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BEING

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RELATING CHIEFLY TO THE YEAR

1905.

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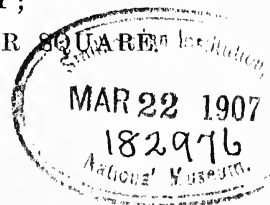
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By D. SHARP.

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## INTRODUCTION.

THE number of titles this year is 1669, contrasting with 1549 last year.

KELLOGG'S Introduction to North American entomology (834) is the only work of very wide scope we have to notice this year. BLANCHARD'S work (124) on mosquitoes is intended specially for those who are not general entomologists, and will be found very useful by medical officers and others who have to do with *Culicidæ*.

In the monograph of *Heliconidæ* by STICHEL & RIFFARTH (1452) a most complicated nomenclature is introduced; the species are arranged in Sections and Cohorts, each one of which has a name. As the name has a plural termination we may presume that it cannot be considered as a subgenus and we have therefore not specially recorded these terms, they being merely substitutes—and it would appear of a superfluous nature—for the numerals and letters ordinarily used in the arrangement of species. Besides this a trinomial or a quadrinomial nomenclature is used for each of the species.

The second part of the late Prof. PACKARD'S Bombycine moths (1131) calls for special notice: though ostensibly devoted to the *Ceratocampinæ*, it includes some introductory chapters containing much matter of great general interest; the wealth of illustration gives an additional charm to the work.

The first Volume of the butterflies of the Fauna of British India has appeared and is highly spoken of; BINGHAM (119). Another Volume of the British Museum Catalogue of *Lepidoptera* has appeared; HAMPSON (715). ALDRICH'S catalogue of N. American *Diptera* (14) and BECKER & BEZZI'S catalogue of Palaearctic flies are very valuable. LEWIS' catalogue of *Histeridæ* (951) shows that the described species have more than doubled in number since 1868, the date of the corresponding Volume of the Munich catalogue of *Coleoptera*.

M. THÉRY'S work on Madagascar Buprestidæ describes many new species, and includes a discussion on the origin of the fauna of Madagascar. ENDERLEIN'S (497) revision of two divisions of *Psocidæ* is another good contribution; and JOHANNSEN gives us an important work on N. American *Chironomidæ* (820). ESCHERICH'S study of *Lepismatidæ* shows the extraordinary development of knowledge that has occurred in the past 30 years. LASS'S paper on the flea (918) is of more general interest than its title would lead one to expect; besides its anatomical interest it also deals with metamorphosis and habits.

VERHOEFF (1539) has given us an important paper on the morphology of the head, based on a study of the lower orders.

Voss's memoir (1555) on the thorax of *Gryllus* contains much matter of morphological importance concisely stated: it is lengthy but it touches on many points. He has a good phylogenetic table of the winged Insects: and promises a paper in which development is to be dealt with.

In anatomy HOFFMANN'S study (753) of the mouth-parts of *Tomocerus*, and KULAGIN'S (901) of *Culicidæ* are each valuable. The second of these memoirs is accompanied by some very thoughtful considerations as to a great polyphylism in Insects. WANDOLLECK (1565) contributes a study of the abdomen of the ♀ in *Coleoptera*; although not based on a very large number of examples, it is in other respects of considerable value. We have a summary of the structure and function of Malpighian tubes from VENEZIANI, together with new observations and elucidations (1536). SCOTT

gives (1371) a very interesting sketch of the tracheal system, including the anal structures, of a developing Libellulid dragon fly.

Of two papers on the sense organs, the one by RÖHLER (1288) deals with the subject in general, and contains much interesting matter, while that by SEILER (1375) discusses the Ocelli of *Ephemeridæ*. Both touch also on the question of function, though rather lightly. PHILLIPPS contributes a valuable paper on the compound eye (1164). POPOVICI-BAZNOȘANU (1211) has studied the structure of the dorsal vessel in *Chironomus* and a few other insects. RÁDL (1230) has an interesting discussion of the sense of hearing.

FABRE'S new volume (533) is chiefly devoted to spiders, but it includes two short chapters on *Coccidæ*. BUTTEL-REEPEN has an article on Insect-sociology (224). We owe to DOFLEIN a most interesting account of the proceedings of *Ecophylla smaragdina*, the weaver-ant (436), while HUBER'S account (791) of the mode of establishing a colony in the case of the leaf-cutting ants is quite fascinating. The origin of slavery in ants is discussed at length by WHEELER (1619) and WASMANN (1579, 1580). FERTON gives us some valuable notes on the habits of *Hymenoptera*; the case of parasitism in a *Pompilus* being of special interest (558). Some very interesting information as to the Natural History of a Singhalese species of *Termitidæ* is given by DOFLEIN (437). Dr GOELDI has published a very considerable contribution to the Natural History of Brazilian mosquitoes (672).

GROSS (699) has written on the ovaries of *Mallophaga* and *Anoplura*, and finds them to be extremely similar. He discusses the classification of these groups, and concludes that there is but little ground for placing *Anoplura* with *Hemiptera*.

BORDAGE has produced a very interesting treatise on autotomy and regeneration (135), and THIENEMANN (1491) makes an important contribution by his sketch of the biology of the pupa of *Trichoptera*, and accompanies it with a very complete bibliographic list.

SILVESTRI gives a preliminary account (1393) of an extraordinary case of germinogony, accompanied by larval dimorphism. HEYMONS (745) gives a brief sketch of the peculiar embryology of *Machilis*. Miss FIELDE (559) contributes a valuable set of observations on the progeny of virgin—chiefly worker—ants.

Miss STEVENS (1449) gives us a number of interesting observations as to the very earliest processes of ontogeny in those extraordinary creatures *Aphidæ*.

In Variation we have an important memoir from ENTEMAN on the colour and pattern of *Polistes* (518). PICTET has given the results of his experiments as to the variation produced by changing the food of Lepidopterous larvæ (1198). He experimented with 4 or 5000 individuals of 21 species of Swiss *Lepidoptera*. The part of his work relating to humidity is less conclusive.

The memoir by PETERSEN (1155) on the sexual organs, requires careful consideration from all Lepidopterists, as he is far from considering previous work exhaustive, and makes various suggestions having a very wide bearing. He also has a paper (1156) to exemplify his views as to the origin of species by physiological isolation, by the case of *Hadena adusta*; the variation of the male genitalia being illustrated by photographs.

JORDAN'S work (822) should be read in conjunction with PETERSEN'S; he discusses geographical and nongeographical variation. The two works emphasise the necessity of a thorough study of the variation of sexual organs, both writers apparently taking it for granted, that disparity in the copulatory organs prevents copulation. A hypothesis which is by no means established, though the assumption is far from new.

The most remarkable of the Economic work of the year, is the series produced as Report of the Hawaiian Sugar Planters' Association by

PERKINS (1149-1154) and others. They include a great deal of matter of interest to the Naturalist as well as to the Economist. Mr WASHBURN'S (1577) plan of devoting an annual Economic report to the insects of one Order will prove of value if completed, as it would soon provide a Manual of Economic entomology for the State, in place of the desultory repetitions that now abound in this department of Entomology. This system he says was inaugurated by his predecessor. The part published this year is a good brief guide to the study of *Diptera*.

SCHUCHERT & BUCKMAN (1353) have promulgated a system of nomenclature of types, which is unnecessarily complex, owing to their having confounded three categories, under the term type.

HANDLIRSCH has given us an interesting sketch of BRAUER'S scientific career (724).

The Recorder has nowhere met with a new entomological periodical in Bohemia called *Casopis České Společnosti entomologické*. An account of its contents for the year 1905 is given in *Zool. Zentribl.* 1905, p. 809.

The question of "publication" is one that calls for serious consideration. Does the printing and selling of two or three copies constitute of itself publication? And if not, where is the line to be drawn between this and an authoritative list of recognised channels of communication between Zoologists? The number of doubtful publications is now so great that every Recorder would be glad to know that they are not to be encouraged, as he finds it impossible to get a sight of many such.

## I. TITLES.\*

1. ABEILLE DE PERRIN, E. DE. Description d'un *Trechus* (*Anophthalmus*) nouveau de France. *Bull. Soc. ent. France* 1905, p. 19. [*Coleoptera*.]
2. ——. Description d'un *Bythinus* nouveau de France. *T. c.* p. 42. [*Coleoptera*.]
3. ——. Descriptions de trois *Buprestides* méditerranéens nouveaux. *T. c.* pp. 207, 208. [*Coleoptera*.]
4. ——. Description d'un nouveau *Coléoptère* aveugle de France. *T. c.* p. 208.
5. ——. Notes biologiques sur *Siettitia balsetensis*. *T. c.* pp. 225-227. [*Coleoptera*.]
6. ADAMS, C. F. On the North American species of *Oscinis*. *Ent. News Philad.* xvi, pp. 108-111. [*Diptera*.]
7. ADAMSON, C. H. E. Catalogue of butterflies collected in Burmah by Lt.-Col. C. H. E. Adamson, C.I.E., up to the end of 1895 and presented by him to the Museum of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne. *Tr. Northumb. Soc.* i, pp. 155-189. [*Lepidoptera*.]
8. ADELUNG, N. VON. *Symbola nova ad cognitionem Blattodeorum (Orthoptera) Africæ orientalis*. *Annuaire Mus. St. Petersb.* ix, pp. 417-489.
9. ——. *Symbola ad cognitionem faunæ Orthopterorum Rossicæ*. *Op. cit.* x, pp. i-v.

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

10. [ADELUNG, N. v.]. [Review of] Verhoeff; zur vergleichenden Morphologie und Systematik der *Embiiden*, zugleich 3. Beitrag zur Kenntnis der Thorax der Insecten. Zool. Zentrbl. 1905, pp. 580-585.
11. ADIE, J. R. & ALCOCK, A. On the occurrence of *Anopheles (Myzomyia) listoni* in Calcutta. P. R. Soc. London 1905, pp. 319-321. [*Diptera*.]
12. AIGNER-ABAFI, L. v. Über *Aporia crategi* L. Zeitschr. Insbiol. i, pp. 204-209. [*Lepidoptera*.]
13. —. Die Tagfalter Ungarns. Rov. Lapok. 1905, pp. 4-12 etc. [*Lepidoptera*.]  
Tables in Hungarian.
14. ALDRICH, J. M. A catalogue of North American *Diptern* (or two-winged flies). No. 1444. Smithson. Collect. (pt. of Vol. xlvii), 680 pp. Noticed Nature lxxii, p. 317. Reviews: by MELANDER, Ent. News Philad. xvi, pp. 241-243; by BRUES, Science xxii, p. 176; by DE MEIJERE, Zool. Zentrbl. 1905, p. 755; by C. W. J., Psyche xii, pp. 77, 78.
15. —. A contribution to the study of American *Dolichopodidae*. Tr. Amer. ent. Soc. xxx, pp. 269-286. [*Diptera*.]
16. ALFKEN, J. D. Die von P. Knuth auf seiner 1898-99 unternommenen Reise nach Java, Japan und Kalifornien gesammelten *Lepidopteren* und *Hymenopteren* und die von diesen besuchten Pflanzen. Abh. Ver. Bremen xviii, pp. 132-138.
17. —. Zur Kenntnis einiger nordwestdeutscher Bienen. T. c. pp. 69-76. [*Hymenoptera*.]
18. —. Die Förstersche Monographie der Bienen-Gattung *Hylaeus* F. (Latr.)=*Prosopis* F. und die *Prosopis*-Sammlung Försters. T. c. pp. 108-124. [*Hymenoptera*.]
19. —. Über einige Bienen-Arten Thomson's. T. c. pp. 125-128. [*Hymenoptera*.]
20. —. Die Gruppe der *Andrena varians* K. T. c. pp. 129-131. [*Hymenoptera*.]
21. —. Neue und wenig bekannte *Prosopis* Arten. Zeitschr. Hym. Dipt. v, pp. 91-95. [*Hymenoptera*.]
22. —. *Melitta nigricans* n. sp., eine neue deutsche Biene. T. c. pp. 95, 96. [*Hymenoptera*.]
23. —. Ueber einige afrikanische *Prosopis*-Arten. T. c. pp. 146-150. [*Hymenoptera*.]
24. ANDRÉ, E. *Mutillides nouveaux ou peu connus de l'Ancien monde et de l'Australie*. Zeitschr. Hym. Dipt. v, pp. 201-216, 265-277. [*Hymenoptera*.]
25. —. Nouvelles espèces de *Mutillides* d'Amérique. T. c. pp. 361-376 (incomplete). [*Hymenoptera*.]
26. —. Description d'un genre nouveau et le deux espèces nouvelles de fourmis d'Australie. Rev. Ent. franc. 1905, pp. 205-208. [*Hymenoptera*.]
27. —. Diagnoses de deux espèces nouvelles de *Mutilles* du Transvaal. Bull. Soc. ent. France 1905, pp. 24, 25. [*Hymenoptera*.]
28. —. Catalogue analytique et raisonné des *Lépidoptères* de Saone-et-Loire et des départements limitrophes. Deuxième partie. *Sphingies, Bombyces*. Bull. Soc. Autun xvii, pp. 177-267, pls. viii bis-xii.



29. ANNANDALE, N. The egg and early larval stages of a *Coreid* bug, probably *Dalader acuticosta* Amyot and Serv.; with a note on its *Hymenopterous* parasite. Tr. ent. Soc. London 1905, pp. 55-59, pl. viii.
30. ARROW, G. J. On some Oriental *Aphodiid* *Coleoptera* of the *Rhyparus* group, with description of a new genus. Ann. Nat. Hist. (7) xv, pp. 534-539.
31. ASHMEAD, W. H. Additions to the recorded *Hymenopterous* fauna of the Philippine Islands, with descriptions of new species. P. U. S. Mus. xxviii, No. 1413, pp. 957-971.
32. —. New *Hymenoptera* from the Philippines. Op. cit. xxix, No. 1416, pp. 107-119.
33. —. New genera and species of *Hymenoptera* from the Philippines. T. c. No. 1424 pp. 397-413.
34. —. New *Hymenoptera* from the Philippine Islands. Canad. Ent. 1905, pp. 3-8.
35. —. A new *Pezomachus* from Italy. T. c. p. 142. [*Hymenoptera*.]
36. —. A skeleton of a new arrangement of the families, subfamilies, tribes and genera of the ants, or the superfamily *Formicoidea*. T. c. pp. 381-384. [*Hymenoptera*.]
37. —. A new *Thrips* from the Philippine Islands. Ent. News Philad. xvi, p. 20. [*Thysanoptera*.]
38. —. Two new *Mymaridæ* from Russian Turkestan. T. c. pp. 213, 214. [*Hymenoptera*.]
39. AUER, H. Messungen an *Lepidopteren* (1905). Zeitschr. Insbiol. i, pp. 499-502.
40. AURIVILIUS, C. New African *Lasiocampidæ* in the British Museum. Tr. ent. Soc. London 1905, pp. 313-326, pl. xvi. [*Lepidoptera*.]
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Intestinal myiasis, *Muscidæ*, STEPHENS (1447).

Synopsis, medical, of *Culicidæ*, PRESSAT (1216).

Mosquitos and malaria, relation known in Ceylon in 6th century, WELCH (1613).

Mosquitoes and disease, HODDER (752).

*Culicidæ* and disease, CHANTEMESSE & BOREL (301).

*Culicidæ* and malaria, work for medical men, STEPHENS & CHRISTOPHERS (1448).

- Malaria and mosquitoes, GRÜNBERG (706).  
*Culicidæ* that convey malaria, SERGENT (1384).  
 Mosquitoes and disease in Brazil, GOELDI (672).  
*Stegomyia* and yellow fever, GOELDI (673).  
*Stegomyia fasciata* in N. America, HOWARD (787).  
 Transmission of infection by heredity in *Stegomyia*, MARCHOUX & SIMOND (1007).  
 Habits of *Anopheles* at Aden, PATTON (1140).  
 Mosquito destruction, HODDER (752).  
 ROSS (1293), mosquitoes, preventive instructions.—Reducing mosquitoes, ROSS (1291, 1292).  
 Mosquito extermination, SMITH (1420).  
 Mosquito-control, UNDERWOOD (1521).  
 Destruction of mosquito larvæ, GALLI-VALERIO (636).

### FAUNISTIC: GEOGRAPHICAL DISTRIBUTION.

N.B.—The numbers in brackets refer to "Titles"; by their means it is intended to give a reference to every memoir containing a notice affecting the entomological fauna of each of the twelve regions here adopted. But synonymical notes and changes of systematic position are not included in these references. In addition to giving references to titles of works that actually add to the faunistic record of a region, there are also comprised references to a large number of works on local faunæ, or "stations." In such cases the reference is, as a rule, made direct to the original work, not to our title-numbers, many of these local faunistic notes not being included at all in our list of titles.

In this Faunistic division varieties are not included: neither is a new genus (unless it is also a n. sp.), nor synonymy. When no subordinate locality is mentioned in connection with a memoir, it is to be understood that it refers to several divisions of the region indicated by the immediate subheading.

### GENERAL.

- Importance of distribution, SPEISER (1431).  
 Insects as evidence of geographical and climatic changes, VACHAL (1525).  
 Distribution of *Lepismatidæ*, ESCHERICH (525).  
 Geographical distribution of *Trichoptera*, ULMER (1520).  
 Distribution of *Coprophagous Lamellicorns*, KOLBE (878).  
 No locality. *Col.*, see *Passalidæ*, *Gonatas cetioides*.

### 1. ARCTIC AND ANTARCTIC.

HAMPSON (715); Arctic America, Novaya Zembla, *Hadeninæ* n. spp.

### 2. INSULAR (including NEW ZEALAND).

- Azores. *Lepidoptera*, *Noctuidæ*, 2 spp. n., *Geometr.*, 2 spp. n., *Scoparia*, 4 spp. n., WARREN (1575). *Orthoptera*, BOLÍVAR (131), *Xiphidium* n. sp.  
 Madeira: *Coleoptera*, FAUVEL (548), *Dromius*, 2 spp. n.; REITTER (1244) n. g. *Tenebrionidæ*. *Hymenoptera*, *Diapria* n. sp., KIEFFER (842).  
*Lepidoptera*, HAMPSON (715), *Hadeninæ* n. sp.; *Tephroclystia* sp. n., WARREN (1575).  
 Canary Ids.: *Coleoptera*, SHARP (1385), *Criocephalus pinetorum*.  
*Lepidoptera*, HAMPSON (716) n. g. *Arctiidæ*. *Orthoptera*, BURR (219), *Forficula* n. sp.  
 St Helena: *Lepidoptera*, HAMPSON (715), *Hadeninæ* n. sp.

- Galápagos: *Lepidoptera*, *Sericosema* n. sp., WARREN (1572).  
 Liou-Kiou Ids.: *Coleoptera*, BOILEAU (126) *Nigidius* n. sp.  
 Bonin Ids.: *Homoptera*, DISTANT (422), *Diceropyga* n. sp.  
 Hawaiian Ids.: *Hymenoptera*, PERKINS (1154), *Polynema* n. sp.  
*Lepidoptera*, HAMPSON (715), *Hadenina* n. sp. *Diptera*, PERKINS (1153),  
*Pipunculus*, 5 spp. *Orthoptera*, SWEZEY (1458), *Xiphidium* n. sp.  
 Marianne Ids.: *Hemiptera*, SCHOUTEDEN (1340), *Coleotichus* sp. n.  
 Caroline Ids.: *Hymenoptera*, FRIESE (602), *Megachile* sp. n.  
 Louisiade Arch.: *Coleoptera*, ARROW (30), *Rhyparus* sp. n.; LEWIS (954),  
*Platysoma* sp. n.  
 Woodlark Id., S. E. Island: *Coleoptera*, HELLER (736), *Pantorhytes*,  
 2 spp. n. *Lepidoptera*, HAMPSON (717), *Gyrtona* sp. n.; SWINHOE (1461),  
*Pidorus* n. sp.  
 Solomon Ids.: *Lepidoptera*, HAMPSON (716), *Asura*, 3 spp. n.; HAMPSON  
 (717), *Stictoptera* n. sp., *Cacyparis* n. sp.; *Sphingida*, ROTHSCHILD (1304),  
*Macroglossum* sp. n.; *Zethes* sp. n., SWINHOE (1459); SWINHOE (1460),  
*Euchromia*, 3 spp. n.; SWINHOE (1461), *Blenina* n. sp.; WARREN (1569),  
*Thyridida*, *Epiplemidæ*, *Geometridæ*, 10 spp. n.; *Geometridæ*, 18 spp. n.,  
*Epiplema*, 7 spp. n., *Banisia* and *Striglina* sp. n., WARREN (1574).  
*Hemiptera*, BREDDIN (183), *Calliphara* n. sp. *Homoptera*, DISTANT  
 (429), *Diceropyga* n. sp.  
 New Pomerania: *Lepidoptera*, SWINHOE (1460), *Euchromia* sp. n.  
 New Britain: *Coleoptera*, LEWIS (953), *Plæsius* n. sp. New Britain  
 and Lifu: *Hemiptera*, KIRKALDY (856), 20 n. spp.  
 Bismarck Arch.: SZÉPLIGETI (1466), *Iphiaulax* sp. n. *Hemiptera*,  
*Tibicen* n. sp., KUHLGATZ (899). *Homoptera*, RÜBSAAMEN (1315), Galls,  
*Psyllidæ*, *Aphidæ*, *Coccidæ* n. sp. *Pyrgomorphidæ*, BOLÍVAR (130),  
*Desmoptera* sp. n.  
 Fiji Ids.: *Coleoptera*, PIC (1178), *Anthicus* n. sp. *Lepidoptera*,  
 BETHUNE-BAKER (108), *Sphingidæ*, *Hepialidæ*, *Dasychira*, *Argyrothripa*,  
*Geometridæ*, *Locastra* spp. n.; HAMPSON (717), *Barasa* n. sp., *Carea* n. sp.  
 Loyalty Ids.: *Coleoptera*, PIC (1176), *Hylophilus* n. sp.  
 New Caledonia: *Coleoptera*, BOILEAU (126), *Syndesus* n. sp.; FAUVEL  
 (550A). *Orthoptera*, BOLÍVAR (130), *Orthacrina*, 2 spp. n.  
 New Zealand: *Insecta*, HUDSON (792), Mount Holdsworth, list chiefly  
*Lep. Coleoptera*, BROUN (194), *Metaglymma*, 2 spp. n., *Cilibe* n. sp.,  
*Curculion.* Auckland Ids. n. g. *Hymenoptera*, FOREL (590), *Formicidæ*,  
 revised list, 19 spp. *Lepidoptera*, BULLER (217), brief list, 1 novelty;  
 HAMPSON (715), *Hadenina* n. spp.; HAMPSON (716), *Morrisonia*, 2  
 spp. n.; HUDSON (793), *Charocampa celerio*; HUDSON (794), 5 spp. n.;  
 MEYRICK (1041), many spp. n.; PHILPOTT (1167), *Melanchnra*, *Leucania*,  
*Xanthorhoe.* *Diptera*, BROUN (195), *Dacus* n. sp. *Coccidæ*, LEONARDI  
 (936), *Mytilaspis* n. sp.  
 Falkland Ids.: *Diptera*, ENDERLEIN (505), *Limnobiidæ* n. g. *Psocidæ*,  
 ENDERLEIN (507), *Philotarsus* n. sp.  
 Crozet Ids.: *Coleoptera*, ENDERLEIN (503), *Carabidæ*, 2 n. genn.,  
*Trechini.* Crozet Ids. and Kerguelen: *Lepidoptera*, ENDERLEIN (506),  
*Tineinæ* g. n., 2 spp. n.

### 3. PALÆARCTIC REGION.

- (a.) Collective: i.e. papers referring to more than one of  
 the following sub-divisions, c—h:

China, with the exception of Mongolia, is included in "Asia," as is also Japan.

*Coleoptera.* Statistics of Koltze's coll. of palæarctic *Coleoptera*, Deutsche  
 ent. Zeitschr. 1905, pp. 55, 56. Pp. 35–45 Munchen Kol. Zeitschr. iii

give localities for a very large number of species European *Coleoptera*, by numerous authors. BERNHAUER (102), *Staphylinidae*, 18 spp. n. DU BUYSSON (226), Mantchuria, *Agriotes* n. sp. DESBROCHERS (399), *Magdalis*, revision. LAPOUGE (913), North Mongolia, *Carabus*, short list. LUZE (993), *Lathrimæum*, 4 spp. n. LUZE (994), *Acidota*, 3 spp. n. PETRI (1157), *Licus*, table, 4 spp. n. PIC (1181), *Cerambycidae* n. spp. PIC (1173), Persia, *Polyarthron*, *Leptura*, *Dorcadion* sp. n. PIC (1184), *Limnichus*, *Acmaeodera*, *Stenosis*, *Abdera*, *Galerucella* sp. n., *Curculionidae*, 5 spp. n. PIC (1187), numerous localities, various families, 21 spp. n. PIC (1191), Algeria, *Prionolixus* sp. n., W. Asia, *Desimia*, *Rhagonycha*, *Hymenalia*, *Tychius* sp. n. PIC (1195), Greece, Palestine, Turkestan, *Eriotomus*, *Dictyoptera*, *Rhagonycha*, *Anthicus*, *Cyclomias*, *Collinus* sp. n. REITTER (1244), *Tenebrionidae* n. genn., n. spp. REITTER (1245), *Elateridae*, tables, *Athouina*, 36 spp. n. REITTER (1248), *Epicauta*, table. REITTER (1249), 8 spp. n. REITTER (1254), 10 spp. n. REITTER (1256), *Bothynoderes*, 4 spp. n. SCHILSKY (1331), *Bruchidae*, 4 spp. n. WAGNER (1556), S.E. Eur. and Caucasus, *Apion*, 2 spp. n. ZAITZEV (1649), East Siberia and Turkestan, *Hydroporus*, 2 spp. n. ZAITZEV (1650), Russian Empire, *Halplidae* and *Dytiscidae*, localities.

*Hymenoptera*. FRIESE (611), Russian Empire, *Bombus*, 7 spp. n., *Psithyrus* sp. n. KIEFFER (840), *Proctotrypidae*, general work, many n. spp. KOHL (874), Mediterranean and Irkutsk, *Crabro*, 5 spp. n. SZÉPLIGETI (1467), *Ichneumonidae*, 14 spp. n. SZÉPLIGETI (1465), Spain, Hungary, *Ophioninae*, 2 spp. n.

*Lepidoptera*. HAMPSON (715), catalogue of *Hadeninae*, n. spp. PÜNGELER (1221), Centr. Asia, *Pseudohadena*, 2 spp. n., *Sesia*, 2 spp. n., Palestine, *Metopoceras* sp. n. Vladimar Bay, *Rhopalocera*, LANG, pp. 122-124, Entomologist 1905.

*Diptera*. BECKER & BEZZI (90), catalogue vol. iv. HERMANN (740), *Asilidae*, 11 spp. n. Pekin, *Systropus*, see Asia.

*Hemiptera*. HORVÁTH (774), Hungary and Egypt, *Berytidae*, 2 spp. n. HORVÁTH (775), *Ommatidiotus*, 4 spp. n. HORVÁTH (777), *Tingitidae*, 17 spp. n.

*Trichoptera*. ULMER (1517), Centr. Asia and Amurland, 5 spp. n.

*Thysanura*. ESCHERICH (525), Sevastopol, Athens, Egypt, Tunis, Persia, Transcaspien, *Lepismatidae* n. spp.

### (b.) *Europe*, collectively.

*Insecta*. Introduced insects in Europe, their distribution, DICKEL (415).

*Coleoptera*. REITTER (1250), *Leistus*, 3 spp. n. REITTER (1255), Bosnia *Anophthalmus*, Caucasus *Rhinosimus*, Herzegowina *Rhizophagus* sp. n.

*Hymenoptera*. KONOW (883), *Tenthredinidae*, 3 spp. n. MAYR (1017), France and Austria, *Decatoma*, 2 spp. n., Germany, *Perilampus* sp. n. SCHMIEDEKNECHT (1334), *Ichneumonidae*, 40 spp. n.

*Diptera*. KRAMER (888), *Sarcophaga*, 2 spp. n.

*Orthoptera*. Synopsis of *Orth.* of W. Europe, continuation, BURR, Ent. Rec. xvii, pp. 10 etc.

### (c.) *British Islands*.

#### THE FAUNA AS A WHOLE.

*Coleoptera*. *Triplax bicolor*, novelty, BAGNALL (52). *Malachius spinosus*, novelty, CHAMPION, Ent. Mag. 1905, p. 66; *M. spinosus*, novelty corrected, t. c. p. 88 to *M. vulneratus* Ab.; *M. vulneratus* in 1859, WATERHOUSE, p. 234, Ent. Mag. 1905. *Oxyptoda sericea*, novelty,



- DONISTHORPE, Ent. Rec. xvii, 67. *Dinarda hagense*, novelty, DONISTHORPE, p. 181, Ent. Rec. xvii. *Hadrotoma nigripes*, novelty, ELLIS (490). *Dacne fowleri* sp. n., *Læmophlæus monilis*, *Melanophthalma distinguenda*, novelties, JOY (824). *Quedius variabilis*, novelty, NEWBERY (1098). *Criocephalus rusticus*, novelty, D. SHARP (1385). *Tetropium*, 2 spp. n., D. SHARP (1386). *Tetropium* [*crawshayi*] at Leighton Buzzard, CRAWSHAY, p. 223, Ent. Mag. 1905. *Amara anthobia*, novelty, W. E. SHARP (1389), and CRAWSHAY, Ent. Mag. 1905, pp. 159-161. *Silvanus mercator*, novelty, TOMLIN, p. 37, Ent. Mag. 1905; NEWBERY, t. c. p. 69. *Col.* of the Eastern Counties, table, MORLEY (1068). *Omophlus betula* imported, JANSON, p. xxxi, P. ent. Soc. London 1905. Retrospect of a Coleopterist for 1904, Ent. Rec. xvii, pp. 29-34. *Coleoptera* in 1905, DONISTHORPE, Ent. Rec. xvii, pp. 291-293. Scrutiny of doubtful forms, NEWBERY, pp. 18-20, Ent. Rec. xvii; BEARE & DONISTHORPE, t. c. pp. 20-22, & 42-45. Myrmecophilous *Col.* in 1905, DONISTHORPE, p. 271, Ent. Rec. xvii. *Triplax*, tabulated, BEARE, pp. 176-178, Ent. Rec. 1905. *Phymatodes lividus* at Reading, BOUSKELL, p. 295, Ent. Rec. xvii. *Neoclytus erythrocephalus* in Lancashire, W. E. SHARP, p. 92, Ent. Mag. 1905. *Orchestes sparsus*, as British, NEWBERY, p. 116, Ent. Mag. 1905. *Anisotoma oblonga*, in Britain, CHAMPION, p. 198, Ent. Mag. 1905. *Baris T-album* and *pilistriata* ? two species, CHAMPION, p. 224, Ent. Mag. 1905. *Elater nigerrimus* vice *ethiops*, CHAMPION, p. 210, Ent. Mag. 1905.
- Hymenoptera.** KIEFFER (840), *Proctotrypidæ* numerous n. spp. *Tenthredinidæ*, 3 novelties, MORICE (1065). *Ichneumonidæ*, novelties, n. spp., MORLEY (1067).
- Lepidoptera.** *Agdistidæ* and *Alucitidæ*, list of British, TUTT (1512). Practical hints for the field, TUTT (1514). *Rhopalocera*, General work, TUTT (1510). General work, *Tortricidæ*, BARRETT (78). *Tortrix pronubana*, novelty, FLETCHER (579). *Argyresthia illuminatella*, novelty, MEYRICK, p. 226, Ent. Mag. 1905. *Arctornis L-nigrum* at Chelmsford, PROUT, p. 73, Ent. Rec. xvii.
- Diptera.** VERRALI'S tables continued, novelties, n. spp., Ent. Mag. 1905, pp. 50 etc. Retrospect of a Dipterist for 1904, COLLIN, pp. 55, 56, Ent. Rec. xvii. *Erigone*, two novelties, AUSTEN (47A). *Culex waterhousei* n. sp., WATERHOUSE (1591). *Callimya elegantula*, *Agathomyia boreella*, *Homalomyia difficilis*, *Palloptera latabilis*, *Thryptocera frontalis*, novelties, WOOD, Ent. Mag. xli, p. 5. *Tachinidæ*, 9 novelties, and critical notes, WAINWRIGHT (1561). *Micropalpus* and other *Tachinidæ*, WAINWRIGHT, pp. 199-207, Ent. Mag. 1905. *Atrichosema aceris* n. sp., KIEFFER (844). *Hammerschmidia ferruginea*, novelty, YERBURY, p. xlvii, P. ent. Soc. London 1905. *Anthomyia signata* in Scotland, SPEISER, p. 464, Zeitschr. Insbiol. i. GRIMSHAW, *Hydrotaea* (694). *Ulidia nigripennis*, novelty, WESCHÉ, p. 227, Ent. Mag. 1905.
- Aphaniptera.** ROTHSCHILD, *Ceratophyllus* n. sp. (1303). *Pulex cheopis*, novelty, ROTHSCHILD & GILES, p. 139, Ent. Mag. 1905.
- Hemiptera.** British waterbugs, contd., KIRKALDY, pp. 173—, pl. ii, Entomologist 1905. *Siphonophora* n. sp., THEOBALD (1485).
- Odonata.** Dragonfly season of 1904, LUCAS, pp. 178, 179, Entomologist 1905.
- Orthoptera.** List of British *Orthoptera*, LUCAS, pp. 21, 22, P. South London Ent. Soc. 1905. *Orthoptera* in 1904, LUCAS, pp. 266-268, Entomologist 1905. *Leucophaea surinamensis*, in Essex, Liverpool etc., HORRELL, p. 92, Entomologist 1905: SOPP, t. c. p. 111. *Phaneroptera quadripunctata* near Chester, GAHAN, p. li, P. ent. Soc. London 1905. *Acridium egyptium*, LATTER, p. 47, Ent. Rec. xvii.

## LOCAL LISTS.

The arrangement adopted in each Order is roughly, Channel Islands, England from South to North and from West to East, Wales, Scotland, Ireland.

**Insecta.** Guernsey and Alderney, LUFF, pp. 318-322, Rep. Guernsey Soc. 1904. Herm, LUFF (1987), Jethon, LUFF (1988). Severn Valley, *Col.* and *Lep.*, POTTS, pp. 39, 40, Rec. Caradoc Club, No. xiv. Marlborough, Catalogue of the district *Hymen.*, *Hemipt.*, *Neur.*, *Orthopt.*, Rep. Marlborough Soc. liii, pp. 86-98. Marlborough, MEYRICK, novelties etc. most of the Orders, Rep. Marlborough Soc. liii, pp. 67-81. Staffordshire, novelties, BOSTOCK, pp. 69-71, Rep. North Staffordsh. Club xxxix. EVANS, Upper Elf loch, Edinburgh (530). South Kerry, BOUSKELL, Tr. Leicester Soc. ix, pp. 39-47. Rosses Point, Sligo, JOHNSON, pp. 252-255, Irish Natural. 1905.

**Coleoptera.** Sidmouth, *Strangalia aurulenta*, ATTLEE, p. 69, Ent. Mag. 1905. Isle of Wight, DONISTHORPE, pp. 68-70, Ent. Rec. xvii. New Forest, short list, ANDREWS, pp. 71, 72, Ent. Mag. 1905. New Forest, *Dytiscidae*, W. E. SHARP, p. 161, Entomologist 1905. New Forest, *Elater* spp. etc., WHITAKER, p. 235, Ent. Mag. 1905. New Forest, *Elater sanguinolentus*, WOOD, p. 280, Ent. Mag. 1905. New Forest, *Lymexylon*, CHAMPION, p. 179, Ent. Mag. 1905. New Forest, list, *Tropideres sepicola*, WEST, Ent. Rec. xvii, p. 68. New Forest, *Orchestes sparsus*, DONISTHORPE, Ent. Mag. 1905, p. 20. Sussex, *Quedius nigrocaeruleus*, DOLLMAN, Ent. Rec. xvii, p. 17. Hastings, BOUSKELL, pp. 82, 83, Tr. Leicester Soc. ix. Ditchling, DOLLMAN, Ent. Rec. xvii, p. 183. Sheppey, *Laemosthenes* etc., WALKER, p. 234, Ent. Mag. 1905. Chatham, *Amara anthobia*, BEARE, p. 117, Ent. Mag. 1905. Woolwich, *Gnorimus nobilis*, BEDWELL, p. 159, Ent. Mag. 1905. Surrey, *Pselaphus dresdensis*, BRYANT, p. 159, Ent. Mag. 1905. S. W. Surrey, *Carabus intricatus* etc., CROFT, p. 93, Entomologist 1905. S. W. Surrey, CROFT, p. 26, Entomologist 1905. Woking, *Acrognathus*, CHAMPION, p. 161, Ent. Mag. 1905. Esher, *Tetropium*, BRYANT, p. 69, Ent. Mag. 1905. Ealing, *Deleaster*, DOLLMAN, p. 156, Ent. Rec. xvii. Enfield, *Hylotrupes*, POOL, p. 133, Ent. Rec. xvii. Enfield, *Symbiotes*, DONISTHORPE, p. 18, Ent. Rec. xvii. Hainhault Forest, *Gnorimus nobilis*, COLE, p. 73, Essex Natural. xiv. Hertfordshire novelties, GIBBS, p. 137, Entomologist 1905. Hertfordshire, *Col.* new to the fauna, GIBBS, p. 156, Tr. Hertfordshire Soc. xii:—*Col.* observed in 1904, ELLIMAN, t. c. p. 168. Tring, *Apion annulipes* etc., ELLIMAN, p. 20, Ent. Mag. 1905. Leighton Buzzard, *Harpalus discoideus*, *Metoecus paradoxus*, CRAWSHAY, pp. 45, 46, Ent. Mag. 1905. Berkshire, JOY, p. 209, Ent. Mag. 1905. Reading, *H. honestus*, HOLLAND, p. 257, Ent. Mag. 1905. Streatley, Berks, *Rhizotropus ochraceus*, JOY, p. 16, Ent. Mag. 1905. Oxford, WALKER, pp. 180-183, Ent. Mag. 1905. Oxford, *A. astragali*, HOLLAND, p. 257, Ent. Mag. 1905. Oxford, *Medon castaneus*, WALKER, p. 138, Ent. Mag. 1905. Warwick, Victoria history, ELLIS, cf. Ent. Rec. xvii, pp. 165, 166. Upton-on-Severn, *Ceuth. viduatus*, TOMLIN, p. 235, Ent. Mag. 1905. Herefordshire, *Gnorimus nobilis*, TOMLIN, p. 235, Ent. Mag. 1905. Colchester, *Tropideres sepicola*, HARWOOD, p. 262, Ent. Mag. 1905. Market Bosworth, *Tetropium* etc., DONISTHORPE, p. 18, Ent. Rec. xvii. Leicester, BARROW, pp. 81, 82, Tr. Leicester Soc. ix. Suffolk, *Apion brunniipes*, BEDWELL, p. 256, Ent. Mag. 1905. Norfolk: on *Bagous lutosus*, Gyll., in Norfolk with some collateral matter, EDWARDS, pp. 102-106, and MORLEY, pp. 106, 107, Tr. Norfolk Soc. viii. Norfolk Broads, aquatic *Col.* collections, BROWNE (196). Sherwood, *Q. xanthopus*, TAYLOR, p. 80, Ent. Mag. 1905. Peterborough, *Osphyra*, CRUTTWELL, p. 209, Ent. Mag. 1905. Skegness, Lincs., *Antisotoma furva*, MORSE, p. 93, Ent. Mag. 1905. North Staffordshire, preliminary list,

JAHN, pp. 73-90, Rep. North Staffordsh. Club xxxix. Southport, *Amara anthobia*, TAYLOR, p. 257, Ent. Mag. 1905. Isle of Man, *Aphodius* list, BAILEY, pp. 90, 91, Ent. Mag. 1905. Isle of Man, *Meligethes obscurus*, BAILEY, p. 21, Ent. Mag. 1905. Isle of Man, *Rhopalomesites*, BAILEY, pp. 207-209, Ent. Mag. 1905. Isle of Man, novelties, TOMLIN, pp. 251-254, Ent. Mag. 1905. Isle of Man, TOMLIN, pp. 45-49, Rep. 29, Lancash. Chesh. ent. Soc. Teesdale, *Leptusa analis* etc., BAGNALL, p. 258, Ent. Mag. 1095. Derwent Valley, *Nitidulida*, BAGNALL, p. 162, Ent. Mag. 1905. Sunderland, *Chrysom. hobsoni*, BAGNALL, p. 70, Ent. Rec. xvii. Durham, *Lathridius angulatus*, BAGNALL, p. 157, Ent. Rec. xvii. Durham, *Rhizophagus cœruleipennis*, BAGNALL, p. 156, Ent. Rec. xvii. Northumberland and Durham additions, BAGNALL (51). Cumberland, novelties, DAY, pp. 16, 17, Ent. Rec. xvii. Penrith, *Phytobius muricatus*, DAY, p. 20, Ent. Mag. 1905. N. Wales, *Atemeles* and *Claviger*, TOMLIN, p. 20, Ent. Mag. 1905. Peebles, BLACK, Ent. Rec. xvii, p. 70. Rannoch, *Trichius*, BEARE, pp. 18, 19, Ent. Mag. 1905. Argyllshire, *Cionus tuberculosus*, GRIMSHAW, Ann. Scott. Nat. Hist. 1905, p. 56. Edinburgh, *Grammoptera*, PATTERSON, Ann. Scott. Nat. Hist. 1905, p. 185. Forres, *Gyrophæna pulchella*, CHITTY, p. 92, Ent. Mag. 1905. Sutherland and Inverness-shires, CRUTWELL, pp. 209, 210, Ent. Mag. 1905. Flannan islds. (W. of Lewis), BEARE, p. 19, Ent. Mag. 1905. Flannan islds., BEARE (87). Lough Neagh and Portrush, list, BEARE, pp. 30, 31, Irish Natural. 1905.

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*Collembola.* AXELSON (49), Finland *Collembola*, 8 spp. n.

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(g.) *Southern Europe and Mediterranean Basin* [see also (a.), (b.) and (f.) and for Caucasus and Transcaucasus (h.)].

*Insecta*. CHAMPION & CHAPMAN (300), Spain, *Col.*, *Lep.*, *Hemipt.*, lists. NAVÁS (1085), Spain, *Machilis*, *Lepismina*, *Chrysopa*, *Rhithrogena* n. sp. Annuar. Ac. Porto 1898-9, pp. 122-140, Catalogue of specimens in Coll. at Porto, *Hemiptera*, *Hymenoptera*: op. cit. 1899-1900, *Orthoptera* and various, pp. 107-122. FRIEDERICH (599), Riviera in spring. SILVESTRI (1400), Elba and Pianosa, *Lepism.*, *Leucotermes*, *Embia*. PANDIANI (1134), Val Aosta, 76 novelties.

*Coleoptera*. *Dendarus serripes*, *Olocrates planiusculus*, *Pachychile pedinoides*, *punctata*, *glabra*, are not European but N. African; von HEYDEN, p. 154, Wien. ent. Zeit. xxiv. REITTER (1246), Spain, *Ablattaria* and *Trichobyrrhulus* sp. n. Escalera (523), Spain, *Asida*, revision, 17 spp. n. NOBRE (1103), Catalogue of Coll. at Porto. BEDEL (91), N. Africa, novelties, *Bradybatus* n. sp. DU BUYSSON (228), N. Africa, *Elateridae*, 3 spp. n. FAUVEL (549), N. Africa, *Staphylinidae*, 3 spp. n. BEDEL (92), Morocco, *Crypticus*, *Omophilus* sp. n. BOURGEOIS (156), Morocco, *Lycus* n. sp. ABEILLE (3), Bucharest, La Granja, Algeria, *Buprestidae*, 3 spp. n. BOURGEOIS (154), Algeria, *Rhagonycha* n. sp. BUYSSON (227), Algeria, *Silesis* n. sp. CHOBOUT (310), Algeria, *Tetrolopsis* n. sp. DEVILLE (410), Algeria, *Hydrena*, 3 spp. n. MOLLANDIN (1056), Algeria, *Copris* n. sp. PEYERIMHOFF (1160), Algeria, *Acidota*, *Cylindropsis* sp. n. PEYERIMHOFF (1161), Algeria, *Tychus*, *Catops* n. sp. PIC (1174), Algeria, *Dasycerus*, 2 spp. n. PIC (1178), Algeria, *Anthicus* sp. n. PIC (1189), Algeria, 12 spp. n., *Hydrena*, *Elmis*, *Malacoderm.*, *Curc.*, *Chrysom.* PIC (1190), Algeria, *Cebrio*, *Attalus*, *Sibinia*, *Cathormiocerus*, *Trachyphlæus* n. sp. PIC, Algeria, 3 spp., Akbès, *Amorphocephalus*, Bull. Soc. ent. France 1905, p. 280. DE CHAIGNON, Tunis brief list, Bull. Soc. Autun xvii, pp. 207-209. MjöBERG (1048), Egypt and White Nile, *Curabidae*, 6 spp. n. White Nile and Egypt, see Jägerskiöld exp. No. 10a, FAUVEL, *Staphylinidae*, p. 5, GROUVELLE, *Colydiidae*, *Cucujidae*, p. 5, BRENSKE etc., *Scarabæidae*, p. 6, *Buprestidae*, KERREMANS, p. 8, *Elateridae*, FLEUTIAUX, p. 9, SOHENKLING, *Cleridae*, p. 11, *Bostrychidae*, LESNE, p. 11, *Cantharidae*, AURIVILLIUS, p. 15, *Cerambycidae*, AURIVILLIUS, p. 17. MÜLLER (1078), Istria, 4 subspp. n. cavernicolous *Col.* BERTOLINI, Catalogo dei *Coleotteri* d'Italia, Siena, 1899-1904, 11,856 forms; cf. Riv. Col. ital. ii, pp. 104. CRAMPI (320), Rome, suppl. to Catalogue. FIORI (563), Rome (*Xenonychus rotundatus* n. sp.), but



- = *Saprinus conjungens*. FIORI (564), Italy, *Bembidion*, *Pterostichus*, *Amara*, *Acalles* n. sp. FIORI (565), Italy, *Haliphus* n. sp. FIORI (567), Italy, *Alophus* n. sp. FIORI (568), Italy, *Psilothrix* n. sp. FIORI (569), Bologna, *Cybocephalus*, *Limonium* sp. n. FIORI (570), Italy, *Malthodes* n. sp. FLACH (574), Calabria, *Trogloorhynchus* sp. n. HOLDHAUS & WAGNER (754), Tuscany, *Bythinus*, *Pselaphus*, *Cephennium*, *Apion* n. spp. LUIGIONI (990), Italy, additions to Catalogue. PIC, Informazioni bibliografiche e note complementari su diversi *Coleotteri* d'Italia, Riv. Col. ital. i, pp. 50-52. PORTA (1212), Italy, *Abax* and *Percus*, revision. PORTA (1213), Italy, *Atheta* n. sp. PORTA (1214), *Staphylinidæ* of Italy, pt. 2. RAGUSA, Sicily, novelties, Natural. Sicil. xvii, pp. 288-292, and xviii, p. 24, pp. 69-72. VITALE (1554), Sicily, *Phyllobius*, *Microlarinus*, *Mylacus*, *Cathormiocerus*, *Larinus* n. sp. VITALE, Sicily, *Coccinellidæ*, Natural. Sicil. xvii, pp. 193-200, 219-229. VITALE, Messina, Natural. Sicil. xvii, pp. 129, 165, and xviii, pp. 53-69, 73-86. VITALE, Messina, list continued, Boll. Natural. xxv, pp. 38-41, 74-77, 81, 82, 106-108. LE COMTE (932), Malta, *Cetonia* n. sp. REITTER (1257), Cyprus, Eubœa, *Reichenbachia*, 2 spp. n. REITTER (1247), Cyprus, *Stenichnus* n. sp. Island of Pelagosa, NETUSCHILL, pp. lxxxviii-xciii Mt. Ver. Steiermark xli. FORMÁNEK (594), Dalmatia, *Ptochus* sp. n. PIC (1190), Morea, *Anaglyptus* sp. n. PIC (1191), Morea, *Danacœa* n. sp. CARRET (282), Syria, *Gynandromorphus* subg. n. PIC (1192), Syria, *Ludius*, Morea, *Ludius*, Crete, *Drilus*, Portugal, *Ptinus* sp. n. PIC (1194), Taurus, *Phyllocerus* n. sp. REITTER (1253), Akkès, *Pilemia* sp. n. *Hymenoptera*. CAMERON (254), Gibraltar, *Philomides* sp. n. DUSMET (468), Revision of *Apidæ* of Spain, pt. 1, *Melecta*, *Crocisa*, *Epeolus*. FRIESE (607), Andalusia, *Panurgus* n. sp. GARCÍA (642), Escorial, *Mutilla*, 2 n. spp. KONOW (886), Spain, *Amasis* n. sp. ALFKEN (18), N. Med. region, *Prosopis* n. sp. GARCÍA MERCET (641), Tangier, *Gorytes*, *Bembex* sp. n. GARCÍA MERCET (640), Tangier, *Bembex*, 2 spp. n. SAUNDERS (1321), Algeria, *Diploptera*, 10 spp. n. SCHULZ (1359), Algeria, Tunis, *Cerceris*, *Pterochilus*, *Philanthus* spp. n. FOREL (591), Tunis, *Formicidæ*, 2 spp. n. FERTON (558), Corsica, *Apidæ*, 2 spp. n., *Tachysphex* sp. n. ZAVATTARI (1668), Elba and Pianosa, list. ANDRÉ (24), Egypt, *Mutilla*, *Apterogyna* n. sp. ASHMEAD (35), Portici, *Pezomachus* n. sp. Italy, *Apidæ*, list, PAGANETTI-HUMMLER, pp. 13-16, Zeitschr. Insbiol. i. COBELLI, Verh. Ges. Wien 1905, pp. 596-599, Trentino 68 novelties. ALFKEN (21), Dalmatia, *Prosopis* n. sp. GRAEFFE (685), Trieste and Morea, *Cynips*, 2 spp. n. *Lepidoptera*. CHAPMAN (302), N. Spain, *Erebia* n. sp. CHRÉTIEN (318), Spain, *Coleophora* n. sp. VÁZQUEZ (1535), Spain, *Heliophobus*, *Boarmia*, *Enconista*, *Cybolomia* n. sp. HIRSCHKE (751), Murcia, *Amphipyra* n. sp. AUSTAUT (44), Atlas, *Satyryus* n. sp. Mogador, *Syntomis alicia*, VAUCHER, p. 13, Feuille Natural. xxxvi. BLACHIER (122), Marocco, *Chrysophanus*, *Cænonympha*, *Zygæna*, *Calophasia* sp. n. MEADE-WALDO (1022), Marocco, journey and list. Barcelona, Vernet, *Rhopalocera*, STANDEN, pp. 250-254, 277-280, 299-301. CHRÉTIEN (316), S. France, n. g. *Tineidæ*. S. France, Corsica, *Rhopalocera*, ROSA, pp. 49-52, Entomologist 1905. HAMPSON (716), Algeria, *Phryganopsis*, *Timora* sp. n. PÜNGELER (1223), *Sesia* n. sp. THIERRY-MIEG (1493), Algeria, *Tephрина* n. sp. TURATI (1508), Algeria, *Parascotia* n. sp. WALSINGHAM (1564), Algeria, *Tineidæ* spp. n. BLACHIER (121), Tunis, *Calophasia*, *Cleophana* sp. n. COSTANTINI, Modena and Reggio, novelties, Riv. ital. Sci. Nat. xxv, pp. 15, 61. KRÜGER, Sicily, novelties and *Euchloë damone*, Natural. Sicil. xviii, p. 49. ROSTAGNO (1297), Rome, *Pieris ergane*. ROSTAGNO (1298), Italy, General work, introduction. STEFANELLI, p. 184, Bull. Soc.

ent. Ital. xxxvi, Italy, novelties. TURATI (1508), Italy, *Acidalia*, 2 spp. n. VÉRITY (1540), Florence, *Orgyia* sp. n. VÉRITY (1541), Lucca, annotated list. Island of Capri, suppl. list, BROWNE, p. 82, Entomologist 1905. RAGUSA (1231), Sicily, Catalogue. KRONE (896), Fiume, *Stigmatophora* n. sp. FLETCHER, Malta, list completed, Entomologist 1905, pp. 18-20. EGYPT, GRAVES, pp. 147-150, Ent. Rec. xvii. BEYROUT, GRAVES, pp. 56, 57, 121-124, Ent. Rec. xvii. HABICH (711), Haifa, *Pseudophia* sp. n.

*Diptera.* KIEFFER (844), gall-dwelling Cecids, n. gen., n. spp. RICARDO (1266), N. Africa etc., *Tabanidae*, 1 sp. n. BILLET (118), Algeria, *Anopheles chaudoyei*, distribution. SERGENT (1382), Algeria, *Grabhamia* n. sp. THEOBALD (1477), Tunis, *Culicidae*, 4 spp. n. BEZZI (113), S. France, Italy, S. Hungary, *Clinocera* sp. n. NOÉ (1105), Rome, *Chironomidae* n. g. KIEFFER & TROTTER (849), Avellino, *Cecidomy.*, 2 spp. n. TROTTER (1503), Italy, *Janetiella* sp. n. SPROBL (1455), Balkan penins., *Tipulidae*, *Strat.*, *Bombyl.*, *Emp.*, *Asil.*, *Scenop.*, *Lept.*, *Syrph.*, *Conop.*, *Tachin.*, *Acalyptr.* spp. n.

*Hemiptera.* HORVÁTH (779), Spain, *Heter.* and *Homopt.*, 7 spp. n. REUTER (300), Spain, 2 spp. n. DEL GUERCIO (392), Firenze, *Siphia* n. sp.

*Coccidae.* MARCHAL (1005), Algeria, 3 spp. n. LINDINGER (966), Corsica, *Leucaspis* n. sp.

*Trichoptera.* ULMER (1518), Algeria, *Tricnoides* n. sp. *Neuroptera* s. l. Calatrava, list, NAVÁS, p. 502, Bol. Soc. espan. v. S. France and Spain, LUCAS, pp. 296, 297, Entomologist 1905.

*Psocidae.* RIBAGA (1264), Florence, *Stenotroctes* n. sp. ENDERLEIN (497), N. Africa, *Lepinotus* n. sp., *Pachytroctes* n. g.

*Embiidae.* RIMSKY-KORSAKOW (1267), Villefranche-sur-mer, *Embia* sp. n.

*Odonata.* MORTON (1073), Algeria, *Ischnura* n. sp.

*Orthoptera.* Valladolid, list, GUTIÉRREZ, Bol. Soc. espan. v, pp. 140-143. BOLÍVAR (132), Tangier, *Racocleis* n. sp. BOLÍVAR (133), Mogador, *Gryllomorpha* n. sp. WERNER (1615), Egypt and Tunis, *Eremiaphila*, 3 spp. n. MEI (1023), Friuli, list. PAOLI, Rome, *Acridiidae*, 3 additions, Boll. Soc. zool. Ital. xiv, pp. 283, 284. KRAUSS (892), Montenegro, list, *Forfic.* sp. n.

*Thysanura.* *Japyx*, Madrid, NAVÁS, p. 483, Bol. Soc. espan. v. SILVESTRI (1397), Molfetta, n. g. *Campodeidae.*

*Collembola.* CARL & LEBEDINSKY (277), Crimea, n. g.

(h.) *Caucasus* and *West and Central Asia*, including *Arabia* [see also (a.) and (b.)]: for Tibet see 6, for Mediterranean Asia see (g.).

*Coleoptera.* FAIRMAIRE (536), Aresch, *Prionus* n. sp. REITTER (1251), Araxes Valley, *Proteinus* sp. n. CARRET (283), Mesopotamia, *Bembidium* n. sp. MAINDRON (1001), Mesopotamia, Arabia, *Glycia* sp. n. PIC (1179), Bagdad, *Adoretus* n. sp. KERREMANS (835), Persia, *Julodis* n. sp. NONFRIED (1108), Persian Kurdistan, *Dorcus* n. sp. PIC (1193), W. Asia, *Anoxia*, *Rhagonycha*, *Ctenopus*, *Strophomorpha* and n. g. near *Mylacus* n. sp. REITTER (1252), Transcaspian, *Dromius* sp. n. PIC (1170), Transcaspian, *Anthicus* n. sp. REITTER (1246), Transcaspian, *Throscus*, *Gonocephalum*, *Agapanthia*, *Stylosomus* sp. n. SUMAKOW, Transcaspian region, *Pinophilus* and *Mesostenus*, Wien. ent. Zeit. xxiv, p. 28. PIC (1190), Arabia, *Adoretus* n. sp., Tokat, *Dorcadion* sp. n. CAMERON (237), Perim, *Ocladius* n. sp. FAUVEL (546), Perim, *Staphylinidae* n. sp.

- Hymenoptera*. KONOW (886), Asia Minor, *Amasis* n. sp. ZAVATTARI (1669), Syria, list. KONOW (884), Turkestan, Teheran, *Tenthredinidæ*, 3 spp. n. ASHMEAD (38), Russian Turkestan, *Mymaridæ*, 2 spp. n. KOHL (877), Socotra and S. Arabia, summary of collection.
- Lepidoptera*. DZIURZYŃSKI (486), Armenia, *Zygæna* sp. n. DZIURZYŃSKI (487), Caucasus, *Zygæna* n. sp. PÜNGELER (1222), Aksu, *Mamestra* n. sp.
- Diptera*. SPEISER (1437), Red Sea, *Pseudofersia* sp. n. PATTON (1140), Aden, *Culicidæ*, 5 spp. n.
- Hemiptera*. DISTANT (427), Aden, n. g. *Cicadidæ*. DISTANT (426), Socotra, *Cicadidæ* n. sp.
- Coccidæ*. LINDINGER (966), Persia, *Leucaspis* n. sp.
- Orthoptera*. KUTHY (908), Centr. Asia, *Acrididæ*, 4 spp. n. BURR (219), Sokotra, *Forficulidæ*, 2 spp. n.

4. AFRICA (TROPICAL & SOUTH). For North Africa see 3 (g.): for Comoro and Aldabra Ids. see 5. Socotra, see 3 (h).

- Insecta*. SJÖSTEDT (1403), Cameroons, list of insects found, pp. 22-86. AUSTEN (45), Uganda, short list.
- Coleoptera*. AURIVILLIUS (41), White Nile and Khartum, *Bagous* and *Baris* sp. n. BERNHAUER (103), *Bledius* n. sp. BOURGEOIS (150), Spanish Guinea, *Malacodermidæ*, 6 spp. n. BRAEM (170), Congo, *Fornasinius* n. sp. CLAVAREAU (322), Congo, *Megalopides*, 2 spp. n. DISTANT (421), Natal, *Cerambycidæ*, 3 spp. n. ESCALERA (524), Rio de Oro, *Eulipus* n. sp. FAUVEL (546), *Staphylinidæ* spp. n. FAUVEL (550), *Staphylinidæ*, 10 spp. n. FAUVEL, Rev. Ent. franc. 1905, p. 148, Erythraea, *Staphylinidæ*, short list. GEBIEN (646), White Nile, *Adesmia* n. sp. GESTRO (649), Erythraea, *Hispidæ* sp. n. GORHAM (676), S. Africa, *Cleridæ*, 4 spp. n., *Melyridæ*, 6 spp. n., *Ediarthrus* sp. n. GROUVELLE (703), W. Africa, *Cautomus* n. sp. HAGEDORN (714), E. Africa, *Scolyto-platypus* sp. n. HARTMANN (726), *Niphades*, 2 spp. n. HARTMANN (727), W. Africa, *Megarhinus* n. sp. HEATH (730), W. Africa, *Cerambycidæ*, 3 spp. n. HEATH (731), Angola, *Cicindelidæ*, *Cerambycidæ* sp. n. HINTZ (750), *Cleridæ*, 17 spp. n. HINTZ, Fernando Po, *Cleridæ*, short list, Deutsche ent. Zeitschr. 1905, p. 314. HORN (764), E. Africa, *Cicindela*, 2 spp. n. HORN (766), Cameroons, *Cicindelidæ*, short list. HORN (771), E. Africa, *Odontochila* and *Cicindela* sp. n. KERREMANS (835), *Buprestidæ*, 5 spp. n. KOLBE (879), *Dynastidæ* n. genn., 6 n. spp. LESNE (940), *Bostrychidæ*, 3 spp. n. LESNE (945), Spanish Guinea, *Bostrychidæ*, annotated list. LÉVEILLÉ (948), *Trogositidæ*, 3 spp. n. LEWIS (952), Trop. Africa, *Histeridæ*, 3 spp. n. LEWIS (953), Angola, *Macrolister* n. sp. LEWIS (954), Abyssinia, *Paratropus* n. sp. MAINDRON (1001), Erythraea, *Carabidæ*, 4 spp. n. MARSHALL (1010), S. Africa, *Cossonus*, 6 spp. n. MOSER (1076), Africa trop., *Cetonidæ*, 4 spp. n. OBST (1114), E. Africa, *Buprestidæ*, 4 spp. n. OHAUS (1119), Omdurman, *Adoretus* n. sp. OLIVIER (1121), White Nile and Abyssinia, *Luciola* n. sp. OLIVIER (1123), Pretoria and Gaboon, *Luciola*, 2 spp. n. D'ORBIGNY (1124), *Onthophagus*, many spp. n. PIC (1172), *Formicomus*, 2 spp. n. PIC (1176), *Hylophilus*, 3 spp. n. PIC (1180), E. Africa, *Zygia* n. sp. PIC (1183), Timbuctoo, *Schizonycha* n. sp. PIC (1187), Obock, *Zygia* n. sp. PIC (1196), Spanish Guinea, *Nylophilidæ*, 10 spp. n. RÉGIMBART (1234), Erythraea, *Dytiscidæ*, *Hydrophilidæ* spp. n. REITTER (1244), *Opatrini* spp. n. RITSEMA (1274), Cameroons, *Helota* n. sp.; Africa, *Helota*, 2 spp. n., id. (1276). ROUSSEAU (1313), Africa trop., *Dyschirius*, *Atractonota*, *Eudema* n. sp. SCHAUFUSS (1328), *Scolytidæ*, 5 spp. n. SCHULZ (1359), Zanzibar,

- Eumenes*, W. Africa, *Pompilus* sp. n. SCHWARZ (1370), *Elateride*, 18 spp. n. SPAETH (1430), *Cassididae*, 8 spp. n. WASMANN (1585), Cameroons; termitophilous *Staph.* n. g. WATERHOUSE (1589), E. Africa, *Lucanidae* sp. n., *Cetoniidae*, 2 spp. n. WEISE (1596), White Nile, *Clytra* n. sp. WEISE (1597), *Chrysomelidae* and *Coccinellidae*, 20 spp. n. WEISE (1598), Yola and Cameroons, *Chrysomelidae*, 3 spp. n. WEISE (1603), Erythrea, *Exochomus* sp. n. WEISE (1604), Natal, *Chilocorus* n. sp. WEISE (1612), Rhodesia, *Chrysomelidae*, 4 spp. n., *Solanophila* sp. n. ZANG (1667), E. Africa, *Didymus* n. sp. White Nile, see also 3 (g.) under Jagerskiöld exp.
- Hymenoptera*. ALFKEN (21), Abyssinia, *Prosopis* n. sp. ALFKEN (23), Cape Colony, *Prosopis* n. sp. ANDRÉ (24), *Mutilla*, 3 spp. n. ANDRÉ (27), Transvaal, *Mutilla*, 2 spp. n. BRAUNS (173), S. Africa, *Masaridae*, 7 spp. n. BRAUNS (174), Cape Colony, *Fidelia* n. sp. BRAUNS (175), Cape Colony, *Serapis* n. sp. BUYSSON (232), Congo, *Polistes*, 2 spp. n. CAMERON (239), Cape Town, *Cynipidae* subfam. n. CAMERON (244), Transvaal, *Odynerus*, *Tachytes* sp. n. CAMERON (246), Natal, *Pseudagenia* sp. n. CAMERON (247), Cape Colony, *Gasteruption* sp. n. CAMERON (248), Cape, *Hemitelini* n. g. CAMERON (249), Cape n. g. *Braconidae*. CAMERON (255), S. Africa, *Chalcididae*, 3 spp. n. CAMERON (256), Cape Colony, *Chirotica* n. sp. CAMERON (258), S. Africa, *Ichneumonidae*, 6 spp. n., *Phaenocarpa* sp. n. CAMERON (259), Cape Colony, *Eurytomini*, 2 spp. n. CAMERON (260), Natal, n. g. *Joppini*. CAMERON (261), S. Africa, *Apidae*, *Diploptera*, *Fossoria*, *Ichneum.*, *Bracon.*, *Evan.*, *Proctotryp.*, 79 spp. n. CAMERON (262), Cape Colony, *Fossoria*, 6 spp. n., *Crocisa* sp. n., *Ichneumonidae*, 4 spp. n., *Chalcididae*, 5 spp. n. CAMERON (263), Cape Colony, *Odynerus* 2 spp. n., *Fossoria*, 10 spp. n., *Bethylinae* n. g., *Iphiaulax* n. sp., *Ichneumonidae*, 7 spp. n. CAMERON (264), Cape Colony, *Halictus* and *Sphecodes*, 5 spp. n., *Odynerus*, 3 spp. n., *Fossoria*, 8 spp. n., *Ichneumonidae*, 2 spp. n., *Eupelmini* n. g. EMERY (493), *Formicidae*, 6 spp. n. EMERY (495), Cameroons, *Dorylus*, 2 spp. n. ENDERLEIN (498), Mombasa and S. Africa, *Gastrotheca*, 2 spp. n. ENDERLEIN (500), W. Africa, *Stephanidae* sp. n. ENDERLEIN (502), E. Africa, *Evania* sp. n. ENDERLEIN (510), Africa, *Braconidae* n. g., 6 spp. n. FOREL (586), South Angola, *Formicidae*, 8 spp. n. FOREL (591), Congo, n. g. near *Tapinoma*. FOREL (592), p. 13, Natal, *Strumigenys* n. sp. FRIESE (600), *Apidae* spp. n. FRIESE (603), *Tetralonia*, 8 spp. n. FRIESE & BRAUNS (604), *Anthidium*, 8 spp. n. FRIESE (606), *Anthophora*, 22 spp. n. FRIESE (608), *Crocisa*, 4 spp. n. FRIESE (609), S. Africa and Old Calabar, *Ceratina*, 17 spp. n. GARCÍA (639), Rio de Oro, *Bembex* sp. n. KIEFFER (841), Trop. Africa, *Proctotrypidae*, 3 spp. n. KOHL (874), Abyssinia, *Belomicrus* sp. n. KOHL (875), Algoa Bay, *Passalacrus* n. sp. MAYR (1017), S. Africa, n. g. *Perilampides*. SZÉPLIGETI (1465), Trop. Africa, *Ophionidae*, 3 spp. n. SZÉPLIGETI (1466), *Iphiaulax*, 12 spp. n., *Crennops* sp. n., *Brausia* sp. n. SZÉPLIGETI (1468), Cameroons, *Braconidae*, 12 spp. n.
- Lepidoptera*. AURIVILLIUS (40), *Lasiocampidae*, 17 spp. n. AURIVILLIUS (41), W. Africa, *Rhopalocera*, *Sesiidae*, *Bombyces* spp. n. BARTEL (84), *Rhopalocera*, 15 spp. n. BETHUNE-BAKER (112), Kikuyu escarpment, *Lycenidae*, 3 spp. n. DRUCE (456), Rhodesia, *Euphaedra* sp. n. DRUCE & DRUCE (457), Rhodesia, *Rhopalocera*, 11 spp. n. HAMPSON (715), *Hadeninae* n. genn., n. spp. HAMPSON (716), *Syntomidae*, *Arctiidae*, spp. n., *Agaristidae* n. g. HAMPSON (717), *Noctuidae* n. spp. HAMPSON (718), Uganda, n. g. *Pterophoridae*. HEYN (746), Quango, *Pieris* n. sp. HOLLAND (755), Sierra Leone, *Noctuidae* n. g. JUNOD (825), Delagoa, annotated list, *Pyrgus* n. sp., *Monda* n. sp. KHEIL (839), Spanish Guinea, list, *Liptena* sp. n. ROTHSCHILD & JORDAN (1306), N. E. Africa, *Rhopalocera* subsp. n. and *Papilio* sp. n. THIERRY-MIEG (1493),

Mozambique, *Problepsis*, *Scardamia* and *Acidalia* sp. n. WARREN (1570), *Geometridæ*, 15 spp. n. WARREN (1573), *Geometridæ* about 50 spp. n., *Epplema*, 3 spp. n., *Banisia* sp. n. WARREN & ROTHSCHILD (1576), Sudan, 23 spp. n., *Bombyces*, *Noctuidæ*, *Geometr.*, *Pyral.*, *Tin.* WEEKS (1594), Congo, *Colias* n. sp.

*Diptera*. AUSTEN (45), *Glossina*, distribution. AUSTEN (47), *Glossina palpalis*, distribution. DÖNITZ (448), E. Africa, *Cordylobia* n. sp. GILES (654), Zululand, *Culicidæ* n. sp. GRÜNBERG (705), W. Africa, *Culicidæ*, 6 spp. n. LAVERAN (922), French Guinea, *Culicidæ*, list. NEVEU-LEMAIRE (1096), Harar, *Stegomyia* n. sp. NEVEU-LEMAIRE (1097), Centr. Africa, *Nyssorhynchus* n. sp. SPEISER (1437), S. Africa, *Lipoptena* sp. n. THEOBALD (1478), S. Africa, *Culicidæ*, 6 spp. n. THEOBALD (1479), W. Africa, *Ficalbia* sp. n. THEOBALD (1482), W. Africa, *Culicidæ*, 4 spp. n. THEOBALD (1483), Transvaal, *Stegomyia* n. sp. WELLMAN, Bihé, Angola, J. trop. Medicine viii, p. 319.

*Aphaniptera*. ROTHSCHILD (1301), 4 spp. n.  
*Hemiptera*. BERGROTH (98), Congo, *Katanga*, *Tribelocephala*, *Henicocephalus* sp. n. BERGROTH & SCHOUTEDEN (100), Congo, *Heteroptera*, 13 spp. n. BREDDIN (182), Cameroons, *Platymicrus*, E. Africa, *Tragelaphodes* sp. n. BREDDIN (184), E. Africa, n. g. *Acanthosomini*. DISTANT (426), *Cicadidæ*, 4 spp. n. DISTANT (427), *Cicadidæ*, 3 spp. n. DISTANT (428), *Cicadidæ*, 8 spp. n. DISTANT (429), *Cicadidæ* n. spp., *Pyrops* n. sp. DISTANT (430), *Platypleura*, 3 spp. n. DISTANT (431), *Cicadidæ*, 5 spp. n. DISTANT (433), Cape Town, *Oxycarenus* sp. n. DISTANT (435), S. Africa, *Lygæidæ*, 3 spp. n. *Tingididæ*, 14 spp. n., *Hydrometridæ* sp. n. KIRKALDY (858), Bouake, n. g. *Tettigoniidæ*. MELICHAR (1029), E. Africa, *Fulgoridæ*, 16 spp. n., *Cercopidæ*, 3 spp. n., *Scaridæ*, 2 spp. n., *Membracidæ*, 5 spp. n., *Jassidæ*, 15 spp. n. MELICHAR (1030), *Fulgoridæ* n. g. SCHMIDT (1332), *Ricanidæ*, 3 spp. n. SCHMIDT (1333), *Fulgoridæ*, 7 spp. n. SCHOUTEDEN (1341), Eritrea, *Pentat.*, 2 spp. n. SCHOUTEDEN (1342), Abyssinia, *Pentatomidæ*, 2 spp. n. SCHOUTEDEN (1343), Usambara, *Garsauria* sp. n. SCHOUTEDEN (1344), Congo, n. g. *Graphosomini*. SCHOUTEDEN (1347), *Pentatomidæ*, 3 spp. n. VARELA (1532), Cameroons, *Reduviidæ*, 4 spp. n.

*Anoplura*. SPEISER (1435), Abyssinia, n. sp.  
*Trichoptera*. ULMER (1517), W. Africa, 3 n. spp. ULMER (1518), Congo, 4 spp. n. ULMER (1518A), Congo, *Dipseudopsis* n. sp.  
*Neuroptera*. WEELE, VAN DER (1595), Liberia, *Ancylopteryx* n. sp.  
*Psocidæ*. ENDERLEIN (497), Cameroons, n. g.  
*Termitidæ*. DESNEUX (401), Sao Thomé isld., *Termes* n. sp. SJÖSTEDT (1404), *Termitidæ*, 9 spp. n.

*Odonata*. KIRBY (851), Mashonaland, list with 2 spp. n.  
*Thysanura*. ESCHERICH (525), *Lepismatidæ*, S. Africa, 11 spp. n., Congo, 1 sp. n.  
*Orthoptera*. ADELUNG (8), E. Africa, *Blattidæ*, 13 spp. BOLIVAR (127), *Acrididæ*, 23 spp. n. BURR (219), *Opisthocosmia* sp. n. KIRBY (853), W. Africa, *Palophus* sp. n. REHN (1237), W. Africa, *Anisolabis* n. sp., *Labidura riparia*.

## 5. MADAGASCAR, including ALDABRA ISLANDS, etc.

*Insecta*. MEUNIER (1040), *Diptera* and *Chalcididæ* in Madagascar copal.  
*Coleoptera*. BEGUIN-BILLECOQ (93), *Apion* n. sp. BEGUIN-BILLECOQ (94), Madag. and Mauritius, Mayotte, *Apion*, 33 spp. n. BERNHAUER (103), *Oxypodinus* n. sp. FAIRMAIRE (534), 60 n. spp. FAUVEL (547), *Staphylinidæ* n. spp. FLEUTIAUX (581), Comoro islds., *Sternotomis* sp. n. GROUVELLE (704), *Læmophilæus* n. sp. HORN

- (771), *Pogonostoma*, *Odontochila* n. sp. LAMEERE (910), *Hoploderes*, 4 spp. n. LEWIS (954), *Histeridae*, 2 spp. n. LEWIS (953), *Histeridae*, 2 spp. n. NONFRIED (1107), *Prosopocelus* n. sp. PIC (1175), *Petalium* n. sp. SCHAUFUSS (1328), *Scolytoplatypus*, *Xyleborus* spp. n. SCHWARZ (1370), *Elateridae*, 8 spp. n. SPAETH (1430), *Cassididae*, 4 spp. n. THÉRY (1488), *Buprestides*, general work, many spp. n. WEISE (1610), Mauritius, *Brontispa* n. sp.
- Hymenoptera.* ANDRÉ (24), *Mutilla*, 2 spp. n. BUYSSON (232), *Polistes*, 2 spp. n. FOREL (591), *Formicidae*, 2 spp. n. KIEFFER (841), Madagasc. *Proctotryp.*, 5 spp. n., Réunion, 1 sp. n.
- Lepidoptera.* BASTELBERGER (81), *Gullaca* n. sp. HAMPSON (715), Seychelles and Mauritius, *Hadenina* n. sp. HAMPSON (717), Madag. and Mauritius, *Noctuidae* n. spp.
- Diptera.* VENTRILLON (1537), *Culex*, *Stegomyia* sp. n. VENTRILLON (1538), *Culicidae*, 4 spp. n.
- Hemiptera.* BERGROTH (98), *Pentatom.* 2 genn. n., *Cletomorpha*, *Lycidae* n. g., *Lethæus* n. sp., *Reduv.* n. g., *Henicocephalus*, 2 spp. n. BREDDIN (180), n. g. *Henicocephalidae*. DISTANT (426), *Cicadidae*, 3 n. spp. DISTANT (427), Mauritius, *Stagira* n. sp. DISTANT (431), *Cicadidae*, 7 sp. n., Seychelles, 1 sp. n. SCHMIDT (1333), *Lichena* n. sp. SCHOUTEDEN (1346), Madagascar, *Catacanthus* sp. n., *Nezara* sp. n., Mauritius, *Nezara* sp. n. SCHOUTEDEN (1347), *Pentatomidae*, 5 spp. n. VARELA (1533), *Margasus*, 4 spp. n.
- Trichoptera.* ULMER (1517), 4 spp. n. ULMER (1518A), 2 spp. n. BOLÍVAR (130), Mad. & Nossibé, *Atractomorpha* and *Orthacrine* spp. n. BURR (220), *Chatospania* n. sp.
- Thysanura.* ESCHERICH (525), gen. n.

## 6. TROPICAL and EASTERN ASIA, incl. JAPAN and TIBET.

For outskirts see also 3 (a.), (g.), (h.). Arabia, see 3 (h.).

- Insecta.* ALFKEN (16), Japan, *Hym.*, *Lep.* and flowers visited. KIEFFER (846), Bengal, Gall insects, 20 spp. n. NAVÁS (1084), Japan *Ascalaphus*, China n. g. *Hemerob.*, Himalaya *Scyllina*, *Mantispa*, *Glenurus* n. sp.
- Coleoptera.* ARROW (30), Malay penins., *Aphodiid.*, 2 spp. n. BOILEAU (126), India, Formosa, *Lucanidae*, 3 spp. n. BOURGEOIS (152), Ceylon, *Malacod.*, 7 spp. n., *Atractocerus* sp. BOURGEOIS (157), Bengal, *Lycide*, 4 spp. n. DESNEUX (400), India, *Ceratoderus* n. sp. FAIRMAIRE (537), Kouitchou, n. g. *Cetoniidae*. FAUVEL (546), India etc., *Staphylinidae* spp. n. FLEUTIAUX (580), India, *Elateridae*, 8 spp. n. HORN (763), India and Ceylon, *Cicindelide*, 2 spp. n. HORN (767), S. India, *Derocerania* sp. n. HORN (770), Ceylon, Travancore, Siam, *Collyris*, 3 spp. n. HORN (771), Assam, *Therates* n. sp. JACOBY (810), Malay penins., *Chrysomelidae*, 10 spp. n. LAPOUGE (914), Japan, *Carabus*, short list. LÉVEILLÉ (947), Tonkin, *Acrops*, India, *Ancyrona* spp. n. LÉVEILLÉ (948), China, *Alindria* sp. n. LEWIS (953), Trop. Asia, India etc., *Histeridae*, 4 spp. n. LEWIS (954), India, *Platysoma* sp. n., Yunnan, *Hister* sp. n. MAINDRON & FLEUTIAUX (1002), S. India, *Cicindelide*, list. MOSER (1076), Assam, *Trichius* n. sp. NONFRIED (1108), S. W. China, *Prismognathus* n. sp. NŪSIMA (1110), Japan, *Scolytus*, 3 spp. n. OHAUS (1115), Tonkin, India, *Rutelides*, 17 spp. n. OLIVIER (1123), Pondichery, *Luciola* n. sp. PIC (1177), Shanghai, *Macratria* n. sp. PIC (1181), Yunnan, *Cerambycidae*, 5 spp. n., Japan, *Obrium* n. sp. PIC (1182), India, *Attalus*, *Ebæus* sp. n. PIC (1186), Japan, *Podabus* and *Cantharis* etc., 4 spp. n. PLANET (1208), Se-Tschuen or Yunnan? *Pseudolucanus* n. sp. REITTER (1244), China, India, *Tene-*

- brionidae* n. spp. REITTER (1248), Tien-tsin, *Epicauta* sp. n. REITTER (1249), China, *Melolonthidae* sp. n. RITSEMA (1273), Tonkin, Tenasserim, China, Bhutan, *Helota*, 8 spp. n. SCHAUFUSS (1328), Ceylon, *Cocotrypes* sp. n. SCHWARZ (1369), N. India and Ceylon, *Elateridae*, 13 spp. n. SHARP (1385), Korea, E. Asia, Tibet, *Criocephalus*, 5 spp. n.
- SPAETH (1430), Tenasserim, *Lacoptera* n. sp. WATERHOUSE (1590), Ceylon, *Chrysodema* sp. n. WEISE (1599), Lower India, *Cassididae* and *Hispidae*, catalogue with 10 spp. n. WEISE (1605), Assam, *Chirida* n. sp. WEISE (1606), Darjiling, *Potaninia* n. sp. WEISE (1607), Yunnan, *Coccinellidae* n. sp. ZANG (1600), Tonkin, *Passalidae*, 3 spp. n. ZANG (1662), Ceylon, *Lucanidae* and *Passalidae*, *Figulus* sp. n. ZANG (1665), India, *Passalidae*, 2 spp. n. ZANG (1666), Ceylon, *Leptaulacides* sp. n.
- Hymenoptera*. ANDRÉ (24), Pekin, *Mutilla* n. sp. CAMERON (238), Khasia Hills, *Sphegidae*, *Ceropalidae*, 47 spp. n. CAMERON (241), India, *Fossoria*, 5 spp. n. CAMERON (243), India, *Fossoria*, 2 spp. n., *Ichneumon*. 6 spp. n., *Bracon*, 2 spp. n. CAMERON (253), Sikkim, *Ichneumonidae*, 18 spp. n. CAMERON (257), India, *Ichneum.*, *Chalcid.*, 16 spp. n. CAMERON (266), Japan, *Ampulex* n. sp., Sikkim, *Icaria* n. sp. CAMERON (269), Singapore, *Agathis*, *Buodias*, *Skeatia*, n. sp.; Himalaya *Pleuroneurophion* n. sp. CAMERON (270), Ceylon, 36 spp. n., *Ichneumon.*, *Bracon.*, *Evan.*, *Chalcid.*, *Bethyl.*, *Siricid.* CAMERON (271), Ceylon, *Ichneumonidae*, 58 spp. n. COCKBRELL (326), Kashmir, *Bombus* n. sp. EMERY (493), Tsushima, *Pachycondyla* sp. n. ENDERLEIN (499), Siam, *Stantonia* n. sp. ENDERLEIN (502), Burma, *Evania* sp. n. FOREL (591), Nicobar Islds., *Formicidae*, 2 spp. n. FRIESE (601), Ceylon, Perak, Tshusima, *Crocisa* spp. n. FRIESE (611), W. China, *Bombus* n. spp. KIEFFER (841), India, Burma, *Proctotrypidae*, 7 spp. n. KOHL (874), Japan, *Crabro* sp. n. MOCÁRY (1055), *Rhyssa*, 3 spp. n. PÉREZ (1146), Japan, *Aculeata*, many spp. n. SZÉPLIGETI (1466), Singapore, *Braconidae*, 6 spp. n.
- Lepidoptera*. Geographical relation of *Lepidopterous* fauna of Japan, ELWES, pp. xli-xliv, P. Ent. Soc. London 1905. ADAMSON (7), Burma, *Rhopalocera*, list of, 253 spp. BASTELBERGER (80), Assam, *Gullaca* n. sp. BASTELBERGER (81), N. India, *Dilophodes*, *Mnesiloba* n. sp. BINGHAM (119), India, Ceylon and Burma, *Rhopalocera*, general work. H. H. DRUCE (459), Malay Penins., list of 51 spp. DUDGEON (465), India, *Soritia*, *Acanthopsyche*, *Mahasena*, *Nonagra*, *Pterognia*, *Chilo*, *Polyocha*, sp. n. DUDGEON, Catalogue of the *Heterocera* of Sikkim and Bhutan, Part xvii, *Noctuidae* contd., J. Bombay Soc. xvi, pp. 275-291. DYAR (470), Japan, *Zygaenidae*, *Limacodidae*, *Geometridae* and *Pyrausta* n. sp. HAMPSON (715), China, Japan, India etc., *Hadeninae* n. spp. HAMPSON (717), India, Japan etc., etc., *Noctuidae* n. spp. HAMPSON (718), Ceylon, n. g. *Orneodidae*. HAMPSON (719), India and Ceylon, Bombyces, 22 spp. n. JANET (814), Laos, *Stichophthalma* sp. n. LONGSTAFF (972), India and Ceylon, *Rhopalocera*. LONGSTAFF (974), Hong Kong, *Orsonoba* n. sp. MEYRICK (1043), India, *Microlepidoptera*, 89 spp. n. MOORE (1062), India, work on *Rhopalocera* continued, *Pieridae*, 3 spp. n. NAGANO (1082), Japan, *Sphingidae*. RHÉ-PHILIPPE, Lucknow, *Rhopalocera*, J. Bombay Soc. xvi, pp. 720-722. Malay States, *Dodona deodata*, ROBINSON, J. Fed. Malay Museums i, p. 15. SOUTH (1429), Japan and Korea, *Nodaria* n. sp. SWINHOE (1459), India, Malay Penins., *Drepan.*, *Hepial.*, *Noctuidae*, *Geometridae* spp. n. SWINHOE (1460), Khasia Hills, *Limacod.*, *Lasioc.*, *Noctuid.*, *Geometr.*, 4 spp. n., *Rhodoneura*, 3 spp. n. SWINHOE (1461), India, Burma, Ceylon, *Chalcosidae*, *Noctuidae*, 3 spp. n. SWINHOE (1462), India, *Drepanulid.*, *Noctuid.*, *Geometrid.* n. spp. THIERRY-MIEG (1493), Japan, *Problepsis* n. sp. WARREN (1569), China, *Geometridae*, 2 spp. n.,

- Shan States, *Hypolamprus* sp. n. WARREN (1574), Ceylon, *Geometr.*, 3 spp. n.; Shan States, 1 sp. n., Hainan, 3 spp. n. and *Epiplema*, 2 spp. n. YOUNG (1648), India, *Rhopalocera*.
- Diptera.* ADIE & ALCOCK (11), Calcutta, *Anopheles listoni*. BEZZI (115), Pekin, *Systropus*, 2 spp. n. BRUES (201), India and Singapore, *Phoridae*, 5 spp. n. CHALMERS (297), Ceylon, *Anophelinae*, distribution. SPEISER (1437), Tenasserim, *Olfersia*, Ceylon, *Lipoptera* sp. n. THEOBALD (1476), Bombay, n. g. *Culicidae*. THEOBALD (1477), India, Singapore, *Culicidae*, 7 spp. n. THEOBALD (1478), India, *Culicidae* 4 spp. THEOBALD (1480), Ceylon, *Culicidae*, 8 spp. n. THEOBALD (1481), India, n. g. *Culicidae*.
- Aphaniptera.* ROTHSCHILD (1301), Malay States, *Ceratophyllus*, 2 spp. n.
- Hemiptera.* BREDDIN (183), India and Cochin China, *Chrysocoris*, 2 spp. n. DISTANT (422), Yunnan, Assam, Tenasserim, *Dundubiarica*, 3 spp. n. DISTANT (423), India, *Terpnosia* sp. n. DISTANT (424), Hong Kong, *Mogannia* n. sp., Mts. Song-Chai, n. g. *Cicadidae*. DISTANT (426), China, *Cicadidae*, 2 spp. n. DISTANT (427), China, *Quintilia* n. sp. DISTANT (429), China, N. China, Siam, Tonkin, *Cicadidae* n. sp., Siam, *Pyrops* n. sp. DISTANT (430), Malacca, Cochin China, *Platyleura*, 2 spp. n. DISTANT (431), Ta-tsienu, *Platylomia*, 2 spp. n. DISTANT (431), Tibet, *Oncotympana* sp. n. DISTANT (432), Yunnan, *Gaena* n. sp. DISTANT (434), Ceylon, *Aneurus* n. sp. HORVÁTH (774), Japan, n. g. *Berytidae*. HORVÁTH (776), Japan, *Heteroptera*, 15 spp. n. JACOBI (805), Assam, Burma, *Cercopide*, 2 spp. n. JACOBI (806), Tonkin, *Cicad.*, 1 sp. n., *Fulgor.*, 2 spp. n., *Cercop.*, 4 spp. n., *Jassid.*, 1 sp. n. KIRKALDY (858), India, *Gypona* sp. n. KIRKALDY (862), Ceylon, *Micronecta* sp. n. REUTER (1259), Sztschwan, China, *Capsidae*, many spp. n. REUTER (1261), India, *Urostylis* sp. n. SCHMIDT (1333), Tonkin, *Fulgora* n. sp. SCHOUTEDEN (1344), *Scotinophara* n. sp. SCHOUTEDEN (1348), Ceylon, *Aphidae*, 2 spp. n.
- Coccidae.* GREEN (687), Ceylon, 17 spp. n. LINDINGER (967), Singapore *Parlatorea* n. sp., Japan n. g. MARCHAL (1005), Ceylon, *Asterolecanium* sp. n.
- Trichoptera.* BANKS (72), Japan, 12 spp. n. ULMER (1517), Sikkim, Japan, 5 spp. n. ULMER (1518), Moupin, *Rhyacophila* sp. n., India, *Psilochorema* sp. n. ULMER (1518A), Assam, *Dinarthrum*, Ceylon, *Macronema*.
- Perlidae.* NEEDHAM (1089), Japan, *Perlidae*, 3 spp. n.
- Termitidae.* DESNEUX (401), Sind, *Termes*, 3 spp. n., *Hodotermes* n. sp.
- Odonata.* FOERSTER (584), Tonkin, 2 spp. n. KIRBY (852), Ceylon *Zygonia* sp. n., Tonkin, *Zygonia*, *Onychothemis* sp. n.
- Thysanura.* BOUVIER (162), Tibet, *Japyx dux*.
- Collembola.* BECKER (88), Persian Gulf, n. g. *Collembola*.
- Orthoptera.* BOLÍVAR (129), Singapore, *Xiphidiopsis* n. sp. BOLÍVAR (130), India, China, *Atractomorpha*, 5 spp. n., *Orthacris* n. sp. BOLÍVAR (130), Malay penins. Cambodia, *Pyrgomorphidae*, 2 spp. n. BURR (220), Tonkin, N. India, Mou-Pin, *Forficulidae*, 3 spp. n. BURR (221), India, *Forficulidae*, 4 spp. n. BURR (222), India, *Opisthocosmia* n. sp. DOHRN (443), Tonkin, *Hexacentrus* n. sp. KRAUSZE (894), Tonkin, *Conocephalus*, 2 spp. n. REHN (1237), Siam, Pekin, *Forficulidae*, 3 spp. n. WILLEY (1632), Ceylon, short list.

## 7. ASIATIC ARCHIPELAGO, including PAPUA. (For islands beyond Papua see 2. Insular.)

- Insecta.* ALFKEN (16), Java, *Hym.* and *Lep.* and flowers they visited. BIR6 (120), New Guinea, notes.



- Coleoptera*. ARROW (30), Philippines, *Rhyparus* sp. n. BERNHAUER (103), Java, Sumatra, Engano, *Staphylinidæ* n. spp. BOILEAU (126) *Lucanidæ*, 7 spp. n. FAUVEL (544), Java, *Staphylinidæ*, 10 spp. n. FAUVEL (546), Java, Sumatra, Borneo, *Staphylinidæ* spp. n. HARTMANN (726), Sumatra, *Niphades* sp. n. HELLER (737), New Guinea, *Lomaptera* n. sp., *Cerambycidae* n. g., *Curculionidæ*, 8 spp. n. HORN (769), New Guinea, *Cicindela* n. sp. JANSON (815), New Guinea, *Cetoniidæ*, 7 spp. n. LÉVEILLÉ (949), Java, *Ancyrona* n. sp. LEWIS (953), Borneo, *Coryphæus* sp. n. LEWIS (954), Sumatra, New Guinea, *Platysoma*, 3 spp. n. MÖLLENKAMP (1057), Borneo, *Odontolabis*, *Prosopocaelus* sp. n., Sumatra, *Eurytrachelus* sp. n. MOSER (1076), Dammer isld. *Protactia* n. sp., Key islds., *Clinteria* n. sp. OHAUS (1115), Java, Philippines, Timor, *Rutelidæ*, 4 spp. n. OLIVIER (1123), Java, Borneo, *Luciola* and *Curtos*, 3 spp. n. PIC (1182), New Guinea, *Rhinosisimus* n. sp. PIC (1183), Philippines, *Adoretus* n. sp. PIC (1186), Java, Sumatra, *Laius*, 3 spp. n. REITTER (1244), Java, *Scleron* n. sp. RITSEMA (1271), Borneo, *Apogonia*, 4 spp. n. RITSEMA (1275), Sumatra, *Cryptoderma* n. sp. SCHWARZ (1369), Sumatra, *Hemiops* sp. n. VETH (1547), Sumatra, *Cryptoderma* n. sp. WEISE (1608), New Guinea, *Dactylispa* n. sp. ZANG (1655), Padang and Palawan *Passalidæ*, 2 spp. n. ZANG (1659), Amboyna, *Analaches* n. sp. ZANG (1663), *Passalidæ*, Borneo, 3 spp. n., Andamans, 1 sp. n. ZANG (1665), *Passalidæ*, 7 spp. n. ZANG (1667), Sumbawa and New Guinea, *Passalidæ*, 2 spp. n.
- Hymenoptera*. ANDRÉ (24), Celebes, New Guinea, *Mutillidæ*, 4 spp. n. ASHMEAD (31), Philippines, 28 n. spp. ASHMEAD (32), Philippines, *Fossor.*, *Formic.*, *Ichn.*, *Bracon.*, *Proct.*, *Cynip.*, 23 spp. n. ASHMEAD (33), Philippines, *Parasitica*, 27 n. spp. ASHMEAD (34), Philippines, *Vespidæ*, *Ichneumon.*, *Bracon.*, *Chalcid.*, *Proct.*, *Cynipidæ*, n. spp. DU BUYSSON (233), Java and Sumatra, *Ischnogaster*, 2 spp. n. CAMERON (240), Borneo, *Evanidæ*, *Bracon.*, *Ichneumon.*, 11 spp. n. CAMERON (245), Borneo, *Ichneumonidæ*, 3 genn. n. CAMERON (265), *Ichneumonidæ*, *Braconidæ*, 10 spp. n. CAMERON (266), *Vespidæ* and *Fossoria*, 17 spp. n. CAMERON (267), Borneo, *Iphiaulax* and *Chaolta*, 30 spp. n. CAMERON (268), Borneo, *Chalcis* n. sp. CAMERON (269), Borneo, *Apidæ*, *Odynerus*, *Fossoria*, *Ichneumon.*, *Bracon.*, *Evan.*, *Chalcid.*, *Siricidæ* spp. n. COCKERELL (326), Ternate, *Crocisa* n. sp. COCKERELL (329), Sumatra, *Bombus* n. sp. EMERY (493), Borneo, Timor, *Formicidæ*, 3 spp. n. ENDERLEIN (498), Sumatra and Philippines, *Gastrotheca*, *Spinaria* n. spp. and n. g. ENDERLEIN (502), Sumatra, Borneo, *Evania*, 3 spp. n. FOREL (592), Java, *Formicidæ*, 21 spp. n. FRIESE (601), *Crocisa*, 7 spp. n. FRIESE (602), Sunda islds., *Megachile* sp. n. MOCSÁRY (1055), Java, Borneo, New Guinea, Waigiou, *Rhyssa* soc., 5 spp. n. SZÉPLIGETI (1465), Java, New Guinea, Celebes, *Ophionidæ*, 10 spp. n. SZÉPLIGETI (1466), *Braconidæ*, many spp. n.
- Lepidoptera*. BASTELBERGER (80), Borneo, *Bulonga*, Sumba, *Abraxas*, sp. n. BASTELBERGER (82), Borneo, Obi, *Dysphania*, 3 spp. n. BASTELBERGER (83), *Dysphania*, 4 spp. n. BETHUNE-BAKER (110), New Guinea, *Leucania*, 2 spp. n. BETHUNE-BAKER (111), New Guinea, *Leucania* n. sp. FRUHSTORFER (621), Toli-toli, *Ismene* n. sp. FRUHSTORFER (622), New Guinea *Tenaris*, Mafor and Jobi *Cethosia*, n. sp. FRUHSTORFER (623), Kaju, *Tenaris* sp. n. HAMPSON (715) Java and New Guinea, *Hadeninae* n. spp. HAMPSON (716), Java, Borneo, Sala, Sangir, *Syntomid.*, *Arctiid.*, *Noctuid.*, spp. n. HAMPSON (717), *Noctuidæ* n. spp. PIEPERS & SNELLEN (1203), Java, *Lithosiidæ*, *Agaristidæ*, list. ROTHSCHILD & JORDAN (1307), British New Guinea, n. spp. of *Nymphal.*, *Satyr.*, *Pierid.*, *Lycan.*, *Erycin.*, *Chalcos.*, *Hepialid.*, *Bombyc.*, *Noct.*, *Geometr.*, *Pyral.* SWINHOE (1459), Borneo, *Chalcos.*, *Drepan.*, *Limacod.*, *Ilymantr.*, *Noctuidæ*, *Agathia*, spp. n.; New Guinea, *Zethes*, *Hypena*, spp. n. SWINHOE

- (1460), Borneo, Sumatra, *Phacosia* n. sp., *Otenans* n. g. *Lithos*. SWINHOE (1461), *Heterocera*, 7 spp. n. SWINHOE (1462), *Hesperidae*, *Aganaidæ*, *Arctid.*, *Noctuidæ*, *Epiplema*, n. spp. THIERRY-MIEG (1493), *Geometridæ*, 4 spp. n. WARREN (1569), Sumatra, Batchian, New Guinea, Christmas isld., *Thyrididæ*, *Epiplema*, *Geometr.*, 7 spp. n. WARREN (1574), *Geometridæ* 15 spp. n., *Epiplema* 3 spp. n.
- Diptera*. BRUES (201), New Guinea, *Phorida*, 7 spp. n. LUDLOW (984), Philippines, *Culicidæ* n. genn., n spp. MELJERE (1024), Java, *Siphonella* n. sp. SPEISER (1437), Philippines, *Olfersia* n. sp. THEOBALD (1477), New Guinea, *Culicidæ*, 14 spp. n.
- Hemiptera*. BREDDIN (180), Java, *Heteroptera*, 21 spp. n. BREDDIN (181), Banguay, fauna, 11 n. spp., *Pentat.*, *Coreid.*, *Lygæid.*, *Reduv.*, *Cicad.*, *Fulg.*, *Jassid.*. BREDDIN (183), *Calliphara* and *Chrysocoris*, 5 spp. n. BREDDIN (185), Java, *Micronecta*, 5 spp. n. DISTANT (422), Philippines, Borneo, New Guinea, *Dundubiarina*, 6 spp. n. DISTANT (423), Java, *Kamalata* sp. n. DISTANT (425), Celebes, Philippines, *Cicadidæ* sp. n. DISTANT (424), Java, *Mogannia* n. sp. DISTANT (428), Java, n. g. *Cicadidæ*. DISTANT (429), Java, Borneo, Nias, New Guinea, *Cicadidæ* n. spp., *Pyrops* and *Fulgora* n. sp. DISTANT (430), Borneo, Sunda islds., *Cicadidæ*, 2 spp. n. DISTANT (431), Borneo, *Cosmopsaltria* sp. n. HORVÁTH (774), New Guinea, *Berytidæ*, 2 spp. n. JACOBI (805), *Cercopidæ*, 19 spp. n. KIRKALDY (862), Philippines, *Micronecta* sp. n. MONTANDON (1058), Philippines, *Ranatra* n. sp. SCHMIDT (1332), *Ricanidæ*, 5 spp. n. SCHMIDT (1333), Sumatra, Borneo, *Fulgoridæ*, 6 spp. n. SCHOUTEDEN (1340), New Guinea, *Coleotichus* sp. n. SCHOUTEDEN (1344), Java, *Graphosomini* n. g.
- Coccidæ*. GREEN (688), Java, 4 spp. n.
- Trichoptera*. ULMER (1517), Sumatra, etc., 8 spp. n. ULMER (1518A), Borneo, Java, 2 spp. n. ULMER (1519), Java, 5 spp. n.
- Perlidæ*, *Ephemeridæ*. KLAPÁLEK (866), Java sp. n.
- Termitidæ*. DESNEUX (401), Borneo, *Termes* n. sp. DESNEUX (402), New Guinea, 8 spp. n.
- Thysanoptera*. ASHMEAD (37), Philippines, *Thrips* n. sp.
- Thysanura*. ESCHERICH (525), *Lepismatidæ*.
- Orthoptera*. BOLÍVAR (129), New Guinea, *Conocephalides*, 10 spp. n. BOLÍVAR (130), *Atractomorphinæ* spp. n. BOLÍVAR (130), Obi, Lombok, New Guinea, *Pyrgomorphidæ*, 2 spp. n. BOLÍVAR (130), Borneo, Engano, New Guinea, *Pyrgomorphidæ*, 8 n. spp. BOLÍVAR (130), Sumatra, *Orthacrinæ*, 2 spp. n. BURR (219), Java, Mentawai, Batchian, *Forficulidæ*, 3 spp. n. BURR (220), Java, *Labia* n. sp. DOHRN (443), *Conocephalides*, 10 spp. n. NAVÁS (1084), Philippines, *Hedotettix*, 2 spp. n.

## 8. AUSTRALIA and TASMANIA. (For New Zealand see 2. Insular.)

- Insecta*. WALKER (1563), Sydney, field notes.
- Coleoptera*. BLACKBURN (123), *Liparocheilus*, *Systellopides*, *Liparetrus* n. spp. BOILEAU (126), *Lucanidæ*, 5 spp. n. CARTER (284), *Heteromera*, 14 spp. n. LEA (924), *Cryptorhynchides*, 8 spp. n., n. g. LEA (925), Austr. and Tasmania, *Curculionidæ*, 34 spp. n. LEA (926), N. S. Wales, *Illaphanus* sp. n. LEA (928), *Nepharis*, *Ptinidæ* n. g., *Tribolium* sp. n. PERKINS (1152), *Stylopidæ* n. spp. SLOANE (1410), *Scaritini*, revision with n. spp. SLOANE (1411), *Cicindela*, 5 spp. n. SLOANE (1412), distribution and list, Australian *Carabina*.
- Hymenoptera*. ANDRÉ (24), *Ephutomorpha*, 5 spp. n. ANDRÉ (26), Sydney, *Formicidæ*, 2 spp. n. BRADLEY (167), S. Australia, *Megalgyra* sp. n.

- CAMERON (265), *Stephanus*, *Megalyra* n. sp. COCKERELL (326), *Apidae*, novelties, 5 spp. n. COCKERELL (327), and Austr. Tasmania, *Apidae*, 9 spp. n. COCKERELL (328), *Apidae*, 4 spp. n. COCKERELL (329), *Apidae*, 11 spp. n. COCKERELL (330), Austr. and Tasmania, *Apidae*, 20 spp. n. COCKERELL (331), Austr. and Tasmania, *Apidae*, 10 spp. n. COCKERELL (334), *Nomia*, 7 spp. n. COCKERELL (335), *Apidae*, 7 spp. n. COCKERELL (336), *Apidae* n. g. FRIESE (601), *Crocisa*, 2 spp. n. FROGGATT (612), *Chalcididae*, 2 spp. n. KIEFFER (841), *Epyris* n. sp., *Bethylinæ* n. g. KONOW (885), Australia and Tasmania, *Tenthredinidae*, 3 spp. n. MAYR (1017), n. g. *Perilampides*. PERKINS (1150), Queensland, *Dryinidae* gen. and spp. n. PERKINS (1154), Queensland, *Mymaridae* and *Proctotrypidæ* n. gen., n. spp. SZÉPLIGETI (1466), *Braconidae*, many spp. n.
- Lepidoptera*. BASTELBERGER (93), Cooktown, *Dysphania* sp. n. BETHUNE-BAKER (109), *Ogyris* monograph, 1 sp. n. HAMPSON (715), *Hadeninæ* n. sp. HAMPSON (717), *Giawra* n. sp. LOWER (980), Austral. and Tasm., *Pyralidae* and *Tineidae*, 27 spp. n. LOWER (981), Austr. and Tasm., *Bombyces*, *Noct.*, *Geometr.*, *Pyral.*, 14 spp. n. LYELL, Victoria, *Ogyris genoveva*, Victorian Natural. xxi, p. 166. MEYRICK (1041), Tasmania, *Dryadula* sp. n. PERKINS (1151), Queensland n. fam., n. gen., n. spp. SWINHOE (1461), N. S. W., *Anthela* n. sp. TURNER (1509), Austral. and Tasmania, *Pyralidae*, 24 spp. n. WARREN (1574), *Geometridæ*, 3 spp. n.
- Diptera*. BRUES (201), *Aphiochaeta*, 3 spp. n. COQUILLET (367), Victoria, *Culex* sp. n. PERKINS (1153), *Pipunculus*, 26 spp. n. TERRY (1475), Queensland, *Baccha*, 2 spp. n. THEOBALD (1476), Queensland, *Sayomyia* n. sp. THEOBALD (1478), *Culicidae*, 1 sp. n. THEOBALD (1481), Queensland, n. g. *Culicidae*.
- Aphaniptera*. RAINBOW (1232), *Ceratophyllus* sp. n., *Ctenopsyllus musculi*. ROTHSCHILD (1301), Tasmania, 2 spp. n. ROTHSCHILD (1302), Tasmania, *Stephanocircus* sp. n.
- Hemiptera*. BERGRÖTH (97), Queensland, *Pentatomidæ*, 5 spp. n. DISTANT (426), *Cicadidæ*, 3 spp. n. DISTANT (427), W. Australia, n. g. *Cicadidæ*. DISTANT (428), *Homoptera*, 7 spp. n. KIRKALDY (861), Brisbane, *Psyllidæ* n. g. KIRKALDY (862), *Microneecta*, 2 spp. n. MELICHAR (1030), *Fulgoridæ* n. g. SCHMIDT (1332), Queensland, *Ricanoptera* n. sp. SCHMIDT (1333), *Sephena* n. sp. SCHOUTEDEN (1340), *Coleotichus* sp. n. SCHOUTEDEN (1344), Victoria, *Graphosomini*, 2 spp. n. VAN DUZEE (1527), *Pentatomidæ*, 13 spp. n.
- Coccidæ*. GREEN (689), Victoria *Coccidæ*, 5 spp. n. LEONARDI (936), *Mytilaspis* n. sp.
- Trichoptera*. ULMER (1518), *Macronema* n. sp.
- Thysanura*. ESCHERICH (525), *Acrotelsa* n. sp. FROGGATT, P. Linn. Soc. N. S. Wales xxx, p. 259, novelties.
- Orthoptera*. BOLFVÅR (130), Rockhampton, *Atractomorpha* sp. n. BURR (219), *Gonolabis* sp. n. LEA (927), Tasmania, *Acrophylla* n. sp. REHN (1237), Queensland, *Labia* n. sp. TEPPER (1473), Centr. Austral., *Mantidæ* sp. n., *Phasmidæ* 6 spp. n.

9. NORTH AMERICA. For Bahamas and Bermudas see  
11. Antilles.

*Insecta*. ALFKEN (16), California, *Hym.* and *Lep.* and flowers visited. COCKLE, Canad. Ent. 1905, pp. 263, 264, Brit. Columbia, hibernating specimens. COCKERELL (350), Colorado, *Col.*, *Coccidæ*, *Apidae*, novelties etc. GODMAN (670). LAURENT (920), Utah and Colorado trip. ENGELHARDT, Utah trip, Ent. News Philad. xvi, p. 91. LONGLEY,

- pp. 125-127, Ent. News Philad. xvi, Chicago list. SHERMAN & BRIMLEY, N. Carolina expedition, J. E. Mitchell Soc. xx, pp. 134-136; captures, iid. t. c. pp. 141-144.
- Coleoptera.* BERNHAUER (103), *Borboropora* n. sp. BERNHAUER (105), California, *Aleocharides*, 8 spp. n. CASEY (285), *Pæderini* n. genn., n. spp. CASEY (286), *Cychnus* n. sp., *Cryptophilus* etc., *Vanonus*, 2 spp. n. CHAGNON, Ent. News Philad. xvi, pp. 35, 36, Canadian *Cerambycidae*, 44 spp. CHITTENDEN (307), *Sphenophorus*, 10 spp. n. CHITTENDEN (308), *Sphenophorus*, 13 spp. n. FALL (538), Revision of *Ptinide*, numerous n. spp., n. genn. FALL (539), California, *Dystasia* sp. n. FALL (540), *Aphodius*, 2 spp. n. FALL (541), *Tachycellus* and *Glycerius*, 5 spp. n. FALL (542), *Buprest.*, *Elater.*, *Dynast.*, *Ceton.*, *Long.*, n. spp. HOUGHTON, Ent. News Philad. xvi, pp. 50, 51, Summit of Mt. Seward, list. HOUGHTON, Ent. News Philad. pp. 210-213, Delaware at light. KEEN, Canad. Ent. 1905, pp. 297, 298, North Brit. Columbia, list. KNAB (870), Illinois, *Donacia* n. sp. KNAB, Ent. News Philad. xvi, p. 230, *Galeruca pomonæ*. KNAUS, Canad. Ent. 1905, pp. 348-352, Texas, list. OHAUS (1117), Florida, *Strigoderma* n. sp. PIC (1192), Mariposa, *Vrilleta* n. sp. SCHAEFFER (1323), N. Am. incl. Lower California, *Scydmaen.*, *Pselaph.*, *Parnidae*, *Buprest.*, *Cerambyc.*, *Chrysomel.*, *Meloidæ*, *Curculionidae* spp. n. SCHAEFFER (1324), novelties, n. spp. *Coccinellidæ*, *Erotylidæ*, *Nitid.*, *Buprest.*, *Clerid.*, *Melolonth.*, *Ceram.*, *Chrysomel.*, *Lagriidæ*, *Cistel.*, *Curc.* SCHAEFFER (1326), *Statira*, 2 spp. n. SKINNER (1408), Arizona, *Plusiotis*, *Cleridæ*, *Ceram.* spp. n. SLOSSON, Ent. News Philad. xvi, pp. 67-71, Biscayne Bay, just one log. WEBB (1592), Washington, *Desmocerus* n. sp. WICKHAM (1629), *Cotalpa* n. sp. WICKHAM (1630), *Cicind.*, *Aphodius*, *Gyascutus*, *Hydnocera*, *Zonitis*, *Elaphidion* sp. n.
- Hymenoptera.* ANDRÉ (25), Arizona, *Rhopotromutilla* sp. n. BAKER (65), California and Nevada, *Odontophotopsis*, 5 spp. n. BAKER (66), *Photopsis* and *Chyphotes*, 13 spp. n. BRADLEY (166), Washington, *Deraidontus* n. sp. BRADLEY (168), *Cenocephus*, 2 spp. n. BRADLEY (169), New York, *Ropronia* n. sp. BRUES (199), *Proctotrypidæ*, 6 spp. n. CAMERON (274), Nevada and California, *Paratryphia*, 6 spp. n. CAMERON (275), California and Nevada, *Eumen.* and *Vesp.*, 6 spp. n., *Ichneumon.*, 10 spp. n., *Brasema* sp. n. COCKERELL (324), *Apidæ*, 4 spp. n., *Proctotrypes* sp. n. COCKERELL (325), Rocky Mts., *Melissodes*, 9 spp. n. COCKERELL (326), *Apidæ*, 3 spp. n. COCKERELL (333), Colorado, *Apidæ*, 3 spp. n. COCKERELL (337), New Mexico and California, *Apidæ*, 3 spp. n. COCKERELL (339), Colorado, *Apidæ*, 3 spp. n. COCKERELL (340), Texas, *Perdita* n. sp. COCKERELL (342), *Diadasiæ*, 1 n. sp. COCKERELL (343), Wisconsin, *Nomada*, 2 spp. n. COCKERELL (344), Texas, *Apidæ*, 3 spp. n. COCKERELL (345), California, 6 spp. n., *Andrena* and *Osmia*. COCKERELL (347), Arizona and New Mexico, *Melissodes*, 8 spp. n. COCKERELL (348), S. California, *Apidæ*, numerous n. spp. COCKERELL (349), *Apidæ*, 9 spp. n. COCKERELL, Psyche xii, p. 90, *Bombus medius* not N. American. GIRAULT (662), *Anaphes* n. sp. GIRAULT (663), *Paracentrobia*, *Gonatocerus*, from *Anthonomus* eggs, sp. n. GIRAULT (668), *Myrmaridæ*, 2 spp. n. KIEFFER (847), *Gasteruption*, *Callirhytis*, 9 spp. n. KOHL (875), S. America, specially Chile, *Odynerus* and *Fossoria*, 18 spp. n. KONOW (884), Oran, *Emphytus* n. sp. KRIEGER (895), *Neotheronia* sp. n. LOVELL (977), Maine, *Halictus*, 4 spp. n. LOVELL (978), Maine, *Halictus*, 3 spp. n. LOVELL & COCKERELL (979), Maine, *Nomada*, 2 spp. n. NASON, Ent. News Philad. xvi, pp. 145-152, 168-172, Algonquin, Illinois, *Ichneumonidæ*, extensive list. NASON, II *Alysiidæ*, *Braconidæ*, t. c. pp. 293, 298. PERKINS (1150), *Dryinidæ* spp. n. ROBERTSON (1284), Illinois, *Apidæ*, 5 spp. n. SWENK (1457), *Colletes*, 3 spp. n. TITUS

- (1497), *Megachile* sp. n. TITUS (1497), *Anthidium*, 2 spp. n. VIERECK (1549), Oregon etc., *Apidae*, 3 spp. n. WHEELER (1621), *Formica* 5 spp. n. WHEELER (1624), New Jersey, *Formicidae*, Catalogue, 2 spp. n. WHEELER (1628), Mt. Washington, *Formicidae*.
- Lepidoptera*. BARNES (77), 5 spp. n. BROOKS, Ent. News Philad. xvi, p. 85, West Virginia Mountain *Rhopalocera*. BRUES, Ent. News Philad. xvi, p. 11, *Eubagis dionis*. DIETZ (419), *Amydriinae* and *Tineinae*, many spp. n. and genn. n. DIETZ (419), n. spp. DOD, Alberta, list, *Noctuidae* cont. from 1904, Canad. Ent. 1905, pp. 17-28. DYAR (472), Arizona, *Limacodidae*, 2 spp. n. DYAR (474), *Pyralidae*, 18 spp. n., *Tephroclystia* n. sp. DYAR (482), *Amblyscirtes* and *Megathymus* n. sp. DYAR (483), Nevada, *Oncocnemis* n. sp. ENGEL (517), *Xytila* n. sp. ENGEL (516), Pennsylvania, autumn and winter collecting. FERNALD (555), *Proctocera* n. sp. FERNALD (556), *Tortricidae*, 3 spp. n. GIBSON, Ottawa *Sthenopsis thule*, Ottawa Natural. xix, pp. 117, 118. GIBSON, Canad. Ent. 1905, p. 88, *Simaethis fabriciana*, novelty. GRINNELL (697), California, *Satyrus*, *Thanaos* n. sp. GRINNELL (698), California, *Lycæna* n. sp. GRINNELL, Ent. News Philad. xvi, pp. 134-137, butterflies of Mt. Wilson, S. California, 58 spp. HAMPSON (715), *Hadeninae* n. spp. HAMPSON (717), Florida, *Entelia* n. sp. HEATH, Canad. Ent. 1905, pp. 191, 192, Manitoba, season 1904. HEINDEL (735), *Acleris* n. sp. in gale of *Rhabdophaga*. KEARFOTT (829), *Polychrosis*, 3 spp. n. KEARFOTT (830), N. Carolina, *Tortricidae*, 9 spp. n. KEARFOTT (831), Assiniboia, *Pyralidae*, *Tortricidae*, *Tineidae* n. spp. KEARFOTT (832), *Tortricidae*, 3 spp. n. KEARFOTT (833), Ontario, *Aristotelia* sp. n. KEARFOTT, Canad. Ent. 1905, pp. 205-208, 253-256, 293-296, Manitoba, *Microlepidoptera* list. LYMAN (997), Canada, *Gortyna*, 2 spp. n. MCINTOSH, New Brunswick supplementary list, Bull. Soc. N. Brunswick xxiii, pp. 355-357. MURTFELDT (1031), Minnesota, *Bucculatrix* n. sp. NASON, Ent. News Philad. xvi, pp. 1, 2, Illinois, *Pyral.*, *Tort.*, *Tin.*, short list. PEARSALL (1142), *Euchoeca* n. sp. SCHAEFFER (1325), Huachuca Mts., *Bombyces* list. SHAW, S. A., Ent. News Philad. xvi, pp. 323-327, Hampton, New Hampshire *Microlepidoptera*. SKINNER (1406), Arizona, *Crinodes* n. sp. SKINNER (1407), Arizona, *Megathymus* n. sp. SMITH (1415), *Noctuidae*, 10 spp. n. SMITH (1416), *Noctuidae* n. spp. SMITH (1417), *Noctuidae*, 35 spp. n. SOUTHER, Psyche xii, p. 96, Massachusetts, *Catocala*. WARREN (1572), Vancouver, *Sericosema* n. sp. WILLIAMS & GRINNELL (1633), Mt. Diablo, *Meliclyptria* sp. n. WINN, Canad. Ent. 1905, p. 61, *Pieris brassicae*. WRIGHT (1643), California, *Rhopalocera*, illustrated work.
- Diptera*. ADAMS (6), *Oscinis*, 4 spp. n. ALDRICH (14), General catalogue. ALDRICH (15), *Dolichopidae*, 10 spp. n. BAKER (61), California and Nevada, various families, 30 spp. n. BUENO, Ent. News Philad. xvi, p. 83, Kansas, *Mixogaster brevis*. WASHINGTON, *Chironomidae*, COCKERELL, p. 236, Entomologist 1905. COQUILLET (366), *Nematocera*, 24 spp. n.; also *Ceratopogon*, 18 spp. n. COQUILLET (369), New Mexico, *Limnophila* n. sp. DAECKE (386), New Jersey, *Chrysops*, 2 spp. n. DYAR (480), *Culex* n. sp. DYAR (481), *Culicidae*, novelty and some new localities. FELT (554), *Culex* n. sp. GROSSBECK (701), New Jersey, *Culex*, 2 spp. n. HERRICK, Ent. News Philad. xvi, pp. 281-283, Mississippi, *Culicidae*. HINE (749), *Chrysops* n. sp. JOHANNSEN (820), Aquatic *Chironomidae*, monograph, 38 n. spp. JOHNSON (821), N. Carolina, *Bittacomorpha* n. sp. LUDLOW (985), California, *Teniorhynchus* n. sp. LUDLOW (986), Illinois, *Finlaya* sp. n. MCINTOSH (1020), New Brunswick, list. MOODIE (1061), Wyoming, *Syrphidae*, Arizona, *Milesia* n. sp. SWENK (1456), *Cuterebra*, 3 spp. n. WASHBURN (1577), Minnesota, *Diptera* of.
- Aphaniptera*. BAKER (53), *Ceratopsyllus* n. sp. BAKER (62),

- California, 2 spp. n. ROTHSCHILD (1299), *Ceratophyllus*, 17 spp. n.  
*Hemiptera*. BAKER (56), Nevada, *Gnathodus* n. sp. BAKER (59),  
 California, *Eupteryx* n. sp. BAKER (60), California, *Macropsis* n. sp.  
 BALL (69), *Homoptera*, 7 spp. n. BALL (70), *Phlepsius* etc.,  
 5 spp. n. BRITTON (192), Connecticut, *Aleurodidae* spp. n. BUENO  
 (209), *Notonecta* sp. n. BUENO (210), Georgia, *Hydrometra* n. sp.  
 BUENO (213), *Ranatra* n. sp. COCKERELL (352), Colorado, *Pemphigus*  
 sp. n. COCKERELL (353), Colorado, *Rhopalosiphum nymphaeae*.  
 HEIDEMANN (732), Washington, *Anasa* n. sp. HEIDEMANN (733),  
 Plummer's Id., *Ceratocombidae* n. g. HEIDEMANN (734), N. York,  
*Capsidae*, 1 sp. n. OSBORN (1125), *Fulgoridae*, 5 spp. n. OSBORN  
 (1126), Ohio, novelties, n. spp. SCHOUTEDEN (1344), Colorado,  
*Graphosomini* n. g. SHERMAN, Ent. News Philad. xvi, pp. 7, 8, North  
 Carolina, *Aradidae*. UHLER (1515), Arizona, *Cicada* sp. n.  
*Coccidae*. COCKERELL (354), Colorado, 3 spp. n. COCKERELL (355),  
 Colorado, *Pulvinaria* n. sp. COCKERELL (357), New Mexico, *Tachardia*  
 n. sp. YORK (1647), Ohio, *Aspidiotus* n. sp.  
*Trichoptera*. MORTON (1075), New York, *Hydroptilidae*, 12 spp. n.  
 ULMER (1518A), 4 spp. n.  
*Neuroptera*. BAKER (64), California, *Pelta* n. sp., Nevada, *Berotha*  
 n. sp. BANKS (71), N. Carolina, *Trichoptera*, *Panorpidae*, *Perlidae*  
 spp. n. CURRIE (383), Texas, *Brachynemurus* sp. n. NEEDHAM  
 (1092), *Micromus* n. sp.  
*Perlidae*. BANKS (73), 3 spp. n. NEEDHAM (1089), New York, n. g.  
*Perlidae*.  
*Psocidae*. RIBAGA (1264), California n. g.  
*Termitidae*. DESNEUX (401), *Termes* n. spp.  
*Ephemeridae*. NEEDHAM (1093), Revision with 5 spp. n.  
*Odonata*. OSBURN (1127), Brit. Columbia, annotated catalogue.  
 WILLIAMSON, Rockcastle Riv., *Odonata*, Ohio Natural. v, pp. 309, 310.  
 CURRIE, Kootenay district, Brit. Columbia, P. ent. Soc. Washington vii,  
 pp. 16-20.  
*Thysanoptera*. HINDS (748), Florida, *Euthrips* sp. n.  
*Thysanura*. ESCHERICH (525), Texas, *Atelura* sp. n. SILVESTRI  
 (1397), Texas, *Nicoletia*, 2 spp. n.  
*Collembola*. FRANKLIN (597), *Entomobrya* sp. n.  
*Orthoptera*. BAKER (63), Western side, list, *Ecanthus* n. spp.  
 Lower California, *Acrididae*, 3 spp. n., see Centr. Amer., BOLÍVAR.  
 BRUNER (670), *Acrididae* spp. n. CAUDELL (287), Arizona,  
*Forficulidae*, *Acrididae*, 6 spp. n. CAUDELL (289), California, *Melanoplus*,  
*Trimerotropis* n. sp. CAUDELL (290), Kansas, *Amblycorypha* n. sp.  
 CAUDELL (291), Florida, *Aplopus* n. sp. CAUDELL (292), Indiana,  
*Bacunculus* sp. n. CAUDELL (294), S. W. Texas, *Anaplecta*, *Phasmid.*,  
*Acrid.*, 5 spp. n. CAUDELL, Ent. News xvi, pp. 216-219, Florida,  
 annotated list. DAVIS (390), New Jersey, *Orchelimum*, *Conocephalus*,  
 n. sp. REHN & HEBARD (1242), Florida, *Acrididae* 2 spp. n., *Locustidae*  
 4 spp. n., *Gryllidae* sp. n. STEVENSON, Ent. News Philad. xvi, p. 98,  
 Montreal, *Blattidae*. WALKER (1562), Ontario, *Locustidae*, *Ceuthophilus*  
 sp. n.

#### 10. CENTRAL AMERICA (MEXICO to PANAMA incl.).

- Coleoptera*. BERNHAUER (103), Mexico, *Lispinus* n. sp. BERNHAUER  
 (104), Costa Rica, *Brachydirus* sp. n. CASEY (285), incl. Lower  
 California, *Paderini* n. genn., n. spp. CASEY (286), Chihuahua,  
*Carabus* n. sp. CHAMPION (670), *Curculionidae*, *Cryptorhynchides*, many  
 novelties. FALL (538), Lower California, *Ptinidae* n. spp. FAUVEL  
 (546), *Oxytelus* sp. n. HOPKINS (758), Mexico, *Scolytidae*, 10 spp. n.

- LÉVEILLÉ (947), Mexico, *Corticotomus* sp. n. OHAUS (1117), *Rutelidae*, 7 spp. n. PANGELLA (1135), Costa Rica, *Passalidae*, 3 spp. n. PIC (1188), Mexico, *Eupactus* n. sp. SHARP (670), *Chelonarium*, 4 spp. n., *Rhipidanandrus*, 2 spp. n. WATERHOUSE (1590), Mexico, *Halicta* sp. n. WEISE (1600), Mexican *Hispida*, list of, with 5 spp. n. ZANG (1665), *Passalidae*, 2 spp. n. ZANG (1667), Chiapas, *Proculus* n. sp. Lower California, see N. Amer. Col., SCHAEFFER.
- Hymenoptera*. ANDRÉ (25), *Rhoptromutilla* n. sp. BRUES (199), Mexico, *Anteon* n. sp. CAMERON (242), Panama, n. g. *Larridae*. CAMERON (250), Mexico, *Masaridae*, *Fossoria*, *Ichn.*, *Bracon.*, *Oxyura*, 30 spp. n. CAMERON (251), Mexico, *Fossoria*, 8 spp. n., *Odynerus* and *Agrypus* n. sp., *Braconidae*, 5 spp. n., *Heptamerocera* sp. n. CAMERON (252), Mexico, *Odynerus*, 4 spp. n. CAMERON (272), *Fossoria*, *Ichneumon.*, *Bracon.*, *Proctotryp.*, *Chalcid.*, 52 spp. n. CAMERON (273), Nicaragua, *Mutillidae*, *Tiphidae*, *Eumenidae*, *Ichneumonidae*, 8 spp. n. COCKERELL (324), Mexico, *Prosopis* sp. n. COCKERELL (341), Oaxaca, *Triepeolus* n. sp. EMERY (494), Costa Rica, *Camponotus* sp. n. KIEFFER (841), Costa Rica, n. g. *Diapriinae*. KRIEGER (895), *Neotheronia* sp. n. MAYR (1017), Mexico, *Andricus* sp. n. MOCSARY (1055), Costa Rica, *Rhyssa* 3 spp. n. PÉREZ (1147), Mexico, *Centris*, *Celiioxys* spp. n. SZÉPLIGETI (1465), Costa Rica, n. g. *Ophioninae*.
- Lepidoptera*. DOGNIN (438), Costa Rica, *Nacoleia* n. sp. DOGNIN (439), San Salvador, *Dasylophia* n. sp. DOGNIN (442), San Salvador, *Adelocephala* n. sp. DYAR (472), *Limacodidae*, 7 spp. n. HALL, *Rhopalocera*, Entomologist 1905, pp. 228-231. HAMPSON (715), *Hadeninae* n. sp. HAMPSON (716), *Isanthrene* sp. n. HAMPSON (717), Panama, *Ingwa* n. sp. and n. g. *Noctuidae*. PACKARD (1131), Jalapa, *Adelocephala* sp. n. SCHAUS (1329), *Bombyces*, Mexico, 8 spp. n., Panama, 2 spp. n., Costa Rica, 1 sp. n. STICHEL & RIFFARTH (1452), *Heliconidae*, localities. THIEME (1490), Mexico, *Pedaliodes* sp. n. WARREN (1571), *Erosia* sp. n. and *Geometridae*, 3 spp. n. WARREN (1572), *Epiplema*, 2 spp. n., *Geometrid.* many spp. n.
- Diptera*. ALDRICH (14), General Catalogue. COQUILLET (366), Mexico, *Ceratopogon*, 2 spp. n. COQUILLET (371), Mexico and Costa Rica, *Culicidae*, 3 spp. n. HINE (749), Guatemala, *Chrysops*, 3 spp. n.
- Hemiptera*. BAKER (56), Guatemala and Nicaragua, *Eugnathodus*, 5 spp. n. BAKER (58), Nicaragua, *Erythria*, 4 spp. n. BAKER (58), Nicaragua, *Typhlocybini* n. g. BAKER (59), *Typhlocybini*, 11 spp. n. BAKER (60), Nicaragua, *Macropsis* n. sp. BREDDIN (184), Costa Rica, *Edessa* n. sp. FOWLER (670), *Issidae*, *Dephacidae*, spp. n. KIRKALDY (861), Mexico, *Trioza* n. sp.
- Trichoptera*. ULMER (1518), Mexico, *Hydropsyche* sp. n. ULMER (1518A), Mexico, *Wormaldia* n. sp.
- Neuroptera*. BAKER (64), Nicaragua, *Megalomus* n. sp.
- Odonata*. WILLIAMSON (1635), Account of trip.
- Orthoptera*. BAKER (63), Nicaragua, *Bostra* and *Cyrtorhiza* n. sp., *Oecanthus* n. sp., *Heterocois* (sic) n. sp. BOLÍVAR (130), Lower California, *Orthacrinae*, 3 spp. n. BRUNER (206), Costa Rica, *Proscopidae*, 2 genn. n. BRUNER (670), *Acridiidae* spp. n. BURR (219), Guatemala, *Forficula* sp. n. REHN (1238), Costa Rica, *Acridiidae*, 18 spp. n. REHN (1239), Costa Rica, list with *Blattidae*, *Phasmidae*, *Locustidae*, *Gryllidae* n. spp.

## 11. ANTILLES, including BERMUDAS, BAHAMAS, BARBADOS. For Trinidad see 12.

- Coleoptera*. BERNHAUER (103), Grenada, *Thinobius*, *Parosus* n. sp. OHAUS (1117), S. Domingo, *Pelidnota* n. sp. PIC (1175), Gaudeloupe,

*Petalium* sp. n. PIC (1182), Cuba, *Eupactus* n. sp. PIC (1192), Guadeloupe, n. g. *Dorcatomini*. SCHAUFUSS (1328), Guadeloupe, *Stephanoderes* sp. n.

*Hymenoptera*. WHEELER (1620), Bahamas and Antilles, *Formicidae*, lists, n. spp.

*Lepidoptera*. DRUCE (456), Cuba, *Perrhanæa* sp. n. HAMPSON (715), Jamaica, *Hadenine* n. sp. HAMPSON (716), Jamaica, *Napata* n. sp., *Eucereon* n. sp., Cuba, *Cincia* n. sp. HAMPSON (717), Cuba, *Eutelia* n. sp. SCHAUS (1329), Cuba, *Robinsonia*, Jamaica, *Tolype* sp. n. WARREN (1568), Grenada, *Hemioplisis* sp. n. WARREN (1572), *Geometridæ* n. spp.

*Diptera*. ALDRICH (14), General Catalogue. COQUILLET (366), Cuba, *Ceratopogon* sp. n. COQUILLET (368), Barbados, *Cecidom.* n. sp. COQUILLET (370), Cuba, *Thelairoides* n. sp. COQUILLET (371), Cuba, S. Domingo, St. Thomas, Guadeloupe, *Culicidæ*, 4 spp. n. GRABHAM (684), Jamaica, *Culicidæ* spp. n. JOHANNSEN (820), St. Vincent, *Chironomus* sp. n. LUDLOW (986), Porto Rico, *Culex* sp. n. THEOBALD (1484), Jamaica, Handbook of *Culicidæ*, 1 sp. n.

*Thysanura*. ESCHERICH (525), *Acrotelsa* n. sp.

*Orthoptera*. CAUDELL (293), Porto Rico, *Ischnoptera* n. sp. MORSE (1072), Bahamas, *Acrididæ*, *Locustidæ*, *Gryllidæ*, 6 spp. n. REHN (1237), Cuba, *Forficula* n. sp. REHN (1241), Lesser Antilles incl. Barbados, novelties, *Orphulella* sp. n.

## 12. SOUTH AMERICA, including TRINIDAD.

*Coleoptera*. BERNHAUER (103), *Staphylinidæ*, 7 spp. n. BERNHAUER (104), *Staphylinidæ*, 17 spp. n. BOURGEOIS (151), Ecuador, *Lycidæ*, 1 sp. n. BRÈTHES (188), Tucumán, *Cyclocephala*, 2 spp. n. BRÈTHES (190), *Lathridiidæ* n. g. FAIRMAIRE (535), Argentina, *Heteromera*, 39 spp. n. FAUVEL (545), Argentina, n. tribe *Staphyl.* FAUVEL (546), *Staphylinidæ* spp. n. GOUNELLE (679), Tucuman, *Coremia* n. sp. GOUNELLE (680), GOYAZ, *Parozodes* sp. n. HAGEDORN (713), Northern S. America, *Scolytidæ*, 8 spp. n. HORN (762), *Tetracha* n. sp. HORN (765), Peru, *Odontochila* sp. n. HORN (772), Amazonas, *Tetracha* n. sp. *Odontochila* n. sp. KERREMANS (835), GOYAZ, *Buprestidæ* n. g. LÉVEILLÉ (957), *Trogositidæ*, 11 spp. n. LÉVEILLÉ (948) *Trogositidæ*, 2 spp. n. LÉVEILLÉ (949), Brazil, *Lophocateres* sp. n. LEWIS (954), *Omalodes*, 2 spp. n. LEWIS (954), Bahia, *Histeridæ* n. g. MOSER (1076), Bolivia, *Blesia* n. sp. OHAUS (1116), Chile and Ecuador, *Apoplognathides*, 4 spp. n. OHAUS (1117), *Rutelidæ*, 39 spp. n. OHAUS (1118), *Spodochlamys*, 4 spp. n., *Anatista* sp. n. OLIVIER (1122), *Macrolampis*, 9 spp. n. OLIVIER (1123), Bolivia, Brazil, *Photuris*, 3 spp. n. PANGELLA (1136), Paraguay and Argentina, *Passalidæ*, 4 spp. n. PIC (1170), Peru, *Anthicus*, 3 spp. n. PIC (1175), Brazil, *Petalium* n. sp. PIC (1176), Brazil, *Hylophilus* 7 spp. n. PIC (1182), *Astylus*, *Cathorama*, *Priotoma* n. sp. PIC (1188), *Priotoma* n. sp., *Lanthanus* n. sp. SPAETH (1430), *Cassididæ*, 14 spp. n. STIERLIN, Ann. Soc. ent. Belgique 1905, p. 140, S. Patagonia, *Otiorynchus antarcticus*. THERY (1489), Guyaquil, *Ectinogonia* sp. n. VACHAL (1526), Chile, *Apidæ* n. g. WATERHOUSE (1590), *Buprestidæ*, 6 spp. n. WEISE (1609), Bolivia, n. g. *Cassididæ*. ZANG (1665), Peru and Bolivia, *Passalidæ*, 2 spp. n. ZANG (1667), Venezuela, *Verres* n. sp.

*Hymenoptera*. ANDRÉ (25), *Mutillidæ*, 7 spp. n. BRAUNS (176), Brazil, *Mesostenus*, 2 spp. n. BRÈTHES (187), La Plata, *Ichnemouidæ*, 4 spp. n., *Tetrastichus* n. sp. BRÈTHES (188), Tucumán, *Iphiaulax*



- n. sp. BUYSSE (230), *Odynerus* sp. n. BUYSSE (231), Bahia, *Charterginus* sp. n. CAMERON (251), *Iphiaulax*, *Agathis*, 6 spp. n.
- COCKERELL (332), Ega, *Augochlora* sp. n. DUCKE (460), Pará, *Cleptes*, 2 spp. n. DUCKE (461), Social *Vespidæ*, n. genn., n. spp. DUCKE (462), Lower Amazons, *Zethus*, 3 spp. n. DUCKE (463), Obydos, *Melissa* sp. n. EMERY (493), Ecuador, *Ectatomma* sp. n. EMERY (494), *Camponotus*, 9 spp. n. ENDERLEIN (499), *Braconidæ*, 4 spp. n.
- ENDERLEIN (502), Peru and Bolivia, *Evaniidæ*, 8 spp. n. FOREL (591), *Formicidæ*, 8 spp. n. FRIESE (605), Chile, *Megachile* and *Celexys*, 10 spp. n. IHERING (800), Brazil, *Vespidæ*, monograph, 3 spp. n.
- KIEFFER (841), Brazil n. g. *Dryinæ*. KONOW (884), S. Am. incl. Chile, *Tenthredinidæ*, 6 spp. n. KRIEGER (895), *Neotheronia*, 42 spp. n.
- MOCSÁRY (1055), *Rhyssa*, 7 spp. n. SCHROTTKY (1350), Argentina, Uruguay, Paraguay, Catalogue. SCHROTTKY (1351), Paraguay, *Apidæ*, 5 spp. n. SCHULZ (1359), *Trigonalidæ*, *Diptoptera*, *Meliponides* n. spp. SZÉPLIGETI (1465), *Ophioninæ*, 3 spp. n.
- Lepidoptera*. CLARK (321), Venezuela, Margarita isld., *Rhopalocera*. DOGNIN (438), *Pyralidæ*, *Tortricidæ*, *Tineidæ*, 61 spp. n. DOGNIN (439), *Notodont.*, 3 spp. n., *Cossidæ*, 2 spp. n., *Lasiocamp.*, 3 spp. n.
- DOGNIN (440), Peru, *Eucereon*, *Ctenucha*, *Cymbalophora*, *Saturnia*, sp. n. DOGNIN (441), Peru and Colombia, *Hydrias*, *Perophora*, *Edebeessa* spp. n. DOGNIN (442), Argentina, *Adeloccephala* n. sp. DRUCE (453), *Noctuidæ*, 10 spp. n. DRUCE (454), Venezuela and Peru, *Syntomidæ*, *Arctidæ*, 26 spp. n. DRUCE (455), N. W. S. Amer., *Notodontidæ*, 7 spp. n. DYAR (472), *Limacodidæ*, n. genn., n. spp. GODMAN (671), *Satyridæ*, 13 spp. n. HAENSCH (712), new *Ithomiinæ*. HAMPSON (715), Brazil, Patagonia etc., *Hadeninæ* n. spp. HAMPSON (716), third Suppl. to Cat. Lep. Phal., many spp. n., *Syntom.*, *Arct.*, *Noct.* HAMPSON (717), *Noctuidæ* n. spp. HAMPSON (718), Amazons, n. g. *Chrysauginæ*.
- KAYE (828), Brit. Guiana, *Napeogenes* and *Hyrmina* sp. n.
- ROTHSCHILD (1305), Bolivia, *Papilio* sp. n. SCHAUS (1329), *Bombyces*, about 400 n. spp. STICHEL & RIFFARTH (1452), *Heliconiidæ*, localities.
- THIEME (1490), *Pedaliodes*, 40 spp. n. THIERRY-MIEG (1493), *Geometridæ*, 7 n. spp., *Noctuidæ* n. g. WARREN (1568), Guiana, *Thyrididæ*, 8 spp. n. WARREN (1571), chiefly Peru, *Geometridæ*, *Uran.*, *Thyrid.*, 68 spp. n. WARREN (1572), *Thyrid.* sp. n., *Epiplemidæ*, 3 spp. n., *Geometrid.* many spp. n. WEEKS (1594), Bolivia, lists, *Rhopalocera*, account of trip.
- Diptera*. ALDRICH (15), Brazil, *Psilopodinus*, 2 spp. n. BECKER (89), Ile des États, n. g. *Ephydridæ*. BEZZI (114), *Empidæ*, catalogue, many spp. n. BRÈTHES (188), Tucuman, *Leptogaster* n. g., *Asilidæ*, *Baccha*, *Euxesta* n. sp. BRUES (200), Peru, *Phoridæ*, 5 spp. n. COQUILLET (371), Trinidad, *Culicidæ*, 2 spp. n. GOELDI (672), Brazil, *Chironomus* n. spp., *Hæmatomyidium* n. g., *Simulium* n. sp. HOLMGREN (756), Peru, *Termitomastidæ*, 2 spp. n. RIBEIRO (1265), Minas Geraes, *Nycteribidæ* n. g. RÜBSAAMEN (1316), Brazil and Peru, *Cecid.*, galls etc., etc., n. spp.
- SPEISER (1437), *Lipoptena* sp. n. THEOBALD (1477), *Culicidæ*, 2 spp. n. THEOBALD (1478), Brit. Guiana, *Culicidæ*, 2 spp. n.
- Aphaniptera*. ENDERLEIN (508), Argentina, *Malacopsylla* n. sp. ROTHSCHILD (1301), Brazil, *Pulex* sp. n.
- Hemiptera*. SCHMIDT (1333), *Fulgoridæ*, 3 spp. n. SCHMIDT (1332), Ecuador, *Sassula* n. sp. BRÈTHES (188), Tucumán, *Jassus* n. sp.
- BREDDIN (184), *Pentat.*, 9 spp. n. BERGROTH (99), *Coreid.*, *Reduv.*, 5 spp. n. MONTANDON (1058), *Ranatra*, 3 spp. n. MONTANDON (1059), *Cryptocerata*, 3 spp. n. KIRKALDY (859), Peru, *Tingidæ*, 3 spp. n. JACOBI (807), Peru, *Jassidæ*, 50 spp. n. HORVÁTH (774), Peru, *Parajalysus*, 2 spp. n. DISTANT (429), Argentina, n. g. *Tibicinæ*. DISTANT (427), Rio Salado, *Derotettix* n. sp. DISTANT (426), Peru and

- Chile, *Cicadidae*, 2 spp. n. DISTANT (424), *Cicadidae*, 2 spp. n.  
 DISTANT (423), *Cicadidae*, 9 spp. n. DISTANT (430), Bolivia, *Fulgoridae*,  
 2 spp. n. DISTANT (425), Peru and Bolivia, *Cicadidae*, 3 spp. n.  
*Coccidae*. COCKERELL, Paraguay, *Lecanium perlatum*, Nature lxxii,  
 p. 397. COCKERELL (338), Paraguay and Chile, *Coccidae*, 3 spp. n.  
*Trichoptera*. ULMER (1517), 26 n. spp. ULMER (1518 A), 11 n. spp.  
 ULMER (1518), Patagonia, *Limnophilus*, n. sp.  
*Perlidae*. ENDERLEIN (504), Tierra del Fuego, 3 n. spp.  
*Psocida*. ENDERLEIN (497), Argentina, n. g. aff. *Troctes*.  
*Odonata*. FÖRSTER (595), Paraguay, *Libellulidae*, 3 spp. n. NEEDHAM  
 (1090), Brazil, n. g. *Libellulina*.  
*Thysanura*. ESCHERICH (525), Colombia and Blanquille, *Lepismatidae*,  
 2 spp. n. SILVESTRI (1394), Chile, *Thysanura*, 3 spp. n. SILVESTRI  
 (1397), Venezuela, *Nicoletia* n. sp.  
*Orthoptera*. BOLÍVAR (128), Myrmecophilous *Blattidae*, n. genn., n. spp.  
 BOLÍVAR (130), Pernambuco, n. g. *Atractomorphina*. BORELLI (145),  
 Paraguay, *Forficulidae*, 5 spp. n. BRUNER (205), Paraguay, *Acridiidae*,  
 2 spp. n. BURR (219), *Forficulidae*, 2 spp. n. REHN (1237), Peru  
 and Colombia, *Forficulidae*, 3 spp. n. REHN (1240), Paraguay, n. g.  
*Acridiidae*.

#### PALÆO-ENTOMOLOGY.

- Table of the periods of first appearance of fossils, HANDLIRSCH (723).  
 Insects in copal, extraction of, their state of preservation, PROWAZEK  
 (1219).  
*Diptera* and *Hymenoptera* from Madagascar Copal, see MEUNIER (1040)  
 and Systematic.  
 Monograph of *Psychodidae* in Baltic amber, MEUNIER, Ann. Mus. Hungar.  
 iii, pp. 235-255, pls. vi, vii.

#### *Coleoptera*.

- ZANG, in SB. Ges. naturf. Berlin, 1905, describes the following *Col.* from  
 Baltic amber.  
*Platycerus berendti*, p. 199, pl. f. 1, n. sp.  
*Aphodius succini*, p. 204, pl. f. 5, n. sp.  
*Pogonochærus jackeli*, p. 233, pl. f. 5, n. sp.  
*Nothorrhina granulicollis*, p. 236, pl. f. 1, n. sp.  
*Dorcuschema succineum*, p. 240, pl. f. 6, n. sp.  
*Strangalia berendiana*, p. 243, pl. f. 4, n. sp.  
 Re-examination of Berendt's determinations of *Longicornia* in Baltic  
 amber, ZANG, pp. 232-245, 1 pl., t. c.

#### *Hymenoptera*.

- Dimorphomyrmex theryi*, Baltic amber, EMERY, p. 188, Bull. Soc. ent.  
 France 1905, n. sp.  
*Gonatocerus henneberti*, Baltic amber, MEUNIER, p. 2, Miscell. ent. xiii,  
 n. sp.  
*Limacis armata*, Baltic amber, id. p. 3, t. c. n. sp.

#### *Diptera* (*Cecidomyiidae*).

- Meunieria* n. g. for *Miastor* of amber, KIEFFER, p. 408, Ann. Soc. Bruxelles  
 xxviii.

#### *Diptera* (*Psychodidae*).

- Palæosycorax* n. g. *tertiaria* n. sp., Baltic amber, MEUNIER, p. 50, Miscell.  
 ent. xiii.

*Pericoma formosa*, p. 243, *speciosa*, p. 244, Baltic amber, MEUNIER, t. c. n. spp.

*Psychoda eocenica*, Baltic amber, MEUNIER, p. 246, t. c. n. sp.

*Trichomyia pulchra*, p. 246, *formosula*, *concinna*, p. 247, *decora*, *tenera*, p. 248, *procera*, p. 249, *nova*, *distincta*, p. 250, Baltic amber, MEUNIER, t. c. n. spp.

*Diplonema crassicornis*, Baltic amber, MEUNIER, p. 251, Ann. Mus. Hungar. iii, n. sp.

*Sycorax tumultuosa*, *prompta*, Baltic amber, MEUNIER, p. 253, t. c. n. spp.

*Éatonisca* n. g. *tertiaria* n. sp., Baltic amber, MEUNIER, p. 253, t. c.

*Phlebotomus tipuliformis*, Baltic amber, MEUNIER, p. 254, t. c. n. sp.

### Diptera (*Mycetophilidæ*).

MEUNIER, Ann. Soc. Bruxelles, gives a table of fossil *Mycetophilidæ*, pp. 93-100, and describes the following new forms from Baltic amber :

*Mycetobia calida*, p. 101, t. c. n. sp.

*Macrocera longicornis*, *abundans*, p. 102, *ciliata*, *filiformis*, p. 104, *elegantissima*, p. 105, t. c. n. spp.

*Platyura kunowi*, p. 107, *veralli*, p. 108, *graciosa*, p. 109, *moniliformis*, p. 110, *ectorsii*, p. 111, *mikii*, *distincta*, p. 112, *ceroplatoïdes*, *ceroplatites*, p. 114, t. c. n. spp.

*Asindulum longipalpis*, p. 115, *girschneri*, *curvipalpis*, p. 116, *elegantulus*, p. 117, t. c. n. spp.

*Sciophila helmi*, p. 124, *subquadrata*, *crassicornis*, p. 125, t. c. n. spp.

*Empheria minor*, p. 126, *major*, p. 127, t. c. n. spp.

*Polylepta filipes*, p. 127, t. c. n. sp.

*Ceroplatus major*, p. 183, t. c. n. sp.

*Palæoempalia crassipes*, p. 128, *brongniarti*, *succini*, p. 129, *mutabilis*, *broeckii*, p. 130, *cylindrica*, p. 184, t. c. n. spp.

*Empalia subtriangularis*, p. 131, t. c. n. sp.

*Loewiella indistincta*, *incompleta*, p. 132, *tenebrosa*, *ciliata*, p. 133, *mucronata*, *asinduloides*, p. 134, *empalioides*, p. 135, t. c. n. spp.

*Lasiosoma curvipetiolata*, p. 135, t. c. n. sp.

*Tetragoneura elongatissima*, *elongata*, p. 136, *rectangulata*, *glabra*, p. 137, *borussica*, *gracilis*, p. 138, *minuta*, p. 139, t. c. n. spp.

*Syntemna elongata*, *pinites*, p. 150, *compressa*, p. 151, *subcylindrica*, p. 152, *subquadrata*, *sciophiliformis*, p. 153, t. c. n. spp.

*Palæoannacina* n. g. *curvipetiolata*, p. 154, *distincta*, *affinis*, p. 155, MEUNIER, t. c. n. spp.

*Proanaclina* n. g. *giebeli*, *gibbosa* n. spp., MEUNIER, p. 156, t. c.

*Anacliteia* n. g. *anacliniiformis*, p. 157, *sylvatica*, *gazagnairei*, p. 158, *dissimilis*, p. 159, MEUNIER, t. c. n. spp.

*Palæophthinia* n. g. *aberrans* n. sp., MEUNIER, p. 160, t. c.

*Archæoiletina* n. g. *tipuliformis* n. sp., MEUNIER, p. 160, t. c.

*Palæoboletina* n. g. *grandis*, p. 161, *elongatissima*, p. 162, n. spp., MEUNIER, t. c.

*Proboletina* n. g. *syntemniiformis* n. sp., MEUNIER, p. 162, t. c.

*Boletina anacliniiformis*, p. 163, *onstaleti*, *pilosa*, *fimbriata*, p. 164, *hirta*, p. 165, *hirtella*, *subhirta*, p. 166, *conspicua*, *serrata*, p. 167, t. c. n. spp.

*Proneoglyphyoptera* n. g. *eocenica* n. sp., MEUNIER, p. 169, t. c.

*Neoglyphyoptera curvipetiolata*, p. 170, *longipetiolata*, p. 170, *crassipalpis*, *longipalpis*, p. 171, t. c. n. spp.

*Palæodocosia* n. g. *brachypezoides* n. sp., MEUNIER, p. 172, t. c.

*Docosia petiolata*, p. 173, *varia*, *subtilis*, p. 174, t. c. n. spp.

*Allodia fungicola*, *succinea*, p. 175, *separata*, *brevicornis*, p. 176, t. c. n. spp.

*Brachycampta extincta*, p. 177, *antiqua*, *procera*, *tomentosa*, p. 178, t. c. n. spp.

*Palæotrichonta* n. g. *brachycamptites* n. sp., MEUNIER, p. 179, t. c.

- Trichonta brachycamptoides*, p. 179, *crassipes*, p. 180, t. c. n. spp.  
*Phronia ciliata*, t. c. p. 180, n. sp.  
*Palæoepicypta* n. g. *longicalcar* n. sp., MEUNIER, p. 181, t. c.  
*Mycothera cordyliformis*, *agilis*, p. 182, t. c. n. spp.  
*Dynatosoma crassicornis*, p. 172, t. c. n. sp.  
*Azana rarissima*, p. 184, t. c. n. sp.  
*Acnemia bolsiusi*, p. 185, t. c. n. sp.

#### *Diptera (Chironomidæ).*

- MEUNIER, in the same work, Ann. Soc. Bruxelles xxviii, describes the following new *Chironomidæ* from Baltic amber  
*Chironomus vagabundus*, p. 209, *tenebrosus*, *elegantulus*, p. 210, *umbraticus*, *meticulosus*, p. 211, *umbrosus*, *inglorius*, p. 212, *subobscurus*, *uliginosus*, p. 213, *tenebricosus*, *abietarius*, p. 214, *pulidosus*, *uliginosus* (sic), p. 214, *lacunus*, *lacus*, p. 216, t. c. n. spp.  
*Cricotopus crassicornis*, p. 216, *antiquus*, p. 217, *amniculus*, *alluvionis*, p. 218, *pygmeus*, *delicatus*, p. 219, *robustus*, *permutabilis*, p. 220, *variabilis*, *pulchellus*, p. 221, *ambiguus*, p. 222, *dilapsus*, *abiegnus*, p. 223, *paganus*, *insolitus*, p. 224, *saluosus*, *coniferus*, p. 225, *extinctus*, *memorivagus*, p. 226, *minutissimus*, *minutus*, p. 227, t. c. n. spp.  
*Tanytarsus insularis*, p. 228, *wulpii*, *maritimus*, p. 229, t. c. n. spp.  
*Eurycnemus vulgaris*, p. 229, *stagnum*, *tenellus*, p. 230, *appendiculatus*, *hyalinus*, *pilosellus*, p. 231, t. c. n. spp.  
*Camptocladus flexuosus*, *sinuosus*, p. 232, t. c. n. spp.  
*Tanypus fusiformis*, p. 233, *porrectus*, *compactus*, p. 234, *subrotundatus*, *eridanus*, p. 235, *longicornis*, *parvus*, p. 236, *filiformis*, p. 237, t. c. n. spp.  
*Ceratopogon turbinatus*, *unculus*, p. 238, *piriformis*, *prominulus*, p. 239, *eminens*, *defectus*, *speciosus*, p. 240, *flagellus*, p. 241, *elongatus*, *cothurnatus*, p. 242, *lacus*, p. 243, *falcatus*, p. 244, *sinuosus*, *spinus*, p. 245, *forcipiformis*, *obtusus*, *gracilitarsis*, p. 247, t. c. n. spp.

#### *Diptera (Muscidæ acal.).*

- Agromyza minuta*, p. 90, *aberrans*, p. 91, Baltic amber, MEUNIER, Ann. Soc. Bruxelles xxix, n. spp.

#### *Psocidæ.*

- Amphientomum colpolepis*, p. 577, *leptolepis*, p. 580, Prussian amber, ENDERLEIN, Zool. Anz. xxix, n. spp.

### III. SYSTEMATIC.

N.B.—The reference numbers collected under the headings of the various groups refer to "Titles" on pp. 5-86, and are intended to give, in each case, a complete list of all memoirs containing anything of importance in connection with the group.

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*Herophydrus erythræus*, Africa, RÉGIMBART, p. 203, Bull. Soc. ent. Ital. xxxvi, n. sp.  
*Hydaticus abyssinicus*, p. 225, *basicollis*, p. 226, East Africa, RÉGIMBART, t. c. n. spp.  
*Hydroporus guernei*, in France, CHABAUT, p. 156, Bull. Soc. ent. France 1905; *H. bilineatus hopffgarteni*, CHITTY, p. 66, Ent. Mag. 1905.

- H. jakolevi*, Angara, p. 25, *glasunovi*, Turkestan, p. 26, ZAITZEV, Rev. Russe Ent. 1905; *H. tellinii*, Erythrea, RÉGIMBART, p. 202, Bull. Soc. ent. Ital. xxxvi : n. spp.  
*Hydrovatus spissicornis*, Erythrea, RÉGIMBART, p. 207, t. c. n. sp.  
*Rhantus pictiventris*, Erythrea, RÉGIMBART, p. 208, t. c. n. sp.  
*Sieltitia*, characters, a division of *Graptodytes*, RÉGIMBART, pp. 252-254, Bull. Soc. ent. France 1905; *S.*, characters, cut, MAYET, p. 46, Bull. Soc. ent. France 1905; *S. balsetensis*, habits, ABELLE, p. 225, Bull. Soc. ent. France 1905.

## HYDROPHILIDÆ.

- [Cf. DEVILLE (410), FIORI (569), PERAZZO (1145), PIC (1189), RÉGIMBART (1234).]  
*Helophorus rugosus* injuring turnips, MACDOUGALL, p. 102, J. Board Agric. xii.  
*Hydrena gracilis* var. n. *samnitica*, FIORI, p. 248, Riv. Col. ital. ii.  
*H. picti*, *leprieuri*, *numidica*, Algeria, DEVILLE, p. 2, Echange No. 248, suppl.; *H. explanata*, Algeria, PIC, p. 145, Echange xxi; *H. abyssinica*, *erythrea*, Africa, RÉGIMBART, p. 223, Bull. Soc. ent. Ital. xxxvi : n. spp.  
*Hydrochus perforatus*, Erythrea, RÉGIMBART, p. 220, t. c. n. sp.  
*Hydrophilus piceus*, the variation of, PERAZZO, Atti Acc. Torino xl, pp. 885 & 1089, 1 pl.  
*Laccobius erlangeri*, *propinquus*, Erythrea, RÉGIMBART, p. 218, Bull. Soc. ent. Ital. xxxvi, n. spp.  
*Limnobius conoideus*, Erythrea, RÉGIMBART, p. 219, t. c. n. sp.  
*Ochthebius atratulus*, p. 221, *andreinii*, p. 222, Erythrea, RÉGIMBART, t. c. n. spp.  
*Philhydrus circumductus*, p. 213, *anticus* with var. *fulvescens*, p. 214, *reductus*, *erythraeus*, p. 215, Erythrea, RÉGIMBART, t. c. n. spp.  
*Sphaeridium scarabæoides*, spread in N. America, BARBER, p. 127, P. ent. Soc. Washington vii, and KNAB, p. 53, Ent. News Philad. xvi.

## STAPHYLINIDÆ.

- [Cf. BERNHAUER (102-105), BILLARD & BRUYANT (117), CASEY (285), FAUVEL (544-547, 549, 550), LUZE (992-995), PEYERIMHOFF (1160), PORTA (1213, 1214), REITER (1249, 1251, 1254), WASMANN (1585, 1588).]  
*Staphylinide* of Italy, pt. 2, *Trichophyini*, *Habrocerini*, *Tachyporini*, PORTA, Riv. Col. ital. iii, pp. 159-204.  
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*Abletobium* n. g. near *Lathrobium*, *pallescens* n. sp., Massachusetts, CASEY, p. 79, Tr. Ac. St. Louis xv.  
*Acalophaena compacta*, Arizona, *horridula*, Mexico, CASEY, p. 146, t. c. n. spp.  
*Acanthoglossa hova*, *longiceps*, Madagascar, FAUVEL, p. 158, Rev. Ent. franc. 1905, n. spp.  
*Acidota*, revision of palæarctic, LUZE, pp. 69-79, Verh. Ges. Wien 1905.  
*A. clandestina*, Croatia, p. 75, *minuta*, Morea, p. 76, *sculpturata*, Caucasus, p. 77, id. t. c. n. spp.  
*Actobius leptocerus*, *boops*, p. 177, *oculatus*, p. 178, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.  
*Acylophorus delphinus*, Madagascar FAUVEL, p. 181, t. c. n. sp.

- Aderobium* n. g. type *Cryptobium angustifrons* Sharp, CASEY, p. 28, Tr. Ac. St. Louis xv.
- Aleochara capitata* = (*Microglossa rugipennis* Luze), BERNHAUER, p. 596, Verh. Ges. Wien 1905.
- A.* (*Rheochara*) *fenyesi*, California, BERNHAUER, p. 255, Deutsche ent. Zeitschr. 1905, n. sp.
- Alianta pictipennis*, Perim, FAUVEL, p. 142, Rev. Ent. franc. 1905; *A. rudis*, Africa, FAUVEL, p. 198, t. c. : n. spp.
- Amaurodera* n. g. for *Falagria veluticollis* Motsch., *opacicollis* Kr., and *Astilbus opacicollis* Fpp., FAUVEL, p. 142, t. c.
- Amaurodera kraepelini*, Java, FAUVEL, p. 35, Mt. Mus. Hamburg xxii, n. sp.
- Anceus nitidissimus*, Engano, BERNHAUER, p. 10, Deutsche ent. Zeitschr. 1905, n. sp.
- Anchocerus* n. g. near *Acylophorus*, *birmanus* n. sp., Burma, FAUVEL, p. 141, Rev. Ent. franc. 1905.
- Ancyrophorus emarginatus* = (*Psilotrichus elegans* Luze), BERNHAUER, p. 596, Verh. Ges. Wien 1905.
- Anisolinus raffrayi*, p. 180, *anthracinus*, p. 181, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
- Apteralium* n. g. for part of *Lathrobium*, p. 77, *A. carolinae* n. sp., N. America, p. 78, CASEY, Tr. Ac. St. Louis xv.
- Astenus perangustus*, p. 153, *punctipennis*, *perrieri*, p. 154, *psilographus*, p. 155, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
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- Atheta* (*Liogluta*) *bertolinii*, Trentino, PORTA, p. 180, Riv. Col. ital. ii; *A. (Aloconota) chiffana*, Algeria, FAUVEL, p. 192, Rev. Ent. franc. 1905; *A. hyperbolica*, Tunis, BERNHAUER, p. 589, Verh. Ges. Wien 1905; *A. (Amischa) virgula*, Java, FAUVEL, p. 84, Mt. Mus. Hamburg xxii : n. spp.
- Bioerypta* n. g. for *Cryptobium perspicuens* Lec., CASEY, p. 51, Tr. Ac. St. Louis xv.
- Bledius lecontei* n. n. for *cribricollis* Lec., *B. monstratus* Casey queried, BERNHAUER, p. 14, Deutsche ent. Zeitschr. 1905.
- B. winkleri*, Cephalonia, BERNHAUER, p. 588, Verh. Ges. Wien 1905; *B. bipustulatus*, E. Africa, BERNHAUER, p. 14, Deutsche ent. Zeitschr. 1905 : n. spp.
- Borboropora kraatzii* in putrid snails, CHABANAUD, p. 207, Bull. Soc. ent. France 1905.
- B. grandis*, N. America, BERNHAUER, p. 21, Deutsche ent. Zeitschr. 1905, n. sp.
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- Caloderma pollens*, p. 184, *peregrina*, *conjux*, *discolor*, p. 185, *mollis*, *exilis*, *brevipennis*, *quadripennis*, p. 185, N. America, CASEY, Tr. Ac. St. Louis xv, n. spp.
- Conurus pulchricolor*, p. 183, *gracilicornis*, *connexus*, p. 184, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
- Coryphium* = (*Polychelus* Luze), BERNHAUER, p. 595, Verh. Ges. Wien 1905.
- Creophilus maxillosus*, larva, pl. f. 11, p. 28, MjöBERG, Arkiv Zool. ii; No. 17.
- Cryptobiella* n. g. *colonica* n. sp., Panama, CASEY, p. 29, Tr. Ac. St. Louis xv.
- Cryptobium alluaudi*, Madagascar, FAUVEL, p. 168, Rev. Ent. franc. 1905, n. sp.
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- Delopsis microphthalma*, Java, BERNHAUER, p. 12, Deutsche ent. Zeitschr. 1905, **n. sp.**
- Deratopeus n. g.* near *Tetartopeus*, p. 112, *parvipennis n. sp.*, Massachusetts, p. 113, CASEY, Tr. Ac. St. Louis xv.
- Dibelonetes alluardi*, Madagascar, FAUVEL, p. 152, Rev. Ent. franc. 1905, **n. sp.**
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- Echiaster ludovicianus*, N. America, CASEY, p. 247, Tr. Ac. St. Louis xv, **n. sp.**
- Edaphus dentiventris*, Singapore, FAUVEL, p. 137, Rev. Ent. franc. 1905 ; *E. densatus*, Java, FAUVEL, p. 81, Mt. Mus. Hamburg xxii : **n. sp.**
- Erchomus ampliatus*, Gaboon, FAUVEL, p. 198, Rev. Ent. franc. 1905 ; *E. retipennis*, p. 182, *madecassa*, p. 183, Madagascar, FAUVEL, t. c. ; *E. planus*, Tonkin, FAUVEL, p. 142, t. c. : **n. spp.**
- Eucryptina n. g.* type *Cryptobium opacum* Sharp, CASEY, p. 28, Tr. Ac. St. Louis xv.
- Eulathrobium n. g.* for *L. grande*, Lec., CASEY, p. 114, t. c.
- Eustenia n. g.* near *Falagria, aspera*, Java, p. 145, *opacicollis*, Burma, p. 146, **n. spp.**, FAUVEL, Rev. Ent. franc. 1905.
- Gastrobium n. g.* for part of *Cryptobium*, p. 31, *virginicum*, p. 33, *atriceps*, p. 34, *strenuum*, p. 36, with varr. *illiniense* and *spissiceps*, p. 37, *coloradense*, p. 38, *peninsulare, suturale*, p. 39, N. America, **n. spp.**, CASEY, Tr. Ac. St. Louis xv.
- Gauropterus bucharicus*, Buchara, BERNHAUER, p. 585, Verh. Ges. Wien 1905, **n. sp.**
- Geostiba peyerimhoffi*, Algeria, FAUVEL, p. 193, Rev. Ent. franc. 1905, **n. spp.**
- Gnypeta lucens*, California, BERNHAUER, p. 254, Deutsche ent. Zeitschr. 1905, **n. sp.**
- Hemimedon n. g. rufipes*, p. 160, *angustum*, p. 161, **n. spp.**, N. America, CASEY, Tr. Ac. St. Louis xv.
- Hesperobium pacificum* with var. *vancouveri*, p. 44, *clavicorne*, p. 47, *atronitens, parviceps*, p. 48, *rubripenne*, p. 49, N. America, CASEY, **n. spp.**
- Heterolinus distinctus*, Chanchamayo, BERNHAUER, p. 17, Deutsche ent. Zeitschr. 1905, **n. sp.**
- Holotrochus*, descriptions, FAUVEL, pp. 135-137, Rev. Ent. franc. 1905.
- H. brevipennis*, Brazil, BERNHAUER, p. 15, Deutsche ent. Zeitschr. 1905, **n. sp.**
- Homalium vaulogeri*, Tunis, FAUVEL, p. 192, Rev. Ent. franc. 1905, **n. sp.**
- Homalota nigrescens*, Sumatra, FAUVEL, p. 147, t. c. **n. sp.**
- Homodusa acuminata*, habits, WASMANN, pp. 418-420, Zeitschr. Insbiol. i.
- Lamprinus (Lamprinodes)*, habits, WASMANN, pp. 420-424, t. c.
- Lathrimæum*, revision of palæarctic, cf. *Prionothorax*, LUZE, pp. 53-68, Verh. Ges. Wien 1905.
- L. hamatum*, Armenia, p. 59, *metallicum*, Akbès, p. 63, *ganglbaueri*, Hungary, p. 65, *gracilicorne*, Algeria, p. 66, LUZE, t. c. **n. spp.**
- Lathrobiella n. g.* p. 133, for part of *Lathrobium, nigricans*, p. 134, *barda*, p. 135, *gracilicornis, oregonensis, fallax*, p. 136, *vagans, habilis*, p. 137, *merens, amula*, p. 138, *modesta, fragilis*, p. 139, *rubida, famelia*, p. 140, *integra, angustula*, p. 141, **n. spp.**, N. America, CASEY, Tr. Ac. St. Louis xv.
- Lathrobioma n. g.* p. 98, *virginica, shoshonica*, p. 99, *nanula, dakotana, hespera*, p. 100, *nigrolinea, oregona*, p. 102, *scolopacea*, p. 103, **n. spp.**, N. America, CASEY, t. c.

- Lathrobiopsis* n. g. p. 97, *texana* n. sp., N. America, p. 98, CASEY, t. c.  
*Lathrobium catenulatum*, Madagascar, FAUVEL, p. 167, Rev. Ent. franc. 1905 ; *L. amplipenne*, p. 81, *subæquale*, *procerum*, *prælongum*, p. 82, *deceptivum*, *spissicorne*, *nigrolucens*, p. 83, *franciscanum*, *picescens*, *longiventre*, p. 85, *vancouveri*, *illini*, *obtusum*, p. 86, *sparsellum*, *washingtoni*, p. 87, *rigidum*, *postremum*, p. 88, *neglectum*, *innocens*, p. 89, *gravidulum*, p. 90, N. America, CASEY, Tr. Ac. St. Louis xv : n. spp.  
*Lathrolepta* n. g. near *Lathrobium*, p. 103, for *debilis* Lec., CASEY, p. 104, t. c.  
*Lathrotaxis* n. g. p. 122, *centurio*, p. 123, *soror*, *fallaciosa*, p. 124, *præceps*, *angusta*, p. 125, *acomana*, *rubricollis*, p. 126, *florida*, p. 127, *atrontiens*, *galvestonica*, p. 128, N. America, n. spp., CASEY, t. c.  
*Lathrotropsis* n. g. for part of *Lathrobium*, p. 115, *relicta*, p. 116, *gnoma*, *validiceps*, p. 117, *vafra*, *ustulata*, p. 118, n. spp., N. America, CASEY, t. c.  
*Leptacinus politus*, p. 168, *dieganus*, *microphthalmus*, p. 169, Madagascar, FAUVEL, Rev. Ent. franc. 1905 ; *L. cribricollis*, Java, FAUVEL, p. 83, Mt. Mus. Hamburg xxii : n. spp.  
*Leptobium* n. g. type *Doliceon biguttulum* Lac., CASEY, p. 57, Tr. Ac. St. Louis xv.  
*Leptochirus piestoides* = (*foersteri* Bernh.), p. 78, var. n. *cribrellus*, p. 77, FAUVEL, Mt. Mus. Hamburg xxii.  
*Leptorus longicollis*, *boreellus*, p. 197, *sonomæ*, *pugetanus*, p. 198, *robustus*, *pallidus*, *pinalinus*, p. 199, *deceptor*, *filius*, p. 200, *distinctus*, *shastanus*, p. 201, *cervicula*, p. 202, N. America, CASEY, Tr. Ac. St. Louis xv, n. spp.  
*Leptusa koka*, Velika, p. 586, *lombarda*, Monte Grigna, p. 587, BERNHAUER, Verh. Ges. Wien 1905 ; *L. atrocephala*, p. 250, *americana*, p. 251, California, BERNHAUER, Deutsche ent. Zeitschr. 1905 : n. spp.  
*Leucopæderus* n. g. type *P. ustus* Lec., CASEY, p. 67, Tr. Ac. St. Louis xv.  
*Leucorus* n. g. near *Scopæus*, p. 192, *ferrugineus*, *luridus*, *ochrinus*, p. 193, *rubens*, p. 194, n. spp., N. America, CASEY, t. c.  
*Linolathra* n. g. near *Dacnochilus*, p. 131, *gaudens*, p. 132, *filitarsis*, p. 133, n. spp., N. America, CASEY, t. c.  
*Lispinus rufulus*, Gaboon, FAUVEL, p. 194, Rev. Ent. franc. 1905 ; *L. breviceps*, Mexico, BERNHAUER, p. 9, Deutsche ent. Zeitschr. 1905 : n. spp.  
*Lissobiops* n. g. for *Cryptobium serpentinum* Lec., CASEY, p. 50, Tr. Ac. St. Louis xv.  
*Lithocharis simplex*, p. 149, *sonorica*, p. 150, N. America, CASEY, t. c. n. spp.  
*Litolathra* n. g. for part of *Lathrobium*, p. 93, *rhodeana*, *semirubida*, *cruralis*, p. 94, *convictor*, *amputans*, p. 95, *inornata*, *subgracilis*, p. 96, *suspecta*, p. 97, N. America, n. spp., CASEY, t. c.  
*Lobathrium tacomæ*, p. 120, *montanicum*, *coloradense*, p. 121, *bipartitum*, p. 122, N. America, CASEY, t. c. n. spp.  
*Medon meuseli*, Transcaspian, BERNHAUER, p. 584, Verh. Ges. Wien 1905 ; *M. prognathus*, *megalops*, p. 159, *duplicatus*, *dieganus*, p. 160, *made-cassa*, *sexualis*, p. 161, *heterogenus*, *maculipennis*, p. 162, *nova*, *delphinus*, p. 163, Madagascar, FAUVEL, Rev. Ent. franc. 1905 ; *M. præustus*, p. 138, *latecinctus*, *nanus*, p. 139, Java, FAUVEL, t. c. ; *M. heleneæ*, p. 162, *lacustre*, *insulare*, p. 163, *americanum*, *inquilinum*, p. 164, *nitidulum*, *opaculum*, *texanum*, p. 165, N. America, CASEY, Tr. Ac. St. Louis xv : n. spp.  
*Medonella* n. g. *minuta* n. sp., Florida, CASEY, p. 180, t. c.  
*Medonodonta* n. g. p. 176, *alutacea* n. sp., New Mexico, p. 177, CASEY, t. c.  
*Microalathra* n. g. *Lathrobiina*, p. 142, *rutilans* n. sp., Pennsylvania, p. 144, CASEY, t. c.

- Micromedon* n. g. for *Medon seminigrum* Fairm., CASEY, pp. 153, 155, t. c.  
*Monocrypta* n. g. for *Cryptobium apicatum* and *pectorale* Sharp, CASEY, p. 30, t. c.  
*Neomedon arizonense*, N. America, CASEY, p. 156, t. c. n. sp.  
*Neophonus* n. g. and n. trib. near *Omalini*, *bruchi* n. sp., Argentina, FAUVEL, p. 99, Rev. Ent. franc. 1905.  
*Ocalea glabricollis*, Greece, BERNHAUER, p. 590, Verh. Ges. Wien 1905, n. sp.  
*Ocytus olens* and *tenebricosus*, FRIEDRICHS, Zeitschr. Insbiol. i, p. 461.  
*Ocyusa maura*, *picina*, distinguished, CHITTY, p. 91, Ent. Mag. 1905.  
*Oligopterus remotus*, p. 181, *filum*, *flexilis*, p. 182, N. America, CASEY, Tr. Ac. St. Louis xv, n. spp.  
*Olophrum*, revision of palæarctic, LUZE, pp. 33–47, Verh. Ges. Wien 1905.  
*O. transversicollis*, Tyrol, id. p. 41, t. c. n. sp.  
*Omostilicus* n. g. p. 229, *sonorinus* n. sp., Arizona, p. 230, CASEY, Tr. Ac. St. Louis xv.  
*Osorius regularis*, p. 194, *incisifrons*, p. 195, W. Africa, FAUVEL, Rev. Ent. franc. 1905; *O. frontalis*, Sumatra, FAUVEL, p. 134, t. c. : n. spp.  
*Oxymedon* n. g. *rubrum* n. sp., California, CASEY, p. 177, Tr. Ac. St. Louis xv.  
*Oxyptoda* (*Bacoglana*) *dalmatina*, Radostak, BERNHAUER, p. 594, Verh. Ges. Wien 1905; *O. gatosensis*, California, BERNHAUER, p. 256, Deutsche ent. Zeitschr. 1905 : n. spp.  
*Oxyptodinus alienus*, Madagascar, BERNHAUER, p. 20, t. c. n. sp.  
*Oxytelus syriacus*=(*excellens* Luze), BERNHAUER, p. 595, Verh. Ges. Wien 1905.  
*O. extensicornis*, p. 79, *bigemmatum*, *longicornis*, p. 80, Java, FAUVEL, Mt. Mus. Hamburg xxii; *O. punctipennis*, India, *barbatus*, Java, p. 113, *eribrum*, p. 114, *sikkimi*, India, *uncifer*, p. 115, *tenuicornis*, *occipitalis*, p. 116, *raffrayi*, p. 117, Java, *crenulifer*, p. 117, *foraminosus*, p. 118, *pubiventris*, *sericeiventris*, p. 119, *alutellus*, *fuscicornis*, p. 120, *parcepunctatus*, *galla*, p. 121, *hamacenus*, p. 122, *fulgidus*, *megalomerus*, p. 123, *curticollis*, *reductus*, p. 124, *bidentulus*, *viator*, p. 125, Africa, *jelskii*, p. 126, *apicicornis*, *inequalis*, *hamuliger*, p. 127, *levissimus*, p. 128, *striolicollis*, *vulcanus*, p. 129, *monodon*, p. 130, *obscurellus*, S. America, *championi*, Guatemala, *rhopalocerus*, *magdalenæ*, p. 132, *speculiceps*, p. 133, S. America, FAUVEL, t. c. ; *O. paradoxus*, Bolivia, BERNHAUER, p. 177, Deutsche ent. Zeitschr. 1905; *O. spinosus*, p. 13, *sharpi*, p. 14, Brazil, BERNHAUER, t. c. : n. spp.  
*Pachycorinus puncticollis*, p. 169, *scalabrei*, p. 170, Madagascar, FAUVEL, Rev. Ent. franc. 1905; *P. marginellus*, Gaboon, FAUVEL, p. 195, t. c. : n. spp.  
*Pachystilicus* n. g. for *quadriceps* Lec. and *hanhami* Wickh., CASEY, p. 226, Tr. Ac. St. Louis xv.  
*Pæderillus* n. g. for part of *Pæderus*, p. 62, *carolinæ*, *saginitus*, p. 63, *texanus*, p. 65, *iowensis*, *pugetensis*, p. 66, *canonicus*, p. 67, n. spp., N. America, CASEY, t. c.  
*Pæderus metallicus*, p. 151, *dilutipes*, *forficularius*, p. 152, Madagascar, FAUVEL, Rev. Ent. franc. 1905; *P. kraepelini*, Java, FAUVEL, p. 82, Mt. Mus. Hamburg xxii; *P. gigas*, Chancamayo, BERNHAUER, p. 17, Deutsche ent. Zeitschr. 1905; *P. ovaliceps*, *bolivianus*, p. 180, *subnitidus*, *magniceps*, p. 181, *curticollis*, p. 182, Peru and Bolivia, BERNHAUER, Deutsche ent. Zeitschr. 1905 : n. spp.  
*Palaminus sharpi*, Peru, *erichsoni*, p. 178, *opaculus*, p. 179, Bolivia, BERNHAUER, Deutsche ent. Zeitschr. 1905, n. spp.  
*Paragonus acuticollis*, *heterocerus*, Sumatra, FAUVEL, p. 134, Rev. Ent. franc. 1905, n. spp.  
*Paratathra* n. g. *Lathrobiina*, p. 130, *filicornis* n. sp., Colorado, p. 131, CASEY, Tr. Ac. St. Louis xv.

- Paralesteva* n. n. for *Pseudolesteva*, CASEY, p. 164, Canad. Ent. 1905.
- Paramedon* n. g. p. 166, *vancouveri*, *shastanicum*, p. 167, *humboldti*, p. 168, *kernianum*, *subsimile*, p. 169, *difforme*, p. 170, *apacheanum*, p. 171, *gulare*, *distans*, *pallescens*, p. 172, *conforme*, p. 173, *debile*, *tahoense*, p. 174, *montanum*, *boreale*, *amazonicum*, p. 175, *pinalicum*, p. 176, n. spp., N. America, CASEY, Tr. Ac. St. Louis xv.
- Parastenus* n. n. for *Mesostenus* Rey nec Grav., VON HEYDEN, p. 262, Wien. ent. Zeit. xxiv.
- Parosus skalitzkyi*, Antilles, BERNHAUER, p. 12, Deutsche ent. Zeitschr. 1905, n. sp.
- Pentanota* n. g. *Aleocharini*, p. 591, *meuseli* n. sp., Lake Baikal, p. 593, BERNHAUER, Verh. Ges. Wien 1905.
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- Pinophilus ægyptius* var. n. *punctatulus*, FAUVEL, p. 150, t. c.
- P. schuberti*, p. 149, *mesocerus*, *speculifrons*, p. 150, *fairmairei*, p. 151, Madagascar, FAUVEL, t. c. n. spp.
- Platyedon n. g.* near *Xantholinus*, *erosus* n. sp., Madagascar, p. 174, FAUVEL, t. c.
- Platymedon nevadicum*, N. America, CASEY, p. 179, Tr. Ac. St. Louis xv, n. sp.
- Platystethus spinosus* (= *flavipennis* Luze), BERNHAUER, p. 595, Verh. Ges. Wien 1905.
- Plociopterus miriventris*, Chancamayo, BERNHAUER, p. 18, Deutsche ent. Zeitschr. 1905, n. sp.
- Polymedon* n. g. for litt. *tabacinum* Cas., CASEY, p. 156, Tr. Ac. St. Louis xv.
- Prionothorax* subg. n. of *Lathrimæum* for *L. reflexum* Reitter, LUZE, pp. 56, 68, Verh. Ges. Wien 1905.
- Proteinus*, table of European, REITTER, pp. 226-228, Wien. ent. Zeit. xxiv.
- P. reflexicollis*, Araxes Valley, p. 226, *altaicus*, Altai, p. 227, REITTER, t. c.; *P. planicollis*, Araxes Valley, REITTER, p. 201, t. c. : n. spp.
- Pseudolathra* n. g. *Lathrobiina*, p. 129, *leviceps* n. sp., N. America, p. 130, CASEY, Tr. Ac. St. Louis xv.
- Pseudomedon ruficollis*, *thoracicum*, *clarescens*, p. 188, *alabamæ*, p. 189, N. America, CASEY, t. c. n. spp.
- Pycnocypta* n. g. type *Cryptobium maxillosum* Gaér., CASEY, p. 28, t. c.
- Pycnorus* n. g. near *Scopæus*, p. 194, *iowanus* n. sp., N. America, p. 195, CASEY, t. c.
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- Sciocharis nubipennis*, *carolinensis*, p. 157, *congruens*, p. 158, N. America, CASEY, t. c. n. spp.
- Scopæoderia sonora*, California, CASEY, p. 218, t. c. n. sp.
- Scopæoma* n. g. near *Scopæus*, p. 211, *puritana*, p. 212, *procera*, *angusticeps*, p. 213, n. spp., N. America, CASEY, t. c.

- Scopæopsis* n. g. p. 214, *elaborata*, *pallens*, p. 215, *ventralis*, *duryi*, p. 216, n. spp., N. America, CASEY, t. c.
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- Silusa leptocera*, Java, FAUVEL, p. 145, Rev. Ent. franc. 1905, n. sp.
- Stammoderus*, *carolinae*, *pallidus* n. spp., N. America, CASEY, p. 233, Tr. Ac. St. Louis xv.
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- S. monachus*, p. 582, Greece, *ganglbaueri*, Dalmatia, *indubius*, Centr. Asia, p. 583, BERNHAUER, t. c.; *S. azeganus*, Abyssinia, FAUVEL, p. 137, Rev. Ent. franc. 1905 : n. spp.
- Stichoglossa græca*, Greece, BERNHAUER, p. 593, Verh. Ges. Wien 1905, n. sp.
- Stilicolina* n. g. for *tristis* Melsh., CASEY, p. 228, Tr. Ac. St. Louis xv.
- Stilicopsis breviceps*, Java, FAUVEL, p. 138, Rev. Ent. franc. 1905, n. sp.
- Stenusa* (*Silusa*) *californica*, Pasadena, BERNHAUER, p. 249, Deutsche ent. Zeitschr. 1905, n. sp.
- Stilicosoma* n. g. for *Stilicus rufipes* Germ., CASEY, pp. 219, 220, Tr. Ac. St. Louis xv.
- Stilicus oregonus*, p. 221, *apicalis*, p. 222, *lacustrinus*, *abbreviellus*, p. 224, *luculentus*, *nigrolucens*, p. 225, *minusculus*, p. 226, N. America, CASEY, t. c. n. spp.
- Styngetus langei*, Chancamayo, BERNHAUER, p. 18, Deutsche ent. Zeitschr. 1905, n. sp.
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- Sunius strigilis*, *americanus*, p. 237, *spectrum*, p. 238, *simulans*, *inconstans*, p. 239, *ornatellus*, *fusciceps*, p. 240, *zuni*, *arizonianus*, p. 241, *tenuiventris*, *sectator*, p. 242, *robustus*, p. 243, CASEY, Tr. Ac. St. Louis xv, n. spp.
- Tachinus nitidissimus* n. n. for *splendens* Bernh., BERNHAUER, p. 596, Verh. Ges. Wien 1905.
- Tanygnathus crassicornis*, Madagascar, FAUVEL, p. 182, Rev. Ent. franc. 1905, n. sp.
- Teras* n. g. near *Mesotrochus*, p. 15, *mirabile* n. sp., Engano, p. 16, BERNHAUER, Deutsche ent. Zeitschr. 1905.
- Termitusa* n. g. aberrant, p. 199, *sjoestedti* n. sp., p. 200, Cameroons, with Termites, WASMANN, Rev. Ent. franc. 1905.
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- Tetrallus* n. g. near *Ocyusa*, p. 252, *T. fenyesi*, p. 253, *dense punctatus*, p. 254, n. spp., California, BERNHAUER, Deutsche ent. Zeitschr. 1905.
- Tetramedon* n. g. *rufipenne* n. sp., New York, CASEY, p. 178, Tr. Ac. St. Louis xv.
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- Thinocharis inermis*, p. 164, *impressa*, *curticollis*, p. 165, *alluaudi*, *brevigenis*,



- aptera*, p. 166, *diegana*, p. 167, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
- Trogophlæus* (*Thinodromus*) *arcitenens*, Java, FAUVEL, p. 78, Mt. Mus. Hamburg xxii, n. sp.
- Xantholinus goudoti*, *heterocephalus*, *searpunctatus*, p. 171, *albobinctus*, *hova*, p. 172, *umbilicatus*, *claviger*, p. 173, *inocuus*, p. 174, Madagascar, FAUVEL, Rev. Ent. franc. 1905, n. spp.
- Xanthopygus alienus*, p. 182, *elegans*, Brazil, *punctatus*, Peru, p. 183, BERNHAUER, Deutsche ent. Zeitschr. 1905, n. spp.
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## PSELAPHIDÆ.

- [Cf. ABELLE (2), FIORI (566), HOLDHAUS (754), PEYERIMHOFF (1161), PIC (1191), REITTER (1257), SCHAEFFER (1323).]
- Bythinus*, male characters, *B. porsenna*, *collaris*, *italica*, varr. n. of, FIORI, pp. 233-250, Riv. Col. ital. ii ; *B. cristatus* ♂ = (*fagniezi* Ab.), CHOBAUT, p. 251, Bull. Soc. ent. France 1905 ; *B. erichsoni* var. n. *rugosicollis*, p. 269, FIORI, Natural. Sicil. xvii.
- B. (Machaerites) fagniezi*, Ariège, ABELLE, p. 42, Bull. Soc. ent. France 1905 ; *B. insularis*, p. 30, *B. (Bythovenus) majori*, p. 31, Tuscany, HOLDHAUS, Riv. Col. ital. iii : n. spp.
- Desimia latipennis*, Bagdad, PIC, p. 161, Echange xxi, n. sp.
- Nisaxis caudata*, Texas, SCHAEFFER, p. 124, Bull. Brooklyn Inst. i, n. sp.
- Pselaphus conosternum*, Elba, HOLDHAUS, p. 32, Riv. Col. ital. iii, n. sp.
- Reichenbachia impressa* var. n. *puncticollis*, FIORI, p. 271, Natural. Sicil. xvii.
- R.*, the palaearctic species, with table, *R. ceconii*, Cyprus, *munganasti*, Euboea, p. 208, n. spp. *antennata* var. n. *atricolor*, p. 209, REITTER, Deutsche ent. Zeitschr. 1905, pp. 206-210.
- Tychus depezeus*, Algeria, PEYERIMHOFF, p. 229, Bull. Soc. ent. France 1905, n. sp.

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- Euplatyrhopalus* n. g. for part of *Platyrhopalus*, DESNEUX, p. 18, Gen. ins. fasc. xxxv.
- Platyrhopalopsis* n. g. for *P. mellyi* and *picteti*, DESNEUX, p. 20, t. c.

## PLATYPSYLLIDÆ.

- Platypsyllus castoris*, food, etc., BUSIGNY, p. 108, Bull. Soc. ent. France 1905 ; *P. castoris*, habits, food, MINGAUD, pp. 161, 162, Feuil. Natural. xxxv.

## SCYDMÆNIDÆ.

- [Cf. HOLDHAUS & WAGNER (754), REITTER (1247, 1254), SCHAEFFER (1323).]
- Cephennium* (*Cephennarium*) *insulare*, *tarsale*, p. 33, *nobile*, p. 35, HOLDHAUS, Riv. Col. ital. iii, n. spp.

- Euconnus (Tetramelus) leonhardi*, Cephalonia, REITTER, p. 242, Wien. ent. Zeit. xxiv, n. sp.  
*Lophoderus atlanticus*, N. Carolina, SCHAEFFER, p. 123, Bull. Brooklyn Inst. i, n. sp.  
*Scydmanichnus* subg. n. of *Stenichus*, *fossifrons*, *cecconii* n. spp., Cyprus, REITTER, p. 99, Wien. ent. Zeit. xxiv.

## SILPHIDÆ.

[Cf. ABEILLE (4), CHOBOUT (311), DEVILLE (409), FLEISCHER (575), MÜLLER (1078), PEYERIMHOFF (1161, 1162), REITTER (1246), SCHOUTEDEN (1345).]

- Ablattaria subtriangula*, Spain, REITTER, p. 90, Wien. ent. Zeit. xxiv, n. sp.  
*Bathyscia mascarauxi, jeanneli*, distinct, DEVILLE, p. 231, Bull. Soc. ent. France 1905; *B. pueli*, *B. nemausica*, synonymy and variation, CHOBOUT, p. 250, Bull. Soc. ent. France 1905; *B. aubei*, distribution, CHOBOUT, p. 293, variation, distribution, pp. 297-303, subsp. n. *nicæensis*, p. 300, PEYERIMHOFF, Bull. Soc. ent. France 1905; *B. chardoni* = (*pueli* Chob.) *linderei* = (*nemausica* Chob.), ABEILLE, p. 209, Bull. Soc. ent. France 1905.  
*B. mascarauxi*, Basses Pyrénées, DEVILLE, p. 160, Bull. Soc. ent. France 1905; *B. bucheti*, Nice, ABEILLE, p. 208, Bull. Soc. ent. France 1905 : n. spp.  
*Catops rescissicollis*, Algeria, PEYERIMHOFF, p. 230, Bull. Soc. ent. France 1905, n. sp.  
*Choleva blackburni* n. n. for *antipodum* Bl., PORTEVIN, p. 49, Bull. Soc. ent. France 1905.  
*Dissochætus* Portevin and its two species were previously (1885) described by Reitter; REITTER, p. 199, Wien. ent. Zeit. xxiv.  
*Eusilpha*: the synonymy, PORTEVIN, p. 51, Bull. Soc. ent. France 1905.  
*Hyponecrodes*; characters of species, synonymy, PORTEVIN, pp. 49, 50, t. c.; *H.*, tabulation, with *Katanecrodes* subg. n. for *biguttatus apicalis* and *anticola*, SCHOUTEDEN, pp. 195-199, Ann. Soc. ent. Belgique 1905.  
*Katanecrodes* subg. n. cf. *Hyponecrodes*.  
*Leptoderus hohenwarti reticulatus* subsp. n., MÜLLER, p. 32, Wien. ent. Zeit. xxiv.  
*Liodes rotundata* Er. is var. of *pallens*, *L. algerica* = (*heydeni* and *bipunctata* Rag.) p. 314, *distinguenda* Fairm. has *montana* Halbh. as ab., p. 315, FLEISCHER, Wien. ent. Zeit. xxiv.  
*Liodes cinnamomea, humeralis, grandis, anglica, oblonga, simplex*, all one species, FLEISCHER, pp. 269-272, t. c.  
*Necrophorus basalis* Fald., PORTEVIN, p. 51, Bull. Soc. ent. France 1905.  
*Oryotus schmidti subdentatus* subsp. n., MÜLLER, p. 32, Wien. ent. Zeit. xxiv.  
*Pteromerula* subg. n. of *Liodes* for *pallens* Sturm., FLEISCHER, p. 314, Wien. ent. Zeit. xxiv.  
*Silpha fairmairiei* n. n. for *bituberosa* Fairm., PORTEVIN, p. 50, Bull. Soc. ent. France 1905.  
*Thanatophilus tuberculatus, rugosus*, distinguished, PORTEVIN, p. 50, t. c.

## SCAPHIDIIDÆ.

- Scaphisoma agaricinum* var. n. *punctipenne*, PETZ, p. 100, Wien. ent. Zeit. xxiv; *S. agaricinum robustior* var. n., PIC, p. 169, Echange xxi.  
*S. flavonotatum*, Algeria, PIC, p. 129, t. c. n. sp.

## HISTERIDÆ.

[Cf. FIORI (563), LEWIS (951-954), VIEHMEYER (1548), WASMANN (1588).]  
Catalogue of the family, 2306 species, LEWIS (951).

- Abraeus fakir*, India, LEWIS, p. 349, Ann. Nat. Hist. (7) xvi, n. sp.  
*Chalcurgus brevipennis*, pl. x, f. 8, LEWIS, t. c.  
*Coryphaeus violaceus*, Borneo, LEWIS, p. 347, t. c. n. sp.  
*Cylistosoma* n. g. type *Platysoma richteri*, LEWIS, p. 302, op. cit. xv.  
*C. epilissum*, Madagascar, LEWIS, p. 344, op. cit. xvi, n. sp.  
*Eblisia tenuipes*, Yunnan, LEWIS, p. 345, t. c. n. sp.  
*Heterius ferrugineus*, habits, VIEHMEYER, Zeitschr. Insbiol. i, p. 242 ;  
 WASMANN, t. c. pp. 330-332.  
*Hister aino*, pl. x, f. 3, *latistrius*, f. 4, LEWIS, Ann. Nat. Hist. (7) xvi.  
*H. laqueatus*, Cameroons, LEWIS, p. 303, op. cit. xv ; *H. dauphini*, Madag-  
 ascar, LEWIS, p. 346, op. cit. xvi ; *H. impiger*, Yunnan, LEWIS, p. 609,  
 t. c. : n. spp.  
*Hololepta fecæ*, pl. x, f. 1, LEWIS, t. c.  
*H. trulla*, Centr. Africa, LEWIS, p. 302, op. cit. xv, n. sp.  
*Lioderma intersectum*, pl. x, f. 2, LEWIS, op. cit. xvi.  
*L. acutipectum*, W. Africa, LEWIS, p. 302, op. cit. xv, n. sp.  
*Lissosternus* n. g. p. 347, *gracilipes*, n. sp., Bahia, p. 348, pl. x, f. 10,  
 LEWIS, op. cit. xvi.  
*Macrolister striatisternus*, Angola, LEWIS, p. 345, t. c. n. sp.  
*Notodoma saturum*, pl. x, f. 9, p. 347, LEWIS, t. c.  
*Omalodes bullatus*, Goyaz, *tuberculatus*, Fr. Guiana, LEWIS, p. 608, t. c.  
 n. spp.  
*Pachycærus sulcicollis*, f. 5, 6, *princeps*, f. 7, pl. x, LEWIS, t. c.  
*Paratropus chelonitis*, Abyssinia, LEWIS, p. 610, t. c. n. sp.  
*Plæsius hamatus*, Tonkin, p. 342, *asperimargo*, Burma, *striatipectus*, New  
 Britain, p. 343, LEWIS, t. c. n. spp.  
*Platysoma pullum* Gerst. to *Pachycærus*, LEWIS, p. 609, t. c.  
*P. rimæ*, N. W. India, LEWIS, p. 343, t. c. ; *P. lævidorsum*, New Guinea,  
 p. 605, *rosselense*, Louisiade Arch., *rufopygum*, p. 606, *pygidiale*,  
 Sumatra, *dorsale*, S. India, p. 607, LEWIS, t. c. : n. spp.  
*Plegaderus rumanicæ*, Roumania, LEWIS, p. 610, t. c. n. sp.  
*Pygocelis strigifrons*, Madagascar, LEWIS, p. 605, t. c. n. sp.  
*Saprinus conjungens* (= *Xenonychus rotundatus* Fiori), FIORI, p. 96, Natural.  
 Sicil. xviii.  
*S. sinaiticus* Crotch, 1871, n. sp. but not recorded, SHARP, p. 520, Ann.  
 Nat. Hist. (7) xv ; *S. cæruleatus*, Madagascar, LEWIS, p. 611, Ann.  
 Nat. Hist. (7) xvi, n. sp.  
*Sternocelis lævidorsis major* var. n., PIC, p. 129, Echange xxi.  
*Teretrius distinctus*, habits, LEWIS, p. 605, Ann. Nat. Hist. (7) xvi.  
*Xenonychus rotundatus*, Rome, FIORI, p. 4, Natural. Sicil. xviii, n. sp.  
 (but cf. *Saprinus*).

## NITIDULIDÆ.

[Cf. FIORI (569), REITTER (1255), SCHAEFFER (1324).]

- Brachypterus rotundicollis*, Texas, SCHAEFFER, p. 146, Bull. Brooklyn Inst. i,  
 n. sp.  
*Cybocephalus festivus* var. n. *Clypeoniteus*, FIORI, p. 136, Riv. Col. ital. iii.  
*C. marginatus*, Bologna, FIORI, p. 134, t. c. n. sp.  
*Pocadius pilistriatus*, habits, FROGGATT, p. 229, Agric. Gaz. N. S. W. xvi.  
*Rhizophagus brancsiki*, Herzegovina, REITTER, p. 312, Wien. ent. Zeit.  
 xxiv, n. sp.

## TROGOSITIDÆ.

[Cf. LÉVEILLÉ (947-949).]

- Acrops perraudierei*, Tonkin, LÉVEILLÉ, p. 38, Ann. Soc. ent. France 1905, n. sp.
- Airora bituberculata*, Brazil, LÉVEILLÉ, p. 45, t. c.; *A. vicina*, Brazil, p. 30, *ferruginea*, Venezuela, p. 31, LÉVEILLÉ, t. c. : n. spp.
- Alindria anberti*, China, LÉVEILLÉ, p. 92, Bull. Soc. ent. France 1905, and p. 31, Ann. Soc. ent. France 1905, n. sp.
- Ancyrona plana*, p. 38, *bouchardi*, *soror*, p. 41, LÉVEILLÉ, t. c.
- A. feai*, *brunneolimbata*, *congolensis*, Africa, LÉVEILLÉ, p. 93, Bull. Soc. ent. France 1905, and pp. 30, 39, Ann. Soc. ent. France 1905; *A. brunnea*, *elongata*, India, LÉVEILLÉ, p. 42, t. c.; *A. javanica*, Java, LÉVEILLÉ, p. 179, Bull. Soc. ent. France 1905 : n. spp.
- Corticotomus sharpi*, Mexico, LÉVEILLÉ, p. 29, Ann. Soc. ent. France 1905, n. sp.
- Gaurambe*, table of species, LÉVEILLÉ, p. 43, t. c.
- Lophocateres gounellei*, Brazil, LÉVEILLÉ, p. 179, Bull. Soc. ent. France 1905, n. sp.
- Nemosoma cornutum* varr. n. *reitteri*, *starcki*, PIC, p. 121, Echange xxi.
- Nemozomia pujoli*, LÉVEILLÉ, p. 29, Ann. Soc. ent. France 1905.
- N. fulva*, Brazil, LÉVEILLÉ, p. 44, t. c. n. sp.
- Tenebroides jatahyensis*, *donckieri*, p. 36, LÉVEILLÉ, t. c.
- T. similis*, Brazil, p. 34, *nigrocyanus*, Paraguay, p. 35, *paseti*, Brazil, p. 37, LÉVEILLÉ, t. c.; *T. nemozomiceformis*, p. 46, *importunus*, p. 47, *scaberrimus*, p. 48, *alutaceus*, p. 49, LÉVEILLÉ, t. c.; *T. boggianii*, Paraguay, LÉVEILLÉ, p. 92, Bull. Soc. ent. France 1905, and p. 34, Ann. Soc. ent. France 1905 : n. spp.
- Temnochila biolleyi* and *boliviensis*, LÉVEILLÉ, p. 33, Ann. Soc. ent. France 1905.
- T. grilloi*, Brazil, LÉVEILLÉ, p. 92, Bull. Soc. ent. France 1905, and p. 32, Ann. Soc. ent. France 1905, n. sp.

## COLYDIIDÆ.

- Bothrideres*; larval habits, HOPKINS, p. 26, P. ent. Soc. Washington vii.
- Cautomus monstruosus*, Liberia, GROUVELLE, p. 109, Bull. Soc. ent. France 1905, n. sp.
- Nepharis goudiei*, Australia, LEA, p. 377, pl. xxvii, figg. 3, 9, P. Soc. Victoria xvii, n. sp.

## CUCUJIDÆ and CRYPTOPHAGIDÆ.

- Catogenus rufus*, larval habits, FISKE, p. 90, P. ent. Soc. Washington vii.
- Lemophlæus* (*Silvanophlæus*) *mirus*, Madagascar, GROUVELLE, p. 142, Bull. Soc. ent. France 1905, n. sp.
- Atomaria proluxa* and *pulchra*, distinguished, GERHARDT, p. 271, Deutsche ent. Zeitschr. 1905.
- Cryptophagus pubescens* var., MjöBERG, p. 200, Ent. Tidskr. xxvi.

## LATHRIDIIDÆ.

[Cf. BRÈTHES (190), PIC (1174), WASMANN (1588).]

- Coccidophilus* n. g. near *Fallia*, p. 76, *citricola* n. sp., Argentina, p. 77, destroying *Mytilus*, BRÈTHES, An. Soc. Argent. lix.

- Coluocera maderæ*, relations with *Prenolepis*, WÄSMANN, pp. 384–390, Zeitschr. Insbiol. i.  
*Dasycerus beloni, numidicus*, N. Africa, PIC, p. 103, Rev. Ent. franc. 1905, n. spp.  
*Enicmus minutus* and *anthracinus* the supposed sexes, GERHARDT, p. 224, Deutsche ent. Zeitschr. 1905.  
*Lathridius nodifer* ♂ characters, REITTER, p. 199, Wien. ent. Zeit. xxiv.

## MYCETOPHAGIDÆ and DERMESTIDÆ.

- Mycetophagus tschitscherini* distinguished from *irroratus*, REITTER, p. 199, Wien. ent. Zeit. xxiv.  
*Satorystia* n. g. near *Litargus, meschniggi*, Hungary, n. sp., REITTER, p. 244, t. c.  
*Dermestes murinus* subvar. n. *nigriceps*, REITTER, p. 244, t. c.  
*Thaumatoglossa americana*, antenna of ♂ and ♀, BARBER, p. 10, cuts, P. ent. Soc. Washington vii.

## BYRRHIDÆ.

[Cf. PIC (1184), REITTER (1246), SHARP (670).]

- Chelonarium scabrosum, gravidum, prolixum*, p. 689, *ducale*, p. 690, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.  
*Limnicus* (sic) *turkestanicus*, Ferghana, PIC, p. 97, Echange xxi, n. sp.  
*Trichobyrrhulus championi*, La Granja, REITTER, p. 90, Wien. ent. Zeit. xxiv, n. sp.

## PARNIDÆ and GEORYSSIDÆ.

- Elmis (Latelmis) longior, surcoufi*, Algeria, PIC, p. 145, Echange xxi, n. spp.  
*Parnus arizonensis*, ARIZONA, SCHAEFFER, p. 122, Bull. Brooklyn Inst. i, n. sp.  
*Georyssus purpurascens*, Madagascar, FAIRMAIRE, p. 118, Ann. Soc. ent. Belgique 1905, n. sp.

## LUCANIDÆ.

- [Cf. BOILEAU (126), GRIFFINI (691, 692), MÖLLENKAMP (1057), NONFRIED (1108), PLANET (1208), REED (1233), VAN ROON (1531), WATERHOUSE (1589), ZANG (1662, 1664).]  
 Catalogue of the family, 76 genera, 732 spp., VAN ROON, Tijdschr. Ent. xlviii, pp. 83–180.  
 The variation of the male mandibles, general discussion, GRIFFINI (691, 692).  
*Egus jansoni*, Queensland, BOILEAU, p. 17, Naturaliste 1905, n. sp.  
*Ceratognathus flabellatus*, Queensland, p. 177, *macrognathus*, Australia, p. 200, BOILEAU, t. c. n. spp.  
*Chiasognathus*, 2 spp., *granti* and *jousselini*, synonymy, REED, Revist. chilena viii, pp. 181–188.  
*Cyclommatus lunifer*, Sumatra, p. 71, ♀, p. 286, *imperator*, New Guinea, p. 285, BOILEAU, Naturaliste 1905, n. spp.  
*Dorcus vavrai*, Persian Kurdistan, NONFRIED, p. 12, Berlin. ent. Zeitschr. i, n. sp.  
*Eurytrachelus titan* var. n. *typhon*, BOILEAU, p. 17, cut, Naturaliste 1905.  
*E. minax*, Sumatra, MÖLLENKAMP, p. 168, Ins. Börse 1905, n. sp.

- Figulus cicatricosus*, Nilgherry hills, BOILEAU, p. 38, *Naturaliste* 1905 ;  
*F. horni*, Ceylon, ZANG, p. 161, *Deutsche ent. Zeitschr.* 1905 : n. spp.  
*Lissotes cornutus*, Australia, BOILEAU, p. 201, *Naturaliste* 1905, n. sp.  
*Metopodontus biplagiatus* var. n. *nigripes*, BOILEAU, p. 17, t. c.  
*M. elizabetheæ*, Usagara, WATERHOUSE, p. 375, *Ann. Nat. Hist.* (7) xv,  
n. sp.  
*Neolucanus brevis* (= *birmaensis* Möll.), ZANG, p. 212, *Deutsche ent. Zeitschr.*  
1905.  
*Nigidius*; *Hadronigidius* as doubtful subgenus, *N. validus* Pér., ZANG,  
p. 215, *Deutsche ent. Zeitschr.* 1905.  
*N. helleri*, Sumatra, p. 47, *impressicollis*, Khasia Hills, p. 60, *lewisii*, Liou-  
Kiou Ids., p. 61, BOILEAU, *Naturaliste* 1905 ; *N. bonneuilli*, *baeri*,  
Philippines, BOILEAU, p. 18, t. c. : n. spp.  
*Odontolabis imperialis* ♀, BOILEAU, p. 147, t. c.  
*O. lowei* var. n. *nubigena*, MÖLLENKAMP, p. 168, *Ins. Börse* 1905 ; *O. mouhoti*  
= (*elegans* Möll.), characters, ♀, p. 212, *O. lowei* and *æretus*, male  
variation, p. 214, ZANG, *Deutsche ent. Zeitschr.* 1905.  
*O. eremicola*, Borneo, MÖLLENKAMP, p. 7, *Ins. Börse* 1905 ; *O. parryi*,  
Formosa, BOILEAU, p. 48, *Naturaliste* 1905 : n. spp.  
*Platycerus*, in amber, cf. Palæont. p. 128.  
*Prismognathus branczicki*, S. W. China, NONFRIED, p. 11, *Berlin. ent.*  
*Zeitschr.* 1, n. sp.  
*Prosopocælus javanensis*, ♂ ♀, ZANG, p. 214, *Deutsche ent. Zeitschr.* 1905.  
*P. curvidens*, Madagascar, NONFRIED, p. 11, *Berlin. ent. Zeitschr.* 1 ; *P.*  
*aulicus*, Borneo, MÖLLENKAMP, p. 7, *Ins. Börse* 1905 ; *P. femoratus*,  
Kina-Balu, p. 147, *laminifer*, Sumatra, p. 286, BOILEAU, *Naturaliste*  
1905 : n. spp.  
*Pseudolucanus lesnei*, Yunnan ?, PLANET, p. 212, *Naturaliste* 1905, n. sp.  
*Sphenognathus nobilis* ♀, ZANG, p. 211, *Deutsche ent. Zeitschr.* 1905.  
*Syndesus maclearyi*, Victoria, *punctatus*, New Caledonia (or new Hebrides),  
BOILEAU, p. 61, *Naturaliste* 1905, n. spp.

## PASSALIDÆ.

[Cf. PANGELLA (1135, 1136), ZANG (1654-1656, 1659-1663, 1665-1667).]

ZANG proposes the following new names, *Gnomon* for *Eumelus* Kaup,  
*Lasioperix* for *Flavius* Kuw., *Rhipaspis* for *Heterochilus* Kuw.,  
*Chilomazus* for *Laches* Kaup, *Phaulothorax* for *Microthorax* Kuw.,  
*Scalmus* for *Ninus* Kaup, *Protomocælus* for *Pelops* Kaup, *Psilomus* for  
*Phanocles* Kuw., *Macrolobus* for *Phoroneus* Kaup, *Trapezochilus* for  
*Phraortes* Kuw., *Embryulcus* for *Plesthenus* Kaup, *Arrox* for *Sertorius*  
Kaup, *Heliscus* for *Soranus* Kaup, *Alococerus* for *Thryptocerus* Kuw.,  
*Epipleurothrix* for *Trichopleurus* Kuw., *Zosterothrix* for *Vatinius* Kaup ;  
*Zool. Anz.* xxix.

ZANG commences a revision of the work of Kuwert and Kaup, *Notes*  
*Leyden Mus.* xxv, pp. 221-232.

Some noteworthy localities, ZANG, p. 112, *Deutsche ent. Zeitschr.* 1905.

- Aceraius oculidens*, p. 190, *laniger*, p. 191, Borneo, ZANG, *Deutsche ent.*  
*Zeitschr.* 1905 ; *A. levimargo*, Borneo, ZANG, p. 244, t. c. ; *A. pala-*  
*wanus*, Palawan, ZANG, p. 236, *Notes Leyden Mus.* xxv : n. spp.  
*Analaches*; monograph, ZANG, pp. 24-32, *Deutsche ent. Zeitschr.* 1904.  
*A. brachymetopus*, Amboyna, ZANG, p. 30, t. c. ; *A. paraplesius*, p. 238,  
*laticauda*, p. 240, *bicavis*, p. 241, New Guinea, ZANG, t. c. : n. spp.  
*Auritulus* n. g. for *Aulacocyclus patalis* Lew., ZANG, p. 229, *Notes Leyden*  
*Mus.* xxv.  
*Basilianus certus* and *neelgherriensis*, ZANG, p. 223, t. c.

- B. binominis*, Lower India, ZANG, p. 243, Deutsche ent. Zeitschr. 1905, **n. sp.**
- Comacupes*; synonymy, ZANG, p. 231, Notes Leyden Mus. xxv.
- C. cormocerus*, Padang, ZANG, p. 233, t. c. **n. sp.**
- Didimus duplicatus* and *parastictus* distinguished, ZANG, p. 109, Deutsche ent. Zeitschr. 1905.
- D. latipunctus*, E. Africa, ZANG, p. 315, t. c. **n. sp.**
- Episphenoides questionis* Kuw. = (*Mastochilus capitalis* Blackb.), ZANG, p. 223, Notes Leyden Mus. xxv.
- Gonatas differens*, characters, ZANG, p. 110, Deutsche ent. Zeitschr. 1905.
- G. cetioides*, hab.?, ZANG, p. 316, t. c. **n. sp.**
- Heterochilus*, characters and position, ZANG, p. 167, t. c.
- Kaupiolus trigonophorus*, New Guinea, ZANG, p. 316, t. c. **n. sp.**
- Labienux ptoz* and allies, ZANG, p. 111, t. c.
- Laches*; Kuwert's 5 spp. = varr. of *comptoni*, ZANG, p. 163, t. c.
- Leptaulacides* and *L. eschscholtzi*, characters, ZANG, p. 106, t. c.
- L. rugulosus*, p. 100, *fruhstorferi*, p. 102, Tonkin, ZANG, t. c.; *L. barbaucada*, Borneo, p. 164, *andamanarum*, Andaman Ids., p. 166, ZANG, t. c.; *L. palawanicus*, Palawan, p. 232, *anipunctatus*, Assam, p. 234, *anularax*, Sumatra, p. 235, ZANG, t. c.; *L. nietneri*, Ceylon, ZANG, p. 246, t. c. : **n. spp.**
- Leptaulax timoriensis* Perch. = (*glabricollis* Kuw.), ZANG, p. 223, Notes Leyden Mus. xxv.
- L. tonkinensis*, Manson Mts., ZANG, p. 102, Deutsche ent. Zeitschr. 1905 ; *L. anna*, Sumbava, ZANG, p. 316, t. c. : **n. spp.**
- Nasoproculus n. g.* for *Passalus heros* Truqui, ZANG, p. 226, Notes Leyden Mus. xxv.
- Neleus camerani*, p. 9, *cognettii*, p. 13, Paraguay, PANGELLA, Boll. Mus. Torino xx, No. 508, **n. spp.**
- Ninus honduræ* var. *n. rosminiæ*, PANGELLA, p. 11, t. c. No. 498.
- N. nobilii*, Paraguay, PANGELLA, p. 5, t. c. No. 508, **n. sp.**
- Oileus*; type is *sagittarius* Sm., ZANG, p. 226, Notes Leyden Mus. xxv.
- Ophrygonius quadrifer* and *inæqualis*, ZANG, p. 192, Deutsche ent. Zeitschr. 1905.
- Passalus*; type is to be *Neleus interruptus*, ZANG, p. 224, Notes Leyden Mus. xxv.
- Paxilloides* and *Paxillosomus* are one, ZANG, p. 222, t. c.
- Paxillosomus borellii*, Asuncion, PANGELLA, p. 3, Boll. Mus. Torino xx, No. 508 ; *P. alfari*, Costa Rica, PANGELLA, p. 9, t. c. No. 498 : **n. spp.**
- Pelopides*; type *schraderi* Kuw., ZANG, p. 227, Notes Leyden Mus. xxv.
- Platyverres*; valid, characters, ZANG, p. 231, t. c.
- Proculejoides granulipennis*, Chiapas, ZANG, p. 229, Deutsche ent. Zeitschr. 1905, **n. sp.**
- Procululus n. g.* *Petrejinae*, p. 225, *inca*, **n. sp.**, Peru, p. 226, ZANG, t. c.
- Proculus beckeri*, Mexico, ZANG, p. 315, t. c. **n. sp.**
- Protomocælus sternbergi*, New Guinea, ZANG, p. 236, t. c. **n. sp.**
- Publius spinipes*, Bolivia, ZANG, p. 231, t. c. **n. sp.**
- Rhodocanthopus biolleyi*, Costa Rica, PANGELLA, p. 3, Boll. Mus. Torino xx, No. 498, **n. sp.**
- Spurius dichotomus*, Centr. America, ZANG, p. 227, Deutsche ent. Zeitschr. 1905, **n. sp.**
- Tæniocerus bicanthatus*, note, ZANG, p. 105, t. c.
- Tiberius*, characters and composition, ZANG, p. 163, t. c.
- Verres camerani*, Costa Rica, PANGELLA, p. 7, Boll. Mus. Torino xx, No. 498 ; *V. sternbergianus*, Venezuela, ZANG, p. 315, Deutsche ent. Zeitschr. 1905 : **n. spp.**

## SCARABÆIDÆ.

*Coprini.*

[Cf. ARROW (30), BLACKBURN (123), FAIRMAIRE (534), FALL (540), KOLBE (878), MOLLANDIN (1056), D'ORBIGNY (1124), PUCCIONI (1220), WICKHAM (1630), ZANG (1657).]

The habits and distribution of Coprophagous *Lamellicorns*, KOLBE, Zool. Jahrb. Suppl. viii, pp. 475-594, pls. xvii-xix.

The Scarabs of ancient Egypt, BOUSSAC, pp. 137, 138, cuts, Naturaliste 1905.

*Antiochrus*, a valid genus, characters and components, BLACKBURN, pp. 273-275, Tr. R. Soc. S. Austral. xxix.

*Aphodius*, in amber, cf. Palæont. p. 128; *A. cuniculorum*, description reprinted, MAYER, Bull. Soc. Nimes xxxii, p. 2.

*A. blaisdelli*, p. 129, *knausii*, p. 130, N. America, FALL, Ent. News Philad. xvi; *A. kansanus*, N. America, WICKHAM, p. 169, Canad. Ent. 1905: n. spp.

*Caccobius schreberi*, FIORI, pp. 105-109, Riv. Col. ital. i; *C. obtusus* = (*mastrucatus* Pér.) p. 383, *viridicollis* var. n. *semicærulius*, p. 386, *convexifrons* Raffr. = (*pudens* Pér.) p. 386, D'ORBIGNY, Ann. Soc. ent. France 1905.

*C. globaticeps*, p. 382, *mixtus*, p. 384, *hiceps*, p. 385, *semiluteus*, p. 387, *postluteus*, p. 388, *semicæneus*, p. 390, Africa, D'ORBIGNY, t. c.; *C. (Diaglyptus) pluridens*, Nyassa, D'ORBIGNY, p. 525, t. c.: n. spp.

*Copris pueli*, Algeria, MOLLANDIN, p. 110, Bull. Soc. ent. France 1905, n. sp.

*Geotrupes*, in Sweden, MjöBERG, pp. 63-66, Arkiv Zool. ii, No. 17.

*Liparochrus*, revision of Australian, with synonymy, BLACKBURN, pp. 270-272, Tr. R. Soc. S. Austral. xxix.

*L. dilatifrons*, p. 272, *nitidicollis*, p. 273, Australia, id. t. c. n. spp.

*Onthophagus foliaceus* ♀ = (*alterneater* d'Orb.), D'ORBIGNY, p. 532, Ann. Soc. ent. France 1905; *O. denudatus* d'Orb. = (*rufulus* d'Orb.) p. 412, *lavissimus* n. n. for *lavus* d'Orb. 1904, p. 437, *O. nanus* = (*decipiens* Pér.) p. 442, *pipitzi* var. n. *seminiger*, p. 448, *longiceps* var. n. *cupriger*, p. 450, *bellus* n. n. for *gestroi* d'Orb. 1904, p. 454, *parumnotatus* var. n. *conjunctus*, p. 454, *sansibaricus* var. n. *cruentus*, p. 455, D'ORBIGNY, t. c.; *O. ovatus*, *grossepunctatus* var. n., REITTER, p. 245, Wien. ent. Zeit. xxiv.

*O. rufoguttatus*, Madagascar, FAIRMAIRE, p. 118, Ann. Soc. ent. Belgique 1905; *O. masaicus*, p. 392, *mixtidorsis*, p. 393, *æquepubens*, p. 395, *bituberans*, p. 396, *laminosus*, p. 398, *pullatus*, p. 399, *rotundatus*, p. 400, *nimbatus*, p. 401, *crucenotatus*, p. 403, *quadrinotatus*, p. 404, *nigriventris*, p. 505, *subrugosus*, p. 408, *trimpessus*, p. 409, *areolatus*, p. 410, *longulus*, p. 412, *amplipennis*, p. 414, *trirugatus*, p. 415, *bifrons*, p. 417, *geminifrons*, p. 418, *camerunicus*, p. 419, *mirifrons*, p. 421, *sinuosicollis*, p. 423, *chalcocolorus*, p. 425, *ustus*, p. 426, *clavisetis*, p. 427, *limbibus*, p. 428, *pulchellus*, p. 430, *spurcatus*, p. 432, *simulator*, p. 433, *mirepunctatus*, p. 435, *viuensis*, p. 436, *flavipennis*, p. 438, *latevittatus*, p. 439, *breviculus*, p. 440, *boops*, p. 442, *trichopygus*, p. 444, *pallidus*, p. 445, *alterneater*, p. 447, *chloroderus* with var. *cyanoderus*, p. 449, *inermiceps*, p. 450, *simpliciceps*, p. 452, *includens*, p. 455, *variegranosus*, p. 458, *longipilis*, p. 459, *angolanus*, p. 460, *cristatus*, p. 461, *bicristatus*, p. 462, *semigraniger*, p. 463, Africa, D'ORBIGNY, Ann. Soc. ent. France 1905; *rufipodex*, p. 465, *hilaris*, p. 466, *decoratus*, p. 467, *creber*, p. 468, *polyedrus*, p. 469, *informis*, p. 470, *asperatus*, p. 472, *dilutus*, p. 473, *guttiger*,



- p. 474, *rufipennis*, p. 476, *semirubens*, p. 478, *atrofasciatus*, p. 480, *capillosus*, p. 482, *miscellus*, p. 483, *tenuistriatus*, p. 485, *atrovirens*, p. 486, *mixticeps*, p. 487, *asperulus*, p. 488, *clusifrons*, p. 489, *chryso-derus*, p. 490, *gibberosus*, p. 492, *gibber*, p. 493, *trifidisetis*, p. 495, *altilamina*, p. 496, *lobaticollis*, p. 498, *stellioides*, p. 500, *debilis*, p. 502, *subocellatus*, p. 503, *ocellatus*, p. 504, *furculifer*, p. 505, *O. (Phalops) tuberosus*, p. 508, *O. (Proagoderus) nasidens*, p. 510, *fossidoris*, p. 512, *longefossus*, p. 514, *atriclaviger*, p. 516, *ignitus*, p. 518, *rasidoris*, p. 521, *trianguliceps*, p. 523, Africa, D'ORBIGNY, t. c.; *O. biconifer*, p. 527, *inclusus*, p. 528, *comatulus*, p. 529, *ventrosus*, p. 530, Africa, D'ORBIGNY, t. c. : **n. spp.**
- Orphnus bicavatus*, Madagascar, FAIRMAIRE, p. 118, Ann. Soc. ent. Belgique 1905, **n. sp.**
- Rhyparus peninsularis*, Penang, p. 537, *philippinensis*, Philippines, *gracilis*, S. E. isld., p. 538, ARROW, Ann. Nat. Hist. (7) xv, **n. spp.**
- Stereomera n. g.* near *Rhyparus*, p. 534, *pusilla n. sp.*, Singapore, p. 535, ARROW, t. c.
- Sybacodes lutulentus* redescribed, ARROW, p. 539, t. c.

*Glaphyrini.*

- Anthypna carceli* var. *n. laportei*, LEONI, pp. 116-119, Riv. Col. ital. iii.

*Melolonthini.*

- [Cf. BLACKBURN (123), FAIRMAIRE (534), MATUSOVITZ (1015), PIC (1183, 1193), REITTER (1249), RITSEMA (1271, 1272).]
- Classification of Australian *Melolonthides*, BLACKBURN, pp. 276-281, Tr. R. Soc. S. Austral. xxix.
- Amphimallina n. g.* near *Amphimallus*, p. 203, *jenrichi n. sp.*, Ural River, p. 204, REITTER, Wien. ent. Zeit. xxiv.
- Anoxia nigricolor*, Adana, PIC, p. 177, Echange xxi, **n. sp.**
- Apogonia*, supplementary list, RITSEMA, pp. 111-116, Notes Leyden Mus. xxv.
- A. waterstradti*, p. 103, *speculifera*, p. 105, *lobata*, p. 106, *helleri*, p. 107, Borneo, RITSEMA, t. c. **n. spp.**
- Automolus*, characters, BLACKBURN, pp. 331, 332, Tr. R. Soc. S. Austral. xxix.
- Chilotrogus n. g.* near *Rhizotrogus*, p. 202, *panotrogoides n. sp.*, Persia, p. 203, REITTER, Wien. ent. Zeit. xxiv.
- Diplotaxis connata*, Arizona, SCHAEFFER, p. 158, Bull. Brooklyn Inst. i, **n. sp.**
- Enamillus sharpi*, W. Australia, BLACKBURN, p. 279, Tr. R. Soc. S. Austral. xxix, **n. sp.**
- Enthora atomaria*, Madagascar, FAIRMAIRE, p. 119, Ann. Soc. ent. Belgique 1905, **n. sp.**
- Homaloplia fritschi*, Bosnia, REITTER, p. 201, Wien. ent. Zeit. xxiv, **n. sp.**
- Hoplia cœrulea*, habits, LE COMTE, p. 188, Echange 1905.
- Hovachelus densevestitus*, Madagascar, FAIRMAIRE, p. 119, Ann. Soc. ent. Belgique 1905, **n. sp.**
- Liparetrus*; revision, with much synonymy, for which refer to the work itself, BLACKBURN, pp. 282-230, Tr. R. Soc. S. Austral. xxix.
- L. necessarius*, *distans*, p. 318, *lividipennis*, p. 319, *incertus*, p. 320, *amabilis*, p. 321, *consanguineus*, p. 322, *puer*, p. 323, *perkinsi*, *alienus*, p. 324, *rotundicollis*, p. 325, *ventralis*, *gravidus*, p. 326, *cinctipennis*, *minor*, p. 327, *brevipes*, *blanchardi*, p. 328, *leai*, *rugatus*, p. 329, *insolitus*, p. 330, BLACKBURN, t. c. **n. spp.**

- Melolontha vulgaris* var. n. *colpopyga*, PETZ, p. 100, Wien. ent. Zeit. xxiv;  
*M. vulgaris, hippocastani*, statistics as to abundance and variation in  
Hungary in 1905, MATUSOVITZ, Rov. Lapok 1905, pp. 156 etc.;  
*M. vulgaris*, years of appearance, BOURGEOIS, p. 74, Mt. Schweiz. ent.  
Ges. xi.  
*Microthopus*=(*Macleayia* Bl.), characters, BLACKBURN, pp. 330, 331, Tr. R.  
Soc. S. Austral. xxix.  
*Pectinichelus chinensis*, China, REITTER, p. 202, Wien. ent. Zeit. xxiv, n. sp.  
*Rhizotrogus*, seasons and hours in the Pyrenees, XAMBEU, p. 117, Naturaliste  
1905; *R. ochraceus*, a good species, JOY, p. 16, Ent. Mag. 1905.  
*Schizonycha obscuricolor*, Timbuctoo, PIC, p. 131, Naturaliste 1905, n. sp.  
*Sphyrocallus bicolor*, W. Australia, BLACKBURN, p. 277, Tr. R. Soc. S.  
Austral. xxix, n. sp.

### *Rutelini.*

[Cf. FAIRMAIRE (534), OHAUS (1114-1119), PIC (1179, 1183, 1187, 1190),  
SKINNER (1408), WICKHAM (1629).]

Revision of American *Anoplognathides* completed, OHAUS, pp. 120-167,  
pl. v, Stettin Ent. Zeit. lxvi.

- Adoretosoma humerale*, p. 82, *nigripennis, lineatum*, p. 83, *crassipes*, p. 84,  
Tonkin, OHAUS, Deutsche ent. Zeitschr. 1905, n. spp.  
*Adoretus drurei*, Bagdad, PIC, p. 200, Bull. Soc. ent. France 1905; *A.*  
*millingeni*, Arabia, PIC, p. 153, Echange xxi; *A. emarginatus*, Omdur-  
man, OHAUS, p. 6, Jägerskiöld exp. No. 10a; *A. ampliatus*, p. 120,  
*lutospennis*, p. 221, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique  
1905; *A. fruhstorferi*, Tonkin, OHAUS, p. 98, Deutsche ent. Zeitschr.  
1905; *A. philippinicus* (Brenske), Philippines, PIC, p. 131, Naturaliste  
1905: n. spp.  
*Anatista* referred to *Spodochlamydes*, p. 272, *A. macrophylla*, Ecuador,  
n. sp. p. 273, OHAUS, Stettin Ent. Zeit. lxvi.  
*Anomala mimeloides* var. n. *fuscoviridis*, OHAUS, p. 285, t. c.; *A. devota*  
var. n. *pallidior*, PIC, p. 105, Echange xxi.  
*A. palestina*, Jerusalem, PIC, p. 129, t. c.; *A. nubeculosa*, p. 84, *viridi-*  
*sericea, polychroma*, p. 85, *fuscospinosa, graminea*, p. 86, *A. (Spilota)*  
*nupta*, p. 87, Tonkin, OHAUS, Deutsche ent. Zeitschr. 1905; *A. nigro-*  
*sellata*, Venezuela, p. 283, *schneideri*, Honduras, p. 284, OHAUS, Stettin  
Ent. Zeit. lxvi: n. spp.  
*Anoplognathus analis* ♀=(*Areoda magnifica* Nonfr.), OHAUS, p. 322, t. c.  
*Antichira hemichlora* var. n. *nigripennis*, p. 293, *subaenea* subsp. n.  
*fluminensis*, p. 294, *adamsi* subsp. n. *goyana*, p. 295, OHAUS, t. c.;  
*A. amazona* Thunb. to *Lagochile*, OHAUS, p. 286, t. c.  
*A. helleri*, Ecuador, OHAUS, p. 295, t. c. n. sp.  
*Areoda espiritosantensis*, S. America, OHAUS, p. 322, t. c. n. sp.  
*Aulacopalpus clypealis*, p. 137, *pygidialis*, p. 139, Chile, OHAUS, t. c. n. spp.  
*Brachysternus prasinus araucanicus*, p. 156, *viridipes*, p. 157, subspp. n.,  
OHAUS, t. c.  
*B. hirtus*, Chile, id. p. 158, t. c. n. sp.  
*Byrsopolis mexicana*, Mexico, OHAUS, p. 324, t. c. n. sp.  
*Chalcochlamys n. g.* for *Spodochlamys dohrni*, OHAUS, p. 263, t. c.  
*Chlorota caucana*, Colombia, p. 308, *nasuta*, Peru, p. 309, OHAUS, t. c.  
n. spp.  
*Cotalpa lanigera* var. n. *tau*, WICKHAM, p. 2, J. N. York Ent. Soc. iii.  
*C. subcibrata*, Kansas, id., p. 3, t. c. n. sp.  
*Dorystethus chlorophanus* subsp. n., OHAUS, pp. 295-297, Stettin Ent. Zeit.  
lxvi.  
*D. espiritosantensis, andicola*, p. 298, *columbicus, maxinus, castanipennis*,

- p. 299, *auriceps*, *jordani*, p. 300, *microcephaloides*, p. 301, *sulcatus*, p. 302, S. America, OHAUS, t. c. n. spp.
- Fruhstorferia semmaculata* var. n. *dohertyi*, OHAUS, p. 98, Deutsche ent. Zeitschr. 1905.
- Heterosternus oberthuri* ♂, OHAUS, p. 321, Stettin Ent. Zeit. lxvi.
- Homonyx fuscoæneus*, Brazil, p. 313, *oryctoïdes*, Mexico, p. 314, OHAUS, t. c. n. spp.
- Hoplognathus helmenreichi*, p. 322, *parvulus*, p. 323, *limbatipennis*, p. 324, S. America, OHAUS, t. c. n. spp.
- Lagochile boliviana*, Bolivia, *obscurata*, Venezuela, p. 287, *wiengreeni*, Brazil, p. 288, OHAUS, t. c. n. spp.
- Leucopelœa baronis*, Ecuador, OHAUS, p. 123, t. c. n. sp.
- Lutera nigromaculata* ♂ var., OHAUS, p. 97, Deutsche ent. Zeitschr. 1905.
- Macraspis tristis* and allies, characters, OHAUS, pp. 290-293, Stettin Ent. Zeit. lxvi.
- M. maculicollis*, Peru, OHAUS, p. 289, t. c. n. sp.
- Macropopillia* n. g. *arrowi* n. sp., India, OHAUS, p. 94, Deutsche ent. Zeitschr. 1905.
- Mesomerodon* n. g. near *Pelidnota*, p. 319, *spinipenne* n. sp., Peru, p. 320, OHAUS, Stettin Ent. Zeit. lxvi.
- Mimela globosa*, Assam, *sericea*, Sikkim, p. 88, *javana*, Java, *schneideri*, Sikkim, p. 89, OHAUS, Deutsche ent. Zeitschr. 1905, n. spp.
- Odontognathus riedeli*, Brazil, OHAUS, p. 312, Stettin Ent. Zeit. lxvi, n. sp.
- Ometis macraspidioides*, Para, OHAUS, p. 289, t. c. n. sp.
- Oogenius chilensis*, Chile, OHAUS, p. 326, t. c. n. sp.
- Parastasia indica* var. = (*fruhstorferi*), OHAUS, p. 97, Deutsche ent. Zeitschr. 1905.
- Pelidnota bahiana*, p. 315, *subandina*, p. 316, S. America, *sanctidomini*, Saint Domingo, *ludovici*, p. 317, *sancti jacobii*, *fusciventris*, p. 318, *crassipes*, p. 319, S. America, OHAUS, Stettin Ent. Zeit. lxvi, n. spp.
- Phænomeris rufescens*, *cyanicollis*, varr. n., OHAUS, pp. 95, 96, Deutsche ent. Zeitschr. 1905.
- Phrynopsis* n. g. near *Adoretus*, *oculata* n. sp., Madagascar, FAIRMAIRE, p. 120, Ann. Soc. ent. Belgique 1905.
- Phyllopertha carinivoluta*, Tonkin, OHAUS, p. 81, Deutsche ent. Zeitschr. 1905, n. sp.
- Platyrutela cribrata* ♂, OHAUS, p. 304, Stettin Ent. Zeit. lxvi.
- Plusiotis beyeri*, Arizona, SKINNER, p. 289, Ent. News Philad. xvi ; *P. flohri*, Durango, OHAUS, p. 321, Stettin Ent. Zeit. lxvi : n. spp.
- Popillia conopygga*, Luzon, p. 92, *timoriensis*, Timor, p. 93, OHAUS, Deutsche ent. Zeitschr. 1905, n. spp.
- Pseudochlorota* n. g., *chiriquina*, Chiriqui, p. 306, *peruana*, Peru, p. 307, n. spp., OHAUS, Stettin Ent. Zeit. lxvi.
- Pseudomalacia flavopilosa*, Philippines, OHAUS, p. 91, Deutsche ent. Zeitschr. 1905, n. sp.
- Rutela lineola* and *histris*, variation, OHAUS, pp. 311, 312, Stettin Ent. Zeit. lxvi.
- R. pygidialis*, Panama, *tricolora*, S. America, OHAUS, p. 34, t. c. n. spp.
- Rutelisca durangoana*, Mexico, OHAUS, p. 312, t. c. n. sp.
- Singhala helleri*, Malabad, OHAUS, p. 90, Deutsche ent. Zeitschr. 1905, n. sp.
- Spodochlamides* : revision of, OHAUS, pp. 260-276, Stettin Ent. Zeit. lxvi.
- Spodochlamys flavofemorata*, Venezuela, p. 265, *iheringi*, Brazil, p. 266, *popayana*, p. 268, *curvibrachialis*, p. 270, Colombia, OHAUS, t. c. n. spp.
- Strigoderma floridana*, Florida, OHAUS, p. 285, t. c. n. sp.
- Thyridium violaceipes*, *oblongum*, p. 302, *marginicolle*, *caucanum*, p. 303, S. America, OHAUS, t. c. n. spp.

*Dynastini.*

[Cf. BRÈTHES (188), FAIRMAIRE (534), FALL (542), KOLBE (879), TITUS (1496).]

*Aphonodelus* n. g. *Heteronychides*, *coriaceipennis* n. sp., Cameroons, p. 4, KOLBE, Arkiv Zool. ii, No. 18.

*Aphonoproctus* n. g. *Heteronychides*, p. 2, *pentodontinus* n. sp., Cameroons, p. 3, KOLBE, t. c.

*Archophanes* n. g. for *Oryctes cratericollis* Fairm., KOLBE, p. 19, t. c.

*Cheiroplatys verticalis*, New Mexico, FALL, p. 272, Canad. Ent. 1905, n. sp.

*Cyclocephala tucumana*, p. 330, *andina*, p. 331, Tucumán, BRÈTHES, An. Mus. Buenos Aires (3) iv, n. spp.

*Heteronychus camerunus*, W. Africa, KOLBE, p. 5, Arkiv Zool. ii, No. 18, n. sp.

*Ligyris rugiceps*, natural history, TITUS, Bull. U. S. Dep. Agric. Ent. No. 54, pp. 7-15.

*Oryctes eribus*, characters, p. 13, *pechueli* = (*mechowi* Qued.), p. 14, *owariensis* and *gigas*, distinguished, p. 15, KOLBE, Arkiv Zool. ii, No. 18.

*Oryctes sjostedti*, Cameroons, KOLBE, p. 11, t. c. n. sp.

*Paranodon* n. n. for *Anodon*, COCKERELL, p. 104, Entomologist 1905.

*Pentodon*; note, with *P. reitteri* n. n., JAKOVLEV, pp. xv-xvii, Annuaire Mus. St. Petersb. lx.

*Prospileurus* n. g. for *Phileurus poggei* Har., KOLBE, p. 17, Arkiv Zool. ii, No. 18.

*Pycnoschema camerunum*, W. Africa, p. 6, *simplicicolle*, p. 7, *suillum*, p. 8, Angola, KOLBE, t. c.

*Temnorhynchus rugatus*, p. 9, *scutiger*, p. 10, Cameroons, KOLBE, t. c. n. spp.

*Trionychus strigipennis*, Madagascar, FAIRMAIRE, p. 119, Ann. Soc. ent. Belgique 1905, n. sp.

*Cetonini.*

[Cf. BRAEM (170), FAIRMAIRE (534, 537), HELLER (737), JANSON (815), LE COMTE (932, 933), MOSER (1076), WATERHOUSE (1589).]

*Cetoniide* of France, tables, LE COMTE, pp. 76-85, Bull. Soc. Nimes xxxii.

*Bettonia* n. g. near *Compscephalus*, *mutabilis* n. sp., E. Africa, WATERHOUSE, p. 377, Ann. Nat. Hist. (7) xv.

*Blasia subrugosa*, Bolivia, MOSER, p. 211, Ann. Soc. ent. Belgique 1905, n. sp.

*Bricoptis variolosa* var. *rufescens*, a distinct species, FAIRMAIRE, p. 123, Ann. Soc. ent. Belgique 1905.

*Cetonia aurata*, Italian varr., FIORI, p. 45, Riv. Col. ital. i; *C. aurata* var. n. *delfieui*, LE COMTE, p. 80, Bull. Soc. Nimes xxxii.

*C. (Potosia) mayeti*, Malta (or Benghazi), LE COMTE, p. 274, Bull. Soc. ent. France 1905, n. sp.

*Cetonischema speciosa* varr. n., NONFRIED, pp. 330-332, Stettin Ent. Zeit. lxvi.

*Chelorrhina krautzi*, Cameroons, MOSER, p. 210, Ann. Soc. ent. Belgique 1905, n. sp.

*Chloresthia* n. g. near *Heterorrhina*, *clypeata* n. sp., Kouitcheou, FAIRMAIRE, p. 91, Bull. Soc. ent. France 1905.

*Clinteria ornatipennis*, E. Africa, p. 212, *alboguttata*, Key Ids., p. 213, MOSER, Ann. Soc. ent. Belgique 1905, n. spp.

*Dicellachilus* n. g. near *Compscephalus*, p. 376, *woodi* n. sp., Usagara, p. 377, WATERHOUSE, Ann. Nat. Hist. (7) xv.

- Euphoria limbalis*, Florida, *holochloris*, Arizona, FALL, p. 273, Canad. Ent. 1905, n. sp.
- Fornasinius wesselsi*, Congo, BRAEM, p. 43, Ann. Soc. ent. Belgique 1905, n. sp.
- Gnorimus guerryi* n. n. for *flavitaris* Fairm., 1902, MOSER, p. 215, Ann. Soc. ent. Belgique 1905.
- Goniochilus rotundiceps*, E. Africa, MOSER, p. 214, Ann. Soc. ent. Belgique 1905, n. sp.
- Gymnetis, Allorhina, Cotinis* of N. America, taxonomy, SCHAEFFER, pp. 159, 160, Bull. Brooklyn Inst. i.
- G. impius*, Arizona, FALL, p. 272, Canad. Ent. 1905, n. sp.
- Lomaptera semicastanea* varr. n. *signata*, *rufipennis*, *plagiata* and *unicolor*, JANSON, p. 15, Ann. Nat. Hist. (7) xvi.
- L. pratti*, p. 12, *lutea*, p. 13, *rubens*, p. 15, *pulchella*, p. 16, *cupriceps*, p. 17; New Guinea, JANSON, t. c.; *L. mycterophallus*, New Guinea, HELLER, p. 65, Deutsche ent. Zeitschr. 1905 : n. spp.
- Lophogastra* n. n. for *Lophophora* Kr., the species, FAIRMAIRE, p. 123, Ann. Soc. ent. Belgique 1905.
- Malacotonia* n. g. near *Linotarsia*, p. 121, *rufopicta* n. sp., Madagascar, p. 122, and including *Gametis clytus* Westw., and *Linotarsia cincticollis* Fairm., FAIRMAIRE, t. c.
- Morokia* n. g. near *Lomaptera*, *meeki* n. sp., New Guinea, JANSON, p. 11, Ann. Nat. Hist. (7) xvi.
- Neptunides polychrous* var. n. *manowensis*, MOSER, p. 210, Ann. Soc. ent. Belgique 1905, n. sp.
- Osmoderma brevipennis* ♀, PIC, p. 121, Echange xxi.
- Potosia incerta* var. n. *hypocrita*, RAGUSA, p. 291, Natural. Sicil. xvii.
- Protatia nigra*, Dammer Id., MOSER, p. 213, Ann. Soc. ent. Belgique 1905, n. sp.
- Rhynchocephala rufoscutata*, Madagascar, FAIRMAIRE, p. 122, Ann. Soc. ent. Belgique 1905, n. sp.
- Theodosia*, notes on the species, SCHWARZ, p. 102, P. ent. Soc. Washington vii.
- Tmesorrhina pectoralis*, E. Africa, MOSER, p. 211, Ann. Soc. ent. Belgique 1905, n. sp.
- Trichaulax sericea*, New Guinea, JANSON, p. 17, Ann. Nat. Hist. (7) xvi, n. sp.
- Trichius alboguttatus*, Assam, MOSER, p. 215, Ann. Soc. ent. Belgique 1905, n. sp.
- Valgus hemipterus*, metamorphosis, XAMBEU, p. 164, Naturaliste 1905.

## BUPRESTIDÆ.

[Cf. ABEILLE (3), CSIKI (378), FAIRMAIRE (534), FALL (539, 542), FLEUTIAUX (581), KERREMANS (835), OBST (1114), PIC (1184), REITTER (1249), SCHAEFFER (1323, 1324), THÉRY (1488, 1489), WATERHOUSE (1590), WICKHAM (1630).]

Revision of *Buprestidæ* of Madagascar, and discussion of the fauna, THÉRY (1488).

- Acmæodera arenicola*, Hungary, CSIKI, p. 578, Ann. Mus. Hungar. iii; *A. amanicola*, Syria, PIC, p. 97, Echange xxi; *A. angustata*, E. Africa, OBST, p. 432, Zool. Jahrb. Syst. xxii; *A. fairmairei*, Madagascar, THÉRY, pl. i, fig. 1, p. 31, Bupr. Madag. : n. spp.
- Actenodes albifrons*, p. 111, *uniformis*, pl. iii, fig. 16, *frater*, fig. 17, p. 112, Madagascar, THÉRY, t. c. n. spp.
- Agæocera gentilis*=(*fenyési* Kerr.), WATERHOUSE, p. 577, Ann. Nat. Hist. (7) xv.
- Agrilus perrini* n. n. for *divaricatus* Ab., PIC, p. 185, Echange 1905.

- A. divaricatus*, Algeria, p. 207, *bedeli*, La Granja, p. 208, ABEILLE, Bull. Soc. ent. France 1905; *A. auroguttatus*, p. 149, *huachuca*, *quercus*, p. 150, Arizona, SCHAEFFER, Bull. Brooklyn Inst. iii; *A. subtropicus*, Texas, SCHAEFFER, p. 131, op. cit. i; *A. snowi*, Arizona, FALL, p. 271, Canad. Ent. 1905: **n. spp.**
- Anthaxia salicis* var. *n. speciosa*, CSIKI, p. 581, Ann. Mus. Hungar. iii.
- A. nyassica*, Africa, OBST, p. 430, Zool. Jahrb. Syst. xxii; *A. ventricosa*, p. 106, *hydropica*, pl. ii, fig. 12, p. 107, *episcopalis*, fig. 13, *scabra*, fig. 14, *hova*, fig. 15, p. 108, Madagascar, THÉRY, Bupr. Madag. : **n. spp.**
- Aphanisticus bouvieri*, p. 144, *elegans*, *inornatus*, p. 145, *integricollis*, *sicardi*, p. 146, *maleficus*, p. 147, Madagascar, THÉRY, t. c. **n. spp.**
- Chrysobothris edwardsii* ♂, SCHAEFFER, p. 129, Bull. Brooklyn Inst. i.
- C. decorsei*, Madagascar, THÉRY, p. 109, Bupr. Madag.; *C. bimarginicollis*, Arizona, SCHAEFFER, p. 148, Bull. Brooklyn Inst. i; *C. thoracicus*, Lower California, p. 128, *serripes*, Utah, p. 130, SCHAEFFER, t. c. : **n. spp.**
- Chrysodema ventralis*=(*navicularis* Kerr.), *C. dohrnii*=(*fairmairei* Kerr.) *mnizechi* being distinct, *C. wallacei*=(*sumatrensis* Kerr.), WATERHOUSE, p. 583, Ann. Nat. Hist. (7) xv.
- C. yerburyi*, Ceylon, WATERHOUSE, p. 583, t. c. **n. sp.**
- Cinyra purpurascens*, Lower California, SCHAEFFER, p. 127, Bull. Brooklyn Inst. i, **n. sp.**
- Corcebus orientalis*, Bucharest, ABEILLE, p. 207, Bull. Soc. ent. France 1905, **n. sp.**
- Cylindromorphus albifrons*, Madagascar, pl. v, fig. 28, THÉRY, p. 141, Bupr. Madag. **n. sp.**
- Dicercia alni*, food-habits, MOLLANDIN, p. 95, Bull. Soc. ent. France 1905.
- Dilopholotus flacourti*, p. 130, *farinosus*, p. 131, *mocquerysi*, *decorsei*, p. 132, *inconstans*, pl. iv, fig. 22, p. 133, *nivifera*, p. 134, *decoloratus*, fig. 23, p. 135, *fallax*, fig. 24, *inornatus*, fig. 25, p. 136, *abeillei*, fig. 26, p. 137, *tristis*, p. 138, *crassus*, fig. 27, *spurcus*, p. 139, Madagascar, THÉRY, Bupr. Madag. **n. spp.**
- Discoderes ampliatus*, Madagascar, FAIRMAIRE, p. 124, Ann. Soc. ent. Belgique 1905, **n. sp.**
- Dystaxia elegans*, San Diego, FALL, p. 71, Ent. News Philad. xvi, **n. sp.**
- Ectinogonia compositi*, Guyaquil, THÉRY, p. 152, Naturaliste 1905, **n. sp.**
- Entomogaster mocquerysi*, *asperulus*, pl. iv, fig. 20, Madagascar, THÉRY, p. 120, Bupr. Madag. **n. spp.**
- Gatbella insularis*, pl. vii, fig. 48, p. 167, *chrysonota*, fig. 49, p. 168, *pretiosa*, fig. 50, 51, p. 169, *byrrhoides*, fig. 52, *limbata*, fig. 53, p. 170, *antiqua*, fig. 54, p. 171, Madagascar, THÉRY, t. c. **n. spp.**
- Gyascutus juniperinus*, Utah, WICKHAM, p. 167, Canad. Ent. 1905, **n. sp.**
- Halecia soror*, Ecuador, p. 577, *trilineata*, Mexico, p. 578, *elongata*, *buckleyi*, Ecuador, p. 579, *sexcostata*, Bogota, p. 580, *rugosa*, p. 581, *viridisplendens*, Brazil, p. 582, WATERHOUSE, Ann. Nat. Hist. (7) xv, **n. spp.**
- Hypoprasia magnifica*, *harpago*, distinguished, WATERHOUSE, p. 577, t. c.
- Iridotenia lineata*=(*javana* Kerr.), WATERHOUSE, p. 583, t. c.
- Julodis mathiesseni*, Persia, REITTER, p. 204, Wien. ent. Zeit. xxiv; *J. bouvieri*, Persia, p. 227, *damarina*, Namaqualand, p. 286, *karrooana*, S. Africa, p. 302, KERREMANS, Mon. Buprest. i : **n. spp.**
- Mastogenius robustus*, Arizona, SCHAEFFER, p. 148, Bull. Brooklyn Inst. i, **n. sp.**
- Melanophila hungarica*, Hungary, CSIKI, p. 579, Ann. Mus. Hungar. iii, **n. sp.**
- Melibæus insipidus*, Madagascar, THÉRY, pl. iv, fig. 21, p. 123, Bupr. Madag. **n. sp.**

- Neoptosima* n. g. p. 35, including *Ptos. sericea* and *fairmairei*, and with *kerremansi*, p. 36, *spinosa*, *deplanata*, p. 37, n. spp., Madagascar, THÉRY, t. c.
- Paracaastalia ornaticornis*, p. 412, *minima*, p. 418, E. Africa, KERREMANS, Mon. Buprest. i, n. spp.
- Polycesta elata* a distinct species, FALL, p. 73, Ent. News Philad. xvi.
- Pseudacherusia* n. g. p. 382, *theryi* n. sp., Goyaz, p. 384, pl. vii, fig. 1, KERREMANS, Mon. Buprest. i.
- Pseudocoræbus* n. g. near *Chloricalla*, *mocquerysi*, pl. iii, fig. 18, n. sp., Madagascar, THÉRY, p. 121, Bupr. Madag.
- Psiloptera aspasia* Gerst. and *rubrocincta* Kerr. are the same, but *quadri-areolata* Fährs. and *bioculata* Ol. are distinct, *P. nigroænea* Kerr. = (*soror* Obst) and *subcatenulata* Thoms. = (*ænea* Obst), OBST, pp. 426, 427, Zool. Jahrb. Syst. xxii.
- P. sernotata*, E. Africa, OBST, p. 423, t. c.; *P. albovitata*, E. Africa, OBST, p. 429, t. c.; *P. (Lampetis) decorsei*, pl. i, fig. 4, p. 42, *vabreasi*, *lemur*, p. 43, *cyclops*, p. 44, *pater*, p. 45, *P. (Alampetis) sordida*, p. 48, *donckieri*, pl. i, fig. 9, p. 49, *P. (Apatea) abeilli*, p. 54, *P. rubibipes*, *fallax*, *longicollis*, p. 57, *alcyon*, pl. i, fig. 6, p. 59, *pandus*, p. 60, *moralesi*, pl. ii, fig. 7, p. 62, *grandidieri*, p. 65, *mocquerysi*, p. 68, *wautersi*, p. 75, *adspersipennis*, p. 76, *rustica*, *republicana*, pl. ii, fig. 9, p. 78, *pulverulenta*, p. 80, *nivifera*, p. 84, *errata*, *angulosa*, p. 99, *heydeni*, pl. ii, fig. 10, p. 100, *diecki*, fig. 11, p. 101, Madagascar, THÉRY, Bupr. Madag.; *P. cupreopunctata*, Texas, SCHAEFFER, p. 147, Bull. Brooklyn Inst. i : n. spp.
- Ptosima 11-maculata* var. n. *multimaculata*, PIC, p. 177, Echange xxi.
- Sphenoptera aliena*, E. Africa, OBST, p. 424, Zool. Jahrb. Syst. xxii, n. sp.
- Stenianthe carbonaria*, Madagascar, THÉRY, pl. i, fig. 2, p. 35, Bupr. Madag. n. sp.
- Sternocera frutetorum*, Nyassa, p. 142, KERREMANS, Mon. Buprest. i, n. sp.
- Sternotomis pupieri*, Comoro Ids., FLEUTIAUX, p. 7, Bull. Soc. ent. France 1905, n. sp.
- Trachys hova*, pl. v, fig. 20, *mocquerysi*, fig. 30, p. 150, *vivida*, fig. 31, p. 151, *decorsei*, fig. 32, *sicardi*, p. 153, *cambouei*, fig. 33, *spectrum*, fig. 34, p. 154, *niobæ*, fig. 35, *nyctelia*, fig. 36, p. 155, *immota*, fig. 37, p. 156, *corculum*, fig. 38, *dedita*, fig. 39, p. 157, *dira*, pl. vi, fig. 40, *grandiceps*, fig. 41, p. 158, *kervillei*, fig. 42, *fischeri*, fig. 43, p. 159, *compacta*, fig. 44, *creon*, fig. 45, p. 160, *delice*, pl. vii, fig. 46, p. 161, *corinna*, fig. 47, p. 162, Madagascar, THÉRY, Bupr. Madag. n. spp.

## EUCNEMIDÆ and THROSCIDÆ.

- Phyllocerus diversicornis*, Taurus, PIC, p. 181, Echange xxi, n. sp.
- Throsco bachofeni*, Transcaspian, REITTER, p. 91, Wien. ent. Zeit. xxiv, n. sp.

## ELATERIDÆ.

[Cf. DU BUYSSON (226-228), FALL (542), FIORI (569), FLEUTIAUX (580), PIC (1187, 1191), REITTER (1245), SCHWARZ (1169, 1170).]

*Elateridæ*, table of genera of palæarctic, of the families of *Sternoxia* and of the species of *Athouina*, REITTER, Verh. Ver. Brunn xliii. Heft lvi of Bestimmungstabelle.

- Adelocera auricollis*, Madagascar, SCHWARZ, p. 273, Deutsche ent. Zeitschr. 1905; *A. subaurata*, Ceylon, SCHWARZ, p. 257, t. c. : n. sp.
- Æolus* and *Heteroderes*, relations, FLEUTIAUX, p. 322, Ann. Soc. ent. France 1905.

- Agonischius subaenescens*, Assam, SCHWARZ, p. 263, Deutsche ent. Zeitschr. 1905, n. sp.
- Agriotes rubidicinctus*, Mantchuria, DU BUYSSON, p. 16, Bull. Mus. Paris 1905, n. sp.
- Alaotypus duchoni*, Assam, SCHWARZ, p. 257, Deutsche ent. Zeitschr. 1905, n. sp.
- Alaus rotundimaculatus*, p. 284, *brevipennis*, *nigromaculatus*, p. 285, *tigrinus*, p. 286, W. Africa, SCHWARZ, t. c. n. spp.
- Alcimatous* subg. n. of *Athous* for *A. sacheri* Kies., REITTER, p. 42, Verh. Ver. Brunn xliii.
- Arraphes diptychus* Cand. var. = (*confusus* Fleut.), FLEUTIAUX, p. 327, Ann. Soc. ent. France 1905.
- Athous*; treated, BUYSSON, pp. 337–368, Faune gallo-rhénane; also REITTER, Verh. Ver. Brunn xliii.
- A. olcesei*, Tangier, BUYSSON, p. 211, Bull. Soc. ent. France 1905; *A. corvinus*, Syria, p. 38, *pullus*, Caucasus, *plicatulus*, E. Siberia, p. 40, *A. (Grypocarus) densatus*, S.-E. Europe, p. 43, *vittatoides*, Albania, p. 46, *A. (Anathrotus) villigeroides*, Monte Rosa, p. 55, *A. (Haplathous* subg. n. p. 61) *corcyreus*, p. 62, *kerkyranus*, p. 63, Corfu, *milleri*, Istria, p. 65, *angulifrons*, Eur. mont. p. 66, *stellatus*, Carnian Alps, p. 67, *dilatatornis*, Crimea, p. 68, *carpathicus*, Rodna mts. p. 71, *sosybius*, Daghestan, p. 73, *turcicus*, Turkey, p. 75, *A. (Orthathous* subg. n. p. 80) *leonhardi*, Herzegowina, p. 81, *harmodius*, *holtzi*, Greece, p. 85, *apfelbecki*, Servia, p. 86, *krugeri*, N. Spain, p. 88, *singularis*, Dalmatia, p. 89, *caviformis*, p. 90, *meuseli*, Bosnia, *cavulus*, Nikolajew, p. 91, *lomnickii*, Galicia, p. 92, *A. (Grypocarus* subg. n. p. 92) *gerzanus*, Spain, p. 99, *serbicus*, Bosnia, *gobanzi*, Dalmatia, p. 105, *picipennis*, Banat, *carpathophilus*, Transsylvania, p. 106, *cervicolor*, Asturias, p. 107, *goriciensis* Görz, p. 110, *plagipennis*, Hungary, p. 112, REITTER, Verh. Ver. Brunn xliii : n. spp.
- Calambus bipustulatus* var. n. *epipleuralis*, DU BUYSSON, p. 17, Bull. Mus. Paris 1905.
- Cardiophorus latelimbatus*, Marocco, PIC, p. 105, Echange xxi; *C. impevus*, Biskra, p. 209, *sbeitensis*, Tunis, p. 210, DU BUYSSON, Bull. Soc. ent. France 1905; *C. differens*, Madagascar, p. 289, *obliquemaculatus*, Natal, p. 290, SCHWARZ, Deutsche ent. Zeitschr. 1905; *C. arizonensis*, Arizona, FALL, p. 270, Canad. Ent. 1905 : n. spp.
- Cardiotarsus nitidissimus*, Madagascar, SCHWARZ, p. 290, Deutsche ent. Zeitschr. 1905, n. sp.
- Compsolacon* n. g. for *Archontas crenicollis*, REITTER, p. 6, Verh. Ver. Brunn xliii.
- Corymbites africanus*, Transvaal, SCHWARZ, p. 291, Deutsche ent. Zeitschr. 1905, n. sp.
- Diacanthous* subg. n. of *Harminiis* for *Athous undulatus*, REITTER, p. 25, Verh. Ver. Brunn xliii.
- Dicronychus crassipes*, S. Thomé, SCHWARZ, p. 282, Deutsche ent. Zeitschr. 1905, n. sp.
- Dorigonus ceylanicus*, Kandy, FLEUTIAUX, p. 321, Ann. Soc. ent. France 1905, n. sp.
- Drasterius bimaculatus*, *figuratus*, *egyptiacus*, DU BUYSSON, p. 18, Bull. Mus. Paris 1905; *D. bimaculatus wachsmanni* subsp. n., REITTER, p. 91, Wien. ent. Zeit. xxiv.
- Elasmosomus apicalis*, p. 273, *pulchellus*, p. 274, *pulcher*, p. 275, Africa, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.
- Elathouina* n. g. for *A. amicus* Perr., REITTER, p. 19, Verh. Ver. Brunn xliii.
- Elatrigus* n. g. for *Tetrigus cyprius* Baudi, REITTER, p. 10, t. c.
- Euplathous* subg. n. of *Athous* type *A. vanus* Duf., REITTER, p. 76, t. c.



- Grypathous* subg. n. cf. *Athous*.  
*Haplathous* subg. n. cf. *Athous*.  
*Harminius* (*Megathous* subg. n. p. 27) for *Athous menetriesi*, major, Styria, p. 28, *jakobsoni*, Mongolia, n. spp., p. 29, REITTER, Verh. Ver. Brunn xliii.  
*Hemicleus fasciculatus*, p. 276, *longicollis*, p. 277, Africa, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.  
*Hemiops assamensis*, p. 264, *duchoni*, p. 265, Assam, *angularis*, Sumatra, p. 266, SCHWARZ, t. c. n. spp.  
*Hemirraphes bivittatus*, S. India, FLEUTIAUX, p. 326, Ann. Soc. ent. France 1905, n. sp.  
*Heterathous* subg. n. of *Athous* for *A. sanguinicollis* Friv., REITTER, p. 32, Verh. Ver. Brunn xliii.  
*Homotechnes brunneus*, S. India, FLEUTIAUX, p. 325, Ann. Soc. ent. France 1905, n. sp.  
*Hypnooidus incommodus*, p. 325, *monadicoides*, *candezei*, p. 326, India, FLEUTIAUX, t. c. n. spp.  
*Lacon nebulosus*, *bigranosus*, Madagascar, SCHWARZ, p. 278, Deutsche ent. Zeitschr. 1905; *L. niger*, Darjiling, p. 258, *principatus*, Ceylon, p. 259, SCHWARZ, t. c. : n. spp.  
*Leptoschema* = (*Elathous* Reitt.), REITTER, p. 20, Verh. Ver. Brunn xliii.  
*Limonicus* n. g. for part of *Limonius*, *violaceus* etc., REITTER, p. 14, t. c.  
*Limonius* (*Propheletes* subg. n.) *grandii*, Bologna, FIORI, p. 131, Riv. Col. ital. iii, n. sp.  
*Lobotarsus ambiguus*, p. 279, *maculatus*, p. 280, Madagascar, *miser*, Gaboon, p. 281, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.  
*Ludius cinctus* var. n. *semitestacea*, PIC, p. 181, Bull. Soc. ent. France 1905.  
*L. (Calosirus) incostatus*, Syria, p. 169, *L. (Selatosomus) taygetanus*, Morea, p. 170, PIC, t. c. ; *L. maindroni*, S. India, FLEUTIAUX, p. 329, Ann. Soc. ent. France 1905 : n. spp.  
*Megathous* subg. n. cf. *Harminius*.  
*Melanathous* n. g. *sequensi* n. sp., Taygetos, REITTER, p. 25, Verh. Ver. Brunn xliii.  
*Melanoxanthus motschulskyi*, N. India, p. 323, *pomachilioides*, Nilgiris, p. 324, FLEUTIAUX, Ann. Soc. ent. France 1905, n. spp.  
*Negastrius quadriguttatus*, larva and pupa, pl. figg. 3, 4, p. 34, MjöBERG, Arkiv Zool. ii, No. 17.  
*Nomopleus fleutiauxi*, S. Africa, *macer*, E. Africa, p. 20, SCHWARZ, p. 292, Deutsche ent. Zeitschr. 1905, n. spp.  
*Odontonychus niger*, Cameroons, SCHWARZ, p. 281, t. c. n. sp.  
*Orthathous* subg. n. cf. *Athous*.  
*Paratacon* n. g. for *Lacon cinnamomeus* Cand. ?, REITTER, p. 6, Verh. Ver. Brunn xliii.  
*Penia lateralis*, p. 261, *marmorata*, *bimaculata*, p. 262, *niger*, p. 263, N. India, SCHWARZ, Deutsche ent. Zeitschr. 1905, n. spp.  
*Phedomenus pallipes*, Madagascar, p. 287, *bipunctatus*, W. Africa, p. 288, SCHWARZ, t. c. n. spp.  
*Pleurathous* subg. n. of *Athous* type *A. godarti*, REITTER, p. 48, Verh. Ver. Brunn xliii.  
*Procrærus* n. g. for *Megapenthes tibialis* etc., REITTER, p. 11, t. c.  
*Propheletes* subg. n. cf. *Limonius*.  
*Psephus assamensis*, Kohima, SCHWARZ, p. 260, Deutsche ent. Zeitschr. 1905, n. sp.  
*Silesis vaulogeri*, Algeria, BUYSSON, p. 110, Bull. Soc. ent. France 1905, n. sp.  
*Spilus africanus*, W. Africa, SCHWARZ, p. 283, Deutsche ent. Zeitschr. 1905, n. sp.  
*Tetralobus duchoni*, Assam, SCHWARZ, p. 260, t. c. n. sp.

*Tropihypnus* n. g. for *Paracardiophorus bimargo* Reitt., REITTER, p. 9, Verh. Ver. Brunn xliii.

## CEBRIONIDÆ.

*Cebrio xanthoderes* var. n. *vaulogeri*, p. 153, *C. guyoni* var. n. *obscurior*, p. 154, PIC, Echange xxi.  
*C. subattenuatus*, *pelissieri*, Algeria, PIC, p. 154, t. c. n. spp.

## MALACODERMIDÆ.

[(Cf. BARBER (75), BOURGEOIS (150-157), CHAIGNON (296), FAIRMAIRE (534), FIORI (568, 570), GORHAM (676), GOUNELLE (677), KNAB (871), OLIVIER (1121-1123), PIC (1180, 1182, 1186, 1187, 1189-1193).]

Isochromism of *Lycidæ*, and of insects resembling them, GOUNELLE, Bull. Soc. ent France 1905, pp. 132-134.

- Absidia obscuricolor*, Japan, PIC, p. 121, Echange xxi, n. sp.  
*Acanthocnemus brevicornis*, note, PIC, p. 23, Bull. Soc. ent. France 1905.  
*Anthocomus coriaceus*, S. Africa, GORHAM, p. 275, P. Zool. Soc. London 1905, ii, n. sp.  
*Astylus argentinus*, S. America, PIC, p. 92, Naturaliste 1905, n. sp.  
*Attalus nourricheli*, var. n. *marginatus*, LEONI, pp. 106-109, Riv. Col. ital. iii.  
*A. fruhstorferi*, Darjeeling, PIC, p. 92, Naturaliste 1905; *A. obscuripennis*, Algeria, PIC, p. 154, Echange xxi : n. spp.  
*Axinotarsus robustus*, Tangier, PIC, p. 106, t. c. n. sp.  
*Calopteron variegatum* var. n. *flavofusciatum*, p. 11, *torquatium albofasciatum* var. n. p. 113, *reticulatum inhumerale* var. n. p. 115, *melanoxanthum geayianum* var. n. p. 117, *limbatum signatum* var. n. p. 119, BOURGEOIS, Ann. Soc. ent. France 1905.  
*Cantharis bicolor* var. n. *discotestacea*, *C. lateralis* var. n. *nigronotata*, PIC, p. 186, Echange 1905; *C. parnassicus* var. n. *lutemaculata*, PIC, p. 161, t. c.; *C. fusca* var. n. *mariscana fracassii*, LEONI, p. 130, Riv. Col. ital. iii.  
*C. guilleti*, Japan, PIC, p. 113, Echange xxi, n. sp.  
*Cladophorus bifrensis*, p. 191, *bolivari*, p. 192, Spanish Guinea, BOURGEOIS, Mem. Soc. Espan. i; *C. satrapa*, Kurseong, BOURGEOIS, p. 47, Ann. Soc. ent Belgique 1905 : n. spp.  
*Curtos motschulskyi*, Java, OLIVIER, p. 208, Ann. Soc. ent. Belgique 1905, n. sp.  
*Cyrtopteron* n. g. for part of *Calopteron*, BOURGEOIS, p. 122, Ann. Soc. ent. France 1905.  
*Cyrtosus baborensis*, Algeria, PIC, p. 121, Echange xxi, n. sp.  
*Dalthomes* subg. n. cf. *Malthodes*.  
*Danacaca moreana*, Greece, PIC, p. 161, Echange xxi, n. spp.  
*Dictyoptera taygetana*, Greece, PIC, p. 185, t. c.; *D. braeti*, Kurseong, BOURGEOIS, p. 47, Ann. Soc. ent. Belgique 1905 : n. spp.  
*Dolichomorphus* subg. n. cf. *Psilothrix*.  
*Drilus creticus*, Crete, PIC, p. 170, Echange xxi, n. sp.  
*Ebæus carinatipennis*, Sikkim, PIC, p. 92, Naturaliste 1905, n. sp.  
*Hedonistes* n. g. near *Hedybius*, p. 278, *latus*, n. sp., Cape Colony, p. 279, GORHAM, P. Zool. Soc. London 1905, ii.  
*Hedybius sculpticeps*, p. 275, *quadricornis*, p. 276, S. Africa, GORHAM, t. c. n. spp.  
*Idiopteron* n. g. for part of *Calopteron*, p. 120, *bivittatum* var. n. *morosum*, p. 121, BOURGEOIS, Ann. Soc. ent. France 1905.

- Laius diabolicus*, Sumatra, *rouyeri*, *carinaticeps*, Java, PIC, p. 104, Echange xxi; *L. variolosus*, *miles*, Ceylon, BOURGEOIS, p. 131, Ann. Soc. ent. France 1905 : **n. spp.**
- Luciola italica*, nature of light, PASSERINI, pp. 181-183, Bull. Soc. ent. Ital. xxxvi.
- L. horni*, *antennalis*, Ceylon, BOURGEOIS, p. 128, Ann. Soc. ent. France 1905; *L. gemina*, White Nile, OLIVIER, p. 9, Jägerskiöld exp. No. 10a; *L. krugeri*, *mendax*, Africa, *nitescens*, Borneo, p. 206, *sordida*, Java, *calceata*, Pondichery, p. 207, OLIVIER, Ann. Soc. ent. Belgique 1905 : **n. spp.**
- Lycostomus nigricollis*, Kurseong, BOURGEOIS, p. 46, Ann. Soc. ent. Belgique 1905, **n. sp.**
- Lycus (Lycostomus) vaucheri*, Atlas, BOURGEOIS, p. 291, Bull. Soc. ent. France 1905, **n. sp.**
- Macrolampis*; redefined, p. 311, *M. omissus*, *elapsus*, p. 315, *roberti*, *frater*, *distinguendus*, p. 316, *transversenotatus*, *agonus*, p. 317, *meditabundus*, *cylindrus*, p. 318, **n. spp.**, S. America, OLIVIER, Ann. Soc. ent. France 1905.
- Malthinus bilineatus* var. *n. neapolitana*, PIC, p. 186, Echange 1906.
- M. nitidithorax*, p. 145, *terrestris*, p. 146, Algeria, PIC, t. c. **n. spp.**
- Malthodes maurus*; *Podistrina continua* is wingless ♀, BOURGEOIS, p. 238, Bull. Soc. ent. France 1905.
- M. gavoyni*, Aude, BOURGEOIS, p. 21, t. c.; *M. grandicornis*, Algeria, PIC, p. 106, Echange xxi; *M. cortadesi*, *inapicalis*, Algeria, PIC, p. 146, t. c.; *M. (Dalthomes* subg. *n. p.* 248) *bertolinii*, Italy, p. 248, FIORI, Riv. Col. ital. iii : **n. spp.**
- Malthodinus* subg. *n.* of *Maltharcus*, FIORI, p. 236, t. c.
- Mesomalthodes* **n. g.** for part of *Malthodes*, pp. 236, 250, FIORI, t. c.
- Mesopteron* **n. g.** for part of *Calopteron*, p. 123, *riveti* **n. sp.**, Ecuador, p. 125, BOURGEOIS, Ann. Soc. ent. France 1905.
- Metapteron* **n. g.** for part of *Calopteron*, BOURGEOIS, p. 126, t. c.
- Phengodes plumosa*, light of, KNAB, p. 239, Canad. Ent. 1905; *P. laticollis*, sexes, BARBER, p. 196, P. ent. Soc. Washington 1905; *P. hieronymi*, SCHWARZ, p. 197, t. c.
- Philhedonus sericeus*, p. 277, *rugulosus*, p. 278, S. Africa, GORHAM, P. Zool. Soc. London 1905, ii, **n. spp.**
- Photuris*, display of light, KNAB, p. 238, Canad. Ent. 1905.
- P. corvus*, Bolivia, p. 208, *vestita*, *subdola*, Brazil, p. 209, OLIVIER, Ann. Soc. ent. Belgique 1905, **n. spp.**
- Plateros (Planeteros) curtus*, *escalerae*, p. 194, *flavus*, p. 195, Spanish Guinea, BOURGEOIS, Mem. Soc. Espan. i, **n. spp.**
- Podabrus alpinus* var. *n. ruficeps*, GABRIEL, p. 142, Deutsche ent Zeitschr. 1905.
- P. longissimus*, Japan, PIC, p. 113, Echange xxi, **n. sp.**
- Promalthodes* **n. g.** for part of *Malthodes*, pp. 235, 240, FIORI, Riv. Col. ital. iii.
- Prothalmodes* subg. *n.* of *Malthodes*, FIORI, p. 239, t. c.
- Psilothrix (Dolichomorpha* subg. *n.) rufimanus*, Bologna, FIORI, p. 82, t. c. **n. sp.**
- Rhagonycha fulva*, oviposition, FRIEDRICH, p. 493, Zeitschr. Insbiol. i; *R. testacea* var. *n. taurinensis*, PIC, p. 105, Echange xxi.
- R. forticornis*, Bulghar Dagh, PIC, p. 177, t. c.; *R. holtzi*, Greece, PIC, p. 186, t. c.; *R. (Absidia) vaulogeri*, Algeria, BOURGEOIS, p. 106, Bull. Soc. ent. France 1905; *R. drurei*, Kurdistan, PIC, p. 161, Echange xxi; *R. caroli*, Japan, PIC, p. 121, t. c. : **n. spp.**
- Selasia (Euptilia) horni*, Ceylon, BOURGEOIS, p. 130, Ann. Soc. ent. France 1905, **n. sp.**
- Silis ceylonica*, Kandy, BOURGEOIS, p. 129, Ann. Soc. ent. France 1905 ;

- S. spinicollis*, Madagascar, FAIRMAIRE, p. 124, Ann. Soc. ent. Belgique 1905 : n. spp.  
*Stadenus bolivari*, Spanish Guinea, BOURGEOIS, p. 193, Mem. Soc. Espan. i, n. sp.  
*Telephorus*; larval habits, REMER, pp. 12-14 z.-b. Sekt., Jahresber. Schlesisch. Ges. lxxxi.  
*T. testaceipes*, Madagascar, FAIRMAIRE, p. 124, Ann. Soc. ent. Belgique 1905, n. sp.  
*Trichocele fulvohirta* and allies, FIORI, p. 87, Riv. Col. ital. iii.  
*Zelotypus horni*, Ceylon, BOURGEOIS, p. 132, Ann. Soc. ent. France 1905, n. sp.  
*Zygia notaticollis*, Obock, PIC, p. 130, Echange xxi; *Z. alluaudi*, E. Africa, PIC, p. 303, Bull. Soc. ent. France 1905 : n. spp.  
*Xylobanus cardoni*, Bengal, BOURGEOIS, p. 48, Ann. Soc. ent. Belgique 1905, n. sp.

## CLERIDÆ.

- [Cf. GORHAM (676), HINTZ (750), SCHAEFFER (1324), SKINNER (1408), WICKHAM (1630).]  
*Aphelochroa nigripes*, W. Africa, HINTZ, p. 308, Deutsche ent. Zeitschr. 1905, n. sp.  
*Cardiostichus*; the W. African, HINTZ, p. 310, t. c.  
*Cephaloclerus tibialis*, p. 311, *flavipes*, p. 312, W. Africa, HINTZ, t. c. n. spp.  
*Clerus quercus*, p. 154, *pinus*, Arizona, *humeralis*, California, p. 155, SCHAEFFER, Bull. Brooklyn Inst. i : *C. bimaculatus*, Arizona, SKINNER, p. 291, Ent. News Philad. xvi : n. spp.  
*Cylidrus*; colour-variation, etc., HINTZ, p. 305, Deutsche ent. Zeitschr. 1905.  
*Cymatodera*; sex-characters, SCHAEFFER, pp. 152, 153, Bull. Brooklyn Inst. i.  
*C. uniformis*, Arizona, p. 151, *santarosa*, Lower California, p. 152, SCHAEFFER, t. c.; *C. tricolor*, Arizona, SKINNER, p. 292, Ent. News Philad. xvi : n. spp.  
*Dozocolletus sordidus*, Algoa Bay, GORHAM, p. 274, P. Zool. Soc. London 1905, ii, n. sp.  
*Erymanthus ater*, W. Africa, HINTZ, p. 309, Deutsche ent. Zeitschr. 1905, n. sp.  
*Euplacocerus dimidiatus* var. = (*apicalis*), HINTZ, p. 311, t. c.  
*Gyponyx algoensis*, p. 272, *braunsi*, p. 273, S. Africa, GORHAM, P. Zool. Soc. London 1905, ii, n. spp.  
*Hydnocera niveifascia*, Arizona, SCHAEFFER, p. 156, Bull. Brooklyn Inst. i; *H. knausii*, Kansas, WICKHAM, p. 168, Canad. Ent. 1905 : n. spp.  
*Necrobia pilifera* var. n. *cupreonitens*, LAUFFER, p. 406, Bol. Soc. espan. v.  
*Opilo signatus*, W. Africa, HINTZ, p. 307, Deutsche ent. Zeitschr. 1905, n. sp.  
*Orthopleuroides*, characters; HINTZ, p. 313, t. c.  
*Oxystigmatium cornutum*, W. Africa, HINTZ, p. 309, t. c. n. sp.  
*Philocalus convexus*, *elongatus*, W. Africa, HINTZ, p. 306, t. c. n. spp.  
*Phlæocopus niger*, *rufipennis*, Africa, HINTZ, p. 307, t. c. n. spp.  
*Plathanocera albopunctata*, W. Africa, HINTZ, p. 310, t. c. n. sp.  
*Tenerus orientalis* to *Lacordairius*, HINTZ, p. 314, t. c.  
*T. marginalis*, p. 312, *grandis*, *miniatus*, *auratus*, p. 313, W. Africa, HINTZ, t. c. n. spp.  
*Thanasimus ornatus*, W. Africa, HINTZ, p. 308, t. c. n. sp.  
*Tillodenops* n. g. p. 305, *brunneus*, n. sp., W. Africa, p. 306, HINTZ, t. c.  
*Thriocera bicinctella*, S. Africa, GORHAM, p. 274, P. Zool. Soc. London 1905, ii, n. sp.

## PTINIDÆ.

[Cf. FALL (538), LEA (928), LEINBERG (934), PIC (1175, 1182, 1187, 1188, 1192).]

Revision of *Ptinidæ* of North America, FALL, pp. 97-295, Tr. Amer. ent. Soc. xxxi.

- Actenobius* n. g. for part of *Euceratocerus*, FALL, p. 155, t. c.  
*Anobiopsis* n. g. p. 177, *sericans*, n. sp., California, p. 178, FALL, t. c.  
*Cænocara frontalis*, p. 271, *blanchardi*, p. 273, *neomexicana*, p. 274, *tenuipalpa*, p. 275, *inepta*, *ovalis*, p. 276, N. America, FALL, t. c. n. spp.  
*Cathorama cribrata*, *goyosensis*, Brazil, PIC, p. 92, Naturaliste 1905; *C. vitiosum*, *impressifrons*, p. 234, *mutans*, p. 235, *grande*, *lentum*, *conophilum*, p. 236, *simplex*, *metasternale*, *inæquale*, p. 237, *gibbulum*, p. 238, *carinatum*, p. 239, *densum*, *dichroum*, *nigripenne*, p. 240, *dispar*, p. 241, *vestitum*, *placidum*, p. 242, *posticum*, *tumidum*, *nubilum*, p. 243, *longulum*, *uniforme*, *fastigiatum*, p. 244, *otiosum*, *congruum*, *vexatum*, p. 245, *porosum*, *convexum*, p. 247, *politum*, *triviale*, *conjunctum*, p. 248, *conso-brinum*, p. 249, *pingue*, *vacuum*, p. 250, *cicatricosum*, *geminatum*, p. 251, *gracile*, *mancum*, *validum*, *confusum*, p. 252, *angustum*, p. 253, *parvum*, *turbidum*, p. 254, *indistinctum*, *exiguum*, p. 255, N. America, FALL, Tr. Amer. ent. Soc. xxxi : n. spp.  
*Cælostethus americanus*, p. 178, *alternatus*, *truncatus*, p. 188, FALL, t. c. n. spp.  
*Colposternus* n. g. for *Trypopytys tenuilineatus* Horn, FALL, p. 190, t. c.  
*Cryptorama* n. g. *oblongum*, Lower California, p. 256, *vorticale*, p. 257, n. spp., N. America, FALL, t. c.  
*Episernus granulatus* var. n. *sulcatus*, LEINBERG, p. 18, *angulicollis* var. n. *striatulus*, p. 20.  
*E. tenuicollis*, Finland, id., p. 21, t. c. n. sp.  
*Ernobius nigrinus* and allies distinguished, GERHARDT, p. 221, Deutsche ent. Zeitschr. 1905.  
*E. socialis*, p. 142, *convergens*, p. 143, *collaris*, *crotchii*, p. 144, *lacustris*, *fissuratus*, *nigrans*, p. 146, *pallitarsis*, *montanus*, p. 147, *opicus*, p. 149, *gentilis*, *trapezoideus*, p. 151, N. America, FALL, Tr. Amer. ent. Soc. xxxi, n. spp.  
*Eupactus* = (*Thaptor* Gorb.) *nactus*, *advenus*, *obsoletus*, p. 220, *amænus*, *mixtus*, p. 221, *canonicus*, *similis*, p. 222, N. America, FALL, t. c.; *E. dejeani*, Mexico, PIC, p. 115, Echange xxi; *E. testaceipes*, Cuba, PIC, p. 92, Naturaliste 1905 : n. spp.  
*Eutylistus* n. g. p. 264, *ulkei*, *levisternus*, p. 266, *fallax*, p. 267, *facilis*, p. 268, n. spp., N. America, FALL, Tr. Amer. ent. Soc. xxxi.  
*Euvrilletta* n. g. p. 196, *xyletinoides* n. sp., p. 197, California, FALL, t. c.  
*Hadrobregmus defectus*, p. 182, *pusillus*, p. 183, *laticollis*, *umbrosus*, p. 184, N. America, FALL, t. c. n. spp.  
*Hedobia angulata*, California, FALL, p. 130, t. c. n. sp.  
*Lasioderma bicolor*, *semirufum*, *hemiptychoides*, N. America, FALL, p. 205, t. c. n. spp.  
*Megorama* n. g. p. 206, *viduum*, p. 207, *ingens*, p. 208, n. spp., California, FALL, t. c.  
*Microbregma emarginatum* var. n. *granicollis*, FALL, p. 185, t. c.  
*Microzogus* n. g. *insolens* n. sp., Florida, FALL, p. 135, t. c.  
*Niptinus* n. g. *ovipennis* n. sp. p. 108, Texas, FALL, t. c.  
*Oligomerodes* n. g. *occidentalis*, p. 161, *catalinae*, p. 162, n. spp., N. America, FALL, t. c.  
*Oligomerus tenellus*, p. 164, *californicus*, p. 165, *brevipilis*, p. 166, n. spp., N. America, FALL, t. c.

- Ozognathus dubius*, Arizona, FALL, p. 137, t. c. n. sp.  
*Paralobium* n. g. p. 152, *mundum* n. sp., California, p. 153, FALL, t. c.  
*Paussoptinus* n. g. p. 381, between *Paussidæ* and *Ptinidæ*, *laticornis* n. sp., Australia, p. 382, pl. xxvii, f. 7, LEA, P. Soc. Victoria xvii.  
*Petalium fauveli*, Guadeloupe, p. 188, *alluaudi*, Madagascar, *longipenne*, Brazil, p. 189, PIC, Rev. Ent. franc. 1905; *P. schwarzi*, p. 214, *yuccæ*, *seriatum*, p. 215, *californicum*, p. 216, N. America, FALL, Tr. Amer. ent. Soc. xxxi : n. spp.  
*Priotoma gounellei*, Brazil, PIC, p. 115, Echange xxi; *Pristoma* (sic) *minuta*, Caracas, PIC, p. 93, Naturaliste 1905; n. spp.  
*Pseudodorcatoma* n. g. *ornata* n. sp., Guadeloupe, PIC, p. 171, Echange xxi.  
*Ptinus superbus* = (*pyrenæus* Pic), REITTER, p. 200, Wien. ent. Zeit. xxiv.  
*P. (Gynopterius) barrosi*, Portugal, PIC, p. 170, Echange xxi; *P. biscrensis*, Algeria, PIC, p. 106, t. c.; *P. alternatus*, *caelebs*, p. 116, *agnatus*, *cognatus*, p. 118, *longivestis*, p. 119, *strangulatus*, p. 120, *tumidus*, p. 121, *prolixus*, p. 122, *hystrix*, *eximius*, p. 123, *concurrrens*, *fallax*, *vgrandis*, p. 125, *feminalis*, p. 126, N. America, FALL, Tr. Amer. ent. Soc. xxxi, n. spp.  
*Stichoptychus* n. g. *agonus* n. sp., Texas, FALL, p. 258, t. c.  
*Trichodesma klagesi*, p. 173, N. America, *beyeri*, p. 174, Lower California, FALL, t. c. n. spp.  
*Utobium* n. g. for *elegans* Horn, FALL, p. 134, t. c.  
*Vrillela nigra*, Mariposa, PIC, p. 171, Echange xxi; *V. blaisdelli*, p. 194, *laurentina*, p. 195, *plumbea*, p. 196, N. America, FALL, Tr. Amer. ent. Soc. xxxi : n. spp.  
*Xarifa* n. g. p. 137, *insularis* n. sp., California, p. 138, FALL, t. c.  
*Xeranobium* n. g. *laticeps*, p. 158, *macrum*, p. 159, *desertum*, p. 160, n. spp., N. America, FALL, t. c.  
*Xyletinus semilimbatus* var. *testaceipennis*, PIC, p. 97, Echange xxi.  
*X. distans*, p. 200, *harrisii*, p. 201, *gracilipes*, p. 203, N. America, FALL, Tr. Amer. ent. Soc. xxxi, n. spp.  
*Xyletomerus* n. g. p. 197, *histricus* n. sp., California, p. 198, FALL, t. c.

## LYMEXYLONIDÆ, BOSTRICHIDÆ, CIOIDÆ.

- Atractocerus horni*, Ceylon, BOURGEOIS, p. 133, Ann. Soc. ent. France 1905, n. sp.  
*Bostrychopsis villosula* n. n. for *cephalotes* Lesne non Olivier, LESNE, p. 298, Bull. Mus. Paris 1905.  
*Enneadesmus sculptifrons*, Caffraria, LESNE, p. 275, Bull. Soc. ent. France 1905, n. sp.  
*Sinoxylon doliolum*, E. Africa, p. 275, *cafrum*, S. Africa, p. 276, LESNE, t. c. n. spp.  
*Rhipidandrus* : see *Tenebrionidæ*.

## TENEBRIONIDÆ.

[Cf. BROUN (194), CARTER (284), ESCALERA (523, 524), FAIRMAIRE (534, 535), GEBIEN (644-646), LEA (928), PIC (1184), REITTER (1244, 1246), SHARP (670).]

GEBIEN gives a long list of corrigenda to the *Tenebrionidæ* of the Munich Catalogue, and to Champion's supplement thereto; Wien. ent. Zeit. xxiv, pp. 252-260.

Table of the subfamilies of palæarctic *Tenebrionidæ*, REITTER, pp. 25-34, Verh. Ver. Brunn xlii.

Twelve spp. n. *Tenebrionidæ*, Sinai, Crotch 1871 but not yet recorded, SHARP, p. 520, Ann. Nat. Hist. (7) xv.

- Adelium helmsi, reticulatum*, p. 181, *violaceum*, p. 182, *minor*, p. 183, *globulosum*, p. 184, Australia, CARTER, P. Linn. Soc. N. S. Wales xxx, n. spp.
- Adesmia jägerskiöldi*, White Nile, GEBIEN, p. 12, Jägerskiöld exp. No. 10a, n. sp.
- Akidini*, tables of palæarctic, REITTER, pp. 36-49, Verh. Ver. Brunn xlii.
- Akis melitana*, Malta, p. 40, *biskrensis*, Algeria, p. 41, REITTER, t. c. n. spp.
- Alcephus nitidipennis*, p. 275, California, *gracilis*, p. 276, Arizona, FALL, Canad. Ent. 1905, n. spp.
- Alphasida* subg. n. see *Asida*.
- Ammidanemia* subg. n. of *Anemia, asperula* Reitt. etc., REITTER, p. 132, Verh. Ver. Brunn xlii.
- Asida*; revision of Iberian, ESCALERA, pp. 377-402, 430-450, Bol. Soc. espan. v.
- A.* (*Alphasida* subg. n. p. 380) *gaditana*, p. 385, *volxemi, becerræ*, p. 387, *rufopubescens*, p. 388, *A.* (*Globasida* subg. n. p. 430) *cartagenica*, p. 433, *intermedia, bacaresensis*, p. 435, *frigida, rotunda, novissima*, p. 436, *deformis, almeriana*, p. 437, *nerjenensis*, p. 438, *segurenensis, quadrata*, p. 439, *dubiosa, curvatipennis*, p. 440, Iberian penins., ESCALERA, t. c. n. spp.
- Asidelia* n. g. near *Nyctelia, contracta* n. sp., Argentina, FAIRMAIRE, p. 296, Ann. Soc. ent. France 1905.
- Aulonolcus* subg. n. of *Lobothorax*, for *altaicus* Gebl., REITTER, p. 168, Verh. Ver. Brunn xlii.
- Cabirus dentimanus*, Samarcand, p. 64, *procerulus*, Aulie-Ata, p. 65, *puncticollis*, Buchara, *gracilis*, Mardin, p. 66, *castaneus*, Jerusalem, *subpubescens*, Beyrout, p. 67, *desbrochersi, simonis*, Syria, p. 68, REITTER, t. c. n. spp.
- Callismilax bavayi, variolosa*, p. 216, *interrupta, fulgurans*, p. 217, *caestina, numeensis*, p. 218, *externa, basalis, suturalis*, p. 220, *arcitenens*, p. 221, *caviceps, gloriosa*, p. 222, *semiviolacea, plicicollis, auripennis*, p. 223, *virescens, sulcipennis*, p. 224, *setigera*, p. 225, New Caledonia, FAUVEL, Rev. Ent. franc. xxiv, n. spp.
- Camaria tnuestriata*, p. 126, *semianescens*, p. 127, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique 1905; *C. obtusa*, p. 300, *impressifrons, biaculeata*, p. 301, Argentina, FAIRMAIRE, Ann. Soc. ent. France 1905: n. spp.
- Cerostena infravestita*, p. 297, *semistrigosa*, p. 298, Argentina, FAIRMAIRE, t. c. n. spp.
- Cilibe costella*, New Zealand, BROWN, p. 544, Ann. Nat. Hist. (7) xv, n. sp.
- Colpopatrum* subg. n. of *Opatrum*, for *asperipenne* Reitt., REITTER, p. 148, Verh. Ver. Brunn xlii.
- Colpotus punctipleuris*, Asia Minor, REITTER, p. 63, t. c. n. sp.
- Coripera morleyana*, p. 184, *distincta*, p. 185, N. S. Wales, CARTER, P. Linn. Soc. N. S. Wales xxx, n. spp.
- Dendaroscelis* subg. n. cf. *Dendarus*.
- Dendarus* (*Pandarinus*) *seidlitzii*, Dalmatia, p. 80, *vagabundus* (n. n. for *vagens* Reitt.), Transcaspian, p. 84, *D. scoparipes*, Cerigo, p. 86, *D.* (*Dendaroscelis* subg. n.) *serripes*, Spain, p. 92, REITTER, Verh. Ver. Brunn xlii, n. spp.
- Diastolinus acuticollis, quadricollis, fortipes*, Argentina, FAIRMAIRE, p. 299, Ann. Soc. ent. France 1905, n. spp.
- Dietopsis bucculata, tenuis*, Tucuman, FAIRMAIRE, p. 302, t. c. n. spp.
- Dilamus bohmi*, Egypt, REITTER, p. 71, Verh. Ver. Brunn xlii, n. sp.
- Discotus* subg. n. cf. *Lobothorax*.
- Ectomopsis* n. g. near *Camarinena*, p. 299, *bruchi* n. sp., Argentina, p. 300, FAIRMAIRE, Ann. Soc. ent. France 1905.

- Eledona*; structure of feet, relations with *Rhipidandrus*, SHARP, Biol. Centr.-Amer. Col. ii, pt. 1, p. 690.
- Emallogdera granocostata, strangulata*, Argentina, FAIRMAIRE, p. 290, Ann. Soc. ent. France 1905, **n. spp.**
- Encara nigrum*, N. S. Wales CARTER, p. 178, P. Linn. Soc. N. S. Wales xxx, **n. sp.**
- Entomoderes pustulosus*, Argentina, FAIRMAIRE, p. 298, Ann. Soc. ent. France 1905, **n. sp.**
- Epipedonota planiuscula*, Argentina, FAIRMAIRE, p. 297, t. c. **n. sp.**
- Eulipus quirogai*, Rio de Oro, ESCALERA, p. 468, Bol. Soc. espan. v, **n. sp.**
- Eumylada* subg. **n.** of *Myladina, punctifera* Reitt. etc., REITTER, p. 170, Verh. Ver. Brunn xlii.
- Eurycaulus* (*Scleronimon* subg. **n.**) *peyerimhoffi*, Sinai, *granulatus*, Egypt, REITTER, t. c. **n. spp.**
- Eustenia* **n. g.** near *Praogena, tenuimembris* **n. sp.**, Tucuman, FAIRMAIRE, p. 303, Ann. Soc. ent. France 1905.
- Globasida* subg. **n.** see *Asida*.
- Gonocephalum arisi*, Transcaspien, REITTER, p. 92, Wien. ent. Zeit. xxiv, **n. sp.**
- Gonocephalum quadrinodosum*, China, p. 146, *G. (Megadasus* subg. **n.** p. 146) *subsetosum*, Canton, p. 147, REITTER, Verh. Ver. Brunn xlii, **n. spp.**
- Heliocrates* subg. **n.** cf. *Heliophilus*.
- Heliophilus* (*Heliocrates* subg. **n.**) *strigosus*, p. 98, *humeraangulus*, Andalusia, *sulcipennis*, Escorial, p. 99, *H. parcefoveatus*, Spain and Portugal, p. 100, *inmarginatus, conjunctus*, p. 101, *heydeni, sculpturatus*, p. 102, *subimpressus*, p. 103, Spain, REITTER, t. c. **n. spp.**
- Hemitrichestes* subg. **n.** of *Lobothorax* for *hirsutus* Reitt., REITTER, p. 169, t. c.
- Heterophylus seriepunctatus*, Algeria, p. 69, *tibialis*, Transcaspien, p. 70, REITTER, t. c. **n. spp.**
- Heterotarsus insularis*, Madagascar, FAIRMAIRE, p. 125, Ann. Soc. ent. Belgique 1905, **n. sp.**
- Hoplambius* subg. **n.** of *Melambius, Hoplarion melamboides*, REITTER, p. 114, Verh. Ver. Brunn xlii.
- Hoplariobius* subg. **n.** of *Micrositus* for *decurvatus* Fairm., etc., REITTER, p. 115, t. c.
- Isocerus cameroni*, Portugal, REITTER, p. 78, t. c. **n. sp.**
- Japetus* subg. **n.** of *Lobothorax* for *Opatrum melanarium* Er., REITTER, p. 160, t. c.
- Lesbidana* subg. **n.** cf. *Melanesthes*.
- Litoborus subtilimargo*, Algeria, REITTER, p. 113, Verh. Ver. Brunn xlii, **n. sp.**
- Litororus* subg. **n.** of *Olocrates* for *semicostatus* Muls., REITTER, p. 96, t. c.
- Lobothorax* (*Discotus* subg. **n.** p. 161) *netuschili*, Chinese Turkestan, p. 162, *L. auliensis*, Aulie-Ata, p. 163, *oblongopunctatus*, Transcaspien, p. 164, REITTER, t. c. **n. spp.**
- Megadasus* subg. **n.** cf. *Gonocephalum*.
- Melanesthes* (*Lesbidana* subg. **n.** p. 173) *coriaria*, Turkestan, p. 173, REITTER, Verh. Ver. Brunn xlii, **n. sp.**
- Meladocrates* subg. **n.** of *Olocrates, planiusculus* and *viaticus* Muls., REITTER, p. 96, t. c.
- Menephilus aeneus*, Sydney, CARTER, p. 179, P. Linn. Soc. N. S. Wales xxx, **n. sp.**
- Mesomorphus* **n. g.** p. 73, *varendorffi*, Madeira or Congo, *dermestoides*, Centr. China, p. 74, **n. spp.**, REITTER, Verh. Ver. Brunn xlii.
- Micrositus opacus*, Besika Bay, p. 116, *M. (Platyolus) tenebrioides*, Huelva,



- p. 118, *milleri*, p. 120, *lapidarius*, p. 121, Andalusia, REITTER, t. c. n. spp.
- Miglica* subg. n. of *Melanesthes* for *laticollis* Gebl., REITTER, p. 171, t. c.
- Mogadoria* n. g. for *Eulipus subelegans* Fairm., ESCALERA, p. 467, Bol. Soc. espan. v.
- Mongolesthes* subg. n. of *Melanesthes* for *heydeni* Csiki, REITTER, p. 174, Verh. Ver. Brunn xlii.
- Morica pharao* Egypt, REITTER, p. 38, t. c. n. sp.
- Netuschilia* n. g. for *Lachnopus hauseri*, REITTER, p. 35, t. c.
- Nyctelia timarchoides*, *suturacava*, p. 291, *geometrica*, *confluens*, *discoidalis*, *exasperata*, p. 292, *biapoides*, *pinguis*, *quadricarinata*, p. 293, *unicostata*, *bifoveata*, *planicauda*, p. 294, *producta*, *dorsata*, *crassecostata*, p. 295, *quadricollis*, p. 296, Argentina, FAIRMAIRE, Ann. Soc. ent. France 1905, n. spp.
- Nycteropus protensus*, *chrysochalceus*, p. 125, *attenuatus*, *crassicollis*, p. 126, Madagascar, FAIRMAIRE, p. 126, Ann. Soc. ent. Belgique 1905, n. spp.
- Ochrolamus* subg. n. of *Dilamus* for *pictus* Mars., REITTER, Verh. Ver. Brunn xlii.
- Olocrates italicus*, Italy, p. 93, *hamilcaris*, Andalusia, p. 94, *subheliopates*, Spain, p. 95, REITTER, t. c. n. spp.
- Opatrini*; the palaearctic tabulated, REITTER, pp. 106-182, t. c.
- Opatronesthes* subg. n. of *Melanesthes* for *punctipennis* Reitt., REITTER, p. 174, t. c.
- Opatrum tebesanum*, Algeria, p. 153, *cypræum*, Cyprus, p. 155, *italicum*, Ischia, p. 156, *alutaceum*, Khartoum, p. 158, REITTER, t. c. n. spp.
- Otrintus jacksoni*, N. S. Wales, CARTER, p. 180, P. Linn. Soc. N. S. Wales xxx, n. sp.
- Pachypterus serrulatus*, Caucasus, REITTER, p. 75, Verh. Ver. Brunn xlii, n. sp.
- Pedinus bodemeyeri*, Asia Minor, p. 56, *paradoxus*, Syria, p. 59, *strigicollis*, Taurus, p. 61, REITTER, t. c. n. spp.
- Pentholasinus* subg. n. of *Clitobius* for *variolatus* Allard, REITTER, p. 178, t. c.
- Penthomegus* subg. n. of *Lobothorax* for *granulosus* Mén. etc., REITTER, p. 162, t. c.
- Phobelius semigranosus*, Tucuman, FAIRMAIRE, p. 300, Ann. Soc. ent. France 1905, n. sp.
- Phylax insignis*, Syria, REITTER, p. 110, Verh. Ver. Brunn xlii, n. sp.
- Piloxy's perrieri*, Madagascar, FAIRMAIRE, p. 127, Ann. Soc. ent. Belgique 1905, n. sp.
- Pimelia punctata* var. n. *manchega*, LAUFFER, p. 406, Bol. Soc. espan. v.
- Psectrascelis coriaria*, Argentina, FAIRMAIRE, p. 297, Ann. Soc. ent. France 1905, n. sp.
- Pseudogena semiopaca*, Madagascar, FAIRMAIRE, p. 126, Ann. Soc. ent. Belgique 1905, n. sp.
- Pterohelæus icarus*, N. S. Wales, CARTER, p. 177, P. Linn. Soc. N. S. Wales xxx, n. sp.
- Rhipidandri* classified with *Eledona* near *Bolitophagini*, SHARP, Biol. Centr.-Amer. Col. ii, pt. 1, p. 691.
- Rhipidandrus mexicanus*, *championi*, Centr. America, SHARP, p. 691, t. c. n. spp.
- Rhizalemus* subg. n. of *Dendarus*, *D. pauper*, etc., REITTER, p. 90, Verh. Ver. Brunn xlii.
- Scleron æquale*, Arabia, p. 124, *subclathratum*, Egypt, p. 125, *discicolle*, India and Java, p. 126, REITTER, t. c. n. spp.
- Scleronimon* subg. n. cf. *Eurycaulus*.
- Scotobius caraboides*, *cribricollis*, *quadricostatus*, Argentina, FAIRMAIRE, p. 289, Ann. Soc. ent. France 1905, n. spp.

- Solskyia subperegrina*, Turkestan, REITTER, p. 49, Verh. Ver. Brunn xlii, n. sp.  
*Stenopsis punica*, Tunis, PIC, p. 98, Echange xxi, n. sp.  
*Tenebrio noctivagus* var. n. *intermedius*, FIORI, p. 226, Riv. Col. ital. i; *T.*, parthenogenetic eggs, SALING, Zool. Anz. xxix, pp. 587-590.  
*Thesilea mirabilis*, p. 210, *kanalensis*, *politula*, *versicolor*, p. 211, *purpurea*, p. 213, New Caledonia, FAUVEL, Rev. Ent. franc. xxiv, n. spp.  
*Trachymetus* n. g. for *Pachypterus elongatus* Muls., REITTER, p. 76, Verh. Ver. Brunn xlii.  
*Tribolium myrmecophilum*, Australia, LEA, p. 383, P. Soc. Victoria xvii, n. sp.

## CISTELIDÆ.

- [Cf. BEDEL (92), FAIRMAIRE (535), FAUVEL (550A), PIC (1191, 1193), SCHAEFFER (1324).]  
*Alethia carbonaria*, Arizona, SCHAEFFER, p. 176, Bull. Brooklyn Inst. i, n. sp.  
*Allecula strigicollis*, p. 227, *rugicollis*, p. 228, *quadrillum*, p. 229, *phyllocera*, *simplex*, p. 230, *tenuicornis*, p. 231, *pusilla*, *insulana*, p. 232, *laevior*, *cupreipennis*, p. 233, *umbonata*, p. 234, *montana*, *curticollis*, p. 235, *anthracina*, *opacula*, p. 236, New Caledonia, FAUVEL, Rev. Ent. franc. xxiv, n. spp.  
*Crypticus vaucheri*, Marocco, BEDEL, p. 272, Bull. Soc. ent. France 1905, n. sp.  
*Cteniopis angustatus*, Mesopotamia, PIC, p. 177, Echange xxi, n. sp.  
*Hymenalea obscuripennis*, Adana, PIC, p. 162, Echange xxi, n. sp.  
*Lystronychus humeralis*, Tucuman, FAIRMAIRE, p. 302, Ann. Soc. ent. France 1905, n. sp.  
*Omophilus splendidus*, Marocco, BEDEL, p. 272, Bull. Soc. ent. France 1905, n. sp.  
*Phedius funereus*, Arizona, SCHAEFFER, p. 176, Bull. Brooklyn Inst. i, n. sp.

## MELANDRYIDÆ.

- Phryganophilus ruficollis* var. n. *rostri* (= *Melandrya ruficollis* Lewis), HUBENTHAL, p. 57, Deutsche ent. Zeitschr. 1905.  
*Abdera viberti*, Algeria, PIC, p. 98, Echange xxi, n. sp.  
*Phlæotrya nebulosa*, p. 237, *lancifera*, p. 238, New Caledonia, FAUVEL, Rev. Ent. franc. 1904, n. spp.

## LAGRIIDÆ.

- Nemostira vittulata*, *fuscipennis*, p. 127, *striatopunctata*, p. 128, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique 1905, n. spp.  
*Statira defecta*, p. 175, *huachuca*, p. 176, Arizona, SCHAEFFER, Bull. Brooklyn Inst. i; *S. simulans*, Texas, *robusta*, Arizona, SCHAEFFER, p. 180, J. N. York Ent. Soc. : n. spp.

## XYLOPHILIDÆ, ANTHICIDÆ.

- [Cf. CARTER (284), PIC (1170, 1172, 1176-1178, 1187, 1196), REITTER (1249).]

PIC completes his revision of *Hylophilidæ*, Ann. Soc. ent. France 1905, pp. 181-286, pl. vii.

- Anthicus latedecoratus* var. n. *rosti*, PIC, p. 113, Echange xxi; *A. salsola* Motsch. is *Stenidius tenuipes* Laf., *umbrinus* Laf. is *terrestris* Motsch., *marinus* Motsch. is *dentatus* Pic, *liquidus* Motsch. is *tristis* Sch., *impressus* Motsch. = *tenellus* Laf. = *transversalis* Villa, p. 491, *A. palustris* n. n. for *lacustris* Motsch. p. 490, PIC, Annuaire Mus. St. Petersb. ix.
- A. fædus*; *A. (Lappus) proprius*, p. 492, *distincticeps*, Peru, *herzi*, Transcaspian, p. 493, PIC, Annuaire Mus. St. Petersb. ix; *A. arisi*, Samarcand, PIC, p. 186, Echange 1905; *A. lobatus*, Algeria, *remotus*, Fiji, PIC, p. 99, Bull. Soc. ent. France 1905 : n. spp.
- Egestria albilineata*, N. S. Wales, CARTER, p. 189, P. Linn. Soc. N. S. Wales xxx, n. sp.
- Formicilla punctata*, N. America, PIC, p. 491, Annuaire Mus. St. Petersb. ix, n. sp.
- Formicomus sterbeæ*, Turkestan, REITTER, p. 206, Wien. ent. Zeit. xxiv; *F. bozasi*, p. 242, *subrutilus*, p. 243, Africa, PIC, Bull. Mus. Paris 1905 : n. spp.
- Hylophilus bottegoi*, Lago, p. 197, *diversicornis*, Natal, p. 199, *punctatus*, Loyalty Ids., p. 204, *H. (Emelinus) magniceps*, p. 267, *H. (Elonus) distincticornis*, *H. (Scanylus) vicinus*, *H. (Vanonus) semibrunneus*, p. 268, *H. apicipennis*, *H. (Zonantes) obscuricolor*, *rufithorax*, p. 269, Brazil, *H. (Olotelus) apicalis*, S. Africa, p. 282, PIC, Ann. Soc. ent. France 1905; *H. escaleraï*, *niger*, p. 203, *inimpressus*, *longus*, *validicornis*, p. 204, *bolivari*, p. 205, *dentatipes*, p. 206, *cephalotes*, *dispar*, *biafrensis*, p. 207, Spanish Guinea, PIC, Mem. Soc. Espan. i : n. spp.
- Macratria basithorax*, Shanghai, PIC, p. 48, Bull. Soc. ent. France 1905, n. sp.
- Macrodiagon carinicornis*, New Caledonia, FAUVEL, p. 242, Rev. Ent. franc. 1905, n. sp.
- Notoxus trifasciatus* var. n. *rosti*, PIC, p. 113, Echange xxi.
- Trotonma latipennis*, Tunis, PIC, p. 130, t. c. n. sp.
- Vanonus* (= *Tanilotes*) *fusciceps*, *congener*, N. America, CASEY, p. 163, Canad. Ent. 1905, n. spp.

## RHIPIPHORIDÆ.

- Metoecus paradoxus*, note on, CRAWSHAY, p. 45, Ent. Mag. 1905.
- Myodites antoniæ* var., PIC, p. 165, Echange xxi.

## STYLOPIDÆ.

- The natural history, structure and taxonomy of *Stylopidæ*, PERKINS, Bull. exp. Stat. Hawaii i, pt. 3, 4 pls.
- Bruesia* subg. n., see *Halictophagus*.
- Deinelenchus* n. g. pp. 107, 108, *australensis* n. sp., Queensland, pp. 107, 109, pl. ii, fig. 7, PERKINS, Bull. exp. Stat. Hawaii i.
- Elenchus tenuicornis* ♂ and ♀, pp. 106, 107, pls. i, ii, iii, PERKINS, t. c.
- Halictophagus* (*Bruesia* subg. n. p. 102) *australensis*, *phæodes*, p. 103, *stenodes*, *H. ? schwarzi*, p. 104, Australia, *americanus*, Ohio, p. 105, PERKINS, t. c. n. spp.
- Megalechthrus* n. g. p. 105, *tryoni* n. sp., Queensland, p. 106, PERKINS, t. c.
- Xenos nigrescens*, triangulin, p. 290, outs, *X. pallidus* ♀, out, p. 295, habits, BRUES, Biol. Bull. viii.

## MORDELLIDÆ.

[Cf. FAIRMAIRE (534), FAUVEL (550A).]

*Anaspis (Silaria) numeensis*, New Caledonia, FAUVEL, p. 241, Rev. Ent. franc. 1905, n. sp.*Glipa longipennis*, Madagascar, FAIRMAIRE, p. 128, Ann. Soc. ent. Belgique 1905, n. sp.*Mordella polyspila, aurocordata, ornata*, to *Glipa*, FAIRMAIRE, p. 128, t. c. *M. scutellaris*, p. 128, *latefasciata*, p. 129, Madagascar, FAIRMAIRE, t. c. n. spp. *Mordellistena caledonica*, New Caledonia, FAUVEL, p. 240, Rev. Ent. franc. 1905, n. sp.

## CANTHARIDÆ.

[Cf. FAUVEL (550A), PIC (1187), REITTER (1248, 1254), SCHAEFFER (1323, 1324), WICKHAM (1630).]

*Meloidæ* of western France, HOULBERT & BÉTIS (784).*Alosimus viridissimus* var. n. *bipartitus*, PIC, p. 107, Échange xxi.*A. atripes*, Persia, PIC, p. 130, t. c. n. sp.*Epicauta obscuropcephala*, Tien-tsin, REITTER, p. 195, Wien. ent. Zeit. xxxiv, n. sp.*Isopentra* merged in *Epicauta*, REITTER, l. c.*Lydus tenuicollis*, Persia, REITTER, p. 246, t. c. n. sp.*Meloe matthieseni, frontalis*, Persia, REITTER, p. 245, t. c. n. spp.*Pyrota virgata* and *tenuicostatis*, SCHAEFFER, pp. 177, 178, Bull. Brooklyn Inst. 1.*Zonabris curta, wagneri*, pp. 167-170, *Z. curta* var. n. *ernesti*, p. 170, PIC, Rev. Sci. Bourbonnais 1905.*Zonitis dunniiana* and *perforata* Cas. to *Nemognatha*, SCHAEFFER, p. 138, Bull. Brooklyn Inst. 1.*Z. nigripennis*, p. 243, *atriceps*, p. 244, New Caledonia, FAUVEL, Rev. Ent. franc. xxiv; *Z. vermiculatus*, Utah, SCHAEFFER, p. 138, Bull. Brooklyn Inst. 1; *Z. sayi, californica*, N. America, WICKHAM, p. 171, Canad. Ent. 1905 : n. spp.

## PYTHIDÆ.

[Cf. PIC (1182, 1188), REITTER (1255).]

*Lanthanus latissimus*, Bolivia, PIC, p. 116, Échange xxi, n. sp.*Rhinosisimus caucasicus*, Caucasus, REITTER, p. 312, Wien. ent. Zeit. xxiv; *R. cæruleus*, New Guinea, PIC, p. 93, Naturaliste 1905 : n. spp.

## EDEMERIDÆ.

*Edemera virescens* var. n. *cupreomicans*, REITTER, p. 93, Wien. ent. Zeit. xxiv.*E. laufferi*, Spain, REITTER, p. 206, t. c. n. sp.*Pseudolytus montanus*, p. 187, *rufipennis*, p. 188, N. S. Wales, CARTER, P. Linn. Soc. N. S. Wales xxx, n. spp.

## CURCULIONIDÆ.

[Cf. AURIVILLIUS (42), BEDEL (91), BEGUIN-BILLECOCQ (93, 94), BROUN (194), CAMERON (237), CHAMPION (670), CHITTENDEN (307, 308), CORTI (372), DESBROCHERS (399), FAIRMAIRE (534), FIORI (564, 567), FLACH (574), FORMÁNEK (593, 594), HARTMANN (726, 727), HELLER (736, 737),

HOLDHAUS & WAGNER (754), HUNTER & HINDS (798, 799), LEA (924, 925), LESNE (943), MARSHALL (1010), PETRI (1157), PIC (1184, 1187, 1189-1191, 1193), REITTER (1254, 1256), RITSEMA (1275), SCHAEFFER (1323, 1324), SCHULTZE (1357), SSILANTJEW (1441, 1442), VETH (1547), VITALE (1554), WAGNER (1556).]

Notes on *Curculionidæ* at Messina, VITALE, Natural. Sicil. xvii, pp. 129 etc. and xviii, pp. 53 etc., etc.

Parthenogenesis in *Otiorrhynchus*, the primary sexual characters, SSILANTJEW, Zool. Anz. xxix, pp. 583-586, cuts.

*Acalles rolleti* var. *cynaræ*, VITALE, p. 44, Riv. Col. ital. i; *A. cunctans*, pl. xxiii, fig. 16, p. 476, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4; *A. mutillarius* Gerst. to *Gerstaeckeria* n. g. and figured, pl. xxiii, fig. 5, CHAMPION, p. 472, t. c.

*A. solarii*, Italy, FIORI, p. 163, Riv. Col. ital. i; *A. algiricus*, Algeria, PIC, p. 99, Echange xxi; *A. rugirostris*, pl. xxiii, fig. 9, *lutescens*, fig. 10, p. 473, *fulvovittatus*, fig. 11, *cinericius*, fig. 12, *cavicolis*, fig. 13, p. 474, *indutus*, fig. 14, *rufotuberculatus*, fig. 15, p. 475, *quadrituberculatus*, *rugulosus*, p. 476, *tricinctus*, fig. 17, *foveolatus*, *crassisetis*, p. 477, *horrens*, *tantillus*, p. 478, *exaratus*, p. 479, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4: n. spp.

*Acicnemis, spinipennis*, New Guinea, HELLER, p. 73, Deutsche ent. Zeitschr. 1905, n. sp.

*Ætius* n. g. *Ithyporides*, p. 445, *ebeninus*, p. 446, pl. xxii, fig. 3, *rugicollis*, *costulatus*, fig. 4, p. 447, *vestitus*, p. 448, n. spp., Central America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.

*Æmus* n. g. near *Conotrachelus, tuberosus* n. sp., Panama, pl. xxii, fig. 2, CHAMPION, p. 445, t. c.

*Ænesias* n. g. near *Conotrachelus, tuberculoirostris*, pl. xxii, fig. 7, p. 452, *nigronotatus*, fig. 8, *cavifrons*, p. 453, n. spp., Centr. America, CHAMPION, t. c.

*Æpalus* n. g. near *Conotrachelus, chiriquensis* n. sp., Panama, pl. xxii, fig. 1, CHAMPION, p. 444, t. c.

*Allocorynus slossoni*, Florida, SCHAEFFER, p. 139, Bull. Brooklyn Inst. i, n. sp.

*Alophus*, European, with *A. italicus* n. sp., p. 64, FIORI, Riv. Col. ital. iii, pp. 55-67, Riv. Col. ital. iii.

*Amaurorrhinus (Mazagranus subg. n.) obscuripennis*, Algeria, PIC, p. 146, Echange xxi, n. sp.

*Anepigraphocis* n. g. near *Glyphagia, basiventris* n. sp., Swan River, LEA, p. 246, P. Linn. Soc. N. S. Wales xxx.

*Anthonomus ornatus* var. n. *messanensis*, VITALE, p. 45, Riv. Col. ital. i; *A. rubi*, habits, LESNE, p. 178, Bull. Soc. ent. France 1905; *A. grandis*, metamorphosis, natural history, HUNTER & HINDS, Bull. U. S. Dep. Agric. Ent. Nos. 45, 51; *A. æneotinctus*, habits, larva, WALKER, pp. 43-48, Bull. U. S. Dep. Agric. Ent. No. 54.

*Aonychus striatus*, p. 253, *argus*, p. 255, *pachypus*, p. 256, Australia, LEA, P. Linn. Soc. N. S. Wales xxx, n. spp.

*Apion*, characters of numerous palæarctic little-known species, WAGNER, pp. 13-34, Munchen. Kol. Zeitschr. iii; *A. cantianum* n. n. for *brevicornis* Schilsky, *schilskyi* n. n. for *gibbosum* Faust, also new localities, id. t. c. p. 33; *A. virens* ab. n. *atratus*, VITALE, p. 207, Riv. Col. ital. iii; *A. violaceum*, natural history, DE STEFANI-PEREZ, p. 177, Natural. Sicil. xvii; *A. angustatum* Phil., gall, KIEFFER & PABLO, Zeitschr. Insbiol. i, p. 66; *A. pubescens*, gall, CORRI, p. 178, Riv. Col. ital. i.

*A. holdhausi*, p. 37, *ilvense*, p. 38, Tuscany, WAGNER, Riv. Col. ital. iii;

- A. (Aspidapion) foveatoscutellatum*, S. E. Europe, p. 19, *A. (Ceratapion) hamatum*, Araxes Valley, p. 22, WAGNER, München. Kol. Zeitschr. iii; *A. nitidirostre*, p. 134, *nudecassum*, *pullum*, p. 135, *blatta*, p. 136, *bellum*, *amboombense*, p. 137, *androicum*, p. 138, *beauchenei*, p. 139, *ceratum*, p. 140, *pluto*, *postscutatum*, p. 141, Madagascar, *maurittii*, Mauritius, p. 142, *erythraeum*, p. 143, *philippi*, *perrieri*, p. 144, *unicum*, p. 145, *setulosum*, p. 146, *tessellatum*, p. 147, *A. (Rhinapion* subg. n. p. 147), *obliquestriatum*, p. 148, *insigne*, *pauvillum*, p. 149, *pseudapricans*, p. 150, *A. (Apiotherium* subg. n. p. 151), *albonigrum*, p. 151, *suturale*, p. 152, *sternale*, p. 153, *navicula*, *mitissimum*, p. 154, *A. barbatum*, p. 155, *puncticolle*, *tumefactum*, p. 166, *tetrum*, *fastidiosum*, p. 157, Madagascar, *exiguum*, Mayotte, p. 158, BEGUIN-BILLECOQ, Ann. Soc. ent. France 1905; *A. formosum*, Madagascar, BEGUIN-BILLECOQ, p. 45, Bull. Soc. ent. France 1905 : n. spp.
- Apiotherium* subg. n. cf. *Apion*.
- Arthrocorynus* n. g. near *Gasterocercus*, *brachialis*, pl. xxv, fig. 11, p. 510, Centr. America and Amazons, *dotatus*, fig. 13, p. 511, Centr. America, n. spp., CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Atrichis occiduus* pl. xxvi, fig. 19, p. 534, *costirostris*, fig. 20, *semicostatus*, p. 535, *nubilans*, fig. 21, p. 536, Centr. America, CHAMPION, t. c. n. spp.
- Attelabus* and *Attelabidae* etc., nomenclature discussion, SCHILSKY, Käf. Eur., Nachtr. zu Heft 40; *Attelabus*, European varr., GRANDI & GORTANI, pp. 39-41, Riv. Col. ital. iii; *A.*, Italian forms, varr. n., GORTANI & GRANDI, pp. 165-171, Riv. Col. ital. ii; PIC, t. c. pp. 205-207.
- Axonius insignis*, habits, FROGGATT, p. 227, Agric. Gaz. N. S. W. xvi.
- Bugous niloticus*, White Nile, AURIVILLIUS, p. 16, Jägerskiöld exp. No. 10a, n. sp.
- Baris amanicola*, Syria, PIC, p. 98, Echange xxi; *B. trægardhi*, Khartum, AURIVILLIUS, p. 17, Jägerskiöld exp. No. 10a : n. spp.
- Blaborrhinus catenulatus*, Chontales, CHAMPION, p. 539, Biol. Centr.-Amer. Col. iv, pt. 4, n. sp.
- Bleptocis* n. g. near *Glyphagia*, p. 247, *collaceratus* n. sp., New South Wales, p. 248, LEA, P. Linn. Soc. N. S. Wales xxx.
- Bothynoderes*, revision in tables, REITTER, Deutsche ent. Zeitschr. 1905, pp. 193-205.
- B. austriacus*, Vienna, p. 200, *impudens*, p. 202, *pusio*, p. 203, Astrakhan, *dissensus*, Mongolia, p. 205, REITTER, t. c. n. spp.
- Brachycerus undatus* var. n. *lyrae*, VITALE, p. 206, Riv. Col. ital. iii; *B. algirus* var. *attenuatus*, VITALE, p. 42, op. cit. i.
- Brachyleptops latesellatus*, Madagascar, FAIRMAIRE, p. 129, Ann. Soc. ent. Belgique 1905, n. sp.
- Brachysomus*, revision, FORMÁNEK, pp. 169-193, Wien. ent. Zeit. xxiv.
- B. styriacus*, Styria, FORMÁNEK, p. 183, t. c. n. sp.
- Bradybatus (Nothops) vaulogeri*, Algeria, BEDEL, p. 290, Bull. Soc. ent. France 1905, n. sp.
- Cathormiocerus ragusai*, Sicily, VITALE, p. 127, Riv. Col. ital. ii; *C. latirostris*, Algeria, PIC, p. 147, Echange xxi; *C. inhumeralis*, Algeria, PIC, p. 155, t. c. : n. spp.
- Ceuthorrhynchidius*, table of species, SCHULTZE, pp. 1-10, München Kol. Zeitschr. iii.
- C. thalhammeri*, Hungary, SCHULTZE, p. 7, t. c. n. sp.
- Ceuthorrhynchus sinapis* var. n. *defensibilis*, PIC, p. 131, Echange xxi.
- Chalcoocybeus insignis*, p. 72, *exarmatus*, p. 73, New Guinea, HELLER, Deutsche ent. Zeitschr. 1905, n. spp.
- Celosternus tardipes*, pl. xxv, fig. 18, p. 514, *consputus* fig. 20, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.

- C. acutidens*, Centr. America, p. 514, pl. xxv, fig. 19, id. t. c. **n. sp.**  
*Collabismodes n. g. gamma n. sp.*, Centr. America, pl. xxvi, fig. 32, CHAMPION, p. 541, t. c.  
*Collabismus notulatus*, pl. xxvi, figg. 30, 31, p. 541, CHAMPION, t. c.  
*Colosterninus n. g.* type *Colosternus longipennis* Boh., p. 533, figd. pl. xxvi, figg. 17, 18, CHAMPION, t. c.  
*Conotrachelodes n. g. octocostatus n. sp.*, Mexico, pl. xxii, fig. 21, CHAMPION, t. c.  
*Conotrachelus leucocephalus, carinifrons*, p. 441, *pluricostatus*, p. 442, *nigricollis*, p. 443, pl. xxi, fig. 27, Centr. America, CHAMPION, t. c. **n. spp.**  
*Cophes n. g.* type *Colosternus longiusculus* Boh., p. 515, figd. pl. xxv, fig. 21, *C. asperatus*, pl. xxv, fig. 22, p. 516, *gibbus*, fig. 23, *quadricostatus*, pl. xxvi, fig. 1, p. 517, *aspersus*, pl. xxv, fig. 24, *cognatus*, pl. xxvi, fig. 2, p. 518, *bifurcatus*, pl. xxv, fig. 25, *hieroglyphicus*, fig. 26, p. 519, Centr. America, **n. spp.**, CHAMPION, t. c.  
*Cossonus sheppardi*, p. 395, *transvaalensis*, p. 399, *umzila*, p. 400, *chirindensis*, p. 401, *complanatus*, p. 403, *scrobicollis*, p. 404, S. Africa, MARSHALL, Ann. Nat. Hist. (7) xv, **n. spp.**  
*Cryptoderma knapperti*, Sumatra, VETH, p. 202, Tijdschr. Ent. xlviii ; *C. lobatum*, Padang, RITSEMA, p. 169, Notes Leyden Mus. xxv : **n. spp.**  
*Cryptorhynchus definitus* Ros. to *Metriophilus*, p. 588, and pl. xxix, fig. 1, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4 ; *C. asper* Boh. to *Oxypterus*, p. 492, figured pl. xxiv, fig. 6, CHAMPION, t. c.  
*Cyclonias albolineatus*, Cilicia, PIC, p. 187, Echange 1905, **n. sp.**  
*Cylindrocorynus dentipes*, pl. xxv, fig. 17, p. 513, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.  
*Decilaus apicatus, squamipennis*, p. 230, *cuniculosus*, p. 231, *irrasus, auricomus*, p. 232, *tibialis*, p. 233, *spissus*, p. 234, *noctivagus*, p. 235, *ovatus*, p. 236, Australia, *coryssopus*, Tasmania, p. 235, LEA, Tr. R. Soc. S. Austral. xxix, **n. spp.**  
*Dercynus n. g.* near *Acalles*, p. 501, *micronyx n. sp.*, Guatemala, pl. xxiv, fig. 23, p. 502, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.  
*Derelomus basalis*, larva, DYAR, p. 128, P. ent. Soc. Washington vii.  
*Diodyrhynchus austriacus*, variation, PIC, p. 190, Echange 1905.  
*Diplogrammus curvilineatus*, Mexico, CHAMPION, p. 538, pl. xxvi, fig. 25, Biol. Centr.-Amer. Col. iv, pt. 4, **n. sp.**  
*Elpinus n. g.* near *Atrichis, palmatus n. sp.*, Mexico, pl. xxvi, fig. 22, CHAMPION, p. 536, t. c.  
*Elytrocheilus boviei*, p. 69, *breviusculus*, p. 70, New Guinea, HELLER, Deutsche ent. Zeitschr. 1905, **n. spp.**  
*Enomides n. g. Ithyporides, ovipennis n. sp.*, Guatemala, pl. xxii, fig. 9, CHAMPION, p. 454, Biol. Centr.-Amer. Col. iv, pt. 4.  
*Epiphylax septempunctatus*, Madagascar, FAIRMAIRE, p. 131, Ann. Soc. ent. Belgique 1905, **n. sp.**  
*Episodiocis n. g.* near *Pezichus*, p. 244, *microderes n. sp.*, Clarence River, p. 245, LEA, P. Linn. Soc. N. S. Wales xxx.  
*Eubulomus sticticus*, pl. xxvii, fig. 1, p. 542, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.  
*E. multicostratus*, pl. xxvii, fig. 2, p. 542, *reflexirostris, squamiventris*, p. 543, CHAMPION, t. c. **n. spp.**  
*Eubulopsis n. g. edentatus n. sp.*, Centr. America, pl. xxviii, figg. 26, 27, CHAMPION, t. c.  
*Eubulus stipator*, pl. xxvii, fig. 7, p. 549, *brevis*, fig. 11, p. 552, *triangularis*, fig. 13, p. 553, *biangularis*, fig. 24, p. 558, *orthomasticus*, fig. 31, p. 563, *aspericollis*, fig. 32, p. 564, CHAMPION, t. c.  
*E. punctifrons*, pl. xxvii, fig. 3, *squamipennis*, fig. 4, p. 546; *costatus, truncatus*, fig. 5, p. 547, *reticulatus*, fig. 6, *hospes*, p. 548, *integer*, fig. 8,

- p. 550, *marginatus*, fig. 9, *immarginatus*, fig. 10, p. 551, *leucopleura*, fig. 12, p. 552, *ignifer*, fig. 14, p. 553, *lineatipleura*, fig. 15, *carinifrons*, fig. 16, p. 554, *annulifer*, fig. 17, *ocellatus*, fig. 18, p. 555, *nigrosignatus*, fig. 19, *nimbatus*, figg. 20, 21, p. 556, *curvifasciatus*, fig. 22, *signatifrons*, fig. 23, p. 557, *inequalis*, *trigonalis*, fig. 25, p. 558, *mutatus*, *bidentatus*, fig. 26, p. 559, *bicuspis*, *longipes*, fig. 27, p. 560, *diaspis*, *consanguineus*, *lamellatus*, fig. 28, p. 561, *fulvisquamis*, fig. 29, *marcidus*, p. 562, *bihamatus*, fig. 30, p. 563, *pilipectus*, pl. xxviii, fig. 1, p. 564, *alticarinatus*, fig. 2, *camelus*, fig. 3, p. 565, *gracilicornis*, fig. 4, *flavovariegatus*, p. 566, *irrubescens*, fig. 5, *nigricollis*, fig. 6, p. 567, *deceptor*, *atricollis*, p. 568, *tetricus*, *niser*, fig. 7, *unidentatus*, p. 569, *nigrodiscus*, fig. 8, *atrodiscus*, p. 570, *melanodiscus*, fig. 9, *quadricollis*, fig. 10, p. 571, *pulchellus*, fig. 11, *discoideus*, fig. 12, p. 572, *fulvodiscus*, fig. 13, *pleurostigma*, p. 573, *maculifrons*, fig. 14, *laticollis*, p. 574, *circumductus*, fig. 15, *circumlitus*, fig. 16, p. 575, *bifasciculatus*, *angularis*, fig. 17, p. 576, *seminigra*, fig. 18, *crinitus*, fig. 19, p. 577, *lineatulus*, fig. 20, *campestris*, fig. 21, p. 578, *longisetis*, fig. 22, *crispus*, *signaticollis*, p. 579, *biplagiatus*, fig. 23, *dumicola*, p. 580, *melanotus*, fig. 24, *merens*, p. 581, *densus*, fig. 25, p. 582, Centr. America, CHAMPION, t. c. n. spp.
- Eugnampus nigriventris*, Arizona, SCHAEFFER, p. 178, Bull. Brooklyn Inst. i, n. sp.
- Eurhoptus caviventris*, pl. xxiii, fig. 18, p. 479, *anchonoides*, fig. 19, *fuscisetis*, p. 480, *alticola*, fig. 20, *foveiventris*, fig. 21, *costatus*, fig. 22, p. 481, *laevipennis*, fig. 23, p. 482, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, n. spp.
- Eusepes porcellus* (= *Acalles longulus* Lec.), p. 497, p. xxiv, fig. 15, CHAMPION, t. c.
- Eusepes divisus*, pl. xxiv, fig. 16, p. 497, *longisetis*, *truncatipennis*, fig. 17, p. 498, Centr. America, CHAMPION, t. c. n. spp.
- Euxenus subparallelus*, p. 494, *ovatipennis*, pl. xxiv, fig. 12, *rhomboifer*, fig. 13, p. 494, Centr. America, CHAMPION, t. c. n. spp.
- Foucartia burghauseri*, Croatia, REITTER, p. 247, Wien. ent. Zeit. xxiv, n. sp.
- Gerstaeckeria* n. g. type *Acalles bifasciatus*, figured pl. xxiii, fig. 6, *cruciata*, p. 470, *leseleuci*, *lacti*, fig. 7, p. 471, n. spp., Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Glocinorrhinus evanidus* (= *cooki* Faust), LEA, p. 251, P. Linn. Soc. N. S. Wales xxx.
- Guioperus klugii* Gerst., pl. xxii, fig. 15, *eques* Pasc., fig. 14, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- G. circumdatus*, p. xxii, fig. 12, p. 456, *trifasciatus*, fig. 13, p. 457, *sexsignatus*, fig. 16, p. 458, Centr. America, CHAMPION, t. c. n. spp.
- Hemiliopsis* n. g. type *Hemilius nudicollis* Chev., pl. xxv, figg. 29, 30, p. 521, CHAMPION, t. c.
- Hemilius glabrivestris*, pl. xxv, fig. 28, p. 521, CHAMPION, t. c.
- Hilipimorphus* n. g. *forreri* n. sp., Mexico, pl. xxv, fig. 27, p. 520, CHAMPION, t. c.
- Homæotrachelus tricarinatus*, Queensland, LEA, p. 222, Tr. R. Soc. S. Austral. xxix, n. sp.
- Hycanus* n. g. *Rhyparosomida*, p. 545, *cockaynei* n. sp., Auckland islds., p. 546, BROWN, Ann. Nat. Hist. (7) xv.
- Lemosaccus plagiatus* and *texana*, SCHAEFFER, p. 140, Bull. Brooklyn Inst. i.
- Larinus zancleanus*, Sicily, VITALE, p. 128, Riv. Col. ital. ii, n. sp.
- Leianisorhynchus* n. g. near *Mylacus*, p. 178, *brunnescens* n. sp., Adana, p. 179, PIC, Echange xxi.
- Lembodes trux*, Guatemala, pl. xxiii, fig. 24, CHAMPION, p. 482, Biol. Centr.-Amer. Col. iv, pt. 4, n. sp.



- Lepilius* n. g. *Ithyporides*, p. 454, *pulchellus* n. sp., Guatemala, p. 455, pl. xxii, fig. 10, CHAMPION, t. c.
- Leptomias korbii*, Amurland, PIC, p. 98, Echange xxi, n. sp.
- Lixus*, tables of palæarctic, contin., PETRI, Wien. ent. Zeit. xxiv, pp. 33 etc.
- L. cleoniformis*, Egypt, p. 36, *laufferi* (= *lateralis* Bris. nec Panz), Spain, p. 109, *malatianus*, Mesopotamia, p. 158, *salicorniæ*, Derbent, p. 159, PETRI, t. c. n. spp.
- Lybaeba acuticosta*, S. Australia, LEA, p. 223, Tr. R. Soc. S. Austral. xxix, n. sp.
- Macromeropsis* n. g. near *Macromerus*, *bidentatus*, pl. xxv, fig. 15, p. 512, *quadrinotatus*, fig. 16, p. 513, n. spp., Panama, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Macromerus succinatus*, pl. xx, figg. 2, 3, p. 507, *leuconotus* figg. 9, 10, p. 509, CHAMPION, t. c.
- M. tenuicinctus*, p. 507, pl. xxv, fig. 4, *flavocinctus*, fig. 5, *bicinctus*, fig. 6, *flavofasciatus*, fig. 7, p. 508, *albofasciatus*, fig. 8, p. 509, Centr. America, CHAMPION, t. c. n. spp.
- Mæmactes ruficornis*, pl. xxvi, fig. 11, p. 529, CHAMPION, t. c.
- M. pilosus*, *perforatus*, p. 529, *subfasciatus*, pl. xxvi, fig. 12, p. 530, Mexico and Guatemala, CHAMPION, t. c. n. spp.
- Magdalis*, revision of European and Mediterranean spp., DESBROCHERS, Frelon xiii, pp. 1-124.
- M. delagrangi*, p. 46, *interstitialis*, p. 31, *poncyi*, p. 41, *plicatula*, p. 33, *rotundicollis*, p. 42, *stricta*, p. 49, *syriaca*, p. 40, Europe and Mediterranean reg., DESBROCHERS, t. c. n. spp.
- Mataxus ornatcollis*, Madagascar, FAIRMAIRE, p. 130, Ann. Soc. ent. Belgique 1905, n. sp.
- Mazagranius* subg. n. cf. *Amaurorrhinus*.
- Mecinus villosulus*, gall, HOUARD, pp. 41-51, Marcellia iv.
- Mecistocorynus* n. g. near *Macromerus*, p. 511, *sinuatifipes* n. sp., Centr. America, p. 512, pl. xxv, fig. 14, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Mecolenus* referred to *Apionidæ*, BEGUIN-BILLECOQ, p. 43, Bull. Soc. ent. France 1905.
- Mecysolobus* n. g. near *Lixus*, *lixoides* n. sp., Amurland, REITTER, p. 248, Wien. ent. Zeit. xxiv.
- Megarhinus collaris*, W. Africa, HARTMANN, p. 270, Deutsche ent. Zeitschr. 1905, n. sp.
- Melanterius costipennis*, Tasmania, LEA, p. 223, Tr. R. Soc. S. Austral. xxix, n. sp.
- Menares* n. g. *Nettarhinides*, *pilicornis* n. sp., Guatemala, pl. xxii, fig. 11, CHAMPION, p. 455, Biol. Centr.-Amer. Col. iv, pt. 4.
- Metadupus nodatus*, pl. xxv, fig. 1, 1a, variation, p. 506, CHAMPION, t. c.
- Metoposoma nigrofasciatum*, Guatemala, pl. xxviii, fig. 28, CHAMPION, p. 583, t. c. n. sp.
- Metraniella* n. g. p. 462, *nigrolineata* n. sp., Guatemala, pl. xxii, fig. 25, p. 463, CHAMPION, t. c.
- Metraniopsis* n. g. *elatus* n. sp., Panama, pl. xxii, figg. 23, 24, CHAMPION, p. 461, t. c.
- Metriophilus fugax*, pl. xxviii, figg. 29, 30, p. 584, *rugifrons*, *tenuis*, *miscellus*, p. 585, *horridulus*, fig. 31, *minimum*, fig. 32, p. 586, *nitidus*, *occultus*, p. 587, *nigroterminatus*, pl. xxix, fig. 2, *cribricollis*, p. 588, *nigrescens*, fig. 3, *ramosus*, *ramulosus*, fig. 4, *nigrisetis*, p. 590, *v-fulvum*, fig. 5, p. 591, Centr. America, CHAMPION, t. c. n. spp.
- Microcleogonus* n. g. near *Cleogonus*, p. 458, *tibialis* n. sp., Centr. America, pl. xxii, fig. 17, p. 459, CHAMPION, t. c.
- Microhyus montanus*, pl. xxii, figg. 5, *hystrix*, figg. 6, p. 449, *longisetis*,

- erinaceus, brevipes*, p. 450, *angustatus, pallidisetis, minutissimus*, p. 451, Centr. America, CHAMPION, t. c. n. spp.
- Microlarinus peloritanus*, Sicily, VITALE, p. 43, Riv. Col. ital. i, n. sp.
- Microxypterus n. g. suturalis*, pl. xxiv, figg. 21, p. 500, *binotatus*, fig. 22, p. 501, n. spp., Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Mylacus nitidulus*, Sicily, VITALE, p. 126, Riv. Col. ital. ii, n. sp.
- Myllocerus laticollis*, p. 210, *abundans*, p. 211, *amblyrhinus*, p. 212, *sordidus, niveus*, p. 213, *elegans, rugicollis*, p. 214, *echinatus*, p. 215, *suturalis*, p. 216, *trilineatus, exilis*, p. 217, Australia, LEA, Tr. R. Soc. S. Austral. xxix, n. spp.
- Neomystocis n. g.* near *Pezichus*, p. 242, *squamiventris n. sp.*, Queensland, p. 243, LEA, P. Linn. Soc. N. S. Wales xxx.
- Niphades socius*, Sumatra, p. 267, *inaequalis*, San Thomé, p. 268, *planipennis*, Usambara, p. 269, HARTMANN, Deutsche ent. Zeitschr. 1905, n. spp.
- Ocladius sharpi* var. n. *subelongatus*, Sinai, PIC, p. 122, Echange xxi.
- O. walkeri*, Perim, CAMERON, p. 179, Ent. Mag. 1905, n. sp.
- Otiorrhynchus turca*, metamorphosis and natural history, SSILANTJEW, pp. 491-502, illustrations, Zool. Jahrb. Syst. xxi; *O. caudatus traspandanus* var. n., GORTANI, pp. 123-128, Riv. Col. ital. i; *O. ovatus* in N. America, metamorphosis, COOLEY, Bull. 55, Montana Agric. exp. Stat. pp. 130-140, pls. i, ii.
- Oxyonyx latipennis*, Algeria, PIC, p. 130, Echange xxi, n. sp.
- Oxypteropsis n. g.* p. 498, *armatus*, pl. xxiv, fig. 18, *latirostris*, fig. 19, p. 499, *bipartitus*, fig. 20, p. 500, n. spp., Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Oxypterus denticollis*, pl. xxiv, fig. 4, *fasciculosus*, fig. 5, p. 491, *fausti*, fig. 7, p. 492, *terminatus*, fig. 8, *obliquus*, fig. 9, p. 493, *rubiginosus*, fig. 10, p. 494, Centr. America, CHAMPION, t. c. n. spp.
- Pachyonyx squamosulus*, Madagascar, FAIRMAIRE, p. 130, Ann. Soc. ent. Belgique 1905, n. sp.
- Pachyrrhynchus plutus*=(*biplagiatus* Bates), *biplagiatus* Guér.=(*salomonis* Hell.), referred to *Pantorhytes*, HELLER, pp. 305-307, Wien. ent. Zeit. xxiv.
- Pachytychius albomaculatus*, Algeria, PIC, p. 99, Echange xxi, n. sp.
- Pantorhytes*, revised, with synonymy, HELLER, pp. 305-310, Wien. ent. Zeit. xxiv.
- P. granulatus*, Woodlark isld., p. 307, *subcostatus*, S. E. isld., p. 308, HELLER, t. c. n. spp.
- Perieres n. g.* near *Acalles, gibbipennis n. sp.*, Guatomaia, pl. xxiii, fig. 27, CHAMPION, p. 485, Biol. Centr.-Amer. Col. iv, pt. 4.
- Pezichus gracilis*, N. Queensland, LEA, p. 241, P. Linn. Soc. N. S. Wales xxx, n. sp.
- Phyllobius claroscutellatus*, Sicily, VITALE, Riv. Col. ital. iii, p. 205, n. sp.
- Phymatoposus squamans* Faust, pl. xxiv, fig. 24, p. 502, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- P. multicristatus*, pl. xxiv, fig. 25, p. 502, *scapularis*, fig. 26, p. 503, Centr. America, CHAMPION, t. c. n. spp.
- Phyrdenus divergens*=(*undatus* Lec.), pl. xxiv, figg. 27, *muriceus*=(*bullatus* Casey), fig. 28, *setiferus*, fig. 29, p. 504, CHAMPION, t. c.
- P. tincticollis*, Centr. America, p. 505, pl. xxiv, fig. 30, CHAMPION, t. c. n. sp.
- Piseus n. g.* near *Metriophilus, varicus*, pl. xxix, fig. 6, p. 591, *complanatus*, fig. 7, *sulcatus*, p. 592, n. spp., Centr. America, CHAMPION, t. c.
- Polydrusus impar* var. n. *vanicensis*, REITTER, p. 247, Wien. ent. Zeit. xxiv.
- Poropterus nodosus*, Tasmania, p. 224, *rhyticephalus*, p. 225, *listroderes, longipes*, p. 226, *cavernosus*, p. 227, *foveatus, inusitatus*, p. 228,

- lissorhinus*, p. 229, Australia, LEA, Tr. R. Soc. S. Austral. xxix, n. spp.
- Prionolixus beaupreii*, Algeria, PIC, Echange xxi, n. sp.
- Procas (Apachiscelis) rufescens*, Algeria, PIC, p. 131, t. c. n. sp.
- Pseudocypus* n. g. near *Cyphus*, *flexicaulis* n. sp., Texas, SCHAEFFER, p. 179, Bull. Brooklyn Inst. i.
- Pseudomopsis* n. g. near *Pseudomus*, *bicristatus*, pl. xxiii, fig. 28, p. 486, *arcuatus*, fig. 29, *laticollis*, p. 487, *nigrosignatus*, *distigma*, fig. 30, *latisquamis*, pl. xxiv, fig. 1, p. 488, *notaticollis*, fig. 2, p. 489, *conicicollis*, fig. 3, *similis*, p. 490, n. spp., Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Pseudoptochus* n. g. for *aurohirtus* Seidl., *rumelicus* Apfelb., FORMÁNEK, p. 191, Wien. ent. Zeit. xxv.
- Ptochus minimus*, Dalmatia, FORMÁNEK, p. 261, op. cit. xxiv, n. sp.
- Rhamphus æneus* var. n. *pannonicus*, CSIKI, p. 582, Ann. Mus. Hungar. iii.
- Rhinapion* subg. n. cf. *Apion*.
- Rhinochenus stigma*, pl. xxvi, figg. 23, 24, variation, p. 538, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.
- Rhinoscaptha lameerei*, New Guinea, HELLER, p. 68, Deutsche ent. Zeitschr. 1905, n. sp.
- Rhynchites*; notes on European, pp. 68-78, *præustus* var. n. *nigratus*, p. 76, VITALE, Riv. Col. ital. i, and FIORI, t. c. pp. 144-148; *R. hungaricus*, habits, LESNE, p. 177, Bull. Soc. ent. France 1905.
- R. palmii*, Arizona, SCHAEFFER, p. 138, Bull. Brooklyn Inst. i, n. sp.
- Rhytiphleus ornatus*, Madagascar, FAIRMAIRE, p. 129, Ann. Soc. ent. Belgique 1905, n. sp.
- Schizomicrus* n. n. for *Schizonotus*, CASEY, p. 164, Canad. Ent. 1905.
- Sciaphilus pulcher*, Anatolia, PIC, p. 98, Echange xxi, n. sp.; *S. pulcher*, validity and genus queried, von HEYDEN, p. 95, Wien. ent. Zeit. xxiv.
- Sibinia cedrorum*, Algeria, PIC, p. 155, Echange xxi, n. sp.
- Siron* n. g. type *Celosternus dorsalis* Boh., pl. xxvi, fig. 28, *S. exornatus* Boh., fig. 29, CHAMPION, p. 540, Biol. Centr.-Amer. Col. iv, pt. 4.
- Solariella* subg. n. cf. *Troglorhynchus*.
- Sphenophorus pertinax* varr. n. *australis*, *typhae*, CHITTENDEN, p. 53, P. ent. Soc. Washington vii.
- S. abrasus*, p. 54, *setiger*, *ludovicianus*, p. 55, *peninsularis*, p. 56, *nillosiventris*, *lævigatus*, p. 58, *maidis*, p. 59, *incongruus*, p. 61, *robustior*, p. 62, *pontederia*, p. 63, North America, CHITTENDEN, t. c.; *S. marinus*, p. 166, *graminis*, p. 168, *subopacus*, *monterensis*, p. 169, *diversus*, p. 170, *nevadensis*, *fallii*, p. 172, *subulatus*, p. 173, *destructor*, p. 174, *sublævis*, p. 176, *soltavii*, p. 178, *blanchardi*, p. 179, *striatipennis*, p. 180, CHITTENDEN, t. c. : n. spp.
- Spilonotus* n. g. near *Euxenus*, *ornatus* n. sp., Centr. America, pl. xxiv, fig. 14, CHAMPION, p. 496, Biol. Centr.-Amer. Col. iv, pt. 4.
- Staseas* n. g. near *Apteromechus*, p. 530, *granulatus*, pl. xxvi, figg. 13, 14, p. 531, *cingulatus*, *pullatus*, fig. 15, *pictipennis*, fig. 16, p. 532, *mexicanus* p. 533, n. spp., Centr. America, CHAMPION, t. c.
- Strophomorphus insquamosus*, *damascenus*, Syria, PIC, p. 178, Echange xxi, n. spp.
- Synomus ceruginosus*, Queensland, LEA, p. 221, Tr. R. Soc. S. Austral. xxix, n. sp.
- Telaugia keysseri*, p. 74, *subtilis*, p. 75, New Guinea, HELLER, Deutsche ent. Zeitschr. 1905, n. spp.
- Tepperia sterculiae*, habits, FROGGATT, p. 228, Agric. Gaz. N. S. W. xvi.
- Thegilis* n. g. near *Zascelis*, *baridioides*, pl. xxvi, fig. 9, n. sp., Centr. America, CHAMPION, p. 526, Biol. Centr.-Amer. Col. iv, pt. 4.
- Thrasymomus uniformis*, pl. xxii, fig. 19, *conotracheloides*, fig. 20, Centr. America, CHAMPION, p. 460, t. c. n. spp.

- Titinia ignaria* = (*marmorata* Pasc. = *lata* Blackb.), LEA, p. 219, Tr. R. Soc. S. Austral. xxix.
- T. parva*, Victoria, id. p. 220, t. c. n. sp.
- Trachypylæus beaupreii*, Algeria, PIC, p. 155, Echange xxi, n. sp.
- Troglothynchus* (*Solarrella* subg. n.) *paganettii*, Calabria, FLACH, p. 318, Wien. ent. Zeit. xxiv, n. sp.
- Tychius sinaiticus* Crotch, 1871, n. sp. but not yet recorded, SHARP, p. 520, Ann. Nat. Hist. (7) xv; *T. vaulogeri*, Algeria, PIC, p. 107, Echange xxi; *T. ciliciensis*, Taurus, PIC, p. 162, t. c. n. spp.
- Tyloderma aneotinctum*, Mexico, CHAMPION, p. 528, pl. xxvi, fig. 10, Biol. Centr.-Amer. Col. iv, pt. 4, n. sp.
- Tylodinus* n. g. p. 464, type *Tylodes nodulosus* Schönh., figured, pl. xxii, fig. 26, and as n. spp., *planicollis*, fig. 27, *quadrilamellatus*, fig. 28, p. 465, *fædus*, fig. 30, *16-tuberculatus*, fig. 29, *maculifrons*, pl. xxiii, fig. 1, p. 466, *canaliculatus*, fig. 2, *leucozona*, fig. 3, p. 467, *cavicus*, fig. 4, *callosus*, p. 468, Centr. America, CHAMPION, t. c. n. spp.
- Tyrannion* n. g. near *Eubulus validus*, pl. xxix, fig. 8, p. 593, *tricrostatus*, fig. 9, *fulvipennis*, fig. 11, p. 594, *scabidus*, fig. 10, *nigrosellatus*, fig. 12, p. 595, *irregularis*, fig. 13, *suffusus*, fig. 14, p. 596, *diffusus*, *pictilis*, fig. 15, *disparilis*, fig. 16, p. 597, *ochreopunctatus*, fig. 17, *punctipennis*, fig. 18, p. 598, *funestus*, *imbellis*, *admixtus*, p. 599, *stolidus*, *squalidus*, p. 600, n. spp., Centr. America, CHAMPION, t. c.
- Ulosominus* n. g. near *Ulosomus quadrifasciculatus*, pl. xxiii, fig. 25, *zuniensis*, p. 483, *nanus*, *quichensis*, *triseriatus*, fig. 26, p. 484, *angustatus*, p. 425, n. spp., Centr. America, CHAMPION, t. c.
- Xenosomus instutus*, pl. xxiii, fig. 5, *turpis*, Guatemala, CHAMPION, p. 469, t. c. n. spp.
- Zascelis irrorata* Lec. pl. xxvi, fig. 3, p. 523, *affaber*, fig. 5, p. 524, CHAMPION, t. c.
- Z. carinipes*, pl. xxvi, fig. 4, p. 523, *brevicollis*, fig. 6, p. 524, *sulcifrons*, p. 7, *rugosa*, p. 525, *glabrata*, fig. 8, p. 526, Centr. America, CHAMPION, t. c. n. spp.

## SCOLYTIDÆ.

[Cf. EICHELBAUM (489), FUCHS (625), HAGEDORN (713, 714), HOPKINS (758-760), NÜSIMA (1110), REITTER (1254), SCHAUFUSS (1328), SCHEWYREW (1330), SCHOLZ (1338).]

The habits of European *Scolytidæ*, SCHEWYREW (1330).

The mouth parts of the larvae, HOPKINS, pp. 143-149, pls. iv, v, P. ent. Soc. Washington vii.

The stridulating organs in *Scolytus*, SCHOLZ, Ins. Börse 1905, pp. 143, 144.

Translation of Eichoff's table of food plants and form of galleries of European, GROUZELLE, Echange xxi, pp. 149 etc.

*Amphicranus*, synopsis, p. 289, *A. elegans*, pl. ix, fig. 5, p. 290, BIANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6.

*Amphicranus lesnei*, Columbia, HAGEDORN, p. 550, Bull. Mus. Paris x; *A. balteatus*, pl. ix, fig. 6, p. 291, *belti*, fig. 7, *torneutes*, fig. 8, p. 292, *brevipennis*, fig. 9, Centr. America, *schaufussi*, Venezuela, p. 293, *grouvellei*, Brazil?, *collaris*, fig. 10, p. 294, *tenuis*, fig. 11, *filiiformis*, fig. 12, p. 295, *terebella*, fig. 13, *fastigatus*, fig. 14, p. 296, *propugnatus*, fig. 15, p. 297, *hybridus*, fig. 16, p. 298, Centr. America; id. t. c. n. spp.

*Camptocerus striatulus*, Guiana, HAGEDORN, p. 547, Bull. Mus. Paris x, n. sp.

*Chortastus* n. g. *Hylesinides camerunus* n. sp., W. Africa, SCHAUFUSS, p. 15, Ins. Börse 1905.

*Coccotrypes pygmæus*, habits and localities, SCHAUFUSS, p. 8, Ins. Börse 1905.

- C. cardamomi*, Ceylon, SCHAUFUSS, p. 8, t. c. n. sp.  
*Crossotarsus banghaasi*, E. Africa, p. 87, *cælocephalus*, Cameroons, p. 103, SCHAUFUSS, t. c. n. spp.  
*Cryphalus grothii*, larva, EICHELBAUM, pp. 248-250, Zeitschr. Insbiol. i.  
*Crypsinorhinus* n. g. p. 131, *chloropholoides* n. sp., Madagascar, p. 132, FAIRMAIRE, Ann. Soc. ent. Belgique 1905.  
*Dacryostactus* n. g. *Hylesinides, kolbei* n. sp., S. Africa, SCHAUFUSS, p. 79, Ins. Börse 1905.  
*Dendroctonus ponderosæ*, natural history and ravages, HOPKINS, Bull. U. S. Dep. Agric. Ent. No. 56.  
*D. mexicanus*, Amecameca, HOPKINS, p. 80, P. ent. Soc. Washington vii, n. sp.  
*Gnathotrichus nitidifrons*, Mexico, HOPKINS, p. 72, t. c. n. sp.  
*Hylesinus orni*, Centr. Europe, FUCHS, p. 51, Munchen. Kol. Zeitschr. iii, n. sp.  
*Lissoclastus* n. g. *Hylesinides, pimelioides* n. sp., Cameroons, SCHAUFUSS, p. 71, Ins. Börse 1905.  
*Meringopalpus* n. g. *Hylesinidarum*, p. 547, *fallax* n. sp., Venezuela, p. 548, HAGEDORN, Bull. Mus. Paris x.  
*Mitosoma rugosum*, Madagascar, SCHAUFUSS, p. 19, Ins. Börse 1905, n. sp.  
*Phlæophthorus moriperda*, Mexico, HOPKINS, p. 77, P. ent. Soc. Washington vii, n. sp.  
*Phlæosinus tacubayæ*, p. 78, *baumanni*, p. 79, Mexico, HOPKINS, t. c. n. spp.  
*Phthorius edentatus*, Venezuela, HAGEDORN, p. 549, Bull. Mus. Paris x, n. sp.  
• *Pityophthorus choleoensis*, p. 73, *herrerai*, p. 74, Mexico, HOPKINS, P. ent. Soc. Washington vii, n. spp.  
*Platypus pini*, Mexico, HOPKINS, p. 71, t. c. n. sp.  
*Pterocyclon dimidiatum*, Guiana, HAGEDORN, p. 550, Bull. Mus. Paris x ; *P. bispinum*, p. 281, pl. viii, fig. 19, *vittatum*, fig. 20, p. 282, *sulcatum*, *ferrarii*, fig. 23, p. 284, *imbriaticorne*, fig. 24, p. 285, Centr. America, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6 : n. spp.  
*Scolytoplatypus*, composition of the genus, p. 63, *S. pubescens* ♂, p. 64, HAGEDORN, Ins. Börse 1905.  
*S. hova*, Madagascar, SCHAUFUSS, p. 12, t. c. ; *S. eichelbaumi*, E. Africa, HAGEDORN, p. 64, t. c. : n. spp.  
*Scolytus chikisanii, curviventralis, æquipunctatus*, Japan, NŪSIMA, J. Sapporo Agric. Coll. ii, n. spp. [not seen by Recorder, Cf. Munchen. Kol. Zeitschr. iii, p. 118] ; *S. productus*, Venezuela, HAGEDORN, p. 547, Bull. Mus. Paris x : n. sp.  
*Stephanoderes moschatæ*, Guadeloupe, SCHAUFUSS, p. 8, Ins. Börse 1905, n. sp.  
*Tomicus mexicanus*, p. 75, *bonanseai*, p. 76, Mexico, HOPKINS, P. ent. Soc. Washington vii, n. spp.  
*Tricolus* n. g. p. 286, near *Pterocyclon, ovicollis*, pl. ix, fig. 3, *nodifer*, fig. 4, p. 287, n. spp., Guatemala, BLANDFORD, Biol. Centr.-Amer. Col. iv, pt. 6.  
*Xyleborus, meuseli*, E. Siberia, REITTER, p. 249, Wien. ent. Zeit. xxiv ; *X. triton*, p. 18, *fraterculus*, p. 19, Madagascar, SCHAUFUSS, Ins. Börse 1905 ; *X. conifer, camopinus*, Guiana, HAGEDORN, p. 549, Bull. Mus. Paris x : n. spp.

## ANTHRIBIDÆ.

Catalogue of *Anthribida*, 217 genera, 1465 species, BOVIE, pp. 218-334, Ann. Soc. ent. Belgique 1905.

## CERAMBYCIDÆ.

[Cf. CHOBOUT (310), DANIEL (387), DISTANT (421), FAIRMAIRE (534, 536), FALL (542), GOUNELLE (677, 679), HEATH (730, 731), HELLER (737), LAMBERE (910), MAYET (1016), MJÖBERG (1049), MÜLLER (1079), PIC (1173, 1181, 1187, 1190), REITTER (1246, 1253), SCHAEFFER (1323, 1324), SHARP (1385), SHARP & SMITH (1385), SKINNER (1408), WANDOLLECK (1565), WEBB (1592), WEISE (1601), WICKHAM (1630), ZANG (1658).]

*Longicornia*, in Baltic amber, redetermination of Berendt's species; also n. spp. cf. Palaeoent. p. 128.

The ♀ abdomen of numerous forms, WANDOLLECK, Zool. Jahrb. Anat. xxii, pp. 477-576, pl. xxviii.

The Recorder has now seen parts 1 & 2 of Cah. v of PIC's *Materiaux* etc. and has contented himself with extracting what he believes to be intended as new species.

*Acanthoivus linearis*, Arizona, SKINNER, p. 290, Ent. News Philad. xvi, n. sp.

*Agapanthia pustulifera*, Jerusalem, PIC, p. 12, Mat. Long. Cah. v, 2; *A. subnuda*, Transcaspian, REITTER, p. 93, Wien. ent. Zeit. xxiv: n. spp.

*Anaglyptus luteofasciatus*, Morea, PIC, p. 153, Echange xxi, n. sp.

*Ancylistus transversus*, Madagascar, FAIRMAIRE, p. 137, Ann. Soc. ent. Belgique 1905, n. sp.

*Artelida calcaratu*, *fuscoericans*, Madagascar, FAIRMAIRE, p. 134, t. c. n. spp.

*Aseum striatum*, larva, SHARP & SMITH, p. 162, pl. ix, fig. 6, Tr. ent. Soc. London 1905.

*Astynoscelis* n. g. near *Rhopaloscelis longicornis* n. sp., Mantchuria, PIC, p. 8, Mat. Long. Cah. v, 1.

*Brachypteroma holtzi*, Taurus, PIC, p. 114, Echange xxi, n. sp.

*Brachytatus notabilis*, p. 136, *bipartitus*, p. 137, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique 1905, n. spp.

*Callimus semicyaneus*, Greece, PIC, p. 187, Echange 1905, n. sp.

*Calocerambyx* n. g. near *Tetraschema*, p. 66, *hauseri* n. sp., New Guinea, p. 67, HELLER, Deutsche ent. Zeitschr. 1905.

*Cephalallus* n. g. near *Criocephalus oberthuri*, n. sp., Yunnan, SHARP, p. 148, Tr. ent. Soc. London 1905.

*Cephalocrius* n. g. for *Criocephalus syriacus* Reitter, SHARP, p. 149, t. c.

*Ceresium rugulipenne*, Madagascar, FAIRMAIRE, p. 135, Ann. Soc. ent. Belgique 1905; *C. vittidorsum*, Yunnan, PIC, p. 10, Mat. Long. Cah. v, 1: n. spp.

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### DIPLOPTERA (VESPIDÆ, EUMENIDÆ, MASARIDÆ).

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- P. amazonensis*, p. 13, *difficilis*, p. 14, S. America, DUCKE, Rev. Ent. franc. 1905, n. spp.
- Plesiomasaris* n. g. p. 266, *maculiceps* n. sp., Mexico, p. 267, CAMERON, Tr. Amer. ent. Soc. xxx.
- Plesiozethus* n. n. for *Zethoides*, Cam. nec FOX, CAMERON, p. 269, Entomologist 1905.
- Polistes biglumis* var. n. *antennalis*, PÉREZ, p. 81, Bull. Mus. Paris 1905; *P. canadensis amazonicus* subsp. n., p. 113, *P. analis* and *flavicans* distinguished, p. 115, SCHULZ, Hymen.-Stud.; *P. hebraeus*, nest, SCHULZ, pp. 490-493, Verh. Ges. Wien 1905.

- P. aquilinus, tenellus*, Congo, p. 256, *bituberculatus, albocalcaratus*, Madagascar, p. 257, BUYSSON, Bull. Soc. ent. France 1905; *P. varicornis*, p. 67, *javanicus*, p. 68, Java, CAMERON, Tijdschr. Ent. xlviii; *P. nipponensis*, p. 82, *megei*, p. 83, Japan, PÉREZ, Bull. Mus. Paris 1905; *P. deceptor*, Amazons, SCHULZ, p. 119, Hymen.-Stud.; *P. erythrogaster, rhodostoma*, Amazons, DUCKE, p. 23, Rev. Ent. franc. 1905: **n. spp.**
- Polybia pediculata* var. n. *unilineata*, p. 184, *occidentalis* var. n. *juruaui*, p. 198, *septentrionalis* n. n. for *fasciata* Lep., p. 210, *meridionalis* n. n. for *phthisica*, p. 211, IHERING, Revist. Mus. Paulista vi; *P. occidentalis* varr. n. *diguatana, nigratella*, BUYSSON, p. 9, Bull. Soc. ent. France 1905.
- P. spilonota*, Nicaragua, CAMERON, p. 68, Invert. pacif. i; *P. decorata*, p. 19, *ornata, ruficornis, flavipennis*, p. 20, Amazons, DUCKE, Rev. Ent. franc. 1905; *P. tapuya*, Amazons, SCHULZ, p. 133, Hymen.-Stud.; *P. ypiranguensis*, p. 188, *furnaria*, p. 217, Brazil, IHERING, Revist. Mus. Paulista vi: **n. spp.**
- Protopolybia* n. g. for various spp., type not mentioned, DUCKE, p. 17, Rev. Ent. franc. 1905.
- Pseudocharterginus* n. g. for pt. of *Charterginus* Fox, p. 15, DUCKE, Rev. Ent. franc. 1905.
- Psiloglossa algeriensis*, Biskra, SAUNDERS, p. 400, Tr. ent. Soc. London 1905, **n. sp.**
- Pterochilus korbi*, Biskra, SCHULZ, p. 48, Hymen.-Stud.; *P. aterrimus*, p. 403, *linguarius*, p. 404, *affinis*, p. 405, Algeria, SAUNDERS, Tr. ent. Soc. London 1905: **n. spp.**
- Quartinia paradoxa*, Cape G. H., BRAUNS, p. 233, Ann. Mus. Hungar. iii, **n. sp.**
- Raphidoglossa rufescens*, Biskra, SAUNDERS, p. 402, Tr. ent. Soc. London 1905, **n. sp.**
- Rhynchium superbum* ♂, CAMERON, p. 76, Tijdschr. Ent. xlviii.
- R. varipes*, Japan, PÉREZ, p. 85, Bull. Mus. Paris 1905, **n. sp.**
- Synagris intermedia*, S. Africa, CAMERON, p. 207, Rec. Albany Mus. i, **n. sp.**
- Synoea surinama*, nest, SCHULZ, p. 124, Hymen.-Stud.
- Synocoides* n. g. *depressa* n. sp., Upper Amazons, DUCKE, p. 16, Rev. Ent. franc. 1905.
- Trimeria buyssoni* ♂, BUYSSON, p. 10, Bull. Soc. ent. France 1905.
- Vespa mongolica* var. n. *sempunctata*, p. 79, *V. japonica*, variation, p. 80, PÉREZ, Bull. Mus. Paris 1905.
- Zethus spiniventris*, p. 171, *inermis, buyssoni*, p. 172, Lower Amazons, DUCKE, Zeitschr. Hym. Dipt. v, **n. spp.**

## HYMENOPTERA FOSSORIA (or SPHEGOIDEA).

- [Cf. ANDRÉ (24, 25, 27), ASHMEAD (31, 32), AURIVILLIUS (43), BAKER (65, 66), CAMERON (241, 242, 243, 244, 246, 251, 261, 262, 263, 264, 266, 269, 272, 273, 274), FERTON (558), GARCÍA (639-642), HARTMAN (728), KOHL (874-876), PECKHAM (1143), PÉREZ (1146), SCHULZ (1359).]
- Scolidae, Mutillidae and Sapygidae*, of Sweden, AURIVILLIUS, pp. 232-240, Ent. Tidskr. xxvi.
- Study of the habits of various species in Texas, HARTMAN, Bull. Univ. Texas, No. 65.
- Agenia conspersa*, Japan, PÉREZ, p. 149, Bull. Mus. Paris 1905, **n. sp.**
- Ammophila erythrospila*, Cape Colony, CAMERON, p. 303, Rec. Albany Mus. i; *A. dumbrodyensis*, Cape Colony, CAMERON, p. 322, t. c.; *A. marginalis*, Japan, PÉREZ, p. 151, Bull. Mus. Paris 1905: **n. spp.**



- Ampulex capensis*, p. 254, *spiloptera*, p. 255, *africana*, p. 256, Cape Colony, CAMERON, Rec. Albany Mus. i; *A. javana*, Tjibodas, p. 60, *micado*, Japan, p. 61, CAMERON, Tijdschr. Ent. xlviii : n. spp.
- Anoplius leppani*, p. 216, *soleanus*, p. 217, *dalyanus*, p. 218, *A. (Pompilogastra ?) erythrourus*, p. 219, S. Africa, CAMERON, Rec. Albany Mus. i; *A. mimeticus*, Cape Colony, CAMERON, p. 262, t. c.; *A. (Pompilus) orodes*, Darjiling, CAMERON, p. 17, Entomologist 1905; *A. palades*, p. 467, *reconditus*, *ædilis*, *stimulatus*, p. 468, *ardescens*, p. 469, *lictor*, *tyres*, p. 470, *fortinatus*, *delphus*, p. 471, *addendus*, p. 472, *funebranus*, *lanatus*, p. 473, Khasia hills, CAMERON, Ann. Nat. Hist. (7) xv : n. spp.
- Anthobosca antennata* Sm., queried as *Adontothynnus*, CAMERON, p. 306, Rec. Albany Mus. i.
- Anthophilus hirticeps*, p. 376, *melanaspis*, *maculiventris*, p. 377, Mexico, CAMERON, Tr. Amer. ent. Soc. xxxi, n. spp.
- Apterogyna bimaculata* var. n. *rufescens*, GARCÍA, p. 488, Bol. Soc. espan. v.
- A. mocsaryi*, Egypt, ANDRÉ, p. 202, Zeitschr. Hym. Dipt. v, n. sp.
- Apteropompilus dentatus* ♂, CAMERON, p. 136, Zeitschr. Hym. Dipt. v.
- Astata melanaria*, p. 257, *fuscistigma*, p. 258, Cape Colony, CAMERON, Rec. Albany Mus. i, n. spp.
- Belomicrus mirificus*, Abyssinia, KOHL, p. 225, Zeitschr. Hym. Dipt. v, n. sp.
- Bembex galactina* Duf., SCHULZ, pp. 62-65, cuts, Hymen.-Stud.; *B. rostrata algeriensis* subsp. n., SCHULZ, p. 39, t. c.
- B. fallax*, p. 352, *citrina*, p. 353, Tangier, GARCÍA MERCET, Bol. Soc. espan. v; *B. maroccana*, Tangier, LAUFFER, p. 465, Bol. Soc. espan. v; *B. fontii*, Rio de Oro, GARCÍA MERCET, p. 342, Bol. Soc. espan. v; *B. semoni*, New Guinea, CAMERON, p. 65, Tijdschr. Ent. xlviii : n. spp.
- Ceratocolus pygialis*, Japan, PÉREZ, p. 154, Bull. Mus. Paris 1905, n. sp.
- Cerceris assamensis* n. n. for *himalayensis* Cam. nec Bingham, CAMERON p. 269, Entomologist 1905.
- C. doderleini*, Biskra, p. 35, *hartliebi*, Tunis, p. 55, SCHULZ, Hymen.-Stud.; *C. flavoplagiata*, Himalaya, CAMERON, p. 16, Entomologist 1905; *C. simlaensis*, India, CAMERON, p. 83, t. c.; *C. bimaculata*, *canaliculata*, p. 219, *himalayensis*, p. 220, *intimella*, *rufoplagiata*, p. 221, *aureobarba*, *lepcha*, p. 222, Khasia hills, CAMERON, Ann. Nat. Hist. (7) xv; *C. harmandi*, p. 152, *carinalis*, p. 153, Japan, PÉREZ, Bull. Mus. Paris 1905; *C. chinandegaensis*, p. 66, *bakeri*, *cosmiocephala*, p. 67, Nicaragua, CAMERON, Invert. pacif. i : n. spp.
- Ceropules pruinosa*, Khasia hills, CAMERON, p. 415, Ann. Nat. Hist. (7) xv, n. sp.
- Chalybion japonicum*, Japan, PÉREZ, p. 152, Bull. Mus. Paris 1905, n. sp.
- Chyphotes piceiceps*, p. 116, *californicus*, *similis*, p. 117, *nevadensis*, p. 118, California and Nevada, BAKER, Invert. pacif. i, n. spp.
- Clavelia* and *Parapompilus* are sexes, not genera, SCHULZ, p. 25, Hymen.-Stud.
- Craobro erythrotoma*, Cape Colony, CAMERON, p. 259, Rec. Albany Mus. i; *C. æmulans*, p. 352, *C. (Rhopalum-Corynopus) rufoteniatus*, p. 353, *C. (Rhopalum)herbstii*, p. 355, Chile, *C. (Entomocraobro subg. n.) duckei*, p. 357, Brazil, KOHL, Verh. Ges. Wien 1905; *C. elvinus*, p. 14, *lysias*, *menyllus*, p. 15, India, CAMERON, Entomologist 1905; *C. himalayensis*, *monozonus*, Khasia hills, CAMERON, p. 218, Ann. Nat. Hist. (7) xv; *C. konowi*, Japan, p. 218, *C. (Entomognathus) schmiedeknechti*, Corfu, p. 219, *libanonis*, Syria, p. 220, *C. (Lindenius) ibericus* Kohl, p. 221, Spain, *hæmodes*, Egypt, p. 222, *crenulifer* Damascus, p. 224, *latebrosus* Irkutsk, p. 225, KOHL, Zeitschr. Hym.

- Dipt. v ; *C. iridifrons*, p. 154, *radiatus*, *tetracanthus*, p. 155, Japan, PÉREZ, Bull. Mus. Paris 1905 ; *C. mexicanus*, p. 265, *ezrae*, p. 266, Mexico, CAMERON, Tr. Amer. ent. Soc. xxx : n. spp.
- Dielis sericeps*, p. 55, *nigrofimbriata*, p. 56, Java, CAMERON, Tijdschr. Ent. xlviii ; *D. truscanensis*, Borneo, CAMERON, p. 164, J. Straits Asiat. Soc. xlv : n. spp.
- Dimorphomutilla? luatha*, hab. ? CAMERON, p. 378, Tr. Amer. ent. Soc. xxxi, n. sp.
- Diodontus reticulatus*, Deesa, CAMERON, p. 83, Entomologist 1905, n. sp.
- Discolia bonaespei*, S. Africa, CAMERON, p. 224, Rec. Albany Mus. i ; *D. varifrons*, New Guinea, CAMERON, p. 54, Tijdschr. Ent. xlviii ; *D. signatifrons*, Japan, PÉREZ, p. 86, Bull. Mus. Paris 1905 : n. spp.
- Entomocrabro* subg. n. cf. *Crabro*.
- Entomognathus mexicanus*, Mexico, CAMERON, p. 266, Tr. Amer. ent. Soc. xxx, n. sp.
- Ephuta chinandegæ*, Nicaragua, CAMERON, p. 100, Invert. pacif. i, n. sp.
- Ephutomorpha præstans*, New Guinea, p. 266, *darwiniana*, p. 268, *vittigera*, p. 270, *argenteolineata*, p. 271, *maculiventris*, p. 272, N. Australia, *biroi*, p. 273, *incisa*, p. 275, New Guinea, *rubropetiolata*, N. S. Wales, p. 276, ANDRÉ, Zeitschr. Hym. Dipt. v, n. spp.
- Epomidopteron*, cf. *Paratiphia*.
- Gorytes africanus*, Tangier, GARCÍA, p. 464, Bol. Soc. espan. v, n. sp.
- Heliocausus dubius*, Chile, KOHL, p. 362, Verh. Ges. Wien 1905, n. sp.
- Holcorhopalum* n. g. near *Rhopalum*, *foveatum* n. sp., Mexico, CAMERON, p. 264, Tr. Amer. ent. Soc. xxx.
- Hoplisis whitei*, S. Africa, CAMERON, p. 210, Rec. Albany Mus. i ; *H. tricinctus*, Japan, PÉREZ, p. 157, Bull. Mus. Paris 1905 : n. spp.
- Hoploneurion minus*, Chile, KOHL, p. 350, Verh. Ges. Wien 1905, n. sp.
- Icuma* n. g. *Larridæ*, *sericea* n. sp., Panama, CAMERON, p. 21, Entomologist 1905.
- Mellinus tristis*, Japan, PÉREZ, p. 156, Bull. Mus. Paris 1905, n. sp.
- Microphadnus* n. g. *Ceropalidæ*, p. 212, *bicolor*, *M. ? fuscipennis* n. spp., S. Africa, p. 213, CAMERON, Rec. Albany Mus. i.
- Mimesa japonica*, Japan, PÉREZ, p. 150, Bull. Mus. Paris 1905, n. sp.
- Mutilla rufipes* var. n. *dusmeti*, *M. littoralis* var. n. *soconusca*, GARCÍA, p. 494, Bol. Soc. espan. v ; *M. urania* var. = (*buddha* Cam.), CAMERON, p. 51, Tijdschr. Ent. xlviii.
- M. nuptura*, Escorial, p. 490, *matritensis*, p. 493, GARCÍA, Bol. Soc. espan. v ; *M. transvaalensis*, p. 24, *arcuaticeps*, p. 25, Transvaal, ANDRÉ, Bull. Soc. ent. France 1905 ; *M. minor*, p. 206, *katonai*, p. 207, *ukamiensis*, p. 208, Africa, *ditissima*, p. 209, *pulcherrima*, p. 210, Madagascar, *pekiniana*, China, p. 214, *celebensis*, Celebes, p. 215, ANDRÉ, Zeitschr. Hym. Dipt. v ; *M. javanica*, p. 48, *melmora*, p. 49, Java, *lodina*, Borneo, p. 50, CAMERON, Tijdschr. Ent. xlviii : n. spp.
- Myrmilla bidentata*, Transvaal, ANDRÉ, p. 205, Zeitschr. Hym. Dipt. v, n. sp.
- Myzine (Meira) violaceipennis*, Cape Colony, CAMERON, p. 301, Rec. Albany Mus. i, n. sp.
- Notoglossa banksi*, Manila, ASHMEAD, p. 960, P. U. S. Mus. xxviii, n. sp.
- Notogonia rufoscapa*, Cape Colony, CAMERON, p. 321, Rec. Albany Mus. i ; *N. fuscinerva*, p. 224, *aciculata*, *khasiana*, p. 225, *vivax*, *tegularis*, p. 226, *testaceicornis*, p. 227, *strenua*, *sulcifrons*, p. 228, Khasia hills, CAMERON, Ann. Nat. Hist. (7) xv : n. spp.
- Nysson longispinis*, Mexico, CAMERON, p. 374, Tr. Amer. ent. Soc. xxxi, n. sp.
- Odontophopsis cookii*, p. 93, *annulatus*, p. 94, *mellicornis*, p. 96, *viereckii*, p. 97, *ocellatus*, p. 98, California and Nevada, BAKER, Invert. pacif. i, n. spp.

- Oxybelus ruficaudis*, p. 208, *capensis*, p. 209, S. Africa, CAMERON, Rec. Albany Mus. i; *O. striatiscutis*, Cape Colony, CAMERON, p. 261, t. c.; *O. claudestinus*, Chile, KOHL, p. 358, Verh. Ges. Wien 1905 : n. spp.
- Parapompilus planatus*, natural history, DAVIDSON, pp. 233, 234, Ent. News Philad. xvi; *P.*, cf. also *Clavelia*.
- Paratiphia*, to this CAMERON refers the spp. described by him as *Epomidopteron*, Invert. pacif. i, p. 105.
- P. iridipennis*, Nicaragua, CAMERON, p. 68, Invert. pacif. i; *P. fuscipennis*, Nicaragua, CAMERON, p. 100, t. c.; *P. robusta*, *varipunctata*, p. 106, *fuscinerva*, p. 107, California, *nevadensis*, *claripennis*, p. 108, *bakeri*, p. 109, Nevada, CAMERON, t. c. : n. spp.
- Passaloeus*, catalogue of the genus, and revision of palæarctic, KOHL, pp. 517-529, Verh. Ges. Wien 1905.
- P. stieglmayri*, Brazil, p. 359, *braunsii*, Algoa bay, p. 361, KOHL, t. c. n. spp.
- Philanthus ammochrysus*, Tunis, SCHULZ, p. 59, Hymen.-Stud., n. sp.
- Photopsis melanderi*, *indigenus*, p. 112, *uniformis*, *abstrusa*, p. 113, *nudata*, *difficilis*, p. 114, *insignis*, *pedatus*, p. 115, *ingenuus*, p. 116, N. America, BAKER, Invert. pacif. i, n. spp.
- Pison javanus*, Tjandi, CAMERON, p. 63, Tijdschr. Ent. xlviii; *P. iridipennis*, Cape Colony, CAMERON, p. 261, Rec. Albany Mus. i; *P. punctulatus*, Manila, ASHMEAD, p. 960, P. U. S. Mus. xxviii; *Pisonoides browni*, Manila, ASHMEAD, p. 961, t. c. n. sp.
- Planiceps ruficaudis*, Grahamstown, CAMERON, p. 214, Rec. Albany Mus. i; *P. quadricollis*, Japan, PÉREZ, p. 150, Bull. Mus. Paris 1905 : n. spp.
- Plesia melanaria*, p. 297, *rufo-femorata*, p. 298, *continua*, p. 299, *reticulata*, p. 300, Cape Colony, CAMERON, Rec. Albany Mus. i; *P. carbonaria*, p. 317, *interrupta*, p. 318, *leucospila*, p. 319, *erythronota*, *incisa*, p. 320, Cape Colony, CAMERON, t. c. : n. spp.
- Pompilodes beckeri*, Grahamstown, CAMERON, p. 220, t. c. n. sp.
- Pompilus*, validity of name, SCHULZ, p. 8, Hymen.-Stud.; *P. vishnu*, *hero*, valid, CAMERON, p. 17, Entomologist 1905; *P. pectinipes*, parasitic habits, FERTON, pp. 73-80, Ann. Soc. ent. France 1905.
- P. (Homonotus) arthuri-muelleri*, W. Africa, p. 4, SCHULZ, Hymen.-Stud.; *P. batavia*, Java, CAMERON, p. 59, Tijdschr. Ent. xlviii; *P. flavifrons*, Borneo, CAMERON, p. 160, J. Straits Asiat. Soc. xlv; *P. uniceinctus*, Tsushima, p. 149, *fratellus*, p. 150, Japan, PÉREZ, Bull. Mus. Paris 1905; *P. misturatus*, p. 344, *fucatus*, p. 345, *spinolæ*, p. 346, Chile, KOHL, Verh. Ges. Wien 1905 : n. spp.
- Priocnemis cyphonotus*, Japan, PÉREZ, p. 148, Bull. Mus. Paris 1905, n. sp.
- Proterosphex* n. n. for the former subg. *Sphex*, FERNALD, p. 165, Ent. News Philad. xvi.
- Psen lubricus*, Japan, PÉREZ, p. 150, Bull. Mus. Paris 1905, n. sp.
- Pseudagenia natalensis*, Natal, CAMERON, p. 223, Entomologist 1905; *P. languida*, p. 416, *pulchrifrons*, p. 417, *lyrata*, *nigritibis*, p. 418, *agitata*, *flavicollis*, p. 419, *nigripalpis*, p. 420, *lacteipennis*, p. 421, *purpurea*, *prophetica*, p. 422, *himalayensis*, p. 423, Khasia Hills, Cameron, Ann. Nat. Hist. (7) xv; *P. kloofensis*, p. 214, *capicola*, p. 215, S. Africa, CAMERON, Rec. Albany Mus. i; *P. rufafemorata*, p. 107, *imitator*, p. 108, Manila, ASHMEAD, P. U. S. Mus. xxix; *P. pygialis*, p. 148, *obtusca*, p. 149, Japan, PÉREZ, Bull. Mus. Paris 1905 : n. spp.
- Ptilomutilla* n. g. p. 371, *plumosa*, p. 372, *pennata*, p. 373, n. spp., Brazil, ANDRÉ, Zeitschr. Hym. Dipt. v.
- Rhopalum spinigerus*, *angulicolle*, Mexico, CAMERON, p. 263, Tr. Amer. Soc. xxx; *R. nicaraguaense*, San Marcos, CAMERON, p. 66, Invert. pacif. i : n. spp.
- Rhoptromutilla regalis*, Bolivia, p. 361, *peruviana*, Peru, p. 363, *auriceps*,

- Argentina, p. 364, *rufisquamis*, Arizona, p. 366, *furcata*, Panama, p. 367, *furcifera*, Brazil, p. 369, ANDRÉ, Zeitschr. Hym. Dipt. v, n. spp.
- Sulius whiteanus*, p. 220, *S. (Mygnymia) pringleæ*, p. 221, *S. (Priocnemis) spilocephalus*, *S. (Cyphonyx) spilotomus*, p. 222, *schonlandi*, p. 223, *erythrostomus*, p. 224, S. Africa, CAMERON, Rec. Albany Mus. i; *S. fluctuatus*, *frederici*, p. 474, *saturnalis*, p. 475, *tempestivus*, p. 476, *præcursor*, p. 477, Khasia Hills, CAMERON, Ann. Nat. Hist. (7) xv; *S. matangensis*, Borneo, CAMERON, p. 161, J. Straits Asiat. Soc. xlv; *S. spilonotus*, Borneo, CAMERON, p. 58, Tijdschr. Ent. xlviii; *S. (Priocnemis) dispersitatus*, p. 348, *thaumastarius*, p. 349, Chile, KOHL, Verh. Ges. Wien 1905 : n. spp.
- Sphærophthalma caroli*, Nicaragua, CAMERON, p. 99, Invert. pacif. i, n. sp.
- Spheg*; *sabulosa* is the type, FERNALD, pp. 163-166, subg. n. cf. *Proterospheg*, subgenera list of, Ent. News Philad. xvi.
- S. harmandi*, *xanthognathus*, Japan, PÉREZ, p. 151, Bull. Mus. Paris 1905, n. spp.
- Spilopompilus stantoni*, Manila, ASHMEAD, p. 108, P. U. S. Mus. xxix, n. sp.
- Stigmus glabratus*, Chile, KOHL, p. 358, Verh. Ges. Wien 1905, n. sp.
- Stizus klugi namida* subsp. n., SCHULZ, p. 42, Hymen.-Stud.
- S. johannis*, Cape Colony, CAMERON, p. 323, Rec. Albany Mus. i, n. sp.
- Tachysphex rufiventralis*, Bonifacio, FERTON, p. 68, Ann. Soc. ent. France 1905; *T. schonlandi*, p. 211, *pentheri*, p. 212, S. Africa, CAMERON, Rec. Albany Mus. i; *T. bituberculata*, Khasia Hills, CAMERON, p. 233, Ann. Nat. Hist. (7) xv; *T. herbstii*, Chile, KOHL, p. 364, Verh. Ges. Wien 1905 : n. spp.
- Tachytes transvaalensis*, Africa, CAMERON, p. 153, Entomologist 1905; *T. varipilosa*, *aureocincta*, Borneo, CAMERON, p. 159, J. Straits Asiat. Soc. xlv; n. spp.
- Tanyopyrmnus* n. g. *Mellinini*, p. 375, *longitarsis* n. sp., Mexico, p. 376, CAMERON, Tr. Amer. ent. Soc. xxxi.
- Tiphia rufomandibulata*, ♀, PÉREZ, p. 87, Bull. Mus. Paris 1905.
- T. testaceipalpis*, Nicaragua, CAMERON, p. 69, Invert. pacif. i; *T. marcosensis*, p. 101, *granadaensis*, p. 102, Nicaragua, CAMERON, t. c. : n. spp.
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- Trogaspidia bicolor*, p. 962, *minor*, p. 963, Manila, ASHMEAD, P. U. S. Mus. xxviii, n. spp.
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- Campoplex oneili*, Cape Colony, CAMERON, p. 315, Rec. Albany Mus. i; *C. simlaensis*, India, CAMERON, p. 282, Zeitschr. Hym. Dipt. v; *C. greeni*, Ceylon, CAMERON, p. 127, Spolia Zeylan. iii; *C. sumichrasti*, Mexico, CAMERON, p. 258, Tr. Amer. ent. Soc. xxx: n. spp.
- Campsocryptus brevicornis*, California, CAMERON, p. 127, Invert. pacif. i, n. sp.
- Ceratojoppa* n. g. *cornuta* n. sp., Natal, CAMERON, p. 346, Zeitschr. Hym. Dipt. v.
- Ceratospilus* n. g. *Ophioninae*, p. 28, *biroi* n. sp., New Guinea, p. 29, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Cerda* n. g. near *Protarchus*, *fuscipennis* n. sp., Mexico, CAMERON, p. 255, Tr. Amer. ent. Soc. xxx.
- Charitopimpla annulipes*, Ceylon, CAMERON, p. 139, pl. B, fig. 9, Spolia Zeylan. iii, n. sp.
- Charops longiventris*, Manila, ASHMEAD, p. 117, P. U. S. Mus. xxix; *C. papilionis*, Manila, ASHMEAD, p. 6, Canad. Ent. 1905: n. spp.
- Chiodes oculatus*, Manila, ASHMEAD, p. 966, P. U. S. Mus. xxviii, n. sp.
- Chirotica bulbeata*, Cape Colony, CAMERON, p. 232, Zeitschr. Hym. Dipt. v, n. sp.
- Chromocryptus albomaculatus*, Manila, ASHMEAD, p. 115, P. U. S. Mus. xxix, n. sp.
- Cidaphurus nigrolineatus*, Nevada, CAMERON, p. 129, Invert. Pacif. i, n. sp.
- Clatha* n. g. near *Agrypnon*, p. 129, *longipes* n. sp., Ceylon, p. 130, CAMERON, Spolia Zeylan. iii.
- Clitiga* n. g. *Cryptinae*, p. 117, *excaputa*, *forticornis*, f. 7, n. spp., Ceylon, pl. B, f. 6, p. 118, CAMERON, t. c.
- Celichneumon bilineatus*, p. 244, *C.?* *albopilosellus*, p. 245, N. India, CAMERON, Zeitschr. Hym. Dipt. v, n. spp.
- Cenostoma* n. g. *Xoridini*, p. 171, *filicornis* n. sp., Borneo, p. 172, CAMERON, Entomologist 1905.
- Cesula* n. g. *Mesostenini*, p. 145, *fulvipes* n. sp., Borneo, p. 146, CAMERON, J. Straits Asiat. Soc. xlv.
- Coiloneura* n. g. near *Eremotylus*, *melanostigma*, *longicornis* n. spp., New Guinea, SZÉPLIGETI, p. 35, Gen. ins. fasc. xxxiv.
- Colganta varicornis*, p. 150, *annulicornis*, p. 151, Borneo, CAMERON, J. Straits Asiat. Soc. xlv, n. spp.
- Cosmiojoppa orbitalis*, Simla, CAMERON, p. 80, Zeitschr. Hym. Dipt. v, n. sp.
- Cratichneumon rufo-femoratus*, Sikkim, CAMERON, p. 143, t. c.; *C. erythrozonus*, CAMERON, p. 105, Entomologist 1905; *C. manilex*, Philippines, ASHMEAD, p. 113, P. U. S. Mus. xxix: n. spp.
- Cratocryptus* n. g. near *Skeattia*, p. 141, *maculiceps* n. sp., Borneo, p. 142, CAMERON, J. Straits Asiat. Soc. xlv.

- Cratojoppa rufofemorata*, Borneo, CAMERON, p. 157, t. c. n. sp.  
*Cremastus ægyptiacus*, Cairo, p. 527, *filicaudis*, Hungary, p. 528, SZÉPLIGETI, Ann. Mus. Hungar. iii, n. spp.  
*Cryptanura annulipes*, Mexico, CAMERON, p. 254, Tr. Amer. ent. Soc. xxx, n. sp.  
*Cryptus labilis*, p. 340, *nigropictus*, p. 341, S. Africa, CAMERON, Zeitschr. Hym. Dipt. v; *C. æthiopicus*, Grahamstown, CAMERON, p. 234, Rec. Albany Mus. i; *C. tuberculatus*, Cape Colony, CAMERON, p. 308, t. c.; *C. excavatus*, p. 84, *luculentus*, p. 85, Simla, CAMERON, Entomologist 1905: n. spp.  
*Ctenopelma braunsii*, Bremen, PFANKUCH, p. 141, Abh. Ver. Bremen xviii, n. sp.  
*Curtonotus rufus*, Waigiou, MOCSÁRY, p. 7, Ann. Mus. Hungar. iii, n. sp.  
*Cyanoxorides rufomaculatus*, p. 164, *cæruleus*, p. 165, Borneo, CAMERON, Ann. Nat. Hist. (7) xvi: *C. rufomaculatus*, p. 128, *cæruleus*, p. 129, Borneo, CAMERON, J. Straits Asiat. Soc. xlv: n. spp.  
*Darymna zonata*, Sikkim, CAMERON, p. 88, Zeitschr. Hym. Dipt. v, n. sp.  
*Delomerista pfankuchi*, Bremen, BRAUNS, p. 131, Zeitschr. Hym. Dipt. v, n. sp.  
*Deniya* n. g. *Ichneumoninae*, *pleuralis* n. sp., Ceylon, pl. A, f. 10, CAMERON, p. 103, Spolia Zeylan. iii.  
*Dicamptus* n. g. *Ophioninae*, *giganteus* n. sp., Java, SZÉPLIGETI, p. 28, Gen. ins. fasc. xxxiv.  
*Dinocryptus* n. g. p. 170, *niger* n. sp., Borneo, p. 171, CAMERON, Entomologist 1905; *D.* n. g. near *Cryptoideus*, p. 146, *niger* n. sp., Kuching, p. 147, CAMERON, J. Straits Asiat. Soc. xlv.  
*Druseia* n. g. *Joppini*, p. 163, *quadridentata* n. sp., Borneo, p. 164, CAMERON, Ann. Nat. Hist. (7) xvi; *Druseia* n. g. *Joppini*, p. 153, *4-dentata* n. sp., Borneo, p. 154, CAMERON, J. Straits Asiat. Soc. xlv.  
*Earrana* n. g. *Cryptinae*, p. 119, *lutea* n. sp., Ceylon, pl. B, f. 3, p. 120, CAMERON, Spolia Zeylan. iii.  
*Ectromorpha robusta*, p. 120, *maculipes*, p. 121, Borneo, CAMERON, J. Straits Asiat. Soc. xlv, n. spp.  
*Elasmognathus* n. g., aberrant, p. 405, *cephalotes* n. sp., Manila, p. 406, ASHMEAD, P. U. S. Mus. xxix.  
*Enicospilus spilonotus*, p. 121, *melanocarpus*, *xanthocephalus*, p. 122, *unilineatus*, *dasychira*, p. 123, *horsfieldi*, p. 124, Ceylon, CAMERON, Spolia Zeylan. iii; *E. monospilus*, Borneo, CAMERON, p. 38, Tijdschr. Ent. xlviii; *E. nigropectus*, Borneo, CAMERON, p. 123, J. Straits Asiat. Soc. xlv: n. spp.  
*Enytus* n. g. *Ophionidae*, *maculipes* n. sp., California, CAMERON, p. 132, Invert. pacif. i.  
*Ephonites* n. g. *Tryphonini*, *ruficornis* n. sp., Sikkim, CAMERON, p. 77, Zeitschr. Hym. Dipt. v.  
*Epicremastus* n. g. *concolor* n. sp., E. Africa, SZÉPLIGETI, p. 51, Gen. ins. fasc. xxxiv.  
*Epirhyssa tonkinensis*, Monts Manson, *fasciata*, p. 16, *biroi*, p. 17, *oceanica*, New Guinea, *tricoloripes*, Costa Rica, p. 18, *amazonica*, Brazil, p. 19, MOCSÁRY, Ann. Mus. Hungar. iii; *E. ornatipes*, Ceylon, CAMERON, p. 132, Spolia Zeylan. iii; *E. spilopectera*, p. 117, *maculiceps*, Borneo, p. 118, CAMERON, J. Straits Asiat. Soc. xlv: n. spp.  
*Epiurus flavipes*, Mexico, CAMERON, p. 258, Tr. Amer. ent. Soc. xxx, n. sp.  
*Eremotylus sibiricus*, East Siberia, *hungaricus*, Hungary, SZÉPLIGETI, p. 522, Ann. Mus. Hungar. iii, n. spp.  
*Erythrocryptus* n. g. *Cryptinae*, *rufus* n. sp., California, CAMERON, p. 126, Invert. pacif. i.  
*Erythroischnus* n. g. *Phæogenini*, *annulicornis* n. sp., Mexico, CAMERON, p. 252, Tr. Amer. ent. Soc. xxx.

- Erythrojoppa nigromaculata*, Sikkim, CAMERON, p. 78, Zeitschr. Hym. Dipt. v, n. sp.
- Erythrotheronia* n. g. *Pimplinae, flavolineata* n. sp., Ceylon, pl. B, fig. 12, CAMERON, p. 134, Spolia Zeylan. iii.
- Ethromorpha ornatipes*, pl. B, fig. 8, CAMERON, p. 135, t. c.
- Eucremastus* n. g. p. 50, *brevicornis* n. sp., Spain, p. 51, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Facydes striolata*, Borneo, CAMERON, p. 156, J. Straits Asiat. Soc. xliv, n. sp.
- Fenenias erythropus*, Ceylon, pl. A, fig. 14, p. 112, CAMERON, Spolia Zeylan. iii, n. sp.
- Friona rufipes*, p. 110, pl. B, fig. 1, *bituberculata*, p. 111, Ceylon, CAMERON, t. c.; *F. ruficoxis, pleuralis*, Borneo, CAMERON, p. 133, J. Straits Asiat. Soc. xliv : n. spp.
- Glypta xanthogastra*, Nevada, CAMERON, p. 128, Invert. pacif. i, n. sp.
- Grotea anguina* as bee-parasite, GRAENICHER, pp. 43-46, Ent. News Philad. xvi.
- Guriya tibialis*, Simla, CAMERON, p. 245, Zeitschr. Hym. Dipt. v, n. sp.
- Habrocryptus graenicheri* as bee-parasite, GRAENICHER, p. 46, Ent. News Philad. xvi.
- Hadromanus* n. g. for *laevicoxis* Schmied., SZÉPLIGETI, p. 14, Gen. ins. fasc. xxxiv.
- Haliphera fulvipes*, Ceylon, CAMERON, p. 101, Spolia Zeylan. iii, n. sp.
- Halphurnia ornatipes*, Sikkim, CAMERON, p. 87, Zeitschr. Hym. Dipt. v, n. sp.
- Hellwigia intermedia*, Croatia, SZÉPLIGETI, p. 518, Ann. Mus. Hungar. iii, n. sp.
- Hellwigiella* n. g. *Ophioninae, nigripennis, similis* n. spp., Tunis, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Hemiteles gracilis*, DEL GUERCIO, p. 296, cuts, Redia ii.
- H. brunnescens*, p. 815, *nigrobasatis*, p. 819, *rufizonatus*, p. 824, *carbonarius*, p. 829, *hilarellus*, p. 844, *hellbachi*, p. 851, *magnificus*, p. 861, *insignipennis*, p. 865, *bituberculatus*, p. 867, *flavicornis*, p. 868, *dimidiatipennis*, p. 870, Thuringia, SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.
- Henicospilus variegatus*, Turkestan, SZÉPLIGETI, p. 519, Ann. Mus. Hungar. iii, n. sp.
- Homoporus niger*, p. 422, *reflexus*, p. 423, England, MORLEY, Tr. ent. Soc. London 1905, n. spp.
- Hoplismenus ceylonicus*, Kandy, CAMERON, p. 100, Spolia Zeylan. iii; *H. ? leptocerus*, Mexico, CAMERON, p. 251, Tr. Amer. ent. Soc. xxx : n. spp.
- Ichneumon leppani*, p. 226, *schonlandi*, *I. ? peringueyi*, p. 227, *lissoaspus*, p. 228, S. Africa, CAMERON, Rec. Albany Mus. i; *Ichn. ? johannis*, Cape Colony, CAMERON, p. 245, t. c.; *I. ? spilotomus*, Java, CAMERON, p. 33, Tijdschr. Ent. xlviii : n. spp.
- Idiostoma* n. g. *Cryptini*, p. 339, *flavipennis* n. sp., Cape G. H., p. 340, CAMERON, Zeitschr. Hym. Dipt. v.
- Isotima albicincta*, p. 407, *metathoracica, albifrons*, p. 408, *cincticornis*, p. 409, Manila, ASHMEAD, P. U. S. Mus. xxix, n. spp.
- Kriegeria* n. g. *Xoridini, heptazonata* n. sp., Mindanao, ASHMEAD, p. 116, t. c.
- Lactolus plagiatos*, p. 134, *reticulatus, basimacula*, p. 135, *maculiscutis*, p. 136, Borneo, CAMERON, J. Straits Asiat. Soc. xlv, n. spp.
- Lagenestra violaceipennis*, Sikkim, CAMERON, p. 86, Zeitschr. Hym. Dipt. v, n. sp.
- Lampronota langei, suerinensis*, Germany, BRAUNS, p. 133, Zeitschr. Hym. Dipt. v; *L. aciculata*, Colorado, CAMERON, p. 129, Invert. pacif. i : n. spp.

- Lareiga alboannulata*, p. 246, *flavomaculata*, p. 247, Simla, CAMERON, Zeitschr. Hym. Dipt. v, n. sp.
- Leptocryptus montanus, lacustris*, p. 732, Thuringia, SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.
- Leptothecus flavomaculatus*, Sikkim, CAMERON, p. 142, Zeitschr. Hym. Dipt. v, n. sp.
- Lienella* n. g. *Hemitelini*, p. 246, *nigriceps* n. sp., Cape Colony, p. 247, CAMERON, Rec. Albany Mus. i.
- Lissonota peringueyi*, p. 238, *spilostoma*, p. 239, S. Africa, CAMERON, t. c.; *L. interstitialis*, Cape Colony, CAMERON, p. 251, t. c.; *L. greeni*, Ceylon, CAMERON, p. 142, Spolia Zeylan. iii: n. spp.
- Lissopimpla rufipes*, Ceylon, CAMERON, p. 140, t. c. n. sp.
- Lissotheronia* n. g. *Pimplinæ flavipes* n. sp., Ceylon, CAMERON, p. 139, t. c.
- Listrocryptus* n. g. p. 134, *spatulatus* n. sp., Centr. Europe, p. 135, BRAUNS, Zeitschr. Hym. Dipt. v.
- Listrognathus mengerseni*, Thuringia, p. 565, SCHMIEDEKNECHT, Opusc. ent. ii, n. sp.
- Limmerium iratum*, Grahamstown, CAMERON, p. 309, Rec. Albany Mus. i; *L. garrulum*, Cape Colony, CAMERON, p. 315, t. c.; *L. simlaensis*, N. India, CAMERON, p. 283, Zeitschr. Hym. Dipt. v; *L. taprobanicum*, Ceylon, CAMERON, p. 128, Spolia Zeylan. iii; *L. longicauda, leptogaster*, p. 256, *mexicanum, aztecum, centrale*, p. 257, Mexico, CAMERON, Tr. Amer. ent. Soc. xxx: n. spp.
- Loiada* n. g. *Mesostenini*, p. 166, *maculiceps*, Borneo, n. sp. p. 167, CAMERON, Ann. Nat. Hist. (7) xvi.
- Macrophatnus* n. g. *Heresiarchini, rufipes* n. sp., S. Africa, CAMERON, pp. 232, 306, Rec. Albany Mus. i.
- Macrophion* n. g. *Ophioninæ*, p. 32, *fenestratus*, Brazil, *ornatus*, Costa Rica, n. spp. p. 33, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Matara* = (*Cressonianus* Ashm.) belongs to *Listrodromini*, BRÈTHES, p. 335, An. Mus. Buenos Aires (3) iv.
- Megarhyssa areolata*, Hungary, p. 1, *variegata*, Perak, p. 2, MOCSÁRY, Ann. Mus. Hungar. iii, n. spp.
- Melanichneumon kandyensis*, Ceylon, CAMERON, p. 99, Spolia Zeylan. iii; *M. ? javanicus*, Java, CAMERON, p. 34, Tijdschr. Ent. xlviii: n. spp.
- Melcha cinctipes, annulipes*, p. 107, *varibalteata*, p. 108, *erythropus*, p. 109, pl. B, fig. 2, *maculiceps*, p. 110, Ceylon, CAMERON, Spolia Zeylan. iii; *M. hyalinis, reticulata*, p. 148, *albomaculata*, p. 149, Borneo, CAMERON, J. Straits Asiat. Soc. xlv: n. spp.
- Mesostenoides fulvipes*, Mexico, CAMERON, p. 253, Tr. Amer. ent. Soc. xxx: *M. bakerianus*, Nicaragua, CAMERON, p. 102, Invert. pacif. i: n. spp.
- Mesostenus truncatidens*, Europe, p. 570, *peregrinus*, Thuringia, p. 572, *hellenicus*, Olympia, p. 575, SCHMIEDEKNECHT, Opusc. ent. ii; *M. leptonotus*, S. Africa, CAMERON, p. 234, Rec. Albany Mus. i; *M. basimacula*, p. 249, *mimeticus*, p. 250, Cape Colony, CAMERON, t. c.; *M. multimaculatus*, p. 139, *maculiscutis*, p. 140, Borneo, CAMERON, J. Straits Asiat. Soc. xlv; *M. leucozonatus*, Manila, ASHMEAD, p. 967, P. U. S. Mus. xxviii; *M. rufus*, Mexico, CAMERON, p. 252, Tr. Amer. ent. Soc. xxx; *M. ihering*, p. 129, *casunungæ*, p. 130, Brazil, BRAUNS, Zeitschr. Hym. Dipt. v: n. spp.
- Metophion* n. g. *Ophioninæ, bicolor, variegatus* n. spp., New Guinea, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Metopius rufus*, N. India, CAMERON, p. 281, Zeitschr. Hym. Dipt. v; *M. browni*, Manila, ASHMEAD, p. 117, P. U. S. Mus. xxix: n. spp.
- Microcryptus funereus*, Carinthia, p. 630, *exquisitus*, p. 632, *brevialatus*, p. 639, *periculosus*, p. 641, *secernendus*, p. 647, *discedens*, p. 648, *unifasciatus*, p. 653, Thuringia, SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.

- Myermo himalayensis*, p. 248, *iridipennis*, p. 278, *femorata*, p. 279, *robusta*, p. 280, *annulipes*, p. 281, N. India, CAMERON, p. 281, Zeitschr. Hym. Dipt. v, n. sp.
- Neleothismus*? *rufo-ornatus*, Nicaragua, CAMERON, p. 103, Invert. pacif. i, n. sp.
- Neotheronia*, KRIEGER, p. 286, recharacterises the genus and tabulates the species, the following being new; *aurata*, *micans*, *enderleini*, p. 289, *mandibularis*, *pilosa*, p. 290, *carinata*, *impressa*, *roraria*, p. 291, *veles*, *cristata*, *fossulata*, *subparallela*, p. 292, *kohli*, *parallela*, *angulata*, p. 293, *buccata*, *excisa*, *occipitalis*, p. 294, *terebratris*; S. America, *hastata*, Panama, *surinamensis*, *costata*, p. 295, *sarisophora*, *radialis*, *vallata*, p. 296, *obesa*, *tricolor*, p. 297, *amphimelaena*, *tuberculata*, *mesoxantha*, p. 298, *austera*, p. 299, *kriechbaumeri*, *columbiensis*, p. 301, *marginata*, *submarginata*, p. 303, *fumosa*, p. 304, *aurulenta*, South America, *septentrionalis*, N. Carolina, p. 305, *australis*, *facialis*, p. 306, *oxyodus*, p. 307, *tenuis*, p. 333, *laticeps*, *coaguata*, p. 334, *compta*, p. 337, *transversaria*, p. 338, S. America, KRIEGER, Zeitschr. Hym. Dipt. v, n. spp.
- Nesomesochorus* n. g. and subfam. n., p. 967, *oculatus* n. sp., Manila, p. 968, ASHMEAD, P. U. S. Mus. xxviii.
- Nothanomalon* n. g. *Campoplegineæ*, *novoguineensis* n. sp., New Guinea, SZÉPLIGETI, p. 39, Gen. ins. fasc. xxxiv.
- Nototrachus flavomaculatus*, Cape Colony, CAMERON, p. 250, Rec. Albany Mus. i; *N. reticulatus*, Ceylon, CAMERON, p. 128, Spolia Zeylan. iii: n. spp.
- Ophiomorpha* n. g. p. 34, *concolor*, Trop. Africa, *bicolor*, Brazil, n. spp., p. 35, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Ophion sibiricus*, p. 520, *albistylus*, Siberia, *turcomanicus*, Transcaspian, p. 521, SZÉPLIGETI, Ann. Mus. Hungar. iii; *O. bicarinatus*, Ceylon, CAMERON, p. 120, Spolia Zeylan. iii: n. spp.
- Ophionidae*, the genera with lists of species, and 2 subfam. n. *Pharsalinea*, *Xiphosominae*, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Orona* n. g. *Porizonini*, *petiolaris* n. sp., California, CAMERON, p. 131, Invert. pacif. i.
- Oxytania rufolineata*, Mexico, CAMERON, p. 254, Tr. Amer. ent. Soc. xxx, n. sp.
- Paipila* n. g. aberrant, p. 258, *longipes* n. sp., Mexico, p. 259, CAMERON, t. c.
- Paniscus elegans*, Tunis, SZÉPLIGETI, p. 540, Ann. Mus. Hungar. iii; *P. intermedius*, p. 125, *orientalis*, p. 126, *lævis*, p. 127, Ceylon, CAMERON, Spolia Zeylan. iii: n. spp.
- Paurophatnus* n. g. *Hemitelini annulipes* n. sp., S. Africa, CAMERON, p. 342, Zeitschr. Hym. Dipt. v.
- Pezomachus silvestrii*, Portici, ASHMEAD, p. 142, Canad. Ent. 1905, n. sp.
- Phalega* n. g. *Accenitini*, *lutea* n. sp., Borneo, CAMERON, p. 170, Entomologist 1905.
- Phalgea* n. g. near *Arotus*, p. 130, *lutea* n. sp., Borneo, p. 131, CAMERON, J. Straits Asiat. Soc. xlv.
- Pharzites* n. g. near *Lactolus*, p. 137, *nigritarsis* n. sp., Borneo, p. 138, CAMERON, t. c.
- Philopsyche* n. g. *Pimplinae*, p. 137, *albobalteata* n. sp., Ceylon, pl. B, fig. 10, p. 138, CAMERON, Spolia Zeylan. iii.
- Phobetes bruchii*, La Plata, BRÈTHES, p. 21, An. Mus. Buenos Aires (3) iv, n. sp.
- Phthorimus anomalus*, England, MORLEY, p. 420, Tr. ent. Soc. London 1905, n. sp.
- Phygadeuon serotinus*, p. 691, *nubilipennis*, p. 696, *autumnalis*, p. 699, *rufovarius*, p. 700, *bischoffi*, p. 701, *alteareolatus*, p. 704, Thuringia,

- tergestinus*, Triest, p. 707, *lehmanni*, p. 708, *nobilitatus*, p. 716, *connectens*, p. 721, Thuringia, SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.
- Pimpla heliophila*, Transvaal, CAMERON, p. 343, Zeitschr. Hym. Dipt. v : *P. albipalpis*, p. 237, *brunneiventris*, p. 238, Grahamstown, CAMERON, Rec. Albany Mus. i ; *P. æteticola*, p. 19, *holmbergi*, p. 20, La Plata, BRÈTHES, An. Mus. Buenos Aires (3) iv : n. spp.
- Plectocryptus mephisto*, Germany, p. 597, *antennalis*, p. 598, *hilarulus*, p. 599, Thuringia, SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.
- Pleuroneuropsion erythrocerus*, Ceylon, CAMERON, p. 121, *Spolia Zeylan.* iii, n. sp. ; *P. malayanus*, p. 122, Borneo, *grandis*, Himalaya, p. 123, CAMERON, J. Straits Asiat. Soc. xlv, n. spp.
- Porizon vierecki*, characters, COCKERELL, p. 362, Canad. Ent. 1905.
- Pristocelus* n. g. near *Pristomerus*, *atriceps* n. sp., New Guinea, SZÉPLIGETI, p. 48, Gen. ins. fasc. xxxiv.
- Pristomeridia* ? *microdonta*, Nicaragua, CAMERON, p. 46, Invert. pacif. i ; n. sp.
- Promethus dodsi*, England, MORLEY, p. 421, Tr. ent. Soc. London 1905, n. sp.
- Pseudamblyteles* ? *erythropus*, S. Africa, CAMERON, p. 230, Rec. Albany Mus. i, n. sp.
- Pseudanomalon* n. g. p. 33, *gracilis* n. sp., New Guinea, p. 34, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Pseudocremastus* n. g. near *Cremastus*, *radialis* n. sp., Hungary, SZÉPLIGETI, p. 50, t. c.
- Pyramirhyssa* n. g. near *Rhyssa*, *magnifica* n. sp., Brazil, MOCSÁRY, p. 15, Ann. Mus. Hungar. iii.
- Rhorus spinipes*, Ceylon, CAMERON, p. 132, *Spolia Zeylan.* iii, n. sp.
- Rhynchocryptus* n. g. p. 338, *violaceipennis*, p. 339, n. sp., Cape G. H., CAMERON, Zeitschr. Hym. Dipt. v.
- Rhyssa hungarica*, Budapest, p. 5, *mesopyrrha*, Java, p. 6, MOCSÁRY, Ann. Mus. Hungar. iii, n. spp.
- Scopesis flavolineatus*, Mexico, CAMERON, p. 254, Tr. Amer. ent. Soc. xxx, n. sp.
- Silsila apicimaculata*, Borneo, CAMERON, p. 131, J. Straits Asiat. Soc. xlv, n. sp.
- Siphimedia iridicolor*, Kuching, CAMERON, p. 130, t. c. n. sp.
- Skeatia acutilineata*, pl. A, fig. 12, p. 113, *cyclosicæ*, p. 114, *panthonæ*, p. 115, Ceylon, CAMERON, *Spolia Zeylan.* iii ; *S. balteata*, Singapore, CAMERON, p. 143, J. Straits Asiat. Soc. xlv ; *S. javanica*, Java, CAMERON, p. 35, Tijdschr. Ent. xlviii : n. spp.
- Spanophatnus* n. g. near *Platylabris*, p. 230, *ruficeps* n. sp., Grahamstown, p. 231, CAMERON, Rec. Albany Mus. i.
- Spilichneumon darjeelingensis*, Sikkim, CAMERON, p. 87, Zeitschr. Hym. Dipt. v ; *S. annulicornis*, p. 85, *coxalis*, p. 105, Simla, CAMERON, Entomologist 1905 : n. spp.
- Spilophion* n. g. *Ophioninæ*, p. 124, *maculipennis* n. sp., Ceylon, pl. B, fig. 13, p. 125, CAMERON, *Spolia Zeylan.* iii.
- Spiloxorides erythrocephalus*, Borneo, CAMERON, p. 166, Ann. Nat. Hist. (7) xvi ; *S. erythrocephalus*, Borneo, CAMERON, p. 126, J. Straits Asiat. Soc. xlv : n. sp.
- Stenichneumon* ? *æthiopicus*, S. Africa, CAMERON, p. 229, Rec. Albany Mus. i, n. sp.
- Stenophthalmus* n. g. *Ophioninæ*, p. 23, *algericus*, Algeria, *sibiricus*, Siberia, n. spp., p. 24, SZÉPLIGETI, Gen. ins. fasc. xxxiv.
- Stiboscopus thuringiacus*, Germany, p. 606, SCHMIEDEKNECHT, Opusc. ent. ii, n. sp.
- Stictichneumon* n. g. *Ichneumoninæ*, p. 105, *macariae* n. sp., Ceylon, p. 106, CAMERON, *Spolia Zeylan.* iii.

- Stilbops limneriaeformis*, ♂, PFANKUCH, p. 141, Abh. Ver. Bremen xviii.  
*Strepsimallus bicintus*, Manila, ASHMEAD, p. 115, P. U. S. Mus. xxix,  
 n. sp.  
*Stylocryptus tyrolensis*, Innsbruck, p. 662, *coxalis*, Thuringia, p. 663,  
 SCHMIEDEKNECHT, Opusc. ent. ii, n. spp.  
*Sualta spinifrons*, Sikkin, CAMERON, p. 143, Zeitschr. Hym. Dipt. v,  
 n. sp.  
*Tanera* n. g. *Pimplinae*, *annulipes* n. sp., Ceylon, CAMERON, p. 141, Spolia  
 Zeylan. iii.  
*Tanyphatnus* n. g. *Ichneumoninae*, p. 104, *multimaculatus* n. sp., Ceylon,  
 p. 105, CAMERON, t. c.  
*Temelucha rugosa*, Budapest, SZÉPLIGETI, p. 582, Ann. Mus. Hungar. iii,  
 n. sp.  
*Theronia maskeliya*, Ceylon, CAMERON, p. 133, Spolia Zeylan. iii, n. sp.  
*Trichionotus* n. g. *Ophionini*, *reticulatus* n. sp., Borneo, CAMERON, p. 168,  
 Ann. Nat. Hist. (7) xvi.  
*Trichomma nigricans*, Ceylon, CAMERON, p. 131, Spolia Zeylan. iii, n. sp.  
*Trichonotus* n. g. *Ophioninae*, *reticulatus* n. sp., Borneo, CAMERON, p. 124,  
 J. Straits Asiat. Soc. xlv.  
*Triptognathus*, table of species, *T. uniguttatus*, table of varr., BERTHOUMIEU,  
 pp. 123-126, 131-133, Echange xxi.  
*Urogaster opacus*, *albinervis*, Manila, ASHMEAD, p. 118, P. U. S. Mus. xxix,  
 n. spp.  
*Vagenatha armata*, Borneo, CAMERON, p. 144, J. Straits Asiat. Soc. xlv,  
 n. sp.  
*Xanthopimpla taprobanica*, p. 135, *kandyensis*, *parva*, p. 136, *minuta*,  
 p. 137, Ceylon, CAMERON, Spolia Zeylan. iii; *X. kuchingensis*, *clari-*  
*pennis*, Sarawak, CAMERON, p. 119, J. Straits Asiat. Soc. xlv; *X.*  
*maculiceps*, Java, CAMERON, p. 37, Tijdschr. Ent. xlviii; *X. kriegeri*,  
 Manila, ASHMEAD, p. 411, P. U. S. Mus. xxix : n. spp.  
*Xiphosomella* n. g. *brasiliensis* n. sp., Coary, SZÉPLIGETI, p. 4, Gen. ins.  
 fasc. xxxiv.  
*Zonocryptus fumipennis*, Grahamstown, CAMERON, p. 307, Rec. Albany  
 Mus. i, n. sp.

## BRACONIDÆ (incl. ALYSIIDÆ).

[Cf. ASHMEAD (31-34), BRÈTHES (188), CAMERON (240, 242, 249, 250, 251,  
 258, 261, 263, 265, 267, 269, 270, 272), ENDERLEIN (498, 499, 510),  
 KIEFFER (842), NORDENSTRÖM (1109), SZÉPLIGETI (1466, 1468, 1469).]

Palaearctic *Braconidæ*, tables, SZÉPLIGETI (1469).

- Acclisis pleuralis*, Manila, ASHMEAD, p. 6, Canad. Ent. 1905, n. sp.  
*Agathella tricolor*, *ruficeps*, p. 52, *minor*, p. 53, Sydney, SZÉPLIGETI, Ann.  
 Mus. Hungar. iii, n. spp.  
*Agathis kandyensis*, p. 77, *oya*, *ceylonicus*, p. 78, Ceylon, CAMERON, Spolia  
 Zeylan. iii; *A. malayana*, Singapore, CAMERON, p. 112, J. Straits  
 Asiat. Soc. xlv; *A. ? tricarinata*, p. 385, *trailii*, Amazons, *erythrogastra*,  
 Mexico, p. 386, CAMERON, Tr. Amer. ent. Soc. xxxi, n. spp.  
*Apanteles birovi*, N. S. Wales, *singaporensis*, p. 49, Singapore, *novoguineensis*,  
 New Guinea, p. 50, SZÉPLIGETI, Ann. Mus. Hungar. iii, n. spp.  
*Ascogaster tricolor*, p. 46, *australiensis*, *palpalis*, *regularis*, *caudata*, p. 47,  
 Australia, *novo-guineensis*, p. 48, New Guinea, SZÉPLIGETI, t. c.  
 n. spp.  
*Atanycolus tomentosus*, Queensland, SZÉPLIGETI, p. 25, t. c. n. sp.  
*Atoreutes brevicaudis*, Sydney, SZÉPLIGETI, t. c. n. sp.  
*Batotheca* n. g. p. 227, *dohrniana* n. sp., Sumatra, p. 228, and incl. 3 spp.  
*Spinaria*, ENDERLEIN, Stettin Ent. Zeit. lxi.



- Beognatha incompleta*, Singapore, SZÉPLIGETI, Ann. Mus. Hungar. iii, n. sp.
- Biosteres longicaudatus*, Manila, ASHMEAD, p. 970, P. U. S. Mus. xxviii.
- Blacus pulcher*, Singapore, SZÉPLIGETI, p. 53, Ann. Mus. Hungar. iii, n. sp.
- Bracon daphnephila*, *cecidiobius*, Bengal, KIEFFER, p. 185, Ann. Soc. Bruxelles xxix; *B. singaporensis*, Singapore, p. 37, *australiensis*, *bimaculatus*, p. 38, Australia, *transiens*, New Guinea, p. 39, SZÉPLIGETI, Ann. Mus. Hungar. iii; *B. vau*, Manila, ASHMEAD, p. 971, P. U. S. Mus. xxviii; *B. alquei*, Manila, ASHMEAD, p. 119, op. cit. xxix; *B. managua*, *chinandegaensis*, p. 46, *nicaraguaensis*, *bakeri*, p. 47, Nicaragua, *caroli*, *longicaudis*, p. 48, Guatemala, CAMERON, Invert. pacif. i : n. spp.
- Braunsia antennalis*, Sierra Leone, SZÉPLIGETI, p. 52, Ann. Mus. Hungar. iii; *B. similis*, Cameroons, SZÉPLIGETI, p. 11, Arkiv Zool. ii, No. 14 : n. spp.
- Brownius* n. g. *Eurobraconini*, p. 7, *armatus* n. sp., Manila, p. 8, including also pt. of *Spinaria*, ASHMEAD, Canad. Ent. 1905.
- Cardiochiles philippensis*, Manila, ASHMEAD, p. 118, P. U. S. Mus. xxix, n. sp.
- Cendebeus* n. g. *Exothecini*, p. 105, *filicornis* n. sp., Sarawak, p. 106, CAMERON, J. Straits Asiat. Soc. xlv.
- Cenostomus trichiosomus*, Mexico, CAMERON, p. 387, Tr. Amer. ent. Soc. xxxi, n. sp.
- Chaolta ruficeps*, p. 101, *lutea*, p. 202, Borneo, CAMERON, J. Straits Asiat. Soc. xlv; *C. tuberculata*, p. 40, Borneo, CAMERON, Tijdschr. Ent. xviii; *C. trituberculata*, p. 49, *sulcata*, *maculifrons*, p. 50, Sarawak, CAMERON, J. Straits Asiat. Soc. xlvii : n. spp.
- Chelonus tricoloratus*, Trincomalee, CAMERON, p. 79, Spolia Zeylan. iii; *C. albicinctus*, Manila, ASHMEAD, p. 968, P. U. S. Mus. xxviii; *C. similis*, p. 44, *unimaculatus*, *coriaceus*, p. 45, *australiensis*, p. 46, N. S. Wales, SZÉPLIGETI, Ann. Mus. Hungar. iii; *C. clavivervis*, Mexico, CAMERON, p. 261, Tr. Amer. ent. Soc. xxx; *C. immaculatus*, *centralis*, Nicaragua, CAMERON, p. 49, Invert. pacif. i : n. spp.
- Cratospila longicornis*, Singapore, SZÉPLIGETI, p. 55, Ann. Mus. Hungar. iii, n. sp.
- Cremnops pulchripennis*, Cameroons, SZÉPLIGETI, p. 10, Arkiv Zool. ii, No. 14; *C. bispinosa*, Singapore, *africana*, Cameroons, SZÉPLIGETI, Ann. Mus. Hungar. iii : n. spp.
- Diospilus ruficeps*, N. S. Wales, SZÉPLIGETI, t. c. n. sp.
- Disophrys ornatipennis*, p. 112, *niger*, p. 113, *fumipennis*, p. 114, Borneo, CAMERON, J. Straits Asiat. Soc. xlv, n. spp.
- Edyia* n. g. near *Euscelinus*, p. 159, *annulicornis* n. sp., Borneo, p. 160, CAMERON, Ann. Nat. Hist. (7) xvi; *Edyia* n. g. p. 108, *annulicornis* n. sp., Sarawak, p. 109, CAMERON, J. Straits Asiat. Soc. xlv.
- Enagathis erythrocephala*, p. 110, *creophora*, p. 111, Borneo, CAMERON, t. c. n. spp.
- Ernestiella* n. g. *Cardiochilina*, *nigromaculata* n. sp., Ceylon, CAMERON, p. 81, Spolia Zeylan. iii.
- Euagatis albotarsus*, Cameroons, SZÉPLIGETI, p. 10, Arkiv Zool. ii, No. 14, n. sp.
- Euphoriella testaceipes*, Mexico, CAMERON, p. 261, Tr. Amer. ent. Soc. xxx, n. sp.
- Fornicia annulipes*, Manila, ASHMEAD, p. 7, Canad. Ent. 1905, n. sp.
- Forsteria* ? *ruficollis*, Nicaragua, CAMERON, p. 48, Invert. pacif. i, n. sp.
- Gastrotheca capra*, Mombasa, p. 234, *capensis*, S. Africa, p. 235, *sumatрана*, Sumatra, p. 236, ENDERLEIN, Stettin Ent. Zeit. lxxvi, n. spp.
- Goniarcha malayensis*, Manila, ASHMEAD, p. 411, P. U. S. Mus. xxix, n. sp.

- Habnoba* n. g. *Spathiinae*, *petiolata* n. sp., Sarawak, CAMERON, p. 108, J. Straits Asiat. Soc. xlv.
- Hecabolus rubrocinctus*, Manila, ASHMEAD, p. 8, Canad. Ent. 1905, n. sp.
- Hemiglyptus* n. g. near *Glyptomorpha*, p. 412, *flavus* n. sp., Manila, p. 413, ASHMEAD, P. U. S. Mus. xxix.
- Holcalysia* n. g. near *Phenocarpa*, p. 268, *testaceipes* n. sp., Cape Colony, p. 269, CAMERON, Entomologist 1905.
- Holcapanoteles* n. g. near *Urogaster*, p. 43, *sulciscutis* n. sp., Java, p. 44, CAMERON, Tijdschr. Ent. xlviii.
- Holcobracon* n. g. p. 89, *fulvus* n. sp., p. 90, pl. A, fig. 6, Ceylon, CAMERON, Spolia Zeylan. iii.
- Homiopteris pacificus*, Manila, ASHMEAD, p. 412, P. U. S. Mus. xxix, n. sp.
- Iphiaulax clypeolus* n. n. for *apricans* Szépl. (Ann. Mus. Hungar. ii, p. 181), SZÉPLIGETI, p. 26, Ann. Mus. Hungar. iii.
- I. longiseta*, p. 3, *consultus*, p. 5, *crystalulus*, p. 6, *deliberator*, p. 7, *possessor*, *annulicornis*, *annelatus*, p. 8, Cameroons, SZÉPLIGETI, Arkiv Zool. ii, No. 14; *I. trimeni*, p. 240, *spilopus*, *I. ? platynotus*, p. 241, S. Africa, CAMERON, Rec. Albany Mus. i; *I. ornatocollis*, Grahams-town, CAMERON, p. 252, t. c.; *I. elizeus*, *smenus*, Deesa, CAMERON, p. 107, Entomologist 1905; *I. xanthopsis*, p. 82, *fulvopilosus*, *greeni*, p. 83, *ernesti*, p. 84, *erythroura*, p. 85, pl. A, fig. 7, *haragamensis*, p. 86, Ceylon, CAMERON, Spolia Zeylan. iii; *I. lateritius*, Palembang, CAMERON, p. 39, Tijdschr. Ent. xlviii; *I. megapterus*, p. 23, *spilostigmus*, p. 24, *minos*, p. 25, *soranus*, p. 26, *ezerias*, p. 27, *cyrenius*, p. 28, *zaraces*, p. 29, *thespis*, p. 30, *amyris*, p. 31, *sibanensis*, *cilles*, p. 32, *tenuilineatus*, p. 33, *paternus*, p. 34, *smenus*, p. 35, *pheres*, p. 36, *aneus* (see op. cit. xlv, p. 229), p. 37, *mobilis*, p. 38, *longitarsis*, p. 39, *nitidiusculus*, p. 40 and xlv, p. 229, *pangæus*, p. 41, *monticola*, p. 42, *quæstorius*, p. 43, *trichiothecus*, p. 44, *abgarus*, *tristator*, p. 45, *pampatensis*, p. 46, *leptogaster*, p. 47, *ornaticornis*, p. 48, Sarawak, CAMERON, J. Straits Asiat. Soc. xlii; *I. longiseta*, *bifasciatus*, p. 28, *bisignatus*, *camerunensis*, *afer*, p. 29, *pulchricaudis*, *cristatus*, p. 30, *scoparius*, *speciosissimus*, *trifasciatus*, p. 31, *perspicax*, *longicornis*, p. 32, *australensis*, *semirufus*, *ruficeps*, p. 33, *crenulatus*, p. 34, *micans*, *bipartitus*, p. 35, Australia, *palpalis*, New Guinea, p. 34, *genalis*, Bismarck Arch., *pretiosus*, Australia, p. 36, SZÉPLIGETI, Ann. Mus. Hungar. iii; *I. mamivacaensis*, p. 380, *jutahaensis*, p. 381, *trilivii*, *schrottkyii*, *javaryensis*, p. 382, *harperi*, *watertoni*, p. 383, S. America, *mathevi*, *occidentalis*, p. 384, Mexico, CAMERON, Tr. Amer. ent. Soc. xxxi; *I. tornovii*, Tucumán, BRÉTHES, p. 334, An. Mus. Buenos Aires (3) iv : n. spp.
- Kareba* n. g. *flavipes*, Mexico, p. 50, *testacea*, Guatemala, p. 51, n. spp., CAMERON, Invert. pacif. i.
- Lathrolestus dilatatus* (Thoms. in coll.), Sweden, NORDENSTRÖM, p. 207, Ent. Tidskr. xxvi, n. sp.
- Lissobracon* n. g. *Braconinae*, *forticornis* n. sp., Sarawak, CAMERON, p. 103, J. Straits Asiat. Soc. xlv.
- Mesostoma* n. g. p. 42, *testaceipes* n. sp., Java, p. 43, CAMERON, Tijdschr. Ent. xlviii.
- Meteorus trilineatus*, Grahams-town, CAMERON, p. 342, Rec. Albany Mus. i; *M. brownii*, Manila, ASHMEAD, p. 968, P. U. S. Mus. xxviii; *M. bicolor*, N. S. Wales, SZÉPLIGETI, p. 53, Ann. Mus. Hungar. iii : n. spp.
- Microbracon luteiceps*, Manila, ASHMEAD, p. 412, P. U. S. Mus. xxix, n. sp.
- Microdus greeni*, Ceylon, CAMERON, p. 79, Spolia Zeylan. iii; *M. matangensis*, Matang, CAMERON, p. 115, J. Straits Asiat. Soc. xlv; *M. pedunculatus*, N. S. Wales, SZÉPLIGETI, p. 51, Ann. Mus. Hungar. iii; *M. trochanteratus*, Nicaragua, Cameron, p. 50, Invert. pacif. i : n. spp.
- Microgaster petiolaris*, p. 48, *tegularis*, p. 49, N. S. Wales, SZÉPLIGETI, Ann.

- Mus. Hungar. iii; *M. carinicornis*, Ceylon, CAMERON, p. 81, Spolia Zeylan. iii.
- Microplitis philippinensis*, habits, BROWN, p. 357, Canad. Ent. 1905.
- Mimagathis* n. g. *Mimagathidinae* subfam. n., *ashmeadi*, p. 450, *peruana*, *inka*, p. 451, n. spp., S. America, ENDERLEIN, Zool. Anz. xxviii.
- Neotrimorus? luteus*, Borneo, CAMERON, p. 161, Ann. Nat. Hist. (7) xvi, n. sp.
- Opius albimanus*, N. S. Wales, SZÉPLIGETI, p. 54, Ann. Mus. Hungar. iii; *O. forticornis, iridipennis*, Nicaragua, CAMERON, p. 51, Invert. pacif. i : n. spp.
- Paraspinaria* n. g. *Rhogadinae pilosa* n. sp., Ceylon, CAMERON, p. 88, pl. A, fig. 9, Spolia Zeylan. iii.
- Phenocarpa? testaceipes*, Cape G. H., CAMERON, p. 343, Zeitschr. Hym. Dipt. v, n. sp.
- Phanerotoma hendecasisella*, Ceylon, CAMERON, p. 80, Spolia Zeylan. iii; *P. albiscapa*, Manila, ASHMEAD, p. 969, P. U. S. Mus. xviii; *P. nigroscutis*, Nicaragua, CAMERON, p. 49, Invert. pacif. i : n. spp.
- Philomacrophea* n. g. *Braconinae, basimacula* n. sp., Ceylon, CAMERON, p. 88, Spolia Zeylan. iii.
- Plaxopsis* n. g. *Braconinae, sjostedti* n. sp., Cameroons, SZÉPLIGETI, p. 1, Arkiv Zool. ii, No. 14.
- Pseudapanteles agilis*, Manila, ASHMEAD, p. 969, P. U. S. Mus. xxviii, n. sp.
- Pseudospinaria* n. g. for *Spin. attenuata* Westw., ENDERLEIN, p. 229, Stettin Ent. Zeit. lxvi.
- Spathius* n. g. near *Spathius, striolatus* n. sp., Ceylon, CAMERON, p. 86, Spolia Zeylan. iii.
- Rhamnura* n. g. near *Iphiaulax, filicauda*, p. 195, *crinicauda, capillicauda*, p. 196, *seticauda*, p. 197, *tenuicornis*, p. 198, n. spp., W. Africa, ENDERLEIN, Zool. Anz. xxiv.
- Rhogas capensis*, S. Africa, CAMERON, p. 243, Rec. Albany Mus. i; *R. melanosoma*, Manila, ASHMEAD, p. 970, P. U. S. Mus. xxviii; *R. oculator*, Celebes, SZÉPLIGETI, p. 43, Ann. Mus. Hungar. iii; *R. atzecus*, Mexico, CAMERON, p. 385, Tr. Amer. ent. Soc. xxxi : n. spp.
- Rhyssalus unicolor*, Manila, ASHMEAD, p. 970, P. U. S. Mus. xxviii, n. sp.
- Rhyssosigalphus* n. g. *Sigalphinae, R. rugosus* n. sp., Mexico, CAMERON, p. 260, Tr. Amer. ent. Soc. xxx.
- Sigalphus tripartitus*, Sydney, SZÉPLIGETI, p. 43, Ann. Mus. Hungar. iii, n. sp.
- Spathius fuscipennis*, Manila, ASHMEAD, p. 119, P. U. S. Mus. xxix; *S. antennalis*, p. 40, *albiventris, variipes*, p. 41, *fulvus*, p. 42, New Guinea, SZÉPLIGETI, Ann. Mus. Hungar. iii : n. spp.
- Spinaria curvispina* varr. n. *nigricanda, udei*, ENDERLEIN, p. 232, Stettin Ent. Zeit. lxvi.
- S. philippinensis*, p. 230, *luzonensis*, p. 231, Philippines, ENDERLEIN, t. c. n. spp.
- Stantonia conspurcata*, Siam, p. 453, *kriegeri*, Columbia, p. 454, ENDERLEIN, Zool. Anz. xxviii, n. spp.
- Trichobracon* n. g. near *Spinaria*, p. 104, *pilosus* n. sp., Borneo, p. 105, CAMERON, J. Straits Asiat. Soc. xlv; *T.*, characters of Bornean, CAMERON, p. 161, Ann. Nat. Hist. (7) xvi.
- Tropobracon* n. g. *luteus* n. sp., Ceylon, CAMERON, p. 91, Spolia Zeylan. iii.
- Troporhogas* n. g. p. 92, *spilonotus, albipes*, p. 93, *maculipennis*, pl. A, fig. 5, *tricolor*, pl. A, fig. 8, p. 94, *ruficeps, lateralis*, p. 95, *trimaculata*, p. 96, n. spp., Ceylon, CAMERON, t. c.
- Urogaster albinervis*, Mexico, CAMERON, p. 261, Tr. Amer. ent. Soc. xxx, n. sp.

## EVANIIDÆ and ROPRONIIDÆ.

[Cf. BRADLEY (166, 169), CAMERON (240, 247, 261, 267, 270), ENDERLEIN (502), KIEFFER (847).]

Classification and table of genera, ENDERLEIN, pp. 699, 700, Zool. Anz. xxviii.

Genera of *Evaniidæ*, BRADLEY, p. 26, Zeitschr. Hym. Dipt. v.

Corrections orthographical and taxonomic, BRADLEY, pp. 63, 64, Canad. Ent. 1905.

*Brachygaster magnus*, p. 712, *reticulifer*, *fraternus*, p. 713, Peru, ENDERLEIN, Zool. Anz. xxviii, n. spp.

*Deraidontus violaceus*, Washington, BRADLEY, p. 26, Zeitschr. Hym. Dipt. v, n. sp.

*Evania alboannulata* ♂, p. 708, var. n. *tricarinulata*, p. 709, *orientalis* ♂, p. 709, ENDERLEIN, Zool. Anz. xxviii.

*E. schonlandi*, S. Africa, CAMERON, p. 243, Rec. Albany Mus. i; *E. interstitialis*, p. 74, *peradeniyæ*, p. 75, Ceylon, CAMERON, Spolia Zeylan. iii; *E. nyassica*, E. Africa, p. 702, *kriegeriana*, Borneo, p. 703, *soloæ*, Burma, p. 704, *sumatrensis*, p. 706, *micholitzi*, p. 707, Sumatra, *miniacea*, Peru, p. 710, ENDERLEIN, Zool. Anz. xxviii; *E. rubra*, Borneo, CAMERON, p. 100, J. Straits Asiat. Soc. xlv : n. spp.

*Evaniella* n. g. type *unicolor* Say, BRADLEY, p. 64, Canad. Ent. 1905.

*Evaniellus* n. g. pp. 701 & 714, *peruanus*, p. 714, *gracilis*, Peru, *chalcidipennis*, Bolivia, p. 715, ENDERLEIN, Zool. Anz. xxviii, n. spp.

*Evaniscus rufithorax*, Peru, ENDERLEIN, p. 711, t. c. n. sp.

*Gasteruption lisocephalus*, Cape Colony, CAMERON, p. 227, Entomologist 1905; *G. tricoloratum*, p. 76, *ceylonicum*, p. 77, Ceylon, CAMERON, Spolia Zeylan. iii; *G. rufo-maculatum*, Borneo, CAMERON, p. 99, J. Straits Asiat. Soc. xlv; *G. nevadense*, Nevada, *pyrrhosternum*, p. 41, *rubrofasciatum*, p. 42, California, KIEFFER, Invert. pacif. i : n. spp.

*Pristaulacus erythrocephalus*, Borneo, CAMERON, p. 159, Ann. Nat. Hist. (7) xvi; *P. erythrocephalus*, Borneo, CAMERON, p. 98, J. Straits Asiat. Soc. xlv : n. spp.

*Pseudevania* n. g., type *E. marginata*, BRADLEY, p. 64, Canad. Ent. 1905.

*Ropronia*, a distinct family *Roproniidae*, BRADLEY, p. 16, Ent. News Philad. xvi.

*R. ashmeadi*, New York, id. p. 17, t. c. n. sp.

*Semæodogaster* n. n. for *Brachygaster* Steph., BRADLEY, p. 63, Canad. Ent. 1905.

## STEPHANIDÆ and MEGALYRIDÆ.

*Stephanidæ*, Genera and classification, ENDERLEIN, pp. 473-477, Zool. Anz. xxviii.

*Diastephanus* n. g., *szepligetii* n. sp., Sierra Leone, ENDERLEIN, p. 476, Zool. Anz. xxviii.

*Stephanus rufo-ornatus*, Queensland, CAMERON, p. 45, Tijdschr. Ent. xlviii, n. sp.

*Megalyra erythropus*, Queensland, CAMERON, p. 46, t. c.; *M. szepligetii*, S. Australia, BRADLEY, p. 396, Tr. ent. Soc. London 1905 : n. spp.

*Parastephanus* n. g. for *macurus* Schletter. etc., ENDERLEIN, p. 475, Zool. Anz. xxviii.

## TRIGONALIDÆ,

[Cf. ENDERLEIN (511), SCHULZ (1359).]

Classification of *Trigonalidæ*, with 3 subfamilies, SCHULZ, pp. 102-104, Hymen. Studien.

*Discenea* n. g. for *Trigonalys natalensis*, ENDERLEIN, p. 199, Zool. Anz. xxix.

*Liaba cisandina*, Brazil, SCHULZ, p. 93, Hymen. Studien. n. sp.

*Orthogonalys* n. g. p. 76, *boliviana* n. sp., Bolivia, p. 81, SCHULZ, t. c.

*Platygonalys* n. g. p. 86, *phylogenetica* n. sp., Bolivia, p. 61, SCHULZ, t. c.

*Trigonalys hahni*, localities, distribution, and characters, SCHULZ, pp. 70-76, t. c.; *T. hahni* var. n. *phaognatha*, ENDERLEIN, p. 200, Zool. Anz. xxix.

## CHALCIDIDÆ.

[Cf. ASHMEAD (31, 33, 34), BRÈTHES (187), CAMERON (254, 255, 257, 259, 262, 264, 268, 269, 270), DE STEFANI PEREZ (406, 407), FROGGATT (612), GIRAULT (663), KIEFFER (846), KÜNCKEL (905), MARCHAL (1006), MAYR (1017), MEUNIER (1036, 1040), SILVESTRI (1393), WEBSTER (1593).]

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*Antrocephalus maculipennis, rufipes*, Borneo, CAMERON, p. 95, J. Straits Asiat. Soc. xliv, n. spp.

*Aphyus albiclavatus*, Manila, ASHMEAD, p. 404, P. U. S. Mus. xxix, n. sp.

*Apterencyrtus* n. g. *Mirini, pulchricornis* n. sp., Manila, ASHMEAD, p. 5, Canad. Ent. 1905.

*Asparagobius* n. g. *Perilampides*, p. 549, *braunsi* n. sp., S. Africa, p. 553, pl. ii, fig. 1, MAYR, Verh. Ges. Wien 1905.

*Brasema ruficollis*, California, CAMERON, p. 125, Invert. pacif. i; *B. maculipennis, maculicornis*, Centr. America, CAMERON, p. 65, t. c. : n. spp.

*Cænacis grandiclavata*, host, FRIEDRICH, p. 494, Zeitschr. Insbiol. i.

*Centrochalcis* n. g. *octodentata* n. sp., Transvaal, CAMERON, p. 230, Zeitschr. Hym. Dipt. v.

*Chalcis spilopus, rotundata*, S. Africa, CAMERON, p. 231, t. c.; *C. capensis*, p. 311, *pymi*, p. 312, S. Africa, CAMERON, Rec. Albany Mus. i;

*C. bilobata*, p. 283, *marginata*, p. 284, India, CAMERON, Zeitschr. Hym. Dipt. v; *C. borneanus*, Borneo, CAMERON, p. 52, J. Straits Asiat. Soc. xlii; *C. banksi*, Manila, ASHMEAD, p. 964, P. U. S. Mus. xxviii: n. spp.

*Celocyba viridilineata*, Australia, FROGGATT, p. 223, Agric. Gaz. N. S. W. xvi, n. sp.

*Decatoma*, tabulation of species, and notices of host-galls, MAYR, pp. 530-549, Verh. Ges. Wien 1905.

*D. plagiotrochi*, Montpellier, p. 535, *scorzonerae*, Vienna, p. 540, MAYR, t. c. n. spp.

*Dirhinus auratus*, Manila, ASHMEAD, p. 402, P. U. S. Mus. xxix, n. sp.

*Eudecatoma fulva*, Nicaragua, CAMERON, p. 62, Invert. pacif. i, n. sp.

*Eupelmus tenuicornis*, p. 192, *carinatus*, p. 194, Bengal, KIEFFER, Ann. Soc. Bruxelles xxix, n. spp.

*Eurycranium saissetiæ*, Manila, ASHMEAD, p. 405, P. U. S. Mus. xxix, n. sp.

*Eurytoma striatula*, Cape Colony, CAMERON, p. 345, Zeitschr. Hym.

- Dipt. v ; *E. banksi, albotibialis*, Manila, ASHMEAD, p. 965, P. U. S. Mus. xxviii ; *E. sulcata*, Bengal, KIEFFER, p. 192, Ann. Soc. Bruxelles xxix ; *E. erythroaspis*, p. 62, *xanthopus, pilicornis*, p. 63, Centr. America, CAMERON, Invert. pacif. i : n. spp.
- Euxysoma testaceitarsis*, Cape Colony, CAMERON, p. 344, Zeitschr. Hym. Dipt. v, n. sp.
- Hyperteles longicauda*, Bengal, KIEFFER, p. 195, Ann. Soc. Bruxelles xxix, n. spp.
- Hockeria melanaria*, Grahamstown, CAMERON, p. 314, Rec. Albany Mus. i, n. sp.
- Holcsepelmus* n. g. near *Brasema*, p. 316, *bifasciatus* n. sp., Cape Colony, p. 317, CAMERON, t. c.
- Howardiella tarsata*, Manila, ASHMEAD, p. 403, P. U. S. Mus. xxix, n. sp.
- Isozona* ; in timothy, and parasite, WEBSTER, pp. 114–116, P. ent. Soc. Washington vii.
- Lirata iridicolor*, p. 60, *fulvicornis, sulcifacies, nigriventris*, p. 61, Nicaragua, CAMERON, Invert. pacif. i, n. spp.
- Macreupelmus pulchriiceps*, Nicaragua, CAMERON, t. c. n. sp.
- Megacolus fulvipennis*, p. 96, *rufitarsis, striolatus*, p. 97, Sarawak, CAMERON, J. Straits Asiat. Soc. xlv, n. spp.
- Megastigmus immaculatus*, Manila, ASHMEAD, p. 401, P. U. S. Mus. xxix ; *M. brachychitoni*, Australia, FROGGATT, p. 233, fig. 4, Agric. Gaz. N. S. W. xvi : *M. fulvus*, Nicaragua, CAMERON, p. 58, Invert. pacif. i : n. spp.
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- Microcetus* n. g. *formidolosus* n. sp., Madagascar in copal, MEUNIER, p. 93, Miscell. ent. xiii.
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- Nesolynx* n. g. *Elachertini, flavipes* n. sp., Manila, ASHMEAD, p. 966, P. U. S. Mus. xxviii ; *N. flavipes*, habits, BROWN, p. 358, Canad. Ent. 1905.
- Oencyrtus papilionis*, Philippines, ASHMEAD, p. 4, Canad. Ent. 1905, n. sp. ; *O. papilionis*, habits, BROWN, p. 359, t. c.
- Oncocalcis deesensis*, India, CAMERON, p. 285, Zeitschr. Hym. Dipt. v, n. sp.
- Ormocerus pallidipes*, Manila, ASHMEAD, p. 402, P. U. S. Mus. xxix, n. sp.
- Paracentrobia flavipes*, N. America, from eggs of *Anthonomus*, GIRAULT, p. 287, Ent. News Philad. xvi, n. sp.
- Parasaphes townsendi*, Manila, ASHMEAD, p. 404, P. U. S. Mus. xxix, n. sp.
- Peritampus* ; tabulation and notes, MAYR, pp. 562–569, Verh. Ges. Wien 1905.
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- Philomides flavicollis*, Gibraltar, CAMERON, p. 150, Zeitschr. Hym. Dipt. v, n. sp.
- Philotrypesis fîcicola*, Philippines, ASHMEAD, p. 400, P. U. S. Mus. xxix, n. sp.
- Phasgonophora rufo-ornata*, Grahamstown, CAMERON, p. 310, Rec. Albany Mus. i, n. sp.
- Plagiosmicra* n. g. *ashmeadi* n. sp., Nicaragua, CAMERON, p. 56, Invert. pacif. i.
- Platyhalcis* n. g. near *Halticella, flavicollis* n. sp., Nicaragua, CAMERON, p. 57, t. c.
- Plutothrix minutissima*, Zanzibar copal, MEUNIER, p. 215, pl. 1, fig. 13, Rev. Sci. Bourbonnais 1905, n. sp.

- Rekabia* n. g. near *Pleurotropis*, p. 65, *testaceipes* n. sp., Nicaragua, p. 66, CAMERON, Invert. pacif. i.
- Sericops* referred to *Eurytomides*, characters, MAYR, p. 569, Verh. Ges. Wien 1905.
- Smicra bergi* to *Spilochalchis*, BRÈTHES, p. 23, An. Mus. Buenos Aires (3) iv.
- Spalangia*; table of European, KIEFFER, p. 2, Berlin. ent. Zeitschr. l.
- S. formicaria*, Luxemburg, KIEFFER, p. 1, t. c. n. sp.
- Spilochalchis spilosoma*, p. 53, *managuaensis*, *denticoxis*, p. 54, *segovia*, *belti*, *marcosensis*, p. 55, Nicaragua, CAMERON, Invert. pacif. i, n. sp.
- Spilomegastigmus* n. g. near *Megastigmus*, p. 73, *ruficeps* n. sp., Ceylon, p. 74, pl. A, fig. 3, CAMERON, Spolia Zeylan. iii.
- Stomatocera sulcata*, Manila, ASHMEAD, p. 401, P. U. S. Mus. xxix, n. sp.
- Syntomaspis purpureomaculata*, Centr. America, CAMERON, p. 58, Invert. pacif. i, n. sp.
- Tanyocoryphus* n. g. near *Euchalcis*, p. 312, *sulcifrons* n. sp., Grahamstown, p. 313, CAMERON, Rec. Albany Mus. i.
- Tetrasmicra bakeriana*, Nicaragua, CAMERON, p. 56, Invert. pacif. i, n. sp.
- Tetrastichoïdes browni*, Manila, ASHMEAD, p. 113, P. U. S. Mus. xxix; *T. manilensis*, Philippines, ASHMEAD, p. 5, Canad. Ent. 1905: n. spp.
- Tetrastichus xanthomelæne*, nomenclature, p. 81, habits, oviposition, pp. 64-68, MARCHAL, Bull. Soc. ent. France 1905.
- T. basimacula*, p. 63, *nicaraguaensis*, p. 64, Nicaragua, CAMERON, Invert. pacif. i; *T. platensis*, Buenos Aires, BRÈTHES, p. 23, An. Mus. Buenos Aires (3) iv: n. spp.
- Torymus bakeri*, Nicaragua, p. 58, *aztecus*, Mexico, p. 59, CAMERON, Invert. pacif. i, n. spp.
- Trichilogaster* n. g. *Perilampides*, p. 555, *T. pendula* n. sp., Australia, p. 560, and *Cynips maidenti*, *longifolia* Frogg., MAUR, Verh. Ges. Wien 1905.
- Trigonomerus* sp., STEBBING, p. 429, pl. xxxviii, Indian Forest. xxxi.

### PROCTOTRYPIDÆ (incl. MYMARIDÆ and BETHYLIDÆ).

- [Cf. ASHMEAD (31, 32, 33, 34, 38), BRUES (199), CAMERON (250, 261, 263, 270, 272), COCKERELL (324), GIRAULT (662, 663, 668), KIEFFER (840-843, 846), MEUNIER (1036, 1037), PERKINS (1150).]
- The continuation of KIEFFER & MARSHALL's monograph of *Proctotrypidæ* of Europe and Algeria extends to p. 288 and pl. xii of André's Spec. Hym. Eur. vol. ix.
- KIEFFER includes *Bethylina* in *Proctotrypides*, though recognising that they are allied to *Scoliida*.
- Mymarida*, taxonomy, PERKINS, Bull. exp. Stat. Hawaii i, No. 6.
- Mymarida* in baltic amber, see p. 123, Palæontology.
- Structure and function of foot of *Dryinus* ♀, KIEFFER, pp. 6-13, Zeitschr. Insbiol. i.
- Acrepyris* n. g., type *reticulatus* Kieff., KIEFFER, p. 249, Hym. Eur. Alg. ix.
- Alaptus immaturus*, Queensland, PERKINS, p. 197, Bull. exp. Stat. Hawaii i, n. sp.
- Allobethylus* n. g. *Bethylina*, p. 247, for nondescript Papuan species, KIEFFER, Hym. Eur. Alg. ix.
- Anagrus hydrophilus*, Turkestan, ASHMEAD, p. 213, Ent. News Philad. xvi, n. sp.
- Anaphes conotracheli*, Georgia, from eggs of *Conotrachelus*, GIRAULT, p. 220, Ent. News Philad. xvi, n. sp.
- Anectadius* n. g. near *Ectadius*, *striolatus*, p. 187, *bengalensis*, p. 189, n. spp., Bengal, KIEFFER, Ann. Soc. Bruxelles xxix.

- Anopedias luzonicus*, Philippines, ASHMEAD, p. 964, P. U. S. Mus. xxviii, n. sp.
- Anteon subapterus*, Scotland, p. 138, *reticulatus*, France, p. 140, *crenulatus*, Scotland, p. 141, *thomsoni*, Sweden, p. 142, *arcuatus*, p. 144, *vicinus*, p. 145, Scotland, *marginatus*, France, p. 147, *imberbis*, Scotland, p. 149, *longiforceps*, p. 151, *carinatus*, p. 152, France, *albidicollis*, Austria, p. 157, *rubrifrons*, p. 158, *citrinicollis*, p. 159, *ruficollis*, p. 160, Hungary, *gaullei*, France, p. 161, *cameroni*, Scotland, p. 162, *maculipennis*, Sweden, p. 164, *gracilicollis*, p. 165, *fusiformis*, p. 166, Scotland, *punctatus*, France, p. 168, *levigatus*, Switzerland, p. 169, *mayeti*, Austria, p. 170, *rectus*, p. 171, *nigricornis*, p. 172, *scoticus*, p. 174, *triareolatus*, p. 175, *brevicollis*, *flavitarsis*, p. 176, *æqualis*, p. 177, *melanocera*, p. 179, Scotland, *crassiscapus*, France, p. 180, *vitellinipes*, Scotland, p. 181, *proximus*, Hungary, p. 182, *forsteri*, Germany, p. 183, *procericornis*, Scotland, p. 184, *luteipes*, France, p. 187, *declivis*, p. 188, *pallidinervis*, p. 189, Scotland, *dolichocerus*, p. 190, *flavipes*, France, *flavinervis*, p. 192, *parvulus*, p. 193, Scotland, *tripartitus*, Trieste, *punctulatus*, France, p. 194, *nitidus*, Scotland, *albicoxis*, France, p. 195, *fuscoclavatus*, p. 196, *flicornis*, *triangularis*, p. 197, *xanthostigma*, Scotland, *sericeus*, France, p. 198, *indivisus*, p. 199, *divisus*, Scotland, *trichotomma*, Hungary, p. 200, *trivialis*, Scotland, p. 201, *dorsalis*, France, *vulgaris*, Europe, p. 202, *succineipes*, Austria and Scotland, p. 203, *giraudi*, Hungary, *minutus*, p. 204, *nigroclavatus*, Scotland, *radialis*, Hungary, p. 205, *integer*, Scotland etc., *parvicollis*, Europe, p. 206, *pyrenaicus*, France, p. 207, *curvinervis*, *fractinervis*, p. 208, *hyalinipennis*, Scotland, *fuscipennis*, Hungary, p. 209, KIEFFER, Hym. Eur. Alg. ix, n. spp.
- Anteon annulicornis*, Mexico, BRUES, p. 185, Bull. Wisconsin Soc. iii, n. sp.
- Aphanogmus formicarius*, Draufeld, KIEFFER, p. 6, Berlin. ent. Zeitschr. 1, n. sp.
- Aphanomerus* n. g. *Platygasteride* but anomalous, *bicolor*, pl. xi, fig. 1, p. 201, *niger*, *rufescens*, p. 202, *pusillus*, p. 203, n. spp., Queensland, PERKINS, Bull. exp. Stat. Hawaii i.
- Aphelopus albipes*, Bitche, KIEFFER, p. 217, Hym. Eur. Alg. ix, n. sp.
- Bethylinae*, table of genera, KIEFFER, pp. 98–109, Ann. Soc. Bruxelles xxix.
- Bethylus*, recharacterised and purified, KIEFFER, pp. 128, 129, t. c.
- B. apteryx*, Hungary, p. 272, *hamatus*, Marocco, p. 276, *arcuatus*, p. 277, *gaullei*, p. 279, Tangier, *lineatus*, Italy, p. 280, KIEFFER, Hym. Eur. Alg. ix, n. spp.
- Bothriopria* n. g. *Diapriinae*, p. 134, *saussurei* n. sp., Madagascar, p. 135, KIEFFER, Ann. Soc. Bruxelles xxix.
- Camptoptera metotarsa*, N. America, GIRAULT, p. 91, Psyche xii, n. sp.
- Carina* n. g. *Belytinae*, p. 140, *nitida* n. sp., Burma, p. 141, KIEFFER, Ann. Soc. Bruxelles xxix.
- Ceraphron opacus*, Luxemburg, KIEFFER, p. 6, Berlin. ent. Zeitschr. 1, n. sp.
- Ceratepyris* n. g. *Bethylinae*, p. 285, *fuscipennis* n. sp., Hungary, p. 287, KIEFFER, Hym. Eur. Alg. ix.
- Ceratobæus incertus*, Zanzibar copal, MEUNIER, p. 213, pl. 1, fig. 10, Rev. Sci. Bourbonnais 1905, n. sp.
- Chalcogonatopus* n. g. *Dryinidae*, p. 46, *gigas*, *optabilis*, *decoratus*, p. 47, Queensland, P. (*Eugonatopus* subg. n., p. 46) *pseudochromus*, Ohio, p. 48, n. spp., PERKINS, Bull. exp. Stat. Hawaii i.
- Chelogyne atriceps* to *Bocchus*, BRUES, p. 184, Bull. Wisconsin Soc. iii.
- C. ferrugineus*, p. 183, *grandis*, p. 184, N. America, BRUES, Bull. Wisconsin Soc. iii, n. spp.
- Chlorodryinus* n. g. *Dryinidae*, *pallidus* n. sp., Queensland, PERKINS, p. 57, Bull. exp. Stat. Hawaii i.



- Cænopria* n. g. *Diapriinæ*, p. 132, *fuscipennis* n. sp., Costa Rica with *Azteca*, p. 133, KIEFFER, Ann. Soc. Bruxelles xxix.
- Cryptobethylus* n. g. *Bethylinæ*, p. 242, HALIDAY & MARSHALL, spec. ? Italy, p. 259, Hym. Eur. Alg. ix.
- Diapria inconspicua*, Réunion, KIEFFER, p. 139, Ann. Soc. Bruxelles xxix ; *D. philippinensis*, Manila, ASHMEAD, p. 3, Canad. Ent. 1905 ; *D. madeiræ*, Madeira, p. 7, *clavaticapus*, *socia*, p. 8, Luxemburg, KIEFFER, Berlin. ent. Zeitschr. 1 : n. spp.
- Disepyris* n. g. *rufipes* n. sp., Malabar, KIEFFER, p. 115, Ann. Soc. Bruxelles xxix.
- Disognus obsoletus*, Connecticut, BRUES, p. 186, Bull. Soc. Wisconsin iii, n. sp.
- Digonozus* n. g. *Bethylinæ*, p. 245, for *Perisemus oregonensis*, KIEFFER, Hym. Eur. Alg. ix.
- Dryinidæ*, natural history and taxonomy, PERKINS, Bull. exp. Stat. Hawaii i, pt. 1.
- Dryinus longicollis*, Spain, p. 75, *szepligetii*, Hungary, p. 77, *dracunculus*, Spain, p. 82, *draco*, Andalusia, p. 83, KIEFFER & MARSHALL, Hym. Eur. Alg. ix ; *D. browni*, Manila, ASHMEAD, p. 109, P. U. S. Mus. xxix : n. spp.
- Ecthodolpax nigricollis*, *bifusciatus*, Queensland, PERKINS, p. 49, Bull. exp. Stat. Hawaii i, n. spp.
- Epigonatopus* n. g. *Dryinidæ*, *solitarius* n. sp., Queensland, PERKINS, p. 45, t. c.
- Epyris*, synonymy, generic repartition of its species, KIEFFER, p. 111, Ann. Soc. Bruxelles xxix.
- E.* ? *foveatus*, Ceylon, CAMERON, p. 71, *Spolia Zeylan.* iii ; *E. analis*, India, p. 111, *lutescens*, Australia, *alluaudi*, Madagascar, p. 113, KIEFFER, Ann. Soc. Bruxelles xxix ; *E. tagala*, Manila, ASHMEAD, p. 109, P. U. S. Mus. xxix ; *E. varidens*, p. 262, *mexicanus*, p. 263, Mexico, CAMERON, Tr. Amer. ent. Soc. xxx : n. spp.
- Eugonatopus* subg. n. of *Chalcozonatopus* q. v.
- Eukoebelèia* n. g. *Dryinidæ*, *mirabilis* n. sp., Ohio, PERKINS, p. 59, Bull. exp. Stat. Hawaii i.
- Galesus magretti*, Burma, KIEFFER, p. 138, Ann. Soc. Bruxelles xxix ; *G. manilæ*, p. 397, *luzonicus*, p. 398, Philippines, ASHMEAD, P. U. S. Mus. xxix ; *G. viereckii*, Connecticut, BRUES, p. 187, Bull. Wisconsin Soc. iii : n. spp.
- Gonatocerus cingulatus*, Queensland, PERKINS, p. 196, Bull. exp. Stat. Hawaii i ; *G. anthonomi*, N. America, GIRAULT, p. 288, Ent. News Philad. xvi : n. spp.
- Gonatopus striatus*, Austria, p. 92, *albolineatus*, Algeria, p. 95, *dryini-formis*, Spain, p. 100, *multicolor*, Sicily, p. 102, *mayeti*, Austria, p. 103, *polychromus*, Cette, p. 105, *sciophanes*, Spain, p. 107, *glaber*, p. 111, *filicornis*, p. 112, Mont-de-Marsan, *myrmicophilus*, Luxemburg, p. 113, *gracilis*, France, p. 115, *distinguendus*, England, p. 116, *luteicornis*, Trieste, p. 117, *hispanicus*, Spain, p. 118, *conjunctus*, Sweden, p. 119, *marshalli*, England, p. 121, *trinodis*, Germany, p. 122, KIEFFER & MARSHALL, Hym. Eur. Alg. ix ; *G. australiæ*, Queensland, PERKINS, p. 41, Bull. exp. Stat. Hawaii i : n. spp.
- Gonozus maurus*, Algeria, MARSHALL, p. 266, Hym. Eur. Alg. ix ; *G. rostratus*, Madagascar, KIEFFER, p. 127, Ann. Soc. Bruxelles xxix : n. spp.
- Hadronotus flavipes*, Manila, ASHMEAD, p. 399, P. U. S. Mus. xxix, n. sp.
- Haplogonatopus* n. g. *Dryinidæ*, *apicalis*, p. 39, *moestus*, Queensland, *americanus*, Ohio, p. 40, n. spp., PERKINS, Bull. exp. Stat. Hawaii i.
- Holcepyris* n. g. *Bethylinæ*, p. 121, *andrei* n. sp., India, p. 122, KIEFFER, Ann. Soc. Bruxelles xxix.

- Hoploteleia pacifica*, Philippines, ASHMEAD, p. 112, P. U. S. Mus. xxix, n. sp.
- Labeo albipennis*, p. 222, *conjunctus*, p. 223, *albosignatus*, *testaceipes*, p. 224, Hungary, KIEFFER, Hym. Eur. Alg. ix, n. spp.
- Lepidoscelio* n. g. *Scelioninae*, p. 129, *fuscipennis* n. sp., Madagascar, p. 130, KIEFFER, Ann. Soc. Bruxelles xxix.
- Lonchodryinus* n. g. p. 95, *tricolor* n. sp., Brazil, p. 96, KIEFFER, t. c.
- Loxotropa modesta*, Pennsylvania, BRUES, p. 188, Bull. Wisconsin Soc. iii, n. sp.
- Macroteleia manilensis*, Philippines, ASHMEAD, p. 963, P. U. S. Mus. xxviii; *M. rufipes*, Nicaragua, *testaceinerva*, Panama, CAMERON, p. 52, Invert. pacif. i : n. spp.
- Megaspilus clavatipennis*, p. 4, *dimorphus*, *lasiophilus*, p. 5, Luxemburg, KIEFFER, Berlin. ent. Zeitschr. 1, n. spp.
- Mystrocnemis* n. g. p. 109, *Bethylinae*, *erythrothorax*, Rangoon, n. sp., p. 110, KIEFFER, Ann. Soc. Bruxelles xxix.
- Neochelogyne* n. g. *Dryinidae*, p. 60, *typicus*, *leiosomus*, p. 62, *dimidiatus*, *nigricornis*, p. 63, *destructor*, *cognatus*, p. 64, *parvulus*, *coriaceus*, *pallidicornis*, p. 65, n. spp., Queensland, PERKINS, Bull. exp. Stat. Hawaii i.
- Neodryinus* n. g. *Dryinidae*, p. 50, *koebelei*, p. 51, *nelsoni*, *raptor*, with var. *umbratus*, p. 52, n. spp., Queensland, PERKINS, t. c.
- Neogonatopus* n. g. *Dryinidae*, p. 42, *ombrodes*, *erythrodes*, *obscurissimus*, p. 43, *brunnescens*, Ohio, *pulcherrimus*, *dubiosus*, Queensland, p. 44, *pallidiceps*, California, p. 45, n. spp., PERKINS, t. c.
- Neurocypris* n. g. p. 251, for a nondescript Erythrean species, KIEFFER, p. 251, Hym. Eur. Alg. ix.
- Neuropria inquilina*, Luxemburg, KIEFFER, p. 9, Berlin. ent. Zeitschr. 1, n. sp.
- Opisthacantha nigriclavata*, Manila, ASHMEAD, p. 399, P. U. S. Mus. xxix, n. sp.
- Ooctonus vulgatus*, DEL GUERCIO, pp. 299, 300, Redia ii.
- O. australensis*, Queensland, PERKINS, p. 195, Bull. exp. Stat. Hawaii i, n. sp.
- Pachygonatopus* n. g. *Dryinidae*, p. 45, *melanias* n. sp., Queensland, p. 46, PERKINS, t. c.
- Paradryinus* n. g. *Dryinidae*, p. 53, *koebelei*, p. 54, *venator*, *threnodes*, *gigas*, p. 55, *leptias*, *varipes*, p. 56, n. spp., Queensland, PERKINS, t. c.
- Paragonatopus* n. g. p. 40, *nigricans* n. sp., Queensland, p. 41, PERKINS, t. c.
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- Hyposcada rezia*, pl. iv, fig. 4, *idina*, Amazons, HAENSCH, p. 167, t. c.
- Ithomia alienassa*, Colombia, p. 163, *eleonora*, Bolivia, p. 164, HAENSCH, t. c.; *I. gardneri*, pl. xl, p. 93, WEEKS, Illustr.
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- Melinna magnifica*, Peru, HAENSCH, p. 145, t. c.
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- Olyris stichel*, S. Peru, HAENSCH, p. 142, Berlin. ent. Zeitschr. 1.
- Pseudoscada emyra*, pl. v, fig. 11, Bolivia, p. 176, *fallens*, Brazil, p. 177, HAENSCH, t. c.
- Pteronymia dispar*, *splendida*, pl. v, fig. 12, Colombia, p. 173, *olimba*, Peru, *tenuis*, *auricula*, pl. v, fig. 10, p. 174, Colombia, *derama*, fig. 8, *nepiscada*, fig. 9, *yungava*, *denticulata*, p. 175, Peru and Bolivia, *evonia*, fig. 20, *medellina*, fig. 13, p. 176, Colombia, HAENSCH, t. c.
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- Tithorea melanina*, *assimilis*, p. 143, *brunnea*, p. 144 Peru, HAENSCH, t. c.

## ACRÆIDÆ and HELICONIIDÆ.

Monograph, recognising 2 genera, 87 good species and 4 doubtful; 49 of the species are divided into 214 subspecies, and these into named forms; thus *H. melpomene melpomene melpomenides* is the name of a form found in Dutch Guyana, and it belongs to the cohort *Melpomene-formes* of the section *Opisogymni* of the genus *Heliconius*. STICHEL & RIFFARTH, das Tierreich Lief. xxii.

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- Heliconius spadicarius*, pl. ix, p. 41, WEEKS, Illustr.; *H. doris*, variation, HENNEGUY & OBERTHÜR, pp. 146, 147, Bull. Soc. ent. France 1905.
- Planema epæa homochroa* subsp. n., ROTHSCHILD & JORDAN, p. 185, Nov. Zool. xii.

## NYMPHALIDÆ.

[Cf. BARTEL (84), CLARK (321), DRUCE (456), FRUHSTORFER (620, 622), JUNOD (825), LINDEN (957), PETERSEN (1155), ROTHSCHILD (1304), ROTHSCHILD & JORDAN (1307), SCHÜLKE (1355), STICHEL (1450, 1451), WEEKS (1594).]

- Adelpha helepecki*, pl. xix, p. 58, WEEKS, Illustr.; *A. deborah*, pl. xxxix, p. 91, WEEKS, t. c.
- Amphichlora poseidon*, Venezuela, CLARK, p. 7, Psyche xii, n. sp.
- Apatura iris* and *ilia*, sexually distinct, PETERSEN, pp. 75, 76, cuts, Mem. Ac. St. Petersb. (8), xvi, No. 2.
- Argynnis*, the sex structures in the various species, PETERSEN, pp. 31–61, Mem. Ac. St. Petersb. (8) xvi, No. 2; *A. pales*, var., pl. i, fig. 3, HIRSCHKE, p. 5, Jahresber. Wien. ent. Ver. 1905; *A. pales killiasi*, cut, GALVAGNI, p. 513, Verh. Ges. Wien 1905; *A. sclene lathonia*, varr., MÖBIUS, pl. i, figg. 1, 2, 4, 7, 8, Iris Dresden xviii; *A. niobe eris*, pl. i, fig. 7, BERGER, p. 87, Jahresber. Wien. ent. Ver. 1905; *A. paphia*, gynandromorph, TURATI, p. 35, pl. vi, fig. 2, Natural. Sicil. xviii.
- Asterope ansorgei, garega*, etc., synonymy, BARTEL, p. 136, Nov. Zool. xii.
- Aterica galena* var. n. *dimorpha*, BARTEL, p. 138, t. c.
- Cethosia cydippe lucina* n. sp. (sic), Jobi, *biblis alceste* subsp. n., FRUHSTORFER, p. 36, Ins. Börse 1905.
- Charaxes epijasius*, variation, larva, pp. 7, 8, *C. kheili* var. *northcotti*, p. 9, AURIVILLIUS, Arkiv Zool. ii, No. 12; *C. nandina* ♀, *C. hansali baringana* subsp. n., ROTHSCHILD, p. 78, Nov. Zool. xii; *C. zoolina*, pl. i, fig. 1, *C. neanthes*, p. 205, pl. i, fig. 2, hybrid, fig. 3, JUNOD, Bull. Soc. Neuchatel xxvii.
- Cirrochroa tyche thilina* subsp. n., FRUHSTORFER, p. 49, Soc. ent. xx.
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- Euryphene barce* ab. n. *achillæna*, p. 144, *E. lætitia* var., p. 145, BARTEL, Nov. Zool. xii.
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- Neptis anjana* n. subsp., FRUHSTORFER, p. 41, Soc. ent. xx; *N. miah digitia* subsp. n., FRUHSTORFER, p. 50, t. c.
- Pandora prola*, pl. iv, p. 7, WEEKS, Illustr.

- Perrhanæa cubana*, Cuba, DRUCE, p. 549, Ann. Nat. Hist. (7) xvi, n. sp.  
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*P. garleppiana* and others, affinities, LATHY, p. 254, Entomologist  
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*V. antiopa lintneri*, occurrence in Finland, FEDERLEY, p. 78, Medd.  
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- [Cf. FRUHSTORFER (619, 623), JANET (814), STICHEL (1450, 1451), ROTH-  
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*Amathusia* varr. n., FRUHSTORFER, pp. 129, 130, 137, Soc. ent. xx.  
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 xix ; *M. adonis* var. n. *major*, LATHY, p. 226, Entomologist 1905.  
*Morphopsis ula*, p. 454, *meeki*, p. 456, New Guinea, ROTHSCHILD & JORDAN,  
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*Stichophthalma matilda*, Laos, JANET, p. 215, Bull. Soc. ent. France 1905,  
 n. sp.  
*Tenaris* ; revision, with numerous new forms, FRUHSTORFER, pp. 57-89 &  
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*T. taima*, New Guinea, FRUHSTORFER, p. 36, Ins. Börse 1905 ; *T. merana*,  
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*Thaumantis* varr. n., FRUHSTORFER, p. 13, Soc. ent. xx.  
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## SATYRIDÆ.

- [Cf. AUSTAUT (44), BARTEL (84), BLACHIER (122), CHAPMAN (302), DRUCE (457), GODMAN (671), GRINNELL (697), ROTHSCHILD & JORDAN (1306, 1307), THIEME (1490), WEEKS (1594).]
- Ceonymphe pamphilus*, GALVAGNI, p. 25, Verh. Ges. Wien 1905; *C. pamphilus* var. n. *pallida*, OUDEMANS, p. 15, pl. iv, fig. 14, Tijdschr. Ent. xlviii.
- C. vaucheri* with var. *geminipuncta*, Marocco, BLACHIER, p. 213, Bull. Soc. ent. France 1905, n. sp.; *C. vaucheri*, pl. xix, figg. 1, 2, MEADE-WALDO, p. 377, Tr. ent. Soc. London 1905.
- Cosmosatyrus nilesi*, pl. xxv, figg. 1, 2, p. 68, WEEKS, Illustr.
- Cystineura aurantia*, pl. xlii, fig. 2, p. 97, t. c.
- Dædalma bronza*, pl. xxxv, p. 85, t. c.
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- Erebia euryale* var., SCHAWERDA, pp. 27, 29, Verh. Ges. Wien 1905; *E. flavofasciata*, variation in Engadine and Ticino, LOWE, pp. 38, 39, Ent. Rec. xvii; *E. stygne* and *evias* in Spain, larvæ, variation, CHAPMAN, pp. 9-31, Tr. ent. Soc. London 1905.
- Erebia palарica*, N. Spain, CHAPMAN, p. 13, pl. ii, t. c. n. sp.
- Eretris* n. g. p. 131, for part of *Pedaliodes rubricaria*, Colombia, pl. iii, fig. 40, p. 134, *ochrea*, Ecuador, pl. iii, fig. 41, p. 135, n. spp., THIEME, Berlin. ent. Zeitschr. 1.
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- Gnophodes chelys* var. n. *iris*, BARTEL, p. 130, Nov. Zool. xii.
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- Melanargia ines* and *lachesis* varr., RIBBE, p. 138, Soc. ent. xx.
- Melanitis libya nyassa* subsp. n., BARTEL, p. 130, Nov. Zool. xii; *M. ansorgei*, pl. v, fig. 15, JORDAN, p. 512, Nov. Zool. xii.
- Mycalesis safitza aethiops* subsp. n., ROTHSCHILD & JORDAN, p. 175, Nov. Zool. xii; *M. iccius* ab. n. p. 131, *M. dubia* ♂, p. 132, BARTEL, Nov. Zool. xii.
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- Oxeochistus duplex*, Bolivia, GODMAN, p. 189, pl. x, fig. 12, Tr. ent. Soc. London 1905, n. sp.
- Pararge achine* var., var. *mendelensis*, LOWE, p. 60, Entomologist 1905; *P. hiera* var. n. *finmarchica*, NEUBURGER, p. 49, Soc. ent. xx.; *P. hiera*, natural history, PEYRON, pp. 249-251, Ent. Tidskr. xxvi.
- Pedaliodes*; revision, THIEME, pp. 43-141, pls. i-iii, Berlin. ent. Zeitschr. 1; *P. primera*, pl. xiii, p. 48, WEEKS, Illustr.; *P. mariona*, pl. xxxvii, fig. 2, p. 88, WEEKS, t. c.
- P. albonotata*, Venezuela, GODMAN, p. 189, pl. x, fig. 11, Tr. ent. Soc. London 1905; *P. procoleja*, Peru, p. 57, pl. iii, fig. 27, *puma*, Bolivia, p. 58, pl. ii, fig. 19, *fumaria*, Merida, p. 60, pl. iii, fig. 25, *simpla*, Ecuador, p. 62, pl. iii, fig. 39, *exul*, Rio, p. 63, pl. iii, fig. 32, *naevia*,

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- Pierella chalybæa*, Brazil, GODMAN, p. 85, Tr. ent. Soc. London 1905, n. sp.
- Pieridopsis* n. g. near *Hypocysta*, *virgo* n. sp., New Guinea, ROTHSCHILD & JORDAN, p. 457, Nov. Zool. xii.
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- Pseudonympha cassius* ab. n. *trio cellata*, BARTEL, p. 133, Nov. Zool. xii.
- Satyryx mnizechi* var. n. *maroccana*, pl. xix, figg. 3, 4, MEADE-WALDO p. 375, Tr. ent. Soc. London 1905; *S. actæa* var. *nevadensis*, RIBBE, p. 137, Soc. ent. xx.
- S. atlantis*, Atlas, AUSTAUT, p. 25, Ent. Zeitschr. Guben xix; *S. behrii*, California, GRINNELL, p. 33, Ent. News Philad. xvi : n. spp.
- Steremnia* n. g. type *Pedaliodes polyxo*, *S. rugilas*, S. America, p. 137, *misella*, Peru, pl. iii, fig. 43, p. 138, n. spp., THIEME, Berlin. ent. Zeitschr. 1.
- Taygetis puritana*, pl. xviii, p. 57, WEEKS, Illustr.
- Yphthima albida* subspp. n., *argentata*, *occidentalis* and *uniformis*, BARTEL, p. 134, Nov. Zool. xii.

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[Cf. ROTHSCHILD & JORDAN (1307), WEEKS (1594).]

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- Aricoris aurigera*, pl. xi, fig. 1, p. 44, WEEKS, t. c.
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- Dynamine albidula*, pl. vi, fig. 1, p. 34, WEEKS, Illustr.
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- Lemonias virgulti*, life-history, GRUNDEL, p. 86, Ent. News Philad. xvi; *L. maxima*, pl. i, fig. 4, p. 3, WEEKS, Illustr.
- Libythea geoffroyi nicevillei*, full synonymy, WATERHOUSE, pp. 13, 14, Ent. Mag. xli.
- Metacharis indissimilis*, pl. xlv, fig. 1, p. 103, WEEKS, Illustr.
- Stalachtis*; pupal suspension, RÖBER, p. 258, Stettin Ent. Zeit. lxvi.

## LYCÆNIDÆ.

- [Cf. AURIVILLIUS (41), BETHUNE-BAKER (109, 112), BLACHIER (122), DRUCE (457, 458), GRINNELL (698), KERSHAW (836), KHEIL (839), PETERSEN (1155), ROTHSCHILD & JORDAN (1307), WARREN & ROTHSCHILD (1576), WEEKS (1594).]
- Callophrys rubi*, pl. i, f. 3, MÜBIUS, Iris Dresden xviii.
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- Chrysophanus*; new named varr. of European, SCHULTZ, *Nyt. Mag. Naturw.* xli, pp. 23-26; *C. phlæas*, variations and their synonymy, OBERTHÜR, pp. 55, 56, Bull. Soc. ent. France 1905; *C. phlæas schmidtii*, pl. i, f. 4, p. 79, PIĘSZCZEK, Jahresber. Wien. ent. Ver. 1905; *C. gordius* var. *granadensis*, RIBBE, p. 138, Soc. ent. xx; *C. hippothoe* ab. n. *eurybina*, TER HAAR, p. 204, Tijdschr. Ent. xlviii.
- C. phæbus*, Marocco, BLACHIER, p. 212, Bull. Soc. ent. France 1905, n. sp.
- Cooksonia* n. g. near *Erikssonia*, p. 256, *trimeni* n. sp., Rhodesia, p. 257, pl. xiii, f. 3, DRUCE, Tr. ent. Soc. London 1905.
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- Cyaniris puspa hermione* subsp. n., FRUHSTORFER, p. 2, Soc. ent. xx.
- Cycliurus aquatorialis* and *sharpæ* are one, BETHUNE-BAKER, p. 495, Nov. Zool. xii.
- Deudorix dohertyi*, Kikuyu escarp., BETHUNE-BAKER, p. 492, t. c.; *D. grandis*, New Guinea, ROTHSCHILD & JORDAN, p. 465, Nov. Zool. xii: n. spp.
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### BOMBYCES

(s. l., including CHALCOSIIDÆ, PSYCHIDÆ, HEPIALIDÆ, COSSIDÆ, AGARISTIDÆ, and various families of more or less doubtful position. *Uraniidæ* and *Epiplemidæ*, and *Cymatophoridæ*, see GEOMETRIDÆ; *Thyrididæ*, see PYRALIDÆ).\*

[Cf. AURIVILLIUS (40, 41), BARNES (77), BETHUNE-BAKER (108), BLACHIER (122), COVERDALE (373), DOGNIN (439, 440, 441, 442), DRUCE (454, 455), DUDGEON (465), DYAR (470, 471, 472), DZIURZYNSKI (486, 487), GIBSON (653), HAMPSON (716, 719), HUDSON (794), JUNOD (825), KÜNCKEL (903-907), LOWER (981), MARSHALL (1011), PACKARD (1131), PERKINS (1151), PIEPERS & SNELLEN (1203), PÜNGELER (1221), ROTHSCHILD (1304), ROTHSCHILD & JORDAN (1307), SCHAUS (1329), SCHWANGART (1367), SEIFERT (1374), SILVESTRI (1399), SKINNER (1406), SWINHOE (1456-1462), VÉRITY (1540), WARREN & ROTHSCHILD (1576).]

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\* Owing to diversity of opinion as to *Chalcosiidæ*, *Epiplemidæ*, both *Bombyces* and *Geometridæ* should be inspected as regards these insects. As regards *Cymatophoridæ*, *Thyatiridæ*; *Noctuidæ* should also be looked through as well as *Bombyces* and *Geometridæ*.

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- Automolis aleteria*, *ochreatea*, *asteroides*, p. 214, *pulverosa*, *carinosa*, *irrupta*, p. 215, *formona*, *sulfurea*, p. 216, *chrysoptera*, *neira*, *zonana*, p. 217, *moma*, *apicata*, *crocopera*, *albiplaga*, p. 218, *polystria*, *bonora*, *ilioides*, p. 219, S. America, SCHAUS, P. U. S. Mus. xxix, n. spp.
- Azatrepbes* n. n. for *Zatrephes* Hamps., HAMPSON, p. 420, Ann. Nat. Hist. (7) xv.
- Bardaxima*, type *lucilinea* Walk., SCHAUS, p. 233, P. U. S. Mus. xxix.
- Baritius hamorrhoides*, Guiana, SCHAUS, p. 223, t. c. n. sp.
- Beralade* = (*Chilena* Walk. and *Lakena* Wallengr.), the African species, AURIVILLIUS, pp. 319-321, Tr. ent. Soc. London 1905.
- B. bettoni*, E. Africa, pl. xvi, f. 9, *simplex*, Natal, f. 6, id. p. 322, t. c.; *B. pura*, Sudan, WARREN & ROTHSCHILD, p. 23, pl. iv, f. 13, Nov. Zool. xii : n. spp.
- Biopsyche* n. g. type *Thanatopsyche apicalis* Hamps., DYAR, p. 178, P. U. S. Mus. xxix.
- Blera nitida*, p. 264, *lauta*, p. 265, Guiana, SCHAUS, P. U. S. Mus. xxix; *B. argentata*, Peru, DRUCE, p. 540, Ann. Nat. Hist. (7) xv : n. spp.
- Bombiliodes cincta*, F. Guiana, SCHAUS, p. 184, P. U. S. Mus. xxix, n. sp.
- Bombycopsis conspersa*, E. Africa, AURIVILLIUS, p. 322, pl. xvi, f. 4, Tr. ent. Soc. London 1905, n. sp.
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- Brachycodilla perfusa*, Guiana, SCHAUS, p. 333, P. U. S. Mus. xxix, n. sp.
- Bunceia hersilia*, *dido*, *rendalli*, *ansorgei*, are one species, larva, pl. iv, figg. 2, 3, p. 31, *licharbas*, larva, pl. ii, f. 2, p. 32, AURIVILLIUS, Arkiv Zool. ii, No. 12; *B. ? larva* from Soudan, BLANCHARD, pp. 127-129, Bull. Soc. zool. France xxx.
- Burgena reducta*, pl. v, f. 6, JORDAN, p. 511, Nov. Zool. xii.
- B. constricta*, New Guinea, ROTHSCHILD & JORDAN, p. 472, t. c. n. sp.
- Burtia* = (*Gundlachia*), HAMPSON, p. 429, Ann. Nat. Hist. (7) xv.
- Culledema argenta*, *arema*, p. 230, Guiana, *sura*, Brazil, p. 231, SCHAUS, P. U. S. Mus. xxix, n. spp.
- Callidrepana pilana*, Borneo, SWINHÖE, p. 150, Ann. Nat. Hist. (7) xv, n. sp.
- Callimorpha dominula* varr., SCHULTZ, p. 148, Soc. ent. xix; *C. colona*, variation, pl. vii, p. 154, COVERDALE, Ent. News Philad. xvi.
- Callisthenia angusta*, Guiana, SCHAUS, p. 200, P. U. S. Mus. xxix, n. sp.
- Calosaturنيا mendocino*, early stages, WILLIAMS, p. 153, Ent. News Philad. xvi.
- Cania plumbifusa*, Assam, pl. d, f. 7, p. 197, HAMPSON, J. Bombay Soc. xvi, n. sp.
- Caprima tricolor*, New Guinea, ROTHSCHILD & JORDAN, p. 477, Nov. Zool. xii, n. sp.
- Caprimima cærulescens bougainvillei* subsp. n., ROTHSCHILD, p. 79, Nov. Zool. xii; *C. cærulescens bougainvillei*, f. 7, *cærulescens isabella*, f. 8, *cærulescens monomis*, f. 9, pl. v, JORDAN, Nov. Zool. xii.
- C. metallica*, *ænea*, New Guinea, ROTHSCHILD & JORDAN, p. 470, Nov. Zool. xii, n. spp.
- Carama imparilis*, *flamnicornis*, Guiana, SCHAUS, p. 334, P. U. S. Mus. xxix, n. spp.
- Casphalia nigradorsa*, p. 40, *citrimaculata*, p. 41, W. Africa, AURIVILLIUS, Arkiv Zool. ii, No. 12, n. spp.

- Celama albirufa*, Guiana, SCHAUS, p. 194, P. U. S. Mus. xxix, n. sp.  
*Ceramidia chloroptegia*, Venezuela, DRUCE, p. 462, Ann. Nat. Hist. (7) xv, n. sp.  
*Cerathosia idella*, Arizona, BARNES, p. 193, Canad. Ent. 1905, n. sp.  
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*Cerura*? *melanogylpta*, S. Australia, LOWER, p. 177, Tr. R. Soc. S. Austral. xxix; *C. gonema*, *lancea*, Guiana, SCHAUS, p. 244, P. U. S. Mus. xxix: n. spp.  
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*Charagia sordida*, New Guinea, ROTHSCHILD & JORDAN, p. 478, Nov. Zool. xii, n. sp.  
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*Chrysopsyche imparilis*, W. Africa, AURIVILLIUS, p. 34, t. c. n. sp.  
*Chrysostola discoplaga*, Venezuela, SCHAUS, p. 189, P. U. S. Mus. xxix, n. sp.  
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*Cincia nephelistis*, Cuba, HAMPSON, p. 436, Ann. Nat. Hist. (7) xv, n. sp.  
*Cisthene triplaga*, Paraguay, HAMPSON, p. 434, t. c. n. sp.  
*Citheronia*, life-histories, PACKARD, pp. 128-147, pls. xviii, xix, xx, Mem. Ac. Washington lx.  
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*Cleis aureola*, Obi Isld., SWINHOE, p. 149, Ann. Nat. Hist. (7) xvi, n. sp.  
*Clelea refulgens*, Manipur, HAMPSON, p. 193, J. Bombay Soc. xxi, n. sp.  
*Clemensia brunneomedia*, *subleis*, *distincta*, *inleis*, p. 204, *abnormis*, p. 205, S. America, SCHAUS, P. U. S. Mus. xxix, n. spp.  
*Clerckia miles cybdela* subsp. n., ROTHSCHILD, p. 79, Nov. Zool. xii; *C. miles cybdela*, pl. v, figg. 10-12, JORDAN, p. 512, Nov. Zool. xxi.  
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*Cnidocampa* n. n. for *Monema* Walk., DYAR, p. 952, P. U. S. Mus. xxviii.  
*Coccus luzena*, Arizona, BARNES, p. 216, Canad. Ent. 1905, n. sp.  
*Colla gaudialis*, p. 298, *albescens*, *umbrata*, p. 299, S. America, SCHAUS, P. U. S. Mus. xxix, n. spp.

- Contheyla rotunda*, India, HAMPSON, p. 196, J. Bombay Soc. xvi, n. sp.  
*Correbia minima*, Venezuela, DRUCE, p. 465, Ann. Nat. Hist. (7) xv; *C. obscura*, French Guiana, SCHAUS, p. 193, P. U. S. Mus. xxix: n. spp.  
*Cosmosoma anoxanthia*, Venezuela, *apennina*, Peru, DRUCE, p. 460, Ann. Nat. Hist. (7) xv; *C. thoracicum*, French Guiana, SCHAUS, p. 186, P. U. S. Mus. xxix: n. spp.  
*Cossidæ*; synopsis of genera, SCHAUS, p. 339, t. c.  
*Cossula magna*, Guiana, SCHAUS, p. 344, t. c. n. sp.  
*Cossus kashmirensis*, valid, characters, HAMPSON, p. 194, J. Bombay Soc. xvi.  
*C. henleyi*, Sudan, WARREN & ROTHSCHILD, p. 23, pl. iv, f. 14, Nov. Zool. xii; *C. rufidorsia*, Sikkim, HAMPSON, p. 194, pl. d, f. 5, J. Bombay Soc. xvi: n. spp.  
*Creatonotos vacillans*, pl. vi, f. 7, p. 190, larva, PIEPERS, Tijdschr. Ent. xlviii.  
*Crinodes, besckei* etc. synonymy, SCHAUS, p. 238, P. U. S. Mus. xxix.  
*C. biedermanni*, Arizona, SKINNER, p. 209, pl. ix, Ent. News Philad. xvi, n. sp.  
*Cryptophobetron* n. g. for *Limacodes oropeso* Barnes, DYAR, p. 390, P. U. S. Mus. xxix.  
*Ctenane* n. g. HAMPSON, *Lithosiinae, labuana*, Borneo, n. sp., p. 497, SWINHOE, Ann. Nat. Hist. (7) xv.  
*Ctenucha nantana* Walk. (as *Ammalo*)=(*rubicunda* Dogn.), HAMPSON, p. 431, Ann. Nat. Hist. (7) xv.  
*C. rubicunda*, Peru, DOGNIN, p. 10, Naturaliste 1905, n. sp.  
*Ctianopha argentilinea, serena*, Guiana, SCHAUS, p. 234, P. U. S. Mus. xxix, n. sp.  
*Cyanopepla perspicua*, Bolivia, SCHAUS, p. 189, t. c. n. sp.  
*Cyclara brunneipennis, obscura, amarga*, S. America, SCHAUS, p. 337, t. c. n. spp.  
*Cyclosia*; numerous synonymy, SWINHOE, pp. 146-148, Ann. Nat. Hist. (7) xvi.  
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*Dalcevide*, synopsis of genera, SCHAUS, p. 331, P. U. S. Mus. xxix.  
*Dasychira cerebosa*, pl. d, fig. 23, *magnalia*, fig. 24, HAMPSON, p. 199, J. Bombay Soc. xvi.  
*D. vitensis*, Fiji, BETHUNE-BAKER, pl. viii, fig. 3, p. 92, P. Zool. Soc. London 1905, i, n. sp.  
*Dasytophia empirica*, San Salvador, DOGNIN, p. 148, Ann. Soc. ent. Belgique 1905; *D. abnormis*, Guiana, SCHAUS, p. 242, P. U. S. Mus. xxix: n. spp.  
*Datana*, origin of markings, larva, PACKARD, pp. 8, 9, phylogeny of species, p. 9, Mem. Ac. Washington ix.  
*Delorhachis schultzei*, W. Africa, AURIVILLIUS, p. 39, Arkiv Zool. ii, No. 12, n. sp.  
*Delphyre* Wlk.=(*Neacerea* Hamps.), *D. hebes*=(*Nodoza tristis* Schaus), HAMPSON, p. 430, Ann. Nat. Hist. (7) xv.  
*Desmidocnemis*, cf. *Hyalomis*.  
*Diacrisia strigatula*, pl. vi, figg. 2, 3, p. 184, *landacu*, figg. 4-6, p. 185, larvæ, PIEPERS & SNELLEN, Tijdschr. Ent. xlviii.  
*D. metaleuca*, W. Africa, *pulverea*, Paraguay, HAMPSON, p. 447, Ann. Nat. Hist. (7) xv; *D. sumatrana*, Soekaranda, SWINHOE, p. 143, Ann. Nat. Hist. (7) xvi; *D. aurupsa*, Saparua Is., SWINHOE, p. 620, Ann. Nat. Hist. (7) xvi: n. spp.  
*Dialeucias violascens*, Guiana, SCHAUS, p. 222, P. U. S. Mus. xxix, n. sp.  
*Diarhabdosia strigipennis*, Guiana, SCHAUS, p. 205, t. c. n. sp.  
*Dicentria vallima, stridula, palmita*, Guiana, p. 247, *drucei*, Mexico, p. 248, SCHAUS, t. c. n. spp.

- Dichromapteryx* n. g. *Limacodidae*, p. 392, *obscura*, *dimidiata*, *ultima* n. spp., S. America, p. 393, DYAR, P. U. S. Mus. xxix.
- Dicranura vinula* var. n. *estonica*, HOYNINGEN-HUENNE, p. 225, Stettin Ent. Zeit. lxvi; *D. vinula*, note, BALDUCCI, pp. 117-122, pl., Bull. Soc. ent. Ital. xxxvi.
- Dipæna incontenta*, Guiana, SCHAUS, p. 198, P. U. S. Mus. xxix, n. sp.
- Diptilon proteuca*, Venezuela, DRUCE, p. 462, Ann. Nat. Hist. (7) xv, n. sp.
- Doelia cincta*, *D. ? melaleuca*, New Guinea, ROTHSCHILD & JORDAN, p. 477, Nov. Zool. xii, n. spp.
- Dyasia* n. g. *Notodontidae*, p. 231, *viviana* n. sp., French Guiana, p. 232, SCHAUS, P. U. S. Mus. xxix.
- Dylomia ochreatea*, *delicata*, *consobrina*, p. 276, *fragilis*, *pulverea*, *germana*, p. 277, Guiana, SCHAUS, t. c. n. spp.
- Dysdæmonia lemoulti*, French Guiana, SCHAUS, p. 180, t. c. n. sp.
- Eacles*, life-histories, PACKARD, pp. 116-128, pls. ix, xvii, xlviii etc., Mem. Ac. Washington ix.
- E. guianensis*, p. 180, *barnesi*, p. 181, *acuta*, p. 182, Brit. Guiana, SCHAUS, P. U. S. Mus. xxix, n. spp.
- Edebossa circumcincta*, p. 335, *languciata*, *megalopyga*, p. 336, Guiana, SCHAUS, t. c.; *E. albida*, Peru, DOGNIN, p. 92, Naturaliste 1905 : n. spp.
- Elysium phantasma*, Guiana, SCHAUS, p. 223, P. U. S. Mus. xxix; *E. pyro-sticta*, Brazil, HAMPSON, p. 443, Ann. Nat. Hist. (7) xv : n. spp.
- Epectaptera discalis*, *umbrescens*, Peru, SCHAUS, p. 194, P. U. S. Mus. xxix, n. spp.
- Epiclea* n. g. type *Perola elaea* Druce, DYAR, p. 372, P. U. S. Mus. xxix.
- Epipinconia umbrifera*, Guiana, SCHAUS, p. 333, P. U. S. Mus. xxix, n. sp.
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- Epiphora bauhinia*, larva and cocoon, pl. i, fig. 3, AURIVILLIUS, p. 29, Arkiv Zool. ii.
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- Episibine intensa*, *sibinides*, S. America, DYAR, p. 361, P. U. S. Mus. xxix, n. spp.
- Epitalara* n. g. *Lithosiidae*, DYAR, p. 175, *reversa* n. sp., French Guiana, SCHAUS, p. 205, t. c.
- Eragisa bocra*, Guiana, SCHAUS, p. 237, t. c. n. sp.
- Eriomastyx* n. g. *Arctiidae* near *Schistophleps*, *latus* n. sp., New Guinea, ROTHSCHILD & JORDAN, p. 469, Nov. Zool. xii.
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- Estigmene unipuncta*, E. Africa, *internigralis*, Natal, HAMPSON, p. 447, Ann. Nat. Hist. (7) xv, n. spp.
- Eucereon balium* to *Heluura*, HAMPSON, p. 430, t. c.; *E. metoidesis* n. n. for 1074 Hamps. Synt., HAMPSON, l. c.
- E. atrigutta*, p. 464, *leprota*, p. 465, Venezuela, DRUCE, Ann. Nat. Hist. (7) xv; *E. dorsipuncta*, Venezuela, p. 430, *ochrota*, Jamaica, p. 431, HAMPSON, Ann. Nat. Hist. (7) xv; *E. carabayana*, p. 191, *flavincincta*, *meruloides*, *lemoulti*, S. America, SCHAUS, p. 192, P. U. S. Mus. xxix; *E. formosum*, p. 9, *robustum*, p. 10, Peru, DOGNIN, Naturaliste 1905 : n. spp.
- Euchromia plagosa*, New Pomerania, p. 495, *shortlandica*, *salomonis*, *collaris*, Solomon Ids., p. 496, SWINHOE, Ann. Nat. Hist. (7) xv, n. spp.
- Euclea mira* n. n. for *Parasa incisa* N. & D. nec Harv., DYAR, p. 367, P. U. S. Mus. xxix.

- E. cipior*, p. 367, *permodesta*, *pallicolor*, *cuspostriga*, p. 368, S. America, *dolliana*, Arizona, *bidiscalis*, Panama, p. 369, DYAR, t. c. n. spp.
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- Euphobetron* n. g. *Limacodidæ*, *aquapennis*, *cupreitineta*, p. 387, *natadooides*, p. 388, n. spp., S. America, DYAR, P. U. S. Mus. xxix.
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- Eurosa acanthocera*, Sangir, HAMPSON, p. 434, Ann. Nat. Hist. (7) xv, n. sp.
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- Euryvola* n. g. *Nolinæ* type *mesoleuca* Lower, HAMPSON, p. 432, t. c.
- Eusemia vetula*, larva, pl. vii, fig. 6, p. 195, PIEPERS, Tijdschr. Ent. xlvi.
- Eutane nivea*, Pulo Laut, HAMPSON, p. 439, Ann. Nat. Hist. (7) xv, n. sp.
- Euzeugapteryx* n. g. *Lithosiidæ*, DYAR, p. 175, *speciosa* n. sp., French Guiana, SCHAUS, p. 205, P. U. S. Mus. xxix.
- Evius albiscripta*, Guiana, SCHAUS, p. 213, t. c. n. sp.
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- Geractia* n. g. *Arctiidæ*, p. 448, *poliotis* n. sp., Canaries, p. 449, HAMPSON, Ann. Nat. Hist. (7) xv.
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- Ginaldia* n. g. *Notodontidæ*, *davidsoni* n. sp., French Guiana, SCHAUS, p. 282, t. c.
- Givira triplex*, Guiana, SCHAUS, p. 342, t. c. ; *G. chielin*, p. 149, *moche*, p. 150, Peru, DOGNIN, Ann. Soc. ent. Belgique 1905 : n. spp.
- Gonometa postica* ♂ ♀, JUNOD, pl. iii, Bull. Soc. Neuchatel xxvii.
- G. regia*, Uganda, AURIVILLIUS, p. 313, pl. xvi, fig. 3, Tr. ent. Soc. London 1905, n. sp.
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- Gonimbrasia nictitans*, larva, AURIVILLIUS, p. 30, pl. ii, figg. 3, 4, Arkiv Zool. ii, No. 12.
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- G. tarsipuncta*, Brazil, SCHAUS, p. 184, P. U. S. Mus. xxix, n. sp.
- Halsidota discalis* Walk. = (*Azatrepes pardisea*), HAMPSON, p. 430, Ann. Nat. Hist. (7) xv.
- H. racema*, *maroniensis*, Guiana, p. 223, *apicepunctata*, Peru, p. 224, SCHAUS, P. U. S. Mus. xxix, n. spp.
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- Heliura phacosoma*, *zonata*, Venezuela, DRUCE, p. 464, Ann. Nat. Hist. (7)



- xv; *H. dolens, umbrimacula*, S. America, SCHAUS, p. 191, P. U. S. Mus. xxix : n. spp.
- Hemeroampa leucostigma*, no. of eggs, GIRAULT, p. 167, Ent. News Philad. xvi.
- Hemiceras affinis*, Peru, *buckleyi*, Ecuador, DRUCE, p. 542, Ann. Nat. Hist. (7) xv; *H. indigna, undilinea, jejuna*, p. 283, *satelles, beata, gortynoides*, p. 284, *crassa, commentica*, p. 285, *longipennis, flava, maronita*, p. 286, *stupidia, cayennensis, flavescens*, p. 287, *laurentina, manora*, p. 288, *metallescens, conspirata*, S. America, *micans*, Mexico, p. 289, *nebulosa, nigriplaga, muscosa*, p. 290, *poulsoni*, p. 291, S. America, SCHAUS, P. U. S. Mus. xxix : n. spp.
- Hemipecten* n. g. *Cossidae*, DYAR, p. 177, *ecparilis, acutipennis, cossuloides*, p. 340, *niveogrisea, rotundopuncta, marmorata*, p. 341, French Guiana, n. spp., SCHAUS, P. U. S. Mus. xxix.
- Heniocha terpsichore*, larva, pl. ii, fig. 1, AURIVILLIUS, p. 34, Arkiv Zool. ii.
- Heorta carema*, Guiana, SCHAUS, p. 233, P. U. S. Mus. xxix, n. sp.
- Hepaliopsis* n. g. type *Semyra agemytha* Dr., DYAR, p. 374, P. U. S. Mus. xxix.
- Hepialiscus algeriensis* ab. n. *joannisi*, LUCAS, p. 53, pl. v, fig. 1, Ann. Soc. ent. France 1905.
- Hepialus pyrenaicus*, early stages, XAMBEU, pp. 14-16, Naturaliste 1905; *H. sequiolus*, larva, WILLIAMS, pp. 19, 20, Ent. News Philad. xvi; *H. sequiolus*, larval habits and life-history, WILLIAMS, pp. 283-287, t. c.
- Herea xanthogaster*=(*Desmidocnemis prittwitzii*), HAMPSON, p. 429, Ann. Nat. Hist. (7) xv.
- Herpa meeki*=(*Pidorus ericydes* Swinh.), ROTHSCHILD & JORDAN, p. 475, Nov. Zool. xii.
- Herpolasia* n. g. *Chalcosiidae*, *augarra* n. sp., New Guinea, and incl. *C. albomedia* Rothsch., iid. t. c.
- Heteroampa wymola*, Arizona, BARNES, p. 214, Canad. Ent. 1905; *H. lama, gravis*, p. 249, *infanda, habilis*, p. 250, *bactrea, echina, delira*, p. 251, *foliata, cartosa*, p. 252, *marginalis, amula, notabilis*, p. 253, *otiosa, patricia, caluna*, p. 254, *poulsoni, subalbida*, p. 255, SCHAUS, P. U. S. Mus. xxix; *H. multilineata*, Tucuman, DOGNIN, p. 148, Ann. Soc. ent. Belgique 1905 : n. spp.
- Heterogyis*, larval habits, matrivorous, CHAPMAN, pp. 177-184, Tr. ent. Soc. London 1905.
- Heteropan alberti*, New Guinea, ROTHSCHILD & JORDAN, p. 475, Nov. Zool. xii, n. sp.
- Heteropsyche* n. g. *Epipyropidae*, p. 81, *pæcilochroma, melanochroma*, p. 82, *micromorpha, dyscrita, stenomorpha*, p. 83, n. spp., Australia, PERKINS, Bull. exp. Stat. Hawaii i.
- Hippia undulata*, Colombia, DRUCE, p. 540, Ann. Nat. Hist. (7) xv; *H. salandera*, Guiana, SCHAUS, p. 243, P. U. S. Mus. xxix : n. spp.
- Homoneuronia* n. g. *Syntomidae*, DYAR, p. 174, *modesta* n. sp., Guiana, SCHAUS, p. 188, P. U. S. Mus. xxix.
- Hyaleucerea leucosticta*, Venezuela, DRUCE, p. 466, Ann. Nat. Hist. (7) xv; *H. phæosoma*, Paraguay, HAMPSON, p. 431, Ann. Nat. Hist. (7) xv : n. spp.
- Hyalomis* n. n. for *Desmidocnemis*, HAMPSON, p. 429, t. c.
- Hydras gorda, congruens*, Peru, *canescens*, Venezuela, DOGNIN, p. 120, Naturaliste 1905, n. spp.
- Hypermepeha maroniensis*, Guiana, SCHAUS, p. 199, P. U. S. Mus. xxix, n. sp.
- Hyperthema ruberrima*, p. 221, *coccinata*, p. 222, Guiana, SCHAUS, t. c. n. spp.
- Hypidalia sanguirena*, Guiana, SCHAUS, p. 220, t. c. n. sp.

- Hypocladia elongata*, Venezuela, *albipuncta*, Peru, DRUCE, p. 461, Ann. Nat. Hist. (2) xv, n. spp.
- Hypomolis minca*, Mexico, SCHAUS, p. 227, P. U. S. Mus. xxix, n. sp.
- Hyponerita interna*, *lucens*, *furva*, p. 228, *carinaria*, *declivis*, *incerta*, p. 229, Guiana, SCHAUS, t. c. n. spp.
- Hypopta inguromorpha*, *crassiplaga*, *triarctata*, p. 343, French Guiana, SCHAUS, t. c. n. spp.
- Hypsa donatana*, pl. D, fig. 20, p. 201, HAMPSON, J. Bombay Soc. xvi.
- Ichoria chrostomides*, Guiana, SCHAUS, p. 187, P. U. S. Mus. xxix, n. sp.
- Idalus rubens*, *laurentia*, p. 207, *neja*, *flavoplaga*, *albicoxae*, p. 208, *catenata*, p. 209, S. America, SCHAUS, t. c. n. spp.
- Idonauton nigribasis*, India, pl. D, fig. 31, p. 196, HAMPSON, J. Bombay Soc. xvi, n. sp.
- Ilema henleyi*, Sudan, WARREN & ROTHSCHILD, p. 23, pl. iv, fig. 31, Nov. Zool. xii; *I. fuscifrons*, New Guinea, HAMPSON, p. 433, Ann. Nat. Hist. (7) xv : n. spp.
- Illiberis pruni*, Japan, DYAR, p. 954, P. U. S. Mus. xxviii, n. sp.
- Illice faustinula*, early stages, synonymy, WILLIAMS, p. 257, Ent. News Philad. xvi.
- I. abala*, *subrubra*, *pygmaea*, *rubricollis*, French Guiana, SCHAUS, p. 200, P. U. S. Mus. xxix; *I. triplaga*, *roseiceps*, Paraguay, *rhodoeraspis*, Argentina, HAMPSON, p. 436, Ann. Nat. Hist. (7) xv : n. spp.
- Isanthrene fulvipuncta*, Panama, HAMPSON, p. 427, t. c. n. sp.
- Isbarta pieridoides*, sexes and variation, p. 148, *I. binghami* Butl. (= *cyaneoscens* Hamps.), *I. curiosa* Swinh. (= *aspasia* Snell.) p. 149, SWINHOE, Ann. Nat. Hist. (7) xvi.
- Ischnocampa deceptura*, *flavicosta*, *barbata*, Peru, DRUCE, p. 466, Ann. Nat. Hist. (7) xv, n. spp.
- Ixylasia pyroproctis*, Venezuela, DRUCE, p. 462, Ann. Nat. Hist. (7) xv; *I. semivittata*, Brazil, HAMPSON, p. 429, Ann. Nat. Hist. (7) xv : n. spp.
- Kaseria* n. g. *Notodontidae*, *pallida* n. sp., French Guiana, SCHAUS, p. 283, P. U. S. Mus. xxix.
- Lacosoma otalla*, Guiana, SCHAUS, p. 330, t. c. n. sp.
- Laelia suffusa*, *testacea*, larvae, HAMPSON, p. 198, J. Bombay Soc. xvi.
- L. euproctina*, W. Africa, AURIVILLIUS, p. 26, Arkiv Zool. ii, No. 12, n. sp.
- Lasiocampa josua* var. n. *vaucheri*, BLACHIER, p. 52, Bull. Soc. ent. France 1905; *L. quercus* ab. n. *paradoxa*, FRINGS, p. 89, Soc. ent. xx; but t. c. p. 99 is *olivaceo-fasciata* Cock.
- Lebedodes?* *schultzei*, Niger, AURIVILLIUS, p. 41, Arkiv Zool. ii, No. 12, n. sp.
- Lechriolepis pulchra*, Centr. Africa, AURIVILLIUS, p. 318, pl. xvi, f. 12, Tr. ent. Soc. London 1905, n. sp.
- Lenodora hyatomelena*, Madras, pl. D, f. 9, p. 197, HAMPSON, J. Bombay Soc. xvi, n. sp.
- Lentigena* n. g. for *Eugivira nudria* Schaus, DYAR, p. 178, P. U. S. Mus. xxix.
- Lepasta maonica*, *maltha*, p. 239, *viridis*, p. 240, Guiana, SCHAUS, P. U. S. Mus. xxix, n. spp.
- Leucotmensis albigutta*, p. 185, *thoracica*, p. 186, Guiana, SCHAUS, t. c. n. spp.
- Limacodes oropeso*, Arizona, BARNES, p. 216, Canad. Ent. 1905, n. sp.
- Linacodidae*; table of genera of New World, DYAR, p. 359, P. U. S. Mus. xxix.
- Liparis chrysorrhea* and Thabor oaks at Rennes, HOULBERT, Bull. Soc. Sci. Med. Ouest France xiv, pp. 113-118.
- Lobeza smithi*, Colombia, DRUCE, p. 542, Ann. Nat. Hist. (7) xv; *L. minor*, Guiana, SCHAUS, p. 274, P. U. S. Mus. xxix : n. spp.

- Loxophlebia cinctata*, Venezuela, HAMPSON, p. 428, Ann. Nat. Hist. (7) xv ;  
*L. geminata*, French Guiana, SCHAUS, p. 185, P. U. S. Mus. xxix :  
**n. spp.**
- Lusura plorabilis*, Guiana, SCHAUS, p. 275, t. c. **n. sp.**
- Lycomorhodes epatra*, Guiana, SCHAUS, p. 202, t. c. **n. sp.**
- Lymantria moesta*, pl. d, f. 22, HAMPSON, p. 199, J. Bombay Soc. xvi.
- Macrobrochis flavicincta*, pl. d, f. 21, Cachar, HAMPSON, p. 202, t. c. **n. sp.**
- Macrocneme maroniensis*, Guiana, SCHAUS, p. 188, P. U. S. Mus. xxix, **n. sp.**
- Macroplectra ceylonica*, Ceylon, *inconspicua*, Bombay, HAMPSON, p. 196,  
 J. Bombay Soc. xvi, **n. spp.**
- Macrothylacia rubi* subsp. n. *digramma*, pl. xix, f. 10, MEADE-WALDO,  
 p. 390, Tr. ent. Soc. London 1905.
- Manas maculifascia*, larva, pl. vi, f. 1, p. 181, PIEPERS, Tijdschr. Ent.  
 xlvii.
- M. fosteri*, Paraguay, HAMPSON, p. 446, Ann. Nat. Hist. (7) xv, **n. sp.**
- Mahasena destructor*, Sikkim, DUDGEON, p. 401, J. Bombay Soc. xvi, **n. sp.**
- Malocampa paramaribena*, p. 255, *piratica*, *maroniensis*, p. 256, *amanthis*,  
*gastriva*, *eugenia*, p. 257, *sorex*, *tetrica*, p. 258, *gemonia*, *spurca*,  
*broma*, p. 259, *mayeri*, p. 260, Guiana, SCHAUS, P. U. S. Mus. xxix,  
**n. spp.**
- Malupa* **n. g.** *Notodontidæ*, p. 245, *elongata* **n. sp.**, Brit. Guiana, p. 246,  
 SCHAUS, t. c.
- Manoba* Walk. = (*Stictane*), *M. implens* = (*S. junctilinea*), HAMPSON, p. 434,  
 Ann. Nat. Hist. (7) xv.
- Marthula grisescens*, p. 235, *castrensis*, *hirsuta*, p. 236, *minna*, p. 237,  
 S. America, SCHAUS, P. U. S. Mus. xxix, **n. spp.**
- Maschane frondea*, Guiana, SCHAUS, p. 268, t. c. **n. sp.**
- Megalopygidæ*; synopsis of genera, SCHAUS, p. 333, t. c.
- Melanothrix fumosa*, Borneo, SWINHOE, p. 142, Ann. Nat. Hist. (7) xvi,  
**n. sp.**
- Melastrotia* **n. g.** *Lithosianæ*, type *nigrisquamata* Swinh., HAMPSON, p. 439,  
 Ann. Nat. Hist. (7) xv.
- Melese castrena* Brazil, *chiriquensis*, Panama, SCHAUS, p. 220, P. U. S. Mus.  
 xxix, **n. spp.**
- Meragisa arida*, *arenosa*, p. 266, *submarginata*, p. 267, S. America, SCHAUS,  
 t. c.; *M. garlepi*, Bolivia, *semifulva*, Peru, DRUCE, p. 541, Ann. Nat.  
 Hist. (7) xv : **n. spp.**
- Mesocia lorna*, p. 336, *terminata*, p. 337, Guiana, SCHAUS, P. U. S. Mus.  
 xxix, **n. spp.**
- Mesotheren cæruleicorpus*, Bolivia, *nanum*, Surinam, SCHAUS, p. 185, t. c.;  
*M. endoleuca*, Venezuela, *ockendeni*, Peru, DRUCE, p. 460, Ann. Nat.  
 Hist. (7) xv : **n. spp.**
- Metabolosia invarida*, Guiana, SCHAUS, p. 201, P. U. S. Mus. xxix, **n. sp.**
- Metarceoa* **n. g.** *Syntomidæ*, DYAR, p. 173, *postflava* **n. sp.**, Brazil, SCHAUS,  
 p. 193, t. c.
- Metanastria lemoulti*, Guiana, SCHAUS, p. 316, t. c. **n. sp.**
- Metarbela triguttata*, W. Africa, AURIVILLIUS, p. 41, Arkiv Zool. ii, No. 12,  
**n. sp.**
- Metarctia hæmatricha*, Abyssinia, HAMPSON, p. 426, Ann. Nat. Hist. (7)  
 xv, **n. sp.**
- Metopoceras gauckleri*, Jordan Valley, PÜNGELER, p. 267, Iris Dresden xvii,  
**n. sp.**
- Metozanthia threnodes*, Venezuela, DRUCE, p. 467, Ann. Nat. Hist. (7) xv,  
**n. sp.**
- Metraga rubicolor*, Nicaragua, DYAR, p. 370, P. U. S. Mus. xxix, **n. sp.**
- Miacora* **n. g.** *Cossidæ*, type *Cossus tropicalis* Schaus, DYAR, p. 177, t. c.
- Microhyle* **n. g.** *Lithosianæ*, type *fadella* Mab., HAMPSON, p. 437, Ann.  
 Nat. Hist. (7) xv.

- Mimopacha tripunctata*, Niger, AURIVILLIUS, p. 36, pl. iii, f. 8, Arkiv Zool. ii, No. 12, n. sp.
- Minacraga* n. g. *Dalceridae*, DYAR, p. 176, *disconitens* n. sp., French Guiana, SCHAUS, p. 331, P. U. S. Mus. xxix.
- Minonoa* n. g. *Dalceridae*, DYAR, p. 176, *perbella* n. sp., Petropolis, SCHAUS, p. 332, t. c.
- Miresa venosa*, San Salvador, DYAR, p. 372, t. c. n. sp.
- Monda heyluerti*, Delagoa, JUNOD, p. 249, pl. iv, f. 4, Bull. Soc. Neuchatel xxvii, n. sp.
- Napata euchloa*, Jamaica, HAMPSON, p. 429, Ann. Nat. Hist. (7) xv, n. sp.
- Natada deba, debella, dognini*, p. 379, *bergii, increscens, sufficiens, incandescens*, p. 380, *perpectinata, subperpectinata*, p. 381, S. America, DYAR, P. U. S. Mus. xxix, n. spp.
- Navarcostes* n. g. *Notodontidae, limnatis* n. sp., French Guiana, SCHAUS, p. 280, P. U. S. Mus. xxix.
- Neacerea pyroazona, rhodocrypta, discalis, flaviceps*, Venezuela, DRUCE, p. 463, Ann. Nat. Hist. (7) xv, n. spp.
- Neëressa* n. g. *Syntomidæ type sagada* Sempr., HAMPSON, p. 426, Ann. Nat. Hist. (7) xv.
- Neaxia gnosis*, p. 211, *bella*, p. 212, Guiana, SCHAUS, P. U. S. Mus. xxix, n. sp.
- Neoscepta albata*, p. 470, *æqualis, leucodera*, p. 471, *pæcila*, p. 472, New Guinea, ROTHSCHILD & JORDAN, Nov. Zool. xii, n. spp.
- Neritos onytes, psamas, sexes*, HAMPSON, p. 443, Ann. Nat. Hist. (7) xv.
- N. carmen, coccinea*, p. 224, *gaudialis, tremula, maculosa*, p. 225, *chrysozona, prophæa, sanguidorsia*, p. 226, French Guiana, SCHAUS, P. U. S. Mus. xxix; *N. macrostida* (=1543 Cat. Lep. Phal.) p. 443, *discobola*, Venezuela, *leucoplaga, holophæa*, p. 444, *phæoplaga, albicollis, steniptera*, p. 445, *cyclopera*, p. 446, Guiana, HAMPSON, Ann. Nat. Hist. (7) xv : n. spp.
- Nesebra* n. g. *Notodontidae, norema* n. sp., French Guiana, SCHAUS, p. 275, P. U. S. Mus. xxix.
- Nodzana bellicula*, Guiana, SCHAUS, p. 201, t. c. n. sp.
- Nola bicincta*, Cape Colony, HAMPSON, p. 432, Ann. Nat. Hist. (7) xv; *N. brachystris*, India, pl. D, f. 16, p. 435, HAMPSON, J. Bombay Soc. xvi; *N. mesographa*, Guiana, SCHAUS, p. 195, P. U. S. Mus. xxix : n. spp.
- Notoplusia eugenia*, p. 248, *sabrena*, p. 249, Guiana, SCHAUS, t. c. n. spp.
- Nystuleu porgana, sequora*, p. 232, *maronu*, Guiana, p. 233, SCHAUS, t. c. n. spp.
- Ochrostigma melagona* ab. n. *melanochroa*, SCHULTZ, p. 91, Jahresber. Wien. ent. Ver. 1904.
- Ocinaropsis* n. g. *Lasiocampidae, obscura* n. sp., Natal, AURIVILLIUS, p. 317, Tr. ent. Soc. London 1905.
- Ocnogyña baetica*, life-history, POWELL, pp. 237-240, pl. ix, Ent. Rec. xvii; *O. baetica*, CHAPMAN, t. c. p. 265, pl. x.; *O. baeticum*, natural history, ravages, SILVESTRI, Bull. Scuola. Agric. Portici (2) No. 10, 12 pp.
- Odonestis fossa*, pl. D, f. 14, HAMPSON, p. 198, J. Bombay Soc. xvi.
- Odontocheilopteryx griseata*, Sudan, WARREN, p. 22, Nov. Zool. xii; *O. maculata*, W. Africa, AURIVILLIUS, p. 36, pl. iii, f. 5, Arkiv Zool. ii, No. 12 : n. spp.
- Odontosia? viridifusca*, Brit. Guiana, SCHAUS, p. 278, P. U. S. Mus. xxix, n. sp.
- Odozand unica*, Mexico, SCHAUS, p. 199, t. c. n. sp.
- Oiketicus specter*, Venezuela, SCHAUS, p. 344, t. c. n. sp.
- Olceclostera moresca, anna, lepida*, p. 296, *oriunda, O. ostenta, O. umbri-linea*, p. 297, S. America, SCHAUS, t. c. n. spp.

- Olyra rectilineata*, Gazaland, AURIVILLIUS, p. 323, pl. xvi, f. 7, Tr. ent. Soc. London 1905, **n. sp.**
- Opsaroa n. g. Lithosianæ, fulvinota n. sp.*, Cape Colony, HAMPSON, p. 437, Ann. Nat. Hist. (7) xv.
- Oreta figlina*, Java, SWINHOE, p. 142, Ann. Nat. Hist. (7) xvi; *O. hypocalla*, Queensland, LOWER, p. 179, Tr. R. Soc. S. Austral. xxix : **n. spp.**
- Orgyia sicula* new form *etrusca*, VERITY, p. 187, Bull. Soc. ent. Ital. xxxvi.
- O. etrusca*, Florence, VERITY, p. 59, Bull. Soc. ent. France 1905; *O. hemicalla, retinopepla*, Australia, LOWER, p. 176, Tr. R. Soc. S. Austral. xxix : **n. spp.**
- Ovipennis binghami*, pl. D, f. 18, HAMPSON, p. 434, J. Bombay Soc. xvi.
- Pachydota ducasa*, Venezuela, SCHAUS, p. 222, P. U. S. Mus. xxix, **n. sp.**
- Pachypasa bilinea*, pl. iv, f. 4, larva, pl. v, f. 1, AURIVILLIUS, p. 36, Arkiv Zool. ii, No. 12.
- Palæopsyche n. g. Epipyropide, melanias n. sp.*, Queensland, PERKINS, p. 80, Bull. exp. Stat. Hawaii i.
- Palpifer pellicia*, Khasia Hills, SWINHOE, p. 152, Ann. Nat. Hist. (7) xv, **n. sp.**
- Pamcolma n. g. Notodontidæ, p. 280, marita, refervens n. spp.*, French Guiana, p. 281, SCHAUS, P. U. S. Mus. xxix.
- Pantana ochrota*, Travancore, HAMPSON, pl. D, figg. 33, 34, p. 198, J. Bombay Soc. xvi, **n. sp.**
- Paraclæa n. g. near Euclea type dolita* Schaus, DYAR, p. 369, P. U. S. Mus. xxix.
- Paracosus n. g. Cossidæ, parva*, Ceylon, p. 194, *furcata*, pl. D, f. 30, Pegu, p. 195, **n. spp.**, HAMPSON, J. Bombay Soc. xvi.
- Paracraga n. g. Dalceridæ, DYAR, p. 176, innocens n. sp.*, French Guiana, SCHAUS, p. 331, P. U. S. Mus. xxix.
- Paranerita carminata, complicata*, Guiana, SCHAUS, p. 227, t. c. **n. spp.**
- Parapalasia n. g. Lithosidæ, DYAR, p. 174, cinderella n. sp.*, French Guiana, SCHAUS, p. 197, t. c.
- Parasa euchlora*, larva, fig. 8, p. 40, AURIVILLIUS, Arkiv Zool. ii, No. 12.
- P. adamaucana*, W. Africa, AURIVILLIUS, p. 39, t. c.; *P. insignis*, Borneo, SWINHOE, p. 151, Ann. Nat. Hist. (7) xv; *P. schausi*, Guiana, DYAR, p. 366, P. U. S. Mus. xxix : **n. spp.**
- Parashada n. g. Lithosianæ, p. 433, truncata n. sp.*, Sula Mongoli, p. 434, HAMPSON, Ann. Nat. Hist. (7) xv.
- Paratalara n. g. Lithosidæ, DYAR, p. 175, inversa n. sp.*, French Guiana, SCHAUS, p. 203, P. U. S. Mus. xxix.
- Parenia methæmia*, Guiana, SCHAUS, p. 213, t. c.; *P. metachryseis*, Surinam, HAMPSON, p. 443, Ann. Nat. Hist. (7) xv : **n. spp.**
- Pericallia obliquifascia*, larva, pl. vii, figg. 4, 5, p. 191, PIEPERS, Tijdschr. Ent. xlviii.
- Peroara n. g. Notodontidæ, sylvestris n. sp.*, French Guiana, SCHAUS, P. U. S. Mus. xxix.
- Perola affinis, petropolis*, S. America, *penumbra*, San Salvador, p. 384, *burchelli*, p. 385, *umber*, p. 386, S. America, DYAR, P. U. S. Mus. xxix, **n. spp.**
- Perophora imperita*, Peru, *rosea*, Colombia, DOGNIN, p. 120, Naturaliste 1905, **n. spp.**
- Phæosia orientalis*, Borneo, HAMPSON, p. 433, Ann. Nat. Hist. (7) xv; *P. brunnea*, Borneo, Sumatra, HAMPSON, p. 497, t. c. : **n. spp.**
- Phaio* Neum.=(*Mydropastæa*) HAMPSON, p. 428, t. c.
- P. cæruleonigra*, Peru, SCHAUS, p. 188, P. U. S. Mus. xxix, **n. sp.**
- Phassodes n. g. Hepialidæ, p. 89, odorevalvula*, pl. ix, figg. 1, 2, *guthrei*, fig. 3, p. 90, *bimorpha, nausori*, fig. 4, *rewensis*, fig. 5, p. 91, *vitensis*, fig. 6, p. 92, **n. spp.**, Fiji Ids., BETHUNE-BAKER, P. Zool. Soc. London 1905, i.

- Phastia ochreatea*, p. 267, *umbrata*, p. 268, Guiana, SCHAUS, P. U. S. Mus. xxix, n. spp.
- Philanglaus sobrana*, Guiana, SCHAUS, p. 342, t. c. n. sp.
- Philotherma sordida*, W. Africa, AURIVILLIUS, p. 318, pl. xvi, fig. 2, Tr. ent. Soc. London 1905, n. sp.
- Phryganopsis unipuncta*, Algeria, HAMPSON, p. 433, Ann. Nat. Hist. (7) xv, n. sp.
- Pidorus erycides*, Woodlark Is., SWINHOE, p. 146, Ann. Nat. Hist. (7) xvi, n. sp.
- Platæcticus marona*, Guiana, SCHAUS, p. 345, P. U. S. Mus. xxix, n. sp.
- Platyprosterna* n. g. near *Natada*, *elaetta*, *antiqua* n. spp., S. America, DYAR, p. 378, P. U. S. Mus. xxix.
- Podalia major*, *multicollis*, p. 338, *thanatos*, *hyalina*, p. 339, S. America, SCHAUS, P. U. S. Mus. xxix, n. spp.
- Pæciosoma vespoides*, Peru, SCHAUS, p. 186, t. c. n. sp.
- Poresta sericea*, *olivescens*, Guiana, SCHAUS, p. 238, t. c. n. sp.
- Porina salmonacea*, New Guinea, ROTHSCHILD & JORDAN, p. 478, Nov. Zool. xii; *P. minos*, New Zealand, HUDSON, p. 357, pl. xxii, fig. 5, Tr. N. Zealand Inst. xxxvii: n. spp.
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- Cucullia arizona*, Arizona, SMITH, p. 206, J. N. York Ent. Soc. xiii, n. sp.

- Dasygaster nephelistis*, S. Australia, pl. 91, fig. 14, p. 475, HAMPSON, Cat. Lep. Phalænæ v.
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- Mashonaland, p. 163, pl. 82, f. 32, *stenotis*, California, p. 168, pl. 83, f. 8, *bilinea*, Japan, pl. 96, f. 11, p. 603, HAMPSON, Cat. Lep. Phalænæ v. n. spp.
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- Scriptania* n. g. type *Agrotis michaelsoni* Staud., *S. syzygia*, Patagonia, n. sp., pl. 91, f. 11, p. 464, HAMPSON, t. c.
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- Synthimia exsiccata*, Sudan, WARREN & ROTHSCHILD, p. 25, pl. iv, figg. 19, 30, Nov. Zool. xii, n. sp.
- Talapa birthana*, Khasia Hills, SWINHÖE, p. 161, Ann. Nat. Hist. (7) xv, n. sp.
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*Tricheuwois* n. g. type *nigrocuprea* Moore, HAMPSON, p. 451, Ann. Nat. Hist. (7) xv.  
*Trichoclea atalantica*, Madeira, pl. 84, f. 24, *cholica*, Kashmir, f. 25, p. 239, HAMPSON, Cat. Lep. Phalænæ v, n. spp.  
*Tricholita baranca*, Texas, BARNES, p. 196, Canad. Ent. 1905, n. sp.  
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*Xylomania* n. g. type *Xylomiges hiemalis*, HAMPSON, p. 389, Cat. Lep. Phalænæ v.  
*Xanthia sulphurago* ab. *innotata*, TURATI, p. 40, pl. vi, f. 14, Natural. Sicil. xviii; *X. fulvago* ab. *n. decolor*, SCHULTZ, p. 89, Jahresber. Wien. ent. Ver. 1904; *X. gilvago*, *palleago* is an ab., RONDOU, p. xliii, Pr.-verb. Soc. Linn. Bordeaux lx.  
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*Frias irentis*, Arizona, SMITH, p. 259, Canad. Ent. 1905, n. sp.  
*Zanclognatha tarsipennalis* and *tarsiplumalis*, distinctions of sexual structures, PETERSEN, pp. 68-71, cuts, Mem. Ac. St. Petersb. (8) xvi, No. 2.  
*Zethes subapicalis*, Cachar, SWINHOE, p. 154, Ann. Nat. Hist. (7) xvi; *Z. pallidiplaga*, Solomon Islds., p. 160, *enigmaria*, Khasia Hills, p. 161, SWINHOE, op. cit. xv: n. spp.

## GEOMETRIDÆ.

- [Cf. BASTELBERGER (80-83), BETHUNE-BAKER (108), DRAUDT (450), DYAR (470, 474, 476), FUCHS (624), HUDSON (794), JORDAN (823), KAYE (828), LONGSTAFF (974), LOWER (981), MEYRICK (1041), PEARSALL (1142), PETERSEN (1155), PHILPOTT (1167), PROUT (1217, 1218), PUNGELER (1224), ROTHSCHILD & JORDAN (1307), SWINHOE (1459, 1460, 1462), THIERRY-MIEG (1493), TURATI (1508), VÁZQUEZ (1535), WARREN (1569-1575), WARREN & ROTHSCHILD (1576).]

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- Acadira simplicilinea*, Usambara, WARREN, p. 401, t. c. n. sp.
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- Acrotomodes croceata*, p. 365, *sporadata*, p. 366, Peru, WARREN, t. c. n. spp.
- Actenochroma ochreipicta*, Khasia Hills, SWINHOE, p. 166, Ann. Nat. Hist. (7) xv, n. sp.
- Æschropteryx tetragonata* ab. n. *solitaria*, WARREN, p. 366, Nov. Zool. xii.
- Agathia ithearia*, Borneo, p. 166, *solaria*, Singapore, p. 167, SWINHOE, Ann. Nat. Hist. (7) xv; *A. olivacea*, Solomon Islds., WARREN, p. 420, Nov. Zool. xii : n. spp.
- Agathiopsis subflavata*, Solomon Islds., WARREN, p. 421, t. c. n. sp.
- Agraptochlora analiplaga*, E. Africa, WARREN, p. 384, t. c. n. sp.
- Alcis acutangula*, Natal, WARREN, p. 36, t. c.; *A. vitensis*, pl. viii, fig. 5, p. 93, *nausori*, fig. 6, p. 94, Fiji, BETHUNE-BAKER, P. Zool. Soc. London 1905, i : n. spp.
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- Anemplocia n. g.* *Heterusiince, flammifera n. sp.*, Colombia, WARREN, p. 344, t. c.
- Angerona prunaria* abb., pl. ii, figg. 10, 11, MÖBIUS, Iris Dresden xviii.
- A. simulatrix*, Cayenne, THIERRY-MIEG, p. 193, Naturaliste 1905, n. sp.
- Anisodes subpallida* ab. n. *figurata*, WARREN, p. 320, Nov. Zool. xii.
- A. ruficosta*, Brit. Guiana, WARREN, p. 45, t. c. n. sp.
- Anisogamia albifimbria* ♂, WARREN, p. 421, t. c.
- Anisoperas albinorsa*, Peru, WARREN, p. 65, t. c.; *A. bimaculata*, Bolivia, WARREN, p. 366, t. c. n. sp.
- Antepirrhoë n. g.* type *E. delimitata* Warr., includes *Larentia homophana* and *latifusata*, also *A. vacillans n. sp.*, Bolivia, WARREN, p. 327, t. c.
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*Aplogompha læta*, Peru, WARREN, p. 54, t. c. n. sp.  
*Apocheima fuliginosa*, Natal, WARREN, p. 36, t. c. n. sp.  
*Argyrotome muricolor*, Peru, WARREN, p. 346 t. c. n. sp.  
*Arhodia retractaria* ab. n. *carnea*, WARREN, p. 9, t. c.  
*Ascotis margarita* = (*Blepharoctenucha albescens* Warr.), WARREN, p. 432, t. c.  
*Authyala n. g. Cyllopodinae*, p. 311, *obliquaria n. sp.*, Peru, p. 312, WARREN, t. c.  
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*Azelina, poaphilaria* is type, WARREN, p. 367, t. c.  
*A. fulvata*, Sta. Martha, WARREN, p. 65, t. c.; *A. geminipuncta*, Peru, WARREN, p. 367, t. c. : n. spp.  
*Bagodares pallidicosta*, Ecuador, WARREN, p. 358, t. c. n. sp.  
*Berberodes penumbrata*, Peru, WARREN, p. 346, t. c. n. sp.  
*Biston pomonaria* hybr. *pilsii*, pl. ii, fig. 6, MÖBIUS, Iris Dresden xviii; *B. græcarius* var. *florentina*, ROSTAGNO, p. 92, Boll. Soc. zool. ital. xiv.  
*Boarmia properata*, characters and synonymy, SWINHOE, p. 503, Ann. Nat. Hist. (7) xv.  
*B. fortunaria*, Spain, VÁZQUEZ, p. 116, Bol. Soc. espan. v, n. sp.  
*Bordeta ampliplaga*, Solomon Islds., WARREN, p. 429, Nov. Zool. xii, n. sp.  
*Bronchelia consimilis*, Mexico, *plumbilinea*, p. 62, *semicompleta*, p. 63, Peru, WARREN, t. c. n. spp.  
*Bryoptera discata* ab. n. *cretata*, WARREN, p. 353, t. c.  
*B. distincta*, Parana, WARREN, p. 353, t. c. n. sp.  
*Bulonga trilineata*, Borneo, BASTELBERGER, p. 5, Ent. Zeitschr. Guben xix, n. sp.  
*Bupalus pinarius* ab., pl. ii, fig. 7, MÖBIUS, Iris Dresden xviii.  
*Bursada albilunata*, p. 429, *conjunctiva*, Obi, *dependens, restricta*, p. 430, Solomon Islds., WARREN, Nov. Zool. xii, n. spp.  
*Bursadopsis sectinota*, Halmaheira, *waterstradti*, Batchian, WARREN, p. 431, t. c. n. spp.  
*Callipia bulteata*, Peru, WARREN, p. 72, t. c. n. sp.  
*Cambogia trillista*, Peru, WARREN, p. 51, t. c. n. sp.  
*Campylona aurata*, Bogota, WARREN, p. 312, t. c. n. sp.  
*Cartaletis concolor*, Zululand, WARREN, p. 34, t. c. n. sp.  
*Cartelodes olivaria*, Peru, WARREN, p. 367, t. c. n. sp.  
*Catoria lucidata*, Solomon Islds., WARREN, p. 15, t. c.; *C. subalbata*, Sumatra, WARREN, p. 432, t. c. : n. spp.  
*Certima strigifera*, Peru, WARREN, p. 66, t. c.; *C. leucaniata*, Peru, WARREN, p. 368, t. c. n. sp.  
*Cerynia cupreata*, p. 52, *pamphilata*, p. 53, Peru, WARREN, t. c. n. spp.  
*Chiasmia maculilinea*, Celebes, *minuta*, Borneo, WARREN, p. 433, t. c. n. spp.  
*Chlorochroma quieta* Luc. (as *Iodis*) = (*Cenochlora felix* Warr.), WARREN, p. 422, t. c.  
*C. imparicornis*, Queensland, WARREN, p. 422, t. c. n. sp.  
*Chloroclystis sandycias*, New Zealand, MEYRICK, p. 220, Tr. ent. Soc. London 1905; *C. minima*, New Zealand, HUDSON, p. 356, Tr. New Zealand Inst. xxvii : n. spp.  
*Chogada alienaria* ab. n. *nigrifasciata*, *C. decisaria* ab. n. *nigristigma*, WARREN, p. 432, t. c.  
*C. funesta*, Natal, WARREN, p. 398, t. c. n. sp.  
*Chrotochlora n. g. Geometrinae, perpulchra n. sp.*, Peru, WARREN, p. 317, t. c.  
*Chrysochloroma nubecula*, New Guinea, WARREN, p. 421, t. c. n. sp.  
*Chrysocraspeda fulviplaga, conspicuaria*, Khasia Hills, SWINHOE, p. 165, Ann. Nat. Hist. (7) xv, n. spp.

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- Cidariophanes stellaris*, Bolivia, WARREN, p. 358, Nov. Zool. xii, n. sp.
- Cimicodes angustipennis*, Bolivia, p. 66, *ferruginea*, Peru, p. 67, WARREN, t. c. n. sp.
- Cirrhorheuma* n. g. *Hydriomeninae*, *pallidimargo* n. sp., Peru, WARREN, p. 329, t. c.
- Cirrhosoma* n. g. near *Berberodes*, p. 54, *translucida* n. sp., Peru, p. 55, WARREN, t. c.
- Cnemodes simplex*, Peru, WARREN, p. 320, t. c. n. sp.
- Cnephora catocalaria*, Peru, WARREN, p. 368, t. c. n. sp.
- Caelura dissocia*, Paraguay, WARREN, p. 41, t. c. n. sp.
- Cenoclepe custodiata* Guen. (= *centrostrigaria* Wall.), WARREN, p. 442, t. c.
- C. euboliata*, p. 329, *ignifera*, *nitida*, p. 330, Peru, WARREN, t. c. n. spp.
- Colpodonta* n. g. type *Azelina prinienta* Dogn. (= *phyllodontaria* Warr.), WARREN, p. 369, t. c.
- Cophocerotis casta*, Peru, WARREN, p. 341, t. c. n. sp.
- Cosymbia maderensis* ab. n. *irrufata*, WARREN, p. 441, t. c.
- C. marcida*, Sudan, WARREN & ROTHSCHILD, p. 27, pl. iv, fig. 28, t. c.; *C. nitidata*, Natal, WARREN, p. 387, t. c. n. spp.
- Craspedia immaculata*, Ivory Coast, WARREN, p. 388, t. c. n. sp.
- Craspedosis albistriata*, Batahan, WARREN, p. 431, t. c.; *C. cyanea*, *desmiata*, New Guinea, ROTHSCHILD & JORDAN, p. 468, Nov. Zool. xii : n. spp.
- Crocallis elinguarua* abb., pl. ii, fig. 9, MÖBIUS, Iris Dresden xviii.
- Crypsimetalla fimbriata*, *flava*, Solomon Islds., WARREN, p. 428, Nov. Zool. xii, n. spp.
- Crypsityla subrosea*, Colombia, WARREN, p. 321, t. c. n. sp.
- Ctenistochlora* n. g. *Deiliniinae* for *Aplochloa fallax*, WARREN, p. 428, t. c.
- Cylopeda latiflava*, Colombia, *tenuis*, Parana, WARREN, p. 312, t. c. n. spp.
- Cymatophora subcrinita*, Peru, WARREN, p. 63, t. c.; *C. limbata*, *muscitincta*, Peru, WARREN, p. 354, t. c. n. spp.
- Decetia uniformis*, Solomon Islds., WARREN, p. 8, t. c. n. sp.
- Deinoptila peninsula* Dogn., ♀, WARREN, p. 331, t. c.
- Derambila* = (*Rambara* Moore, and ? *Chionopteryx* Snell.), WARREN, p. 382, t. c.
- D. costipunctata*, Sierra Leone, WARREN, p. 383, t. c. n. sp.
- Diastictris festa* Hulst, validity of, TAYLOR, p. 62, Canad. Ent. 1905.
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- Dichromodes ida*, New Zealand, pl. xxii, fig. 2, p. 356, HUDSON, Tr. N. Zealand Inst. xxxvii, n. sp.
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- Diopsis vitrifera*, Peru, WARREN, p. 43, Nov. Zool. xii; *D. vacuata*, Panama, WARREN, p. 313, t. c. n. spp.
- Dirades unicauda*, sex distinctions, DUDGEON, p. 404, J. Bombay Soc. xvi.
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- D. interrupta*, Sumatra, p. 206, *nigrostriata*, Borneo, p. 211, *goramensis*, Goram, p. 214, *splendida*, Cooktown, p. 216, *sericata*, Sumatra, p. 219, BASTELBERGER, Stettin Ent. Zeit. lxvi; *D. azurea*, p. 115, *cancelata*, N. Borneo, *peregrina*, Obi, p. 116, BASTELBERGER, Ent. Zeitschr. Guben xviii : n. spp.
- Ectropis (Tephrosia) consonaria*, ab. n. *nigra*, BANKES, p. 89, Ent. Mag. 1905.

- E. inelegans*, Niger, WARREN, p. 398, Nov. Zool. xii, n. sp.  
*Emmiltis bisinuata*, Angola, p. 388, *cervinata*, W. Africa, *khakiata*, Natal, p. 389, WARREN, Nov. Zool. xii; *E. elyra*, Kashmir, SWINHOE, p. 628, Ann. Nat. Hist. (7) xvi; *E. placida*, *plenistigma*, Solomon Ids., WARREN, p. 423, t. c.; *E. malepicta*, Peru, WARREN, p. 46, t. c.; *E. inquinatula*, Peru, p. 321, *ochratipennis*, Venezuela, p. 322, WARREN, t. c. n. spp.  
*Enconista oberthuri*, Madrid, VÁZQUEZ, p. 119, Bol. Soc. espan. v, n. sp.  
*Entephria* (= *Glaucopteryx*) *ochribasis*, Argentina, WARREN, p. 333, Nov. Zool. xii.  
*Ephemerophila penumbrata*, Sierra Leone, WARREN, p. 395, t. c. n. sp.  
*Ephialtias aperta*, Peru, *dorsispilota*, p. 313, *repetita*, Colombia, *percurrens*, Peru, p. 314, WARREN, t. c. n. spp.  
*Epiplema asinina*, p. 380, *fumigera*. Natal, *subdistincta*, Sierra Leone, p. 381, WARREN, t. c.; *E. brunnea*, Obi, p. 411, *catenigera*, *cretisiriga*, Solomon Ids., *exsanguis*, Hainan, p. 412, *guttata*, *lignicolor*, Solomon Ids., p. 413, *nigropustulata*, Obi, *umbrimargo*, p. 414, *ustanalis*, Solomon Ids., *ustiplaga*, Hainan, p. 414, *vacuata*, Solomon Ids., *vinculata*, N. Guinea, p. 416, WARREN, t. c.; *E. pæciliaria*, Sumatra, SWINHOE, p. 626, Ann. Nat. Hist. (7) xvi; *E. triangulifera*, Solomon Ids., WARREN, p. 8, Nov. Zool. xii; *E. rotundata*, Paraguay, WARREN, p. 307, t. c. : n. spp.  
*Erateina albiradiata*, Bolivia, p. 344, *hyaloplaga*, Peru, p. 345, WARREN, t. c. n. sp.  
*Erebochlora albistrotata*, Peru, WARREN, p. 331, t. c. n. sp.  
*Eriopygidia subrubescens*, Peru, WARREN, p. 332, t. c. n. sp.  
*Erosia veninotata*, Costa Rica, WARREN, p. 42, t. c. n. sp.  
*Euchlæna astylusaria*, life-history, DYAR, p. 43, Psyche xii.  
*Euchloris dissimilis*, Sudan, WARREN & ROTHSCHILD, p. 26, pl. iv, fig. 27, Nov. Zool. xii, n. sp.  
*Euchoeca comptaria*, synonymy, TAYLOR, p. 411, Canad. Ent. 1905.  
*E. salienta*, N. America, PEARSALL, p. 126, Canad. Ent. 1905, n. sp.  
*Euclysia ochrivitta*, Bolivia, WARREN, p. 369, Nov. Zool. xii, n. sp.  
*Eucrostes undulilinea*, Sierra Leone, WARREN, p. 384, t. c. n. sp.  
*Eucymatoge versiplaga*, Peru, WARREN, p. 339, t. c. n. sp.  
*Eudule flavinota* ab. n. *nigrata*, WARREN, p. 342, t. c.  
*E. annuligera*, La Merced, *dioploides*, Costa Rica, p. 341, *plurinotata*, Bolivia, *rufithorax*, Colombia, p. 342, WARREN, t. c. n. spp.  
*Eumacrodus* n. g. near *Ptychopoda*, *gracilis* n. sp., Venezuela, WARREN, p. 322, t. c.  
*Eumelea albimacula* Warr. to *Desmobathra*, WARREN, p. 419, t. c.  
*E. infulata*, Solomon Ids., p. 417, *phanissa*, Obi, p. 418, WARREN, t. c. n. spp.  
*Eumera regina*, early stages, REBEL, p. 398, Verh. Ges. Wien 1905.  
*Euomea ochrea*, Natal, WARREN, p. 409, Nov. Zool. xii, n. sp.  
*Eupileta* n. g. *Fidominae hirsuta* n. sp., Tijuco, WARREN, p. 362, t. c.  
*Eupithecia rigida* Swinh. to *Eucymatoge*, WARREN, p. 425, t. c.; *E. interruptofasciata*, larva, FLETCHER & GIBSON, p. 262, Canad. Ent. 1905; *E. sinusaria*, larva, DRAUDT, p. 259, pl. v, figg. 4-9, Iris Dresden xvii.  
*Eurythecodes fimosa*, Sierra Leone, WARREN, p. 38, Nov. Zool. xii, n. sp.  
*Euschema malayaria* var. n. *paupera*, *E. remota* varr. n. *auctata*, *albimacula*, THIERRY-MIEG, p. 181, Naturaliste 1905. Cf. also *Pareuschema*.  
*E. auriplena*, Waigiou, THIERRY-MIEG, p. 181, t. c. n. sp.  
*Eutomopepla albicollaris*, Peru, WARREN, p. 369, Nov. Zool. xii, n. sp.  
*Exelis ansorgei*, Niger Coast, WARREN, p. 409, t. c. n. sp.  
*Gathynia biocellata*, Peru, WARREN, p. 308, t. c. n. sp.  
*Geitonia* n. g. near *Anisoperas*, *gracilinea* n. sp., Chiriqui, WARREN, p. 370, t. c.

- Gelasma clemens*, Ecuador, WARREN, p. 317, t. c. n. sp.  
*Geometra papilionaria* varr. and larva, BURROWS, pp. 200-205, 221-227, pl. viii, Ent. Rec. xvii.  
*Gonanticlea deleta*, New Guinea, WARREN, p. 11, Nov. Zool. xii, n. sp.  
*Gonodela suberetata*, Uganda, WARREN, p. 37, t. c.; *G. apicepallens*, p. 401, *lunivallata*, *punctiversa*, p. 402, *rectilinea*, *unicolor*, p. 403, Africa, WARREN, t. c.; *G. semilutea*, Shan States, WARREN, p. 434, t. c. : n. spp.  
*Gullaca exilis*, Assam, BASTELBERGER, p. 5, Ent. Zeitschr. Guben xix;  
*G. derasata*, Madagascar, BASTELBERGER, p. 77, t. c. : n. spp.  
*Gymnoplacia* n. g. for *Epiplema parvidens* Dogn., WARREN, p. 42, Nov. Zool. xii.  
*Gynopteryx ligulifera*, Parana, WARREN, p. 370, Nov. Zool. xii, n. sp.  
*Hæmalea griseescens*, Peru, WARREN, p. 46, Nov. Zool. xii; *H. brunneata*, Colombia, p. 322, *rufifimbria*, Peru, p. 323, WARREN, t. c. : n. spp.  
*Haggardia spissata*, subalbata, Natal, WARREN, p. 396, t. c. n. spp.  
*Hammaptera dispansa*, Sta. Martha, *fumida*, Peru, WARREN, p. 47, t. c. n. spp.  
*Hemiplothis immaculata*, Grenada, WARREN, p. 352, P. U. S. Mus. xxix, n. sp.  
*Herbita castanea*, Costa Rica, WARREN, p. 371, Nov. Zool. xii, n. sp.  
*Heterephyra duplicata*, Colombia, WARREN, p. 323, t. c. n. sp.  
*Heteroplasta lasioplaca* Lower, to *Polyclysta*, BASTELBERGER, p. 22, Ent. Zeitschr. Guben xix.  
*Heterusia ovaliplaga*, Peru, WARREN, p. 53, Nov. Zool. xii; *H. cæcata*, Peru, WARREN, p. 345, t. c. : n. spp.  
*Hirasa denticulata* to *Hirasodes*, WARREN, p. 396, t. c.  
*Holorista dentatilinea*, Solomon Ids., WARREN, p. 428, t. c. n. sp.  
*Homospora rhodospica* Low. (as *Onychodes*)=(*procrita* Turn.), LOWER, p. 178, Tr. R. Soc. S. Austral. xxix.  
*Hyalopola marginata*, Peru, WARREN, p. 56, Nov. Zool. xii, n. sp.  
*Hygrochroma* ? *cervinata*, Colombia, WARREN, p. 371, t. c. n. sp.  
*Hylemera subfulva*, Sierra Leone, WARREN, p. 395, t. c. n. sp.  
*Hypedyle divisa*, Peru, WARREN, p. 43, t. c. n. sp.  
*Hypocæta uniformis*, Uganda, WARREN, p. 385, t. c. n. sp.  
*Hypolepis fulva*, *fuscata*, Peru, WARREN, p. 48, t. c. n. spp.  
*Hypophracta* n. g. *Ænochrominæ*, *persimilis* n. sp., East Africa, WARREN, p. 382, t. c.  
*Hyposidra leprosata*, Uganda, WARREN, p. 38, t. c.; *H. rauca*, *vittata*, Cagayan Sulu, WARREN, p. 437, t. c. : n. spp.  
*Hyrmina protecta*, Brit. Guiana, KAYE, p. 121, pl. iii, fig. 8, Ent. Rec. xvii, n. sp.  
*Ira capnodiata* ab. n. *reducta*, WARREN, p. 372, Nov. Zool. xii.  
*I. crenulata*, Peru, WARREN, p. 372, t. c. n. sp.  
*Iridopsis griseescens*, Quito, *subnigrata*, Peru, WARREN, p. 355, t. c. n. spp.  
*Ischnopteris conjungens*, p. 59, *projectata*, p. 60, Peru, WARREN, t. c.;  
*I. brunneoviridis*, p. 359, *degener*, p. 360, Peru, WARREN, t. c. : n. spp.  
*Isochromodes denotata*, distinct not var. of *auxilians*, WARREN, p. 372, t. c.  
*I. straminea*, p. 67, *turbinata*, p. 68, Peru, WARREN, t. c. n. spp.  
*Iulocera* n. g. type *Azata variegata* Warr., *I. albiapicata* n. sp., Halmaheira, WARREN, p. 434, t. c.  
*Iza mediovineta*, Amazons, WARREN, p. 307, t. c. n. sp.  
*Josia radians*, Sta. Marta, WARREN, p. 44, t. c.; *J. turgida*, with ab. n. *conifera*, Venezuela, WARREN, p. 314, t. c. : n. spp.  
*Larentia sordidata* and *autumnalis*, sexual differences, PETERSEN, p. 73, cuts, Mem. Ac. St. Petersb. (8) xvi, No. 2; *L. multistrigaria*, melanism, MORLEY, pp. 170, 171, Ent. Rec. xvii.

- L. eximiata*, Rhine, FUCHS, Ent. Zeitschr. Guben xviii, No. 32, Beilage;  
*L. revaensis*, Fiji, pl. viii, fig. 7, p. 94, BETHUNE-BAKER, P. Zool. Soc. London 1905, i : n. spp.
- Lasiopates* n. g. *Mecoceratinæ*, p. 310, *hyacinthina* n. sp., Ecuador, p. 311, WARREN, Nov. Zool. xii.
- Lasiophanes* n. g. near *Perizoma*, *rusticta* n. sp., Peru, WARREN, p. 333, t. c.
- Leptaletis variabilis* ab. n. *ampliflava*, WARREN, p. 383, t. c.
- Leptesthes circumflexaria* = (*Hyposidra megaspila* Moore, Hamps.), SWINHOE, p. 627, Ann. Nat. Hist. (7) xvi.
- Leptomeris quinquelinearia*, life-history, DYAR, p. 93, Psyche xii.
- Leucodesmia confusa*, Ceylon, WARREN, p. 422, Nov. Zool. xii, n. sp.
- Leucula meganira* ab. n. *astigma*, WARREN, p. 350, t. c.
- Lignyoptera thaumastaria* ♀, REBEL, p. 23, Verh. Ges. Wien 1905.
- Lipocentris* n. g. near *Emmiltis*, *rubriceps* n. sp., Angola, WARREN, p. 389, Nov. Zool. xii.
- Lipomelia rubicunda*, Trinidad, WARREN, p. 324, t. c. n. sp.
- Lisomma* n. g. near *Hypographa humerata* n. sp., S. Australia, and includes *Monocentrias minuta* Swinh., WARREN, p. 418, t. c.
- Lissochlora intacta*, Dominica, WARREN, p. 318, t. c. n. sp.
- Lissopsis margarita*, Peru, WARREN, p. 343, t. c. n. sp.
- Lomaspilis casta*, Transvaal, WARREN, p. 35, t. c. n. sp.
- Lomographa extremata*, Peru, WARREN, p. 53, t. c.; *L. inæquata*, p. 348, *venata*, p. 349, Peru, WARREN, t. c. : n. spp.
- Loxapicia cognata*, Peru, WARREN, p. 68, t. c. n. sp.
- Loxotephria* n. g. *Semiothisinæ*, p. 13, *olivacea*, n. sp., p. 14, Hainan, WARREN, t. c.
- Lythria purpuraria cruentaria*, DEMAISON, p. 255, Bull. Soc. ent. France 1905; *L. purpuraria*, varr. at Reims, DEMAISON, p. 125, t. c.; *L. purpuraria*, variation, DEMAISON, Bull. Soc. Reims xiv, p. 30.
- L. fulva*, New Zealand, HUDSON, p. 357, pl. xxii, fig. 3, Tr. N. Zealand Inst. xxxvii, n. sp.
- Macaria liturata* ab. n. *nigrofulvata*, COLLINS, p. 45, Ent. Rec. xvii.
- Marmopteryx griseata*, and ab. *subrufata*, Bolivia, WARREN, p. 343, Nov. Zool. xii, n. sp.
- Medasina leledaria*, Khasia Hills, SWINHOE, p. 503, Ann. Nat. Hist. (7) xv; *M. pallidimargo*, Kashmir, SWINHOE, p. 627, op. cit. xvi : n. spp.
- Melanchroia albifascia*, *astigma*, Peru, WARREN, p. 349, t. c. n. sp.
- Melanolophia canadaria*, life-history, DYAR, p. 58, Psyche xii.
- Melinodes fulvitincta*, Argentina, WARREN, p. 69, Nov. Zool. xii, n. sp.
- Melinoessa subalbida*, Uganda, WARREN, p. 35, t. c. n. sp.
- Mesocela seriata*, Angola, WARREN, p. 38, t. c. n. sp.
- Mesoleuca vasiliata*, life-history, DYAR, p. 25, Psyche xii.
- Mesothisa* n. g. near *Hyposidra*, p. 403, *M. flaccida*, *gracilinea* n. sp., W. Africa, p. 404, WARREN, Nov. Zool. xii.
- Mesotrophe?* *subrubata*, Solomon Ids., WARREN, p. 10, t. c. n. sp.
- Metallospora* n. g. near *Hypephyra*, p. 38, *catori* n. sp., Sierra Leone, p. 39, WARREN, t. c.
- Miantochora*, the female, WARREN, p. 405, t. c.
- Microgonia affinis* ab. n. *intensa*, p. 373, *M. præditaria* ab. n. *rufa*, p. 375, WARREN, t. c.
- M. alternata*, p. 373, *crepusculata*, Dominica, *coarctata*, Peru, p. 374, WARREN, t. c.; *M. roseata*, S. Africa, WARREN, p. 385, t. c.; *M. vestigiata*, Kashmir, SWINHOE, p. 629, Ann. Nat. Hist. (7) xvi : n. spp.
- Microxydia gigantula*, *pumaria*, Peru, WARREN, p. 375, Nov. Zool. xii, n. spp.
- Milonia glauca* var. n. *basirubra*, THIERRY-MIEG, p. 181, Naturaliste 1905.

- M. pericallis*, *callima*, p. 467, *aglaia*, p. 468, New Guinea, ROTHSCHILD & JORDAN, Nov. Zool. xii, **n. spp.**
- Mimaletis albipennis*, Sierra Leone, WARREN, p. 384, Nov. Zool. xii, **n. sp.**
- Miwocera torsilinea*, Paraguay, WARREN, p. 44, t. c. **n. sp.**
- Mnesiloba seminigra*, Assam, BASTELBERGER, p. 77, Ent. Zeitschr. Guben xix, **n. sp.**
- Monobolodes schistacea*, Solomon Ids., WARREN, p. 8, Nov. Zool. xii, **n. sp.**
- Myrice* Walk. = (*Hemigymnodes* Warr.), WARREN, p. 315, t. c.
- Myrmecophantes assimilis*, Peru, WARREN, p. 56, t. c. **n. sp.**
- Nadagarodes pulverata*, p. 435, *purpuraria*, p. 436, Solomon Ids., WARREN, t. c. **n. spp.**
- Negla tenuiorata* and *nachtigali*, distinguished, WARREN, p. 394, t. c.
- Nelo decipiens*, Ecuador, *tricolor*, Bolivia, THIERRY-MIEG, p. 181, Naturaliste 1905, **n. spp.**
- Nemoria dorsicristata*, Natal, WARREN, p. 34, Nov. Zool. xii, **n. sp.**
- Neodesmodes n. g.* near *Ischnopteris*, p. 360, *semialbata n. sp.*, Peru, p. 361, WARREN, t. c.
- Neoscelis cristata* Warr. (as *Gymnoscelis*) = (*rivula* Hamps.), WARREN, p. 11, t. c.
- Neostega flavata*, *obscurata*, W. Africa, WARREN, p. 393, t. c. **n. spp.**
- Nesophila n. g.* *Semiothisinae*, *vulgaris n. sp.*, Solomon Ids., WARREN, p. 436, t. c.
- Nipteria dispansa* ab. *n. infurcata*, WARREN, p. 57, t. c.
- N. directa*, p. 56, *elongaria*, *fumosata*, p. 57, *pallidilinea*, *subbrunnea*, p. 58, Peru, WARREN, t. c.; *N. excavata*, *flavipectus*, p. 350, *infirma*, *pierridaria*, *subsordida*, p. 351, S. America, WARREN, t. c. : **n. spp.**
- Nomenia n. g.* for *Epirrhitia duodecimlineata* Pack., PEARSALL, p. 126, Canad. Ent. 1905; *Nomenia*, cf. also *Venusia*.
- Nopia admiranda*, Natal, WARREN, p. 406, Nov. Zool. xii, **n. sp.**
- Noreia dentilineata*, Cagayan Sulu, WARREN, p. 419, t. c. **n. sp.**
- Notoreas ischnocyma*, New Zealand, MEYRICK, Tr. ent. Soc. London 1905, **n. sp.**
- Numia deceptrix*, Tucuman, WARREN, p. 69, Nov. Zool. xii, **n. sp.**
- Obolcola despecta*, Ivory Coast, WARREN, p. 400, t. c. **n. sp.**
- Ochroplutodes crocea*, Durban, WARREN, p. 392, t. c. **n. sp.**
- Ochyria discata*, Natal, WARREN, p. 391, t. c.; *O. amaura*, Quito, WARREN, p. 333, t. c. : **n. spp.**
- Enoptila ? subconfusa*, p. 60, *Æ. subfasciata*, p. 61, Peru, WARREN, t. c. **n. spp.**
- Enospila stellata*, variation, WARREN, p. 422, t. c.
- Omphalucha n. g.* *Bistoninae*, p. 396, *hirta*, Durban, p. 397, *O. ? rufinubes*, Angola, **n. spp.**, p. 398, and incl. *Aphilopota ambusta*, WARREN, t. c.
- Oospila depressa*, Costa Rica, WARREN, p. 45, t. c.; *O. thalassina*, Peru, WARREN, p. 318, t. c. : **n. spp.**
- Opisthoxia argenticincta*, Peru, WARREN, p. 55, t. c.; *O. fulvata*, Venezuela, p. 347, *scintillans*, Peru, p. 348, WARREN, t. c. : **n. spp.**
- Ophthalmophora chouya*, Peru, THIERRY-MIEG, p. 193, Naturaliste 1905; *O. humilis*, Peru, WARREN, p. 55, Nov. Zool. xii; *O. hybridata*, Bolivia, WARREN, p. 347, t. c. : **n. spp.**
- Orsonoba ? euryscopa*, Queensland, LOWER, p. 178, Tr. R. Soc. S. Austral. xxix; *O. orthogrammaria*, Hong Kong, LONGSTAFF, p. 184, Ent. Mag. 1905 : **n. spp.**
- Orthonama pudibunda*, Peru, *straminea*, Bolivia, WARREN, p. 334, Nov. Zool. xii.
- Orthoprora albiplaga*, *balteata*, Peru, WARREN, p. 49, t. c. **n. spp.**
- Ourapteryx gisela*, Java, THIERRY-MIEG, p. 192, Naturaliste 1905, **n. sp.**
- Oxyfidonia n. g.* *Fidoniinae*, *fulvida n. sp.*, Sierra Leone, WARREN, p. 400, Nov. Zool. xii.



- Ozola convergens*, Ceylon, WARREN, p. 419, t. c. n. sp.  
*Panthera semiconfluens*, Peru, WARREN, p. 56, t. c. n. sp.  
*Parachoreutes* merged in *Leptoctenopsis*, WARREN, p. 310, t. c.  
*Paracomistis maculata*, Peru, WARREN, p. 69, t. c. n. sp.  
*Paradarisa* ? *viriditincta*, Usambara, WARREN, p. 399, t. c. n. sp.  
*Paragramma* n. g. *Hydriomenineæ*, p. 424, *mimula* n. sp., Solomon Ids., p. 425, WARREN, t. c.  
*Paragyrtis* n. g. *Monoctenidæ* for *Panagra inostentata* Walk., MÉYRICK, p. 222, Tr. ent. Soc. London 1905.  
*Parascotia nisseni*, Algeria, TURATI, p. 42, pl. viii, fig. 1, Natural. Sicil. xviii, n. sp.  
*Pareclipsis insolita*, Sierra Leone, WARREN, p. 39, Nov. Zool. xii, n. sp.  
*Pareuschema* n. g. for *Eusch. regalis* Butl., THIERRY-MIEG, p. 181, Naturaliste 1905.  
*Penthophlebia subvenata*, Peru, WARREN, p. 59, Nov. Zool. xii; *P. fuscicosta*, *posticaria*, *subapicata*, S. America, WARREN, p. 352, t. c. : n. spp.  
*Peratophyga bifasciata*, Hainan, WARREN, p. 13, t. c. n. sp.  
*Pergama dissimilis*, Peru, WARREN, p. 375, t. c. n. sp.  
*Peridela butaria* ab. n. *spilota*, WARREN, p. 405, t. c.; *P. ochracea* to *Xenoecista*, WARREN, p. 437, t. c.  
*P. sudanata*, Sudan, WARREN & ROTHSCHILD, p. 28, pl. iv, fig. 26, Nov. Zool. xii, n. sp.  
*Perigramma repetita*, Costa Rica, WARREN, p. 352, Nov. Zool. xii, n. sp.  
*Perixera impudens*, locality is Galapagos Islds., WARREN, p. 72, t. c.  
*P. ustipennis*, Solomon Islds., WARREN, p. 423, t. c. n. sp.  
*Perizoma albirasa*, *carnepicta*, p. 335, *fallax*, Peru, *ochritincta*, Huatuxco, p. 336, WARREN, t. c. n. spp.  
*Pero extermata*, Parana, *ravida*, Peru, WARREN, p. 376, t. c. n. spp.  
*Perusia verticata*, Peru, WARREN, p. 377, t. c. n. sp.  
*Petrophora convallaria*, life-history, DYAR, p. 69, Psyche xii.  
*Phasiana clathrata* var. *aurata*, p. 45, pl. ix, figg. 5-12, *P. partitaria* ab. *titoralaria*, p. 46, figg. 13-20, TURATI, Natural. Sicil. xviii.  
*Phelloë semiplaga*, Colombia, WARREN, p. 315, Nov. Zool. xii, n. sp.  
*Pherotesia alterata*, *flavincta*, *potens*, p. 356, *subjecta*, p. 357, S. America, WARREN, t. c. n. spp.  
*Phorodesma rubrimaculata*, Natal, WARREN, p. 385, t. c. n. sp.  
*Phrygonis cruorata*, Dominica, WARREN, p. 345, t. c. n. sp.  
*Phyllostoma carneata* to *Euclysia*, WARREN, p. 67, t. c.  
*Pterocymia* ? *rhombifascia*, Peru, WARREN, p. 337, t. c. n. sp.  
*Polla fuscata*, Peru, WARREN, p. 70, t. c. n. sp.  
*Prasinoscia* n. g. *Geometrinae*, p. 318, *insolens* n. sp., Venezuela, p. 319, WARREN, t. c.  
*Problepsis venus*, Amboina, *maxima*, Japan, *mozambica*, Africa, THIERRY-MIEG, p. 192, Naturaliste 1905, n. spp.  
*Psaliodes tripartita* to *Hypolepsis*, WARREN, p. 49, Nov. Zool. xii.  
*P. brachiata*, *dislocata*, Peru, WARREN, p. 50, t. c.; *P. marmorata*, Peru, WARREN, p. 337, t. c. : n. spp.  
*Psamathia parallelaria*, Costa Rica, WARREN, p. 308, t. c. n. sp.  
*Pseudasthena grataria*, abb. n. *marginata* and *perflava*, WARREN, p. 426, t. c.  
*Pterocypha simplicata*, Argentina, WARREN, p. 338, t. c. n. sp.  
*Ptychopa informipennis*, Peru, WARREN, p. 324, t. c. n. sp.  
*Ptychopoda crasssquama*, pl. iv, fig. 36, *microptera*, fig. 7, p. 27, *granulosa*, fig. 38, p. 28, Sudan, WARREN & ROTHSCHILD, Nov. Zool. xii, n. spp.  
*Pungaleria capreolaria*, pl. 11, fig. 7, ROUGEMONT, Bull. Soc. Neuchatel xxix.  
*Pynostega* n. g. near *Neostega*, p. 393, *obscura* n. sp., Niger Riv. p. 394, WARREN, Nov. Zool. xii.  
*Pyrinia abditaris*, p. 377, *hemixantha*, *humerala*, Peru, *tenuilinea*, Colombia, p. 378, WARREN, t. c. n. spp.

- Racasta caberaria* distinct from *spatiaria*, *extendata* Dogn. syn. of *caberaria*, WARREN, p. 310, t. c.
- Racheolopha rufilimes*, Ecuador, WARREN, p. 319, t. c. n. sp.
- Racheospila megastigma*, Costa Rica, WARREN, p. 45, t. c.; *R. tenuimargo*, Tijuco, WARREN, p. 319, t. c. : n. spp.
- Rhinoprora ochriplaga*, New Guinea, WARREN, p. 425, t. c. n. sp.
- Rhodesia* n. g. *Geometrinae*, *viridalbata* n. sp., Natal, and incl. *Comibæna alboviridata* Saalm., WARREN, p. 386, t. c.
- Rhodochlora exquisita*, Peru, WARREN, p. 320, t. c. n. sp.
- Rhodophthitus procellosa*, Angola, WARREN, p. 394, t. c. n. sp.
- Rhomborista intermaculata*, Senegambia, WARREN, p. 387, t. c. n. sp.
- Ripula mahometaria* var. n. *chiffa*, THIERRY-MIEG, p. 192, Naturaliste 1905.
- Saccoploca excisa nigrosticta* ab. ? nov., WARREN, p. 43, t. c.
- Sangalopsis basidentata*, Peru, WARREN, p. 349, t. c. n. sp.
- Sarcinodes subfulvida* ab. n. *olivata*, WARREN, p. 9, t. c.
- Sauris angusta*, Solomon Islds., WARREN, p. 12, t. c. n. sp.
- Scardamia ditissima*, Mozambique, THIERRY-MIEG, p. 192, Naturaliste 1905, n. sp.
- Seea angustimargo*, Paraguay, WARREN, p. 315, Nov. Zool. xii, n. sp.
- Selidosema pungata* Fed. = (*fasciata* Philp.), MEYRICK, p. 223, Tr. ent. Soc. London 1905.
- Semiothisa crassisquama*, Paraguay, *orthodisca*, Peru, WARREN, p. 64, Nov. Zool. xii; *S. flavida*, *nigrescens*, p. 363, *salsa*, Colombia, *quadri-caudata*, Costa Rica, p. 364, *vulpina*, Ecuador, p. 365, WARREN, t. c. : n. spp.
- Sericosema angulata*, Vancouver, p. 361, *lignata*, Galapagos Islds., p. 362, WARREN, t. c. n. spp.
- Schematorhages* n. g. near *Ptychopoda*, p. 324, *arhostiodes* n. sp., Peru, p. 325, WARREN, t. c.
- Sciagraphia nephata*, life-history, DYAR, p. 115, Psyche xii.
- Somatina nucleata*, Sierra Leone, *rufitacta*, Durban, WARREN, p. 390, Nov. Zool. xii, n. spp.
- Somatolophia umbripennis* Hulst, validity of, TAYLOR, p. 61, Canad. Ent. 1905.
- Sparargania nigrifasciata*, Peru, WARREN, p. 338, Nov. Zool. xii, n. sp.
- Stenalcidia*? *divisata*, St. Lucia, WARREN, p. 358, t. c. n. sp.
- Stenodonta* n. g. near *Pero*, *incurvata* n. sp., Argentina, WARREN, p. 379, t. c.
- Sterrha irrufata*, S. Africa, WARREN, p. 391, t. c. n. sp.
- Stibarostoma pulverata*, Queensland, WARREN, p. 424, t. c. n. sp.
- Stigma kuldschaensis* var. n. *negrita*, THIERRY-MIEG, p. 193, Naturaliste 1905.
- Syndromodes delicata*, Natal, WARREN, p. 34, Nov. Zool. xii, n. sp.
- Synelys pudens*, Natal, WARREN, p. 35, t. c.; *S. lubricata*, Angola, WARREN, p. 391, t. c.; *S. ochreolata*, Peru, WARREN, p. 325, t. c. : n. spp.
- Syngria griseata*, Peru, WARREN, p. 309, t. c. n. sp.
- Syngriodes discolor*, Costa Rica, WARREN, p. 309, t. c. n. sp.
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## PYRALIDÆ, THYRIDIDÆ.

[Cf. BETHUNE-BAKER (108), CHAPMAN (305), DAECKE (385), DOGNIN (438), DUDGEON (465), DYAR (470, 474), HAMPSON (718, 719), KEARFOTT (831), LOWER (980, 981), MEYRICK (1041), ROTHSCHILD & JORDAN (1307), SCHÜTZE (1366), SWINHOE (1460), TURNER (1509), VÁZQUEZ (1535), WARREN (1568, 1569, 1571-1575), WARREN & ROTHSCHILD (1576).]

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- Stenachroia myrmecophila*, Queensland, TURNER, p. 54, P. Soc. Queensland xix, n. sp.
- Stenia lubricalis*, Ecuador, DOGNIN, p. 66, Ann. Soc. ent. Belgique 1905, n. sp.
- Stenorista* n. g. *Pyraustinae*, *elongalis* n. sp., Ecuador, DOGNIN, p. 84, t. c.
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- Syntrita* n. g. *Hydrocampinae*, p. 65, *umbralis* n. sp., Ecuador, p. 66, DOGNIN, t. c.
- Syntypica* n. g. near *Homæosoma*, p. 44, *aleurodes* n. sp., Australia, p. 45, TURNER, P. Soc. Queensland xix.
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- Yosemiteia maidella*, *mysiella*, Utah, DYAR, p. 36, P. ent. Soc. Washington vii, n. spp.
- Zeuzerodes fasciata*, Peru, WARREN, p. 41, Nov. Zool. xii, n. sp.
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## PTEROPHORIDÆ and ORNEODIDÆ.

[Cf. HAMPSON (718), HOUARD (780), MEYRICK (1041, 1043), TUTT (1512).]

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The following **n. genn.** are proposed by TUTT, *Gillmeria* type *ochrodactyla*, *Fredericina* type *calodactyla*, *Capperia* type *heterodactyla*, *Adkinia* type *bipunctilactyla*, *Ovendenia* type *septodactyla*, *Buckleria* type *paludum*, *Adkinia* type *microdactyla*, *Hellinsia* type *osteodactylus*, *Emmelina* type *monodactyla*, *Merrifieldia* type *tridactyla*, *Porritia* type *galactodactyla*, *Wheeleria* type *spilodactyla*, Ent. Rec. xvii, p. 37.

*Alucita sesamitis*, Burma, MEYRICK, p. 582, J. Bombay Soc. xvi, **n. sp.**

*Orneodes hübnert*, galls, HOUARD, p. 31, Marcellia iv.

*O. thapsina*, *ischalea*, Ceylon, MEYRICK, p. 583, J. Bombay Soc. xvi, **n. spp.**

*Oxyptilus zanchistes*, p. 581, Burma, *causodes*, Ceylon, p. 582, MEYRICK, t. c. **n. spp.**

*Platyptilia epotis*, New Zealand, MEYRICK, Tr. ent. Soc. London 1905, **n. sp.**

*Titanoptilus n. g.* near *Trichoptilus*, p. 248, *melanodonta n. sp.*, Uganda, p. 249, HAMPSON, Tr. ent. Soc. London 1905.

*Triscædecia n. g. Orneodidæ*, *dactyloptera n. sp.*, Ceylon, HAMPSON, p. 247, t. c.

## TORTRICIDÆ.

[Cf. DEWITZ (411, 412), DISQUÉ (420), DOGNIN (438), FERNALD (555, 556, 735), KEARFOTT (829-832), MEYRICK (1041, 1043), PETERSEN (1155).]

DISQUÉ gives brief note as to larvæ, food-plates, dates of a large number of Central-European species; Iris Dresden xvii, pp. 209-256.

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## TINEIDÆ.

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[Cf. COQUILLETT (61, 366), DEL GUERCIO (393), MEUNIER (1034).]

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*Ceroplastus terminalis*, Brit. Columbia, COQUILLETT, p. 69, t. c. n. sp.

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## CHIRONOMIDÆ.

[Cf. COQUILLET (366), GOELDI (672), JOHANNSEN (820), KNAB (872), KULAGIN (902), LAUTERBORN (921), MEUNIER (1034), MÜLLER (1077), NOÉ (1105), SCHNEIDER (1335).]

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*Ceratopogon mulleri*, metamorphosis, MÜLLER, pp. 224-230, pl. vii.

*C. setipes*, *pruinosis*, p. 59, *bivittatus*, *flavoniger*, *pictus*, N. America, *gibber*, Cuba, p. 60, *nubifer*, *slossonæ*, *magnus*, p. 61, *gilvus*, *curriei*, N. America, *scaber*, Mexico, p. 62, *caudelli*, *fusicornis*, *monilicornis*, p. 63, *maculipennis*, *cinctipes*, N. America, *calcaratus*, Mexico, *tenebrosus*, p. 64, *unicolor*, p. 65, N. America, COQUILLET, J. N. York Ent. Soc. xiii, n. spp.

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## TABANIDÆ.

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*Leptis balcanica*, S. E. Europe, STROBL, p. 534, t. c.; *L. flavonigra*, Nevada, COQUILLETT, p. 20, Invert. pacif. i: n. spp.

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## BOMBYLIIDÆ and ACROCERIDÆ.

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[Cf. BRUES (200, 201), MEUNIER (1036, 1040).]

*Phoridæ* mining in wings of *Morpho*, SZILÁDY (1470).

*Aphiochaeta peruviana*, p. 396, *tarsata*, *delicatula*, p. 397, *bella*, p. 398, Peru, BRUES, Ann. Mus. Hungar. iii; *A. apicalis*, p. 544, *tibialis*, p. 545, *limbata*, India, *rustica*, p. 546, *planifrons*, p. 547, New Guinea, *crassimana*, p. 548, *debilis*, Australia, *minutissima*, New Guinea, p. 549, *sodalis*, Sydney, p. 550, BRUES, t. c. n. spp.

*Chonocephalus similis*, Bombay, BRUES, p. 554, t. c. n. sp.

*Conicera bicolor*, Singapore, *simplex*, New Guinea, BRUES, p. 553, t. c.; *C. kerteszi*, Peru, BRUES, p. 399, t. c. : n. spp.

*Dorniphora*, subg. of *Phora*, the species, BRUES, p. 542, t. c.

*Hypocera difformis*, New Guinea, BRUES, p. 543, t. c. n. sp.

*Phora* sp. in Madagascar copal, MEUNIER, p. 92, Miscell. ent. xiii.

*P. copalina*, p. 211, pl. i, figg. 3, 4, 5, *ethiopia*, p. 212, figg. 6, 7, Zanzibar, copal, MEUNIER, Rev. Sci. Bourbonnais 1905; *P. papuana*, New Guinea, BRUES, p. 541, Ann. Mus. Hungar. iii, n. sp.

*Plastophora* n. g. p. 551, *beirne* n. sp., New Guinea, p. 552, and *Phora formicarum* varr., BRUES, t. c.

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*Biomya mutabilis*, Nevada, COQUILLET, p. 37, Invert. pacif. i, n. sp.

*Bucenies* Latr. to be used instead of *Siphonæ* (cf. *Siphona*), SPEISER, p. 462, Zeitschr. Insbiol. i.

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- A. remotinervis*, p. 566, *novakii*, p. 567, S. E. Europe, STROBL, Wiss. Mitt. Bosnien ix, n. sp.
- Chlorops novakii*, S. E. Europe, STROBL, p. 562, t. c. n. sp.
- Chyliza robusta*, Nevada, COQUILLET, p. 28, Invert. pacif. i, n. sp.
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- Euaressta adspersa*, California, COQUILLET, p. 30, Invert. pacif. i, n. sp.
- Euxesta argentina*, Tucumán, BRÈTHES, p. 342, An. Mus. Buenos Aires (3) iv, n. sp.
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*Basilia* n. g. *ferruginea* n. sp. on *Vespertilio*, Minas Geraes, RIBEIRO, Arch. Mus. Rio. Jan. xii, p. 175, pl. i.

*Hippobosca capensis* = (*Ornithomyia chinensis* Gigl.), SPEISER, p. 349, Zeitschr. Hym. Dipt. v.

*Icosta* n. g. type *Olfersia dioxyrhina*, SPEISER, p. 358, t. c.

*Lipoptena cervi* = (*Ornith. nigrirostris* Roser), p. 351, *L. chalconelana*, p. 352, SPEISER, t. c.

*L. efovea*, Ceylon, p. 352, *sepiacea*, S. Africa, p. 353, *conifera*, Brazil, p. 354, SPEISER, t. c. n. spp.

*Olfersia nigra*, p. 356, SPEISER, t. c.

*O. trita*, Tenasserim, p. 357, *nigrita*, Manila, p. 358, SPEISER, t. c. n. spp.

*Ornithomyia anchineuria* n. n. for *pallida* Say, p. 348, *paricella* n. n. for *chilensis* Reed, *O. chloropus*, p. 350, SPEISER, t. c.

*Pseudolfersia mycetifera*, Red Sea, SPEISER, p. 359, t. c. n. sp.

## APHANIPTERA.

[Cf. BAKER (53, 55, 62, 67), ENDERLEIN (508), GROSS (700), HERZOG (741), KOHAUT (873), LASS (918), MEISSNER (1025), NOC (1104), RAINBOW (1232), ROTHSCHILD (1299-1303).]

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*Ceratophyllus farreni*, England, ROTHSCHILD, p. 255, Ent. Mag. 1905 ; *C. telchinum*, p. 153, pl. viii, fig. 21, *peantis*, p. 155, pl. vii, figg. 22, 23, *acamantis*, p. 156, pl. viii, figg. 24, 25, *terinus*, p. 158, pl. viii, fig. 26, and ix, fig. 29, *bacchi*, p. 159, pl. ix, fig. 34, *eumolpi*, p. 161, pl. vi, figg. 3, 4, *quirini*, p. 163, pl. vi, fig. 1, *abantis*, p. 164, pl. vi, fig. 10, *euphorbi*, p. 165, pl. vi, fig. 11, *ager*, p. 166, pl. vi, figg. 5, 7, 9, *agilis*, p. 167, pl. vii, figg. 16-18, *nepos*, p. 168, pl. vii, figg. 13, 14, *acasti*, p. 168, pl. vii, figg. 19, 20, *lucifer*, p. 170, pl. vi, fig. 12, *pollionis*, p. 171, pl. ix, figg. 28, 31, 32, *telegoni*, p. 172, pl. ix, figg. 27, 30, ROTHSCHILD, Nov. Zool. xii ; *C. calceatus*, p. 481, pl. xiii, figg. 3, 4, *robinsoni*, p. 483, pl. xiii, fig. 6, Malay States, *vicinus*, Namaqualand, pl. xiii, fig. 7, *stratiotes*, Gaboon, pl. xiv, fig. 8, p. 484, ROTHSCHILD, t. c. ; *C. rothschildi*, N. S. Wales, on *Dasyurus*, RAINBOW, p. 103, Rec. Austral. Mus. vi ; *C. acutus*, California, BAKER, p. 40, Invert. pacif. i : n. spp.

*Ceratopsyllidae* n. fam., BAKER, p. 137, P. U. S. Mus. xxix.

*Ceratopsyllus crosbyi* n. sp., Missouri, BAKER, p. 137, t. c.

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*Ctenopsyllide* n. fam., BAKER, p. 136, t. c.

- C. ellobius*, Namaqualand, ROTHSCHILD, p. 490, pl. xiv, figg. 13-15, Nov. Zool. xii, **n. sp.**
- Dolichopsylla* **n. g.** for *Ceratophyllus stylosus*, BAKER, p. 135, P. U. S. Mus. xxix.
- Echidnophaga ambulans* Olliff, RAINBOW, pp. 100-102, pl. xxiii, Rec. Austral. Mus. vi.
- Goniopsyllus* **n. g.** type *kerquelensis*, BAKER, p. 128, P. U. S. Mus. xxix.
- Hystrichopsyllidæ* **n. fam.**, BAKER, p. 136, t. c.
- Hoplopsyllus* **n. g.** type *anomalus*, BAKER, p. 129, t. c.
- Lycopsyllidæ* **n. fam.** for *Lycopsylla* Rothsch., BAKER, p. 127, t. c.
- Macropsylla* **n. g.** near *Hystrichopsylla, hercules* **n. sp.**, Tasmania, pl. xiv, figg. 9, 10, ROTHSCHILD, p. 486, Nov. Zool. xii.
- Malacopsylla*; the three species, BAKER, p. 126, P. U. S. Mus. xxix.
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*P. roberti*, Brazil, p. 479, pl. xiii, figg. 1, 2, *scopulifer*, Zululand, p. 480, pl. xiii, fig. 5, ROTHSCHILD, Nov. Zool. xii: **n. spp.**
- Rhopalopsyllus* **n. g.** type *lutzi*, BAKER, p. 129, P. U. S. Mus. xxix.
- Spilopsyllus* **n. g.** type *leporis*, BAKER, p. 129, t. c.
- Stephanocircus*; RAINBOW, p. 107, Rec. Austral. Mus. 107; *S. dasyuri*, male, ROTHSCHILD, p. 61, Ent. Mag. 1905.
- S. simsoni*, Tasmania, ROTHSCHILD, p. 61, t. c. **n. sp.**
- Uropsylla* **n. g.** p. 487, *tasmanicus* **n. sp.**, Launceston, p. 488, pl. xiv, figg. 11, 12, ROTHSCHILD, Nov. Zool. xii.

(E.) *HEMIPTERA* OR *RHYNCHOTA*.

*Cimex*; the type, KIRKALDY, p. 76, Entomologist 1905: BLANFORD, t. c. p. 110.

Miscellaneous bibliographic notes, KIRKALDY, pp. 304-308, Entomologist 1905.

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## HEMIPTERA-HETEROPTERA.

## PENTATOMIDÆ.

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*Amphithegia* n. g. *Acanthosomini*, *bicallulosa* n. sp., E. Africa, BREDDIN, p. 12, Soc. ent. xx.

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*Andriscus cinctus, terminalis*, Victoria, p. 213, VAN DUZEE, Bull. Amer. Mus. xxi, n. spp.

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*Brachycerochoris congoanus*, Ubanghi, SCHOUTEDEN, p. 141, Ann. Soc. ent. Belgique 1905, n. sp.

*Brachystethus improvisus*, Venezuela, BREDDIN, p. 26, Soc. ent. xx, n. sp.

*Calliphara oculatorum*, Solomon Islds., *placida*, New Guinea, *paradisiaca*, Sumba, BREDDIN, p. 186, Soc. ent. xix, n. spp.

*Canthecona alluaudi*, p. 143, *signûtenens*, p. 276, Madagascar, SCHOUTEDEN, Rhynch. athiop. n. spp.

*Catacanthus reuteri*, Madagascar, SCHOUTEDEN, p. 51, Wien. ent. Zeit. xxiv.

*Chiptatula typica* ♂, *Cœnomorpha splendidula* ♀, of one species; *Chiptatula capitata* ♂, *Cœn. crassa* ♀, of one species; SCHOUTEDEN, p. 51, t. c.



- Chrysocoris bouvieri*, S. India, *prætextatus*, Cochin China, p. 186, *cingulatus*, Banguay Isld., *trabeatus*, Mindanao, *pontificalis*, Celebes, p. 187, BREDDIN, Soc. ent. xix, n. spp.
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- C. handlirschi*, Australia, p. 332, *biroi*, New Guinea, p. 340, *breddini*, Marianne Islds., p. 344, SCHOUTEDEN, t. c. n. spp.
- Commius minor*, Queensland, BERGROTH, p. 152, P. Zool. Soc. London 1905, ii, n. sp.
- Cuspicona carneola*, N. S. Wales, pl. viii, fig. 9, p. 207, *beutenmulleri*, Victoria, fig. 10, p. 208, VAN DUZEE, Bull. Amer. Mus. xxi, n. spp.
- Dalsira albopunctulata* var. n. *pallida*, SCHOUTEDEN, p. 55, Wien. ent. Zeit. xxiv.
- Delocephalus congo*, Africa, p. 212, SCHOUTEDEN, Rhynch. æthiop. n. sp.
- Deroploa affinis*, Australia, SCHOUTEDEN, p. 143, Ann. Soc. ent. Belgique 1905, n. sp.
- Dichobothrium kraepelini*, Java, BREDDIN, p. 117, Mt. Mus. Hamburg xxii, n. sp.
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- Dissocolpus* n. g. near *Neococalus*, p. 368, *fissiceps* n. sp., Madagascar, p. 369, BERGROTH, Ann. Soc. ent. Belgique 1905.
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- Edessa signoreti, davidi*, BERGROTH, p. 104, Rev. Ent. franc. 1905.
- E. elaphus, helicoceras, jo, nodamentosa*, S. America, *cerastes*, Costa Rica, p. 26, *gnu, stillativentris*, S. America, p. 27, BREDDIN, Soc. ent. xii, n. spp.
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- Eusthenes teucer*, Java, BREDDIN, p. 116, Mt. Mus. Hamburg xxii, n. sp.
- Garsauria, haglundiana* n. n. for *haglundii*, SCHOUTEDEN, p. 51, Wien. ent. Zeit. xxiv; *Garsauria* = (*Brachyrrhamphus* Hagl.), SCHOUTEDEN, p. 49, Ann. Soc. ent. Belgique 1905; *G. usambarica*, Africa, SCHOUTEDEN, p. 50, t. c. n. sp.
- Gynenica tellim*, Erythrea, SCHOUTEDEN, p. 8, t. c. n. sp.
- Halyomorpha erlangeri*, Abyssinia, SCHOUTEDEN, p. 12, t. c. n. sp.
- Hilrya* n. g. *Graphosomini, tibialis* n. sp., Java, SCHOUTEDEN, p. 142, t. c.
- Hypencha alata*, Banguay, BREDDIN, p. 210, Mt. Mus. Hamburg xxii, n. sp.
- Lerda* Stål = *Lerida* Karsch = *Menuthias* Kirk., SCHOUTEDEN, p. 51, Wien. ent. Zeit. xxiv.
- Levanna* n. g. near *Commius*, p. 151, *salax* n. sp., Queensland, p. 152, BERGROTH, P. Zool. Soc. London 1905, ii.
- Lobopeltista* n. n. for *Lobopelta* Schout.; SCHOUTEDEN, p. 55, Wien. ent. Zeit. xxiv.
- Mecidea tellinii*, Erythrea, SCHOUTEDEN, p. 7, Ann. Soc. ent. Belgique 1905, n. sp.
- Megaedæum karschi*, Cameroons, SCHOUTEDEN, p. 236, Rhynch. æthiop. n. sp.
- Megarkaphis dallasi*, Madagascar, SCHOUTEDEN, p. 181, t. c. n. sp.
- Menestheus brevis*, N. S. Wales, pl. viii, fig. 3, p. 200, VAN DUZEE, Bull. Amer. Mus. xxi, n. sp.

- Montandonista* n. n. for *Montandoniella*, SCHOUTEDEN, p. 51, Wien. ent. Zeit. xxiv.
- Montandonistella* n. n. for *Montandonista* Schout., SCHOUTEDEN, p. 50, Ann. Soc. ent. Belgique 1905.
- Nezara emmerezi*, Mauritius, p. 53, *soror*, Madagascar, p. 54, *congo*, Africa, p. 55, SCHOUTEDEN, Wien. ent. Zeit. xxiv, n. spp.
- Niarivus tryoni*, Queensland, BERGROTH, p. 150, P. Zool. Soc. London 1905, ii, n. sp.
- Oncocoris*; list of species, BERGROTH, pp. 148-150, t. c.
- O. ovalis*, Queensland, BERGROTH, p. 153, t. c. n. sp.
- Pentatoma ligata*, natural history, eggs, MORRILL (1070).
- Phimodera*; synonymy and variation, REUTER, pp. 61-64, Bull. Soc. ent. France 1905.
- Phyllocephala tumidifrons*, N. W. Australia, pl. viii, fig. 12, p. 211, VAN DUZEE, Bull. Amer. Mus. xxi, n. sp.
- Piezosternum calidum breddini* subsp. n., p. 217, larva, p. 275, fig. 133, SCHOUTEDEN, Rhynch. æthiop.
- Pisena horvathi*, p. 268, *aberrans*, p. 270, Madagascar, SCHOUTEDEN, t. c. n. spp.
- Platycoraria*, new division of *Halyinae* for stridulating forms, BERGROTH, p. 147, P. Zool. Soc. London 1905, ii.
- Platycoris scutellatus*, p. 190, pl. viii, fig. 1, *rufescens*, fig. 2, p. 191, Australia, VAN DUZEE, Bull. Amer. Mus. xxi, n. spp.
- Pæcilometis stigmatus*, N. S. Wales, pl. viii, fig. 3, *edwardsi*, Victoria, fig. 4, p. 198, VAN DUZEE, t. c. n. spp.
- Protestrica* subg. n. of *Tetrica* for *emarginata* Snell., etc., SCHOUTEDEN, p. 25, Gen. ins. fasc. xxx.
- Schiædtia* n. n. for *Philia* Stål, KIRKALDY, p. 79, Entomologist 1905.
- Schismatops gelei* to *Dalsira*, SCHOUTEDEN, p. 55, Wien. ent. Zeit. xxiv.
- Schizops icterica* Gerst. to *Dalsira*, SCHOUTEDEN, p. 55, t. c.
- Scotinophara longipes*, Trichinopoli, SCHOUTEDEN, p. 147, Ann. Soc. ent. Belgique 1905, n. sp.
- Sibaria andicola*, Ecuador, BREDDIN, p. 27, Soc. ent. xx, n. sp.
- Stictocarenus subrufescens*, Victoria, VAN DUZEE, p. 214, Bull. Amer. Mus. xxi, n. sp.
- Stictionotia* n. n. for *Stictocoris* Kirk., KIRKALDY, p. 268, Wien. ent. Zeit. xxiv.
- Storthogaster junodi* var. n. *rikatlensis*, SCHOUTEDEN, p. 55, Wien. ent. Zeit. xxiv.
- Tetrica stali* n. n. for *emarginata* Stål, SCHOUTEDEN, p. 26, Gen. ins. fasc. xxx.
- Tetricoides* n. g. *Graphosomini*, *pulcherrimus* n. sp., Victoria, SCHOUTEDEN, p. 144, Ann. Soc. ent. Belgique 1905.
- Urostylinae*, note, DISTANT, p. 94, Ent. Mag. 1905.
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- Weda* n. g. *Graphosomini*, *horvathi* n. sp., Colorado, SCHOUTEDEN, p. 145, Ann. Soc. ent. Belgique 1905.

## COREIDÆ.

[Of ANNANDALE (29), BERGROTH (98, 99), BREDDIN (180, 181), KIRKALDY (856).]

*Acidomeria nigricornis*, habitat, var., BERGROTH, p. 107, Rev. Ent. franc. 1905.

*Alydus calcaratus*, relations with ants, MJÖBERG, pp. 68-76, Arkiv Zool. ii, No. 17.

- Chorosoma schillingii*, eggs, MjöBERG, pl. figg. 6, 7, p. 61, Arkiv Zool. ii, No. 17.
- Cletomorpha spinijugis*, Madagascar, BERGROTH, p. 370, Ann. Soc. ent. Belgique 1905, n. sp.
- Cletus armatulus* n. n. for *pugnator* Dall, p. 118, *punctulatus* var. n. *javanus*, p. 119, BREDDIN, Mt. Mus. Hamburg xxii.
- Colpura hebeticolis*, Banguey, BREDDIN, p. 212, t. c. n. sp.
- Dalader acuticosta*, egg and young larva, ANNANDALE, pp. 53-59, pl. viii, Tr. ent. Soc. London 1905.
- Lybindus*, characters and position, BERGROTH, p. 106, Rev. Ent. franc. 1905.
- L. subterrivittatus*, Brazil, BERGROTH, p. 105, t. c. n. sp.
- Pendulinus pontifex*, Banguey, BREDDIN, p. 212, Mt. Mus. Hamburg xxii, n. sp.
- Priocnemisoris albithorax* var. nov. *patricius*, KIRKALDY, p. 352, Tr. ent. Soc. London 1905.
- Riptortus imperialis*, New Britain, KIRKALDY, p. 351, t. c. n. sp.
- Savius bergi*, Brazil, BERGROTH, p. 107, Rev. Ent. franc. 1905, n. sp.
- Spathocera*, food-habits, ROYER, pp. 164-166, Bull. Soc. ent. France 1905.

## LYGÆIDÆ.

- [Cf. BERGROTH (98), BERGROTH & SCHOUTEDEN (100), BREDDIN (180, 181), DISTANT (433, 435), HORVÁTH (776, 779), KIRKALDY (856).]
- Blissus diplopterus*, Cape Colony, DISTANT, p. 434, Tr. S. African Soc. xiv, n. sp.
- Ctiogenes æthiops*, Cape Colony, DISTANT, p. 435, t. c. n. sp.
- Cymus nocturnus*, *waelbroecki*, Congo, BERGROTH, p. 380, Ann. Soc. ent. Belgique 1905, n. sp.
- Geocoris itonis*, Japan, HORVÁTH, p. 414, Ann. Mus. Hungar. iii; *G. willeyi*, New Britain, KIRKALDY, p. 349, pl. xvii, fig. 8, Tr. ent. Soc. London 1905 : n. spp.
- Lethæus nodulinervis*, Madagascar, BERGROTH, p. 373, Ann. Soc. ent. Belgique 1905, n. sp.
- Letheaster* n. g. p. 124, *anthocorides* n. sp., Java, p. 125, BREDDIN, Mt. Mus. Hamburg xxii.
- Nesodromus* n. g. *Aphanaria*, p. 371, *pleuriticus* n. sp., Madagascar, p. 372, BERGROTH, Ann. Soc. ent. Belgique 1905.
- Oxycarenus hyalinipennis*, pp. 88-90, pl. iii, figg. 12-18, larva, p. 101, figg. 15-17, KÜHLGATZ, Mt. Mus. Berlin iii.
- O. breddini*, Congo, BERGROTH, p. 380, Ann. Soc. ent. Belgique 1905; *O. exitiosus*, Cape Town (injurious to peach etc.), DISTANT, p. 169, Entomologist 1905; *O. lifuanus*, Lifu, KIRKALDY, p. 347, Tr. ent. Soc. London 1905 : n. spp.
- Pachygrontha miriformis*, Banguey, BREDDIN, p. 213, Mt. Mus. Hamburg xxii, n. sp.
- Pachymerus nereis*, Lifu, KIRKALDY, p. 347, pl. xvii, fig. 7, Tr. ent. Soc. London 1905, n. sp.
- Pamera lounsburyi*, Cape Colony, DISTANT, p. 435, Tr. S. African Soc. xiv, n. sp.
- Peritrechus gracilicornis* var. n. *xanthopus*, HORVÁTH, p. 272, Bol. Soc. espan. v.
- Ptochiomera kydippe*, Lifu, KIRKALDY, p. 346, Tr. ent. Soc. London 1905, n. sp.
- Pyrrhobaphus satrapa*, Java, p. 119, *regulus*, Sumbawa, p. 120, BREDDIN, Mt. Mus. Hamburg xxii, n. spp.

*Taphropeltus championi*, Guadarrama, REUTER, p. 52, Tr. ent. Soc. London 1905, **n. sp.**

*Vertomannus tener*, Java, BREDDIN, p. 121, Mt. Mus. Hamburg xxii, **n. sp.**

#### PYRRHOCORIDÆ.

[Cf. BERGROTH (98), BREDDIN (181), KIRKALDY (856), KUHLGATZ (898, 899), SCHOUTEDEN (1341).]

*Ceneus exsanguis* Gerst. to *Odontopus*, BERGROTH, p. 371, Ann. Soc. ent. Belgique 1905.

*Dynamenais n. g.* for *Ectatops venustus* Walk., KIRKALDY, p. 343, Tr. ent. Soc. London 1905.

*Dysdercus cingulatus*, larval stages, KUHLGATZ, pp. 595–616, Zool. Jahrb. Suppl. viii ; *D. sida*, valid sp., p. 81, pl. ii, figg. 8, 9, *cingulatus*, pl. ii, figg. 15, 16, p. 83, *superstitiosus* and allies, pp. 86, 87, natural history, larval notes, pp. 98–101, KUHLGATZ, Mt. Mus. Berlin iii.

*Scantius circumcinctus*, characters and var., BERGROTH, p. 371, Ann. Soc. ent. Belgique 1905 ; *S. abyssinicus*, SCHOUTEDEN, p. 10, Ann. Soc. ent. Belgique 1905.

*Physopelta seria*, Java, BREDDIN, p. 127, Mt. Mus. Hamburg xxii, **n. sp.**

#### TINGIDÆ.

[Cf. BERGROTH & SCHOUTEDEN (100), DISTANT (435), HORVÁTH (777, 779), KIRKALDY (859).]

*Acalypta carpathica*, Roumania, *sejuncta*, Armenia, HORVÁTH, p. 561, Ann. Mus. Hungar. iii, **n. spp.**

*Acanthocheila kahavalu*, Peru, KIRKALDY, p. 216, Bull. Soc. ent. France 1905, **n. sp.**

*Aconchus* **subg. n.** cf. *Galeatus*.

*Americia annæ*, Peru, KIRKALDY, p. 216, Bull. Soc. ent. France 1905, **n. sp.**

*Astolphos n. g.* near *Phatnoma*, p. 428, *capitatus n. sp.*, Cape Town, pl. viii, fig. 5, p. 429, DISTANT, Tr. S. African Soc. xiv.

*Biskria sareptana* var. *n. adelpha*, HORVÁTH, p. 563, Ann. Mus. Hungar. iii.

*B. lepida*, Tunis, HORVÁTH, p. 562, t. c. **n. sp.**

*Campylosteira falleni* var. *n. miridita*, p. 558, *pilifera* var. *n. humilis*, p. 560, and var. *n. diminuta*, p. 561, HORVÁTH, t. c.

*C. dispar*, p. 558, *cognata*, p. 559, *sororcula*, 560, Algeria, HORVÁTH, t. c. **n. spp.**

*Catoplatus nigriceps*, Europe, HORVÁTH, p. 569, t. c. **n. sp.**

*Compseuta montandoni*, Delagoa Bay, pl. viii, fig. 15, DISTANT, p. 434, Tr. S. African Soc. xiv, **n. sp.**

*Copium glabricorne* to *Eurycera*, fig. pl. viii, fig. 9, DISTANT, p. 430, t. c.

*Derephysia nigricosta*, Spain, HORVÁTH, p. 272, Bol. Soc. espan. v, **n. sp.**

*Dictyonota tricornis* varr., HORVÁTH, p. 563, Ann. Mus. Hungar. iii.

*D. æthiops*, Algeria, p. 563, *iberica*, S. Spain, p. 563, HORVÁTH, t. c. **n. spp.**

*Galeatus consimilis*, Spain, HORVÁTH, p. 273, Bol. Soc. espan. v ; *G. (Aconchus subg. n. p. 566)*, *urbanus*, Italy, p. 565, HORVÁTH, Ann. Mus. Hungar. iii : **n. spp.**

*Hædus n. g.* near *Leptostyla*, *clypeatus n. sp.*, Cape Colony, p. viii, fig. 12, DISTANT, p. 432, Tr. S. African Soc. xiv.

*Hanuata n. g.* near *Euryparsa*, *leimahoni n. sp.*, Peru, KIRKALDY, p. 217, Bull. Soc. ent. France 1905.

- Hyalochiton* subg. n. of *Galeatus*, for *G. komaroffi* Jak., HORVÁTH, p. 566, Ann. Mus. Hungar. iii.
- Lullius* n. g. near *Serenthia*, p. 429, *major*, pl. viii, fig. 7, *L. minor*, fig. 8, n. spp., Cape Colony, p. 430, DISTANT, Tr. S. African Soc. xiv.
- Monanthia montandoni* var. n. *rivalis*, p. 570, *putoni* var. n. *pulla*, p. 572, HORVÁTH, Ann. Mus. Hungar. iii.
- M. ruficeps*, Tunis, *subdola*, Araxes Valley, HORVÁTH, p. 571, t. c. ; *M. mitrata*, Grahamstown, pl. viii, fig. 14, DISTANT, p. 433, Tr. S. African Soc. xiv : n. spp.
- Monosteira cleopatra*, Egypt, HORVÁTH, p. 572, Ann. Mus. Hungar. iii, n. sp.
- Physatocheila confinis*, S. E. Europe etc., HORVÁTH, p. 570, t. c. n. sp.
- Phyllontocheila vaelbroeckii*, Congo, SCHOUTEDEN, p. 381, Ann. Soc. ent. Belgique 1905 ; *P. jumodi*, Transvaal, pl. viii, fig. 10, DISTANT, p. 431, Tr. S. African Soc. xiv : n. spp.
- Sanazarius* n. g. *Tingidaria*, *cuneatus* n. sp., Cape Colony, pl. viii, fig. 11, DISTANT, p. 431, t. c.
- Serenthia ruficornis* var. n. *dubia*, *femoralis* var. n. *antennata*, p. 556, and varr. n. *thoracica*, *imbecilla*, p. 557, *læta* var. n. *apicicornis*, p. 557, *nigra* var. n. *collaris*, p. 558, HORVÁTH, Ann. Mus. Hungar. iii.
- S. turanica*, Turkestan, p. 556, *blandula*, Caucasus, p. 558, HORVÁTH, t. c. ; *S. peringueyi*, Cape Town, DISTANT, pl. viii, fig. 6, p. 429, Tr. S. African Soc. xiv : n. spp.
- Sinalda* n. g. p. 426 for part of *Phatnoma*, *elegans*, pl. viii, fig. 2, *reticulata*, fig. 3, p. 427, *nebulosa*, fig. 4, p. 428, n. spp., S. Africa, DISTANT, t. c.
- Stephanitis azaleæ* n. n. for *T. pyrioides* Scott, HORVÁTH, p. 568, Ann. Mus. Hungar. iii.
- S. rhododendri*, Holland, HORVÁTH, p. 567, t. c. n. sp.
- Teleonemia australis*, Cape Town, pl. viii, fig. 13, DISTANT, p. 432, Tr. S. African Soc. xiv, n. sp.
- Tingis chlorophana* to *Stephanitis*, *auriculata* varr. n., HORVÁTH, p. 569, Ann. Mus. Hungar. iii.
- Ulmus* n. g. *Cantacaderaria*, p. 425, *testudineatus* n. sp., S. Africa, pl. viii, fig. 1, p. 426, DISTANT, Tr. S. African Soc. xiv.

## BERYTIDÆ and ARADIDÆ.

[Cf. DISTANT (434), HORVÁTH (774, 776).]

- Aneurys greeni*, Ceylon, DISTANT, p. 194, Entomologist 1905, n. sp.
- Aradus consentaneus*, Japan, HORVÁTH, p. 415, Ann. Mus. Hungar. iii, n. sp.
- Megalomerium tenellum*, New Guinea, *breviceps*, Hungary, HORVÁTH, p. 57, t. c. n. spp.
- Parajalysus andinus*, *conceivis*, Peru, HORVÁTH, p. 60, t. c. n. spp.
- Pneustocerus* n. g. *nigricornis* n. sp., New Guinea, HORVÁTH, p. 59, t. c.
- Triconulus* n. g. *ægyptius* n. sp., Egypt, HORVÁTH, p. 58, t. c.
- Yemma* n. g. *exilis* n. sp., Japan, HORVÁTH, p. 56, t. c.

## HYDROMETRIDÆ.

[Cf. BREDDIN (180), BUENO (210), DISTANT (435), HORVÁTH (776), MJÖBERG (1050), SCHOUTEDEN (100).]

- Angüllia germari*, Cape Colony, DISTANT, p. 436, Tr. S. African Soc. xiv, n. sp.

- Gerris ysolt*, Java, BREDDIN, p. 130, Mt. Mus. Hamburg xxii, n. sp.  
*Hydrometra martini*, habits, BUENO, pp. 12-14, Canad. Ent. 1905; *H. australis* Say, a good species, BUENO, p. 284, t. c.  
*H. procera*, Japan, HORVÁTH, p. 416, Ann. Mus. Hungar. iii; *H. australis*, Georgia, BUENO, p. 15, Canad. Ent. 1905: n. spp.  
*Mesovelia proxima*, Congo, SCHOUTEDEN, p. 388, Ann. Soc. ent. Belgique 1905, n. sp.  
*Metrocoris strangulator*, Java, BREDDIN, p. 134, Mt. Mus. Hamburg xxii, n. sp.  
*Perittopus vicarians*, Java, BREDDIN, p. 129, t. c. n. sp.  
*Ptilomera asbolus*, Java, BREDDIN, p. 132, t. c. n. sp.  
*Rhagadotarsus* n. g. near *Rhagovelia*, p. 136, *kraepelini* n. sp., Java, p. 137, BREDDIN, t. c. n. spp.

## REDUVIIDÆ.

- [Cf. BERGROTH (98, 99), BERGROTH & SCHOUTEDEN (100), BREDDIN (180-182), KIRKALDY (856), VARELA (1532, 1533).]
- Alloæorrhynchus piceus*, Java, BREDDIN, p. 145, Mt. Mus. Hamburg xxii, n. sp.  
*A. perminutus*, Congo, BERGROTH, p. 386, Ann. Soc. ent. Belgique 1905, n. sp.  
*Breddinia lobata*, p. 98, *B. ? gracilis*, p. 99, W. Africa, VARELA, Bol. Soc. espan. v, n. spp.  
*Diarthrotarsus* n. n. for *Lycimna* Stål, BERGROTH, p. 112, Rev. Ent. franc. 1905.  
*Ghilianella congoensis*, Africa, SCHOUTEDEN, p. 385, Ann. Soc. ent. Belgique 1905, n. sp.  
*Harpactor (Harpiscus) ausmeti*, Guinea, VARELA, p. 97, Bol. Soc. espan. v, n. sp.  
*Heteropinus* and *Platymicrus* distinguished, BREDDIN, p. 264, Wien. ent. Zeit. xxiv.  
*Heza signoreti* Fallou, BERGROTH, p. 108, Rev. Ent. franc. 1905.  
*Katanga fuscovivens*, Congo, BERGROTH, p. 373, Ann. Soc. ent. Belgique 1905, n. sp.  
*Margasus ornatus*, p. 145, *martini*, p. 146, *nitidus*, *elegans*, p. 147, Madagascar, VARELA, Bol. Soc. espan. v, n. spp.  
*Munia* n. g. near *Irantha*, p. 99, *schoutedeni* n. sp., Cameroons, p. 100, VARELA, t. c.  
*Oncocephalus amen*, New Britain, KIRKALDY, p. 340, Tr. ent. Soc. London 1905, n. sp.  
*Pasiropsis nabidooides*, Java, BREDDIN, p. 145, Mt. Mus. Hamburg xxii, n. sp.  
*Patago* n. n. for *Hoplogenus* Stål, BERGROTH, p. 112, Rev. Ent. franc. 1905.  
*Physoderus azrael*, New Britain, KIRKALDY, p. 339, Tr. ent. Soc. London 1905, n. sp.  
*Pirates grandis* Fallou, BERGROTH, p. 109, Rev. Ent. franc. 1905.  
*Platymicrus aneuroides*, Cameroons, BREDDIN, p. 263, Wien. ent. Zeit. xxiv, n. sp.  
*Pselliopus* n. n. for *Milyas* Stål, BERGROTH, p. 112, Rev. Ent. franc. 1905.  
*Pygolampis kinchassæ*, Congo, SCHOUTEDEN, p. 384, Ann. Soc. ent. Belgique 1905, n. sp.  
*Sastrapada noctivaga*, BERGROTH, p. 382, *vicina*, *S. (Harpagochares) signata*, p. 383, SCHOUTEDEN, Congo, Ann. Soc. ent. Belgique 1905: n. spp.  
*Scadra nigritula*, Java, BREDDIN, p. 147, Mt. Mus. Hamburg xxii, n. sp.  
*Sphedanolestes albigula*, Java, BREDDIN, p. 148, t. c. n. sp.

- Spiniger bergi*, p. 110, *paganus*, p. 111, Brazil, BERGROTH, Rev. Ent. franc. 1905, n. spp.  
*Sycanus rhombogaster*, Banguay, BREDDIN, p. 217, Mt. Mus. Hamburg xxii, n. sp.  
*Toxopus n. g. Etrichodiince*, p. 374, *politus n. sp.*, Madagascar, p. 375, BERGROTH, Ann. Soc. ent. Belgique 1905.  
*Tragelaphodes bergrothi*, E. Africa, BREDDIN, p. 264, Wien. ent. Zeit. xxiv, n. sp.  
*Tribocephala breviceps*, Congo, BERGROTH, p. 375, Ann. Soc. ent. Belgique 1905, n. sp.  
*Zelus peregrinus*, natural history, eggs, SWEZEY, p. 232, pl. xvi, Rep. exp. Stat. Hawaii i.  
*Z. gradarius*, Brazil, BERGROTH, p. 109, Rev. Ent. franc. 1905, n. sp.

## CIMICIDÆ, ANTHOCORIDÆ, HENICOCEPHALIDÆ, CERATOCOMBIDÆ.

- [Cf. BERGROTH (98), BERGROTH & SCHOUTEDEN (100), BREDDIN (180), GIRAULT (666, 667), HEIDEMANN (733), HORVÁTH (776).]  
*Ænicopechys n. g. Henicocephalidæ*, p. 139, *neopinatus n. sp.*, Java, p. 140, BREDDIN, Mt. Mus. Hamburg xxii.  
*Cocles n. g. Henicocephalidæ, contemplator n. sp.*, Madagascar, BREDDIN, p. 142, t. c.  
*Clinocoris lectularia*, life-history, food-habits, longevity, GIRAULT, Psyche xii, pp. 61-74; *C. lectularius* attacks mice, and *C. columbarius* attacks man and mouse, GIRAULT, pp. 117-123, t. c.  
*Glyptocombus n. g. Ceratocombidæ*, p. 192, *G. saltator n. sp.*, Plummer's Is., p. 194, HEIDEMANN, P. ent. Soc. Washington 1905.  
*Henicocephalus hymenæus, laticollis*, Madagascar, p. 376, *tuberculatus*, Congo, p. 377, BERGROTH, Ann. Soc. ent. Belgique 1905; *H. cornifrons*, Congo, SCHOUTEDEN, p. 385, Ann. Soc. ent. Belgique 1905; *H. soriculus*, p. 143, *sanguinipes*, p. 144, Java, BREDDIN, Mt. Mus. Hamburg xxii : n. spp.  
*Hypselosoma matsumurae*, Japan, HORVÁTH, p. 417, Ann. Mus. Hungar. iii, n. sp.  
*Piezostethus congoensis*, Congo, BERGROTH, p. 386, Ann. Soc. ent. Belgique 1905, n. sp.

## CAPSIDÆ.

- [Cf. BREDDIN (180), HEIDEMANN (734), HORVÁTH (776, 779), KIRKALDY (856), REUTER (300, 1259, 1262).]  
*Adelphocoris torquatus*, p. 12, *apicalis, divergens*, p. 13, *luridus*, p. 14, *fasciiger*, p. 17, *tæniophorus*, p. 18, China, REUTER, Annuaire Mus. St. Petersb. 1905; *A. demissus*, Japan, HORVÁTH, p. 418, Ann. Mus. Hungar. iii : n. spp.  
*Amblytylus scutellaris*, Spain, HORVÁTH, p. 274, Bol. Soc. espan. v, n. sp.  
*Atractotomus nitidus*, Spain, HORVÁTH, p. 275, t. c. n. sp.  
*Chlamydatus longirostris* Hérault, REUTER, p. 8, Bull. Soc. ent. France 1905, n. sp.  
*Cobalorrhynchus n. g. Bryocoraria*, p. 1, *biquadrangulifer n. sp.*, China, p. 2, REUTER, Annuaire Mus. St. Petersb. 1905.  
*Cyphodema hilare*, Japan, HORVÁTH, p. 419, Ann. Mus. Hungar. iii, n. sp.  
*Dervæocoris ater* var. *n. amplus*, HORVÁTH, p. 419, t. c.  
*D. pallidus*, p. 419, *elegantulus*, p. 420, Japan, id. t. c. n. spp.  
*Dicyphus nigrifrons*, China, REUTER, p. 61, Annuaire Mus. St. Petersb. 1905, n. sp.

- Ectenellus* n. g. near *Phylidea*, p. 66; *tibialis* n. sp., China, p. 67, REUTER, t. c.
- Ectmetopterus* n. g. near *Halticus*, p. 59, *angusticeps* n. sp., China, p. 60, REUTER, t. c.
- Eucharicoris* n. g. near *Phylus*, p. 64, *pallidipennis* n. sp., China, p. 65, REUTER, t. c.
- Halticus micantulus*, Japan, HORVÁTH, p. 422, Ann. Mus. Hungar. iii, n. sp.
- Imogen* n. g. p. 337, *formosa* n. sp., New Britain, p. 338, KIRKALDY, Tr. ent. Soc. London 1905.
- Læmocoris*? *javanus*, Borobudur, BREDDIN, p. 149, Mt. Mus. Hamburg xxii, n. sp.
- Leucodellus* n. g. near *Plagiognathus*, p. 68, *albidus* n. sp., China, p. 69, REUTER, Annuaire Mus. St. Petersb. 1905.
- Liistonotus* n. g. near *Liocoris*, p. 54, *xanthomelas*, p. 55, n. sp., Gansu, REUTER, t. c.
- Liocoridea melanostoma*, China, REUTER, p. 53, t. c. n. sp.
- Lopistus* n. n. for *Lopus* Spin. nec Hahn, KIRKALDY, p. 268, Wien. ent. Zeit. xxiv.
- Lygus flavigenis*, Japan, HORVÁTH, p. 419, Ann. Mus. Hungar. iii; *L. rugosicollis*, p. 28, *longipennis*, p. 29, *striicornis*, p. 31, *pulchellus*, p. 33, *potanini*, p. 35, *dasypterus*, p. 37, *trivittulatus*, p. 39, *clavicornis*, p. 41, *validicornis*, p. 42, *bianchi*, p. 44, China, REUTER, Annuaire Mus. St. Petersb. 1905: n. spp.
- Mecomma chinensis*, Schubagu, REUTER, p. 63, t. c. n. sp.
- Orthocephalus beresovskii*, Gansu, REUTER, p. 57, t. c. n. sp.
- Pachytomella cursitans*, Cantabrian Mts., REUTER, p. 53, Tr. ent. Soc. London 1905, n. sp.
- Pantiliodes piceus*, China, REUTER, p. 7, Annuaire Mus. St. Petersb. 1905, n. sp.
- Phytocoridae* n. g. near *Phytocoris*, p. 21, *dispar* n. sp., China, p. 22, REUTER, t. c.
- Phytocoris potanini*, China, REUTER, p. 4, t. c. n. sp.
- Pilophorus setulosus*, Japan, HORVÁTH, p. 421, Ann. Mus. Hungar. iii, n. sp.
- Plagiognathus lividus*, China, REUTER, p. 73, Annuaire Mus. St. Petersb. 1905, n. sp.
- Psallus holomelas*, p. 69, *alpestris*, p. 70, *opacus*, p. 72, China, REUTER, t. c.; *P. juniperi*, New York, HEIDEMANN, p. 49, J. N. York Ent. Soc. xiii: n. spp.
- Pseudoloxops* n. n. for *Loxops*, Fieb. *P. coccinatus* n. n. for *coccineus* Mey., KIRKALDY, p. 268, Wien. ent. Zeit. xxiv.
- Reuteroscopus* n. n. for *Episcopus* Reut., KIRKALDY, p. 268, t. c.
- Stenodema rubrinerve*, Japan, HORVÁTH, p. 417, Ann. Mus. Hungar. iii, n. sp.
- Sthenarus potanini*, p. 77, *pallidipes*, p. 78, *interruptus*, p. 79, *niveoarcuatus*, p. 80, REUTER, Annuaire Mus. St. Petersb. 1905, n. spp.
- Strongylocoris obscurus* var. n. *oberthuri*, REUTER, p. 8, Bull. Soc. ent. France 1905.

## HYDROCORISÆ.

[Cf. BORDAS (138, 139), BREDDIN (180, 185), BUENO (208, 209, 211-213), HORVÁTH (776), HÜBER (795), KIRKALDY (862), MONTANDON (1058, 1059), WIELOWIEYSKI (1631).]

Making collections, BUENO, Canad. Ent. 1905, pp. 137-142.

German *Hydrocorisæ*, HÜBER, Jahresh. Ver. Württemb. lxi, pp. 91-175.



- Primary reprod. organs, ♂ *Nepa*, BORDAS, C.R. Soc. Biol. lviii, pp. 382-384.  
 Alimentary canal, *Nepa*, BORDAS, t. c. pp. 169, 170.
- Anisops occipitalis*, Java, BREDDIN, p. 153, Mt. Mus. Hamburg xxii, n. sp.  
*Enithares intricatus*, Java, BREDDIN, p. 154, t. c. n. sp.  
*Gelastocoride*, the American, BUENO, p. 290, Ohio Natural. v.  
*Ilyocoris cimicoides*, natural history, KIRKALDY, pp. 173-176, Entomologist 1905.  
*Matinus americanus*, Brazil, MONTANDON, p. 404, Ann. Mus. Hungar. iii, n. sp.  
*Micronecta*, table and characters of Javanese, BREDDIN, pp. 155-160, Mt. Mus. Hamburg xxii.  
*M. vanduzeei*, Philippines, *thelxina*, *memonoides*, Ceylon, *annæ*, p. 262, *erato*, p. 263, Australia, KIRKALDY, Ent. News Philad. xvi; *M. quadristrigata*, *fugitans*, *ludibunda*, *pardalina*, *inflatula*, Java, BREDDIN, p. 57, Soc. ent. xx; *M. sedula*, Japan, HORVÁTH, p. 423, Ann. Mus. Hungar. iii: n. spp.  
*Mononyx peruviana*, Callanga, MONTANDON, p. 403, Ann. Mus. Hungar. iii, n. sp.  
*Nerthra stygica*, pp. 287-289, BUENO, Ohio Natural. v.  
*Notonecta glauca*, migration, PROWAZEK, p. 67, Zeitschr. Insbiol. i.  
*N. howardii*, Arizona, BUENO, p. 151, J. N. York Ent. Soc. xiii, n. sp.  
*Pelocoris horvathi*, Brazil, MONTANDON, p. 405, Ann. Mus. Hungar. iii, n. sp.  
*Ranatra*, stridulation, BUENO, pp. 85-87, Canad. Ent. 1905; *R. longipes* and *varipes*, BREDDIN, p. 152, Mt. Mus. Hamburg xxii.  
*R. parvata*, p. 389, *annulipes*, p. 393, *macrophthalma*, p. 395, *unidentata*, p. 397, MONTANDON, Bull. Soc. Bucarest xiv; *R. stali*, Philippines, p. 390, *brevicauda*, p. 391, *signoreti*, p. 392, Brazil, *robusta*, Columbia and Surinam, p. 396, MONTANDON, t. c.; *R. kirkaldyi*, N. America, BUENO, p. 187, Canad. Ent. 1905: n. spp.

## HOMOPTERA.

## CICADIDÆ.

- [Cf. BREDDIN (181), DISTANT (422-432, 670), IMHOF (804), JACOBI (806), KIRKALDY (856), KUHLGATZ (899), UHLER (1515).]
- Structure of the wings of *Cicadidæ*, IMHOF, Zeitschr. wiss. Zool. lxxxiii, pp. 211-223.
- Abagazara* n. g. type *Callipsaltria bicolorata* Dist., DISTANT, p. 206, Ann. Nat. Hist. (7) xvi.  
*Abricta castanea*, N. Australia, p. 27, *burgessi*, Queensland, p. 28, DISTANT, t. c.; *A. elseyi*, N. Australia, DISTANT, p. 281, t. c.: n. spp.  
*Abroma bowringi*, China, DISTANT, p. 32, Ann. Nat. Hist. (7) xvi; *A. philippinensis*, Palouan, DISTANT, p. 561, t. c.; *A. kedenburgi*, Banguay, BREDDIN, p. 221, Mt. Mus. Hamburg xxii: n. spp.  
*Adenia* n. g. *Parnisaria*, p. 210, *yerburyi* n. sp., Aden, p. 311, DISTANT, Ann. Nat. Hist. (7) xvi.  
*Ahomana* n. g. *Tibicinaria*, p. 23, *neotropicalis*, Peru, *chilensis*, Chile, p. 24, n. spp., DISTANT, t. c.  
*Akamba* n. g. *Chlorocystaria*, *æthiopica* n. sp., Trop. Africa, DISTANT, p. 562, t. c.  
*Aola* n. g. type *Pomponia bindusara* Dist., DISTANT, p. 69, op. cit. xv.  
*Arfaka* n. g. type *Cephaloxys fulva* Walk., DISTANT, p. 276, op. cit. xvi.  
*Ariasa* n. g. type *Tympanoterpes colombiæ* Dist., *A. nigrovittata* n. sp., Brazil, DISTANT, p. 314, op. cit. xv.

- Ayesha* n. g. type *Cosmopsaltria spathulata* Stål, DISTANT, p. 63, t. c.  
*Balinta* n. g. type *Cicada otonotata* Westw., p. 383, *B. auriginea* n. sp., Mts. Song-Chai, p. 384, DISTANT, t. c.  
*Basa* n. g. type *Dundubia singularis* Walk., DISTANT, p. 309, t. c.  
*Bavea* n. g. type *Cephaloxys concolor* Walk., the habitat being S. Africa, DISTANT, p. 214, op. cit. xvi.  
*Burbunga* n. g. type *Tibicen gilmorei* Dist., *B. inornata* n. sp., W. Australia, DISTANT, p. 29, t. c.  
*Carineta boliviana*, p. 484, *illustris*, p. 485, *peruviana*, p. 486, S. America, DISTANT, op. cit. xv, n. spp.  
*Champaka* n. g. type *Pomponia viridimaculata* Dist., DISTANT, p. 70, t. c.  
*Chonosia* n. g. type *Fidicina crassipennis* Walk., DISTANT, p. 481, t. c.  
*Cicada grossa*, synonymy, UHLER, p. 76, Ent. News Philad. xvi; *C. nubifurca* Walk. to *Abroma* (cf. *Panka* below), DISTANT, p. 35, Ann. Nat. Hist. (7) xvi; *C. complex* Walk., note, DISTANT, p. 274, t. c.; *C. hirundo* Walk. and *confacies* Walk. to *Purana*?, *C. nodosa* and *acutipennis* Walk. to *Diceropyga*?, *C. stipata* Walk. to *Terpnosia*?, DISTANT, p. 553, t. c.  
*C. pulverulenta*, Madagascar and Seychelles, DISTANT, p. 199, Tr. ent. Soc. London 1905; *C. tridentigera*, p. 220, *nesiotes*, p. 221, Banguay, BREDDIN, Mt. Mus. Hamburg xxii; *C. townsendii*, Arizona, UHLER, p. 74, Ent. News Philad. xvi: n. spp.  
*Collina* n. g. near *Tibicen*, for *Odopœa biolleyi* (cut on p. 143) and *medea*, DISTANT, Biol. Centr.-Amer. Homopt. i.  
*Conibosa* n. g. type *Cephaloxys occidentris* Walk., DISTANT, p. 215, Ann. Nat. Hist. (7) xvi.  
*Cosmopsaltria tonkiniana*, Tonkin, JACOBI, p. 429, pl. xxi, fig. 1, Zool. Jahrb. Syst. xxi; *C. alticola*, Borneo, DISTANT, p. 200, Tr. ent. Soc. London 1905: n. spp.  
*Daza* n. g. type *Zummaria montezuma* Walk., DISTANT, p. 480, Ann. Nat. Hist. (7) xv.  
*Derotettix wagneri*, Rio Salado, DISTANT, p. 209, op. cit. xvi, n. sp.  
*Diceropyga boninensis*, Bonin Ids., DISTANT, p. 67, op. cit. xv; *D. aluana*, Solomon Ids., DISTANT, p. 557, op. cit. xvi: n. spp.  
*Diemenia* n. g. type *Cicada coleoprata* Walk., DISTANT, p. 206, t. c.  
*Dokuma* n. g. type *Dundubia nigristigma* Walk., DISTANT, p. 69, op. cit. xv.  
*Drepanopsaltria* merged in *Prasia*, DISTANT, p. 278, op. cit. xvi.  
*Dulderana* n. g. type *Cicada truncatella* Walk., DISTANT, p. 280, t. c.  
*Dundubiaria*, synopsis of genera, DISTANT, pp. 58-70, op. cit. xv.  
*Fatima* n. g. type *Cosmopsaltria capitata* Dist., DISTANT, p. 62, t. c.  
*Fidicina roberti*, p. 315, *lacteipennis*, p. 316, Brazil, *flavibasalis*, Ecuador, p. 317, DISTANT, t. c. n. spp.  
*Gæana vestita*, Yunnan, DISTANT, p. 121, Entomologist 1905, n. sp.  
*Gazuma* n. g. *Tibicinine*; *barretta*, *delalundei*, *pretoriae* n. spp., S. Africa, DISTANT, p. 268, Ann. Nat. Hist. (7) xvi.  
*Graptotettix rubromaculatus*, Celebes, DISTANT, p. 482, op. cit. xv, n. sp.  
*Guaranisaria* n. g. *Carinetaria*, *dissimilis* n. sp., Argentina, DISTANT, p. 660, op. cit. xvi.  
*Gudanga* n. g. *Parnisaria*, *boulayi* n. sp., W. Australia, DISTANT, p. 208, t. c.  
*Gymnotympana olivacea*, New Guinea, DISTANT, p. 563, t. c. n. sp.  
*Haphsa* n. g. type *Dundubia nicomache* Walk., *H. crassa* n. sp., Yunnan, DISTANT, p. 64, op. cit. xv.  
*Hemisciara durhami*, Brazil, DISTANT, p. 317, t. c. n. sp.  
*Herrera* n. g. type *Cicada marginella* Walk., DISTANT, p. 486, t. c.  
*Hovana* n. g. type *Hemidictya distanti* Brancs., DISTANT, p. 279, op. cit. xvi.

- Inyamana* n. g. *Tibicininae*, p. 266, *hæmaris*, *ochracea* n. spp., E. Africa p. 267, DISTANT, t. c.
- Iruana* n. g. near *Lacetas*, *sulcata* n. sp., E. Africa, DISTANT, p. 278, t. c.
- Jacatra* n. g. *Tibicininae*, *typica* n. sp., Java, DISTANT, p. 277, t. c.
- Kamalata javanensis*, Java, DISTANT, p. 308, op. cit. xv, n. sp.
- Khimbya* n. g. type *Dundubia evanescens* Walk., DISTANT, p. 307, t. c.
- Kongoia muiri*, Natal, DISTANT, p. 671, op. cit. xvi, n. sp.
- Koranna* n. g. *Parnisaria*, *analís* n. sp., E. Africa, DISTANT, p. 207, t. c.
- Kumanga* n. g. type *Bacturia sandaracata* Dist., DISTANT, p. 215, t. c.
- Lahugada* n. g. type *Pomponia doherlyi* Dist., DISTANT, p. 304, op. cit. xv.
- Lahugadaria*, division defined, DISTANT, p. 304, t. c.
- Lemuriana* n. g. type *Cicada apicalis* Germ., p. 32, *L. flavocostata*, E. Africa, *sikoreæ*, Madagascar, p. 33, n. spp., DISTANT, op. cit. xvi.
- Lethama* n. g. type *Cephaloxys locusta* Walk., DISTANT, p. 308, op. cit. xv.
- Majeorona* n. g. type *Fidicina aper* Walk., *M. bovilla* n. sp., Chapada, DISTANT, p. 318, t. c.
- Mapondera* n. g. type *Cicada pulchella* Stål, DISTANT, p. 212, op. cit. xvi.
- Mardalana* n. g. for *Cicada congrua* Walk. = (*Chlorocysta macrula* Stål), DISTANT, p. 215, t. c.
- Masupha dregei*, S. Africa, DISTANT, p. 208, t. c. n. sp.
- Mauu* n. g. type *Cicada quadrituberculata* Sign., *M. affinis* n. sp., Borneo, DISTANT, p. 61, op. cit. xv.
- Meinuma* n. g. type *Dundubia tripurasura* Dist., DISTANT, p. 67, t. c.
- Melampusalta godingi*, Australia, *æthiopica*, Zomba, p. 270, *waterhousei*, *lactea*, p. 271, *issoides*, p. 272, Australia, DISTANT, op. cit. xvi, n. spp.
- Miranha* n. g. type *Zammara imbellis* Walk., DISTANT, p. 381, op. cit. xv.
- Mogannia caesar*, pl. 21, fig. 4, p. 433, JACOBI, Zool. Jahrb. Syst. xxi.
- M. mandarina*, Hong Kong, p. 385, *horsfieldi*, Java, p. 386, DISTANT, Ann. Nat. Hist. (7) xv, n. spp.
- Monomatapa socotrane*, Socotra, DISTANT, p. 31, op. cit. xvi, n. sp.
- Munza revoili*, Somaliland, DISTANT, p. 192, pl. xi, fig. 5, Tr. ent. Soc. London 1905, n. sp.
- Mura* n. g. *Tibicininae*, *elegantula* n. sp., Panama, DISTANT, p. 144, Biol. Centr.-Amer. Homopt. i.
- Nelcynda madagascariensis*, Madagascar, DISTANT, p. 35, Ann. Nat. Hist. (7) xvi, n. sp.
- Odopæa perspicua*, São Thomé, DISTANT, p. 380, op. cit. xv, n. sp.
- Okanagana* n. g. type *Cicada rimosa* Say, DISTANT, p. 23, op. cit. xvi.
- Ollanta* n. g. type *mexicana* Dist., DISTANT, p. 313, op. cit. xv.
- O. mexicana*, Atoyac, DISTANT, p. 141, Biol. Centr.-Amer. Homopt. i, n. sp.
- Oncotympana virescens*, Tibet, DISTANT, p. 201, Tr. ent. Soc. London 1905; *O. fuscata*, N. China, p. 558, *stratoria*, Yunnan, p. 559, DISTANT, Ann. Nat. Hist. (7) xvi : n. spp.
- Orapa* n. g. type *Pycna numa* Dist., DISTANT, p. 480, op. cit. xv.
- Orellana* n. g. type *Zammara columbia* Dist., p. 381, *O. brevis* n. sp., Colombia, p. 382, DISTANT, t. c.
- Pacarina* n. g. type *Cicada signifera* Walk., DISTANT, p. 314, t. c.; *P. schumanni*, Mexico, DISTANT, p. 142, Biol. Centr.-Amer. Homopt. i : n. sp.
- Paharia* n. g. type *Cephaloxys lacteipennis* Walk., DISTANT, p. 25, Ann. Nat. Hist. (7) xvi.
- Panka* n. g. type *simulata* Dist. = (*Tibicen nubifurca* Dist.), p. 34, *P. africana* n. sp., Fernando Po, p. 35, DISTANT, t. c.

- Parnkalla* n. g. type *Tibicen mulleri* Dist., DISTANT, p. 29, t. c.  
*Parvityta* n. g. near *Graptotettix*, p. 482, *samura* n. sp., Philippines, p. 483, DISTANT, op. cit. xv.  
*Pauropsalta stigmatica, dameli*, Australia, DISTANT, p. 273, op. cit. xvi, n. spp.  
*Platyloimia* Stål recharacterised, *assamensis*, Assam, p. 65, *virescens*, Borneo, *albomaculata*, Philippines, p. 66, DISTANT, op. cit. xv; *P. juno*, p. 200, *diana*, p. 201, Ta-t sien-low, DISTANT, Tr. ent. Soc. London 1905 : n. spp.  
*Platypleura attenuata*, Nigeria, DISTANT, p. 554, Ann. Nat. Hist. (7) xvi; *P. spicata*, Madagascar, p. 192, *seraphina*, p. 193, *esa*, p. 194, Africa, DISTANT, Tr. ent. Soc. London 1905; *P. lineatella*, Sunda Ids., *lindiana*, E. Africa, p. 668, *murchisoni*, Transvaal, p. 669, *ridleyana*, Malacca, *harmandi*, Cochin China, p. 670, DISTANT, Ann. Nat. Hist. (7) xvi; *P. vitreolimbata*, Banguay, BREDDIN, p. 218, Mt. Mus. Hamburg xxii : n. spp.  
*Plautillaria*; n. div., *Plautilla* Stål, characters, DISTANT, p. 563, Ann. Nat. Hist. (7) xvi.  
*Pomponia piceata*, Tonkin, DISTANT, p. 558, t. c.; *P. merula*, Borneo, *intermedia*, Tenasserim, DISTANT, p. 68, op. cit. xv, n. spp.  
*Proarna germari* n. n. for *Cicada grisea* Germ., DISTANT, p. 140, Biol. Centr.-Amer. Homopt. i.  
*P. insignis*, Centr. and S. America = (*albida* var. *insignis*), id. p. 141; *P. heidemanni*, p. 311, *bufo*, p. 312, Argentina, DISTANT, Ann. Nat. Hist. (7) xv : n. spp.  
*Parana* n. g. type *Dundubia tigrina*, DISTANT, p. 60, t. c.; *P. davidi*, Kiang-Si, *pigmentata*, Siam, DISTANT, p. 555, op. cit. xvi, n. spp.  
*Pycna natalensis*, Natal, DISTANT, p. 197, pl. xi, fig. 4, Tr. ent. Soc. London 1905, n. sp.  
*Quesada* n. g. type *Cicada gigas* Ol., DISTANT, p. 478, Ann. Nat. Hist. (7) xv.  
*Quintilia soulii*, Yunnan, DISTANT, p. 561, op. cit. xvi; *Q. mogannia*, China, *maculiventris*, Transvaal, DISTANT, p. 205, t. c. n. spp.  
*Rihana martini, hova*, Madagascar, DISTANT, p. 198, Tr. ent. Soc. London 1905, n. spp.  
*Sadaka hyalina*, W. Africa, DISTANT, p. 191, t. c. n. sp.  
*Sapantanga* n. g. type *Cephaloxys nutans* Walk., DISTANT, p. 276, Ann. Nat. Hist. (7) xvi.  
*Sawda* n. g. type *Cosmopsaltria mimica* Dist., *S. gestroei* n. sp., New Guinea, DISTANT, p. 63, op. cit. xv; *S. pratti*, p. 556, *sharpi*, p. 557, New Guinea, DISTANT, op. cit. xvi, n. spp.  
*Sena* n. g. type *Cicada quærula* Pall., DISTANT, p. 307, op. cit. xv.  
*Stagira darwini*, Mauritius, DISTANT, p. 213, op. cit. xvi, n. sp.  
*Tarpinga* n. g. type *Cicada nana* Walk., DISTANT, p. 210, t. c.  
*Talainga distanti*, pl. 21, fig. 3, p. 432, JACOBI, Zool. Jahrb. Syst. xxi.  
*Tamasa* n. g. type *Cicada tristigma* Germ., DISTANT, p. 386, Ann. Nat. Hist. (7) xv.  
*Tanna* n. g. type *Pomponia japonensis*, DISTANT, p. 62, t. c.  
*Terpnosia confusa*, India, DISTANT, p. 306, t. c. n. sp.  
*Tibicen reductus*, pl. 21, fig. 5, p. 434, JACOBI, Zool. Jahrb. Syst. xxi.  
*T. dahli*, Bismarck Arch., KÜHLGATZ, p. 77, pl. iii, figg. 10 & 13, Mt. Mus. Berlin iii, n. sp.  
*Tibicina chinensis*, N. China, DISTANT, p. 23, Ann. Nat. Hist. (7) xvi, n. sp.  
*Trismarcha atrata*, Congo, *angolensis*, Angola, DISTANT, p. 30, t. c. n. spp.  
*Tympanoterpes alboapicata*, Argentina, DISTANT, p. 313, op. cit. xv, n. sp.  
*Ueana* n. g. type *Cicada lifuana* Montr., DISTANT, p. 28, op. cit. xvi; *U. harmonia*, pl. xvii, fig. 1, *polymnia*, fig. 2, Lifu, KIRKALDY, p. 329, Tr. ent. Soc. London 1905, n. spp.

- Umjada alluaudi*, Madagascar, DISTANT, p. 196, pl. xi, fig. 1, Tr. ent. Soc. London 1905, **n. sp.**  
*Urabinana n. g. Tbicininae, segmentaria n. sp.*, Queensland, DISTANT, p. 274, Ann. Nat. Hist. (7) xvi.  
*Xosopsaltria fuliginosa*, E. Africa, DISTANT, p. 206, t. c. **n. sp.**  
*Yanga bouvieri*, p. 194, pl. xi, fig. 2, *grandidieri*, p. 195, fig. 3, Madagascar, DISTANT, Tr. ent. Soc. London 1905, **n. spp.**

## FULGORIDÆ.

- [Cf. BALL (69), BREDDIN (181), DISTANT (429, 430, 670), FOWLER (670), HORVÁTH (775), JACOBI (806), KIRKALDY (856), LESNE (941, 944), MELICAR (1029, 1030), OSBORN (1125), ROUBAL (1308), SCHMIDT (1332, 1333), TORKA (1501).]
- Achamenes niger*, Usambara, MELICAR, p. 283, Wien. ent. Zeit. xxiv, **n. sp.**  
*Acmonia? sanguinalis*, Mexico, pl. xiii, fig. 24, DISTANT, p. 145, Biol. Centr.-Amer. Homopt. i, **n. sp.**  
*Acrophia crepusculascens*, pl. xiii, fig. 25, *montezuma*, p. 144, *simillima*, *astralis*, fig. 27, p. 145, DISTANT, t. c. **n. spp.**  
*Anecphora minor*, p. 369, *olivacea*, *sanguineopunctata*, p. 370, *sanguinea*, p. 371, W. Africa, SCHMIDT, Stettin Ent. Zeit. lxvi, **n. spp.**  
*Anigrus fuscomaculatus*, E. Africa, MELICAR, p. 284, Wien. ent. Zeit. xxiv, **n. sp.**  
*Aphena bimaculata*, Sumatra, SCHMIDT, p. 376, Stettin Ent. Zeit. lxvi, **n. sp.**  
*Aselgeia longiceps*, E. Africa, MELICAR, p. 281, Wien. ent. Zeit. xxiv, **n. sp.**  
*Bladina fuscovenosa* Stål, SCHMIDT, p. 183, Stettin Ent. Zeit. lxvi.  
*Coloptera sinuata* Burm. = (*marginalis* Burm.), p. 129, figure, pl. xii, fig. 32, FOWLER, Biol. Centr.-Amer. Homopt. i.  
*Copicerus irroratus*, pl. xiii, figg. 1, 2, synonymy, p. 130, FOWLER, t. c.  
*Corethrura iocnemis*, p. 437, pl. xxi, fig. 6, *impunctata*, p. 438, fig. 7, JACOBI, Zool. Jahrb. Syst. xxi, **n. spp.**  
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*Delphax (Aeopus) dorsata*, E. Africa, MELICAR, p. 286, Wien. ent. Zeit. xxiv, **n. sp.**  
*Dicranotropis lunaris*, E. Africa, MELICAR, p. 286, t. c. **n. sp.**  
*Epibidis n. g. Delphacidae, godmani*, pl. xiii, figg. 3-5, p. 131, *brunnea*, fig. 6, p. 132, **n. spp.**, Panama, FOWLER, Biol. Centr.-Amer. Homopt. i.  
*Episcius bolivianus*, Bolivia, DISTANT, p. 673, Ann. Nat. Hist. (7) xvi, **n. sp.**  
*Eodelphax serendiba* = (*Eudelphax setulosus* Mel.), KIRKALDY, p. 266, Wien. ent. Zeit. xxiv.  
*Fulgora basinigra*, Borneo, p. 345, *erecta*, Java, p. 346, *dohrni*, Sumatra, p. 347, *heringi*, p. 351, *bicolor*, p. 355, Borneo, *cardinalis*, Tonkin, p. 356, SCHMIDT, Stettin Ent. Zeit. lxvi; *F. siderea*, Borneo, p. 566, *evanesens*, Nias, p. 567, DISTANT, Ann. Nat. Hist. (7) xvi: **n. spp.**  
*Goniolcium n. g. Delphacidae, granulorum*, pl. xiii, figg. 7, 8, p. 132, *testaceum*, fig. 9, p. 133, **n. spp.**, Centr. America, FOWLER, Biol. Centr.-Amer. Homopt. i.  
*Hajar n. g. near Tarundia*, p. 335, *fornicatus n. sp.*, New Britain, p. 336, KIRKALDY, Tr. ent. Soc. London 1905.  
*Helicoptera karaseki*, E. Africa, MELICAR, p. 285, Wien. ent. Zeit. xxiv, **n. sp.**  
*Holodictya karschi*, E. Africa, SCHMIDT, p. 375, Stettin Ent. Zeit. lxvi, **n. sp.**  
*Itzalana n. g. near Acmonia, formosa n. sp.*, Mexico, pl. xiii, fig. 23,

- DISTANT, p. 146, Biol. Centr.-Amer. Homopt. i; *I. submaculata*, Surinam, SCHMIDT, p. 377, Stettin Ent. Zeit. lxxvi, **n. sp.**
- Lagoana n. g.* near *Lyncides*, *bipunctata*, Delagoa Bay, p. 473, *longiceps*, E. Africa, p. 474, **n. spp.**, MELICHAIR, Ann. Mus. Hungar. iii.
- Lamemia lactea*, p. 284, *angustifrons*, p. 285, E. Africa, MELICHAIR, Wien. ent. Zeit. xxiv, **n. spp.**
- Liburnia seminigra*, E. Africa, MELICHAIR, p. 286, Wien. ent. Zeit. xxiv; *L. atrior*, pl. xiii, figg. 10, 11, *basifuscata*, fig. 12, p. 134, *teupeæ*, fig. 13, *albolineosa*, fig. 14, *marginicornis*, fig. 15, p. 135, *apicimacula*, fig. 16, *sagata*, fig. 17, p. 136, *paludata*, fig. 18, p. 137, Central America, FOWLER, Biol. Centr.-Amer. Homopt. i: **n. spp.**
- Lichena incriminata*, Madagascar, SCHMIDT, p. 380, Stettin Ent. Zeit. lxxvi, **n. sp.**
- Malfeytia n. g.* near *Anecphora*, *flavopunctata n. sp.*, Congo, SCHMIDT, p. 366, t. c.
- Megamelanus elongatus*, Florida, p. 118, *rustivittatus*, Thompsonville, p. 119, BALL, P. Soc. Washington xviii; *M. spartini*, N. America, OSBORN, p. 375, Ohio Natural. v: **n. spp.**
- Megamelus angulatus*, Pennsylvania, OSBORN, p. 374, t. c. **n. sp.**
- Metaphœna n. g.* type *Aphana novemmaculata* Dist., p. 360, *basirufa*, *tricolor*, p. 363, **n. spp.**, Africa, SCHMIDT, Stettin Ent. Zeit. lxxvi.
- Nogodina fruhstorferi*, Java, SCHMIDT, p. 186, t. c. **n. sp.**
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- Oliarus latus*, p. 281, *vitreus*, *frontalis*, p. 282, E. Africa, MELICHAIR, Wien. ent. Zeit. xxiv; *O. musca*, Banguay, BREDDIN, p. 224, Mt. Mus. Hamburg xxii: **n. spp.**
- Ommatidiotus*, monograph, HORVÁTH, pp. 378, 387, Ann. Mus. Hungar. iii.
- O. acutus*, Mongolia, *iranicus*, Persia, p. 380, *viduus*, Syria, p. 381, *concinuus*, Hungary, p. 383, HORVÁTH, t. c. **n. sp.**
- Ormenis suturalis*, E. Africa, MELICHAIR, p. 289, Wien. ent. Zeit. xxiv, **n. sp.**
- Peggioga n. g.* near *Dictyophara*, *formosa n. sp.*, Lifu, pl. xvii, fig. 6, KIRKALDY, p. 336, Tr. ent. Soc. London 1905.
- Phantiopsis n. g.* *Flatidae*, p. 474, *australiaca n. sp.*, Sydney, p. 475, MELICHAIR, Ann. Mus. Hungar. iii.
- Phricetus hoffmannsi*, Chanchamayo, p. 338, *mebiusi*, Antioquia, p. 340, SCHMIDT, Stettin Ent. Zeit. lxxvi; *P. auromaculatus*, Bolivia, DISTANT, p. 672, Ann. Nat. Hist. (7) xvi: **n. spp.**
- Phyllyphanta biraræ*, New Britain, KIRKALDY, p. 335, Tr. ent. Soc. London 1905, **n. sp.**
- Phyma usambaræ*, E. Africa, MELICHAIR, p. 289, Wien. ent. Zeit. xxiv, **n. sp.**
- Picumna varians*, pl. xii, fig. 28, *ovatipennis*, figg. 29, 30, FOWLER, p. 128, Biol. Centr.-Amer. Homopt. i.
- P. venosa*, Mexico, pl. xii, fig. 31, p. 128, FOWLER, t. c. **n. sp.**
- Poblicia pallidoconspersa*, Mexico, DISTANT, p. 145, pl. xiii, fig. 26, Biol. Centr.-Amer. Homopt. i, **n. sp.**
- Pochazia dohrni*, Sumatra, SCHMIDT, p. 169, Stettin Ent. Zeit. lxxvi, **n. sp.**
- Pochazoides conspersus*, E. Africa, MELICHAIR, p. 287, Wien. ent. Zeit. xxiv; *P. schoutedeni*, p. 196, *quinquemaculatus*, p. 197, E. Africa, SCHMIDT, Stettin Ent. Zeit. lxxvi: **n. spp.**
- Pristiopsis n. g.* for *Fulgora serrata* Fabr., SCHMIDT, p. 332, t. c.
- Prokelisia n. g.* *setigera n. sp.*, N. America, OSBORN, p. 373, Ohio Natural. v.
- Pyrops rendalli*, Zomba, *pulmunculus*, p. 564, *tapirus*, Java, *dalyi*, Siam, p. 565, DISTANT, Ann. Nat. Hist. (7) xvi, **n. spp.**
- Rhotula ambigua*, Panama, pl. xiii, figg. 19, 20, p. 138, FOWLER, Biol. Centr.-Amer. Homopt. i, **n. sp.**
- Ricania karaseki*, Usambara, MELICHAIR, p. 287, Wien. ent. Zeit. xxiv;

- R. bitaniata*, Borneo, p. 174, *lurida*, Java, p. 176, *quinquepunctata*, E. Africa, p. 195, SCHMIDT, Stettin Ent. Zeit. lxvi : n. spp.  
*Ricanopsis unipunctata*, Cameroons, SCHMIDT, p. 177, t. c. n. sp.  
*R. straminea*, Kei Isld., p. 179, *prominula*, Queensland, p. 180, SCHMIDT, t. c.; *R. hyalinomaculata*, MELICHAR, p. 288, Wien. ent. Zeit. xxiv : n. spp.  
*Sassula apicalis*, Ecuador, SCHMIDT, p. 189, Stettin Ent. Zeit. lxvi, n. sp.  
*Scolopsella* n. g. *Dictyopharidæ*, *reticulata* n. sp., Arizona, BALL, p. 118, P. Soc. Washington xviii.  
*Seliza sinuata*, E. Africa, MELICHAR, p. 290, Wien. ent. Zeit. xxiv, n. sp.  
*Sephena nigrifrons*, Australia, SCHMIDT, p. 378, Stettin Ent. Zeit. lxvi, n. sp.  
*Stobara pallida*, p. 375, *minuta*, p. 376, N. America, OSBORN, Ohio Natural. v, n. sp.  
*Syntames* n. g. p. 138, *delicatus* n. sp., Centr. America, p. 139, pl. xiii, fig. 21, with var. *chiriquensis*, fig. 22, FOWLER, Biol. Centr.-Amer. Homopt. i.  
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*Thionia pictifrons*, pl. xii, fig. 22, *conspersa*, fig. 23, *caviceps*, fig. 24, p. 125, *soluta*, fig. 25, p. 126, *stipes*, figg. 26, 27, p. 127, Centr. America, FOWLER, Biol. Centr.-Amer. Homopt. i, n: spp.

## MEMBRACIDÆ.

- Anchon minor*, E. Africa, MELICHAR, p. 296, Wien. ent. Zeit. xxiv, n. sp.  
*Acutalis inornata*, Florida, BALL, p. 119, P. Soc. Washington xviii, n. sp.  
*Micreune ? electa*, E. Africa, MELICHAR, p. 296, Wien. ent. Zeit. xxiv, n. sp.  
*Monocentrus* n. g. *delectus* n. sp., E. Africa, MELICHAR, p. 297, t. c.  
*Otionotus griseus*, E. Africa, MELICHAR, p. 295, t. c. n. sp.  
*Oxyrhacis gibbulus*, E. Africa, MELICHAR, p. 294, t. c. n. sp.

## CERCOPIDÆ.

[Cf. JACOBI (805, 806), KIRKALDY (856), MELICHAR (1029).]

- Aufidus hyperion*, New Britain, KIRKALDY, p. 332, pl. xvii, fig. 4, Tr. ent. Soc. London 1905, n. sp.  
*Clovio birarensis*, p. 330, pl. xvii, fig. 3, *dryas*, p. 331, New Britain, KIRKALDY, t. c. n. spp.  
*Cosmoscarta fruhstorferi*, pl. 21, fig. 8, *trichodias*, fig. 9, JACOBI, p. 441, Zool. Jahrb. Syst. xxi.  
*C. cerata*, pl. i, fig. 3, *papua*, fig. 13, p. 9, *latipennis*, fig. 16, p. 10, *geniculata*, fig. 4, p. 11, New Guinea, *torquata*, fig. 6, Palawan, p. 12, *sangaris*, Luzon, fig. 5, *coronis*, fig. 12, p. 13, *rubiana*, New Guinea, *nycteis*, AMANN, fig. 11, p. 14, *jucunda*, fig. 2, p. 15, *cerulans*, p. 16, Sumatra, *ledrina*, fig. 9, p. 17, Java, JACOBI, Mt. Mus. Berlin iii, n. spp.  
*Eoscarta limbipennis*, Sumatra, JACOBI, p. 22, t. c. n. sp.  
*Hemipterus viridicollis*, E. Africa, MELICHAR, p. 291, Wien. ent. Zeit. xxiv, n. sp.  
*Mioscarta semperi*, Philippines, pl. i, fig. 1, JACOBI, Mt. Mus. Berlin iii, n. sp.  
*Phymatostetha stellata*, pl. i, fig. 14, JACOBI, p. 19, t. c.; *P. dislocata* = (*Tomaspsis nympha* St.), JACOBI, p. 21, t. c.; *P. martyr* n. n., p. 442, pl. xxi, fig. 10, JACOBI, Zool. Jahrb. Syst. xxi.

- P. icterica*, pl. xxi, fig. 11, *quadriplagiata*, fig. 12, p. 443, *moi*, fig. 13, *pellasta*, fig. 14, p. 444, Tonkin, JACOBI, t. c.; *P. axillaris*, Java, p. 19, *birmanica*, pl. i, fig. 8, Burma, *inops*, fig. 15, p. 20, *lais*, p. 21, Borneo, JACOBI, Mt. Mus. Berlin iii : n. spp.
- Sialoscarta* n. g. *concinna* n. sp., Java, pl. i, fig. 10, JACOBI, p. 23, t. c.
- Sphenorhina bicolor* Fall. to *Notoscarta*, ♂, JACOBI, p. 22, t. c.
- Tomaspis subsanguinea*, E. Africa, MELICHAIR, p. 290, Wien. ent. Zeit. xxiv, n. sp.
- Trichoscarta centrodes*, Borneo, JACOBI, pl. i, fig. 7, p. 18, Mt. Mus. Berlin iii, n. sp.

## JASSIDÆ.

- [Cf. BAKER (56-60), BALL (69, 70), BREDDIN (181), BRÈTHES (188), HORVÁTH (779), JACOBI (806, 807), KIRKALDY (856, 858), MELICHAIR (1029), OSBORN (1126).]
- Alebra sanguinolinea*, Nicaragua, BAKER, p. 5, Invert. pacif. i, n. sp.
- Amblydisca superciliaris*, *callidula*, p. 165, *pullula*, *horvathi*, p. 166, *pomposula*, p. 167, Peru, JACOBI, SB. Ges. naturf. Berlin 1905, n. spp.
- Annidion* n. g. near *Hecalus*, p. 267, *pulcherrimum* n. sp., Bouake, p. 268, KIRKALDY, Wien. ent. Zeit. xxiv.
- Deltocephalus liliputanus*, E. Africa, MELICHAIR, p. 303, Wien. ent. Zeit. xxiv; *D. slossoni*, Florida, p. 119, *littoralis*, New Jersey, p. 120, BALL P. Soc. Washington xviii : n. spp.
- Empoasca lineata*, Nicaragua, BAKER, p. 7, Invert. pacif. i, n. sp.
- Erythria donaldsoni*, *guzmani*, *montelegrei*, p. 4, *deschoni*, p. 5, Nicaragua, BAKER, t. c. n. spp.
- Eualebra notata*, Guatemala, BAKER, p. 7, t. c. n. sp.
- Eugnathodus* n. g. p. 1, for *Gnathodus abdominalis* van D., and the following n. spp., *nevadensis*, N. America, p. 1, *flavescens*, *vermiculatus*, *delicatulus*, *lacteus*, Nicaragua, *tumidus*, Guatemala, p. 2, BAKER, t. c.
- Eupteryx quinque maculata*, California, BAKER, p. 8, t. c. n. sp.
- Eutettix ramosus*, E. Africa, MELICHAIR, p. 302, Wien. ent. Zeit. xxiv; *E. bicolorata*, Arkansas, BALL, p. 212, Canad. Ent. 1905 : n. spp.
- Gnathodus rubrotinctus*, E. Africa, MELICHAIR, p. 304, Wien. ent. Zeit. xxiv, n. sp.
- Gypona kangrensis*, India, KIRKALDY, p. 267, Wien. ent. Zeit. xxiv, n. sp.
- Jassus flavostriatus*, p. 301, *piceolus*, p. 302, E. Africa, MELICHAIR, Wien. ent. Zeit. xxiv; *J. bellus*, p. 185, *dissolutus*, p. 186, *rufigosta*, *montanus*, p. 187, *tergipictus*, p. 188, Peru, JACOBI, SB. Ges. naturf. Berlin 1905; *J. tornowii*, Tucuman, BRÈTHES, p. 344, An. Mus. Buenos Aires (3) iv : n. spp.
- Macropsis nicaraguensis*, San Marcos, p. 11, *franciscana*, California, p. 12, BAKER, Invert. pacif. i, n. spp.
- Motschulskyia* n. n. for *Conometopus* Motsch. nec Fieb.; KIRKALDY, p. 266, Wien. ent. Zeit. xxiv.
- Oclasma* n. g. *Scaridae*, p. 293, *degenerata* n. sp., Usambara, p. 294, MELICHAIR, Wien. ent. Zeit. xxiv.
- Pachynus nigrofuscus*, E. Africa, MELICHAIR, p. 298, t. c. n. sp.
- Paramesus immaculatus*, Colorado, BALL, p. 212, Canad. Ent. 1905, n. sp.
- Pediopsis virescens* var. n. *lineola*, HORVÁTH, p. 276, Bol. Soc. espan. v.
- Phereurhinus* n. g. near *Phera*, *batillus*, p. 168, *cochlear*, p. 169, n. spp., Peru, JACOBI, SB. Ges. naturf. Berlin 1905.
- Phlepsius maculatus*, Ohio, OSBORN, p. 276, Ohio Natural. v; *P. slossoni*, p. 209, *fastuosus*, *nigrifrons*, p. 210, N. America, BALL, Canad. Ent. 1905 : n. spp.
- Platymetopus obscurus*, Ohio, OSBORN, p. 274, t. c. n. sp.



- Platyretus cinctus*, E. Africa, MELICHAIR, p. 301, Wien. ent. Zeit. xxiv, n. sp.
- Protalebra nicaraguensis, maculata*, Nicaragua, *transversalis*, Mexico, p. 6, *octolineata*, Nicaragua, p. 7, BAKER, Invert. pacif. i, n. spp.
- Selenocephalus strigulatus, usambara*, E. Africa, MELICHAIR, p. 300, Wien. ent. Zeit. xxiv, n. sp.
- Signoretia karaseki*, E. Africa, MELICHAIR, p. 299, t. c. n. sp.
- Siva reticulata*, E. Africa, MELICHAIR, p. 300, t. c. n. sp.
- Sphæropogonia miniatula*, Peru, JACOBI, p. 172, SB. Ges. naturf. Berlin 1905, n. sp.
- Stictocoris* Thoms. 1869, *omiss. nom.*, KIRKALDY, p. 268, Wien. ent. Zeit. xxiv.
- Straganiopsis* n. g. for *Macropsis, idioceroides*, BAKER, p. 10, Invert. pacif. i.
- Tettigonia willeyi*, New Britain, KIRKALDY, p. 333, Tr. ent. Soc. London 1905, n. sp.
- Tettigoniella sorora*, Usambara, MELICHAIR, p. 298, Wien. ent. Zeit. xxiv; *T. indosinica*, Tonkin, JACOBI, p. 445, Zool. Jahrb. Syst. xxi; *T. rubellula*, Banguay, BREDDIN, p. 223, Mt. Mus. Hamburg xxii; *T. (Dilobopterus) syrphoidula, T. hyacinthinula*, p. 170, *marquardti, geminatula*, p. 171, *T. (Amblyscarta) cervicula, partitula*, p. 172, *obliquatula, arctula*, p. 173, *T. bracteata, dilectula*, p. 174, *flabellula, obesula*, p. 175, *halticula, mucidula*, p. 176, *perspicillatula, pedisequula*, p. 177, *fissonustula, aurivagula, flammidula*, p. 178, *amicula, triplicula*, p. 179, *imitatricula, sertigerula, scapula*, p. 180, *braccatula, pruriginosula, personatula*, p. 181, *tractatula, grandinula*, p. 182, *habenula, quadrigula, cyclopula*, p. 183, *prætextatula, rudicula, facetula*, p. 184, *coronula, paganula*, p. 185, Peru, JACOBI, SB. Ges. naturf. Berlin 1905: n. spp.
- Thalattoscopus* n. g. near *Bythoscopus, T. dryas* n. sp., New Britain, pl. xvii, fig. 5, KIRKALDY, p. 334, Tr. ent. Soc. London 1905.
- Thamnotettix furculatus*, Ohio, OSBORN, p. 275, Ohio Natural. v, n. sp.
- Thomsonia* = (*Thomsoniella* Sign.), KIRKALDY, p. 267, Wien. ent. Zeit. xxiv.
- Typhlocyba exornatus*, Spain, HORVÁTH, p. 275, Bol. Soc. espan. v; *T. pseudomaculata, verticis*, p. 8, *pseudoobliqua, bimaculata*, p. 9, Central America, BAKER, Invert. pacif. i: n. spp.
- Typhlocybella* n. g. *minima* n. sp., Nicaragua, BAKER, p. 3, t. c.
- Wolfella lata*, E. Africa, MELICHAIR, p. 299, Wien. ent. Zeit. xxiv, n. sp.
- Xestocephalus subfuscus*, E. Africa, MELICHAIR, p. 303, t. c. n. sp.
- Zygina punctigera*, Spain, HORVÁTH, p. 276, Bol. Soc. espan. v; *Z. scutata* E. Africa, MELICHAIR, p. 304, t. c. n. spp.

## PSYLLIDÆ.

[Cf. CARPENTIER (281), FROGGATT (612), HORVÁTH (779), KIEFFER (846), KIEFFER & PABLO (848), KIRKALDY (861), RÜBSAAMEN (1315).]

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*Aphalara picta*, variation in wing-nervures, CARPENTIER, pp. 11-24, 1 pl. Mem. Soc. Nord France xi.

*A. dahl*, Bismarck Arch., RÜBSAAMEN, p. 23, Marcellia iv, n. sp.

*Floria blandula*, Spain, HORVÁTH, p. 277, Bol. Soc. espan. v, n. sp.

*Callistohermes* n. g. *rubrovariegata* n. sp., Queensland, KIRKALDY, p. 291 Canad. Ent. 1905.

- Cecidopsylla* n. g. p. 160, *schimæ* n. sp., Bengal, p. 165, KIEFFER, Ann. Soc. Bruxelles xxix.  
*Neotrioza* n. g. p. 175, *machili* n. sp., Bengal, p. 176, KIEFFER, t. c.  
*Ozotrioza* n. g. p. 178, *styracearum*, p. 179, *lauriensearum*, p. 180, n. spp., Bengal, KIEFFER, t. c.  
*Pauropsylla* recharacterised, p. 167, *ficicola*, p. 169, *globuli*, p. 172, n. spp., Bengal, KIEFFER, t. c.  
*Psylla sterculiæ*, habits, FROGGATT, p. 231, pl. fig. 3, Agric. Gaz. N. S. W. xvi.  
*P. cedrelæ*, Bengal, KIEFFER, p. 174, Ann. Soc. Bruxelles xxix, n. sp.  
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*Trioza koebeleri*, Mexico, KIRKALDY, p. 290, Canad. Ent. 1905, n. sp.

## APHIDÆ.

- [Cf. BIGNELL (116), BURDON (218), CHOLODKOVSKY (315), COCKERELL (352, 353), DEL GUERCIO (391, 392, 394), FLÜGEL (583), FROGGATT (618), HORVÁTH (773), JACOBI (808), LÉCAILLON (931), RÜBSAAMEN (1315), SCHOUTEDEN (1348), SCHUSTER (1364), STAUFFACHER (1444), STEVENS (1449), THEOBALD (1485), WASHBURN (1578).]
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*Greenidea* n. g. for *Siphonophora artocarpi* Westw., SCHOUTEDEN, p. 181, pl. figg. 1-3, Spolia Zeylan. ii.  
*Kallistaphis* n. n. for *Callipterus* Buckton, KIRKALDY, p. 417, Canad. Ent. 1905.  
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- Pseudosetodes* n. g. near *Setodes*, p. 76, figg. 44, *punctipennis* n. sp., Brazil, p. 77, ULMER, Ann. Hofmus. Wien xx.
- Psilochorema indicum*, India, ULMER, p. 39, Ann. Soc. ent. Belgique 1905; *P. longipenne* (no locality), pl. iv, figg. 144-146, p. 110, ULMER, Stettin Ent. Zeit. lxvi : n. spp.
- Rhabdoceas* n. g. *Leptoceridae*, p. 31, *japonicum*, Japan, n. sp., p. 32, ULMER, t. c.
- Rhyacophila tristis*, *aquitana*, *philopotamoides*, larvæ, THIENEMANN, pp. 285-287, Zeitschr. Insbiol. i.
- R. maculipennis*, Kuku-Nor., pl. ii, figg. 80, 81, p. 108, ULMER, Stettin Ent. Zeit. lxvi; *R. excisa*, Moupin, ULMER, p. 37, Ann. Soc. ent. Belgique 1905 : n. spp.
- Rhyacophylax columbianus*, pl. iv, figg. 138-140, p. 106, *brasilianus*, figg. 141-143, p. 108, S. America, ULMER, Stettin Ent. Zeit. lxvi, n. spp.
- Rhyacopsyche hageni*, metamorphoses, THIENEMANN, pp. 287-289, Zeitschr. Insbiol. i.
- Setodes brunnea*, Java, ULMER, p. 90, Mt. Mus. Hamburg xxii, n. sp.
- Smicridea nivea* Billopp., pl. iv, figg. 136, 137, p. 104, ULMER, Stettin Ent. Zeit. lxvi, n. sp.
- Stenophylax latus*, Centr. Asia, pl. i, fig. 8, ULMER, p. 11, t. c. n. sp.
- Synagapetus ater*, Transsylvania, KLAPÁLEK, p. 729, Vestnik Ceske Ak. xiii, n. sp.
- Synæstropsis* n. g. near *Æstropsis*, *pedicillata*, pl. iii, figg. 97-100, p. 43, *obliqua*, fig. 101, p. 45, *punctipennis*, pl. i, fig. 34, p. 47, n. spp., S. America, ULMER, Stettin Ent. Zeit. lxvi.
- Tetanonema* n. g. near *Helicopsyche*, p. 17, *clarum* n. sp., Sta. Catharina, p. 18, ULMER, t. c.
- Trienodes albicornis*, Algiers, ULMER, p. 23, Ann. Soc. ent. Belgique 1905, n. sp.

- Triplectides* and *Notantolica*, ULMER, p. 71, Ann. Hofmus. Wien xx;  
*Triplectides*, p. 29, *T. gracilis* Burm., pl. i, figg. 23-25, p. 27, ULMER,  
 Stettin Ent. Zeit. lxvi.  
*Wormaldia mexicana*, Mexico, p. 89, figg. 58-60, *parva*, Brazil, p. 90,  
 figg. 61-63, ULMER, Ann. Hofmus. Wien xx, n. spp.

### NEUROPTERA-PLANIPENNIA (incl. PANORPIDÆ).

- [Cf. BAKER (64), BANKS (71), CURRIE (383), DZIĘDZIELEWICZA (485),  
 ENDERLEIN (512, 514), KLAPÁLEK (868), NAVÁS (1084, 1085),  
 NEEDHAM (1092), TERRY (1475), VAN DER WEELE (1595).]
- ENDERLEIN in Zool. Anz. xxix, pp. 225-227, sketches his paper on  
*Coniopterygidae* and proposes and tabulates the new generic names.
- Ancylopteryx buttkoferi*, Liberia, VAN DER WEELE, Notes Leyden Mus.  
 xxv, p. 166, n. sp.
- Ascalaphus khaui*, Japan, NAVÁS, p. 49, pl. ii, fig. 1, Bol. Soc. Aragon. iv,  
 n. sp.
- Berotha occidentalis*, Nevada, BANKS, p. 89, Invert. pacif. i, n. sp.
- Brachynemurus irregularis*, Texas, CURRIE, p. 186, P. ent. Soc. Washington  
 1905, n. sp.
- Ohrysopa microphya*, early stages, TERRY, p. 175, pl. x, figg. 1-3, Bull. exp.  
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- C. marginalis*, Spain, NAVÁS, p. 122, Bol. Soc. Aragon. iv, n. sp.
- Coniopterygidae* of Silesia, monograph, in Polish, DZIĘDZIELEWICZA, pp.  
 377-385, 1 plate, Kosmos polski. xxx.
- Glenurus pupillatus*, Himalaya, NAVÁS, p. 54, pl. ii, fig. 4, Bol. Soc.  
 Aragon. iv, n. sp.
- Hemerobius striatellus*, Transsylvania, KLAPÁLEK, p. 725, Vestnik Ceske  
 Ak. xiii, n. sp.
- Mantispa rugicollis*, Himalaya, NAVÁS, p. 54, Bol. Soc. Aragon. iv, n. sp.
- Megalomus minor*, Nicaragua, BANKS, p. 90, Invert. pacif. i, n. sp.
- Micromus jonas*, New York, NEEDHAM, p. 15, Bull. N. York Mus. lxxxvi,  
 p. 15, n. sp.
- Myrmeleon ocreatus*, characters, NAVÁS, p. 112, Bol. Soc. Aragon. iv.
- Palmobius* n. g. type *H. amicus* Fitch, NEEDHAM, p. 17, Bull. N. York  
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- Panorpa pura*, Transsylvania, KLAPÁLEK, p. 727, Vestnik Ceske Ak. xiii;  
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 n. spp.
- Panorpodes carolinensis*, N. Carolina, BANKS, p. 215, t. c. n. sp.
- Parasemidalis* n. g. *Coniopterygidae*, p. 197, *annæ* n. sp.; Berlin, p. 198,  
 ENDERLEIN, Wien. ent. Zeit. xxiv.
- Semidalis* n. g. for *Coniopteryx aleurodiformis* Steph., ENDERLEIN, p. 197,  
 t. c.
- Sisyrura* n. g. near *Sisyr. pectinata* n. sp., Shanghai, NAVÁS, p. 51, pl. ii,  
 fig. 2, Bol. Soc. Aragon. iv.
- Spadobius* n. g. type *H. occidentalis* Fitch, NEEDHAM, p. 16, Bull. N.  
 York Mus. lxxxvi.

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#### PSOCIDÆ.

- [Cf. ENDERLEIN (497, 507, 513), RIBAGA (1263, 1264), SNODGRASS (1424).]  
 Revision of *Atropides* and *Troctides*, with table of the families of *Copeo-  
 natha*, ENDERLEIN, Jägerskiöld exp. No. 18, 51 pp.

- SNODGRASS, pp. 300-302, describes and figures pl. viii, figg. 9-16, the mouth-parts of *Peripsocus californicus* and of *Troctes divinatorius*, compares them with *Mallophaga* and finds a morphological identity, Tr. Amer. ent. Soc. xxxi.
- Parthenogenesis, *Ectopsocus*, RIBAGA, Redia ii, pp. 33-36.
- Amphientotum*, in amber, cf. Palæontology, p. 130.
- Embidopsocus luteus* Hag., ENDERLEIN, p. 51, fig. 11, Jägerskiöld exp. No. 18.
- Embidotroctes* n. g. p. 48, *paradoxus* n. sp., Cameroons, p. 49, ENDERLEIN, t. c.
- Lepidilla* n. g. subfam. n. *Lepidillinae*, p. 99, *kelloggi* n. sp., California, p. 100, pl. ix, RIBAGA, Redia ii.
- Lepinotus reticulatus*, Cairo, ENDERLEIN, p. 31, Jägerskiöld exp. No. 18, n. sp.
- Myopsocnema* n. g. for *Clothilla annulata* Hag., ENDERLEIN, p. 17, t. c.
- Pachytroctes* n. g. *ægyptius* n. sp., Cairo, ENDERLEIN, p. 46, figg. 9, 37-43, t. c.
- Philotarsus falklandicus*, Falkland Ids., ENDERLEIN, p. 126, Zool. Anz. xxix, n. sp.
- Stenotroctes* n. g. type *Troctes needhami*, with *S. virgatus* n. sp., S. America, p. 44, figg. 29, 31, 33, ENDERLEIN, Jägerskiöld exp. No. 18.
- S. enderleini*, Florence, RIBAGA, p. 106, pl. x, figg. 12-15, Redia ii, n. sp.

## MALLOPHAGA.

[Cf. FULMEK (627), GROSS (699), SNODGRASS (1424).]

- SNODGRASS describes, pp. 302-305, and figures, pl. viii, figg. 1-8, the mouth-parts of *Lamobothrium gypsis* and *Ancistrona gigas*, compares them with those of *Psocidæ* and finds them morphologically identical, Tr. Amer. ent. Soc. xxxi.
- Structure of heart, FULMEK, Zool. Anz. xxix, pp. 619-621.
- Bird-louse of *Cypselus affinis*, as intermediary host of *Filaria cypseli*, fig. pl. v, DUTTON, p. 139, Thompson Yates Lab. Rep. vi.
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- Eggs of "Pediculines" of birds, TEMPÈRE, Microgr. prep. xiii, p. 34, pl. iii, figg. 1-11.

## TERMITIDÆ or ISOPTERA.

[Cf. BRUNELLI (203, 204), DESNEUX (401, 402), DOFLEIN (437), ROBINSON (1285), SJÖSTEDT (1404).]

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- Fungus-culture, building habits etc. *Termes obscuriceps*, DOFLEIN, pp. 140-149, Verh. Deutsch. zool. Ges. 1905.
- Structure of ovary, and oogenesis, BRUNELLI (203).
- Acanthotermes laticeps*, Congo, SJÖSTEDT, p. 4, Arkiv Zool. ii, No. 16, n. sp.
- Calotermes chilensis*, valid sp., characters, DESNEUX, p. 337, Ann. Soc. ent. Belgique 1905; *C. adamsoni* Frogg. to *Porotermes*, DESNEUX, p. 360, Ann. Soc. ent. Belgique 1905; *C.* rendered infertile by *Protozoa*, BRUNELLI, pp. 718-721, Rend. Acc. Lincei xiv, ii.
- C. papua*, New Guinea, DESNEUX, p. 367, Ann. Mus. Hungar. iii, n. sp.
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- Hodotermes macrocephalus*, Sind, DESNEUX, p. 344, Ann. Soc. ent. Belgique 1905; *H. pulcher*, Congo, SJÖSTEDT, p. 1, Arkiv Zool. ii, No. 16 : **n. spp.**
- Rhinotermes dimorphus*, New Guinea, DESNEUX, p. 368, Ann. Mus. Hungar. iii, **n. sp.**
- Termes gestroi*, natural history, ROBINSON, J. Fed. Malay Mus. i, pp. 2-12; *T. tubiformans*, imago, p. 338, *tenuirostris*, imago, p. 341, *cinereus*, soldier, p. 342, *T. ripperti* subsp. n. *dendrophilus*, p. 357, *T. fatalis*, synonymy, with *kœnigi* **n. sp.** (= *fatalis* Hag.), p. 360, *T. longirostris* Br. to *Rhinotermes*, p. 360, DESNEUX, Ann. Soc. ent. Belgique 1905.
- T. apollo*, E. Africa, SJÖSTEDT, p. 6, Arkiv Zool. ii, No. 16; *T. (Coptotermes) elisæ*, p. 368, *T. (Eutermes) biroï*, p. 369, with subsp. *brevior*, p. 370, *odontomachus*, p. 371, *grallator*, p. 374, *princeps*, p. 275, *gracilirostris*, p. 376, New Guinea, DESNEUX, Ann. Mus. Hungar. iii; *T. wheeleri*, Texas, p. 340, *mycophagus*, p. 348, *belli*, p. 352, *sindensis*, p. 354, *theobromæ*, Sao Thomé, p. 355, *hosei*, Sarawak, p. 356, DESNEUX, Ann. Soc. ent. Belgique 1905 : **n. spp.**

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The spinning apparatus, RIMSKY-KORSAKOW, Zool. Anz. xxix, pp. 438-442. Abstract of Verhoeff's paper of last year, ADELUNG, Zool. Zentrbl. 1905, pp. 580-585.

- Embia ramburi*, Alpes-maritimes, RIMSKY-KORSAKOW, Zool. Anz. xxix, p. 434, **n. sp.**
- Oligotoma gurneyi*, habits, FROGGATT, p. 175, P. Linn. Soc. N. S. Wales xxx.

## PERLIDÆ or PLECOPTERA.

[Cf. BAKER (64), BANKS (71, 73), ENDERLEIN (504), FROGGATT (615), KLAPÁLEK (865, 866, 868), NEEDHAM (1089), REUTER (1258), RIS (1270).]

- Amphineumura cinerea*, true ♀, RIS, p. 96, Mt. Schweiz. ent. Ges. xi.
- Antarctoperla* **n. g.** p. 810, *anderssoni*, p. 811, *fuegiana*, p. 813, **n. spp.**, Tierra del Fuego, ENDERLEIN, Zool. Anz. xxviii.
- Arcynopteryx* **n. g.** for *D. compacta* McLachl. etc., KLAPÁLEK, p. 7, Rozp. Ceske Ak. Praze xiii, No. 17.
- Atoperla* **n. g.** type *Perla producta*, BANKS, p. 56, Psyche xii.
- Austroperla* **n. g.** for *Perla cyrene* Newm., NEEDHAM, p. 109, P. Soc. Washington xviii.
- Capnia vidua*, Transsylvania, KLAPÁLEK, p. 723, Vestnik Ceske Ak. xiii, **n. sp.**
- Capnioneura* **n. g.** p. 94, *nemuroides* **n. sp.**, Zurich, p. 95, RIS, Mt. Schweiz. ent. Ges. xi.
- Dictyogenus* **subg. n.** of *Isogenus* for *imhoffi* Pict. etc., KLAPÁLEK, p. 8, Rozp. Ceske Ak. Praze xiii, No. 17.
- Dictyopterygella* **subg. n.** p. 5, with *D. septentrionis* **n. sp.**, Siberia, p. 6, KLAPÁLEK, t. c.
- Isogenus imhoffi*, p. 3, *rubecula*, nymph, p. 8, cuts, KLAPÁLEK, t. c.
- Leuctra antarctica*, Tierra del Fuego, ENDERLEIN, p. 814, Zool. Anz. xxviii, **n. sp.**
- Nemoura japonica*, Kiushiu, NEEDHAM, p. 110, P. Soc. Washington xviii, **n. sp.**
- Neoperla* **n. n.** for *Pseudoperla* Banks, NEEDHAM, p. 108, t. c.; *N. pilosella*, Java, KLAPÁLEK, p. 103, Mt. Mus. Hamburg xxii : **n. sp.**
- Peltoperla* **n. g.** p. 107, *arcuata* **n. sp.**, New York, p. 108, NEEDHAM, P. Soc. Washington xviii.

- Perla myrmidon* Mab. to *Gripopteryx*, ENDERLEIN, p. 814, Zool. Anz. xxviii.  
*P. tennina*, Japan, NEEDHAM, p. 109, P. Soc. Washington xviii; *P. attenuata*, p. 55, *kansensis*, p. 56, Kansas, BANKS, Psyche xii; *P. californica*, Claremont, BANKS, p. 87, Invert. pacif. i; *P. carolinensis*, N. Carolina, BANKS, p. 215, Bull. Amer. Mus. xxi: n. spp.  
*Perlinella cinctipes*, Kansas, BANKS, p. 56, Psyche xii, n. sp.  
*Tænionema* n. g. p. 56, *analisis* n. sp. Colorado, p. 57, BANKS, t. c.  
*Teniopteryx nebulosa*, appearance in hard weather, REUTER, Medd. Soc. Faun. Fenn. xxx, pp. 99, 100.  
*T. tenuis*, Kiushiu, NEEDHAM, p. 110, P. Soc. Washington xviii, n. sp.

EPHEMERIDÆ or EPHEMEROPTERA.

- [Cf. KLAPÁLEK (866), NAVÁS (1085), NEEDHAM (1093), SEILER (1375).]  
 Key to genera of N. American *Ephemeridæ*, NEEDHAM, pp. 22-26, and of the nymphs, pp. 26-28, pls. iv-xii, Bull. N. York Mus. lxxxvi. In this paper the nymphs of various N. American species are also described and figured.  
 Investigation of structure and function of ocelli in five species, *Cloëon*, *Baëtis*, *Ephemerá*, *Heptagenia*, *Cænis*, SEILER, Zool. Jahrb. Anat. xxii, pp. 1-40, pls. 1, 2.  
*Ameletes ludens*, New York, NEEDHAM, p. 36, Bull. N. York Mus. lxxxvi, n. sp.  
*Cænis nigropunctata*, Java, KLAPÁLEK, p. 105, Mt. Mus. Hamburg xxii; *C. allecia*, New York, NEEDHAM, p. 47, Bull. N. York Mus. lxxxvi: n. spp.  
*Chirotenetes albomanicatus*, N. York, NEEDHAM, p. 31, pls. 5, 6, t. c. n. sp.  
*Cloëon virens*, Java, KLAPÁLEK, p. 106, Mt. Mus. Hamburg xxii, n. sp.  
*Drunella* n. g. pp. 27, 42, for *Ephemerella grandis*?, NEEDHAM, Bull. N. York Mus. lxxxvi.  
*Ephemerella bispina*, p. 43, *unicornis*, p. 45, Indiana, NEEDHAM, t. c. n. spp.  
*Jolia roseli*, the supposed nymph is really *Chirotenetes ignotus*, NEEDHAM, p. 28, t. c.  
*Polymitarcys albus*, nymph, HOWARD, p. 60, Bull. N. York Mus. lxxxvi.  
*Pseudocloëon* n. g. *kraepelini* n. sp., Java, KLAPÁLEK, p. 105, Mt. Mus. Hamburg xxii, n. sp.  
*Rhithrogena ferruginea*, Spain, NAVÁS, p. 123, Bol. Soc. Aragon. iv, n. sp.

ODONATA or PARANEUROPTERA.

- [Cf. BRAUNER (172), CALVERT (670), EAST (488), EVANS (528), FOERSTER (584), GADEAU (631), GEISSLER (648), KIRBY (851, 852), MORTON (1073), NEEDHAM (1090), OSBURN (1127), TILLYARD (1494, 1495), WILLIAMSON (1635).]  
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*Odonata* of the Crimea (in Russian), BRAUNER, Zapiski Novoross. Obshch. xxiv, pp. 73-102.  
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*Æshninae*, synopsis of Centr. American genera, CALVERT, pp. 174, 175, Biol. Centr.-Amer. Neuropt.

- Aeshna dugesi*, pl. viii, figg. 11, 12, p. 184, *williamsoniana*, figg. 13, 14, 19, p. 185, Mexico, CALVERT, t. c. n. spp.
- Cordulegaster annulatus*, oviposition, RIS, p. 113, Ent. News Philad. xvi ; *C. obliquus*, habits, nymph, NEEDHAM, pp. 3, 4, Ent. News Philad. xvi.
- Cyanogomphus ? tumens*, Mexico, CALVERT, p. 169, pl. vii, figg. 11, 41, Biol. Centr.-Amer. Neuropt. n. sp.
- Diplacodes friedericella*, p. 75, *paraguayensis*, p. 76, Paraguay, FÜRSTER, Ins. Börse 1905, n. spp.
- Diplax striolata*, habits in captivity, JOHNSTON, p. 43, Irish Natural. 1905.
- Edonis* n. g. *Libellulinae*, p. 113, *helena* n. sp., Ypiranga, p. 114, NEEDHAM, P. Soc. Washington xviii.
- Eriptogomphus eutainia*, p. 162, pl. vii, figg. 24-27, 39, *ophibotus*, p. 163, figg. 30-32, 46, *sipedon*, p. 165, figg. 30, 40, 42, Mexico, *diadophis*, Texas, p. 167, pl. vii, figg. 35, 47, CALVERT, Biol. Centr.-Amer. Neuropt. n. spp.
- Gomphinae*, the Centr.-American genera, CALVERT, pp. 146-148, t. c.
- Gomphoides volsella*, Mexico, p. 156, pl. vii, figg. 10, 13, 14, CALVERT, t. c. n. sp.
- Heterogomphus naninus*, Tonkin, FOERSTER, p. 19, Wien. ent. Zeit. xxiv, n. sp.
- Ischnura elegans* var. n. *infuscans*, CAMPION, p. 299, Entomologist 1905 ; *I. heterosticta*, dimorphic ♀, TILLYARD, p. 302, P. Linn. Soc. N. S. Wales xxx ; *I. elegans*, rearing and crossing spp. with dimorphic ♀, DONCASTER, p. 110, Entomologist 1905.
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- Libellulinae*, synopsis of Centr.-American genera, CALVERT, pp. 198-205, Biol. Centr.-Amer. Neuropt.
- Misthotus* n. g. near *Orthetrum*, *marshalli*, p. 192, *ambiguus*, p. 194, n. spp., S. Africa, KIRBY, Ann. Nat. Hist. (7) xv.
- Onychothemis notabilis*, Tonkin, KIRBY, p. 277, t. c. n. sp.
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- Selysiophlebia* n. g. near *Gynacantha*, *aratrix* n. sp., Paraguay, FÜRSTER, p. 75, Ins. Börse 1905.
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- Sympetrum pallipes*, *madidum*, characters, OSBURN, pp. 193-195, cuts, Ent. News Philad. xvi.
- Tetragoneuria cynosura*, oviposition, WILLIAMSON, p. 255, Ent. News Philad. xvi.
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- Zygonidia ceylonica*, Ceylon, p. 273, *ancea*, Tonkin, p. 275, KIRBY, Ann. Nat. Hist. (7) xv, n. spp.

## THYSANOPTERA.

[Cf. ASHMEAD (37), HINDS (748), REUTER (1260).]

- Euthrips nicotiana*, Florida, HINDS, p. 198, P. Soc. Washington xviii, n. sp.
- Heliothrips haemorrhoidalis*, injurious habits, LEONARDI, Bull. Ent. agraria v, 4 pp.
- Idolothrips tibialis*, Manila, ASHMEAD, p. 20, Ent. News Philad. xvi, n. sp.
- Leucothrips* n. g. near *Heliothrips*, p. 107, *nigripennis* n. sp., Finland, in hothouses, p. 108, REUTER, Medd. Soc. Faun. Fenn. xxx.

(G.) *APTERA* or *THYSANURA* and  
*COLLEMBOLA*.

## THYSANURA.

[Cf. BOUVIER (162), ESCHERICH (525), HEYMONS (745), NAVAS (1085), VON OLFERS (1120), SILVESTRI (1394-1397), TEMPÈRE (1472), VERHOEFF (1539).]

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*Braunsiella* n. g. p. 67, *heymonsii*, p. 68, *grassii*, p. 69, n. spp., S. Africa, ESCHERICH, t. c.

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*Otenolepisma* n. g. p. 75, for part of *Lepisma*, *C. michaelsoni*, Egypt, p. 80, *longicaudata*, S. Africa, p. 83, *versluyisi*, Neotropical region, p. 84, *grandipalpis*, p. 85, *weberi*, p. 86, S. Africa, *albida*, Egypt, p. 87, *transcaspica*, Balchany, p. 89, *kræpelini*, Athens, p. 90, ESCHERICH, Zoologica xliii, n. spp.

*Eutrichocampa breviseta*, Chile, SILVESTRI, p. 784, Zool. Jahrb. Suppl. vi, n. sp.

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*Microcoryphia*, n. order for *Machilis*, VERHOEFF, Acta Ac. German. lxxxiv, p. 109.

*Heterolepisma* n. g. for *L. pampeana* and *andina* Silv., ESCHERICH, p. 63, Zoologica xliii.

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*Lepidospora* n. g. p. 131, *braueri* n. sp., Seychelles, p. 132, *gracilis*, Sumatra, n. sp., p. 148, ESCHERICH, Zoologica xliii.

- Lepisma globosa*, p. 50, *oudemansi*, p. 53, S. Africa, *crassipes*, Tunis, p. 54, *skorkowi*, Sevastopol, p. 59, ESCHERICH, t. c. n. spp.  
*Lepismina argentea*, Spain, NAVÁS, p. 130, Bol. Soc. Aragon. iv ; *L. persica*, Persia, p. 73, ESCHERICH, Zoologica xliii : n. spp.  
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*Procampodea* n. g. p. 115, *brevicauda* n. sp., S. Italy, p. 117, pl. xii, SILVESTRI, t. c.  
*Silvestrella* n. g. p. 65, *S. termitophila*, p. 66, *myrmecophila*, p. 67, n. spp., S. Africa, ESCHERICH, Zoologica xliii.  
*Thermobia longimana*, Thebes, ESCHERICH, p. 104, t. c. n. sp.  
*Trinemophora schaefferi*, Chile, SILVESTRI, p. 790, Zool. Jahrb. Suppl. vi, n. sp.

## COLLEMBOLA or APONTOPTERA.

[Cf. AXELSON (49), BECKER (88), CARL & LEBEDINSKY (277), FRANKLIN (597), HOFFMANN (753), KRAUSBAUER (891), LEBEDINSKY (929).]

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*A. frigidus*, Finland, AXELSON, p. 788, t. c. ; *A. assimilis*, Germany, KRAUSBAUER, p. 88, Ber. Oberhess. Ges. xviii : n. spp.  
*Entomobrya marginata* var. n. *pallida*, KRAUSBAUER, p. 75, t. c.  
*E. superba*, Germany, KRAUSBAUER, p. 75, t. c. ; *E. albicollis*, Massachusetts, FRANKLIN, p. 77, Ent. News Philad. xvi : n. spp.  
*Isotoma fimetaria* var. n. *caldaria*, AXELSON, p. 790, Zool. Anz. xxviii.  
*I. borealis, angularis*, Finland, AXELSON, p. 791, t. c. ; *I. schaefferi*, Germany, KRAUSBAUER, p. 70, Ber. Oberhess. Ges. xviii : n. spp.  
*Isotomini*, new sections *Furcati* and *Afurcati*, KRAUSBAUER, pp. 33, 34, t. c.  
*Oncopodura* n. g. subf. n. *Oncopodurinae, hamata* n. sp., Krimea in caverns, CARL & LEBEDINSKY, p. 562, Zool. Anz. xxviii.  
*Neanura coronifera*, p. 789, *reticulata*, p. 790, Finland, AXELSON, Zool. Anz. xxviii, n. spp.  
*Papirius minutus* varr. n. pp. 59, 60, KRAUSBAUER, Ber. Oberhess. Ges. xviii.  
*P. violaceus*, p. 61, *setosus*, p. 63, Germany, KRAUSBAUER, t. c. n. spp.  
*Pseudachorutes dubius*, Germany, KRAUSBAUER, p. 94, t. c. n. sp.  
*Pseudachorutides* n. g. *bogoyavlensky* n. sp., Persian Gulf, BECKER, p. 72, Zool. Anz. xxix.  
*Sira platani* var. n. *argenteocincta*, p. 81, *elongata* var. n. *fasciata*, p. 82, KRAUSBAUER, Ber. Oberhess. Ges. xviii.  
*Sminthurides cruciatus*, p. 792, *annulicornis*, p. 793, Finland, AXELSON, Zool. Anz. xxviii, n. spp.  
*Sminthurinus*, 3 varr. n., AXELSON, p. 794, t. c. ; *S. pallipes* = (*speciosus* Krausb.), p. 42, *S. aureus* varr. n., pp. 45, 46, KRAUSBAUER, Ber. Oberhess. Ges. xxxiv.  
*S. quinquefasciatus*, p. 42, *pumilis*, p. 47, *signatus*, p. 52, *parvulus*, p. 53, *assimilis*, p. 54, Germany, KRAUSBAUER, t. c. n. spp.  
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- Labidura mongolica*, Pekin, REHN, p. 503, P. U. S. Mus. xxix, n. sp.
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## BLATTIDÆ and HEMIMERIDÆ.

- [Cf. ADELUNG (8), BOLIVAR (128), CAUDELL (288, 293, 294), REHN (1239).]
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- Anaplecta abortiva*, Brownsville, CAUDELL, p. 105, Bull. Brooklyn Inst. i, n. sp.
- Attaphila aptera*, Colombia, *sexdentis*, Brazil, p. 137, *schuppi*, Porto Alegre, p. 138, BOLIVAR, Mt. Schweiz. ent. Ges. xi, n. spp.
- Atticola* n. g. *Corydiens* ?, p. 140, *mortoni* n. sp., San Leopoldo, in nests of *Camponotus*, p. 141, BOLIVAR, t. c.
- Blaberus biolleyi*, Costa Rica, REHN, p. 792, P. Ac. Philad. 1905, n. sp.
- Blatta sciwana*, p. 421, *B. (Phyllodromia) desertorum*, p. 424, E. Africa, ADELUNG, Annuaire Mus. St. Petersb. ix, n. spp.
- Ceratinoptera bolivari*, Galla land, ADELUNG, p. 431, t. c. n. sp.
- Derocalymma* : characters, pp. 473-476, ADELUNG, t. c.
- Deropeltis gracilis*, p. 455, *negus*, p. 458, *erythropeza*, p. 460, Abyssinia, *dmitriewi*, Galla land, p. 463, ADELUNG, t. c. n. spp.
- Hemimerus talpoides*, habits, MACLAUD, p. 174, Bull. Soc. ent. France 1905.
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- Mallotoblatta kraussi*, Abyssinia, ADELUNG, p. 428, t. c. n. sp.
- Nothoblatta* n. g. p. 139, *N. wasmanni* n. sp., San Leopoldo, in nests of *Camponotus*, p. 140, BOLIVAR, Mt. Schweiz. ent. Ges. xi.
- Oxyhaloa lukjanovi*, Abyssinia, ADELUNG, p. 467, Annuaire Mus. St. Petersb. ix, n. sp.
- Phorticolea* n. g. *Ectobiens*, p. 138, *testacea* n. sp., Rio Grande do Sul, p. 139, BOLIVAR, Mt. Schweiz. ent. Ges. xi.
- Pseudoderopeltis conspersipennis*, p. 448, *spectabilis*, p. 451, Abyssinia, ADELUNG, Annuaire Mus. St. Petersb. ix, n. spp.
- Stylopyga flavilatera* ♂, ADELUNG, p. 439, t. c.
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## MANTIDÆ.

[Cf. TEPPER (1473), WERNER (1615).]

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*Eremiaphila tunetana*, Tunis, *heluanensis*, *pyramidum*, Egypt, WERNER, p. 405, t. c. n. spp.  
*Fischeria quinquelobata*, Centr. Australia, TEPPER, p. 238, Tr. R. Soc. S. Austral. xxix, n. sp.  
*Gongylus gongylodes*, WILLEY, p. 198, 2 plates, Spolia Zeylan. ii.  
*Mantis religiosa* in East France, VUILLEMIN, pp. 57, 58, Feuille Natural. xxxv.  
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## PHASMIDÆ.

[Cf. BAKER (63), CAUDELL (291, 292, 294), FROGGATT (614), KIRBY (853), LEA (927), REHN (1239), TEPPER (1473).]

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*Bacunculus blatchleyi*, Indiana, CAUDELL, p. 212, J. N. York Ent. Soc. xiii, n. sp.  
*Bostra*, table, REHN, p. 795, P. Ac. Philad. 1905.  
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*Libethra auritus*, Costa Rica, REHN, p. 796, P. Ac. Philad. 1905, n. sp.  
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*Palophus allridgei*, W. Africa, KIRBY, p. 279, Ann. Nat. Hist. (7) xv, n. sp.  
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*Cyrtoxipha granadensis*, Nicaragua, REHN, p. 80, Invert. pacif. i, n. sp.

*Éctotrypa brevis*, Costa Rica, REHN, p. 836, P. Ac. Philad. 1905, n. sp.

*Gryllomorpha maghzeni*, Mogador, BOLÍVAR, p. 350, Bol. Soc. espan. v, n. sp.

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*Liphoptus zebra*, Florida, REHN, p. 49, pl. i, fig. 12, P. Ac. Philad. lviii, n. sp.

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*Æ. marcosensis*, Nicaragua, *rileyi*, p. 81, *rehnii*, p. 82, California, BAKER, Invert. pacif. i, n. spp.

#### LOCUSTIDÆ.

[Cf. BAKER (63), BOLÍVAR (129, 131, 132), BRÈTHES (189), CAUDELL (290), DAVIS (390), DOHRN (443), FROGGATT (613), FUSCHINI (628), KRAUSZE (894), MORSE (1072), NAVÁS (1086), REHN & HEBARD (1242), SCHUSTER (1363), SNODGRASS (1425), SWEZEY (1458), WALKER (1562).]

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*Anabropsis marmorata*, p. 827, *costaricensis*, p. 830, Costa Rica, REHN, P. Ac. Philad. 1905, n. spp.

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- Hexacentrus fruhstorferi*, Tonkin, p. 237, *femoralis*, Sumatra, p. 238, DOHRN, Stettin Ent. Zeit. lxvi, n. spp.
- Lichenocrus marmoratus*, Costa Rica, REHN, p. 814, P. Ac. Philad. 1905, n. sp.
- Lobaspis hageni*, New Guinea, p. 238, *minuta*, Sumba, *thoracica*, Obi, p. 239, DOHRN, Stettin Ent. Zeit. lxvi, n. spp.
- Macroviphus atomarius*, p. 243, *pictipes*, p. 245, Borneo, *nigrifrons*, Sumatra, p. 246, DOHRN, t. c.; *M. chyzeri*, New Guinea, BOLÍVAR, p. 390, Ann. Mus. Hungar. iii : n. spp.
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- Orthoviphus* n. g. for *Agroecia spada* Br., DOHRN, p. 240, Stettin Ent. Zeit. lxvi.
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- Platēhippius* n. g. for *Platystolus ustulatus* Ramb., NAVÁS, p. 275, Bol. Soc. Aragon. iv.
- Pycnogaster cucullata* Charp. (= *jugicola* Graells = *bolivari* Br.), NAVÁS, p. 276, t. c.
- Racocleis maroccana*, Tangier, BOLÍVAR, p. 345, Bol. Soc. espan. v, n. sp.
- Sathrophyllia rugosa*, WILLEY, p. 199, pl., Spolia Zeylan. ii.
- Steirodon*, the type, REHN, p. 807, P. Ac. Philad. 1905.
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- Teuthroides* n. g. *Conocephalides*, p. 394, *mimeticus* n. sp., New Guinea, p. 395, BOLÍVAR, t. c.
- Turpilia linearis*, Costa Rica, REHN, p. 812, P. Ac. Philad. 1905, n. sp.
- Xerophyllopteryx* n. n. for *Xeropteryx* Br., REHN, p. 180, Ent. News Philad. xvi.
- Xestophrys horvathi*, New Guinea, BOLÍVAR, p. 388, Ann. Mus. Hungar. iii, n. sp.
- Xiphidiopsis longicercata*, New Guinea, p. 390, *teuthroides*, p. 391, Singapore, BOLÍVAR, t. c. n. spp.
- Xiphidium chavesi*, Azores, BOLÍVAR, p. 180, Bol. Soc. espan. v; *X. redtenbackeri*, New Guinea, BOLÍVAR, p. 389, Ann. Mus. Hungar. iii; *X. insulare*, Bahamas, MORSE, p. 20, Psyche xii; *X. varipenne*, Hawaii, SWEZEY, p. 216, pl. xiv, Rep. exp. Stat. Hawaii, i : n. spp.

## ACRIDIIDÆ.

[Cf. BOLÍVAR (127, 130), BRUNER (205, 206, 670), CAUDELL (287, 289, 294), KUTHY (908), MORSE (1072), NAVÁS (1084), REHN (1238, 1240, 1241), REHN & HEBARD (1242), RÖHLER (1288), SJÖSTEDT (1405).]

Migratory locusts at Velletri, GALLI (634).

Migratory locusts, Africa, SJÖSTEDT, Ent. Tidskr. xxvi, pp. 80-84.

*Achurum minimipenne*, Brownsville, pl. vi, figg. 3, 4, CAUDELL, p. 110, Bull. Brooklyn Inst. i, n. sp.

*Acmophyllum xerophylloide*, *conradti*, p. 211, *nigropunctatum*, p. 212, Africa, BOLÍVAR, Mem. Soc. Espan. i, n. spp.

- Acridium peregrinum*, colour variation, FISCHER, p. 369, J. Bombay Soc. xvi.
- Acrotylus inornatus*, Ilysk, KUTHY, p. 216, Ann. Mus. Hungar. iii, n. sp.
- Agneotettix australis*, Arizona, BRUNER, p. 110, Biol. Centr.-Amer. Orthopt. ii, n. sp.
- Algete* n. g. *Atractomorphine*, p. 213, *brunneri* n. sp., Pernambuco, p. 214, BOLÍVAR, Bol. Soc. espan. v.
- Annandalea* n. g. *Tagastine*, *robinsoni* n. sp., Malay penins., BOLÍVAR, p. 111, t. c.
- Anniceris truncatus*, Costa Rica, REHN, p. 421, P. Ac. Philad. lvii, n. sp.
- Apotettix minutus*, Florida, REHN, p. 34, t. c. n. sp.
- Aptenopedes clara*, variation, REHN, p. 41, t. c.
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- A. lanceolata*, Padang, p. 202, *burri*, p. 203, *himalayica*, p. 204, N. India, *sinensis*, China, p. 205, *blanchardi*, Sind, p. 206, *augusta*, Moupin, p. 207, *ambigua*, Shang-hai, *australiana*, Rockhampton, p. 209, *dentifrons*, Ceram, p. 210, *philippina*, Dolores, *dohrni*, Borneo, p. 212, BOLÍVAR, t. c. n. spp.
- Autocara brevipenne*, Mexico, BRUNER, p. 111, Biol. Centr.-Amer. Orthopt. ii, n. sp.
- Badistica ornata*, Ashanti, BOLÍVAR, p. 229, Mem. Soc. Espan. i, n. sp.
- Brunniella* n. g. *Pyrgomorphidae*, p. 299, *antistes* n. sp. ♀, New Guinea ?, p. 300, BOLÍVAR, Bol. Soc. espan. v.
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- Chimarocephala* ; the spp. and varr., *pacifica* varr. n. *incisa*, *obtusa*, CAU-DELL, p. 124, P. ent. Soc. Washington vii.
- Chortophaga meridionalis*, Costa Rica, BRUNER, p. 136, Biol. Centr.-Amer. Orthopt. ii, n. sp.
- Cibotopteryx* n. g. near *Elaeochlora*, *variegata* n. sp., Costa Rica, REHN, p. 408, P. Ac. Philad. lvii.
- Climocephalus pulcher*, Florida, REHN, p. 36, pl. i, figg. 1, 2, t. c. n. sp.
- Colpolopha bruneri*, Costa Rica, REHN, p. 406, t. c. n. sp.
- Coptacra mellifica*, Biafra, BOLÍVAR, p. 235, Mem. Soc. Espan. i, n. sp.
- Coptotettix bilineatus*, p. 217, *minutus*, *angulatus*, p. 218, Africa, BOLÍVAR, t. c. n. spp.
- Crotogonus turanicus*, Ilysk, KUTHY, p. 217, Ann. Mus. Hungar. iii, n. sp.
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- Deraspiella* n. n. for *Deraspis*, BOLÍVAR, p. 216, Bol. Soc. espan. v.
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- Dichroplus morosus* ♂, REHN, p. 805, P. Ac. Philad. 1905.
- D. morosus*, Costa Rica, REHN, p. 442, t. c. n. sp.
- Dinotettix* n. g. near *Coptotettix*, *biafrensis*, p. 214, *elegans*, *major*, p. 215 n. spp., Africa, BOLÍVAR, Mem. Soc. Espan. i.

- Dissosteira pictipennis*, p. 163, *planipennis*, p. 164, California, BRUNER, Biol. Centr.-Amer. Orthopt. ii, **n. spp.**
- Doriella paradoxa*, New Guinea, BOLÍVAR, p. 299, Bol. Soc. espan. v, **n. sp.**
- Duromia poeensis*, W. Africa, BOLÍVAR, p. 221, Mem. Soc. Espan. i, **n. sp.**
- Encotolophus coloradensis*, *montanus*, p. 140, *fuliginosus*, *herbaceus*, pl. ii, fig. 13, p. 141, *californicus*, *texensis*, p. 142, N. America and Mexico, BRUNER, Biol. Centr.-Amer. Orthopt. ii, **n. spp.**
- Eremobia stummeri*, Hysk, KUTHY, p. 217, Ann. Mus. Hungar. iii, **n. sp.**
- Escalera n. g.* near *Pristocorypha*, p. 231, *opilionoides n. sp.*, Biafra, p. 232, BOLÍVAR, Mem. Soc. Espan. i.
- Geloius crassicornis*, Madagascar, BOLÍVAR, p. 285, Bol. Soc. espan. v, **n. sp.**
- Gerista n. g.* p. 233, *dimidiata n. sp.*, W. Africa, p. 234, BOLÍVAR, Mem. Soc. Espan. i.
- Goniatron n. g.* near *Ligurotettix*, p. 112, *planum n. sp.*, Mexico, p. 113, pl. i, fig. 20, BRUNER, Biol. Centr.-Amer. Orthopt. ii.
- Hedotettix puellus*, *equestris*, Philippines, NAVÁS, p. 52, Bol. Soc. Aragon. iv, **n. spp.**
- Heliastus benjamini*, Arizona, CAUDELL, p. 474, P. U. S. Mus. xxviii; *H. costaricensis*, Costa Rica, REHN, p. 402, P. Ac. Philad. lvii: **n. spp.**
- Hesperotettix curtipennis*, ♂, CAUDELL, p. 465, P. U. S. Mus. xxviii.
- Hippiscus australis*, Mexico, BRUNER, p. 157, Biol. Centr.-Amer. Orthopt. ii, **n. sp.**
- Ichthiacris n. g.* *Orthacrine*, p. 287, *costulata*, *rehni*, p. 288, *californica*, p. 289, **n. spp.**, Lower California, BOLÍVAR, Bol. Soc. espan. v.
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- Lactista oslari*, Arizona, CAUDELL, p. 468, P. U. S. Mus. xxviii, **n. sp.**
- Lepurus interior*, Utah, BRUNER, p. 160, Biol. Centr.-Amer. Orthopt. ii, **n. sp.**
- Leptomerinthoprora n. g.* near *Xiphola*, p. 436, *brevipennis n. sp.*, Costa Rica, p. 437, REHN, P. Ac. Philad. lvii.
- Melanophus sonomaensis*, California, CAUDELL, p. 124, P. ent. Soc. Washington vii, **n. sp.**
- Mestobregma gracilipes*, Arizona, CAUDELL, p. 471, P. U. S. Mus. xxviii, **n. sp.**
- Microtylopteryx n. g.* near *Polysarcus*, *hebardei*, p. 448, *fusiformis*, p. 449, **n. spp.**, Costa Rica, REHN, P. Ac. Philad. lvii.
- Minorissa* Walk. = (*Phymaptera* Bol.), *M. pustulata* = (*P. jucunda* Bol.), BOLÍVAR, Bol. Soc. espan. v.
- Morphopus n. g.* for African *Amorphopus*, *M. affinis n. sp.*, Cameroons, BOLÍVAR, p. 216, Mem. Soc. Espan. i.
- Nerenia n. g.* *Orthacrine*, p. 280, *francoisi n. sp.*, Madagascar, p. 281, BOLÍVAR, Bol. Soc. espan. v.
- Odontomelus biafrensis*, p. 219, Africa, BOLÍVAR, Mem. Soc. espan. i, **n. sp.**
- Edalometopon n. g.* near *Bucephalacris*, *petasatum n. sp.*, Costa Rica, REHN, p. 418, P. Ac. Philad. lvii.
- Omura* Walk. = (*Protomachus* Stål) *O. congrua* = (*P. depressus*), BOLÍVAR, p. 215, Bol. Soc. espan. v.
- Orphulella balloui*, Barbados, REHN, p. 178, pl. viii, figg. 2, 3, Ent. News Philad. xvi, **n. sp.**
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- Paracinema superba*, East Africa, BOLÍVAR, p. 223, Mem. Soc. Espan. i, **n. sp.**
- Paroxya dissimilis*, Bahamas, MORSE, p. 20, Psyche xii, **n. sp.**
- Piezotettix karschi*, BOLÍVAR, p. 213, Mem. Soc. Espan. i, **n. sp.**
- Platypterna latipes*, Africa, BOLÍVAR, p. 222, t. c. **n. sp.**
- Plectrotettix varipes*, Paraguay, BRUNER, p. 214, Ent. News Philad. xvi, **n. sp.**

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- Pristocorypha latruncularia* ♂, BOLÍVAR, p. 232, Mem. Soc. Espan. i.
- Pterotiltus apicalis*, p. 226, *ceruleocephalus*, p. 227, W. Africa, BOLÍVAR, t. c. n. spp.
- P. impennis*-var. n. *multicolor*, BOLÍVAR, p. 228, t. c.
- Rhachicreagra* n. g. near *Polysarcus*, *nothra* n. sp., Costa Rica, REHN, p. 444, P. Ac. Philad. lviii.
- Rhienoderma humilis*, Costa Rica, REHN, p. 414, t. c. n. sp.
- Schistocerca malachitica*, Costa Rica, REHN, p. 439, t. c. n. sp.
- Schultessia* n. g. *Atractomorphinae*, *biplagiata* n. sp., Madagascar, BOLÍVAR, p. 217, Bol. Soc. espan. v.
- Scolocephalus* n. g. *Proscopidae*, *mirabilis* n. sp., Costa Rica, BRUNER, p. 315, Ent. News Philad. xvi.
- Scyllina rubripes*, Himalaya, NAVÁS, p. 53, Bol. Soc. Aragon. iv, n. sp.
- Serpusia blanchardi*, Liberia, BOLÍVAR, p. 238, Mem. Soc. Espan. i, n. sp.
- Sphenacris granulatus*, New Caledonia, BOLÍVAR, p. 279, Bol. Soc. espan. v, n. sp.
- Stenoxypus variegatus* Blanch., BOLÍVAR, p. 105, t. c.
- Strapteleura salina*, *meridionalis*, p. 107, *brachyptera*, p. 108, Mexico, BRUNER, Biol. Centr.-Amer. Orthopt. ii, n. spp.
- Syletria* n. g. *Xipholarum*, *angulata* n. sp., Costa Rica, REHN, p. 433, P. Ac. Philad. lviii.
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- Teniopoda varipennis*, Costa Rica, REHN, p. 410, P. Ac. Philad. lviii, n. sp.
- Tagasta* n. n. for *Mestra*, p. 111, *insularis* n. sp., Lombok, p. 114, BOLÍVAR, Bol. Soc. espan. v.
- Taxiarchus* n. g. *Proscopidae*, *septentrionalis* n. sp., Costa Rica, BRUNER, p. 314, Ent. News Philad. xvi.
- Teratodes monticollis*, WILLEY, p. 200, pl., Spolia Zeylan. ii.
- Tomonotus ferruginosus*, Arizona, CAUDELL, p. 470, P. U. S. Mus. xxviii, n. sp.
- Trachyrhachis* (= *Mestobregma* Scudd.), BRUNER, p. 259, Ent. News Philad. xvi.
- T. compacta*, N. America, p. 175, *inconspicua*, *townsendi*, Mexico, p. 176, BRUNER, Biol. Centr.-Amer. Orthopt. ii : n. spp.
- Trigonopteryx punctata* var. n. *multireticulata*, BOLÍVAR, p. 302.
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- Tropinotus regularis*, Paraguay, BRUNER, p. 215, Ent. News Philad. xvi, n. sp.
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- Verdulia* n. g. for *Pyrgomorpha cycloideum* de Haan, p. 281, *dohrni*, p. 283, *olivacea*, p. 284, n. spp., Sumatra, BOLÍVAR, t. c.
- Zygoclistron* n. g. near *Paraleuas*, *trachystictum* n. sp., Paraguay, REHN, p. 39, Ent. News Philad. xvi.







## XIV. ECHINODERMA.

BY

M. GRANT.

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INTRODUCTION.

When official decree stopped the assistance which for thirteen years it has been my pride and pleasure to offer to my colleagues, I was fortunate in persuading Miss Grant to take over the manuscript already prepared for the present issue and to complete the work with such supervision as I could give. She in turn has persuaded me to contribute this introduction and to insert within [ ], as usual, any remarks that might appear servicable in the body of the Record. Consequently this, the last issue before the *Zoological Record* is amalgamated with the *International Catalogue*, preserves the style of its thirteen predecessors.

I. TITLES. The total 381 exceeds by 11 the number contained in the Record for 1900, when a special effort was made. Of these, however, 36 have not been seen. This is due, not to lack of effort, but mainly to the fact that I handed over to the Recorder a list of over 50 titles, many of which I had been trying to see for several years. A few of these have now been seen; others have been entirely excluded; 14, about which something definite is known, are placed in the ordinary list; while the remaining 22 form an appendix. Thus, it is hoped, these unseen works will not be entirely lost sight of, while at least those published after 1900 may receive attention in the *International Catalogue*.

The numbered titles belong to the following years: uncertain, 2; 1890, 1; 1893, 1; 1894, 3; 1895, 1; 1896, 1; 1897, 2; 1898, 5; 1899, 4; 1900, 3; 1901, 10; 1902, 10; 1903, 18; 1904, 35; 1905, 284; 1906, 1. The number 284 for the titular year has previously only been exceeded by the 288 of 1903, for which year we now know of 335 works. It is therefore probable that over 50 works remain to be recorded for 1905.

II. **BIOLOGY.** Although no work is conspicuous for either extent or fundamental character, several minor problems receive solutions while others are brought into prominence.

**Anatomy.**—In WOODLAND'S account of spicule-formation in *Echinus* (344) the point of chief interest to us is that the spicule does not begin as a tetrahedron but as an intracellular granule which becomes triradiate. The axial organ and ovoid gland of echinoderms have long afforded matter for controversy. Not unnaturally, since PIETSOHMANN (256) discussing the varied histology and functions of the axial organ in Asteroids, and its connection with the oral blood-lacunae and with their radial extensions, proves that here as in crinoids different organs are confused. For *Isocrinus* these have been disentangled by REICHENSBERGER (267), who has been able to prove by excellent material of *I. decorus* that an adoral cell-complex, distinct from the glandular portion of the axial organ, but intimately connected with the labial blood-plexus, manufactures lymph-cells, which wander radially outward to the genital rachides of the arms and pinnules, becoming gonads on the way. His paper contains other interesting additions to our knowledge. Holothurians have no axial organ, but one seems to recognise something similar in RUSSO & POLARA'S (283) statement that the formation of gonads in *Phyllophorus* and *Strongylocentrotus* is accompanied by a development of supporting and glandular cells, which latter nourish the gonads. POLARA (258) further shows that in *Phyllophorus* the bilateral symmetry of the genital caeca is not accompanied by corresponding symmetry of the genital lacuna and aboral sinus as is the case in *Synapta*.

By consideration of previous observations and by observation of unstalked Crinoids preserved in alcohol, MINCKERT (214) confirms the views already expressed that the hypozygal and epizygal are complete brachial elements (Bather 1892, Bosshard 1900), and that the syzygy assists autotomy and provides a base for regeneration (Walther 1886, Bather 1896, 1900); he divides regeneration of brachia into simply reproductive, i.e. reproducing the branch as it existed before amputation, and augmentative, i.e. increasing the number of branches by the introduction of axillaries; to the latter he ascribes the origin, both phylogenetic and ontogenetic, of all bifurcations beyond the first; thus, species with more than 10 final series (to which he restricts the term "arms") owe the increased number not to normal growth, but to amputation, presumably autotomous, and augmentative regeneration. It remains for future workers to prove or disprove this ingenious theory by cultivating some many-branched species from early stages onwards.

Minor anatomical notes are scattered through the larger faunistic and systematic memoirs to be mentioned later. Among the smaller papers BELL (25) notes the restriction of podial pores to the proximal arm-region, with probable absence of podia, in *Ophiozona*, *Ophiura*, and *Ophiolipus*, and suggests search for a respiratory compound. KIERNIK (154, 155) shows that in the echinoids examined by him the glandular epithelium of the pedicellariae is columnar in a single layer, that the poison emerges by a single opening, that there are both striped and unstriped muscle fibres, quite distinct, the former probably effecting the rapid movements. The structure of various Palaeozoic Ophiurids leads BATHER (21) to suggest that the vertebrae of this class may be composed of two successive pairs of so-called ambulacra.

**Physiology, Bionomics, Auxology.**—Students of experimental mor-

phology, in which echinoderms are so often the corpora vilia, will find a useful summary and guide in PRZIBRAM (262). Papers on normal development are few. HENDERSON (134) describes the early stages of an asterid, in general like the corresponding stages of *Asterina gibbosa*, but with more yolk. In a paper by VALETTE (324) dealing with new Chalk echinoids, the most valuable part is a study of young *Micraster coranguinum*; these facts of ontogenesis should now be compared with the phylogenetic results of ROWE. Among the important papers on the experimental side are those by GARBOWSKI (106, 107), the remarks on pigment in the latter being of general interest. It is also interesting to learn that GODLEWSKI (115) has reared plutei of Echinoid × Crinoid origin. To the advances in the study of artificial parthenogenesis we cannot here refer, but may note abundant confirmation of the view previously expressed in these pages, that the most exact determination of the species or even variety under examination is a necessity for the purest of physiologists. Interesting physiological and bionomic notes will be found duly indexed, but attention may be directed to the discussion by LUKAS (201) of the stage of consciousness at which Echinoderms have arrived; though based mainly on the observations of others, it presents the matter in a novel and interesting light. The economically important subject of trepang fishery is considered in a pamphlet written for the government of the Dutch East Indies by Dr KONINGSBERGER (166) of Buitenzorg, Java.

III. DISTRIBUTION. DOEDERLEIN (79, 80) contributes to Roemer & Schaudinn's 'Fauna Arctica' a discussion of the distribution of 27 species of Echinoids and 6 of Crinoids, which makes it noteworthy that the only species obtained by those gentlemen in the Arctic were *Stronglocentrotus droebachiensis*, *Antedon eschrichti*, and *A. proluxa*. KEMP (152) has drawn up a useful list of shallow and deep water echinoderms from W. Ireland, marred only by misuse of brackets. KOEHLER & VANEY (164) discuss the deep sea Holothurian fauna of the Indian Ocean as dredged by H.M.S. Investigator, and consider that in general the deep-sea fauna is more broken up and less cosmopolitan than was once supposed. The distribution of various Asterids and Ophiurids collected by the Swedish Magellan Expedition is discussed by LUDWIG (199) who gives many interesting anatomical details. Such are also contained in the description of Holothurians from the Horn and from New Zealand by R. PERRIER (249), who considers that bipolarity is no general principle but a peculiar distribution of a few species, demanding independent explanation in each case. The increased collections of FOURTAU enable him (98) to add much valuable information concerning the Eocene and Upper Cretaceous Echinoids of Egypt.

IV. SYSTEMATIC. Species unfortunately have been founded on larvae before now, but GARBOWSKI (107) is the first to base a systematic division on a minute difference in the ovum alone. On the other hand, the real aid that biometry can render taxonomy is admirably illustrated by EDWARDS (88) from two species of *Holothuria*.

GROBEN (124), following Metschnikoff, places the *Echinoderma* and *Enteropneusta* in a phylum *Ambulacraria* characterized by a prostoma functioning as anus, a secondary ventral mouth-opening, and a hydrocoel.

Among Holothurians, new species of *Myriotrochinae*, a subfamily hitherto known only from Arctic or Sub-Arctic Europe, are described from Korea by ÖSTERGREN (236), whose description (325) of new species of Scandinavian and Arctic Synaptids contains important notes on taxonomy. Keferstein's little known *Rhabdomolgus*, rediscovered off Helgoland, is proved by LUDWIG (196) to be a low form of *Synaptidae*. A new *Psolus* from California is described by FISHER (93). KOEHLER & VANEY (164) introduce 59 new species and the following new genera of deep-sea Holothurians: *Dendrothuria*, *Pseudothuria*, *Allopatides*, *Perizona*,

*Bathyzona*, *Amphideima*, *Benthophyces*, *Euri* [? Eurino-, or Eury-] *plastes*, *Filithuria*, *Gephyrothuria*; perhaps they never recognised the scholarly aptness of the names due to Théel.

New Echinoids from Arctic and Antarctic regions are briefly described by MORTENSEN (220). DOEDERLEIN (78) bases the following new genera on Echinoids obtained by the 'Valdivia': *Pygmaeocidaris*, *Lamprechinus*, *Orechinus*, *Notechinus*, *Mortensenia*; these are distinguished by minute, though not necessarily trivial, characters; the many new species are not figured. Tertiary Echinoids from Italy and Sardinia, Lower Cretaceous Echinoids from Capri, and interesting new species of *Diademopsis* and *Mesodiadema* from the Middle Lias of Italy, are described by AIRAGHI. With the cooperation of LAMBERT, SAVIN (286) has revised the fossil Echinoids of Isère, describing some new species; and in an appendix LAMBERT founds the new genus *Eosalenia*, which apparently is not a Salenid. The paper appears in three forms with two titles and three independent paginations; the fate of my (21) enables me to sympathise with Col. SAVIN in this misfortune. DONCIEUX (81) in collaboration with MIQUEL (215) & LAMBERT (171) has published a useful catalogue of the Nummulitic (Lower Lutetian) fossils of l'Aude and l'Hérault; the Echinoids are specially described by LAMBERT, in whose chapter so many novelties are concealed that one is sincerely grateful for the light shed on them by his own review, but would it not be simpler to use the expressions n. fam., n. g., etc. in the paper itself? His new genera appear to be *Stenaster* (afterwards *Parmulechinus*) and *Pseudobrissus*, neither from the rocks under discussion. The W. African Eocene fauna is increased by an interesting *Echinolampas* described by LAMBERT in CHAUTARD (47). Discussing the Eocene Spatangids of Egypt, FOURTAU (97) proposes the new genera *Heterospatangus* and *Plagiopneustes* and the new subgenus of *Euspatangus*—*Perispatangus*; he places the last two in a new group—*Megapneustidae*, but *Heterospatangus* and *Euspatangus* in the *Euspatangidae*; the genotype of *Hypsospatangus* having been proved a *Trachyspatangus*, FOURTAU thinks to resuscitate the genus by selecting a new genotype, and gives its name to yet another of this sort of family. All these divisions show the danger of relying on the fascioles, and no wonder Mr FOURTAU is sometimes "assez embarrassé." *Fibulina* is a new genus described with other new Eocene Echinoids from Madagascar by TORNIQUIST (316). P. DE LORIOU (195) describes a new Cretaceous *Astropecten* from Patagonia and many new Echinoids from the Tertiary of Spain and Africa, the Lower Cretaceous and Upper Jurassic of Portugal and Mt. Salève. He reestablishes *Echinites excavatus* Leske.

Continuing his report on the *Echinoderma* found off the coast of S. Africa, BELL (25, 26, 27) describes Asteroids, Ophiuroids, and Crinoids, and notes resemblance to both N. Atlantic and Indian Ocean faunas. Inter alia, he describes a new *Palmipes* with 9 rays instead of the usual 5.

The most important work of the year is LUDWIG'S (197) account of the Asteroidea dredged by the Albatross in 1891 and 1899-1900, which establishes the genera *Parastropecten*, *Albatrossia* (nom. preocc.), *Pauliella*, *Sarkaster*, and *Alexandra*. Although general morphological and taxonomic conclusions are reserved for the author's memoir on the starfish of the German Deep-Sea Expedition, still the present beautiful volume is full of new observations on the skeletal and internal anatomy. FISHER (92) describes, without figuring, 24 new species of starfish from Californian and Alaskan deep waters, including *Cryptopeltaster* n. g. and *Eremicaster* and *Myxoderma* n. s.-gg. The monograph of British Cretaceous Asteroidea is being continued by SPENCER (305) who describes some new species; the previous descriptions by SLADEN are completed by SEARLE'S excellent drawings. The littoral Ophiurids collected by the Siboga are described by KOEHLER (160) who establishes 60 new species and the



genera *Ophiogypsis* and *Astrochalcis*. BATHER (21) describes a new Devonian Ophiurid *Sympterura*.

There is much to be said for MINCKERT'S (213) establishment of a new genus *Decametrocrinus* for the species of *Promachocrinus* with simple arms, and something to be said for his new family *Decametrocrinidae*; but one is curious to know what he will find to say in favour of his Orders *Eleutheroocrinoidea* and *Stylocrinoidea*, which resuscitate an idea that one had thought dead and buried. But even *Palaeocrinoidea* and *Neocrinoidea* are still in the text-books. If the long obscure genus *Cleioocrinus* still remains a puzzle, this is not the fault of SPRINGER'S masterly description (306); it is noteworthy that his appeal to Cisatlantic phylogenists was independently answered in almost the same sense by two of them. Mignon TALBOT (312) publishes interesting and well-illustrated notes on several Lower Devonian crinoids of New York, but still fails to straighten out *Melocrinus* and *Mariocrinus*. Equal confusion attaches to *Cyathocrinus ornatisimus*, a figure of which adorns the cover of the Geological Report of the Fourth District, N.Y. (1843). The original material contained two distinct species of dicyclic inadunate crinoids with pinnulate arms, which in species A are heterotomous, but in species B bifurcate only once. J. M. CLARKE in a memoir (4) published two years ago, but not yet seen in this country, appears to have regarded a specimen of B as the holotype of *C. ornatisimus*. WHITFIELD (339) however has little difficulty in proving that the holotype was a specimen of A, which he agrees with JAEKEL to place in *Cosmocrinus*. For B, WHITFIELD establishes the new genus *Maragnierinus*, which seems intermediate between the Silurian *Gothocrinus* and the Carboniferous *Scytalocrinus*, to which latter CLARKE (4 & 57) referred the genotype. Continuing his researches on the fossil Echinoderms of Stramberg, REMEŠ (269) describes a curious new genus, *Pseudosaccocoma*. BENECKE'S fine monograph on the fossils of the Iron-ore formation of Lothringen and Luxemburg (29) describes an *Isocrinus* known as *Pentacrinus personatus*.

A Professional Paper on Lead, Zinc, and Fluorspar deposits is the hiding-place chosen by ULRICH (321) for valuable notes and excellent figures of Carboniferous Echinoderms including some new Blastoids. A new writer G. H. HUDSON (144) has published some admirable descriptions of interesting Ordovician crinoids and a cystid. Among problematica one mentions *pour mémoire* the *Astrechinus* of JAEKEL (145) though he has not yet published the description.

The following table gives the numbers of the new names proposed in the works indexed.

	New genera	Altered generic names	New sub-genera	New species	New varieties
Holothurioidea	10	0	0	68	8
Echinoidea	12	1	1	81	4
Asteroidea	6	0	2	86	2
Ophiuroidea	3	0	0	64	1
Crinoidea	3	0	0	15	0
Cystidea	0	0	0	1	0
Blastoidea	0	0	0	5	1
Incertae sedis	1 n.n.	0	0	0	0
Total	34 + 1 n.n.	1	3	320	16

Further remarks by me are placed in [ ].

F. A. BATHER.

December, 1906.

## CORRIGENDA in previous Records.

Record for 1900, vol. xxxvii:—

- p. 103. *Phymosoma abbatei*. For 'Santonian not Turonian' read 'Santonian as well as Turonian.'

Record for 1902, vol. xxxix:—

- p. 29. No. 247. For "pp. 1-23" read "pp. 265-287."

Record for 1904, vol. xli:—

- p. 48. *Cucumaria frondosa*, entry under CLARK should read "that recorded from Florida reef probably not this sp., that from Alaska and N. Pacific probably *C. japonica*."
- p. 93. *Agelacrinus chapmani*; AMI (7). Dr Ami desires to explain that, on p. 61 G of his paper, "*Agelacrinites Chapmani*, Billings" is a clerical error for "*Agelacrinites Billingsi*, Chapman."

It is hoped that corrections will, as heretofore, be furnished by authors, so that they may be inserted in future volumes.

## I. TITLES\*.

- ABICH, H. (1) Zool. Rec. 1902. Abstract by N. J. KARAKASCH, Annuaire geol. min. Russie, vii, p. 42.
1. AEBERHARDT, B. Note sur la faune de l'Oxfordien inférieur du Jura bernois. Eclog. geol. Helvet. viii, pp. 439-444. (Jan.) [III, B, iii, c, 2.]
2. AGASSIZ, A. On the progress of the Albatross Expedition to the Eastern Pacific. Amer. J. Sci. (4), xix, pp. 143-148. (Feb.) [III, A, iv.]
3. —. Albatross Expedition to the Eastern Pacific. Science (n. s.), xxi, pp. 178-183. (3 Feb.) [III, A, iv.]  
Same as the first letter in AGASSIZ (4).
4. —. Three letters from Alexander Agassiz to the Hon. George M. Bowers, United States Fish Commissioner, on the Cruise, in the Eastern Pacific, of the U.S. Fish Commission steamer "Albatross," Lieut.-Commander L. M. Garrett, U.S.N., commanding. Bull. Mus. Harvard, xlvi, pp. 65-84. (April.) [III, A, iv.]
- AIRAGHI, C. (2 & 3) Zool. Rec. 1903. Abstracts: Boll. Com. geol. Ital. xxxv, p. 268 (1904).
5. —. Echinodermi miocenici dei dintorni di S. Maria Tiberina (Umbria). Atti Acc. Torino, xl, pp. 43-54, i pl. (Jan.) [III, B, ii, d. iv, c.]  
Review: by J. LAMBERT, Rev. paleozool. ix, p. 97 (April, 1905).  
Abstract by P. E. V[INASSA DE REGNY], Riv. ital. Pal. xi, p. 37 (June, 1905).

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

The Symbols in [ ] refer to the divisions of the Subject-Index, II, III, IV. Those referring to the Systematic portion [IV, A-K] are inserted only when some question of definite importance to the systematist is dealt with in the work. The names of the genera mentioned in any work can generally be gathered from the lists given under Distribution [III, A or B], and the species can then be traced by turning to Section IV. Only where this was not possible have names been inserted after the title.

6. [AIRAGHI, C.] *Appunti di Echinologia fossile. Atti Mus. Milano*, xlv, pp. 1-10, pl. i. [III, B, ii, d, f; iii, d. iv, c.]  
Abstracts: by J. LAMBERT, *Rev. paleozool.* ix, p. 161 (July, 1905); by VINASSA DE REGNY, *Riv. ital. Pal.* xi, p. 93 (Aug. 1905).
7. —. *Echinodermi infracretacei dell' isola di Capri. Riv. ital. Pal.* xi, pp. 82-90, pl. i. (15 May [i.e. end of June].) [III, B, iii, b, 2. iv, c.]
8. —. *Echinidi miocenici della Sardegna raccolti dal Dott. Capeder. Atti Mus. Milano*, xlvi, pp. 209-217, 2 text-figg. [III, B, ii, d.]
9. ALBERT [HONORÉ CHARLES] (Prince de Monaco). *Sur la campagne de la Princesse Alice. C.R. Ac. Sci.* cxl, pp. 1373-1376. (22 May.) Reprinted as *Bull. Mus. Monaco*, No. 39, 5 pp. (5 June.) [III, A, ii.]
10. AMEGHINO, F. *L'age des formations sédimentaires de Patagonie. An. Soc. Argent.* li, pp. 65-91; liv, pp. 161-180. (April, 1901; Oct. 1902.) [III, B, ii, a.]  
Parts of a series of papers under this title beginning in vol. I, p. 109 (Sept. 1900).
11. AMI, H. M. Preliminary lists of fossil organic remains from the Potsdam, Beekmantown (Calceiferous), Chazy, Black River, Trenton, Utica, and Pleistocene formations comprised within the Perth Sheet (No. 119) in Eastern Ontario. Being Appendix to a Report on the Geology by R. W. ELLS. *Ann. Rep. geol. Surv. Canada*, xiv, pp. 80J-89J. (Published separately 1904, volume 1905.) [III, B, iv, h.]
12. AMMON, L. v. *Zur Geologie von Togo und vom Nigerlande. Mt. geogr. Ges. München*, i, pp. 393-474, pl. xix, text-figg. [IV, B, ii, f.]
- ANTHULA, D. J. (18) *Zool. Rec.* 1899. Abstract by N. J. KARAKASCH, *Annuaire geol. min. Russie*, vii, p. 42 (1905).
- ARIOLA, V. (13) *Zool. Rec.* 1904. Abstract by P. MAYER, *Zool. Jahresber.* 1904, p. 15 (Aug. 1905).
- 12A. —. *Le ipotesi nella partenogenesi sperimentale e la fecondazione normale. Atti Soc. Ligustica*, xiv, pp. 149-159. (1903.) [II, F, viii.]
- 12B. —. *La merogonia e l' ufficio del nucleo nella fecondazione. Atti Soc. Ligustica*, xv, pp. 196-203. (Dec. 1904, reed. Aug. 1905.) [II, F, viii.]
- 12C. BAGLIONI, S. *Ueber das Sauerstoff bedürfnis des Zentralnervensystems bei Seetieren. Zeitschr. allg. Physiol.* v, pp. 415-434. [II, C, vi.]
13. BAKALOW, P. *Vorläufige Mitteilung ueber die Fauna der Trias und des Jura von Kotel (Bulgarien). Centrbl. Mineral.* 1905, pp. 481-483. (Sept.) [III, B, iii, d, e.]
14. BALL, J. *Kharga Oasis: its topography and geology. Rep. geol. Surv. Egypt*, 1899, Part II, 116 pp., xix pls. (April, 1901.) [III, B, ii, f; iii, b, I.]
15. —. *On the topographical and geological results of a reconnaissance survey of Jebel Garra and the oasis of Kurkur. Surv. Dept. Egypt*, 8vo, 40 pp., vii pls. Cairo. (1902.) [III, B, ii, f; iii, b, I.]
16. BASSANI, F. *La ittiofauna delle argille marmose plioceniche di Taranto e di Nardò (Terra d' Otranto). Atti Acc. Napoli* (2), xii, No. 3, 59 pp., iii pls. [III, B, ii, b.]  
Abstract by Author, *Riv. ital. Pal.* xii, p. 1 (Feb. 1906).
- BASSLER, R. S. See UNITED STATES NATIONAL MUSEUM (322).

17. BATAILLON, E. La parthénogénèse expérimentale d'après les derniers travaux de J. Loeb. Arch. zool. exp. Notes (4), iii, pp. ccxxxiii-ccxxxv. (Sept.) [II, F, viii.]  
Review of LOEB, J. (185, 186, 187).
18. BATE, DOROTHY M. A. On the ossiferous cave-deposits of Cyprus. Geol. Mag. (n. s.), dec. v, vol. i, pp. 324-325. (July, 1904.) [III, B, ii, d.]
19. BATHER, F. A. The Echinoid name *Discoidea subucula*. Ann. Nat. Hist. (7), xv, pp. 145-148. (Jan.) [II, E, iii. IV, C.]  
Review: by J. LAMBERT, Rev. paleozool. ix, pp. 95-96 (April, 1905). Abstract: by Author, Geol. Centrbl. vi, p. 311 (15 Mar. 1905).
20. —. [Remarks on *Clypeaster ultus* var. *portentosus* from Cyprus, in discussion on paper by C. V. BELLAMY.] P. Geol. Soc. London, 1904-05, pp. 30-31. (Jan.) [III, B, ii, d.]
21. —. *Sympterura minveri*, n. g. et sp.: a Devonian Ophiurid from Cornwall. Geol. Mag. (n. s.), dec. v, vol. ii, pp. 161-169, pl. vi. (April.) [II, B, i, e, 5. III, B, iv, f. IV, E.]  
Republished with *unauthorised* title "A new Ophiurid from Cornwall (*Sympterura Minveri*, n. g. et sp.," in Tr. geol. Soc. Cornwall, xiii, pp. 71-85, pl. ii: June.  
Abstracts: in J. R. Micr. Soc. 1905, p. 319 (June); by Author, Geol. Centrbl. vi, p. 669 (1 July, 1905); by KAYSER, N. Jahrb. Min. 1906, i, p. -301- (21 April, 1906); in LUDWIG (200).  
— See also BELLAMY (28), NEWTON (227), SPRINGER (306), STOBBS (308), U. S. NAT. MUS. (322).
22. BEADNELL, H. J. L. The Cretaceous region of Abu Roash near the Pyramids of Giza. Rep. geol. Surv. Egypt, 1900, Pt. II, 48 pp., xiii pls., folding map. (1902.) [III, B, iii, b, I.]
23. —. The relations of the Eocene and Cretaceous systems in the Esna-Aswan reach of the Nile Valley. Quart. J. Geol. Soc. lxi, pp. 667-678, text-figg. (30 Nov.) [III, B, iii, b, I.]
24. —. The topography and geology of the Fayum Province of Egypt. Surv. Dept. Egypt, 4to, 102 pp., xxiv pls. Cairo. [III, B, ii, f.]
25. BELL, F. J. The Echinoderma found off the coast of South Africa. Part III. Ophiuroidea. "Marine investigations in S. Africa," vol. iii, pp. 255-260, pl. i. Cape Town. (8 May.) [II, B, i, e, 6. III, A, iii. IV, E.]  
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26. —. The Echinoderma found off the coast of South Africa. Part II. Asteroidea. "Marine investigations in S. Africa," vol. iii, pp. 241-253. Cape Town. (9 May.) [II, E, i, a. III, A, iii. IV, D.]  
Abstract: J. R. Micr. Soc. 1905, p. 443 (Aug.).
27. —. The Echinoderma found off the coast of South Africa. Part IV. Crinoidea. "Marine investigations in S. Africa," vol. iv, pp. 139-142, pls. ii-iv. (28 Aug.) [III, A, iii. IV, F.]
28. BELLAMY, C. V. & JUKES-BROWNE, A. J. The geology of Cyprus. 8vo, 72 pp. Printed at Plymouth: "Published by Authority" [? whose]. (July.) [III, B, ii, d.]  
*Ech.* determined by F. A. BATHER.  
— See also BATHER (20).

29. BENECKE, E. W. Die Versteinerungen der Eisenerzformation von Deutsch-Lothringen und Luxemburg. Abh. geol. Karte Elsass (n. s.), vi, 598 pp., lix pls., 4 text-figg. (May.) [III, B, iii, c, 3. IV, F.]
- BERG, L. (24) Zool. Rec. 1904. Abstract by N. J. KARAKASCH, *Annuaire geol. min. Russie*, vii, p. 49 (1905).
30. BERGMANN, W. Echinoderma für 1893. *Arch. Naturg.* 1899, Bd. ii, pp. 461-494. (Nov.) [II, E, iii.]
31. \*BIGNEY, A. J. Experiments on developing eggs. *P. Indiana Ac.* 1901, pp. 95-96. (1902.) [II, F, viii.]
- BLANCKENHORN, M. See FOURTEAU, R.
32. BLASCHKE, F. Die Gastropodenfauna der Pachycardientuffe der Seiseralpe in Südtirol nebst einem Nachtrag zur Gastropodenfauna der roten Raibler Schichten vom Schlernplateau. *Beitr. Pal. Oesterr.-Ung.* xvii, pp. 161-221, pls. xix-xx. [III, B, iii, e.]
33. BOCHENEK, A. O systemie nerwowym mięczaków, ostonic i szkartupni. (Recherches sur le système nerveux des invertébrés — *Anodonta*, *Distalpia*, *Synapta*.) *Bull. Ac. Cracovie*, 1905, pp. 205-220, pl. v, 2 text-figg. (Feb.) [II, B, i, b, 9.]  
Abstract in LUDWIG (200).
- BOEHM, J. See VALETTE, A.
34. BOHN, G. Les mystères de la formation de l'oeuf. *Rev. Idées*, ii, pp. 307-310. (15 April.) [II, F, viii.]  
— See also VIGUIER (328).
35. BOISTEL, A. Les fossiles néogènes du Maroc rapportés par M. Paul Lemoine. *Bull. Soc. geol. France* (4), v, pp. 201-208. (July.) [III, B, ii, c.]  
*Rotuloidea* discussed by J. LAMBERT.  
Abstract: by J. LAMBERT, *Rev. paleozool.* x, p. 64 (Jan. 1906).
36. BOLAU, H. Seestern und Einsiedlerkrebse. *Zool. Garten*, xlvi, p. 53. (Feb.) [II, D, iv, d.]
- 36A. BORCHGREVINK, C. Das Festland am Suedpol. Die Expedition zum Südpolarland in den Jahren 1898-1900. 8vo, vi+610 pp., v pls., 321 text-figg., 6 maps. Breslau: Schottlaender. M. 13.50. [III, A, i; vi.]
37. BOUVIER, E. L. & SEURAT, G. *Eumedon convictor*, crabe commensal d'un Oursin. *C.R. Ac. Sci.* cxl, pp. 629-631. (Mar.) [II, D, viii, c.]  
Abstracts: *Nature*, lxxi, p. 479 (16 March, 1905); *J. R. Micr. Soc.* 1905, p. 311 (June).
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39. —. Ueber Doppelbefruchtung. *SB. Ges. Wurzburg*, 1905, pp. 8-9. (June.) [II, F, viii.]
40. \*BREITFUSS, L. L. Expedition für wissenschaftlich-praktische Untersuchungen an der Murman-Küste. Zoologische Studien im Barents-Meere auf Grund der Untersuchungen der Expedition; vorläufige Berichte. 1. Liste der Fauna des Barents-Meeres. 8 pp. Petersburg. (1904.) [III, A, v.]

41. BRESSON, —. Feuilles de Luz, Tarbes, Urdos. Bull. Carte geol. France, xvi, pp. 87-94. [III, B, iv, h.]
42. BRIVES, A. Les Terrains crétacés dans le Maroc occidental. Bull. Soc. geol. France (4), v, pp. 81-96, pl. i. (April.) [III, B, iii, b, 2.]
- BROILI, F. (32) Zool. Rec. 1902. Abstract by N. J. KARAKASCH, Annuaire geol. min. Russie, vii, p. 41.
43. BROWNE, E. T. Notes on the Pelagic fauna of the Firth of Clyde (1901-1902). P. R. Soc. Edinb. xxv, pp. 779-791. (July.) [III, A, ii.]
44. BUEN, O. DE. La région méditerranéenne des Baléares. Bull. Soc. zool. France, iii, pp. 98-106. (June.) [II, D, iii, a. III, A, ii.]
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46. CAREZ, L. La géologie des Pyrénées françaises. Fascicule II: Feuilles de Tarbes et de Luz, pp. 745-1230, pls. iii-xiii. Paris. (1904, recd. Jan. 1906.) [III, B, i.]
- CARPENTER, G. H. See KEMP (152).
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\*\* *There is reason to believe that the following books and papers contain references to, or descriptions of, echinoderms; but, in spite of every effort short of actual purchase by the Recorder, it has not been possible to see them. Therefore they are not referred to in the Subject Index.*

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## II. BIOLOGY.

### (A.) EVOLUTION.

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- ii. **Relations of Echinoderma**:—Place and definition of *Echinoderma* in an embryologic classification of *Metazoa*; HALLEZ (127).—*Echinoderma* allied with *Enteropneusta* to form a phylum *Ambulacralia*; GROBBEN (124).—Brief account of previous theories, exposition, and criticism of the Pentasomaea of Herouard (121, Zool. Rec. 1904); KEMNA (151).
- iii. **Phylogenies of smaller groups**:—Zonal Evolution of Chalk *Micraster*; TREACHER (319) p. 158.

## (B.) MORPHOLOGY.

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1. General accounts:—GROBBEN (124).—HERTWIG (136 & 136A) pp. 300-320.—PORTER (259).—Popular; SCHERREN (289): littoral Echinoderms; FURNEAUX (102A) pp. 157-171, pl. iv: structure and classification; DAVIS (68) ii, p. 450, text-figg. and coloured plate.
2. Symmetries:—Vacant.
3. Homologies of Classes:—Vacant.
4. Skeletal tissue or Stereom:—The commencing spicule not a tetrahedron; WOODLAND (344) p. 312.
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b. **HOLOTHURIOIDEA.**

1. General Anatomy:—General account, semi-popular; SHELDON (299) pp. 190-195: ditto, in Dutch; KONINGSBERGER (166) pp. 1-12, pls. i-iii.—Anat. *Caudina arenata*, orig. fig.; KINGSLEY in HERTWIG (136).—Anat. *Synapta bergensis*; ØSTERGREN (235).—Anat. notes on various spp., see genera under III, A, iv & vi; PERRIER (249: ditto, see III, A, iii); KOEHLER & VANEY (164).
- 2-5. Vacant.
6. Hydrocoel and associated cavities:—Sucking feet and other podia of *Synallactes*; PERRIER (249) p. 7.
7. Coelom and other body-cavities:—Genital lacuna and aboral sinus in *Phyllophorus*; POLARA (258).
8. Digestive System:—Vacant.
9. Nervous System and Sense-organs:—Nerve-fibrils in perioesophageal ring *Synapta*; BOCHENEK (33).
10. Mesodermal tissues (exc. skeletal):—Vacant.
11. Axial organ:—Vacant.
12. Genital System:—Genital caeca and connection with gonoduct in *Phyllophorus*; POLARA (258).

c. **ECHINOIDEA.**

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2. Symmetries:—Vacant.
3. Homologies with other Classes:—Vacant.
4. Stereom:—Formation of spicular skeleton in *Echinus pluteus*; WOODLAND (344).—Section of *Echinus* radiole × 60 diam.; KERR (153) p. 65, pl. xv.



5. Skeletal Anatomy:—Apical system *Schizaster*, TORNQUIST (316) p. 330 and fig.—Jaws, fossil epiphyses; HUCKE (143) p. 166, pl. xxiii.
6. Hydrocoel &c. :—Vacant.
7. Coelom &c. :—Vacant.
8. Digestive System :—Branched caecum of intestine, *Echin-arachnius*; GREGORY (120).
9. Nervous System :—Nerves of pedicellariae; KIERNIK (154 & 155).
10. Mesodermal tissues (exc. skeletal):—Histology of pedicellariae of *Paracentrotus* and *Parechinus*, esp. muscles, smooth and striped; KIERNIK (154 & 155).
- 11, 12. Vacant.

d. ASTEROIDEA.

1. General Account :—Semi-popular; SHELDON (299) pp. 161–169.—Elementary “common starfish”; COLTON (62) I, p. 331.—Anat. notes on anus, podia, superambulacrals, Polian and Tiedemann’s bodies, caeca of gut, septa of body-cavity, arm-muscles, generative organs, and gonads of *Ast.* mostly deep-sea, dredged by Albatross, see genera under III, A, iv; LUDWIG (197).—Anat. notes as above on *Ast.* from S. Patagonia, see genera under III, A, vi; LUDWIG (199).
2. Symmetries:—Plane of symmetry of a  $\frac{1}{2}$ -larva is at right angles to plane of first cleavage; DRIESCH (87).
- 3, 4. Vacant.
5. Skeletal Anatomy :—Pedicellariae; LUDWIG (197) p. 9 et passim.—Actinolateral spines of *Retaster* are modified adambulacral spines; LUDWIG (199) p. 66.
7. Coelom and other body-cavities :—Ventral blood-lacunae in *Astropecten*, *Palmipes*, and *Asterias*, anat. and histol.; PIETSCHMANN (256).
- 8–10. Vacant.
11. Axial organ in *Astropecten*, *Palmipes*, and *Asterias*, anat. and histol.; PIETSCHMANN (256).
12. Genital organs:—Vacant.

e. OPHIUROIDEA.

1. General Account :—Semi-popular; SHELDON (299) pp. 169–171.
- 2–4. Vacant.
5. Skeletal Anatomy :—Vertebrae composed of two successive ambulacral pairs (p. 165), mouth skeleton in primitive *Oph.* p. 167; BATHER (21).
6. Hydrocoel and associated cavities :—Podial pores restricted in *Ophiozona*, *Ophiolipus*, and *Ophiura*, podia absent?; BELL (25) p. 256.
- 7–12. Vacant.

f. CRINOIDEA.

1. General Accounts :—Semi-popular; SHELDON (299) pp. 151–160.—General form and size; HAMANN (129) p. 1445.—General anat. *Pentacr.* [= *Isocr.*] *decorus*, with good diagram section; REICHENSBERGER (267).
- 2, 3. Vacant.
4. Stereom :—Integument and stereom; HAMANN (129) p. 1447.
5. Skeleton :—General account; HAMANN (129) p. 1449.—“Arm” restricted to finial series (p. 166), “Syzygy” restricted as proposed by Bather (21 Zool. Rec. 1897) (p. 167), “Synar-

- thric" for articulation between brachials (p. 168), "Syzygial pair" consists of two independent brachials "hypozygal" and "epizygal," the method of reckoning adopted by Bather (op. cit. et passim) fully adopted and proved (pp. 168-177, 180), more than one branching due to regeneration (see II, D, vii, f); MINCKERT (214).—[BB supposed in *Apiocr.*; TOFF (315).—Complete description of *Oleiocr.*, comparison with *Reteocr.* and *Glyptocr.*; SPRINGER (306).
6. Hydrocoel &c. :—Water-vascular system and pores; HAMANN (129) p. 1480.
  7. Coelom &c. :—General account; HAMANN (129) p. 1487.
  8. Digestive System :—Relations of subvective grooves, mouth, gut and anus in *Antedon*, orig. fig.; KINGSLEY in HERTWIG (136) p. 341.
  9. Nervous Systems :—Axial canals (p. 1466) and nervous system (p. 1468), sense-organs (p. 1478); HAMANN (129).—Dorsal nerve-system *Pentacr.* [= *Isocr.*] commissure in BB, brachial chiasmata, chambered organ blind above, its extensions in stem and cirri, function partly nutritive; REICHENSPERGER (267).
  10. Mesodermal tissues (exc. skeletal) :—Muscles of arms and cirri; HAMANN (129) p. 1463.
  11. Axial organ :—General account; HAMANN (129) p. 1492.—Of *Pentacr.* [= *Isocr.*]; REICHENSPERGER (267).
  12. Generative Organs and Gonads :—Axial complex connected with genital rachides, lymph-cells wander outwards and change into gonads; REICHENSPERGER (267).
- g. *CYSTIDEA*.
1. General Account :—Semi-popular; SHELDON (299) pp. 145-149.
  - 2-12. Vacant.
- h. *BLASTOIDEA*.
1. General Account :—Semi-popular; SHELDON (299) pp. 149-151.
  - 2-12. Vacant.
- ii. Variation :—
- a. In form :—Vacant.
  - b. In form and surface characters :—in *Peltaster nidarosiensis*; GRIEG (121); in *Pentagonaster granularis*; GRIEG (122); in mouth-shields of *Ophiura signata*; KEMP (152) p. 193, pl. xxxv.
  - c. In colour :—in *Ophiopholis* not due to different pigments; GRIFFITHS (123).—Colour in life of various spp. of *Muelleria*, *Stichopus*, *Holothuria*; KONINGSBERGER (166); in life and spirit of deep sea *Hol.*, for genera see III, A, iii; KOEHLER & VANEY (164); in formol of Somali *Hol.*, see III, A, iii; VANEY (326); in life of *Synapta digitata*, *Cucumaria elongata* et juv., *Synapta digitata profundicola* (and in spirit), *Laetmogone violacea*, *Asthenosoma hystrix*; KEMP (152); in life of many *Ast.*, see III, A, iv; FISHER (92).—Colour of littoral *Oph.*, see list of genera III, A, iii; KOEHLER (160).
  - d. Meristic variation :—
    1. Variation from pentamerous symmetry :—4 rayed *Astropecten exiguus*; LUDWIG (197) p. 72.—4 rayed *Nymphaster sub-spinosus*; KEMP (152) p. 189.—4 and 6 rayed *Pentagonaster granularis*; GRIEG (122) p. 5.—5 and 6 rayed *Ophiactis savignyi*; KOEHLER (160) p. 26.
    2. Reduplication or absence of parts :—Apparent discontinuous variation often due to augmentative regeneration; MINCKERT

- (214) & PRZIBRAM (262) p. 89.—Duplication of interradials in *Cryptoblastus*; ROWLEY (282) p. 301.—Suppression of cirrus and corresponding swelling of process from chambered organ in *Pentacr.* [*Isocr.*]; REICHENSPERGER (267) p. 180.
- e. Abnormalities:—in tuberculation and in arrangement of podial pore-pairs, *Cyphosoma abbatei*; FOURTAU (99) p. 123.—Teratogenesis; PRZIBRAM (262).
- iii. **Secondary Sexual Characters**:—
- a. Differences of Form or Structure:—Vacant.
  - b. Differences of Colour:—Vacant.
  - c. Protection of Young:—DAVIS (68) vi, p. 356.—Origin of, compared with symbiosis, instances in *Echinoderma*; GIARD (110) pp. 254, 256.—Marsupial petals in *Amphipneustes koehleri*; MORTENSEN (220) p. 243.—“Eine Art von Brutpflege” in *Asterina imbricata*; LUDWIG (199) p. 63.

(C.) PHYSIOLOGY.

- i. **General**:—Vacant.
- ii. **Circulation**:—in ventral lacunae and podia of *Ast.*; PIETSCHMANN (256).
- iii. **Respiration**:—DAVIS (68) iv, p. 411.—Osmotic pressure of perivisceral fluid in *Thyone*, *Arbacia*, and *Asterias*; GARREY (108).
- iv. **Alimentation and Digestion**:—Vacant.
- v. **Excretion and its Products**:—Lymphocyte formation in axial organ of *Ast.*; PIETSCHMANN (256).—Pigment of ova and larvae of *Ech.*, its origin and biological value; GARBOWSKI (107) p. 615.—Pigment of *Oph.*, esp., *Ophiopholis belli*, chemical and physical analysis; GRIFFITHS (123).
- vi. **Sensation**:—Sensation and sensibility. Have Echinoderms consciousness? not necessary. List of observations bearing on consciousness that remain to be made (p. 260); LUKAS (201).—Taxis and tropism; PRZIBRAM (262).—Tentacle-reflex in *Cucumaria*; GRAVE (118).—Need of central nervous system for oxygen as proved by experiments on *Echinus* and *Ophioderma*; BAGLIONI (12c).
- vii. **Miscellanea and Experimental Physiology**:—Introduction to experimental morphology; PRZIBRAM (262).—Protoplasm of ova broken up by centrifuge, *Asterias*, *Strongylocentrotus*, *Sphaerechinus*; GURWITSCH (126).—Blood of *Ech.* no haemolytic action on blood corpuscles of bird and mammal; FRIEDENTHAL (99A) p. 499.—Lecithin in sexually active gonads of *Toxopneustes*; LOISEL (194).

(D.) BIONOMICS.

- i. **General Accounts**:—(a) popular; GALLUP (104); SCHERREN (289).—Deep-sea Echinoderms, popular, JOUBIN (149) pp. 25, 119, figg. 21–24, 104–139. (b) KONINGSBERGER (166) pp. 22–25.
- ii. **Special habits**:—Burrowing of *Hol.*; DAVIS (68) v, p. 230: of *Ophiocnida brachiata* by podia; KEMP (152) p. 181.—Phosphorescent *Diadema*, *Amphiura*, *Ophiacantha*, *Brisinga*; PUETTER (263) p. 23.
- iii. **Habitat**:—(a) of all species in Trondhjem Fjord; STORM (309).—Various *Hol.*, *Ech.*, *Ast.*, *Oph.*, see III, A, ii, Faeroes and Iceland;

- HØRRING (142).—Various spp. at Balearic Is.; BUEN (44). (b) Of various spp., see lists III, A, ii; KEMP (152).—*Bathyplores*, *Mesothuria*, *Cucumaria*, *Myriotrochus*, on clay in deep water; NORDGAARD (230) p. 241.—*Cucumaria* at Beaufort, N. C.; GRAVE 118. (c) of various spp., see lists III, A, ii; KEMP (152). (d) Bottom affected by spp. of *Ast.* in Pacific, for genera see III, A, iv; LUDWIG (197): ditto, S. Patagonia, see III, A, vi; LUDWIG (199).—*Otenodiscus crispatus*, mud-eater; NORDGAARD (230) p. 244. (e) of various spp., see lists III, A, ii; KEMP (152).—*Ophiacantha spectabilis* on *Lophohelia*, ? always; NORDGAARD (230) p. 239. (f) of *Antedon bifida*, bottoms of moored hulks; KEMP (152) p. 179.
- iv. **Feeding**:—(a) LUKAS (201): Food; DAVIS (68) III, p. 153, IV, p. 264. (d) *Asterias rubens* eats hermit-crabs; BOLAU (36).
- v. **Defence and Protection**:—Protection (IV, pp. 285, 287), Protective armour (IV, p. 340), Active defence (IV, p. 361); DAVIS (68).
- vi. **Locomotion**:—(a) movement in general and locomotion; LUKAS (201).—Swimming Echinoderms (V, p. 23), creeping Echinoderms (V, p. 90, figg.); DAVIS (68). (b) *Synapta* movements; SAFFORD (284) p. 89. (d, e, f) Climbing of *Ast.* (V, p. 231), of *Oph.* and *Crin.* (V, p. 278), Locomotion of *Oph.* (V, p. 114); DAVIS (68).
- vii. **Autotomy and Regeneration**:—(a) Autotomy; LUKAS (201).—Regeneration, experimental; MAAS (202) p. 98: and teratogenesis; PRZIBRAM (262). (b) Autotomy or division above coil of gut produces a straight gut, in *Synapta*; ØSTERGREN (235) pp. cxxxv, cxlv. (c) *Pluteus* of *Mellita testudinata* lacks this faculty almost wholly; GRAVE (119). (d) Regeneration, *Ast.*; MCINTOSH (204): DAVIS (68) VI, p. 328.—Forked disc-appendage probably due to regeneration, in *Porcellanaster pacificus*; LUDWIG (197) p. 90. (e) Rate of regeneration of rays in *Ophioglypha*; ZELENY (339) pp. 7–17: more rapid the greater the injury; ZELENY (340). (f) Regenerated parts of a lighter colour than the older parts, in arms of *Antedon* (p. 178), regeneration of cirri, of disc [i.e. tegmen and viscera], of pinnules, of rays [i.e. brachia], of arms [i.e. finials], the last being either simply reproductive or augmentative (pp. 187–205); in *Antedonidae* and *Actinometridae* all arm-branching after the first is due to augmentative regeneration (pp. 210–232), syzygies and modified articulations are predestined planes of autotomy, hypozygals are predestined bases of regeneration (pp. 232–240); MINCKERT (214).—Regeneration of cirri in *Promachoer.* (p. 501), of arms in *Promachoer.* and *Decametrocr.* contrasted (p. 493); MINCKERT (213).
- viii. **Parasites and Commensals**:—(a) PÉREZ (246).—Resemblance of their position to that of the young; GIARD (110) p. 256. (b) *Gasterosiphon* (olim *Entosiphon*), gastropod in *Deima blakei*; KOEHLER & VANEY (164) p. 56. (c) *Pinnaodes chilensis*, Decapod Crustacean in rectum *Strongylocentrotus*; ORTMANN (234) p. 697.—*Eumedon*, a crab commensal in apical region of *Echinothrix*; BOUVIER (37). (d) *Myzostoma fisheri* in body-cavity of *Tosia leptoceramus* Fisher, S. California; WHEELER (327); FISHER (92) p. 307.—*Dendrogaster*, cirripede in body-cavity of *Dipsacaster* and *Echinaster*; LE ROI (182).—Branched parasite, nondescr., in *Persephonaster armiger*, perhaps parasitic castration; LUDWIG (197) p. 41. (e) Gastropod on *Ophiothrix stelligera*; KOEHLER (160) p. 87.—A Chaetopod, *Ophiuricola cynips*, parasitic on arms of *Ophioglypha tumulosa*; LUDWIG (198). (f) *Myzostoma* on *Antedon*; GRAEFFE (117).—Coral, *Monilopora amplexu* causing swellings on *Crin.* stems, esp. *Platy-cr.*, also constriction of stems by *Bryozoa*; ROWLEY (282) p. 304.

- ix. **Echinoderms as Food**:—(a) DAVIS (68) VII, p. 217. (b) *Stichopus* and *Cucumaria* food of *Gadus callarias*, *Phylloporus* food of *G. aeglefinus*; NORDGAARD (230) p. 161.—*Thyone fusus* in *Scyllium*; KEMP (152) p. 178.—*Hol.* as food of man; KONINGSBERGER (166). (c) *Toxopneustes* as food of *Anarrhichas lupus* (p. 183); DITLEVSEN (77). *Amphidetus cordatus* as food of *Hippoglossoides platessoides* (p. 205); HØRRING (142). (e) *Ophiopholis aculeata* as food of *Gadus callarias* (p. 193), ditto and *Ophioglypha albida* as food of *Hippoglossoides platessoides* (p. 205); HØRRING (142): *Oph.*, of *H. platessoides*; DITLEVSEN (77) p. 206.
- x. **Echinoderms in Geological Aspect**:—Relations of Echinoderm remains to dolomitization; SKEATS (302) pp. 124, 135.—Pseudogaylussite and *Ech.* tests; MACNAIR (205).—*Crin.* as rockformers Trias and Lias of E. Alps; ESCHER-HESS (89).—Crinoid Limestones of Liassic (p. 268), Lower Cretaceous (pp. 271-274), and Upper Cretaceous (pp. 273, 274) of Unterengadin; PAULCKE (243).

## (E.) MISCELLANEOUS.

i. **Research and Instruction**:—

- a. **Preservation**:—Collection and preservation of littoral Echinoderms; FURNEAUX (102A) p. 79.—Curious methods of collecting foss. *Ech.*; SAVIN (286) p. 111.—Formol dangerous for Echinoderms; BELL (26) p. 241.—Staining pluteus of *Echinus* for study of spicules; WOODLAND (344) p. 308.
- b. **Methods of research**:—Importance of biometry in taxonomy; EDWARDS (88).—Method of measuring spicules in *Synapta*; ØSTERGREN (235) p. cxxxvii.—Decalcification and staining, *Pentacr.*; REICHENSBERGER (267).—Study of axial organ in *Ast.*, decalcification; PIETSCHMANN (256).—Celloidin paraffin sections of yolky ova; HENDERSON (134).
- c. **Museum Exhibits and Collections**:—Boston, Mass., museum guide, *Echinoderma* recent and fossil; SHELDON (299) pp. 145-195.—Tübingen Geol. Mus. Guide, mentions Echinoderms in collection, esp. *Pentacr. subangularis*; KOKEN (165).—Nicholson Institute, Leek, Staffs., Carboniferous *Crin.*; WARDLE (331).—Types of Cretaceous *Ech.*, *Ast.*, *Crin.* at Acad. Nat. Sci., Philadelphia; JOHNSON (146).—List of type-specimens of fossil *Echinoderma* in U. S. NAT. MUS. (322): of fossil *Pelmatozoa* in State Mus. N. Y.; CLARKE (57 & 60).
- d. **Instruction**:—Text-books; GROBBEN (124), HERTWIG (136 & 136A), PORTER (259).—Elementary account and guide to practical work of recent Echinoderms, esp. starfish and sea-urchin; COLTON (62) i, p. 331, ii, p. 177.—Dissection of Starfish and Sea-urchin, and Holothurian; WEED (332).—Characteristic fossils; FRAIPONT (99).—Guide to experimental morphology; PRZIBRAM (262).—Ditto, embryology; MAAS (202).
- ii. **Economics**:—see II, D, ix, Echinoderms as food.—Commercially valuable spp. of *Hol.*, districts of trepang-fishery in Dutch E. Indies; KONINGSBERGER (166) pp. 26 et sqq.—*Ech.* as "personal enemies" of man; DAVIS (68) VIII, p. 344.—*Asterias* diminishes numbers of *Pleuronectes platessa* by eating their molluscan food, its value as manure; PETERSEN (253).
- iii. **Bibliography**:—Literature for 1893 abstracted; BERGMANN (30): for 1905; LUDWIG (200): of *Crin.*; HAMANN (129) pp. 1431-1441: of Arctic *Ech.*; DOEDERLEIN (79) p. 393: of Arctic *Crin.*; DOEDER-

LEIN (80) pp. 405-406.—Troost's unpublished monograph on fossil crinoids of Tennessee; CLARKE (59) & GLENN (114) p. 79.—Account of S. A. Renier, Tavola alfabetica delle conchiglie adriatiche, especially as bearing on Molluscan and Echinoderm name *Discooides*; BATHER (19).

- iv. **Historical, Popular notions, &c.**—History of opinion concerning axial organ; PIETSOHMANN (256).—History of discovery, *Crin.*; HAMANN (129) pp. 1442-1444.—Troost's monogr.; CLARKE (59) and GLENN (114).

Popular names at Skerries, Co. Dublin, Crossane for *Uraster rubens*, Morane for *Ophiura albida*; COLGAN (61) p. 213.—Popular names of the commoner New England Echinoderms; CLARK (55).—Lapp names for *Echinus*, *Asterias*; QVIGSTAD (264) pp. 386, 387.—Native names for *Hol.* spp. in use in Malaysia; KONINGSBERGER (166) pp. 27-34, et passim.

#### (F.) AUXOLOGY.

- i. **General Principles**:—Growth in general; PRZIBRAM (262).—Different modes of development—poecilogony—in the same or closely allied species, how originating; GIARD (111) p. 621.
- ii. **General Accounts**:—(a) Life histories; DAVIS (68) vi, p. 354, figg. (b) semipopular, in Dutch; KONINGSBERGER (166) pp. 13-18, pls. iv, v.
- iii. **Formation of Gonads**:—(a) Spermatozoa of *Antedon*, *Brissopsis*, *Mesothuria*; RETZIUS (275). (b) Lining cells of genital caeca develop supporting cells and glandular cells which assist the nutrition of the gonads and the embryo, *Phyllophorus*; RUSSO (283). (c) Glandular elements associated with spermatozoa in *Strongylocentrotus*; RUSSO (283).—Ovum of *Paracentrotus*, pigment ring and relations to axis, polarity of *Ech.* ovum; GARBOWSKI (107). (d) Maturation due to hunger of the ovum, ova of *Asteracanthion* ripened by removal from ovary; HERTWIG (137) p. 202.
- iv. **Oviposition, Fertilisation, and Segmentation**:—Time of breeding-season for *Hol.*; KONINGSBERGER (166) pp. 19-22.—Breeding period of *Asterina fimbriata* (p. 63), two breeding periods per annum in *Cycethra verrucosa* (p. 58); LUDWIG (199).—Fertilisation, summary of recent work, esp. Buller and Giardina; LOISEL (193).
- v. **Larval Stages**:—(a) McINTOSH (204). (c) Pigmentation of larva, its increase by hybridisation; GARBOWSKI (107) p. 613.—Rearing larvae of *Echinus esculentus*; WOODLAND (344) p. 306. (d) Early stages of an Asterid with yolky eggs, anatomy, histology; HENDERSON (134).
- vi. **Organogeny**:—(c) *Echinoidea*:—(10) Origin of mesenchyme in *Echinus*, protoplasmic continuity of cells; WOODLAND (344) p. 308.
- vii. **Post-larval Growth-stages**:—(b) Increase in number of polian vesicles and stone-canals with age in *Holothuria*; EDWARDS (88). (c) Neanic *Micraster coranguinum* 11 to 50 mm. long, studied with reference to development of ambulacra, plastron, apical system, periproct, peristome, and fasciole; VALETTE (324) p. 40. (d) Young stages of *Pararchaster pectinifer* (p. 16), of *Archaster typicus* (p. 53), *Asterina cepheus* (p. 157), *Zoroaster* (p. 177), *Z. longispinus* (p. 183); LUDWIG (197); of *Asterodon*, *Odontaster*, *Porania*, *Cycethra*, *Asterina*; LUDWIG (199). (e) Young stages of various *Oph.*; see list of genera III, A, iii; KOEHLER (160).

viii. **Developmental mechanics and Experimental Embryology**:—General account; MAAS (202).—General chapters on die Zeugung, die notwendigen Stoffe, der Eibau; PRZIBRAM (262).—Echinoderm ovum and sperm-ovum illustrating cellular mechanics, segmentation, and development; GURWITSCH (125) passim, with figg. after previous authors.—Experiments on segmentation, differentiation of tissues and organs, illustrated by *Ech.* and *Ast.*; MAAS (202) pp. 24, 84.—Mesenchym-composition in *Ech.* larvae developed from inharmoniously united blastomeres; DRIESCH (86).—Equipotence of ectoderm and endoderm in larva of *Asterias* and *Astropecten*, larvae from fragments; DRIESCH (87).—Relation of size and number of cells in larvae to chromosomes of ovum; experiments on *Echinus* and *Strongylocentrotus*; BOVERI (38): same continued by doubly fertilised *Ech.* ova; BOVERI (39).—Modification of segmentation by artificial increase of yolk; SANZO (285).—Retardation of development by increased temperature; PETER (251).—*Sphaerechinus* gastrulae developing rapidly in warmth vary in number of mesenchyme-cells more than do those developing slowly in cold; PETER (252).—Effect of removal of oxygen on segmentation of sperm-ova of *Arbacia*; LOEB (184).—Action of spectrum rays, of ultraviolet light, of diffuse light on mitosis of sperm-ova of *Echinus microtuberculatus*; HERTEL (135).—Lithium bromide produces exogastrulation in *Ech.*; GARBOWSKI (106).—Effects of acid, alkali, phenol-phthalein, and di-methyl-amido-azo-benzol on sperm-ova of *Echinus*; WHITLEY (340): ditto, and comparison with cell-growths in malignant disease; MOORE (217).

Hybridization:—BOVERI (38).—*Echinus*, *Strongylocentrotus*, and *Sphaerechinus* ♀ × *Antedon* ♂, and vice versa, brought to plutei, mother-characters only, also gastrulae from enucleated *Ech.* ova × *Antedon*; GODLEWSKI (115).—*Echinus esculentus*, *Paracentrotus lividus*, and *Parechinus miliaris* in various combinations, Plutei without entoderm from *Echinus esculentus* ♂ and *Paracentrotus lividus* ♀; GARBOWSKI (106).—*Paracentrotus lividus* ♀ × *Spatangus purpureus*, *Sphaerechinus granularis*, and *Parechinus microtuberculatus*; GARBOWSKI (107) p. 614.

Artificial Parthenogenesis:—General discussion; ARIOLA (12A).—General summary of recent work, esp. Ariola, Viguier, Loeb, Delage; LOISEL (193).—Summary and discussion of results obtained by Loeb et alii; VERWORN (327).—General discussion of physico-chemical theory of fertilisation; FISCHER (91A).—General discussion as to importance of nucleus; ARIOLA (12B).—Methods of inducing parthenogenetic development of *Ech.* ova; DRIESCH (85) p. 649.—Action of various salts and different concentrations on *Asterias* ova, fused blastulae; DELAGE (70).—*Asterias* ova, increase of osmotic pressure not necessary, segmentation proceeding to blastula in a pure solution of manganese chloride, action of other salts, addition of calcium carbonate to carbonic acid produces fusion of numerous blastulae; DELAGE (71).—Influence of temperature, of acid, on *Ech.* and *Ast.* ova, *Ast.* larva lives 4 months 19 days; DELAGE (72).—Merogonic development sperm-ova *Psammechinus* and *Strongylocentrotus*, mitosis, cellular autotomy; KRAHELSKA (168).—Pieri's ovulase disproved by experiments with *Strongylocentrotus lividus*; PIZON (257).—Artificial formation of membrane in unfertilised ova of *Strongylocentrotus* produced by concentrated solutions; LOEB (185): ditto by hypertonic sea-water and ethyl acetate, resulting in normal development; LOEB (186): Remarks on preceding; BOHN (34): Similar results by substituting acetic, formic, or carbonic acid for ethyl acetate; LOEB (187 & 188): ditto, by fatty acid, segmentation after subsequent exposure to hypertonic sea-water for a shorter period, discussion of membrane-

forming acids; LOEB (189): ditto, development in *Asterina*, compared with *Strongylocentrotus* and *Arbacia*; LOEB (190).—Theory of antagonistic action of various salts; LOEB (191).—Artificial fertilisation ova of *Moera atropos*; GRAVE (119).—Cytology of parthenogenetic larvae of *Strongylocentrotus* and *Echinus*; DRIESCH (85).—Reply to BOHN, G.; VIGUIER (328).—Reply to LOISEL (193), parthenogenetic and fertilized *Ech.* ova compared; VIGUIER (329).—See further: BATAILLON (17): BIGNEY (31): BOVERI (38): *Ast.*; GARBOWSKI (105).

### III. DISTRIBUTION\*.

#### A. GEOGRAPHICAL.

- i. **General**:—Distrib. dependent on hydrographical conditions and bottom, evidence from Norwegian Echinoderms (pp. 229–244), *Asterias rubens*, transported by tidal current (p. 232); NORDGAARD (230).—Bipolarity discussed with reference to (inter alia) *Hol.* after Theel; BORCHGREVINK (36A) p. 530.—Bipolarity, *Psolus squamatus* alone among *Hol.*, general discussion of question; PERRIER (249) pp. 65, 124.
- ii. **Atlantic Ocean and adjacent Seas**:—*Oph.* new to this Ocean are *Ophioglypha flagellata*, *O. inornata*, *O. clemens*, *Ophiotropa simplex*, *Ophiacantha valenciennesi*, many others are listed; KOEHLER (159).—Distrib. of *Peltaster nidarosiensis*; GRIEG (121) p. 11: of *Pentagonaster granularis*; GRIEG (122) p. 11.
- North Atlantic, Sub-Arctic, vide III, A, V; DOEDERLEIN (79 & 80).—Iceland, *Cucumaria*, *Trochostoma*, *Echinocucumis*, *Benthodytes*, *Strongylocentrotus*, *Brissoopsis*, *Dorocidaris*, *Stereocidaris*, *Porocidaris*, *Phormosoma*, *Calveria*, *Sperosoma*, *Echinus*, *Pourtalesia*, *Asterias*, *Ctenodiscus*, *Cribrella*, *Bathybiaster*, *Solaster*, *Hymenaster*, *Pontaster*, *Astropecten*, *Goniaster*, *Zoroaster*, *Pentagonaster*, *Mimaster*, *Retaster*, *Pararchaster*, *Astrogonium*, *Pteraster*, *Freyella*, *Ophioglypha*, *Ophiopholis*, *Ophiacantha*, *Ophiopleura*, *Ophioscolex*, *Gorgonocephalus*, *Ophiocten*, *Ophiactis*, *Amphiura*, *Amphilepis*, *Ophiomusium*, *Antedon*; SCHMIDT (291) pp. 18–24.—S. of Iceland, *Urechinus*, *Hemiaster*, and *Pourtalesia* n. sp.; MORTENSEN (220).—Faeroes and Iceland, *Cucumaria*, *Psolus*, *Echinus*, *Strongylocentrotus*, *Amphidetus*, *Spatangus*, *Asterias*, *Cribrella*, *Solaster*, *Ophiopholis*, *Ophiacantha*, *Ophioglypha*; HØRRING (142).
- Norway:—Fauna of fjords; NORDGAARD (230).—*Synapta* & *Labidoplax* n. spp.; ØSTERGREN (235).—Trondhjem Fjord, locc. for various Echinoderms; STORM (309).
- N. Sea: Echinoderm Plankton. See Bull. d. Resultats Conseil. Internat. p. l'explor. de la mer, 1903–04, Nos. 1–4, Partie D.—Off Helgoland, *Rhabdomolgus*; LUDWIG (196).
- British Coasts:—Firth of Clyde, *Auricularia*, *Bipinnaria*, *Pluteus*; BROWNE (43).—Luce Bay, various Echinoderms; JOHNSTONE (147) p. 221.—Near Plymouth, *Phyllophorus drummondi*, *Cucumaria montagui*; NORMAN (232).—Plymouth, Dartmouth, and Galway, *Ophiopsila*; NORMAN (233).—Irish Sea larval Echinoderms; SCOTT (296).—Irish Sea, Skerries, Co. Dublin, *Comatula*, *Ophiura*, *Ophiocoma*, *Uraster*, *Solaster*, *Asterias*, *Echinus*, *Amphidotus*; COLGAN (61).—Ballynakill and Bofin Harbours, Co. Galway, *Synapta*, *Cucumaria*, *Thyone*, *Holothuria*, *Antedon*, *Astropecten*, *Asterina*,

\* For the species found, refer to generic names under IV.



*Henricia*, *Asterias*, *Ophiura*, *Ophiocnida*, *Amphiura*, *Ophiocoma*, *Ophiothrix*, *Echinus*, *Strongylocentrotus*, *Echinocyamus*, *Spatangus*, *Echinocardium*; KEMP (152).—W. Coast Ireland, outside 50 fm. line, *Synapta*, *Cucumaria*, *Thyone*, *Psolus*, *Phyllophorus*, *Holothuria*, *Stichopus*, *Laetmogone*, *Rhizoctr.*, *Antedon*, *Pontaster*, *Plutonaster*, *Astropecten*, *Psilaster*, *Luidia*, *Pentagonaster*, *Nymphaster*, *Porania*, *Cheilaster*, *Palmipes*, *Stichaster*, *Neomorphaster*, *Zoroaster*, *Solaster*, *Pteraster*, *Hymenaster*, *Henricia*, *Asterias*, *Brisinga*, *Ophiura*, *Ophiocten*, *Ophiocyton*, *Ophionusium*, *Amphiura*, *Ophiactis*, *Ophiopholis*, *Ophiacantha*, *Ophiocoma*, *Ophiothrix*, *Ophiobyrsa*, *Cidaris*, *Asthenosoma*, *Phormosoma*, *Echinus*, *Echinocyamus*, *Spatangus*, *Echinocardium*, *Brissopsis*; KEMP (152).

Rockall, complete list, *Cucumaria*, *Thyone*, *Holothuria*, *Antedon*, *Pontaster*, *Plutonaster*, *Astropecten*, *Luidia*, *Hippasterias*, *Stichaster*, *Henricia*, *Brisinga*, *Ophiura*, *Ophiactis*, *Ophiopholis*, *Ophiothrix*, *Cidaris*, *Asthenosoma*, *Echinus*, *Spatangus*, *Pourtalesia*; KEMP (152).

French Coasts :—Boulonnais, *Echinus*; HALLEZ (128) p. l.—Cotentin, Echinoderm fauna; FAUVEL (90).—Off Arcachon, *Pseudocucumis* n. sp.; KOEHLER & VANEY (163).

Mediterranean :—near Cette. List of *Crin.* (p. 58), *Ast.*, *Oph.*, *Ech.*, *Hol.* (p. 59); CALVET (45).—Balearic Is., Echinoderms; BUEN (44).—G. of Palermo, *Arbacina*; CHECCHIA (49).

Portugal, additions to Echinoderm fauna; NOBRE (228) p. 82, and (229) pp. 132–134.

Near Canaries, *Pentacr.*, *Benthodytes*, and between Canaries and Azores, 5413 m., *Hyphalaster*, *Neomorphaster*; ALBERT (9): 400–5413 metres, ditto and *Salenia* and *Styracaster*; RICHARD (276) pp. 3, 4.

America, New England Coast, list of spp. of *Hol.*, *Ech.*, *Ast.*, *Oph.*, with locc. and depths; CLARK (55).—Anticosti, season, bottom, and depth of *Asterias*, *Solaster*, *Crossaster*, *Ophiopholis*, *Strongylocentrotus*, *Pentacta*, *Psolus*, *Chirodota*: N. of G. St Lawrence, *Astrophyton*, *Echinarachnius*; SCHMITT (292).

iii. Indian Ocean and adjacent Seas :—Deep-Sea *Hol.* of 'Investigator,' *Mesothuria*, *Synallactes*, *Bathyplores*, *Pelopatides*, *Benthothuria*, *Dendrothuria* n. g., *Pseudothuria* n. g., *Allopatides* n. g., *Perizona* n. g., *Bathyzona* n. g., *Oneirophanta*, *Amphideima* n. g., *Ophnurgus*, *Benthophyces* n. g., *Peniagone*, *Benthothuria*, *Dendrothuria* n. g., *Pseudothuria* n. g., *Allopatides* n. g., *Perizona* n. g., *Bathyzona* n. g., *Oneirophanta*, *Amphideima* n. g., *Euriplastes* n. g., *Benthodytes*, *Euphronides*, *Psychropotes*, *Gephyrothuria* n. g., *Filithuria* n. g., *Psolidium* (?), *Psolus*, *Trochostoma*, *Ankyroderma*, *Protankyra*, and *Anapta*, all with n. spp., also *Pseudostichopus*, *Laetmogone*, *Apodogaster*, *Deima*, and *Ypsilothuria*: comparison of Indian Ocean fauna with that of Sunda Archipelago (p. 6) and with others [Station 199 appears to be in the middle of Ceylon, vide sub *Ankyroderma* et *Trochostoma*]; KOEHLER & VANEY (164).

Red Sea, n. sp. of *Gymnechinus* and list of common *Ech.*, *Ast.*, *Oph.*; KOEHLER (161).—G. of Aden, *Phormosoma* n. sp.; DOEDERLEIN (78).

Off E. Africa down to Cape Colony, and Agulhas current, *Orechinus* n. g., *Palaeolampas*, and n. spp. of *Phormosoma*, *Hygrosoma*, *Sperosoma*, *Lamprechinus* n. g., *Paracentrotus*, and *Spatangus*; DOEDERLEIN (78).—Somali Coast, *Thyone*, *Phyllophorus*, *Holothuria*, *Muelleria*, *Chondrocloea*, and n. spp. of *Cucumaria* and *Colochirus*; VANEY (326).

- S. Africa, S. and E. coasts, various locc., *Ophioderma*, *Amphiura*, *Ophiothamnus*, *Ophiothrix*, *Ophioscolex*, *Gorgonocephalus*, and n. spp. of *Ophiozона* and *Ophiura*; BELL (25): *Pseudarchaster*, *Leptoptychaster*, *Astropecten*, *Psilaster*, *Luidia*, *Pentagonaster*, *Calliaster*, *Culcita*, *Stichaster*, *Solaster*, *Retaster*, *Hymenaster*, *Henricia*, *Asterias*, *Asterina*, *Echinaster*, and n. sp. of *Palmipes*, fauna allied to both N. Atlantic and Indian Ocean; BELL (26): *Antedon* n. spp., *Actinometra*; BELL (27).
- Distrib. in Dutch E. Indies of commercial spp. of *Muelleria*, *Stichopus*, *Holothuria*; KONINGSBERGER (166).—Off Sumatra, *Pygmaecocidaris* n.g., and n. spp. of *Phormosoma* and *Palaeolampus*; DOEDERLEIN (78).—Littoral *Oph.* of 'Siboga,' *Pectinura*, *Ophiopeza*, *Ophioconis*, *Ophiozона*, *Ophioglypha*, *Ophiactis*, *Ophiocnida*, *Amphiura*, *Ophiacantha*, *Ophiomastix*, *Ophiothrix*, *Ophiopteron*, *Ophiocampsis*, *Ophiopsammium*, *Ophiodera*, *Ophiogypsis* n.g., *Astrophyton*, *Astrochalcis* n.g. all with n. spp., also *Ophiopezella*, *Ophiolepis*, *Ophioplocus*, *Ophiostigma*, *Ophiopsila*, *Ophionerets*, *Ophiocoma*, *Ophiarachna*, *Ophiarthrum*, *Ophiomaza*, *Ophiocnemis*, *Ophiothela*, *Ophiomyxa*, *Astrochema*, *Euryale*, and *Sthenocephalus*, and *Ophiothrix* n. sp. 274 m.; KOEHLER (160).—Diego Garcia, *Mortensenia* n.g. *Ech.*; DOEDERLEIN (78).
- New Amsterdam [?S. Indian Ocean, not Guiana], *Notechinus* n.g.; DOEDERLEIN (78).
- iv. **Pacific Ocean and adjacent Seas**:—Alaska, n. spp. of *Mimaster*, *Pseudarchaster*, *Hippasteria*; FISHER (92).—Monterey Bay, Cal., 120 metres, *Psolus* n. sp.; FISHER (93).—Off California, n. spp. of *Porcellanaster*, *Bathybiaster*, *Dipsacaster*, *Persephonaster*, *Benthopecten*, *Dytaster*, *Odontaster*, *Pseudarchaster*, *Tosia*, *Mediaster*, *Hippasteria*, *Cryptopeltaster* n.g., *Lophaster*, *Peribolaster*, *Pteraster*, *Hymenaster*, *Zoroaster*, *Brisinga*, *Freyella*; FISHER (92).
- E. Pacific, *Hol.*, *Ech.* at great depths (2), various locc., *Aceste*, *Aërope*, *Ankyroderma*, *Deima*, *Scotoplanes*, *Psychropotes* (3 & 4), *Benthodytes*, *Freyella*, *Brisinga* (4); AGASSIZ.—Pacific, Albatross, 1891, with depths, temperature, and bottom, n. spp. of *Cheiraster*, *Pararchaster*, *Plutonaster*, *Persephonaster*, *Dytaster*, *Psilaster*, *Astropecten*, *Parastropecten* n.g., *Luidia*, *Porcellanaster*, *Albatrossia* n.g., *Pseudarchaster*, *Mediaster*, *Nymphaster*, *Pentagonaster*, *Hippasteria*, *Pauliella* n.g., *Zoroaster*, *Sarkaster* n.g., *Hymenaster*, *Retaster*, *Cribrella*, *Alexandaster* n.g., *Pedicellaster*, *Stolasterius*, *Sporasterias*, *Hydrasterias*, *Brisinga*, and *Freyella*, also *Ctenodiscus* and *Paulia*; LUDWIG (197).—S. W. of Callao, *Ophioglypha tumulosa*, 5203 m.; LUDWIG (198).—Chile, *Arbacia*; PORTER (260).
- Off Korea, n. spp., of *Myriotrochus* and *Eupyrgus*, ÖSTERGREN (236).
- Tropical Pacific, Albatross 1899–1900, *Archaster*, *Astropecten*, *Hyphalaster* n. sp., *Culcita*, *Gymnasteria*, *Asterina*, *Linckia*, *Ophiidiaster*, *Acanthaster*, *Mithrodia*, *Brisinga* n. sp. *Freyella* n. sp.; LUDWIG (197).—Ladrones, Guam Id., *Synapta* and other echinoderms; SAFFORD (284) p. 89.
- Australia: 300 fm. 28 miles east of Sydney Heads, *Pannychia*; HEDLEY (133).—New Zealand, *Stichopus*, *Cucumaria*, *Pseudopsolus*, *Phyllophorus*, *Trochodota* and n. sp. of *Caudina*; PERRIER (249).
- v. **Arctic Ocean and adjacent Seas**:—Arctic and sub-Arctic *Ech.* geogr. and bathymetric distrib., also temperature, comparison with Antarctic; DOEDERLEIN (79): ditto, *Crin.*; DOEDERLEIN (80).—Barents Sea, Echinoderm fauna; BREITFUSS (40).—Denmark Str., *Plexechinus* n. sp., Davis Str., *Pourtalesia* n. sp.; MORTENSEN (220).—N. W. of Jan Mayen, *Myriotrochus* n. sp.; ÖSTERGREN (235).

- vi. **Antarctic Ocean and adjacent Seas**:—*Ech.* and *Crin.* fauna compared with Arctic, vide III, A, v; DOEDERLEIN (79 & 80).
- C. Horn and neighbourhood, *Symallactes*, *Stichopus*, *Cucumaria*, *Thyone*, *Psolidium*, *Psolus*, *Caudina*, *Trochodota*, *Chiridota*; PERRIER (249).—Kerguelen, *Trochostoma*; PERRIER (249) p. 65.—S. Patagonia, Swedish Exped. 1895–97, *Asterodon*, *Odontaster*, *Porania*, *Cycethra*, *Asterina*, *Solaster*, *Retaster*, *Cribrella*, *Cosmasterias*, *Sporasterias*, *Labidiaster*, *Ophioglypha*, *Ophiactis*, *Amphiura*, *Ophiomyxa*; LUDWIG (199).
- Antarctic continent littoral:—Two figures from photographs of *Oph.*, one with young, both labelled “Seestern”; BORCHGREVINK (36A) pp. 518, 519.—“Discovery,” *Echinus*, *Cycethra*, *Hemiaster*, *Cucumaria*, *Asterias*, *Ophiosteira*, *Ophionotus*; HODGSON (141) and LENDENFELD (179).—German S. Pole Exped., n. spp. of *Urechinus*, *Plexechinus*, and *Amphipeustes*; MORTENSEN (220): *Promachocr.* n. sp.; MINCKERT (213).

## B. GEOLOGICAL.

## (i) GENERAL.

“Les Echinides ne permettent généralement pas de déterminer l'âge des couches avec une grande précision”; DOUVILLÉ (83) p. 12.

Palaeozoic to Cainozoic of Tarbes and Luz in French Pyrenees, lists of Echinoderms; CAREZ (46) pp. 798, 831, 858, 895, 935.—Sahara, list of specimens collected; FOURÉAU (96) pp. 734, 735.

## (ii) CAINOZOIC.

- a. **General**:—Japan, *Echinolampas*; YABE (336).—Patagonia, lists of *Ech.*; AMEGHINO (10) pp. 88, 162.
- b. **Pleistocene**:—Post-glacial *Ech.* tests in nodules with pseudogaylussite in R. Clyde; MACNAIR (205) p. 254.—Loch Fyne, *Echinus*, *Echinocardium*; NEWTON (225).—Yoldia Clay, Esbjerg, *Psolus*, *Ophioglypha*; NORDMANN (231).—C. d'Espichel, Portugal, *Echinus*, *Strongylocentrotus*; CHOFFAT (52).—(Lower), Otranto, *Antedon*, *Schizaster*, *Spatangus*; BASSANI (16).—Glacial “Leda clay,” Lynn, Essex Co., Mass., *Asterias*, *Asteracanthion*; SEARS (297) p. 369.—New Hebrides, Cinder Beds at Epi, *Brissus*, *Clypeaster*, *Laganum* (p. 414), Tasiriki on Santo, *Brissus* (p. 451); MAWSON (211).
- c. **Pleiocene**:—Mt. Gargano, *Cidaris*; CHECCHIA (48).—Djerf el Ihoudi, Morocco, *Rotuloidea*; BOISTEL (35).—Sables d'Edeghem, Belgium, *Cidaris*, VAN ERTBORN (325).
- d. **Meiocene**:—Carcare, Piedmont, *Clypeaster* n. sp.; AIRAGHI (8) p. 212.—Corsica, *Brissopsis*; AIRAGHI (6).—Angola, *Amphiope*; CHOFFAT (50) p. 43.—Africa, Loanda, *Amphiope* n. sp. (p. 133), Oran, *Echinolampas* n. sp. (p. 135); LORIOLE (195).—New Zealand, Oamaru series, Black point, *Schizaster* (p. 521), Wharekuri basin, *Crin.* col. (p. 527), Mount Brown beds, *Cidaris* (p. 539), Port Hills, Nelson, *Cidaris* (p. 550); PARK (241).
- Upper.—Chalannes (Maine-et-Loire) *Arbacia*; COUFFON (63).
- Middle.—S. Maria Tiberina, Umbria, *Pentacr.*, *Antedon*, *Cidaris*, *Arbacia*, *Echinocyamus*, *Clypeaster*, *Pliolampas*, *Conolampas*, *Echinolampas*, and n. spp. of *Maretia* and *Pliolampas*; AIRAGHI (5).—Helvetian.—N. Sardinia, *Clypeaster*, *Echinolampas*, *Heteroclypus*, *Schizaster*, *Brissus*, *Hemiaster*; AIRAGHI (8).—C. Pyla, Cyprus, *Clypeaster*; BATHER (20); BATE (18); BELLAMY (28) p. 27.
- Lower.—Upper Mediterranean of Osztroski-Vepor Gebirges, *Cidaris*, 1905. [VOL. XLII.]

- Clypeaster*, *Conoclypeus*, *Echinocyamus*, *Goniaster*, *Scutella*, *Schizaster*, *Spatangus*; GÄAL (103).—Burdigalian,—Alpes-maritimes, n. spp. of *Brissoides*, *Mareta*; LAMBERT (173).—Isère, *Cidaris*, *Echinolampas*, *Spatangus*; SAVIN (286).
- e. **Oligocene**:—Stampian, Gironde, *Stenaster* n.g. et sp.; LAMBERT (171) p. 140.—Kasić, N. Dalmatia, *Porocidaris*; SCHUBERT (293) p. 165.
- f. **Eocene**:—Ostliche Kientaleralpen, Switzerland; GERBER (109).—Fumane, Grola, and Novale, Italy, *Echinanthus*, and n. spp. of *Conoclypeus*, *Schizaster*, *Cyclaster*, *Echinolampas*; AIRAGHI (6).—Verona, *Psammechinus excavatus*; LORIOI (195) p. 131.—Basin of R. Adour, chiefly Biarritz, horizons of *Cidaris*, *Clypeaster*, *Euspatangus*, *Scutella*, *Coptosoma*, *Pygorhynchus*, *Echinolampas*, *Ditremaster*, *Oriolampas*, *Macropneustes*, *Echinocyamus*, *Porocidaris*, *Pentacr.*, *Conocr.*; DOUVILLE (83).—Catalonia, n. spp. of *Coptosoma*, *Triplacidia*, *Echinanthus*, *Schizaster*, *Euspatangus*; LORIOI (195).—Cernica, Galicia, *Porocidaris*, *Conocr.*; HAWELKA (131).—Persia, list of *Ech.*; MORGAN (218).—Egypt,—*Euspatangus*, *Perispatangus* n. sg., *Heterospatangus* n. g., *Fourtanina*, *Hypospatangus*, *Megapneustes*, *Plagiopneustes* n. g., *Macropneustes*, *Plesiospatangus*; FOURTEAU (97): *Rhabdocidaris* with n. sp., *Echinolampas*, *Amblypygus*, *Pericosmus*, *Ditremaster*, *Schizaster*, with n. sp., *Linthia*; FOURTEAU (98).—Makamby Id., Madagascar, n. spp. of *Fibulina* n. g., *Fibularia*, and *Schizaster*; TORNIQUIST (316).—Eocene?, Somaliland, *Conoclypeus*?, and from Garraagoi Mt. *Schizaster* and *Linthia*?; NEWTON (227) pp. 157, 173.—Eocene?, *Ech.* in limest. at Tokpli, Nigeria, compared with *Ech.* from Sokoto; AMMON (12) pp. 469, 471.—Corrio Bay, Victoria, *Scutellina*, *Antedon*; MULDER (222).—Lower Oamaru, Papakura, N. Zealand, *Schizaster*; CLARKE (56).
- Upper.—W. Roumania, *Cidaris*, *Bourquetier*; MURGOI (223).
- Middle.—Lower Lutetian, Nummulitic, Hérault, list of *Ech.*; MIQUEL (215): of Aude and Hérault, S. France, *Conocr.*, *Cidaris*, *Rhabdocidaris*, *Heteractis*, *Coptosoma*, *Micropsidia*, *Thylechinus*, *Baueria*, *Echinopsis*, *Rhabdopleurus*, *Hypospatangus*, *Linthia*, *Schizaster*, *Prenaster*, *Eolampas*, *Amblypygus*, *Oriolampas*, *Cassidulus*, *Plagiopygus*, *Echinanthus*, *Conoclypeus*, and n. spp. of *Circopeltis*, *Brissoides*, *Macropneustes*, *Linthia*, *Schizaster*, *Harionia*, *Echinolampas*, *Porpitella*; DONCIEUX (81): LAMBERT (171).—Nummulitic, Carinthia, *Cidaris*, *Echinanthus*, *Linthia*, *Echinolampas*, *Cyphosoma*, *Conoclypeus*, *Harionia*, *Pyrina*, *Pygorhynchus*, *Macropneustes*; REDLICH (266) pp. 342, 343.—Ostrovica, N. Dalmatia, *Micropsis*, *Leiopedinina*, *Schizaster*, *Macropneustes*, *Trachypatagus*, *Euspatangus*, *Porocidaris*; SCHUBERT (293) p. 168.—Ljubac, N. Dalmatia, *Porocidaris*, *Echinanthus*, *Leiopedinina*, *Conoclypeus*, *Euspatangus*, *Schizaster*; SCHUBERT (294).—Fayum, Egypt, *Euspatangus*, *Echinolampas*, *Anisaster*, *Dictyopleurus*, *Schizaster*; BEADNELL (24).—Lutetian.—Kalfu-Tamaskie, Sokoto, *Rhabdocidaris*?; NEWTON (226) p. 89: *Plesiolampas*, *Linthia*, *Leiocidaris*, Baol near Dakar, *Echinolampas*; LAPPARENT (176).—Senegal, *Plagiopygus* n. sp.; LAMBERT in MEUNIER (212): *Echinolampas* n. sp.; CHAUTARD (47) pp. 145, 151.—Nummulitic of Agost, Spain, *Balanocr.*, *Pentacr.*, *Podocidaris*, radiole (fig.), *Prenaster*, *Trachyaster*, *Conoclypeus*, *Oriolampas*, *Pliolampas*, *Echinolampas*, *Micropsis*; CISNEROS (54).
- Lower.—Kharga Oasis, Egypt, *Conoclypeus*; BALL (14) p. 90.—Jebel Garra, W. of Assouan, *Rhynchopygus*; BALL (15) p. 30.

## (iii) MESOZOIC.

- a. **General**:—Isère, annotated catalogue of *Ech.* from Infralias to Senonian, comprising n. spp. of *Pygaulus*, *Trematopygus*, *Clitopygus*, *Hemipedina*, *Cidaris*, *Plegiocidaris*, *Rhabdocidaris*; SAVIN (286).

- b. **Cretaceous**:—Unterengadin, Crinoid limestones, *Pentacr.*; PAULCKE (243) pp. 271–274.—Near Moedling, Austria, *Nucleolites*, *Galerites*; TOULA (318) p. 321.—Tibet, *Hemiaster*, *Hemipneustes*; HAYDEN (132) pp. 164, 165.—N. America, *Crin.* 21 spp., *Asi.* 1 sp., and *Cassidulus*; JOHNSON (146).—Cerro Cazador, Patagonia, *Astropecten* n. sp.; LORIOI (195) p. 141.
1. **Upper**:—Chalk of Rochester district, Kent, locc. of Echinoderms; DIBLEY (76).—England, *Mitraster*, *Nymphaster* n. sp., *Pentagonaster* n. spp., *Pentaceros* n. spp.; SPENCER (305).—Sénonais (l'Yonne) various *Micraster* and *Marsupites*; LAMBERT (169).—Bohemia, lists of *Ech.*, *Asi.*, *Crin.*; ZAHALKA (348) pp. 159, 165, 168, 169.—Couches rouges de Leysin, Switzerland, *Echinocorys*, *Micraster*, *Cardiaster*, *Pentacr.*, *Balanocr.*; ROESSINGER (278).—E. Balkans, *Entrochus insignis* n. sp., and columnals cf. *Encrinus*, *Apiocr.* and *Pentacr.* [now known to be Trias] (p. 347), *Galerites*, *Ananchytes* (p. 362), *Cidaris* (p. 364); TOULA (317) p. 392.—Gabun, W. Africa, *Echinobrissus* n. sp.; KOSSMAT (167).—(?), Telemis valley at the Tosaye bend, R. Niger, *Linthia*? collected by Lieut. Desplagnes; LAPPARENT (177).—Roca, Patagonia, *Linthia*; WILCKENS (341) p. 139.
- Danian, —Persia, locc. of *Ech.* and *Balanocr.*; MORGAN (218).—Kharga Oasis, Egypt, *Ananchytes*; BALL (14) p. 88.—Kurkur Oasis, W. of Assouan, *Ananchytes*, *Pentacr.*; BALL (15) p. 32.—(Upper), Kom Ombo plain, Nile Valley, *Echinocorys*; BEADNELL (23) p. 668.—Fox Hills beds, Lander, Wyo., *Pentagonaster* n. sp.; WELLER (334).
- Senonian, —Var, *Cidaris*; SAVIN (286) p. 307.—l'Yonne, spp. of *Gauthieria*, *Micraster*, and n. spp. of *Cidaris* and *Salenia*; VALETTE (324).—Presqu'île St Jean (Alpes maritimes) *Micraster arenatus*; MAURY (210) p. 587.—Ekaterinoslav, *Cidaris*, *Tetragramma*, *Echinoconus*, *Holaster*, *Ananchytes*; FAVRE (91).—Abu Roach, Egypt, *Echinobrissus*; BEADNELL (22) pp. 19, 27.
- Upper Senonian, —Phosphatic Chalk, Taplow, *Marsupites*, *Bourgueticr.*, *Uintacr.*, *Cidaris*, *Echinocorys*, *Galerites*, *Micraster*, *Cardiaster*, *Pseudodiadema*, *Pentagonaster*, *Metopaster*, *Oreaster*; WHITE (338).—*Marsupites* zone, Westphalia, *Marsupites*, *Uintacr.*, *Bourgueticr.*, *Pentacr.*, *Stellaster*, *Zenglopleurus*, *Cassidulus*, *Pygurus*, *Cardiaster*, *Micraster*, *Catopygus*; WEGNER (333).—Pomerania, *Ananchytes*, *Cardiaster*, *Echinoconus*; DEECKE (69) pp. 15, 17.—Dakar, Senegal, *Physaster*; PERON (247).—Umzamba beds, Pondoland, *Hemiaster*, *Holaster*, *Cassidulus*; ROGERS (279) pp. 324, 326.
- Lower Senonian, —Seewerkalk, Glarner Alp, *Echinocorys*; ROTHPLETZ (281).—Santonian, Martigues, n. spp. *Goniopygus*, *Micropsis*; SAVIN (286).—Santonian, Abu Roach, Egypt, *Cyphosoma*, *Goniopygus*, *Catopygus*, *Hemiaster*, *Anthenea*, *Nardoa*; FOURTAU (98).
- Senonian to Turonian, —Wiltshire, distrib. of zones, *Holaster*, *Micraster*, *Echinocorys*, *Galerites*, *Marsupites*; JUKES-BROWNE (150) pp. 36–39.—N.E. Surrey, *Bourgueticr.*, *Marsupites*, *Uintacr.*, *Pentacr.*, *Cidaris*, *Cyphosoma*, *Salenia*, *Echinocorys*, *Echinoconus*, *Discoidea*, *Micraster*, *Hemiaster*, *Holaster*; YOUNG (347).—Marlow, Bucks., *Cidaris*, *Galerites*, *Micraster*, *Echinocorys*, *Infulaster*, *Holaster*, *Bourgueticr.*; TREACHER (319).—Douai, *Micraster*, *Echinocorys*, *Echinoconus*; GOSSELET (116) pp. 18, 20, 21, 42.
- Turonian, —Presqu'île St Jean (Alpes Maritimes) *Micraster leskei*; MAURY (210) p. 586.—Pomerania, *Bourgueticr.* &c.; DEECKE (69) p. 19.—Poland, *Cidaris*, *Discoidea*, *Cardiaster*, *Holaster*, *Galerites*, *Caratomus*, *Ananchytes*, *Micraster*; SIEMIRADZKI (301).—Oppeln, Silesia, *Micraster*, *Ananchytes*; FLEGEL (94).—Heuscheuergebirge, Silesia, *Cardiaster*, *Micraster*; FLEGEL (95).—Persia, locc. and list

- of *Ech.*; MORGAN (218).—Abu Roach, Egypt, *Cyphosoma*, *Goniopygus*; FOURTAU (98).
- Cenomanian,—Chloritic Marl, Wiltshire, *Discoidea*, *Pseudodiadema*; JUKES-BROWNE (150) p. 29.—Aude, *Plegiocidaris*; SAVIN (286) p. 314.—Calabria, *Epiaster*, *Hemiaster*; DE STEFANO (75).—(Bellasian), Ericeira, Portugal, *Hemiaster*; CHOFFAT (51) p. 32.—Misburg, Hannover, *Pseudodiadema*, *Peltastes*, *Stereocidaris*; WOLLEMANN (343).—Glärner Alp, *Cidaris*, *Holaster*; ROTHPLETZ (281).—Zone of *Actinocamax plenus*, E. Bohemia, *Cidaris*; PETRASCHECK (254) p. 425.—Persia, locc. of *Ech.*; MORGAN (218).—Abu Roach, Egypt, *Hemiaster*, *Cyphosoma*, and other *Ech.*; BEADNELL (22) pp. 19, 21, 26, 32.
- Albian,—near Escragnelles and Nice, *Cidaris*, *Typocidaris*, *Peltastes*, *Diplopodia*, *Polydiadema*, *Discoidea*, *Conulus*, *Pygaulus*, *Catopygus*, *Holaster*, *Epiaster*, *Toxaster*, *Hemiaster*, *Tylocidaris*, *Cardiopelta*; HITZEL (140).—Near Grenoble, *Stereocidaris*, *Cidaris*, *Rhabdocidaris*, *Discoidea*; PAQUIER (238) p. 134.—Angola, *Salenia*, *Pygurus*; CHOFFAT (50) p. 56.—Pomerania, *Ech.* jaws, *Asterias*, *Pentacr.*, *Hol.* (*Uncinulina*); HUCKE (143) p. 166.—Korycaner Quader, E. Bohemia, *Pygurus*, *Catopygus*; PETRASCHECK (254) p. 416.—Persia, locc. of *Ech.*; MORGAN (218).
- Upper Greensand,—England, *Comptonia*, *Astropecten*; SPENCER (305).—Wiltshire, list of *Ech.*; DAVEY (67).—Zone of *Pecten asper*, near Devizes, *Holaster*, *Cardiaster*, *Catopygus*; JUKES-BROWNE (150) p. 25.
- Vraconian?, Angola, *Rhabdocidaris* (pp. 48, 58), *Cidaris*, *Isaster*, *Epiaster*, *Holaster* (p. 58), *Stigmatopygus* (p. 59); CHOFFAT (50).
2. Lower:—Murcia, *Pseudocidaris*, *Heteraster*; CISNEROS (53).—Capri, *Apiocr.*, *Rhabdocidaris* n. sp., *Hemicidaris* n. sp., *Orthopsis*; AIRAGHI (7).—E. Balkans, *Toxaster* (p. 341), *Catopygus* (p. 359), *Pseudocidaris* (p. 360); TOULA (317) p. 393.—W. Morocco, *Toxaster*, *Pseudodiadema*; BRIVES (42).—Near Malone Mt., Texas, *Enallaster*, *Epiaster*; STANTON in CRAGIN (64) p. 31.
- Aptian,—Gard, France, *Miotoxaster*, *Diplopodia*; LAMBERT (170) p. 846: *Miotoxaster*, *Phyllobrissus*, *Hemidiadema*; PELLAT (245): (Lower), Laval St. Roman, *Actinometra vagnasensis*, *Miotoxaster collegnoi*; PELLAT (244).—L'Yonne and l'Aube, *Cidaris*, *Salenia*, *Peltastes*, *Pseudodiadema*, *Toxaster*; PERON (248).—Portugal, *Pseudodiadema* n. sp., *Goniopygus*; LORIOI (195) p. 136: C. d'Espichel, *Enallaster*; CHOFFAT (51) pp. 12, 15.—Vierwaldstättersee, *Toxaster* (p. 5), *Cidaris* (p. 6); PANNEKOEK (237).—Persia, locc. of *Ech.*; MORGAN (218).
- Urgonian,—Portugal, *Toxaster* n. sp.; LORIOI (195) p. 138.—Barrêmanian, Gard, France, *Holactypus*, *Pygaulus*, *Phyllobrissus*, *Holaster*, *Toxaster*, and n. sp. of *Astrolampas*; LAMBERT (170): *Holactypus*, *Pygaulus*, *Astrolampas*, *Phyllobrissus*, *Holaster*, *Toxaster*, *Miotoxaster*; SAYN (287): Royans, *Toxaster*; SAYN (286A).—Barremian, Portugal, C. d'Espichel, *Pyrina*, *Goniopygus*, *Orthopsis*, *Rhabdocidaris*, *Pseudocidaris*, *Cidaris*, *Codiopsis*, *Circopeltis*, *Pseudodiadema* (pp. 9–11), Ericeira, *Pseudocidaris*, *Pseudodiadema*, *Toxaster*, *Miotoxaster* (pp. 27–30); CHOFFAT (51).—Lower Urgonian, Capri, *Cidaris*, *Pseudocidaris*, *Salenia*; AIRAGHI (7).
- Hauterivian,—Gard, France, *Toxaster*; LAMBERT (170) p. 846.—C. d'Espichel, Portugal, *Pygurus*, *Botryopygus*, *Rhabdocidaris*, *Apiocr.* (p. 7), *Holaster* (p. 8); CHOFFAT (51).
- Neocomian,—Sponge-gravels of Faringdon, *Ech.*; DAVEY (66) p. 31 & (67).—Basses Alpes, *Aulacocidaris* n. sp.; LORIOI (195) p. 140.—Mt. Salève, Haute Savoie, *Botriopygus*; op. cit. p. 143.—

- (Upper), Fuet, Bernese Jura, *Pyrina*; ROLLIER (280).—(Lower), Capri, *Cidaris*, *Rhabdocidaris*, *Pseudocidaris*; AIRAGHI (7).—Uitenhage Bods, Zwartkops R., Cape Colony, *Cidaris*; ROGERS (279) p. 294.—Glärner Alp, Upper Valangian, *Cidaris*, *Pygurus* (p. 70), Berriasian, *Cidaris* (p. 57); ROTHPLETZ (281).
- c. **Jurassic**:—Tibet, *Crin.*; HAYDEN (132) p. 166.—Oxfordian to Bajocian near Poitiers, *Ech.*; WELSCH (336).
1. **Upper**:—Pebble with *Collyrites* in Miocene of Langogne, Lozère; KILIAN (157).—Tatahouine, Tunis, *Monodiadema*, *Pygurus*, *Hemicidaris*, *Millericr.*; PERVINQUIÈRE (250).—Dahar Mts., S. Tunis, *Pygurus*, *Acrosalenia*, *Monodiadema*, *Acropeltis*, *Phyllobrissus*; DOUVILLÉ (84).—Hakim, Somaliland, *Cidaris*! and a *Spatangid* [!]; DACQUÉ (65) p. 124.—Malone formation, Texas, *Holactypus*, *Pygurus*; CRAIGI (64).
- Portlandian (= Tithonian):—Murcia, *Collyrites*, *Metaporhinus*; CISNEROS (53).—Glärner Alp, *Cidaris*, *Hemicidaris*; ROTHPLETZ (281) p. 55.—Stramberger Kalk, lists of *Ech.* and *Crin.* from Stramberg and Nesselndorf, and in exotic blocks, with discussion of relations (268) pp. 216, 280, 290, 361, 364, 367, 369, 372: of Stramberg, *Ast.*, *Thiolliericr.*, *Diplocidaris*, and n. spp. of *Cyrtocr.*, *Cidaris*, and *Pseudosaccocoma* n. g. (269): Moravia, — various locc., *Thiolliericr.*, *Cidaris* (270, 271): Vlcovic, *Balanocr.* (272): Skalitz, *Metaporhinus*, *Pseudodiadema*, *Cidaris*, *Pseudosaccocoma* (273): near Koprivnice, *Thiolliericr.* (274); REMÉS.—(Upper), Capri, *Salenia*, *Pseudocidaris*, *Rhabdocidaris*, *Cidaris*, *Apiocr.*; PARONA (242).—Préalpes maritimes, *Cidaris*, *Acrocidaris*, *Plegiocidaris*, *Acropeltis*, *Glypticus*, *Stomechinus*, *Pygurus*, *Pedina*; KILIAN (156) p. 818.
- Upper Kimmeridgian and base of Portlandian, *ibid.* *Cidaris*, *Plegiocidaris*, *Glypticus*, *Acropeltis*, *Cardiopeltis*, *Pedina*, *Collyrites*, *Balanocr.*; KILIAN (156) pp. 806, 807.
- Kimmeridgian:—Aare-Thal &c., Switzerland, *Cidaris*, *Rhabdocidaris*, *Collyrites*, *Balanocr.*, Wangener Schichten, *Cidaris*, *Crenularis* Schichten, *Hemicidaris*, *Stomechinus*, *Collyrites*, *Rhabdocidaris*; MUEHLBERG (221) pp. 506–508.—Somaliland, *Pseudocidaris*; DACQUÉ (65).
- Sequanian or Kimmeridgian of Tatahouine, Tunis, *Acrosalenia*, *Acropeltis*, *Pygurus*, and n. spp. of *Pseudocidaris*, *Monodiadema*, *Hologlyptus*, *Phyllobrissus*, *Pygurus*; LAMBERT (172).
- Sequanian:—Préalpes maritimes, *Collyrites*, *Pentacr.*; KILIAN (156) p. 792.—[Corallian?] “calcaire coralligène,” Mt. Salève, Haute Savoie, *Echinobrissus* n. sp.; LORIOLO (195).—Upper Astartian, St. Antonin, Central France, *Pseudodiadema*, *Pygurus*, *Hemicidaris*, *Cidaris*, *Rhabdocidaris*, *Acrosalenia*, *Apiocr.*; THÉVENIN (313) p. 87.—Akanthiουσkalk, Unterengadin, *Crin.*, *Ech.*; SCHILLER (290) p. 131.
2. **Middle**:—Oxfordian:—Of Ardèche, *Eosalenia* n. g. et sp.; SAVIN (286) p. 311.—Préalpes maritimes, *Collyrites*, *Cidaris*, *Rhabdocidaris*, *Plegiocidaris*, *Balanocr.*; KILIAN (156) p. 781.—Birmensdorfer Schichten, —Aarethal, Switzerland, *Cidaris*, *Eugeniocr.*; MUEHLBERG (221) pp. 506–508: Glärner Alp, *Cidaris*, *Rhabdocidaris*, *Pseudodiadema*; ROTHPLETZ (281) pp. 50, 51.—Rauracian, —Presqu'île St. Jean (Alpes Maritimes), *Glypticus*, *Diplocidaris*, *Cidaris*, *Rhabdocidaris*, *Diplopodia*, *Pseudodiadema*, *Acrocidaris*, *Apiocr.*; MAURY (210) p. 583.—Mt. Salève, Haute Savoie, *Diplopodia*, *Stomechinus*; LORIOLO (195).—Lower Rauracian of Champplitte near Gray, France, 52 spp. *Ech.*, *Collyrites*, *Dysaster*, *Pygurus*, *Echinobrissus*, *Hyboclypeus*, *Pyrina*, *Holactypus*, *Pygaster*, *Cidaris*, *Rhabdo-*

- Diplo-*, *Pseudo-*, *Hemi-*, *Acro-cidaris*, *Pseudodiadema*, *Glypticus*, *Magnosia*, *Pedina*, *Stomechinus*, 34 spp., *Crin.*, *Eugeniocr.*, *Apiocr.*, *Millerocr.*, *Pentacr.*, *Extracr.*, *Antedon*, all with locc. and synn.; MAIRE (206).—Lower Oxfordian,—Bernese Jura, comparison of faunas at Graiteray and Rouges-Terres, *Cidaris*, *Pseudodiadema*, *Asterias*, *Balanocr.*; AEBERHARDT (1).—La Faucille, S. Jura, *Cidaris*, *Pseudodiadema*; LEE (178).
3. Lower,—Cook inlet, Alaska, *Pentacr.*; STANTON (307) p. 396.—Franche-Comté, lists of *Ech.*, *Ast.*, *Crin.*; GIRARDOT (112) pp. 179–194, 269, 305, 352, 382, 392.
- Bathonian:—near Macon, *Ech.* and *Crin.* under zones; LISSAJOUS (183).—Hte. Saone, *Hemicidaris* n. sp.; SAVIN (286) p. 310.—Préalpes maritimes, *Rhabdocidaris*, *Gymnocidaris*, *Pseudodiadema*, *Stomechinus*, *Pedina*, *Pygurus*, *Acrosalenia*; KILIAN (156) p. 760.—Nurra, Sardinia, *Pentacr.*, *Cidaris*; DENINGER (73).
- Bajocian:—near Macon, *Ech.* and *Crin.* under zones; LISSAJOUS (183).—Préalpes maritimes, *Cidaris*, *Plegiocidaris*, *Diplopodia*, *Stomechinus*, *Pentacr.*; KILIAN (156) p. 743.—Near Bruniquel, Central France, *Cidaris*, *Stomechinus*, *Hemicidaris*; THÉVENIN (313) p. 76.—Glarner Alp, *Cidaris*, *Collyrites*; ROTHPLETZ (281) pp. 35, 38.—(Lower), *Opalinus* zone, Luxemburg, *Astropecten*, *Pentacr.*; BENECKE (29) pp. 75, 76.
- (c & d) Sinemurian (p. 815), Bajocian (pp. 832, 834), Bathonian (p. 842), Callovian (p. 844), Oxfordian (pp. 848, 849), of Poitou, *Ech.* and *Crin.*; WELSCH (335).
- d. **Lias**:—of Franche-Comté, lists of *Ech.* and *Crin.*; GIRARDOT (112) pp. 46, 245, 382.—near Moedling, Austria, *Disaster* (p. 272), *Pentacr.* (p. 322); TOULA (318).—Bulgaria, *Pentacr.*, *Extracr.*; BAKALOW (13).—E. Balkans, *Pentacr.*; TOULA (317) pp. 359, 394.—Lias, Steinsberger Kalk, Unterengadin, *Pentacr.*, *Apiocr.*, *Diademopsis*; SCHILLER (290) p. 126.
- Upper, or Toarcian:—(Upper), St. Antonin, Central France, *Galeropygus*; THÉVENIN (313) pp. 63, 72.
- Middle, or Pliensbachian (= Charmouthian):—Glarner Alp, *Pentacr.*; ROTHPLETZ (281) p. 29.—Italy, *Loriolella* n. g. *Ech.*; FUCINI (102).—Rocchetta, Italy, n. spp. of *Diademopsis* and *Mesodiadema*; AIRAGHI (6).
- Lower, or Sinemurian:—Antirhaeticum, Unterengadin, *Pentacr.*; PAULCKE (243) p. 269.—Palermo, *Pentacr.*, *Diademopsis*, *Asterias*; SCALIA (288).
- Infralias of Ardèche, *Plegiocidaris*; SAVIN (286) p. 312.
- Rhaetic, Pendoylan, Glamorganshire, *Acrosalenia*?, with note on Echinoderms of *Avicula contorta* zone; RICHARDSON (277) p. 405.
- e. **Trias**:—See also III, B, iii, b; TOULA (317).—Bulgaria, *Cidaris*, *Pentacr.*, *Encrinurus*, *Entrochus*; BAKALOW (13).
- Upper:—Pachycardientuffe, Seiseralpe, *Encrinurus*, *Cidaris*; BLASCHKE (32).—? Upper, New Zealand,—Shaw B., Mt. Potts, and Well's Creek, Nelson, *Pentacr.*; PARK (239) pp. 383, 389, 398; Wairoa gorge, Sellen's run, and Eighty-eight Valley, *Pentacr.*; PARK (240) pp. 438, 439.
- Middle:—Wengen Beds, Montenegro, *Encr.*, *Cidaris*; MARTELLI (209).—Muschelkalk,—Upper Silesia, *Dadocr.*, *Encr.*; WYSOGÓRSKI (345).—Gross Läger, Unterengadin, *Dadocr.*; SCHILLER (290) p. 118.—Lower Muschelkalk, Pfalzberg, Elsass, *Gidaris* (p. 105), *Pentacr.* (p. 111); SCHUMACHER (295).—Werfener Schichten, near Moedling, Austria, *Pentacr.*; TOULA (318) p. 286.



## (iv) PALAEOZOIC.

- a. **General**:—Vacant.
- b. **Permian**:—Vacant.
- c. **Permo-Carboniferous**:—Vacant.
- d. **Upper Carboniferous**:—Coal measures—marine band above [i.e. below] the Gin Mine Coal, Nettlebank Sinking, Smallthorne, N. Staffs., *Archaeocidaris*, *Crin.*; HIND (138) p. 121 and (139) p. 235: WARD (330) pp. 294, 320, 343: STOBBS (308) pp. 502, 529, 543, 547, pl. xxxv.—Spain, *Archaeocidaris*, *Poteriocr.*, *Mespilocr.*, *Erisocr.*, *Platycr.*, *Cyathocr.*, *Euryocr.*; MALLADA (208) passim.—Kessler Limestone of Arkansas = Pentremital Limest.; GIRTY (113) p. 9.—Bangor Limestone near Cole City, Georgia, *Pentremites*; McCALLIE (203).
- e. **Lower Carboniferous**:—Carbonif. Limest., Ticknall and Breedon Cloud, S. Derbyshire, list of *Crin.* and *Ech.*; STRANGWAYS (310) p. 14: near Cefn, S. Wales, *Archaeocidaris*, *Crin.*; HIND (139) p. 237.—Cork, list of *Crin.* and *Palaechinus*; LAMPLUGH (174) pp. 26, 29.—S. Oran, Algeria, *Poteriocr.* and *Actinocr.* columnals; THÉVENIN (314). Erg of Issaouan, Algerian Sahara, *Poteriocr.*, *Rhodocr.*; HAUG (130) pp. 793, 795: *Poteriocr.*; FOUREAU (96) p. 574.  
Chester group,—Cypress Sandst., W. Kentucky, *Talarocr.*, *Pentremites* (p. 54), Ste. Genevieve Limest., W. Kentucky, *Platycr.*, *Batochr.*, *Pentremites*, *Mesoblastus* (pp. 42, 47), Kaskaskia Limest. = Birdsville and Tribune, W. Kentucky, *Agassizocr.*, *Pterotochr.*, *Pentremites* n. spp. (pp. 58, 61, 63); ULRICH (321).  
St. Louis Limest., W. Kentucky, *Pentremites* n. sp., *Melonites*, *Archaeocidaris*, *Dichoocr.* (p. 33), Spergen Limest., W. Kentucky, *Pentremites* (p. 30); ULRICH (321).  
Missouri, Burlington age, *Cyathocr.* n. sp., *Eretmocr.*, *Cryptoblastus*, *Schizoblastus*, *Lophoblastus* n. sp., *Orophocr.*, *Pentremites*, *Metablastus*, *Mesoblastus*, *Codaster* n. sp.; ROWLEY (282).—Waverly age, Rocky Mts., S. W. Montana, *Cyathocr.*, *Tavocr.*, *Actinocr.*, *Platycr.*, *Rhodocr.*, *Poteriocr.* (pp. 421–423), Madison Lst., Bridger Mts., Montana, *Poteriocr.*, *Platycr.*, *Rhodocr.* (see Miller, 234 & 235 Zool. Rec. 1897) (p. 417); DOUGLASS (82).
- f. **Devonian**:—Spain, *Pradocr.*, *Entrochus*, *Cyathocr.*, *Hexacr.*, *Rhodocr.*, *Pentremitidea*, *Phaenoschisma*, *Troostocr.*; MALLADA (208) p. 6 et passim.—Tassili and Erg of Issaouan, Sahara, *Melocr.*; HAUG (130) p. 766.—Columbus Lst., Ohio, *Nucleocr.*; PROSSER (261).  
Upper Devonian:—Portage beds, N. York, *Maragnier.* n. g. et sp., *Cosmocr.*; WHITFIELD (339): *Cyathocr.*, *Scytalocr.*, *Maragnier.*; CLARKE (58).  
Middle:—Moravia, *Actinocr.*, *Protocidaris*; SMYČKA (303).—Sierżawy-Schichten and Crinoiden-Kalk, Poland, *Haplocr.*; SOBOLEW (304) p. 68.  
Lower:—in Cornwall, England, *Sympterura* n. g. et sp.; BATHER (21).—Meadfoot beds, S. Devonsh. *Hexacr.* and other *Crin.* remains; USSHER (323).—Coblentian Dachschiefer, various locc. near Rüdesheim, *Acanthocr.*, *Cyathocr.*; LEPPLA (180) p. 28: at Caub. *Acanthocr.*, *Cyathocr.*; LEPPLA (181) p. 16.  
Helderbergian, New York, *Anomalocystis*, *Lepocr.*, *Homocr.*, *Edriocr.*, *Melocr.*, *Cordylochr.*, *Aspidocr.*, *Brachiochr.*; n. spp. of *Thysanocr.*, *Mariaocr.*, *Ichthyocr.*; TALBOT (312).—Becraft limestone, Trilobite Mt., N.Y., *Edriocr.*; SHIMER (300).—Silurian? Lower Helderberg, Virginia, *Aspidocr.*; WILLIAMS (342).

- g. **Silurian** :—Spain, *Scyphocr.*; MALLADA (207) p. 294 & (208) p. 61.—Niagara Limest., Clinton co., Iowa, *Caryocr.* (p. 399), *Siphonocr.*, *Saccoocr.*, *Ichthyocr.* (p. 402); ÜDDEN (320).—Silurian, Yass, Victoria, *Cyathocrinus*? and other Crin. columnals; SHEARSBY (298).
- h. **Ordovician** :—Spain, *Echinospaera*; MALLADA (207) p. 307.—W. of Rebouc, Pyrenees, *Echinospaera*, BRESSON (41) p. 91.—(Upper) Canigou, Pyrénées-orient., *Corylocr.*, *Caryocystis*, *Echinospaera*; DEFÉRET (74).—Jewe beds, D1, *Pentaocr.*; JONKER (148) pp. 138-141.—d 2 of Řevnitz, Bohemia, *Camarocr.*; FRITSCH (100).  
Trenton of Pakenham, Ont., *Agelacr.*, *Glyptocr.*, *Pleurocystis*; AMI (11) p. 84J.—Chazy Limestone, Lake Champlain region, *Malocystis*, *Glyptocystis*, *Palaeocystis*; RAYMOND (265) : n. spp. of *Malocystis*, *Lyriocr.*?, *Rhaphanocr.*?, *Carabocr.*; HUDSON (144).—Simpson formation, Arbuckle Mts., U.S.A., *Glyptocystis*, *Platycystis*, *Amygdalocystis*, *Archaeocr.* (pp. 24, 25), Viola Limest., *ibid.* *Cyst.* columnals (p.27); TAFF (311).
- k. **Cambrian** :—Spain, *Trochocystis*, MALLADA (207) pp. 27, 66.—Coulouma, Montagne Noire, Aude, *Ecocystis*, *Trochocystis*, and n. sp. of *Stromatocystis*; MIQUEL (216).

#### IV. SYSTEMATIC†.

##### (A.)—ECHINODERMA IN GENERAL.

Chapters on “die spezifische Bestimmung” and “die Artwandlung”; PRZIBRAM (262).  
*Echinoderma* divided into *Pelmatozoa* (*Crin.*, *Cyst.*, *Blast.*) and *Echinozoa* (*Ast.*, *Oph.*, *Ech.*, *Hol.*); GROBBEN (124) p. 654.

##### (B.)—HOLOTHURIOIDEA.

- Allopatides* n. g. of *Synallactidae*, with genotype *A. dendroides* n. sp., 669 fm. S.W. of Andaman Is.; KOEHLER & VANEY (164) p. 49, pls. iii, xi.  
*Amphiderima* n. g. of *Deimatidae*, with genotype *A. investigatoris* n. sp., 250 fm., Andaman Is.; KOEHLER & VANEY (164) p. 59, pls. iv, xii.  
*Amphigygnas multipes* Walsh, genotype, syn. of *Synallactes wood-masoni* (q.v.); KOEHLER & VANEY (164).  
*Anapta* (?) *dubiosa* n. sp., 410 fm., B. of Bengal; KOEHLER & VANEY (164) p. 109, pl. xv.  
*Ankyroderma brevicaudatum* n. sp., 185 fm., Andaman Is. (p. 99, pl. xv), *A. contortum* n. sp., 753 fm., B. of Bengal, Kistna coast (p. 100, pl. xiv), *A. intermedium* n. sp., 637-800 fm., B. of Bengal, Kistna Coast, and Stat. 199, 8° 40' N., 81° 27' 35" E. [this is in the middle of Ceylon] (p. 102, pl. xv), *A. musculus*, incl. *A. spinosum* Ludw., variations in length (p. 95), n. var. *acutum*, 410-947 fm., various locc. B. of

† A dagger prefixed to the name of a species indicates that it is fossil; prefixed to the name of the author, it denotes that the reference is to the species in a fossil state; prefixed to the name of a genus, it indicates that all species in the same paragraph are fossil, and the † is therefore not repeated before each name. The abbreviations *l. c.* and *op. cit.* refer only to the place or work quoted immediately before.

A name and reference quoted without further statement [e.g. *Caudina arenata*; CLARK (55) p. 12] indicate that the quoted author's statement refers to a question of no systematic importance. Further information can usually be gleaned from the cross-references under TITLES.

- Bengal and Arabian Sea (p. 97, pl. xiv), **n. var. undulatum**, 185 fm., Andaman Is., 480 fm. off S.W. Ceylon (p. 99, pl. xv), *A. polymorphum* **n. sp.**, 690–920 fm., N. Coromandel Coast (p. 103, pl. xiv); KOEHLER & VANEY (164).
- Apodogaster* Walsh, discussed, *A. alcocki*, added notes; KOEHLER & VANEY (164) p. 66, pls. v, xii.
- Aspidochirota* n. fam. see *Gephyrothuridae*.
- Bathyplores assimilis* **n. sp.**, 360 fm., S. of Malabar (p. 25, pls. iii, x), *B. crenulatus* **n. sp.**, 405 fm., Andaman Is. (p. 23, pl. x); KOEHLER & VANEY (164). *B. natans*; NORDGAARD (230) pp. 161, 241, *B. papillosus* **n. sp.**, 556–595 fm., W. of Ceylon (p. 28, pl. x), *B. profundus* **n. sp.**, 1644 fm., B. of Bengal (p. 22, pls. iv, x), *B. variabilis* **n. sp.**, 498–726 fm., Palk Str., N. Ceylon (p. 26, pls. v, x); KOEHLER & VANEY (164).
- Bathyzona* **n. g.** of *Synallactidae*, with genotype *B. incerta* **n. sp.**, 1140 fm., N. of Laccadives; KOEHLER & VANEY (164) p. 53, pl. i, xi.
- Benthodytes glutinosa*, added notes; KOEHLER & VANEY (164) p. 72, pl. xii. *B. ianthina*; RICHARD (276) p. 3. *B. sanguinolenta* (p. 72), *B. superbus* **n. sp.**, 1506 fm., N. of Arabian Sea (p. 74, pls. vii, xii); KOEHLER & VANEY (164).
- Benthophyces* **n. g.** of *Deimatidae* (p. 64), genotype *B. fragilis* **n. sp.**, 740 fm., N. of Malabar Coast (p. 65, pls. viii, xii); KOEHLER & VANEY (164).
- Benthothuria* discussed, rediagnosed (p. 40), *B. cristatus* [sic] **n. sp.**, 869–913 fm., N.W. of Nicobar Is. (p. 42, pl. i), *B. distortus* [sic] **n. sp.**, 912–931 fm., N. Malabar Coast (p. 43, pl. iii), *B. fusiformis* (p. 41); KOEHLER & VANEY (164).
- Caudina arenata*; CLARK (55); p. 12: HERTWIG (136). *C. coriacea* **n. var.**, *brevicauda*, New Zealand (pp. 66, 121, fig.), *C. pigmentosa* redescri. and now first figd., wine-red concentric sclerites (p. 69, pl. iv and figg.), *C. pulchella* **n. sp.**, New Zealand (p. 117, pl. v), *C. rugosa*, redescri. and now first figd. (p. 66, pl. iv); PERRIER (249).
- Chiridota chiaji* is either *Labidoplax digitata* or *L. thomsoni*; ØSTERGREN (235) p. clxii. *C. contorta* distinguished from *C. studeri*; PERRIER (249) p. 77. *C. laevis*; CLARK (55) p. 13. *C. marenzelleri*, redescri. and now first figd.; PERRIER (249) p. 79, pl. iv. *C. pellucida*; SCHMITT (292) p. 248. *C. pinnata* is Mediterranean form of *Synapta inhaerens*; ØSTERGREN (235) p. clxii. *C. pisanii*; PERRIER (249) p. 79.
- Chondrocloea striata* **n. var. incurvata**, Somali coast; VANEY (326) p. 190.
- Colochirus*, discussed and restricted (p. 107), no Antarctic spp. (p. 111); PERRIER (249). *C. brevidentis*, vide sub *Cucumaria*. *C. dobiolum*? juv. (p. 189), *C. gravei* **n. sp.**, Somali coast, 20 m. (p. 188); VANEY (326). *C. lacazei* distinguished from *Cucumaria montagui*; NORMAN (232) p. 359.
- Cucumaria*, discussed; PERRIER (249) p. 108. *C. sp.*; GRAVE (118). *C. alba* (p. 85) and *C. brevidentis* (Hutton sub *Thyone*) (p. 110), added notes; PERRIER (249). *C. calcigera*; CLARK (55) p. 9. *C. elongata*, descr., with young, distinguished from "*C. pentactes* Linn." Bell; KEMP (152) p. 177, pl. xxxv. *C. filholi*, redescri. and distinguished from *C. alba*; PERRIER (249) p. 88, pl. v. *C. frondosa*; CLARK (55) p. 9: HØRRING (142) pp. 185, 189: NORDGAARD (230) p. 161: SCHMIDT (291) p. 18. *C. hispida*; KEMP (152) p. 185: NORDGAARD (230) pp. 161, 241. *C. huttoni*, added notes; PERRIER (249) p. 93. *C. hyndmani*; KEMP (152) p. 185, 205: incl. spicules figd. as *C. planci* by Bell; NORMAN (232) p. 356. *C. kerguelensis* (p. 29), *C. laevigata*, added notes, distrib. (p. 22), *C. leonina*, distrib. (p. 24), disposition of podia, sclerites, relation to *C. koellikeri* (p. 25, pl. i); PERRIER (249). *C. minuta*; CLARK (55) p. 9. *C. montagui* Fleming was based on

- Montagu's *C. pentactes* var. and therefore incl. *C. normani* Pace, spicules figd., young incl. *Holothuria decollata* Leach MS. and "*C. saxicola*" Pace 1904; NORMAN (232). *C. ocnoides*, descriptions by Dendy & Reiffen harmonised, not related to *Molpadidae* (p. 96, pls. i, v), *C. parva*, podia and sclerites (p. 29, pls. ii, iii); PERRIER (249). *C. planci*; KEMP (152) p. 178; NOBRE (229) p. 132 : spicules, correction of Boll, B. M. Cat. Brit. Echin.; NORMAN (232) p. 356. *C. pulcherrima*; CLARK (55) p. 9. *C. tabulifera*, redescri., now first figd.; PERRIER (249) p. 17, pls. i, iii. *C. transitoria* n. sp., Somali coast, 20 m.; VANEY (326) p. 187.
- Deima blakei*, variations; KOEHLER & VANEY (164) p. 55, pl. xi.
- Deimatidae* n. gg., see *Amphideima*, *Benthophyces*.
- Dendrothuria* n. g. of *Synallactidae* (p. 44) perh. comprises *Pelopatides megalopharynx*, genotype *D. similis* n. sp., 1000 fm. E. of Laccadives (p. 45, pls. xi, xii); KOEHLER & VANEY (164).
- Echinocucumis typica*: SCHMIDT (291) p. 22.
- Elpidia willemoesi* is *Peniagone*; KOEHLER & VANEY (164) p. 68.
- Elpidiidae* n. g., see *Euriplastes*.
- Euphronides bifurcata* n. sp., 1803 fm. S. of B. of Bengal; KOEHLER & VANEY (164) p. 75, pls. viii, xii.
- Eupyrgus pacificus* n. sp., 60-65 m., Korea (p. cxvii, fig.), *E. scaber*, added notes (p. cxvii); ØSTERGREN (236).
- Euriplastes* n. g. of *Elpidiidae* with genotype *Peniagone ecalcareae* Sluiter (p. 70), *E. obscura* n. sp., 1803 fm., S. of B. of Bengal; KOEHLER & VANEY (164) p. 71, pl. iv.
- Filithuria* n. g., incertae fam. (p. 80) with genotype *F. elegans* n. sp., 405 fm. S.W. of Andaman Is. (p. 81, pls. vi, xii); KOEHLER & VANEY (164).
- Gephyrothuria* n. g. (p. 78) with genotype *G. alcocki* n. sp., 1912 fm. S. of Ceylon (p. 79, pl. v); KOEHLER & VANEY (164).
- Gephyrothuridae* n. fam. of *Aspidochirota* for preceding; KOEHLER & VANEY (164) p. 79.
- Holothuria arenicola* (p. 50), *H. argus* (p. 45, pl. ix); KONINGSBERGER (166). *H. aspera*; KEMP (152), p. 186. *H. atra*; KONINGSBERGER (166) p. 47, pl. viii : redefined on statistical basis; EDWARDS (88). *H. coluber* (p. 51, pl. vii), *H. edulis* (p. 49); KONINGSBERGER (166). *H. flava* is anterior end of a Synaptid, ? *S. inhaerens*; ØSTERGREN (235) p. clxii. *H. floridana*, incl. *H. mexicana* Ludw., redefined on statistical basis; EDWARDS (88). *H. fusco-punctata*; VANEY (326) p. 190. *H. graeffii*; KONINGSBERGER (166) p. 47. *H. impatiens*; op. cit. p. 51, pl. viii : VANEY (326) p. 190. *H. inhaerens*; ØSTERGREN (235) p. clxii. *H. intestinalis*; KEMP (152) p. 186. *H. marenzelleri* (p. 46), *H. marmorata* (p. 44); KONINGSBERGER (166). *H. mexicana*, vide *H. floridana*. *H. nigra*; KEMP (152) p. 178. *H. pardalis*; PERRIER (249) p. 15; VANEY (326) p. 189. *H. patagonica*, vide sub *Stichopus*. *H. pyxis*; KONINGSBERGER (166) p. 48. *H. roulei* Koehl. is *Mesothuria*; KOEHLER & VANEY (164) p. 4. *H. scabra* (p. 52, pl. viii), *H. squamifera* (p. 53); KONINGSBERGER (166). *H. tremula*; KEMP (152) p. 186. *H. vagabunda* (p. 50, pl. viii), *H. vitiensis* (p. 45); KONINGSBERGER (166).
- Incertae sedis, n. g. see *Filithuria*.
- Lapidoplax buski*; NORDGAARD (230) p. 161 : redescri.; ØSTERGREN (235) p. clvi. *L. media* n. sp., 45 m., off Bergen; op. cit. p. clviii, fig.
- Laetmogone violaceae*; KOEHLER & VANEY (164) p. 64 : colour; KEMP (152) pp. 186, 183.
- Ludwigia* rejected, vide *Cucumaria ocnoides*; PERRIER (249) p. 105.
- Mesothuria abbreviata* n. sp., 406 fm., Laccadive Is. (p. 11, pl. xii), *M. incerta* n. sp., 360 fm., Laccadive Is. (p. 11, pls. i, ix); KOEHLER &

- VANEY (164). *M. intestinalis*; NORDGAARD (230) pp. 161, 241; REZLIUS (275) p. 83, pl. xii. *M. multipes* (p. 10), *M. squamosa* n. sp., 446 fm., S. Coromandel Coast (p. 13, pls. vi, ix); KOEHLER & VANEY (164).
- Muelleria echinites*; KONINGSBERGER (166) p. 38. *M. lecanora*; op. cit. p. 37, pl. ix; VANEY (326) p. 190. *M. maculata* (p. 36), *M. mauritiana* (p. 40), *M. miliaris* (p. 39); KONINGSBERGER (166).
- Myriotrochinae*, characters of subfam.; ÖSTERGREN (235) p. clxi.
- Myriotrochus*, differences from *Trochoderma*; ÖSTERGREN (235) p. clx. *M. minutus* n. sp., 60-65 m., Korea; ÖSTERGREN (236) p. cxciv, fig. *M. rinki*; NORDGAARD (230) pp. 161, 241. *M. théli* n. sp., 2000 m., N.W. of Jan Mayen; ÖSTERGREN (235) p. clix. *M. vitreus*; NORDGAARD (230) pp. 161, 241.
- Oneirophanta conservata* n. sp., 719 fm., N.E. of Maldives; KOEHLER & VANEY (164) p. 57, pls. vi, xi.
- Ophnurgus*, diagnosis modified (p. 63), *O. glaber* (Walsh, as var. of *O. asper*) (p. 60, pls. viii, xii), *O. invalidus* n. sp., 300 fm., Palk Strait, N. of Ceylon, allied to *Scotodeima* (p. 62, pl. xii); KOEHLER & VANEY (164).
- Pannychia moseleyi*; HEDLEY (133).
- Paroriza* comprises *Stichopus pallens*, diagnosis modified; KOEHLER & VANEY (164) p. 4.
- Pelopatides* discussed (p. 29), *P. fusiformis* Sluiter, is *Benthothuria* (p. 41), *P. gelatinosus* (Walsh sub *Benthodytes*) redescri. (p. 30, pls. v, x), *P. insignis* n. sp., 678 fm., N. Coromandel Coast (p. 38, pls. ii, xi), *P. mammillatus* n. sp., 1506 fm., N. Arabian Sea (p. 39, pl. i), *P. megalopharynx*, perhaps is *Dendrothuria* (pp. 45, 47), *P. modestus* n. sp., 498 fm., Andaman Is., 696 fm., N. Malabar Coast (p. 37, pls. ii, xi), *P. mollis* n. sp., 265-405 fm., Andaman Is. (p. 34), *P. ovalis* (Walsh sub *Benthodytes*) redescri. (p. 35, pls. iii, xi), *P. verrucosus* n. sp., 498 fm., Andaman Is., 695 fm., S.E. of Ceylon (p. 33, pl. x); KOEHLER & VANEY (164).
- Peniagone ecalcareae*, vide *Euriplastes*. *P. expansa* n. sp., 1748 fm. S. of B. of Bengal (p. 68, pls. iv, xii), *P. (?) obscura* n. sp., 1803 fm. S. of B. of Bengal (p. 69, pl. xii), *P. stabilis* n. sp., 1803 fm. S. of B. of Bengal (p. 67, pls. iii, v, xii); KOEHLER & VANEY (164).
- Pentacta frondosa*; SCHMITT (292) p. 248.
- Perizona* n. g. of *Synallactidae*, with genotype *P. magna* n. sp., 740 fm., Laccadives; KOEHLER & VANEY (164) p. 51, pls. i, v, xi.
- Phyllophorus*, probably will merge in *Pseudocucumis*; KOEHLER & VANEY (163). *P. anatinus* (R. Perr. sub *Thyonidium*) redescri.; PERRIER (249) p. 112, pl. v. *P. drummondi* at Plymouth; NORMAN (232) p. 355. *P. ehrenbergi*; VANEY (326) p. 189. *P. pellucidus*; NORDGAARD (230) p. 161. *P. urna*; POLARA (258); RUSSO (283).
- Protankyra conferta* n. sp., 805 fm., Gulf of Manaar, 678 fm., N. Coromandel Coast (p. 105, pl. xv), *P. denticulata* n. sp., 410 fm., N. Coromandel Coast (p. 105, pl. xv), *P. errata* n. sp., 130-150 fm., Andaman Is., 480 fm., B. of Bengal = "*Ankyroderma marenzelleri* Theel" Walsh (p. 106, pl. xv), *P. inflexa* n. sp., 410 fm., B. of Bengal (p. 109, pl. xv), *P. timida* n. sp., 561-650 fm., Andaman Is. (p. 108, pl. xv), *P. tristis* n. sp., 1310 fm., N. of B. of Bengal (p. 107, pl. xv); KOEHLER & VANEY (164).
- Pseudocucumis cuenoti* n. sp., 20-50 m. off Arcachon, allied to *Phyllophorus*; KOEHLER & VANEY (163).
- Pseudopsolus macquariensis*, added notes; PERRIER (249) p. 111.
- Pseudostichopus oculatus* n. var. *plicatus*, 1644 fm., Andaman Is.; KOEHLER & VANEY (164) p. 9, pls. iii, ix.
- Pseudothuria* n. g. of *Synallactidae* (p. 47), with genotype *P. duplex* n. sp., 902 fm., N. of Laccadives (p. 48, pl. iv); KOEHLER & VANEY (164).

- Psolidium*, diagnosis modified (pp. 46 & 108), key to spp. (p. 55), *P. convergens*, sole, podia, sclerites, passage to *Ocumaria* (p. 38, pl. ii and figg.), *P. dorsipes*, added notes, rediagnosed, p. 48, pl. ii and figg.; PERRIER (249). *P. (?) rugosum* n. sp., 102 fm., off S. Malabar (p. 82, pls. vi, xiii), *P. (?) translucidum* n. sp., 457-589 fm., Gulf of Manaar (p. 83, pls. vi, xiii); KOEHLER & VANEY (164).
- Psolus*, extension of diagnosis; KOEHLER & VANEY (164) p. 86. *P. antarcticus*, added notes, young stages; PERRIER (249) p. 35. *P. californicus* n. sp., Monterey Bay, Cal., 120 m.; FISHER (93). *P. fabricii*; CLARK (55) p. 11: immature; KEMP (152) p. 185: (cf.); †NORDMANN (231). *P. levis* n. sp., 102 fm. off S. Malabar (p. 86, pls. vi, xiii), *P. membranaceus* n. sp., 102 fm. off S. Malabar (p. 84, pls. vi, xiii); KOEHLER & VANEY (164). *P. phantapus*; CLARK (55) p. 11: HØRRING (142) p. 189; NORDGAARD (230) p. 161. *P. squamatus*; CLARK (55) p. 12: SCHMITT (292) p. 248: n. var. *segregatus*, off C. Horn; PERRIER (249) p. 59.
- Psychropotes minutus* n. sp., 1140 fm., Laccadives; KOEHLER & VANEY (164) p. 76, pls. viii, xii.
- Rhabdomolgus ruber*, redescr., is a low Synaptid; LUDWIG (196).
- Stichopus ananus* (p. 41, pl. vi), *S. chloronotus* (p. 42); KONINGSBERGER (166). *S. fuscus* (p. 16), *S. mollis*, added notes (p. 83); PERRIER (249). *S. pallens* Koehl. is *Paroriza*; KOEHLER & VANEY (164) p. 4. *S. (?) Holothuria) patagonicus*, Sta. Cruz, now first figd. (p. 11, pl. i), *S. torvus* (p. 15); PERRIER (249). *S. tremulus*; NORDGAARD (230) pp. 161, 241. *S. variegatus* (p. 42, pls. vi, vii), *S. vastus* (p. 43); KONINGSBERGER (166).
- Synallactes (?) dubius* n. sp., 480 fm., G. of Manaar (p. 19, pl. ix), *S. horridus* n. sp., 1746 fm., B. of Bengal (p. 16, pl. xii); KOEHLER & VANEY (164). *S. moseleyi* (Theel sub *Stichopus*), redescr.; PERRIER (249) p. 6, fig. *S. (?) pellucidus* n. sp., 210 fm., S. Coromandel Coast (p. 21, pls. iv, ix), *S. rigidus* n. sp., 1924 fm., Andaman Is. (p. 17, pls. v, ix), *S. wood-masoni* (Walsh) incl. *Amphigymnas multipes* Walsh and *S. reticulatus* Sluiter (p. 14, pl. ix); KOEHLER & VANEY (164).
- Synallactidae*, n. gg., see *Dendrothuria*, *Pseudothuria*, *Allopatides*, *Perizonia*, *Bathyzona*.
- Synapta*, modifications of diagnosis; ÖSTERGREN (235) p. clv. *S. sp.*; BOCHENEK (33); SAFFORD (284) p. 89. *S. acanthia*, straight gut, see II, D, vii (p. cxlv), *S. bergensis* n. sp., 5-50 m. W. Coast of Norway & Sweden, & Faeroes, anatomy (p. cxxxiii, fig.), *S. bifaria* (p. clxiii), *S. decaria* n. sp., 40-70 m. W. Coast Norway & Sweden (p. cxlvi, fig.); ÖSTERGREN (235), *S. digitata* (p. 177), n. var. *profundicola*, 112 fm., 50 miles W. N. W. of Slyne Hd., Galway (p. 184); KEMP (152). *S. duvernaea* (p. clxii), *S. galliennii*, distinguished from *S. inhaerens* and *S. bergensis* (p. cxlii), *S. girardii* (p. cliii), *S. henslowana* (p. clxiii), *S. hispida*, perhaps a *Protankyra* (p. clxiii); ÖSTERGREN (235). *S. inhaerens*; CLARK (55) p. 13; KEMP (152) pp. 177, 184: autotomy (p. cxxxv), redescr. from type-loc., S. Norway, differences from Mediterranean race and from *S. girardii* (p. cxlix, fig.); ÖSTERGREN (235). *S. macrankyra* compared with *S. bergensis*, and maintained; op. cit. pp. cxlv, cliv. *S. pourtalesi*, probably a *Chondrocloea*; op. cit. p. cliv. *S. roseola*; CLARK (55) p. 13. *S. sarniensis*, synonym of *S. galliennii* (p. cxlii), *S. tenera*, syn. of *S. buski* (p. clxiii); ÖSTERGREN (235).
- Synaptidae*, modification of diagnosis, no ciliated organs; ÖSTERGREN (235) p. clvii.
- Thyone briareus*; CLARK (55) p. 10; GARREY (108). *T. elongata*; CLARK (55) p. 10. *T. fusus*; KEMP (152) pp. 178, 205. *T. lechleri*, sclerites; PERRIER (249) p. 35. *T. raphanus*; KEMP (152) p. 185. *T. sacellus*; VANEY (326) p. 189. *T. scabra*; CLARK (55) p. 10. *T. spectabilis*,

- calcareous ring and other notes; PERRIER (249) p. 32, pl. iii and figg. *T. unisemita*; CLARK (55) p. 10.
- Thyonidium anatinum*, vide sub *Phyllophorus*. *T. pellucidum* and *T. productum*; CLARK (55) p. 11.
- Trochoderma*, differences from *Myriotrochus*; ÖSTERGREN (235) p. clx.
- Trochodota dunedinensis*, added notes (p. 123), *T. purpurea*, added notes (p. 76); PERRIER (249).
- Trochostoma albicans*, added notes (p. 89, pl. xiii), *T. andamenense*, added notes (p. 90, pl. xiii); KOEHLER & VANEY (164). *T. boreale*; SCHMIDT (291) p. 20. *T. concolor* n. sp., 475 fm., B. of Bengal (p. 91, pls. v, xii), n. var., *caudatum*, 637–800 fm., Stat. 199, 8° 40' N., 81° 27' 35" E. [this is in the middle of Ceylon] (p. 92, pl. xiii), *T. ecalcareum* n. sp., 300 fm., S. Coromandel Coast (p. 94, pl. xiii), *T. elongatum* n. sp., 922 fm., N. of Andaman Is. (p. 92, pls. i, xiv), *T. granulatum* (p. 89); KOEHLER & VANEY (164). *T. ooliticum*; CLARK (55) p. 12. *T. pauperum* n. sp., 446 fm., S. Coromandel Coast; KOEHLER & VANEY (164) p. 93, pl. xiii. *T. turgidum*; CLARK (55) p. 12. *T. violaceum*; PERRIER (249) p. 65.
- † *Uncinulina polymorpha*; HUCKE (143) p. 167, pl. xxiii.
- Ypsilothuria bitentaculata* (Ludwig 1894), incl. *Y. attenuata* E. Perrier "1891" [i.e. 1886, in either case has priority and validity]; KOEHLER & VANEY (164) p. 87.

## (C).—ECHINOIDEA.

- † *Acrocidaris*, diagnosis; SAVIN (286) p. 226. *A. formosa*; MAURY (210) p. 583. *A. minor*; SAVIN (286) p. 227, pl. iv. *A. nobilis*; KILIAN (156) p. 818; MAIRE (206) p. 229; SAVIN (286) p. 226.
- † *Acropeltis*, diagnosis; SAVIN (286) p. 199. *A. aequituberculata*; DOUVILLÉ (84); KILIAN (156) pp. 807, 818; LAMBERT (172) p. 574; SAVIN (286) p. 200.
- † *Acrosalenia*, diagnosis; SAVIN (286) p. 224. *A. sp.*; THÉVENIN (313) p. 76. *A. meslei*; DOUVILLÉ (84); Gauthier's figure criticised; LAMBERT (172) p. 570. *A. patella*; SAVIN (286) p. 225. *A. cf. pisum*; THÉVENIN (313) p. 87. *A. spinosa*; LISSAJOUS (183) p. 697.
- † *Amblypygus dilatatus*; DONCIEUX (81) p. 107; n. var. *costulatus*, Mid. Eocene, Pyramids of Ghizeh; FOURTAU (98) pp. 133, pl. i.
- Amphidetus cordatus*; COLGAN (61) p. 212. *A. ovatus*; HØRRING (142) p. 189.
- † *Amphiope neuparthi* n. sp., Miocene, Bom Jesus, Loanda; LORIOL (195) p. 133, pl. x; CHOFFAT (50) p. 43.
- Amphipneustes* is related to *Abatus*: *A. koehleri* n. sp., off S. Georgia, Antarctic; MORTENSEN (220) p. 243, no fig.
- † *Ananchytes*, vide *Echinocorys*.
- † *Anisaster gibberulus*; BEADNELL (24) p. 52; variations in fasciole; LAMBERT (171) p. 157 footnote.
- Araeosoma fenestratum*, distrib.; DOEDERLEIN (79) p. 377.
- Arbacia dufresni*; PORTER (260) p. 131. † *A. monilis*; COUFFON (63) pp. 165, 214. *A. nigra*; PORTER (260) p. 131. *A. punctulata*; CLARK (55) p. 8; GARREY (108).
- Arbacia*, discussed and maintained: *A. pallaryi*; CHECCHIA (49). † *A. tenera*; AIRAGHI (5) p. 47.
- † *Archaeocidaris*:—*A. sp.*; HIND (138) p. 121; WARD (330) pp. 294, 320, 343; cf. *benburbensis* et *vetusta*; BATHER in STOBBS (308) and pl. *A. cf. munsterianus* (p. 316), *A. nereis* (p. 196), *A. sixi* (pp. 117, 182, 187); MALLADA (208). *A. urei*; HIND (139) pp. 235, 237. *A. wortheni*; ULRICH (321) p. 33.

- Asterostomidae* Pomel should be used by any who care to accept the group called *Plesiospatangidae* by Duncan; FOURTAU (97) p. 612.
- Asthenosoma hystrix*; KEMP (152) p. 196: vide etiam sub *Calveria*.
- †*Astrechinus pentagonus* nom. nud.; JAEKEL (145).
- †*Astrolampas*:—*A.* sp.; SAYN (287) p. 622: *A. romani* n. sp., Barremian, Seynes (Gard), colln. Roman & Lambert; LAMBERT (170) p. 841, figg.
- †*Aulacocidaris michaleti* n. sp., Neocomian, La Palud de Moustier, Basses Alpes; LORIOU (195) p. 140, pl. x.
- †*Baueria rousseli*; DONCIEUX (81) p. 102; MIQUEL (215) p. 24.
- †*Botriopygus*:—*B. morloti*; LORIOU (195) p. 143. *B. nucula*, vide sub *Pygorhynchus*. *B. savini*; CHOFFAT (51) pp. 7, 35. *B. sueuri* and *B. testudo*, vide sub *Pygorhynchus*. *B. trapeti*, probably *Phyllobrissus*; LAMBERT (172) p. 575. *B. valdensis*, vide sub *Pygorhynchus*.
- Breyrella* Gregory 1892 [=1891], syn. of *Phiolampas* Pomel 1888; AIRAGHI (5) p. 50: syn. of *Echinanthus*; LAMBERT (171) p. 144.
- Brissidae*, n. g. vide *Pseudobrissus*.
- †*Brissoides* Klein, Lambert's resuscitation of this rejected in favour of *Euspatangus* (q. v.); LORIOU (195) p. 130: ditto (p. 603), *B. cranium* Klein, unrecognisable (p. 604); FOURTAU (97). *B. meijerei* n. sp., Lutetian, Minerve, Hérault; LAMBERT (171) p. 163, pl. v: DONCIEUX (81) p. 104; MIQUEL (215) p. 20. *B. oppenheimi* n. sp., Burdigalian, Gattières, Alpes-Maritimes; LAMBERT (173) p. 881, pl. lix. *B. savini*; DONCIEUX (81) p. 104; MIQUEL (215) p. 20 & (?) p. 25.
- Brissopsis lyrifera*; KEMP (152) p. 200; RETZIUS (275) p. 82, pl. xii: SCHMIDT (291) p. 21: distrib.; DOEDERLEIN (79) p. 384. †*B. sismondus*, holotype descr.; AIRAGHI (6) p. 3, pl. i.
- †*Brissus*:—*B. carinatus*; MAWSON (211) pp. 414, 451, 479. *B. corsicus* Cott., vide *Pseudobrissus*. *B. oblongus*; AIRAGHI (8) p. 217.
- Calveria hystrix*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 377: vide etiam sub *Asthenosoma*.
- †*Capsulina loculicida* Seguenza 1879, no foraminifer but an ophicephalous pedicellaria; NEVIANI (224).
- †*Caratomus*, diagnosis, *C. faba*; SAVIN (286) p. 153.
- †*Cardiaster*:—*C.* sp.; WHITE (338) p. 476. *C. ananchytis*; DEEKE (69) p. 17; FLEGEL (95). *C. fossarius*; JUKES-BROWNE (150) p. 25. *C. gillieroni*; ROESSINGER (278) p. 437. *C. jugatus*; WEGNER (333) pp. 128, 133, 139, 140, 150. *C. subtrigonatus*?; ROESSINGER (278) p. 437.
- †*Cardiopelta*, diagnosis; SAVIN (286), p. 143. *C. (Spatangus) carinata*; KILIAN (156) p. 807. *C. hemisphaerica* (A. Gras, sub *Dysaster*) (p. 146), *C. jaccardi* and *C. malbosii* (p. 144); SAVIN (286). *C. moussoni*; HITZEL (140). *C. ovulum*; SAVIN (286) p. 145.
- †*Cassidulus*:—*C. fibularoides*, vide sub *Porpitella*. *C. florealis*, locc. of type and figd. specimens; JOHNSON (146). *C. hayesianus*, vide sub *Porpitella*. *C. lapis-cancræ*; WEGNER (333) pp. 139, 149: *C. ovalis*; DONCIEUX (81) p. 102.
- †*Catopygus*, diagnosis; SAVIN (286) p. 162. *C. albensis*; PETRASCHECK (254) p. 416. *C. cf. carinatus*; TOULA (317) p. 359. *C. columbarius*; JUKES-BROWNE (150) p. 25. *C. cylindricus*; HITZEL (140): SAVIN (286) p. 162. *C. gibbus*; FOURTAU (98) p. 128. *C. obovatus* vide *Pygorhynchus*.
- Cidaridae* n. gg. vide *Lamprechinus*, *Orechinus*, *Pygmaecidaris*.
- Cidaris* (vide etiam s.-gg. *Doro-*, *Para-*, *Plegio-*, *Podo-*, *Poly-*, *Poro-*, *Rhabdo-*, *Stereo-cidaris*) diagnosis; SAVIN (286) p. 239.
- †*Cidaris* sp.; MARTELLI (209) pp. 327, 333. *C.* sp. nondescr., radiole, Senonian of Var. (p. 307, pl. ii), *C.* sp. nondescr. 1, Hauterivian, Isère, test (p. 247, pl. iii), *C.* sp. nondescr. 2, Hauterivian, Isère, radioles



- (p. 247, pl. iii), *C. aizyensis* (p. 241); SAVIN (286). *C. avenacea* n. sp., Hauterivian of St Pierre de Chérennes, Isère, radiole only; LAMBERT & SAVIN (286) p. 242. *C. avenionensis*; AIRAGHI (5) p. 46; SAVIN (286) p. 240. *C. barroisi*; PAQUIER (238) p. 134. *C. cf. bathonica*; DENINGER (73) p. 438. *C. belgica*; VAN ERTBORN (325). *C. blumenbachi*; MAIRE (206) p. 222; ROTHPLETZ (281) p. 51. *C. brauni*; BLASCHKE (32) p. 166. *C. carinifera*; ROTHPLETZ (281) p. 55. *C. cervicalis*; MAIRE (206) p. 224; THÉVENIN (313) p. 87. *C. cherenensis* n. sp., Hauterivian, St-Pierre-de-Chérennes, Malleval, Isère, radioles only; SAVIN (286) p. 245, pl. v. *C. clavigera*; TREACHER (319) p. 156; WHITE (338) pp. 468, 487; YOUNG (347) p. 216. *C. cornifera*; SAVIN (286) p. 253. *C. coronata*; MAIRE (206) p. 223; ROTHPLETZ (281) pp. 50, 51. *C. cucumifera*; LISSAJOUS (183) pp. 691, 692; ROTHPLETZ (281) p. 36. *C. cydonifera*; SAVIN (286) p. 242, pl. xiv. *C. decorata* & *C. dorsata*; BLASCHKE (32) p. 166. *C. elegans*; MAIRE (206) p. 223. *C. faringdonensis*; DAVEY (66) p. 31. *C. filograna*; ROTHPLETZ (281) p. 51. *C. aff. flabellata* & *C. florigemma*; MAIRE (206) p. 224. *C. gevreyi* n. sp., Hauterivian, Malleval & St-Pierre-de-Chérennes, Isère, radioles only; LAMBERT & SAVIN (286) p. 243, pl. v. *C. gibberula*, vide sub *Plegiocidarid*. *C. gibbosa*; KILIAN (156) p. 806. *C. glandifera*; REMEŠ (270, 271, & 273).
- Cidarid gracilis*, probably young *C. purpurata*; KEMP (152) p. 196.
- † *Cidarid grandaeva*; SCHUMACHER (295) p. 105. *C. grossowrei*; DONCIEUX (81) p. 98; MIQUEL (215) p. 24. *C. heteracantha*, vide sub *Typocidarid malum*. *C. hirudo*; WHITE (338) pp. 470, 487; YOUNG (347) p. 216. *C. insignis*; SAVIN (286) p. 256. *C. jacobi* n. sp., Hauterivian, St-Pierre-de-Chérennes, Isère, radioles only; LAMBERT & SAVIN (286) p. 244, pl. vi. *C. aff. jullieni*; CHOFFAT (51) p. 42. *C. laeviuscula*; LEE (178) p. 84; ROTHPLETZ (281) pp. 50, 51. *C. lamberti* n. sp., zones of *Holaster placenta*, & *Echinoconus conicus*, near Sens, Yonne, radioles only; VALETTE (324) p. 22, figg. *C. lardyi*; PARONA (242) p. 66; PERON (248) pp. 365, 369; with note by LAMBERT; SAVIN (286) p. 251, pls. ii, iii; radioles; AIRAGHI (7) p. 85, pl. i. *C. malheiri*; CHOFFAT (50) p. 58. *C. malum*; CHOFFAT (51) p. 9. *C. marginata*; MAIRE (206) p. 225. *C. cf. mespilum*; REDLICH (266) p. 342. *C. monilifera*; MAIRE (206) p. 224. *C. moravica* n. sp., Tithonian of Stramberg; REMEŠ (269) p. 63, pl. vii. *C. muricata*; PARONA (242) p. 66; radioles; AIRAGHI (7) p. 84, pl. i. *C. noyareyensis*; SAVIN (286) p. 241. *C. oosteri*; DOUVILLÉ (83) p. 17. *C. oppeli*; ROTHPLETZ (281) p. 50.
- Cidarid papillata*; KEMP (152) pp. 196, 206; NOBRE (229) p. 134.
- † *Cidarid papillata*; CHECCHIA (48); FAVRE (91) p. 99. *C. peroni*; AIRAGHI (5) p. 47. *C. perornata*; TREACHER (319) p. 156; YOUNG (347) p. 216. *C. platyspina*; MAURY (210) p. 583. *C. poculiformis* nom. nud.; BAKALOW (13). *C. pomeli*, vide sub *C. subularis*. *C. pretiosa*; ROTHPLETZ (281) p. 70; SAVIN (286) p. 248. *C. problematica*; op. cit. p. 241. *C. propinqua*; MAIRE (206) p. 225; ROTHPLETZ (281) p. 50. *C. punctatissima*, radioles descr.; SAVIN (286) p. 249. *C. pustulifera*; ROGERS (279) p. 294. *C. pustulosa*, radiole; SAVIN (286) p. 249, pl. ii. *C. reussi*; PETRASCHECK (254) p. 425. *C. ryzacantha*, radioles descr.; SAVIN (286) p. 254. *C. sabaratensis*; DONCIEUX (81) p. 98; MIQUEL (215) p. 26; variation from type; LAMBERT (171) p. 133. *C. sceptrifera*; TREACHER (319) pp. 156, 158; WHITE (338) pp. 468, 473, 487; YOUNG (347) p. 216. *C. schloenbachi*; MAIRE (206) p. 223. *C. semiaspera*; DOUVILLÉ (83) p. 22. *C. semicostata*; BLASCHKE (32) p. 167. *C. serrifera*; TREACHER (319) p. 156; WHITE (338) p. 470. *C. sorigneti*; TOULA (317) p. 364. *C. spinosa*; AEBERHARDT (1) p. 442. *C. spinulosa*; LISSAJOUS (183) p. 691. *C. stylophora*, & cf.;

- SAVIN (286) p. 255, pl. ii. *C. subcoronata*; BLASCHKE (32) p. 166. *C. subvesiculosa*; SAVIN (286) p. 256. *C. subularis*; DONCIEUX (81) p. 99; MIQUEL (215) pp. 19, 24: comprises plates referred by Cotteau to *C. pomeli*; LAMBERT (171) p. 133. *C. cf. subularis*; MURGOI (223). *C. suevica*; MAIRE (206) p. 225. *C. vafellus*; CHOFFAT (50) p. 61. *C. vesiculosa*; PETRASCHECK (254) p. 425; ROTHPLETZ (281) p. 80. *C. zschokkei*; op. cit. p. 35; THÉVENIN (313) p. 76.
- †*Circopeltis*:—*C. baicherei*; DONCIEUX (81) p. 101. *C. cannati* n. sp., Lower Lutetian, Agel, Hérault; LAMBERT (171) p. 135, pl. v; DONCIEUX (81) p. 101; MIQUEL (215) p. 26. *C. neocomiensis*; CHOFFAT (51) p. 10.
- †*Clitopygus*, diagnosis & *C. grasi*; SAVIN (286) p. 158. *C. gevreyi* n. sp., Valanginian, Malleval, Isère; LAMBERT & SAVIN (286) p. 159, pl. i.
- †*Clypeaster* Lam. 1801, genotype *Echinus rosaceus* Linn. as first limited by Lamarck and not as interpreted by Loven 1887, precedes *Clypeaster* Lam. 1801; LAMBERT (171) p. 142. *C. alticostatus*; AIRAGHI (8) p. 211. *C. altus* var. *portentosus* (q.v.); BATHER (20). *C. biarritzensis*; DOUVILLÉ (83) pp. 17, 27. *C. crassicostatus*; AIRAGHI (5) p. 48; GAÁL (103) pp. 344, 362: incl. *C. rhabdopetalus* Pomel; AIRAGHI (8) p. 210. *C. ellipticus* (p. 213), *C. folium* (p. 214), *C. intermedius* (p. 212); AIRAGHI (8). *C. laganoides*; AIRAGHI (5) p. 49, pl. *C. latirostris* (p. 212), *C. lovisatoi* (p. 214); AIRAGHI (8). *C. portentosus*; BATE (18) p. 324; BELLAMY (28) p. 27: v. et. *altus*. *C. rhabdopetalus*, vide *C. crassicostatus*. *C. sardininiensis*; AIRAGHI (8) p. 213. *C. scutiformis*; MAWSON (211) pp. 414, 479. *C. subfolium* (p. 214), *C. sublaganoides* n. sp., Miocene, Carcare, Piedmont (p. 212); AIRAGHI (8).
- †*Clypeopygus*, diagnosis (p. 165), *C. michelini* & *C. subquadratus* (p. 166); SAVIN (286).
- †*Clypeus*:—*C. altus*; LISSAJOUS (183) p. 695: incl. *C. osterwaldi* Desor; WELSCH (326) p. 947.
- †*Codechinus*, diagnosis (p. 197), *C. rotundus* (p. 198); SAVIN (286).
- †*Codiopsis*, diagnosis; SAVIN (286) p. 192. *C. lorini*; CHOFFAT (51) p. 9; SAVIN (286) p. 193.
- †*Collyrites*, diagnosis; SAVIN (286) p. 141. *C. analis*; LISSAJOUS (183) p. 697. *C. (Spatangus) bicordata*; KILIAN (156) p. 807; MAIRE (206) p. 218; SAVIN (286) p. 142. *C. capistrata*; l. c.: KILIAN (156) p. 792. *C. carinata*, does not incl. specimens referred here by Queenstedt, which are *Cardiopelta*; KILIAN (157). *C. (Dysaster) loryi*; KILIAN (156) p. 807; SAVIN (286) p. 143. *C. ringens*; LISSAJOUS (183) pp. 694, 695; ROTHPLETZ (281) p. 38. *C. verneuili*; CISNEROS (53) p. 299.
- †*Conoclypeus*:—*C. anachoreta*; REDLICH (266) p. 343. *C. caudatus* n. sp., Middle Eocene of Grola and Novale, Italy; AIRAGHI (6) p. 5, pl. i. *C. conoideus*; CISNEROS (54) p. 529; DONCIEUX (81) p. 110; REDLICH (266) p. 343. *C. cf. conoideus*; SCHUBERT (294) p. 280. *C. delanouei*; BALL (14) p. 90. *C. marginatus*; DONCIEUX (81) p. 111; MIQUEL (215) p. 20. *C. plagiosomus*; GAÁL (103) pp. 344, 362: vide etiam sub *Conolampas*. *C. vilanovae*; CISNEROS (54) p. 529.
- †*Conolampas plagiosomus*; AIRAGHI (5) p. 52: vide etiam sub *Conoclypeus*.
- †*Conulus* Leske ex Klein, incl. *Echinites* Leske non Gesner, *Galerites* Lam., and *Echinoconus* d'Orb. ex Breyn. (qq.v.); BATHER (19) p. 146: diagnosis; SAVIN (286) p. 175. *C. castaneus*; l. c.: HITZEL (140). *C. mixtus*; SAVIN (286) p. 177; HITZEL (140): probably syn. of *C. castaneus*; LAMBERT in Review. *C. nuculus* [err. pro *nucula*]; HITZEL (140): SAVIN (286) p. 177.
- †*Coptosoma*:—*C. armatum* n. sp., Eocene, La Antigua Ciudad de Jespú,

- Catalonia; LORIOL (195) p. 120, p. viii. *C. granulare*; DONCIEUX (81) p. 100. *C. pellati*; DOUVILLÉ (83) p. 22. *C. rousseli*; DONCIEUX (81) p. 100. "*C. thevestense* Peron & Gauthier" Gregory (see Zool. Rec. 1898) is *Cyphosoma abbatei*; FOURTAU (98) p. 122.
- †*Corthya* Pomel, merged in *Cardiopelta*; SAVIN (286) p. 146.
- Cottaldia forbesiana* is no *Arbacina*; CHECCHIA (49).
- †*Cyclaster zinae* n. sp., Eocene of Novale, Italy; AIRAGHI (6) p. 8, pl. i.
- †*Cyphosoma* (vide etiam *Phymosoma*):—*C. abbatei*; BEADNELL (22) pp. 19, 21, 26, 32: abnormalities, is neither *Heteractis* nor *Lambertechinus*; FOURTAU (98) p. 121, pl. i: vide Corrigenda. *C. corallare* and *C. koenigi*; YOUNG (347) p. 216. *C. radiatum*; l. c.: vide etiam sub *Gauthieria*. *C. rhenana* Ludw. is *Coptosoma*; LORIOL (195) p. 121.
- Deakia* PAVAY, probably *Macropneustes*; LAMBERT (171) p. 156.
- †*Desorella*, diagnosis, *D. grasi*; SAVIN (286) p. 149.
- Desoria* Gray non Cott., vide sub *Linthia*.
- Diadema*:—†*D. grasi*, vide sub *Polydiadema*. *D. setosum*; PUETTER (263) p. 23.
- †*Diademopsis*, diagnosis; SAVIN (286) p. 221. *D. lamberti* n. sp., Middle Lias, Rocchetta near Arcevia, Italy; AIRAGHI (6) p. 1, pl. i. *D. seriulis*; SAVIN (286) p. 221.
- †*Dictyopleurus haimi*; BEADNELL (24) p. 52.
- †*Diplocidaris*, diagnosis; SAVIN (286) p. 287. *D. etalloni*; MAIRE (206) p. 227: REMEŠ (269) p. 63: SAVIN (286) p. 289. *D. gevreyi*; op. cit. p. 299. *D. gigantea*; MAIRE (206) p. 227: MAURY (210) p. 583: SAVIN (286) p. 288.
- †*Diplodetus recklinghausenensis*, vide sub *Micraster*.
- †*Diplopodia*, diagnosis; SAVIN (286) p. 236. *D. aroviensis*; LORIOL (195) p. 143. *D. brongniarti*; HITZEL (140): SAVIN (286) p. 237. *D. dubia*; op. cit. p. 236. *D. dumasi*; LAMBERT (170) p. 846. *D. variolaris*; SAVIN (286) p. 238.
- †*Disaster* (seu *Dysaster*), diagnosis; SAVIN (286) p. 139. *D. granulosus*; MAIRE (206) p. 219: SAVIN (286) p. 140. *D. (Collyrites) cf. ovalis*; TOULA (318) p. 272. *D. subelongatus*; SAVIN (286) p. 140.
- †*Discoidea* Gray, err. typ., vide *Discoidea*.
- †*Discoidea* Agassiz 1836 (emend *Discoidea* Gray err. typ.) incl. *Discoides* Klein 1734, *Discoides* Parkinson 1811 non Renier 1804, *Echinites* Duncan 1889, *Protocyamus* Greg. 1900; BATHER (19) but see LAMBERT in Review.
- Discoides* Klein, rejected; FOURTAU (97) p. 604.
- †*Discoides* Parkinson non Renier, syn. of *Discoidea*; BATHER (19).
- †*Discoidea* (seu *Discoides*), diagnosis; SAVIN (286) p. 178. *D. conicus*; HITZEL (140): SAVIN (286) p. 179. *D. cylindricus*; op. cit. p. 181. *D. decorata*; l. c.: PAQUIER (238) p. 134. *D. dixoni*; YOUNG (347) p. 216. *D. favrei* (= *favrina*); SAVIN (286) p. 182. *D. rotulus*; op. cit. p. 180: HITZEL (140): SAVIN (286). *D. subucula* preferred to *subuculus*; BATHER (19).
- †*Ditremaster nux*; DOUVILLÉ (83) pp. 22, 28: var. *aegyptiacus* Gauthier [Nov. 1902], preferred to *Opissaster fourtaui* Lambert [Feb. 1902]; FOURTAU (98) p. 134, pl. i.
- Dorocidaris papillata*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 375: vide etiam sub *Cidaris*.
- Dysaster*, vide *Disaster*.
- Echinanthinae*, vide sub *Echinolampidae*.
- †*Echinanthopsis* Mun. Ch. rejected; LAMBERT (171) p. 144.
- Echinanthus* Breynius 1732, and Leske, genotype said to be *E. ovatus* Leske with var. *E. issyaviensis*; LAMBERT (171) p. 142.
- Echinanthus* Gray 1825, and Haime 1853, rejected; LAMBERT (171) p. 143.
- †*Echinanthus*:—*E.* sp. ind.; SCHUBERT (294) p. 280. *E. aremoricus*

- and *E. camerinensis*, vide sub *Pliolampas*. *E. cotteaui*; DONCIEUX (81) p. 109. *E. ibericus* n. sp., Eocene, La Antigua Ciudad de Jespú, Catalonia; LORIOI (195) p. 124, pl. viii: syn. of *Echinolampas morgadesi*; Lambert in Review 1905 and Note 1906. *E. scutella* Cott. non Lam. = *E. arizensis* Cott.: *E. scutella* Lam. is a normal form of the genus: *E. scutella* Leymerie non Lam. = *E. gracilis* Cott.; LAMBERT (171) p. 144. *E. aff. scutella*; SCHUBERT (294) p. 280. *E. subrotundus*; AIRAGHI (6) p. 6, pl. i: DONCIEUX (81) p. 110. *E. subrotundus* Cott., incl. *E. pyrenaicus*, *ataxensis*, *rayssacensis*, *pouechi* pars, *rousseti*, & *heberti*, all of Cotteau; LAMBERT (171) p. 145. *E. tumidus*; REDLICH (266) p. 342. *E. wrighti*; DONCIEUX (81) p. 109; MIQUEL (215) pp. 19, 24.
- Echinavachnius parma*; CLARK (55) p. 8: GREGORY (120): SCHMITT (292) p. 247: distrib.; DOEDERLEIN (79) pp. 382, 391.
- Echinidae* n. g. vide *Notechinus*.
- † *Echinites* Duncan non Müller & Troschel, nec Leske, nec Gesner, vide *Discoidea*.
- † *Echinites* Leske non Gesner, vide *Conulus*. *E. excavatus* Leske, vide sub *Psammecchinus*.
- † *Echinobrissus*, vide etiam *Nucleolites*. *E. atlanticus* n. sp., Upper Cretaceous, Gabun, W. Africa; KOSSMAT (167) p. 585, pl. ii. *E. clunicularis*; LISSAJOUS (183) p. 697. *E. pulvinatus*, probably *Clitopygus*; LAMBERT (172) p. 575. *E. salevensis* n. sp., "calcaire coralligène," Mont Salève, Haute Savoie; LORIOI (195) p. 145, pl. ix: probably *Clitopygus*; LAMBERT in Review. *E. aff. scutatus*; MAIRE (200) p. 221. *E. wultheri*; BEADNELL (22) pp. 19, 27.
- Echinocardium cordatum*; KEMP (152) p. 182: NORDGAARD (230) p. 160: †NEWTON (225): distrib.; DOEDERLEIN (79) p. 384. *E. flavescens*; NORDGAARD (230) p. 160: distrib.; DOEDERLEIN (79) p. 384. *E. pennatifidum*; KEMP (152) pp. 199, 183.
- † *Echinocoenus*, vide etiam *Conulus* et *Galerites*. *E. sp.*; FAVRE (91) p. 100. *E. conicus*, cum var. *tumidus*, et *E. sub-rotundus*; YOUNG (347) p. 216. *E. vulgaris*; GOSSELET (116) p. 20.
- † *Echinocorys* (seu *Ananchytes*), diagnosis, *E. cotteaui*; SAVIN (286) p. 136. *A. ovata*; BALL (14) p. 88; and (15) pp. 30, 32: DEECKE (69) pp. 15, 17: FAVRE (91) p. 101, pl. ii: FLEGEL (94): TOULA (317) p. 362. *E. papillosus*?; ROESSINGER (278) p. 437. *E. scutatus*; TREACHER (319) p. 158: WHITE (338) pp. 468, 470, 472, 473, 476, 487: var. cf. *pyramidatus*; WHITE (338) pp. 472, 473. *E. vulgaris*; BEADNELL (23) p. 668: GOSSELET (116) pp. 20, 21: ROESSINGER (278) p. 437: ROTHFLETZ (281) p. 81. *E. vulgaris* Breynius 1732; SAVIN (286) p. 137. *E. vulgaris* cum varr. *gibbus* et *pyramidatus*; YOUNG (347) pp. 196, 216.
- † *Echinocrinus*, vide *Archaeocidaris*.
- Echinocyamus* vide etiam sub *Fibularia*. † *E. sp.*; MAWSON (211) p. 479. † *E. piriformis*; DOUVILLÉ (83) p. 50. *E. pusillus*; KEMP (152) pp. 182, 199; NOBRE (228) p. 82: NORDGAARD (230) p. 160: distrib.; DOEDERLEIN (79) p. 382. † *E. studeri*; AIRAGHI (5) p. 48. † *E. transylvanicus*; GAÁL (103) pp. 357, 362. † *E. umbonatus*; AIRAGHI (5) p. 48.
- † *Echinolampas*, diagnosis; SAVIN (286) p. 167. *E. africanus*; FORTAU (98) p. 132. *E. anceps* n. sp., Mid. Eocene, Senegal; LAMBERT in CHAUTARD (47) p. 151, pl. v, also p. 145. *E. angulatus*; AIRAGHI (5) p. 52, pl. *E. bredeahensis* n. sp., Miocene, Chah-Bel Balbiah, near Bredeah, Oran; LORIOI (195) p. 135, pl. ix. *E. crameri*; BEADNELL (24) p. 50. *E. ellipsoidalis*; DOUVILLÉ (83) p. 22. *E. goujoni*; LAPPARENT (176): discussed; LAMBERT in CHAUTARD (47) pp. 142, 152. *E. hemisphaericus*; AIRAGHI (5) p. 53, (8) p. 214: CHOFFAT

- (51) p. 14: SAVIN (286) p. 167. *E. inaequiflos* n. sp., Lutetian of Aude & Hérault; LAMBERT (171) p. 152, pl. v: DONCIEUX (81) p. 110: MIQUEL (215) p. 19. *E. suessi*; REDLICH (266) p. 343. *E. leymeriei*; DONCIEUX (81) p. 110: MIQUEL (215) pp. 19, 24. *E. morgadesi*, vide *Echinanthus ibericus*. *E. osiris*; FOURTAU (98) p. 132. *E. perrieri*; CISNEROS (54) p. 530. *E. prunus* n. sp., Eocene of Fumane, Italy; AIRAGHI (6) p. 7, pl. i. *E. scutiformis*; SAVIN (286) p. 168. *E. stu[d]ieri*; CISNEROS (54) p. 529. *E. yoshiwarae* Loriol; YABE (346) p. 290.
- Echinolampidae* [melius *Echinolampadinae*] diagnosed as sub-fam. [sic.] of *Echinobrissidae* with tribes *Faujasinae*, *Echinanthinae*, and *Plesiolampinae* [melius *Plesiolampadinae*], all diagnosed; LAMBERT (171) p. 141.
- Echinometra oblonga*, vide *Mortensenia*, *Echinometra mathaei* (Blainv.) distinct from *E. oblonga*; DOEDERLEIN (78) p. 624.
- Echinometridae* n. g., vide *Mortensenia*.
- †*Echinopsis elegans*; DONCIEUX (81) p. 103: LAMBERT (171) p. 134: MIQUEL (215) p. 19.
- †*Echinospatagus inflatus*, vide *Physaster*.
- Echinothrix turcarum*?; BOUVIER (37).
- Echinus acutus*; HALLEZ (128) p. 1: distrib.; DOEDERLEIN (79) p. 379: cum. varr. *microstoma* et *norvegicus*; KEMP (152) p. 197. *E. affinis*; SCHMIDT (291) p. 24: distrib.; DOEDERLEIN (79) p. 379. *E. alexandri*; SCHMIDT (291) p. 24: distrib.; DOEDERLEIN (79) p. 378. *E. elegans*; NORDGAARD (230) pp. 160, 240: SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 378. *E. esculentus*; HØRRING (142) pp. 185, 189: KEMP (152) pp. 182, 197: NOBRE (229) p. 134: NORDGAARD (230) p. 160: WOODLAND (344): distrib.; DOEDERLEIN (79) p. 379: see further under II, F, viii. *E. fueginus* n. sp.; PHILIPPI (255). *E. gilchristi*, probably syn. of *E. hirsutus*; DOEDERLEIN (79) p. 392. *E. gracilis*; KEMP (152) p. 199. *E. hirsutus* n. sp., 70–500 m., off C. of Good Hope; DOEDERLEIN (78) p. 623, no fig. *E. magellanicus*, vide *Notechinus*. *E. margaritaceus*; HODGSON (141). *E. microtuberculatus*; BAGLIONI (12c): PETER (251): see further under II, F, viii. *E. miliaris*; KEMP (152) pp. 181, 206: WOODLAND (344) p. 321. †*E. miliaris* compared with *E. microtuberculatus*; CHOFFAT (52) p. 748: this not congeneric with *E. esculentus* and *E. melo*, LAMBERT in Review. †*E. neglectus*; NEWTON (225). *E. norvegicus*; NORDGAARD (230) p. 160. *E. sphaera*; COLGAN (61) p. 212. *E. tenuispinus*, measurements; KEMP (152) pp. 183, 197, and fig.
- †*Enallaster*, diagnosis; SAVIN (286) p. 125. *E. couloni*; op. cit. p. 127. *E. criminensis* (p. 42), *E. delgadoi* (pp. 12, 15, 42), *E. lepidus* (p. 30); CHOFFAT (51). *E. oblongus*; SAVIN (286) p. 125. *E. texanus*; STANTON in CRAGIN (64) p. 31.
- †*Eolampas toucasi*; DONCIEUX (81) p. 107.
- †*Eosalenia* n. g. of *Pedininae* with genotype *E. miranda* n. sp., Oxfordian of Joyeuse, Ardèche, holotype in Colln. Gevrey; SAVIN (286) p. 311, pl. ii.
- †*Epiaster*, diagnosis; SAVIN (286) p. 120. *E. catumbellensis*; CHOFFAT (50) p. 58. *E. crassissimus* (p. 120), *E. distinctus* (p. 121); SAVIN (286). *E. herberti*; DE STEFANO (75) pp. 350, 357. *E. polygonus*; SAVIN (286) p. 121. *E. trigonalis* and cf.; HITZEL (140). *E. whitei*; STANTON in CRAGIN (64) p. 31.
- Escheria* Merian non Heer, vide sub *Linthia*.
- †*Euspatangus* preferred to *Eupatagus* and *Brissoides* (q. v.); FOURTAU (97) p. 603. *E. blanckenhorni* (p. 36), *E. cairensis* (p. 52), *E. formosus*? (p. 36); BEADNELL (24). *E. formosus*; SCHUBERT (293) p. 168. *E. libycus*, vide *Perispatangus*. *E. ornatus*; DOUVILLÉ (83) pp. 17, 18,

- 21, 27, 46. *E. aff. veronensis*; SCHUBERT (294) p. 280. *E. ventrosus* n. sp., Eocene, La Antigua Ciudad de Jესpus, Catalonia; LORIOI (195) p. 128, pl. ix.
- Faujasinae*, vide sub *Echinolampidae*.
- †*Fibularia*, Lambert's interpretation of this as = *Echinocyamus*, and vice versa, rejected; LORIOI (195) p. 130: maintained; LAMBERT in Review. *F. voeltzkowi* n. sp., Eocene, Makamby, Madagascar, type at Strassburg; TORNQUIST (316) p. 328, pl. xlvi.
- †*Fibulina* n. g. of *Fibulariidae* with genotype, *F. gracilis* n. sp., Eocene, Makamby, Madagascar,—type at Strassburg; TORNQUIST (316) p. 327, pl. xlvi.
- †*Fourtaunia* and *F. santamariai*, discussed, referred to *Hypsospatangidae*; FOURTAU (97) pp. 608, 613.
- †*Galerites*, vide etiam *Conulus* et *Echinoconus*. *G. cf. abbreviatus*; TOULA (317) p. 362. *G. albogalerus*; TREACHER (319) p. 156: WHITE (338) pp. 468, 470, 476, 487. *G. cf. rhotomagensis*; TOULA (317) p. 362. *G. cf. rotula* and *G. subuculus*; TOULA (318) p. 321.
- †*Galeropygus agariciformis*; THÉVENIN (313) pp. 63, 72.
- †*Gauthieria radiata* (Sorignet sub *Cyphosoma*) test and radioles; VALETTE (324) p. 36, figg.
- †*Glypticus*, diagnosis; SAVIN (286) p. 198. *G. hieroglyphicus*; KILIAN (156) pp. 806, 818: MAIRE (206) p. 231: MAURY (210) p. 583. *G. sulcatus*; MAIRE (206) p. 232: SAVIN (286) p. 199.
- †*Goniopygus*, diagnosis; SAVIN (286) p. 200. *G. delphinensis*; DAVEY (66) p. 33: SAVIN (286) p. 202, pl. i. *G. innesi*; FOURTAU (98) p. 127. *G. lamberti* n. sp., Santonian near Martigues, B. du Rhone, radioles only (p. 307, pl. i), *G. loryi* (p. 203), *G. noguesi* (p. 204); SAVIN (286). *G. peltatus*; op. cit. p. 201, pl. viii: anal plates resemble *Arbacia*; LORIOI (195) p. 137, pl. ix: var. *intracatus*; CHOFFAT (51) pp. 9, 10. *G. peroni*, radioles descr. (p. 127, pl. i), *G. cf. royani* Thomas and Gauthier 1889 is *G. innesi* (p. 127); FOURTAU (98).
- †*Grasia*, diagnosis, *G. elongata*; SAVIN (286) p. 148.
- Gymnechinus gravieri* n. sp., G. of Tadjourah, Red Sea; KOEHLER (161).
- †*Gymnocidaris (Asterocidaris) minor*; KILIAN (156) p. 760.
- †*Helicodiadema fragile*, vide sub *Pseudodiadema*.
- Hemiaster*, diagnosis; SAVIN (286) p. 118. †*H. batnensis*; DE STEFANO (75) pp. 350, 357. †*H. bufo*; SAVIN (286) p. 119. *H. cavernosus*; HODGSON (141). †*H. cf. cenomanensis*; HAYDEN (132) p. 164. *H. expergitus*, S. of Iceland; MORTENSEN (220) p. 243. †*H. forbesi*, figd.; ROGERS (279) p. 324. †*H. fourneti*; FOURTAU (98) p. 129. †“*H. (Periaster) fourtaui*” Mayer-Eymar, vide *Schizaster foveatus*. †*H. gracilis* et aff. *gracilis*; DE STEFANO (75) pp. 350, 357, pl. viii. †*H. minimus*; HITZEL (140) and ? : SAVIN (286) p. 118: *minimus*; YOUNG (347) p. 217. *H. ovatus*; AIRAGHI (8) p. 216. *H. pullus*, vide *Linthia joannisboehmi*. †*H. ricordeaui*, vide sub *Toxaster ricordeaui*. †*H. rouchensis*; BEADNELL (22) pp. 19, 21. *H. scutiger*; CHOFFAT (51) p. 32.
- †*Hemicidaris*, diagnosis; SAVIN (286) p. 214. *H. alpina*; ROTHPLETZ (281) pp. 55, 57. *H. caprensis* n. sp., radioles; AIRAGHI (7) p. 87, pl. i. *H. cayluxensis*; THÉVENIN (313) p. 62. *H. crenularis*; MAIRE (206) p. 228: SAVIN (286) p. 216. *H. gevreyi* n. sp., Bathonian of Andelarre, Hte. Saône; LAMBERT & SAVIN (286) p. 310, pl. ii. *H. gresslyi* (p. 87), *H. icaunensis* (p. 76); THÉVENIN (313). *H. intermedia*; MAIRE (206) p. 228. *H. lorteti* (Cott. sub *Cidaris*) (p. 215), *H. pseudo-hemicidaris* (p. 216); SAVIN (286). *H. ruthenensis*; THÉVENIN (313) p. 76. *H. undulata*; MAIRE (206) p. 229. *H. zequellensis*; PERVINQUIÈRE (250).
- †*Hemidiadema rugosum*; PELLAT (245).

- †*Hemipedina*, diagnosis, *H. gevreyi* n. sp., Hauterivian, Malleval, Isère ; LAMBERT & SAVIN (286) p. 219, pl. iii.
- †*Heteractis*, rejected ; FOURTAU (98) p. 125. *H. heteroporus* ; DONCIEUX (81) p. 100.
- †*Heterocidaris*, diagnosis (p. 223), *H. trigeri* (p. 224, pl. iv) ; SAVIN (286).
- †*Heteroclypus* :—*H. elegans* (p. 216), *H. semiglobus* (p. 214, figg.) ; AIRAGHI (8).
- †*Heterospatangus* n. g. of *Spatangidae prymnodesminae* (*Euspatangidae*), with genotype *Macropneustes lefebvrei* de Lor. (p. 606), *H. gauthieri* n. sp., Mid. Eocene, Mokattam, holotype Mus. Hist. Nat. Paris (p. 607, pl. i) ; FOURTAU (97).
- †*Holaster*, diagnosis ; SAVIN (286) p. 130. *H.* sp. ; FAVRE (91) p. 100. *H. dombensis* ; CHOFFAT (50) pp. 58, 59. *H. grasi* ; SAVIN (286) p. 26. *H. indicus* ; ROGERS (279) p. 326. *H. inflatus* vide *Physaster*. *H. intermedius* ; SAVIN (286) p. 131. *H. laevis* ; HITZEL (140) : JUKES-BROWNE (150) pp. 24, 25 ; ROTHPLETZ (281) pp. 80, 81 ; SAVIN (286) p. 132. *H. latissimus* ; ROTHPLETZ (281) p. 80. *H. nodulosus* ; SAVIN (286) p. 135. *H. perezi* ; op. cit. p. 134 ; HITZEL (140). *H. placenta* ; TREACHER (319) p. 158 ; YOUNG (347) p. 217. *H. planus* ; l. c. *H. prestensis* ; SAYN (287) p. 622 ; in Barremian ; LAMBERT (170) p. 843. *H. subglobosus* ; SAVIN (286) p. 134 ; ROTHPLETZ (281) p. 81. *H. suborbicularis* ; op. cit. p. 80.
- †*Holectypus*, diagnosis ; SAVIN (286) p. 183. *H.* ? sp. ; CRAGIN (64) p. 35. *H. corallinus* ; MAIRE (206) p. 222 ; SAVIN (286) p. 184. *H. depressus* ; op. cit. p. 183 ; LISSAJOUS (183) p. 697 ; MAIRE (206) p. 222. *H. drogiacus* ; l. c. *H. macropygus* ; LAMBERT (170) p. 841 ; SAVIN (286) p. 185 ; SAYN (287) p. 622. *H. neocomiensis* (p. 186), *H. orificiatus* (p. 183) ; SAVIN (286).
- †*Hologlyptus* Pomel, rediagnosed, genotype *Glypticus kaufmanni* Cott. non de Lor. ; *H. douvillei* n. sp., Kimmeridgian, Tatahouine, Tunis ; LAMBERT (172) p. 573, pl. xxii.
- †*Ilyboctypus* :—*H. gibberulus* (p. 697), *H. ovalis* (p. 695) ; LISSAJOUS (183). *H. wrighti* ; MAIRE (206) p. 221.
- Hygrosoma aethiopicum* n. sp., 693-863 m. off E. Africa ; DOEDERLEIN (78) p. 621, no fig.
- Hypsiechinus coronatus* ; DOEDERLEIN (79) p. 378.
- †*Hypsospatangus* (seu *Hypsopatagus*) rediagnosed with fresh genotype *H. ammon*, the original genotype having proved to be a *Trachyspatangus*, perhaps comprises *H. fischeri* (de Lor.) (p. 608), *H.* sp. Gregory (see Zool. Rec. 1898) is a *Plesiospatangus cotteai* (p. 612) ; FOURTAU (97). *H. antiquus* ; DONCIEUX (81) p. 103. *H. hispaniae*, vide *Perispatangus*.
- †*Ilurionia sicardi* n. sp., Lutetian, Caunes (Aude) and Minerve (Hérault) ; LAMBERT (171) p. 148, pl. v ; DONCIEUX (81) p. 108 ; MIQUEL (215) p. 19.
- Infulaster excentricus* ; TREACHER (319) p. 158.
- †*Isaster benguellensis* ; CHOFFAT (50) p. 58.
- †*Iso-pneustes muniti* Seunes, is *Cyclaster* ; AIRAGHI (6) p. 9.
- †*Laganum depressum* ; MAWSON (211) pp. 414, 479.
- †*Lambertechinus* discussed ; FOURTAU (98) p. 126.
- Lamprechinus* n. g. of *Cidaridae* with genotype *L. nitidus* n. sp., 500 m., Agulhas Current ; DOEDERLEIN (78) p. 622, no fig.
- †*Leiopedina tollavignesi* ; SCHUBERT (293) p. 168, & (294) p. 280.
- Linthia* Desor 1853, synn. : *Escheria* Merian 1853 non Heer, *Periaster* d'Orb. 1854, *Desoria* Gray 1855 non Cott., *Protenaster* Pomel 1883, *Tripylus* Pomel 1883 non Philippi, and *Plesiaster* Pomel 1887 non 1883 (see *Pseudobrissus*) : discussed, may prove syn. of *Tripylus* Philippi, species placed in six groups ; LAMBERT (171) p. 154.

- † *Linthia* sp., Nigeria; LAPPARENT (177). *L. arizensis*; DONCIEUX (81) p. 105. *L. atacica* n. sp., Lutetian, Caunettes-Hautes, Aude; LAMBERT (171) p. 158, pl. v: DONCIEUX (81) p. 105. *L. cavernosa*, incl. *L. aschersoni* and *L. esnehensis*; FOURTAU (98) p. 139. *L. ducroqui*; LAPPARENT (176). *L. insignis*; DONCIEUX (81) p. 104: variations in fasciole; LAMBERT (171) p. 156. *L. joannis boehmi* Oppenh. identical with "*Hemiaster pullus* Stol. & H. aff. *cristatus* Stol." of C. Burckhardt, 1901; WILCKENS (341) p. 139. *L. locardi* Tournouer is a *Schizobrissus*; LAMBERT (171) p. 156. *L. orbigny*; DONCIEUX (81) p. 105. *L. rousseli*; l. c.: LAMBERT (171) p. 159: MIQUEL (215) pp. 24, 25. *L. savini*; DONCIEUX (81) p. 105: MIQUEL (215) p. 24. *L. scaraboides*; REDLICH (266) p. 342.
- † *Loriolella* n. g. [? of *Pygasteridae*] with genotype *Cidaris ludovicii* Menegh., Mid Lias; FUCINI (102).
- † *Lovenia lorioli* Cott. is *Hemipatagus*; LAMBERT (173) p. 884. *Lovenidae* [sic] a subfam. of *Prospatangidae*, with tribes *Platybrissinae*, *Hypsopataginae*, *Maretinae*, *Eypataginae*, *Breyninae*; LAMBERT (171) p. 162.
- † *Macropneustes* only represented in Egyptian Eocene by one indeterminable specimen; FOURTAU (97) p. 610. *M. bertrandi* n. sp., Lutetian, Minerve, Hérault; LAMBERT (171) p. 161, pl. v: DONCIEUX (81) p. 104: MIQUEL (215) p. 20. *M. brissoides*?; SCHUBERT (293) p. 168. *M. crassus*, vide *Plagiopneustes*. *M. deshuyesi*; REDLICH (266) p. 343. *M. meneghini*; DOUVILLÉ (83) p. 46. *M. schweinfurthi* Mayer-Eymar is a *Pericosmus spatangoides*; FOURTAU (98) p. 134. *M. similis* Mayer-Eymar, unintelligible; FOURTAU (97) p. 610.
- † *Magnosia*, diagnosis, *M. decoratu* (p. 194), *M. globulus* (p. 195); SAVIN (286). *M. nodulosa*; l. c.: MAIRE (206) p. 232. *M. pulchella*; SAVIN (286) p. 196.
- † *Maretia*:—*M. guebhardi* n. sp., Burdigalian, Gattières Alpes-Maritimes; LAMBERT (173) p. 882, pl. lix. *M. saccoi* n. sp., Miocene, C. Dogana, near S. Maria Tiberina, Umbria; AIRAGHI (5) p. 53, pl.
- † *Megapneustes*, ? prymnadete or prymnodesmian; *M. grandis* holotype is prymnadete, but other specimens are prymnodesmian; *M. lorioli* is prymnadete always; *M. sickenbergi* uncertain; FOURTAU (97) p. 609. *Megapneustidae* n. fam. [?] for *Megapneustes*, *Perispatangus*, *Plagiopneustes*, and *Plagiobrissus*; FOURTAU (97) p. 612. *Mellita pentapora*; CLARK (55) p. 8. *M. testudinata*; GRAVE (119).
- † *Melonites*:—*M. crassus*, *M. multiporus*; ULRICH (321) p. 33.
- † *Mesodiadema*:—*M. lamberti* n. sp., Middle Lias, Rocchetta near Arcevia, Italy (pl. i), *M. marconissae* is Toarcian; AIRAGHI (6) p. 2. *Mesospatangidae*; LAMBERT (171) p. 153: said to be n. subfam. [sic] of *Brissidae*; LAMBERT in Review.
- † *Metaporhinus*, diagnosis; SAVIN (286) p. 137. *M. convexus*; CISNEROS (53) p. 299: REMES (273): SAVIN (286) p. 138. *M. queymardi*; op. cit. p. 139.
- † *Micraster*:—*M. arenatus*; MAURY (210) p. 587. *M. breviporus*; FLEGEL (94) & (95): GOSSELET (116) pp. 18, 20, 42: (?) ROESSINGER (278) p. 437. *M. cf. brevis*; LAMBERT (169) p. 94. *M. coranguinum*; GOSSELET (116) p. 20: LAMBERT (169) pp. 92, 95: WHITE (338) pp. 468, 470, 473 & (?) 472: YOUNG (347) p. 216: young minutely descr.; VALETTE (324) p. 39, figg.: var. *laticor*; WHITE (338) p. 468: var. *rostratus*; YOUNG (347) p. 198. *M. cor-bovis*; TREACHER (319): p. 157: YOUNG (347) p. 217. *M. cortestudinarium*; FLEGEL (94): GOSSELET (116) pp. 18, 20, 21, 42: TREACHER (319) p. 158. *M. decipiens*; GOSSELET (116) p. 18: LAMBERT (169) p. 92. *M. icaunensis*; op. cit. pp. 91, 94. *M. leskei*; l. c.: GOSSELET (116) p. 18: MAURY (210) p. 586: YOUNG (347) p. 217. *M. praecursor*; TREACHER (319)



- p. 158: YOUNG (347) pp. 196, 216: var. *cor-testudinarium*; l. c. *M. recklinghausenensis* (Schlueter sub *Diplodetus*), descr.; WEGNER (333) pp. 123, 125, 150, pl. vii.
- †*Micropsidia*:—*M. gauthieri*; DONCIEUX (81) p. 101. *M. pegoti*; l. c.: MIQUEL (215) pp. 20, 24. *M. savini*; DONCIEUX (81) p. 102.
- †*Micropsina baudouii* is a *Circopeltis*; LAMBERT (171) p. 136.
- †*Micropsis*, diagnosis; SAVIN (286) p. 308. *M. lusseri*; CISNEROS (54) p. 530. *M. savini* n. sp., Santonian near Martigues, B. du Rhone; LAMBERT in SAVIN (286) p. 308, pl. ii. *M. stachei*; SCHUBERT (293) p. 168.
- †*Miotoxaster*, diagnosis; SAVIN (286) p. 128. *M. collegnoi*; l. c.: PELLAT (244 & 245); SAYN (287) p. 622: compared with *Toxaster ricordeaui* (q.v.) and var. *Leymeriei*; LAMBERT (170) p. 846. *M. exilis*; CHOFFAT (51) pp. 27, 30.
- Moera atropos*, see II, F, viii; GRAVE (119).
- †*Monodadema*, discussed; LAMBERT (172) p. 570. *M. cotteaui*; DOUVILLÉ (84); PERVINQUIÈRE (250): structure of ambulacra; LAMBERT (172) p. 571, pl. xxii.
- Mortensenia* n. g., with genotype *Echinometra oblonga* Blainville; DOEDERLEIN (78) p. 623.
- Neospatangidae* [sic], n. subfam. of *Brissidae*, distinguished from *Mesospatangidae*, divided into tribes *Opissasterinae*, *Schizasterinae*, *Prenasterinae*, *Pericosmidae* [sic], *Brissopsinae*, *Macropneustinae*; LAMBERT (171) p. 153.
- †*Noellingia monteili*, provenance; LAPPARENT (176).
- Notechinus* n. g., with genotype *Echinus magellanicus* Philippi; DOEDERLEIN (78) p. 623.
- Nucleolidae*; LAMBERT (171) p. 141: said to be n. subfam. of *Echino-brissidae*; LAMBERT in Review [melius *Nucleolitinae*].
- †*Nucleolites* (vide etiam *Echinobrissus*):—*N. chaperi*, vide sub *Nucleopygus*. *N. grignonensis* vide *Plagiopygus*. *N. cf. olfersi*; TOULA (318) p. 321.
- †*Nucleopygus*, diagnosis (p. 160), *N. chaperi* (Cott. sub *Nucleolites*) (p. 162), *N. roberti* (p. 161); SAVIN (286).
- †*Opissaster* discussed, *O. fourtaui* Lambert [Feb. 1902], considered syn. of *Ditremaster nux*, var. *aegyptiacus* Gauthier [Nov. 1902]; FOURTAU (98) p. 134.
- Orechinus* n. g., with genotype *Trigonocidaris monolini* A. Agass.; DOEDERLEIN (78) p. 622.
- †*Oriolampas* Mun. Ch., olim *Neolampas*, with genotype *Amblypygus michelini* Cott., slight distinction from *Plesiolampas*; LAMBERT (171) p. 149: is syn. of *Plesiolampas*; LAMBERT in Review. *O. michelini*; CISNEROS (54) p. 529; DONCIEUX (81) p. 102; DOUVILLÉ (83) p. 41; LAMBERT (171) p. 150; MIQUEL (215) p. 20. *O. rousseli*; op. cit. p. 24; DONCIEUX (81) p. 107: added notes; LAMBERT (171) p. 151.
- Orthocidarinae*, subfam. suppressed, *Orthocidaris* being a Pedinid allied to *Gymnodiadema*; LAMBERT (171) p. 132.
- †*Orthocidaris*, diagnosis, *O. inermis*; SAVIN (286) p. 218.
- †*Orthopsis*, diagnosis; SAVIN (286) p. 222. *O. sp. ind.*; AIRAGHI (7) p. 90, pl. i. *O. repellini*; CHOFFAT (51) p. 9; SAVIN (286) p. 222.
- †*Palaechinus quadriserialis* J. Wr. holotype was from Ballynabointra, 2½ miles W. of Middleton, Cork; LAMPLUGH (174) p. 29.
- Palaeolampas chuni* n. sp., 371 m. Siberut Str., off Sumatra, no fig., *P. crassa*, *P. sumatrana* n. sp., ibid., no fig.; DOEDERLEIN (78) p. 624.
- Paracentrotus agulhensis* n. sp., 500 m., Agulhas Current; DOEDERLEIN (78) p. 623, no fig. *P. lividus* (vide etiam sub *Strongylocentrotus* et *Toxopneustes*); KIERNIK (154) & (155): see also under II, F, viii,

- var. nov. *diffusa* et *rufocincta*** based on pigment of ovum; GARBOWSKI (107) p. 601, pl. xvii.
- †*Paracidaris* (vide etiam sub *Cidaris*), diagnosis (p. 267), *P. bathonica* (p. 268), *P. blumenbachi* (p. 270), *P. spinulosa* (p. 268), *P. zschokkei* (p. 269); SAVIN (286).
- Parachinus* (vide etiam sub *Echinus* et *Psammechinus*):—*P. microtuberculatus*; KIERNIK (154) & (155): see further under II, F, viii, vide etiam *Psammechinus cupreus*. *P. miliaris* distrib.; DODERLEIN (79) p. 378, see further under II, F, viii.
- †*Parmulechinus* n. g., pro *Stenaster* Lamb. non Bill., q. v.; LAMBERT in Review of LAMBERT (171) p. 63, Jan. 1906.
- †*Pedina*, diagnosis; SAVIN (286) p. 217. *P. gervillei*; MAIRE (206) p. 232. *P. sublaevis*; op. cit. p. 233; SAVIN (286) p. 217.
- Pedininae*, n. g. *Eosalenia* q. v.
- †*Peltastes*, diagnosis; SAVIN (286) p. 207. *P. clathratus*; WOLLEMANN (343). *P. lardyi*; PERON (248) pp. 365, 369, 375; DAVEY (66) p. 32. *P. stellulatus*; l. c.: SAVIN (286) p. 208. *P.*, cf. *stellatus*; PERON (248) p. 369. *P. studeri*; HITZEL (140); SAVIN (286) p. 208. *P. valletti*; op. cit. p. 207. *P. wrighti*; DAVEY (66) p. 31.
- Periaster* d'Orb., vide sub *Linthia*.
- †*Pericosmus*:—*P. nelsoni* M'Coy, probably a *Peribrissus*; LAMBERT (171) p. 158. *P. spatangooides*; FOURTAU (98) p. 133.
- †*Perispatangus* n. s.-g. of *Euspatangus*, with genotype *E. libycus* de Lor., and comprising *Hypsospatangus hispaniae* Lamb.; FOURTAU (97) p. 605.
- Phormosoma adenicum* n. sp., 1469 m., G. of Aden, no fig., *P. indicum* n. sp., 463-977 m. off W. Sumatra and E. Africa, no fig.; DOEDERLEIN (78) p. 621. *P. placenta*; KEMP (152) pp. 197, 183; SCHMIDT (291) p. 23: et var. *sigsbeeii*, distrib.; DOEDERLEIN (79) p. 376.
- †*Phyllobrissus*, diagnosis, with note by LAMBERT; SAVIN (286) p. 163. *P.* sp. non-descr. aff. *gresslyi*; DOUVILLÉ (84). *P. jourdyi* n. sp., Kimmeridgian, Tatahouine, Tunis; LAMBERT (172) p. 574, pl. xxii. *P. kiliani*; PELLAT (245). *P. neocomiensis*; LAMBERT (170) p. 841; SAYN (287) p. 622; SAVIN (286) p. 164. *P. nicoleti* and *P. renaudi*; l. c.
- †*Phymosoma* (vide etiam *Cyphosoma*), diagnosis (p. 204), *P. loryi* (p. 205); SAVIN (286).
- †*Physaster* maintained, *P. inflatus* (d'Orb.) discussed, from Senegal; LAMBERT in PERON (247).
- †*Pithodia* Pomel, genotype *Discoidea cylindrica*; BATHER (19) p. 148.
- †*Plagiochasma grasanus* (d'Orb.) Pomel, made *Clitopygus grasi*; SAVIN (286) p. 159.
- Plagiocidaris*, err. typ. pro *Plegiocidaris*; KILIAN (156).
- †*Plagiopneustes* n. g. of *Spatungidae Prymnodesminae*, with genotype *Macropneustes crassus* Desor; FOURTAU (97) p. 609.
- †*Plagiopygus*, Tertiary spp. usually called *Pygorhynchus*, genotype is *Nucleolites grignonensis* Deff.; LAMBERT (170) p. 843, footnote: LAMBERT (171) p. 146. *P. daradensis* n. sp., Mid. Eocene, Balol, Senegal; LAMBERT in MEUNIER (212) p. 63. *P. gauthieri*; DONCIEUX (81) p. 102; MIQUEL (215) p. 20: n. var. *minor*, Lower Lutetian, Aude; LAMBERT (171) p. 147. *P. savini* (Cott. sub *Pygorhynchus*); op. cit. p. 148; DONCIEUX (81) p. 109; MIQUEL (215) pp. 20, 25.
- †*Plegiocidaris* (vide etiam sub *Cidaris*), diagnosis (p. 257), *P.* sp. non-descr., Upper Aptien, Isère, radiole (p. 267, pl. vii), *P. alpina* (p. 263), *P.* cf. *alpina*, interambulacrals (p. 263, pl. iii), *P. charmassei* (p. 257), *P. coronata* (p. 259); SAVIN (286). *P. cucumifera*; op. cit. p. 257; KILIAN (156) p. 743. *P. falsani*, interambulacrals and radioles (p. 312, pl. vii), *P. friburgensis*, radioles (p. 264, pl. iv); SAVIN (286).

- P. geveyi* n. sp., Hauterivian, St. Pierre-de-Chérennes, Isère, radioles only; LAMBERT & SAVIN (286) p. 265, pl. vi. *P. gibberula* (Ag. sub *Cidaris*), radioles; SAVIN (286) p. 314, pl. iv. *P. glandifera*; op. cit. p. 260: KILIAN (156) pp. 806, 818. *P. laeviuscula* (p. 258), *P. lineolata*, radioles (p. 265, pl. vii), *P. locardi* (p. 258), *P. loryi* (p. 262); SAVIN (286). *P. mattheyi*; KILIAN (156) p. 781. *P. meridamensis*, radiole (p. 262, pl. iv), *P. propinqua* (p. 261), *P. punctata* (p. 266), *P. spinigera*, radioles (p. 266, pl. vii); SAVIN (286). *P. spinulosa* and *P. zschokkei*; KILIAN (156) p. 743.
- Plesgiocidaris*; Lambert in Review of KILIAN (156), Rev. paleozool. x, p. 61: err. typ. pro *Plegiocidaris*.
- Plesiaster* Pomel, vide sub *Linthia* et *Pseudobrissus*.
- Plesiolamp[ad]inae*, vide sub *Echinolampidae*.
- †*Plesiolampas*, distinctness from *Oriolampas* questioned; LAMBERT (171) p. 150.
- †*Plesiospatangus*, the genotype *P. cotteaui* redescr.; FOURTAU (97) p. 611, pl. i.
- Plexechinus hirsutus* n. sp., Denmark Straits, N. Atlantic, 450–1300 fm., *P. nordenskiöldi* n. sp., Shag Rocks Bank, Antarctic, 160 m.; MORTENSEN (220) p. 242, no figg.
- †*Pliolampas*:—*P. aremoricus* (p. 50, pl.), *P. camerinensis* (p. 51); AIRAGHI (5) pl. *P. gourdoni*, syn. of *Echinanthus arizensis* Cott.; LAMBERT (171). *P. silvestrii* n. sp., Miocene, C. Dogana, near S. Maria Tiberina, Umbria (p. 51), *P. vasalli* [= *vassali*] (Wright sub *Pygorhynchus*) (p. 49); AIRAGHI (5) pl. *P. vilanovae*; CISNEROS (54) p. 529.
- Podocidaris prionigera* and *P. scutata*, vide *Pygmaeocidaris*.
- †*Polycidaris*, diagnosis (p. 270), *P. collenoti*, test descr., and *P. legayi* (p. 271); SAVIN (286).
- †*Polydiadema*, diagnosis (p. 232), *P. grasi* (Desor, sub *Diadema*) (p. 233); SAVIN (286). *P. rhodani*; l. c.: HITZEL (140).
- Porocidaris* (vide etiam sub *Cidaris*):—†*P. granulosa*; KILIAN (156) p. 818. *P. purpurata*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 376. †*P. schmideli*; HAWELKA (131) p. 117: SCHUBERT (293) pp. 165, 168. †*P.*, cf. *schmideli*; SCHUBERT (294) p. 280. †*P. serrata*; DOUVILLÉ (83) p. 50.
- †*Porpitella*:—*P. concava*; LAMBERT (171) p. 138. *P. doncieuxi* n. sp., Lower Lutetian, near Saint-Chinian, Hérault; op. cit. p. 136, pl. v: DONCIEUX (81) p. 111: MIQUEL (215) p. 18. *P. fibularoides* distinguished from *P. hayesiani*, probably incl. *Scutellina calvimontana* Cott. (p. 138), *P. porpita*, a fragment figd. by Tournouer is refd. to *Stenaster labriei* (q. v.) (p. 140); LAMBERT (171).
- Powrtalesia jeffreysi*, distrib.; DOEDERLEIN (79) p. 385. *P. miranda*; KEMP (152) p. 206 (?); SCHMIDT (291) p. 24. *P. paradoxa* n. sp., S. of Iceland, 843–912 fm.; MORTENSEN (220) p. 243, no fig. *P. phyle*; KEMP (152) p. 206. *P. wandeli* n. sp., Davis Str., N. Atlantic, 845–1715 fm.; MORTENSEN (220) p. 242, no fig.
- †*Prenaster*:—*P. alpinus*; DONCIEUX (81) p. 106. *P. desori*; CISNEROS (54) p. 529.
- Prionechinus* distinguished from *Arbacia*; CHECCHIA (49).
- Protenaster* Pomel, vide sub *Linthia*.
- †*Protocidaris* sp. radiole; SMYČKA (303) p. 60.
- †*Protocyamus* Gregory, vide *Discoidea*.
- Psammechinus* (vide etiam sub *Echinus*), diagnosis (p. 196), †*P.* sp. (p. 197, pl. viii); SAVIN (286). *P. cupreus*, holotype in Senckenberg Mus. is not syn. of *Notechinus magellanicus*, but appears to be *Parechinus microtuberculatus*; DOEDERLEIN (78) p. 623. †*P. excavatus* (Leske sub *Echinites*); LORIOL (195) p. 131, pl. ix. *P. microtuberculatus*; KRAHELKA (168). †*P. militaris*; CHOFFAT (52).

- †*Psephechinus*, diagnosis, & *P. vacheyi*; SAVIN (286) p. 190, pl. i.
- †*Pseudobrissus* n. g. of *Brissidae*, genotype *Brissus corsicus* Cott., = *Plesiaster* Pomel 1887 pars non 1883; LAMBERT (171).
- †*Pseudocidaris*, diagnosis; SAVIN (286) p. 212. *P. clunifera*; CHOFFAT (51) pp. 9, 10, 11, 21, 36 & (?) pp. 27, 36; PARONA (242) p. 66; TOULA (317) p. 360: radioles; SAVIN (286) p. 213, pl. ii. *P. cf. clunifera*; CISNEROS (53) p. 300: radioles; AIRAGHI (7) p. 88, pl. i. *P. crispicans*, radiole; AIRAGHI (7) p. 89, pl. i. (?) *P. ellenbecki* n. sp., Kimmeridgian, Atschabo, Somaliland, radioles only; DACQUÉ (65) p. 124, pl. xiv. *P. gauthieri* n. sp., Kimmeridgian, Tatahouine, Tunis, radioles previously referred by Gauthier to *Hemicidaris zeyguellensis*; LAMBERT (172) p. 570, pl. xxii. *P. mammosa*; THÉVENIN (313) p. 87. *P. ovifera*; CISNEROS (53) p. 300. *P. quenstedti*; MAIRE (206) p. 228. *P. thurmanni*; CISNEROS (53) p. 300; SAVIN (286) p. 214.
- †*Pseudodiadema*, diagnosis; SAVIN (286) p. 228. *P. areolatum*; ROTHPLETZ (281) p. 50. *P. aroviense*; MAIRE (206) p. 229. *P. brongniarti*; DAVEY (66) p. 34. *P. carthusianum*; SAVIN (286) p. 229. *P. cotteri* n. sp., Aptien, Ribafria, Portugal; LORIOLE (195) p. 136, pl. ix. *P. dupini*; PERON (248) p. 369. *P. duplicatum* (p. 229), *P. florescens* (p. 230); MAIRE (206). *P. (Helcodiadema) fragile*; WHITE (328) pp. 470, 487. *P. cf. guerangeri*; CHOFFAT (51) p. 27. *P. malbosii*; BRIVES (42) p. 87. *P. mamillanum*; MAIRE (206) p. 231. *P. cf. mamillanum*; THÉVENIN (313) p. 87. *P. michelini*; WOLLEMANN (343). *P. picteti*; PERON (248) p. 365. *P. pidanceti*; MAIRE (206) p. 231. *P. priscum*; LEE (178) p. 84. *P. pseudodiadema*; MAIRE (206) p. 230; MAURY (210) p. 583. *P. rotulare*; DAVEY (66) p. 33. *P. scruposum* (pp. 7, 35, 36), *P. sculptile* (pp. 11, 27, 29, 30); CHOFFAT (51). *P. superbium*; AEBERHARDT (1) p. 442. *P. tetragramma*; MAIRE (206) p. 230. *P. ? uniforme* discussed; SAVIN (286) p. 228. *P. variolare*; DAVEY (66) p. 33. *P. wrighti*; LISSAJOUS (183) p. 697.
- †*Pseudosalenia*, diagnosis (p. 211), *P. aspera* (p. 212); SAVIN (286).
- †*Pygaster*, diagnosis & *P. truncatus*; SAVIN (286) p. 187. *P. umbrella*; MAIRE (206) p. 222.
- Pygasteridae*, n. g., vide *Loriolella*.
- Pygaulidae*; LAMBERT (171) p. 141: said to be n. subfam. of *Echino-brissidae*; LAMBERT in Review.
- †*Pygaulus*, diagnosis; SAVIN (286) p. 154. *P. desmoulinsi*; l. c.: LAMBERT (170) p. 841; SAYN (287) p. 622. *P. lamberti* n. sp., Upper Barremian, between Cognin and Malleval, Isère; SAVIN (286) p. 156, pl. i. *P. cf. ovatus* & *P. renevieri*; HITZEL (140).
- Pygmaecidaris* n. g. with genotype *Podocidaris prionigera*, A. Agass. and probably comprising *P. scutata*; DOEDERLEIN (78) p. 621.
- †*Pygorhynchus* Ag. non Auctt., diagnosis; SAVIN (286) p. 169: the genotype is *Catopygus obovatus* and not any Tertiary species, vide *Plagiopygus*; LAMBERT (170) p. 843, footnote, & (171) p. 146. *P. cylindricus*; SAVIN (286) p. 171. *P. delbosii*; DOUVILLÉ (83) p. 22. *P. mayeri*; REDLICH (266) p. 343. *P. nucula* (Desor sub *Botriopygus*); SAVIN (286) p. 169. *P. rostratus* vide sub *Pygurus*. *P. savini* Cott., reft. to *Plagiopygus*; LAMBERT (171) p. 148. *P. sueuri* (Desor sub *Botriopygus*) (p. 171), *P. testudo* (Desor sub *Botriopygus*) & *P. valdensis* (de Lor. sub *Botriopygus*) (p. 170); SAVIN (286).
- †*Pygorhytis*, diagnosis & *P. analis*; SAVIN (286) p. 147.
- †*Pygurus*, diagnosis; SAVIN (286) p. 172. *P. sp.*; CRAGIN (64) p. 36. *P. africanus*; CHOFFAT (50) p. 56. *P. blumenbachi*; THÉVENIN (313) p. 87; MAIRE (206) p. 219. *P. costatus*; op. cit. p. 220. *P. depressus*; LISSAJOUS (183) p. 697. *P. aff. durandi*; PERVINQUIÈRE (250). *P. haussmanni*; MAIRE (206) p. 220. *P. lampas*; PETRASCHECK (254) p. 415. *P. loryi*; SAVIN (286) p. 172. *P. meslei*; DOUVILLÉ (84): added notes, belongs to s.-g. *Mepygurus* Pomel; LAMBERT (172)

- p. 575. *P. michelini*; KILIAN (156) p. 760. *P. montmolini*, descr.; SAVIN (286) p. 173. *P. pentagonalis*; MAIRE (206) p. 220. *P. perreti n. sp.*, Kimmeridgian, Tatahouine, Tunis; LAMBERT (172) p. 575, pl. xxii. *P. rostratus*; CHOFFAT (51) pp. 7, 35, 36; ROTHPLETZ (281) p. 20; SAVIN (286) p. 174; WEGNER (333) pp. 139, 144, 149.
- †*Pyrina*, diagnosis (p. 149), *P. cylindrica* (p. 151); SAVIN (286). *P. icau-nensis*; MAIRE (206) p. 221. *P. incisa*; CHOFFAT (51) p. 9; SAVIN (286) p. 150. *P. pygaea*; op. cit. p. 151; ROLLIER (280). *P. aff. pygaea*; CHOFFAT (51) p. 10. *P. subsphaeroidalis*; SAVIN (286) p. 152.
- †*Rachiosoma*, diagnosis (p. 205), *R. paucituberculatum* (p. 206); SAVIN (286).
- †*Rhabdocidaris* (vide etiam sub *Cidaris*), diagnosis; SAVIN (286) p. 275. *R. sp.* nondescr.; PAQUIER (238) p. 134. *R. (Leiocidaris) abbatei*, radioles descr.; FOURTAU (98) p. 130, pl. i. *R. capelloi*; CHOFFAT (50) pp. 48, 58. *R. caprimontana*; MAIRE (206) p. 226; ROTHPLETZ (281) p. 51; SAVIN (286) p. 278. *R. cf. caprimontana*; KILIAN (156) p. 781. *R. cerioi n. sp.*, radioles; AIRAGHI (7) p. 87, pl. i. *R. copeoides*; MAIRE (206) p. 225; SAVIN (286) p. 278. *R. aff. cortazari*; CHOFFAT (51) p. 42. *R. aff. crassissima*; MAIRE (206) p. 226. *R. delgadoi*; CHOFFAT (51) p. 7. *R. delphinensis n. sp.*, Hauterivian, St Pierre-de-Chérennes, Isère; LAMBERT & SAVIN (286) p. 284, pl. vi. *R. gaillardoti*, radioles descr.; FOURTAU (98) p. 130, pl. i. *R. gevreyi*; SAVIN (286) p. 280. *R. horrida*; LISSAJOUS (183) p. 691; SAVIN (286) p. 277. *R. impar*; l. c. *R. cf. insuetus*; CHOFFAT (51) p. 9. *R. itala*, discussed, not found in Egypt, vide *R. jovis-ammonis*; FOURTAU (98) p. 131. *R. jacobi n. sp.*, Upper Aptian, Le Rimet, Isère; LAMBERT & SAVIN (286) p. 286, pl. viii. *R. jovis-ammonis n. sp.*, based on *R. itala* de Lor. non Laube, Eocene, Syouah, Egypt; FOURTAU (98) p. 132. *R. megalacantha*; MAIRE (206) p. 226. *R. mespilum*; DONCIEUX (81) p. 99; MIQUEL (215) pp. 19, 24. *R. mitrata*; MAIRE (206) p. 225. *R. moreaui*; SAVIN (286) p. 276. *R. nobilis*; op. cit. p. 279; MAURY (210) p. 583. *R. orbignyana*; MAIRE (206) p. 226; THÉVENIN (313) p. 87. *R. pavimentatus* and *R. petitclerci*; SAVIN (286) p. 281. *R. pouechi*; DONCIEUX (81) p. 99; MIQUEL (215) p. 24. *R. salvae*; SAVIN (286) p. 281. *R. subserrata*; DONCIEUX (81) p. 100; MIQUEL (215) p. 24. *R. aff. thurmanni*; MAIRE (206) p. 226. *R. tuberosa*; CHOFFAT (51) pp. 7, 35; PARONA (242) p. 66; radioles; AIRAGHI (7) p. 86, pl. i; SAVIN (286) pp. 282, pl. vii.
- †*Rhabdopleurus ataxensis*; DONCIEUX (81) p. 103.
- †*Rhynchopygus abundans*; BALL (15) p. 30.
- †*Rotuloidea fimbriata* allied to *Heliophora*; LAMBERT in BOISTEL (35) p. 205.
- Salenia*, diagnosis, and †*S. depressa*; SAVIN (286) p. 209. †*S. dombensis*; CHOFFAT (50) p. 56. †*S. folium-querci*; PERON (248) p. 365. †*S. garumnensis n. sp.*, Lower Danian of Tuco, Hte. Garonne; VALETTE (324) p. 27, figg. †*S. geometrica*; YOUNG (337) p. 216. †*S. grasi*; SAVIN (286) p. 210. *S. hastigera*; RICHARD (276) p. 3. †*S. incrustata* Cott. distinguished from *S. granulosa* Forbes; VALETTE (324) p. 24. †*S. prestensis*; AIRAGHI (7) p. 89, pl. i; PARONA (242) p. 66; SAVIN (286) p. 210.
- †*Salenidia gauthieri n. sp.*, *Marsupites* zone, Saint-Martin-du-Terte, near Sens, Yonne; VALETTE (324) p. 30, figg.
- Schizaster*:—†*S. aff. africanus*; BEADNELL (24) p. 52. †*S. airaghi*; AIRAGHI (6) p. 10. †*S. ataxensis*; DONCIEUX (81) p. 106. †*S. batheri n. sp.*, Mid. Eocene, Pyramides de Ghizeh; FOURTAU (98) p. 135, pl. i. †*S. canaliferus*; BASSANI (16). †*S. catalaunicus n. sp.*, Eocene, La Antigua Ciudad de Jéspus, Catalonia; LORLIOL (195) p. 126, pl. ix.

- †*S. foveatus* incl. *Hemiaster fourtaui* Mayer-Eymar; FOURTAU (98) p. 137. *S. fragilis*; NORDGAARD (230) p. 160: distrib.; DOEDERLEIN (79) p. 385. †*S. globulus* (?); SCHUBERT (293) p. 168. †*S. aff. globulus*; SCHUBERT (294) p. 280. †*S. howa* n. sp., Eocene, Makamby, Madagascar, type at Strassburg; TORNGUIST (316) p. 329, pl. xlv. †*S. jeani* n. sp., Lutetian, Vallée de la Valette, near Aragon, Aude; LAMBERT (171) p. 159, pl. v: DONCIEUX (81) p. 106. †*S. karreri*; GAÁL (103) pp. 344, 362. †*S. mirabilis* n. sp., Mid. Eocene, Novale, Italy; ATRAGHI (6) p. 9, pl. i. †*S. obesus*; DONCIEUX (81) p. 106. †*S. rotundatus*; CLARKE (56) p. 415: (?) PARK (241) p. 521. †*S. rousseti*; DONCIEUX (81) p. 106: MIQUEL (215) p. 20. †*S. santamariai*, young; FOURTAU (98) p. 137, pl. i. †*S. scillae*; ATRAGHI (8) p. 216. †*S. studei*; ATRAGHI (6) p. 10. †*S. zitteli*, incl. *S. mokattamensis* as var., and *S. rohlfsi* as syn.; FOURTAU (98) p. 138.
- †*Schizobrissus* Pomel, genotype *Brissus cruciatus* Ag., distinguished from *Deukia*, comprises *Linthia locardi* Tournouer; LAMBERT (171) p. 156.
- †*Scutella*:—*S. germanica* Beyr., as figd. by Noetling under *Echinarachnius* comprises two spp., of which the true one is referred to *Stenaster* Lamb.; LAMBERT (171) p. 138. *S. subtetragona*; DOUVILLÉ (83) pp. 17, 18, 27. *S. vindobonensis*; GAÁL (103) pp. 344, 362.
- †*Scutellidae*, n. g. vide *Stenaster*.
- †*Scutellina*:—*S. concava* Gauth., referred to *Porpitella*; LAMBERT (171) p. 138. *S. fibularioides*, vide sub *Porpitella*. *S. patella*; MULDER (222). *S. supera*, vide sub *Porpitella*.
- †*Scutulum* Tournouer, refd. to *Dendrasteridae*; LAMBERT (171) p. 140.
- †*Spaniocyphus*, diagnosis, and *S. theveneti*; SAVIN (286) p. 191.
- Spatangidae*, n. gg. *Plagiopneustes*, *Heterospatangus*, n. s-g. *Perispatangus* (qq. v).
- Spatangus*:—†*S. cf. austriacus*; GAÁL (103) pp. 344, 362. *S. capensis* n. sp., 70–106 m. off Cape Colony; DOEDERLEIN (78) p. 624, no fig. †*S. delphinus* Defr., probably *Brissoides*; LAMBERT (173) p. 883. *S. purpureus*; HØRRING (142) p. 189: KEMP (152) pp. 182, 199, 206: NORDGAARD (230) pp. 160, 235: †BASSANI (16): distrib.; DOEDERLEIN (79) p. 383. *S. raschi*, id.; l. c.: KEMP (152) p. 199.
- Sperosoma durum* n. sp., 1644 m. off E. Africa; DOEDERLEIN (78) p. 621, no fig. *S. grimaldii*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 377.
- Sphaerechinus granularis*, see under II, c, vii & II, F, viii.
- †*Stenaster* n. g. [nom. preocc. E. Billings pro *Ast.*, vide *Purmulechinus*] of *Scutellidae*?, with genotype *S. labriei* n. sp., Stampian of Espiet, Giroude, colln. Lambert, comprises also *Scutella germanica*; LAMBERT (171) p. 140.
- Stereocidaris*:—†*S. hannoverana*, measurements; WOLLEMAN (343). *S. ingolfiana*; SCHMIDT (291) p. 23: distrib.; DOEDERLEIN (79) p. 376. †*S. malum*; PAQUIER (238) p. 134.
- †*Stigmatopygus malheiroi*; CHOFFAT (50) p. 59.
- †*Stomechinus*, diagnosis; SAVIN (286) p. 188. *S. bigranularis*; l. c.: THÉVENIN (313) p. 76. *S. denudatus*; SAVIN (286) p. 189. *S. aff. gauthieri*; KILIAN (156) p. 743. *S. gyratus*; MAIRE (206) p. 233. *S. cf. laevis*; KILIAN (156) p. 743. *S. perlatus*; MAIRE (206) p. 233: added notes, LORIO (195) p. 144.
- †*Striecthinus pouechi* is a *Circopectis*; LAMBERT (171) p. 136.
- Strongylocentrotus* (vide etiam sub *Paracentrotus*):—*S. droebachiensis*; CLARK (55) p. 7: HØRRING (142) pp. 185, 189: NORDGAARD (230) pp. 160, 235: SCHMIDT (291) pp. 18, 19: SCHMITT (292) p. 247: distrib.; DOEDERLEIN (79) p. 380. *S. franciscanus*; op. cit. p. 382: LOEB (190). *S. gibbosus*; ORTMANN (234) p. 697. *S. lividus*; KEMP (152) p. 182: PIZON (257): RUSSO (283) p. 7, fig.: †CHOFFAT (52)

- p. 749 : see also under II, C, vii & II, F, viii. *S. purpuratus*; DOEDERLEIN (79) p. 382 : see also under II, F, viii.
- †*Tetragramma variolare*; FAVRE (91) p. 99.
- †*Thagastea*, link betw. *Fibularia* and *Fibulina*; TORNQUIST (316) p. 328.
- †*Thylechinus atacicus*; DONCIEUX (81) p. 102.
- †*Tiaromma*, diagnosis (p. 230), *T. rotulare* (p. 231); SAVIN (286).
- †*Toxaster*, diagnosis; SAVIN (286) p. 122: *T. africanus*; BRIVES (42) pp. 85, 87. *T. amplus*; LAMBERT (170) p. 846. *T. broncoensis*; CHOFFAT (51) p. 29. *T. collegnii* (incl. *T. brunneri*); PANNEKOEK (237) p. 5. *T. complanatus* (= *T. retusus*); SAYN (286A). *T. cf. complanatus*; TOULA (317) p. 341. *T. gibbus*; SAVIN (286) p. 123. *T. granosus* et cf. *granosus*, compared with *T. ricordeaui* (p. 845), *T. lorioli* Lambert not to be separated from *T. ricordeaui* (p. 844, footnote); LAMBERT (170). *T. radula* Gauth., refd. to *Hypsaster*; LAMBERT in SAVIN (286) p. 129. *T. retusus*; LAMBERT (170) p. 846; SAVIN (286) p. 123: *T. ribamarensis* n. sp., Urganian, Barremian, Ribamar, in Ériceira, Portugal; LORIOU (195) p. 138, pl. x: and in CHOFFAT (51) p. 27. *T. ricordeanus* seu *ricordeaui*; PERON (248) p. 365: SAYN (287) p. 622: HITZEL (140): cannot be this sp., does author mean *Hemaster ricordeaui*?; LAMBERT in Review: variations resembling *Miotoxaster collegnoi*; LAMBERT (170) p. 843. *T. cf. ricordeaui* [sic]; SAVIN (286) p. 122. *T. subcylindricus*; op. cit. p. 124.
- Toxopneustes lividus*; LOISEL (194): vide etiam sub *Paracentrotus* et *Strongylocentrotus*.
- †*Trachyaster heberti*; CISNEROS (54) p. 529.
- †*Trachypatagus meneghini*; SCHUBERT (293) p. 168.
- †*Trematopygus*, diagnosis; SAVIN (286) p. 156. *T. davidsoni*; DAVEY (66) p. 34. *T. grasanus* d'Orb., made *Clitopygus grasi*; SAVIN (286) p. 158. *T. lorioli* n. sp., Upper Aptian, La Fa, Isère; LAMBERT & SAVIN (286) p. 157, pl. i.
- †*Triplacidia vidali* n. sp., Eocene, La Antigua Ciudad de Jespus, Catalonia; LORIOU (195) p. 122, pl. viii.
- Tripylus*, vide sub *Linthia*.
- †*Trochotiara*, diagnosis (p. 234), *T. depressum* (p. 235); SAVIN (286).
- Tromikosoma koehleri*; DOEDERLEIN (79) p. 377.
- †*Tylocidaris*, diagnosis; SAVIN (286) p. 239. *T. sorigneti*; l. c.: HITZEL (140).
- †*Typocidaris*, diagnosis, and *T. matum*, incl. radioles known as *Cidaris heteracantha* (p. 272), *T. marginata* (p. 275); SAVIN (286). *T. vesiculosa*; HITZEL (140).
- Urechinus drygulskii* n. sp., near Antarctic Continent, 3423 m. (p. 241, no fig.), *U. naresianus*, S. of Iceland (p. 243); MORTENSEN (220).
- †*Zeuglopleurus pusillus*; WEGNER (333) pp. 126, 149.

## (D).—ASTEROIDEA.

- Acanthaster echinites*; LUDWIG (197) p. 215.
- Albatrossia* n. g. of *Porcellanasteridae* [nom. preocc. Jordan & Evermann, 1898, pro *Piscibus*] with genotype *A. semimarginalis* n. sp., Cocos Id., 1408-2149 m.; LUDWIG (197) p. 97, pl. vi.
- Alexandraster* n. g. of *Echinasteridae*, with genotype *A. mirus* n. sp., G. of Panama, Galapagos, 702-837 m.; LUDWIG (197) p. 210, pls. xv, xxxi, xxxii.
- Archaster typicus*, young; LUDWIG (197) p. 53, pl. xxi.
- †*Arthraster dixonii*; SPENCER (305) pl. xviii.
- †*Asteracanthion lincki*, determined by A. E. VERRILL; SEARS (297) pp. 369, 370, fig. 202: vide etiam sub *Asterias*.

- Asterias aurantiaca*; COLGAN (61) p. 212: vide etiam sub *Astropecten*.  
*A. austera*; CLARK (55) p. 3. *A. brandti*; HODGSON (141). *A. calamaris* (p. 251), *A. capensis* (p. 252); BELL (26). *A. forbesi*; CLARK (55) p. 4. *A. glacialis*; BELL (26) p. 252; KEMP (152) p. 179; NOBRE (228) p. 82 and (229) p. 133; NORDGAARD (230) p. 160; PIETSCHMANN (256): see also II, c, vii. †*A. impressae*; HUCKE (143) p. 166 and fig. †*A. jurensis*; AEBERHARDT (1) p. 442. *A. lincki*; NORDGAARD (230) p. 160: vide etiam sub *Asteracanthion*. *A. littoralis*; CLARK (55) p. 4. *A. muelleri*; NORDGAARD (230) pp. 160, 235; SCHMIDT (291) p. 18. *A. rubens*; BOLAU (36); HØRRING (142) pp. 185, 188; KEMP (152) pp. 180, 192; NOBRE (228) p. 82; NORDGAARD (230) pp. 160, 232, 235; PETERSEN (253): vide etiam sub *Uraster*. †*A. stellionura*, determined by A. E. VERRILL; SEARS (297) pp. 369, 370. *A. tenera*; CLARK (55) p. 4. *A. volsellata*; BELL (26) p. 252. *A. vulgaris*; CLARK (55) p. 4; GARREY (108); SCHMITT (292) p. 246.
- Asterina cepheus* juv.; LUDWIG (197) p. 157. *A. coccinea*; BELL (26) p. 248. *A. fimbriata*, distrib., young; LUDWIG (199) p. 59, pls. v, vi. *A. gibbosa*; KEMP (152) p. 179; NOBRE (228) p. 82, & (229) p. 133.
- Asterodon grayi*, vide *Odontaster penicillatus*. *A. pedicellaris*, vide *Odontaster grayi*. *A. singularis*; LUDWIG (199) p. 40, pl. v.
- Astrogonium* Perrier non Müller & Troschel, syn. of *Pararchaster*; FISHER (92) p. 303. *A. boreale* Barrett, vide *Pentagonaster*.
- Astropectinidae* n. g., see *Parastropecten*.
- Astropecten* rediagnosed; SPENCER (305) p. 90. †*A.* sp.; BENECKE (29) pp. 75, 451: Upper Greensand; SPENCER (305) p. 90, pl. xxv. *A. aurantiacus*; PIETSCHMANN (256): vide etiam sub *Asterias*. *A. benthophilus* n. sp., Cocos Id., 1408 m.; LUDWIG (197) p. 69, pl. iv. *A. capensis*; BELL (26) p. 244. *A. exiguus* n. sp., G. of Panama, 232-2136? m.; LUDWIG (197) p. 72, pls. iv, xxii. *A. irregularis*; KEMP (152) pp. 179, 188, 205; NOBRE (229) p. 132; NORDGAARD (230) p. 160. *A. muelleri*; SCHMIDT (291) p. 21. *A. pentacanthus*; PIETSCHMANN (256). *A. polyacanthus*; LUDWIG (197) p. 76. *A. pontoporaeus*; BELL (26) p. 243. *A. subinermis*; NOBRE (229) p. 133. *A. sulcatus* n. sp., C. San Francisco and Cocos Id., 95-121 m.; LUDWIG (197) p. 64, pl. iv. †*A. wilckensis* [sic] n. sp., Cretaceous, Cerro Cazador, Patagonia; LORIOI (195) p. 141, pl. x.
- Bathybiaster pallidus*; SCHMIDT (291) p. 20. *B. pectinatus* n. sp., off San Diego, Cal., 1,059 fm.; FISHER (92) p. 295, no fig.
- Benthopecten acanthonotus* n. sp., off San Diego, Cal., 1059 fm.; FISHER (92) p. 299, no fig.
- Brisanga* sp.; KEMP (152) p. 192. *B. coronata*; l. c. and p. 205; NORDGAARD (230) pp. 160, 241. *B. endecacnemus*; KEMP (152) p. 192. *B. exilis* n. sp., off San Diego, Cal., 620 fm.; FISHER (92) p. 318, no fig. *B. panamensis* n. sp., Cocos Id., Galapagos, G. of Panama, G. of California, 1820-2418 m. (p. 258, pls. xxviii, xxxii), *B. tenella* n. sp., Galapagos, 2418 m. (p. 255), *B. variispina* n. sp., Paumotu Is., 1470 m. (p. 249); LUDWIG (197).
- Calliaster baccatus*; BELL (26) p. 247.
- †*Calliderma mosaicum*; SPENCER (305) pl. xxvi.
- Cheiraster agassizii* n. sp., G. of Panama, Galapagos Is., and G. of California, 1271-2323 m.; LUDWIG (197) p. 1, pls. i, ii, xvi.
- †*Comptonia* rediagnosed and *C. comptoni*, redescr. (p. 69, pls. xvii, xviii), *C. elegans*, redescr. from neotype (p. 71, pl. xvii); SPENCER (305).
- Cosmasterias lurida*, distrib.; LUDWIG (199) p. 69.
- Cribrella gracilis* n. sp., Tres Marias Id., C. Corrientes Mexico, and Galapagos, 267-1244 m.; LUDWIG (197) p. 204, pls. xiii, xxx, xxxi.



- C. pagenstecheri*, distrib., notes; LUDWIG (199) p. 68. *C. pectinata*; CLARK (55) p. 3. *C. nana* n. sp., Galapagos, 97 m.; LUDWIG (197) p. 207, pls. xiii, xxxi. *C. sanguinolenta*; CLARK (55) p. 3; HØRRING (142) pp. 185, 188; NORDGAARD (230) p. 160; SCHMIDT (291) pp. 19, 20: vide etiam sub *Henricia*.
- Crossaster papposus*; CLARK (55) p. 2; SCHMITT (292) p. 246: vide etiam sub *Solaster*.
- Cryptopeltaster* n. g. of *Goniasteridae Hippasteriinae*, with genotype *C. lepidonotus* n. sp., off Sta. Cruz Id. Cal., 197–284 fm.; FISHER (92) p. 311, no fig.
- Ctenodiscus crispatus*; CLARK (55) p. 1; NORDGAARD (230) pp. 160, 235, 241; SCHMIDT (291) pp. 18, 19: incl. *C. procurator* Slad. and *C. corniculatus* Michailovskij, distinct fr. *C. australis*; LUDWIG (197) p. 164, pl. vi.
- Culcita novae-guineae*; LUDWIG (197) p. 156. *C. veneris*; BELL (26) p. 248.
- Cycethra verrucosa*; HODGSON (141): incl. *C. nitida*, *C. simplex*, resemblance of young to *Asterina*; LUDWIG (199) p. 53, pl. vi.
- Dipsacaster eximius* n. sp., Los Coronados Is., S.W. Cal., 525 fm.; FISHER (92) p. 296, no fig.: *D. sladeni*, parasitic cirripede; LE ROI (182).
- Dytaster demonstrans* n. sp., G. of Panama, 2418–4082 m.; LUDWIG (197) p. 41, pls. v, xviii, xix, xx. *D. gilberti* n. sp., off San Diego, Cal., 2196–2228 fm.; FISHER (92) p. 300, no fig.
- Echinaster* sp.; BELL (26) p. 252. *E. fallax*, parasitic cirripede; LE ROI (182).
- Echinasteridae* n. g. see *Alexandra*ster.
- Eremicaster* n. s.-g. of *Porcellanaster*, with genotype *P. tenebrarius* (q.v.); FISHER (92) p. 293.
- Freyella* sp. nondescr. aff. *F. elegans*; SCHMIDT (291) p. 24. *F. fecunda* n. sp., Monterey Bay, Cal., 958 fm.; FISHER (92) p. 319, no fig. *F. insignis* n. sp., G. of Panama, Acapulco, 3182–3436 m. (p. 272, pl. xxxii), *F. pacifica* n. sp., Paumotu Is., 1485 m. (p. 267), *F. propinqua* n. sp., G. of Panama, 2877 m. (p. 280); LUDWIG (197).
- Ganeriidae*, i.e. *Ganeria*, *Cycethra*, *Lebrunaster*, *Radiaster*, not to be separated from *Asterinidae*; LUDWIG (199) p. 59.
- Gnathaster pilulatus*, vide *Odontaster penicillatus*.
- Goniaster acutus* Heller; GRIEG (121) p. 3. *G. nidarosiensis*, vide *Peltaster*. *G. phrygianus*; SCHMIDT (291) p. 21. *G. placentaeformis* Heller; GRIEG (121) p. 3.
- Goniasteridae* n. g. *Cryptopeltaster* (q.v.); FISHER (92).
- Gymnasteria carinifera*, added notes; LUDWIG (197) p. 156, pl. xii.
- Henricia ornata* incl. *H. simplex* (Slad.); BELL (26) p. 250. *H. sanguinolenta*; KEMP (152) pp. 179, 191, 205; NOBRE (229) p. 133: vide etiam sub *Cribrella*.
- Hippasteria* (seu *-ias*) *californica* n. sp., off Sta. Cruz Id., Cal., 506–680 fm. (p. 310, no fig.), *H. heathi* n. sp., Clarence Str., Alaska, 206–248 fm. (p. 309, no fig.); FISHER (92). *H. pacifica* n. sp., Las Tres Marias Id., 1244 m.; LUDWIG (197) p. 138, pls. xii, xxiii. *H. phrygiana*; CLARK (55) p. 1; GRIEG (121) p. 4; NORDGAARD (230) pp. 160, 235.
- Hydrasterias* (?) sp., arms of an undescribed sp., Galapagos (p. 246, pl. xxxv), *H. diomedea* n. sp., G. of Panama, Cocos Id., 121–155 m. (p. 242, pls. xxxiv, xxxv); LUDWIG (197).
- Hymenaster* sp.; BELL (26) p. 250; LUDWIG (197) p. 202. *H. gracilis* n. sp., G. of Panama, Galapagos, 2418–3241 m.; op. cit. p. 198, pls. xv, xxxv. *H. pellucidus*; SCHMIDT (291) p. 20. *H. platycanthus* n. sp., Galapagos, G. of Panama, 2487–2877 m. (p. 191, pl. xxxv), *H. purpureus* n. sp., G. of Panama, 2690 m. (p. 194); LUDWIG (197). *H. quadrispinosus* n. sp., off San Diego, Cal., 1059 fm.; FISHER (92)

- p. 315, no fig. *H. violaceus* n. sp., Acapulco, 3436 m.; LUDWIG (197) p. 196.
- Hypalaster moseri* n. sp., N. of Marquesas, 4504 m.; LUDWIG (197) p. 100, pl. vii.
- Isaster* Verrill, perhaps to be used for s.-g. of *Mediaster*; FISHER (92) p. 308.
- Labidiaster radiosus*, distrib., arm-skeleton; LUDWIG (199) p. 71.
- Leptoptychaster arcticus*; NORDGAARD (230) p. 160. *L. kerguelensis*; BELL (26) p. 242.
- Linckia miliaris* (p. 157), *L. multifora* & *L. pacifica* var. *diplax* (p. 158); LUDWIG (197).
- Lophaster furcilliger* n. sp., between Sta. Barbara & San Nicholas Is., Cal., 1084-1100 fm.; FISHER (92) p. 312, no fig.
- Luidia africana*; BELL (26) p. 245. *L. armata* n. sp., Cocos Id. & G. of Panama, 95-155 m.; LUDWIG (197) p. 85. *L. ciliaris*; KEMP (152) p. 189. *L. ferruginea* n. sp., G. of Panama, 280 m.; LUDWIG (197) p. 80. *L. sarsi*; KEMP (152) pp. 189, 205.
- Mediaster* referred to *Pentagonasteridae* (p. 106), *M. elegans* n. sp., Cocos Id., 1789 m. (p. 125, pls. ix, xxiv): n. var. *abyssi*, Malpelo Id., 3334 m. (p. 128); LUDWIG (197). *M. tenellus* n. sp., off Sta. Cruz Id., Cal., 376-510 fm., perhaps in s.-g. *Isaster*; FISHER (92) p. 307, no fig.
- M. transfuga* n. sp., Acapulco, 902 m.; LUDWIG (197) p. 120, pls. viii, xxii, xxv.
- †*Metopaster*:—*M. mantelli*; SPENCER (305) pl. xvii. *M. parkinsoni*; op. cit. pl. xix; WHITE (338) pp. 472, 487.
- Mimaster swifti* n. sp., Stephen's Passage, Alaska, 131-188 fm.; FISHER (92) p. 301, no fig. *M. tizardi*; SCHMIDT (291) p. 22.
- Mithrodia claviger*a, anat. notes; LUDWIG (197) p. 215.
- †*Mitraster compactus*, redescr.; SPENCER (305) p. 67, pls. xvii, xxvi.
- Myxoderma* n. s.-g. of *Zoroaster*, with genotype *Z. sacculatus* (q.v.); FISHER (92) p. 316.
- Neomorphaster talismani*, 5413 m.; RICHARD (276) p. 3: ALBERT (9).
- Nymphaster* referred to *Pentagonasteridae*; LUDWIG (197) p. 106. †*N. coombii*; SPENCER (305) pl. xix. *N. diomedea* n. sp., Galapagos, Cocos Id., Mariato Pt., 702-1618 m.; LUDWIG (197) p. 128, pls. x, xi.
- †*N. radiatus* n. sp., Lower Chalk, England; SPENCER (305) p. 73, pl. xxv. *N. subspinosus*; KEMP (152) p. 189.
- Odontaster*, connotation discussed; LUDWIG (199) p. 42. *O. crassus* n. sp., off San Diego, Cal., 92 fm.; FISHER (92) p. 302, no fig. *O. grayi* (Bell) incl. *Pentagonaster paxillosus* Bell, *Asterodon pedicellaris* Perr., distrib., young; LUDWIG (199) pp. 42, 48, pl. v. *O. meridionalis*, vide *O. penicillatus*. *O. penicillatus* incl. *Gnathaster pilulatus* Slad., *Asterodon grayi* Perr., *Odontaster meridionalis* Leip., distrib., young; LUDWIG (199) pp. 42, 46, pl. v.
- Ophidiaster cylindricus*; LUDWIG (197) p. 158.
- Oreaster*, vide *Pentaceros*. †*O. bulbiferus*; WHITE (338) p. 476.
- Palmipes membranaceus*; PIETSCHMANN (256). *P. novemradiatus* n. sp., holotype from C. Natal, 48 fm., 3 paratypes other locc.; BELL (26) p. 248. *P. placenta*; KEMP (152) p. 190.
- Pararchaster cognatus* n. sp., 3058 m., G. of Panama; LUDWIG (197) p. 21, pl. xix. *P.* sp. nondescr. aff. *P. fischeri*; SCHMIDT (291) p. 24.
- P. pectinifer* n. sp., 1618 m., Galapagos Is. (p. 10) young (p. 16) (pls. i, xvi, xvii, xviii), *P. spinuliger* n. sp., 1618-2323 m., G. of Panama, Cocos & Galapagos Is. (p. 23, pl. xix); LUDWIG (197).
- Parastropecten* n. g. of *Astropectinidae* with genotype *P. inermis* n. sp., G. of Panama & Cocos Id., 1271-1408 m.; LUDWIG (197) p. 76, pls. iv, xxi, xxii.
- Paulia horrida* redescr., with n. var. *galapagensis*; LUDWIG (197) p. 143, pls. xiii, xxiv, xxv.

- Pauliella* n. g. of *Pentacerotidae* with genotype *P. aenigma* n. sp., Cocos Id., 121 m., perhaps is young of *Paulia horrida*; LUDWIG (197) p. 151, pls. xii, xxiii, xxiv, xxv, xxvi.
- Pedicellaster improvisus* n. sp., Galapagos & Cocos Id., 1618-2419 m.; LUDWIG (197) p. 216, pl. xxxv. *P. typicus*; NORDGAARD (230) p. 160.
- Peltaster hebes* Verrill is syn. of *P. nidarosiensis* (Storm sub *Goniaster*) redescr. and figd., which thus becomes genotype; GRIEG (121) p. 5.
- †*Pentaceros* rediagnosed, incl. *Oreaster* (q.v.) (p. 76), *P. sp.*, Chalk (p. 89, pl. xxv), *P. abbreviatus* n. sp., Upper Chalk, Charlton, Kent (p. 86, pl. xxiv), *P. bispinosus* n. sp., Upper Chalk, Sittingbourne, Kent (p. 87, pl. xxiii), *P. boysii*, redescr., probably incl. *P. senonensis*, Valette (p. 80, pls. xxii, xxiii, xxvi), *P. bulbiferus*, redescr. (p. 77, pls. xx, xxi, xxiii), *P. coronatus*, redescr. (p. 82, pls. xix, xxiv, xxv), *P. ocellatus*, redescr. (p. 85, pl. xxv), *P. pistilliferus*, discussed (p. 88, pl. xxv), *P. punctatus* n. sp., Upper Chalk, England (p. 88, pl. xxvi), *P. squamatus*, redescr. (p. 83, pl. xxv); SPENCER (305).
- Pentacerotidae* n. g. see *Pauliella*.
- Pentagonaster* :—†*P. browni* n. sp., Cretaceous, Fox Hills Sandstone, near Lander, Wyoming; WELLER (334) text-figg. *P. ernesti* n. sp., Cocos Id., 2149 m. leads to *Nymphaster*; LUDWIG (197) p. 136, pl. x. *P. granularis*; KEMP (152) p. 189; NORDGAARD (230) p. 160: incl. *Astrogonium boreale* Barrett, measurements, variations, pedicellariae, spines; GRIEG (122). †*P. megaloplax*; WHITE (338) pp. 470, 472, 476. *P. nidarosiensis*; SCHMIDT (291) p. 22: vide etiam sub *Peltaster*. †*P. obtusus*, redescr.; SPENCER (305) p. 74, pl. xxii. *P. paxillosus*, vide *Odontaster grayi*. *P. placenta*; GRIEG (121) p. 4. †*P. robustus* n. sp., Upper Chalk, Sussex; SPENCER (305) p. 73, pl. xxi. *P. tuberculatus*; BELL (26) p. 246.
- Peribolaster biserialis* n. sp., between Sta. Catalina and Sta. Barbara Is., Cal., 178-195 fm.; FISHER (92) p. 313, no fig.
- Perknaster* "only an aberrant *Echinaster*"; BELL (26) p. 253.
- Persephonaster armiger* n. sp., E. of Cocos Id., 1951 m.; LUDWIG (197) p. 36, no fig. *P. penicillatus* n. sp., off Los Coronados Is. S.W. Cal. 530-638 fm.; FISHER (92) p. 297, no fig.
- Plutonaster abyssicola* n. sp., G. of Panama, 1865-3058 m.; LUDWIG (197) p. 30, pls. iii, xix. *P. bifrons*; KEMP (152) p. 188. *P. pareli*; l. c. & pp. 183, 205; NORDGAARD (230) p. 160.
- Pontaster*, syn. of *Cheiraster*; LUDWIG (197) pp. 1, 8. *P. tenuispinis*; KEMP (152) pp. 187, 205; NORDGAARD (230) p. 160; SCHMIDT (291) p. 20.
- Porania antarctica*; LUDWIG (199) p. 51; pl. vi. *P. pulvillus*; KEMP; (152) p. 189.
- Poraniomorpha rocea* [sic]; NORDGAARD (230) p. 160.
- Porcellanaster pacificus* n. sp., G. of Panama, Cocos Id., Acapulco, Mulpelo Id., 2070-3436 m.; LUDWIG (197) p. 89, pl. vi. *P. (Eremicaster) tenebrarius* n. sp., 200 miles off San Diego, Cal., 2196-2228 fm.; FISHER (92) p. 293, no fig. *P. waltharii* n. sp., G. of Panama, Galapagos and Acapulco, 2418-4082 m.; LUDWIG (197) p. 92, pl. v.
- Porcellanasteridae* n.g., see *Albatrossia*. n. s.g. of *Porcellanaster*, see *Eremicaster*.
- Pseudarchaster* referred to *Pentagonasteridae*; LUDWIG (197) p. 106. *P. alascensis* n. sp., near Yes Bay, Behm Canal, Alaska, 147-205 fm.; FISHER (92) p. 303, no fig. *P. mosaicus* (p. 110), *P. pectinifer* n. sp., G. of Panama, 1865 m. (p. 106, p. vii), *P. pulcher* n. sp., Galapagos and Acapulco, 702-1618 m. (p. 110, pls. viii, xxii); LUDWIG (197). *P. pusillus* n. sp., between Sta. Barbara and San Nicholas Is., Cal., 216-339 fm.; FISHER (92) p. 304, no fig. *P. tessellatus*; BELL (26) p. 242. *P. verrilli* n. sp., G. of Panama, 998 m.; LUDWIG (197) p. 116, pls. vii, xxiii.

- Pisilaster acuminatus*; BELL (26) p. 245. *P. andromeda*; KEMP (152) p. 188; NORDGAARD (230) pp. 160, 235, 241. *P. armatus* n. sp., S. of Las Tres Marias Id., 1236 m. (p. 59, pls. xxi, xxii), *P. sladeni* n. sp., Galapagos Is., 1618 m. (p. 57, no fig.); LUDWIG (197).
- Pteraster* sp. non descr. aff. *P. caribaeus*; SCHMIDT (291) p. 24. *P. jordani* n. sp., off San Diego, Cal., 642-650 fm.; FISHER (92) p. 314, no fig. *P. militaris*; CLARK (55) p. 2; NORDGAARD (230) pp. 160, 240. *P. pulvillus*; CLARK (55) p. 2; NORDGAARD (230) p. 160.
- Retaster capensis*; BELL (26) p. 250. *R. diaphanus* n. sp., Cocos Id., 1408 m.; LUDWIG (197) p. 202. *R. gibber*, added notes and corrections; LUDWIG (199) p. 65, pl. vi. *R. multipes*; SCHMIDT (291) p. 22.
- Sarkaster* n. g. of *Solasteridae*, with genotype *S. validus* n. sp., G. of Panama, Galapagos, Tres Marias Id., 523-1244 m.; LUDWIG (197) p. 185, pls. xv, xxix, xxx.
- Solaster affinis*; KEMP (152) pp. 183, 191. *S. australis* (Perr. sub *Crossaster*), small individual; LUDWIG (199) p. 63. *S. sp.* non descr. aff. *S. earlii*; SCHMIDT (291) p. 22. *S. endeca*; CLARK (55) p. 1; HØRRING (142) p. 188; NORDGAARD (230) p. 160; SCHMIDT (292) p. 246. *S. glacialis* Dan. & Kor., incl. *S. echinatus* Storm & *S. syrtensis* Verrill; GRIEG (122) p. 4. *S. papposa*; COLGAN (61) p. 212; NORDGAARD (230) pp. 160, 235; SCHMIDT (291) p. 20. *S. penicillatus*; BELL (26) p. 249. *S. syrtensis*; NORDGAARD (230) pp. 160, 235.
- Solasteridae*, n. g. see *Sarkaster*.
- Sporasterias antarctica*, distrib.; LUDWIG (199) p. 70. *S. cocosana* n. sp., Cocos Id., 245 m. (p. 235, pls. xxxiii, xxxiv), *S. galapagensis* n. sp., S. of Chatham Id., 704 m. (p. 240, pl. xxxiv), *S. mariana* n. sp., Las Tres Marias Id., 1244 m. (p. 231, pl. xxxiii); LUDWIG (197).
- †*Stellaster coombii*, distinction from *Asterias quinqueloba*; WEGNER (333) pp. 123, 149.
- Stichaster albulus*; CLARK (55) p. 3. *S. felipes*; BELL (26) p. 249. *S. roseus*; NORDGAARD (230) p. 160; KEMP (152) pp. 190, 205.
- Stolasterias alexandri* n. sp., G. of Panama, 95-384 m. (p. 221, pl. xxxii), *S. robusta* n. sp., Galapagos, 704 m. (p. 228); LUDWIG (197).
- Tosia leptocerama* n. sp., off Point Loma, near San Diego, Cal., 376-594 fm.; FISHER (92) p. 306, no fig.
- Uraster rubens*; COLGAN (61) p. 212; vide etiam sub *Asterias*.
- Zoroaster* sp. juv., G. of Panama; LUDWIG (197) p. 177, pl. xxvii.
- Z. (Myxoderma) evermanni* n. sp., between San Diego and San Clemente Is., Cal., 500-507 fm.; FISHER (92) p. 317, no fig. *Z. fulgens*; SCHMIDT (291) p. 22. *Z. hirsutus* n. sp., Acapulco, 3436 m. (p. 172, pls. xxviii, xxix). *Z. longispinus* n. sp., G. of California, Galapagos, G. of Panama, 1430-2418 m. (p. 180, pls. xiv, xxix), *Z. magnificus* n. sp., Mariato Pt., 3058 m. (p. 159, pls. xxvi, xxvii), *Z. nudus* n. sp., G. of California, 1820-2599 m. (p. 164, pls. xiv, xxvii, xxviii); LUDWIG (197). *Z. ophiurus* n. sp., off San Diego, Cal., 1059 fm. (p. 315, no fig.), *Z. (Myxoderma) sacculatus* n. sp., Monterey Bay, Cal., 916 fm. (p. 316, no fig.); FISHER (92).
- Zoroasteridae*, n. s.-g. *Myxoderma* (q. v.); FISHER (92).

## (E.)—OPHIUROIDEA.

- Amphilepis norvegica*; NORDGAARD (230) pp. 159, 241. *A. sp.* nondescr. aff. *A. norvegica*; SCHMIDT (291) p. 23.
- Amphiodia*, vide sub *Amphiura*.
- Amphioplus* (vide etiam sub *Amphiura*):—*A. abdita*; CLARK (55) p. 6.
- Amphipholis squamata*; CLARK (55) p. 6.

- Amphiura abbreviata* n. sp., Banda, Sulu, and Java Seas, 13-33 m. (p. 34, pl. iv), *A. ambigua* n. sp., Sulu Archipel, 13 m. (p. 39, pl. iv), *A. (Amphioplus) capax* n. sp., Banda Sea, 18 m., young (p. 50, pl. vi), *A. (Amphioplus) causata* n. sp., Borneo Bank and Gilolo Passage, 59-83 m. (p. 49, pl. v), *A. celata* n. sp., Amboina reefs (p. 35, pl. iv), *A. (Amphioplus) cesarea* n. sp., Banda and Java Seas, 27-91 m. (p. 44, pl. v), *A. coacta* n. sp., off Kei Is., Banda Sea, 22 m. (p. 33, pl. iv), *A. (Amphioplus) condita* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89], 11 m. (p. 46, pl. v), *A. depressa*, note on holotype (p. 46), *A. duncani* (p. 33); KOEHLER (160). *A. elegans*; KEMP (152) pp. 181, 195; NOBRE (229) p. 133. *A. (Amphioplus) exsecrata* n. sp., Amboina reefs; KOEHLER (160) p. 48, pl. iii. *A. filiformis*; HERRING (142) p. 189; KEMP (152) pp. 181, 195. *A. (Amphioplus) formata* n. sp., Lesser Sunda Is. (p. 51, pls. v, xvi), *A. hastata*, redescr. (p. 42, pl. v); KOEHLER (160). *A. incana?*; BELL (25) p. 258. *A. instans* n. sp., Banda Sea, 57 m. (p. 38, pl. iii), *A. (Amphioplus) intermedia* n. sp., off E. Java and E. Borneo, 9-59 m. (p. 42, pl. iv), *A. laevis* (p. 41); KOEHLER (160). *A. magellanica*; LUDWIG (199) p. 75. *A. morosa* n. sp., Gilolo Passage, 18 m.; KOEHLER (160) p. 37, pl. iii. *A. patagonica*, viviparous; LUDWIG (199) p. 75. *A. perita* n. sp., Solor Str. E. of Flores, 113 m. (p. 36, pl. iii), *A. (Amphioplus) personata* n. sp., W. Flores (p. 47, pl. v), *A. (Amphioplus) praestans* n. sp., var. locc., Malay Archipel, 32-51 m. (p. 45, pl. iv), *A. (Amphioplus) reflecta* n. sp., Sula Besi, 22 m. (p. 52, pl. vi), *A. relicta* (p. 41), note on cotypes (p. 46), *A. (Amphiodia) reposita* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89], 11 m. (p. 40, pl. iv); KOEHLER (160). *A. squamata*; BATHER (21) p. 165; PUETTER (263) p. 23. *A. tenuispina*; SCHMIDT (291) p. 23.
- Astrochalcis* n. g. of *Euryalidae* (p. 129), with genotype *A. tuberculosus* n. sp., var. locc., Malay Archipel, 13-73 m. (p. 130, pl. xvi); KOEHLER (160).
- Astrophyton agassizi*; SCHMITT (292) p. 247. *A. cornutum* (Koehl. sub *Gorgonocephalus*) adult descr. (p. 127, pls. xiii, xviii), *A. elegans* n. sp., Solor Str., E. of Flores, 113 m. (p. 123, pls. xiii, xviii), *A. gracile* n. sp., Lesser Sunda Is., 73 m. (p. 125, pl. xvii); KOEHLER (160).
- Astro[s]chema rousseaui*; KOEHLER (160) p. 123.
- † *Bundenbachia*; BATHER (21) p. 164.
- Euryale studeri*, incl. "*E. aspera*" Koehl. of Investigator; KOEHLER (160) p. 132.
- Euryalidae*, n. g. see *Astrochalcis*.
- Gorgonocephalus agassizii*; CLARK (55) p. 7. *G. eucnemis*; SCHMIDT (291) p. 20. *G. lamarcki*; NORDGAARD (230) p. 160. *G. pourtalesi* (p. 259), *G. verrucosus* (p. 260); BELL (25).
- † *Lapworthuridae*, n. g. vide *Sympterura*.
- Ophiacantha abyssicola*; KEMP (152) pp. 195, 183; NORDGAARD (230) p. 159. *O. audax* n. sp., Java Sea, 69 m.; KOEHLER (160) p. 57, pl. vii. *O. bidentata*; CLARK (55) p. 7; NORDGAARD (230) p. 159; SCHMIDT (291) p. 24. *O. confusa* n. sp., S. of Philippines, 36 m. (p. 59, pls. vi, vii). *O. dallasii* (p. 55); KOEHLER (160). *O. decora*, vide *O. indica*. *O. (Ophiopristis) dissidens* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89] 11 m. (p. 56, pl. vii), *O. indica*, incl. *O. decora* Koehl. (p. 56); KOEHLER (160). *O. spectabilis*, distrib., habitat; NORDGAARD (230) pp. 159, 239, 240. *O. spinulosa*; HØRRING (142) p. 185; PUETTER (263) p. 23. *O. suspecta* n. sp., Java Sea, 69 m.; KOEHLER (160) p. 58, pl. vii. *O. valenciennesi*; KOEHLER (159).
- Ophiactis abyssicola*; SCHMIDT (291) pp. 23, 24. *O. affinis* with 5 brachial spines; KOEHLER (160) p. 26. *O. asperula*, distrib.; LUDWIG (199) p. 74. *O. balli*; KEMP (152) pp. 195, 205. *O. conferta* n. sp., Gilolo

- Passage, 18 m. (p. 25, pl. iii), *O. savignyi*, 5 & 6 rays, variations, synonymy discussed, incl. *O. serradia*, *incisa*, *reinhardtii*, *krebsi* (p. 26); KOEHLER (160).
- Ophiarachna incrassata*; KOEHLER (160) p. 64.
- Ophiarthrum elegans* (p. 73), *O. pictum* (p. 72); KOEHLER (160).
- Ophiobyrsa hystericis*; KEMP (152) p. 196.
- Ophiocampsis inermis* n. sp., Kei Is. and Banda, 9–36 m.; KOEHLER (160) p. 115, pl. xiii.
- Ophiochiton ternispinis*, not British; KEMP (152) p. 194.
- Ophiocnemis marmorata*; KOEHLER (160) p. 112.
- Ophiocnida aspera* n. sp., Borneo Bank and S. of Philippines, 34 m.; KOEHLER (160) p. 29, pl. ii. *O. brachiata*; KEMP (152) p. 180. *O. dilatata* n. sp., Sulu Archipel. and Banda Sea, 12–45 m. (p. 30, pl. xii), *O. echinata*, added notes, autotomy of disc (p. 32), *O. serradia* belongs to section *Amphilitimna* Verrill (p. 33), *O. verticillata*, variations from type, differences from *O. putmanni* [*putnami*] Lym. (p. 29, pl. ii); KOEHLER (160).
- Ophiocoma brevipes* (p. 61), *O. doederleini* (p. 60), *O. lineolata* (p. 62); KOEHLER (160). *O. nigra*; KEMP (152) pp. 181, 195. *O. rosula*; COLGAN (61) p. 212. *O. scolopendrina* et var. *erinaceus* (p. 60), *O. wendtii*, redescr. (p. 63, pl. xiv); KOEHLER (160).
- Ophiocoris cincta*, variation from type, structure of teeth (p. 14, pl. ii), *O. cupida* n. sp., var. locc. Sulu Archipel., 13–45 m. (p. 15, pl. i), *O. permixta* n. sp., Buton Str. S. of Celebes, and Kei Is. Banda Sea, 75–94 m. (p. 14, pl. ii); KOEHLER (160).
- Ophiocten sericeum*; NORDGAARD (230) p. 159: SCHMIDT (291) pp. 20, 23, 24.
- Ophiocera compacta* n. sp., Pulu Kaniungan Ketjil [Siboga Stat. 89], 11 m.; KOEHLER (160) p. 120, pl. xiv.
- Ophioderma longicauda*; BAGLIONI (12c): NOBRE (229) p. 134. *O. wahlbergi*, distrib.; BELL (25) p. 255.
- Ophioglypha* (vide etiam sub *Ophiura*):—*O. affinis*; CLARK (55) p. 5. *O. albidia*; HØRRING (142) pp. 185, 186, 188. *O. bullata*, *O. clemens*, and *O. flagellata*; KOEHLER (159). *O. forbesi*, variations from type, relations to *Ophiomusium*; KOEHLER (160) p. 22. *O. inornata*; KOEHLER (159). *O. kinbergi*, incl. *O. sinensis*, variations, holotype descr.; KOEHLER (160) p. 22. *O. lacertosa*; ZELENY (349 & 350). *O. lepida* var. *saurura*; SCHMIDT (291) p. 24. *O. lymani*, variations in radial shields, &c.; LUDWIG (199) p. 73. *O. robusta*; CLARK (55) p. 5. *O. sarsi*; op. cit. p. 6: SCHMIDT (291) p. 18: †NORDMANN (231). *O. scabra* n. sp., Kei Is. in Banda Sea, 90 m. (p. 20, pl. ii), *O. sculpta* (p. 22), *O. stellata* (p. 21); KOEHLER (160). *O. texturata*; HØRRING (142), pp. 185, 188. *O. tumulosa*; LUDWIG (198).
- Ophioglyptis* n. g. of *Ophiomyxidae*, with genotype *O. nodosa* n. sp., Banda Sea, E. of Flores, and Lesser Sunda Is., 73–113 m.; KOEHLER (160) p. 121, pl. xii. [?err. typ. pro *Ophioglyptis*.]
- Ophiolepis annulosa* (p. 17), *O. cincta* (p. 16), *O. irregularis*, added notes (p. 17, pl. iii), *O. nodosa* (p. 18), *O. rugosa* (p. 18); KOEHLER (160).
- Ophiomastix annulosa* (p. 65), *O. asperula*, note on cotypes (p. 66, pl. vi), *O. caryophyllata*, variations (p. 67), *O. flaccida* (p. 67), *O. mixta*, redescr. from cotypes and others (p. 68, pls. vi, xv), *O. ornata* n. sp., Borneo Bank, 34 m. (p. 71, pl. vi), *O. pusilla*, with young stage (p. 65, pls. vi, xiii), *O. variabilis* n. sp., Timor, Sulu Archipel., and Java Sea, 12–32 m. (p. 69, pls. vi, xvi); KOEHLER (160).
- Ophiomaza cacaotica*, colour; KOEHLER (160) p. 111.
- Ophiomusium lymani*, locality discussed; KEMP (152) p. 194: SCHMIDT (291) p. 24.
- Ophiomyxa brevispina*, notes, and *O. irregularis* n. sp., based on *O.*

- brevispina* var. *irregularis* Koehl., 1898; KOEHLER (160) p. 119, pl. xii.  
*O. vivipara*; LUDWIG (199) p. 76.
- Ophiomyxidae* n. g., see *Ophiogypsis*.
- Ophionereis porrecta*, young (p. 53), *O. semoni* (Doed. sub *Ophiotriton*) (p. 54, pls. vi, xiv), *O. sophiae*, note on a cotype (p. 54, pl. vi); KOEHLER (160).
- Ophionotus victoriae*; HODGSON (141).
- Ophiopeza aster*, variations from type (p. 13), *O. conjungens*, differences of age (p. 12), *O. exilis* n. sp., Flores and Banda Seas, Gilolo Passage, 83–400 m. (p. 12, pl. ii); KOEHLER (160).
- Ophiopezella luetkeni*; KOEHLER (160) p. 13.
- Ophiopholis aculeata*; CLARK (55) p. 6; HØRRING (142) pp. 185, 186, 188, 193; KEMP (152) pp. 195, 205; NORDGAARD (230) p. 159; SCHMIDT (291); SCHMITT (292) p. 246. *O. bellis*; GRIFFITHS (123).
- Ophiopleura borealis*; SCHMIDT (291) p. 20.
- Ophioplocus imbricatus*; KOEHLER (160) p. 18.
- Ophiopristis*, vide sub *Ophiacantha*.
- Ophiopsammium rugosum* n. sp., Aru Is. and Red Sea, 13 m. (p. 116, pl. xiii), *O. semperi*, colour (p. 116); KOEHLER (160).
- Ophiopsila annulosa*, distinguished from *O. aranea*, found at Galway, Plymouth, Dartmouth; NORMAN (233). *O. pantherina*; KOEHLER (160) p. 53.
- Ophiopteron elegans* (p. 112), *O. puncto-coeruleum* n. sp., Flores, Aru, and Rotti, 13–40 m. (p. 114, pls. xii, xv), *O. sibogae* n. sp., Lesser Sunda Is., 73 m. (p. 113, pl. xii); KOEHLER (160).
- Ophiosclex dentatus*; BELL (25) p. 259. *O. glacialis*; SCHMIDT (291) p. 20; NORDGAARD (230) pp. 159, 240, 241; *O. purpureus*; op. cit. pp. 160, 240.
- Ophiosteira antarctica*; HODGSON (141).
- Ophiostigma formosa*, variations from type, holotype descr., young stage; KOEHLER (160) p. 24, pl. ii.
- Ophiothamnus remotus*; BELL (25) p. 258.
- Ophiotheta danae*, incl. *O. isidicola*, var. *involuta* given up; KOEHLER (160) p. 117.
- Ophiothrix andersoni*, length of rays, colour; KOEHLER (160) p. 82, pl. xiv.  
*O. aristulata*; BELL (25) p. 258. *O. armata* n. sp., Banda (p. 103, pl. x), *O. bedoti* (p. 83), *O. coronata* n. sp., Gilolo Passage, 83 m. (p. 91, pl. ix), *O. demessa*, added notes (p. 91, pl. ix), *O. diligens* (p. 100), *O. exhibita* n. sp., Lesser Sunda Is., 274 m. (p. 110, pl. x), *O. exigua*, holotype descr., incl. "*O. comata*" Marktanner and de Loriol (p. 86, pl. ix), *O. expedita* n. sp., various locc. Malay Archipel., 12–73 m. (p. 96, pls. ix, xv), *O. foveolata*, incl. *O. insidiosa* Koehl. (p. 76); KOEHLER (160). *O. fragilis*; KEMP (152) pp. 181, 196, 206; NOBRE (228) p. 82; NORDGAARD (230) p. 159. *O. fulgens* n. sp., Banda and Java Seas, 36–90 m. (p. 107, pl. x), *O. galathea* (p. 84), *O. hirsuta*, incl. *O. variabilis* Duncan (pp. 93, 94), *O. infirma* n. sp., Banda and Java Seas, 54–90 m. (p. 89, pl. viii); KOEHLER (160). *O. insidiosa*, vide *O. foveolata*. *O. longipeda* (pp. 92, 94), *O. lorioli*, colour (p. 103); KOEHLER (160). *O. luetkeni*; KEMP (152) p. 196. *O. marginata* n. sp., Aru Is., Banda Sea, 13 m. (p. 79, pl. viii), *O. martensi* (p. 80), *O. melanosticta*, redescrip. holotype and others (p. 77, pls. viii, xiv), *O. miles* n. sp., Malay Archipelago (p. 90, pl. ix), *O. nereidina* (p. 81), *O. nobilis* n. sp., Kei Is., Banda Sea, 90 m. (p. 83, pls. xi, xv), *O. obtusa* n. sp., Java Sea, Lesser Sunda Is., and E. of Flores, 69–113 m. (p. 98, pls. xi, xvi), *O. plana*, variations from type, colour (p. 75, pl. viii), *O. propinqua* (p. 81), *O. proteus* n. sp., var. locc. Malay Archipel., 32–83 m., incl. "*O. comata*" Koehl. 1898, 1900 (p. 100), *O. pulchella* n. sp., var. locc. Malay Archipel., 73–247 m. (p. 106, pls. xi, xv),

- O. punctolimbata*, characters discussed (p. 93), *O. purpurea*, colour (p. 102), *O. pusilla*, added notes (p. 85, pl. ix); KOEHLER (160). *O. roseo-coeruleans*; BELL (25) p. 258. *O. simplex* n. sp., Molo Str., Java Sea, 69–90 m., allied to *Ophiotrichoides* (p. 109, pl. x), *O. spinosissima* n. sp., Lombok and Banda, 9–36m. (p. 104, pl. xi), *O. stelligera*, parasitic gastropod, variations, young (p. 87), n. var. *rugosa*, Banda, Sulu, and Java Seas (p. 88), *O. striolata*, colour (p. 76, pl. xv), *O. tenuis* n. sp., E. of Flores, 40 m. (p. 74, pl. viii); KOEHLER (160). *O. triglochis*; BELL (25) p. 259. *O. trilineata* (p. 73), *O. vitrea* (p. 99); KOEHLER (160).
- Ophiotriton* vide sub *Ophionereis*.
- Ophiotypa simplex*; KOEHLER (159).
- Ophiozona capensis* n. sp., 7 cotypes, off Cape Point, C. St Blaize, Lion's Hd., C. St Francis, 25–900 fm., podial pores restricted to 3 proximal; BELL (25) p. 256, pl. i. *O. projecta* n. sp., Sulu Archipel., Moluccas, Banda Sea, Solor Str., 15–113 m.; KOEHLER (160) p. 19, pl. i.
- Ophiura* (vide etiam sub *Ophioglypha*):—*O. affinis*; KEMP (152) pp. 180, 194. *O. albida*; COLGAN (61) p. 212; KEMP (152) pp. 180, 193; NORDGAARD (230) p. 159. *O. brevispina*; CLARK (55) p. 5. *O. carnea*; NORDGAARD (230) p. 159. *O. ciliaris*; KEMP (152) pp. 180, 192. *O. robusta*; NORDGAARD (230) pp. 159, 235. *O. sarsi*; op. cit. p. 159; KEMP (152) pp. 193, 205. *O. signata*, forms of mouth-shields, distinction from *O. affinis*; op. cit. pp. 183, 193, pl. xxxv. *O. texturata*; COLGAN (61) p. 212. *O. trimeni* n. sp., 4 cotypes, off Lion's Hd., S. Hd. Table Mt., 156–230 fm., podial pores restricted; BELL (25) p. 257, pl. i.
- Pectinura arenosa* (p. 10), *P. gorgonia*, colour (p. 8), *P. infernalis*, added notes, Bell's of 'Alert' coll. perhaps is *P. similis* (p. 7, pl. i), *P. nitens* n. sp., Sapeh Str., Sunda Is., 69 m. (p. 10, pl. i), *P. paucispina* n. sp., Borneo bank & Gilolo Passage, 34–83 m. (p. 4, pl. i), *P. septemspinosa* (p. 9), *P. similis* n. sp., various locc. in Malay Archipelago, 12–59 m. (p. 6, pl. i), *P. sphenisci*, added notes (p. 9), *P. stabilis* n. sp., Pater-noster Is. in Java Sea, and Gilolo Passage, 12–83 m. (p. 5, pl. i); KOEHLER (160).
- †*Protaster sedgwicki*; BATHER (21) p. 164.
- Sthenocephalus indicus*, 204–487 m.; KOEHLER (160) p. 132.
- †*Sympterura* n. g. with genotype *S. minveri* n. sp., Lower Devon., Epp-haven, Cornwall; BATHER (21) pl. vi.

## (F.) CRINOIDEA\*.

- Bearing of autotomy and syzygies on classification of *Antedonidae* and *Actinometridae*; MINCKERT (214).
- Crinoidea* divided into *Palaeocrinoidea* and *Neocrinoidea* [A.D. 1905!]; HERFWIG (136 A) p. 311. *Crinoidea*, or at least recent *Crin.*, divided into two Orders, *Stylocrinoidea*, fixed forms, and *Eleuthero-crinoidea*, free forms; MINCKERT (213) p. 496.
- †*Acanthocrinus rex*; LEPPLA (180) p. 28; LEPPLA (181) p. 16.
- †*Actinocrinus*:—*A.* sp.; THÉVENIN (314): columnals; SMYČKA (303) p. 60. *A. daphne*; CLARKE (60) p. 116.
- Actinometra*, classification of spp. (p. 207), *A. belli*, regeneration of arms (pp. 204, 215, figg.), *A. fimbriata*, ditto (p. 218), *A. multibrachiata*, ditto (pp. 217, 219), *A. nobilis*, ditto (p. 219); MINCKERT (214). *A. parvicirra*, 14–17 fm., various locc. S. Africa; BELL (27) p. 141.

\* Names that are sometimes given the termination *-ites* (e.g. *Pentacrinites*) are here treated as always ending in *-us*.



- A. paucicirra* & *A. quadrata*, regeneration (p. 226), *A. regalis*, ditto (p. 219), *A. sentosa*, ditto (p. 230); MINCKERT (214). †*A. vagnasensis* is Lower Aptian; PELLAT (244).
- †*Agaricocrinus*:—*A. brevis*, *A. bullatus*, *A. wortheni*; ROWLEY (282) p. 310.
- †*Agassizocrinus conicus*; ULRICH (321) p. 58, pl. vi.
- †*Amphoracrinus viminalis*; CLARKE (60) p. 116.
- Antedon* considered to be a misprint for *Anthedon*; MINCKERT (213) p. 496: classification of spp.; MINCKERT (214) p. 206: see also II, B, i, f, 8. *A. sp.*; KEMP (152) p. 187: †MULDER (222). *A. angusticalyx* & *A. angustiradiata*, regeneration; MINCKERT (214) p. 224. *A. barentsi*, syn. of *A. eschrichti*; DOEDERLEIN (80) pp. 397, 399. *A. bifida*; KEMP (152) pp. 179, 187, 205: NOBRE (229) p. 132: vide etiam *A. et Comatula rosacea*. *A. bipartipinna*, regeneration (p. 228), *A. brevipinna*, colour of regenerates (p. 178): regeneration of disc (p. 193), of arms (p. 202 et sqq.); MINCKERT (214). †*A. burgundiaca*; MAIRE (206) p. 242. *A. capensis* n. sp. of *basicurva* group, 13–27 fm., various locc. S. Africa; BELL (27) p. 139, pl. ii. *A. carinata*, partial regeneration of cirri (p. 192), *A. duplex*, regeneration (p. 211); MINCKERT (214). *A. eschrichti*; SCHMIDT (291) p. 19: total regeneration of cirri; MINCKERT (214) p. 189: incl. *A. barentsi* P. H. Carp., distrib.; DOEDERLEIN (80) p. 397: var. *quadrata*, distrib.; loc. cit. p. 398. *A. flexilis*, regeneration; MINCKERT (214) p. 211. †*A. gresslyi*; MAIRE (206) p. 242. *A. inaequalis*, regeneration (p. 224), *A. lusitanica*, ditto (p. 211); MINCKERT (214). *A. magnicirra* n. sp. of *savignyi* group, 300–450 fm., E. London, S. Africa; BELL (27) p. 141, pl. iv. *A. microdiscus*, regeneration (pp. 219, 230), *A. multiradiata*, ditto (p. 221 et sqq., fig. p. 231), *A. multispina*, ditto (pp. 211, 223); MINCKERT (214). *A. petasus*; RETZIUS (275) p. 82, pl. xii. *A. phalangium*; KEMP (152) p. 187: distrib.; DOEDERLEIN (80) p. 402. *A. philiberti*, regeneration; MINCKERT (214) p. 228. *A. prolixa*, distrib., probably local form of *A. tenella* (p. 401), *A. quadrata*, made var. of *A. eschrichti* (q.v.) (p. 398); DOEDERLEIN (80). †*A. rhodanicus*; AIRAGHI (5) pl. 45, pl. *A. rosacea*; †BASSANI (16): GODLEWSKI (115): GRAEFFE (117) p. 331: living attitude; LANKESTER (175) p. 292, fig.: regeneration; MINCKERT (214) p. 209, fig. et sqq.: vide etiam *Comatula* et *A. bifida*. *A. sclateri* n. sp. of *savignyi* group, 250–300 fm., E. London, S. Africa; BELL (27) p. 140, pl. iii. *A. spinifera*, colour of regenerates (p. 184), arm regenerated in place of pinnule (p. 200); MINCKERT (214). *A. tenella*; NORDGAARD (230) pp. 159, 235: SCHMIDT (291) pp. 19, 20: distrib.; DOEDERLEIN (80) p. 400: regeneration; MINCKERT (214) p. 208.
- †*Aorocrinus*:—*A. eris* & *A. helice*; CLARKE (60) p. 117.
- †*Apiocrinus*:—*A. sp.*; REMEŠ (269) p. 61, pl. vii: columnals; AIRAGHI (7) p. 84: PARONA (242) p. 66. *A. elegans*, IBB; TOIT (315) fig. *A. parkinsoni*, *A. polycyphus*; MAIRE (206) p. 234.
- †*Aspidoocrinus*:—*A. callosus*, *A. digitatus*; TALBOT (312) p. 31. *A. scutelliformis*; SHIMER (300) p. 197: WILLIAMS (342) pp. 28, 33, 47: root-nature doubted; TALBOT (312) p. 31.
- †*Balanocrinus* (vide etiam sub *Pentacrinus*):—*B. ? sp.*; ROESSINGER (278) p. 437. *B. bathonicus*; LISSAJOUS (183) p. 696. *B. campichei*; KILIAN (156) pp. 781, 807. *B. pentagonalis*; AEBERHARDT (1) p. 442: KILIAN (156) pp. 776, 781. *B. subteres*; op. cit. pp. 781, 807: REMEŠ (272) p. 4.
- Bathycrinus* regeneration; MINCKERT (214) p. 194. *B. carpenteri*, distrib.; DOEDERLEIN (80) p. 402.
- †*Batocrinus*:—*B. irregularis*; ULRICH (321) p. 47. *B. subaequalis*; ROWLEY (282) p. 310.
- †*Bourgueticrinus*:—*B. sp.*; YOUNG (347) pp. 198, 215. *B. ellipticus*;

- DEECKE (69) p. 19: MURGOOI (223): TREACHER (319) p. 156: WEGNER (333) pp. 123, 125, 126, 132, 148: WHITE (338) pp. 468, 470, 487. *B.* [= *Mesocr.*] *fischeri* (p. 148), *B. listeri* (p. 125); WEGNER (333). *B. thorenti*; MURGOOI (223).
- †*Brachioerinus* (*Herpetocerinus*?) *nodosarius*, added notes; TALBOT (312) p. 32, pl. iv.
- †*Camerocerinus* [sic] *quarcatarum* n. sp., Ordovician d2 of Rėvnitz, Bohemia; FRITSOH (100) for fig. see (88) Zool. Rec. 1904.
- †*Carabocerinus geometricus* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 282, pl. i.
- †*Cleioeriniidae* n. fam. of *Dicyclia camerata* for *Cleioer.*; BATHER in Review of SPRINGER (306).
- †*Cleioerinus*, morphological description and rediagnosis, intermediate between *Camerata* & *Flexibilia*; SPRINGER (306): referred to *Cleioeriniidae* (q.v.), base an exaggeration of the *Archaeocr.* type; BATHER in Review: "ein spezialisierter Rhodocrinide"; JAEKEL in Review.
- †*Cleistocerinus*, err. pro *Cleioerinus*; LUDWIG (200).
- †*Cliocerinus*, err. pro *Cleioer.* (q.v.); LAMBERT in Review of SPRINGER (306). *C. magnificus*, incl. *C. grandis*, redescr. from types and other specimens, *C. regius*, redescr. from cotypes; SPRINGER (306) p. 110, pl. *Comatula rosacea*; COLGAN (61) p. 211: vide etiam *Antedon bifida* et *rosacea*.
- †*Conocerinus*:—*C.*? sp., columnals; DONCIEUX (81) p. 111. *C. thorenti*; DOUVILLÉ (83) pp. 19, 21, 27, 50.
- †*Cordylocerinus plumosus*, added notes, perh. incl. *C. pırvus*; TALBOT (312) p. 28, pl. iii.
- †*Cosmocerinus ornatissimus* (Hall sub *Cyathocr.*) distinguished from *Maragnier.*; WHITFIELD (339) p. 19, pls. ii, iii: this accepted; CLARKE (58).
- †*Cyathocerinus*:—*C. formosus* n. sp., Lower Burlington Limest., Louisiana, Mo.; ROWLEY (282) p. 301, pl. xxi. *C. mammillaris*; MALLADA (208) p. 187. *C. ornatissimus* Hall, referred to *Scytalecr.*; CLARKE (57) p. 44: type-specimen refigured and referred to *Cosmocerinus*; WHITFIELD (339) p. 19, pls. ii, iii. *C. pentagonus* (pp. 16, 26), *C. pinnatus* (pp. 21, 26, 27, 50, 53, 55), *C. planus* (p. 187), *C. quinquangularis* (p. 187); MALLADA (208). *C. rhenanus*; LEPPLA (180) p. 28 & (181) p. 16.
- †*Cyrtocerinus digitatus* n. sp., Tithonian of Stramberg; REMEŠ (269) p. 60, pl. vii.
- †*Dadocerinus gracilis*:—*D. kunischi*; WYSOGÓRSKI (345).
- †*Decadocerinus*:—*D. aegina* (p. 117), *D. lyriope*, *D. pleias*, & *D. subtortuosus* (p. 118); CLARKE (60).
- Decametroceriniidae* n. fam. pro *Decametrocr.* & *Promachocr.*; MINCKERT (213) p. 494.
- Decametrocerinus* n. g. for spp. of *Promachocerinus* with unbranched arms [genotype not mentioned, the spp. would be *D. abyssorum* & *D. narsi*, of which the former agrees better with the diagnosis]; MINCKERT (213) p. 494.
- †*Diochocerinus simplex*; ULRICH (321) p. 33.
- †*Dolatoocerinus*:—*D. glyptus* var. *intermedius* & *D. liratus* var. *multiliratus* (p. 118), *D. speciosus* (p. 119); CLARKE (60).
- †*Edrioceriniidae* n. fam. of *Inadunata fistulata* [= *Dicyclia inadunata*] for *Edriocr.*; TALBOT (312) p. 20.
- †*Edriocerinus*, rediagnosed; TALBOT (312) p. 22. *E. becraftensis*; SHIMER (300) p. 196. *E. pocilliformis*; op. cit. pp. 183, 200, 201, 232, 233, 238, 262: redescr.; TALBOT (312) p. 23, pl. iv. *E. sacculus*; SHIMER (300) pp. 198, 233.
- Eleutherocerinoidea* ord. nov. "die freilebenden Crinoideen"; MINCKERT (213) p. 496.
- †*Encrinus*:—*E.* sp.; MARTELLI (209) p. 332. *E.*? sp. columnals; TOULA

- (317) p. 348, p. vi. *E. aculeatus*; WYSOGÓRSKI (335). *E. cassianus*; MARTELLI (209) p. 331, pl. xi: BLASCHKE (32) p. 166. *E. granulatus*; L. C.; BAKALOW (13): MARTELLI (209) p. 330, pl. xi. *E. liliformis*; WYSOGÓRSKI (345): columnals; MORICH (219) fig.
- † *Entrochus*:—*E. dentatus*; MALLADA (208) pp. 13, 27. *E. insignis* n. sp., Cenomanian [i. e. Trias], Kotel, E. Balkans; TOULA (317) p. 347, pl. vi: BAKALOW (13).
- † *Eretmocrinus*:—*E. coronatus* (p. 310), *E. nodosus* (p. 303, pl. xxi); ROWLEY (282).
- † *Erisocrinus europaeus*; MALLADA (208) pp. 182, 187.
- † *Eugeniocrinus hoferi*; MAIRE (206) p. 234.
- † *Euryocrinus concavus*; MALLADA (208) p. 187.
- † *Extracrinus*, vide sub *Pentacrinus*.
- † *Glyptocrinus*:—*G. dyeri*, fixed pinnules; SPRINGER (306) p. 106, pl. *G. ramulosus*; AMI (11) p. 84j.
- † *Haplocrinus stellaris*; SOBOLEW (304) pp. 68, 70.
- † *Hexacrinus*:—*H. callosus*; MALLADA (208) p. 17. *H. echinatus*; USSHER (323) p. 16.
- † *Homocrinus scoparius*, added notes; TALBOT (312) p. 19, pl. iii.
- † *Ichthyocrinus*:—*I. laevis*; UDDEN (320) p. 402. *I. schucherti* n. sp., New Scotland Limest., Clarksville, N.Y.; TALBOT (312) p. 30, pl. iii. *Isocrinus*, vide sub *Pentacrinus*.
- † *Lyriocrinus*? *beecheri* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 277, pl. ii.
- † *Maragnierinus* n. g. [of *Scytalecrinidae*?], with genotype *M. portlandicus* n. sp., Portage group, Portland, Lake Erie, includes specimen reff. by J. M. CLARKE to *Scytalocr. ornatissimus* (Hall sub *Cyathocr.*); WHITFIELD (339) pp. 17, 18, pl. i: see also CLARKE (58).
- † *Mariacrinus*:—*M. beecheri* n. sp., Coeymans Limest., North Litchfield, N. Y. (pl. i), *M. plumosus*, called genotype [but *M. nobilissimus* is that]; TALBOT (312) p. 25.
- † *Marsupites*:—*M. ornatus* Sow. [sic] slight variations, Westphalia; WEGNER (333) pp. 124, 125, 128, 129, 130, 131, 134, 147. *M. testudinarius*; JUKES-BROWNE (150) p. 39: LAMBERT (169) p. 95: WHITE (338) pp. 470, 473: YOUNG (347) pp. 196, 215.
- † *Melocrinus*:—*M.* (vel *Ctenocr.*) sp. columnals; HAUG (130) p. 766. *M. clarkei*; CLARKE (57) p. 43. *M. nobilissimus* (Hall sub *Mariacr.* 1859) called genotype [N.B. *Melocr.* is 1826; this is really *Mariacr.*], added notes (p. 26, pl. ii), *M. pachydactylus*, added notes (p. 27, pl. i); TALBOT (312).
- † *Mesocrinus fischeri*, vide sub *Bourquetier*.
- † *Mespilocrinus granifer*; MALLADA (208) pp. 182, 183.
- † *Müllerocrinus*:—*M. beaudouini*, *M. beaumonti*, *M. buchianus*, *M. conicus*, *M. convexus*, *M. desori*, *M. dilatatus*, *M. dudressieri*, *M. escheri*, *M. goldfussi*, *M. goupilianus*, *M. granulatus*, *M. horridus*, *M. milleri*, *M. munsterianus*, *M. nodotianus*, *M. regularis*, *M. scalaris*, *M. thirriai*; MAIRE (206) pp. 235–240.
- † *Pachylocrinus*:—*P. merope* (p. 119), *P. paternus* (p. 120); CLARKE (60). *Pentacrinula* nom. nov. pro “pentacrinoid larva” of *Antedon* etc.; MINCKERT (214) p. 191.
- Pentacrinus* (including *Balanocr.* (q. v.), *Extracr.* [i. e. *Pentacr.* s. str.] and *Isocr.* [i. e. *Pentacr. neontologorum*] syn. *Cainocr.*).
- † *Pentacr.* sp.; SCHUMACHER (295) p. 111: columnals, Trias; TOULA (317) p. 348, pl. vi. *P. amblyscalaris*; MAIRE (206) p. 241. *P. angulatus*; ROTHPLETZ (281) p. 29. *P. astralis*; HUCKE (143) p. 167, pl. xxiii. *Extracr. babeau*; LISSAJOUS (183) p. 692. *P. bajocensis*; op. cit. p. 691: KILIAN (156) p. 743. *P. basaltiformis*; SCALIA (288). *P. cf. basaltiformis*; ROTHPLETZ (281) p. 29. *P. cf. bavaricus*; TOULA (318)

- p. 286. *P. briareus*; SCALIA (288). *Extracr. buchsgauensis*; MAIRE (206) p. 241. *P. carinatus*, notes; WEGNER (333) pp. 125, 148. *P. cristagalli*; DENINGER (73) pp. 438, 439; KILIAN (156) p. 743; LISSAJOUS (183) p. 691; ROTHPLETZ (281) p. 36.
- P. decorus*, anat.; REICHENSBERGER (267).
- † *P. didactylus*; DOUVILLÉ (83) pp. 20, 21, 27, 43, 50. *P. dixoni*?; ROESSINGER (278) p. 437. *P. fuchsii*; BAKALOW (13). *P. gastaldii*; AIRAGHI (5) p. 45. *P. hiemeri*; LANKESTER (175) p. 287, fig. *P. laevigatus*; BAKALOW (13). *P. marioni*; MAIRE (206) p. 241. *P. cf. nodulosus*; WEGNER (333) pp. 131, 148. *P. oxyscalaris*; MAIRE (206) p. 240. *P. pentagonalis ferratus*, discussed (p. 81), *P. cf. personatus*, specimens from Esch and Rombach descr. (pp. 76, 456, pls. i, ii); BENECKE (29). *P. priscus* Kut.; JONKER (148) p. 141. *P. psilonoti*; ROTHPLETZ (281) p. 29. *P. scalaris*; SCALIA (288). *P. subangularis*, Schwabens Medusenhaupt; KOKEN (165) p. 56, pl. *Extracr. aff. subangularis*; BAKALOW (13). *P. tuberculatus*; op. cit.: PAULKE (243) p. 269. *P. wurttembergicus* (= *P. pentagonalis opalinus* Qu.), discussed; BENECKE (29) p. 81.
- P. wyville-thomsoni*; ALBERT (9): RICHARD (276) p. 3.
- † *Platycrinus*:—*P. bozemanensis*; DOUGLASS (82) pp. 417, 421, 422, 423. *P. contritus*; CLARKE (60) p. 120. *P. douglussi*; DOUGLASS (82) pp. 417, 422, 423. *P. gigas* (p. 184), *P. granulatus* (p. 187); MALLADA (208). *P. graphicus*; CLARKE (60) p. 120. *P. huntsvillae*; ULRICH (321) pp. 42, 47, 50, 58, pl. vi. *P. richfieldensis*; CLARKE (60) p. 120.
- † *Plicatocrinidae*, n. g. *Pseudosaccocoma* q. v.; REMEŠ (269).
- † *Poteriocrinus*:—*P. sp.*; FOURBAU (96) p. 574; THÉVENIN (314): columnals; HAUG (130) pp. 783, 793, pl. xv. *P. crassus*; MALLADA (208) pp. 182, 184, 186, 187, 196, 316. *P. douglassi*; DOUGLASS (82) p. 417. *P. minutus* (pp. 119, 170, 185, 188, 189, 197), *P. originarius* (pp. 183, 186); MALLADA (208).
- † *Pradocrinus baylei*; MALLADA (208) pp. 12, 16, 21, 37.
- Promachocrinus* restricted to spp. with branched arms [genotype *P. kerguelensis*] (p. 494), *P. vanhoeffenianus* n. sp., 66° 2' 9" S., 89° 38' E., 350–400 m. (p. 496 and text-fig.); MINCKERT (213).
- † *Pseudosaccocoma* n. g. of *Plicatocrinidae*? with genotype *P. strambergense* n. sp., Tithonian of Stramberg; REMEŠ (269) p. 62, pl. vii and (273).
- † *Pterotocrinus*:—*P. acutus*, *P. capitalis*, *P. depressus*; ULRICH (321) pp. 58, 61, pl. vi.
- † *Reteocrinus o'nealli*, fixed pinnules, tegmina; SPRINGER (306) p. 107, pl.
- † *Rhaphanocrinus gemmeus* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 280, pl. ii.
- Rhizocrinus lofotensis*; NORDGAARD (230) pp. 159, 241: (?); KEMP (152) p. 187: distrib.; DOEDERLEIN (80) p. 402.
- † *Rhodocrinus*:—*R. sp.* columnals; HAUG (130) p. 795, pl. xv. *R. bozemanensis* (pp. 417, 421), *R. bridgerensis* (pp. 417, 422); DOUGLASS (82). *R. crenatus*; MALLADA (208) p. 27. *R. douglassi*; DOUGLASS (82) pp. 417, 421, 422. *R. pinnatus*; MALLADA (208) p. 21.
- † *Saccocrinus christyi*; UDDEN (320) p. 402.
- † *Scaphiocrinus*:—*S. corycia*, *S. crineus*, *S. subcarinatus*; CLARKE (60) p. 121.
- † *Scyphocrinus elegans*; MALLADA (207) p. 294 and (208) p. 61.
- † *Scytalocrinus ornattissimus* (Hall, sub *Cyathocr.*); CLARKE (57) p. 44 and (58): vide etiam *Maragnier*.
- † *Siphonocrinus armosus*; UDDEN (320) p. 402.
- † *Steganocrinus sculptus*; ROWLEY (282) p. 310.
- Stylocrinoida* ord. nov. "die recenten festsitzenden Formen"; MINCKERT (213) p. 496.

- †*Talarocrinus*; ULRICH (321) p. 54.  
 †*Taxocrinus*:—*T. communis* (p. 121), *T. kelloggi* (p. 122), *T. tardus* (p. 122); CLARKE (60).  
 †*Thiolliericrinus*:—*T.* sp.; REMEŠ (270, 271, 274), *T. flexuosus* (p. 61, pl. vii), *T. heberti* (p. 60); REMEŠ (269).  
 †*Thysanocrinus arborescens* n. sp., Coeymans Limest., North Litchfield, N. Y.; TALBOT (312) p. 23, pl. i.  
 †*Uintacrinus*:—*U.* sp., British; WHITE (338) p. 470; YOUNG (347) pp. 197, 215. *U. westfalicus*, cups; WEGNER (333) pp. 121, 123, 137, 147.

## (G.)—†CYSTIDEA\*

(including EDRIOASTEROIDEA).

- Agelacrinus dicksoni*; AMI (11) p. 84J. *A. chapmani*, vide Corrigenda.  
*Caryocrinus ornatus*; UDDEN (320) p. 399.  
*Caryocystis rouvillei*; DEPÉRET (74) p. 434.  
*Corylocrinus pyriformis*; DEPÉRET (74) p. 434.  
*Echinospaera baltica*; DEPÉRET (74) p. 434. *E.* cf. *baltica*; BRESSON (41) p. 91; MALLADA (207) p. 307. *E. murchisoni*; op. cit. pp. 267, 384.  
*Eocystis primaeva* at Coulouma; MIQUEL (216) p. 476.  
*Glyptocystis forbesi*; RAYMOND (265) p. 357.  
*Malocystis* sp.; RAYMOND (265) p. 358. *M. emmonsii* n. sp., Chazy Limest., L. Champlain, N. Y.; HUDSON (144) p. 270, pl. i; CLARKE (60) p. 119; RAYMOND (265) pp. 357, 358. *M. murchisoni*; op. cit. pp. 357, 363, 364.  
*Palaeocystis* sp. (p. 358), *P. tenuiradiata* (p. 357); RAYMOND (265).  
*Pleurocystis squamosa*; AMI (11) p. 84J.  
*Stromatocystis cannati* (Miquel, sub *Trochocystis*), Cambrian, Coulouma, Aude, redescr. and now first figd.; MIQUEL (216), pp. 476, 482, pl. xv.  
*Trochocystis* sp., nondescr. (p. 476), *T. barrandei* (pp. 474, 475); MIQUEL (216). *T. bohémica*; MALLADA (207) pp. 27, 66.

## (H.)—†BLASTOIDEA.

- Blastoidocrinus carcharidens*; HUDSON (144) p. 272.  
*Codaster gracillimus*, hydrospires in anal area (p. 307), pl. xxi), *C. grandis* (p. 309, pl. xxi), *C. laeviculus*, ? *Phaenoschisma* (p. 309, pl. xxi), *C. superbus* n. sp., Upper Burlington Chert, Louisiana, Mo. (p. 308, pl. xxi); ROWLEY (282).  
*Cryptoblastus melo*; ROWLEY (282) p. 301, pl. xxi.  
*Lophoblastus pentagonus* n. sp., Lower Carbonif. Chouteau Limest., Bowling Green, Mo.; ROWLEY (282) p. 302, pl. xxi.  
*Mesoblastus glaber*; ULRICH (321) p. 47, (?) p. 57, pl. vi. *M. kirkwoodensis*?; ROWLEY (282) p. 307, pl. xxi.  
*Metablastus bipyramidalis* with brachiolae (p. 307, pl. xxi), *M. lineatus* with stem (pp. 306, 307, pl. xxi); ROWLEY (282).  
*Nucleocrinus verneuili*; PROSSER (261).  
*Orophocrinus conicus*? (p. 306, pl. xxi), *O. stelliformis* (p. 305, pl. xxi), ? juv. (p. 306, pl. xxi); ROWLEY (282).

† All extinct.

\* Names that are sometimes given the termination *-ites* (e.g. *Anomalocystites*) are here treated as always ending in *-us*, *-a*, or *-is*, as the case may be.

- Pentremites* sp.; GIRTY (113): [afterwards *maccalliei*]; McCALLIE (203).  
*P. cavus* n. sp., Lower St. Louis Limest., near Princeton, Ky.;  
 ULRICH (321) pp. 33, 57, pl. vi. *P. conoideus*; op. cit. pp. 30, 47,  
 57, pl. vi: ROWLEY (282) p. 306, pl. xxi. *P. florealis* (pp. 42, 47, 50,  
 58, pl. vi), *P. fohsi* n. sp., Birdsville formation of Chester group, near  
 Princeton, Ky. (pp. 63, 64, pl. vii), var. *marionensis* n. var., Birds-  
 ville formn. near Marion, Ky. (p. 64, pl. vii), *P. godoni* (pp. 54, 58,  
 pl. vi) & (? p. 47); ULRICH (321). *P. leda*; CLARKE (57) p. 44. *P.*  
*obesus* (pp. 63, 64, pl. vii), *P. pyramidatus* n. sp., Birdsville formn. of  
 Chester group, W. Kentucky (p. 64, pl. vii), *P. pyriformis* (p. 57,  
 pl. vi), *P. sulcatus* (p. 61); ULRICH (321).  
*Pentremitidea angulata* (p. 27), *P. lusitanica* (p. 27), *P. malladae* (p. 37),  
*P. paillettei* & *P. schultzi* (pp. 27, 37); MALLADA (208).  
*Phaenoschisma acuta* (p. 37), *P. archiaci* (p. 27), *P. nobile* (p. 37), *P.*  
*vernevili* (p. 27); MALLADA (208).  
*Schizoblastus sayi*, covering plates; ROWLEY (282) p. 302, pl. xxi.  
*Troostocrinus hispanicus*; MALLADA (208) p. 37.

## (K.)—†INCERTAE SEDIS.

- Astrechinus pentagonus* nom. nud.; JAEKEL (145).  
*Paropsonema cryptophysa* [sic.] Clarke (1900) not an Echinoderm but  
 cast of a jelly-fish allied to *Porpita*; FUCHS (101).

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 † All extinct.

## XV. VERMES.

BY

CORA B. SANDERS, F.L.S.

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## INTRODUCTION.

THE work recorded for 1905 shows less numerous titles than that of the preceding year. A considerable number of those here recorded being really publications of previous years which were either sent late to London, or omitted. There are however a number of interesting papers on various subjects of importance; and the new species and genera make a considerable addition to the general catalogue. Parasites have been a subject of widespread study, particularly *Ankylostoma* and *Filaria*. On the former Looss' experimental work leads to highly interesting conclusions as to the passage of the larvæ to the intestine.

Amongst the monographs dealing with faunistic questions are EISEN, COE, *Nemertinea* of California from the Harriman Expedition, etc.; and KATHERINE BUSH, Tubicolous Annelids from Alaska. Also a series of papers by BENHAM on New Zealand earth-worms. Italian *Oligochaeta* are dealt with by DE MARTIIS; parasitic faunas appear also treated at some length in the United States Fisheries Reports. The Royal Society reports on the Pearl Oyster Fisheries; and there are amongst other treatises monographs on the Trematoda of Eastern Europe. A general Survey of Canadian parasites is also in this year's record.

The fauna of the Baikal district has received a good deal of attention, and in some papers presents bionomical material of some interest. In fact the bionomical Plankton Surveys form a distinct feature of the work of the year; some are to hand from Belgium, from Switzerland and the North Italian Alps, as well as from lakes in S.E. Europe. The most interesting amongst these is the work by VOIGT on the distribution of *Tricladida* in the mountain streams of Alsace. Voigt is able to trace to an apparently sufficient cause the migration of genera, and the supplanting of one form due to the inroads made on its food supply by a competing population. The work of ZACHARIAS and HUBER on Swiss lake Rotifers is also of bionomical interest. Amongst various notes on the Tanganyika problem may be mentioned GRAVIER'S paper, as the most considerable contribution. Intimately connected with this is the subject dealt with by PELSENER in his paper "Sur l'origine des animaux d'eau douce." COE'S interesting paper may be mentioned here on the degenerate sense organ in terrestrial *Nemertea*, adducing their descent from marine forms.

A number of papers will be found dealing with regeneration; and a great deal of minute histological work; in some cases these subjects are treated in connection with physiological problems; NUSBAUM'S paper is one of three recording the degenerate condition of the reproductive organs induced in "Starvation" experiments. TREADWELL treats of degeneration in *Heteronereis*.

Following closely upon these are the observations on the reproductive processes of the Palolo. Amongst these are papers by IZUKA & MINTOSH. The former treats at some length of the segmental organ, the histological development of which is carefully given in the literature and should prove of great interest.

Perhaps the most important contribution to physiological knowledge is in the papers of CAMILLE SPIESS on the presence and function of cells containing biliary pigments in the digestive tracts of *Aulostoma* and *Hirudinea*. In connection with this work he makes a most valuable observation of the behaviour of the enzyme-secreting cells during digestion—noting the nuclear activity apparently quite comparable to that seen in other digesting tissues.



There is also a considerable amount of Embryological work done; several studies in developmental anatomy have thrown some light on the many phylogenetic problems with which this aggregation of groups teems.

WOLTERECK maintains in a study of its development that *Polygordius* is proved to be a true precursor of the Annelida.

Separate studies of Systematic are rare (GRAFF's on the *Turbellaria Acela* may be mentioned), but numerous notes appear in the faunistic papers, see:—MICHAELSEN, VON LINSTOW, MONTICELLI, DE MARTIIS, BENHAM, KATHERINE BUSH, EISEN, ARTHUR WILLEY, MARENZELLER, A. E. SHIPLEY, HLAVA, GRAVIER, ZOUBIN, SABUSSOW.

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- Aspeira* n. gen. *modesta* n. sp. between *Parasabella* and *Potamilla*, figg., Kadiak, BUSH (57) p. 202.  
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*Chone infundibuliformis*, N. Fjords, NORDGAARD (315) pp. 163, 235 & 236.  
*C. teres* n. sp., figg., Unalaska Is., BUSH (57) p. 215.  
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*Myxicola conjuncta* n. sp., figg., Prince William Sound, *M. affinis* n. sp., figg., California, *M. glacialis* n. sp., Unalaska Is., BUSH, t. c. pp. 217-219.  
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*Paralaonome japonica* (= *Sabellastarte* Savigny & Saint-Joseph), Japan, BUSH (57) pp. 197 & 198.  
*Parasabella* n. gen. *media* n. sp., figg., Kadiak, *P. maculata* n. sp., figg., Kadiak, BUSH, t. c. p. 201.

- Protula atypa* n. sp., figg., California, BUSH, t. c. p. 228.
- Placostegus tridentatus*, N. Fjords, NORDGAARD (315) pp. 163, 235-241; †*P. squameus*, *P. polymorphus*, Mid Miocene, Turin, *P. rovasendai*, *P. sternalis*, Mid Miocene, Turin, BELLINI (20) p. 640.
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By

CORA B. SANDERS.

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## XVII. SPONGIÆ.

BY

PROFESSOR E. A. MINCHIN.

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## INTRODUCTION.

I. The Zoological Record of Sponges for 1905 includes only 48 publications, exclusive of abstracts and reviews. This number is much below the average; but it should be noted that some of the memoirs recorded in the Record for 1904 (for instance, Nos. 36, 53A, 54) should have been included in the present Record.

II. Under the heading Biology, the most important contributions are those dealing with the skeleton. WOODLAND (47) describes the formation of spicules in Calcarea, and BÜTSCHLI (4), MAAS (19), and WEINSCHENK (42) discuss the nature of the skeletal material of calcareous sponges, while VOSMAER & WIJSMAN (41) deal in a similar manner with siliceous spicules. MINCHIN (22) discusses the phylogeny of Hexactinellid sponges, and DENDY (8) develops some interesting views upon the phylogeny and inter-relationships of the Demospongiæ. As regards anatomy and histology, a number of facts relating to various species are brought forward by URBAN (39) for calcareous sponges and by BAER (1), DENDY (4), KIRKPATRICK (15), PICK (28), and THIELE (36) for siliceous sponges. There are no works dealing specially with Embryology in this year's Record, and nothing to record under Physiology.

III. Under Geographical Distribution the most important memoirs are those of DENDY (4) on sponges from the Gulf of Manaar, THIELE (36) on sponges from the Coasts of Patagonia and Chili, LUNDBECK (17) on N. Atlantic sponges, and BAER (1) on sponges from E. and S. Africa. There are no contributions of any note to the geological record of sponges.

IV. The systematic portion of the Record includes much of interest, except for Hexactinellida, which are practically a blank. In *Calcarea URBAN* (39) describes new forms from California, and MINCHIN (23) attempts to unravel an extraordinary tangle of mistaken identification and nomenclature in the case of a well-known European (and probably British) species of *Ascon*. In *Demospongiæ* we have many important additions to the systematic catalogue from DENDY (4), LUNDBECK (17), THIELE (36), SVARCHEVSKIÏ (35), TOPSENT (37), PICK (28), and BAER (1). Scarcely less important than the additions is the elimination by SCHULZE (31) of Haeckel's so-called "Deep Sea Keratosa," long suspected, and now definitely proved, to be not sponges but Protozoa.

Owing to the many rearrangements which the systematic arrangement of the *Demospongiæ* has undergone, the Recorder has not attempted to classify sponges further than suborders in the present Record, but places all categories of lower taxonomic value in alphabetical order.

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## II. BIOLOGY.

### A. EVOLUTION AND PHYLOGENY.

Position of sponges in the animal kingdom; BARTELLETTI (2).

Variation in sponges, in shape, anatomy, skeletal framework and skeletal elements, pp. 38, 39 and 42; correlated and uncorrelated variation, p. 40; qualitative variation, p. 41; variation towards other species, p. 41: WILSON (46).

Evolution of spicules in Calcarea; WOODLAND (47) pp. 277 & 278.

Phylogeny of Hexactinellida; MINCHIN (22).

The Myxospongiæ regarded as primitive and standing at the bottom of the non-calcareous sponges, *Chondrosia* on the other hand regarded as a reduced siliceous sponge in which the absence of skeleton is secondary, p. 60: the *Plakinidæ* are the most primitive group of the Tetraxonida, p. 65: the Monaxonellida are descended from tetraxonid ancestors, the Astromonaxonellida from *Astrophora* and the Sigmatomonaxonellida from *Sigmatophora*, pp. 105 & 106, and pp. 133-135: the *Tethyidæ* may have originated through the *Epipolasidæ* from stellettid ancestors, p. 111: the Keratosa comprise two sections: the Euceratosa are a natural group descended from the Myxospongiidæ, their evolution starts with the *Aplysillidæ* and ends with the Spongiidæ, p. 203: the Pseudoceratosa are descended from Monaxonellid ancestors, p. 64 and p. 201: DENDY (8).

### B. MORPHOLOGY.

#### (i) *General Accounts.*

Vacant.

#### (ii) *External Characters.*

Variation in forms of sponges; WILSON (46) p. 39.

External form of Ascons; URBAN (39) pp. 38-41.

Form, size, and colour of species of *Raspailia*; PICK (28) pp. 37 & 38.

(iii) *Anatomy of the Soft Tissues. Canal-System.*

Variation in anatomy of sponges ; WILSON (46) p. 38.

Anatomy of *Leucosolenia cleanor*, pp. 46-55 : of *Sycandra coacta*, pp. 58 & 59 : of *Leucandra heathi*, pp. 66 & 67 ; URBAN (39).

Canal-system of Hexactinellida ; MINCHIN (22) pp. 441 & 442.

Structure of the poral and cloacal vestibules of *Cinachyra barbata* Sollas, with comparisons with other species ; KIRKPATRICK (15).

Canal-system of *Hexadella indica*, pp. 61 & 62, pl. i, figg. 1-3 : of *Myriastrra clavosa*, pp. 73 & 74 : of *Pilochrota hornelli*, p. 76 : of *Ecionema carteri*, p. 80 : of *Tetilla poculifera*, p. 91, *T. anomala*, p. 92, and *T. limicola*, p. 94 : of *Paratetilla cineriformis*, p. 98 : of *Coppatias reptans*, p. 108 : of *Xenospongia patelliformis*, p. 118 : of *Spirastrella tentorioides*, p. 126 : of *Collocalypta digitata*, p. 200 : of *Hippospongia anomala*, p. 215, and *H. dura*, p. 216 : of *Hircinia fusca*, p. 220, *H. tuberosa*, p. 221, *H. schulzei*, p. 222, and *H. anomala*, p. 223 : of *Leucandra donnani*, p. 229 ; DENDY (8).

Anatomy of *Cliona chilensis*, pp. 410 & 411 : of *Suberites sulcatus*, p. 417, and *S. ruber*, p. 419 : of *Axinella crinita*, p. 425 : of *Pseudaxinella egregia*, p. 426 : of *Higginsia papillosa*, p. 428 : of *Desmacidon platei*, p. 437 : of *Batzella corticata*, p. 439 : of *Eurypon miniaceum*, p. 446 : of *Microciona discreta*, p. 448 : of *Hymedemia iritans*, p. 455 : of *Oligoceras sororia*, p. 480, and *O. paupera*, p. 481 : of *Aplysilla sulphurea*, p. 488, and *A. lendenfeldi*, p. 489 : of *Halisarca dujardini* var. *magellanica*, p. 490 ; THIELE (36).

Canal-system of *Raspailia* ; PICK (28) pp. 38 & 39.

Anatomy of *Tethya armata*, p. 4 : of *Tethyopsilla globosa*, p. 5 : of *Ancorina bacillifera*, p. 7 : of *Sidonops globosa*, p. 9 : of *Reniera implexa*, p. 13 : of *Tedania digitata*, p. 17 : of *Lissodendoryx monticularis*, p. 23 : of *Coppatias sansibarensis*, p. 24 : of *Donatia viridis* and *D. parvistella*, pp. 26 & 27 ; BAER (1).

Canal-system of *Darwinella warreni*, p. clxxxi : of *Pleraplysilla minchini*, p. clxxxv ; TOPSENT (37).

(iv) *Skeletal System.*

(a) **General Accounts.**—Skeleton of the genus *Raspailia* ; PICK (28) pp. 41-44.

(b) **Material of the Skeleton.**—Nature of the material of calcareous spicules ; BÜTSCHLI (4) ; MAAS (19) ; WEINSCHENK (42).

Substance of siliceous spicules termed spicopal : structure of the spicules of *Tethya lyncurium* ; VOSMÄER & WIJSMAN (41).

(c) **Morphology, Development and Nomenclature of Skeletal Elements.**—Morphology and variation of sponge spicules ; WILSON (46) pp. 38 & 39 and 42.

Morphology of monaxon spicules of Calcarea ; MINCHIN (23) p. 10.

The development of the spicules of Sycons ; WOODLAND (47).

Spicules of Hexactinellida ; MINCHIN (22) pp. 443-447.

Morphology of the chelæ and ancoræ and of their varieties, pp. 2-7 : abnormal spicules of *Mycale lingua*, pp. 31 & 32, text-fig. 1 : special embryonic spicules (microscleres) in *Cladorhiza iniquidentata*, p. 93, *C. corticocancellata*, p. 96 and *Chondrocladia gigantea*, p. 106 : morphology of the bipocilla of *Iophon* and *Pocillon*, p. 174 : of the birotulæ, p. 197 : the term sphaerancora proposed for the melon-shaped ancoræ of *Melonanchora*, p. 211, footnote, their development, p. 214 ; LUNDBECK (17).

(d) **Skeletal Anatomy.**—Variation in skeletal framework of sponges; WILSON (46) p. 39.

Arrangement of spicules in *Leucosolenia*; URBAN (39) pp. 43 & 44.

(v) *Histology.*

Histology of *Leucosolenia eleanor*; URBAN (39) pp. 46–55.

Structure of the scleroblasts of *Sycons*; WOODLAND (47) pp. 250 & 251.

Histology of *Raspailia*; PICK (28) p. 40.

Spherical cells similar to “cellules sphéruleuses” in *Hexadella indica*, p. 62, pl. i, fig. 1–3; histology of cortex of *Pilochrota hornelli*, p. 76; pigment-cells, etc. in *Écionema luviniensis*, p. 82; fibre-cells and spherical cells, perhaps symbiotic algæ, in *Coppatias reptans*, p. 108 and *Asteropus haeckeli*, p. 109; cortex and scleroblasts in *Xenospongia patelliformis*, p. 118; pigment-cells in *Reniera pigmentifera*, p. 143; cells, probably pigment-cells in *Acanthella flabelliformis*, p. 193; bands of fibrous cells in *Euspongia officinalis*, var. *ceylonensis*, p. 212, in *Hircinia schulzei*, p. 222 and *H. anomala*, p. 223; DENDY (8).

C. PHYSIOLOGY.

Vacant.

D. BIONOMICS.

Symbiotic algæ? in *Coppatias reptans*, p. 108 and *Asteropus haeckeli*, p. 109; DENDY (8).

E. REPRODUCTION AND DEVELOPMENT.

Ova of *Raspailia*; PICK (28) pp. 44 & 45.

Ova with pseudopodia in *Tetilla limicola*; DENDY (8) p. 94.

Ova and embryos in *Desmacidon platei*, p. 437; in *Aplysilla lendenfeldi*, p. 489; THIELE (36).

Embryos in *Megalopastas elegans*; DENDY (8) p. 205.

Embryos in *Esperlopsis villosa*, pp. 12 & 13; in *Asbestopluma pennatula*, p. 50, *A. furcata*, p. 57, *A. cupressiformis*, p. 61, *A. lycopodium*, p. 65, and *A. infundibulum*, p. 71 (comparison of spiculation of embryos of *Asbestopluma* spp. p. 74); in *Cladorhiza abyssicola*, p. 82, *C. gelida*, p. 86, and text-fig. 2, *C. tenuisigma*, p. 90, *C. iniquidentata*, p. 92, text-fig. 4, *C. corticocancellata*, p. 96, text-fig. 5, and *C. oreata*, p. 100, text-fig. 6; in *Chondrocladia gigantea*, p. 106; in *Homæodictya flabelliformis*, p. 120; in *Myzilla incrustans*, p. 137, *M. fimbriata*, p. 143, *M. brunnea*, p. 146, *M. pedunculata*, p. 149, and *M. diversiancorata*, p. 151; in *Lissodendoryx stipitata*, p. 172; in *Iophon piceus*, p. 179; in *Forcepia fabricans*, p. 203, and *F. thielei*, p. 208; LUNDBECK (17).

F. MISCELLANEA.

**Bibliography.**—Titles of 19 memoirs on sponges with abstracts; MAAS (20).—Titles of 52 memoirs on sponges, with abstracts; WELTNER (43).—Special Bibliography of the Ceylon Sponge-Fauna; DENDY (8) p. 59. Bibliography of the genus *Raspailia*; PICK (28) pp. 2–6.

**Technique.**—Methods for studying calcareous sponges; URBAN (39) pp. 33–36.—Methods used for the investigation of *Raspailia*; PICK (28) pp. 36 & 37.



**Economics.**—Economic notes on Western Australian sponges ; WHITELEGGE (44).

### III. DISTRIBUTION.

#### A. GEOGRAPHICAL.

##### α. MARINE.

(i) **General.**—Oceanographical relations of sponges ; JOUBIN (14).  
Geographical distribution of *Raspailia* ; PICK (28) pp. 45 & 46.

(ii) **Atlantic Ocean and Adjacent Seas.**—North Atlantic Monaxonida collected by the Ingolf Expedition, *Esperiopsis*, *Mycale*, *Asbestoptuma*, *Cladorhiza*, *Chondrocladia*, *Artemisina*, *Homæodictya*, *Dendroricella* n. g., *Myxilla*, *Lissodendoryx*, *Iophon*, *Iotrochota*, *Forcepia*, *Melonanchora*, in all 69 spp., of which 33 nn. ; LUNDBECK (17).

Skerries, Co. Dublin, list of 10 sponges found ; COLGAN (7).

Straits of Dover, 4 spp. added to the faunistic list ; HALLEZ (11).

Norwegian fiords, list of 9 spp. of sponges dredged ; NORDGAARD (25) p. 156.

Lesina Adriatic, *Darwinella dalmatica*, n. sp. : Coast of France, Cour-seulles (Calvados), *Pteraplysilla minchini*, n. sp. : Azores, *Darwinella duplex* n. sp. ; TOPSENT (37).

Adriatic, 7 spp. of *Raspailia*, 3 nn. ; PICK (28).

Black Sea, *Halichondria*, *Pellina*, *Petrosia*, *Reniera*, *Pachychalina*, *Esperella*, *Myxilla*, *Stylopus*, *Raspailia*, *Suberites*, *Protosuberites* n. g., *Cliona*, *Kowalewskyella* n. g., in all 32 spp., of which 8 nn. ; SVARCHEVSKI (35).

(iii) **Indian Ocean and Adjacent Seas.**—Zanzibar, Cape Town, and Papeete, *Tethya*, *Tethyopsilla*, *Ancorina*, *Sidonops*, *Halichondria*, *Reniera*, *Pachychalina*, *Siphonochalina*, *Tedania*, *Mycale*, *Dendoryx*, *Lissodendoryx*, *Coppatias*, *Donatia*, in all 20 spp., of which 15 nn., with 3 n. varr. ; BAER (1).

Gulf of Manaar and Ceylon seas, *Hexadella*, *Dercitopsis* n. g., *Plakinastrella*, *Stæba*, *Myriastra*, *Pilochrota*, *Stelletta*, *Ecionema*, *Geodia*, *Tetilla*, *Craniella*, *Paratetilla* n. g., *Discodermia*, *Aciculites*, *Taprobane* n. g., *Petromica*, *Coppatias*, *Asteropus*, *Cryptotethya* n. g., *Tethya*, *Xenospongia*, *Hymedesmia*, *Spirastrella*, *Placospongia*, *Negombo* n. g., *Cliona*, *Suberites*, *Chondrilla*, *Chondrosia*, *Gellius*, *Gelliodes*, *Toxochalina*, *Strongylophora* n. g., *Reniera*, *Petrosia*, *Halichondria*, *Trachyopsis* n. g., *Pachychalina*, *Chalina*, *Ceraochalina*, *Siphonochalina*, *Desmacella*, *Acanthoxifer* n. g., *Esperella*, *Paresperella* n. g., *Iotrochota*, *Phlæodictyon*, *Histoderma*, *Myxilla*, *Clathria*, *Raspailia*, *Agelas*, *Echinodictyum*, *Aulospongius*, *Acarinus*, *Cyamon*, *Plocamia*, *Bubaris*, *Rhabdermia*, *Spongosorites*, *Hymeniacion*, *Thrinacophora*, *Axinella*, *Phakellia*, *Acanthella*, *Auletta*, *Leucophlæus*, *Ciocalypa*, *Collocalypa* n. g., *Darwinella*, *Megalopastas* n. g., *Spongelia*, *Psammopemma*, *Cacospongia*, *Euspongia*, *Hippospongia*, *Phyllospongia*, *Hircinia*, *Aplysina*, *Leucosolenia* (*Clathrina*), *Leucandra*, *Heteropogma*, in all 145 spp., of which 77 nn., with 23 n. varr. : complete list of Ceylon sponge-fauna, pp. 230-234 ; DENDY (8).

Maldives, *Darwinella gardineri* n. sp. : Natal Coast, *D. warreni* n. sp. ; TOPSENT (37).

Singapore, *Cinachyra*, *Aurora*, *Ancorina*, *Spirastrella*, *Esperella*, *Rhaphidophlus*, *Aulena*, *Gellius*, *Gelliodes*, *Spongelia*, *Petrosia*, *Reniera*, *Cacoachalina*, *Cladoachalina*, *Pachychalina*, *Euchalina*, *Euspongia*, *Hippospongia*, in all 24 spp. ; DRAGNEWITSOH (9).

Western Australia, economic notes on 5 spp. of sponges; WHITELEGGE (44).

(iv) **Pacific Ocean and Adjacent Seas.**—Coast of British Columbia, *Esperella bellabellensis* n. sp.; LAMBE (16).

Sponges of coasts of S. America, Mexico, and Galapagos Is. [see IV, A]; WILSON (46).

Monterey Bay, California, *Leucosolenia*, *Sycandra*, *Rhabdodermella*, *Leucandra*, in all 5 spp., of which 4 nn.; URBAN (39).

Mangareva, Gambier Islands, *Oliothoosa seurati* n. g., n. sp.; TOPSENT (38).

Coasts of Chili and Patagonia and Straits of Magellan, *Geodia*, *Donatia*, *Cliona*, *Clionopsis* n. g., *Polymastia*, *Prosuberites*, *Suberites*, *Hymeniacion*, *Vosmaeria*, *Axinella*, *Pseudaxinella*, *Plicatella*, *Higginsia*, *Tedania*, *Biemna*, *Desmacidon*, *Batzella*, *Esperiopsis*, *Mycale*, *Myxilla*, *Iophon*, *Eurypon*, *Microcionia*, *Clathria*, *Ophitaspongia*, *Hymedesmia*, *Stylotellopsis* n. g., *Halichondria*, *Reniera*, *Pellinella* n. g., *Pachychalina*, *Chalina*, *Acervochalina*, *Oligoceras*, *Cacospongia*, *Spongia*, *Hircinia*, *Spongelia*, *Aplysilla*, *Haliscarca*, in all 80 spp., of which 67 nn.; THIELE (36).

### β. FRESHWATER SPONGES.

Freshwater sponges as bearing on the question of the origin of freshwater fauna; PELSENEER (27) pp. 704, 705, 708.

Ireland, localities for *Euspongilla lacustris* and *Heteromeyenia ryderi*; STEPHENS (34).

Lakes of S. Tyrol, spicules of *Euspongilla lacustris*; HUBER (13) p. 74.

Winter-fauna of Lake Kaban, *Euspongilla lacustris* and *Ephydatia mülleri*; MEISSNER (21) p. 108.

### B. GEOLOGICAL.

#### (i) GENERAL.

Vacant.

#### (ii) CAINOZOIC.

Pleistocene:—Lower Saarian (Saharian?) near Reggio, Calabria, tetractinellid sponge-spicules; NEVIANI (24).

#### (iii) MESOZOIC.

Cretaceous:—Cretaceous of the Iser region, sponges, pp. 18, 21, 22, 55, 56, 159, 168, 183, 184; ZAHÁLKA (48).—Lower Cretaceous of the Jura of Neuchâtel, fossil sponges; SCHARDT & DUBOIS (30) pp. 268, 276, 285.—Government of Ekaterinoslaw, 7 spp. of fossil sponges; FAVRE (10).

Jurassic:—Upper Jurassic of Hungary, 2 fossil sponges; PAPP (26) p. 81.—Upper Jurassic of the Jura of Neuchâtel, 6 spp. of sponges; SCHARDT & DUBOIS (30) p. 236.—Tithonian of Stramberg, Moravia, list of sponges; REMEŠ (29).

Trias:—Upper Keuper (Pachycardientuffe) of South Tyrol, three sponges; BLASCHKE (3) pp. 164, 165.

#### (iv) PALÆOZOIC.

General:—Type-specimens of palæozoic N. American sponges in the New York State Museum; CLARKE (6).

Devonian:—Hamilton group, Indiana, nn. spp. of *Hindia*, *Somphospongia*, and *Vermispongia* n. g.; WHITFIELD (45).

Silurian:—of Victoria and Queensland, spp. of *Receptaculites*; CHAPMAN (5).

Ordovician:—Chazy-formation, *Eospongia varians* and *Strephochetus* spp.; SEELY (33).

#### IV. SYSTEMATIC.

##### A. PORIFERA, GENERAL.

The Non-Calcareea considered as a class and divided into Myxospongida, Triaxonida, Tetraxonida, and Euceratosa, "four natural groups... which may be conveniently regarded as of ordinal rank"; DENDY (8) p. 60.

List of sponges from coasts of S. America, Mexico, and Galapagos Is., nearly all cited as "nov. spp.," but without descriptions: WILSON (46).

Catalogue of type-specimens of palæozoic sponges in the New York State Museum: CLARKE (6).

##### B. CALCAREA.

###### (i) HOMOCÆLA.

*Clathrina* (*Ascandra*, *Leucosolenia*) *contorta* Bwk., description and synonymy: includes *Ascetta spinosa* Lend.: MINCHIN (23).

*Leucosolenia* Bow., defined; DENDY (8) p. 226.—*L. (Clathrina) coriacea* Mont., var. *ceylonensis*, n. var.: DENDY (8) p. 226, 227, pl. xiii, fig. 8.—*L. eleanor*, n. sp. Monterey Bay, California: URBAN (39) pp. 36–55, pl. vi, figg. 1–62, pl. vii, figg. 63–68.—*L. (Clathrina) tenuipilosa*, n. sp., Ceylon seas: DENDY (8) pp. 227, 228, pl. xiii, fig. 9.

###### (ii) HETEROCÆLA.

*Amphoriscidæ*, defined: DENDY (8) p. 229.

†*Eudea* sp.: BLASCHKE (3) p. 165.

*Grantia compressa*, spicule-formation: WOODLAND (47).

*Grantiida*, defined: DENDY (8) pp. 228.

*Heteropegma* Polej., defined, p. 230; *H. nodus-gordii* Polej., p. 230: DENDY (8).

*Leucandra* H., defined; DENDY (8) p. 228.—*L. apicalis*, n. sp., Monterey Bay, California: URBAN (39) pp. 67–70, pl. vii, figg. 89–107.—*L. donnani*, n. sp., Gulf of Manaar: DENDY (8) pp. 228, 229, pl. xiii, fig. 10.—*L. heathi*, n. sp., Monterey Bay, California: URBAN (39) pp. 59–67, pls. viii, ix.

*Sycon* seu *Sycandra*, *S. coacta*, n. sp., Monterey Bay, California: URBAN (39) pp. 55–59, pl. vii, figg. 69–88.—*S. ciliatum* and *S. coronatum*, spicule-formation: WOODLAND (47).

##### C. HEXACTINELLIDA.

###### (i) LYSSACINA.

†*Receptaculites australis*, pl. i, figg. 2–7, pl. ii, pl. iii, figg. 2–7, pp. 7–9; Queensland specimens, pp. 9–12: CHAPMAN (5), P. Soc. Victoria xviii.—

†*R. fergusoni*, n. sp., Silurian, Gippsland: CHAPMAN (5) p. 6, pl. i, figg. 1, 3, and pl. iii, fig. 1, P. Soc. Victoria xviii.

(ii) *DICTYONINA.*

- †*Craticularia vulgata* Poč. : ZAHÁLKA (48) pp. 183, 184.  
 †*Cribrospongia reticulata* : FAVRE (10) p. 96.  
 †*Pleurostoma bohemicum* : ZAHÁLKA (48) pp. 22, 159, 168.  
 †*Plocoscyphia* sp. : FAVRE (10) p. 98 ; ZAHÁLKA (48) pp. 22, 55, 159.  
 †*Pyrospongia vrbæi* Zah. : ZAHÁLKA (48) pp. 183, 184.  
 †*Scyphia beaumonti* : FAVRE (10) p. 97.  
 †*Ventriculites angustatus* : ZAHÁLKA (48) pp. 22, 159, 168.—†*V. cervicornis*, p. 95 ; †*V. interruptus*, p. 95 ; †*V. pedester*, p. 94 ; †*V. radiatus*, p. 94 : FAVRE (10).—*V.* sp. : ZAHÁLKA (48) pp. 18, 22, 159.

## D. DEMOSPONGIÆ.

Tetraxonida, defined to include all Demospongiæ except Myxospongiæ and Keratosa : DENDY (8) pp. 63, 64.

(i) *TETRACTINELLIDA.*

Tetractinellida, defined and divided into two Suborders—(1) Homosclerophora = Microsclerophora Sollas, "in which microscleres and megascleres are not yet sharply differentiated from one another and no triaenes are developed" (p. 64), (2) Astrophora (p. 67), (3) Sigmatorphora (p. 89) ; the group Carnosa to be abandoned, the Microsclerophora to be placed among Tetractinellida as a Suborder Homosclerophora, the Microtrianosa to be placed amongst the other triæne-bearing Tetractinellida, and the Oligosilicina to be placed near the *Tethyida*, pp. 64, 65 : DENDY (8).

## (1) Sub-order CHORISTIDA.

- Ancorina* O., defined : BAER (1) p. 6 ; DRAGNEWITSCH (9) p. 12.—*A. bacillifera* (Carter), described : BAER (1) pp. 6-9, pl. i, fig. 3, pl. iii, figg. 11-19—*A. simplex* Lend., described : DRAGNEWITSCH (9) pp. 12, 13.  
*Aurora* Soll., defined, p. 10 ; *A. globostellata* Carter, described, p. 11 : DRAGNEWITSCH (9).  
*Calcabrina* Sollas, a synonym of *Stæba* Sollas, q. v. ; DENDY (8) p. 70.  
*Cinachyra* Sollas, defined : DRAGNEWITSCH (9) p. 9.—*C. barbata* Soll., structure of the oscules and comparisons with other species : KIRKPATRICK (15).—*C. voeltzkowi* Lend., described : DRAGNEWITSCH (9) pp. 9, 10.  
*Corticium plicatum* O. S., referred to *Stæba* Sollas, q. v. ; DENDY (8) p. 70.  
*Craniella* O. S., defined, p. 95 ; *C. elegans*, n. sp., Gulf of Manaar, 11½-36 fathoms, pp. 95, 96, pl. iv, fig. i : DENDY (8). (See also *Tethya* infra.)  
*Dercitopsis*, n. g. of *Plakinida*, for *D. ceylonica*, n. sp. from off Galle, 100 fathoms : DENDY (8) pp. 65-67, pl. ii, fig. i.  
*Ecionema* Bow., defined, p. 79 ; *E. carteri*, n. sp. from Gulf of Manaar and Ceylon Seas, shallow water to eight fathoms, pp. 79-81, pl. i, fig. 5, pl. iii, fig. 1 ; *E. laviniensis*, n. sp. from off Mount Lavinia, 30 fathoms, pp. 81, 82, pl. iii, fig. 2 : DENDY (8).  
*Geodia* Lam., defined, p. 83 ; *G. areolata* Carter, described, pp. 87, 88 : DENDY (8).—*G. magellani* Soll., described : THIELE (36) p. 408.—*G. perarmata* Bow., described, pp. 83-85 ; *G. peruncinata*, n. sp. from 12 miles off Galle, 100 fathoms, pp. 85-87, pl. iii, figg. 3, 3A, 3B ; *G. ramodigitata* Carter, described, pp. 88, 89 : DENDY (8).  
*Geodiidae*, defined : DENDY (8) p. 83 ; BAER (1) p. 9.  
*Myriastræa* Sollas, defined, p. 71 ; *M. clavosa* (Ridley), described, p. 72 ; *M. tethyopsis* (Carter), described, pp. 72-74 : DENDY (8).

- Pachastrellidæ*, definition : DENDY (8) p. 67.
- Paratetilla*, **n. g.** for *Tethya merguensis* Carter, and *P. cineriformis*, **n. sp.**, Gulf of Manaar and Ceylon Seas : DENDY (8) pp. 97, 98, pl. iii, fig. 7.
- Pilochrota* Sollas, defined, p. 74 ; *P. hæckeli* Sollas, described, pp. 74, 75, pl. ii, fig. 4 ; *P. hornelli*, **n. sp.** from Galle, shallow water, pp. 75-77, pl. ii, fig. 5 : DENDY (8).
- Plakinastrella* Schulze, defined, to be removed from *Plakinidæ* to *Pachastrellidæ*, p. 67 ; *P. intermedia*, **n. sp.** from off Galle, 100 fathoms, pp. 67-69, pl. i, fig. 4, pl. ii, fig. 2 ; *P. schulzei*, **n. sp.** from off Galle, 100 fathoms, pp. 69, 70, pl. ii, fig. 3 : DENDY (8).
- Plakinidæ*, definition and affinities, the genus *Plakinastrella* to be removed from it : DENDY (8) p. 65.
- Samus simplex* Carter, referred to *Stæba* Sollas, q. v. : DENDY (8) p. 70.
- Sidonops* Sollas, defined, p. 9 ; *S. globosa*, **n. sp.**, Cape Town, pp. 9, 10, pl. i, fig. 4, pl. iv, figg. 1-6 : BAER (1).
- Stelletta* O. S., defined, p. 77 ; *S. herdmanni*, **n. sp.**, Gulf of Manaar and off Galle, up to 100 fathoms, pp. 77, 78, pl. ii, fig. 6 ; *S. vestigium*, **n. sp.** from off Talaivillu Paar, 10-14 fathoms, pp. 78, 79, pl. ii, fig. 7 : DENDY (8).
- Stellettidæ*, defined : BAER (1) p. 6 ; DENDY (8) p. 71.
- Stæba* Sollas, defined, to be retained distinct from *Dercitus* for *Samus simplex* Carter, *Corticium plicatum* O. S., and *S. extensa* **n. sp.**, and to include *Calcabrina* Sollas, p. 70 ; *S. extensa*, **n. sp.** from off Mutwal Island, 10-35 fathoms, pp. 70, 71, pl. v, fig. 1 : DENDY (8).
- Tethya* Lam., genus defined, p. 4 ; *T. armata*, **n. sp.**, Zanzibar, pp. 4, 5, pl. i, fig. 1, pl. iii, figg. 1-5 : BAER (1).
- Tethyopsilla* Lend., defined, p. 5 ; *T. globosa*, **n. sp.**, Zanzibar, pp. 5, 6, pl. i, fig. 2, pl. iii, figg. 6-10 : BAER (1).
- Tethyopsillidæ*, defined : BAER (1) p. 5.
- Tetilla* O. S., defined, p. 89 ; *T. anomala*, **n. sp.**, Coast of Ceylon, 10-36 fathoms, pp. 91-93, pl. iii, fig. 5 ; *T. hirsuta* Dendy, described, pp. 89, 90 ; *T. limicola*, **n. sp.**, Tamblegam Lake, Trincomalee, pp. 93-95, pl. i, fig. 7, pl. iii, fig. 6 ; *T. poculifera*, **n. sp.** from Gulf of Manaar and W. Coast of Ceylon, deep water, pp. 90, 91, pl. i, fig. 6, pl. iii, fig. 4 : DENDY (8).
- Tetillidæ*, defined : DENDY (8) p. 89.

## (2) LITHISTIDA.

Lithistida, definition and characters : DENDY (8) p. 99.

- Aciculites* O. S., defined, should be referred to the *Azoricidæ*, p. 101 ; *A. orientalis*, **n. sp.**, Ceylon seas, pp. 101, 102, pl. iv, fig. 3 : DENDY (8).
- Discoderma* Bocage, defined, p. 99 ; *D. emarginata*, **n. sp.** from 12 miles off Galle, 100 fathoms, pp. 99-101, pl. iv, fig. 4 : DENDY (8).
- † *Eospongia varians*, described : SEELY (33) pp. 153, 154.
- † *Hindia indianensis*, **n. sp.**, Hamilton group, Indiana ; WHITFIELD (45), p. 299, pl. x, figg. 1-6, Bull. Amer. Mus. xxi.
- Petromica* Topsent, defined, p. 104 ; *P. massalis*, **n. sp.**, Gulf of Manaar and W. coast of Ceylon, pp. 104, 105, pl. iv, fig. 5 : DENDY (8).
- Taprobane*, **n. g.**, might be referred to either *Azoricidæ* or *Scleritodermidæ*, and necessitates a revision of Sollas's classification of Lithistida, p. 102 : for *T. herdmanni*, **n. sp.**, Gulf of Manaar, 9 fathoms, pp. 103, 104, pl. i, fig. 8, pl. iv, fig. 2 : DENDY (8).

## (ii) MONAXONIDA.

Monaxonellida, defined and subdivided into Astromonaxonellida and Sigmatomonaxonellida : DENDY (8) pp. 105, 106.

## (a) Order HADROMERINA.

- Astromaxonellida, defined, "practically equivalent to the Hadromerina," with addition of *Chondrosidæ*: DENDY (8) pp. 106, 107.
- Asteropus* Sollas, defined, p. 109; *A. haeckeli*, n. sp., Gulf of Manaar, deep water, pp. 109, 110, pl. v, fig. 3: DENDY (8).
- Axosuberites* Tops., to be merged in *Suberites*: DENDY (8) p. 131.
- Chondrilla* S., defined, p. 132; *C. australiensis* Carter, described, with var. *lobata*, n. var., pp. 132, 133: DENDY (8).
- Chondrosia* Nardo, defined, p. 133; *C. reniformis* Nardo, described, p. 133: DENDY (8).
- Cliona* Gray, defined: DENDY (8) p. 128.—*C. chilensis*, n. sp., Calbuco, Chili: THIELE (36) pp. 409–412, figg. 28, 29, 36 a–c.—*C. margaritifera*, n. sp., Gulf of Manaar: DENDY (8) pp. 128–130, pl. v, fig. 9 and text-fig. 2, p. 144.—*C. vastifica* Hanc., described: SVARCHEVSKIĪ (35), pp. 38, 39, pl. iv, fig. 12, pl. vi, fig. 6.
- Clionidæ*, defined: DENDY (8) p. 128.
- Clionopsis*, n. g. for *C. platei*, n. sp., Calbuco, Chili: THIELE (36) pp. 412–414, fig. 37, a–d.
- Cliotheosa*, n. g., *Clionidæ*, defined (p. 95) for *C. seurati*, n. sp., Mangareva, Gambier Islands: TOPSENT (38).
- Coppatiæ* Soll., defined, p. 23; remarks on position, p. 25: BAER (1): *C.* defined, includes *Stellettinopsis* Carter: DENDY (8) p. 107.—*C. reptans*, n. sp., Cod Bay, Trincomalee, 5 fathoms: DENDY (8) pp. 108, 109, pl. v, fig. 2.—*C. sansibarensis*, n. sp., Zanzibar: BAER (1) pp. 23, 24, pl. i, fig. 13, pl. v, figg. 26–30.
- Coppatiidæ* Topsent, to be merged in *Epipolasidæ* Sollas, after removal of *Spongosorites* Topsent to *Axinellidæ*: DENDY (8) p. 107.
- Cryptotethya*, n. g., *Epipolasidæ*, for *C. agglutinans*, n. sp., Gulf of Manaar: DENDY (8) pp. 110–112, pl. v, figg. 4, 5.
- Donatia* Nardo for *Tethya* Autt., defined: BAER (1) p. 26.—*D. papillosa*, n. sp., Calbuco, Chili: THIELE (36) pp. 408, 409, figg. 24, 35 a–c.—*D. parvistella*, n. sp., Zanzibar: BAER (1) pp. 27, 28, pl. ii, g. 9, pl. v, figg. 35–38.—*D. viridis*, n. sp., Papeete: BAER (1) pp. 26, 27, pl. ii, fig. 8, pl. v, figg. 31–34.
- Donatiidæ*, n. nom. for *Tethyidæ*, defined: BAER (1) p. 26.
- Epipolasidæ* Sollas, defined and reinstated to include Topsent's families *Coppatiidæ*, with the exception of *Spongosorites*, and *Streptasteridæ*: DENDY (8) p. 107.
- Hymedesmia* Bow., defined and characterized: DENDY (8) pp. 119, 120.—*H. areolata*, n. sp., Calbuco, 40 m.: THIELE (36) pp. 452, 453, figg. 23, 68 a–d.—*H. curvistellifera*, n. sp., Ceylon seas: DENDY (8) pp. 121, 122, pl. v, fig. 6.—*H. irritans*, n. sp., Juan Fernandez, pp. 455, 456, fig. 71 a–e; *H. lavis*, n. sp., Calbuco, pp. 453, 454, fig. 69 a–f: THIELE (36).—*H. stellivarians* Carter, described: DENDY (8) pp. 120, 121.—*H. tenuissima*, n. sp., Calbuco: THIELE (36) pp. 454, 455, fig. 70 a–f.
- Kowalewskyella*, n. g. for *K. gracilis*, n. sp., Black Sea: SVARCHEVSKIĪ (35) pp. 40, 41, & 53, pl. ii, fig. 7, pl. vii, fig. 2.
- Laxosuberites* Tops., to be merged in *Suberites*: DENDY (8) p. 131.
- Leptosastra constellata* Topsent, position discussed: DENDY (8) p. 134.
- Negombo*, n. g., *Spirastrellidæ*, for *N. tenuistellata*, n. sp., from off Negombo, 12–20 fathoms: DENDY (8) pp. 127, 128, pl. v, fig. 8.
- Placospongia* Gray, defined and referred to *Spirastrellidæ*, p. 126; *P. carinata* (Bow.), pp. 126, 127: DENDY (8).
- Polymastia isidis*, n. sp., Admiralty Sound, 19 m.: THIELE (36) pp. 414, 415, figg. 25, 38 a–e.

- Prosuberites epiphytoides*, n. sp., Juan Fernandez : THIELE (36) p. 420.
- Protosuberites*, n. g. for *P. prototipus*, n. sp., Black Sea : SVARCHEVSKIĪ (35) pp. 36, 37, & 52, pl. vi, fig. 5.
- Spirastrella* O. S., defined : DENDY (8) p. 122 ; DRAGNEWITSCH (9) p. 13.—*S. lacunosa* Kieschnick, described : DRAGNEWITSCH (9) pp. 13, 14.—*S. tentorioides*, n. sp., Ceylon seas, pp. 125, 126, pl. v, fig. 7 ; *S. vagabunda* Ridley, described, with four varieties, var. *trincomaliensis* R., var. *tubulodigitata*, n. var., var. *fungoides*, n. var., and var. *gallensis*, n. var., pp. 122–125 : DENDY (8).
- Spirastrellidæ*, defined : DENDY (8) p. 119.
- Stellettinopsis* Carter, a synonym of *Coppatias* Sollas : DENDY (8) p. 107.
- Streptasteridæ* Topsent, to be merged in *Epipolasiidæ* Sollas : DENDY (8) p. 107.
- Suberites* Nardo, defined, to include *Axosuberites* Tops. and *Iaxosuberites* Tops. : DENDY (8) pp. 130, 131 : characters of the genus : THIELE (36) pp. 415, 416.—*S. cruciatus*, n. sp. from outside Periya Paar, 24 fathoms : DENDY (8) p. 131, pl. v, fig. 10.—*S. (Pseudosuberites) digitatus*, n. sp., Admiralty Sound : THIELE (36) pp. 417, 418, figg. 26, 40 a, b.—*S. domuncula* O.S., described : SVARCHEVSKIĪ (35) pp. 35, 36, pl. ii, fig. 5, pl. iv, fig. 11, pl. vi, fig. 4.—*S. puncturatus*, n. sp., Coquimbo, pp. 419, 420, fig. 42 a–e ; *S. ruber*, n. sp., Admiralty Sound, pp. 418, 419, figg. 31, 41 a–d ; *S. (Pseudosuberites) sulcatus*, n. sp., Cape Espiritu-Santo, East Tierra del Fuego, p. 417, figg. 27, 39 a–e : THIELE (36).
- Suberitidæ*, defined, referred to *Astromonaxonellida* : DENDY (8) p. 130.
- Tethya* Lam., defined : DENDY (8) p. 112.—*T. lyncurium* L., described with three varieties from Ceylon : DENDY (8) pp. 112–114 ; structure of the spicules : VOSMAER & WIJSMAN (41). (See also *Donatia*, supra.)
- Tethyidæ*, defined : DENDY (8) p. 112. [See also II, A.]
- † *Viva* sp. : ZAHÁLKA (48) pp. 22, 159.
- Vosmaeria reticulosa*, n. sp., Iquique : THIELE (36) pp. 423, 424, fig. 45 a–c.
- Xenospongia* Gray, defined and referred to *Tethyidæ*, p. 115 ; *X. patelliformis* Gray, described, pp. 116–119, pl. vi : DENDY (8).
- Yvesia alecto* Topsent, position discussed : DENDY (8) p. 134.

## (b) Order HALICHONDRINA.

- Sigmatomonaxonellida, defined as a suborder, and divided into three families, *Haploscleridæ*, *Desmacidonidæ*, and *Axinellidæ*, the affinities of the group discussed : DENDY (8) pp. 133–135. [See also II, A.]
- Acanthella* O. S., defined, p. 193 ; *A. carteri* Dendy, described, p. 193, pl. viii, fig. 6 ; *A. flabelliformis* Keller, described, pp. 193, 194 : DENDY (8).
- Acanthoxifer*, n. g., allied to *Heteroxya* Topsent, for *A. ceylonensis*, n. sp., Gulf of Manaar, deep water : DENDY (8) pp. 156–158, pl. ix, fig. 5.
- Acamus* Gray, defined, p. 177 ; *A. ternatus* Ridley, described, p. 177, pl. viii, fig. 4 : DENDY (8).
- Acervochalina variabilis*, n. sp., Juan Fernandez and Punta Arenas : THIELE (36) pp. 477–479, figg. 17, 33, 96.
- Agelas* Duch. et. Mich., defined, p. 174 ; *A. ceylonica*, n. sp., Ceylon seas, pp. 174, 175, pl. xii, fig. 9 ; *A. mauritiana* (Carter), described, p. 174 : DENDY (8).
- Amphiasarella*, see under *Phlæodictyinae*.
- Artemisina* Vosmaer, diagnosis, p. 110, and characters of species, pp. 116, 117 ; *A. apollinis* (R. & D.), diagnosis and description, pp. 114–116, pl. xiii, fig. 4 a–g ; *A. arcigera* (O. S.), diagnosis and description,

- includes *A. suberitoides* Vosmaer & Fristedt, pp. 110-114, pl. i, figg. 9-11, pl. xiii, fig. 3 *a-f*; *A. suberitoides* Vosmaer & Fristedt, synonym of *A. arcigera* (O. S.), p. 113: LUNDBECK (17).
- Asbestopluma* Norman, diagnosis and position, pp. 43, 44, criticism and systematic survey of species referred to it, pp. 73-78; *A. bihamatifera* Carter, diagnosis and description, pp. 51-54, pl. ii, figg. 7, 8, pl. xi, figg. 1 *a-g*, 2; *A. comata*, n. sp., from eastern slope of the Reykjanes-ridge, 799 fathoms, pp. 72, 73, pl. ii, figg. 22, 23, pl. xii, figg. 1, *a-f*; *A. cupressiformis* Cart., diagnosis and description, includes *Esperella fristedtii* Lambe, partim, pp. 58-62, pl. ii, figg. 11-14, pl. xi, figg. 4, *a-f*, 5; *A. furcata*, n. sp., Ingolf, 537 fathoms and 450 fathoms, and East Iceland, pp. 54-57, pl. ii, figg. 9, 10, pl. xi, fig. 3, *a-h*; *A. hydra*, n. sp., off Iceland, 1010 and 1309 fathoms, pp. 66-68, pl. ii, figg. 18, 19, pl. xi, fig. 8, *a-f*; *A. infundibulum* Levins., diagnosis and description, includes *Esperia cupressiformis* Cart. partim, and *E. bihamatifera* Hansen partim, pp. 68-72, pl. ii, figg. 20-21, pl. xi, fig. 9, *a-m*; *A. lycopodium* Levins., diagnosis and description, includes *Esperia bihamatifera* Hansen partim, and *Esperella fristedtii* Lambe partim, pp. 62-66, pl. ii, figg. 15-17, pl. xi, figg. 6, *a-d*, 7; *A. pennatula* (O. S.), diagnosis and description, includes *Cladorhiza bihamatifera* Vosmaer, *Esperia bihamatifera* Hansen, *Cladorhiza nordenskiöldii* Fristedt, and *Esperella plumosa* Arnesen, pp. 44-51, pl. ii, figg. 1-6, pl. x, figg. 4, *a-o*, 5-7: LUNDBECK (17).
- Aulena* Lend., defined, p. 17; *A. laxa*, var. *digitata* Lend., described, p. 17: DRAGNEWITSCH (9).
- Auletta* O. S., defined, p. 194; *A. elongata*, n. sp., Gulf of Manaar and W. coast of Ceylon, pp. 195, 196, pl. xiii, fig. 7; *A. lyrata* (Esper) described, includes *A. aurantiaca* Dendy, with varr. *glomerata* n. var., *crassispiculata* n. var., and *brevispiculata* n. var., pp. 194, 195: DENDY (8).
- Aulospongius* Norman, defined and discussed, p. 176; *A. tubulatus* (Bow.), p. 176, text-fig. 5: DENDY (8).
- Axinella* O. S., defined; DENDY (8) p. 188.—*A. crinita*, n. sp., Calbuco; THIELE (36) pp. 424-426, fig. 46, *a*, *b*.—*A. halichondroides*, n. sp., Gulf of Manaar, p. 190, pl. xii, fig. 7; *A. labyrinthica* Dendy, p. 188; *A. manus*, n. sp., Gulf of Manaar, pp. 188, 189, pl. xii, fig. 8; *A. tenuidigitata*, n. sp., W. coast of Ceylon, deep water, pp. 189, 190, pl. xiii, fig. 4: DENDY (8).
- Axinellidæ*, defined and discussed; DENDY (8) pp. 181, 182.
- Batzella* Topsent, discussed, p. 438; *B. corticata*, n. sp., Juan Fernandez, 30 m., pp. 438, 439, fig. 58, *a*, *b*; *B. mollis*, n. sp., Juan Fernandez, pp. 439, 440, fig. 59, *a*, *b*: THIELE (36).
- Biemna chilensis*, n. sp., Calbuco: THIELE (36) pp. 434, 435, fig. 54, *a-d*. *Bubarinae* to be abolished as a group: DENDY (8) p. 158.
- Bubaris* Gray, defined and discussed, p. 179; *B. eruca* (Carter) p. 180; DENDY (8).
- Cacochalina* O. S., defined, p. 23; *C. typica* Lend., described, pp. 23, 24: DRAGNEWITSCH (9).
- Ceraochalina* Lendenfeld, defined, p. 152; *C. ceylonica*, n. sp., Gulf of Manaar, pp. 154, 155, pl. vii, fig. 3, pl. x, fig. 6; *C. multiformis* Lend., var. *manaarensis* Dendy, described, p. 154, pl. vii, fig. 2; *C. retiarmata*, n. sp., from off Chilaw, 10 fathoms, pp. 152, 153, pl. x, fig. 4; *C. reticulata*, n. sp., Gulf of Manaar, pp. 153, 154, pl. x, fig. 8: DENDY (8).
- Chalina* Grant, defined, p. 150; *C. clathrata*, n. sp., Gulf of Manaar, p. 151, pl. x, fig. 3; *C. cymæformis* (Esper), described, pp. 151, 152: DENDY (8).—*C. fusifera*, n. sp., Punta Arenas: THIELE (36) pp. 476, 477, figg. 15, 32, 95.—*C. obtusispiculifera*, n. sp., W. coast of Ceylon



- and Gulf of Manaar, deep water, p. 150, pl. x, fig. 9; *C. subarmigera* (Ridley), described, p. 150, pl. x, fig. 5: DENDY (8).
- Chalinidae*, characters of the family and criticism of the genera: THIELE (36) pp. 472, 473.
- Chalininae* defined, their affinities discussed: DENDY (8) pp. 147, 148.
- Chondrocladia* Wyv. Thomson, diagnosis, p. 102, and list of species, pp. 109, 110; *C. gigantea* (Hansen), diagnosis and description, includes *Cladorhiza grandis* Verrill, *C. nobilis* Frist., *Desmacidon clavatum* Hansen, *D. nucleus* Hansen and *D. arcticum* Hansen, pp. 102-109, pl. iv, fig. 1, pl. xiii, fig. 2, *a-l*: LUNDBECK (17).
- Ciocalypta* Bow., defined, p. 197; *C. tyleri* Bow., described, with var. *aberrans* n. var., pp. 197-199: DENDY (8).
- Cladochalina* O. S., defined, p. 24; *C. aurantiaca* Lend., described, pp. 24, 25; *C. euplax* Lend., described, p. 24: DRAGNEWITSCH (9).
- Cladorhiza* M. Sars, diagnosis and characters, pp. 78, 79, list of species, pp. 101, 102; *C. abyssicola* M. Sars, diagnosis and description, pp. 79-83, pl. xii, fig. 2, *a-f*; *C. abyssicola* Fristedt, a synonym of *C. ovata*, q.v., p. 101; *C. abyssicola* Hansen (partim), a synonym of *C. corticocancellata* Cart. and *C. ovata*, q.v., p. 97; *C. bihamatifera* Vosmaer, a synonym of *Asbestoptuma pennatula* (O. S.), q.v., p. 50; *C. corticocancellata* Cart., diagnosis and description, includes *C. abyssicola* Hansen partim, pp. 93-97, pl. iii, figg. 7-9, pl. xii, fig. 6, *a-f*, text-fig. 5; *C. gelida*, n. sp., from the Norwegian Sea and Farøe Channel, 620, 1267, and 1309 fathoms, pp. 83-87, pl. iii, fig. 1, pl. xii, fig. 3, *a-h*, and text-fig. 2; *C. grandis* Verrill, and *C. nobilis* Fristedt, synonyms of *Chondrocladia gigantea* (Hansen) p. 107; *C. iniquidentata*, n. sp., from 63° 13' Lat. N., 6° 32' Long. W., 975 fathoms, pp. 91-93, pl. iii, fig. 6, pl. xii, fig. 5, *a-e*, text-fig. 4; *C. nordenskiöldii* Fristedt, a synonym of *Asbestoptuma pennatula* (O. S.), q.v. p. 50; *C. ovata*, n. sp., includes *C. abyssicola* Hansen (partim) and Fristedt, Denmark Strait and North of Farøe Islands, 330-338 fathoms, pp. 97-101, pl. i, fig. 1, pl. iii, fig. 10, pl. xiii, fig. 1, *a-f*; *C. tenuisigma*, n. sp. from east of Iceland, 762 fathoms, and South Jan Mayen, 1003 fathoms, pp. 87-91, pl. iii, figg. 2-5, pl. xii, fig. 4, *a-e*, and text-fig. 3: LUNDBECK (17).
- Clathria* O. S., defined, to include *Rhaphidophlus* Ehlers: DENDY (8) p. 170.—*C. corallorhizoides* Frist., a synonym of *Lissodendoryx complicata* (Hans.), q.v.: LUNDBECK (17) p. 166.—*C. frondifera* (Bow.), described, includes *C. corallitincta* Dendy, pp. 170, 171; *C. indica* Dendy, p. 171: DENDY (8).—*C. papillosa*, n. sp., Calbuco: THIELE (36) pp. 449, 450, fig. 66, *a-e*.—*C. spiculosa* (Dendy), with var. *ramosa* n. var., and var. *tessellata* n. var.: DENDY (8) pp. 171, 172, pl. viii, fig. 2.
- Collocalypta*, n. g. *Axinellidae*, for *C. digitata*, n. sp., Gulf of Manaar: DENDY (8) pp. 199, 200, pl. vii, fig. 6, pl. xiii, figg. 1, 2,
- Cotylina*, n. subg. of *Asbestoptuma*; LUNDBECK (17) p. 68.
- Cyamon* Gray, defined and discussed, pp. 177, 178; *C. quinqueradiatum* (Carter), described, p. 178: DENDY (8).
- Dendoricella*, n. g. for *Damiria* Topsent nec Keller, diagnosis, characters and list of species, pp. 126, 127; *D. obesichela*, n. sp. from the eastern slope of the Reykjanes-ridge, 799 fathoms, pp. 130, 131, pl. xiv, fig. 2, *a-d*; *D. rhopalum*, n. sp. from Denmark Strait, south of Greenland, and Davis Strait, 1135-1695 fathoms, pp. 127-130, pl. iv, figg. 4, 5, pl. xiv, fig. 1, *a-e*: LUNDBECK (17).
- Dendoricinae*, to be abolished as a group: DENDY (8) p. 158.
- Dendoryx* Gray, defined, p. 21; *D. inaequalis*, n. sp., Papeete, p. 21, pl. i, fig. 12, pl. v, figg. 15-19: BAER (1).—*D. incrustans* var. *viscosa* Tops., a synonym of *Myaxilla rosacea* (Liebk.), q.v.: LUNDBECK (17) p. 140.—

- D. simplex*, n. sp., Cape Town; BAER (1) pp. 21, 22, pl. ii, fig. 7, pl. v, fig. 20-25.
- Desmacella* O. S., defined, p. 155; *D. tubulata*, n. sp., Gulf of Manaar, pp. 155, 156, pl. ix, fig. 4: DENDY (8).
- Desmacellinae*, defined: DENDY (8) p. 155.
- Desmacidon arctica* Hansen, *D. clavatum* Hansen and *D. nucleus* Hans., synonyms of *Chondrocladia gigantea*, q.v.: LUNDBECK (17) pp. 106, 107.—*D. ceratosa* (R. & D.), described: THIELE (36) pp. 435, 436, fig. 56, a, b.—*D. clavellata* Arnesen, a synonym of *Homæodictya flabelliformis* (Hans.), q.v.: LUNDBECK (17) p. 120.—*D. delicata*, n. sp., Admiralty Sound, 19 m., p. 435, figg. 1, 55, a, b; *D. platei*, n. sp., Juan Fernandez, pp. 436-438, fig. 57, a-c: THIELE (36).
- Desmacidonidae*, defined, with subfamilies *Esperellinae*, *Phleæodictyinae*, and *Ectyoninae*: DENDY (8) p. 158.—*D.*, divided into *Mycalinae* and *Ectyoninae*; the *Mycalinae* divided into two groups, *Mycalææ* (= *Esperellinae*) and *Myxillææ* (= *Dendorycinae*): LUNDBECK (17).
- Echinodictyum* Ridley, defined, p. 175; *E. clathratum*, n. sp., Ceylon Seas, pp. 175, 176, pl. xi, fig. 4: DENDY (8).
- Ectyoninae*, defined: DENDY (8) p. 168.
- Ephydatia mülleri*, see III, A, β.
- Esperella* Vosmaer (seu *Esperia* O. S.), defined: DENDY (8) p. 159; DRAGNEWITSCH (9) p. 14: *E.*, to be replaced by *Mycalæ* Gray: LUNDBECK (17) p. 7; *E.*, defined: SVARCHEVSKIĪ (35) p. 24.—*E. bellabellensis*, n. sp., coast of British Columbia, 300 fathoms: LAMBE (16).—*E. bihamatifera* Hansen, a synonym of *Asbestopluma pennatula* (O. S.), *A. lycopodium* Levins., and *A. infundibulum* Levins., qq.v.: LUNDBECK (17) pp. 50 and 65.—*E. crassissima*, n. sp., Ceylon Seas: DENDY (8) pp. 160, 161, pl. xi, fig. 6.—*E. foraminosa* O. S.: SVARCHEVSKIĪ (35) p. 28.—*E. fristedtii* Lambe, two of the three specimens are *Asbestopluma cypressiformis* Cart., q.v., the third is *A. lycopodium* Levins., q.v.: LUNDBECK (17) p. 62.—*E. intermedia* Vanhöffen (non Schmidt) to be *Mycalæ thaumatocheila*, q.v.: LUNDBECK (17) p. 40.—*E. iophon*, n. sp., Black Sea: SVARCHEVSKIĪ (35) pp. 27, 28 and 51, pl. ii, fig. 6, pl. iv, fig. 7, pl. v, fig. 5.—*E. lanugo* O. S., a synonym of *Mycalæ ovulum* (O. S.), q.v.: LUNDBECK (17) p. 37.—*E. lorenzii* O. S., described, pp. 25-27, pl. iv, fig. 8, pl. v, fig. 3; *E. modesta* O. S., p. 28: SVARCHEVSKIĪ (35).—*E. murrayi* R. & D., described: DRAGNEWITSCH (9) pp. 14, 15.—*E. muscoidea* Tschern., described: SVARCHEVSKIĪ (35) pp. 24, 25, pl. v, fig. 4.—*E. nigricans* Frist., a synonym of *Iophon piceus* (Vosin.), q.v.: LUNDBECK (17) p. 179.—*E. parishii* Ridley, described: DENDY (8) p. 159.—*E. pattersoni* Frist. nec Bow., a synonym of *Iophon dubius* (Hans.), p. 183; *E. picea* Levinsen non Vosmaer, a synonym of *Iophon frigidus*, n. sp., p. 183: LUNDBECK (17).—*E. plumosa* Carter, described: DENDY (8) pp. 159, 160.—*E. plumosa* Arnesen, a synonym of *Asbestopluma pennatula* (O. S.), q.v.: LUNDBECK (17) p. 50.—*E. serratohamata* Carter, to be type of *Paresperella*, q.v.: DENDY (8) p. 162.—*E. stolonifera* Merejk., a synonym of *Mycalæ ovulum* (O. S.), q.v.: LUNDBECK (17) p. 37.—*E. tenuispiculata*, n. sp., Ceylon Seas; DENDY (8) pp. 161, 162.—*E. vosmaeri* Levinsen, a synonym of *Mycalæ lingua* (Bow.), q.v.: LUNDBECK (17) p. 34.
- Esperellinae*, defined: DENDY (8) p. 159.
- Esperiopsis* Carter, diagnosis, characteristics, and list of species: LUNDBECK (17) pp. 7-9; *E.*, discussed: THIELE (36) p. 440.—*E. edwardii* (Bow.), described: THIELE (36) pp. 441, 442.—*E. flagellum*, n. sp., Ingolf, 316 fathoms, pp. 20-22, pl. ix, fig. 1, a-h; *E. forcipula*, n. sp., Davis Strait, 80-100 fathoms, pp. 17-20, pl. i, fig. 5, pl. viii, fig. 5, a-i; *E. modesta* Lambe, a synonym of *Mycalæ ovulum* (O. S.), q.v., p. 38;

- E. normani* (Bow.), diagnosed and described, pp. 13-15, pl. viii, fig. 2, *a-d*; *E. pedicellata*, n. sp., Davis Strait, 393 fathoms, pp. 16, 17, pl. i, fig. 2, pl. viii, fig. 4, *a-c*: LUNDBECK (17).—*E. rugosa*, n. sp., Calbuco: THIELE (36) pp. 440, 441, fig. 60, *a, b*.—*E. typichela*, n. sp., East Greenland, 50-90 fathoms, pp. 22, 23, pl. i, fig. 3, pl. ix, fig. 2, *a-c*, & 4; *E. villosa* Carter, diagnosed and described, pp. 9-13, pl. i, fig. 4, pl. viii, fig. 1, *a-i*; *E.*, sp. described, p. 15, pl. viii, fig. 3, *a-c*: LUNDBECK (17).
- Euchalina* Lend., defined, p. 27; *E. typica* Lend., described: DRAGNEWITSCH (9) p. 27.
- Eurypon miniaceum*, n. sp., Calbuco, 30 m.: THIELE (36) pp. 446, 447, fig. 64, *a-f*.
- Euspongilla lacustris*, see III, A,  $\beta$ .
- Forcepia* Carter, diagnosis, p. 198, characters of species, pp. 210, 211; *F. fabricans* (O. S.), diagnosis and description, includes *Forcipina bulbosa* Vosm., pp. 201-204, pl. xix, fig. 3, *a-g*; *F. forcipis* (Bow.), diagnosis and description, pp. 198-201, pl. xix, fig. 2, *a-h*; *F. groenlandica* Frist., diagnosis and description, pp. 209, 210, pl. xx, fig. 3, *a-e*; *F. thielei*, n. sp., from south of Iceland, 350 and 480 fathoms, pp. 206-209, pl. vii, fig. 1, 2, pl. xix, fig. 5, *a-f*; *F. topsentii*, n. sp., from between Jan Mayen and Iceland, 1010 and 1309 fathoms, pp. 204-206, pl. vii, fig. 3, pl. xix, fig. 4, *a-g*: LUNDBECK (17).
- Forcipina bulbosa* Vosmaer, a synonym of *Forcepia fabricans* (O. S.), q.v.: LUNDBECK (17) p. 204.
- Gelliina*, subfamily of *Haploscleridae*, defined: DENDY (8) p. 136.
- Gelliodes* Ridley, defined: DENDY (8) p. 137; DRAGNEWITSCH (9) p. 19.—*G. carnosus* Dendy, described, p. 137, pl. vii, fig. 5; *G. incrustans*, n. sp., Gulf of Manaar, pp. 137, 138, pl. ix, fig. 6; *G. petrosioides*, n. sp. and var. *fibrosa*, n. var., West Coast of Ceylon, deep water, pp. 138, 139, pl. ix, fig. 3: DENDY (8).—*G. spinosella* Thiele, described: DRAGNEWITSCH (9) p. 19.
- Gellius* Gray, defined: DENDY (8) p. 136; DRAGNEWITSCH (9) p. 17.—*G. angulatus* (Bow.), var. *canaliculata*, n. var., West Coast of Ceylon, pp. 136, 137, pl. ix, fig. 7; *G. fibulatus* (O. S.), described, p. 36: DENDY (8); DRAGNEWITSCH (9) pp. 18, 19.
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- Haploscleridae*, defined and characterized: DENDY (8) pp. 135, 136.
- Heteromeyenia ryderi*, see III, A,  $\beta$ .
- Heteroxyinae*, n. subfam., defined, for the genera *Heteroxya* and *Acanthoxifer*: DENDY (8) p. 156.
- Higginsia papillosa*, n. sp., Calbuco, 30 m.; THIELE (36) pp. 428-430, fig. 49, *a-d*.
- Histoderma* Carter, defined, p. 166; *H. vesiculatum*, n. sp., Gulf of Manaar, deep water, pp. 166-168, pl. xi, fig. 8, 9: DENDY (8).
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- Hymeniacidon* Bow., defined, includes *Stylotella* Lend.: DENDY (8) pp. 185, 186.—*H. Bow.*, discussed, referred to Clavulida: THIELE (36) p. 421.—*H. fernandeei*, n. sp., Juan Fernandez: THIELE (36) pp. 422, 423.—*H. petrosioides*, n. sp., Ceylon Seas: DENDY (8) p. 186, pl. xii, fig. 4.—*H. rubiginosa*, n. sp., Iquique: THIELE (36) pp. 421, 422, fig. 44.
- Iophon* Gray, diagnosis and characters of species: LUNDBECK (17) pp. 173-175.—*I.*, discussed: THIELE (36) p. 444.—*I. chelifera* R. & D., described: THIELE (36) pp. 445, 446, fig. 63, *a-d*.—*I. dubius* (Hans.), diagnosis and description, includes *Esperia pattersoni* Frist. nec Bow.; pp. 180-183, pl. vi, figg. 2-5, pl. xvii, fig. 4, *a-e*; *I. frigidus*, n. sp. from East Greenland, 140 fathoms, and Kara Sea, 73 fathoms, includes *Esperella picea* Levinsen, pp. 183-185, pl. xvii, fig. 5, *a-f*: LUNDBECK (17).—*I. pattersoni* (Bow.), described; THIELE (36) p. 445.—*I. piceus* (Vosm.), diagnosis and description, includes *Esperia nigricans* Frist. nec Bow.: LUNDBECK (17) pp. 175-180, pl. vi, figg. 1, 2, pl. xvii, fig. 3, *a, b*.
- Iotrochota* Ridley, defined: DENDY (8) p. 164.—*I.*, diagnosis, p. 185, and characters of species, pp. 196-198: LUNDBECK (17).—*I. abyssi* (Cart.), diagnosis and description, pp. 188, 189, pl. xviii, fig. 3, *a-d*; *I. affinis*, n. sp. from East Coast of Greenland, pp. 194, 195, pl. xviii, fig. 8, *a-e*: LUNDBECK (17).—*I. baculifera* Ridley, described: DENDY (8) p. 165.—*I. dubia*, n. sp. from Denmark Strait, 767 fathoms, pp. 189, 190, pl. xviii, fig. 4, *a-f*; *I. intermedia*, n. sp. from between Iceland and the Faroes, 115 fathoms, pp. 190, 191, pl. xviii, fig. 5, *a-d*; *I. ovata*, n. sp. from Denmark Strait and east of the Faroes, pp. 186-188, pl. vi, fig. 6, pl. xviii, fig. 2, *a-f*; *I. polydentata*, n. sp. from the Faroes and north of Iceland, pp. 192-194, pl. vi, fig. 7, pl. xviii, fig. 7, *a-e*: LUNDBECK (17).—*I. purpurea* (Bow.), described: DENDY (8) p. 164.—*I. rotulancora*, n. sp. from east coast of Greenland, 94 fathoms, pp. 191, 192, pl. xviii, fig. 6, *a-g*; *I. spinosa*, n. sp. from 69° 31' N. Lat., 7° 06' W. Long. 1309 fathoms, pp. 195, 196, pl. vi, fig. 8, pl. xix, fig. 1, *a-e*: *I. varidens*, n. sp. from Denmark Strait and south of the Faroes, pp. 185, 186, pl. xviii, fig. 1, *a-e*; LUNDBECK (17).
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- Leucophlœus* Carter, defined and discussed: DENDY (8) pp. 196, 197.—*L. fœtidus* (Dendy), described: DENDY (8) p. 197.
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- Raspailia* Nardo, defined, and placed under *Ectyonine*: DENDY (8) p. 172: history, extent and diagnosis of the genus, which is referred to the *Ectyonine*, with key to the 21 species recognised, pp. 15, 21: diagnosis, synonymy and occurrence of the species, pp. 21-36: PICK (28): defined: SVARCHEVSKIĪ (35) pp. 32, 33.—*R. alcea*, n. sp., Trieste, p. 11, pl. i, fig. 5, pl. ii, fig. 1, pl. iii, figg. 11, 12, pl. iv, figg. 14-16; *R. freyeri* O. S., described, pp. 14, 15, pl. i, fig. 6, pl. ii, fig. 4, pl. iii, figg. 6-8, pl. iv, figg. 7-9: PICK (28).—*R. fruticosa* Dendy, var. *tenuiramosa*, n. var.: DENDY (8) p. 172, pl. viii, fig. 5.—*R. hispida* (Mont.), described: PICK (28) pp. 12, 13.—*R. hornelli*, n. sp., Gulf of Manaar: DENDY (8) pp. 172-174, pl. xi, fig. 7.—*R. incrustans*, n. sp., Black Sea: SVARCHEVSKIĪ (35) pp. 33, 34, & 52, pl. v, fig. 6, pl. vii, fig. 1.—*R. ramosa* (Mont.), described, pp. 13, 14; *R. simplicior*, n. sp., Lesina, Adriatic, p. 10, pl. i, fig. 3, pl. iii, figg. 4, 5, pl. iv, figg. 4-6: PICK (8).—*R. thurstoni*: DENDY (8) p. 172.—*R. uncinata*, n. sp., Gulf of Muggia, Trieste, pp. 6, 7, pl. i, fig. 4, pl. iii, figg. 9, 10, pl. iv, figg. 10-13; *R. viminalis* O. S. described, pp. 7-9,

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- Reniera* Nardo, defined: DENDY (8) p. 142: BAER (1) p. 12: DRAGNEWITSCH (9) p. 22: SVARCHEVSKIĪ (35) pp. 13, 14.—*R. algicola*, n. sp., Talcahuano, pp. 466, 467, fig. 83; *R. anceps*, n. sp., Juan Fernandez, p. 466, fig. 82: THIELE (36).—*R. aqueductus* O. S., described, p. 14, pl. i, fig. 5, pl. iii, fig. 7; *R. ascidia* O. S., described, p. 15, pl. i, fig. 6, pl. iv, fig. 1: SVARCHEVSKIĪ (35).—*R. auletta*, n. sp., Calbuco: THIELE (36) pp. 460, 461, figg. 6, 76.—*R. australis* Lend., described: DRAGNEWITSCH (9) pp. 22, 23.—*R. baviana* Lend., described: BAER (1) pp. 13, 14, pl. i, fig. 9, pl. iv, figg. 18, 19.—*R. chilensis*, n. sp., Calbuco: THIELE (36) p. 467, figg. 5, 84.—*R. curiosa*, n. sp., Black Sea, pp. 19, 20, pl. iv, fig. 2, pl. v, fig. 1; *R. densa* (Bow.), described, p. 16, pl. ii, fig. 1, pl. iii, fig. 8: SVARCHEVSKIĪ (35).—*R. foraminosa*, n. sp., Tumbes, p. 465, figg. 10, 81, 104: *R. ignobilis*, n. sp., Punta Arenas, p. 470, figg. 8, 34, 88: THIELE (36).—*R. implexa* O. S., described: BAER (1) p. 13, pl. i, fig. 8, pl. iv, figg. 15-17; DENDY (8) p. 142: DRAGNEWITSCH (9) p. 22.—*R. inepta*, n. sp., Punta Arenas: THIELE (36) pp. 468, 469, fig. 86.—*R. inflata* O. S., described, pp. 16, 17, pl. i, fig. 7, pl. iii, 9; *R. informis* O. S., described, pp. 17, 18, pl. iv, fig. 4: SVARCHEVSKIĪ (35).—*R. macropora*, n. sp., Juan Fernandez: THIELE (36) p. 463, figg. 9, 79.—*R. mollis*, n. sp., Zanzibar: BAER (1) pp. 14, 15, pl. i, fig. 10, pl. iv, figg. 20-22.—*R. nodosa*, n. sp., Calbuco: THIELE (36) pp. 461, 462, figg. 7, 77.—*R. pallida* (Bow.) (?), described, p. 18, pl. ii, fig. 2, pl. v, fig. 3; *R. palmata* O. S., described, pp. 18, 19, pl. i, fig. 8, pl. iv, fig. 6: SVARCHEVSKIĪ (35).—*R. pigmentifera*, n. sp., Jokkenpiddi Paar, 10 fathoms: DENDY (8) p. 143, pl. ix, fig. 10.—*R. rugosa*, n. sp., Punta Arenas, p. 469, figg. 87, 100; *R. siphonella*, n. sp., Calbuco, 30 m., p. 460, figg. 75, 97-99; *R. sordida*, n. sp., Calbuco, p. 468, fig. 85; *R. spinosella*, n. sp., Punta Arenas, pp. 459, 460, figg. 11, 30, 74; *R. topsenti*, n. nom. for *R. cinerea*, var. *porosa* Tops., Punta Arenas, pp. 462, 463, figg. 4, 78, 104: THIELE (36).—*R. tubulifera*, n. sp., Black Sea: SVARCHEVSKIĪ (35) pp. 20, 21, pl. ii, fig. 3, pl. iv, fig. 5.—*R. verrucosa*, n. sp., Punta Arenas; THIELE (36) pp. 463, 464, figg. 3, 80, 102.—*R. zoologica*, n. sp., Gulf of Manaar: DENDY (8) p. 143, pl. ix, fig. 8.—*R.*, sp. described: DENDY (8) p. 144.—*R.*, 3 spp. described: SVARCHEVSKIĪ (35) pp. 21, 22.—*R.*, sp. described: THIELE (36) pp. 470, 471, fig. 89.
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- Rhabderemia*, Topsent, defined and discussed: DENDY (8) p. 180; *R. indica*, n. sp., Ceylon seas: DENDY (8) pp. 180, 181, pl. xii, fig. 10.
- Rhaphidophlus* Ehlers, defined, p. 15; *R. filifer* R. & D., described, pp. 16, 17: DRAGNEWITSCH (9).—See also *Clathria*.
- Sideroderma*, see *Phleodictyinae*.
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- Stylopus* Frist., defined, p. 31; *S. coriaceus* Frist., described, pp. 31, 32, pl. vi, fig. 3: SVARCHEVSKIĪ (35).

*Stylotella* Lend., see under *Hymeniacion*.

*Stylotellopsis* n. g., for *S. amabilis*, n. sp., Punta Arenas, 19 m.: THIELE (36) pp. 456, 457, fig. 72, a-d.

*Tedania* Gray, defined: BAER (1) p. 17; *T.* discussed: THIELE (36) p. 430.—*T. digitata* O. S., var. *sansibarensis*, n. var., pp. 17, 18, pl. i, figg. 11, pl. iv, figg. 26-31, pl. v, fig. 1, 2; var. *fragilis*, n. var., pp. 18, 19, pl. ii, fig. 3; var. *conica*, n. var., p. 19, pl. ii, fig. 4: BAER (1).—*T. excavata*, n. sp., Calbuco, pp. 431, 432, fig. 51, a-c; *T. fuegiensis*, n. sp., Cape Espiritu Santo, pp. 433, 434, fig. 53, a-d; *T. mucosa*, n. sp., Calbuco, pp. 430, 431, fig. 50, a-c; *T. pectinicola*, n. sp., Calbuco, p. 432, fig. 52, a-d: THIELE (36).

*Thrinacophora* R. & D., defined, p. 186; *T. agariciformis*, n. sp., Ceylon seas, pp. 186, 187, pl. xii, fig. 6; *T. durissima*, n. sp., Ceylon seas, pp. 187, 188, pl. xii, fig. 5: DENDY (8).

*Toxochalina* Ridley, defined and characterized, p. 139; *T. robusta* R., and var. *ridleyi*, n. var., described, pp. 139-141, pl. ix, fig. 2: DENDY (8).

*Trachyopsis*, n. g., *Renierince*, for *T. halichondroides*, n. sp., W. coast of Ceylon, deep water: DENDY (8) p. 147, pl. x, fig. 10.

### (iii) KERATOSA.

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*Aplysilla tendensfeldi*, n. nom., for *Simplicella glacialis* Lend., non Merczkowsky, pp. 489, 490, fig. 113; *A. sulfurea* F. E. S., described, pp. 488, 489, figg. 112, 114: THIELE (36).

*Aplysillidae*, defined: DENDY (8) p. 203; to be merged in *Darwinellidae*: TOPSENT (37) p. clxxiii.

*Aplysina* Nardo, defined, p. 223; *A. herdmanni*, n. sp., Ceylon seas, pp. 225, 226, pl. xvi, fig. 4; *A. purpurea* Carter, described, pp. 224, 225: DENDY (8).

*Cacospongia* O. S., defined, p. 210; *C. scalaris* O. S., described, pp. 210, 211: DENDY (8).—*C. similis* n. sp., Juan Fernandez: THIELE (36) pp. 481, 482, fig. 108.

*Cerelasma* Haeckel, referred to the *Psamminidae* (Protozoa): SCHULZE (31) p. 5.

*Darwinella* Muller, defined and discussed: DENDY (8) p. 203; defined, p. cxc; table of species, p. clxxxiii: TOPSENT (37).—*D. australiensis* Carter, described, p. clxxvi; *D. corneostellata* (Carter), described, pp. clxxv, clxxvi; *D. dalmatica*, n. sp., Adriatic, pp. clxxviii, clxxix; *D. duplex*, n. sp., Azores, 200 metres, p. clxxix; *D. gardineri*, n. sp., Maldives, 40 metres, pp. clxxix, clxxx; *D. intermedia* Topsent, described, pp. clxxvii, clxxviii, text-fig. 1; *D. mulleri* (Schultze), for *D. aurea* Müller, described, p. clxxv: TOPSENT (37).—*D. simplex* Topsent, described: DENDY (8) p. 204, pl. xv, figg. 1, 2; described: TOPSENT (37) pp. clxxvi, clxxvii.—*D. warreni*, n. sp., Natal: TOPSENT (37) pp. clxxx-clxxxiv.

*Darwinellidae*, defined, for *Hexadella* Tops., *Aplysilla* F. E. S., *Darwinella* Müll., *Dendrilla* Lend. and *Megalopastus* Dendy: TOPSENT (37) pp. clxxxiii and clxxxix.

*Dendrilla* Lend., defined, referred to family *Darwinellidae*: TOPSENT (37) pp. clxxiv and cxc.

*Dendroceratida*, for *Hexaceratina* Lend., defined, to include three families, *Darwinellidae*, *Pteraplysillidae*, n. fam., and *Ianthellidae*: the *Hali-sarcidae* to be removed from the order: TOPSENT (37) pp. clxxxiii and clxxxix.



- Euspongia* Bronn, defined: DENDY (8) p. 211; DRAGNEWITSCH (9) p. 27.—*E. officinalis* Auct., var. *ceylonensis*, n. var.: DENDY (8) pp. 211–213, pl. xiv, fig. 3, pl. xvi, fig. 5.—*E. officinalis*, var. *adriatica* F. E. S., and var. *rotunda* Hyatt, described: DRAGNEWITSCH (9), pp. 28–30.—*E. tenuiramosa*, n. sp., Trincomalee: DENDY (8) pp. 213, 214.—*E. zimocca* O. S., described: DRAGNEWITSCH (9) p. 28.—(Vide etiam *Spongia*.)
- Haddonella* I. Soll., defined, referred to family *Ianthellidæ*: TOPSENT (37) pp. clxxxix, cxc.
- Hexaceratina* Lend., discussion of their affinities: THIELE (36) p. 488.
- Hippospongia* F. E. S., defined: DENDY (8) p. 214; DRAGNEWITSCH (9) p. 30.—*H. anomala* Polej., described, pp. 215, 216; *H. clathrata* (Carter), described, p. 215, pl. xiv, fig. 2; *H. dura* Lend., described, p. 216; *H. intestinalis* (Lam.), described, p. 214: DENDY (8).—*H. equina* and var. *mæandriiformis* in Western Australia, economic notes on: WHITELEGGE (44) p. 119.—*H. mollissima* Lend., described: DRAGNEWITSCH (9) p. 30.
- Hircinia* Nardo, defined, p. 219; *H. anomala*, n. sp., Gulf of Manaar, pp. 222, 223, pl. xiv, fig. 5, pl. xvi, fig. 1: DENDY (8).—*H. clavata*, n. sp., Juan Fernandez: THIELE (36) pp. 484, 485, fig. 110.—*H. fusca* Carter, non *H. fusca* Ridley and Lendenfeld, described, pp. 219–221, pl. xiv, fig. 1; *H. schulzei* n. sp., W. coast of Ceylon, pp. 221, 222, pl. xvi, fig. 3; *H. tuberosa*, n. sp., W. coast of Ceylon, p. 221, pl. xvi, fig. 2: DENDY (8).—*H. variabilis hirsuta* O. S., described: THIELE (36) p. 484, fig. 109.
- Ianthella* Gray, defined, referred to family *Ianthellidæ*: TOPSENT (37) pp. clxxxix, cxc.
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- Igernella*, n. g., *Pleraplysillidæ*, defined, p. cxc, for *Darwinella joyeuxi* Topsent, described: TOPSENT (37) pp. clxxxvii–clxxxix, text-fig. 3.
- Korotnewia* Polej., to be removed from the *Darwinellidæ* and from the *Dendroceratida*, perhaps allied to *Psammaplysilla* Keller: TOPSENT (37) p. clxxiv.
- Megalopastas* n. g., *Aplysillidæ*, for *Dendrilla elegans* Lend. and *Spongiomella nigra* Dendy; diagnosed and discussed, pp. 204, 205; *M. nigra*, described, pp. 205, 206, pl. xiv, fig. 7, pl. xv, figg. 5–8; *M. pulvillus* n. sp., Gulf of Manaar, pp. 206, 207, pl. xv, fig. 3: DENDY (8).—*M. Dendy*, defined, referred to family *Darwinellidæ*: TOPSENT (37) pp. clxxiv and cxc.
- Oligoceras arenosa*, n. sp., Juan Fernandez, pp. 479, 480; *O. paupera*, n. sp., Juan Fernandez, p. 481; *O. sororia*, n. sp., Juan Fernandez, 3 m., pp. 480, 481: THIELE (36).
- Phyllospongia* Ehlers, defined, p. 217; *P. holdsworthi* (Bow.), described, pp. 218, 219, text-fig. 5; *P. papyracea* (Esper) var., described, pp. 217, 218, pl. xiv, fig. 6: DENDY (8).
- Pleraplysilla*, n. g., *Pleraplysillidæ*, defined, p. cxc, for *P. minchini*, n. sp., Courseulles (Calvados), 30 metres: TOPSENT (37) pp. clxxxiv–clxxxvii, text-fig. 2.
- Pleraplysillidæ*, n. fam., for *Igernella*, n. g. and *Pleraplysilla*, n. g., defined: TOPSENT (37) pp. clxxxiii and cxc.
- Psamminidæ*, Haeckel, referred to the Protozoa; SCHULZE (31) pp. 4, 5.
- Psammapemna*, Marshall, defined; *P. crassum* (Carter), var. *clathrata*, n. var.: DENDY (8) p. 210.
- Psammaphyllum* Haeckel, to be merged in the genus *Stannophyllum* and referred to the family *Stannomidæ* (Protozoa): SCHULZE (31) p. 5.
- Spongelia* Nardo, defined: DENDY (8) p. 208; DRAGNEWITSCH (9) p. 19.—*S. chilensis*, n. sp., Calbuco, 19.–28 m.: THIELE (36) pp. 485, 486, fig. 20.—*S. elastica*, varr. *lobosa* F. E. S., and *crassa*, n. var.: DENDY

(8) pp. 208, 209, pl. xiv, fig. 4—*S. elastica*, var. *massa* F. E. S., described: DRAGNEWITSCH (9) pp. 20, 21.—*S. fragilis* Mont., var. *ramosa* F. E. S., described: DENDY (8) p. 208.—*S. fragilis*, var. *tubulosa* F. E. S., described: DRAGNEWITSCH (9) p. 20.—*S. incrustata*, n. sp., Gulf of Manaar and W. coast of Ceylon: DENDY (8) pp. 209, 210.—*S. repens*, n. sp., Juan Fernandez: THIELE (36) pp. 486–488, fig. 111.

*Spongeliidæ*, defined: DENDY (8) p. 207.

*Spongia* for *Euspongia*, p. 482; *S. cerebralis*, n. sp., Juan Fernandez, pp. 482, 483, figg. 19, 107; *S. magellanica*, n. sp., Punta Arenas and Calbuco, pp. 483, 484, figg. 18, 106: THIELE (36).

*Spongidae*, defined: DENDY (8) p. 210.

*Stannomidæ* Haeckel, referred to the Protozoa: SCHULZE (31) pp. 4, 5.

#### (iv) MYXOSPONGIDA.

Definition of the Myxospongida, to include *Halisarca*, *Bajulus*, *Hexadella*, and *Oscarella*, their affinities discussed: DENDY (8) p. 60.

*Halisara dujardini*, var. *magellanica* Tops., described: THIELE (36) p. 490.

#### E. INCERTÆ SEDIS.

†*Achilleum rugosum*, var. *elliptica*: ZAHÁLKA (48) pp. 21, 168.

†*Amorphospongia rugosa* Röm.: ZAHÁLKA (48) pp. 159, 183.

*Hexadella* Topsent, defined, referred to *Myxospongida*: DENDY (8) p. 61: regarded as derived from *Aplysilla* by loss of skeleton, and referred to *Darwinellidæ*: TOPSENT (37) pp. clxxiv and exc.—*H. indica* n. sp., Gulf of Manaar, 5 fathoms: DENDY (8) pp. 61–63, pl. i, figg. 1–3.

†*Leiofungia*, cf. *reticularis* (Münst.): BLASCHKE (3) p. 165.

†*Somphospongia favosiformis*, n. sp., Hamilton Group, Indiana, WHITFIELD (45) p. 300, pl. ix, figg. 1–9, Bull. Amer. Mus. xxi.

†*Sparsispongia* (?) sp.: BLASCHKE (3) p. 164.

†*Spongites saxonicus*: ZAHÁLKA (48) p. 56.

†*Strephochetus*, and *S. ocellatus*, described, p. 156, pls. lvi, lvii, lix; *S. brainerdi*, pl. lvi, fig. 2, pl. lvii, fig. 8, p. 156, *atratus*, pl. lvi, fig. 1, pl. lvii, fig. 9, p. 157, Beekmantown calciferous, Vermont, *richmondensis*, Kentucky and Indiana (MILLER) p. 157, *prunus*, Vermont, pl. lvi, fig. 5, pl. lvii, fig. 6, p. 160: SEELY, Rep. Vermont State Geol. iii, n. spp.

†*Vermispongia*, n. g., *V. hamiltonensis*, n. sp., figg. 1–5; *dactyliformis*, n. sp., fig. 6, pl. xi, Hamilton Group, Indiana, WHITFIELD (45) p. 298, Bull. Amer. Mus. xxi.

# XVIII. PROTOZOA.

BY

H. M. WOODCOCK, D.Sc. (Lond.).

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## INTRODUCTION.

THE *Protozoa* Record for 1905 is indeed a "record," containing no fewer than 522 Titles; this is an increase of quite 40 per cent. upon last year, and surpasses the previous best year (1902) by about 60 titles. And while of course, as is usual, a certain number belong actually to preceding years (chiefly to 1904), the Recorder does not find that the proportion of such in the present Record is so great as he anticipated would be the case a year ago.

Analysis of the Titles shews that this considerable increase is—as hitherto—largely due to the never-ceasing growth of the literature dealing with parasitic Protozoa and their relation to disease. In connection with this subject, the Recorder would like to remark that he is sure no other Recorder can have so much trouble and difficulty in deciding what papers to include and what to leave out, as falls to his lot. If he compares his list with the Titles given, say, in the Zool. Jahresbericht, he finds his own is much longer; if, on the other hand, he compares it with the literature-lists (relating solely to Protozoa and "Pseudo-Protozoa") published in the Arch. Protistenkunde, he notes dozens of medico-biological papers which he has not included. To take one instance only: that of the "*Spirochaeta*" of syphilis. Upon the answer to the question whether this organism is or is not a Protozoan, ought to depend the inclusion or non-inclusion of—well, of how many papers, the Recorder does not care to estimate! For this year, at all events, it has been considered best to leave them practically out of account, pending further discoveries; though the Recorder is by no means oblivious of KRZYSZTALOWICZ & SIEDLECKI'S remarkable account (223), in which alleged trypaniform (Flagellate) phases of this parasite are described. Apart from this work, only SCHAUDINN & HOFFMANN'S note regarding the discovery (406), and one or two notes (VUILLEMIN [498], SCHAUDINN [403 & 404]) bearing principally upon the nomenclature, are included.

So far as Morphology and Life-History are concerned, 1905 has proved a less exciting year than the previous one, though nevertheless fairly productive. Among the Gymnomyxa (or Sarcodina), an outstanding feature is the discovery by SCHULZE (431), as the result of his investigations upon certain families of Haeckel's deep-sea Ceratosa, that they are not Sponges but plasmodium-forming Protozoa, which he erects into a special group, the *Xenophyophora*, allied to the Rhizopods and characterized by their utilisation of extrinsic foreign bodies (e.g. sponge spicules) to form a skeleton. A good deal of work has been done upon various species of *Amoeba*, chiefly by NERESHEIMER (312), PENARD (335), SCHUBOTZ (427) and VAHLKAMPF (492). LISTER (267) continues his valuable research upon dimorphism in the Foraminifera, treating in this paper of the relation in size of the megalosphere to that of the microspheric and megalospheric tests in *Nummulites*; and DOUVILLÉ (110) offers an interesting note on the structure of *Orbitolina*. In the morphology of the arenaceous Foraminifera KEMNA has a wide field over which to range,—of which he avails himself (207); it may also be remarked that variety of topic is no obstacle to this versatile writer. An admirable example of the combination of a morphological with a biological study is furnished by HÄCKER'S work (169 & 170) on the comparative structure of the Tripylarian skeleton in relation to function and environmental conditions. Another important Radiolarian memoir is that of BRANDT (39) who has continued his study of the *Collidae*, supplying this time additional information regarding the structure and life-history of the *Thalassicollae*.

There are several interesting Sporozoan papers to record; though the Coccidia have been almost neglected. Led by his observation (43) of slight anisogamy in the conjugating elements of certain Monocystid Gregarines to reinvestigate the common *Monocystis* itself, BRASIL (44) finds that the sexual process in this genus is not, as hitherto thought, completely isogamous, but that distinctions between the male and female gametes really exist. On the other hand, SCHNITZLER (416) confirms the results obtained by previous workers, with regard to the complete isogamy in *Clepsydrina* (*Gregarina*) *ovata*, a Septate form. LÉGER (248) has discovered a remarkable Gregarine, having its cytoplasm metamericly segmented, which he terms *Tenicystis*. The investigation of this undoubtedly unicellular animal leads Léger to put forward the interesting suggestion that harmonic metamerism may be, in certain cases, the cause rather than the expression of repeated (asexual) multiplication (cf. *Anoplophrya*). The occurrence of Hæmogregarines in Mammals, described by BALFOUR (7), CHRISTOPHERS (86), and LAVERAN (227), helps to break down still further the division formerly erected between the Hæmosporidia of warm- and of cold-blooded Vertebrates. Rogers' sensational observation of Flagellate phases in connection with the extra-corporeal development of *Piroplasma donovani* has been amply corroborated and extended by CHRISTOPHERS (85), LEISHMAN & STATHAM (253) and others; though, so far, no true trypaniform phases have been recognized. KOCH (214) gives an account of what he thinks are developmental stages of *Piroplasma canis* in the tick, but some of the weird appearances figured are not very convincing. Coming to the other sub-class of Sporozoa, the Neosporidia (or, as they are better termed, the Endospora), PEREZ'S notes (341-344) on certain new *Glugeidæ* are of considerable importance as regards the classification of the *Microsporidia*; and CAULLERY & MESNIL (72) publish a detailed account of their researches on the Actinomyxidian, *Spheractinomyxon*. HESSE (177, 179) has observed a new species of the uncommon form *Myxocystis*, which he finds to be a true Myxosporidian. Lastly, the number of Sporozoa incertæ sedis is increased by KRASSILTSCHIK'S account (220 & 221) of *Microrkossia*, which seems to combine to a certain extent Ectosporan and Endosporan characters.

Of numerous papers dealing with the Trypanosomes, PROWAZEK'S study (362) on the life-history of *Trypanosoma lewisi* is the most important from a protozoological standpoint; the author demonstrates that the life-cycle of this well-known Mammalian form agrees with that of the Trypanosomes of other Vertebrates so far as investigated up to the present, in possessing a true Invertebrate host (a louse, *Hæmatopinus*, in this case), in which the sexual conjugation is undergone. FOA (141) has continued his—the Recorder apologizes if he should write her—researches on unusual Flagellates and describes two entirely new types, one, *Calonympha*, being of extremely complicated structure. Miss ROBERTSON'S very useful account (379) of the remarkable parasite, *Pseudospora volvocis*, illustrates well to what an extent form-polymorphism may be shewn during different periods in the life-history of a given Protozoan. A comprehensive description of the morphology and variation of the lorica in the Peridinida is given by ENTZ (122).

FAURÉ-FREMIET has again taken a prominent share in the work on the Ciliates. In his principal memoir (137) he combines much that he has previously written upon the cytology of the *Vorticellidæ*; and other information on the same subject is contained in (128, 131 & 132). In (138), it may be noted, this writer gives a full account of the minute cytoplasmic structure of the Rhizopod *Cochliopodium*. Further papers on the various organellæ of Infusoria are those of GONDER (160), RUSSO & DI MAURO (389 & 390), SCHUBERG (419), and THON (491).

Some interesting contributions on topics of a more general character

may be noticed. MESNIL (294) summarizes our present knowledge relating to the nuclear organellæ known as chromidia, distinguishing between the different kinds; and STEDLECKI (444) discusses at length the significance of the characteristic Sporozoan karyosome. SCHAUDINN (402) and STEMPELL (472) compare the different modifications of the sexual process met with among the Protozoa, the former considering also the relation between the trophic (vegetative) and generative (sexual) nuclear constituents in the different cases. In connection with the physiology of conjugation, CALKINS (61), who is continuing his valuable research on recuperation upon new lines, expresses the quite unexpected idea that not both the ex-conjugants (in e.g., *Paramœcium*) are recuperated.

Another Transatlantic worker to whom Protozoan Physiology is greatly indebted is JENNINGS; in (197) he publishes one of the most thoughtful and philosophical contributions to the study of the behaviour of the lower organisms that has appeared for some time. The logical conclusion to which he finds himself bound to come as the result of his manifold experiments, is that "neither the usual movements, nor the reactions to different stimuli, of *Amœba* (as a type of living protoplasm) have as yet been resolved into known physical factors." It is very instructive to compare with this monograph RHUMBLER's efforts (376) to develop satisfactorily his mechanical theory of movement in *Amœba*, by surface-tension, an explanation which Jennings emphatically says will not suffice; and, in the end, Rhumbler himself briefly makes the significant admission, that a "Miniaturpsyche"—a form of energy of unknown character—may perhaps reside in the *Amœba*, though he deprecates the idea of its being necessarily metaphysical. Nevertheless, it would seem from this that Rhumbler, also, is really, at the end of his labours, no wiser as to the ultimate source of vital phenomena than he was at the beginning. In this section the Recorder has only to add that there is no end to investigations endeavouring to ascertain the effects of all the "taxies" and "tropisms" upon Protozoa; indeed, what the Zeitschrift allg. Physiol., for example, would do, were there no hapless *Paramœcia* and other Infusoria upon which to experiment, it is somewhat difficult to say.

The ranks of Protozoa which cause disease among higher animals are augmented this year by a new member of the Haplosporidia, *Rhinosporidium kinealyi*, described by MINCHIN & FANTHAM (298), this parasite producing tumours of the septum nasi of man. Much attention has been paid to the alleged Protozoan of variola and vaccinia, "Guarnieri's bodies" or *Cytoryctes*. BOSC (32) continues to publish lengthy descriptions, accompanied by unconvincing figures, of his "bryocytic" maladies ("maladies à Protozoaires"), treating this time of small-pox and "*Plasmodium* [sic] *variola*." SIEGEL (445) gives a long account of the parasite (as *Cytorhyctes*), elaborately illustrated with photomicrographs, which differs considerably from Calkin's account (Zool. Rec. 1904[58]). Further, he considers (446) that scarlet-fever is caused by an allied species, and (447) syphilis by yet another (*C. luis*), this last conclusion being very different from that arrived at by Schaudinn & Hoffmann and their supporters (see above). On the other hand, PROWAZEK (364 & 365), RICCIOLI (377) and others strongly assail the parasitic nature of Guarnieri's bodies. Finally, PROWAZEK (363), after a study of *Plasmodiophora*, finds that no comparison can be made between this parasite and the cell-inclusions ("Plimmer's bodies") in cancerous growths.

For various works on Geographical Distribution, the papers by BIGELOW, CASH & HOPKINSON, CONN, v. DADAY, EARLAND, HENDERSON, JENSEN, JØRGENSEN, LEMMERMANN, MASSART, MURRAY, NORDGAARD, PENARD, SIDEBOTTOM & WEST should be consulted; on Geological Distribution, those by CHAPMAN, CHAPMAN & HOWCHIN, CHECCHIA-RISPOLI, COCCO, DOUVILLÉ, FORNASINI, GOUGH, HUCKE, PREVER, POPOFSKY, READE &

HOLLAND, SCHLUMBERGER, SCHUBERT, SILVESTRI, SQUINABOL, WOJCIK, WRIGHT and others.

The Systematic description of *Gymnomyxa* is a subject upon which, as may be supposed, PENARD has plenty to say; in (334, 337 & 338) he adds to our knowledge of lacustrine Rhizopods, and in (336) decides that there is a true genus *Amaba*, well-characterized, if difficult to diagnose. CASH & HOPKINSON (63) publish the first volume of a complete enumeration, with descriptions and good illustrations, of British fresh-water Rhizopods and Heliozoa. Among Foraminiferan memoirs calling for remark, two (359 & 360) represent PREVER's further contributions to our knowledge of the *Nummulitidae*. With SILVESTRI, this author also considers (361) the constitution and relationships of the *Orbitolinae*. The last papers of SCHLUMBERGER—whose additions to the Foraminifera are tabulated by SILVESTRI (455) in his obituary notice—relate to the *Miliolidae* (411), and to certain new genera, *Choffatella* (409) and, with DOUVILLÉ, *Lituonella* (413). SILVESTRI (449) offers some critical observations on the genus *Baculogypsina* and the *Orbitoidea*, on the debated form *Chapmaniu gassinensis* (= *Dictyoconus aegyptiensis*) (451, 453, and, with PREVER, 361), and in (452) engages in a somewhat heated discussion with SCHUBERT (421), regarding the exact systematic value of two forms of *Cyclammina*. LEARDI in AIRAGHI (246) describes fully the genus *Rupertia* and its species, and CHECCHIA-RISPOLI (84) does the same for *Alveolina*. FORNASINI (145) reports on Adriatic *Textularidae* and in (142, 143, 146 & 147) continues his useful occupation of "editing" d'Orbigny's species of Foraminifera and bringing his unpublished figures into the light of day. Among other papers notable from a Systematic standpoint are those of CHAPMAN & HOWCHIN (79), JENSEN (199), and SIDEBOTTOM (442 & 443).

As usual, the Radiolarian fauna grows apace. HÄCKER, in his valuable memoirs above referred to (169 & 170), diagnoses several new species of *Tripylaria*; but it is to the untiring SQUINABOL (463), ably supported by JØRGENSEN (203 & 204), that the task of supplying names for new *Radiolaria* has chiefly fallen. The first of Jørgensen's papers, it may be mentioned, is an earlier one, which appears to have been overlooked. As the result of his researches on the colonial forms (*Sphaerozoa*), BRANDT (40) is now in a position to characterize and classify the constituent genera.

Fewer Systematic contributions to the remaining classes of Protozoa require mention. CRAWLEY (94) discusses the inter-relationships of the Sporozoa, and LAVERAN (240) reclassifies the "Hæmocytozoa," by the simple, though not necessarily the best, method of reducing the number and grade of forms regarded as distinct. The arrangement and classification of the Haplosporidia have been taken in hand with considerable success by CAULLERY & MESNIL (71), who have also observed certain new forms (67 & 68). Needless to say, many new Trypanosomes have been made known by different workers; when, however, as in the case of NOVY & MACNEAL's different "types" (323), the diagnoses are largely based on "cultural" characters, they cannot be regarded with much confidence. The scanty number of Rhynchoflagellate genera has received two conspicuous additions in *Craspedotella*, described by KOFOID (215) and *Radiozoum*, by MINGAZZINI (299); and, among the Ciliates, KOFOID's account (216) of new Tintinnids should be noted.

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## I.—TITLES.\*

1. [ANON.] Section "Protozoa" in Intern. Cat. Scient. Lit. (ii), 1905, pp. 67-105.
2. [—]. (EDITORIAL.) Dr Schaudinn's work on blood-parasites. Brit. Med. J. 1905, i, pp. 442-444, 5 text-figg. [Cf. McWEEENEY (290).]
3. ABRIC, P. Automatismes et liberté chez les êtres unicellulaires. C.R. Soc. Biol. lix, pp. 181-183. [See II. B. 2.]
4. ALZONA, C. Brevi notizie sulle raccolte zoologiche nelle caverne. Boll. Naturalista xxv, pp. 1-3.  
Occurrence of Protozoa in subterranean waters.
5. ARCICHOVSKIJ, V. Ueber das Zoopurpurin ein neues Pigment der Protozoa (*Blepharisma lateritium* [Ehrb.]). Arch. Protistenk. vi, pp. 227-229, 1 text-fig.
6. BALDREY, F. S. W. Dourine. J. comp. Pathol. xviii, pp. 1-22, 9 text-figg.
7. BALFOUR, A. A Hæmogregarine of Mammals—*H. jaculi*, *H. balfouri*, Laveran. J. trop. Medicine viii, pp. 241-244, 8 figg.
8. —. Trypanosomiasis in the Anglo-Egyptian Sudan. Edinb. Med. Journal 1905, pp. 202-212, pl. 5.
9. BANCROFT, F. W. On the validity of Pflüger's law for the galvanotropic reactions of *Paramæcium*. Univ. Calif. publ. Physiol. ii, pp. 193-215, 9 text-figg.
10. —. Ueber die Gültigkeit des Pflügerischen Gesetzes für die galvanotropischen Reaktionen von *Paramæcium*. Arch. ges. Physiol. cviii, pp. 535-556, 9 figg. [Translation of (9).]
11. BARRATT, J. O. W. Die Addition von Säuren und Alkalien durch lebendes Protoplasma. Zeitschr. allg. Physiol. v, pp. 10-33, 3 text-figg., 6 tables.
12. —. Die Kohlensäureproduktion von *Paramæcium aurelia*. T. c. pp. 66-72.
13. —. Der Einfluss der Concentration auf die Chemotaxis. T. c. pp. 73-94, 1 text-fig., 5 tables.
14. BASSANI, F. La Ittiofauna delle argille marnose plioceniche di Taranto e di Nardò (Terra d'Otranto). Atti Acc. Napoli xii, No. 3, 59 pp., 3 pls.
15. BASTIAN, H. C. On the occurrence of certain ciliated Infusoria within the eggs of a Rotifer, considered from the point of view of heterogenesis. P. R. Soc. London, pp. 385-392, pl. 7.
16. —. The heterogenetic origin of Fungus-germs and Monads. Ann. Nat. Hist. xv, pp. 210-217, pls. 14 & 15.
17. \*BATTAGLIA, M. Alcune ricerche sopra due Tripanosomi (*Trypanosoma vesperilionis*—*Trypanosoma lewisi*). Ann. med. Nav. Roma 10, ii, pp. 517-523, 4 text-figg.
18. BAUDOIN, M. Les parasites de la sardine. Rev. Scient. (5) iii, pp. 715-722, text-figg. 32-35.  
Includes short notice of *Coccidium sardine*.

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

19. BENHAM, W. B. Note on the occurrence of the Foraminiferan genus *Ramulina* in the New Zealand waters. Tr. N. Zealand Inst. xxxvii, p. 300.
20. BENTLEY, C. A. Preliminary note upon a Leucocytozoan of the dog. Brit. Med. J. 1905, i, p. 988, 2 text-figg.
21. ——. A new Leucocytozoan of the dog. T. c. p. 1078. [See II. G. 3.]
22. BETTENCOURT, — & FRANÇA, C. Sur un Trypanosome du blaireau (*Meles taxus* Schreib.). C.R. Soc. Biol. lix, pp. 305 & 306.
23. — & —. Sur un Trypanosome de la chauve-souris. T. c. pp. 306 & 307.
24. BIGELOW, H. B. The shoal-water deposits of the Bermuda Banks. P. Amer. Ac. xl, pp. 559-592.
25. BILLET, A. Sur une forme particulière de l'Hématozoaire du paludisme décrite par MM. Ed. et Et. Sergent. C.R. Soc. Biol. lviii, pp. 720-722. [See II. E.]
26. BLANCHARD, R. La médecine coloniale. Arch. parasit. ix, pp. 95-121. On the rôle of Protozoa in colonial diseases.
27. ——. Zoologie et médecine. T. c. pp. 129-144. On the rôle of Hæmatozoa in medical parasitology.
28. ——. Substances toxiques produites par les parasites animaux. Op. cit. x, pp. 84-104. [See II. B. 1.]
29. BLANCHARD, L. F. Deux Grégarines nouvelles parasites de Ténébrionides des maures. C.R. Ass. Franc. xxxiii (session 1904), pp. 923-928.
30. \*BLUM, L. Untersuchungen über das Vorkommen parasitärer Organismen in Geschwülsten. Arch. path. Anat. clxxix, pp. 475-485.
31. BOSCH, F. J. La maladie du jeune chien est une maladie bryocyttique (à Protozoaires). C.R. Soc. Biol. lviii, pp. 534-536.
32. ——. Les maladies bryocytiques (maladies à Protozoaires). 3<sup>me</sup> Mémoire. La variole et son parasite (*Plasmodium variolæ*). Centrbl. Bakter. (1) xxxix, Orig., pp. 36-45, 129-141, 247-263, 389-398, 594-602, 2 pls., 12 figg.
33. BOUGON, —. Étude historique des Infusiores. Microgr. prep. xiii, pp. 25-33.
34. ——. Les Infusiores parasites. T. c. pp. 118-126, 163-173, 211-214, pls. 10 & 14. General account.
35. ——. La peau des *Coleps*. T. c. pp. 271-275.
36. BOUSSAC, J. Sur le parallélisme des couches éocènes supérieures de Biarritz et du Vicentin. C.R. Ac. Sci, cxli, pp. 740-742.
37. BOWHILL, T. Equine piroplasmosis or "biliary fever." J. Hygiene v, pp. 7-17, pls. 1-3.
38. BOYCE, R. The year's progress in tropical Medicine. Brit. Med. J. 1905, ii, pp. 1258 & 1259. [Refers to the discovery of Leucocytozoa and Hæmogregarines in Mammals.]
39. BRANDT, K. Beiträge zur Kenntniss der Colliden. (II<sup>te</sup> Abhandlung.) III. Ueber den Bau, die multiple Kerntheilung und den Generationswechsel von Thalassicollen. Arch. Protistenk. vi, pp. 245-271, pls. 11-14, 12 text-figg.

40. [BRANDT, K.] Zur Systematik der Koloniebildenden Radiolarien. Zool. Jahrb. Suppl. viii, pp. 311-352, pls. 9 & 10.
41. BRASIL, L. La résorption phagocytaire des éléments reproducteurs dans les vésicules séminales du *Lumbricus herculeus* Sav. C.R. Ac. Sci. cxl, pp. 597-599. [See II. c. 2.]
42. —. La genèse des gamètes et l'anisogamie chez les *Monocystis* du *Lombric*. T. c. pp. 735 & 736. [For fuller account see (44).]
43. —. Recherches sur la reproduction des Grégarines monocystidées. Arch. Zool. exp. (4) iii, pp. 17-38, pl. 2, 2 text-figg.
44. —. Nouvelles recherches sur la reproduction des Gregarines monocystidées. Op. cit. (4) iv, pp. 69-99, pls. 9 & 10.
45. BRAUN, M. The animal parasites of man. A handbook for students and medical men. (3rd edit. enlarged. Translated by P. Falcke. Revised to date by L. Sambon & F. Theobald). London (Bale, Sons, and Danielson), pp. xix+453, 290 figg. in text. [Protozoa, pp. 25-127, text-figg. 1-65.]
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47. BREHM, V. Zur Kenntniss der Microfauna des Franzensbader Torfmoordistriktes. Arch. Hydrobiol. i, pp. 211-228, 5 text-figg.
48. — & ZEDERBAUER, E. Das September-Plankton des Scutarisees. Verh. Ges. Wien lv, pp. 47-52, 3 text-figg.
49. — & —. Beiträge zur Planktonuntersuchung Älpiner Seen. T. c. pp. 222-240, 7 text-figg.  
BREINL, A. [See THOMAS, H. W. & BREINL, A. (489).]
50. BRIVES, A. Sur les terrains eocènes dans le Maroc occidental. C.R. Ac. Sci. cxl, pp. 395-397.  
Occurrence of *Nummulites* mentioned.
51. \*BRODEN, A. Les Trypanosomes des grenouilles. Arch. Schiffs-u-Tropenhyg. ix, pp. 18-22, 1 pl.
52. BRUCE, D. The advance in our knowledge of the causation and methods of prevention of stock diseases in South Africa, during the last ten years. Science xxii, pp. 289-299, 327-333.  
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53. —. [Same Title.] Nature lxxii, pp. 496-503. [Opening address in Physiological Section, British Association.]
54. BRUMPT, E. Maladie du sommeil; distribution géographique, étiologie, prophylaxie. Arch. parasit. ix, pp. 205-224, pl. 3.
55. —. Trypanosomes et trypanosomiases. Rev. Scient. (5) iv, pp. 321-332, text-figg. 34-41.
56. —. Au sujet du traitement de la maladie du sommeil. Réponse à M. le professeur Laveran. C.R. Soc. Biol. lix, pp. 316-318. (Remark by Laveran *re* this communication, p. 318.)
57. — & WURTZ. Note sur le traitement de la maladie du sommeil expérimentale par l'acide arsénieux et le trypanroth. T. c. pp. 61-63. (Remark by Laveran, p. 76).
58. BRUNELLI, G. Sulla distruzione degli oociti nelle regine dei Termitidi infette da Protozoi. Rend. Acc. Lincei xiv (2), pp. 718-721, 1 text-fig.

- BUFFARD, M. [See SCHNEIDER, G. E. & BUFFARD, M. (414).]
59. BUTLIN, H. T. Carcinoma is a parasitic disease. *Brit. Med. J.* 1905, ii, pp. 1565-1571, 21 text-figg.
60. CALKINS, G. N. *Cytoryctes variolæ* Guarnieri; the organism of small-pox. *Rep. Brit. Ass.* 1904 (1905), pp. 597 & 598.  
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62. CAREZ, L. La géologie des Pyrénées françaises. Fasc. ii. *Mem. Carte geol. France* 1904, pp. 745-1227, 13 pls., numerous tables.  
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63. CASH, J. & HOPKINSON, J. The British freshwater Rhizopoda and Heliozoa. Vol. I. Rhizopoda, Pt. 1. London (for the Ray Society), 1905, (x + 150) pp., 16 pls., 32 text-figg.
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65. —. Diarrhoea from Flagellates. *Brit. Med. J.* 1905, ii, pp. 1285-1287, 2 text-figg.
66. — & WILLEY, A. Observations on Hæmatozoa in Ceylon. *Quart. J. Micr. Sci.* xlix, pp. 383-402, pl. 24.
67. CAULLERY, M. & MESNIL, F. Sur quelques nouvelles Haplosporidies d'Annélides. *C.R. Soc. Biol.* lviii, pp. 580-583, 6 text-figg.
68. — & —. Sur des Haplosporidies parasites de poissons marins. *T. c.* pp. 640-642.
69. — & —. Phénomènes de sexualité dans le développement des Actinomyxidies. *T. c.* pp. 889-891. [See (72).]
70. — & —. Phénomènes de sexualité dans le développement des Actinomyxidies. *C.R. Ac. Sci.* cxl, pp. 1482-1484. [Identical with (69).]
71. — & —. Recherches sur les Haplosporidies. *Arch. zool. Exp.* (4) iv, pp. 101-181, pls. 11-13, 13 text-figg.
72. — & —. Recherches sur les Actinomyxides. I. *Sphæractinomyxon stolci* Caullery & Mesnil. *Arch. Protistenk.* vi, pp. 272-308, pl. 15, 4 text-figg.
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## II. BIOLOGY.

### A. MORPHOLOGY.

#### 1. General Anatomy.

##### (a) Gymnomyxa:—

Account of a new Protistan parasite, *Mycetosporidium* n. g., forming plasmodia and probably of Mycetozoan nature, LÉGER & HESSE (251).

Morphology of *Plasmodiophora brassicae* described, PROWAZEK (363).

Full account of the complicated morphology of a remarkable new group of Rhizopods, the *Xenophyophora*, SCHULZE (431). [See II. F.]

General description of: *Amæba blatta* and *A. proteus*, SCHUBÖTZ (427); *A. limax*, VAHLKAMPF (492).

Note on an *Entamæba* [?] remarkable for the possession of an undulating-membrane, CASTELLANI (64).

On the dimorphism of *Nummulites* spp., and the relation of the size of the megalosphere to that of the microspheric and megalospheric tests, LISTER (267).

Comprehensive account of the morphology of the arenaceous Foraminifera, KEMNA (207); observations and remarks on the genus *Baculogypsina*, SILVESTRI (449); full description of *Chapmania gassinensis*, id. (453).

Notes on the structure of *Thalassicolla* spp., BRANDT (39).

##### (b) Sporozoa:—

Description of a remarkable new Gregarine, *Tæniocystis* n. g., with cytoplasm metamericly divided, LÉGER (248).—Notes on new Gregarines, *Stylorhynchus gladiator* n. sp., and *Gregarina cavalierina* n. sp., BLANCHARD, (29).

Short account of a new Coccidian, *Coccidium subepithelialis*, MOROFF & FIEBIGER (302).

New Piscine Hæmatozoa, LEBAILLY (247).

Account of new Hæmogregarines:—*H. balfouri*, from a Mammal (*Jaculus*), LAVERAN (227), also BALFOUR (7); *H. gerbilli*, from an Indian rat (*Gerbillus*), CHRISTOPHERS (86); *H. neireti* and *H. theileri*, from frogs, and *H. varani*, from a lizard, LAVERAN (236 & 237); *Lankesterella tritonis*, FANTHAM (126).

Account of: a new "*Hæmamæba*" (probably a *Plasmodium*) from a squirrel, VASSAL (494 & 495); a new Reptilian "*Hæmamæba*," "*H. testudinis*," LAVERAN (238); a new "*Hæmamæba*," "*H. smithi*," from a turkey, LAVERAN & LUCET (242).

Notes on morphology of *Piroplasma*, BOWHILL (37).—Morphology of *Piroplasma canis*, NUTTALL & GRAHAM-SMITH (325).—On a new endoglobular Hæmatozoan from moles, differing in certain respects from an ordinary *Piroplasma*, GRAHAM-SMITH (163).

Morphology of a new "*Leucocytozoon*" of dogs, BENTLEY (20) and JAMES (190).

Notes on new Glugeids, PEREZ (341 & 343).—Account of a new *Myxocystis*, *M. mrazeki*, which is a true *Myxosporidian*, HESSE (177 & 179).

Notes on new Haplosporidia, including *Urosporidium* n. g., CAULLERY & MÉSNIL (67); and *Ichthyosporidium* n. g., id. (68).—Full account of the Haplosporidia and allied forms, id. (71).

Account of a new Haplosporidian, *Rhinosporidium kinealyi* n. g., n. sp., parasitic in Man, MINGHIN & FANTHAM (298).—A new Haplosporidian parasite, *Cælosporidium blattellæ* n. sp., CRAWLEY (93).

Description of a new Sporozoan (*Microklossia*) presenting unusual features, KRASSILÛTSCHIK (219–221).

### (c) Mastigophora:—

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Brief account of two new parasitic Flagellates, *Calonympha grassii* and *Devescovina striata*, FOA (141).—Description of the remarkable parasitic Flagellate, *Pseudospora volvocis*, ROBERTSON (379).

Description of a new *Herpetomonas*, *H. bombycis*, from the silk-worm, LEVADITI (260).

Note on a new piscine *Trypanoplasma*, *T. intestinalis*, from the digestive tube of *Box*, LÉGER (249).

Account of a new *Trypanosoma*, *T. duttoni*, from a mouse, THIROUX (484 & 486).—General description of *Trypanosoma paddæ*, THIROUX (485).—Morphological characters of a *Trypanosoma* from the Egyptian Soudan, regarded as new (*T. nanum*), LAVERAN (235).

Notes on new Trypanosomes: *T. pestanaï*, from a badger, BETTENCOURT & FRANÇA (22), and *T. dionisii*, from bats, id. (23); *T. polypectri*, with a very attenuated anterior end, from a pheasant, VASSAL (493); *T. clarice*, from a Siluroid fish, MONTEL (300); of bats, *Trypanosoma nicolleurum*, and (provisionally) *T. vespertilionis*, SERGENT (435).

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Account of *Trypanoplasma* and *Trypanosoma* n. spp., BRUMPT (55).

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Note on a new Rhabdosphere, MURRAY (305).

Description of a new Rhynchoflagellate, *Craspedotella pileolus* n. g., n. sp., KOFOID (215).

(d) Ciliophora:—

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Nature and properties of the delicate envelope or membrane surrounding *Amaba terricola*, PENARD (335).—Description of the integument of *Cochliopodium pellucidum*, FAURÉ-FREMIET (138).—Modifications in form and constitution of the shell ("house") of *Diffugia*, REUKAUF (374).

On the occurrence of twinning (twinned-shells) in fossil Foraminifera (*Fusulina*), SCHELLWIEN (407).

Account of the form and structure of the shell in the *Orbitolinæ*, DOUVILLÉ (110).—Simplification and loss of ornamentation in the shells of various *Lagenidæ*, as characters indicating senescence, CUSHMAN (96).

Form-variation in the shells of different Peridinida described and compared, ENTZ (122).

Observations on the comparative form and morphology of the Radiolarian (Tripylarian) skeleton, in relation to function and environment; developmental considerations, HÄCKER (169 & 170).

Note on the cuticle of *Coleps*, BOUGON (35).

(b) Nucleus and cytoplasm:—

Structure of living protoplasm, as exemplified by various Protozoa, GINESTE (158).—On the minute structure of protoplasm, as seen among Protozoa; hyaloplasm, the primary plasm, consists of "tagmas" or granular substance, and an intertagmal lipid substance, the "Arbeit-substanz"; there is a specific living substance, and the tagmas play a directive rôle in relation to the metabolism, SCHNEIDER (415).

On the occurrence of well-marked alveolar structure of the protoplasm in *Glaucoma*; this is regarded as an unusual (pathological) appearance, and not as representing the fundamental character of the protoplasm, DEGEN (102).—Degeneration-appearances in *Arcella*, MARTINI (282).

Fusion observed of the protoplasm of portions of different *Pelomyxa*-individuals and inference with regard to the plasmodial character of the animal, VELEY (496).

Distinctive characters of the cytoplasm in a clothed *Amaba* (*A. terricola*) from that of naked forms, PENARD (335).—Minute structure of the cytoplasm in *Amaba proteus*; the albumen spheres and crystalline inclusions, and their reactions, SCHUBOTZ (427).

The cytoplasm in *Teniocystis* is metamerically divided up into segments, of which there may be as many as 29, LÉGER (248).

Remarkable and complicated cytological structure of a new Flagellate, *Calonympha grassii*, possessing numerous nuclei and (associated) flagella, FOA (141).—Cytology of *Trypanosoma brucei* and *T. lewisi* minutely described, PROWAZEK (362).

Intimate structure of the protoplasm of Infusoria; hyaloplasm and paraplast, spheroplasts and trophoplasts, FAURÉ-FREMIET (134 & 135).

Cytological details in *Campanella umbellaria*, FAURÉ-FREMIET (128).—Cytoplasmic differentiation in *Cryptochilum*, RUSSO & DI MAURO (390).

Minute structure of nucleus and cytoplasm: in *Cochliopodium pellucidum*, FAURÉ-FREMIET (129 & 138); in *Didinium*, THON (491).

Spherular theory of nuclear structure; monospherular (ex: *Cochliopodium pellucidum*) and polyspherular (ex: *Ceratium hirundinella*) Protozoan nuclei, FAURÉ-FREMIET (136).

Consideration of the various kinds of the nuclear organellæ known as chromidia; distinction between "trophochromidia" and "idiochromidia"; nuclear dimorphism; the diffuse nucleus, MESNIL (294).

On the changes in the structure and behaviour of the karyosome in *Caryotropha* during growth; its significance as a vegetative organella, which amasses a reserve supply of chromatin, to be given back later to the nucleus; comparison with other Protozoa, SIEDLECKI (444).

Trophic nuclear changes in *Amœba dofleini* n. sp.; formation of nucleoli, chromidial bodies and curious crystals, NERESHEIMER (312).—Nuclear structure (of the "distributed" Bacterial type) in the [so-called] Trypanosome of oysters ("*T.*" *balbianii*), PERRIN (345).—Minute structure of the meganucleus of *Vorticella microstoma*, FAURÉ-FREMIET (132).

Description of the nuclear apparatus and its resolution, prior to multiplication, into chromidial substance (network) in certain parasitic Infusoria (*Opalinopsis* and *Chromidina* n. g.), GONDER (160).

Occurrence of a rudimentary cytostome in *Chromidina*, GONDER (160).—Description of the complicated cytopharyngeal apparatus for seizing and injecting food (Infusorians) in *Didinium*, THON (491).

Two contractile vacuoles in *Codosiga*, not one contractile one and one food vacuole, SCHOUTEDEN (417).—Presence of a delicate membrane, secreted (?) by the cytoplasm, around the food-vacuoles in Infusoria, FAURÉ-FREMIET (131).

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Nature and structure of the trichocysts of Infusoria, SCHUBERG (419).

Presence of eye-spots (stigmata) in *Ceratium*, ZACHARIAS (517).

#### (c) Organellæ of attachment and movement:—

Organ of attachment ("vesicle of adhesion") of *Anchorina sagittata* described, CECCONI (76).—On the intimate structure of the fixative apparatus of *Vorticellidae*, FAURÉ-FREMIET (137).

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Detailed description of the cilia of various Infusoria (*Stentor*, *Paramecium*, *Frontonia*); their morphological comparison with flagella, SCHUBERG (419).—Basal corpuscles, cilia, myonemes etc., in *Cryptochilum*, RUSSO & DI MAURO (390).

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Rapid rate of growth in *Epistylis flavicans* (after attachment of the young individual) measured, LANDACRE (226).

Reflections on "recuperation" in Protozoa; the part played by protective cysts (hypnocysts) in connection with dedifferentiation and a return to embryonal conditions, SCHULTZ (428).

Cyclical changes in the life-history of different Infusoria (*Gastrostyla*, *Oxytricha* and *Pleurotricha*), periods of renewed vital activity alternating with periods of depression, as measured by the division-rate; effects on

the same of environmental changes (culture-media, temperature etc.), WOODRUFF (507).

Evidence against the general view that both ex-conjugants (in *Paramœcium*) are physiologically recuperated, CALKINS (61).

Observations on the (alleged) senile degeneration of various Infusoria (*Glaucoma*, *Stylonichia* and *Vorticella* spp.), ENRIQUES (120 & 121).—Significance of the meganuclear fragmentation in *Cryptochilum* with regard to senile degeneration, RUSSO & DI MAURO (389).

Observation of the death and rapid dissolution of an *Amœba* while apparently under normal conditions, LINTON (266).

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Researches on the mode of formation and operation, and the functional significance of the contractile vacuole, worked out on *Glaucoma colpidium*, DEGEN (102).

Production of carbon dioxide by *Paramœcium*, BARRATT (12).

Experiments and observations on respiration in Ciliates (*Paramœcium*, *Colpidium*, *Opalina* etc.); PÜTTER (367) finds that they can exist without free oxygen (under anærobic conditions) for some time, particularly if well supplied with nutriment.

Association of ærobic Bacteria apparently necessary for the successful development of the spores of *Plasmodiophora* (of "cabbage-hernia"), PINOY (350).

Occurrence of fuchsinophilous grains, probably representing an internal secretion, in *Cochliopodium*, FAURÉ-FREMIET (130).—Presence of granules of barium sulphate in the new Rhizopods, *Xenophyophora*, SCHULZE & THIERFELDER (432).—On a new pigment (zoopurpurin) of an Infusorian (*Blepharisma*), ARCIOHOVSKIJ (5).

On the powerful toxine (sarcocystin) produced by Sarcosporidia; probably, also, a hæmolytic toxine is produced by malarial parasites, BLANCHARD (28).

Experimental transformation of *Vorticella microstoma* into *V. hians* and vice-versâ, by a variation of the medium of cultivation; a case of purely physiological adaptation, FAURÉ-FREMIET (133).

### 2. Locomotion.

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Physiological action of locomotor organellæ (cilia and flagella), SCHUBERG (419).



### 3. Response to stimuli; effects of reagents.

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Chemotaxis and galvanotaxis of various Protozoa (*Spirostomum*, *Opalina*, *Balantidium*) under different conditions, and the bearing of the results obtained upon a theory of the genesis of protoplasmic movement, ROBERTSON (380).

Continuation of his studies on galvanotropism and galvanotaxis in different Ciliates, STATKEWITSCH (467).—Galvanotaxis of *Paramecia* in various media; a theory of the action of the electricity on the protoplasm in explanation of their behaviour, COEHN & BARRATT (90).—Galvanotropic reactions of *Paramecium*; validity of Pflüger's law for the stimulation of the cilia, BANCROFT (9 & 10).

A modification of the "stato-cyst" theory best explains geotropism in *Paramecium*, LYON (272).

Conditions favouring the emission of light-rays (so-called "phosphorescence") by *Ceratium tripos*; influence of various chemicals on this manifestation, ZACHARIAS (512 & 513).—Behaviour towards light (positive heliotropy) of *Volvox*, ZACHARIAS (514).

Varying effects of radium on different Protozoa (Rhizopods, *Paramecium* and *Spirostomum*), ZÜTZER (519).

The living protoplasm of *Paramecium* can enter into combination (to a certain extent) with acids and alkalies, BARRATT (11).

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Discussion on the efficacy and expediency of the arsenious acid and "trypanroth" treatment of different Trypanosomes (including *T. gambiense*), LAVERAN (228, 231 & 232), BRUMPT (56), and BRUMPT & WURTZ (57).—Favourable treatment of various Trypanosomes with an arsenic and aniline compound (atoxyl), THOMAS (487).

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Peridinida from plankton, Quarnero (Hungary), ENTZ (122).—*Dunaliella salina*, from saline springs, Cagliari, HAMBURGER (172).

Lake Scutari, Albania, *Ceratium* and *Dinobryon*, in plankton, BREHM & ZEDERBAUER (48).

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Plankton, Lakes Lugano and Como, *Codonellæ* and *Ceratia* n. spp., ZACHARIAS (511).—Protozoan plankton from well-known Swiss and Italian lakes (mostly Flagellates, with new *Ceratia*), ZACHARIAS (517).—Lake Neuchâtel, Protozoan plankton, FUHRMANN (152).

Variation in constitution of surface plankton at different times, in the Great Lake of Plön, and two lakes in Northern Bohemia (Protozoa referred to: *Ceratium*, *Dinobryon* and *Epistylis*), RUTNER (392).—Bathymetrical distribution and yearly wandering of Protozoa (*Ceratium*, *Dinobryon*, Rhizopods) in the Great Lake of Plön, VOIGT (497).

Protozoan plankton: from peaty bogs, Franzensbad, BREHM (47); (Dinoflagellates, *Dinobryon*, *Trachelomonas*) from various lakelets in Saxony and Silesia, LEMMERMANN (255); (Dinoflagellates, *Dinobryon*) Lake Drewenz, East Prussia, KRAUSE (222).

*Acanthometridæ* in plankton from the Florida Stream, POPOFSKY (355).

New *Tintinnidæ* in plankton from San Diego region, KOFOID (216).

In plankton, mid-Pacific, *Craspedotella*, a new Rhynchoflagellate, KOFOID (215).

Colouration of water green by an immense number of colonies of *Volvox minor* and *V. globator*, ZACHARIAS (514).

## 2. Parasitism, effects on host: relation to disease.

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Protozoa (Sporozoa and Trypanosomes) and disease, MACDOUGALL (273).

Destruction of the ovary in certain Termites (*Termites* and *Calotermites*), with resulting castration, owing to the invasion of Protozoan parasites (unspecified), BRUNELLI (58).

General effects and nuclear alterations resulting from the attack of *Nucleophaga amœbæa* on *Amœba terricola*, PENARD (335).

The relations between *Pseudopora volvocis* and infected *Volvox* colonies, ROBERTSON (379).

### Amœbosis:—

Etiological significance of *Amœbæ*, MUSGRAVE & CLEGG (308).—Observations relative to the pathogenic action, place and mode of penetration, etc. of the *Amœba* of dysentery, DOPTER (106).—*Amœba coli* present in ulceration of large intestine, and liver abscess, and perhaps the cause, MUGLIS-  
TON & FREER (304).—Remark on the pathogenic effects of the *Entamœba* "*dysentericæ*" [*histolytica*] in dysentery; also of Infusoria (*Balantidium*), GUIART (168).

### Gregarinosis:—

The surrounding and confining of Gregarines and their cysts (*Mono-cystis*) is probably only a subsidiary function of the amœbocytes and phagocytes, and carried on only to a restricted extent, BRASIL (41).

Castration of a spider-crab (*Inachus*) brought about by a "coelomic" Gregarine, *Aggregata inachi* n. sp., SMITH (462).

Relation of *Anchorina sagittata* to the intestinal cells of *Capitella*, CECCONI (76).

### Coccidiosis:—

Serious epidemic of intestinal coccidiosis among cattle in Tunis, caused by an unspecified *Coccidium*, DUCLOUX (114).

Epidemic of coccidiosis in carp, due to *C. sub-epithelialis* n. sp., MOROFF & FIEBIGER (302).

## Haemosporidiosis:—

Invasion of white blood-corpuscles (leucocytes) of a dog by a new Haemosporidian (a "*Leucocytozoon*"), around which the leucocyte forms a delicate enclosing cyto cyst, JAMES (190).

Karyolytic action of *Hæmogregarina magna*, and degenerative forms of same, SERGENT (438).

Effects of a new "*Hæmamæba*" on its host (squirrel); relation to the blood-corpuscles, VASSAL (495).

## Piroplasmosis:—

In the case of the curious new Hæmatozoan [perhaps an unusual type of *Piroplasma*] from the blood-corpuscles of moles, the parasites may be very numerous in the corpuscles, GRAHAM-SMITH (163).

Ring- and bacillary forms of *Piroplasma bigeminum* in the blood of the immune ox, THEILER (479).

Human piroplasmosis; relation of the parasites to the red blood-corpuscles, DONOVAN (105).—On naturally occurring piroplasmosis in monkeys (*Cercopithecus*), ROSS (386).—On the frequent presence of *Piroplasmata* in the blood of cattle in Ireland, and the occurrence of bovine piroplasmosis, METTAM (297).—Bacilliform piroplasmosis of cattle in Tunis, DUGLOUX (115).—Equine piroplasmosis, or "biliary fever," BOWHILL (37).—Canine piroplasmosis; abundance, and relation to the blood-corpuscles of the parasites in different parts of the body, GRAHAM-SMITH (162).

Oriental or Delhi sore; great resemblance of the parasites to those found in Kala-Azar, but the differences between the two diseases are so marked that, notwithstanding the almost universal occurrence of the parasites (Leishman-Donovan bodies) in the latter type, it is by no means certain whether they are really, in this case, the cause of the disease, JAMES (191 & 192).

MANSON (298) puts forward the interesting hypothesis that the organisms of Kala-Azar and Oriental sore may be identical, but that in the latter case the virulence of the parasite has been in some way got rid of; in other words, that these two diseases bear to one another the same relation that small-pox (variola) and vaccinia do.

General account of Kala-Azar and its parasite, *Piroplasma donovani*, SAMBON (398).—Distribution of the parasites of Kala-Azar in the tissues (figures given), STATHAM (466).

## Myxosporidiosis:—

SCHUBERG & SCHRÖDER (420) did not find any markedly pathological effects resulting from the invasion by *Myxobolus neurobius* of the nervous system of the trout.

Great mortality of fish (*Alosa finta*), due to "pseudodiphtheria," caused by *Branchiophaga* n. g., a new Myxosporidian which attacks the branchial tissue, MAZZARELLI (286 & 287).

Effects of Microsporidia (*Nosema* and *Thelohania*) on crabs; atrophy of affected musculature, and, in severe cases, interference with breeding powers, PEREZ (342 & 344).—Marked effects of *Nosema vayssierei* n. sp., on tissues of *Boëtis rhodani* (larvæ), HESSE (178).

## Sarcosporidiosis:—

Occurrence of *Sarcocystis tenella* in sheep (with fatal effects?); presence of parasites in fibres of the heart muscle, and of the "spores" in the blood, METHAM (297).

## Other Sporozoa and Disease:—

Tumorous growths formed in the *septum nasi* of man by *Rhinosporidium* n. g., MINCHIN & FANTHAM (298).

Emaciation of flounders caused by severe attacks of *Lymphocystis johnstonii*, JOHNSTONE (201).

Trypanosomosis:—

Trypanosomes and trypanosomoses; general account, BRUMPT (55).—Trypanosomoses and Tsetse-flies in French Guinea, LAVERAN (230).—Tsetse-flies and the Trypanosomes of sleeping-sickness, BRUMPT (54).

Sleeping-sickness and animal trypanosomoses in Uganda, NABARRO & GREIG (310) and GREIG & GRAY (165).—Sleeping-sickness and the trypanosomoses produced in various animals by *T. gambiense*, *T. dimorphon*, *T. evansi*, and *T. equinum*, comparative account of; pathological effects and treatment, THOMAS & BREINL (489).

*Trypanosoma gambiense* the probable cause of Congo sleeping-sickness, DUTTON, TODD & CHRISTY (118).—From experiments on rats with the Trypanosomes from cases of Gambia-fever and sleeping-sickness, PLIMMER (354) concludes that these two trypanosomoses, and the organisms causing them are to be considered as distinct.

Relations of the Trypanosomes to the brain and nervous system, in different trypanosomoses (sleeping-sickness, Surra, "Jinga" disease), MOTT (303).—Pathological-anatomical changes undergone by the parasites in the various organs and tissues, in experimental trypanosomosis (*T. brucei*), SAUERBECK (400).

Course of Mal de Caderas, Dourine, and Nagana as observed in white mice and rabbits artificially infected with the respective Trypanosomes of these diseases, HALBERSTAEDTER (171).

On the "unicité" of Dourine (caused by *T. equiperdum* = *T. rougeti*) in Europe and Algeria, SCHNEIDER & BUFFARD (414).—On Dourine, BALDREY (6).

Trypanosomosis: (a) of cattle in Egyptian Soudan, caused by a new form, *T. nanum*, apparently restricted to *Bovidae*; and (b) of a mule from Itang on Abyssinian frontier (possibly *T. dimorphon*?), LAVERAN (235).—Trypanosomosis of cattle (*T. nanum*) in Anglo-Egyptian Soudan, BALFOUR (8).—Account of a distinct trypanosomosis in Cameroun, caused by *T. vivax* n. sp.; infection limited, apparently, to cattle, sheep and goats among domestic animals, ZIEMANN (518).

Occurrence of a trypanosomosis of horses, caused by *T. dimorphon*, in French Guinea (Upper Niger), CAZALBOU (74).—Existence of a trypanosomosis of horses, zebras, mules, etc., at Macina (French Soudan), known as "Soumaya," probably the same as Mbori, id. (75).

Trypanosomosis of horses at Mécheria (Oran), Algeria, resembling Surra, and caused by a parasite very like *T. evansi*, ROGER & GREFFULHE (384).—A trypanosomosis of camels in North Africa, known as el Debab, closely allied if not identical with Surra and Mbori; distinction of trypanosomoses conveyed by Tabanids from those conveyed by Tsetses, SERGENT (439).

Three varieties of Surra, perhaps caused by different races of the same species of parasite (*T. evansi*); Surra of India, S. of Mauritius, and Mbori, LAVERAN & MESNIL (243).—Identity of the Trypanosomes of Surra and Mbori (*T. evansi*) confirmed, LAVERAN (229).

Susceptibility of jerboa (*Jaculus*) to the Trypanosome of Surra and to *T. gambiense*, LAVERAN (239).—Marked susceptibility of the cat to Surra; fatal termination, PANISSET (330).—Susceptibility of bats (*Pteropus medius*) to the Surra Trypanosome, *T. evansi*, LAVERAN (234).—Marked resistance offered by a bat (*Vespertilio kuhli*) to Sergent's Trypanosome of dromedaries (Zool. Rec. 1904, Nos. 311 & 312), NICOLLE & COMTE (316).

Frequency of *T. lewisi* in black rats (*Mus rattus*); rarity in sewer rats (*M. decumanus*); resistance of sewer and white rats to natural infection; SABRAZÉS & MURATET (395).

Inoculation of various birds with *T. paddy*, THIROUX (485).

Different behaviour (as regards immobilization and agglomeration) of various Mammalian and Avian sera on *Trypanosoma paddæ*, LEVADITI & SEVIN (261).

Cytolytic action of serum of white rat on *T. paddæ*, SEVIN (441).—Natural immunity of certain animals (guinea-pig, mouse) to *T. paddæ* is not due to the active, cytolytic properties of their sera, but to rapid phagocytic digestion: of others (white rats) due in part to both causes, LEVADITI & SEVIN (262).

Protozoa in reference to other diseases:—

Intestinal Flagellates (*Lambliæ*, *Trichomonas*) and diarrhœa, CASTELLANI (65).

Occurrence of "*Spirochæta*" *pallida* n. sp. (later *Treponema* n. g. *pallidum*) in true syphilitic lesions and products, probably the cause of this disease, SCHAUDINN & HOFFMANN (406).—THESING (481) apparently doubts not only whether "*Spirochæta*" *pallida* is a Protozoan, but also whether it is etiologically connected with syphilis.

SIEGEL (445) considers that "Guarnieri's bodies," as they occur in small-pox and vaccinia (*Cytoryctes variolæ* and *C. vaccinæ*) are the cause of those diseases; he gives a quite different account of them, however, from that of Calkins (Zool. Rec. 1904, No. 58). Further, he has found similar parasites in foot and mouth disease (*C. aphtharum* n. sp.), scarlet-fever, *C. scarlatinæ* n. sp. (446), and also in syphilis, *C. luis* n. sp. (447), this last result being very different from those obtained by other workers.—"Bryocytic" maladies; small-pox and "*Plasmodium*" *variolæ*, BOSC (32).

PROWAZEK, on the other hand (364 & 365), concludes that Guarnieri's bodies (*Cytoryctes*), as seen in vaccinia, are certainly not parasites.—RICCIOLI (377) also comes to the conclusion that the bodies taken by Siegel to represent Protozoa, and the cause of vaccinia (Guarnieri's corpuscles), are really artificial products; R. regards other bodies, found in the kidneys of infected rabbits, as Protozoa.

Bodies found in, and cultivated from carcinomatous tumours, which are thought to be *Plasmodiophoræ*, and dignified with a new specific name, *P. carcinomatis*, ROBERTSON & WADE (381).—No comparison can be rightly made between the cell-inclusions of cancerous growths ("Plimmer's bodies," etc.) and the Myxameban parasites, *Plasmodiophora brassicæ*, PROWAZEK (363).—The cells of carcinoma are to be regarded as parasites "of the lowest animal nature," BUTLIN (59).

Occurrence of sickle-shaped formations, thought to be parasitic ("*Hæmameba*" *leucæmiæ magna*), in myelæmia and leucæmia, LÖWIT (271).

The organisms known as *Coccidioides immitis* and *C. pyogenes*, causing a disease of man in America, and thought by Rixford and Gilchrist to be a kind of Sporozoon, are really pathogenic moulds (Fungi), OPHÜLS (327).

## D. REPRODUCTION.

### 1. Asexual: fission, schizogony, etc.

Varieties of division of protoplasm in a multinucleate condition (i.e. with regard to the concurrent division of cytoplasm and nuclei), exemplified by *Amæba proteus*, STOLC (475).

Vegetative multiplication, by plasmatomy, of *Mycetosporidium* n. g., LÉGER & HESSE (251).

Schizogony in *Coccidium subepithelialis*; 8–11 merozoites, MOROFF & FIEBIGER (302).

Schizogony described in a new Mammalian Hæmogregarine (*H. balfouri*), BALFOUR (7).—Endogenous multiplication of *H. balfouri* (really schizogony?)

free, but enclosed in a cyst, LAVERAN (227).—Schizogony in *Lankesterella tritonis* n. sp., described, FANTHAM (126).

Multiplication of *Piroplasma canis*, NUTTALL & GRAHAM-SMITH (325).—Peculiar unequal fission (successive) of *Piroplasma donovani* in cultures, thin, spirillar forms being cut off from the parent parasite, LEISHMAN & STATHAM (253).

Schizogony of various types in *Thelohania mænadis*, described, PEREZ (344).

Asexual multiplication of *Blastulidium* by plasmatomy, a budding-like process, recalling that of yeasts, PEREZ (340).

Schizogonous multiplication of the different types of element in *Microklossia*, KRASSILTSCHIK (220 & 221).

Mode of multiplication of *Trypanosoma gambiense* in the Tsetse-fly (*G. palpalis*), GRAY & TULLOCH (164).—Multiple division of Avian Trypanosomes, by rosette-formation, NOVY & MACNEAL (323).

Multiplication of *Dunaliella salina* n. sp., HAMBURGER (172).

The occurrence of longitudinal division in *Opalina ranarum* confirmed, SCHOUTEDEN (418).

## 2. Sexual: gametes and conjugation.

On the various modes of sexual conjugation in Protozoa; the relation between conjugation and trophic (vegetative) life, STEMPELL (472).

Sexual conjugation (karyogamy) in *Plasmodiophora*, autogamous in character, PROWAZEK (363).

The gametes in *Clepsydrina ovata* are perfectly similar and equal; hence conjugation is isogamous, SCHNITZLER (416).—Formation of sporoblasts (gametes) in the Monocystid Gregarines *Gonospora* and *Urospora*; distinctions between the male and female elements, and hence anisogamous conjugation, BRASIL (43): also in the case of *Monocystis* itself, id. (42 & 44).

Gametocyte- and gamete-formation in *Coccidium subepithelialis*, MOROFF & FIEBIGER (302).

Sexual forms (micro- and mega-gametocytes and micro-gametes) of a new "*Hemamæba*," described, VASSAL (495).

Sexual conjugation (feebly isogamous) in *Sphaeractinomyxon*, described, CAULLERY & MESNIL (72).

Gametogony and conjugation in *Microklossia*, KRASSILTSCHIK (220).

Conjugation of gametes (practically equal) in *Dunaliella* n. g., TEODORESCO (478).—Formation and behaviour of microzooids (probably isogametes) in *Hæmatococcus pluvialis*, PEBBLES (333).—Gametogenesis and conjugation (of flagellate gametes) in *Pseudospora volvocis*, described, ROBERTSON (379).

Sexual forms and conjugation (in the Invertebrate host) of *Trypanosoma lewisi*, described, PROWAZEK (362).—Sexual forms of *Trypanosoma brucei* and *T. gambiense*, in the Tsetse-flies (*Glossina*), characterized, KOCH (213).

Occurrence of micro- and mega-gametes, their formation and conjugation, described in *Treponema (Spirochaeta) pallidum* (= *Trypanosoma luis*), KRZYSZTAŁOWICZ & SIEDLECKI (223).

Conjugation in *Cryptochilum echini*, described, RUSSO & DI MAURO (391).

## 3. Nuclear behaviour and changes during division: directive centres, etc.

On the behaviour of the nuclear constituents in the conjugation of Protozoa; elaboration of a scheme founded on "*Trypanosoma*" noctuæ; a universal "nuclear duality" to be recognized among Protozoa, of somatic (trophic) and sexual (generative) constituents, SCHAUDINN (402).

Nuclear division (mitotic) of the vegetative and of the generative nuclei of *Plasmodiophora*, PROWAZEK (363).

Nuclear division in *Amœba limax*, described and compared with other forms of mitosis, VAHLKAMPF (492).—Behaviour of the nuclear material, chromidial network, etc., during the process of encystment in *Arcella*; the formation of secondary nuclei, MARTINI (282).

Nuclear multiplication in the formation of the isospores and anisospores of *Thalassicolla*, BRANDT (39).

Nuclear changes and multiplication (mitotic) in sporoblast-formation in *Clepsydrina*; nuclear purification (maturation) of the sporoblasts themselves, prior to conjugation, SCHNITZLER (416).—Nuclear changes and divisions in the formation of sexual elements in *Gonospora* and *Urospora*, BRASIL (43); ditto in *Monocystis*, id. (44).

Nuclear changes and processes during multiplication and different phases in the life-cycle of *Trypanosoma lewisi* and *T. brucei*, described, PROWAZEK (362).

Fragmentation of the meganucleus in *Cryptochilum*, described, RUSSO & DI MAURO (389).—Behaviour of the meganuclei while uniting, during conjugation in *Glossatella*, FAURÉ-FREMIET (132).—Nuclear division in *Didinium*, affords perhaps "the earliest indication of a mitosis," THON (491).—Nuclear reduction and karyogamy in the conjugation of various Infusoria (*Didinium*, *Dileptus*), PRANDTL (358).

## E. DEVELOPMENT; LIFE-CYCLE.

Sporangium and spore-formation in *Mycetosporidium* n. g., LÉGER & HESSE (251).

Possible occurrence of flagellate zoospores (comparable with isogametes of Foraminifera) in *Stannoma*, SCHULZE (431).

Cyst-formation and nuclear multiplication in *Amœba blattæ*, SCHUBOTZ (427).—Formation of resting-cysts (hypnocysts) in *A. limax*, VAHLKAMPF (492).—Encystment-process in *Arcella* described fully, MARTINI (282).

Mode of development of the chambered shell in different *Lagenidæ* comparatively studied, CUSHMAN (96).

Development of the isospores and anisospores in *Thalassicolla*, BRANDT (39).

Growth and development of the trophozoites of *Anchorina* from early stages; apparent absence of further developmental phases (multiplication) in digestive tube of *Capitella*, CECCONI (76).—"Cœlomic" cysts and sporozoites [really merozoites produced by schizogony] of *Aggregata inachi* n. sp., described, SMITH (462).—Cyst-, spore- and sporoduct-formation in *Clepsydrina*; occurrence of micro- and mega-spores, SCHNITZLER (416).

Sporulation in *Coccidium subepithelialis*, MOROFF & FIEBIGER (302).

Good photomicrographs of the sporozoites of malarial parasites, HILL & HAYDON (181), pl. 15.—Effects of different temperatures on the sporogony (sporoblast- and sporozoite-formation) of malarial parasites (*Laverania malaris* and *Plasmodium vivax*), JANCsó (193).

On a gregariniform (crescentic) phase in the malarial parasite, recalling a *Hæmogregarine*, BILLET (25).

Alleged stages of development of a new Mammalian *Hæmogregarine* (*H. gerbilli*) in a louse (*Hæmatopinus* sp.); occurrence of cysts with zygotes [spores?], containing sporozoites, which are liberated and become active on transferring to blood, CHRISTOPHERS (86).

Cysts and sporozoites of a Protozoan, probably phases of a *Hæmogregarine* parasitic in *Testudo*, described in ticks (*Hyalomma*) taken from that tortoise, LAVERAN & NÈGRE (244).

Curious morphological forms of *Piroplasma bigeminum*, in the tick, according to KOCH (214); also forms of *Trypanosoma* (presumably

*brucei*) in Tsetse-flies (*Gl. fusca*).—Development of Flagellate forms of Leishman-Donovan parasites (*Piroplasma donovani*) in cultures (citrated blood); formation of a vacuole, from which the flagellum appears to originate, CHRISTOPHERS (85) and LEISHMAN & STATHAM (253).

Cysts and spores of *Myxobolus neurobius* and *Henneguya nüsslini* n. spp., described, SCHUBERG & SCHRÖDER (420).—Characteristic Microsporidian spores of *Myxocystis mrazeki* n. sp., HESSE (179).—*Nosema pulvis*, spores of, and condition of diffuse infiltration in, PEREZ (344).—Sporogony in *Thelohania menadis*, PEREZ (344).

Development and sporulation of *Sphaeractinomyxon* described; construction of the life-cycle, CAULLERY & MESNIL (72).

Sporulation and development of various Haplosporidia and allied forms described, CAULLERY & MESNIL (71).—Sporulation and spores of *Celosporeidium blattellæ* described, CRAWLEY (93).—Pansporoblast- and spore-formation in the cysts of *Rhinosporidium* described, MINCHIN & FANTHAM (299).

Curious mode of sporogony in *Microklossia*; two successive sporulation-periods, the first apparently endosporous in character, and serving for autoinfection, the second only giving rise to definite spores and sporozoites, KRASSILTSCHIK (221).

Zoospores of *Dunaliella* n. g., and their division, described, TEODORESCO (478).—Phases in the life-history of *Pseudospora volvocis*; amœboid, flagellate, and radial forms, described, ROBERTSON (379).

Development and life-history of *Trypanosoma lewisi* fully described; important phases undergone in an Invertebrate host (*Hæmatopinus spinulosus*), PROWAZEK (362).—Evolutive phases of *Trypanoplasma* and *Trypanosoma* spp. in leeches (*Hemiclepsis*) described, BRUMPT (55).—According to THIROUX (483), there is no ontogenetic connection between *Trypanosoma paddæ* and *Halteridium danilewskyi*, both parasites of *Padda*.

Description of trypaniform phases in the life-cycle of *Treponema (Spirochaeta) pallidum* (= *Trypanosoma luis*), KRZYSZTAŁOWICZ & SIEDLECKI (223).

Various developmental phases in "*Trypanosoma*" *balbianii* described, PERRIN (345). [The Rec. does not place much reliance on many of these phases, which are more likely abnormal or artificial.]

## F. GROUP RELATIONSHIPS; CLASSIFICATORY CHANGES.

Classification of Rhizopods: in this designation CASH & HOPKINSON (63) do not include Foraminifera, but make two orders [?] Amœbina and Conchulina; the former includes *Lobosa*, *Vampyrellida*, and *Reticulosa* (with *Bionyxia* and *Chlamydomyxa*), the latter the Testaceous forms.

SCHULZE (431) finds that certain families of Haeckel's "deep-sea Ceratosa," namely, the *Psammidae* and the *Stannomidae*, together with one or two other genera, *Cerelasma* and *Psammophyllum* of the *Spongellidae*, are not Metazoa, but plasmodium-forming Protozoa, which he includes with the Rhizopods and allies to the Foraminifera.

On the earliest indications of the phylogenetic development of shell-dimorphism, in the Foraminifera; "the microspheric form to be regarded as some steps higher on the phylogenetic ladder than the megalospheric," RHUMBLER (375).—General remarks on the classification of Foraminifera by shell-form and structure, SCHLUMBERGER & DOUVILLÉ (413).

Classification and inter-relationships of the *Heterosteginidae*, including *Spiroclypeus* n. g., DOUVILLÉ (113).—On the constitution of the Foraminiferan sub-family, *Orbitoidinae*, SILVESTRI (449).

Materials for a classification of the colony-forming Radiolaria (*Sphaerozoa*): 2 families (*Sphaerozoidea* and *Collosphaerida*) recognized, their cha-



racteristics and constituent forms, BRANDT (40).—Phylogeny and classification of the Monopylaria, JØRGENSEN (204).

Classification, origin, and inter-relationships of the different orders of Sporozoa considered at length, CRAWLEY (94).—Classification of the Hæmocytozoa (Hæmosporidia); LAVERAN (240) places all the known forms in 3 genera, *Hæmamaeba*, *Hæmogregarina*, and *Piroplasma*.

On the affinities of *Piroplasma donovani* (cultural forms) with Herpetomonads, CHRISTOPHERS (85) and LEISHMAN & STATHAM (253).

Classification of the *Microsporidia*, PEREZ (344).—Systematic position of *Myxocystis* defined, HESSE (177 & 179).

Relationships and systematic position of the Actinomyxidia discussed, CAULLERY & MESNIL (72).

Constitution of the order Haplosporidia; mutual relationships of the different parasites usually considered as "Sporozoa incertæ sedis," CAULLERY & MESNIL (71). The authors recognize 3 definite families: (a) *Haplosporidiidæ*, including *Haplosporidium* and *Urosporidium*, (b) *Bertramidæ* for *Bertrama* and (provisionally) *Ichthyosporidium*, and (c) *Cælosporidiidæ* for *Cælosporidium*, *Polycaryum*, and (perhaps) *Blastulidium*. *Scheviakovella* and various Serosporidia are probably closely related to this order, *Joyeuxella*, *Metschnikovella*, and other forms less so.

## G. MISCELLANEA.

### 1. Cultivation and infection.

Methods of obtaining and cultivating pond-life Protozoa (*Amæba*, *Paramecium*, *Euglena* and others) for laboratory purposes, SMITH (461).

Artificial cultivation of: *Amæba*, MUSGRAVE & CLEGG (308); *Amæba limax* in various media, VAHLKAMPF (492); the *Amæba* of tropical dysentery (*Entamaeba histolytica*), LESAGE (259).

Successful artificial cultivation, and behaviour and morphological characters of the parasites thus obtained, in the case of: *Trypanosoma lewisi* and *T. brucei*, SMEDLEY (460); *T. duttoni*, THIROUX (486); *T. paddæ*, THIROUX (485); Trypanosomes of birds, NOVY & McNEAL (323).

Cultivation of Flagellate ("Trypanosome") forms from the Leishman-Donovan body (*Piroplasma donovani*), CHATTERJEE (80).—Cultures of Flagellate forms from Leishman-Donovan bodies develop most rapidly in an acid medium; hence the probability of some blood-sucking Insect conveying the infection, ROGERS (385).—MACKIE (274) thinks the Leishman-Donovan parasites are transmitted rather by the agency of water.

Transmission of *Piroplasma canis* by different species of tick in different parts (e.g. *Ixodes reduvius*, Italy (?), *Dermacentor reticulatus*, France, *Hæmaphysalis leachi*, South Africa, NUTTALL & GRAHAM-SMITH (325).—Transmission of bovine piroplasmiasis (*P. bigeminum*) by the progeny of ticks (*Rhipicephalus decoloratus*), LAVERAN & VALLÉE (245).—Infection of East African Coast fever (*Piroplasma parvum*) transmitted by *Rhipicephalus appendiculatus*, THEILER (480).

El-Debab, a trypanosomiasis of North Africa, probably conveyed by *Tabanus (Atylotus) nemoralis* or *T. tomentosus*, SERGENT (439).—Infection of a dog by contagion with the Trypanosome of North-African Surra (not Dourine), ROGER (383).

Probability of transmission of *Hæmogregarina mauritanica* from one *Testudo* to another, by means of ticks (*Hyalomma*), but only by the hereditary infection of the tick-progeny, NICOLLE & COMTE (315).

Review of cases of true hereditary infection by Protozoa, MESNIL (293).

### 2. Technique.

Discussion on various methods of staining Protozoa, GIEMSA (157) and MARINO (280).

Differences in staining-tints taken on by living and dead protoplasm, using a mixture of neutral-red and methylene-blue, exemplified by Rhizopods and Flagellates, Ruzicka (393).

A permanent variety of Nocht's stain (Nocht-Jenner stain) useful for chromatin staining, in malarial parasites, etc., HASTINGS (174).

Useful methods for staining and preparing Infusoria, MAGNIZKY (276).

### 3. Bibliography, etc.

Protozoan bibliography for 1904, with short abstracts of the principal papers, MAYER (285).

Lists of Protozoan literature for 1904 (2nd to 4th pts.) and 1905 (1st and 2nd pts.), SCHAUDINN (405).—Protozoan bibliography (mostly for 1902), ANON. (1).

Bibliography of literature relating to fresh-water biological investigations for the years 1901 and 1902 (Protozoa, chiefly pp. 385 & 386, 414-418), v. DALLA TORRE (100).

List of genera and species of Foraminifera founded by the late C. Schlumberger, SILVESTRI (455).

Foraminifera in Dr Battaglia Rizzo's collection of fossils, FUSCO RAO (154).

BENTLEY (21) and JAMES (189) discuss whether the latter has sufficiently recognized the former's claim to be the discoverer of a new "Leucocytozoon" of dogs.—Discussion as to who can claim priority for first describing the Surra Trypanosome (*T. evansi*) in cattle in India, HOLMES (183), MARTIN (281), and PEASE (332).

## III. DISTRIBUTION.

### A. GEOGRAPHICAL.

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Pacific Ocean (various stations), *Globigerina*-ooze, FLINT (140).

#### Europe :—

British fresh-water Rhizopods, CASH & HOPKINSON (63).

Bognor, Sussex, Foraminifera from shore-sand, many rare or new to Britain, EARLAND (119).—Rossendale, wells and troughs, Rhizopods and Infusoria from, LORD (270).

Loch Ness, Scotland, Rhizopods from, listed, PENARD (334), and MURRAY (306).—Orkneys and Shetlands, freshwater Rhizopods and Heliozoa from, WEST (503).

Norwegian Fiords, Foraminifera, NORDGAARD (321).

East Finmark, Foraminifera, NORMAN (322).

Coxyde and Nieuport, Belgium, Mastigophora from, listed, including several forms regarded as new, but named only, MASSART (284).

Freiburg-i-Breisgau, Infusoria, listed, with notes, HENDERSON (176).

Swiss Lakes, Rhizopods and Heliozoa from, PENARD (338).—Lake of Geneva, a new Flagellate (probably a *Dinema*), PENARD (339).—Lake of Neuchatel, full list of Protozoa occurring in, GODET (159).

Alpine lakes between valleys of Vigizzo and Onsernone, Protozoa, MONTI (301).—Lakes of Montiggle (South Tyrol), littoral and profundal Protozoan fauna, HUBER (185).

Coast of the Island of Delos (Grecian Archipelago), Foraminifera, SIDEBOTTOM (442).

#### Asia :—

Siam, Java, Sandwich Islands, etc., Mastigophora observed, LEMMERMANN (257).

**Australasia:—**

Australia, different localities, from sands, Foraminifera, JENSEN (199).  
New Zealand waters, *Ramulina globulifera*, BENHAM (19).

**America:—**

Freshwaters of Connecticut, Protozoa, listed and described, CONN (91).  
Brush Lake, Ohio, Protozoa, listed, RIDDLE (378).  
New Hampshire, White Mountain region, Rhizopods, CUSHMAN & HENDERSON (97).  
Delaware Valley, *Trachelomonas* spp., PALMER (329).  
Virginia, U.S.A., occurrence of *Paulinella chromatophora*, KEPNER (209).  
Bermuda Banks, shoal-water deposits, Foraminifera, BIGELOW (24).  
Paraguay, Protozoan fauna of, v. DADAY (99).

**B. GEOLOGICAL.**

Eocene, Miocene, and Recent spp. of *Globigerina*, originally described by d'Orbigny, notes on and figures of, FORNASINI (142).  
Cretaceous, Miocene, and Recent forms of *Amphistegina*, as described by d'Orbigny, notes on, FORNASINI (143).

**Quaternary:—**Boulder Clay, Lancashire, Foraminifera, READE (371).  
Pleistocene Clays, Taranto (Terra d'Otranto), Foraminifera, BASSANI (14).  
Glacial deposits near Frankfurt a. O., Cretaceous and Tertiary, Foraminifera in, HUCKE (186).

Pliocene or Recent, Rimini (Adriatic), Foraminifera, listed and notes, FORNASINI (146); Ravenna, *Textularidæ* from, id. (145).

**Tertiary:—**Tertiaries, Borneo and Indo-Malay, Foraminifera, DOUVILLÉ (113).

Tertiary (Eocene, Oligocene, and Miocene), Colli Berici, Italy, *Nummulitidæ*, FABIANI (125).

Miocene, Tripoli di Condro (Sicily), Radiolaria, COCCO (89).

Miocene, deep-boring, Bremen, Foraminifera, JORDAN (202).

Miocene, Santo (New Hebrides), Foraminifera (with new *Cycloclypeus* and *Lepidocyclina*), CHAPMAN (78).

Oligocene ("Rupelton" above bituminous sandstone), Heppenheim, Foraminifera, STEUER (474).

Lower Oligocene, Riszkania (Mid-Carpathians), Foraminifera, WOJCIK (505).

Upper Eocene, Vicentin (Pederiva), *Nummulites* and *Orthophragmina* in quantities, corresponding to those at Biarritz, BOUSSAC (36).

Upper Eocene, Termini-Imerese, *Lepidocyclina* n. spp., CHECCHIA-RISPOLI (83).

Middle Eocene, Dalmatia (various localities), Foraminifera, SCHUBERT (423 & 424); Southern Istria (Albona), Foraminifera, id. (425).

Middle Eocene, Istria-Dalmatia, Foraminifera, SCHUBERT (426).

Eocene, France (various localities), *Dictyoconus egyptiensis* and *Littonella roberti* n. g., n. sp., SCHLUMBERGER & DOUVILLÉ (413).

Eocene (Nummulitic zones), basin of the Adour (Biarritz and Bayonne), *Nummulitidæ*, DOUVILLÉ (112).

Eocene (Nummulitic limestone), Aude and Hérault, Foraminifera, DONCIEUX (104).

Eocene (Nummulitic limestone), Saint Acheul, *Nummulites planulata* and *N. levigata*, DELAMBRE (103).

Eocene (Nummulitic limestone), Oltrepo, Appennines, Foraminifera, PREVER (359).

Eocene ("scaglia" and calcareous), Central Appennines, *Nummulitidae*, PREYER (360).

Eocene, S. Genesio (near Turin), *Rupertia* n. spp., LEARDI in AIRAGHI (246).

Eocene, Talamonchi (Anghiari), *Lepidocyclinae* and other Foraminifera, SILVESTRI (450).

Eocene, Syracuse, *Nummulitidae*, CHECCHIA-RISPOLI (82).

Eocene, Sicily (Sciacca), *Lepidocyclina selinuntina*, CHECCHIA-RISPOLI (81).

Eocene, Sicily, *Alveolina* spp., CHECCHIA-RISPOLI (84).

Eocene limestones, Somaliland, Foraminifera (chiefly *Operculina*), NEWTON (314).

**Secondary**:—Eocene to Cretaceous, France, new *Miliolidae*, SCHLUMBERGER (411).

Cretaceous (Gault), Isle of Wight, Foraminifera, READE & HOLLAND (372).

Cretaceous (Gault), Bartin (Pomerania), Foraminifera, HUCKE (187).

Cretaceous (Gault), Portugal, also Voreppe (Isère), *Choffatella decipiens* n. g., n. sp., SCHLUMBERGER (409).

Irish Greensand, Foraminifera, GOUGH (161).

Lower Greensand, Little Coxwell, near Faringdon, Foraminifera, DAVEY (101), also WRIGHT (510).

Cretaceous, Meandre (Isère), *Orbitoides* spp., PAQUIER (331).

Cretaceous, Monte Euganei, Radiolaria, SQUINABOL (463).

Cretaceous (serpentine argilloschists), Appennines, Foraminifera and Radiolaria, SACCO (300).

Cretaceous, deep-boring, Bremen, Foraminifera, JORDAN (202).

Cretaceous, Greece (Peloponesia), *Nummulitidae*, NÉGRIS (311).

Cretaceous, Persia, Foraminifera (*Loftusia persica*, *L. morgani* n. sp., and *Omphalocyclus macropora*), DOUVILLÉ (108 & 109).

**Primary**:—Permo-Carboniferous limestones, New South Wales, Foraminifera, CHAPMAN & HOWCHIN (79).

### C. PARASITIC (including commensalism).

**Protozoa**:—In *Amæba terricola*, nucleus, *Nucleophaga amæbae* (a Fungus), PENARD (335).

Symbiotic with *Pelomyxa*, the well-known Bacterial rods, described as *Cladothrix pelomyxæ* n. sp., VELEY (496).

Ectoparasitic on *Amæba*, various species ("Ouramæba"), Fungal filaments (*Entomophthoraceæ* or *Saprolegniaceæ*), PENARD (334).

In *Pseudodifflugia horrida*, an Infusorian parasite of unspecified genus, PENARD (337).

**Chaetopoda**:—In *Limnodrilus hoffmeisteri*, intestine and body-cavity, *Myxocystis mrazeki* n. sp., HESSE (177 & 179).

In *Mesenchytræus flavus* (freshwater), intestinal epithelium, *Haplosporidium vej dovskii* n. sp., CAULLERY & MESNIL (67).

In *Potamilla torelli*, body-cavity, *H. potamilla* n. sp., CAULLERY & MESNIL (67).

In *Salmacina dysteri*, body-cavity, *H. marchouxi* n. sp., CAULLERY & MESNIL (67).

In *Syllis gracilis*, body-cavity, *Urosporidium fuliginosum* n. g., n. sp., CAULLERY & MESNIL (67).

**Crustacea**:—In *Balanus amaryllis*, body-cavity, *Glugea stempelli* n. sp., PEREZ (343).

In *Carcinus maenas*, musculature (except of heart), *Nosema pulvis* n. sp., PEREZ (341).

In spider-crabs (*Inachus dorsettensis* and *I. scorpio*), wall of the intestine, projecting into the body-cavity, *Aggregata inachi* n. sp., SMITH (462).

**Insecta**:—In the following South Russian Lepidoptera: *Aporia crataegi*, *Botys sticticalis*, *Emmelia trabealis*, *Heliothis dipsaceus*, *Hyponomeuta evonymella*, *H. malinella*, and *Mamestra oleracea*, in the blood-channels, fat-bodies and other organs and tissues, *Microklossia prima* n. g., n. sp., KRASSILTSCHIK (219).

In *Blattella germanica*, Malpighian tubules, *Celosporidium blattella* n. sp., CRAWLEY (93).

In *Batis rhodani* (larvæ), fat-bodies chiefly, *Nosema vayssierei* n. sp., HESSE (178).

In *Bombyx mori*, body spaces and blood-channels, *Herpetomonas bombycis* n. sp., LEVADITI (260).

In *Ceratopogon solstitialis* (larvæ), intestine, *Taniocystis mira* n. g., n. sp., LÉGER (248).

In *Dendarus tristis*, intestine, *Gregarina cavalierina* n. sp., BLANCHARD (29).

In a louse (*Hæmatopinus spinulosus*), many or most of the organs (via the circulation), *Trypanosoma lewisi*, PROWAZEK (362).—In *H. sp.*, intestinal diverticula and body-cavity, cysts of *Hæmogregarina gerbilli* n. sp., CHRISTOPHERS (86).

In *Helenophorus collaris*, intestine, *Stylorhynchus gladiator* n. sp., BLANCHARD (29).

In *Melophagus ovinus* (sheep-louse), gut, Trypanosomic-like parasites, PFEIFFER (349).

In *Omophlus brevicollis*, Malpighian tubes, *Thelohania cepedei* n. sp., HESSE (178).

In *Otiorynchus fuscipes*, abdominal cavity, *Nosema longifilum* n. sp., id. (178).—In *O. f.*, intestinal epithelium, *Mycetosporidium talpa* n. g., n. sp., LÉGER & HESSE (251).

In Termites (unspecified), from Chili, intestine, *Calonympha grassii* n. g., n. sp., and *Devescovina striata* n. g., n. sp., FOA (141).

**Arachnida**:—In *Hyalomma egyptium*, intestine, cysts and sporozoites of a Protozoan (probably phases in a Hæmogregarine of *Testudo*), LAVERAN & NÈGRE (244).

**Pisces**:—In bream (*Abramus*), blood, *Trypanoplasma guernei*, n. sp., BRUMPT (55).

In *Alosa finta*, branchial filaments and tissue, a new Myxosporidian, unsp., MAZZARELLI (286); named, *Branchiophaga*, n. g., id. (287).

In *Bothus rhombus*, blood, *Hæmogregarina bothi* n. sp. and *Trypanosoma b.* n. sp., LEBAILLY (247).

In *Box boops*, œsophagus and stomach, *Trypanoplasma intestinalis* n. sp., LÉGER (249).

In brook-trout, nervous system, *Myxobolus neurobius* n. sp.; in subcutaneous tissue, *Henneguya niessli* n. sp., SCHUBERG & SCHRÖDER (420).

In carp, subepithelial layer of the intestine, *Coccidium subepithelialis* n. sp., MOROFF & FRIBIGER (302).

In *Clarias (Silurus) clarias*, Cochin China, blood, *Trypanosoma clariae* n. sp., MONTEL (300).

In *Cobitis barbatula*, kidneys and bladder, *Henneguya légeri* and *Myxidium barbatulae* n. spp., CÉPÈDE (77).

In *Colossoma brachypoma*, intestine, *Nyctotherus piscicola* n. sp., v. DADAY (98).

In *Crenilabrus melops*, forming a dermal tumour, *Ichthyosporidium phymogenes* n. g., n. sp., CAULLERY & MESNIL (68).

In *Liparis vulgaris* and *Motella mustela*, glandular canals of stomach and pyloric caeca, *Ichthyosporidium gasterophilum* n. sp., CAULLERY & MESNIL (68).

In pompano (*Trachinotus carolinus*), red drum (*Sciaenops ocellatus*), and sheephead (*Archosargus probatocephalus*), stomach and intestine, also pectoral fins, *Myxobolus (Henneguya)* sp., LINTON (265).

In a Siluroid fish (*Saccobranchus fossilis*), blood, *Trypanosoma sacco-branchi* n. sp., CASTELLANI & WILLEY (66).

**Amphibia:**—In frogs (incert.) from Madagascar, blood, *Hæmogregarina neireti* n. sp., LAVERAN (236).

In *Proteus anguineus*, renal tubules, *Chloromyxum protei* n. sp., JOSEPH (205).

In *Rana angolensis* (Transvaal), blood, *Hæmogregarina theileri* n. sp., LAVERAN (236).—In *R. catesbiana*, blood, *H. catesbianæ* n. sp., STEBBINS (469).—In *R. c.* and *R. clamata*, blood, *Karyolysus clamatae* n. sp., STEBBINS (468).—In *R. esculenta*, blood, *Trypanosoma rotatorium* var. *nana* n. var., SERGENT (438).

In newt (*Triton cristatus*), red blood-corpuscles, *Lankesterella tritonis* n. sp., FANTHAM (126).

**Reptilia:**—In *Testudo pardalis*, blood, "*Hæmamæba*" *testudinis* n. sp., LAVERAN (238).

In *Varanus niloticus*, blood, *Hæmogregarina varani* n. sp., LAVERAN (237).

**Aves:**—Occurrence of "*Hæmamæba*" and Trypanosomes in various North African birds, SERGENT (436).

In various birds (*Agelaius phœniceus*, *Colaptes auratus*, *Cyanocitta cristata*, *Icterus galbula*, *Melospiza fasciata*, *Merula migratoria*, *Passer domesticus*, *Sialia sialis*, and *Zenaidura macroura*), blood, *Trypanosoma avium*, NOVY & MCNEAL (323).

In *Buteo lineatus*, blood, *Trypanosoma mesnili* n. sp., NOVY & MCNEAL (323).

In *Spinus tristis*, blood, *T. laverani* n. sp., id. (323).

In *Meleagris gallopavo domestica* (turkey), probably in leucocytes (not hæmatids) "*Hæmamæba*" *smithi* n. sp., LAVERAN & LUCET (242).

In *Perdix cinerea*, blood, "*H.*" *relicta*, LAVERAN & LUCET (242).

In *Polyplectrum germani* (Annam), blood, *Trypanosoma polyplectri* n. sp., VASSAL (493).

In a swallow, blood, "*Hæmamæba*" *danilewskyi* var. *hirundinis* n. var., SERGENT (436).

In an African dove (*Treron calva*), blood, a Trypanosome, WELLMAN (501).

**Mammalia:**—In cattle (apparently restricted to *Bovidae*), blood, *Trypanosoma nanum* n. sp., LAVERAN (235).

In dogs (India), white blood-corpuscles, a new Hæmosporidian ("*Leucocytozoon*" *canis*), JAMES (190) and BENTLEY (20).

In *Arvicola nivalis*, intestine, *Coccidium arvicola* n. sp., GALLI-VALERIO (155).

In *Jaculus orientalis* (gerboa), blood, *Hæmogregarina balfouri* n. sp., LAVERAN (227); also in *J. gordonii* (*J. j.*), BALFOUR (7).

In *Mus decumanus* (Norway), leucocytes, a Hæmatozoan apparently identical with *Hæmogregarina balfouri*, BALFOUR (7).—In *M. musculus* (Senegal), blood, *Trypanosoma duttoni* n. sp., THIROUX (484).

In *Myoxos glis* (dormouse), blood, *Trypanosoma blanchardi* n. sp., BRUMPT (55).

In an Indian rat (*Gerbillus indicus*), blood (red-corpuscles), *Hæmogregarina gerbilli* n. sp., CHRISTOPHERS (86).

In *Sciurus griseimanus* (Annam squirrel), blood-corpuscles, a new "*Hæmamaeba*," VASSAL (494 & 495).

In *Talpa europæa*, blood, *Trypanosoma* sp., probably new, PETRIE (348).—In moles, blood, a new Haematozoan, perhaps a *Piroplasma*, GRAHAM-SMITH (163).

In badger (*Meles taxus*), blood, *T. pestanaei* n. sp., BETTENCOURT & FRANÇA (22).

In bats (*Vesperugo pipistrellus*, *V. nattereri*, and *V. serotinus*), blood, *T. dionisii* n. sp., id. (23).

In *Myotis murinus*, blood, *Trypanosoma nicolleorum* n. sp., SERGENT (435).

In *Pipistrellus pipistrellus*, blood, *Trypanosoma* sp., PETRIE (348).

In bats (*Vesperugo pipistrellus*), blood, malarial parasites (ring-forms) and Trypanosomes, described but not specified, KISSKALT (211).

In *Vespertilio kuhli*, blood, *Trypanosoma nicolleorum* and *T. vespertilionis* (prov. n. sp.), SERGENT (435).

In *Macacus rhesus*, thigh muscles, a *Sarcosporidium*, DE KORTÉ (218).

In Man, septum nasi, a new Haplosporidian, *Rhinosporidium kinealyi*, MINCHIN & FANTHAM (298).

In human fæces, *Entamaeba undulans* n. sp., and *Nyctotherus africanus* n. sp., CASTELLANI (64).

#### IV. SYSTEMATIC.

[Note. Only new forms, forms whose occurrence is of special interest, and forms described and figured are mentioned specifically.]

##### A. PROTOZOA IN GENERAL.

[For lists of Protozoa from various localities, see under Plankton (II. c. 1) and Distribution (III. A).]

##### B. GYMNOXYXA.

###### 1. MYCETOZOA.

###### (a) Protomyxidea:—

*Arachnula vesiculata* n. sp., occurrence and description, PENARD (337) p. 612, pl. 14, figg. 31 & 32.

*Gymnophrys cometa*, remarks on, PENARD (337) p. 615, pl. 14, figg. 33–35.

###### (b) Mycetozoida:—

*Plasmodiophora brassicæ*, description of, chiefly with regard to nuclear division and conjugation, PROWAZEK (363) pp. 396–410, pl. 7.

Allied to Mycetozoa, *Mycetosporidium* n. g. *talpa* n. sp., vegetative plasmodia, and sporulation of, described, LÉGER & HESSE (251) pp. 92–94.

###### 2. RHIZOPODA.

Rhizopods, general account of morphology, physiology, distribution and classification of; systematic enumeration of British forms, with full synonymy, CASH & HOPKINSON (63).

Rhizopods: from the Swiss Lakes, occurrence and description, with text-figg. for all species, PENARD (338); White Mountain region, New Hampshire, notes on, CUSHMAN & HENDERSON (97) pp. 147–155;

and Heliozoa from deep-lakes, interesting remarks on, MURRAY (306) & PENARD (334).

*Xenophyophora* **nom. nov.** for a remarkable new group, placed by SCHULZE (431) among the Rhizopods and allied with the Foraminifera. It includes (so far) the families *Psammimidæ* and *Stannomidæ* of Hckl., in a modified sense. Classification, pp. 46-50. (All from "Valdivia" Material, Deep-Sea Expedition.)

*Psammimidæ*, with no "linellæ."

*Cerelasma*, p. 21, *C. gyrosphæra*, p. 21, pl. 2, figg. 5-11, pl. 3, figg. 1 & 2,

*C. lamellosa*, p. 24, pl. 3, fig. 3, described, SCHULZE (431).

*Holopsamma*, p. 25, *H. cretaceum*, p. 26, pl. 3, figg. 4-6, *H. argillaceum*, p. 27, described, SCHULZE (431).

*Psammetta* **n. g.** p. 6, *P. erythrocytomorpha* **n. sp.**, p. 6, pl. 1, pl. 2, figg. 1-4, described, SCHULZE (431).

*Psammina globigerina*, p. 18, *P. plakina*, p. 20, *P. nummulina*, p. 20, described, SCHULZE (431).

*Psammopemma calcareum*, p. 28, *P. radiolarium*, p. 27, notes on occurrence, SCHULZE (431).

*Stannomidæ*, with "linellæ."

*Stannarium alatum*, p. 45, *S. concretum*, p. 46, notes on occurrence, SCHULZE (431).

*Stannoma coralloides*, p. 35, pl. 4, fig. 4, *S. dendroides*, p. 32, pl. 4, figg. 1-3, 5-10, described, SCHULZE (431).

*Stannophyllum*, p. 36, *S. zonarium*, p. 37, pl. 5, pl. 6, figg. 1 & 2, *S. radiolarium*, p. 41, pl. 7, fig. 1, *S. reticulatum*, p. 44, pl. 6, figg. 3-5, *S. globigerinum*, p. 43, pl. 7, figg. 2 & 3, described, SCHULZE (431).

(a) **Lobosa:**—

*Amæba*, existence of a true genus (comprising numerous species), well-characterized if somewhat difficult to diagnose, and quite distinct from the host of amæboid organisms collectively included in the term "Amæbæ," PENARD (336) pp. 401-409; *A. angulata* Mer., p. 322, text-figg. 1-5, *A. humilis* **n. sp.**, p. 331, text-figg. 9-11, *A. penardi* **n. sp.**, p. 329, text-figg. 6-8, described, SCHOUTEDEN (417); *A. blattæ*, pp. 6-23, pl. 1, figg. 1-10, pl. 2, *A. proteus*, pp. 23-39, pl. 1, figg. 11-13, general description of, SCHUBOTZ (427); *A. doleini* **n. sp.**, mode of nutrition, etc., and trophic nuclear changes in, described, NERESHEIMER (312) pp. 147-165, pl. 7, 13 text-figg.; *A. limax*, structure, nuclear division, and biology, described, also artificial cultivation of, VAHLKAMPF (492) pp. 167-220, pl. 6; *A. salina* **n. sp.**, with peculiar pseudopods, occurrence and diagnosis, HAMBURGER (172) pp. 126-128, pl. 6, figg. 18-22; *A. terricola*, structure and properties of membrane, cytoplasm, and manner of locomotion in, pp. 176-195, figg. 1-8, *A. t.*, effects on, produced by the attack of *Nucleophaga amæbæa*, p. 195, figg. 9-12, *A. t.*, p. 199, fig. 13, *A. papyracea* **n. sp.**, p. 201, fig. 14, *A. similis*, p. 201, fig. 15, *A. sphæronucleolus*, p. 202, fig. 16, *A. fibrillosa*, p. 202, fig. 17, *A. alba*, p. 203, fig. 18, *A. striata*, p. 204, fig. 19, and *A. vesiculata*, p. 204, fig. 20, occurrence and diagnostic characters, PENARD (335).

*Arcella rota* **n. sp.**, p. 9, pl. 1, figg. 1-5, *A. marginata* **n. sp.**, p. 11, pl. 1, figg. 6-8, Paraguay, described, v. DADAY (99); *A. vulgaris*, process of encystment, degeneration appearances, and formation of secondary nuclei in, described, MARTINI (282) pp. 574-619, pls. 28-30; *A. v. var. compressa* **n. var.**, occurrence and diagnosis, CASH & HOPKINSON (63) p. 138, text-fig. 28,

*Centropyxis aculeata* **var. spinosa** **n. var.**, occurrence and description, CASH & HOPKINSON (63) p. 135, pl. 16, fig. 15, text-fig. 26.

*Cochliopodium crassiusculum* **n. sp.**, p. 592, pl. 13, fig. 7, *C. longispinum*,



- p. 595, pl. 13, fig. 11, described, PENARD (337); *C. pellucidum*, minute structure of, and varieties of pseudopodia in, FAURÉ-FREMIET (129) pp. 497-499; *C. p.*, 2 varieties distinguished, var. *putrinum*  $\alpha$  nov. and var. *putrinum*  $\beta$  nov., also occurrence of fuchsinophilous grains described, representing an internal secretion, id. (130) pp. 905-907; *C. p.*, full detailed account of, id. (138) pp. 1-68, pls. 1 & 2, 21 text-figg.
- Diffugia ampullula* n. sp., occurrence and note on, ZACHARIAS (511) p. 228; *D. lobostoma*, p. 14, var. *impressa* n. var., p. 15, pl. 1, figg. 11-14, *D. urceolata* var. *quadrialata* n. var., p. 17, pl. 1, fig. 15, var. *ventricosa* n. var., p. 17, pl. 1, fig. 16, Paraguay, diagnosed, v. DADAY (99); *D. piriformis*, remarks on, PENARD (337) p. 596, pl. 13, figg. 12-14; *D. prestans* n. sp., p. 25, 1 fig., *D. elongata* n. sp., p. 33, 1 fig., Swiss lakes, diagnosed, PENARD (338); *D.* (n. sp. 1) from Loch Ness, note on, PENARD (334) p. 599, text-fig. 1.
- Dinamæba mirabilis*, notes on, PENARD (337) p. 590, pl. 13, figg. 8-10.
- Entamæba* (*histolytica*, judging from cultural characters) of dysentery, successfully cultivated, LESAGE (259) pp. 9-16, pls. 1 & 2; *E.* [?] *undulans* n. sp., remarkable for the possession of an undulating membrane, occurrence and note on, CASTELLANI (64) pp. 67-69, text-figg. 3-5. [It is by no means unlikely that an abnormal form of *Trichomonas* is in question.]
- Nebela bicornis* n. sp., plankton, Scottish lochs, diagnosed, WEST (503) p. 91, 1 text-fig.; *N. bigibbosa*, remarks on, PENARD (337), p. 600, pl. 13, figg. 16-19.
- "*Ouramæba*," really an ordinary *Amæba* (spp. var.) on which certain Fungal filaments (*Entomophthoraceæ* or *Saprolegniaceæ*) are ectoparasitic, PENARD (337) pp. 585-588, pl. 13, figg. 1-6.
- Paulinella chromatophora*, description of, chiefly with regard to the structure of the shell, and the chromatophores, PENARD (337) pp. 603-610, pl. 14, figg. 20-28; *P. c.*, occurrence Virginia, U.S.A., and notes on, KEPNER (209) pp. 128 & 129, 1 fig.
- Pelomyxa palustris*, study of the symbiotic Bacteria (*Cladotrix pelomyxa* n. sp.) and the refringent bodies and their importance, in, VELEY (496) pp. 374-395, pls. 36-38; *P. penardi* n. sp., occurrence and diagnosis, RHUMBLER (376) p. 50, text-fig. 2, 6, 10, 11.
- Placocysta jurassica* n. sp., diagnosis and occurrence, PENARD (337) p. 611, pl. 14, figg. 29 & 30.
- Quadrula irregularis*, remarks on, PENARD (337) p. 559, pl. 13, fig. 15.

## (b) Foraminifera:—

- Arenaceous Foraminifera, comprehensive account of morphology of, and general conclusions arrived at, KEMNA (207) pp. xi-xlviii.
- Foraminifera from:—Bermuda Banks (shoal-water deposits), BIGELOW (24); shore-sand, Bognor, Sussex, EARLAND (119); Norwegian fiords, listed, NORDGAARD (321) p. 192; East Finmark, NORMAN (322); Island of Delos (Grecian Archipelago), SIDEBOTTOM (442).
- †Foraminifera, mostly lists, from:—Pleistocene clays, Taranto (Terra d'Otranto), BASSANI (14) p. 57; Upper Eocene, Vicentin, *Nummulites* and *Orthophragmina* in abundance, corresponding with those at Biarritz, BOUSSAC (36); Miocene, Santo (New Hebrides), CHAPMAN (78); Eocene (Nummulitic limestone), Depts. Aude and Hérault, notes on, DONCIEUX (104); Tertiaries, Borneo, noted and tabulated, DOUVILLÉ (113); Pliocene (or Recent), Rimini (Adriatic), notes on, and figures from d'Orbigny ("Planches inédites"), FORNASINI (146); Irish Greensand, GOUGH (161); Glacial deposits (Cretaceous and Tertiary forms), Frankfurt a O., HUCKE (186); Cretaceous (Gault), Bartin (Pomerania), id. (187); Miocene and Cretaceous, deep-boring

- at Bremen, JORDAN (202); Eocene limestones, Somaliland (chiefly *Operculina*), NEWTON (314); Boulder Clay, Lancashire, READE (371); Cretaceous (Gault), Isle of Wight, READE & HOLLAND (372), p. 57; Middle Eocene, Istrio-Dalmatia, from different zones, SCHUBERT (426); Middle Eocene, Dalmatia (various localities), with remarks, id. (423 & 424); Albona (Southern Istria), id. (425); Eocene, Talamonchi (Anghiari), *Lepidocyclina* and others, SILVESTRI (450); Oligocene ("Rupelton") Heppenheim, STEUER (474); Lower Oligocene, Riszkania (Mid-Carpathians), Galicia, WOJCIK (505); Lower Greensand, Little Coxwell, Faringdon, DAVEY (101) pp. 37 & 38, pl. 5 (of unspecified types); also WRIGHT (510), pp. 238 & 239.
- † *Adelosina bicornis*, p. 26, figg. 18-20, occurrence and notes (figg. from d'Orbigny), FORNASINI (146).
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- †*Quinqueloculina vulgaris*, p. 23, fig. 13, *Q. oculus*, p. 23, fig. 14, *Q. ariminensis*, p. 24, fig. 15, *Q. bicarinata*, p. 24, fig. 16, *Q. affinis*, p. 25, fig. 17, occurrence and notes (figg. from d'Orbigny), FORNASINI (146).
- Ramulina globulifera*, occurrence in New Zealand waters noted, BENHAM (19) p. 300.
- Reophax (Rheophax) arctica*, from Isle of Delos, note on, SIDEBOTTOM (442), p. 3, pl. 1, figg. 3 & 4; *R. euneta* n. sp., Australian sands, diagnosed, JENSEN (199) p. 821, pl. 23, figg. 5-7.
- †*Rotalia beccari*, p. 59, figg. 56 & 57, *R. inflata*, p. 60, fig. 58, *R. soldanii*, p. 60, fig. 59, occurrence and notes (figg. from d'Orbigny), FORNASINI (146); *R. fallax* n. sp., Oligocene, Heppenheim, diagnosed, STEUER (474) p. 24, pl. 8, figg. 4-6.
- †*Rupertia elongata* n. sp., p. 99, pl. 2, figg. 7 & 12, *R. incrassata*, p. 101, pl. 2, figg. 1-3, 10, 11, *R. uhligi* n. sp., p. 103, pl. 2, figg. 4-6, 8, 9, Eocene, S. Genesio (Turin), described, LEARDI in AIRAGHI (246).
- †*Spirillina tenuissima*, pl. 23, fig. 24, *S. trochiformis*, note on, p. 171, pl. 23, fig. 25, Gault, BARTIN, HUCKE (187).
- †*Spiroclypeus* n. g., diagnosis and classificatory comparisons, p. 458, *S. orbitoideus* n. sp., p. 460, pl. 14, figg. 1-6, *S. (Heterostegina) pleurocentralis*, p. 462, pl. 14, figg. 7-9, Eocene, Borneo, described, DOUVILLÉ (113).
- †*Spirolina depressa*, p. 7, pl. 1, figg. 18 & 19, pl. 2, fig. 1, *S. striata*, p. 8, pl. 2, fig. 2, *S. levigata*, p. 8, pl. 2, fig. 3, *S. pedum*, p. 8, pl. 2, figg. 4 & 5, d'Orbigny's forms and figures interpreted and notes on, FORNASINI (147).
- †*Spiroloculina depressa*, p. 3, pl. 1, fig. 1, *S. perforata*, p. 3, pl. 1, fig. 2, *S. grateloupi*, p. 4, pl. 1, fig. 3, *S. tricarinata*, p. 4, pl. 1, fig. 4, *S. bicarinata*, p. 4, pl. 1, fig. 5, *S. lyra*, p. 5, pl. 1, fig. 6, *S. orbicularis*, p. 5, pl. 1, fig. 7, *S. angulosa*, p. 5, pl. 1, fig. 8, *S. striata*, p. 5, pl. 1, fig. 9, *S. elongata*, p. 5, pl. 1, fig. 10, *S. limbata*, p. 6, pl. 1, fig. 11, *S. pulchella*, p. 6, pl. 1, fig. 12, d'Orbigny's forms and figures interpreted and notes on, FORNASINI (147).
- Spiroplecta fusca* n. sp., diagnosis and occurrence, EARLAND (119) p. 204, pl. 12, figg. 1-3; *S. sagittula*, Isle of Delos, note on, SIDEBOTTOM (442) p. 9, pl. 2, fig. 4, text-fig. 1.
- †*S. carinata*, p. 143, pl. o, fig. 14, *S. pupa*, p. 144, pl. o, fig. 15, Ravenna (Adriatic), described, FORNASINI (145); *S. c.*, p. 13, fig. 10, occurrence and note (figure from d'Orbigny), id. (146).
- †*Stacheia simulans* n. sp., occurrence and diagnosis, p. 11, pl. 2, fig. 4, CHAPMAN & HOWCHIN (79).
- †*Textularia [Textularia] gibbosa*, p. 134, pl. o, figg. 1 & 2, *T. mayeriana*, p. 135, pl. o, fig. 3, *T. sagittula*, p. 136, pl. o, figg. 4-7, *T. candeiana*, p. 137, pl. o, fig. 8, *T. gramen*, p. 138, pl. o, fig. 9, *T. abbreviata*, p. 139, pl. o, fig. 10, *T. concava*, p. 140, pl. o, fig. 11, occurrence, Ravenna (Adriatic) and description, FORNASINI (145); *T. tuberosa*, p. 8, fig. 2, *T. levigata*, p. 9, fig. 3, *T. (?) obtusa*, p. 9, fig. 4, *T. digitata*, p. 9, fig. 5, *T. (?) pygmæa*, p. 11, fig. 6, *T. angularis*, p. 11, fig. 7, occurrence and notes (figg. from d'Orbigny), FORNASINI (146).
- Textularia concava*, p. 7, pl. 1, fig. 11, *T. candeina* (approx.), p. 7, pl. 2, fig. 1, *T. rhomboidalis*, p. 8, pl. 2, figs. 2 & 3, notes on, SIDEBOTTOM (442).
- Thurammia papillata*, occurrence and note, EARLAND (119) p. 201, pl. 11, figg. 6 & 7, pl. 14, figg. 1, 3.

- †*T. papillata*, occurrence and note on, CHAPMAN & HOWCHIN (79), p. 9, pl. 2, fig. 13.
- †*Triloculina rotunda*, p. 22, fig. 12, occurrence and note (fig. from d'Orbigny), FORNASINI (146).
- Trochammina inflata*, p. 6, pl. 1, fig. 9, *T. ochracea*, p. 5, pl. 1, fig. 8, notes on, SIDEBOTTOM (442).
- †*Truncatulina ariminensis*, p. 61, fig. 60, *T. contecta*, p. 63, fig. 61, occurrence and notes (figg. from d'Orbigny), FORNASINI (146); *T. haidingeri*, occurrence and note, CHAPMAN & HOWCHIN (79) p. 18, pl. 3, fig. 3.
- †*Unigerina nodosa*, p. 52, fig. 53, occurrence and notes (figg. from d'Orbigny), FORNASINI (146).
- †*Vaginulina arguta*, pl. 23, fig. 14, *V. strombecki*, pl. 23, fig. 15, *V. incompta* var. *striata*, pl. 23, fig. 16, Gault, BARTIN, HUCKE (187) p. 169; *V. legumen*, p. 40, figg. 32 & 33, *V. caudata*, p. 41, fig. 34, *V. marginata*, p. 41, fig. 35, *V. striata*, p. 41, fig. 36, *V. undata*, p. 42, figg. 37 & 38, occurrence and notes (figg. from d'Orbigny), FORNASINI (146); *V.*, cf. *legumen*, occurrence and note, CHAPMAN & HOWCHIN (79) p. 18, pl. 3, fig. 8.
- †*Valvulina bulloides*, occurrence and note, p. 13, pl. 1, fig. 9, CHAPMAN & HOWCHIN (79); *V. pupa*, p. 14, pl. 4, figg. 1 & 2, *V. columna-tortilis*, p. 14, pl. 4, fig. 3, *V. rawackensis*, p. 14, pl. 4, fig. 4, *V. ignota*, p. 14, pl. 4, fig. 5, *V. globularis*, p. 14, pl. 4, figg. 6 & 7, *V. gervillei*, p. 14, pl. 4, fig. 8, *V. deformis*, p. 15, pl. 4, figg. 9 & 10 (d'Orbigny's forms and figures), interpreted and notes on, FORNASINI (147).
- Vanhoeffenella* n. g., *gaussi* n. sp. (allied to *Astrorhizidae*), described, RHUMBLER (375) p. 105, text-fig. 9.
- Verneuilina spinulosa*, note on, SIDEBOTTOM (442) p. 10, pl. 2, fig. 5.
- Virgulina schreibersiana*, p. 13, pl. 3, fig. 4, *V. squamosa*, p. 13, pl. 3, fig. 5, figured, SIDEBOTTOM (442).

### 3. HELIOZOA.

Heliozoa from Swiss Lakes, description and occurrence, with figg. for all species, PENARD (338).

#### (a) *Aphrothoraca* :—

*Actinolophus*, characters of, and notes on the genus and species, p. 262, *A. minutus* n. sp., occurrence, Ohio, and diagnosis, p. 263, 1 fig., WALTON (499).

#### (b) *Chlamydophora* :—Vacant.

#### (c) *Chalarothoraca* :—

*Raphidiophrys conglobata*, Loch Ness, Scotland, remarks on, PENARD (334) p. 606, text-fig. 4.

#### (d) *Desmothoraca* :—Vacant.

### 4. RADIOLARIA.

Radiolaria, from plankton, Norwegian Fiords, notes on, JØRGENSEN (203 & 204).

†Radiolaria : Miocene, Tripoli di Condro (Sicily), listed, with notes, COCCO (89); Cretaceous (serpentine argilloschists), Appennines, list of genera occurring, SACCO (396) p. 252; Cretaceous, Monte Euganei, listed and described, SQUINABOL (463).

Note on a Radiolarian of quite uncertain position, *Zoobion polyacanthum* n. sp., POPOFSKY (355) p. 350, pl. 14, fig. 5.



## (a) Periphyllaria:—

- Sphærozoëa* (colony-forming Radiolaria), materials for their classification; characters of the two families, *Sphærozoida* and *Collosphærida* and their constituent forms, BRANDT (40) pp. 311-352, pls. 9 & 10.
- Colloid Radiolaria (mostly *Chænicosphæra* and *Thalassicolla*), plankton, Bay of Biscay, WOLFENDEN (506).
- Acanthosphæra teneriformis* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 54.
- †*Acrosp hæra mirabilis* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 187, pl. 2, fig. 5.
- Arachnosphæra dichotoma* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 60, pl. 3, fig. 18.
- †*Carposphæra minima* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 186, pl. 2, fig. 4.
- †*Cenellipsis communis* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 197, pl. 4, fig. 4.
- †*Cenosphæra teoli* n. sp., p. 185, pl. 2, fig. 1, *C. triquetra* n. sp., p. 185, pl. 2, fig. 2, *C. polyedrica* n. sp., p. 186, pl. 2, fig. 3, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Chænicosphæra murrayana*, plankton, Bay of Biscay, note on, WOLFENDEN (506) p. 132.
- Chromyechinus borealis* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (204) p. 117, pl. 8, fig. 35, pl. 9, figg. 36 & 37.
- Collosphæra armata* n. sp., occurrence and diagnosis, BRANDT (40) p. 331, pl. 10, figg. 17 & 18.
- Collozoum moebii* n. sp., diagnosis and occurrence, BRANDT (40) p. 316, pl. 9, fig. 1.
- †*Dactyliosphæra* n. g. for *D. silvia* n. sp., p. 196, pl. 4, fig. 3, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Dactyliosphærida* n. fam., diagnosed, SQUINABOL (463) p. 195.
- †*Dorypyle* n. g., p. 196, *D. cretacea* n. sp., p. 196, pl. 3, fig. 5, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Dorysphæra multiporata* n. sp., p. 187, pl. 2, fig. 6, *D. obtusispina* n. sp., p. 187, pl. 2, fig. 7, *D. meschinellii*, p. 188, pl. 2, fig. 8, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Drymyomma* n. g., *elegans* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 58; *D. e.*, further notes on, id. (204) p. 117, pl. 8, fig. 34.
- Echinomma leptoderma* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 57; *E. l.*, further notes on, id. (204) p. 116, pl. 8, fig. 33.
- †*Ellipsoxiphus euganeus* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 197, pl. 4, fig. 5.
- †*Euchitonia euganea* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 204, pl. 6, fig. 1.
- †*Hagiastrum venetum* n. sp. (?), Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 205, pl. 6, fig. 3.
- †*Heliodiscus acutispina* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 202, pl. 5, fig. 3.
- Heliosphæra tenera* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 55.
- Hexacantium enthacanthum* n. sp., p. 52, pl. 2, fig. 14, pl. 4, fig. 20; *H. pachydermum* n. sp., p. 53, *H. macracanthum* n. sp., p. 53, Norwegian Fiords, diagnosed, JØRGENSEN (203); *H. enthacanthum*, p. 115, pl. 8, fig. 30, *H. pachydermum*, p. 115, pl. 8, fig. 31, *H. sp.*, p. 115, pl. 8, fig. 32, further notes on, id. (204).
- Hexalonche diplacantha* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 51.
- †*H. ongariana* n. sp., p. 194, pl. 3, fig. 4, *H. euganea* n. sp., p. 194, pl. 4, fig. 1, Cretaceous, Italy, diagnosed, SQUINABOL (463)).

- Larospira (Lithelius) minor*, note on, JØRGENSEN (204) p. 121.
- Leptosphaera arachnoides* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 56.
- Lithelius minor* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 65, pl. 5, fig. 24.
- †*Lithomespilus coronatus* n. sp., p. 198, pl. 4, fig. 7, *L. ovoides* n. sp., p. 198, pl. 4, fig. 8, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Odontosphaera compacta* n. sp., occurrence and diagnosis, BRANDT (40) p. 342, pl. 10, fig. 19.
- †*Pentasphaera* n. g., p. 193, for *P. longispina* n. sp., p. 193, pl. 5, fig. 1, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Pentasphaerida* n. fam., diagnosed, SQUINABOL (463) p. 192.
- †*Phacostylus rarus* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 202, pl. 4, fig. 10.
- Phorticium pylonium*, Norwegian Fiords, notes on, JØRGENSEN (204) p. 120, fig. 42, pls. 10 & 11, figg. 43-45, pl. 11.
- †*Porodiscus crebriporus* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 202, pl. 5, fig. 4.
- Rhaphidozoum acuferum*, account of, BRANDT (40) pp. 319-322, pl. 9, figg. 3-7.
- Rhizoplegma boreale*, Norwegian Fiords, diagnosed, JØRGENSEN (204) p. 118, fig. 38, pls. 9 & 10.
- †*Rhopalastrum speciosum* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 203, pl. 5, fig. 5.
- Siphonosphaera tenera*, p. 338, pl. 9, fig. 13, *S. martensis* n. sp., p. 339, pl. 9, figg. 9-12, diagnosed, BRANDT (40).
- Solenosphaera chierchiei* n. sp., occurrence and diagnosis, BRANDT (40) p. 346, pl. 10, fig. 27.
- Sorolarcus circumtextus* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 65.
- †*Spongodiscus maximus* n. sp., p. 205, pl. 6, fig. 4, *S. ? dubius* n. sp., p. 205, pl. 6, fig. 5, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Spongolonche diversispina* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 206, pl. 6, fig. 6.
- †*Spongoprimum diversispina* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 199, pl. 4, fig. 2.
- †*Spongotripus compressus* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 206, pl. 6, fig. 7.
- †*Stauralastrum patavinum* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 204, pl. 6, fig. 2.
- †*Staurosphaera magnifica* n. sp., p. 191, pl. 3, fig. 1, *S. veneta* n. sp., p. 191, pl. 3, fig. 2, *S. hindei* n. sp., p. 191, pl. 3, fig. 3, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Streblacantha (Sorolarcus) circumtexta*, notes on, JØRGENSEN (204), p. 121, fig. 46, pls. 11 & 12.
- †*Stylartus longispina* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 199, pl. 4, fig. 6.
- Stylodictya aspera* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 62; *S. tenuispina* n. sp., p. 118, pl. 10, fig. 39, *S. validispina* n. sp., p. 119, pl. 10, fig. 40, *S. aculeata* n. sp., p. 119, pl. 10, fig. 41, id. (204).
- †*Stylotrachus euganeus* n. sp., p. 207, pl. 6, fig. 9, *S. longispina* n. sp., p. 207, pl. 6, fig. 8, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Tetrapyle polyacantha* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 63.
- Tetrapylonium clevei* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 64.
- Thalassicolla*, formation of isospores and anisospores in, pp. 251-256;

- T. gelatinosa* n. sp., p. 247, pl. 14, figg. 1-5, 7 & 8, *T. nucleata*, p. 247, pl. 11, figg. 1-10, pl. 12, figg. 1-7, 10-15, pl. 13, *T. spumida*, p. 248, pl. 14, figg. 14 & 15, diagnosed, BRANDT (39).  
 †*Theodiscus sculptus* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 200, pl. 4, fig. 9.  
 †*Trisphæra superba* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 190, pl. 2, fig. 13.  
 †*Trochodiscus triangularis* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 200, pl. 5, fig. 2.  
 †*Xiphosphæra antiqua* n. sp., p. 189, pl. 2, fig. 11, *X. rara* n. sp., p. 189, pl. 2, fig. 10, *X. spinosissima* n. sp., p. 188, pl. 2, fig. 9, Cretaceous, Italy, diagnosed, SQUINABOL (463).  
 †*Xiphostylus perneri* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 190, pl. 2, fig. 12.

(b) **Acantharia:**—

- Acanthochiasma solidissima* n. sp., occurrence and diagnosis, POPOFSKY (355) p. 351, pl. 14, fig. 6.  
*Acanthometridæ*, direct fission in various members of, pp. 339-345; systematic notes on, pp. 345-349, POPOFSKY (355).  
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*Amphilonche variabilis* n. sp., occurrence and diagnosis, POPOFSKY (355) p. 353, pl. 15, fig. 9.  
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(c) **Monopylaria:**—

- Monopylaria, phylogeny and classification of, JØRGENSEN (204) pp. 123-129, 8 text-figg.  
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*Amphimelissa* n. g., p. 126, (for *Botryopyle*) *setosa*, p. 137, pl. 18, fig. 109, diagnosed, JØRGENSEN (204).  
*Androcyclas* n. g. (for *Pterocorys*) *gamphonycha* (including *P. theoconus* and *P. amblycephalis*), diagnosed, JØRGENSEN (204) p. 139, pl. 17, figg. 92-97.  
 †*Archicorys fossilis* n. sp., p. 209, pl. 7, fig. 1, *A. minima* n. sp., p. 209, pl. 7, fig. 2, Cretaceous, Italy, diagnosed, SQUINABOL (463).  
*Campylacantha* n. g. *cladophora* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (204) p. 129, pl. 12, fig. 47.  
*Ceratospyrus hyperborea* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (204) p. 130, pl. 13, fig. 49.  
*Cladoscenum tricolpium* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 78; further notes on, p. 134, pl. 15, figg. 71-73, *C. limbatum* n. sp., diagnosed, p. 134, pl. 15, fig. 74, id. (204).  
*Clathrocyclas* (*Theocalyptra*) *craspedota*, notes on, JØRGENSEN (204) p. 139, pl. 17, figg. 98-100.

- †*Corocalyptra euganea* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 219, pl. 8, fig. 2.
- †*Diacanthocapsa rara* n. sp., p. 218, pl. 7, fig. 17, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Dicolocapsa euganea* n. sp., p. 218, pl. 7, fig. 18, *D. fossilis* n. sp., p. 218, pl. 7; fig. 19, *D. ampulla* n. sp., p. 219, pl. 8, fig. 1, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Dictyoceras acanthicum* n. sp., p. 84, *D. xiphophorum* n. sp., p. 84, Norwegian Fiords, diagnosed, JØRGENSEN (203); *D. a.*, notes on, p. 140, fig. 101, pls. 17 & 18, id. (204).
- Dictyocircus* n. g., p. 129, *clathratus* n. sp., p. 130, pl. 13, fig. 48, occurrence and diagnosis, JØRGENSEN (204).
- †*Dictyomitra aspera* n. sp., p. 230, pl. 9, fig. 11, *D. hornatissima* n. sp., p. 230, pl. 9, fig. 12, *D. macrocephala* n. sp., p. 230, pl. 9, fig. 10, *D. crebrisulcata* n. sp., p. 231, pl. 10, fig. 1, *D. undata* n. sp., p. 231, pl. 10, fig. 2, *D. paupera* n. sp., p. 232, pl. 10, fig. 3, *D. formosa* n. sp., p. 232, pl. 10, fig. 4, *D. elegans* n. sp., p. 232, pl. 10, fig. 5, *D. insignis* n. sp., p. 233, pl. 10, fig. 6, *D. subtilis* n. sp., p. 233, pl. 10, fig. 7, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Distylocapsa* n. g., p. 224, *D. nova* n. sp., p. 225, pl. 9, fig. 1, *D. tuberculata* n. sp., p. 225, pl. 9, fig. 2, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Dictyophimus clevei* n. sp., p. 80, pl. 5, fig. 26, Norwegian Fiords, diagnosed, JØRGENSEN (203); *D. c.*, further notes on, p. 138, *D. histicosus* n. sp., diagnosed, p. 138, pl. 16, fig. 89, id. (204).
- †*Eucyrtidium turritum* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 234, pl. 10, fig. 9.
- Eusecium corynephorum* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 77; notes on, id. (204) p. 133, pl. 15, fig. 70.
- †*Eusyringium venetum* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 235, pl. 10, fig. 10.
- Gonosphaera* n. g. *primordiialis* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (204) p. 133, pl. 14, figg. 64-68.
- †*Halicapsa tenuis* n. sp., p. 209, pl. 5, fig. 7, *H. obtusispina* n. sp., p. 210, pl. 5, fig. 6, *H. parvula* n. sp., p. 210, pl. 7, fig. 3, *H. crebripora* n. sp., p. 210, pl. 7, fig. 4, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Helotholus* n. g. *histicosa* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (204) p. 137, pl. 16, figg. 86-88.
- Litharachnium tentorium*, Norwegian Fiords, notes on, JØRGENSEN (204) p. 138, pl. 16, figg. 90 & 91.
- †*Lithocampe euganea* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463), p. 235, pl. 10, fig. 11.
- Lithomelissa setosa*, p. 81, pl. 4, fig. 21, var. *belonophora* n. var., p. 82, pl. 4, fig. 22, *L. hystrix* n. sp., p. 83, Norwegian Fiords, diagnosed, JØRGENSEN (203); *L. setosa*, p. 135, pl. 16, figg. 81-83, pl. 18, fig. 108, *L. hystrix*, p. 136, pl. 16, fig. 85, *L. laticeps* n. sp., p. 136, pl. 16, fig. 84, occurrence and diagnoses, id. (204).
- †*Lithostrobos communis* n. sp., p. 228, pl. 9, fig. 7, *L. incrassatus* n. sp., p. 228, pl. 9, fig. 6, *L. pagoda* n. sp., p. 229, pl. 9, fig. 8, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- †*Lychnocanium euganeum* n. sp., p. 212, pl. 7, fig. 6, *L. parvulum* n. sp., p. 212, pl. 7, fig. 7, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- Peridium hystrix* n. sp., p. 76, *P. longispinum* n. sp., p. 77, Norwegian Fiords, diagnosed, JØRGENSEN (203); *P. l.*, notes on, id. (204) p. 135, pl. 15, figg. 75-79, pl. 16, fig. 80.
- Phormacantha* n. g. (for *Peridium*) *hystrix*, diagnosed, JØRGENSEN (204) p. 132, pl. 14, figg. 59-63.

- +*Phormocampe elegans* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 227, pl. 9, fig. 5.
- Plectacantha* n. g. *oikiskos* nom. nov., p. 131, pl. 13, figg. 50-57, *P. trichoides* n. sp., p. 132, pl. 13, fig. 58, occurrence and diagnoses, JØRGENSEN (204).
- Protoscenium* n. g. (for *Plectanium*) *simplex*, diagnosed, JØRGENSEN (204), p. 133, pl. 15, fig. 69.
- Pterocorys theoconus* n. sp., p. 86, *P. gamphonyxos* n. sp., p. 86, *P. amblycephalis* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203).
- +*Sciadiocapsa* n. g., p. 211, *S. euganea* n. sp., p. 211, pl. 7, fig. 5, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Sethamphora pulchra* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 213, pl. 5, fig. 8.
- +*Sethocapsa fossilis* n. sp., p. 216, pl. 7, fig. 13, *S. mucronata* n. sp., p. 217, pl. 7, fig. 14, *S. hispida* n. sp., p. 217, pl. 7, fig. 15, *S. megacephala* n. sp., p. 217, pl. 7, fig. 16, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Sethocyrtis perspicua* n. sp., p. 215, pl. 7, fig. 10, *S.* (?) *hirsuta* n. sp., p. 215, pl. 7, fig. 11, *S. communis* n. sp., p. 216, pl. 7, fig. 12, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Sethopyramis acuticephala* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 214, pl. 7, fig. 8.
- Stichocorys seriata*, Norwegian Fiords, notes on, JØRGENSEN (204) p. 140, pl. 18, figg. 102-104.
- +*S. pulchra* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 229, pl. 9, fig. 9.
- +*Stichomitra magna* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 234, pl. 10, fig. 8.
- Theocalyptra craspedota* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 85.
- +*Theocapsa costata* n. sp., p. 223, pl. 8, fig. 10, *T. regularis* n. sp., p. 223, pl. 8, fig. 11, *T. naticoides* n. sp., p. 224, pl. 8, fig. 12, *T. minima* n. sp., p. 224, pl. 8, fig. 13, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Theoconus coronatus* n. sp., p. 220, pl. 8, fig. 3, *T. macroporus* n. sp., p. 220, pl. 8, fig. 4, *T. simplex* n. sp., p. 221, pl. 8, fig. 5, Cretaceous, Italy, diagnosed, SQUINABOL (463).
- +*Theocorys spinosa* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 222, pl. 8, fig. 9.
- +*Theocyrtis parvula* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 221, pl. 8, fig. 6.
- +*Theosyringium pulchrum* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 222, pl. 8, fig. 7.
- +*Tricolocampe obtusicephala* n. sp., Cretaceous, Italy, diagnosed, SQUINABOL (463) p. 222, pl. 8, fig. 8.
- +*Tricolocapsa ovata* n. sp., p. 225, pl. 8, fig. 14, *T. minima* n. sp., p. 226, pl. 8, fig. 15, *T. oblonga* n. sp., p. 226, pl. 9, fig. 3, *T. veneta* n. sp., p. 226, pl. 9, fig. 4, Cretaceous, Italy, diagnosed, SQUINABOL (463).

## (d) Tripylaria (Phæodaria):—

- Tripylaria (*Phæosphæria*) collected by the "Valdivia" and "Gauss," listed with notes, HÄCKER (169) pp. 637-648.
- Aulodendron heteracanthum* n. sp., diagnosed, HÄCKER (170) p. 348, text-fig. 8.
- Aulographis tristyla* n. sp., p. 359, text-fig. 13 f, HÄCKER (170).
- Aulographonium antarcticum* n. sp., p. 348, text-fig. 9, remarks on, HÄCKER (170).
- Aulosцена atlantica* n. sp., p. 641, fig. 14, *A. robustissima*, p. 641, fig. 13,

- A. verticillus*, p. 642, fig. 4, *A. pelagica* n. sp., p. 643, fig. 6, occurrence and remarks, HÄCKER (169).
- Aulosphæra coronata* n. sp., p. 637, fig. 23, *A. filigera* n. sp., p. 637, fig. 24, *A. bisternaria*, p. 638, fig. 11, *A. robusta* n. sp., p. 639, fig. 12, *A. trispathis* n. sp., p. 639, fig. 25, occurrence and diagnoses, HÄCKER (169).
- Cannosphæra lepta* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 89; note on, id. (204) p. 141, pl. 18, fig. 110.
- Challengeron heteracanthum* n. sp., p. 91, pl. 3, figg. 16 & 17, diagnosed, JØRGENSEN (203); *C. channeri*, p. 141, pl. 18, fig. 111, *C. armatum*, p. 111, pl. 18, fig. 112, Norwegian Fiords, notes on, id. (204).
- Gazelletta pentapodium* n. sp., Norwegian Fiords, diagnosed, JØRGENSEN (203) p. 94.
- Medusetta arcifera* n. sp., p. 93, pl. 4, fig. 23, Norwegian Fiords, diagnosed, JØRGENSEN (203).
- Sagenoarium antarcticum* n. sp., p. 646, fig. 27*d*, *S. furcatum* n. sp., p. 647, fig. 27*a*, *S. dicanon* n. sp., p. 647, fig. 27*c*, *S. verticillatum* n. sp., p. 647, fig. 27*b*, occurrence and diagnoses, HÄCKER (169).
- Sagenoscena lampadophora* n. sp., p. 344, text-fig. 6, *S. irmingeriæna*, p. 351, pl. 15, fig. 1, text-fig. 11, *S. floribunda* n. sp., p. 359, text-fig. 13*d*, HÄCKER (170); *S. tetracantha* n. sp., p. 648, fig. 28, *S. irmingeriæna*, p. 648, fig. 9, occurrence and remarks, HÄCKER (169).
- Sagenoscena castra*, p. 644, fig. 26*d*, *S. digitata* n. sp., p. 644, fig. 26*f*, *S. floribunda* n. sp., p. 645, fig. 26*c*, *S. tentorium*, p. 644, fig. 26*e*, *S. pratorium*, p. 645, fig. 26*b*, *S. elegans*, p. 646, figg. 10, 26*a*, occurrence and diagnoses, HÄCKER (169).
- Tuscarusa calathoides* n. sp., p. 356, *T. cepa* n. sp., p. 357, diagnosed, HÄCKER (170).

## C. SPOROZOA.

Sporozoa, classification, origin, and inter-relationships of the different orders of, considered at length, CRAWLEY (94) pp. 607-624.

### 1. ECTOSPORA (TELOSPORIDIA).

#### (a) Gregarinidea:—

- Aggregata inachi* n. sp., relations to host (causing castration) and "cœlomic" cysts of, described, SMITH (462) pp. 406-410, pl. 26.
- Anchorina sagittata*, growth and development of trophozoites of; relation of parasites to the host's intestine, CECCONI (76), pp. 230-244, pls. 9 & 10, 1 text-fig.
- Clepsydrina (Gregarina) ovata*, isogamous conjugation and changes leading up to, also spore-formation in, described, SCHNITZLER (416) pp. 309-333, pls. 16 & 17, 3 text-figg.
- Gonospora varia*, anisogamous gametes and conjugation in, described, BRASIL (43) pp. 17-38, pl. 2, figg. 5, 15-17, 2 text-figg.
- Gregarina cavatierina* n. sp., occurrence and short description, BLANCHARD (29) pp. 926-928.
- Monocystis* spp. var., slight differences in gametes and therefore anisogamous conjugation in, BRASIL (42) pp. 735 & 736, and, full account, (44) pp. 69-99, pls. 9 & 10.
- Stylorhynchus gladiator* n. sp., occurrence and short description, BLANCHARD (29) pp. 924 & 925.
- Tæniocystis* n. g. *mira* n. sp., occurrence and description, LÉGER (248) pp. 524-526, 1 fig.

*Urospora lagidis*, anisogamous gametes and conjugation in, described, BRASIL (43) pp. 17-38, pl. 2, figg. 1-4, 6-14.

(b) **Coccidiidea**:—

*Caryotropha mesnili*, changes and behaviour of the karyosome and nucleus in, during growth, and their significance, SIEDLECKI (444) pp. 559-581, pl. 16.

*Coccidium arvicolæ* n. sp., occurrence and diagnosis, GALLI-VALERIO (155) p. 520; *C. subepithelialis* n. sp., occurrence and short account of, MOROFF & FIEBIGER (302) pp. 166-174, pl. 8; *C. sp. incert.*, in intestine of cattle in Tunis, note on characters of, DUCLOUX (114) pp. 352-354.

The parasites known as *Coccidioides (immitis and pyogenes)* Rixf. & Gilch. are not Sporozoa, but pathogenic Fungi (moulds), OPHÜLS (327) pp. 443-485, pls. 34-38.

(c) **Hæmosporidia**:—

Hæmosporidia: classification of all known forms in 3 genera, "*Hæmamaeba*," *Piroplasma*, and *Hæmogregarina*; lists of all known species, with remarks, LAVERAN (240) pp. 809-817.

Cysts and sporozoites of a Hæmosporidian, (probably phases in the life-cycle of a Hæmogregarine of *Testudo*) described in a tick (*Hyalomma*), LAVERAN & NÈGRE (244) pp. 964-966, 6 figg.

A new Hæmatozoan, probably allied to *Piroplasma*, described from moles by GRAHAM-SMITH (163) pp. 453-459, pls. 13 & 14.

"*Hæmamaeba danilewskyi* var. *hirundinis* n. var.", occurrence and diagnostic character, SERGENT (436) p. 57, 1 fig.; "*H. smithi* n. sp.", occurrence and description, leucocytic habitat noted, LAVERAN & LUCET (242) pp. 674-676, 5 figg.; "*H. testudinis* n. sp.", occurrence and diagnosis, LAVERAN (238) pp. 176-178, 5 figg.; "*H.*" n. sp., [probably a *Plasmodium*], from an Annam squirrel, described, VASSAL (494) pp. 350 & 351, and (495) pp. 224-231, pl. 10; "*H. vassali* n. sp.", proposed for Vassal's parasite, just mentioned, LAVERAN (240) p. 810.

*Hæmocystidium simondi*, remarks on, CASTELLANI & WILLEY (66) pp. 387 & 388, pl. 24, fig. 6.

*Hæmogregarina balfour* n. sp., interesting occurrence in a Mammal and short description, LAVERAN (227) pp. 295-298, 9 text-figg.; *H. balfour* [= *H. jaculi*, the author stupidly naming it in addition, though knowing Laveran had named it], occurrence in a gerboa and also (or a closely allied form) in the leucocytes of the rat, described, BALFOUR (7) pp. 241-244, 8 figg.; *H. berestneffi* n. sp., name proposed for Berestneff's parasite of Indian frogs (Zool. Rec. 1903, No. 14), CASTELLANI and WILLEY (66) p. 397; *H. bothi* n. sp., occurrence and diagnosis, LEBAILLY (247) p. 304; *H. catesbianæ* n. sp., occurrence and description, STEBBINS (469) pp. 55-62, 2 pls.; *H. gerbilli* n. sp., occurrence in a Mammal, morphology, and alleged phases of development in a karyolytic action of, and degenerative forms of, SERGENT (438) p. 671, 5 figg.; *H. mirabilis*, pp. 391-394, pl. 24, fig. 8, *H. nicoræ*, pp. 389-391, pl. 24, fig. 7, remarks on, CASTELLANI & WILLEY (66); *H. neireti* n. sp., p. 174, figg. 7-9, *H. theileri* n. sp., p. 172, occurrence and diagnostic features, LAVERAN (236); *H. varani* n. sp., occurrence and diagnosis, LAVERAN (237) pp. 175 & 176, 6 figg.; *H. sp.* (perhaps new, perhaps *H. tunisiensis*) from African toads, note on morphology of, STEPHENS (473) pp. 115-117.

- Karyolysus clamatae* n. sp., from *Rana clamata*, extra- and intra-corporal phases of, described, STEBBINS (468) pp. 315-318, 2 pls.
- Lankesterella tritonis* n. sp., account of trophic and schizogonic phases, FANTHAM (126) pp. 257-263, 17 figg.
- "*Leucocytozoon*" *canis* n. sp. (probably not an ordinary Hæmogregarine) from the white blood-corporules of dogs, notes on, BENTLEY (20) p. 988, 2 figg., and JAMES (190) pp. 1-12, 1 pl.
- Malarial parasite, occurrence of a gregariniform (crescentic) phase in, recalling a Hæmogregarine, BILLET (25) pp. 720-722.
- Piroplasma bigeminum*, curious developmental stages in ticks (*Rhipicephalus*, *Hyalomma*) alleged, KOCH (214) pp. 1866 & 1867, text-figg. 4-13; *P. canis*, morphology and multiplicative stages of, described, NUTTALL & GRAHAM-SMITH (325) pp. 237-249, pl. 9; *P. (Leishmania) donovani*, development of Flagellate phases in, in cultures, CHATTERJEE (80) p. 16, pls. 1 & 2, CHRISTOPHERS (85) 14 pp., 1 pl., and LEISHMAN & STATHAM (253) pp. 321-334, 1 pl., 2 text-figg.; *P. d.*, notes on morphology of, DONOVAN (105) pp. 155 & 156; *P. equi*, pls. 1 & 2, *P. bovis*, pl. 3, figg. 13 & 14, *P. canis*, pl. 3, figg. 11 & 12, different morphological phases of, described, BOWHILL (37) pp. 10 & 11; *P. parvum* n. sp., much smaller than other known species, causing East African Coast fever, notes on, THEILER (479) p. 470, pl. 1, fig. 1, and id. (480) pp. 599-601; *P. tropicum* (the parasites of Delhi boil), notes on, and good figures of, JAMES (191) pp. 6-8, fig. 2, pl. 1.

## 2. ENDOSPORA (NEOSPORIDIA).

### (a) Myxosporidia:—

- Myxosporidia from fish in the rivers and lakes of the French Alps, notes on, CÉPÈDE (77) pp. 905-913.
- Branchiophaga* n. g. *aloesida* n. sp., a new Myxosporidian parasite from the branchial tissue of *Alosa frinta*, account of, MAZZARELLI (287) pp. 227-229; brief notice of same, id. (286) pp. 71 & 72.
- Chloromyxum protei* n. sp., occurrence and diagnosis, JOSEPH (205) pp. 450 & 451.
- Glugea* and *Nosema*; these generic names both retained and used for different types, in one of which the sporont (pansporoblast) is poly-porous (type: *Glugea anomala*), and in the other it is monosporous (type: *Nosema bombycis*), PEREZ (341); *G. stempelli* n. sp., from *Balanus amaryllis*, briefly described, id. (343) pp. 150 & 151.
- Henneguya légeri* n. sp., occurrence and diagnosis, CÉPÈDE (77) p. 911; *H. nüsslini* n. sp., occurrence, cysts and spores described, SCHUBERG & SCHRÖDER (420) pp. 56-59, pl. 3, figg. 10-15.
- Myxidium barbatulæ* n. sp., occurrence and diagnosis, CÉPÈDE (77) p. 912.
- Myxobolus neurobius* n. sp., from nervous system of trout, cysts and spores described, SCHUBERG & SCHRÖDER (420) pp. 49-56, pl. 3, figg. 1-9; *M.* [apparently really *Henneguya*] sp., occurrence and notes, LINTON (265) pp. 366, 382, 390, pl. 8, figg. 55 & 56.
- Myxocystis mrazeki* n. sp., occurrence, general description, and structure of spores, HESSE (177) pp. 914-916, also id. (179) pp. 12-14, 9 text-figg.
- Nosema* [see also under *Glugea*]; *N. pulvis* n. sp., from *Carcinus moenas*, developmental features noted, PEREZ (341) pp. 146-148; *N. p.*, effect of, on host, id. (342), pp. 148-150; *N. p.*, a condition of diffuse infiltration, and spores in, described, id. (344) pp. 11-14, text-figg. 12 & 13; *N. longifilum* n. sp., p. 918, *N. vayssièri* n. sp., p. 917, occurrence and diagnoses, HESSE (178).
- Thelohania cepedei* n. sp., occurrence and diagnosis, HESSE (178) p. 919; *T. manadis*, schizogony and sporogony in, fully described, PEREZ (344) pp. 2-11, text-figg. 1-11.



(b) **Actinomyxidia**:—

*Sphaeractinomyxon stolci*, detailed account of development, spore-formation, and relationships of, CAULLERY & MESNIL (72) pp. 272–308, pl. 15, 4 text-figg.

(c) **Sarcosporidia**:—

A *Sarcosporidium* [*Sarcocystis*], from a monkey, note on, DE KORTÉ (218) pp. 451 & 452, pl. 12.

*Sarcocystis tenella*, note on occurrence and spores of, METTAM (297) p. 273.

(d) **Haplosporidia**:—

Haplosporidia: general account of forms to be included in the order, or which are closely allied to it; relationships discussed, CAULLERY & MESNIL (71). [See II. F.]

*Bertramia asperospora*, p. 132, pl. 12, figg. 100–105, *B. capitellæ*, p. 131, pl. 12, figg. 87–99, remarks on, CAULLERY & MESNIL (71).

*Celosporidium blattellæ* n. sp., occurrence and description, CRAWLEY (93) pp. 158–161, 6 text-figg.; *C. chydoricola*, p. 142, pl. 12, figg. 76–86, remarks on, CAULLERY & MESNIL (71).

*Haplosporidium marchouxi* n. sp., p. 581, text-fig. 4, *H. potamillæ* n. sp., p. 582, fig. 5, *H. vejdoskii* n. sp., p. 581, fig. 3, occurrence and diagnoses, CAULLERY & MESNIL (67); *H. heterocirri*, p. 108, pl. 11, figg. 1–15, *H. marchouxi*, p. 114, pl. 11, figg. 30–43, *H. potamillæ*, p. 117, pl. 11, figg. 44 & 45, *H. scolopli*, p. 111, pl. 11, fig. 16–29, *H. vejdoskii*, p. 118, pl. 12, fig. 46–56, fuller account of, id. (71).

*Ichthyosporidium* n. g. for *I. gasterophilum* n. sp., p. 640, and *I. phymogenes* n. sp., p. 641, occurrence and remarks, CAULLERY & MESNIL (68); fuller accounts of, id. (71), *I. g.*, p. 137, pl. 13, figg. 106–116, and *I. p.*, p. 139, pl. 13, figg. 117–124.

*Rhinosporidium* n. g. *kinealyi* n. sp.; parasitic in man, general account of, MINCHIN & FANTHAM (298) pp. 521–532, pls. 30 & 31.

*Urosporidium* n. g. *fuliginosum* n. sp. occurrence and diagnosis, CAULLERY & MESNIL (67) p. 582, text-fig 6; fuller account of, id. (71) p. 122, pl. 12, figg. 57–75.

Allied to Haplosporidia:—

*Blastulidium pædophthorum*, multiplication in, by a budding-like process, PEREZ (340) pp. 1027–1029, 2 figg. [The figures rather point to the vegetative nature of this organism.]

*Scheviakovella* n. g. for "*Glugea*" *scheiili* L. Pfeiffer, Schewiakoff's "endoparasitic tubes" of *Cyclops*; remarks on and affinities of, discussed, CAULLERY & MESNIL (71) p. 156.

**SPOROZOA INCERTÆ SEDIS.**

Note on occurrence of *Lymphocystis johnstonii*, and good photograph of severely-infected flounder, JOHNSTONE (201) p. 292, pl. 6, text-fig. 9.

A new Sporozoa, *Microklossia* n. g. *prima* n. sp.; from various Russian Lepidoptera; developmental phases described, including unusual method of sporulation, KRASSILTSCHIK (219) pp. 656 & 657, (220) pp. 736 & 737, and (221) pp. 737–739.

Doubtful Sporozoa.—*Cytoryctes* [spelt by the author, variously, *Cytorhycetes* and *Cytorrhycetes*] *vaccinæ*, otherwise known as "Guarnieri's bodies," the alleged parasites of small-pox and vaccinia, lengthy account of, SIEGEL (445) 34 pp., 3 pls.; *C. scarlatinæ* n. sp., a similar form supposed to cause scarlet-fever, id. (446) 14 pp., 1 pl.; and *C. luis* n. sp., supposed to be the causal agent of syphilis, id. (447) 15 pp., 2 pls.

## D. MASTIGOPHORA.

## 1. FLAGELLATA (EUFLAGELLATA).

## (a) Lissoflagellata:—

- Calonympha* n. g. *grassii* n. sp., remarkable form, parasitic in termites, with complex cytological details, FOA (141) pp. 542-545, 2 text-figg.
- Devescovina* n. g. *striata* n. sp., from termites, morphology briefly described, FOA (141) pp. 545 & 546, text-fig. 3.
- Dinema* (probably) n. sp., occurrence and note on cytological peculiarities, PENARD (339) p. 459.
- Dinobryon utriculus*, occurrence of peculiar form of, LEMMERMANN (254) p. 149, pl. 4, figg. 5-7.
- Dunaliella* n. g. *salina* n. sp., occurrence and description, TEODORESCO (478) pp. 215-232, pls. 8 & 9, 5 text-figg.; *D. s.*, saline springs, Cagliari, general account of, HAMBURGER (172) pp. 111-125, pl. 6, figg. 1-17, 7 text-figg.
- Herpetomonas bombycis* n. sp., occurrence and morphological characters, LEVADITI (260) pp. 631-634, 11 figg.
- Lamblia* [= *Megastoma*] *intestinalis*, occurrence and note, CASTELLANI (65) p. 1286, fig. 2.
- Lepocinclis marssonii* n. sp., p. 151, pl. 4, fig. 9, *L. ovum* var. *punctato-striata* n. var., p. 150, pl. 4, fig. 9, occurrence and diagnoses, LEMMERMANN (254).
- Pseudospora volvocis*, general account of biology and life-history, ROBERTSON (379) pp. 213-230, pl. 12.
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## CORRIGENDA.

- INSECTA, p. 86, line 8 from bottom, for *corei* read *cerci*.  
 „ p. 160, „ 12 „ „ for *Danacaca* read *Danacaea*.

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