fig. 39, pl. viii, figg. 28 & 29, *vana*, St. Paul Id., 38° S. 77° E., p. 128, pl. v, fig. 35, pl. viii, fig. 35, *vidua*, E. Asia, p. 128, pl. v, figg. 37 & 38, pl. viii, figg. 32-34; MAYER, t. c. n. spp.

*Cercops holbølli*, additional specimens descr., p. 17, pl. i, figg. 1 & 2, pl. vi, figg. 1-3, pl. ix, figg. 29, 30 & 47; MAYER, t. c.

*Dodecas hexacentrum*, Port Jackson, p. 29, pl. i, figg. 14 & 15, pl. vi, figg. 33 & 34; MAYER, t. c. n. sp.

*Luconucia* n. g. (*Caprellidae*), p. 49, *incerta*, G. of Mexico, p. 49, pl. ii, figg. 11-14, pl. vi, figg. 73-75, pl. ix, figg. 21, 40 & 67; MAYER, t. c. n. sp.

*Metaprotella africana*, Djibouti, p. 42, pl. i, figg. 32 & 33; MAYER, t. c. n. sp.

*Metaproteo* n. g. (*Caprellidae*, near *Proto*), p. 26, for *novæ-hollandiæ*, Haswell; MAYER, t. c.

*Monoliropus* n. g. (*Caprellidae*), p. 53, *agilis*, G. of Siam, p. 54, pl. ii, figg. 23-25, pl. vii, figg. 14-19, pl. ix, figg. 23, 43 & 71; MAYER, t. c. n. sp.

*Noculacia* n. g. (*Caprellidae*), p. 50, *bullata*, Singapore &c., p. 51, pl. ii, figg. 17-20, pl. vii, figg. 1-6, pl. ix, fig. 18, *bogisa*, E. Indies, p. 52, pl. ii, fig. 16, pl. vii, figg. 7 & 8, pl. ix, figg. 19, 39 & 66, pl. x, fig. 3; MAYER, t. c. n. spp.

*Orthoprotella* n. g. (*Caprellidae*), p. 35, for *australis* Haswell; MAYER, t. c.



- Pædaridium* n. g. (*Caprellidae*, near *Cercops* and *Proto*), p. 18, *miserum*, Moluccas, 2081 metres, p. 18, pl. i, fig. 3, pl. vi, figg. 4-7, pl. ix, figg. 2, 31 & 48; MAYER, t. c. n. sp.
- Paracaprella* *crassa*, China Sea, p. 66, pl. ii, figg. 32 & 33, pl. vii, figg. 48-50, *alata*, Sydney, p. 67, pl. ii, figg. 40 & 41, pl. ix, fig. 73, *tenuis*, Wood's Holl, p. 68, pl. ii, figg. 34 & 35, pl. vii, figg. 51 & 58, *simplex*, New Jersey &c., p. 68, pl. ii, figg. 38 & 39, pl. vii, figg. 53-57; MAYER, t. c. n. spp.
- Paradeutella* *lævis*, Singapore, p. 45, pl. ii, fig. 5, pl. ix, fig. 20, *armata*, Singapore, p. 46, pl. ii, fig. 1, pl. ix, figg. 68 & 69, *spinosa*, Singapore, p. 46, pl. ii, figg. 3 & 4, *serrata*, Cape, p. 47, pl. ii, fig. 2, pl. vi, figg. 68 & 69; MAYER, t. c. n. spp.
- Paraprotella* n. g. (*Caprellidae*, near *Protella*), p. 38, *prima*, Singapore, Korea &c., p. 38, pl. i, figg. 27-29, pl. vi, figg. 50-55, pl. ix, figg. 10, 34, 64 & 65, *secunda*, Japan, p. 71; MAYER, t. c. n. spp.
- Paraprototo* n. g. (*Caprellidae*, near *Proto*), p. 24, for *spinosa* Haswell &c.; MAYER, t. c.
- Piperella* n. g. (*Caprellidae*), p. 58, *grata*, S. Georgia, p. 59, pl. ii, fig. 29, pl. vii, figg. 40-45, pl. ix, figg. 24, 45 & 62; MAYER, t. c. n. sp.
- Prellicana* n. g. (*Caprellidae*, near *Caprellina*), p. 31, *minima*, Gulf of Siam, p. 31, pl. i, figg. 16 & 17, pl. vi, figg. 35-37, pl. ix, figg. 13, 32 & 53; MAYER, t. c. n. sp.
- Proliropus* n. g. (*Caprellidae*), p. 55, *dubius*, Singapore, p. 55, pl. ii, fig. 26, pl. vii, figg. 24-26, pl. ix, figg. 25 & 38; MAYER, t. c. n. sp.
- Propodalirus* n. g. (*Caprellidae*), p. 62, *insolitus*, G. of Siam, p. 62, pl. ii, fig. 30, pl. vii, figg. 33-36, pl. ix, figg. 46-72; MAYER, t. c. n. sp.
- Protella* *similis*, Dutch E. Indies, 13-400 metres, p. 34, pl. i, figg. 19-22, pl. vi, figg. 41 & 42; MAYER, t. c. n. sp.
- Proto antillensis*, St. Thomas, p. 21, pl. i, fig. 4, pl. vi, fig. 21; MAYER, t. c. n. sp.
- Protogeton* n. g. (*Caprellidae*, near *Proto*), p. 28, *inflatus*, Dongala, 34 metres, p. 28, pl. i, fig. 13, pl. vi, figg. 29-32, pl. ix, figg. 11, 35 & 51, *incertus*, Gulf of Siam, p. 29, pl. ix, fig. 12; MAYER, t. c. n. spp.
- Protomima* n. g. (*Caprellidae*, near *Proto*), p. 22, *imitatrix*, Japan, p. 22, pl. vi, figg. 10 & 11, pl. ix, fig. 56, *denticulata*, Ralum, 160-180 metres, p. 22, pl. i, fig. 5, pl. vi, figg. 8 & 9, pl. ix, figg. 6 & 55; MAYER, t. c. n. spp.
- Protoplesius* n. g. (*Caprellidae*, near *Proto*), p. 23, *enigma*, Banda Sea, 2081-2798 metres, p. 23, pl. i, figg. 6 & 7, pl. vi, figg. 12-15, *falx*, Moluccas, 2796 metres, p. 24, pl. x, figg. 1 & 2; MAYER, t. c. n. spp.
- Pseudoprototo* n. g. (*Caprellidae*, near *Proto*), p. 27, *fallax*, 34° 15' N. 128° 51' E., 25 fath., p. 27, pl. vi, figg. 22, pl. ix, figg. 5 & 52; MAYER, t. c. n. sp.
- Triantella* n. g. (*Caprellidae*, near *Protella*), p. 32, *solitaria*, S. of R. Plata, 52 fath., p. 32, pl. i, fig. 18, pl. vi, figg. 38-40, pl. ix, figg. 9, 36 & 59; MAYER, t. c. n. sp.
- Triliropus* n. g. (*Caprellidae*), p. 54, *uncinatus*, G. of Siam, p. 55, pl. ii, fig. 28, pl. vii, figg. 20-23, pl. ix, figg. 27, 42 & 70; MAYER, t. c. n. sp.
- Triperopus* n. g. (*Caprellidae*), p. 55, *mirus*, 32° 10' N. 128° 20' E., 100 fath., p. 56, pl. ii, fig. 31, pl. vii, figg. 27-32, pl. ix, figg. 22 & 41; MAYER, t. c. n. sp.
- Tritella* *ornata*, Alaska, p. 48, pl. ii, fig. 7, *lævis*, California, p. 48, pl. ii, figg. 8 & 9, pl. vi, figg. 70 & 71, pl. ix, fig. 61; MAYER, t. c. n. spp.

## INGOLFIELLINA.

- Ingolfiellina* nov. trib., p. 131; HANSEN, J. Linn. Soc. xxix.  
*Ingolfiellidae*, n. fam., p. 130; HANSEN, t. c.

*Ingolfiella* n. g. *abyssi*, 59° 12' N., 51° 5' W., 1870 fath., p. 118, pl. xiv, figg. 1-18, pl. xv, figg. 19-21, *littoralis*, Gulf of Siam, 1 fath., p. 124, pl. xv, figg. 22-33; HANSEN, t. c. n. spp.

## 8. PHYLLOCARIDA.

[See also BRUNTZ (35), †CLAYPOLE (49), †CLELAND (50).]

New Phyllocarid [not named], S. Atlantic; OHLIN, Zool. Anz. xxvii, pp. 59-61, 3 figg. in text.

†*Beyrichia* [see *Ostracoda*].

†*Discinocaris*, *Spathiocaris* and *Cardiocaris* probably Brachiopoda; CLARKE, Bull. N. York Mus. lii, pp. 606-615, 5 pls.

*Nebalia typhlops*, near Capri, 1100 metres, p. 262; LO BIANCO, Mt. Stat. Neapel xvi.

## B. ENTOMOSTRACA.

### 1. BRANCHIOPODA.

#### a. PHYLLOPODA.

[See also †AMMON (5), BRUNTZ (34 & 35), †LANGENHAN (129), SPENCER (220).]

*Artemia australis*, S. Australia, p. 229, pl. xxvii, *westraliensis*, W. Australia, p. 230, pl. xxviii, fig. A; SAYCE, P. Soc. Victoria (n. s.) xv, n. spp.

*Branchinella* n. g. (*Branchipodidae*), p. 233, *australiensis* (Richters), p. 234, pl. xxx; SAYCE, t. c.

*B. eyrensis*, S. and Cent. Australia, p. 239, pl. xxxi; SAYCE, t. c. n. sp.

*Cyclestheria hislopi*, p. 256, pl. xxxvi, fig. C; SAYCE, t. c.

*Estheria*, key to Australian spp., p. 255, *packardi*, p. 250, pl. xxxiv, fig. 3, *elliptica*, p. 252, pl. xxxvi, fig. B, *lutraria*, p. 254, pl. xxxv, fig. 2, *dictyon*, p. 255, pl. xxxvi, fig. A; SAYCE, t. c.

*E. sarsii*, W. Australia, p. 252, pl. xxxv, fig. 1; SAYCE, t. c. n. sp.

*Eulimnadia*, key to Australian spp., p. 247, *dahli*, p. 244, pl. xxxiv, fig. 1, *sordida*, p. 245, *rioolensis*, p. 245, pl. xxxii; SAYCE, t. c.

*E. victoriensis*, Victoria, p. 246, pl. xxxiii; SAYCE, t. c. n. sp.

*Limnadia hermanni*, causing damage in rice fields; ALESSI, Boll. Nat. xxiii, pp. 93 & 94: *L. lenticularis*, Sumatra, p. 6, pl. i, figg. 1 & 1a; SARS, Arch. Naturv. Christian. xxv, No. 8.

*Limnadopsis*, key to Australian spp., p. 250; SAYCE, P. Soc. Victoria (n. s.) xv.

*Lynceus* (= *Limnetis*), key to Australian spp., p. 258, *macleayana*, p. 258, pl. xxxvi, fig. D, *tatei*, p. 258, pl. xxxvi, fig. E, *eremta*, p. 258, pl. xxxvi, fig. F; SAYCE, t. c.

*Paralimnadia stanleyana*, p. 248, pl. xxxiv, fig. 2; SAYCE, t. c.

*Parartemia* n. g. (*Branchipodidae*), p. 231, *zietziana*, S. Australia, p. 232, pl. xxviii, fig. B, pl. xxix; SAYCE, t. c. n. sp.

†*Ribeirella* n. g. (near *Ribeira*), p. 45, *sharpei* Barr., p. 46, pl. i, figg. 12-20; SCHUBERT & WAAGEN, Jahrb. geol. Reichsanst. liii (1).

†*Ribeiria*, p. 41, *pholadiformis*, p. 41, pl. i, figg. 3a-c, *complanata*, p. 42, pl. i, figg. 4 & 4a, *calceifera*, p. 42, pl. i, figg. 1a-c, *longiuscula*, p. 43, pl. i, fig. 2; SCHUBERT & WAAGEN, t. c.

†*R. apusoides*, p. 44, pl. i, figg. 5-9, *inflata*, p. 45, pl. i, figg. 10 & 11, Lower Silurian, Bohemia; SCHUBERT & WAAGEN, t. c. [? n. spp.].

- †*R. turgida*, Lower Silurian, New York, p. 38 (12), pl. iii, figg. 6 & 7; CLELAND, Bull. Amer. Pal. iv, No. 18, n. sp.  
*Streptocephalus raddeanus*, p. 82, text-figg. 31-33; ZYKOFF, Bull. Soc. Moscou 1903 (1).

## b. CLADOCERA.

[See also AMBERG (4), DADAY (57 & 59), ELROD (71), FOWLER (77), KANE (114), LO BIANCO (135), MONTI (150), RÁDL (182), REDEKE (188), DE ROSSI (194), THALLWITZ (229), VOIGT (244), VOLK (245), ZACHARIAS (266 & 272), ZYKOFF (274 & 275).]

*Cladocera* of Britain, list with localities and notes; SCOURFIELD, J. Quekett Club (2) viii, pp. 431-454.

- Alona rectangula*, p. 60, pl. v, fig. 5; DADAY, Zool. Jahrb. Syst. xix: *A. elegans*, p. 183, pl. viii, fig. 3; SARS, Annuaire Mus. St. Petersb. viii: *A. elegans*, p. 442, pl. xxiv, figg. 13 & 14, *rustica*, p. 442, pl. xxiv, figg. 9 & 10; SCOURFIELD, J. Quekett Club (2) viii: *A. oblonga*, p. 194, pl. iii, fig. 25, *rectangula*, p. 195, pl. iii, figg. 15-18; STENROOS, Acta Soc. Faun. Fenn. xvii (1) (1898): *A. intermedia*, p. 77, figg. 1 & 2; SZILÁDY, Math. naturw. Ber. Ungarn xviii.  
*A. acuticostata*, Sumatra, p. 15, pl. i, figg. 5 & 5a-c; SARS, Arch. Naturv. Christian. xxv, No. 8: *A. karelica*, Karelia, p. 52, figg. 5 & 6; STENROOS, Acta Soc. Faun. Fenn. xv (2) (1897): n. spp.  
*Alonopsis ambigua*, p. 182, pl. viii, fig. 2; SARS, Annuaire Mus. St. Petersb. viii.  
*Bosmina longirostris* var. *similis*, p. 180, pl. viii, fig. 1; SARS, t. c.: *B. longirostris*, p. 182, pl. iii, fig. 13, *brevirostris*, p. 183, pl. iii, figg. 14 & 33; STENROOS, Acta Soc. Faun. Fenn. xvii (1) (1898).  
*Bosminella* n. g. (*Bosminidae*) *anisitsi*, Paraguay, p. 594, 3 text-figg.; DADAY, Zool. Anz. xxvi, n. sp.  
*Bosminopsis*, key to spp., p. 127, *deitersi*, p. 128, pl. iv, fig. 1, text-figg. 1-4; KLOCKE, Annot. zool. Japon. iv.  
*B. ishikawai*, Japan, p. 130, pl. iv, figg. 2 & 6, text-figg. 5-8; KLOCKE, t. c. n. sp.  
*Bythotrephes arctica*, p. 186, pl. viii, fig. 6; SARS, Annuaire Mus. St. Petersb. viii.  
*Camptocercus lilljeborgii*, p. 64, pl. v, figg. 9 & 10, text-fig. A; DADAY, Zool. Jahrb. Syst. xix.  
*C. fennicus*, Finland, p. 198, pl. iii, figg. 19-24; STENROOS, Acta Soc. Faun. Fenn. xvii (1) (1898), n. sp.  
*Ceriodaphnia rigaudi*, p. 5, fig. 4; EKMAN, Res. Swedish Exp. Egypt i (26).  
*Chydorus barbatus*, p. 445, pl. xxiv, figg. 11 & 12; SCOURFIELD, J. Quekett Club (2) viii: *C. latus*, p. 56, figg. 7-11, *ovalis*, p. 58, figg. 12-16 & 30-33, *piger*, p. 64, figg. 17-24, *rugulosus*, p. 66, figg. 25-29; STENROOS, Acta Soc. Faun. Fenn. xv (2) (1897).  
*Daphnia*, phototropism; KIRKALDY, J. Quekett Club (2) viii, pp. 465 & 466: *D. longispina*, p. 2, figg. 2 & 3, EKMAN, Res. Swedish Exp. Egypt i (26): *D. carinata*, p. 149, figg. 1 & 2; HAASE, Victorian Natural. xix (11): *D. obtusa*, sporozoan parasite in eggs and embryos; PÉREZ, C.R. Soc. Biol. iv, pp. 715 & 716, 5 figg. in text: *D. longispina*, p. 25, pl. v, figg. 36 & 36a; REDEKE, Natuurk. Verhand. Haarlem v (3): *D. pulex*, p. 326, pl. vi, figg. 1-6, var. *tenebrosa* n. var., p. 327, pl. vi, figg. 7-10; SARS, Annuaire Mus. St. Petersb. 1898: *D. carinata*, p. 159, pl. i, *pulex*, forma *typica*, p. 163, pl. iii, fig. 1, *pulex* var. *pulicaria*, p. 163, pl. iii, fig. 2, *longispina* var. *simulans* n. var., p. 165, pl. iii, fig. 3, *longispina*, forma *typica*, p. 165, pl. iii, fig. 4, *longispina*. var. *leydigi*, p. 166,



- pl. iii, fig. 5, var. *caudata*, p. 166, pl. iv, fig. 1, var. *nasuta*, p. 167, pl. iv, fig. 2, var. *turbinata* n. var., p. 167, pl. iv, fig. 3, var. *pulchella* n. var., p. 168, pl. iv, fig. 4, var. *tenuitesta*, p. 168, pl. iv, fig. 5, var. *hyalina*, p. 169, pl. v, fig. 1, var. *jardini*, p. 169, pl. v, fig. 2, var. *microcephala*, p. 170, pl. v, fig. 3, var. *leucocephala* n. var. p. 170, pl. v, fig. 4; SARS, Annuaire Mus. St. Petersb. viii: *D. atkinsoni*, p. 433, pl. xxiv, figg. 1-4; SCOURFIELD, J. Quekett Club (2) viii: *D. galeata* var. *procumbens*, p. 42, fig. 1; STENROOS, Acta Soc. Faun. Fenn. xv (2) (1897): *D. alpina*, p. 79, figg. 3-6, *zschokkei*, p. 83, fig. 7, SZILÁDY, Math. naturw. Ber. Ungarn xviii; *D. magna*, relation between size of cells and size of body; WARREN, Biometrika ii (3), pp. 255-259, 1 fig.: *D. pulex* infested by *Amæbidium*, p. 249, 3 text-figg; ZACHARIAS, Forscher. Plon x.
- D. triquetra*, Akmolinsk, p. 161, pl. ii; SARS, Annuaire Mus. St. Petersb. viii, n. sp.
- Daphniopsis* n. g. (*Daphniidæ*), p. 171, *tibetana*, Thibet, p. 172, pl. vi, fig. 1; SARS, t. c. n. sp.
- Diaphanosoma excisum* var. *longiremis* n. var., p. 1, fig. 1, EKMAN, Res. Swedish Exp. Egypt i (26).
- Drepanothrix dentata*, p. 49, fig. 4; STENROOS, Acta Soc. Faun. Fenn. xv (2) (1897).
- Dunhevedia setigera*, p. 185, pl. viii, fig. 5; SARS, Annuaire Mus. St. Petersb. viii.
- D. neglecta*, Hungary, p. 62, pl. v, figg. 6-8; DADAY, Zool. Jahrb. Syst. xix, n. sp.
- Graptoleberis testudinaria* var. *pannonica* n. var., p. 59, pl. v, figg. 3 & 4; DADAY, Zool. Jahrb. Syst. xix.
- Harporhynchus*, see *Rhynchotalona*.
- Hyalodaphnia jardini*, p. 179, pl. iii, figg. 30-32; STENROOS, Acta Soc. Faun. Fenn. xvii (1) (1898); *H. kahlbergensis*, seasonal variation; ZACHARIAS, Forscher. Plon x, pp. 293-295, 2 text-figg.
- Ilyocryptus agilis*, p. 192, pl. iii, figg. 28 & 29; STENROOS, Acta Soc. Faun. Fenn. xvii (1) (1898).
- Leydigia propinqua* n. nom. for *L. acanthocercoides* Sars non Fischer, p. 14, pl. 1, figg. 4 & 4a; SARS, Arch. Naturv. Christian. xxv, No. 8.
- Lynceus bukobensis*, p. 10, figg. 5-10; EKMAN, Res. Swedish Exp. Egypt i (26).
- Moina micrura*, p. 73, pl. v, figg. 21-23; DADAY, Zool. Jahrb. Syst. xix: *M. tenuicornis*, p. 150, fig. 5; HAASE, Victorian Natural. xix (11): *M. macrocopa*, p. 178, pl. vii, fig. 3, *micrura*, p. 178, pl. vii, fig. 4, *rectirostris*, p. 179, pl. vii, fig. 5; SARS, Annuaire Mus. St. Petersb. viii: *M. bánffy*, p. 437, pl. xxiv, figg. 5-8; SCOURFIELD, J. Quekett Club (2) viii.
- M. microphthalma*, Lake Tenise, p. 179, pl. vii, fig. 6; SARS, Annuaire Mus. St. Petersb. viii: *M. brevicornis*, China, p. 10, pl. i, figg. 3, 3a-b; SARS, Arch. Naturv. Christian. xxv, No. 8: n. spp.
- Pleuroxus levis*, p. 57, pl. v, fig. 1, *scopulifer*, p. 57, pl. v, fig. 2; DADAY, Zool. Jahrb. Syst. xix: *P. inermis*, p. 150, fig. 6; HAASE, Victorian Natural. xix (11): *P. aduncus*, p. 185, pl. viii, fig. 4; SARS, Annuaire Mus. St. Petersb. viii.
- Rhynchotalona* nov. nom. for *Harporhynchus* Sars non Cabanis, p. 367; NORMAN, Ann. Nat. Hist. (7) xi.
- Scapholeberis aurita*, occurrence in Britain, swimming habits, p. 630; GURNEY, Ann. Nat. Hist. (7) xii: *S. aurita*, p. 175, pl. vii, fig. 1; SARS, Annuaire Mus. St. Petersb. viii: *S. microcephala*, p. 45, figg. 2 & 3; STENROOS, Acta Soc. Faun. Fenn. xv (2) (1897).
- S. erinaceus*, Hungary, p. 76, pl. v, figg. 24-33; DADAY, Zool. Jahrb. Syst. xix: *S. kingi*, Sumatra, p. 8, pl. i, figg. 2a-c; SARS, Arch. Naturv.



- Christian, xxv, No. 8: *S. echinulata*, Akmolinsk, pl. 176, pl. vii, fig. 2; SARS, Annuaire Mus. St. Petersb. viii: **n. spp.**
- Simocephalus* [see also *Simosa*] *simia*, anatomy, habits, &c.; CUNNINGTON, Jena. Zeitschr. xxxvii, pp. 447-520, pls. xxiv-xxvi, 6 figg. in text: *S. elizabethæ*, p. 149, fig. 3, *acutirostratus*, p. 150, fig. 4; HAASE, Victorian Natural. xix (11): *S. vetuloides*, p. 174, pl. vi, fig. 3; SARS, Annuaire Mus. St. Petersb. viii.
- S. vetuloides*, p. 328, pl. vi, figg. 11 & 12, *sibiricus*, p. 329, pl. vi, figg. 13-15, Jena Territory; SARS, Annuaire Mus. St. Petersb. 1898: *S. productus*, Akmolinsk, p. 173, pl. vi, fig. 2, *mixtus*, Mongolia, p. 174, pl. vi, fig. 4; SARS, op. cit. viii: **n. spp.**
- Simosa* **nov. nom.** for *Simocephalus* Schoedler non Günther, p. 367; NORMAN, Ann. Nat. Hist. (7) xi.
- Wlassicsia* **n. g.** (near *Ophryoxus* and *Grimaldina*), p. 66, *pannonica*, p. 67, pl. v, figg. 11-20; DADAY, Zool. Jahrb. Syst. xix, **n. sp.**

## 2. COPEPODA.

[See also AMBERG (4), BASSETT-SMITH (9), BRUNTZ (34 & 35), DADAY (57), VAN DOUWE (67), ELROD (71), LO BIANCO (135), MONTI (150), NOBILI (163), REDEKE (188), REDEKE & VAN BREEMEN (189), STENROOS (224), THALLWITZ (229), THOMPSON (231), TIMM (237), VOIGT (243 & 244), VOLK (245), WOLFENDEN in FOWLER (77), ZACHARIAS (266 & 267), ZYKOFF (274 & 275).]

*Copepoda*, freshwater, in neighbourhood of Bâle, lists and notes; GRÆTER, Rev. Suisse Zool. xi, pp. 419-451: freshwater spp. of Britain, list with localities and notes; SCOURFIELD, J. Quekett Club (2) viii, pp. 531-544: in plankton W. of Ireland, notes on spp.; FARRAN, Rep. Fisheries of Ireland for 1901 (1903), App. vii, 18 pp., 2 pls.

Resistance to drought, resting eggs; WOLF, Zool. Anz. xxvii, pp. 98-108, 4 figg. in text.

*Acartia*, p. 148, *longiremis*, p. 149, pls. xcix & c, *clausi*, p. 150, pl. ci, *discaudata*, p. 152, pl. cii; SARS, Crust. Norway iv.

*Acartiidae* **n. fam.**, p. 147, SARS, t. c.

*Achirota* **n. sect.** of *Harpacticoida*, p. 4; SARS, op. cit. v.

*Ætidiinae*, revision, with key to genera; WOLFENDEN, Rep. Brit. Ass. 1902, pp. 263-267.

*Ætideopsis* **n. g.** (*Ætideidae*) p. 159, *rostrata*, p. 160, Suppl. pls. iv & v; SARS, Crust. Norway iv, **n. sp.**

*Ætideus tenuirostris* (not descr., no locality) p. 266; WOLFENDEN, Rep. Brit. Ass. 1902, **n. sp.**

*Ameira pusilla*, p. 114, pl. v, figg. 1-10, *ambigua*, p. 114, pl. v, figg. 11-19, Firth of Forth; T. SCOTT, Rep. Fish. Board Scotland xxi (3): *A. minor*, p. 264, pl. v, figg. 23-29, *tenuipes*, p. 264, pl. vi, figg. 15-20; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i: **n. spp.**

*Amymone* [see *Tegastes*].

*Ancorabolus* **n. g.** (*Harpacticoida* near *Laophontodes*) p. 2, *mirabilis*, Varanger Fjord and Clyde, p. 2; NORMAN, Ann. Nat. Hist. (7) xi, **n. sp.**

*Asterocheres manaarensis*, p. 287, pl. xix, figg. 11-20, *major*, p. 287, pl. xviii, figg. 21-28, *minor*, p. 288, pl. xviii, figg. 29-31, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, **n. spp.**

*Asteropontius* **n. g.** (*Asterocheridae*) *typicus*, p. 288, pl. xix, figg. 1-10, *attenuatus*, p. 289, pl. xviii, figg. 11-20, Ceylon; THOMPSON & SCOTT, t. c. **n. spp.**

*Attheyella arctica*, p. 14, pl. ii, figg. 14-19, pl. iii, figg. 1 & 2; T. SCOTT in NORMAN, Ann. Nat. Hist. (7) xi.

- Augaptilus palumboi*, p. 28, pl. i, figg. 1 & 2; THOMPSON, Ann. Nat. Hist. (7) xii.
- Boeckella orientalis*, Mongolia, p. 196, pl. ix; SARS, Annuaire Mus. St. Petersb. viii, n. sp.
- Bomolochus murænae*; BRIAN, Atti Soc. Ligustica xiv, p. 78, also Boll. Mus. Genova, No. 121, p. 2.
- Calanoida*, Faroe Channel; NORMAN, J. Linn. Soc. xxix, pp. 133-141.
- Canthocamptus* sp.?, p. 155, pl. i, fig. 17, text-figg. 1a & b; DADAY, SB. Ak. Wien, Abth. i, cxii: *C. gracilis*, p. 383, pl. xx, figg. 1-13, *wierzejskii*, p. 387, pl. xx, figg. 14-16, *vejdosvskyi*, p. 389, pl. xx, figg. 17 & 18; VAN DOUWE, Zool. Jahrb. Syst. xviii.
- C. idahoensis*, Idaho, p. 112, pl. ix; MARSH, Tr. Wisconsin Ac. xiv (1), n. sp.
- Canuella*, p. 16, *perplexa*, p. 17, pls. viii & ix; SARS, Crust. Norway v.
- C. furcigera*, Norway, p. 18, pl. x; SARS, t. c. n. sp.
- Centropages tenuiremis*, p. 247, pl. i, figg. 14-18, *dorsispinatus*, p. 247, pl. i, figg. 19-25, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Cervinia*, p. 19, *bradyi*, p. 20, pl. xi; SARS, Crust. Norway v.
- Cerviniidae* n. fam. (*Harpacticoida Achirota*), p. 19; SARS, t. c.
- Cerviniopsis* n. g. (*Cerviniidae*), p. 22, *clavicornis*, p. 22, pls. xii & xiii, fig. 1, *longicaudata*, p. 23, pl. xiii, fig. 2, Norway; SARS, t. c. n. spp.
- Ceylonia* n. g. (*Harpacticoidae*) *aculeata*, Ceylon, p. 265, pl. vii, figg. 11-23; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. sp.
- Chiridius armatus*, p. 15, pl. xvi, figg. 1-13; FARRAN, Rep. Fisheries of Ireland for 1901 (1903) App. vii.
- Chondracanthus cynoglottidis*, Ceylon, on *Cynoglossus* spp., p. 294, text-fig. i; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. sp.
- Chondrocarpus* n. g. (*Chondracanthidae*), p. 104, *reticulosus*, Zanzibar, p. 105, text-figg. 11A-G, *Ch.* sp., p. 105, text-fig. 11H; BASSETT-SMITH, P. Zool. Soc. London 1903, i, n. sp.
- Clausidium* Kossman, priority over *Hersilia*, Philippi, p. 368; NORMAN, Ann. Nat. Hist. (7) xi.
- Cletodes tenuipes* var. p. 19, pl. ii, fig. 20, pl. iii, figg. 3-6; T. SCOTT, in NORMAN, t. c.
- C. varians*, E. Finmark, p. 18, pl. iii, figg. 7-11; T. SCOTT, in NORMAN, t. c.: *C. neglecta*, Moray Frith, ip. 120, pl. iv, figg. 20-31; T. SCOTT, Rep. Fish. Board Scotland xxi (3): *C. armata*, Faroe Channel, p. 6, pl. iii, figg. 4-14; T. SCOTT, J. Linn. Soc. xxix: n. spp.
- Cletofontius* n. g. (*Asterocheridae*) *serratus*, Ceylon, p. 292, pl. xx, figg. 9-18; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. sp.
- Collocheres giesbrechti*, Ceylon, p. 289, pl. xviii, figg. 1-10; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. sp.
- Congericola* J. v. Beneden replacing *Cycnus* H. M.-E., præocc., p. 369; NORMAN, Ann. Nat. Hist. (7) xi.
- Cyclopina schneideri*, E. Finmark, p. 6, pl. 1, figg. 1-6; T. SCOTT, in NORMAN, t. c. n. sp.
- Cyclops* spp. variation; BYRNES, Biol. Bull. v, pp. 152-168, 5 figg.: *C. crassicaudis*, p. 463, text-figg. 1-3; DOUWE, Zool. Anz. xxvi: *C.* classification and phylogeny of genus, p. 452, key to divisions, p. 462, *fuscus*, p. 473, pl. xv, fig. 37, *albicus*, p. 481, pl. xv, fig. 8, *prasinus*, p. 486, pl. xv, figg. 3 & 4, *serrulatus*, p. 489, pl. xv, figg. 6, 9, 10, 17, 19, var. *denticulata* n. var., p. 491, forma *typica*, p. 492, *macrurus*, p. 495, pl. xv, figg. 5, 18, 27, *affinis*, p. 497, fig. 2, *phaleratus*, p. 499, *poppei*, p. 502, *ambriatus*, p. 503, pl. xv, fig. 1, *leuckarti*, p. 509, pl. xv, figg. 26 & 30, *oithonoides* var. *hyalina*, p. 511, *dybowskii*, p. 512, *gracilis*, p. 513, pl. xv, figg. 13 & 29, *strenuus*, p. 514, pl. xv, figg. 15 & 33, *viridis*, p. 523, pl. xv, fig. 16, *insignis*, p. 527, *varicans*, p. 528,

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- Cycnus* [see *Congericola*.]
- Dactylopus* [see also *Dactylopusia*] *longirostris* var. *finmarchicus* n. var., E. Finmark, p. 21, pl. ii, figg. 4-8, *D. strömii* var. *arcticus*, p. 23, pl. iv, figg. 1-7; T. SCOTT, in NORMAN, Ann. Nat. Hist. (7) xi; *D. strömii* var. *faröensis* n. var., Faroe Channel, p. 8, pl. ii, figg. 9-14, pl. iii, figg. 1-3; T. SCOTT, J. Linn. Soc. xxix: *D. debilis*, p. 128, pl. v, figg. 20-31; T. SCOTT, Rep. Fish. Board Scotland xxi (3).
- D. littoralis*, Frith of Forth, p. 124, pl. iii, figg. 2-8, *vararensis*, Moray Frith, p. 125, pl. iii, figg. 17-24, *mixtus*, Frith of Forth, p. 126, pl. iii, figg. 9-16; T. SCOTT, t. c. n. spp.
- Dactylopusia* nov. nom. for *Dactylopus* Claus non Gill, p. 368; NORMAN, Ann. Nat. Hist. (7) xi.
- Dactylopusia* [? for *Dactylopusia*] *dentata*, p. 268, pl. ix, figg. 1-10, *havelocki*, p. 269, pl. ix, figg. 11-18, *hirsuta*, p. 269, pl. ix, figg. 19-24, *ceylonica*, p. 269, pl. ix, figg. 25-32, *hamiltoni*, p. 270, pl. x, figg. 1-7, *robusta*, p. 270, pl. x, figg. 19-24, *laticaudata*, p. 271, pl. xi, figg. 1-8, *æmula*, p. 271, pl. xi, figg. 9-12, *platysoma*, p. 272, pl. xi, figg. 13-18; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. sp.
- Danielssenia sibirica*, Jana River, etc., p. 343, pl. x, figg. 1-20; SARS, Annuaire Mus. St. Petersb. 1898, n. sp.
- Delavalia robusta*, p. 13, pl. i, fig. 19, pl. ii, figg. 1-3, var. *finmarchica* n. var., E. Finmark, p. 13, pl. i, figg. 14-18; T. SCOTT, in NORMAN, Ann. Nat. Hist. (7) xi.
- D. minutissima*, Moray Firth, p. 116, pl. iv, figg. 3-10; SCOTT, T., Rep. Fish. Board Scotland xxi (3), n. sp.
- Diaxidae*, Zool. Rec. 1902, correct to *Diaxiridae*.
- Diaxis*, Zool. Rec. 1902, correct to *Diaxiridae*.
- Diaptomus galebi*, p. 14, fig. 11; EKMAN, Res. Swedish Exp. Egypt i (26): *D. bacillifer*, p. 332, pl. vii, figg. 6-11, *theeli*, p. 333, pl. vii, figg. 12-17; SARS, Annuaire Mus. St. Petersb. 1898: *D. amblyodon*, p. 200, pl. xi, figg. 1 a-h, *asiaticus*, p. 203, pl. xii, figg. 1 a-h, *wrzejski*, p. 205, pl. xii, figg. 2 a-g, *salinus*, p. 208, pl. xiii, figg. 2 a-f, *cæruleus*, p. 210, pl. xiv, figg. 1 a-f, *lobatus*, p. 212, pl. xiv, figg. 2 a-g; SARS, Annuaire Mus. St. Petersb. viii: *D. chaffanjoni*, p. 17, pl. ii, figg. 1, 1 a-g; SARS, Arch. Naturv. Christian. xxv, No. 8.
- D. angustilobus*, Jana Territory, p. 334, pl. viii, figg. 1-6; SARS, Annuaire Mus. St. Petersb. 1898: *D. incrassatus*, p. 202, pl. xi, figg. 2 a-g, *acutilobatus*, p. 207, pl. xiii, figg. 1 a-f, *paulseni*, p. 214, pl. xv, figg. 1 a-f, Centr. Asia; SARS, Annuaire Mus. St. Petersb. viii: n spp.
- Doropontius* n. g. (*Asterocheridae*) *denticornis*, Ceylon, p. 291, pl. xx, figg. 1-5; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. sp.
- Drepanopus bungei*, Jana River, p. 337, pl. ix; SARS, Annuaire Mus. St. Petersb. 1898, n. sp.
- Ectinosoma curticornis*, p. 349, pl. x, figg. 22-25; SARS, Annuaire Mus. St. Petersb. 1898: *E. curticorne*, p. 113, pl. vi, fig. 1; T. SCOTT, Rep. Fish. Board Scotland xxi (3).



- E. finmarchicum*, E. Finmark, p. 9, pl. i, figg. 7-13; T. SCOTT, in NORMAN, Ann. Nat. Hist. (7) xi, n. sp.
- Ectinosomidae* n. fam. (*Harpacticoida Achirota*), p. 28; SARS, Crust. Norway v.
- Enhydrosoma gracile*, F. of Forth, p. 122, pl. ii, figg. 16-26, pl. iii, fig. 1, *minutum*, Aberdeen, p. 123, pl. iii, fig. 25, pl. vi, figg. 1-5; SCOTT, T., Rep. Fish. Board Scotland xxi (3), n. spp.
- Eucaniella*, p. 24, *spinifera*, p. 25, pl. xiv; SARS, Crust. Norway v.
- Euchæta oceana*, Atlantic, p. 19, pl. ii, figg. 1-9; THOMPSON, Ann. Nat. Hist. (7) xii, n. sp.
- Euchæta norvegica*, p. 58, pl. xiv; SARS, Norw. N. Polar Exp. Crust. [Omitted 1902.]
- Euterpe* [see *Euterpina*].
- Euterpina* nov. nom. for *Euterpe* Claus non Swainson, p. 368; NORMAN, Ann. Nat. Hist. (7) xi.
- Gætanus miles*, p. 17, pl. i, figg. 3-5; THOMPSON, Ann. Nat. Hist. (7) xii.
- G. pileatus*, W. Ireland, p. 16, pl. xvii, figg. 1-11; FARRAN, Rep. Fisheries of Ireland for 1901 (1903), App. vii: *G. major*, Færoe Channel, p. 125; WOLFENDEN in FOWLER, P. Zool. Soc. London 1903, i: *G. kruppit*, near Capri, 1000-2500 metres depth, p. 202, pl. vii, fig. 8, pl. viii, fig. 29; GIESBRECHT in Lo BIANCO, Mt. Stat. Neapel xvi: n. spp.
- Gaidius*, p. 161, *tenuispinus* ♂, p. 162, Suppl. pl. vi, fig. 1, *brevispinus* ♀, p. 162, Suppl. pl. vi, fig. 2; SARS, Crust. Norway iv: *G. pungens*, p. 17, pl. i, fig. 7; THOMPSON, Ann. Nat. Hist. (7) xii.
- G. boreale* (not descr., no locality), p. 266; WOLFENDEN, Rep. Brit. Ass. 1902, n. sp.
- Halicyclops* nov. nom. for *Hemicyclops* Claus non Boeck, p. 368; NORMAN, Ann. Nat. Hist. (7) xi.
- Harpacticidæ*, notes on British freshwater spp.; T. SCOTT, Ann. Nat. Hist. (7) xi, pp. 185-196.
- Harpacticoida*, characters, p. 1; SARS, Crust. Norway v.
- Hemicyclops*, see *Halicyclops*.
- Hemidiaptomus* n. g. (*Diaptomidæ*), p. 197, *ignatovi*, Centr. Asia, p. 198, pl. x; SARS, Annuaire Mus. St. Petersb. viii, n. sp.
- Hermannella robusta*, p. 282, pl. xvii, figg. 1-8, *serendibica*, p. 282, pl. xvii, figg. 9-11, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i: *H. (?) finmarchica*, E. Finmark, p. 28, pl. iv, figg. 14-19; T. SCOTT in NORMAN, Ann. Nat. Hist. (7) xi: n. spp.
- Hersilia*, see *Clausidium*.
- Hersiliodes leggii*, Ceylon, p. 283, pl. xvii, figg. 12-21, *tamilensis*, Ceylon, p. 283, pl. xvii, figg. 22-25, *dubia*, Suez Canal, p. 284, pl. iii, figg. 18-27; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Heterocope borealis*, p. 331, pl. vii, figg. 1-5; SARS, Annuaire Mus. St. Petersb. 1898.
- Isochæta longisetosus*, Atlantic, p. 26, pl. vii, figg. 1-9; THOMPSON, Ann. Nat. Hist. (7) xii, n. sp.
- Labidocera kroeyeri* var. *gallensis* n. var., Ceylon, p. 251, pl. ii, figg. 6 & 7, var. *stylifera* n. var., Ceylon, p. 252, pl. ii, figg. 8 & 9; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i.
- L. pectinata*, Ceylon, p. 252, pl. ii, figg. 10-14; THOMPSON & SCOTT, t. c. n. sp.
- Laophonte hirsuta*, Ceylon, p. 266, pl. viii, figg. 1-8; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i: *L. gracilis*, Firth of Forth, p. 118, pl. vi, figg. 6-12; T. SCOTT, Rep. Fish. Board Scotland xxi (3): *L. farøensis*, Faroe Channel, p. 4, pl. i, figg. 9-14, pl. ii, figg. 1-8; T. SCOTT, J. Linn. Soc. xxix: n. spp.
- Laophontella* n. g. (*Harpacticidæ*), p. 266, *typica*, Ceylon, p. 267, pl. viii, figg. 9-16; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. sp.



- Lepeopsyllus* n. g. (*Asterocheridae*) *typicus*, p. 290, pl. xix, figg. 21-29, *ovalis*, p. 291, pl. xix, figg. 30-33, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Leptotrachelus* n. nom. for *Silvestria* præocc., p. 547; BRIAN, Zool. Anz. xxvi.
- Lernanthropus trachuri* (on *Trachurus trachurus*), Elba; BRIAN, Atti Soc. Ligustica xiv, p. 80, also Boll. Mus. Genova, No. 121, p. 4, n. sp.
- Lichomolgus gracilis*, p. 278, pl. xv, figg. 1-9, *ieversti*, p. 278, pl. xv, figg. 10-17, *buddhensis*, p. 279, pl. xv, figg. 18-24, *lankensis*, p. 279, pl. xv, figg. 25 & 26, *simplex*, p. 279, pl. xv, figg. 27-34, *elegans*, p. 280, pl. xvi, figg. 8-13, *robustus*, p. 280, pl. xvi, figg. 14-20, *gigas*, p. 280, pl. xvi, figg. 21-26, *dentipes*, p. 281, pl. xvi, figg. 27-30; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Linnocalanus grimaldii*, p. 335, pl. viii, fig. 7; SARS, Annuaire Mus. St. Petersb. 1898.
- Longipedia*, p. 9, *coronata*, p. 10, pls. iii & iv, *minor*, p. 12, pl. v, fig. 2; SARS, Crust. Norway v.
- L. scotti*, p. 11, pl. v, fig. 1, *rosea*, p. 13, pl. v, fig. 3, Norway; SARS, t. c. n. spp.
- Longipediidae* n. fam. (*Harpacticoida Achirota*), p. 8; SARS, t. c.
- Lophoura edwardsii*, p. 2; BRIAN, Atti Soc. Ligustica xiv.
- Lucicutia magna*, Faeroe Channel, p. 124; WOLFENDEN in FOWLER, P. Zool. Soc. London 1903, i, n. sp.
- Lütkenia glabra*; BRIAN, Atti Soc. Ligustica xiv, p. 78, also Boll. Mus. Genova, No. 121, p. 2.
- Marshia blanchardi*, p. 219, pl. xvi, figg. 1, *a-l*; SARS, Annuaire Mus. St. Petersb. viii.
- Metridia venusta*, p. 24, pl. vi, figg. 1 & 2, *princeps*, p. 24, pl. vi, figg. 3 & 4; THOMPSON, Ann. Nat. Hist. (7) xii.
- Microcalanus* n. g. (*Pseudocalanidae*), p. 20 (published 1901) and p. 155 (1903) (see also *Spinocalanus*), *pusillus*, W. Norway, p. 156, Suppl., pls. ii & iii, fig. 1; SARS, Crust. Norway iv, n. sp.
- Misophria*, p. 5, *pallida*, p. 6, pls. i & ii; SARS, op. cit. v.
- Misophriidae*, p. 4; SARS, t. c.
- Monstrilla helgolandica* at Plymouth; GURNEY, J. Mar. Biol. Ass. vi, p. 627.
- Moraria schmeilii*, Bavaria, p. 391, pl. xx, figg. 19-31; VAN DOUWE, Zool. Jahrb. Syst. xviii, n. sp.
- Mytilicola intestinalis*, external and internal anatomy, spermatogenesis; STEUER, Arb. Inst. Wien xv, pp. 1-46, pls. i-v. [Given as n. g. and sp. but see Zool. Rec. 1902.]
- Obesiella* n. g. (*Ascomyzontidae*) *lyonsiella*, on *Lyonsiella* (*Mollusca*), 1600 fath. near Crozet Is., p. 463, 2 figg.; RIDGEWOOD, J. Linn. Soc. xxviii, n. sp.
- Oithona nana* in North Sea; BREEMEN, Publ. Circonstance, No. 7, Conseil Internat. Expl. Mer. Copenhagen, 24 pp., 1 pl.
- Onychocamptus* n. g. (*Harpacticidae*), p. 157, *heteropus*, Asia Minor, p. 157, pl. i, figg. 18-24; DADAY, SB. Ak. Wien, Abth. i, cxii, n. sp.
- Ophiocamptus muscicola*, habits &c., p. 7, fig. 4; RICHTERS, Ber. Senckenberg. Ges. 1902 (ii).
- Paralichomolgus* n. g. (*Lichomolgidae*) *curticaudatus*, p. 281, pl. xvi, figg. 1-7, *longicaudatus*, p. 282, pl. xx, figg. 6-8, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Paranthessius* n. g. (*Lichomolgidae*) *dubius*, Clyde, p. 130, pl. vi, figg. 16-24; T. SCOTT, Rep. Fish. Board Scotland xxi (3), n. sp.
- Parapontella*, p. 144, *brevicornis*, p. 145, pls. xcvi & xcvi; SARS, Crust. Norway iv.
- Parapontellidae* n. fam., p. 144; SARS, t. c.

- Parastenhelia* n. g. (*Harpacticidæ*), p. 263, *hornelli*, p. 263, pl. vii, figg. 1-10, *similis*, p. 264, pl. x, figg. 8-14; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Parastephos pallidus*, p. 111, pl. ii, figg. 5-10; T. SCOTT, Rep. Fish. Board Scotland xxi (3).
- Pelidium ovale*, p. 273, pl. xiii, figg. 1-6, *angulatum*, p. 273, pl. xiii, figg. 7-11, *speciosum*, p. 274, pl. xiii, figg. 12-17, *serratum*, p. 274, pl. xiii, figg. 18-22, *perplexum*, p. 274, pl. xiii, figg. 23-27, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Phyllophora*, see *Phyllothyreus*.
- Phyllopus bidentatus*, p. 29, pl. iii, figg. 6-9; THOMPSON, Ann. Nat. Hist. (7) xii.
- Phyllothyreus* nov. nom. for *Phyllophora* H. M.-E., præocc. p. 368, *P. cornutus*, occurrence in Britain, p. 368; NORMAN, Ann. Nat. Hist. (7) xi.
- Pontella danæ* var. *ceylonica* n. var., Ceylon, p. 252, pl. ii, figg. 1-5; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i.
- Pontellopsis herdmani*, Ceylon, p. 253, pl. ii, figg. 15-17; THOMPSON & SCOTT, t. c. n. sp.
- Porcellidium fimbriatum*, p. 275, pl. xii, figg. 1-10; THOMPSON & SCOTT, t. c.
- P. brevicaudatum*, p. 275, pl. xii, figg. 11-14, *acuticaudatum*, p. 275, pl. xii, figg. 15-18, *ravanæ*, p. 275, pl. xii, figg. 19-22, Ceylon; THOMPSON & SCOTT, t. c. n. spp.
- Pseudetideus* n. g. (*Ætidiinæ*), p. 266, *multiserrata* (not descr., no locality), p. 266; WOLFENDEN, Rep. Brit. Ass. 1902, n. sp.
- Pseudanthessius gracilis*, p. 276, pl. xiv, figg. 19-23; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i.
- P. maximus*, p. 276, pl. xiv, figg. 1-11, *chelifer*, p. 277, pl. xiv, figg. 12-18, *concinus*, p. 277, pl. xiv, figg. 24-30, Ceylon; THOMPSON & SCOTT, t. c. n. spp.
- Pseudocalanus gracilis*, Finmark, p. 154, Suppl. pl. i; SARS, Crust. Norway iv, n. sp.
- Pseudocyclops obtusatus*, p. 112, pl. vi, figg. 13-15; T. SCOTT, Rep. Fish. Board Scotland xxi (3).
- Pseudodiptomus salinus*, p. 248, pl. ii, figg. 21-23, *aurivillii*, p. 248, pl. ii, figg. 24-26; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i.
- Pseudophaëna typica*, p. 112, pl. ii, figg. 11-15; T. SCOTT, Rep. Fish. Board Scotland xxi (3).
- Pseudotachidius*, p. 2, *similis*, Faroe Channel, p. 3, pl. i, figg. 1-8; T. SCOTT, J. Linn. Soc. xxix, n. sp.
- Pseudothalestris imbricata*, p. 272, pl. xi, figg. 19-24; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i.
- Ridgewayia* n. g. (*Calanidæ*) *typica*, Ceylon, p. 245, pl. i, figg. 1-13; THOMPSON & SCOTT, t. c. n. sp.
- Scolecithrix cristata*, p. 21, pl. iii, figg. 1-5; THOMPSON, Ann. Nat. Hist. (7) xii.
- S. chelifer*, Atlantic, p. 21, pl. v, figg. 1-9; THOMPSON, t. c. n. sp.
- Silvestria* n. g. [see also *Leptotrachelus*] (*Lernæidæ*) *trucha* (on *Percichthys trucha*), Patagonia; BRIAN, Atti Soc. Ligustica xiii, p. 245, also Boll. Mus. Genova, No. 119, n. sp.
- Spinocalanus longicornis* Sars = *S. abyssalis* Giesbr., ♂ descr., p. 157, Suppl. pl. iii, fig. 2, ♂ formerly assigned to this sp. referred to *Microcalanus pygmaeus*; SARS, Crust. Norway iv: *S. abyssalis*, p. 16, pl. i, fig. 6; THOMPSON, Ann. Nat. Hist. (7) xii.
- Stenhelia hyperborea*, E. Finmark, p. 11, pl. ii, figg. 9-13; T. SCOTT in NORMAN, Ann. Nat. Hist. (7) xi: *S. brevicornis*, p. 260, pl. v, figg. 1-9, *gracilicaudata*, p. 260, pl. v, figg. 10-15, *longicornis*, p. 261, pl. v,

- figg. 16-22, *perplexa*, p. 261, pl. vi, figg. 1-7, *dentipes*, p. 262, pl. vi, figg. 8-14, *knovi*, p. 262, pl. x, figg. 15-18, *minuta*, p. 262, pl. vi, figg. 21-24, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i : n. spp.
- Stephopontius* n. g. (*Asterocheridae*), p. 292, *typicus*, Ceylon, p. 293, pl. xx, figg. 19-31; THOMPSON & SCOTT, t. c. n. sp.
- Stephos scotti*, p. 110, pl. ii, figg. 1-4; T. SCOTT, Rep. Fish. Board Scotland xxi (3).
- Sunaristes*, p. 14, *paguri*, p. 15, pls. vi & vii; SARS, Crust. Norway v.
- S. inopinata*, p. 256, pl. iii, figg. 1-8, *longipes*, p. 256, pl. iii, figg. 9-11, *curticaudata*, p. 256, pl. iii, figg. 12-17, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Tegastes* n. nom. for *Amygone* Claus non Müller, p. 368; NORMAN, Ann. Nat. Hist. (7) xi.
- T. imthurni*, p. 258, pl. iv, figg. 1-9, *donnani*, p. 259, pl. iv, figg. 10-12, *twynami*, p. 259, pl. iv, figg. 13-16, *chalmersi*, p. 259, pl. iv, figg. 17-22, Ceylon; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i, n. spp.
- Temorella gracilis*, Jana River, p. 33f, pl. viii, figg. 8-18; SARS, Annuaire Mus. St. Petersb. 1898, n. sp.
- Tetragoneps pygmaeus*, Firth of Forth, p. 117, pl. iv, figg. 11-19; SCOTT, T., Rep. Fish. Board Scotland xxi (3): *T. dubia*, p. 267, pl. viii, figg. 17-22, *minor*, p. 268, pl. viii, figg. 23-28; THOMPSON & SCOTT, Rep. Ceylon Pearl Fisheries i : n. spp.
- Thalestria clausii*, p. 24, *longimana*, p. 25, pl. iv, figg. 8-13; T. SCOTT in NORMAN, Ann. Nat. Hist. (7) xi.
- T. normani*, E. Finmark, p. 25, pl. iii, figg. 12-18; T. SCOTT in NORMAN, t. c. n. sp.
- Ventriculina* n. g. (*Dichelestiidae*), p. 106, *crosslandi* (on a Sipunculid), Zanzibar, p. 106, text-fig. 12; BASSETT-SMITH, P. Zool. Soc. London 1903, i, n. sp.
- Xanthocalanus giesbrechti*, Atlantic, p. 22, pl. iv, figg. 1-9; THOMPSON, Ann. Nat. Hist. (7) xii, n. sp.
- Zosime*, p. 26, *typica*, p. 27, pl. xv; SARS, Crust. Norway v.

### 3. BRANCHIURA.

Nomenclature of hosts; GILL, Science (n. s.) xvii, p. 33: Larvæ; WILSON, t. c. pp. 484 & 485.

### 4. OSTRACODA.

[See also †AMMON (5), BRADY (26), †CLAYPOLE (49), †CLELAND (50), DADAY (57 & 59), FOWLER (77), †GIRTY (87), KINKELIN (117), †LAMPLUGH (126), LO BIANCO (135), MONTI (150), †RAYMOND (183), THALLWITZ (229), VOLK (245), †WALTHER (250), †WÜST (265).]

†*Beyrichia* (referred to *Phyllocarida*?) *angelini* var. *armata* n. var., pp. 163 & 220, pl. iv, fig. 27; GRÖNWALL, Danmarks geol. Unders. (2) No. 13.

†*B. sussexensis*, p. 253, pl. xxiii, figg. 3 & 4, *barretti*, p. 254, pl. xxiii, fig. 9, *perinflata*, p. 254, pl. xxiii, fig. 6, *jerseyensis*, p. 255, pl. xxiii, fig. 5, *nearpassi*, p. 255, pl. xxiii, figg. 7 & 8, *deckerensis*, p. 256, pl. xxiii, fig. 11, *kümmeli*, p. 266, pl. xxiv, fig. 21, *wallpackensis*, p. 266, pl. xxiv, fig. 22, *montaguensis*, p. 267, pl. xxiv, fig. 23, *smocki*, p. 267, pl. xxiv, fig. 24, *mantiensis*, p. 267, pl. xxiii, fig. 10, Silurian, New Jersey; WELLER, Geol. Surv. New Jersey, Rep. Pal. iii, n. spp.



- †*Bythocypris nearpassi*, Silurian, New Jersey, p. 257, pl. xxiii, fig. 12; WELLER, t. c. n. sp.
- Candona rostrata* var., p. 352, pl. xi, figg. 25 & 26; SARS, Annuaire Mus. St. Petersb. 1898.
- C. inaequalis*, p. 351, pl. xi, figg. 10 & 11, *fragilis*, p. 352, pl. xi, figg. 12-22, *oblonga*, p. 353, pl. xi, figg. 23 & 24, Jana Territory; SARS, t. c. n. spp.
- Chlamydotheca*, p. 975, key to spp. p. 976, *azteca*, p. 977, pl. lxix, figg. 1-4; SHARPE, P. U. S. Mus. xxvi.
- C. mexicana*, Mexico, p. 976, pl. lxiv, figg. 1-6; SHARPE, t. c. n. sp.
- Cypria exsculpta*, p. 994, pl. lxviii, figg. 6-9; SHARPE, t. c.
- C. crenulata*, Sumatra, p. 32, pl. iv, figg. 2, *2a-b*; SARS, Arch. Naturv. Christian. xxv, No. 8, n. sp.
- Cyprididae*, revision of sub-families and genera, with keys to genera and spp. found in United States; SHARPE, P. U. S. Mus. xxvi, pp. 969-1001.
- Cypridopsella granulata*, p. 225, pl. xvi, figg. 4, *a & b*, *arcuata*, p. 225, pl. xvi, figg. 5 & 5a; SARS, Annuaire Mus. St. Petersb. viii, n. spp.
- Cypridopsis exigua*, p. 33, pl. iv, figg. 3, *3a-b*, *adusta*, p. 34, pl. iv, figg. 4, *4a-b*, *dubia*, p. 35, pl. iv, figg. 5, *5a-b*, Sumatra; SARS, Arch. Naturv. Christian. xxv, No. 8, n. spp.
- Cypris balnearia* in hot springs, Algiers; BLANCHARD, C.R. Soc. Biol. Iv, p. 949; GIARD, t. c. p. 1146: *C. purpurascens*, p. 20, pl. ii, figg. 2, *2a-d*; SARS, Arch. Naturv. Christian. xxv, No. 8: *C. virens*, p. 986, pl. lxvi, figg. 4-6, *pubera*, p. 987, pl. lxvii, figg. 1-6, *pellucida*, p. 988, pl. lxviii, figg. 1-5; SHARPE, P. U. S. Mus. xxvi.
- C. inflata*, p. 222, pl. xvi, figg. 2, *a-d*, *ovalis*, p. 223, pl. xvi, figg. 3, *a & b*, Cent. Asia; SARS, Annuaire Mus. St. Petersb. viii: *C. vittata*, China, p. 22, pl. ii, figg. 3, *3a-c*, *decorata*, China, p. 23, pl. ii, figg. 4, *4a & b*; SARS, Arch. Naturv. Christian. xxv, No. 8: n. spp.
- Dolerocypris fasciata*, p. 36, pl. iv, figg. 6 & 6a; SARS, t. c.
- D. sinensis*, China, p. 37, pl. iv, figg. 7, *7a-b*; Sars, t. c. n. sp.
- Entocythere* n. g. (*Cytheridae*) *cambaria*, parasitic on *Cambarus* spp., Wisconsin; MARSHALL, Tr. Wisconsin Ac. xiv (1), pp. 117-144, pls. x-xiii, n. sp.
- Eucandona csikii* var. *pannonica* n. var., p. 84, pl. vi, figg. 34-54, text-figg. b & c; DADAY, Zool. Jahrb. Syst. xix.
- †*Eurychilina oculifera*, p. 210, pl. xiii, fig. 16, *jerseyensis*, p. 210, pl. xiii, fig. 17, Ordovician, New Jersey; WELLER, Geol. Surv. New Jersey, Rep. Pal. iii, n. spp.
- Hemicypris* n. g. (*Cyprididae*) *pyxidata*, p. 25, pl. iii, figg. 1, *1a-f*; SARS, Arch. Naturv. Christian. xxv, No. 8.
- H. ovata*, p. 26, pl. iii, figg. 2, *2a & b*, *megalops*, p. 27, pl. iii, figg. 3, *3a & b*, Sumatra; SARS, t. c. n. spp.
- Herpetocypris reptans*, p. 979, pl. lxv, figg. 1-4; SHARPE, P. U. S. Mus. xxvi.
- Hyocypris dentifera*, p. 38, pl. iv, figg. 8, *8a-c*, *angulata*, p. 39, pl. iv, figg. 9 & 9a, China; SARS, Arch. Naturv. Christian. xxv, No. 8, n. spp.
- †*Isochilina*, list of spp., p. 303, *gregaria* var. *ulrichiana* n. var. p. 301, text-figg. 1, *2a & b*, Lower Silurian, Ontario; JONES, Geol. Mag. (4) x (7).
- †*Leperditella ornata*, Ordovician, New Jersey, p. 209, pl. xiii, figg. 13-15; WELLER, Geol. Surv. New Jersey, Rep. Pal. iii, n. sp.
- †*Leperditia fabulites*, p. 208, pl. xiii, figg. 11-12, *alta*, pp. 259 & 265, pl. xxiv, figg. 25-28; WELLER, t. c.
- †*L. altoides*, Silurian, p. 252, pl. xxiii, figg. 1 & 2, *elongata*, p. 259, pl. xxiii, fig. 13, *gigantea*, p. 260, pl. xxiii, fig. 14, Silurian, New Jersey; WELLER, t. c. n. spp.
- Leptocypris* n. g. (*Cyprididae*) p. 28, *papyracea*, Sumatra, p. 29, pl. iii, figg. 4, *4a-c*; SARS, Arch. Naturv. Christian. xxv, No. 8, n. sp.



- Limnocythere incisa*, p. 226, pl. xvi, figg. 6 & 6a; Sars, *Annuaire Mus. St. Petersb.* viii.
- L. dubiosa*, *Asia Minor*, p. 162, pl. i, figg. 25-27, text-fig. 2; DADAY, *SB. Ak. Wien, Abth. i, cxii, n. sp.*
- Metacypris cordata*, p. 227, pl. iii, fig. 34; STENROOS, *Acta Soc. Faun. Fenn.* xvii (1) (1898).
- Notodromas oculata*, *Sumatra*, p. 30, pl. iv, figg. 1, 1a-c; Sars, *Arch. Naturv. Christian.* xxv, No. 8, n. sp.
- Physocypris kraepelini*, *Elbe, Hamburg*, p. 165, figg. 1-7; MÜLLER, *Mt. Mus. Hamburg* xix, n. sp.
- Potamocypris smaragdina*, p. 992, pl. lxxv, figg. 5-7; SHARPE, *P. U. S. Mus.* xxvi.
- Spirocypris* n. g. (*Cyprididae, Cypridineae*), p. 981, *passaica*, *New Jersey*, p. 982, pl. lxxvi, figg. 1-3; SHARPE, t. c. n. sp.

## 5. CIRRIPIEDIA.

[See also †ALMERA (2), BRUNTZ (35), †CAREZ (39), †ETHERIDGE & DUN (72), †FALKNER & LUDWIG (74), †JUKES-BROWNE (113), †LAMPLUGH (126), LO BIANCO (135), MONACO (149), NOBILI (163), †TOURNOUËR (239), †WOLLEMAN (262).]

General account of *Cirripectida*; LALOY, *Rev. Scient.* xix, pp. 360-366, text-fig. 28-34.

- Acasta*, key to spp. p. 122, *spongites*, p. 121, pl. ii, figg. 12 & 15; GRUVEL, *Arch. Mus. Paris* (4) v.
- Alcippe* [see also *Trypetesa*] *lampas*, *Heligoland*, habits and anatomy; BERNDT, *Zeitschr. wiss. Zool.* lxxiv, pp. 396-457, pls. xix-xxii.
- Alepas*, key to spp. p. 305, *quadrata*, p. 303, pl. xiii, figg. 18-21; GRUVEL, *Arch. Mus. Paris* (4) xiv.
- Balanus improvisus*, structure and growth of shell; BAHLs, "Ueber *Struktur... von Balanus improvisus*," 45 pp., 1 pl., Greifswald 1903: *B.*, key to sections of g. p. 125, keys to spp. pp. 131, 132, 138, 139, 141, 142, 143, *decorus*, p. 126, pl. ii, fig. 16, *campbelli*, p. 128, pl. i, figg. 18 & 19, *psittacus*, p. 129, pl. iii, fig. 14, *capensis*, p. 129, pl. iv, fig. 5, *trigonus*, pl. iv, fig. 6, *laevis* var. *nitidus*, pl. iv, fig. 7, *perforatus* var. *angustus*, pl. iv, fig. 4, *balanoides* var. *elongatus*, p. 140, pl. iv, fig. 20, *cariosus*, p. 140, pl. iv, fig. 13, *flosculus* var. *sordidus*, p. 141, pl. iv, fig. 17, *hirsutus*, pl. iv, fig. 11, *improvisus* var. *assimilis*, pl. iv, fig. 18; GRUVEL, *Arch. Mus. Paris* (4) v: *B. amaryllis dissimilis* n. subsp., *Kelantan*, p. 369, pl. xxxiv, figg. 3-3c, var. *clarovittata* n. var., p. 370; LANCHESTER, *P. Zool. Soc. London* 1902, ii.
- †*B. concavus*, p. 344; ARNOLD, *Mem. Calif. Ac.* iii.
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## GIGANTOSTRACA

(XIPHOSURA, TRILOBITA, EURYPTERIDA).

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"Hypostomic eyes" of Trilobites compared with "Kolbenzellen organ" of *Limulus*; SPENCER (31).

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# XI. ARACHNIDA

(Including TARDIGRADA AND PENTASTOMIDA).

BY

W. T. CALMAN, D.Sc.

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### 6. *Miscellaneous.*

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 Britain. *Tyroglyphidæ* n. spp.; MICHAEL (82): *Araneæ* n. spp.; O. P. CAMBRIDGE (25): *Pseudoscorpiones*; KEW (57): *Hydrachnidæ*; SOAR (167).  
 England. *Eriophyidæ* n. sp.; NALEPA (91): Lincolnshire, *Hydrachnidæ* n. spp.; GEORGE (46): *Hydrachnidæ* n. sp.; GEORGE (45): Acarid galls; WOODRUFFE-PEACOCK & STOW, Naturalist 1903, pp. 305 & 306; STOW, t. c. p. 383: Grimsby, *Zora maculata* and *Oonops pulcher* (*Araneæ*); SMITH, Naturalist 1903, p. 30: Epping Forest, *Araneæ*; SMITH, (164 & 165).  
 Scotland. Linlithgowshire, *Chelifer* (*Chernes*) *tullgreni* = *C. dubius*, EVANS, Ann. Scott. Nat. Hist. 1903, pp. 120 & 249: Argyllshire, *Roncus cambridgii*; WATERSTON, Ann. Scott. Nat. Hist. 1903, p. 187.  
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### (3) *Asia (Palæarctic).*

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Aden, *Acari* n. sp.; WITH (186).

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### (4) *India, and Further India.*

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Ceylon, *Opiliones* n. sp.; POCOCK (117): *Phrynarachne* (*Araneæ*) n. sp.; POCOCK & ROTHSCHILD (123): *Araneæ* n. sp.; SIMON (161).

### (5) *Malay Peninsula and Archipelago* [see also (4) above].

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Malacca, *Acari* n. sp.; OUDEMANS (100).

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### (6) *Africa and Madagascar.*

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Soudan, *Ixodidæ*; SHIPLEY (150).

Galla country, *Araneæ* n. sp.; SIMON (153).

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S. & E. Africa, *Opiliones* n. spp.; POCOCK (111).

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 ПЕCKHAM (108): *Opiliones* n. spp. ; POCOCK (111 & 117): *Araneæ* n. sp. ;  
 POCOCK (115): *Araneæ* n. spp. ; SIMON (153, 159 & 161); Madagascar and  
 Nossi Bé, *Araneæ* n. spp. ; SIMON (157).

(7) *North America.*

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 TROTTER (180): Id. of Anticosti, *Araneæ*, *Pseudoscorpiones*, *Opiliones*, list ;  
 SIMON (160): Wisconsin and Massachusetts, *Hydrachnidæ* n. spp. ;  
 MARSHALL (75): California, *Solifugæ* n. sp. ; BANKS (4): Texas, *Kænenia*  
 n. sp. ; RUCKER (145).

(8) *Central and South America and the West Indies.*

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 n. spp. ; SIMON (153): Hayti, *Araneæ* n. spp. and *Opiliones* ; BANKS (2):  
 Jamaica, *Araneæ* n. sp. ; SIMON (161).

Central America, *Araneæ* n. spp. ; F. CAMBRIDGE (17).

S. America. *Araneæ* n. spp. ; F. CAMBRIDGE (22): *Araneæ* n. spp. ;  
 SIMON (161): *Acari* ; SILVESTRI (152): S. America and W. Indies,  
*Aviculariidæ* (*Araneæ*) n. spp. ; POCOCK (113).

Venezuela, Guatemala, Brazil, *Opiliones* n. spp. ; POCOCK (117).

Colombia, *Araneæ* n. sp. ; SIMON (156).

Ecuador, *Araneæ* n. spp. ; SIMON (155 & 157).

Bolivia, *Araneæ* n. sp. ; SIMON (153).

Brazil, *Acari* ; OUDEMANS (100 & 105): Amazons, *Araneæ* n. sp. ; SIMON  
 (153).

Peru, *Pedipalpi* n. sp. ; POCOCK (115).

Chili, *Acari* n. sp. ; OUDEMANS (100).

Argentina, *Araneæ* n. sp. ; SIMON (158).

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 SIMON (155): *Araneæ* and *Opiliones* ; SIMON (163). [See also (1) above.]

(9) *Australasia.*

Australia and Tasmania, *Araneæ* n. spp. ; HOGG (51).

Australia. *Araneæ* ; RAINBOW (135): *Sparassinæ* (*Araneæ*) n. spp. ; HOGG  
 (50): East Australia, *Araneæ* n. sp. ; SIMON (161).

New South Wales. *Araneæ* n. spp. ; RAINBOW (136): *Opiliones* n. sp. ;  
 POCOCK (117).

Victoria, *Opiliones* n. sp. ; POCOCK (111).

Tasmania. *Opiliones* n. spp. ; POCOCK (111): *Araneæ* n. spp. ; SIMON  
 (161).

New Zealand, *Opiliones* n. spp. ; POCOCK (111 & 117).

(10) *Atlantic Islands (not included above).*

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(11) *Indian Ocean Islands (not included above).*

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Seychelles, *Araneæ* n. sp.; SIMON (153).

(12) *Pacific Islands (not included above).*

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Bismarck Archipelago, *Hydrachnidæ (Acari)* n. spp.; PIERSIG (109).  
Gilbert Is., *Araneæ*; RAINBOW (134).

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POCOCK (120 & 121): Illinois, *Anthracomarti* n. spp. and *Scorpiones*;  
MELANDER (81).

## IV. SYSTEMATIC INDEX †.

Arachnida included in new phylum *Palæopoda*, together with *Merostomata* and *Trilobita*, p. 146; PACKARD, P. Amer. Phil. Soc. xlii.  
Phylogeny and relationships of Arachnida; CARPENTER, P. Irish Ac. xxiv B (4), pp. 320-360.

## 1. SCORPIONES.

[In addition to papers quoted below see also BOUSSAC (13), BRUNTZ (15), DAHL (38), LAFORGUE (64), †MELANDER (81), POLICE (125), PURCELL (131), SIMON (162), VERRILL (182).]

Scorpiones of Caucasus, key to spp. and distribution; BIRULA, *Annuaire Mus. St. Petersb.* viii, Nouv. pp. xvii-xix.

*Buthotus*, key to spp., p. 565, *aristidis*, p. 563; KRAEPELIN, *Zool. Jahrb. Syst.* xviii: *B. insularis*, p. 180; POCOCK, *Nat. Hist. Sokotra*.  
*B. glabrifrons*, Muscat, p. 564; KRAEPELIN, *Zool. Jahrb. Syst.* xviii, n. sp.  
*Buthus occitanus* forma *zeylensis*, p. 558, *B. emini*, p. 559, *B. emini* var. *polystictus*, p. 560; KRAEPELIN, t. c.: *B. europæus*, secretion of poison, p. 92; LAUNOY, *Ann. Sci. nat.* (8) xviii: *B. socotrensis*, p. 178; POCOCK, *Nat. Hist. Sokotra*.

*Euscorpius carpathicus* and *germanus*, p. 678; KULCZYŃSKI, *SB. Ak. Wien* cxii, Abth. i: *E. italicus*, stomatogastric nervous system, p. 179; POLICE, *Arch. zool. ital.* i (2): *E. italicus*, ventral nerve-centres; POLICE, *Boll. Soc. Napoli* xv, pp. 1-24, pl. i.

*Hemiscorpius socotranus*, p. 181; POCOCK, *Nat. Hist. Sokotra*.

*Heteronebo*, p. 202, *granti*, p. 202, *forbesii*, p. 203; POCOCK, t. c.

*Heteroscorpion* n. g. (*Scorpionidæ*) *madagascarense*, p. x; BIRULA, *Annuaire Mus. St. Petersb.* viii, No. 1, Nouvelles, n. sp.

*Nebo hierichonticus pallidimanus* n. subsp., S. Arabia, p. 214; POCOCK, *Ann. Nat. Hist.* (7) xi.

† 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.

*Pandinus*, key to some spp., p. 569, *exitialis*, p. 567, *smithi*, p. 568, *gregoryi*, p. 569; KRAEPPELIN, Zool. Jahrb. Syst. xviii.  
*Scorpio indicus*, embryology; POLJANSKY, Zool. Anz. xxvii, pp. 49-58, 1 text-fig.

## 2. PEDIPALPI.

[See also SIMON (162).]

*Heterophrynus elaphus*, E. Peru, p. 220; Pocock, Ann. Nat. Hist. (7) xi, n. sp.  
*Thelyphonus caudatus*, embryology; SCHIMKEWITSCH, Zool. Anz. xxvi, pp. 665-685, 6 text-figg.

## 3. PALPIGRADI.

*Kœnenia wheeleri*, structure, systematic characters, post-embryonic development, habits; RUCKER, Zool. Jahrb. Syst. xviii, pp. 401-434, pls. xxi-xxiii.  
*K.*, keys to subgenera and spp., p. 226, *florenciae*, Texas, p. 217, pl. xviii; RUCKER, Quart. J. Micr. Sci. (n. s.) xlvii: *K. berlessei*, p. 1, *subangusta*, p. 2, Italy; SILVESTRI, Annuar. Mus. Univ. Napoli (n. s.) i, No. 11, n. spp.

## 4. ARANEÆ.

[See also ABSOLON (1), BANKS (3), BRUNTZ (15), F. CAMBRIDGE (21 & 23), O. CAMBRIDGE (26), COUPIN (31), DEVILLE (41), FABRE (43), MONTGOMERY (85), RÄDL (132), SHELFORD (149), SIMON (160), SMITH (165), THON (173), VERRILL (182).]

*Araneæ* of Germany, completion of monograph; BÖSENBERG, Zoologica xiv.

Revision of *Salticidæ* completed, and supplementary notes on other families with new grouping of many genera, revised keys to many groups, notes on characters and synonymy &c.; SIMON, Hist. Araign. ii, 4<sup>me</sup> fasc. The families referred to are named below and the new genera and spp. quoted. Table of classification of *Araneæ* on p. 1056.

## A. MYGALOMORPHÆ (AVICULARIIDÆ, CTENIZIDÆ, &amp;C.).

Distribution; Pocock, P. Zool. Soc. London 1903, i, pp. 340-368, with maps.

- *Acanthodon pectinipalpis*, p. 87, *spiricola*, p. 89, nest, fig. 4, *kentanicus*, p. 89, *versicolor*, p. 90, *fryi*, p. 91, S. Africa; PURCELL, Ann. S. African Mus. iii, n. spp.
- *Acanthoscurria*, key to spp. p. 89, *antillensis*, Lesser Antilles, p. 86, *tarda*, Amazons, p. 87, *suina*, Uruguay, p. 87, *sternalis*, Argentine, p. 88; Pocock, Ann. Nat. Hist. (7) xi, n. spp.
- *Aganippe occidentalis*, N. W. Australia, p. 309 & figg. in text; Hogg, Ann. Nat. Hist. (7) xi, n. sp.
- *Anadiastothele* n. g. (*Liphistiidæ*), p. 875, *thorelli*, Sumatra, p. 875; SIMON, Hist. Araign. ii, n. sp.
- *Ancylotrypa pusilla*, Cape Colony, p. 27; PURCELL, Ann. S. African Mus. iii, n. sp.
- *Aphantopelma* n. g. (*Aviculariidæ*), p. 43, *macellum*, Colombia, p. 43; SIMON, Bull. Soc. ent. France 1903, n. sp.
- *Aporoptychus aculeatus*, Spanish Guinea, p. 65; SIMON, Mem. Soc. Espan. i, n. sp.

- *Arbanitis maculipes*, Tasmania, p. 311 & fig. in text; HOGG, Ann. Nat. Hist. (7) xi, n. sp.
- ✓ *Atrophothele* n. g. (*Barychelidæ*) p. 183, *socotrana*, Sokotra, p. 184; Pocock, Nat. Hist. Sokotra, n. sp.
- *Atypidæ*, supplementary notes, p. 972; SIMON, Hist. Araign. ii.
- ✓ *Atypus*, type *subterraneus* (Rømer), p. 481; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.
- *Avicularia minatrix*, Venezuela, p. 81; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- *Aviculariidae*, supplementary notes, pp. 875–972; SIMON, Hist. Araign. ii.
- ✓ *Batesiella* n. g. (*Aviculariidae*), p. 258, *crinita*, Camaroons, p. 258; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- *Bemmeris* n. g. (*Aviculariidae*), p. 42, *pardalina*, Cape of Good Hope, p. 42; SIMON, Bull. Soc. ent. France 1903, n. sp.
- ✓ *Bolostromus Riveti*, Ecuador, p. 314; SIMON, Ann. Soc. ent. France lxxii, n. sp.
- *Brachionopus annulatus*, p. 105, *tristis*, p. 105, S. Africa; PURCELL, Ann. S. African Mus. iii, n. spp.
- ✓ *Cædmon* n. g. (*Theraphosidæ Miginæ*), p. 143, type *abrahamii* Cambr.; O. CAMBRIDGE, Ann. S. African Mus. iii (5).
- ✓ *C. thoracica*, Simon's Town, p. 144, pl. ix, fig. 1, *affinis*, Cape, p. 145, pl. ix, fig. 2, *congener*, Cape, p. 146, pl. ix, fig. 3, *dubia*, Cape, p. 147, pl. ix, fig. 4; O. CAMBRIDGE, t. c. n. spp.
- ✓ *Calathotarsus* n. g. (near *Moggridgea*), p. 21, *coronatus*, Chili, p. 21; SIMON, Ann. Soc. ent. Belgique xlvi, n. sp.
- *Calommata simoni*, Camaroons, p. 259; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- *Citharoscetus*, key to spp. p. 102, *actæon*, Brazil, p. 100; Pocock, t. c. n. spp.
- *Ctenonemus* n. g. (*Aviculariidae*), p. 42, *pectiniger*, S. Africa, p. 43; SIMON, Bull. Soc. ent. France 1903, n. sp.
- *Cyriocosmus* n. g. (in group *Ischnocolæ* of *Aviculariidae Aviculariinae*) type *sellatus* E. Sim., p. 929; SIMON, Hist. Araign. ii.
- *Cyrtauchenius dentatus*, Cape Colony, p. 29; PURCELL, Ann. S. African Mus. iii, n. sp.
- ✓ *Cyrtocarenum* (?) *verneri*, Smyrna, p. 632; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i, n. sp.
- *Cyrtopholis*, p. 94, key to spp. p. 98, *femoralis*, Montserrat, p. 96, *agilis*, San Domingo, p. 97; Pocock, Ann. Nat. Hist. (7) xi, n. spp.
- ✓ *Damarchodes* n. g. (*Aviculariidae*), p. 43, *purcelli*, S. Africa, p. 43; SIMON, Bull. Soc. ent. France 1903, n. sp.
- *Ephebopus fossor*, Ecuador, p. 85; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- ✓ *Eriodon occatorium*, p. 62, fig. 5, *rubrocapitatum*, p. 64, fig. 6; RAINBOW, Rec. Austral. Mus. v (1).
- *Evagrus atropurpureus*, Cape Colony, p. 106; PURCELL, Ann. S. African Mus. iii, n. sp.
- ✓ *Forsythula* n. g. (*Barychelidæ*), p. 223, *majori*, Madagascar, p. 224; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- *Galeosoma* n. g. (*Ctenizidæ*), *scutatum*, Transvaal, p. 92; PURCELL, Ann. S. African Mus. iii, n. sp.
- *Gorgyrella schreineri*, Cape Colony, p. 25, pl. i, figg. 3 & 4; PURCELL, t. c. n. sp.
- ✓ *Hapulopinus* n. g. (in group *Ischnocolæ* of *Aviculariidae Aviculariinae*), p. 930, *cubanus*, Cuba, p. 930; SIMON, Hist. Araign. ii, n. sp.
- *Hapulopus pictus*, Peru, p. 110; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- ✓ *Hapalotremus* n. g. (in group *Ischnocolæ* of *Aviculariidae Aviculariinae*), p. 929, *albipes*, Bolivia, p. 930; SIMON, Hist. Araign. ii, n. sp.
- ✓ *Harmonicon riveti*, Ecuador, p. 314; SIMON, Ann. Soc. ent. France lxxii, n. sp.



- *Harpactira namaquensis*, p. 31, pl. 1, fig. 8; PURCELL, Ann. S. African Mus. iii.
- *H. baviana*, Cape Colony, p. 30, pl. i, fig. 9; PURCELL, t. c. n. sp.
- *Harpactirella*, key to spp. p. 104, *heleneæ*, p. 101, *magna*, p. 102, *domicola*, p. 103, Cape Colony; PURCELL, t. c. n. spp.
- *Hebestatis* n. g., type *Cyclocosmia theveneti* E. Sim., p. 21; SIMON, Ann. Soc. ent. Belgique xlvii.
- *Heligomerus caffer*, Transvaal, p. 305; PURCELL, Nov. Zool. x, n. sp.
- *Hemiercus* n. g. (in group *Ischnocoleæ* of *Aviculariidae Aviculariinae*), type *inflatus* E. Sim., p. 929; SIMON, Hist. Araign. ii.
- *Hemirrhagus* n. g. (in group *Ischnocoleæ* of *Aviculariidae Aviculariinae*), type *cervinus* E. Sim., p. 926; SIMON, t. c.
- *Hermacha brevicauda*, p. 98, *evanescens*, p. 99, Cape Colony; PURCELL, Ann. S. African Mus. iii, n. spp.
- *Hermachastes tricalcaratus*, p. 94, *gooldi*, p. 95, *schreineri*, p. 96, *flavo-punctatus*, p. 97, Cape Colony; PURCELL, t. c. n. spp.
- *Homœomma*, p. 111, key to spp. p. 112; POCOCK, Ann. Nat. Hist. (7) xi.
- *Liphistiidae*, notes, p. 873; SIMON, Hist. Araign. ii.
- *Loxoptygus* n. g. (in group *Phoneyuseæ* of *Aviculariidae Aviculariinae*), type *ectypus* E. Sim., p. 952; SIMON, t. c.
- *L. conturnatus*, Galla country, p. 952; SIMON, t. c. n. sp.
- *Macrothele cretica*, Crete, p. 35, pl. i, fig. 1; KULCZYŃSKI, Bull. Ac. Cracovie 1903: *M. camerunensis*, Spanish Guinéa, p. 66; SIMON, Mem. Soc. Españ. i : n. spp.
- *Metriopelma*, p. 112, key to spp. p. 115, *velox*, Ecuador, p. 113, *trinitatis*, Trinidad, p. 114; POCOCK, Ann. Nat. Hist. (7) xi, n. spp.
- *Migidae* of Cape Colony, key to spp.; PURCELL, Ann. S. African Mus. iii, p. 72.
- *Missulena*, type *occtoria* Walck., p. 488; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.
- *Moggridgea seticoxa*, p. 18, *mordax*, p. 69, nest, fig. 1, *leipoldti*, p. 71, *coegensis*, p. 71, Cape Colony; PURCELL, Ann. S. African Mus. iii: *M. quercina*, p. 22, *terricola*, p. 22, *peringueyi*, p. 23, S. Africa; SIMON, Ann. Soc. ent. Belgique xlvii : n. spp.
- *Monocentropus*, p. 182, *balfouri*, p. 183, pl. xiv, fig. 1; POCOCK, Nat. Hist. Sokotra.
- *M. longimanus*, S. Arabia, p. 219; POCOCK, Ann. Nat. Hist. (7) xi, n. sp.
- *Myostola* n. nom. for *Pelinobius* E. Sim. non Karsch, p. 951; SIMON, Hist. Araign. ii.
- *Myriale alluaudi*, Madagascar, p. 133; SIMON, Bull. Mus. Paris ix, n. sp.
- *Nemesia arboricola*, Malta, p. 225; POCOCK, Ann. Nat. Hist. (7) xi, n. sp.
- *Nesiergus* n. g. (in group *Ischnocoleæ* of *Aviculariidae Aviculariinae*), p. 927, *insulanus*, Seychelles, p. 928; SIMON, Hist. Araign. ii, n. sp.
- *Oletera*, type *picea* (Sulzer), p. 488; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.
- *Pachydiops* n. g. (in group *Idiopoæ* of *Aviculariidae Ctenizinae*), type *crassus* E. Sim., p. 890; SIMON, Hist. Araign. ii.
- *Pamphobeteus*, key to spp. p. 92, *antinous*, Bolivia, p. 91, *insignis*, Cauca, p. 91, *ornatus*, Colombia, p. 92; POCOCK, Ann. Nat. Hist. (7) xi, n. spp.
- *Paraphysa*, p. 103; POCOCK, t. c.
- *Paromostola* n. g. (*Ctenizidae*) p. 93, *abernethyi*, Cape Colony, p. 94; PURCELL, Ann. S. African Mus. iii, n. sp.
- *Phormictopus*, key to spp. and notes, p. 90; POCOCK, Ann. Nat. Hist. (7) xi.
- *Phryxotrichus*, p. 103, key to spp. p. 107, *auratus*, Chili, p. 104, *parvulus*, Chili, p. 107; POCOCK, t. c. n. spp.
- *Pæcilomigas* n. g. (near *Moggridgea*) p. 23, *pulchripes*, Natal, p. 23; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.
- *Psalmopæus*, key to some spp. p. 84, *ecclesiasticus*, Ecuador, p. 82, *plantaris*, Colombia, p. 83, *emeraldus*, Colombia, p. 84; POCOCK, Ann. Nat. Hist. (7) xi, n. spp.



- ✓ *Pterinopelma*, key to spp. p. 110, *saltator*, Uruguay, p. 108, *tigrinum*, Monte Video, p. 109; Pocock, t. c. n. spp.
- ✓ *Scopelobates* n. g. (in group *Ischnocoleæ* of *Aviculariidae Aviculariinae*) p. 928, *sericeus*, Haiti, p. 928; SIMON, Hist. Araign. ii, n. sp.
- ✓ *Spherobothria*, p. 103; Pocock, Ann. Nat. Hist. (7) xi.
- ✓ *Stasimopus schreineri*, p. 19, *unispinosus*, p. 22, pl. i, figg. 1 & 2, Cape Colony; PURCELL, Ann. S. African Mus. iii: *S.*, key to spp. from Cape Colony, p. 84, *erythrognathus*, p. 73, nest, fig. 2, *brevipalpis*, p. 75, *quadratumaculatus*, p. 78, cocoon, fig. 3, *bimaculatus*, p. 79, *castaneus*, p. 80, *umtaticus*, p. 81, *kentanicus*, p. 82, *kolbei*, p. 83, Cape Colony; PURCELL, t. c. : n. spp.
- ✓ *Thelechoris australis*, Cape Colony, p. 106; PURCELL, Ann. S. African Mus. iii, n. sp.
- *Titanidiops* n. g. (in group *Idiopeæ* of *Aviculariidae Ctenizinae*), type *compactus* Gerstäcker, p. 890; SIMON, Hist. Araign. ii.
- ✓ *Trasyphoberus* n. g. (in group *Theraphoseæ* of *Aviculariidae Aviculariinae*), p. 942, *parvitaris*, Amazons, p. 942; SIMON, t. c. n. sp.
- ✓ *Xenesthis*, key to spp. p. 93, *monstrosus*, New Granada, p. 93; Pocock, Ann. Nat. Hist. (7) xi, n. sp.

## B. ARACHNOMORPHÆ.

Distribution of families represented in Oligocene, p. 366; Pocock, P. Zool. Soc. London 1903, i.

*Hypochilidae.*

Supplementary notes, p. 972; SIMON, Hist. Araign. ii.

*Filistatidae.*

Supplementary notes, p. 980; SIMON, Hist. Araign. ii.

*Uloboridae and Dinopidae.*

*Uloboridae*, supplementary notes, p. 973; SIMON, Hist. Araign. ii.

*Uloborus*, type *walckenaerius* Latr., p. 495; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.

*Psechridae.*

Supplementary notes, p. 973; SIMON, Hist. Araign. ii.

*Dictynidae.*

Supplementary notes, p. 975; SIMON, Hist. Araign. ii.

*Lethia*, type *varia* Menge, p. 42; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.

*Eresidae.*

Supplementary notes, p. 978; SIMON, Hist. Araign. ii.

*Eresus*, type *cinnaberinus* (Olivier), p. 489; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii: *E. walckenaerii*, p. 636, pl. i, fig. 3, *niger*, p. 11, figg. 1 & 2; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.

*Scothyra* n. g. (*Eresidæ*), p. 31, *schreineri*, Cape Colony, p. 32, pl. i, figg. 5-7; PURCELL, Ann. S. African Mus. iii, n. sp.  
*Stegodyphus* sp., gregarious habits, moth *Batrachedra stegodyphobius* commensal in nests; Pocock, Ent. Mag. xxxix, pp. 167-170.

#### *Urocteidæ.*

Supplementary notes, p. 987; SIMON, Hist. Araign. ii.

#### *Zoropsidæ and Acanthoctenidæ.*

*Zoropsidæ*, supplementary notes, p. 974; SIMON, Hist. Araign. ii.

#### *Dysderidæ, Oonopidæ and Leptonetidæ.*

*Dysderidæ*, supplementary notes, p. 983; SIMON, Hist. Araign. ii.

*Oonopidæ*, supplementary notes, p. 983; SIMON, t. c.

*Leptonetidæ*, supplementary notes, p. 982; SIMON, t. c.

*Minotauria* n. g. (*Dysderidæ*), p. 39, *attensi*, Crete, p. 39, pl. i, figg. 2 & 3; KULCZYŃSKI, Bull. Ac. Cracovie 1903, n. sp.

#### *Scytodidæ.*

*Sicariidæ*, supplementary notes, p. 981; SIMON, Hist. Araign. ii.

*Pertica* n. g. (near *Periegops*), p. 24, *badia*, S. Paulo, p. 24; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.

#### *Hadrotarsidæ.*

*Hadrotarsus* (= *Gmogala*) *scarabæus*, p. 619, text-figg. A-D; Pocock, Ann. Nat. Hist. (7) xi.

#### *Pholcidæ.*

Supplementary notes, p. 988; SIMON, Hist. Araign. ii.

*Holocnemus labyrinthi*, Crete, p. 44, pl. i, figg. 5-7; KULCZYŃSKI, Bull. Ac. Cracovie 1903, n. sp.

*Pholcus*, type *pluchii*, Scopoli, p. 494; F. CAMBRIDGE; Ann. Nat. Hist. (7) xii.

#### *Theridiidæ.*

[See also *Argyropidæ*. Owing to the diversity of opinions as to the limits of this and the following family the position of several genera is different from that given last year.]

Supplementary notes, p. 988; SIMON, Hist. Araign. ii.

*Ariamnes campestratus*, Gaboon, p. 720; SIMON, Ann. Soc. ent. France lxxi: *A. russulus*, Spanish Guinea, p. 71; SIMON, Mem. Soc. Espan. i: n. spp.

*Argyrodes zonatus*, p. 69; SIMON, t. c.

*A. præacutus*, Spanish Guinea, p. 71; SIMON, t. c. n. sp.

- Ceratinella*, type *brevis* (Wid.), p. 44; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi: *C.*, type *emertoni* (O. P. Cambr.), p. 481; F. CAMBRIDGE, op. cit. xii.
- C. sibirica*, Krasnojarsk, p. 5; STRAND, Bergens Mus. Aarbog 1903, No. 10, n. sp.
- Crustulina*, type *guttata* (Wider), p. 36; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Dipæna scabella*, Spanish Guinea, p. 77, *grammata*, Gaboon, p. 78, *destricta*, Sierra Leone etc., p. 78; SIMON, Mem. Soc. Espan. i, n. spp.
- Enoplognatha molesta*, p. 149, pl. x, fig. 1, *inornata*, p. 151, pl. x, fig. 2, Cape; O. CAMBRIDGE, Ann. S. African Mus. iii (5), n. spp.
- Epinus*, type *truncatus* Walck., p. 495; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.
- E. macrops*, Spanish Guinea, p. 73; SIMON, Mem. Soc. Espan. i, n. sp.
- Euryopis*, type *flavomaculata* (C. L. Koch), p. 36; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Laseola jucunda*, Bloxworth Heath, pp. 152 & 162, pl. A, fig. 3; O. CAMBRIDGE, P. Dorset Club xxiv, n. sp.
- Latrodectus*, type *tredecim-guttatus* (Rossi), p. 495; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii: *L. formidabilis*, notes on habits; RIVERA, Revist. chilena vii, pp. 115-119, 1 fig.
- L. concinnus*, p. 152, pl. x, figg. 3 & 4, *indistinctus*, p. 154, pl. xi, fig. 1; O. CAMBRIDGE, Ann. S. African Mus. iii (5), n. spp.
- Moero* n. g. (*Theridiidae*), p. 156, *quadrinaculata*, Cape, p. 157, pl. xi, fig. 4; O. CAMBRIDGE, t. c. n. sp.
- Neottiura*, type *bimaculata* (Linn.), p. 36; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Pachydactylus*, type *pronus* Menge, p. 37; F. CAMBRIDGE, t. c.
- Teutana lepida*, p. 154, pl. xi, fig. 2, *connexa*, p. 156, pl. xi, fig. 3, Cape; O. CAMBRIDGE, Ann. S. African Mus. iii (5), n. spp.
- Theridion*, type *redimitum* (Linn.), p. 494; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii: *T. impressum*, pp. 152 & 162, pl. A, fig. 2; O. CAMBRIDGE, P. Dorset Club xxiv: *Theridium undulatum*; STRAND, Bergens Mus. Aarbog 1903, No. 10, p. 3.
- Theridion delicatum*, Cape, p. 157, pl. xi, fig. 5, *dedux*, Natal, p. 158, pl. xii, fig. 1, *purcelli*, Cape, p. 159, pl. xii, fig. 2; O. CAMBRIDGE, Ann. S. African Mus. iii (5), n. spp.
- Theridula*, type *sphaerula* (Hentz), p. 44; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Thwaitesia rhomboidalis*, Spanish Guinea, p. 72, *turbinata*, Sierra Leone, p. 73; SIMON, Mem. Soc. Espan. i, n. spp.
- Trigonobothrys*, p. 74, *molle*, Spanish Guinea, p. 75; SIMON, t. c. n. sp.
- Ulesanis escaleraei*, p. 75, *alveolatus*, p. 76, Spanish Guinea; SIMON, t. c. n. spp.

### *Argyopidae.*

[See also *Theridiidae*.]

Supplementary notes, p. 993; SIMON, Hist. Araign. ii.

*Agrionatha*, def. and key to spp. p. 436; F. CAMBRIDGE, Arach. Aran. ii, Biol. Centr.-Amer.

*Anepsia maculata* [loc. ?], p. 11; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897), n. sp.

*Araneinae*, notes, p. 453, key to Centr.-Amer. genera p. 454; F. CAMBRIDGE, Arach. Aran. ii, Biol. Centr.-Amer.

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*Lycosidæ*, supplementary notes, p. 1046; SIMON, Hist. Araign. ii: key to S. African genera; PURCELL, Ann. S. African Mus. iii, p. 108.*Pisauridæ*, supplementary notes, p. 1044; SIMON, Hist. Araign. ii: key to some genera, p. 152; F. CAMBRIDGE, P. Zool. Soc. London 1903 (1).*Anomalomma schreineri*, p. 109, pl. viii, fig. 1, *bisinuata*, p. 110, pl. viii, fig. 2, Cape Colony; PURCELL, Ann. S. African Mus. iii, n. spp.*Artoria fascicularis*, Cape Colony, p. 133; PURCELL, t. c. n. sp.*Dolomedes fimbriatus*, habits and embryology; PAPPENHEIM, Zeitschr. wiss. Zool. lxxiv, pp. 109-154, pls. vii & viii.*D. actæon*, p. 260, *batesii*, p. 261, *palpiger*, p. 262, Camaroons; POCOCK, Ann. Nat. Hist. (7) xi, n. spp.*Dossenus marginatus*, p. 155, pl. xiv, figg. 3-5; F. CAMBRIDGE, P. Zool. Soc. London 1903 (1).*Dyrines* [n. nom. ?] for *Drances* E. Sim. (præocc. Coleoptera, 1889), p. 1045; SIMON, Hist. Araign. ii.*Eurychæra* n. g. (*Lycosidæ Lycosinæ*), p. 18, *quadri-maculata*, Singapore, p. 19; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897), n. sp.*Hesydrus*, char. and key to spp. p. 164, *palustris*, p. 165, pl. xv, figg. 22-25, *habilis*, p. 165, pl. xv, fig. 21; F. CAMBRIDGE, P. Zool. Soc. London 1903 (1).*Hypsithylla* n. g. (near *Thanatidius*), p. 38, *linearis*, Madagascar, p. 38; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.*Pipula* n. g. (near *Hypsithylla*), p. 39, *anguicula*, Annam, p. 39; SIMON, t. c. n. sp.



- Lycosa*, type *lugubris* (Walck.), p. 483; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii: *L. decipiens*, pp. 161 & 168, pl. A, fig. 11; O. CAMBRIDGE, P. Dorset Club xxiv.
- L. furva*, Pforzheim, p. 387, pl. xxxvi, fig. 571 A & B, *intermedia*, Pforzheim, p. 388, pl. xxxvi, fig. 572 A & B; BÖSENBERG, Zoologica xiv: *L. schreineri*, p. 35, *rimicola*, p. 37, *lativittata*, p. 38, *arbuscula*, p. 38, *brunneipes*, p. 39, *patricki*, p. 118, pl. viii, fig. 11, *gracilitarsis*, p. 119, *aurata*, p. 119, pl. viii, fig. 12, *bimaculata*, p. 120, pl. viii, fig. 13, *umtalica*, p. 121, pl. viii, fig. 14, *o'neili*, p. 122, pl. viii, fig. 15, *nivosa*, p. 124, pl. viii, fig. 16, *lightfooti*, p. 125, *cretata*, p. 125, pl. viii, fig. 17, *dregei*, p. 126, pl. viii, fig. 18, *tenuissima*, p. 127, *biamplicata*, p. 128, pl. viii, fig. 19, S. Africa; PURCELL, Ann. S. African Mus. iii: n. spp.
- Paradosenus* n. g. (*Pisaruridae*), p. 155, *nigricans*, Lower Amazons, p. 155, pl. xiv, figg. 6-9; F. CAMBRIDGE, P. Zool. Soc. London 1903 (1), n. sp.
- Pardosa spilota*, Sokotra, p. 193; Pocock, Nat. Hist. Sokotra: P., key to ♂♂ of S. African spp., p. 140, *lycosina*, p. 134, pl. viii, fig. 21, *umtalica*, p. 135, pl. viii, fig. 22, *foveolata*, p. 135, pl. viii, fig. 23, *leipoldti*, p. 136, pl. viii, fig. 24, *clavipalpis*, p. 137, pl. viii, fig. 25, *crassipalpis*, p. 138, pl. viii, fig. 26, *schreineri*, p. 139, pl. viii, fig. 27, S. Africa; PURCELL, Ann. S. African Mus. iii: n. spp.
- Pisaura rufofasciata*, p. 54; KULCZYŃSKI, Bull. Ac. Cracovie 1903.
- Proevippa* n. g. (near *Anomalomma*), *lightfooti*, Cape Colony, p. 111, pl. viii, fig. 3; PURCELL, Ann. S. African Mus. iii, n. sp.
- Pterartoria* n. g. (near *Pardosa*), p. 112, *subcrucifera*, p. 113, pl. viii, fig. 4, *caldaria*, p. 114, pl. viii, fig. 5, *sagæ*, p. 115, pl. viii, fig. 6, *flavolimbata*, p. 115, pl. viii, figg. 7 & 8, *polysticta*, p. 116, pl. viii, fig. 9, *fissivittata*, p. 117, pl. viii, fig. 10, Cape Colony; PURCELL, t. c. n. spp.
- Tarentula eichwaldii* var. *bithynica* n. var., p. 659, fig. 36, var. *typica*, fig. 37; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i: *T. conspersa*, p. 22; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897).
- T. tagax*, p. 23, *tenebrosa*, p. 24, Burmah; THORELL, t. c. n. spp.
- Thalassius* devouring fry of trout in S. Africa; F. CAMBRIDGE, P. Zool. Soc. London 1903 (1).
- Thanatidius spinipes*, Lower Amazons, p. 156, pl. xiv, figg. 10-12; F. CAMBRIDGE, t. c. n. sp.
- Thaumasia*, list of spp. p. 153, *velox*, p. 154, pl. xiv, fig. 1; F. CAMBRIDGE, t. c.
- T. annulipes*, Lower Amazons, p. 154, pl. xiv, fig. 2; F. CAMBRIDGE, t. c. n. sp.
- Trabæa lineata*, p. 130, pl. viii, fig. 20, *varia*, p. 131, *unicolor*, p. 132, *nigriceps*, p. 132, Cape Colony; PURCELL, Ann. S. African Mus. iii, n. spp.
- Trechalea*, char. and habits, p. 157, key to spp. p. 158, *longitarsis*, p. 160, pl. xv, figg. 13-17, *urinator*, p. 161, pl. xv, figg. 3-5a, *macconnelli*, p. 162, pl. xv, figg. 7 & 8, *connexa*, p. 162, pl. xv, figg. 9 & 10, *extensa*, p. 162, pl. xv, figg. 11 & 12; F. CAMBRIDGE, P. Zool. Soc. London 1903 (1).
- T. ellacombei*, Surinam, p. 161, pl. xv, fig. 6, *amazonica*, Lower Amazons, p. 163, pl. xv, figg. 18-20, *keyserlingi*, Brazil, p. 163, pl. xv, figg. 1 & 2; F. CAMBRIDGE, t. c. n. spp.

### *Senoculidae.*

Supplementary notes, p. 1047; SIMON, Hist. Araign. ii.

*Senoculus*, key to spp. p. 167, *parallelus*, p. 166, pl. xiv, fig. 13; F. CAMBRIDGE, P. Zool. Soc. London 1903 (1).

*S. albidus*, S. America, p. 168, pl. xiv, fig. 14; F. CAMBRIDGE, t. c. n. sp.

*Oxyopidæ.*

Supplementary notes, p. 1048; SIMON, Hist. Araign. ii.

*Megullia* n. g., p. 30, *truncata*, Burmah, p. 31; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897), n. sp.

*Oxyopes kochii*, p. 26, *indiculus*, p. 28, Burmah; THORELL, t. c. n. spp.

*Sphasus*, type *indicus* Walck., p. 488; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.

*Palpimanidæ.*

Supplementary notes, p. 986; SIMON, Hist. Araign. ii.

*Scelidomachus*, p. 194, *socotranus*, p. 194, pl. xxvi, fig. 3, and text-fig.; Pocock, Nat. Hist. Sokotra.

*Clubionidæ* (*Drassidæ*, *Zodariidæ*, *Anyphaenidæ*, *Otenidæ*,  
*Sparassidæ*, *Prodidomidæ*).

*Clubionidæ*, supplementary notes, p. 1019; SIMON, Hist. Araign. ii.

*Drassidæ*, supplementary notes, p. 984; SIMON, t. c.

*Zodariidæ*, supplementary notes, p. 987; SIMON, t. c.

*Prodidomidæ*, supplementary notes, p. 984; SIMON, t. c.

*Agræca celer*, p. 151, pl. A, fig. 1; O. CAMBRIDGE, P. Dorset Club xxiv.

*Anaptomecus* n. g. (near *Pandercetes*) p. 28, *longiventris*, Ecuador, p. 28; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.

*Anyphaena gracilipes*, Hayti, p. 342, pl. xv, figg. 6 & 10, BANKS, P. Ac. Philad. lv, n. sp.

*Baeriella* n. g. (*Drassidæ*, *Cybæodineæ*), p. 271, *myrmecophila*, Argentina, p. 272; SIMON, Bull. Soc. ent. France 1903, n. sp.

*Capheris insularis*, p. 195, pl. xxvi, figg. 4 & 4a; Pocock, Nat. Hist. Sokotra.

*Chiracanthium socotrense*, Sokotra, p. 195; Pocock, t. c.: *C. escaleraei*, Spanish Guinea, p. 103; SIMON, Mem. Soc. Espan. i: n. spp.

*Clotho*, type *durandi* Walck., p. 495; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.

*Copa lineata*, Madagascar, p. 138; SIMON, Bull. Mus. Paris ix, n. sp.

*Corysiphus* n. g. (near *Mesotelus*) p. 31, *præusta*, p. 31, *cinerascens*, p. 32, *unicolor*, p. 32, Cape of Good Hope; SIMON, Ann. Soc. ent. Belgique xlvii, n. spp.

*Ctenus*, type *dubius* Walck., p. 488; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii: *C. ramosus*, p. 15; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897).

*C. robustus*, Burmah, p. 12, *simplex*, Tenasserim, p. 16, *jucundus*, Burmah, p. 17; THORELL, t. c.: *C.*, key to W. African spp. p. 24, *coccineipes*, p. 262, *batesii*, p. 263, Camaroons; Pocock, Ann. Nat. Hist. (7) xi: n. spp.

*Deleneæ*, group of *Sparassinæ*, key to genera, p. 422; HOGG, P. Zool. Soc. London 1902, ii.

*Diores simonii*, p. 147, pl. ix, fig 5, *cognata*, p. 149, pl. ix, fig. 6, Cape; O. CAMBRIDGE, Ann. S. African Mus. iii (5), n. spp.

*Donuea*, n. g. (near *Corinomma*) p. 138, *decorsei*, Madagascar, p. 138; SIMON, Bull. Mus. Paris ix, n. sp.

*Drapeta*, type *aneus* Menge, p. 43; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.

*Drassus*, type *lucifugus* (Walck.), p. 492; F. CAMBRIDGE, op. cit. xii.

*Eodelena* n. g. (*Sparassinæ*) p. 464, *spenceri*, King's I. Bass's Straits, p. 464, text-fig. 104; HOGG, P. Zool. Soc. London 1902, ii, n. sp.

- Eusparassus* n. nom. for *Sparassus* E. Sim. = *Sparassus* Walck., part, p. 1025; SIMON, Hist. Araign. ii.
- Gemina* n. g. (*Heteropodidae*) p. 35, *sulphurea*, Burmah, p. 35; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897), n. sp.
- Gnaphosa*, type *lapidosa* (Walck.) p. 485; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii: *G. petrobia*, p. 641, fig. 8; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.
- G. bithynica*, Asia Minor, p. 641, figg. 6, 7, 9 & 10; KULCZYŃSKI, t. c. n. sp.
- Heteropoda*, key to spp. p. 416, *keyserlingi*, Queensland, p. 418, text-fig. 85; HOGG, P. Zool. Soc. London 1902, ii: *H. blaisei*, Gaboon, p. 721; SIMON, Ann. Soc. ent. France lxxi: *H. tetrica*, Burmah, p. 33; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897) : n. spp.
- Heteropodæ*, group of *Sparassinæ*, key to genera, p. 415; HOGG, P. Zool. Soc. London 1902, ii.
- Isopeda*, key to spp. p. 430, *insignis*, p. 432, text-figg. 88 A-C, *immanis*, p. 433, text-fig. 88 D, notes on other spp.; HOGG, t. c.
- Isopeda frenchi*, p. 435, text-fig. 89, *leishmanni*, p. 437, text-fig. 90, *montana*, p. 439, text-fig. 91, *pococki*, p. 440, text-fig. 92, *tepperi*, p. 442, text-fig. 93, *leai*, p. 445, text-fig. 94, *ardrossana*, p. 446, text-fig. 95, *pengellyana* p. 447, text-fig. 96, *saundersi*, p. 448, text-fig. 97, *tietzi*, p. 450, text-fig. 98, *woodwardi*, p. 451, text-fig. 99, Australia; HOGG, t. c. n. spp.
- Liparotoma amœnum*, Tierra del Fuego, p. 313; SIMON, Ann. Soc. ent. France lxxii; SIMON, Araignées Belgica, p. 6.
- Megaloremnius* n. g. (in group *Deleneæ* of *Clubionidæ Sparassinæ*) p. 1025, *leo*, Madagascar, p. 1025; SIMON, Hist. Araign. ii, n. sp.
- Mesilla* n. g. (near *Cragus*) p. 30, *vittiventris*, Ecuador, p. 30; SIMON, Ann. Soc. Ent. Belgique xlvii, n. sp.
- Micromata*, type *accentuata* Walck., p. 486; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.
- Neosparassus* n. g. (*Sparassinæ*) p. 423, key to spp. p. 424, *magareyi*, p. 425, text-fig. 86, *thoracicus*, 426, text-fig. 87, Australia; HOGG, P. Zool. Soc. London 1902, ii, n. spp.
- Neozimiris* n. g. (*Prodidomidæ*) p. 984; SIMON, Hist. Araign. ii.
- Odo guttipes*, Tasmania, p. 29; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.
- Orthobula sicca*, Madagascar, p. 34; SIMON, t. c. n. sp.
- Palystes ignicomus*, p. 420; HOGG, P. Zool. Soc. London 1902, ii.
- Panaretus nirouneensis*, Sumatra, p. 304; SIMON, Ann. Soc. ent. France lxxii, n. sp.
- Patrera* n. g. (near *Vulfila*) p. 30, *fulvastra*, Ecuador, p. 30; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.
- Pediuna*, key to spp. p. 460, *occidentalis*, p. 461, text-fig. 102, *tenuis*, p. 462, text-fig. 103, Australia; HOGG, P. Zool. Soc. London 1902, ii, n. spp.
- Pescennina* n. g. (near *Micaria* and *Sphingius* but with affinities to *Oonopidae*) p. 32, *epularis*, Venezuela, p. 33; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.
- Platyoidea grandidieri*, Madagascar, p. 139; SIMON, Bull. Mus. Paris ix, n. sp.
- Procopius*, p. 104, *granulosus*, p. 104, *aneolus*, p. 105, Spanish Guinea; SIMON, Mem. Soc. Espan. i, n. spp.
- Prothesima talpina*, p. 639, fig. 5; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.
- P. olympi*, Asia Minor, p. 639, fig. 4; KULCZYŃSKI, t. c.: *P. cretica*, Crete, p. 42, pl. i, fig. 4; KULCZYŃSKI, Bull. Ac. Cracovie 1903 : n. spp.
- Pterotricha* n. nom. for *Pythonissa* Kulczyński non C. L. Koch, p. 43, *lenticinosa*, p. 44, pl. i, fig. 11; KULCZYŃSKI, t. c.
- Pythonissa*, see *Pterotricha*.
- Remnius quadridentatus*, Spanish Guinea, p. 102; SIMON, Mem. Soc. Espan. i, n. sp.



- Rhitymna fasciolata*, Madagascar, p. 138; SIMON, Bull. Mus. Paris ix, n. sp.  
*Scotina*, type *gracilipes* (Blackw.) p. 43; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.  
*Selenops radiatus*, p. 197; Pocock, Nat. Hist. Sokotra.  
*Sparassinæ*, key to groups of Australasian genera, p. 415; HOGG, P. Zool. Soc. London 1902, ii.  
*Sparassus*, type *viridissimus* (De Geer), p. 492; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.  
*S. socotranus*, Sokotra, p. 196; Pocock, Nat. Hist. Sokotra, n. sp.  
*Sphingius tristiculus*, Annam, p. 33; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.  
*Storena* type *cyanea* Walck., p. 495; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii: *S. juvenca*, p. 3; THORELL, Bih. Svenska Ak. xxii (4) 6.  
*S. albomaculata*, N. S. Wales, p. 485, pl. xviii, figg. 1 & 1 a; RAINBOW, P. Linn. Soc. N. S. Wales xxvii: *S. octosignata*, Spanish Guinea, p. 68; SIMON, Mem. Soc. Espan. i: n. spp.  
*Tafana* n. g. (near *Anyphæna*) p. 124, *riveti*, Ecuador, p. 124; SIMON, Bull. Soc. ent. France 1903, n. sp.  
*Tasata* n. g. (near *Arachosia*) p. 29, *parcepunctata*, Argentina, p. 29; SIMON, Ann. Soc. ent. Belgique xlvii, n. sp.  
*Tibellomma* n. g. (in group *Tibellomateæ* of *Clubionidæ* *Sparassinæ*) type *chazaliæ* E. Sim., p. 1030; SIMON, Hist. Araign. ii.  
*Tomopisthes æthiops*, Tierra del Fuego, p. 312; SIMON, Ann. Soc. ent. France lxxii, n. sp.  
*Torania scutata*, Camaroons, p. 264; Pocock, Ann. Nat. Hist. (7) xi, n. sp.  
*Typostola*, key to spp. p. 455, *broomi*, p. 455, text-fig. 100, *magnifica*, p. 457, text-fig. 101, *major*, p. 459, Australia; HOGG, P. Zool. Soc. London 1902, ii, n. spp.  
*Wulfilæ parvula*, Hayti, 342, pl. xv, figg. 2 & 4; BANKS, P. Ac. Philad. lv, n. sp.  
*Zachria*, key to spp. p. 454, *oblonga*, p. 454; HOGG, P. Zool. Soc. London 1902, ii.

### Platoridæ.

Supplementary notes, p. 1019; SIMON, Hist. Araign. ii.

### Thomisidæ.

Supplementary notes, p. 1008; SIMON, Hist. Araign. ii.

- Alcimochthes melanophthalmus*, Annam, p. 726; SIMON, Ann. Soc. ent. France lxxi, n. sp.  
*Angæus lenticulosus*, Annam, p. 729; SIMON, t. c. n. sp.  
*Apyre nigra*, p. 134, *catenulata*, p. 135, *quinquenotata*, p. 135, *tessera*, p. 135, Madagascar; SIMON, Bull. Mus. Paris ix, n. spp.  
*Bassaniodes* n. g. (*Thomisidæ*), p. 198, *socotrensis*, Sokotra, p. 198, pl. xxvi, fig. 2; Pocock, Nat. Hist. Sokotra, n. sp.  
*Camaricus pulchellus*, Annam, p. 727; SIMON, Ann. Soc. ent. France lxxi, n. sp.  
*Daradius variabilis*, Burmah, p. 36; THORELL, Bih. Svenska Ak. xxii (4) 6 (1897), n. sp.  
*Diæa*, key to W. African spp., p. 100, *puncta*, p. 98, form *typica*, p. 99; SIMON, Mem. Soc. Espan. i.  
*D. proclivis*, Spanish Guinea, p. 97, *semilutea*, Sierra Leone, p. 99; SIMON, t. c. n. spp.  
*Dimizonops* n. g. (*Thomisidæ*), p. 199, pl. xxvi, figg. 1-1b; Pocock, Nat. Hist. Sokotra, n. sp.



- Diploptychus* n. g. (near *Phænopoma*), p. 123, *longulus*, Madagascar, p. 124; SIMON, Bull. Soc. ent. France 1903, n. sp.
- Emplesiogonus* n. g. (near *Pseudoporrhopis*), p. 123, *striatus*, Nossi Bé, p. 123; SIMON, t. c.: *E. scutulatus*, Madagascar, p. 134; SIMON, Bull. Mus. Paris ix : n. spp.
- Epidius brevipalpus*, Annam, p. 730; SIMON, Ann. Soc. ent. France lxxi, n. sp.
- Firmicus duriusculus*, Annam, p. 728; SIMON, t. c. n. sp.
- Herbessus* n. g. (near *Heræus*), p. 136, *decorsei*, Madagascar, p. 136; SIMON, Bull. Mus. Paris ix, n. sp.
- Heræus*, key to spp. p. 649, *hirtus*, figg. 19, 20, 28 & 35, *setiger*, figg. 21 & 30, *hirsutus*, figg. 22, 23 & 31, *savignyi*, figg. 24, 32 & 33, *buffoni*, fig. 34; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.
- H. simonii*, p. 654, figg. 25, 26 & 29, *propinquus*, p. 657, fig. 27, Asia Minor; KULCZYŃSKI, t. c.: *H. melanotrichus*, Spanish Guinea, p. 96; SIMON, Mem. Soc. Espan. i : n. spp.
- Iphoctesis* n. g. (near *Trichopagis*), p. 124, *echinipes*, Madagascar, p. 124; SIMON, Bull. Soc. ent. France 1903, n. sp.
- Isaloides toussaintii*, Hayti, p. 343, pl. xv, fig. 3; BANKS, P. Ac. Philad. lv, n. sp.
- Mecostrabus* n. g. (*Thomisidæ*), p. 726, *aciculus*, Annam, p. 727; SIMON, Ann. Soc. ent. France lxxi, n. sp.
- Libania* spp., synonymy; SIMON, t. c.
- Parastrophius* n. g. (near *Strophius*), p. 123, *echinosoma*, Cameroon, p. 123; SIMON, Bull. Soc. ent. France 1903: *P. echinosoma*, p. 93; SIMON, Mem. Soc. Espan. i, n. sp.
- Phrynarachne rothschildi*, Ceylon, p. 48, pl. x; POCOCK & ROTHSCHILD, P. Zool. Soc. London 1903, i: *P. clavigera*, p. 137, *pusiola*, p. 137, Madagascar; SIMON, Bull. Mus. Paris ix : n. spp.
- Plastonomus* n. g. (near *Emplesiogonus*), p. 134, *octoguttatus*, Madagascar, p. 134; SIMON, t. c. n. sp.
- Platypyresthesis* n. g. (in group *Dicææ* of *Thomisidæ Misumeninæ*), type *cribrata* E. Sim., p. 1014; SIMON, Hist. Araign. ii.
- Psammitis*, type *sabulosus* (Hahn), p. 43; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Regillus noditarsis*, Spanish Guinea, p. 101; SIMON, Mem. Soc. Espan. i, n. sp.
- Runcinia annamita*, Annam, p. 728; SIMON, Ann. Soc. ent. France lxxi, n. sp.
- Spiracme*, type *striata* Menge, p. 43; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Stephanopsis obtusifrons*, N. S. Wales, p. 491, pl. xviii, figg. 3-3b; RAINBOW, P. Linn. Soc. N. S. Wales xxvii, n. sp.
- Tagulinus* n. g. (*Thomisidæ*), p. 725, *histris*, Annam, p. 725; SIMON, Ann. Soc. ent. France lxxi, n. sp.
- Thanatus vulgaris creticus* n. subsp., Crete, p. 48, pl. i, fig. 13, *brevipes* n. subsp., Hungary, p. 50, pl. i, figg. 8, 10 & 12, *maderianus* n. subsp., Madeira, p. 50, pl. i, figg. 9 & 14, *typicus* subsp., France, p. 50, pl. i, figg. 15 & 16; KULCZYŃSKI, Bull. Ac. Cracovie 1903.
- T. forbesii*, Sokotra, p. 199; POCOCK, Nat. Hist. Sokotra, n. sp.
- Thomisus*, type *onustus* Walck., p. 491; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.
- Tmarus planetarius*, Spanish Guinea, p. 94; SIMON, Mem. Soc. Espan. i, n. sp.
- Xysticus hepaticus*, Madagascar, p. 135; SIMON, Bull. Mus. Paris ix, n. sp.

## Salticidæ (= Attidæ).

Revision of genera completed, pp. 669-871, supplement, pp. 1048-1055, many text-figg.; SIMON, Hist. Araign. ii. Only the new genera are noted below.

*Agorius formicinus*, Sumatra, p. 307; SIMON, Ann. Soc. ent. France lxxii, n. sp.

*Alfenus chrysoptæus*, Spanish Guinea, p. 112; SIMON, Mem. Soc. Espan. i, n. sp.

*Almota* n. g. (*Attidæ unidentati*), p. 193, *quini*, Cape Colony, p. 194, pl. xx, figg. 1-1e; PECKHAM, Tr. Wisconsin Ac. xiv, n. sp.

*Attus*, type *pubescens* Fabr., p. 489; F. CAMBRIDGE, Ann. Nat. Hist. (7) xii.

*A. exiguus* Pforzheim, p. 427, pl. xli, fig. 626 A & B; BÖSENBERG, Zoologica xiv, n. sp.

*Ballus depressus*, resemblance to the beetle *Strophosomus capitatus*, p. 273; DAHL, SB. Ges. naturf. Berlin 1903.

*Baryphas ahenus*, p. 207, pl. xxiv, figg. 2-2b; PECKHAM, Tr. Wisconsin Ac. xiv.

*Bavia annamita*, Annam, p. 730; SIMON, Ann. Soc. ent. France lxxi, n. sp.

*Bianor rusticulus*, Cape Colony, p. 215, pl. xxiv, fig. 12; PECKHAM, Tr. Wisconsin Ac. xiv, n. sp.

*Bizone* n. g. (in group *Myrmarachneæ* of *Salt. pluridentati*), p. 1051, *longiventris*, Madagascar, p. 1051; SIMON, Hist. Araign. ii, n. sp.

*Blaisea* n. g. (aff. *Pensacola*), p. 722, *lyrata*, Gaboon, p. 723; SIMON, Ann. Soc. ent. France lxxi, n. sp.

*Bythocrotus* n. g. (in group *Bythocroteæ* of *Salt. unidentati*), type *cephalotes* E. Sim., p. 673; SIMON, Hist. Araign. ii.

*Canama* n. g. (in group *Cytææ* of *Salt. fissidentati*), type *forceps* Dole-schall, p. 817; SIMON, t. c.

*Codeta bouchardi*, Sumatra, p. 305; SIMON, Ann. Soc. ent. France lxxii, n. sp.

*Compsodecta* n. g. (in group *Pensacoleæ* of *Salt. unidentati*), type *grisea*, G. & E. Peck., p. 678; SIMON, Hist. Araign. ii.

*Copocrossa bimaculata*, Durban, p. 187, pl. xix, figg. 7, 7a; PECKHAM, Tr. Wisconsin Ac. xiv : *C. harpina*, Sumatra, p. 306; SIMON, Ann. Soc. ent. France lxxii : n. spp.

*Cosmophasis longiventris*, Annam, p. 732; SIMON, Ann. Soc. ent. France lxxi : *C. umbratica*, Sumatra, p. 308; SIMON, op. cit. lxxii : n. spp.

*Cybele haytiensis*, Hayti, p. 344, pl. xv, figg. 1, 9 & 12; BANKS, P. Ac. Philad. lv, n. sp.

*Cyllobelus chionogaster*, p. 195, pl. xxi, figg. 1-1c; PECKHAM, Tr. Wisconsin Ac. xiv.

*C. australis*, Algoa Bay, p. 194, pl. xxi, figg. 2 & 2a; PECKHAM, t. c. n. sp.

*Cyrba dotata*, Cape Colony, p. 185, pl. xix, fig. 6; PECKHAM, t. c. n. sp.

*Dendryphantès purcelli*, Cape Colony, p. 206, pl. xxiv, figg. 11-11b; PECKHAM, t. c. n. sp.

*Empanda* n. g. (in group *Mæviæ* of *Salt. fissidentati*), type *ornata*, G. & E. Peck., p. 850; SIMON, Hist. Araign. ii.

*Euophrys purcelli*, Cape Colony, p. 201, pl. xxii, figg. 5 & 5a, *simonii*, Cape Colony, p. 202, pl. xxii, figg. 4-4b, *leipoldtii*, Cape Colony, p. 203, pl. xxii, fig. 6, *infaustus*, Mashonaland, p. 204, pl. xxii, fig. 7; PECKHAM, Tr. Wisconsin Ac. xiv, n. spp.

*Evarcha heteropogon*, Annam, p. 733; SIMON, Ann. Soc. ent. France lxxi, n. sp.

*Habrocestum latifasciatum*, p. 54, pl. i, fig. 17; KULCZYŃSKI, Bull. Ac. Cracovie 1903.

- H. lauræ*, Durban, p. 238, pl. xxvii, figg. 5 & 5a, *annæ*, Durban, p. 238, pl. xxvii, figg. 4 & 4a, *dotatum*, Mashonaland, p. 239, pl. xxvii, figg. 6-6f, *luculentum*, Cape Colony, p. 241, pl. xxvii, figg. 3 & 3a; PECKHAM, Tr. Wisconsin Ac. xiv, n. spp.
- Heliophanus marshii*, Cape Colony, p. 189, pl. xx, figg. 4, 4a, *beardii*, Cape Colony, p. 189, pl. xx, figg. 6 & 6a, *deamatus*, Mashonaland, p. 190, pl. xx, figg. 3-3c, *clarus*, Mashonaland, p. 190, pl. xxi, figg. 6, 6a, *prattii*, S. Africa, p. 191, pl. xx, figg. 7-7b, *marshallii*, Durban, p. 192, pl. xx, figg. 5-5b, *modicus*, S. Africa, p. 193, pl. xx, fig. 2; PECKHAM, t. c. n. spp.
- Hermotimus* n. g. (in group *Hermotimeæ* of *Salt. fissidentati*), type *coriaceus* E. Sim., p. 762; SIMON, Hist. Araign. ii; *H. coriaceus*, Spanish Guinea, p. 120; SIMON, Mem. Soc. Espan. i, n. sp.
- Hispo alboguttata*, Sumatra, p. 306; SIMON, Ann. Soc. ent. France lxxii, n. sp.
- Homalattus marshallii*, Mashonaland, p. 218, pl. xxiv, fig. 6, *similis*, Mashonaland, p. 219, pl. xxiv, fig. 7, *obscurus*, Cape Colony, p. 219, pl. xxiv, fig. 8, *punctatus*, Durban, p. 219, pl. xxiv, figg. 5 & 5a; PECKHAM, Tr. Wisconsin Ac. xiv, n. spp.
- Hyllus treleavenii*, p. 207, pl. xxiii, figg. 3 & 3a; PECKHAM, t. c.
- H. maestus*, Durban, p. 208, pl. xxiii, figg. 5 & 5a, *perspicuus*, S. & E. Africa, p. 209, pl. xxiii, figg. 2-2b, *natalii*, Natal, p. 210, pl. xxiii, figg. 4 & 4a; PECKHAM, t. c. n. spp.
- Icius separatus*, Hayti, p. 344, pl. xv, figg. 5 & 11; BANKS, P. Ac. Philad. lv, n. sp.
- Irura mandarina*, Saigon, p. 735; SIMON, Ann. Soc. ent. France lxxi, n. sp.
- Jasoda*, p. 222, *woodii*, p. 223, pl. xxvi, figg. 10-10b; PECKHAM, Tr. Wisconsin Ac. xiv.
- Kima*, p. 252, *africana*, p. 253, pl. xxix, figg. 3-3d; PECKHAM, t. c.
- K. variabilis*, Cape Colony, p. 253, pl. xxix, figg. 4-4b; PECKHAM, t. c. n. sp.
- Klamathia* n. g. (*Salicida unidentati*), p. 230, *flava*, Durban, p. 231, pl. xxvi, figg. 4-4d; PECKHAM, t. c. n. sp.
- Langona avara*, Mashonaland, p. 241, pl. xxviii, figg. 5 & 5a; PECKHAM, t. c. n. sp.
- Lepidomathis* n. g. (in group *Emathideæ* of *Salt. fissidentati*), type *sericea* E. Sim., p. 810; SIMON, Hist. Araign. ii.
- Ligurra* n. g. (in group *Simetheæ* of *Salt. fissidentati*), type *latidens*, Doleschall, p. 842; SIMON, t. c.
- Longarenus* n. g. (in group *Hasariææ* of *Salt. fissidentati*), type *brachycephalus* E. Sim., p. 798; SIMON, t. c.: *L. brachycephalus*, W. Africa, p. 122; SIMON, Mem. Soc. Espan. i, n. sp.
- Macopæus madagascarensis*, Madagascar, p. 182, pl. xix, fig. 5; PECKHAM, Tr. Wisconsin Ac. xiv, n. sp.
- Marpesia*, type *arenicola* Menge, p. 44; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Massagris mirificus*, Durban, p. 186, pl. xix, figg. 1, 1a; PECKHAM, Tr. Wisconsin Ac. xiv, n. sp.
- Mendoza carlinii*, Mashonaland, p. 204, pl. xxiii, figg. 6-6c; PECKHAM, t. c. n. sp.
- Metacyrba pictipes*, Hayti, p. 343, pl. xv, fig. 7; BANKS, P. Ac. Philad. lv, n. sp.
- Mexcala*, p. 247, *rufa*, p. 247, pl. xxix, figg. 1-1d; PECKHAM, Tr. Wisconsin Ac. xiv.
- M. elegans*, Mashonaland, p. 248, pl. xxix, figg. 2-2d; PECKHAM, t. c. n. sp.
- Mithion ocellatus*, p. 108; SIMON, Mem. Soc. Espan. i.



- Modunda aperta*, Mashonaland, p. 210, pl. xxvi, figg. 9 & 9a; PECKHAM, Tr. Wisconsin Ac. xiv, n. sp.
- Monoclova = Tusitala*, p. 245; PECKHAM, t. c.
- Myrmarachne ichneumon*, p. 250; PECKHAM, t. c.
- M. marshallii*, Mashonaland, p. 249, pl. xxix, figg. 6-6b, *solitarius*, Cape Colony, p. 250, pl. xxix, figg. 5 & 5a; PECKHAM, t. c. n. spp.
- Œdipus*, type *anescens* (Simon), p. 44; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Palpelius* n. g. (in group *Plexippeæ* of *Salt. unidentati*), type *beccarii*, Thor., p. 735; SIMON, Hist. Araign. ii.
- Parajotus* n. g. (*Attidæ unidentati*), p. 200, *obscurifemoratus*, Durban, p. 201, pl. xxii, figg. 2-2d; PECKHAM, Tr. Wisconsin Ac. xiv, n. sp.
- Pellenes rufoclypeata*, Durban, p. 235, pl. xxvii, figg. 1 & 1a, *beanii*, Algoa Bay, p. 236, pl. xxvii, figg. 2-2c; PECKHAM, t. c. n. sp.
- Penionomus* n. g. (in group *Plexippeæ* of *Salt. unidentati*), type *longipalpis* E. Sim., p. 734; SIMON, Hist. Araign. ii.
- Pharacocerus ephippiatus*, p. 110; SIMON, Mem. Soc. Espan. i.
- P. xanthopogon*, Spanish Guinea, p. 109; SIMON, t. c. n. sp.
- Philæus chrysops* var. *hæmorrhoidicus*, p. 659, fig. 38, var. *typicus*, fig. 39; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.
- P. manicus*, Mashonaland, p. 205, pl. xxiv, figg. 1 & 1a; PECKHAM, Tr. Wisconsin Ac. xiv, n. sp.
- Phlegra imperiosa*, Cape Colony, p. 242, pl. xxiii, figg. 7 & 7a; PECKHAM, t. c. n. sp.
- Pochyta*, key to some spp. p. 116, *pulchra*, p. 114; SIMON, Mem. Soc. Espan. i.
- P. fastibilis*, p. 113, *pannosa*, p. 115; SIMON, t. c. : *P. solers*, Mashonaland, p. 199, pl. xxii, figg. 1 & 1b; PECKHAM, Tr. Wisconsin Ac. xiv : n. spp.
- Portia durbanii*, Durban, p. 183, pl. xix, figg. 2, 2a, 2b; PECKHAM, t. c. n. sp.
- Pselcis* n. g. (in group *Laufeicæ* of *Salt. fissidentati*), type *latefasciata* E. Sim., p. 825; SIMON, Hist. Araign. ii.
- Pseudicirus braunsii*, Cape Colony, p. 211, pl. xxvi, figg. 1 & 1a, *africanus*, Cape Colony, p. 212, pl. xxvi, figg. 2 & 2a, *bipunctatus*, Cape Colony, p. 212, pl. xxvi, figg. 3 & 3a; PECKHAM, Tr. Wisconsin Ac. xiv, n. spp.
- Quekettia*, p. 254; PECKHAM, t. c.
- Rhene banksii*, p. 220, pl. xxiv, figg. 4-4b; PECKHAM, t. c.
- R. biguttata*, Durban, p. 221, pl. xxiv, figg. 3-3c; PECKHAM, t. c. n. sp.
- Saitis sapiens*, Mashonaland, p. 196, pl. xxi, figg. 5 & 5a, *leighii*, Durban, p. 197, pl. xxi, figg. 4 & 4a, *mundus*, Mashonaland, p. 198, pl. xxi, figg. 3 & 3a; PECKHAM, t. c. n. spp.
- Scartes*, type *pavulus* Menge, p. 44; F. CAMBRIDGE, Ann. Nat. Hist. (7) xi.
- Sittacus designatus*, Cape Colony, p. 213, pl. xxii, fig. 3, *uphamii*, Cape Colony, p. 214, pl. xxiii, figg. 1-1c; PECKHAM, Tr. Wisconsin Ac. xiv, n. spp.
- Sonoita* n. g. (*Attidæ pluridentati*), p. 183, *lightfooti*, Cape Colony, p. 184, pl. xix, figg. 4-4c; PECKHAM, t. c. n. sp.
- Telamonia virgata*, Gaboon, p. 721, *argenteola*, Annam, p. 731; SIMON, Ann. Soc. ent. France lxxi : *T. leucaspis*, Sumatra, p. 307; SIMON, op. cit. lxxii : *T. trinotata*, Spanish Guinea, p. 107; SIMON, Mem. Soc. Espan. i : *T. æquipes*, Durban, p. 188, pl. xix, figg. 3-3c; PECKHAM, Tr. Wisconsin Ac. xiv : n. spp.
- Theratoscirtus capito*, p. 111, *torquatus*, p. 112, W. Africa; SIMON, Mem. Soc. Espan. i, n. spp.



- Thianitara* n. g. (in group *Thianieæ* of *Salt. unidentati*), p. 1054, *spectrum*, Sumatra, p. 1054; SIMON, Hist. Araign. ii: *T. spectrum*, Sumatra, p. 309; SIMON, Ann. Soc. ent. France lxxii, n. sp.
- Thyene*, key to S. African spp. p. 223, *ogdenii*, S. Africa, p. 224, pl. xxv, figg. 2-2d, *leighii*, Durban, p. 225, pl. xxv, figg. 1-1c, *pulchra*, Durban, p. 226, pl. xxv, figg. 3 & 3a, *natalii*, Durban, p. 227, pl. xxv, figg. 4-4b, *crudelis*, Durban, p. 229, pl. xxv, figg. 5-5d, *australis*, Algoa Bay, p. 230, pl. xxv, fig. 6; PECKHAM, Tr. Wisconsin Ac. xiv, n. spp.
- Tularosa* n. g. (*Attide fissidentati*), p. 245, *ogdenii*, S. Africa, p. 246, pl. xxviii, figg. 4-4d; PECKHAM, t. c. n. sp.
- Tusitala*, p. 243, *barbata*, p. 243, pl. xxviii, figg. 2-2d, *hirsuta*, p. 244, pl. xxviii, figg. 3 & 3a, *braunsi*, p. 245, pl. xxviii, figg. 1-1d; PECKHAM, t. c.
- Valloa* [on p. 217 *Velloa*] n. g. (*Attide unidentati*), p. 216, *modesta*, Cape Colony, p. 217, pl. xxiv, figg. 9-9c, *elegans*, p. 218, pl. xxiv, fig. 10; PECKHAM, t. c. n. spp.
- Victiria terebrifera nigrina* n. subsp., Annam, p. 734; SIMON, Ann. Soc. ent. France lxxi.
- V. equestris*, p. 723, *chrysoptæa*, p. 724, *epileuca*, p. 724, Gaboon, *caprina*, Annam, p. 734; SIMON, t. c.: *V. fuscimana*, p. 118, *tergina*, p. 119, Spanish Guinea; SIMON, Mem. Soc. Espan. i: *V. morigera*, Durban, p. 232, pl. xxvi, figg. 6-6b, *flavipes*, S. Africa, p. 233, pl. xxvi, fig. 7, *alba*, Mashonaland, p. 234, pl. xxvi, fig. 8, *parmata*, p. 234, pl. xxvi, figg. 5 & 5a; PECKHAM, Tr. Wisconsin Ac. xiv; n. spp.

## 5. SOLIFUGÆ.

- Sexual characters; PURCELL, Ann. S. African Mus. iii, p. 1, fig. 1.
- Blossia litoralis*, Cape Colony, p. 4, fig. 3, *echinata*, Cape Colony, p. 16, pl. i, fig. 10; PURCELL, Ann. S. African Mus. iii, n. spp.
- Desia brunnipes* ? p. 576, fig. B, *fuscipes*, p. 577, fig. C; KRAEPELIN, Zool. Jahrb. Syst. xviii.
- D. laminata*, S. Arabia, p. 217, figg. a & b, *sabulosa*, S. Arabia, p. 218; POCOCK, Ann. Nat. Hist. (7) xi: *D. schreineri*, Cape Colony, p. 14, pl. i, fig. 11; PURCELL, Ann. S. African Mus. iii: n. spp.
- Galeodes granti*, S. Arabia, p. 215; POCOCK, Ann. Nat. Hist. (7) xi, n. sp.
- Gluvia chapmani*, Spain, p. 222 & fig. in text; POCOCK, Ann. Nat. Hist. (7) xi, n. sp.
- Gluviopsis balfouri*, p. 181; POCOCK, Nat. Hist. Sokotra.
- Hemerotrecha* n. g., p. 78, *californica*, California, p. 79, & text-fig; BANKS, Ent. News Philad. xiv, n. sp.
- Lipophaga* n. g. (*Karschiinae*), p. 10, *trispinosa*, Cape Colony, p. 11, fig. 8; PURCELL, Ann. S. African Mus. iii, n. sp.
- Melanoblossia* n. g. (*Desiinae*) *braunsi*, p. 6, figg. 4 & 5, *globiceps*, p. 8, fig. 6, S. Africa; PURCELL, t. c. n. spp.
- Paragaleodes erlangeri*, Akaki, p. 572; KRAEPELIN, Zool. Jahrb. Syst. xviii, n. sp.
- Rhagodes ornatus* var., p. 573; KRAEPELIN, t. c.
- R. rothschildi*, S. Arabia, p. 216, *buryi*, S. Arabia, p. 217; POCOCK, Ann. Nat. Hist. (7) xi, n. spp.
- Solpuga parkinsonii* var. *neumanni* n. var., Adoshebai, p. 574, fig. A; KRAEPELIN, Zool. Jahrb. Syst. xviii.
- S. collinita*, Cape Colony, p. 3, fig. 2; PURCELL, Ann. S. African Mus. iii: *S. spiralicornis*, p. 304, fig. 1, *junodi*, p. 304, fig. 2, Transvaal; PURCELL, Nov. Zool. x: n. spp.
- Toreus* n. g. (*Karschiinae*), p. 9, type *capensis* Purcell, fig. 7; PURCELL, Ann. S. African Mus. iii.

## 6. PSEUDOSCORPIONES.

[See also BRUNTZ (15), KEW (57), RICHTERS (140), SIMON (162).]

Catalogue of *Pseudoscorpiones* with synonymy, bibliography and distribution, and key to some genera and spp. (in Bohemian); NOSEK, Vestník Klub. Prostejove iv, pp. 35-75, Supplement, v, pp. 55-64.

External and internal anatomy, development; STSCHEKANOVITZEFF, Zool. Anz. xxvi, pp. 318-334, 8 figg.

*Chelifer sculpturatus*, Natal, p. 498, pl. xxv; LEWIS, J. Quekett Club (2) viii, n. sp.

## 7. OPILIONES.

[See also ABSOLON (1), BRUNTZ (15), O. CAMBRIDGE (26), SIMON (163).]

Classification of *Opiliones*:

Suborder i. *Palpatores*.

a. *Apagosterni*.

b. *Eupagosterni*.

Suborder ii. *Laniatores*.

a. *Sterrhonoti* nov. (fam. *Oncopodidae*).

b. *Camptonoti* nov. (fam. *Gonyleptidae*,  
*Epedanida*, *Assamiida* &c.).

Suborder iii. *Insidiatores*.

Suborder iv? *Cyphophthalmi*;

LOMAN, Tijdschr. Nederland. Dierk. Ver. (2) viii, p. 66.

External and internal anatomy and classification of *Opiliones*; LOMAN, Zool. Jahrb. Suppl. vi (Fauna Chilensis) Bd. iii, pp. 117-200, pls. x-xiii, 21 text-figg.

*Acumontia*, notes, p. 441, key to spp. p. 444, *rostrata*, p. 441, pl. xi, figg. 2 & 2a, *cowani*, p. 442, *majori*, p. 443; POCOCK, Ann. Nat. Hist. (7) xi.

*A. echinata*, p. 441, *roberti*, p. 443, Madagascar; POCOCK, t. c.: *A.*, key to spp. p. 409, *rostrata*, p. 405, text-fig. 82, *majori*, p. 407, text-fig. 83 A, Madagascar; POCOCK, P. Zool. Soc. London 1902, ii (2) (1903): n. spp.

*Adæum areolatum*, Grahamstown, p. 401; POCOCK, t. c. n. sp.

*Amopaum* as young stage of *Dicranolasma*, p. 278; DAHL, SB. Ges. naturf. Berlin 1903.

†*Anthracomarti*, morphology; p. 250, char. of families, p. 408; POCOCK, Geol. Mag. (4) x.

†*Anthracosiro* n. g. (*Anthracomarti*) p. 250, *woodwardi*, Carboniferous, Dudley, p. 250, fig. A; POCOCK, t. c. n. sp.

†*A. fritschii*, Carboniferous, Dudley, p. 407, text-fig.; POCOCK, t. c. n. sp.

†*Architarboidea*, key to genera, p. 179; MELANDER, J. Geol. xi.

†*Architarbus rotundatus*, p. 181, pl. v, fig. 2, pl. vii, fig. 2; MELANDER, t. c.

†*Biantes flaviventris*, Sokotra, p. 200, *bicolor*, Abd-el-Kuri, p. 204; POCOCK, Nat. Hist. Sokotra, n. spp.

*Ceratobunus*, key to spp. p. 476, *pulcher*, p. 476, *calcuttensis*, p. 477, *brevipes*, p. 478, India; WITH, J. Linn. Soc. xxviii, n. spp.

*Dicranolasma*, *Amopaum* as young stage of, p. 278; DAHL, SB. Ges. naturf. Berlin 1903.

*Egænus crista anatolicus* n. subsp., Asia Minor, p. 660; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.

†*Eophrynus prestvicii*, p. 250, fig. B; POCOCK, Geol. Mag. (4) x:

†*Epedanus geniculatus*, Hong Kong, p. 446, pl. xii, fig. 1; POCOCK, Ann. Nat. Hist. (7) xi, n. sp.

- Gagrella*, characters, p. 483, key to spp. p. 484, *erebea*, p. 492, *atrata*, p. 494, *sepia*, p. 505; WITH, J. Linn. Soc. xxviii.
- G. dentata*, Nicobar Is., p. 488, *nobilis*, India, p. 489, *crux*, India, p. 490, *hirta*, India, p. 492, *fragilis*, India, p. 493, *stoliczkae*, India, p. 497, *mirabilis*, India, p. 497, *flavimaculata*, India, p. 498, *triangularis*, India, p. 499, var. *fusca*, India, p. 500, *imperator*, Andaman Is., p. 501, var. *dentata*, Andaman Is., p. 501, var. *unispinosa*, Nicobar Is., p. 502, *hanseni*, India, p. 503, *varians*, India, p. 503, var. *dentata*, India, p. 504, *splendens*, China (?), p. 506; WITH, t. c. n. spp.
- Gagrellinae*, characters, p. 469; WITH, t. c.
- †*Geraphrynus carbonarius*, p. 181, pl. v, fig. 3, pl. vii, fig. 3; MELANDER, J. Geol. xi.
- †*Hadrachne* n. g. (*Architarboideae*, *Anthracomarti*), p. 179, *horribilis*, Carboniferous, Illinois, p. 180, pl. v, fig. 1, pl. vii, fig. 1; MELANDER, t. c. n. sp.
- Hinzuanus leighi*, Natal, p. 412; Pocock, P. Zool. Soc. London 1902, ii (2) (1903), n. sp.
- Hypsibunus vigilans*, India, p. 475; WITH, J. Linn. Soc. xxviii, n. sp.
- †*Kustarachne sulcata*, p. 181, pl. v, fig. 5, pl. vii, fig. 4, *extincta*, p. 182, pl. v, fig. 4, pl. vii, fig. 5, Carboniferous, Illinois; MELANDER, J. Geol. xi, n. spp.
- Larifuga*, p. 402; Pocock, P. Zool. Soc. London 1902, ii (2) (1903).
- Lomanella* n. g. (*Trienonychidae*) p. 411, *raniceps*, Tasmania, p. 411, text-fig. 84 B; Pocock, t. c. n. sp.
- Macropsalis hoggi*, Victoria, p. 398; Pocock, t. c. n. sp.
- Metopoclea* as young stage of *Trogulus*, p. 281; DAHL, SB. Ges. naturf. Berlin 1903.
- Monoxyomma* n. g. (*Trienonychidae*), p. 444, *spinatum*, N. S. Wales, p. 445, pl. xi, figg. 1-1c; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- Nemastoma*, notes on spp. p. 673, *kochii*, figg. 44, *silii*, fig. 45, *quadripunctatum*, fig. 46; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.
- N. werneri*, Asia Minor, p. 673, fig. 43; KULCZYŃSKI, t. c. n. sp.
- Pantopsalis*, note, p. 436, key to spp. p. 438, *coronata*, p. 436, *trippi*, p. 437, *jenningsi*, p. 437, New Zealand; Pocock, Ann. Nat. Hist. (7) xi: *P. albi-palpis*, New Zealand, p. 399, *nigripalpis* with subsp. *spiculosa* n. subsp., New Zealand, p. 399; Pocock, P. Zool. Soc. London 1902, ii (2) (1903): n. spp.
- Pelitnus pulvillatus*, p. 413, *piliger*, p. 413, Malay Peninsula; Pocock, t. c. n. spp.
- Phalangium saxatile*, p. 57; KULCZYŃSKI, Bull. Ac. Cracovie 1903: *P. opilio*, phagocytic organs; BRUNTZ, C.R. Soc. Biol. lv, pp. 1688 & 1689.
- P. bettoni*, Brit. E. Africa, p. 438; Pocock, Ann. Nat. Hist. (7) xi: *P. leppane*, S. Africa, p. 392, (*Rhampsinitus*) *spenceri*, Natal, p. 394, text-fig. 79 A, (*Rh.*) *telifrons*, Cape Colony, p. 395, text-fig. 79 B, (*Rh.*) *leighi*, Durban, p. 396, text-fig. 80, (*Gurua*) *palmatimanus*, E. Africa, p. 397, text-fig. 81; Pocock, P. Zool. Soc. London 1902, ii (2) (1903): n. spp.
- Platybunus strigosus*, p. 57; KULCZYŃSKI, Bull. Ac. Cracovie 1903: *P. strigosus olympicus* n. subsp., Asia Minor, p. 667, fig. 40, typical form, figg. 41 & 42; KULCZYŃSKI, SB. Ak. Wien cxii, Abth. i.
- Plistobunus* n. g. (*Phalangodidae*), p. 447, *rapax*, Hong Kong, p. 447, pl. xii, fig. 2; Pocock, Ann. Nat. Hist. (7) xi, n. sp.
- Podactis pictulus*, Ceylon, p. 448, pl. xii, figg. 3 & 3a; Pocock, t. c. n. sp.
- Prionomma*, see *Prionostemma*.
- Prionostemma*, n. nom. for *Prionomma* Loman non White, p. 433, key to spp. p. 435, *insculptum*, Venezuela, p. 433, *scintillans*, Guatemala, p. 434, *bicolor*, Guatemala, p. 434, *citrinum*, Brazil, p. 435; Pocock, t. c. n. spp.



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## 8. ACARI.

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- Aturus runcinatus*, p. 56, pl. i, figg. 9-14; KOENIKE, Mt. Badischen zool. Ver., No. 13-14 (1902).
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*inermis*, p. 11, pl. i, fig. 3, *satileri*, p. 12, pl. ii, fig. 1, Frankfurt, *duboisii*,  
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 fig. 2; RICHTERS, Zool. Anz. xxvii.  
*M. echinogenitus*, p. 169, fig. 1, *coronifer*, p. 171, *granulatus*, p. 171,  
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## 10. PENTASTOMIDA.

[Vacant.]



## XII. MYRIOPODA AND PROTO- TRACHEATA.

BY

W. T. CALMAN, D.Sc.

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- R. togoënsis*, W. Africa, p. 145, figg. 84 & 85, *aspera*, Jamaica, p. 149, *crassispina*, India, p. 151, fig. 94, *brasiliensis*, S. America, p. 152, figg. 95 & 96, *stuhlmanni*, E. Africa, p. 152, fig. 97, *cuprea*, Bhutan, p. 154; KRAEPELIN, Mt. Mus. Hamburg xx, n. spp.
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- S. maroccana*, Morocco, p. 189, pl. xiii, figg. 19 & 20; ATTEMS, Zool. Jahrb. Syst. xviii: *S.*, key to S. American spp. p. 687, *gounellei*, S. Paulo, p. 685, pl. vii, figg. 24 & 25, text-figg. xxxi & xxxii; BRÖLEMANN, Ann. Soc. ent. France lxxi: *S. paulista*, S. Paulo, Brazil, p. 83, pl. i, figg. 5-7; BRÖLEMANN, Revist. Mus. Paulista vi: *S. vizzavonæ*, Corsica, p. 709; LÉGER & DUBOSCQ, C.R. Ass. Franc. xxxi (2): *S. vizzavonæ*, Corsica, p. 319, text-fig. 2, abnormality, p. 321, text-fig. 3; LÉGER & DUBOSCQ, Arch. Zool. exp. (4) i: n. spp.
- Schendylini*, see *Dentifoliinae*.
- Scolioplanes maritimus*, habits &c.; HENNINGS, Biol. Centrbl. xxiii, pp. 720-725.
- Scolopendra*, key to palæarctic spp. p. 553, *clavipes*, p. 560, *morsitans*, p. 561, *cingulata*, p. 562, var. *obscuriceps*, p. 568, *valida*, p. 569, pl. i, fig. 1, subsp. *simonyi* n. subsp., Abd-el-Kuri, p. 570, pl. i, fig. 2; ATTEMS, SB. Ak. Wien Abth. i, cxi: *S. heros*, spermatogenesis; BLACKMAN, Biol. Bull. v, pp. 187-217, 22 figg.: *S. morsitans*, spermatogenesis; BOUIN, Arch. zool. exp. Notes (4) i, pp. iii-vi: *S. subspinipes* var. *spiniosissima* n. var., Philippines, p. 262; KRAEPELIN, Mt. Mus. Hamburg xx: *S. morsitans*, secretion of poison, p. 97; LAUNOY, Ann. Sci. nat. (8) xviii: *S. balfouri*, p. 431, pl. xxvi, fig. 5, *valida*, p. 432; POCOÏCK, Nat. Hist. Sokotra: *S. bicolor*, p. 10, fig. 6; WILLEY, Spolia Zeylan. i.
- S. oranensis*, key to subspp. and varr. p. 555, subsp. *africana*, p. 556, subsp. *dalmatica*, var. *austriaca*, p. 557, subsp. *dalmatica*, var. *pantokratoris*, pp. 558, subsp. *lusitanica*, var. *cretica* n. var., p. 559, subsp. *lusitanica* var. *siciliana*, p. 560; ATTEMS, SB. Ak. Wien Abth. i, cxi.
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## SYMPHYLA.

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## PAUROPODA.

(Vacant.)

## DIPLOPODA.

[See also ABSOLON (1), BRUNTZ (20 & 21), CAUSARD (24), ROSSI (60 & 61).]

Anatomy of *Diplopoda*; SILVESTRI, Acari Myriop. et Scorp. Ital.

*Diplopoda* i, Anat. 272 pp., 4 pls., 346 figg. in text.

*Diplopoda*, n. spp. and varr. from Corsica named but not described; BRÖLEMANN in LÉGER & DUBOSCQ, C.R. Ass. Franc. xxxi (1), p. 710.

*Abatodesmus* n. g. (*Polydesmidae*), p. 5, *chilensis*, Chile, p. 5; SILVESTRI, Boll. Mus. Torino xviii, No. 433, n. sp.

*Acanthulus maindroni*, Malabar, p. 263, text-figg. A-D; BOUVIER, Bull. Mus. Paris ix, n. sp.

*Acutangulus coccineus*, p. 560, pl. xvii, fig. 17; CARL, Rev. Suisse Zool. xi.

*A. neglectus*, Mexico, p. 560, pl. xvi, fig. 16; CARL, t. c. n. sp.

*Anamastigona meridionale*, No. 1 and pl., *pulchellum*, No. 2 and pl.; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xviii: *A. hispidulum*;

BERLESE, op. cit., Fasc. c, No. 6 and pl.

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*Aneptoporus* n. g. (*Polydesmidae*), p. 437, *granti*, p. 437, text-fig. b; POCOCK, Nat. Hist. Sokotra.

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*Blaniulus*; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcix, No. 5 and pl.: *B. (Plusioiulus) eulophus*, Sardinia; SILVESTRI in BERLESE, op. cit. Fasc. c, No. 5 and pl., n. sp.

*Brachydesmus spinosus*, Agram, p. 124, pl. viii, figg. 18 & 19, *cornuatus*, Montenegro, p. 125, pl. viii, figg. 9-11, *uncinatus*, Bosnia &c., p. 126, pl. viii, figg. 5 & 6; ATTEMS, Zool. Jahrb. Syst. xviii, n. spp.

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*kliurensis*, Klisura Sikia, p. 149, pl. vii, fig. 13, (*Cyphobrachyiulus*)  
*vicinus*, Stoliko, p. 150, pl. vii, figg. 14-16; VERHOEFF, Arch. Naturg.  
 lxx (1) : n. spp.
- Brachytropisoma*, No. 6 and pl., *giardinæ*, No. 7 and pl.; BERLESE, Acari,  
 Myriopoda et Scorpiones, Fasc. xcvi.
- Cambalidæ*, key to genera p. 83; ATTEMS, Zool. Jahrb. Syst. xviii.
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 DUBOSCQ, Arch. Zool. exp. (4) i, n. sp.
- Cleidogona godmani*, Mexico, p. 52, pl. v, figg. 7a-e, *stolli*, Guatemala,  
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 No. 8 and pl., *dentatum*, No. 9 and pl., *gattii*, No. 10 and pl.; BERLESE,  
 op. cit. Fasc. ci: *C. rawlinsii* var. *italicum* n. var. No. 8 and pl.;  
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- Julida*, morphology of copulatory appendages; VERHOEFF, Arch. Naturg. lxi (1), pp. 183-196, pls. viii & ix.
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## PROTOTRACHEATA. (ONYCHOPHORA.)

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