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RELATING CHIEFLY TO THE YEAR

1903.

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

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XIII. INSECTA.

BY D. SHARP.

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INTRODUCTION.

THE number of titles for this year—1710—is the largest yet recorded, being about 200 more than last year. A considerable number of memoirs are placed in the subject indexes without being mentioned in the list of titles, so that the total number of memoirs is about 2,000. This is not all; there are very numerous brief notes that have had to be considered, many of them being also placed in the subject indexes. The annual crop of entomological literature steadily increases.

The new classification of existing Insects proposed by HANDLIRSCH (668) includes 34 Orders, arranged in 4 Classes, one of which consists of eleven sub-classes.

A considerable number of important works have been published during the year. The monograph of *Sphingidæ* by ROTHSCHILD & JORDAN (1291) is probably the best monograph of a large family of *Lepidoptera* that has yet been produced.

THEOBALD has given us a supplementary volume on mosquitoes, and HAMPTON the first part of *Noctuidæ* in the Catalogue of Moths (662).

Two or three volumes on British entomology have been published, NEWSTEAD having completed his work on *Coccidæ* (1063), BARRETT the *Pyralid* volume of British *Lepidoptera* (77), and MORLEY (1033) a first volume on the *Ichneumonidæ*.

The less attractive groups of Insects have received much attention; the Record of parasitic *Hymenoptera* is of considerable extent, and the *Aphaniptera* occupy a larger space than has ever been required before this.

The Volume (527) on the Fauna of Sokotra must be noticed, though the duration of the expedition was so short, and its field so wide that we may feel sure that only a small part of the entomology has been acquired.

The *Coleoptera Caraboidea* of the Hawaiian Fauna, amounting to fully 200 species, has been dealt with, SHARP (1403). Mr. ELWES' account (447) of the butterflies of Chili is of great interest to the general entomologist, and will no doubt lead to many reflections on our small acquaintance with the entomology of the Andean region of S. America. APFELBECK has published the first volume of a Coleopterous fauna of the Balkan and East Mediterranean areas (30). It appears to be well executed, and presents one valuable and novel feature, inasmuch as pp. 401–405, contain a complete systematic summary of the new matter included in the volume.

Lepidopterists are fortunate in the popular works they obtain at a low price—in America. A conspicuous example of this is Dr HOLLAND'S moth book (712), in which entomologists have a work at an extraordinarily low price that will enable them to determine nearly all the N. American *Macro-lepidoptera*, *Heterocera*. It is a companion Volume to the butterfly book by the same author we noticed in 1899.

Other important faunistic works are MELICHAR (1000) on Ceylon *Homoptera*, and DISTANT (393) Fauna of British India, *Rhynchota*. AUSTEN'S monograph of Tsetse flies is remarkable for the excellence of its illustrations (55).

In Morphology VERHOEFF has discussed the external structure, with the exception of that of the head, in a series of memoirs (1594 to 1599). MEEK (990) gives a good paper on the Kansas trophi of *Cicada*, and ZANDER (1705) one on the male genital structures of *Lepidoptera*. BIEDERMANN (126) makes a contribution to our knowledge of the histology of the chitinous skeleton in *Coleoptera*. NUTTALL & SHIPLEY (1081) give an important

contribution on the alimentary system of *Anopheles*. TRÄGÅRDH describes the anatomy of larva of *Ephydra*, and BONGARDT (148) the light-organs of *Lampyridæ*. RENGEL considers (1254) the relation of mesenteron and intestine in the larvæ of Aculeate *Hymenoptera*, and HARLING tells us of an *Halictus* with antennæ replaced by legs. In development oögenesis is treated by GROSS (640) and by GRÜNBERG (648). BRUES, in his paper on *Stylopidae* (225) describes a very peculiar form of oögenesis; there being apparently no egg-tubes the eggs are developed in connection with the fat-body. MARCHAL (968) has detected a second case of embryonic fission, this time in a *Proctotrypid*. C. PÉREZ describes the metamorphosis of *Formica rufa* (1108) and gives an explanation of histolysis "on the base of a struggle for existence between the plastids of an organism." BREED'S study (209) shows that in the metamorphosis of *Thymalus* the various muscles are affected in different manners, viz. are (1) taken over unchanged, (2) taken over with partial changes, (3) degenerate and are replaced by others. CHOLODKOVSKY (310) has studied the development in *Pediculida* and considers these insects to be, with *Mallophaga*, a distinct Order, to be called *Pseudorhynchota*. TOWER contributes a very important paper on the development of the wings of *Coleoptera* (1538). It adds considerably to our knowledge of this difficult subject. This Savant in another memoir (1539) has carried the study of coloration to a farther stage; he finds it to be due to an enzyme that causes the separation of coloring-matter from the soft freshly-formed chitin. It is suggestive that the formation of colour in the imago is thus correlative with the hardening of chitin; and he also indicates its connection with muscular insertion. The memoir is an instructive one though it is marred by certain teleological expressions such as "the cuticula not being able to harden."

The Paris Academy of Sciences has bestowed the Gama Machado prize on the Countess VON LINDEN for her memoirs on the pigments of the wings of *Vanessa*; GIARD & Others (620). Several papers by her have appeared on this subject (941-943).

BACHMETJEV gives an interesting article (58) on the vexed question of the nature of parthenogenesis as observed in the honey-bee. BUTTEL-REEPEN discusses (252, 253) the development of the social life in bees. Prof. POULTON has contributed a well-illustrated paper on the effect of lichen-covered bark on larvæ of certain *Lepidoptera* (1194). OUDEMAN'S study of the position of repose of *Lepidoptera* (1099) is of considerable interest, and one can only wish that it were more extended. Miss PRITCHETT'S experiments in feeding lizards with protectively colored insects deserve attention, and WASMANN'S paper (1641) on symphily, and the secreting organs of myrmecophilous and termitophilous Insects is a considerable addition to a very interesting subject.

ILLIG has a very good paper (752) on the scent-organs of *Lepidoptera*; it is however rather brief and the histological details of the very beautiful plates are not quite adequately explained.

In Ethology NIELSEN'S paper (1066) on the developments of a fly that attacks a bee brings out several points of interest. VON IHERING on Stingless bees (748) gives much information and enables one to form for the first time a reliable opinion as to numerous important points in the biology of these social Insects. There has been, as he shows, very much confusion and error in previous publications about them. WHEELER has again given us a very interesting series of papers on bionomics in Ants: his paper on gynadromorphic forms is of particular interest (1682) and touches on the vexed question of determination of sex (so called) in *Hymenoptera*. Miss FIELDE thinks that she has been able to localize sense appreciations, of highly special kinds, in Ants in particular segments of the antennæ (508). SCHENK describes the structure and function of the antennal sense-organs in *Lepidoptera* and *Hymenoptera* (1330). MARGARET HOLLIDAY'S

discussion (714) of the distinctions between workers and queens in ants contributes considerably to greater exactness, where this has hitherto been too much wanting.

FABRE has published another volume of his well-known work. The contents are very varied, dealing with several Orders, and show no falling off in their interest and importance. He considers that he has proved the occurrence of parthenogenesis in one of the generations of *Halictus* to be the normal state of affairs. He has accurately observed the larval habits of *Volucella* and declares the supposed mimicry of the fly to be "puerile."

DAVENPORT'S (381) study of the movements of *Poduridae* is of real interest. He concludes that "the instincts have selected the habitat." JANET gives a paper with a valuable account of habits of wasps (783). SILVESTRI makes an important contribution (1425) to our knowledge of Termites and termitophilous insects, and TRÄGÅRDH (1540) discusses the same subject.

M. COUTAGNE (353) gives us a serious study of experiments as to heredity in connection with silkworms, concluding that heredity, instinct and memory are different manifestations of a single essential property possessed by all living matter.

FISCHER (513) continues his discussion of the bearing of experimental varieties on general questions.

KIEFFER (829) makes an addition to the meagre list of apterous *Diptera*. HOLMGREN'S sketch of viviparity in Insects (715) is very useful.

The results M. DE LAPOUGE (911) gives of his examination of remains of Carabi from a Belgian peat-moss are to some extent contradictory and inconsistent. It is very desirable that so interesting a subject should be thoroughly elucidated.

OSTEN SACKEN'S work (1096) contains much information as to the Dipterologists of the 19th century.

In Economic we may notice WATT & MANN'S work on Tea-pests. The British Museum Natural History Catalogue of books, LANKESTER (910), will be very useful when completed.

An innovation has been introduced in the subject Index "Faunistic," inasmuch as subordinate localities and the names of groups are introduced into most of the references. It is hoped this may be found useful in limiting the number of references that must be made by anyone who is working at a group smaller than the Order. This change throws additional labour on the Recorder and if deemed superfluous he will be glad to dispense with it in future.

The Finland Zoological publications are several of them again late in reaching the Libraries, but thanks to the kindness of authors and of some of the Societies I am able to record most of the papers published there in 1903.

I. TITLES.*

1. ABEILLE DE PERRIN, E. Remarques sur deux nouvelles formes de *Trechus* aveugles français. Bull. Soc. ent. France 1903, pp. 208, 209. [*Coleoptera*.]
2. —. Description de deux espèces de *Trechus* aveugles européens. T. c. pp. 298, 299. [*Coleoptera*.]

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

3. [ABEILLE DE PERRIN, E.] Description de deux espèces de *Coléoptères* d'Algérie. T. c. pp. 334, 335.
4. —. Notice nécrologique sur Francisque Guillebeau. Ann. Soc. ent. France lxxii, pp. 353-357.
5. ABONYI, S. Aházi méh (*Apis mellifica* L.) bélcsovének alak és élet tani leírása. Allatt. Kozl. 1903, pp. 137-168, pls. xi-xiv.
6. ABSOLON, K. Untersuchungen über *Apterygoten*, auf Grund der Sammlungen des Wiener Hofmuseums. Ann. Hofmus. Wien xviii, pp. 91-111, pls. i, ii.
7. ADAMS, C. F. *Dipterological* Contributions. Bull. Univ. Kansas ii, No. 2, pp. 21-47.
Includes one or two descriptions by WILLISTON.
— [See also SNOW & ADAMS (1455).]
8. ADKIN, R. E. *Pyrameis cardui*, *Plusia gamma* and *Nemophila noctuella*. Entomologist xxxvi, pp. 273-275. [*Lepidoptera*.]
9. ADLERZ, G. Lefnadsförhållanden och Instinkter inom Familjerna *Pompilidæ* och *Sphegidæ*. Svenska Ak. Handl. xxxvii, No. 5, 173 pp.
10. AGNUS, A. N. Description d'un *Neuroptère* fossile nouveau—*Homoiptera gigantea*. Naturaliste 1903, pp. 53, 54, cuts. Also Rev. Sci. Bourbonnais xv, pp. 71-75.
Not new; cf. Zool. Rec. 1902.
11. —. 1^{ere} Note sur les *Blattidés* paléozoïques. Description d'un *Mylacridæ* de Commentry. Bull. Soc. ent. France 1903, pp. 272-274. [*Orthoptera*.]
12. —. Deuxième note sur les *Blattidés* paléozoïques. Description d'une espèce nouvelle. T. c. pp. 291-294. [*Orthoptera*.]
13. ÅGREN, H. Diagnosen einiger neuen *Achorutiden* aus Schweden. (Vorläufige Mittheilung.) Ent. Tidskr. xxiv, pp. 126-128. [*Collembola*.]
14. —. Zur Kenntniss der *Apterygoten*-Fauna Süd-Schwedens. Stettin. ent. Zeit. lxiv, pp. 113-176, pl. ii.
15. AIGNER-ABAFI, L. v. Die Kolumbácsér Fliege. Allg. Zeitschr. Ent. viii, pp. 93-96, 124-127. [*Diptera*.]
16. —. A mimicryról. Rov. Lapok x, pp. 28-34, 45-53.
17. —. A mimicry. Allatt. Kozl. 1902, pp. 117-126.
18. AITKEN, E. H. Notes of a tour in the North Canara district of India in search of mosquitoes. J. trop. Medicine v, pp. 325, 326, 341, 342. [*Diptera*.]
19. — & COMBER, E. A list of the butterflies of the Konkau. J. Bombay Soc. xv, pp. 42-55 and supplement, p. 356. [*Lepidoptera*.]
20. ALBISSON, J. Notes biologiques pour servir à l'histoire naturelle du *Charaxes jasius*. Bull. Soc. Nîmes xxx, pp. 77-82. [*Lepidoptera*.]
21. ALDRICH, J. M. *Dolichopodidæ* of Grenada, W. I. Bull. Univ. Kansas i, pp. 75-94, pl. iv. [*Diptera*.]
22. ALFKEN, J. D. Zwei neue Bienen aus Japan. Zeitschr. Hym. Dipt. iii, pp. 209-211. [*Hymenoptera*.]

23. ALLUAUD, C. Observations sur le genre *Heterosoma* et description d'une espèce nouvelle. Bull. Soc. ent. France 1903, pp. 77-79. [*Coleoptera*.]
24. ALWOOD, W. B. A note on the oviposition of the seventeen-year locust (*Cicada septendecim*). Bull. U. S. Dep. Agric. Ent. xl, pp. 75-77. [*Hemiptera-Hom.*]
25. ANDRÉ, E. Species des *Hyménoptères* d'Europe et d'Algérie. Fasc. 83, 84.
The parts bear no dates and I do not know when they were actually published. The contents are *Cynipides* etc., vol. ii [=vii bis], pp. 273-496, pls. ix-xvi by KIEFFER.
26. —. *Mutillides* nouveaux ou imparfaitement connus de divers pays. Ann. Soc. ent. France lxxii, pp. 417-459. [*Hyménoptera*.]
27. —. *Mutillides* d'Afrique nouveaux ou imparfaitement connus. Zeitschr. Hym. Dipt. iii, pp. 81-88, 137-144, 232-239. [*Hyménoptera*.]
28. —. Description d'une nouvelle espèce de *Dorymyrmex* et tableau dichotomique des ouvrières de ce genre. T. c. pp. 364, 365. [*Hyménoptera*.]
29. ANDREAE, E. Ueber den graduellen Unterschied der Duft- und Farbenlockung bei einigen Verschiedenen Insekten. Biol. Centrbl. xxiii, p. 226.
ANNANDALE & ROBINSON. [See SWINHOE (1502).]
ANTHONY, MAUDE H. [See NEEDHAM & ANTHONY (1061).]
30. APFELBECK, V. Die Käferfauna der Balkanhalbinsel, mit Berücksichtigung Klei-Asiens und der Insel Kreta. Erster Band. Familienreihe *Caraboidea*. Berlin, 1904, 8vo, ix+422 pp. [*Coleoptera*.]
31. —. Zwei neue *Curculioniden* aus Bosnien. Munchen Kol. Zeitschr. i, p. 336. [*Coleoptera*.]
32. ARROW, G. J. On the *Laparostict Lamellicorn Coleoptera* of Grenada and St Vincent (W. Indies). Tr. ent. Soc. London 1903, pp. 500-520.
33. —. On the affinities and nomenclature of certain genera of *Melolonthia* and *Rutelid Coleoptera*. Ann. Nat. Hist. xi, pp. 303-306.
— [See also GAHAN & ARROW (590).]
34. ASHMEAD, W. H. Classification of the fossorial, predaceous and parasitic wasps, or the super-family *Vespoidea* (continued). Paper No. 11, Canad. Ent. xxxv, pp. 3-8. No. 12, t. c. pp. 39-43. No. 13, t. c. pp. 95-107. No. 14, t. c. pp. 155-158. No. 15, t. c. pp. 119-205. No. 16, t. c. pp. 303-310. No. 17, t. c. pp. 323-332. [*Hyménoptera*.]
35. —. Two new phytophagous *Hyménoptera*. T. c. p. 233.
36. —. A new *Paranomia* from British Columbia. T. c. p. 243. [*Hyménoptera*.]
37. —. A new joint-worm parasite. T. c. p. 332. [*Hyménoptera*.]
38. —. Classification of the gall-wasps and the parasitic Cynipoids, or the superfamily *Cynipoidea*. I. Psyche x, pp. 7-13. [*Hyménoptera*.]
Families, subfamilies. Genera *Figitidae*.
39. —. Classification..... II. T. c. pp. 59-73. [*Hyménoptera*.]
Figitidae subfamily iv, *Liopterinae* v, *Eucoilinae*.

40. [ASHMEAD, W. H.] Classification..... III. T. c. pp. 140-155. [*Hymenoptera.*]
Subfamily vi, *Xystinae* and fam. *Cynipidae*.
41. —. Classification..... IV. T. c. pp. 210-216. [*Hymenoptera.*]
Rhoditini, Aulacini, Ibalini, etc.
42. —. A new *Oryssid* from Chatham islands, Bismarck Archipelago.
T. c. p. 73. [*Hymenoptera.*]
Bismarck Archipelago appears from the context to be an error.
43. —. Classification of the pointed-tailed wasps, or the superfamily
Proctotrypidea. II. J. N. York Ent. Soc. xi, pp. 28-35. [*Hymenoptera.*]
44. —. Classification.....*Proctotrypidea*. III. T. c. pp. 86-99. [*Hymenoptera.*]
45. —. Two new Hymenopterous parasites. T. c. p. 144.
46. —. Some new genera in the *Cynipoidea*. P. ent. Soc. Washington v,
pp. 221, 222. [*Hymenoptera.*]
47. —. A new genus in the *Ceropalidae*. T. c. pp. 307, 308. [*Hymenoptera.*]
48. —. Description of a new genus in the *Pireniinae*, fam. *Chalcididae*.
Ind. Mus. Notes v, pp. 61, 62. [*Hymenoptera.*]
49. —. Two new parasitic *Hymenoptera*. Ent. News Philad. xiv,
pp. 192, 193.
50. —. A new *Ammoplanus*. T. c. p. 295. [*Hymenoptera.*]
— [See also FISKE (514).]
51. AURIVILLIUS, C. Zwei neue Afrikanische *Heteroceren*. Ent. Tidskr.
xxiv, p. 106. [*Lepidoptera.*]
52. —. Svensk Insektafauna 13. Trettonde ordningen. Steklar. *Hymenoptera*.
T. c. pp. 129-218.
53. —. Beiträge zur Kenntnis der Insektenfauna von Kamerun. No. 21.
Cerambyciden. T. c. pp. 259-280. [*Coleoptera.*]
54. —. Verzeichnis einer Schmetterlingssammlung aus dem Katanga-
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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 two or more divisions of the region indicated by the immediate subheading.

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Fiji: GROUVELLE (643), *Rhysodidæ*, n. spp.; KERREMANS (815), *Paracupta*, n. sp.; ROTHSCHILD & JORDAN (1291), *Sphingidæ*; HAMPSON (667), *Syntomidæ*; THEOBALD (1519), *Culicidæ*; BÜRNER (159), *Collembola*, sp. n.

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Caroline Ids.: GROUVELLE (643), *Rhysodidæ*; GRÜNBERG (649), n. g. *Tipulidæ*.

Marshall Ids.: MAYR (985), *Hymenoptera*, *Camponotus*, n. sp.

Christmas Id.: KIRBY (840), *Blattidae*.

Kerguelen: ENDERLEIN (450), *Dipt.*, n. sp., *Collemb.*, n. sp.; KELLOGG (809), *Mallophaga*.

St Paul and New Amsterdam: ENDERLEIN (450), *Gracilaria*, n. sp., *Tipulidae*, n. sp.

3. PALÆARCTIC REGION.

(a.) Collective: i.e. Papers referring to the *whole region*, or *several* of the subdivisions (c—h) thereof.

N.B. The greater part of China, in fact all with the exception of Mongolia, is recorded in "Asia."

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Hymenoptera. MAYR (985), Mediterranean *Eutelus*, n. spp., Aix *Iso-cyrtus*, n. sp., Transcaspian *Telenomus*, n. spp.; KOKUJEV (862), Mongolia, Siberia, Transcaspian, *Hym. par.*, 10 spp. n.; SZÉPLIGETI (1503), Hungary, Syria, *Gasteruption*, n. spp.; SZÉPLIGETI (1507), *Braconini* and *Sigalphini*, n. spp.

Lepidoptera. FUCHS (577), *Crambus*, *Tortricidae* and *Tineidae*, 4 spp. n.; FUCHS (578), Eriwan and Germany, *Scythris*, 2 spp. n.; Hampson (662), *Agrotinae*; REBEL (1211), Algeria and W. Asia, *Pyralidae*, 5 spp. n.; SOUTH (1458), Cat. Pal. *Rhopalocera*.

Diptera. BECKER (87), *Mulio*; THEOBALD (1520), *Culicidae*; KERTÉSZ (816), BEZZI (122), Catalogue.

Aphaniptera. WAGNER (1621), Bird fleas, n. spp.; WAHLGREN (1626), Northern *Aphaniptera*, Scandinavia, Greenland, Russia, n. spp.

Hemiptera. HORVÁTH (729), Caucasus, Armenia, *Graphosoma*, 2 spp. n.; JAKOBLEV (770), St. Petersburg, Caucasus and Altai *Phimodera*, 3 spp. n.; JAKOBLEV (775), *Neottiglossa*, spp. n.; JAKOBLEV (780), *Heteroptera*, Crimea, Mongolia, etc., etc., 22 spp. n.; HORVATH (730), *Pentatomidae*, n. spp.; SCHOUTEDEN (1347), *Aphid*-galls.

Trichoptera. Klapálek (850, 851), *Panorpidae*, sp. n., *Pertidae*, spp. n.

Collembola. BÖRNER (159), n. spp., n. g.

(b.) *Europe, collectively.*

Coleoptera. STIERLIN (1484), Spain and Norway, *Curculionidae*, 2 spp. n.; STIERLIN (1485), Roumania, Caucasus, *Curculionidae*, 2 spp. n.; GANGLBAUER, Carinthia; Nice, SAINTE-CLAIRE-DEVILLE, p. 255; Vienna, HOLDHAUS, p. 256; BREIT, p. 257; Ingolstadt, J. DANIEL, and München, K. DANIEL, p. 258: München. Kol. Zeitschr. i.

Hymenoptera. BERTHOUMIEU (111), *Ichneumonidae*, 6 spp. n.; KONOW (870), France, Ural, *Pamphilius*; KONOW (877), *Pteronus*; KONOW (878), *Pachynematus*.

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Aphaniptera. WAGNER (1620).

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Psocidae. ENDERLEIN (456), Rügen, Denmark, Sweden.

Thysanura. VERHOEFF (1599), *Japyx*, n. spp.

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(c.) *British Islands.*

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xxxix, p. 56.—*Clostera anachoreta*, BARRETT, Ent. Mag. xxxix, p. 215, and Miss EDWARDS, t. c. p. 268.—Immigration, 1903, ADKIN (8); also various

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xv.—Retrospect for 1902, PROUT, pp. 29-33, Ent. Rec. xv.

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p. 221.—*Agathomyia viduella*, novelty, WOOD, Ent. Mag. xxxix, p. 271.—*Chamaesyphus lusitanicus*, novelty, SHARP, Ent. Mag. xxxix, p. 197.—*Phortica variegata*, novelty, SHARP, Ent. Mag. xxxix, p. 248.

Retrospect for 1902, COLLIN, pp. 35, 36, Ent. Rec. xv.—*Leptopa filiformis*, *Thyreophora furcata*, *Pelidnoptera nigripennis*, *Lucina fasciata*, as British, YERBURY, pp. lx–lxii, P. ent. Soc. London 1903.—*Pachygaster tarsalis* confirmed, SHARP, Ent. Mag. xxxix, p. 222.—*Loxocera nigrifrons* confirmed, SHARP, Ent. Mag. xxxix, p. 255.

Aphaniptera. *Ceratophyllus londiniensis* n. sp., ROTHSCHILD (1286).—*Ceratophyllus dalei* sp. n., ROTHSCHILD (1288).—*Typhloceras poppei*, novelty, ROTHSCHILD, Ent. Rec. xv, p. 196.

Hemiptera. *Myrmecoris gracilis*, novelty, SAUNDERS, Ent. Mag. xxxix, p. 269.—*Corizus hyalinus*, novelty, SAUNDERS, Ent. Mag. xxxix, p. 294.

Rarities, notes, JENNINGS, Ent. Mag. xxxix, pp. 69, 70.

Coccidae. *Kermes quercus*, novelty, NEWSTEAD, Ent. Mag. xxxix, p. 57. Monograph completed, NEWSTEAD (1063).

Orthoptera. Retrospect for 1902, BURR, p. 6, Ent. Rec. xv.

LOCAL LISTS.

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Insecta. Additions (47 spp.) to the list of Alderney insects, W. A. LUFF, Rep. Guernsey Soc. 1902, pp. 149–151.—New Forest insects, especially Parasitic *Hymenoptera*, August, MORLEY, Ent. Mag. xxxix, pp. 25–29.—Alton, Stafford., Gall insects, BRETT, pp. 92, 93, Rep. North Staffordsh. Club xxxvii.—Henley-on-Thames, *Hemipt.*, *Coleopt.*, FOWLER, Ent. Mag. xxxix, p. 17.—Marlborough, Rep. Marlbor. Soc. li, pp. 38–72.—Devizes, COOK, Rep. Marlbor. Soc. li, p. 97.—Gosfield, Essex, *Symbiotes latus*, *Sirex juvenicus*, BEAUMONT, Ent. Mag. xxxix, p. 300.—Norfolk, MORLEY (1034).—Norfolk, TUCK, novelties, Tr. Norfolk Soc. vii, pp. 526, 527.—An excursion to the Norfolk Broads, principally in quest of *Odonata*, PORRITT, Ent. Mag. xxxix, pp. 251, 252.—*Orthoptera* and *Neuroptera* in Lincolnshire and Nottinghamshire, SHAW, Ent. Mag. xxxix, pp. 91–95.—Lincolnshire galls, WOODRUFFE-PEACOCK & STOW, Naturalist 1903, pp. 185, 186.—Clova, Anthophilous insects, WILLIS & BURKILL (1694–1696).—Ulster, JOHNSON, pp. 109, 110, Irish Natural. xii.—Kerry, DONISTHORPE and others, pp. 59–69, 138, Irish Natural. xii.

Coleoptera. Whitsand Bay, *Phytosus*, KEYS, Ent. Mag. xxxix, p. 19.—Plymouth, KEYS (821).—Slapton Ley, *Lema erichsoni*, Ent. Rec. xv, p. 264.—Weymouth, *Calosoma sycophanta*, FORSYTH, t. c. p. 264.—*Epicometis squalida* at Weymouth, DONISTHORPE, t. c. p. 264.—Wareham, *Asemum*, GORHAM, Ent. Mag. xxxix, p. 207.—New Forest, WHITAKER, t. c. p. 228, also WOOD, l. c.—New Forest, JOY, t. c. pp. 252, 253.—New Forest, THOULERS, t. c. p. 41.—Bamber Forest, *Staphylinus fulvipes*, DONISTHORPE, p. xxx, P. ent. Soc. London 1903.—Pamber Forest, incl. *Labid. tridentata*, DONISTHORPE, Ent. Mag. xxxix, p. 205.—Southampton, *L. bergrothi*, Christchurch, *Phytosus balticus*, GORHAM, t. c. p. 99.—Isle of Wight, ELLIS, Ent. Rec. xv, pp. 130, 131.—Sussex, *Hypocopus*, BUTLER, Ent. Mag. xxxix, p. 301.—Lancing, *Atomaria rhenana*, CHITTY, p. v, P. ent. Soc. London 1903.—Battle, *Cal. sycophanta*, BENNETT, Ent. Rec. xv, p. 235.—Hastings, *Hypocopus*, BENNETT, t. c. p. 286.—Broadstairs, *Meloe*, WOOD, Ent. Mag. xxxix, p. 69.—Charing, *Macherites*, NEWBURY, t. c. p. 281.—Chobham, *Sitaris*, ROBERTSON, t. c. p. 41.—Guildford and Godalming, CHAMPION, t. c. p. 278.—Woking, *Cocc. distincta* etc. etc., CHAMPION, t. c. p. 151.—Woking, *Odontæus*, CHAMPION, t. c. p. 228.—Berkshire, JOY, pp. 98, 99, 279, 280, t. c.—Reading, JOY, t. c. p. 173.—Wychwood Forest, HOLLAND, incl. *Gynandr. affinis*, t. c. p. 202.—Oxford, *Latr. bergrothi*, HOLLAND, t. c. p. 19.—Epping, *Zeugophora flavicollis*, KEMP, t. c. p. 40.—Chesham and Tring, ELLMAN,

t. c. p. 18.—Lea Valley, JENNINGS, t. c. p. 278.—Ipswich, *Homalium testaceum*, NEWBERY, t. c. p. 281.—Colchester, HARWOOD, p. 130, Ent. Rec. xv.—*Blaps gages* in Suffolk, BUTLER, Ent. Mag. xxxix, p. 174.—Brandon, MORLEY, t. c. pp. 204, 205.—Cambridge, *Thalycra sericea* etc., JENKINSON, t. c. p. 227.—Wicken, *Trechus rivularis*, CHITTY, Ent. Rec. xv, p. 152.—Shropshire, incl. *Perileptus areolatus*, *Hydr. marginatus*, BAILEY, Ent. Mag. xxxix, p. 203.—Chat Moss, *Cryptophagus ruficornis*, FOWLER, Ent. Mag. xxxix, p. 228.—Southport, *Parnus nitidulus*, DUTTON, t. c. p. 152.—Southport, BEARE, Ent. Rec. xv, p. 264.—Yorkshire, LAWSON THOMPSON, pp. 405, 406, Naturalist 1903.—Third list of East Yorkshire, *Coleoptera*, T. STAINFORTH & H. E. JOHNSON, Tr. Hull Club iii, pp. 103–110.—Cumberland, DAY, p. 77, Ent. Rec. xv.—Cumberland, BRITTON, t. c. pp. 150, 151, 152: DAY, t. c. p. 153.—Cumberland, DONISTHORPE, pp. 262, 263, t. c.—N. Wales, *Bledius taurus* etc., TOMLIN, t. c. p. 330.—Bettws-y-coed, NEWBERY, t. c. p. 286.—Scotland, BEARE, t. c. p. 285.—*Coleoptera* taken in Scotland, chiefly in the Edinburgh district, Ann. Scott. Nat. Hist. 1903, pp. 89–99.—Wigtownshire, GORDON, pp. 46–49, Ent. Rec. xv.—Edinburgh, *Callidium sanguineum*, PATERSON, Ann. Scott. Nat. Hist. 1903, p. 121.—Edinburgh, BEARE, p. 77 and pp. 181–183, Ent. Rec. xv.—Innerleithen, BEARE, Ent. Mag. xxxix, p. 39.—Rannoch, WOOD, t. c. pp. 253, 254.—Newtonmore, Speyside, BEARE, t. c. pp. 206, 207.—Aviemore, *Pachyta sexmaculata*, KING, t. c. p. 207.—Invernessshire, *Bemb. virens*, CHITTY, t. c. p. 205.—Ireland, novelties, CHASTER, Irish Natural. xii, p. 167.—Armagh and Down, JOHNSON, Ent. Mag. xxxix, p. 99.

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(d.) *North Europe and Siberia* [see also (a.) and (b.).]

Insecta. NORMAN (1073), Finland.—Medd. Soc. Faun. Fenn. xxix contains numerous important Finland faunistic notes; those relating to *Insecta* are excellently summarised on pp. 244–252 of the work and need not therefore be specially detailed.

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Hymenoptera. STRAND (1488), Norway, *Ichneumon*; AURIVILLIUS (52), Sweden, *Apidae*, systematic tables; NORDENSTRÖM, Ent. Tidskr. xxiv, pp. 220–224, Sweden, parasitic Hym.; RUZSKY, Rev. Russe Ent. iii, pp. 205–207, Transbaikal, list *Formicidae*.

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Hemiptera. REUTER (1259), Norway, notes on Strand's list; STRAND (1489), reply to Reuter; MjöBERG (1019), Sweden, *Aneururus* n. sp.; JAKOWLEFF (774), Irkutsk, list with *Neottiglossa* sp. n.

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Neuroptera. MCLACHLAN & EATON, *Neuroptera* collected by the Rev. A. E. EATON in S. Norway in July 1902 with synonymic and other notes, Ent. Mag. xxxix, pp. 32–35; EATON (440), Norway, *Ephemerida*.

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(e.) *Central and Eastern Europe, incl. Denmark* [see also

(a.) and (b.) and for *France* (f.), for *Caucasus* (h.).]

Insecta. REH (1219), Hamburg, Insects attacking plants; FRÖHLICH (564), Germany, *Odonata* and *Orthoptera*; SCHULTHESS-SCHINDLER (1359), Domleschg; FREY-GESSNER & FAVRE, Bull. Soc. Murith. xxx, pp. 66–77, Switzerland; AIGNER, Rov. Lapok x, pp. 155–161 etc., Háromszek, Hungary; HORVÁTH (734), Hungary, Salt-fauna.

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Mt. Schweiz. ent. Ges. x, pp. 469-473, Liste der 1898 im Jouxthal gesammelten *Coleopteren*.—PIC (1164), Gallo-rhenane incl. *Crepidodera* n. sp.—LUZE (958), Tyrol *Philonthus* n. sp.; LUZE (957), Tyrol, *Bryoporus* n. sp.; J. DANIEL (373), Tyrol, *Pseudorthomus* n. sp.; MALLÁSZ (962), Detonáta Siebenburgen *Otiorrhynchus* sp. n.; FORMÁNEK (537), Brünn, *Barypithes* n. sp.; FLEISCHER (515), Brünn, *Liodes*, *Colon*; ROUBAL (1296), Bohemia, novelties; KLIMA (855), Bohemia, catalogue; GANGLBAUER (595), Austria, *Anophthalmus* n. sp.; BREIT (210), Bergamasker Alps, *Dichotrachelus* sp. n.; CSIKI, Rov. Lapok x, pp. 16-20, *Bostrychidae* of Hungary; CSIKI (359), Hungary, spp. n., *Anophthalmus*, *Cantharis*, *Ochina*; CSIKI (361), *Histeridae* of Hungary; CSIKI (360), Hungarian *Anophthalmus*; CSIKI (362), Hungary, *Cicindelidae*; CSIKI (363), Hungary, *Psylliodes* n. sp.; SCHATZMAYR, Wien. ent. Zeit. xxii, p. 172, Carinthia; LUZE (955), Carinthia, *Tachyporus* n. sp.; PETRI (1121), Carpathians, *Agabus* n. sp.; WEISE, Deutsche ent. Zeitschr. 1903, p. 163, Tatra, *Phytodecta kovifmanni*.—REITTER (1251), Lithuania, *Dorcatoma* n. sp.; BAECKMANN (62), St Petersburg, *Grammoptera* n. sp.; MAZARAKIYA, St Petersburg, list, Horae Soc. ent. Ross. xxxvi, pp. x-xxiii: JACOBSON, t. c., pp. 1-lit: MAZARAKIYA, t. c., pp. cxiv-cxviii: JACOBSON, t. c., pp. cxviii, cxix, cxxi-cxxiii: BECKMAN, t. c., pp. cxxiii-cxxvii: MAZARAKIYA, t. c., pp. cxxviii-cxliii and clvi-clx.—SHIRJAJEV (1419), S. Russia, *Hister* n. sp.

Hymenoptera. VAN ROSSUM (1280), Holland, *Pteronus spireæ*; JACOBS (758), Belgium, *Ophionides*, Catalogue; HABERMEHL (657, 658), Germany, *Ichneumonidae*; KIEFFER (822), Bitsch, *Ichneumonid*; VON HEYDEN (703), Frankfurt a. M., *Apidae*; BAER, Allg. Zeitschr. Ent. viii, pp. 157-161, Zur *Apiden*-Fauna der Kurischen Nehrung; DITTRICH (405), Silesia, Catalogue of *Apidae*; FREY-GESSNER (541), *Apidae* n. spp.; BLOESCH (139), Laufenberg, *Cynipidae*, *Chalcididae*; STROBL (1490), Styria, *Ichneumonidae* n. spp.; SZÉPLIGETI (1505), *Rhogadinae* and *Rhyssalinae*, 2 spp. n.; SZÉPLIGETI (1506), Hungarian *Exothecinae*, 1 sp. n.; ASHMEAD (37), Russia, *Homoporus* n. sp.

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by G., Soc. ent. xviii, pp. 105-107, Reply by SLEVOGT, t. c. p. 137.—SLEVOGT, Soc. ent. xviii, p. 60, Russia, *Tephroclystia sinuosaria*; TSHETVERIKOW, S. S., Rev. Russe Ent. iii, p. 384, Russia, *Pyrrhia exprimens*; KRULIKOVSKY (887), Saratov, *Borkhausenia* sp. n., *Depressaria* sp. n.; KRULIKOVSKY, Rev. Russe Ent. iii, pp. 110-114, Ourjoum; TSCHEWTERIKOFF (1552), Ural *Dendrolimus* n. sp.

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Aphaniptera. KOHAUT (859), Hungary, 3 spp. n.

Hemiptera. SCHOUTEDEN (1349), Brussels, *Aphis*, 2 spp. n., *Myzus*, sp. n.; HUEBER (745), Germany, Catalogue, *Heteroptera*; HUEBER (744), Germany, completion of 1st vol. of Synopsis deutsch. Blindwanzen.—FREY-GESSNER (540), Switzerland, *Apidæ*, 3 spp. n.; HORVÁTH (731), Hungary, *Doratura*, 4 spp. n.; HORVÁTH (732), Hungary, *Homoptera*, 5 spp. n.; JACHONTOV, Rev. Russe Ent. iii, p. 313 and t. c. p. 204, Centr. Russia, *Cicadetta montana*; HOFER (710), Switzerland, *Coccidæ*, 3 spp. n.; HETSCHKO (700), Austria, *Orthezia*.

Trichoptera. ULMER (1584), Elbe; ULMER (1583), Hesse, lists; ULMER (1582), Thuringia and Harz, lists; RIS (1266), Switzerland, *Trichoptera*, 3 spp. n.; KĽAPÁLEK (854), Bohemia, *Oecetis* n. sp.

Neuroptera. GREDLER (635), Tyrol, *Mantispa pagana*; KĽAPÁLEK, SB. Bohmisch. Ges. 1903, No. 9, 5 pp., Styria, *Neuropt.* gen. list.—BRAUNER, Rev. Russe Ent. iii, pp. 89-91, Russia, various localities. *Odonata*; ENDERLEIN (454), Germany, *Psocidæ* n. g.

Collembola. VOIGTS (1613), Bremen, *Pseudosinella* sp. n.; KRAUSBAUER (884), Germany; DIEM, Jahrb. St. Gall. Ges. 1901/02, p. 362, Alpine *Collembola*.

Orthoptera. FRÖHLICH, Berlin. ent. Zeitschr. 1903, p. 146, Main, *Pachytillus* etc.; BURR, p. 8, Ent. Rec. xv, Switzerland.—KREJČI, SB. Bohmisch. Ges. 1903, No. 23, 2 pp., Bohemia, brief list.—JAKOVLEFF (778), Crimea, *Parameles* sp. n.

(f.) France [see also (a.), (b.) and (g.).]

Insecta.—HOUARD (735), galls; UFFERTE, Bull. Soc. Sci. Toulouse xxxiii, pp. 61-63, Cauterets, *Col.* and *Hem. Heter.*, short list.

Coleoptera. FAIRMAIRE (487), *Col.* of France handbook; NORMAND (1057), *Euplectus* n. sp.; PIC (1160), *Tychius* n. sp.; SAINTE-CLAIRE-DEVILLE (1311), *Hydræna* sp. n.; MAYET (984), Gard, *Diaprysius* sp. n.; BOURGEOIS (169), Drôme, *Mathodes* n. sp.; CHOBAUT (306), Aude, *Bathysica* sp. n.; GANGLBAUER (598), Basses-Alpes, *Evodinus* n. sp.; FAUVEL (494), Pyr.-orient., *Phlæocharis* n. sp.; CHOBAUT (307), S. France, *Troglophyes* n. sp., *Bathysica* n. sp.—SAINTE-CLAIRE DEVILLE, Bull. Soc. ent. France 1903, pp. 304, 305, France, novelties.—CARPENTIER, Bull. Soc. Nord France xvi, pp. 50-53, Contributions à la faune locale; COLIN, t. c. pp. 112-114, Contributions à la faune locale; HOULBERT & MONNOT (741), N. W. France, *Cerambycidæ*; THIBAUT, pp. 37-42, Bull. Soc. Elbeuf xxi, Elbeuf; PIC,

Echange 1903, p. 184, Châtel, short list; MÉQUIGNON, Bull. Soc. ent. France 1903, pp. 340, 341, Seine; MAINDRON, Bull. Soc. ent. France 1903, p. 138, Paris; MARQUET (975), Langudoc, Catalogue; PIC, Echange 1903, p. 184, Isère, *Cebrio*; BRUYANT & EUSEBIO (234), Auvergne, work on *Cicindelidae* and *Carabidae*; QUITTARD, Echange 1903, pp. 160, 173, Puy-de-Dôme, short list; FAGNIEZ, Bull. Soc. ent. France 1903, p. 259, Lourdes; XAMBEU (1703), Pyrénées orientales; MAYET, Miscell. ent. xi, pp. 1 etc., Pyrénées orientales, *Tenebrionidae-Chrysomelidae*, continuation.

Hymenoptera. MARQUET (975), *Oxybelus*, 3 spp. n.; BERTHOUMIEU (110), *Ichneumonides*, 2 spp. n.; VAYSSIÈRE & GERBER (1593), Marseille, *Bracon* n. sp.—GADEAU (588), Normandy, *Hym. Aculeata, Tenthredinidae*.

Lepidoptera. STÉPI, Feuille Natural. xxxiii, p. 101, *Plusia aurifera*, novelty.—CHRÉTIEN, Naturaliste 1903, pp. 71, 72, *Erebia*.—GIARD (615), N. France, *Argynnis, Melitæa*; DUPONT (423), Normandy, *Argynnis, Melitæa*; DUPONT (424), Eure, Catalogue; CH. OBERTHÜR, Ent. Rec. xv, p. 179, Brittany, *Hesperidae*; POUJADE, Bull. Soc. ent. France 1903, p. 282, Fontainebleau; BONJOUR (149), Loire-inférieure, *Microlepidoptera* incl. *Pyralidae*; ROCQUIGNY-ADANSON (1275), Cent. France, *Argynnis* and *Melitæa*; PIERRE, Rev. Sci. Bourbonnais xvi, p. 185, Allier, *Satyridae*, 2 spp.; DUPUY (425), La Charente, Dordogne, etc., *Argynnis* and *Melitæa*; BROWN, Pr.-verb. Soc. Bordeaux lviii, pp. celvii, celviii, Bordeaux, Notes sur quelques *Lépidoptères* de nos environs; BROWN, t. c. p. clxxxix, Bordeaux, *Toxocampa pastivum*; AUBUISSON, Bull. Soc. Toulouse xxxiii, p. 71, Cahors, *Melitæa deione* and *Chelonia fasciata*, p. 115.

Diptera. CHEVREL (300), Ille et-Vilaine, n. g. marine *Chironomidae*; KIEFFER (830), Bitche, *Cecid.*, 3 n. spp.; KIEFFER (829), Digne and Bitche, *Sciariidae*, n. genm.; VILLENEUVE (1609), France, Catalogue of *Syrphidae*.

Hemiptera. LANCELEVÉE, Bull. Soc. Rouen xxxviii, pp. 39–41, Normandy, *Cicadetta montana*; LANCELEVÉE, Bull. Soc. Elbeuf xxi, pp. 43–45, Elbeuf, *Cicadetta montana*.—GUÉRIN & PÉNEAU (655), W. France.—LAMBERTIE “Notes sur quelques *Hémiptères-Homoptères* nouveaux ou peu connus de la Gironde,” Pr.-verb. Soc. Bordeaux lviii, pp. xxi–xxiv and xcvii, xcviii; LAMBERTIE, t. c. pp. lx, lxi, lxxi–lxxv, and cexxxxix, ccxl, Bordeaux; RIBAUT & ÜFFERTE, Bull. Soc. Toulouse xxxv, pp. 113–115, Les *Hémiptères* des environs de Toulouse.—RIBAUT, Bull. Soc. Toulouse xxxiii, pp. 50–52, Garonne.

Orthoptera. BRUYANT (233), Auvergne, tables.—FAGNIEZ (476), Drôme, *Dolichopoda palpata*.

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

Insecta. TAVARES (1510), Galls of Portugal, *Insecta* spp. n.—TROTTER (1544), Spain, Galls.—CORTI (351), N. Italy, *Cecidomyiidae*, etc.; TROTTER (1547), Italy, galls; MASSALONGO (982), Verona, galls; CECCONI (292), Vallombrosa, galls; HOVARD (737), Corsica, galls; CECCONI (290), Sardinia, galls; PEREZ (1116), Sicily, galls; PEREZ (1113), 1 *Cecid.* Sicily, 1 *Cynip.* n. sp.; TROTTER (1551), Balkans and Asia Minor, galls.—KUZNEZOV (896), Crimea, *Lepidoptera, Orthoptera*.

Coleoptera. PIC (1159), Mediterranean, *Malthodes* spp. n., *Anthicus* sp. n., *Clytus* sp. n.; PIC (1158), 6 spp. n.; PIC (1153), Greece, Spain, 2 spp. n.; DANIEL (374), South Europe, *Nebria* n. spp.; ABEILLE (2), Alpes-Maritimes and Spain, *Anophthalmus*, 2 spp. n.; RÉGIMBART (1217), Port-Vendres and Spain, *Hydroporus* n. sp.; OBERTHÜR, R. (1083), Spain, *Asida* sp. n.; ESCALERA (466), Spain, *Asida* sp. n.; LÉVEILLÉ

(934), Madrid, *Tenebroides* var. n.; FUENTE (583), *Agriotes* varr. n.—CHAMPION, Tr. ent. Soc. London 1903, pp. 165–179, Bejar.—SAHLBERG (1308), Italy; BOURGEOIS (170), Liguria, *Malthodes* n. sp.; FIORI (512), Italy, *Acupalpus*, table with 1 sp. n.; GAUD, Bull. Soc. Murith. xxxii, pp. 83–86, Aosta; FIORI, Riv. Col. ital. i, pp. 24–35, Italy, Indicazioni topografiche nuove.—VITALE (1611), Sicily, *Curculionida*, 2 spp. n.; APFELBECK (30), Balkan Peninsula, Asia Minor, and Crete; GANGLBAUER (599), Herzegovina, *Amaurops* n. sp.; REITTER (1245), Herzegovina, *Otiorrhynchus* sp. n.; REITTER (1243), Herzegovina, *Antroherpon* sp. n.; GANGLBAUER (601), S. Dalmatia, *Phænotherium* n. sp.; MÜLLER (1046), Dalmatian Ids.; MÜLLER (1047), Dalmatia, *Bathyscia* n. sp.; REITTER (1242), Dalmatia, *Otiorrhynchus*, 2 spp. n.; GANGLBAUER (600), Herzegovina and S. Dalmatia, *Curculionida*, 2 spp. n.; APFELBECK (31), Bosnia, *Omius* sp. n., *Barypeithes* sp. n.; REITTER (1246), Bosnia, *Zonabris* n. sp.; HORMUZAKI (717), Roumania, *Carabus*; BORN (156), Roumania, *Carabus*; JAQUET, Bull. Soc. Bucarest xii, pp. 88–96, Faune de la Roumanie: *Coléoptères* recoltés par M. Jaquet et déterminés par M. E. Poncy, entomologiste à Genève.—M. CAMERON, Ent. Mag. xxxix, pp. 58–61, *Coleoptera* collected around Constantinople during the winter 1901–1902; CAMERON (264), Sea of Marmora, *Soronia* n. sp.; CAMERON, Ent. Mag. xxxix, pp. 62, 63, *Coleoptera* collected in the Gulf of Ismid; SAHLBERG (1307), Athens and Crete; CARRET (281), Attica, *Pogonus* sp. n.; REITTER (1248), Asia Minor and Greece, *Enicmus*, 2 spp. n.—DESBROCHERS (386), Corsica, *Polydrosus* sp. n.; SAINTE-CLAIRE-DEVILLE (1312), Corsica, *Trechus* n. sp.; BOURGEOIS (167), Sardinia, *Podistrina* sp. n.; DESBROCHERS (385), Sardinia, *Scythropus* sp. n., Marocco, *Scythropus* sp. n.; BREIT (211), Sardinia, *Choleva* n. sp.; CAMERON, Ent. Mag. xxxix, p. 41, Malta, *Anthicus sulcithorax*; ERICSON (465), Corfu, *Ptenidium* n. sp.; BOURGEOIS (166), Corfu, Crete, *Malthodes*, 3 spp. n.; SAHLBERG (1306), Corcyra, Catalogue.—DU BUSSON (255), Tangier, *Cardiophorus*; BOURGEOIS (165), Mediterranean, specially Algeria, list; PIC (1165), Algeria and Malta, *Malthinides*, 13 spp. n.; SIETTI (1421), Algeria, *Aphodius* n. sp.; NORMAND (1074), Algeria, *Pselaphus* sp. n.; PIC (1157), Algeria, *Dasytes* n. sp.; PIC (1161), Algeria, *Salpingus* n. sp.; PORTEVIN (1191), Algeria, *Nargus* n. sp.; ABEILLE (3), Algeria, *Agrius* n. sp., *Colotes* n. sp.; CHOBOUT (305), Kabylia, *Raymondia* n. sp.; PIC, Bull. Soc. ent. France 1903, pp. 153–155, Algeria, *Malacodermidae*; THÉRY, t. c. p. 142, Algeria, 2 novelties; BOURGEOIS (168), Algeria and Tunis, *Malthodes*, 3 spp. n.; PIC (1152), Algeria and Tunis, 4 spp. n.; SAHLBERG (1310), Algeria and Tunis; BEDEL (89), Tunis, *Cleonus* n. sp.; CHOBOUT (304), Tunis, *Rhinosisus* n. sp.; DESBROCHERS (389), Tunis, *Alophinus* n. g., *Curculionida*; MAYET, Egypt, novelties, Bull. Soc. ent. France 1903, p. 142; SHARP (1413), Egypt and White Nile, *Dytiscidae*, *Hydrophilidae*.—SAHLBERG (1309), Palestine and Egypt; RAFFRAY (1206), Agabah and Palestine, *Pselaphida*, 2 spp. n.; REITTER (1244), *Pselaphida*, *Scydmenida* and *Lana* n. spp.; REITTER (1238), Asia Minor, *Cephalostenus* n. sp.; REITTER (1236), Asia Minor, *Entomogonus* n. spp.; REITTER (1252), Asia Minor, *Ctenopus* spp. n.; DESBROCHERS (387), Asia Minor, *Mylocerus* sp. n.; DANIEL & DANIEL (379), Asia Minor, 5 spp. n., *Curculionida*, 1 *Dorcadion*, 2 *Urodon*; DANIEL (377), Asia Minor, *Arrhaphipterus* n. sp.; FRIEDERICHS (542), Syria, *Notiophilus* n. sp.; SCHWARZ (1372), Syria, *Elathous*, 2 spp. n.; TSCHITSCHÉRINE (1555), Syria, *Penthophonus* n. sp.

Hymenoptera. HÉREZ (1111), S. Eur. and Algeria *Apidæ* spp. n.; MEUNIER (1007), S. France and Spain, fossil *Ichneumonida*, 2 spp. n.; ANDRÉ (26), Spain, *Mutilla* sp. n.; GARCIA Y MERCET (606), Madrid, *Mutilla* n. sp.; BERTHOUMIEU (110), Spain, *Ichneumonides*, 2 spp. n.; DUSMET (428), Spain, *Vespida* sp. n., *Eumenida* spp. n., *Masarida*; MEDINA (989), *Chrysideæ* of Spain, monograph; GARCIA Y MERCET (605),

Madrid, *Cerceris* sp. n.; MEDINA, Bol. Soc. espan. iii, pp. 320, 321, Spain, *Aculeata*, *Chrysid.*, short list.—CECCONI (291), Italy, *Andricus* sp. n., and *Dryophanta* sp. n.; KIEFFER (824), Italy, *Synergus* n. sp.; KIEFFER (825), Italy, *Andricus* sp. n.; KIEFFER (822), Sardinia, *Cynipid.*; PEREZ (1116), Sicily, *Phanacis* n. sp.; KIEFFER (826), Tanager, n. g. *Cynipides*; FOREL (536), Algeria, *Leptanilla* n. sp.; KONOW (873), Asia Minor, *Periclista lenta* n. sp.

Lepidoptera. FUCHS (576), *Microlep.*, 13 spp. n.; PROUT, Entomologist xxxvi, pp. 204, 205, Mediterranean, *Geometridæ*; JOANNIS (788), Algeria, Portugal, *Noctuidæ*, 2 spp. n.; MENDES, Broteria ii, pp. 41-80, *Lepidoptera* of Portugal, continued, *Noctuidæ*, *Geometridæ*, *Bombyces*, pt.; WALSHINGHAM (1632), Spain and Morocco, *Microlepidoptera*; CHAPMAN (299), Moncayo, *Psychidæ*, n. g.; HAMPSON (666), Spain, *Pyralidæ*; CHRÉTIEN (311), Albarracin, *Cecophora*, sp. n.; DUMONT (422), La Granja, *Euxoa* n. sp.; A. H. JONES, Ent. Mag. xxxix, pp. 54-56, *Lepidoptera* in Southern Spain during the last half of October, 1902; CHAPMAN, pp. 14 etc., etc., Ent. Rec. xv, Spain, Bejar, etc.; PROUT, Ent. Rec. xv, pp. 96-98, Spain, *Geometridæ*.—PERLINI (119), *Lep.* peculiar to Italy; BROWNE, Entomologist xxxvi, pp. 254-256, 284-286, 307-310, Capri, list; CANNAVIELLO, Riv. ital. Sci. Nat. xxiii, pp. 5 etc., etc., S. Italy, notes, continuation; FUCHS (580), Sicily, *Stilbia*.—CARADJA, Bull. Soc. Bucarest xii, pp. 121-133, Ein Beitrag zur *Lepidopteren*-Fauna Rumäniens; CARADJA, t. c. pp. 355-365, Neuer Beitrag zur *Lepidopteren*-Fauna Rumäniens; HURMUZACHI, Bull. Soc. Bucarest xii, pp. 133-140, Deuxième catalogue des *Lépidoptères* récoltés en Roumanie pendant l'année 1902 par les membres de la Société des Naturalistes de Roumanie.—REBEL (1207), Bulgaria and Roumelia, Catalogue, *Pyrausta* n. sp., *Conchylis* n. sp., *Tineina* n. spp.—REBEL (1208), Morea, incl. *Micropteryx* n. sp.—JOANNIS (789), Philippeville, *Hepialiscus* n. sp.; REBEL (1210), Sahara, *Pyralidæ* n. spp., *Tineidæ* n. spp.; WARREN & ROTHSCHILD (1640), Egypt, *Metachrostis* n. sp., *Xenobiston* n. sp.—BARTEL (82), Beirut, *Earias* n. sp.

Diptera. TAVARES (1514), Portugal, galls, with 1 n. sp., *Cecidomyiide*; TAVARES (1511), Portugal, 2 *Cecid.* n.; SEEBOLD, T., Bol. Soc. espan. iii, pp. 145, etc., *Dipteros* de los alrededores de Bilbao; PITTALUGA (1180), Spain, *Anopheles*.—BEZZI (123), Italy, *Asarcina* sp. n.; MASSALONGO (981), Italy, n. g. *Cecid.*; CECCONI (289), Tuscany galls; BÖRNER (160), Palermo, n. g. *Sciaridæ*, wingless.—MOKRZECKI (1021), Tauria, *Thryptocera* n. sp.—BECKER (86), Egypt, n. spp., n. genn.

Aphaniptera. TIRABOSCHI (1535), Italy, *Sarcopsylla gallinacea*; ROTHSCHILD (1284), Egypt and Soudan.

Hemiptera. REUTER (1257), Spain, *Capsidæ* n. spp.; CHAMPION, Tr. ent. Soc. London 1903, pp. 180-182, Bejar, *Heteroptera*.—HORVÁTH (728), *Hemiptera* of Servia, *Fulgoridæ*, *Jassidæ*, 5 spp. n.—HORVÁTH (727), Algeria, *Tingidæ*, 3 spp. n.—MELICHAR (1001), Palestine, *Triecphora* n. sp.—BERLESE (102), Italy, *Mytilaspis* n. sp.; COCKERELL (335), Egypt, *Asterolecanium* sp. n.

Neuroptera. NAVÁS (1051), Iberian penins., *Panorpate*, *Nemopteride*; MCLACHLAN, Ent. Mag. xxxix, pp. 7-9, an annotated list of *Odonata* collected in West central Spain, by Dr T. A. Chapman and Mr G. C. Champion in June and July 1902; MCLACHLAN, Ent. Mag. xxxix, p. 225, an annotated list of *Neuroptera planipennia* collected in West central Spain by Dr T. A. Chapman and Mr G. C. Champion in June and July 1902.—KUSNEZOV (899), Crimea, *Embia* n. sp.—NAVÁS (1052), Oran, *Dilar* sp. n.

Orthoptera. MEI (992), Borca, etc., *Locustidæ*, *Acrididæ*; FREY-GESSNER, Bull. Soc. Bucarest xii, p. 242, Roumania, short list; ZOTTU, S. G., Bull. Soc. Bucarest xii, pp. 140-148, Liste des *Orthoptères* récoltés en Roumanie par les membres de la Société des Naturalistes de Roumanie pendant les

années 1899-1902.—WERNER (1672), Crete, *Orthoptera* of ; WERNER (1671), Asia Minor, *Saga* n. sp.

Thysanura. SILVESTRI (1425A), Italy, n. g. ; ESCHERICH (468), Algeria, *Lepisma* sp. n.

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

Insecta. FORBES (527), *Sokotra*.—KNEUCKER (858), *Sinai*, includes 2 n. spp. *Lepidoptera*.

Coleoptera. SUMAKOW (1494), *Caucasus*, *Aphodius* n. sp., *Drilus* n. sp.; SEMENOW (1387), *Caucasus* and *Transcaspien*, *Scolytidae*, 2 spp. n.; JAKOWLEFF (776), *Transcaucasus*, *Pentodon* n. sp.; TSCHITSCHERIN (1553), *Kutais*, *Platysma* sp. n.; TSCHITSCHERIN (1556), *Transcaucasus*, *Platysma* sp. n.; JAKOWLEFF (779), *Elizabethpol*, *Sphenoptera* n. sp.; PEYERIMHOFF (1125), *Sinai*; SEMENOW (1390), *Tiflis* and *Persia*, *Julodella*, 2 spp. n.; SEMENOW (1393), *N. Persia*, *Carabus*, 2 spp. n.; REITTER (1249), *Persia*, *Eranicera* n. sp.; SEMENOW (1396), *Persia*, *Purpuricenus* n. sp.; TSCHITSCHÉRINE (1562), *E. Persia*, *Cicindela* spp. n.; SEMENOW (1394), *W. Turkestan*, *Carabus* n. sp.; KERREMANS (814), *Turkestan*, *Buprestidae* spp. n., PETRI (1122), *Turkestan*; *Macroterarsus* n. sp.; SEMENOW (1381), *Turkestan*, *Chrysomelidae* sp. n.; SEMENOW (1383), *Centr. Asia*, 6 spp. n.; SEMENOW (1397), *Kuldsha*, *Carabus* n. sp.; TSCHITSCHÉRINE (1566), *Centr. Asia* and *Altai*, *Notiophilus*, 2 spp. n.; LAMÈRE (902), *Prionides* n. sp.; TSCHITSCHÉRINE (1561), *Platysma* sp. n.; BAECKMANN (64), *Issyk-Kul*, *Tetrops* n. sp.; SEMENOW (1386), *Mongolia*, *Ahermes*, 2 spp. n.; JACOBSON (760), *Mantchuria*, list, *Anomala* sp. n.

Hymenoptera. FRIESE (545), *Socotra*, *Megachile*; KOKUJEW (861), *Transcaspien*, *Agathidinae*, 3 spp. n.; RUZSKY (1302), *Transcaspien*, *Myrmecocystus* n. sp.; RUZSKY (1301), *Kirghiz Steppe*, *Formicidae*, var. n., 1 sp. n.; KONOW (879), *W. and Centr. Asia*, *Tenthredinidae*, n. spp.; SEMENOW (1398), *Issyk-kul*, *Chrysis*, 2 spp. n.

Lepidoptera. REBEL (1212), *Sinai*, n. g. *Noctuidae*.

Diptera. HENDEL (689), *Turkestan*, *Elgiva*.

Aphaniptera. ROTHSCHILD (1282), *Arabia*.

Hemiptera. DISTANT (397), *Socotra*; JAKOBLEW (771), *Transcaspien*, *Vachiria*, 2 spp. n.

Neuroptera. SILANTJEW, *Rev. Russe Ent.* iii, p. 29, *Caucasus*, *Calotermes flavicollis*.

Orthoptera. SEMENOW (1385), *Caucasus*, *Forficulidae*, 2 spp. n.; SEMENOW (1382), *Persia*, *Forficulidae*.

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

AURIVILLIUS (53), *Cameroons*, *Cerambycidae* n. genn., n. spp.; BOURGEOIS (164), *Cameroons*, *Lycidae*, 1 sp. n.; BRENSKE (215), *S. W. Africa*, n. g. *Melolonthidae*; BRENSKE (213), *Usambara*, *Melolonthidae* genn. n., 5 spp. n.; BRENSKE (212), *Cameroons*, *Melolonthidae* list with spp. n.; FAIRMAIRE (483), *Cameroons*, *Goliathides* n. g.; FAIRMAIRE (484), *Ukani*, *Mecynorhina* n. sp.; FAUVEL (490), *Congo*, 2 n. spp. *Staphylinidae*; FAUVEL (491), *Cameroons*, *Staphylinidae* n. spp.; FLEUTIAUX (517), *Erythraea*, 3 spp. n.; GESTRO (613), *Congo*, *Hispidae* n. sp.; GROUVELLE (643), *Rhysodidae* spp. n.; HARTMANN (675), *Cimbus* n. sp.; HARTMANN (674), *Niphades*, 3 spp. n.; HEATH (676), *Uganda*, *Plasiorrhina* n. sp.; HEATH (677), *E. Africa*,

Zographus n. sp.; HORN (721), Rhodesia etc., *Cicindelidae*, 3 spp. n.; HORN (722), S. Africa, *Cicindelidae*, 2 spp. n.; HORN (723), E. Africa, *Dromica* sp. n.; HORN (724), Abyssinia, *Cicindela*, 2 spp. n.; JACOBY (767), *Melitonoma* n. spp., n. g., etc.; JACOBY (763), Cameroons, *Chrysomelidae*, 8 spp. n., gen. n.; JACOBY (762), Cameroons, *Chrysomelidae* n. genn., n. spp.; JACOBY (764), S. Africa, *Galerucinae*, *Halticinae* n. genn., n. spp.; JAKOWLEFF (772), *Sphenoptera* spp. n.; JORDAN (801), *Cerambycidae*; JORDAN (799), *Anthribidae*; JORDAN (802), St. Thomé, *Cerambycidae*; KERREMANS (814), *Buprestidae* spp. n.; KERREMANS (815), *Buprestidae* sp. n.; KOLBE (866), *Popillia*, list of African with 9 spp. n.; KOLBE (865), *Chiroscolini* n. genn., n. spp.; KOLBE (863), *Tefflus*, 8 spp. n.; LAMEERE (902), *Prionides* n. spp.; LAMEERE (906), *Prionides* n. spp.; LEWIS (936), *Histeridae* spp. n.; MOSER (1045), *Cetoniidae*, 3 n. spp.; MOSER (1044), E. Africa, *Cetoniidae* n. sp.; OBST (1084), *Buprestidae* n. spp., *Linodesmus* n. sp., *Anthia* n. sp.; OHAUS (1087), Cameroons, *Xenoproctis* sp. n.; D'ORBIGNY (1091), Congo, *Onthophagus*, 1 sp. n.; D'ORBIGNY (1092), S. Africa, *Onthophagides*, synonymy and notes; PÉRINGUEY (1117), Rhodesia, *Megacephala* n. sp.; PIC (1163), S. Africa, *Malachiidae*, 4 spp. n.; PIC (1168), *Ptinidae*, *Malacodermidae*, *Anthicidae* n. spp.; PIC (1141), Djibouti, *Notoxus* n. sp.; PIC (1144), S. Africa, *Anthicidae*, 3 spp. n.; PIC (1146), W. Africa, *Malacoderm.* and *Anthicidae*, 2 spp. n.; PIC (1135), *Pedilidae*, 2 spp. n.; PIC (1136), S. Africa, *Anthicidae* n. spp., *Bruchidae* n. spp.; PIC (1150), *Urodactylus* sp. n., *Trichodesma* sp. n.; PIC (1137), Soudan, *Tomoderus* n. sp.; VAN ROON (1278), *Sobarus* n. sp.; SCHENKLING (1332), Cameroons, n. g. *Cleridae*; SCHWARZ (1371), Cameroons, *Elateridae*, 5 spp. n.; SCHWARZ (1377), E. Africa, *Lissomus*, 2 spp. n.; SCHWARZ (1375), *Elateridae*, 19 spp. n.; SHARP (1413), White Nile etc., *Dytiscidae*, *Hydrophilidae*; SPAETH (1459), Cameroons, *Cassididae*, 2 spp. n.; VOIGTS (1614), *Zonabris*, spp. n.; WEISE (1657), *Coccinellidae*, 4 spp. n., *Hispidae*; WEISE (1659), *Chrysomelidae*, *Coccinellidae* n. spp.; WEISE (1661), *Galerucini* n. spp.; WEISE (1664), Usambara, *Helota* sp. n.; WEISE (1665), *Endomychidae*, 9 spp. n.; WEISE (1668), *Galerucidae* genn. n., spp. n.

Hymenoptera. ANDRÉ (27), *Mutillidae*; ANDRÉ (26), *Mutilla*, 3 spp. n.; ASHMEAD (34), Congo, *Methocinae* sp. n.; BINGHAM (130), S. Africa, *Aculeata*; BRAUNS (179), S. Africa, *Masaridae*; BRAUNS (180), S. Africa, *Epeolus* sp. n.; BRAUNS (178), Cape Colony, *Chryside* n. g.; BUYSSON (257), Congo, 3 spp. n.; CAMERON (275), S. Africa, *Ammoplanus* sp. n.; ENDERLEIN (462), *Xylcopa* spp. n.; ENDERLEIN (461), E. Africa, *Zeuzevaniä*, 2 spp. n.; ENDERLEIN (460), Cameroons, *Apidae* n. g.; ENDERLEIN (449), Lake Nyassa, *Leucospis* n. sp.; FRIESE (545), *Megachile*; FRIESE (550), S. Africa, *Meliturgula* n. g.; FRIESE (551), *Xylcopa*; GARCIA Y MERCET (605), *Aculeata*, 3 spp. n.; MOCSÁRY (1020), *Synagris*, 5 spp. n.; MORICE (1031), White Nile, *Apidae*, *Diptoptera*; SCHULTHESS-RECHBERG (1358), St. Thomé isld., *Nortonia* n. sp.; SZÉPLIGETI (1504), German E. Africa, *Dinotomus* n. sp.; TOSQUINET (1537), *Ichneumonides* n. genn. n. spp.; VACHAL (1587), Congo, *Apidae*, many spp. n.; VACHAL (1589), Assinia, *Ctenoplectra* n. sp.

Lepidoptera. AURIVILLIUS (51), W. Africa, *Phiala* sp. n., *Chrysopoloma* sp. n.; AURIVILLIUS (54), Congo, *Rhopalocera*, 3 spp. n.; FRANCES BARRETT, Ent. Mag. xxxix, pp. 35 etc., S. Africa; BARTEL (80), *Agaristidae* n. genn. n. spp., *Enydra* n. sp.; BARTEL (81), *Arctiidae* n. spp.; BETHUNE-BAKER (114), *Lycenidae*; DISTANT (392), S. Africa, *Bombyces*, 6 spp. n.; DISTANT (392), S. Africa, *Striphnoteryg.*, *Chrysopolom.*, *Notodont.*; DRUCE (414), *Noctuidae*; DIXEY (406), White Nile, *Rhopalocera* list; H. H. DRUCE (416), *Lycenidae*; H. H. DRUCE (417), *Hesperidae*; FAWCETT (497), S. Africa, *Eupterotidae* sp. n., *Arctiidae* sp. n., *Lasiocampidae* sp. n.; FRUHSTORFER (568), Togo, *Pseudacraea* n. sp.; HAMPSON (663), W. Africa, *Nephopteryx* n. sp.; HAMPSON (665), Zululand, *Euschemonidae* n. g.; HAMPSON (662), *Agrotinae*; HAMPSON (667), *Syntomidae*, *Arctidae*; HERING (697), *Pyralidae*,

3 spp. n.; LATHY (914), Nigeria, *Rhopalocera*, 226 spp., 12 n. spp.; NEAVE (1053), *Pentila* n. sp.; PAGENSTECHER (1104), Shoa, Somali and Galla-lands, *Rhopalocera*, *Sphingidæ*, *Bombycidæ*, 14 spp. n.; ROTHSCHILD & JORDAN (1293), *Doratopteryx* sp. n.; ROTHSCHILD & JORDAN (1294), *Papilio*; ROTHSCHILD & JORDAN (1295), N. E. Africa, *Nymphalidæ*; ROTHSCHILD & JORDAN (1292), *Nymphalidæ*; ROTHSCHILD & JORDAN (1291), *Sphingidæ*; SHARPE, Entomologist xxxvi, pp. 123-126, 166-168, 184-188, Brit. E. Africa, *Rhopalocera*; SONTONNAX (1457), *Saturniidæ* spp. n.; SWINHOE (1500), *Aganaidæ*; SWINHOE (1497), *Lymantriidæ* n. spp.; THURAU (1534), Centr. and E. Africa, *Rhopalocera* varr. n.; THURAU (1533), Lake Nyassa, *Rhopalocera* n. spp.; WALSHINGHAM (1030), *Batrachedra*; WARREN (1638), *Thyrididæ*, *Geometridæ*; WEYMER (1675), *Rhopalocera* and *Bombyces* n. spp.

Diptera. ADAMS (7), Rhodesia, 7 spp. n.; AUSTEN (55), *Glossina*, distribution, with 1 sp. n.; AUSTEN (56), *Pupipara*; BISCHOF (132), n. g., 2 n. spp.; DUTTON & THEOBALD (428A), Gambia, *Culicidæ*, 6 spp. n., varr. n.; GRÜNBERG (651), parasitic *Muscid* n. sp.; THEOBALD (1519), *Culicidæ*; THEOBALD (1520), *Culicidæ* n. g., *Simulium* n. sp.

Aphaniptera. ROTHSCHILD (1282); ROTHSCHILD (1284), Soudan and Egypt.

Hemiptera. BERGROTH (101), S. Africa, *Henicocephalus* n. sp.; BERGROTH (100), *Heteroptera* n. genn., n. spp.; BERGROTH (98), *Plocarinæ*, 4 spp. n.; BREDDIN (185), Cameroons, n. g. *Reduviidæ*; BREDDIN (182), *Reduviidæ* n. spp.; BREDDIN (205), *Rhynchota*; BREDDIN (198), Fernando Po, *Tetroxia* n. sp.; BREDDIN (199), n. g. *Acanthosominæ*; BREDDIN (207), W. Africa, *Platymeris* n. sp.; BREDDIN (189), *Reduviidæ*; BREDDIN (203), *Heteroptera*; BUCKTON (235), *Membracidæ* n. spp.; DISTANT (393), E. Africa, *Dysdercus* n. sp.; DISTANT (394, 395), *Reduviidæ*; DISTANT (397), *Pentatomidæ*, *Lygæidæ*, *Hydrometridæ*, *Reduviidæ*; DISTANT (401), many spp. n.; GARCIA (607), *Cerilocus*, *Khafra* spp. n.; GARCIA y VARELA (608), Cameroons, *Reduviidæ*, 2 spp. n.; MONTANDON (1028), Somaliland, *Ranatra*, 2 spp. n.; SCHOUTEDEN (1350), Centr. Africa, n. g. *Éctrichodiidæ*.

Coccidæ. COCKERELL (333), Cameroons, n. g.

Psocidæ. ENDERLEIN (449), German East Africa, 9 spp. n.; ENDERLEIN (457).

Termitidæ. SJÖSTEDT (1428), Usambāra, *Eutermes* sp. n.; TRÄGARDH (1540), Soudan, 3 spp. n.

Odonata. GRÜNBERG (652), E. Africa, 51 spp.

Orthoptera. BOLÍVAR (145), *Phymateuss* sp. n.; BOLÍVAR (146), Cameroons, *Eumastacides*, 1 sp. n.; BURR (245, 246), *Forficulidæ*; MARTINEZ y FERNANDEZ (980), *Calopteni*, 3 spp. n.; KIRBY (839), *Forficulidæ*; KIRBY (840, 842), *Blattidæ*; REHN (1225), S. Africa, *Mantidæ*, 2 spp. n.; SAUSSURE (1327), Gaboon, *Eumastacides* n. g.

Thysanura. ESCHERICH (468), S. Africa, spp. n.

Collembola. BÖRNER (159), Lake Nyassa, spp. n.

5. MADAGASCAR, including ALDABRA ISLDS., etc.

Coleoptera. ALLUAUD (23), *Heterosoma* n. sp.; BÉGUIN-BILLECOCQ (90), *Piezotrachelus* sp. n.; FAIRMAIRE (477), n. g., n. spp.; FAIRMAIRE (477), Mauritius, *Stigmatrachelus* n. sp., *Eucorynus* n. sp., *Apolecta* n. sp.; FAIRMAIRE (478), genn. n., spp. n., Bourlon, *Syzygops* spp. n.; FAIRMAIRE (479), genn. n., spp. n.; FAIRMAIRE (480), Madagascar and Mauritius, 5 spp. n.; FAIRMAIRE (486), 15 spp. n.; FAUVEL (491), *Eleusis* sp. n.; FLEUTIAUX (516), Seychelles, *Elateridæ*, 6 spp.; FLEUTIAUX (518), n. g. *Elateridæ*; FLEUTIAUX (520), *Cicindelidæ*, 2 spp. n.; FLEUTIAUX (521), Comoro Islands, *Ctenicera* sp. n.; FLEUTIAUX (522), *Elateridæ*, 2 spp. n.; FLEUTIAUX (523), *Eucnemidæ*, *Elateridæ*, 4 spp. n.; HELLER (679),

Bothrorrhina sp. n.; JORDAN (801), *Cerambycidae*, *Tragocephala* spp. n.; KERREMANS (814), *Buprestidae* spp. n.; LAMEERE (906), *Prionides* n. spp.; LÉVEILLÉ (933), *Gaurambe* n. sp.; PIC (1140), *Pedilidae*, 3 spp. n.; PIC (1142), *Ptinus* n. sp.; PIC (1143), *Anthicidae*, 6 spp. n.; PIC (1150) *Anobiidae*, *Anthicidae*, 6 spp. n.; PIC (1154), Mauritius, *Hylophilus* n. sp.; PIC (1167), *Rhadine* sp. n.; PIC (1168), *Anobiidae* n. spp.; RAFFRAY (1205), *Pselaphidae* n. gen., n. spp.; RÉGIMBART (1213), Aquatic *Col.* many spp. n., also Seychelles and Mauritius; SCHWARZ (1375), *Elateridae* gen. n., 5 spp. n.; TSCHITSCHÉRINE (1564), *Platysmatini* spp. n.; TSCHITSCHÉRINE (1567), *Androyna*, 2 spp. n.; TSCHITSCHÉRINE (1568), *Eucamptognathus* n. spp.; *Hymenoptera*. ANDRÉ (27), *Dasylabris hurei* n. sp.; KIEFFER (826), n. g. *Cynipides*; VACHAL (1587), *Nomia* n. sp.

Lepidoptera. HAMPSON (662), *Agrotinae*; POUJADE (1193), *Hypsoides* sp. n.; RÖTHSCHILD & JORDAN (1291), *Sphingidae*, incl. Bourbon; SONTNON-NAX (1457), *Syntherata* n. sp.; SWINHOE (1500), *Aganaiidae*.

Aphaniptera. RÖTHSCHILD (1283), Réunion.

Hemiptera. BERGROTH (100), Nossibé, *Sphedanocoris* n. sp.; BERGROTH (101), n. g. *Capsidae* myrmecoph.; DISTANT (395), *Reduviidae*; DISTANT, (401), *Reduviidae*, 4 spp. n.

Odonata. MARTIN (979), n. g., n. spp.

Orthoptera. BOLIVAR (146), *Eumastacides*, 2 gen. n.; BOLÍVAR (145), *Phymateus*, 2 spp. n.; BURR (245), *Forficulidae*; KIRBY (842), *Blattidae*; SAUSSURE (1327), *Eumastacides* spp. n.

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

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

Insecta. CLAYBROOKE, Bull. Mus. Paris ix, pp. 132, 133, Tonkin, short list; NURSE, J. Bombay Soc. xv, pp. 359-362, Quetta, notes on.

Coleoptera. BERNHAUER (105), Perak, Tonkin, *Priochirus* spp. n.; BERNHAUER (106), Tonkin and Annam, *Staphylinidae*, 3 spp. n.; BRENSKE (214), Tibet, *Melolonthidae*, 2 n. gen.; BUYSSON (259), China, *Xenos* n. sp.; FAIRMAIRE (481), Indo-China, *Tenebrionidae*, n. g., n. spp.; FAUVEL (492), S. India, *Staphylinidae*, gen. n., 11 spp. n.; FAUVEL (493), India and Tonkin, *Leptochirus*, 2 spp. n.; FLEUTIAUX (520), Malabar, *Cicindela* n. sp.; FLEUTIAUX (521), Phnum-Penh, *Agonischius* sp. n.; GORHAM (630), India, *Malacodermidae* n. spp., *Cleridae* n. spp., *Erotylidae* n. spp., *Coccinellidae* n. spp.; GROUVELLE (643), S. Asia, Bhutan, *Rhysodidae* spp. n.; GROUVELLE (645), North India, *Clavicornia*, many spp. n.; GROUVELLE (646), India, *Silphidae*, *Clavicornia*, 5 n. spp.; GROUVELLE (647), South India, *Clavicornia*, *Cryptophag.*, *Parnid.*, *Heterocer.* spp. n.; HARTMANN (674), Assam, *Niphades* sp. n.; HARTMANN (675), India, 2 n. spp., *Curculionidae*; HELLER (682), India, Indo-Malay, *Pheropsophus* and *Lioptera*, n. spp.; JACOBY (766), India, n. gen., n. spp. *Phytophaga*; JANSON (784), Tenasserim and Siam, *Cetoniidae*, 2 spp. n.; JORDAN (800), incl. India, *Anthribidae*; KERREMANS (814), *Buprestidae*; LAMEERE (906), incl. India, *Prionides* n. spp.; LEWIS (936), Burma, *Histeridae*; MÖLLENKAMP (1022), India, Burma, Tonkin, *Lucanidae*, n. spp.; MOSER (1044), Tonkin, *Cetoniidae* sp. n.; MOSER (1045), Assam, Tonkin, *Cetoniidae*, 2 spp. n.; v. OERTZEN (1085), Ceylon, *Tenebrionidae*, 3 spp. n.; OHAUS (1087), India, *Callistethus* sp. n., Tonkin, *Fruhstorferia* sp. n.; OLIVIER (1090), Darjeeling, *Lampyrides*, 2 spp. n.; PIC (1139), South India, *Anthicidae*, 5 spp. n.; PIC (1146), India, *Hapalochrous* sp. n., China, *Attalus* sp. n.; PIC (1150), "Asia," *Xystrophorus* n. sp., China, Tonkin, etc., 5 spp. n.; PIC (1151), China, *Cerambycidae*, 6 spp. n.; PIC (1154), India, *Ptinidae* and *Xylophilidae*, 5 spp. n.; PIC (1155), Yun Nam, *Cerambycidae*, 6 spp. n.; PIC (1156), Sikkim, *Attalus* sp. n.; PIC (1166), China, *Parnops* n. sp.; PIC (1169), Japan, *Xylotinus* n. sp.; PORTEVIN

(1192), Japan, *Prionochata* n. sp.; RÉGIMBART (1214), Indo-China, *Hydrophilidae* n. spp.; RÉGIMBART (1215), South India, *Dytiscidae* n. spp., *Hydrophilidae* n. spp.; REITTER (1231), China, *Melolonthidae* n. spp.; REITTER (1233), Japan, Korea, China, *Rutelidae* spp. n.; SCHENKLING (1332), Hong-Kong, *Xenothrius* n. sp.; SEMENOV (1395), E. Tibet, *Carabus* n. spp.; SHARP (1405), India, *Lamellicornia*; SHARP, Fascic. Malay. Zool. 1, App. p. vii, Malay States *Dytiscidae*; SFAETH (1461), Birma, *Aspidomorpha* sp. n.; STEBBING (1468), India, *Thanasimus* n. sp.; STEBBING (1473), India, Forest insects, n. spp.; TSCHITSCHERIN (1557), India, *Leistus* n. sp.; TSCHITSCHÉRINE (1563), China, *Leistus* n. spp.; TSCHITSCHÉRINE (1564), Annam, *Platysmatini*, 2 spp. n.; TSCHITSCHERIN (1559), E. Tibet, *Platysma* sp. n., and (1560), *Aristochroa* sp. n.; WEISE (1660), Ceylon, *Eupoda* and *Camptosomata* n. spp.; WEISE (1667), Pondicherry, *Coccinellidae*, n. g., 2 spp. n.

Hymenoptera. ALFKEN (22), Japan, *Megachile*, *Osmia*; ANDRÉ (26), Sikkim, *Ondontomatilla* n. sp.; ANDRÉ, Bull. Mus. Paris ix, p. 128, Japan, *Formicidae*; ASHMEAD (48), India, n. g. *Chalcididae*; BINGHAM (129), India, Burma, Ceylon, *Heterogyna*, *Tubulifera*; BINGHAM (131), Malay States, *Aculeata*, 8 spp. n.; BUYSSON (258), Japan, *Bethylides* sp. n., *Ellampus* sp. n.; BUYSSON (259), India and Yunnan, *Vespa*, 2 n. spp.; CAMERON, Zeitschr. Hym. Dipt. iii, p. 317, India, *Vespa germanica*; CAMERON (265), Khasia Hills, *Ichneumonidae* n. spp.; CAMERON (266), Bengal, *Larvidae*, *Odynerus*, *Apidae*, 19 spp. n.; CAMERON (267), Khasia hills, *Ampulex*, 3 spp. n., *Ichneumonidae*, 12 gen. n.; CAMERON (269), Assam, *Apidae*, *Vespidae*, *Fossores*, *Ichneumonidae*; CAMERON (270), India, *Ichneumonidae*; CAMERON (272), India, *Ichneumonidae*; CAMERON (276), India, Ceylon, Japan, *Ichneumonidae* n. gen.; CAMERON (273), India, *Epeolus*; CAMERON (277), Japan, *Vespa*, 4 spp. n.; FOREL (530), India and Ceylon, *Formicidae*, conclusion; FOREL (531), Andamans and Nicobars, *Formicidae*, review of the fauna, 2 spp. n.; FOREL (536), *Formicidae*, Ceylon n. sp., Hong-Kong, n. sp.; FRIESE (548), incl. India, *Megachile*; FRIESE (551), Perak, *Xylocopa*; KOKUJEV (862), Gan-su, *Sarntheinia* sp. n.; KONOW, Zeitschr. Hym. Dipt. iii, p. 153, Japan, *Allantus kohli*; KONOW (872), Japan, *Xiphydria*; KONOW, Bull. Mus. Paris ix, p. 128, Japan, *Tenthredinidae*; KONOW (876), India, *Peis* n. g., *Tenthred.*; KONOW (879), W. China, *Tenthredinidae* spp. n.; MANTERO (967, p. 29), Andamans and Nicobar, *Aculeata*, list; NURSE (1076), India, *Aculeata*; NURSE (1077), India, *Chrysidae*; NURSE (1078), India, *Fossoria* n. spp.; ROTHNEY (1281), Barrackpore, *Aculeata*, catalogue; SZÉPLIGETI (1503), Singapore, China, *Evaniidae* n. spp.; VACHAL (1588), Japan, *Apidae*, 11 spp. n.; VACHAL (1589), Mou-Pin, *Ctenoplectra* n. sp.

Lepidoptera. AITKEN & COMBER (19), Bombay, *Rhopalocera*; BETHUNE-BAKER (113), India, China, *Lycenidae* n. spp.; BETHUNE-BAKER (116), Singapore, *Arhopala malayana* n. sp.; DUDGEON (421), Sikkim and Bhutan, *Heterocera*, Pt 10; FRUHSTORFER, Soc. ent. xviii, pp. 18, 19, 25, 26, Farther India, *Pieridae*; FRUHSTORFER, Soc. ent. xviii, pp. 41, 42, Tonkin, *Pieridae*; FRUHSTORFER (567), Liu Kiu Ids., *Abisara* n. sp.; FRUHSTORFER (567), Indo-Chinese penins., *Taxila* n. sp., *Abisara* n. spp.; FRUHSTORFER (571), Sikkim and Chinese Turkestan, *Parnassius*, 2 spp. n.; FRUHSTORFER (572), Sikkim, *Baltia* sp. n.; HAMPSON (662), incl. India, *Agrotinae*; HAMPSON (663), India, Ceylon, China, Japan, *Geometridae*, *Pyralidae*; HAMPSON (667), incl. Assam, *Syntomidae*, *Arctiidae*; HERING (697), Japan, *Pagoda* n. sp., China, *Chilo* n. sp.; JOANNIS (787), Tonkin, *Soritia* n. sp.; LESLIE & EVANS (931), Chitral, India, *Rhopalocera*; MACKWOOD, Spolia Zeylan. i, p. 16, Ceylon, *Nyctalemon patroclus*; MANDERS, t. c. p. 18, Ceylon, *Mycalesis subdita*; MANDERS (964), Ceylon, *Rhopalocera*, notes; MOORE (1029), India, *Papilioninae*, 2 spp. n.; NEUBURGER, Soc. ent. xviii, p. 113, Japan, *Xylina ornitopus*; C. OBERTHUR (1082), W. China, *Polycæna*

sp. n.; RÖBER (1267), Tonkin, *Stichophthalma*; ROTHSCHILD & JORDAN (1291), incl. India, Japan, Liu Kiu Ids., *Sphingidae*; SWINHOE (1498), India, Singapore, Andaman Ids., Moupin, Formosa etc., *Lymantridae* n. spp.; SWINHOE (1500), incl. India, *Rhopalocera*, *Heterocera*; SWINHOE (1501), India, *Lymantridae*, *Noctuidae*; SWINHOE (1502), Malay States, *Heterocera*, 17 spp. n.; THIERRY-MIEG (1530), India, *Geometridae* n. gen., n. spp.

Diptera. AITKEN (18), North Canara, *Culicidae*; AUSTEN (56), *Pupipara*; COGILL (339), India, *Anopheles* sp. n.; KERTÉSZ (817), Ceylon, *Pipunculus*, 5 spp. n.; SPEISER (1463), Malay States, *Pupipara*, 2 spp. n.; THEOBALD (1520), incl. India, *Culicidae*; THEOBALD (1522), Malay States, *Culicidae*, 3 spp. n.; THOMSON (1531), India, *Culicidae* n. sp.

Hemiptera. BERGROTH (99), Bombay, n. g. *Emesiide*; BREDDIN (182), India, Ceylon, Tonkin, etc., *Reduviidae* n. spp.; BREDDIN (183), Tonkin, *Coreidae*, 2 spp. n.; BREDDIN (185), Tsu-Tsima, Japan, n. sp., Assam, n. sp., Tonkin, n. sp., *Ectrichodioides*; BREDDIN (186), Malacca, *Cosmoscarta* spp. n.; BREDDIN (189), incl. India, *Reduviidae*; BREDDIN (190), Annam, *Ptilomera*; BREDDIN (191), S.E. Asia, *Lanprocoris*, *Cazira* n. spp.; BREDDIN (195), Burma, *Chrysocoris* n. sp.; BREDDIN (196), Bombay, n. g.; BREDDIN (200), Perak, *Homoptera*; BÜCKTON (235), *Membracidae* n. spp.; DISTANT (393), Burma and Ceylon, *Reduviidae*, 3 spp. n.; DISTANT (393), India, Ceylon, Burma, *Lygaeidae* to *Reduviidae* part; DISTANT (394), incl. India, Japan, *Reduviidae*; DISTANT (395), incl. India, *Reduviidae*; DISTANT (396), India, *Reduviidae*; DISTANT (397), *Hydrometridae*, *Reduviidae*; DISTANT (398), Burma, Perak, Ceylon, India, Japan, *Heteroptera*; DISTANT (399), incl. India, Ceylon; DISTANT (403), Malay States, *Heteroptera* n. gen., n. spp.; KIRKALDY (845), S. India, n. g. *Gerridae*; KIRKALDY (846), India and Ceylon, *Gerridae*, 2 spp. n.; KIRKALDY (849), India, *Scopiastes* n. sp.; MELICHAR (1000), Ceylon, *Homoptera*; MONTANDON (1024), Laos, *Nepidae* sp. n.; MONTANDON (1028), Burma, *Ranatra* sp. n.

Aleurodidae. PEAL (1107), India and Ceylon, *Aleurodes*, monograph, pt. 1; QUAINANCE (1202), Japan, n. sp., *Aleurodes*.

Coccidae. GREEN (636), India, *Chionaspis* n. sp.; GREEN (637), India, 5 spp. n.

Psocidae. ENDERLEIN (459), Malay region, India, Ceylon, China, *Psocidae*, revision.

Odonata. MARTIN (979), Siam, Cambodia, 2 spp. n.; FÖRSTER (538), Malabar, *Cratilla* n. sp.; LAIDLAW (901), Malay States, *Agrionidae*, 1 sp. n.

Orthoptera. BOLIVAR (146), India, Malacca, *Eumastacides*, 2 spp. n.; BURR (245), Japan, *Forficulidae*; BURR (246), Tenasserim, *Forficulidae*; KIRBY (839), Singapore, *Forficulidae*; KIRBY (840), incl. India and Afghanistan, *Blattidae*; KIRBY (841), incl. India, Ceylon, *Blattidae*; KIRBY (842), *Blattidae*; M. FERNANDEZ (980), India, *Calopteni*, 3 spp. n.; REHN (1225), Siam, *Mantidae*, 3 spp. n.; SAUSSURE (1327), India, Burma, Ceylon, *Eumastacides* spp. n.

Thysanura. ESCHERICH (468), India, *Lepisma* sp. n.

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

Coleoptera. BERNHAUER (105), *Leptochirina* n. g., n. spp.; BERNHAUER (106), Sumatra, *Staphylinidae*, 11 spp. n.; BOILEAU (143), Borneo, *Gnaphaloryx* n. sp.; BOUCHARD (161), Borneo, Sumatra, Java, *Carabidae*, 5 spp. n.; BOUCHARD (162), Sumatra, *Pogonoglossus*, 3 spp. n.; FAIRMAIRE (485), Borneo, *Lagrideae* spp. n.; GESTRO (613), Sumatra, *Hispidae* sp. n.; GROUVELLE (643), Borneo, Sumatra, Java, New Guinea, *Rhyso-*

didæ spp. n.; HARTMANN (675), new *Curculionidæ*; HELLER (680), New Guinea, 6 spp. n.; HELLER (682), Celebes, *Lioptera* sp. n., *Pheropsophus* spp. n.; JANSON (784), Borneo, *Cetoniidæ*, 3 spp. n.; JORDAN (800), *Anthrribidæ*; KERREMANS (814), *Buprestidæ* spp. n.; LAMBERE (906), *Prionides* n. sp.; LAMBERE (907), New Guinea, n. g. *Prionides*; LEWIS (936), *Histeridæ*; MÖLLENKAMP (1022), *Lucanidæ* n. spp.; OHAUS (1087), *Rutelidæ*, 10 spp. n.; OLIVIER (1089), Sumatra, Java, Barway, *Lampyrides*, 3 n. spp.; PIC (1145), Manila, *Anthicus* n. sp.; PIC (1169), Java, *Gastrallus* n. sp.; PREISS (1198), East Java, *Cetoniidæ*, list; RAFFRAY (1204), New Guinea, *Pselaphidæ* gen. n., spp. n.; RÉGIMBART (1214), Sumatra, *Amphiops* n. sp.; SCHENKLING (1334), New Guinea, *Tenerus* n. sp.; SCHWARZ (1376), New Guinea, *Elateridæ*, 5 spp. n.; SEATH (1460), the *Cassididæ* of New Guinea, n. spp.; TSCHITSCHÉRINE (1564), Sumatra, *Abacetus* sp. n.; WEISE (1667), New Guinea, *Coccinellidæ*, 3 spp. n.; WEISE (1669), New Guinea, *Chrysomelidæ*, 5 spp. n.

Hymenoptera. CAMERON (273), Borneo, *Celioxys* n. sp.; FRIESE (548), *Megachile*; FRIESE (551), *Xylocopa*; MANTERO (967), Sumatra and neighbourhood, *Scoliidæ*, 3 spp. n.; SCHULTHESS-RECHBERG (1358), New Guinea and Key Ids., *Nortonia*, 2 spp. n.; SZÉPLIGETI (1503), *Evanidæ* n. spp.; TOSQUINET (1531), *Ichneumonides* n. gen., n. spp.

Lepidoptera. BETHUNE-BAKER (114), *Lycanidæ* n. spp.; BETHUNE-BAKER (115), New Guinea, *Arhopala chamaeleona*; FRUHSTORFER (570), Wetter Isld., *Ergolis* n. sp.; HAMPSON (663), Celebes, *Noorda* n. sp.; HAMPSON (667), *Syntomidæ*, *Arctiidæ*; HERING (696), Sumatra, *Pyralidæ*, 88 spp., 6 spp. n.; HERING (697), Borneo, Celebes, *Pyralidæ*, 3 spp. n.; JORDAN (798), New Guinea, *Argyrolepidia* and *Milionia* n. spp.; MARTIN (978), Borneo, Philippines and Ceram, *Cyrestis*, 3 spp. n.; PIEPERS & SNELLEN (1174), Java, *Heterocera*; RÖBER (1268), New Guinea, *Hyantis*, 2 spp. n.; ROTHSCHILD (1290), *Nymphalidæ*, 1 sp. n.; ROTHSCHILD & JORDAN (1291), *Sphingidæ*; ROTHSCHILD & JORDAN (1293), New Guinea, *Choaspes*, *Heterusia*, *Agaristidæ*, *Geometridæ* spp. n.; SHARPE (1416), New Guinea, *Abisara* n. sp.; SNELLEN (1450), Java, *Tortricidæ*, *Tineidæ*, *Pterophoridæ*; SWINHOE (1498), *Deilemera*, many spp. n.; SWINHOE (1499), *Lymantriidæ* n. spp.; SWINHOE (1500), *Heterocera*; SWINHOE (1501), *Arctiidæ*, *Lymantriidæ*, *Notodontidæ*, *Geometridæ*; THIERRY-MIEG (1530), Java, *Ouvapteryx* n. sp.; WARREN (1636, 1637), *Heterocera*; WARREN (1639), New Guinea, *Drepanulidæ*, *Uranidæ*, *Geometridæ*.

Diptera. KERTÉSZ (819), New Guinea, *Pipunculus* sp. n.; LUDLOW (952), Philippines, *Culicidæ* n. spp.; THEOBALD (1520), *Culicidæ*; THEOBALD (1520), Christmas Isld., *Culicidæ*.

Aphaniptera. WAHLGREN (1626), Java, *Ceratopsylla* n. sp.

Hemiptera. BREDDIN (182), *Reduviidæ* n. spp.; BREDDIN (183), *Pentatomidæ* gen. n., spp. n.; BREDDIN (185), Java, Sumatra, Borneo, *Ectrichodiidæ* n. spp.; BREDDIN (186), *Cosmoscarta* spp. n.; BREDDIN (187), Java, *Colobathristes* n. spp.; BREDDIN (188), Java, *Velocipeda* n. sp.; BREDDIN (189), *Reduviidæ*; BREDDIN (190), Java, *Ptilomera*; BREDDIN (191), Sumatra, *Cazira*; BREDDIN (192), Java, *Chrysocoris*; BREDDIN (194), Java, *Hyperoncus* n. sp.; BREDDIN (195), Flores, *Chrysocoris* n. sp.; BREDDIN (200), New Guinea, Roon, *Jassidæ*, *Cercopidæ*; BUCKTON (235), *Membrucidæ* n. spp.; DISTANT (394, 395), *Reduviidæ*; DISTANT (396), *Pentatomidæ*, *Lygaeidæ*; DISTANT (397), Tomia, *Pentatomidæ*; DISTANT (398), Borneo, Batchian, *Phymatidæ* sp. n., Borneo, *Androclus* sp. n., Philippines, *Éctinoderus* sp. n.; JACOBI (756), New Guinea, *Cicadidæ*, 3 spp. n.

Aleuodidæ. QUAINANCE (1202), Java, n. sp. *Aleuodes*.

Coccidæ. COCKERELL (333), *Tachardia* n. sp.

Psocidæ. ENDERLEIN (459), chiefly New Guinea, n. gen., n. spp.

Odonata. FÖRSTER (538), New Guinea, n. gen., n. spp., Sumatra,

Orthetrum n. sp.; KRÜGER (886), Key Islds., *Neurothemis* n. sp.; MARTIN (979), Borneo, Manilla, New Guinea, *Odonata* n. g., 3 spp. n.

Orthoptera. BOLIVAR (146), New Guinea, n. g. *Eumastacides*, 1 sp. n.; BOLIVAR (147), *Mecopodinae* n. genn., n. spp.; BURR (245), *Forficulidae*; KIRBY (839), Celebes, *Forficulidae*; KIRBY (840, 841, 842), *Blattidae*; KIRBY (843), Borneo, *Deroplatys* n. sp.; SAUSSURE (1327), *Eumastacides* spp. n.; VERHOEFF (1599), Java, n. g. *Forficulidae*.

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

Coleoptera. BERNHAUER (105), Cooktown, *Priochirus* sp. n.; BOVIE (175), *Flamingorhynchus* sp. n.; BLACKBURN (135); BLACKBURN (136), *Carabidae*, *Copridae*, *Buprestidae*, *Tenebrionidae* spp. n.; GROUVELLE (643), Australia and Tasmania, *Rhysodidae* spp. n.; JORDAN (800), *Anthrribidae*; KERREMANS (814), *Buprestidae* n. spp.; KERREMANS (815), Australia and Tasmania, *Buprestidae*, 2 spp. n.; LAMEERE (902), *Nothophysis* withdrawn; LAMEERE (906), *Prionides* n. spp.; LEA (922), *Cryptorhynchides* n. genn., n. spp.; LEA (923), Australia and Tasmania, many n. spp.; LEA (924), Tasmania, Catalogue, 1000 spp.; LEWIS (936), *Histeridae*; PIC (1169), *Polyplocotes* sp. n.; PORTEVIN (1191), *Cholevini*, 2 spp. n.; SCHENKLING (1331), *Trogodendron* sp. n.; SCHWARZ (1376), *Elateridae*, 20 spp. n.; SLOANE (1436), *Carabidae*, many spp. n.; SPAETH (1460), N. Australia, *Coptocyela* sp. n.; WATERHOUSE (1646), *Curculionidae*; WEISE (1662), *Paropsisterna* n. sp.

Hymenoptera. ANDRÉ (26), *Mutillidae* spp. n.; ASHMEAD (34), n. g. *Thynnidae*; KIEFFER (823), *Gasteruption*; SZÉPLIGETI (1503), *Evaniidae* n. spp.

Lepidoptera. DRUCE (415), *Liparidae*; HAMPSON (662), *Agrotinae*; HAMPSON (667), *Syntomidae*, *Arctidae*; LOWER (949), *Heterocera*; LOWER (950), *Lasiocamp.*, *Geometr.*, *Tineidae*; LOWER (951), *Geometridae*, *Pyralidae*, *Tortricidae*, *Tineidae* spp. n.; MEYRICK (1015); ROTHSCHILD (1289), Queensland, *Cossidae*; ROTHSCHILD & JORDAN (1291), *Sphingidae*; SONTONNAX (1457), *Antheraea* n. sp.; SWINHOE (1498), N. Australia, *Deilemera* n. sp.; SWINHOE (1498), *Lymantriidae* n. spp.; TURNER (1574) *Heterocera*; TURNER (1575), *Notodontidae* and *Hyponomeutidae* revision; WARREN (1637), *Geometridae*; WATERHOUSE (1648), Queensland, *Lycenidae*, 3 spp. n.; WATERHOUSE (1649), *Lycenidae* revision with n. spp.; WATERHOUSE (1650), *Hesperidae*, 1 sp. n.; WATERHOUSE (1651), Catalogue, *Rhopalocera*.

Diptera. COQUILLET (350), W. Australia, *Hydrellia* n. sp.; THEOBALD (1520), *Culicidae*; THEOBALD (1521), *Culicidae*, 2 spp. n.; WESCHÉ (1673), *Pupipara*.

Aphaniptera. ROTHSCHILD (1283).

Hemiptera. BREDDIN (182), *Reduviidae* spp. n.; BREDDIN (189), Murray Isld., *Pristhesancus*; BREDDIN (192), *Philia* n. spp.; BUCKTON (235), *Membracidae* n. spp.; DISTANT (394, 395, 396), *Reduviidae*; DISTANT (399); FROGGATT (555), Australia, Tasmania, *Psyllidae* n. spp.; GODING (626), *Membracidae*, monograph; KIRKALDY (849), Queensland, new *Capsidae*; MONTANDON (1024), *Nepidae* sp. n.; MONTANDON (1025), *Pentatomidae*, 5 spp. n.

Neuroptera. FROGGATT (555), *Psychopsis*, 2 n. spp.

Psocidae. ENDERLEIN (459), n. genn., n. spp.

Orthoptera. BURR (245), *Forficulidae*; KIRBY (839), *Forficulidae*; KIRBY (841), *Blattidae*; KIRBY (842), incl. Torres Straits, *Blattidae*.

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

History of insect distribution in N. America, WEBSTER (1653).

Insecta. COCKERELL (326), New Mexico, *Apidae* n. sp., *Aphidae* n. sp.; COCKERELL (328), New Mexico, *Hedychridium* sp. n., *Euthrips tritici*; FLETCHER and others, Ottawa Natural. xvii, pp. 107-109, Ottawa novelties; GODMAN (628), *Curculionidae* n. spp., *Odonata* n. sp.; MACGILLIVRAY & HOUGHTON, Ent. News Philad. xiv, pp. 262-265, Adirondack Mts.; MELANDER & BRUES (999), Massachusetts, *Diptera* n. spp., *Mutilla* n. sp., *Braconidae*, *Chalcididae*, *Proctotrypidae*, n. spp.; SKINNER (1429), Beulah, New Mexico; SNOW (1454), Kansas, *Coloptera*, *Lepidoptera*; TROTTER (1549), galls.

Coleoptera. BEUTENMÜLLER (118), N. Carolina, *Carabidae* n. spp., *Anthophilax* n. sp.; BRITTON, Canad. Ent. xxxv, p. 188, Connecticut, *Crioceris 12-punctata*; BRUES (225), *Strepsiptera*, 2 spp. n.; DAVIS, Ent. News Philad. xiv, pp. 270-273, Rhode Isl., *Cicindelidae*; DURY, Ent. News Philad. xiv, p. 146, Ohio, *Galerica tanacetii*; EVANS, Canad. Ent. xxxv, pp. 239-243, etc., Canadian *Coleoptera*; FENYES, Ent. News Philad. xiv, p. 220, California, *Palaeoxenus*; FYLES, Canad. Ent. xxxv, p. 23, *Cassida viridis*; HOLDHAUS, Munchen. Kol. Zeitschr. i, p. 351, *Atomaria* common to Europe and N. America; HORN (719), *Cicindela*, 1 sp. n.; HORN (720), *Cicindelidae*, 2 spp. n.; KERREMANS (814), *Buprestidae* n. spp.; KNAB, Ent. News Philad. xiv, pp. 89, 90, Springfield, Mass. list, children's collecting; KNAUS, Ent. News Philad. xiv, pp. 172-180, Sacramento Mts., New Mexico, list; KNAUS, Tr. Kansas Ac. xvi, pp. 197-199, xvii, pp. 109-114, and xviii, pp. 187-190, Kansas; LENG (930), *Coccinellidae* revision; PIC, Bull. Soc. ent. France 1903, p. 338, California, notes on Fall's list; PIC (1169), Texas, *Ptinus*, 2 spp. n.; ROY, p. 129, Natural. Canad. xxx, *Onthophagus nuchicornis*, introduced into Canada; SCHAEFFER (1328), Texas, *Trichodesma* spp. n.; SCHWARZ (1372), *Elatheus* sp. n.; SCHWARZ (1373), *Elatereidae* n. g., 6 spp. n.; SKINNER (1432), *Buprestidae*, 5 spp. n.; SLOSSON (1437), n. g. *Dermestidae*? WICKHAM, H. F., Ottawa Natural. xvii, pp. 49-52, the beetles of an Oregon beach; WICKHAM (1687), 7 spp. n.; WICKHAM (1688), *Pedilophorus*, 2 spp. n.

Hymenoptera. ASHMEAD (35), *Xiphydria* n. sp., *Calameuta* n. sp.; ASHMEAD (36), B. Columbia, *Paranomia* n. sp.; ASHMEAD (45), 2 n. spp. *Braconidae*; ASHMEAD (47), Texas, n. g. *Pompilides*; ASHMEAD (49), *Dryinus* n. sp., *Cheiloneurus* n. sp.; ASHMEAD (50), New Mexico, *Ammoplanus* n. sp.; BRADLEY (176), *Tenthred.* n. sp.; BRADLEY (177), *Platylabus*, 2 spp. n.; BRIDWELL, Tr. Kansas Ac. xvi, pp. 203-211, a list of Kansas *Hymenoptera*; BRUES (223), *Pezomachus* n. spp., *Mesitius* n. sp., *Proctotryp.* n. g., n. spp.; BRUES (226), Texas, *Apidae*, 2 spp. n.; COCKERELL, Tr. Kansas Ac. xvi, pp. 212-216, a first list of the Hymenopterous families *Tenthredinidae*, *Siricidae*, *Chrysididae*, *Proctotrypidae*, *Cynipidae*, *Chalcididae* and *Braconidae* collected in New Mexico; COCKERELL (318), California, *Andronicus* n. sp.; COCKERELL (319), S. California, *Halictus*, 2 spp. n.; COCKERELL (320), California, *Apidae*, list, 1 sp. n.; COCKERELL (321), New Mexico, *Andrena* n. sp., also *Osmia* n. sp., Ent. News. Philad. p. 332; COCKERELL (322), *Ichneumonidae*, *Apidae*; COCKERELL (323), California, *Nomada* n. spp.; COCKERELL (324), *Nomada* n. spp.; COCKERELL (325), *Dryophanta* n. sp.; COCKERELL (327), *Apidae*; COOLEY (343), *Pontania* n. sp.; CRAWFORD (355), Nebraska, *Apidae*, 3 spp. n.; CRAWFORD (356), Nebraska, n. g. *Apidae*; ECKEL (441), Massachusetts, *Chalcididae* n. sp.; FERNALD (505), *Isodontia* sp. n.; FERNALD (506), *Sphex*, 2 spp. n.; FISKE (514), *Hym. par.*, 2 spp. n.; FRIESE (552), *Megachile*; GIRAULT (625), Virginia, *Aulacidea* n. sp.;

GRAENICHER (633), Milwaukee, *Andrena* spp. n.; KIEFFER (826), *Callirhytis* n. sp.; MELANDER (995), *Mutillidae* n. spp., *Thynnidae* n. spp.; MELANDER (997), *Ammophila*, synoptic table; MORRILL (1036), Montana, *Bombus* and *Psithyrus* n. spp.; ROBERTSON (1269), *Megachilidae*, *Bombinae*, generic synopsis with n. spp.; ROBERTSON (1270), *Nomadinae* n. genn., n. spp.; ROBERTSON (1271), *Epeolinae*, 2 spp. n.; ROBERTSON (1272), *Speocodinae*, 2 spp. n.; VIERECK, Ent. News Philad. xiv, pp. 119-123, Maryland, *Aculeata* list; VIERECK (1604), New Mexico, *Hymenoptera* generally, numerous n. spp.; VIERECK (1605), *Bombomelecta*, 2 spp. n.; VIERECK (1606), *Photomorphus*, 2 spp. n.; WHEELER (1678), Texas, n. g. *Formicidae*; WHEELER (1680), *Leptothorax* spp. n.; WHEELER (1681), Colorado, *Formica*, 2 spp. n.; WHEELER (1683), Texas, *Formicidae*, 10 spp. n. [Zool. Rec. xxxix, Omission in 1902, COCKERELL (247).]

Lepidoptera. BEUTENMÜLLER (117), *Catocala*, var. n., etc.; BEUTENMÜLLER (119), N. Carolina, *Olene* n. sp.; BEUTENMÜLLER (121), New York, *Sphingidae*; BUSCK (247), *Gelechiidae* revision, n. genn., n. spp.; BUSCK (248), *Lithocolletis* sp. n.; BUSCK (250), *Yponomeutidae* n. spp.; COMSTOCK, G. F., Ent. News Philad. xiv, pp. 197-200, Adirondack Mts., list; DODGE (407), Texas, *Nysionades* n. sp.; DYAR (429), notes on recent work; DYAR (430), Utah, n. g. *Geometridae*; DYAR (431), Colorado, *Eucosma* n. sp.; DYAR (432), Arizona, 13 spp. n.; DYAR (433), New Mexico, *Evetriu* sp. n.; DYAR (434), *Heterocera*, 8 spp. n.; DYAR (435), *Tortricidae* n. g.; DYAR (436), *Anthroceridae*, revision; DYAR (437), Arizona, *Eulepiste* sp. n.; ELWES (446), Arctic; FUCHS (577), New York, *Pyrausta* n. sp.; GEDDES, Ent. News Philad. xiv, p. 284, Pennsylvania, *Citheronia sepulcralis*; GRINNELL (639), California, *Anatolmis* sp. n.; HAMPSON (662), *Agrotinae*; HEBARD, Ent. News Philad. p. 253, Miami; HEBARD, t. c. pp. 260, 261, Georgia, *Rhopalocera*; KEARFOTT (806), *Crambides* and *Tineidae* n. spp.; KUSNEZOV (898), Texas, *Catocala* sp. n.; LAURENT, Ent. News Philad. xiv, p. 296, Miami, *Rhopalocera*, & p. 305, *Sphingidae*; LAURENT, Ent. News Philad. xiv, pp. 43-45 etc., Eastern Pennsylvania, *Heterocera*, list; OTTOLENGUI (1097), Arizona, *Saturnia* n. sp.; ROTHCHILD & JORDAN (1291), Florida and Bahamas, *Sphingidae*; SKINNER (1431), Utah, *Albana* n. sp.; SKINNER, Ent. News Philad. xiv, p. 110, Florida, *Nisionades brunnea*; SMITH (1442), Check list; SMITH (1443-1447), *Noctuidae* n. spp.; SMITH (1448), *Nonagria*, 1 sp. n.; WALSHINGHAM (1633); WILLIAMS, Canad. Ent. xxxv, pp. 187, 188, Toronto, *Rhopalocera*; WORMSBACHER, Ent. News Philad. xiv, pp. 201-203, New Jersey, list.

Diptera. ADAMS (7), 34 spp. n.; BRUES (224), *Phoridae* n. gg., n. spp.; COQUILLET (344), *Empidae* n. spp.; COQUILLET (345), *Enigmatias* n. sp.; COQUILLET (346), *Corethra* n. sp.; COQUILLET (347), *Culex* spp. n.; COQUILLET (348), *Eucorethra underwoodi* n. sp.; COQUILLET (349), *Anopheles* n. sp.; CURRIE (364), Arizona, *Myrmeleionidae*, 7 spp. n.; FYLES, Canad. Ent. xxxv, p. 234, Toronto, 34 spp.; HINE (705), Arizona, *Tabanus* n. sp., *Myiolepta* n. sp.; HINE (706), Brit. Columbia, *Peditia* n. sp.; HINE (707), Ohio, *Tabanidae* spp. n.; JOHANNSEN (790), *Nematocera*; JOHANNSEN (791), Adirondack, *Sciophila* sp. n.; JOHNSON (792), New Mexico, *Chilosia* n. sp., *Cuterebra* n. sp., *Tachinidae* n. g., *Pegomyia* n. sp., *Zonosema* n. sp.; JOHNSON (793), N. Jersey etc., *Leptidae*, 3 spp. n.; JOHNSON (794), *Pipunculidae*, 2 spp. n.; JOHNSON (795), *Asilidae*, 4 spp. n.; JOHNSON (796), *Philaria*, 3 spp. n.; KELLOGG (808), *Blepharoceridae*, 4 spp. n.; MELANDER (994), *Chrysotus* n. sp.; MELANDER (998), *Nemotelus*, 5 spp. n.; SNOW & ADAMS (1455), Kansas, list, 6 spp. n.; THEOBALD (1524), *Culex* n. sp.; THEOBALD (1525), New Mexico, *Culicidae* sp. n.

Aphaniptera. ROTHSCHILD (1283).

Hemiptera. BALL (68), *Telamona*, 10 spp. n.; BALL (69), *Homoptera* n. spp.; BANKS, p. 227, J. N. York Ent. Soc. xi, New York, *Pentatomidae*; BUCKTON (235), *Membracidae* n. spp.; TORRE BUENO, J. N. York Ent.

Soc. xi, pp. 128, 129 and t. c. p. 228, A preliminary list of the *Pentatomidæ* within fifty miles of New York; FYLES (584), Quebec, *Aradus* n. sp.; OSBORN (1093), Ohio, *Aradidæ*, 2 n. spp.; OSBORN (1094), Ohio, *Fulgoridæ*, 3 spp. n.; OSBORN (1095), Ohio, *Myndus* n. sp.; STEVENSON (1482), Montreal, *Lygus* n. sp.; VAN DUZEE (1591), New Mexico, *Euschistus* n. sp., *Alydus* n. sp.

Aphidæ. CLARKE (314), California, 10 n. spp.; COCKERELL (329), New Mexico, *Nectarophora* spp. n.; COCKERELL (330), New Mexico, *Aphis* n. sp.; W. P. COCKERELL (338), New Mexico, Ant—*Aphidæ*, 5 spp. n.

Aleurodidæ. MORRILL (1035, 1038), *Aleyrodes* n. sp.

Coccidæ. COCKERELL (1429), New Mexico, *Phenacoccus* sp. n.; COLEMAN (340), *Coccidæ* n. spp.; KING (835), new localities and *Phenacoccus* n. sp.; KING (836), Arizona, *Kermes* n. sp.; KING, Ent. News Philad. xiv, pp. 204–236, the *Coccidæ* of Ohio revised list; SANDERS (1315), *Chionaspis* n. sp.; THRO (1532), *Lecanium*, 3 spp. n.; WEBSTER, Ent. News Philad. xiv, pp. 288–290, Ohio, *Coccidæ*.

Trichoptera, *Neuroptera* and *Psocidæ*. BANKS (71), *Chrysopidæ* revision, with n. gg., n. spp.; BANKS (72), California, Texas, Lower California, *Brachynemurus*, 3 spp. n.; BANKS (73), Arizona, *Psocidæ* n. sp., *Planipennia* n. spp., *Trichoptera* n. spp.; BANKS (74), *Trichoptera* n. spp., *Sialidæ* sp. n., *Myrmeleonidæ* sp. n.; DAVIS (382), *Sialidæ*; McLACHLAN, Ent. Mag. xxxix, p. 285; *Neuromus maculipennis* error; ENDERLEIN (455), *Troctes* spp. n.; BANKS (74), *Psocidæ* spp. n.

Ephemeredæ. BANKS (75), New Jersey, *Habrophlebia* n. sp.

Odonata. BRIMLEY, Ent. News Philad. xiv, pp. 150–157, N. Carolina, list; CALVERT (261), New Jersey, list with 2 spp. n.; CURRIE (365), Arizona, New Mexico, *Ischnura* sp. n.; RIS (1264), Faunas of Europe and N. America, compared; RIS, Ent. News Philad. xiv, pp. 216–220, Baltimore, list; WILLIAMSON, Ent. News Philad. xiv, pp. 221–229, The *Odonata* of Tennessee, with a few records for Virginia and Alabama.

Thysanoptera. FRANKLIN (539), *Acanthothrips nodicornis*.

Mallophaga. MORSE (1041), *Trichodectidæ*, synopsis.

Orthoptera. BEUTENMÜLLER (120), Florida, *Cyrtophyllus* n. spp.; BLATCHLEY (137), Indiana; BLATCHLEY (138), *Eriettix* n. sp.; CAUDELL (285), Colorado, New Mexico, Arizona, Texas, 3 n. spp., *Acridiidæ*; CAUDELL (286), *Phasmidæ* revision, 4 spp. n.; MORSE (1040), Nevada, *Acridiidæ*, 4 spp. n.; REHN, Ent. News Philad. xiv, pp. 125, 126, *Forficulidæ* and *Blattidæ*, Eastern United States; REHN, t. c. pp. 325–329, *Blattidæ*, *Mantidæ*, *Phasmidæ*, localities; REHN, t. c. pp. 329–331, Texas, *Forficulidæ*, *Blattidæ*, *Mantidæ*, *Phasmidæ*; REHN (1223), Arizona, *Homæogamia* n. sp.; REHN (1227), Florida, *Ischnoptera* n. sp.; REHN (1228), Georgia, *Gryllidæ* n. g.; REHN & COCKERELL (1230), New Mexico, *Stenopelmatina* n. g.; TITUS (1536), *Ecantus* sp. n.

Aptera. SWENK (1495), *Japyx* n. sp.; GUTHRIE (656), Minnesota, *Collembola* spp. n.

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

Insecta. GODMAN (628).

Coleoptera. ARROW (32), *Coprides* n. spp.; GROUVELLE (643), Costa Rica, *Clinidium* n. sp.; HORN (719), Mexico, Cat. *Cicindelidæ*, with 1 sp. n.; JACOBY (765), *Chrysomelidæ*, 4 spp. n.; KERREMANS (814), *Buprestidæ* spp. n.; LAMBEERE (906), *Prionidæ* n. spp.; LÉVEILLÉ (934), Costa Rica, *Tennochila* sp. n.; LEWIS (936), *Histeridæ*; OHAUS (1088), Panama, *Lagochile* n. sp.; PIC (1167), *Micranobium* spp. n.; PIC (1169) Mexico, *Anobiidæ* n. g.; SCHENKING (1334), Mexico, *Clerus* n. sp.; WEISE (1666), Costa Rica, *Coccinellidæ*, 3 spp. n.

Hymenoptera. ANDRÉ (26), Mexico, *Typhoctes* sp. n.; CAMERON (271), Panama, *Megacilissa* n. sp.; COCKERELL (322), *Nomada*; CRAWFORD (354), Costa Rica, *Bombus* n. sp.; FRIESE (544), *Bombus*; KONOW (873), *Zarca* n. spp.; VACHAL (1590), *Halictus* n. spp.

Lepidoptera. DOGNIN (408), Chiriqui, *Smicropus* n. sp., San Salvador, *Semiothisa* n. sp., and *Polygrammodes* n. sp.; GODMAN (627), *Erycinidae* n. spp.; HAMPSON (662), *Agrotinae*; HOAG, Ent. News Philad. xiv, pp. 319-322, Mexico, *Rhopalocera*; ROTHSCHILD & JORDAN (1291), *Sphingidae*; SCHAUS (1329), *Noctuidae* n. spp.; SMYTH (1449), Mexico, *Morpho* n. sp.; SONTONNAX (1457), Mexico, *Tropæa* n. sp.

Diptera. ADAMS (7), Mexico, *Chrysochroma* n. sp.; BRUES (224), *Phoridae*, Mexico, n. g.

Hemiptera. BUCKTON (235), *Membracidae* n. spp.; DISTANT (400), Costa Rica, 1 *Cydninae* n. sp., 1 *Aphaninae*, 1 *Cicadidae*; SCHOUTEDEN (1346), Mexico, *Agonosoma* sp. n.

Coccidae. COCKERELL (332), Mexico; COCKERELL (334), Mexico, *Coccidae*, 5 spp. n.'

Neuroptera. BANKS (74), *Chrysopidae*, 2 spp. n., *Myrmeleonidae* sp. n.; DAVIS (382), *Sialidae*; Lower California, *Brachynemurus* n. sp., see N. America.

Psocidae. BANKS (74), 3 n. spp.

Odonata. CALVERT (262), Guatemala, Costa Rica, *Epigomphus*, 2 spp. n.

Orthoptera. BORELLI (155), Costa Rica, *Sparatta* n. sp.; REHN (1220), *Blattidae* n. spp., *Phasmidae* n. sp., *Acridiidae* n. g., *Locustidae* n. spp.; REHN (1222), *Blattidae*, Costa Rica, n. spp.; REHN (1224), Mexico and Costa Rica, *Forficulidae*, n. spp.; REHN (1226), Costa Rica, *Phaneropterinae* n. g.; REHN (1229), Costa Rica, *Labi* sp. n.; SAUSSURE (1327), *Eumastucides* spp. n.

11. ANTILLES, including BERMUDAS, BAHAMAS, BARBADOS.

Insecta. GODMAN (628); SCHWARZ (1370), Cuba.

Coleoptera. ARROW (32), Grenada and St. Vincent, *Lamellicornia* n. spp.; KERREMANS (814), *Buprestidae*, Catalogue; PIC (1167), Grenadines, *Micranobium* sp. n.; TSCHITSCHÉRINE (1564), Cuba, *Loxandrus* sp. n.

Hymenoptera. SCHULZ (1368), revision of *Fossoria* and *Vespidæ* fauna with *Polistes* sp. n.; VACHAL (1590), Haiti, *Halictus* n. sp.

Lepidoptera. HOLLAND (713), Bahamas, *Rhopalocera*, 2 spp. n.; ROTHSCHILD & JORDAN (1291), Bahamas, *Sphingidae*; MABILLE (959), Haiti, *Eudamus* sp. n.

Diptera. ALDRICH (21), Grenada, *Dolichopidae*, 14 spp. n.; BRUES (224), St. Vincent, Grenada, *Phoridae* n. spp.; COQUILLET (344), Cuba, *Lamprempis* n. sp.; THEOBALD (1519), Jamaica, *Culicidae*, St. Vincent, Antigua; THEOBALD (1523), Jamaica, *Culicidae*, 2 spp. n.

Hemiptera. BUCKTON (235), Jamaica, *Membracidae* sp. n.; DISTANT (395), Jamaica, *Reduviidae*; KIRKALDY (849), Jamaica, *Jadera hamatoloma*.

Orthoptera. CAUDELL (288), Bermuda, *Gryllus* sp. n.; KIRBY (842), Dominica, *Blattidae*; REHN (1221), Porto Rico list, with *Apterygida* sp. n.; *Lamponius* sp. n.; REHN (1222), Bahamas, *Hemiblattera brunneri*; REHN (1222), *Blattidae*, Cuba, 2 spp. n., Jamaica, sp. n., Porto Rico, sp. n.

12. SOUTH AMERICA, including TRINIDAD.

Insecta. GODMAN (628); SILVESTRI (1425), Termitophilous Insects; TROTTER (1545), galls.

Coleoptera. ARROW (32), *Atenius* n. sp.; BELON (94), Bolivia, *Cerambycidae*, 14 spp. n.; BELON (95), Bolivia, *Aletretia*, 3 n. spp.; BERNHAUER

(105), *Leptochirina* n. spp.; BOUCOMONT (163), Argentina, *Bolboceras* n. sp.; BOURGEOIS (171), *Plateros* sp. n.; BRÈTHES (217), Argentina, *Pinophilini*, 1 sp. n.; FAIRMAIRE (482), *Tenebrionidæ*, *Cantharidæ* spp. n.; FLEUTIAUX (519), Peru, *Odontochila* n. sp.; GAHAN & ARROW (590), Brazil and Paraguay, 15 spp. n., *Scarabæidæ*, *Cistelidæ*, *Curculionidæ*, *Cerambycidæ*, *Chrysomelidæ*; GERMAIN (610), Chile, *Nycterinus* n. sp.; GERMAIN (611), Chile, *Staphylinidæ*, 7 spp. n.; GORHAM (631), Brazil, *Pelonium*, 4 spp. n.; GROUVELLE (643), *Rhysodidæ* spp. n.; HELLER (681), Venezuela, n. g. *Calandridæ*; HORN (718), Venezuela, *Tetracha* sp. n.; JACOBY (765), *Chrysomelidæ* n. spp.; JACOBY (768), incl. Trinidad, *Chrysomelidæ* n. spp.; KERREMANS (814), *Buprestidæ* spp. n.; KERREMANS (815), La Plata, *Chrysobothris* sp. n.; LAMERE (906), *Prionides* n. spp.; LAMERE (904), Bahia, *Stenodontes* n. sp.; LÉVEILLÉ (934), Bolivia, *Temnochila* n. sp.; LEWIS (936), *Histeridæ*; OHAUS (1088), Ecuador, *Rutelides* n. gen., n. spp.; PIC (1133), *Malachidæ*, n. g., 13 spp. n.; PIC (1137), Venezuela, *Leptaleus* sp. n.; PIC (1145), Brazil, *Anthicus* n. sp.; PIC (1146), Tucuman, *Macratia* sp. n.; PIC (1147), *Malacoderm.*, 3 spp. n.; PIC (1167), *Rhadine*, 4 spp. n.; PIC (1169), *Anobiidæ* n. genn., and Chili, n. g. near *Astylus*; PIC (1150), *Ptinidæ* gen. n., 3 spp. n., *Astylus*, 2 spp. n.; PORTEVIN (1191), *Cholevini*, 16 spp. n.; PORTEVIN (1192), Caracas, *Silphidæ* n. g.; RÉGIMBART (1216), *Dytiscidæ*, numerous spp. n., *Gyrinidæ*; SCHWARZ (1374), *Elateridæ*, 22 spp. n.; STERNBERG (1481), Ecuador, *Spodistes* n. sp.; TSCHITSCHÉRIINE (1564), Uruguay, *Platysmatini*, 3 spp. n.; WATERHOUSE (1647), Sorata, *Tenebrionidæ*; WEISE (1665), Paraguay, *Rhymbus*, 2 spp. n.

Hymenoptera. ANDRÉ (26), *Mutillidæ*, 8 spp. n.; ANDRÉ (28), Argentina, *Dorymyrmæx*; ASHMEAD (34), n. g. *Tiphidæ*; ASHMEAD (46), Chapada, *Cynipidæ*, 8 genu. n.; BRÈTHES (216), *Chrysidæ* n. spp.; BUYSOON (260), Tucuman etc., *Chrysis* n. sp.; CAMERON (271), Equatorial Andes, *Fossoria* n. spp., *Apidæ* n. spp.; CAMERON (276), Ecuador, *Elampus* n. sp., *Ichneumonidæ* n. genn., *Selandria* n. sp.; COCKERELL (322), *Ceratina*; DUCKE (418), Amazon, *Fossoria*, 4 spp. n.; DUCKE (419), *Chrysidæ*; ENDERLEIN (460), Peru, *Halictus*, 2 spp. n.; FOREL (536), *Formicidæ*, Brazil etc. incl. Tierra del Fuego and Chili; FRIESE (544), *Bombus*; FRIESE (547), *Euglossa*, 2 spp. n.; FRIESE (549), *Meliponidæ*; FRIESE (551), *Xylocopa*; VON IHERING (743), *Meliponides* chiefly biology; R. VON IHERING (750), S. America, *Vespidæ* n. spp.; KONOW (872), *Chalastogastra*; KONOW (873), *Tenthredinidæ*; KONOW (874), *Perreyides* n. spp.; MAYR (985), Brazil, *Solenopsis* n. sp.; SCHROTTKY (1356), Brazil, *Apidæ*, many spp. n.; SCHROTTKY (1357), *Aculeata*; SCHULTHESS-RECHBERG (1358) Surinam, *Nortonia* n. sp., Paraguay, n. g. *Eumenides*; SCHULZ (1369), Colombia, *Polybia* n. sp.; SZÉPLIGETI (1503), *Evaniidæ* n. spp.; SZÉPLIGETI (1504), Peru and Paraguay, *Joppini* n. spp.; VACHAL (1539), Peru? *Apidæ* n. spp.; VACHAL (1590), *Halictus* n. spp.

Lepidoptera. DOGNIN (408), *Heterocera* n. spp.; DOGNIN (409), Peru, *Diacrisia* sp. n.; DRUCE (414), *Bombyces*, *Noctuidæ*, *Pyalidæ*; DRUCE (415), *Rhopalocera*, *Arctiidæ*; ELWES (446), Chile, *Rhopalocera*, catalogue, n. spp.; FÖETTERLE (525), Brazil, *Rhopalocera*, *Castria*, *Bombyces* spp. n.; GODMAN (627), *Erycinidæ* n. spp.; HAENSCH (660), Ecuador, travelling; HAENSCH (661), Ecuador, *Ithomiini* n. spp.; HAMPSON (662), incl. Chili, *Agrotinæ*; HAMPSON (667), *Syntomidæ*, *Arctiidæ*; HERING (697), Brazil, *Margaronia* sp. n.; HERON & HAMPSON (698), Matto Grosso, *Hepialidæ* sp. n.; LATHY (915), Peru, *Callithea* n. sp.; MABILLE (959), *Hesperidæ* n. spp.; RÖBER (1267), Ecuador, *Morpho*; RÖBER (1268), *Rhopalocera*, 11 spp. n.; ROTHSCHILD (1290), *Nymphalid.* n. sp.; ROTHSCHILD & JORDAN (1291), *Sphingidæ*; SCHAUS (1329), *Noctuidæ* n. spp.

Diptera. BRUES (224), *Phoridæ* n. sp.; CZERNY (367), n. gg. *Heteroneuridæ*; CZERNY (370), Bolivia, *Homalomyia*; KERTÉSZ (817), Peru, n. fam., *Acalyprataæ*; KERTÉSZ (818), *Ceria*, n. spp.; KERTÉSZ (820),

Heteroneurides n. gen., n. spp.; KIEFFER (832), Chili, *Cecidomyiidae*, 2 spp. n.; SPEISER (1462), Chile, n. g. *Ephydriidae*; THEOBALD (1519), *Culicidae*.

Aphaniptera. ROTHSCHILD (1283); WAHLGREN (1626), Argentina, *Megapsylla* n. sp.

Hemiptera. BERGROTH (101), Brazil, n. g.; *Lygaeidae* myrmecoph.; BREDDIN (184), Andes, *Tetyridae*, *Peniatomidae*, *Coreidae*, n. gen., n. spp.; BREDDIN (187), *Colobasiastes*, n. g. *Lygaeidae*; BREDDIN (192), Ecuador, *Symphylus* n. sp.; BREDDIN (193), *Ectrichodiini*; BREDDIN (202), Bolivia, *Daraxa* n. sp.; BREDDIN (203), *Reduviidae*; BREDDIN (206), Andes, *Rhynchota*; BREDDIN (207), *Edessa* n. spp.; BREDDIN (207), Bolivia, *Colobasiastes* n. spp.; BUCKTON (235), *Membracidae* n. spp.; DISTANT (394, 395), *Reduviidae*; DISTANT (398), Brazil, *Berytidae* n. sp., *Apiomerus*, 3 spp. n.; KIRKALDY (849), new *Capsidae*; MONTANDON (1024), *Nepidae*, 2 spp. n.; MONTANDON (1026), *Belostoma*, 4 spp. n.; MONTANDON (1027), *Belostoma*, 2 spp. n.

Neuroptera. DAVIS (382), *Sialidae*.

Termitidae. SILVESTRI (1425), *Termitidae*, catalogue, 2 spp. n.

Psocidae. ENDERLEIN (455), n. gen., n. sp.

Odonata. CALVERT (262), Brazil, *Diaphlebia* sp. n., Bolivia, *Epigomphus* sp. n.; NEEDHAM (1055), Brazil, n. g.

Orthoptera. BOLIVAR (144), *Conocephalini* n. g., n. spp.; BURR (245, 246), *Forficulidae*; KIRBY (841), *Blattidae*; KIRBY (842), Trinidad, *Blattidae*; REHN (1222), *Blattidae*, British Guiana, n. spp.; SAUSSURE (1327), *Eumastacides* spp. n.

Collembola. ABSOLON (6), *Dicranocentrus* n. sp.; WILLEM (1691), Patagonia and Tierra del Fuego, *Collembola* n. gen., n. spp.

PALÆO-ENTOMOLOGY.

Certain of Scudder's types of Carboniferous Insects are in the Museum at Chicago, MELANDER, p. 179, *J. Geol.* xi.

Notes on Permian fossils from Kansas, SELLARDS (1380).

Carboniferous of Illinois, MELANDER (996).

Fossil galls, TROTTER (1550).

Coleoptera.

Carabus in peat-mosses, Belgium, LAPOUGE (911).

Hymenoptera.

Ephialtites jurassicus, Kimeridge, Catalonia, MEUNIER, p. 4, *Mem. Ac. Barcel.* iv, No. 34, n. sp.

Pimpla renevieri, Aix, id. t. c. p. 5, n. sp.

Diptera.

Cecidomyiidae in Baltic amber, MEUNIER (1010).

Verralia exstincta, and var. *kerteszia*, Baltic amber, MEUNIER, p. 148, *Rev. Sci. Bourbonnais* xvi, n. sp.

Rubsacmeniella, n. g. *Sciaridae* for *R. semibrachyptera* n. sp., Baltic amber, id. t. c. p. 165.

Orthoptera.

Etblattina gaudryi, Commeny, AGNUS, p. 292, cut, *Bull. Soc. ent. France* 1903, n. sp.

Neomyglacris boulei, Commeny, AGNUS, p. 273, t. c. n. sp.

Protophasmida.

- Paolia gurleyi* Scudd., pl. vii, fig. 7, p. 185, MELANDER, J. Geol. xi.
Dictyonera clarinervis, Carboniferous, Illinois, MELANDER, p. 185, pl. vi,
 fig. 1, pl. vii, fig. 8, J. Geol. xi, n. sp.

Neuropteroidea.

- Cheliphlebia extensa*, Carboniferous, Illinois, MELANDER, p. 186, pl. vi,
 fig. 2, pl. vii, fig. 9, J. Geol. xi, n. sp.
Eucænus mazonus, p. 188, pl. vi, fig. 3, pl. vii, fig. 10, *attenuatus*, p. 190,
 pl. vi, fig. 4, pl. vii, fig. 11, Carboniferous, Illinois, id. t. c., n. spp.
Petromartus n. g. for *P. indistinctus* n. sp., Carboniferous, Illinois,
 MELANDER, p. 191, pl. vi, fig. 6, pl. vii, figs. 12, 13, t. c.
Dicæoneura maxima, Carboniferous, Illinois, MELANDER, p. 193, pl. vi,
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Prodictyon n. g. fam. *Hemeristina*, p. 195, for *P. pulchripene* n. sp., pl. vi,
 fig. 7, pl. vii, fig. 17, id. t. c., n. sp.

III. SYSTEMATIC.

N.B.—The reference numbers collected under the headings of the various groups refer to "Titles" on pp. 5-89, and are intended to give, in each case, a complete list of all memoirs containing anything of importance in connection with the group.

- The Sub-classes and Orders, phylogeny, HANDLIRSCH (668).
 Morphology of thorax, VERHOEFF (1594 & 1599); of legs, VERHOEFF
 (1595, 1596); of terminal segments, VERHOEFF (1597).
 Vestigial wings, BRUES (222).
 Colour in various Orders, TOWER (1539).
 The phylogenetic method in entomology, PEYERIMHOFF (1128).
 Brauer's views as to larvæ, PEYERIMHOFF (1129).
 List of names omitted from 'Index Zoologicus,' PROUT, Ent. Rec. xv,
 pp. 93, 94.
 Statistics of Insects taken at night in Africa, and description of the
 apparatus, ENDERLEIN, Mt. Mus. Berlin ii, 2, pp. 3-6.

(A.) COLEOPTERA.

- The classification of *Coleoptera*, GANGLBAUER (597, 603), KOLBE (868),
 SEMENOW (1389).
 Classification of *Coleoptera*, division into *Caraboidea* and *Cantharidoidea*,
 GANGLBAUER, pp. 268, 269, Allg. Zeitschr. Ent. viii.
 The classification of *Coleoptera* with special regard to phylogeny, and the
 views of Ganglbauer, LAMEERE, pp. 155-165, Ann. Soc. ent. Belgique
 xvii.
Coleoptera, species, variety, phylogeny, PEYERIMHOFF (1127).
 Table of the families according to larvæ, MACGILLIVRAY, Bull. N. York
 Mus. lxxviii, pp. 288-294.
 Structure and morphology of elytra, KOLBE, SB. Ges. naturf. Berlin 1903,
 pp. 225-231.
 Development of the wings, TOWER (1538).
 Colour and coloration in *Coleoptera*, TOWER (1539).
 The number of abdominal ganglia and free ventral segments compared,
 PEYERIMHOFF, Bull. Soc. ent. France 1903, pp. 58-62.

The minute structure of the chitinous skeleton—specially of *Lucanus*, *Oryctes*, *Cybister*, etc., BIEDERMANN (126).

Notes on early stages of many species of a variety of families, XAMBEU (1700).

CICINDELIDÆ.

[Memoirs relating to *Cicindelidæ*: BRUYANT & EUSEBIO (234), CSIKI (362), ENOCK (464), FAIRMAIRE (478, 479, 480), FLEUTIAUX (519, 520, 524), HORN (718–726), PÉRINGUEY (1117), ROBINSON (1274), TSCHITSCHÉRINE (1562, 1565).]

HORN gives numerous notes on palæarctic *Cicindelidæ* with special reference to the papers of TSCHITSCHÉRINE (1562, 1565), Munchen. Kol. Zeitschr. i, pp. 337–346.

Synonymical notes on N. American *Cicindelidæ*, HORN, pp. 179–198, Deutsche ent. Zeitschr. 1903.

Synonymical list of the *Cicindelidæ* of Mexico, HORN, pp. 214–221, J. N. York Ent. Soc. xi.

Notes on habits and mimicry in some Malayan *Cicindelidæ*, ROBINSON & ANNANDALE, Fascic. Malay. Zool. i, pp. 179–183.

Cicindelidæ of Hungary, CSIKI, Math. naturw. Ber. Ungarn xviii, pp. 121–144, 2 pls.

Larval habits, *Cicindela campestris*, ENOCK, pp. xv–xix, P. ent. Soc. London 1903.

Amblychila schwarzi, N. America (for one of two species, but which is not known), HORN, p. 196, Deutsche ent. Zeitschr. 1903, n. sp.

Caledonica longicollis, New Caledonia, FAUVEL, p. 214, Rev. Ent. franc. xxii, n. sp.

Cicindela, synonymic and varietal notes on 10 spp. from W. Asia, with *przevalskii* var. n. *grami* and *kozlovi*, p. 96, *deserticola* var. n. *albonubila*, p. 102, *inscripta* var. n. *kashgarica*, p. 105, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxvi, pp. 90–107; *C. umbratilis* n. n. for *horni* Schaup., FAIRMAIRE, p. 358, Ann. Soc. ent. Belgique xlvii; *C. decempustulata* var. n. *rhodoterena*, p. 3, *pygmæa* var. n. *lætula*, p. 9, *aulica diania* subsp. n., p. 10, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxvi; *C. litoralis* var. n. *obseurior*, SCHNEIDER, p. 50, SB. Ges. Isis 1902; *C. sexguttata* var. n. *4-guttata*, DAVIS, p. 271, Ent. News Philad. xiv; *C. marginella* var. n., HORN, p. 315, Deutsche ent. Zeitschr. 1903; *C. hentzi*, habits, etc., HOOD, pp. 113–116, Ent. News Philad. xiv; *C. orientalis*, characters, TSCHITSCHÉRINE, p. 229, Rev. Russe Ent. iii.

C. zarudniana, p. 5, *C. (Chætostyla) histrio*, p. 16, E. Persia, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxvi; *C. kachowskyi*, p. 422, *nudopectoralis*, p. 423, Abyssinia, HORN, Deutsche ent. Zeitschr. 1903; *C. soatalæ*, Madagascar, FAIRMAIRE, p. 358, Ann. Soc. ent. Belgique xlvii; *C. malabarica*, India, FLEUTIAUX & MAINDRON, p. 72, Bull. Soc. ent. France 1903; *C. plasoni*, Borneo, HORN, p. 423, Deutsche ent. Zeitschr. 1903; *C. wickhami*, Arizona, HORN, p. 182, t. c.; *C. schaefferi*, Mexico or California, HORN, p. 213, J. N. York Ent. Soc. xi : n. spp.

Dromica bertoloni var. n., p. 319, *schaumi* var. n., p. 320, HORN, Deutsche ent. Zeitschr. 1903; *D. (Myrmecoptera) bilunata* var. n. *prolongata*, HORN, p. 316, t. c.; *D. nobilitata* var. n. *reducta*, p. 421, HORN, t. c.

D. (Cosmema) traducens, p. 316, *tenellula*, Gazaland, *apicalis*, Mashonaland, p. 317, HORN, Deutsche ent. Zeitschr. 1903; *D. (Cosmema) lepidula*, *D. laticollis*, Transvaal, HORN, p. 318, t. c.; *D. (Myrmecoptera) hildebrandti*, E. Africa, HORN, p. 421, t. c. : n. spp.

Megacephala seabakuana, Rhodesia, PÉRINGUEY, p. 338, Bull. Soc. ent. France 1903, n. sp.

- Megalomma biguttulum*, Madagascar, FAIRMAIRE, p. 67, Bull. Soc. ent. France 1903; *M. punctipenne*, Madagascar, FAIRMAIRE, p. 181, Ann. Soc. ent. France lxxii; *M. janthinum*, Madagascar, FAIRMAIRE, p. 359, Ann. Soc. ent. Belgique xlvi; *M. alluaudi*, Madagascar, FLEUTIAUX, p. 172, Bull. Soc. ent. France 1903 : n. spp.
- Odontochila baeri*, Peru, FLEUTIAUX, p. 109, t. c., n. sp.
- Omus audouini* var. n. *vandykei*, p. 185, *O. californicus* var. n. *fuchsi*, p. 188, HORN, Deutsche ent. Zeitschr. 1903.
- Ophryodera foliicornis* subsp. n. *trimaculata*, HORN, p. 422, t. c.
- Pogonostoma septentrionale*, Madagascar, FLEUTIAUX, p. 173, Bull. Soc. ent. France 1903, n. sp.
- Tetracha klagesi*, Venezuela, HORN, p. 332, P. ent. Soc. Washington v, n. sp.
- Therates dimidiatus, sumatrensis*, distinctions, BOUCHARD, p. 169, Bull. Soc. ent. France 1903.

CARABIDÆ.

[Cf. ABELLE (1, 2), APFELBECK (30), BEUTENMÜLLER (118), BLACKBURN (135, 136), BORN (156, 156A), BOUCHARD (161, 162), BROUN (220), CARRET (281), CSIKI (359, 360), J. DANIEL (373), K. DANIEL (374, 375), FAIRMAIRE (477, 478, 479), FAUVEL (495), FIORI (512), FRIEDERICHS (542), GAHAN (589), GANGLBAUER (595, 596, 602), HELLER (682), KOLBE (863), LAPOUGE (911, 912, 913), LOMNICKI (947), MÜLLER (1049), PIC (1166), REITTER (1234, 1240, 1241), ROSENBERG (1279), SAHLBERG (1309), SAINTE-CLAIRE-DEVILLE (1312), SEMENOW (1383, 1388, 1393, 1394, 1395, 1397), SHARP (1403), SLOANE (1436), TSCHITSCHÉRINE (1553-1564, 1566-1568).]

APFELBECK publishes the first Vol. of a descriptive work on the *Coleoptera* of the Balkan peninsula, Asia Minor and Crete; it contains numerous new species and varieties. The varieties are not recorded below. Some of the new species were previously described in the Bosnian language in a journal we have not seen; these are treated below as described for the first time in this Vol., Käferfauna Balkan. i.

The *Carabidæ* of the Hawaiian Islands, 210 species, SHARP, pp. 175-291, Fauna Hawaiiensis iii.

LAPOUGE studies the remains of *Carabus* in a Belgian peat-moss, and considers them to be extinct varieties of existing species, Ann. Soc. ent. Belgique xlvi, pp. 227-240.

The mesothoracic peduncle, SEMENOW (1388).

Abacetus strigipes, p. 46, *elegans*, p. 48, *perrieri*, p. 49, *cyclomus*, p. 50, *androyanus*, p. 51, *humilis*, p. 52, Madagascar, *annamensis*, p. 53, Annam, *acutangulus*, Madagascar, p. 54, *indrapoëra*, Sumatra, p. 56, *setifer*, Madagascar, p. 57, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxvi, n. spp.

Abacoleptus n. g. near *Abacomorphus*, for *A. carinatus* n. sp., New Caledonia, FAUVEL, p. 232, Rev. Ent. franc. xxii.

Acinopus picipes, clypeal setæ, MÜLLER, p. 14, Verh. Ges. Wien liii.

Acupalpus, revision of Italian, FIORI, pp. 2-21, Riv. Col. ital. i.

A. flavicornis, Modena, id., p. 11, t. c., n. sp.

Adrimus uruguaiicus, Montevideo, TSCHITSCHÉRINE, p. 59, Horæ Soc. ent. Ross. xxxvi, n. sp.

Allocinopus n. g. *Harpalidæ*, p. 607, for *A. sculpticollis* n. sp., New Zealand, p. 608, BROUN, Ann. Nat. Hist. xi.

Amara (Hyalamara) subg. n., p. 219, *crystallina*, Mongolia, p. 220, *ahngeriana*, Transcasian, p. 221, TSCHITSCHÉRINE, Rev. Russe Ent. iii; *A. pindica*, Greece, p. 300, *serdicana*, Bulgaria, p. 303, *kruperi*, Greece, p. 305, APFELBECK, Käfer. Balkan. i : n. spp.

- Anchomenus walkeri*, New Zealand, BROUN, Ann. Nat. Hist. xi, p. 456, **n. sp.**
- Anchonymus n. g. Anchomenides*, for *A. agonoides*, pl. vi, fig. 8, **n. sp.**, Maui, SHARP, p. 199, Fauna Hawaiiensis iii.
- Anchotefflus n. g. Anchomenides*, for *A. gracilis*, Oahu, p. 195, *elegans*, Kauai, p. 196, **n. spp.**, SHARP, t. c.
- Androyna n. g.*, p. 160, for *A. alluaudi*, p. 160, *decorsei*, p. 161, Madagascar, **n. spp.**, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxvi.
- Anillus magdalenæ*=(*Microtyphlus theryi* Guillb.), THÉRY, p. 142, Bull. Soc. ent. France 1903.
- Anomphaenus granulipennis*, New Caledonia, FAUVEL, p. 216, Rev. Ent. franc. xxii, **n. sp.**
- Anopthalmus*, the Hungarian species, with *A. bielzi* var. *n. transsylvanicus*, p. 52, CSIKI, Allatt. Kozl. Magyar Tars. i, pp. 43 etc.; *A. auberti* varr., *A. argodi* var. *n. cerdonicus*, ABELLE, p. 208, Bull. Soc. ent. France 1903; *A. bielzi* var. *n. transsylvanicus*, CSIKI, p. 52, Allatt. Kozl. i; *A. dalmatinus* and *suturalis* distinguished, MÜLLER, Wien. ent. Zeit. xxii, pp. 148-151.
- A. hilfi*, caves of Herzegovina, REITTER, Wien. ent. Zeit. xxii, p. 212; *A. hungaricus*, p. 441, *deubelianus*, p. 442, Hungary, CSIKI, Ann. Mus. Hungar. i: **n. spp.**
- Anthia sternbergi*, Cape of Good Hope, OBST, p. 146, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Apteromesus n. g. Anchomenides*, for *A. maculatus n. sp.*, Kauai, SHARP, p. 211, Fauna Hawaiiensis iii.
- Aptinus ponticus*, Turkey, APFELBECK, p. 355, Käfer. Balkan. i; *A. creticus*, Crete, PIC, p. 161, Echange 1903: **n. spp.**
- Archotefflus* subg. *n. cf. Tefflus*.
- Aristochroa kaznakovi*, E. Tibet, TSCHITSCHÉRINE, p. 224, Rev. Russe Ent. iii, **n. sp.**
- Asaphidion stierlini n. n.* for *angusticollis* Stierl., APFELBECK, Käfer. Balkan. i, p. 79.
- Atelidium n. g.* near *Bembidium*, p. 284, for *A. munroi n. sp.*, Kauai, p. 285, SHARP, Fauna Hawaiiensis iii.
- Atelothorax n. g. Pterostichides*, for *A. optatus n. sp.*, Maui, SHARP, p. 269, t. c.
- Atelothrus n. g. Anchomenides*, for *A. politus*, p. 216, *limbatus*, *longicollis*, *constrictus*, p. 217, *longulus*, *stenopus*, *filipes*, p. 218, *hawaiiensis*, *gracilis*, p. 219, *dyscoleus*, *depressus*, p. 220, *platynoides*, *transiensis*, p. 221, **n. spp.**, Hawaiian Islands, SHARP, t. c.
- Atrachycnemis perkinsi*, Molokai, *koebelei*, Hawaii, SHARP, p. 194, t. c., **n. spp.**
- Badister peltatus* var., FRIEDERICHS, p. 258, Allg. Zeitschr. Ent. viii.
- B. gladiator*, S.E. Europe, APFELBECK, p. 164, Käfer. Balkan. i; *B. cavifrons*, New Caledonia, FAUVEL, p. 222, Rev. Ent. franc. xxii: **n. spp.**
- Baryneus n. g.* for *Anchomenus sharpi* Blackb., pl. vi, fig. 2, SHARP, p. 209, Fauna Hawaiiensis iii.
- Barypristus incendiarius*, pl. vi, fig. 7, p. 208, SHARP, t. c.
- Bembidium lampros*, variation, p. 257, *B. guttula* var. *n. nigrescens*, p. 258, FRIEDERICHS, Allg. Zeitschr. Ent. viii; *B. longipes*, *redtenbacheri*, notes, SAINTE-CLAIRE-DEVILLE, p. 91, Echange 1903.
- B. serdicanum*, Bulgaria, p. 92, *pindeum*, Aetolia, p. 98, APFELBECK, Käfer. Balkan. i; *B. advena*, p. 278, *B. (Emphanes) molokaiense*, p. 279, Hawaiian Islands, SHARP, Fauna Hawaiiensis iii; *B. actuarium*, New Zealand, BROUN, Ann. Nat. Hist. xi, p. 611: **n. spp.**
- Blackburnia insignis* var. *n. kaalensis*, SHARP, p. 191, Fauna Hawaiiensis iii.
- Brachynus ganglbaueri*, E. Europe etc., p. 348, *peregrinus*, Albania, p. 351, *bodemeyeri*, Turkey, p. 352, APFELBECK, Käfer. Balkan. i, **n. spp.**

- Bradycellus ganglbaueri*, Herzegowina, APFELBECK, t. c., n. sp.
- Bronislavia robusta* = (*sidonia* Reitt.), SEMENOW, p. 14, Rev. Russe Ent. iii.
- Brosconymus* n. g. *Anchomenides*, for *B. optatus* n. sp., Oahu, SHARP, p. 198, Fauna Hawaiiensis iii.
- Caletor* n. n. for *Microcanenus* Tschit., below.
- Calosoma lugens* = (*irregularis* Reitt.), SEMENOW, p. 14, Rev. Russè Ent. iii.
- Carabus*, phylogeny, continuation, LAPOUGE, pp. 231-244, Bull. Soc. sci. med. Ouest France xii, also *Carabus* of Roumania, HORMUZAKI (717), BORN (156): Peat-fossil forms in Belgium, with varr. n., LAPOUGE, Ann. Soc. ent. Belgique xlvii, pp. 227-240: The crenulate margins of elytra, MÜLLER, Wien. ent. Zeit. xxii, p. 147; REITTER, t. c. p. 171; *C.*, varr. n. from Italy, BORN, Ins.-Börse 1902, pp. 100, 108; *C. auro-nitens cluniensis* subsp. n., BORN, Ins.-Börse 1901-1903, p. 51; *C. bohemani* var. n. *astrabadensis*, SEMENOW, p. 306, Rev. Russe Ent. iii; *C. cancellatus* and *clathratus*, variation, FRIEDERICHs, p. 257, Allg. Zeitschr. Ent. viii; *C. cancellatus* varr. n. *bucecianus*, *sulinensis*, BORN, p. 610, Bull. Soc. Bucarest xl; *C. clathratus auraniensis* var. n., *C. granulatus paludicola* var. n., MÜLLER, p. 192, Munchen. Kol. Zeitschr. i; *C. italicus* var. n. *rostagnoi*, LUIGIONI, p. 75, Bull. Soc. ent. Ital. xxxv; *C. kollari moldaviensis* subsp. n., BORN, p. 295, Bull. Soc. Bucarest xii; *C. maurus demetrii* subsp. n., SEMENOW, p. 232, Rev. Russe Ent. iii; *C. violaceus* var. *dacoromanus*, HORMUZAKI, p. 281, Bull. Soc. Bucarest xii; *C. kuznetzovi*, p. 230, *hemicalosoma*, p. 231, N. Persia, SEMENOW, Rev. Russe Ent. iii; *C. minusculus*, W. Turkestan, SEMENOW, p. 297, t. c.; *C. ladygini*, p. 349, *facetus kamensis*, p. 350, *insidiosus*, p. 351, E. Tibet, SEMENOW, t. c.; *C. (Alipaster) wilkinsi*, Kuldsha, SEMENOW, p. 382, t. c. : n. spp.
- Castelneaudia porphyriaca*, characters, SLOANE, p. 599, P. Linn. Soc. N. S. Wales xxviii.
- C. latipennis*, Richmond River, id., p. 597, t. c., n. sp.
- Celoenephes forsteri*, Sumatra, BOUCHARD, p. 176, Ann. Soc. ent. France lxxii, n. sp.
- Chalcomenus* n. g., p. 206, for *C. molokaiensis*, Molokai, *costatus*, Kauai, p. 207, n. spp., and *Anchomenus corruscus* Er., SHARP, Fauna Hawaiiensis iii.
- Chilotomus tschitscherini*, Turkestan, SEMENOW, p. 8, Rev. Russe Ent. iii, n. sp.
- Chlëminus annamensis*, Annam, TSCHITSCHÉRINE, p. 58, Horæ Soc. ent. Ross. xxxvi, n. sp.
- Chlënius nitidulus* var., FRIEDERICHs, p. 258, Allg. Zeitschr. Ent. viii; *Chlënius*, cf. *Paradinodes*.
- C. pyrrhopodus*, Madagascar, FAIRMAIRE, p. 359, Ann. Soc. ent. Belgique xlvii; *C. radama*, *seminitens*, p. 15, *morosus*, p. 16, Madagascar, FAIRMAIRE, Rev. Ent. franc. xxii; *C. melancholicus*, Sokotra, GAHAN, Nat. Hist. Sokotra, p. 264 : n. spp.
- Chatodactylini*, new subtribe with table of genera, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxvi, pp. 157-160.
- Cillemum albovirens*, Queensland, SLOANE, p. 575, P. Linn. Soc. N. S. Wales xxviii, n. sp.
- Clivina lignicola*, Sumatra, BOUCHARD, p. 169, Ann. Soc. ent. France lxxii, n. sp.
- Colpocaccus* n. g. with *C. hawaiiensis*, p. 214, *lanaiensis*, *apicalis*, *posticatus*, *marginatus*, p. 215, n. spp., Hawaiian Islands, SHARP, Fauna Hawaiiensis iii.
- Colpodes kanak*, New Caledonia, FAUVEL, p. 236, Rev. Ent. franc. xxii, n. sp.
- Colpodiscus lahaiensis*, Maui, SHARP, p. 210, Fauna Hawaiiensis iii, n. sp.
- Coscinia*, cf. *Graniger*.

- Cratognathus sulcator*, p. 16, *assimilis*, *C. ? pictus*, p. 17, Madagascar, FAIRMAIRE, Rev. Ent. franc. xxii, n. spp.
- Cychnus viduus* var. n. *irregularis*, pl. xlviii, figg. 5-7, *guyoti*, figg. 1-4, *violaceus*, figg. 10, 11, p. 513, *andrewsii*, fig. 7, and pl. xlix, fig. 1, p. 514, BEUTENMÜLLER, Bull. Amer. Mus. xix.
- C. aneicollis*, N. Carolina, id., t. c. p. 515, pl. xlviii, fig. 13, n. sp.
- Cyclosomus sumatrensis*, Palembang, BOUCHARD, p. 174, Ann. Soc. ent. France lxxii, n. sp.
- Cyclothorax* Macl. replaced by *Mecyclothorax* Sharp, SLOANE, p. 585, P. Linn. Soc. N. S. Wales xxviii.
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- Thriscothorax* n. g. *Pterostichides*, for *T. filipes*, p. 257, *gracilis*, *palustris*, p. 258, *modestus*, *subconstrictus*, p. 259, *molokaia*, *perstriatus*, pl. vii, fig. 8, p. 260, *mundanus*, *constrictus*, fig. 9, *insolitus*, fig. 10, p. 261, *discedens*, p. 263, *chalcosus*, *apicalis*, fig. 12, p. 264, *perkinsi*, fig. 13, *varipes*, p. 265, *ducalis*, fig. 14, p. 266, *laticollis*, *bradyderus*, p. 267, *platysminus*, fig. 15, *argutor*, p. 268, n. spp., Hawaiian Islands, SHARP, Fauna Hawaiiensis iii.
- Trechus*; discussion of numerous critical European species, *T. subnotatus* and allies, pp. 110-114, *latus*, p. 115, *rotundipennis*, *pertyi*, p. 116, GANGLBAUER, Wien. ent. Zeit. xxii; *T. (Anophthalmus) targionii florii*, note, p. 119, *frivaldskyi* n. n. for *milleri* Friv., p. 120, GANGLBAUER, t. c.
- T. (Anophthalmus) roberti*, Alpes-Maritimes, p. 298, *escalerae*, Spain, p. 299, ABELLE, Bull. Soc. ent. France 1903; *T. varendorffi*, Corsica, DEVILLE, p. 70, t. c.; *T. (Anophthalmus) bohiniensis*, Julian Alps, GANGLBAUER, Wien. ent. Zeit. xxii, p. 118; *T. bradycelloides*, Bosnia, p. 129, *angusticeps*, Turkey, p. 130, *kobingeri*, Bosnia, p. 131, *serbicus*, Servia, p. 132, *acutangulus*, p. 134, *sturanyi*, p. 136, Bosnia, *durmitorensis*, Montenegro, *styx*, Bosnia, p. 139, APFELBECK, Käfer. Balkan. i; *T. fortimanus*, Caucasus, *almonius*, Irkutsk, p. 2, *beatus*, Circassia, *korbi*, Armenia, p. 3, *dorsiger*, *subnævulus*, Caucasus, p. 4, *dubitans*, Swanetia, p. 5, *bradycelloides*, Caucasus, p. 6, REITTER, Wien. ent. Zeit. xxii : n. spp.
- Trichosternus walkeri*, p. 602, *akaroensis*, p. 603, *bucolicus*, p. 604, New Zealand, BROUN, Ann. Nat. Hist. xi, n. spp.
- Zabrus aegæus*, Greece, *laticollis*, Rhodes, p. 312, *rhodopensis*, Bulgaria, p. 315, *albanicus*, Albania, p. 316, *reitteri*, Asia Minor, p. 317, *peristericus*, Epirus, p. 318, APFELBECK, Käfer. Balkan. i, n. spp.
- Zolus femoralis*, characters, BROUN, Ann. Nat. Hist. xi, p. 458.

HALIPLIDÆ.

- Haliplidæ*; taxonomy, SEMENOW, p. 187, Rev. Russe Ent. iii.
- Haliplus alluaudi*, Madagascar, RÉGIMBART, p. 1, Ann. Soc. ent. France lxii, n. sp.

DYTISCIDÆ.

- [Cf. APFELBECK (30), BLACKBURN (135), FAUVEL (495), PETRI (1121), RÉGIMBART (1213, 1215, 1216, 1217), SHARP (1403, 1413).]

Agabus dilatatus=(*goryi* Aubé), APFELBECK, p. 381, Käfer. Balkan. i; *A. didymus* var. n. *chalybæus*, SAHLBERG, p. 12, Öfv. Finska Forh. xlv, No. 19.

A. regalis, Carpathians, PETRI, Wien. ent. Zeit. xxii, p. 49, n. sp.

- Anagabus sogdianus*=(*limb basis* Reitt.), SEMENOW, p. 99, Rev. Russe Ent. iii.
- Anodontochilus silvestrii*, Buenos Ayres, RÉGIMBART, p. 49, Bull. Soc. ent. Ital. xxxv, n. sp.
- Antiporus collaris* Hope, note, BLACKBURN, p. 92, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Bidessus geminus* var. n. *corsicus*, SCHNEIDER, p. 51, SB. Ges. Isis 1902.
- B. complicatus*, White Nile, SHARP, p. 4, Swedish exp. White Nile, No. 10; *B. costulifer*, p. 8, *longivittis*, p. 9, Madagascar, RÉGIMBART, Ann. Soc. ent. France lxxii; *B. crassifrons*, p. 331, *mysorensis*, p. 332, India, RÉGIMBART, Ann. Soc. ent. France lxxii; *B. cruciatus*, p. 50, *curticornis*, p. 54, Argentina, RÉGIMBART, Bull. Soc. ent. Ital. xxxv : n. spp.
- Canthydrus flavosignatus*, Madagascar, RÉGIMBART, p. 13, Ann. Soc. ent. France lxxii; *C. obesus*, *cribrosus*, p. 59, *transversus*, p. 61, *pinguiculus*, *globosus*, p. 62, S. America, RÉGIMBART, Bull. Soc. ent. Ital. xxxv : n. spp.
- Clypeodytes lentus*, White Nile, SHARP, p. 4, Swedish exp. White Nile, No. 10; *C. sordidipennis*, Madagascar, RÉGIMBART, p. 6, Ann. Soc. ent. France lxxii : n. spp.
- Copelatus parvulus*=(*mauiensis* Blackb.), SHARP, p. 288, Fauna Hawaiiensis iii.
- C. strigulifer*, p. 17, *distinguendus*, *ungicularis*, p. 19, Madagascar, RÉGIMBART, Ann. Soc. ent. France lxxii; *C. silvestrii*, Argentina, RÉGIMBART, Bull. Soc. ent. Ital. xxxv : n. spp.
- Desmopachria brevicollis*, Argentina, RÉGIMBART, p. 47, t. c., n. sp.
- Herophydrus pæcilus*, p. 3, *picturatus*, p. 4, Madagascar, RÉGIMBART, p. 4, Ann. Soc. ent. France lxxii, n. spp.
- Hydrocanthus proticus*, White Nile, SHARP, Swedish exp. White Nile, No. 10, p. 3, n. sp.
- Hydroporus obliquesignatus* and *genei* distinguished, p. 373, *H. limbatus* var.=(*brucki* Wehncke), p. 376, APFELBECK, Käfer. Balkan. i; *H. bilineatus*, in England, CHITTY, Ent. Mag. xxxix, p. 143; *H. bilineatus* and *granularis*, distinctions, NEWBERY, t. c. p. 223.
- H. normandi*, Pyrenees and Spain, RÉGIMBART, p. 254, Bull. Soc. ent. France 1903, n. sp.
- Hydrovatus madagascariensis*, p. 11, *confusus*, p. 12, Madagascar, RÉGIMBART, Ann. Soc. ent. France lxxii, n. spp.
- Hyphoporus nilghiricus*, India, RÉGIMBART, p. 331, t. c., n. sp.
- Hyphydrus minutissimus*, Madagascar, RÉGIMBART, p. 5, t. c., n. sp.
- Laccophilus variegatus* var. n. *parumpunctatus*, SCHNEIDER, p. 51, SB. Ges. Isis 1902.
- L. pallescens*, p. 14, *elongatus*, p. 15, Madagascar, RÉGIMBART, Ann. Soc. ent. France lxxii; *L. testudo*, p. 65, *paraguensis*, *gounellei*, p. 68, S. America, RÉGIMBART, Bull. Soc. ent. Ital. xxxv, n. spp.
- Megadytes aeneus*, variation, RÉGIMBART, p. 73, t. c.
- Neptosternus oberthuri*, p. 15, *alluaudi*, p. 16, Madagascar, RÉGIMBART, Ann. Soc. ent. France lxxii, n. spp.
- Notomicrus punctulatus*, New Caledonia, FAUVEL, p. 244, Rev. Ent. franc. xxii, n. sp.
- Pachydrus obesus* var., RÉGIMBART, p. 46, Bull. Soc. ent. Ital. xxxv.
- Pachynectes* n. g. near *Hygrotus*, p. 7, for *P. ventricosus* n. sp., Madagascar, p. 8, and *Bid. hygrotoides* Rég., RÉGIMBART, Ann. Soc. ent. France lxxii.
- Suphis intermedius*, p. 57, *minutus*, p. 58, Matto Grosso, RÉGIMBART, Bull. Soc. ent. Ital. xxxv, n. spp.

GYRINIDÆ.

[Cf. APFELBECK (30), FAUVEL (495), RÉGIMBART (1213, 1215, 1216).]

- Aulonogyrus cristatus*, Madagascar, RÉGIMBART, p. 21, Ann. Soc. ent. France lxxii; *A. antipodum*, New Caledonia, FAUVEL, p. 254, Rev. Ent. franc. xxii : n. spp.
Gyrinus natator var. n. *corpulentus*, SCHATZMAYR, Wien. ent. Zeit. xxii, p. 172; *G. marinus* and *opacus*, variation, FRIEDERICH, p. 260, Allg. Zeitschr. Ent. viii; *G. bolivari*, sexes, RÉGIMBART, p. 73, Bull. Soc. ent. Ital. xxxv.
Macrogyrus striolatus=(*fortissimus* Blackb.), BLACKBURN, p. 92, Tr. R. Soc. S. Austral. xxvii.
Orectogyrus purpureus var. n. *meridionalis*, RÉGIMBART, p. 24, Ann. Soc. ent. France lxxii.
O. attenuatus, Madagascar, id. p. 23, t. c., n. sp.

HYDROPHILIDÆ.

[Cf. BROUN (220), ENDERLEIN (450), FAIRMAIRE (478), RÉGIMBART (1213, 1214, 1215), SAHLBERG (1309), SAINTE-CLAIRE-DEVILLE (1311), SHARP (1413).]

- Agraphydrus* n. g. near *Philhydus*, p. 33, for *A. punctatellus* n. sp., Madagascar, p. 34, RÉGIMBART, Ann. Soc. ent. France lxxii.
Amphiops mirabilis var. n. *variolosus*, RÉGIMBART, p. 63, t. c.
A. confusus, p. 43, *lasioides*, p. 44, Madagascar, RÉGIMBART, t. c.; *A. lateritius*, Madagascar, FAIRMAIRE, p. 185, Ann. Soc. ent. France lxxii; *A. sumatrensis*, Sumatra, p. 61, *annamita*, p. 62, Annam, RÉGIMBART, t. c. : n. spp.
Berosus cariniceps, p. 37, *marmoratus*, p. 38, *villosulus* with var. *dilutus*, p. 39, Madagascar, RÉGIMBART, t. c.; *B. nigropictus*, Saigon, RÉGIMBART, p. 60, t. c. : n. spp.
Cercyon hova, p. 47, *laticollis*, *obconicus*, *procerus*, *dieganus*, p. 48, *flavocinctus*, *nigerrimus*, p. 49, *crenatostratus*, p. 50, Madagascar, RÉGIMBART, t. c.; *C. maindroni*, *crenulatus*, p. 337, *dilutus*, p. 338, India, RÉGIMBART, t. c. : n. spp.
Cælostoma phalacroides, Madagascar, RÉGIMBART, p. 44, t. c.; *C. æneolum*, India, RÉGIMBART, p. 337, t. c. : n. spp.
Cyclomissus n. g. near *Cyloma*, for *C. glabratus* n. sp., New Zealand, BROUN, Ann. Nat. Hist. xi, p. 613.
Dactylosternum pygmæum, Madagascar, RÉGIMBART, p. 45, Ann. Soc. ent. France lxxii, n. sp.
Epimetopus maindroni, India, RÉGIMBART, p. 338, t. c., n. sp.
Globaria subopaca, Madagascar, RÉGIMBART, p. 41, t. c., n. sp.
Helochares melanophthalmus var. n. *sechellensis*, p. 27, *crenatostratus*, p. 28, RÉGIMBART, t. c.
Helochares filipalpis, p. 6, *niloticus*, *dispar*, *squalidus*, p. 7, White Nile, SHARP, Swedish exp. White Nile, No. 10; *H. variabilis*, p. 25, *albescens*, p. 27, Madagascar, RÉGIMBART, Ann. Soc. ent. France lxxii; *H. atropicus*, p. 53, *H. (Graphelochares) crenatus*, p. 54, S. E. Asia, RÉGIMBART, t. c. : n. spp.
Hydræna, notes on species of France, SAINTE-CLAIRE-DEVILLE, Echange 1903, pp. 103, 111.
H. decolor, Alpes maritimes, SAINTE-CLAIRE-DEVILLE, p. 111, t. c.; *H. marginicollis*, Madagascar, RÉGIMBART, p. 51, Ann. Soc. ent. France lxxii; *H. princeps*, New Caledonia, FAUVEL, p. 350, Rev. Ent. franc. xxii : n. spp.

- Hydrochus niloticus*, White Nile, SHARP, p. 10, Swedish exp. White Nile, *No. 10; *H. tenuis*, Madagascar, FAIRMAIRE, p. 185, Ann. Soc. ent. France lxxii; *H. annamita*, Annam, RÉGIMBART, p. 64, Ann. Soc. ent. France lxxii : **n. spp.**
- Hydrophilus cultrifer*, Madagascar, RÉGIMBART, p. 25, t. c.; *H. cambodiensis*, p. 53, t. c. : **n. spp.**
- Laccobius parumpunctatus*, p. 34, *curvipes*, p. 35, Madagascar, RÉGIMBART, t. c.; *L. discicollis*, p. 58, *roseiceps*, *rotundatus*, p. 59, S. E. Asia, RÉGIMBART, t. c.; *L. discicollis*, India, RÉGIMBART, p. 336, t. c. : **n. spp.**
- Limnobius rufipennis*, India, RÉGIMBART, p. 336, t. c., **n. sp.**
- Meropathus chuni*, figg., ENDERLEIN, pl. xxxii, figg. 20–24, p. 207, Valdivia Exp. iii.
- Ochthebius (Cheilochthebius) æneocupreus*, p. 5, *cupricollis*, p. 6, Transcaspian, SAHLBERG, Ofv. Finska Forh. xlv; *O. niloticus*, Cairo, SHARP, p. 9, Swedish exp. White Nile, No. 10; *O. alluaudi*, Madagascar, RÉGIMBART, p. 50, Ann. Soc. ent. France lxxii : **n. spp.**
- Paracymus chalcus*, p. 32, *minor*, *lilliputanus*, p. 33, Madagascar, RÉGIMBART, t. c., **n. spp.**
- Philydrus pumilio*, White Nile, SHARP, p. 8, Swedish exp. White Nile, No. 10; *P. cribrus*, p. 28, *picinus*, *margipallens*, p. 29, *marginicollis*, Madagascar, *mauritiensis*, Mauritius, p. 30, *rufulus*, *longiusculus*, p. 31, *mollis*, p. 32, Madagascar, RÉGIMBART, Ann. Soc. ent. France lxxii; *P. crassus*, p. 55, *flavicans*, *rubrocinctus*, p. 56, *ferrugatus*, *nigritulus*, p. 57, *rubricollis*, p. 58, S. E. Asia, RÉGIMBART, t. c.; *P. tetraspilus*, *malabarensis*, India, RÉGIMBART, p. 335, t. c. : **n. spp.**
- Rygmodus nigripennis*, New Zealand, BROWN, Ann. Nat. Hist. xi, p. 612, **n. sp.**
- Spercheus hovanus*, Madagascar, FAIRMAIRE, p. 186, Ann. Soc. ent. France lxxii, **n. sp.**
- Volvulus niloticus*, *jaegerskioeldi*, White Nile, SHARP, p. 5, Swedish exp. White Nile, No. 10, **n. spp.**
- Zeadolopus n. g.* near *Tormus*, for *Z. spinipes n. sp.*, New Zealand, BROWN, Ann. Nat. Hist. xi, p. 614.

STAPHYLINIDÆ.

[Cf. BERNHAUER (105–108), BLACKBURN (135), BRÈTHES (217), ENDERLEIN (450), FABRE (474), FAUVEL (490–495), GERMAIN (611), LUZE (954–958), POPPIUS (1187), SAHLBERG (1309), SILVESTRI (1425), STEIN (1476).]

SILVESTRI redescribes his species and genera of termitophilous *Staphylinidæ* published in 1901, and discusses their habits, Redia i, pp. 187–203, and 212–216.

The mimicry of *Mimeciton*, WASMANN (1642).

Aleochara antennaria, New Caledonia, FAUVEL, p. 278, Rev. Ent. franc. xxii, **n. sp.**

Anceus forsteri, Sumatra, BERNHAUER, p. 36, Stettin Ent. Zeit. lxiv, **n. sp.**

Anthobium korbii, Anatolia, BERNHAUER, p. 192, Munchen. Kol. Zeitschr. i, **n. sp.**

Aræocerus cribratus and *robustus* distinguished, FAUVEL, p. 164, Rev. Ent. franc. xxii.

Astilbus caucasicus, Caucasus, *italicus*, S. Italy, BERNHAUER, p. 186, Munchen. Kol. Zeitschr. i; *A. migratorius*, India, FAUVEL, p. 162, Rev. Ent. franc. xxii : **n. spp.**

Atheta (Liogluta) roettgeni, Switzerland, BERNHAUER, p. 595, Verh. Ges. Wien liii, **n. sp.**

- Bledius maindroni*, S. India, FAUVEL, p. 151, Rev. Ent. franc. xxii; *B. fischeri*, Sumatra, BERNHAUER, p. 35, Stettin Ent. Zeit. lxiv : n. spp.
- Boreaphilus sahlbergi*, E. Siberia, POPPIUS, p. 106, Medd. Soc. Faun. Fenn. xxix, n. sp.
- Borolinus* n. g. for part of *Leptochirus*, p. 133, with *B. borneensis* n. sp., Borneo, p. 134, BERNHAUER, Deutsche ent. Zeitschr. 1903.
- Bryoporus gracilis*, Tyrol, LUZE, p. 237, Verh. Ges. Wien liii, n. sp.
- Callopsenius* n. n. for *Eupsenius* Wasm., WASMANN, p. 236, Deutsche ent. Zeitschr. 1903.
- Carcinocephalus* n. n. for *Astacops* Bernh. nec Boisd., BERNHAUER, p. 592, Verh. Ges. Wien liii.
- Catacamptus* subg. n. cf. *Priochirus*.
- Cephalomerus* subg. n. cf. *Priochirus*.
- Conosoma pictum*, Sumatra, BERNHAUER, p. 26, Stettin Ent. Zeit. lxiv, n. sp.
- Conurus apicicornis*, New Caledonia, FAUVEL, p. 273, Rev. Ent. franc. xxii, n. sp.
- Coprophilus longicornis*, Turkestan, BERNHAUER, p. 188, Munchen. Kol. Zeitschr. i, n. sp.
- Coryphium parvulum*, E. Siberia, POPPIUS, p. 107, Medd. Soc. Faun. Fenn. xxix, n. sp.
- Cryptobium fruhstorferi*, Annam, BERNHAUER, p. 30, Stettin Ent. Zeit. lxiv, n. sp.
- Eleusis longicornis*, p. 236, Cameroons, *alutella*, p. 237, Cameroons and Madagascar, FAUVEL, Arkiv. Zool. i, n. spp.
- Eudera depressicollis*, p. 12, *lata*, p. 13, Chile, GERMAIN, An. Univ. Chile xiii, n. spp.
- Geodromicus*; revision of palæarctic, LUZE, pp. 103-117, Verh. Ges. Wien liii.
- G. languidus*, p. 110, *gracilicornis*, p. 111, Caucasus, *convexicollis*, Taschkent, p. 112, *G. (Trichodromeus)* subg. n., p. 116, Buchara, p. 117, LUZE, t. c., n. spp.
- Gyrophæna caledonica*, New Caledonia, FAUVEL, p. 274, Rev. Ent. franc. xxii, n. sp.
- Heterosoma* n. g. near *Achenium*, for *H. dohrni* n. sp., Sumatra, BERNHAUER, p. 33, Stettin Ent. Zeit. lxiv.
- Hesperus lifuanus*, Lifu, FAUVEL, p. 269, t. c., n. sp.
- Homalota sulcatula*, Chile, GERMAIN, p. 15, An. Univ. Chile cxiii, n. sp.
- Homalium seriatum*, New Caledonia, FAUVEL, p. 258, Rev. Ent. franc. xxii, n. sp.
- H. rivulare*, metamorphosis, XAMBEU, p. 55, Naturaliste 1903.
- Holosus basicollis*, Congo, FAUVEL, p. 166, Ann. Soc. ent. Belgique xlvii; *H. tenuicornis*, Cameroons, FAUVEL, p. 236, Arkiv. Zool. i : n. spp.
- Heterothops fulvicollis* (Fairm. as *Baptolinus*)=(*Othius angustatus* Sol., Fauv.), GERMAIN, p. 29, An. Univ. Chile cxiii; *H. discoideus* referred to *Bolitobius*, GERMAIN, p. 56, t. c.
- H. impressifrons*, p. 34, *brevipennis*, p. 36, *vicunianus*, p. 38, Chile, GERMAIN, t. c., n. spp.
- Hoplândria rudis*, New Caledonia, FAUVEL, p. 278, Rev. Ent. franc. xxii, n. sp.
- Lathrobium punctatum*, *fovulum*, *atripalpe*, synonymy, DONISTHORPE, p. 180, Ent. Rec. xv.
- L. bodemeyeri*, Asia Minor, BERNHAUER, p. 593, Verh. Ges. Wien liii; *L. sumatrense*, Sumatra, BERNHAUER, p. 31, Stettin Ent. Zeit. lxiv : n. spp.
- Leptarthrus* subg. n. cf. *Priochirus*.
- Leptochirus* and allies, revision, BERNHAUER, pp. 113-160, Deutsche ent. Zeitschr. 1903; the following new subgenera of *Leptochirus* are

- adopted, *Stronglochirus*, *Mesochirus*, *Tropiochirus*, p. 120; Catalogue of the group, pp. 157–160. *L. bipunctatus* and *apicalis* distinguished, FAUVEL, p. 172, Rev. Ent. franc. xxii.
- L. laeviventris*, p. 126, *novus*, *kolbei*, p. 127, *paradoxus*, *brasilianus*, p. 128, *incertus*, S. America, *diversus*, Centr. America, p. 129, *gastralis*, *tenuicornis*, S. America, *sharpi*, Mexico, p. 130, *tenuis*, *helleri*, p. 132, BERNHAUER, Deutsche ent. Zeitschr. 1903; *L. (Prioichirus) ascendens*, Burma and India, p. 171, *weissi*, Tonkin, p. 172, FAUVEL, Rev. Ent. franc. xxii : n. spp.
- Leptusa anophthalma*, Dalmatia, BERNHAUER, p. 595, Verh. Ges. Wien liii, n. sp.
- Lesteva*: revision of palæarctic, LUZE, pp. 179–187, Verh. Ges. Wien liii.
- L. foveolata*, Apennines, p. 187, *fasciata*, Transcaspian, p. 188, *syriaca*, Beirut, p. 192, LUZE, t. c., n. spp.
- Leucocraspedum plumbeum*, India, FAUVEL, p. 160, Rev. Ent. franc. xxii, n. sp.
- Lispinus externepunctus*, Cameroons, FAUVEL, p. 235, Arkiv. Zool. i, n. sp.
- Lispinus impressicollis* = (*quadratus* Blackb.), FAUVEL, p. 150, Rev. Ent. franc. xxii.
- Loncovilius* n. g., p. 51, for some Chilian *Quedius*, *semiflavus* etc., GERMAIN, An. Univ. Chile cxiii.
- Medon granulicollis*, Sumatra, BERNHAUER, p. 32, Stettin Ent. Zeit. lxiv, n. sp.
- Menoedius* n. g. near *Palastrinus*, p. 155, for *M. andrewesi* n. sp., p. 157, India, FAUVEL, Rev. Ent. franc. xxii.
- Mesochirus* subg. n. cf. *Leptochirus*.
- Mycetoporus norvegicus*, Königsberg, BERNHAUER, p. 187, Munchen. Kol. Zeitschr. i, n. sp.
- Mimogonus* n. g. for part of *Osorius*, incl. *fumator* Fauvel, and others, FAUVEL, p. 261, Rev. Ent. franc. xxii.
- Myrmedonia brevipennis*, Tonkin, p. 21, *semiflava*, p. 23, *laevicauda*, p. 24, Sumatra, BERNHAUER, Stettin Ent. Zeit. lxiv, n. spp.
- Ocypus olens*, larval habits, cannibalism, FABRE, Souvenirs viii, pp. 265–268.
- Olophrum brevicolle*, Altai, BERNHAUER, p. 190, Munchen. Kol. Zeitschr. i, n. sp.
- Omalium falsum* = (*excellens* Beruh.), BERNHAUER, p. 592, Verh. Ges. Wien liii.
- O. nitidicolle*, p. 108, *obscuricorne*, p. 110, Finland, POPPIUS, Medd. Soc. Faun. Fenn. xxix; *O. excellens*, Caspian, BERNHAUER, p. 190, Munchen. Kol. Zeitschr. i : n. spp.
- Osorius assiniensis*, Africa, pl. xi, fig. 1, p. 238, FAUVEL, Arkiv. Zool. i; *O. nilgiriensis*, India, FAUVEL, p. 152, Rev. Ent. franc. xxii, n. spp.
- Oxytelus congoensis*, p. 237, *gabonensis*, p. 238, Africa, FAUVEL, Arkiv. Zool. i; *O. lucens*, Sumatra, BERNHAUER, p. 34, Stettin Ent. Zeit. lxiv; *O. asperiventris*, New Caledonia, FAUVEL, p. 260, Rev. Ent. franc. xxii : n. spp.
- Pachycorinus pallidipennis*, Congo, FAUVEL, p. 166, Ann. Soc. ent. Belgique xlvii, n. sp.
- Paderus margelanicus*, Margelan, BERNHAUER, p. 187, Munchen. Kol. Zeitschr. i; *P. varicornis*, India, FAUVEL, p. 152, Rev. Ent. franc. xxii : n. spp.
- Palastrinus sykesi* var. n., Kraatzi, FAUVEL, p. 156, t. c.
- Palaminus truncatus*, India, FAUVEL, p. 142, t. c., n. sp.
- Peucedontus* subg. n. cf. *Prioichirus*.
- Philonthus concinnus* var. n. *imperfectus*, SAHLBERG, Ofv. Finska Forh. xlv, No. 13, p. 5.
- P. (Gabrius) tirolensis*, Tyrol, LUZE, p. 386, Verh. Ges. Wien liii; *P.*

- bicolor*, p. 240, pl. xi, fig. 4, *mocquerysi*, p. 241, *maculipennis*, p. 242, Africa, FAUVEL, Arkiv. Zool. i; *P. industanus*, *maindroni*, India, FAUVEL, p. 158, Rev. Ent. franc. xxii; *P. fischeri*, p. 26, *sublævipennis*, p. 28, *dimorphus*, p. 29, Sumatra, BERNHAUER, Stettin Ent. Zeit. lxi; *P. cribripennis*, Chile, GERMAIN, p. 24, An. Univ. Chile cxiii : n. spp.
- Phlæocharis normandi*, E. Pyrenees, FAUVEL, p. 202, Rev. Ent. franc. xxii; *P. australis*, New Caledonia, FAUVEL, p. 257, t. c. : n. spp.
- Phlæonomus baicalensis*, E. Siberia, BERNHAUER, p. 591, Verh. Ges. Wien liii, n. sp.
- Phylodrepa atricapilla* (Fauv.), Altai, *puberula*, Bosnia, BERNHAUER, p. 191, Munchen. Kol. Zeitschr. i, n. spp.
- Phytosus atriceps*, fig. 9, p. 216, ENDERLEIN, Valdivia exp. iii.
- Pinophilini*; revision of Argentinian, BRÈTHES, An. Mus. Buenos Aires, pp. 305-318, 1 pl.
- Plastus* subg. n. cf. *Priochirus*.
- Priochirus*; tabulation of the species, pp. 136-146, with following subgen. n. *Triacanthus*, p. 136, *Cephalomerus*, p. 139, *Peucodontus*, p. 140, *Stigmatochirus*, *Leptarthrus*, *Syncamposchirus*, p. 141, *Catacamptus*, *Plastus*, p. 142, BERNHAUER, Deutsche ent. Zeitschr. 1903.
- Priochirus sumatrensis*, p. 146, *gestroi*, Sumatra, *immarginatus*, Perak, p. 147, *tonkinensis*, Tonkin, *poseidon*, p. 148, *alutaceus*, *subnitidus*, p. 149, *modiglianii*, Sumatra, *kraatzi*, Celebes, p. 151, *miles*, Cooktown, *propinquus*, p. 152, *inæqualis*, New Guinea, *serdentatus*, p. 153, *tetraodon*, p. 154, Sumatra, BERNHAUER, t. c., n. spp.
- Quediùs nelsonensis*, Victoria, BLACKBURN, p. 93, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Seleucus* n. g. for *Palæstrinus mutillarius* and *waageni*, FAUVEL, p. 157, Rev. Ent. franc. xxii.
- Staphylinus parumtomentosus*, Germany, STEIN, Wien. ent. Zeit. xxii, p. 128; *S. sjostedti*, Africa, FAUVEL, p. 239, pl. xi, fig. 3, Arkiv. Zool. i : n. spp.
- Stenus rossicus*, Caucasus, BERNHAUER, p. 188, Munchen. Kol. Zeitschr. i, n. sp.
- Stenusa rubra* = (*Ilyobates brevicornis* Wasm.), WASMANN, p. 236, Deutsche ent. Zeitschr. 1903.
- Stigmatochirus* subg. n. cf. *Priochirus*.
- Strongylochirus* subg. n. cf. *Leptochirus*.
- Syncamposchirus* subg. n. cf. *Priochirus*.
- Tachinus bodemeyeri*, Asia Minor, *splendens*, E. Siberia, BERNHAUER, p. 594, Verh. Ges. Wien liii, n. spp.
- Pinophilus bouchi*, Buenos Aires, BRÈTHES, p. 306, t. c., n. sp.
- Tachyporus pinkeri*, Carinthia, LUZE, p. 197, Verh. Ges. Wien liii, n. sp.
- Thamiaræa armata*, India, FAUVEL, p. 161, Rev. Ent. franc. xxii; *T. carinipennis*, New Caledonia, FAUVEL, p. 277, t. c. : n. spp.
- Thoracochirus* n. g. for part of *Priochirus*, p. 155, with *T. foersteri* n. sp., Sumatra, p. 156, BERNHAUER, Deutsche ent. Zeitschr. 1903.
- Thoracophorus curtipennis* n. n. for *brevipennis* Fauv. nec Sharp, FAUVEL, p. 256, Rev. Ent. franc. xxii.
- Triacanthus* subg. n. cf. *Priochirus*.
- Trichodromeus* subg. n. cf. *Geodromicus*.
- Trogophlæus zellichi*, Dalmatia, BERNHAUER, p. 189, Munchen. Kol. Zeitschr. i; *T. (Carpalimus) corcyreus*, Corcyra, SAHLBERG, p. 8, Ofv. Finska Forh. xlv, No. 10; *T. klimai*, Asia Minor, BERNHAUER, p. 593, Verh. Ges. Wien liii; *T. maritimus*, New Zealand, BROUN, Ann. Nat. Hist. xi, p. 615 : n. spp.
- Tropiochirus* subg. n. cf. *Leptochirus*.
- Xantholinus mocquerysi*, W. Africa, FAUVEL, p. 239, pl. xi, fig. 2, Arkiv. Zool. i, n. sp.

- Xylodromus opacus*, Altai, BERNHAUER, p. 592, Verh. Ges. Wien liii, n. sp.
Zyras sulcicollis, Cameroons, FAUVEL, p. 243, pl. xi, fig. 5, Arkiv. Zool. i;
Z. indorum, India, FAUVEL, p. 162, Rev. Ent. franc. xxii : n. spp.

PSELAPHIDÆ.

- [Cf. FAUVEL (495), GANGLBAUER (599), NORMAND (1074, 1075), PIC (1163, 1166), RAFFRAY (1204, 1205, 1206), REITTER (1237, 1244, 1247).]
- Acylopselaphus madagascariensis*, p. 327, *crassicornis*, p. 328, *alluaudi*, *clavatus*, p. 329, Madagascar, RAFFRAY, Ann. Soc. ent. France lxxii, n. spp.
- Aloxomidus* n. g. *Euplectini*, for *A. variolosus*, pl. i, fig. 10, n. sp., New Guinea, RAFFRAY, p. 34, Ann. Mus. Hungar. i.
- Amauronyx homalinus*, New Caledonia, FAUVEL, p. 280, Rev. Ent. franc. xxii, n. spp.
- Amaurops*, cf. *Troglamaurops*.
A. breiti, Herzegovina, GANGLBAUER, p. 179, Munchen. Kol. Zeitschr. i, n. sp.
- Anagonus* n. g. near *Ogmocerus*, p. 284, for *A. fracticornis* n. sp., New Caledonia, p. 285, FAUVEL, Rev. Ent. franc. xxii.
- Anasis armipes*, p. 281, *distans*, p. 282, New Caledonia, FAUVEL, t. c., n. spp.
- Apotenus lucidus*, New Guinea, RAFFRAY, p. 31, Ann. Mus. Hungar. i, n. sp.
- Articerus nitidicollis*, New Guinea, pl. ii, fig. 5, p. 97, RAFFRAY, t. c., n. sp.
- Batraxis megacephala*, pl. i, fig. 12, p. 57, *hirtella*, p. 58, *latipes*, p. 59, n. spp., New Guinea, RAFFRAY, t. c., n. spp.
- Batrisodes horvathi*, New Guinea, RAFFRAY, pl. ii, fig. 4, p. 46, t. c., n. sp.
- Batrismima* n. g. near *Batrisodes*, for *B. strigicollis* n. sp., Madagascar, RAFFRAY, p. 316, Ann. Soc. ent. France lxxii.
- Batroscenus* n. g. for exotic *Batrisodes*, p. 48, with *B. iridescens*, p. 49, *serraticornis*, *bironis*, pl. i, fig. 7, p. 50, *irregularis*, p. 51, *incertus*, *chloroticus*, p. 52, *trivialis*, *validicornis*, p. 53, *mucronatus*, p. 54, *armaticornis*, pl. i, fig. 11, *cavernosus*, p. 55, n. spp., New Guinea, RAFFRAY, Ann. Mus. Hungar. i.
- Bironia* n. g. near *Claviger*, for *B. cavernosa*, pl. ii, fig. 2, n. sp., New Guinea, RAFFRAY, p. 99, t. c.
- Brachygluta (Bryaxis) trochalis*, Madagascar, RAFFRAY, p. 320, Ann. Soc. ent. France lxxii, n. sp.
- Bryaxella* n. g. near *Rabyxis*, for *B. spectralis* n. sp., Madagascar, RAFFRAY, p. 319, t. c.
- Bryaxis cameroni*, Malta, REITTER, Wien. ent. Zeit. xxii, p. 43, n. sp.
- Bythinomorpha* merged in *Sunorfa*, RAFFRAY, p. 76, Ann. Mus. Hungar. i.
- Bythinus anaticus* ♂, REITTER, Wien. ent. Zeit. xxii, p. 221.
- B. bodemeyeri*, p. 221, *mohammedis*, p. 222, Asia Minor, REITTER, t. c.;
B. cythereas, Cérigo Id., PIC, p. 161, Echange 1903 : n. spp.
- Calarus* n. g. near *Amudrocerus*, p. 32, for *C. puncticeps*, pl. i, fig. 3, *dubius*, *semipunctatus*, p. 33, n. spp., New Guinea, RAFFRAY, Ann. Mus. Hungar. i.
- Comatopselaphus huonis*, *brevicornis*, p. 60, *schaufussi*, p. 61, New Guinea, RAFFRAY, t. c., n. spp.
- Commatocerus (Articerus) subnitidus*, Crete, PIC, p. 145, Echange 1903, n. sp.
- Cratna variabilis*, New Guinea, RAFFRAY, p. 56, Ann. Mus. Hungar. i, n. sp.
- Ctenisophus papuanus*, New Guinea, RAFFRAY, p. 93, t. c., n. sp.
- Ctenistomorphus elaniticus*, Gulf of Aqabah, RAFFRAY, p. 185, Bull. Soc. ent. France 1903, n. sp.

- Cyathiger gibbicollis*, pl. ii, figg. 15, 16, p. 89, *infossus*, fig. 14, p. 90, *bironis*, fig. 17, p. 91, New Guinea, RAFFRAY, Ann. Mus. Hungar. i, n. spp.
- Elasmatus* n. g., p. 97, near *Articerus*, for *E. lamellipes*, pl. ii, fig. 3, p. 98, n. sp., New Guinea, RAFFRAY, t. c.
- Diarrogus* n. g. near *Trimiodytes*, for *D. pubescens*, pl. i, fig. 1, n. sp., New Guinea, RAFFRAY, p. 36, t. c.
- Epithematus* n. g., p. 39, near *Pteroplectus*, for *E. nitidus*, pl. i, fig. 9, p. 40, n. sp., New Guinea, RAFFRAY, t. c.
- Eupines spinifera*, p. 283, *suturalis*, *trapezus*, p. 284, New Caledonia, FAUVEL, Rev. Ent. franc. xxii, n. spp.
- Euplectus peyerimhoffi*, S. France, NORMAND, p. 125, Echange 1903; *E. madagascariensis*, Madagascar, RAFFRAY, p. 315, Ann. Soc. ent. France lxxii; *E. anguinus*, New Guinea, RAFFRAY, p. 37, Ann. Mus. Hungar. i : n. spp.
- Exedrus* n. g. for *Oxarthrus indentatus* Raffr., with *E. caviceps*, pl. ii, fig. 11, n. sp., New Guinea, RAFFRAY, p. 47, t. c.
- Filiger batavianus*, Java, RAFFRAY, p. 92, t. c., n. sp.
- Glapharsenus* n. g. near *Nedarassus*, p. 86, for *G. asperatus*, pl. i, fig. 2, *punctatus*, p. 87, *microphthalmus*, p. 88, with var. *sublævis*, *latus*, p. 89, n. spp., New Guinea, RAFFRAY, t. c.
- Mechanicus papuanus*, New Guinea, RAFFRAY, p. 31, t. c., n. sp.
- Mesoplatus cribricollis*, New Guinea, RAFFRAY, p. 44, t. c., n. sp.
- Microplectus vagepunctatus*, pl. ii, fig. 8, p. 40, *occipitalis*, fig. 9, p. 41, *foveiceps*, fig. 10, *striatus*, fig. 6, p. 42, *longiceps*, fig. 7, p. 43, New Guinea, RAFFRAY, t. c., n. spp.
- Philiopsis tuberculiceps*, New Guinea, RAFFRAY, p. 35, t. c., n. sp.
- Pselaphophus sulciceps*, New Guinea, RAFFRAY, p. 92, t. c., n. sp.
- Pselaphus chobauti*, Algeria, NORMAND, p. 191, Bull. Soc. ent. France 1903, n. sp.
- Pyxidicerus annularis*, p. 29, *monoceros*, p. 30, New Guinea, RAFFRAY, Ann. Mus. Hungar. i, n. spp.
- Rabyxis simplex*, *clavata*, p. 317, *heterocera*, p. 318, Madagascar, RAFFRAY, Ann. Soc. ent. France lxxii, n. spp.
- Reichenbachia bifossa*, p. 321, *ecarinata*, p. 322, *tanalensis*, p. 323, *alluaudi*, p. 324, *coxalis*, p. 325, Madagascar, RAFFRAY, t. c.; *R. caudata*, pl. i, fig. 6, p. 62, *spiniventris*, p. 63, *semipunctata*, p. 64, *notha*, *defossa*, p. 65, *obstipa*, *acinosa*, p. 66, *indecora*, *egena*, *mavortia*, p. 67, *sinuatipes*, *lacerata*, p. 68, *infanda*, p. 69, *apicata*, *illimis*, p. 70, *multifora*, *abluta*, p. 71, *marcida*, *compacta*, p. 72, *impedita*, *misella*, p. 73, *lippa*, p. 74, *bironis*, pl. i, fig. 4, *laciniosa*, fig. 5, p. 75, New Guinea, RAFFRAY, Ann. Mus. Hungar. i : n. spp.
- Rytus horvathi*, p. 95, *setiger*, p. 96, New Guinea, RAFFRAY, t. c., n. spp.
- Sognorus peyerimhoffi*, Palestine, RAFFRAY, p. 186, Bull. Soc. ent. France 1903, n. sp.
- Stictus corrugatus*, New Guinea, RAFFRAY, p. 44, Ann. Mus. Hungar. i, n. sp.
- Sunorfa monstrosa*, pl. i, fig. 13, p. 77, *acutangula*, *armata*, fig. 14, p. 78, *bulbifer*, p. 79, *nodifer*, *excavata*, fig. 16, p. 80, *nasuta*, fig. 17, p. 81, *tridentata*, *occipitalis*, pl. ii, fig. 13, p. 82, *auriculata*, fig. 12, *lobata*, pl. i, fig. 15, p. 83, *fuscipennis*, *galeata*, p. 84, *pinguis*, *papuana*, p. 85, New Guinea, RAFFRAY, t. c., n. spp.
- Syrraphesina* n. g. *Clavigerides*, for *S. pliciventris*, pl. ii, fig. 1, n. sp., New Guinea, RAFFRAY, p. 100, t. c.
- Taphrostethus longispina*, New Guinea, pl. i, fig. 8, p. 95, RAFFRAY, t. c., n. sp.
- Thesiastes longicornis*, *crenulatus*, New Guinea, RAFFRAY, p. 38, t. c., n. spp.

- Troglamaurops* subg. n. of *Amaurops*, for *A. leptoderina* Reitt., GANGL-BAUER, p. 178, Munchen. Kol. Zeitschr. i.
Tychus microphthalmus, Algeria, REITTER, Wien. ent. Zeit. xxii, p. 231, n. sp.
Tyromorphus cribricollis, New Guinea, RAFFRAY, p. 94, Ann. Mus. Hungar. i, n. sp.
Zethopsus papuanus, New Guinea, RAFFRAY, p. 30, t. c., n. sp.

PAUSSIDÆ.

- Paussus hova*, habits, FAIRMAIRE, p. 193, Ann. Soc. ent. France lxxii.

SCYDMÆNIDÆ.

- Cephennium (Megaloderus) bodemeyeri*, Asia Minor, REITTER, Wien. ent. Zeit. xxii, p. 222, n. sp.
Delenda Croiss. = (*Eusonoma* Reitt.), REITTER, t. c. p. 241.
Euconnus (Leptocharis) creticus, Crete, PIC, p. 145, Echange 1903; *E. (Tetramelus) bodemeyeri*, Asia Minor, REITTER, Wien. ent. Zeit. xxii, p. 223 : n. spp.
Neuraphes (Scydmoraphes) duricollis, Asia Minor, REITTER, t. c. p. 222, n. sp.

SILPHIDÆ (incl. CLAMBIDÆ).

- [Cf. BLACKBURN (135), BORDAS (151), BREIT (211), CHOBOUT (306, 307), FLEISCHER (515), FAIRMAIRE (478), FAUVEL (495), GROUVELLE (646), MAYET (984), MÜLLER (1047), PORTEVIN (1191, 1192), REITTER (1241, 1243, 1247), SAHLBERG (1309).]

Alimentary canal, BORDAS (151).

- Aclypea sculpturata*, N. India, GROUVELLE, p. 125, Ann. Soc. ent. France lxxii, n. sp.
Anillocharis n. g., near *Silphanillus* for *A. ottonis*, n. sp., cave in Herzegowina, REITTER, Wien. ent. Zeit. xxii, p. 231.
Antroherpon matulici, cave, Herzegowina, REITTER, t. c. p. 216, n. sp.
Bathyscia (Aphaobius) issensis, Dalmatia, MÜLLER, p. 194, Munchen. Kol. Zeitschr. i; *B. nemausica*, Nîmes, CHOBOUT, p. 264, Bull. Soc. ent. France 1903; *B. puéli*, Aude, CHOBOUT, p. 221, t. c. : n. spp.
Blitophaga turkestanica Ball. as *Silpha* = (*Aclypea seriatorugosa* Reitt.), *B. transcaspica* n. n. for *A. turkestanica* Reitt. nec Ball., SEMENOW, p. 14, Rev. Russe Ent. iii.
Catops ruficollis, p. 166, *dispar*, *simoni*, S. America, *integer*, Australia, p. 167, PORTEVIN, Ann. Soc. ent. France lxxvii, n. spp.
Choleva doderoi, Sardinia, BREIT, Soc. ent. xvii, p. 169; *C. macleayi*, Australia, BLACKBURN, p. 94, Tr. R. Soc. S. Austral. xxvii : n. spp.
Cholevomorpha koebelei, p. 95, *atropos*, *C.? extranea*, p. 96, Australia, BLACKBURN, t. c., n. spp.
Clambidus n. g. for *C. atomus* n. sp., New Caledonia, FAUVEL, p. 288, Rev. Ent. franc. xxii.
Clambus tropicus, Queensland, BLACKBURN, p. 97, Tr. R. Soc. S. Austral. xxvii, n. sp.
Colenisia n. g. near *Colenis*, for *C. caledonica* n. sp., New Caledonia, FAUVEL, p. 287, Rev. Ent. franc. xxii.
Colon; habits, statistics, FLEISCHER, Wien. ent. Zeit. xxii, pp. 259-265.
Diaprysius mazaurici, Gard, MAYET, p. 139, Bull. Soc. ent. France 1903, n. sp.

- Dissochæta* n. g. near *Ptomaphagus*, for *Catops spinipes* Murray, etc., PORTEVIN, p. 513, Bull. Mus. Paris viii.
- Dissochætus philippi*, p. 159, *sanguinicollis*, *maculatus*, p. 160, *hetschkoi*, *murrayi*, p. 161, *obscurus*, *curta*, p. 162, S. America, PORTEVIN, Ann. Soc. ent. France lxxii, n. spp.
- Estadia* n. g. near *Anisotoma*, p. 183, for *E. capito* n. sp., Madagascar, p. 184, FAIRMAIRE, Ann. Soc. ent. France lxxii.
- Eucatops* n. g. p. 162, for *E. curvipes*, p. 163, *ater*, *grouvellei*, *rufescens*, *oblongus*, p. 164, S. America, n. spp., PORTEVIN, Ann. Soc. ent. France lxxii.
- Hydnobius tibialis*, Siberia, SAHLBERG, p. 9, Ofv. Finska Forh. xlv, No. 10, n. sp.
- Leonhardella* n. g. *Pholeuonidarum*, for *L. unguicollis* n. sp., caves of Herzegowina, REITTER, Wien. ent. Zeit. xxii, p. 209.
- Liodes*; habits, FLEISCHER, Wien. ent. Zeit. xxii, pp. 266-268.
- L. brunnicollis* (Mamm.), p. 10, *trybomi*, p. 11, *subglobosa*, p. 13, *dilitipes*, p. 14, Siberia, SAHLBERG, Ofv. Finska Forh. xlv, No. 10, n. spp.
- Nargus algiricus*, Algeria, *semirufus*, Australia, PORTEVIN, p. 157, Ann. Soc. ent. France lxxii, n. spp.
- Necrophorus corsicus*, variation, SCHNEIDER, pp. 44-47, SB. Ges. Isis 1902.
- Prionocheata harmandi*, Nikko, PORTEVIN, p. 512, Bull. Mus. Paris viii, n. sp.
- Silpha subrotundata* a distinct species, JOHNSON, Ent. Mag. xxxix, p. 96.
- Silphanillus* n. g. *Pholeuonidarum*, p. 210, for *S. leonhardi* n. sp., Caves of Herzegowina, REITTER, Wien. ent. Zeit. xxi, p. 211.
- Spathosternum* n. g. for *S. hamorrhoidale* n. sp., Bolivia, PORTEVIN, p. 165, Ann. Soc. ent. France lxxii.
- Thanatophilum baicalicum*, and *trituberculatum*, synonymy, SEMENOW, p. 169, Rev. Russe Ent. iii.
- Troglophytes ludovici*, Aude, CHABAUT, p. 264, Bull. Soc. ent. France 1903, n. sp.

TRICHOPTERYGIDÆ.

- Ptenidium sahlbergi*; Corfu, ERICSON, p. 173, Verh. Ges. Wien liii, n. sp.

SCAPHIDIIDÆ.

- Scaphisoma queenslandicum*, *perelegans*, p. 98, *fernshawense*, p. 99, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvii; *S. notula*, *subaneum*, New Caledonia, FAUVEL, p. 292, Rev. Ent. franc. xxii : n. spp.
- Sciatrophes* n. g. for *S. latens* n. sp., Victoria, BLACKBURN, p. 100, Tr. R. Soc. S. Austral. xxvii.

HISTERIDÆ.

- [Cf. BLACKBURN (135), BRUES (227), CSIKI (361), FAIRMAIRE (486), G. LEWIS (936), MÜLLER (1048), SHIRTAJEV (1419).]
- Habits, habitats and varieties of various European *Histeridæ*, MÜLLER, pp. 218-220, Munchen. Kol. Zeitschr. i.
- Monograph, in Hungarian, of the Hungarian *Histeridæ*, CSIKI, Allatt. Kozl. 1903, pp. 115-128, 220-232.
- Acritus nigricornis* and *affinis* are sexes, *A. seminulum* distinguished, GERHARDT, p. 239, Deutsche ent. Zeitschr. 1903.
- Athanas* n. g. for *A. teretrioides* n. sp., Mentawai islands, LEWIS, Ann. Nat. Hist. xii, p. 420.

- Apobletes tristriatus* (= *foliaceus* Mars.), LEWIS, t. c. p. 420, n. sp.
Chlamydopsis, characters and components, LEWIS, t. c. p. 428.
Contipus, or *Contopus*, *digitatus*, note, LEWIS, t. c. p. 423.
Eblisia obliqua, N. Guinea, *pulsata*, Sumatra, LEWIS, t. c. p. 423, n. spp.
Eutidium n. g. type *Phylloma facetum*, with *E. pacale* n. sp., Para, LEWIS, t. c. p. 419.
Heterius tristriatus, note, with cut, BRUES, p. 147, Ent. News Philad. xiv.
Hister sedakovi (= *czikanni* Cziki), LEWIS, Ann. Nat. Hist. xii, p. 425.
H. silantjevi, Russia, SHIRJAJEV, Rev. Russe Ent. iii, p. 16; *H. confector*, p. 423, *tricuspis*, p. 424, Yucatan, *exlegis*, Abyssinia, p. 425, LEWIS, Ann. Nat. Hist. xii : n. spp.
Hololepta plana, larva, PEYERIMHOFF, p. 265, cuts, Bull. Soc. ent. France 1903.
Hypocaccus piscarius, *vernulus*, Australia, BLACKBURN, p. 108, Tr. R. Soc. S. Austral. xxvii, n. spp.
Notodoma orientale, Burma, LEWIS, Ann. Nat. Hist. xii, p. 425, n. sp.
Notolister sanguinosus, Madagascar, FAIRMAIRE, p. 9, Naturaliste 1903, n. sp.
Orectoscelis n. g. near *Chlamydopsis*, p. 426, for *O. humeralis* n. sp., Queensland, p. 427, LEWIS, Ann. Nat. Hist. xii.
Orphinium n. g. for various *Phylloma*, LEWIS, t. c. p. 419.
Pachycraterus alluaudi Mars., and *P. assinius* Mars., as *Macrosternus*, LEWIS, t. c. p. 421.
Paromatus, synonymy of Australian, BLACKBURN, pp. 101, 102, Tr. R. Soc. S. Austral. xxvii.
P. terre-reginae, Queensland, BLACKBURN, p. 103, t. c., n. sp.
Petalosoma n. g. for *Phylloma hirtipes*, LEWIS, Ann. Nat. Hist. xii, p. 418.
Phylloma plagigerum referred to *Hololepta*, LEWIS, t. c. p. 418.
Platysoma incisipyge Mars. to *Eblisia*, LEWIS, t. c. p. 423.
Plegaderus sanatus var. n. *gobanzi*, MÜLLER, p. 220, Munchen. Kol. Zeitschr. i.
Saprinus; larval habits, FABRE, Souvenirs viii, chap. 16; *S. bitterensis* (= *calatravensis* Fuente), *S. deterrentus* (= *navasi* Fuente), LEWIS, Ann. Nat. Hist. xii, p. 429; *S.*, Australian species, table and synonymy, BLACKBURN, Tr. R. Soc. S. Austral. xxvii.
S. tyrrenus, *westraliensis*, p. 106, *australasiae*, p. 107, Australia, BLACKBURN, t. c.; *S. pygidialis*, Mexico, LEWIS, Ann. Nat. Hist. xii, p. 429 : n. spp.
Teretriosoma gradile, p. 110, Australia, *sorellense*, p. 111, Tasmania, BLACKBURN, Tr. R. Soc. S. Austral. xxvii, n. spp.
Teretrius peruanus referred to *Teretriosoma*, LEWIS, Ann. Nat. Hist. xii, p. 420.
T. doddi, Queensland, BLACKBURN, p. 109, Tr. R. Soc. S. Austral. xxvii, n. sp.

PHALACRIDÆ.

- Eustilbus cinctus*, New Caledonia, FAUVEL, p. 319, Rev. Ent. franc. xxii, n. sp.
Litocrus maritimus, Victoria, BLACKBURN, p. 111, Tr. R. Soc. S. Austral. xxvii, n. sp.
Olibrus triangulum, *igneus*, New Caledonia, FAUVEL, p. 318, Rev. Ent. franc. xxii, n. spp.

NITIDULIDÆ.

- [Cf. BLACKBURN (135), CAMERON (264), EICHELBAUM (444), FAUVEL (495), GROUVELLE (644, 645, 646), SAHLBERG (1309), SCHILSKY (1336).]
 Larva of *Omosita colon*, anatomy, EICHELBAUM, pp. 81-87, Allg. Zeitschr. Ent. viii.

- Aethina nigrocastanea*, p. 115, *cyaneipennis*, p. 116, Darjiling, GROUVELLE, Ann. Soc. ent. France lxxii, n. spp.
- Amphicrossus caledonicus*, New Caledonia, GROUVELLE, p. 176, Rev. Ent. franc. xxii, n. sp.
- Carpophilus melanopterus*, larva, larval habits, MURTFELDT, pp. 293-295, Ent. News Philad. xiv.
- C. oblongopunctatus*, Darjiling, GROUVELLE, p. 108, Ann. Soc. ent. France lxxii, n. sp.
- Colastus latus* Murr. and *tonsus* Murr., not distinct, ARROW, p. 245, P. Zool. Soc. London 1903, ii.
- Cryptarcha elegantior*, p. 116, *subnigella*, p. 117, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvii; *C. lesnei*, Darjiling, GROUVELLE, p. 118, Ann. Soc. ent. France lxxii : n. spp.
- Cyllodes fauveli*, New Caledonia, GROUVELLE, p. 177, Rev. Ent. franc. xxii, n. sp.
- Epuræa francoisi*, *montrouzieri*, New Caledonia, GROUVELLE, p. 175, t. c., n. spp.
- Epuræa ornata*, p. 109, *apicalis*, p. 110, *subochracea*, *cribrata*, p. 111, North India, GROUVELLE, Ann. Soc. ent. France lxxii, n. spp.
- Haptoncura victoriensis* to *Epuræa*, BLACKBURN, p. 112, Tr. R. Soc. S. Austral. xxvii.
- H. brightensis*, *sloanei*, p. 113, *nelsonensis*, *sparsior*, p. 114, *darwinensis*, *eyrensis*, p. 115, Australia, BLACKBURN, t. c., n. spp.
- Heterhelus kraatzi*, Darjiling, GROUVELLE, p. 108, Ann. Soc. ent. France lxxii, n. sp.
- Meligethes anatolicus*, Konia, SCHILSKY, Küster Käf. eur. xl, 94; *M. circularis*, Siberia, SAHLBERG, p. 18, Ofv. Finska Forh. xlv, No. 10; *M. (Odontogethes) castanescens*, Darjiling, GROUVELLE, p. 114, Ann. Soc. ent. France lxxii; *M. rubricollis*, Madras, GROUVELLE, p. 125, t. c. : n. spp.
- Mystrops dubius*, New Caledonia, GROUVELLE, p. 173, Rev. Ent. franc. xxii, n. sp.
- Omosiphora sibirica*, Krasnojarsk, SAHLBERG, p. 17, Ofv. Finska Forh. xlv, No. 10, n. sp.
- Omosita ornata*, Darjiling, GROUVELLE, p. 112, Ann. Soc. ent. France lxxii, n. sp.
- Pallodes harmandi*, *parvus*, Darjiling, GROUVELLE, p. 117, t. c.; *P. rufidorsis*, p. 177, *antipodum*, *vagepunctus*, p. 178, New Caledonia, GROUVELLE, Rev. Ent. franc. xxii : n. spp.
- Paromia* and *Aparomia*, the species and synonymy, GERMAIN, p. 8, An. Univ. Chile cxiii.
- Pocadius harmandi*, Darjiling, GROUVELLE, p. 114, Ann. Soc. ent. France lxxii, n. sp.
- Pseudocamptodes montanus*, Kashmir, GROUVELLE, p. 126, t. c., n. sp.
- Shogunopsis* n. n. for *Pachycephala*, FAUVEL, p. 305, Rev. Ent. franc. xxii.
- Soronia elongata*, Sea of Marmora, CAMERON, Ent. Mag. xxxix, p. 97; *S. imperialis*, *minima*, Darjiling, GROUVELLE, p. 113, Ann. Soc. ent. France lxxii : n. spp.
- Stelidota lifuana*, Lifu, GROUVELLE, p. 174, Rev. Ent. franc. xxii, n. sp.
- Trimenus adpressus*, New Caledonia, GROUVELLE, p. 173, t. c., n. sp.

MONOTOMIDÆ.

- Europs (Hesperobænus) harmandi*, p. 123, *E. indica*, p. 124, Darjiling, GROUVELLE, Ann. Soc. ent. France lxxii, n. spp.

TROGOSITIDÆ.

[Cf. BREED (209), FAUVEL (495), LÉVEILLÉ (933, 934).]

Gaurambe fairmairei, Madagascar, LÉVEILLÉ, p. 107, Bull. Soc. ent. France 1903, n. sp.*Leperina lifuana*, Lifu, FAUVEL, p. 298, Rev. Ent. franc. xxii, n. sp.*Temnochila boliviensis*, Bolivia, p. 190, *biolleyi*, Costa Rica, p. 191, LÉVEILLÉ, Bull. Soc. ent. France 1903, n. spp.*Tenebroides maroccanus*, var. n. *baillioti*, Madrid, LÉVEILLÉ, p. 191, t. c.*Thymalus marginicollis*, metamorphosis, BREED (209).

COLYDIIDÆ.

[Cf. BLACKBURN (135), BROUN (220), GROUVELLE (644, 645, 646), REITTER (1240).]

Ablabus bimaculatus, New Caledonia, GROUVELLE, p. 180, Rev. Ent. franc. xxii, n. sp.*Bothrideres vittipennis*, *bifossatus*, p. 185, *delaneyi*, p. 186, *pulcher*, p. 187, New Caledonia, GROUVELLE, Rev. Ent. franc. xxii; *B. picipes*, New Zealand, BROUN, Ann. Nat. Hist. xi, p. 618 : n. spp.*Cerylon numeridens*, Darjiling, GROUVELLE, p. 121, Ann. Soc. ent. France lxxii; *C. alienigenum*, N. S. Wales, BLACKBURN, Tr. R. Soc. S. Austral. xxvii : n. spp.*Deretaphrus*, table of Australian, *D. erichsoni* = (*granulipennis* Reitt.), BLACKBURN, p. 129, t. c.*Deretaphrus thoracicus*, p. 122, *gracilis*, *iridescens*, p. 124, Australia, *cordicollis*, p. 125, Tasmania, *popularis*, p. 126, *æqualiceps*, *sparsiceps*, p. 127, *cribriceps*, p. 128, Australia, BLACKBURN, t. c.; *D. interruptus*, New Caledonia, GROUVELLE, Rev. Ent. franc. xxii : n. spp.*Ditoma fossicollis*, p. 181, *obsoleta*, *kanalensis*, p. 182, *fauveli*, p. 183, New Caledonia, GROUVELLE, t. c., n. spp.*Helioctamenus lusitanicus*, Portugal, REITTER, Wien. ent. Zeit. xxii, p. 174, n. sp.*Labromimus harmandi*, Darjiling, GROUVELLE, p. 120, Ann. Soc. ent. France lxxii, n. sp.*Metopiestes indicus*, India, GROUVELLE, p. 126, t. c., n. sp.*Microvonus montanus*, Darjiling, GROUVELLE, p. 121, t. c., n. sp.*Phormesa carpentariæ*, Queensland, BLACKBURN, p. 118, Tr. R. Soc. S. Austral. xxvii, n. sp.*Pseudeba*, n. g. near *Eba*, p. 119, for *P. novica*, n. sp., Queensland, p. 120, BLACKBURN, t. c.*Pycnomerus fuliginosus* = (*obscurus* Pasc.), BLACKBURN, p. 131, t. c.; *P. robusticollis*, Victoria, *interstitialis*, Tasmania, p. 131, *sulcicollis*, Victoria, p. 132, id. t. c.; *P. nitiventris*, New Zealand, BROUN, Ann. Nat. Hist. xi, p. 617 : n. spp.*Tarphiosoma bouvieri*, Darjiling, GROUVELLE, p. 119, Ann. Soc. ent. France lxxii, n. sp.*Todima lateralis*, Victoria, BLACKBURN, p. 118, Tr. R. Soc. S. Austral. xxvii, n. sp.*Ulonotus auriculatus*, New Caledonia, GROUVELLE, p. 172, Rev. Ent. franc. xxii, n. sp.*Xylolæmus indicus*, Darjiling, GROUVELLE, p. 119, Ann. Soc. ent. France 1902, n. sp.

RHYSODIDÆ.

Taxonomy, presumed larva of *Rhysodes*, PEYERIMHOFF, pp. 80-84, pl. i, figg. 1-3, Rev. Ent. franc. xxii.

- Synopsis of the family, GROUVELLE, pp. 85-148, Rev. Ent. franc. xxii.
Clinidium pilosum, Venezuela, p. 126, *integrum*, Amazons, p. 127, *oberthuri*, p. 128, *dubium*, p. 129, *foveolatum*, p. 130, Ecuador, *mathani*, Brazil, p. 131, *insigne*, Ecuador, p. 132, *validum*, Amazons, *centrale*, Costa Rica, p. 133, *frater*, Borneo, p. 135, *gestroi*, Sumatra, p. 136, *sulcicolle*, Caroline Islands, p. 137, *guineense*, New Guinea, p. 138, *bifossulatum*, Borneo, p. 139, *beccarii*, New Guinea, p. 140, GROUVELLE, t. c., **n. spp.**
Rhysodes frontalis, Tasmania, p. 105, *occipitalis*, New Guinea, p. 105, *setosus*, New Caledonia, *meridionalis*, Brazil, p. 108, *germaini*, Bolivia, p. 109, *javanicus*, Java, p. 110, *intrusus*, Viti, p. 112, *pulvinatus*, New Guinea, p. 115, *punctato-lineatus*, Sumatra, p. 116, *blackburni*, Australia, *elegans*, Sumatra, p. 117, *oberthuri*, Pulo-Penang, p. 118, *crenatus*, Bhutan, *borneensis*, W. Borneo, p. 119, *hexagonus*, Sumatra, p. 120, *carinatus*, Borneo, p. 121, *subcaviceps*, Tonkin, *rugosus*, Singapore, p. 122, *pilosus*, Sumatra, p. 123, *insularis*, Benkalis, p. 124, *thoreyi*, Natal, p. 125, *dohertyi*, Burma, p. 126, GROUVELLE, t. c., **n. spp.**

CUCUJIDÆ.

[Cf. BLACKBURN (135), GROUVELLE (644, 645).]

- Cathartus? cairnsensis*, Queensland, BLACKBURN, Tr. R. Soc. S. Austral. xxvii, **n. sp.**
Cryptamorpha peregrina, N. S. Wales, BLACKBURN, p. 153, t. c.; *C. lineella*, p. 192, *figurata*, p. 193, New Caledonia, GROUVELLE, Rev. Ent. franc. xxii : **n. spp.**
Ino subæneus, New Caledonia, GROUVELLE, p. 189, t. c., **n. sp.**
Læmophlæus; the Australian, with table, BLACKBURN, pp. 138-147, Tr. R. Soc. S. Austral. xxvii.
L. harmandi, *interceptus*, Darjiling, GROUVELLE, p. 122, Ann. Soc. ent. France lxxii; *L. diemenensis*, Tasmania, p. 140, *murrayensis*, p. 141, *pusula*, p. 143, *insignior*, p. 143, *frenchi*, p. 146, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvii; *L. victoriæ*, BLACKBURN, p. 182, t. c.; *L. hæmorrhoidalis*, *filicornis*, New Caledonia, GROUVELLE, p. 190, Rev. Ent. franc. xxii : **n. spp.**
Lathropus brightensis, Victoria, BLACKBURN, p. 147, Tr. R. Soc. S. Austral. xxvii, **n. sp.**
Lytopeplus laevis, *catena*, New Caledonia, GROUVELLE, p. 188, Rev. Ent. franc. xxii, **n. spp.**
Monanus Sharp=(*Emporius* Ganglb.), FAUVEL, p. 379, Rev. Ent. franc. xxii.
Myrabilia brevicornis, Er. (as *Silvanus*)=(*grouvelleana* Reitt.), BLACKBURN, p. 151, Tr. R. Soc. S. Austral. xxvii.
M. longicornis, p. 148, *longicollis*, p. 149, Australia, BLACKBURN, t. c., **n. spp.**
Platisus=(*Ipsaphes* Pasc.), *P. obscurus*=(*I. moerosus*), p. 136, *I. bicolor* Oll. referred to *Cucujus*, p. 137, BLACKBURN, t. c.
Platycotylus coloratus, Queensland, BLACKBURN, p. 147, t. c., **n. sp.**
Prostomis; the Australian species, BLACKBURN, pp. 133-136, t. c.; *P. gladiator*, N. S. Wales, id., p. 135, t. c., **n. sp.**
Psammoecus incertior, *t-notatus*, p. 154, *upsilon*, *vittifera*, p. 155, Queensland, BLACKBURN, t. c.; *P. lancifer*, New Caledonia, GROUVELLE, p. 191, Rev. Ent. franc. xxii : **n. spp.**
Silvanus aridulus, Australia, BLACKBURN, p. 151, Tr. R. Soc. S. Austral. xxvii, **n. sp.**

CRYPTOPHAGIDÆ.

[Cf. BLACKBURN (135), FAUVEL (495), GROUVELLE (644, 646), HOLDHAUS (711), SAHLBERG (1309).]

HOLDHAUS has numerous remarks on palæarctic *Atomaria*, giving the characters and synonymy of various critical species, Munchen. Kol. Zeitschr. i, pp. 350-382.

- Atomaria analis* varr. *deubeli* and *pallidipennis*, p. 369, HOLDHAUS, t. c.
Cryptophagus postpositus, Algeria, p. 15, *thoracicus*, p. 16, SAHLBERG, Öfv. Finska Förh. xlv, No. 10; *C. nigro-apicalis*, Victoria, BLACKBURN, p. 156, Tr. R. Soc. S. Austral. xxvii : n. spp.
Diphyllus maindroni, Nilgiris, GROUVELLE, p. 342, Ann. Soc. ent. France lxxii; *D. ornatellus*, Victoria, BLACKBURN, Tr. R. Soc. S. Austral. xxvii : n. spp.
Diplocælus opacior, Victoria, BLACKBURN, p. 158, t.c.; *D. bombycinus*, p. 194, *parnoides*, p. 195, New Caledonia, FAUVEL, Rev. Ent. franc. xxii : n. spp.
Grobbernia n. g. for *Atomaria fimetarii* auctt., HOLDHAUS, p. 354, Munchen. Kol. Zeitschr. i.
Loberus subchalcæus, p. 195, *diversicollis*, p. 196, *cordatus*, *testaceus*, p. 197, New Caledonia, GROUVELLE, Rev. Ent. franc. xxii, n. spp.
Pharaxonota indica, Kanara, GROUVELLE, p. 127, Ann. Soc. ent. France lxxii, n. sp.
Telmatophilus sublauteus, Victoria, BLACKBURN, p. 158, Tr. R. Soc. S. Austral. xxvii, n. sp.
Tomarops n. g. near *Tomarus*, for *T. punctatus*, n. sp., India, GROUVELLE, p. 343, Ann. Soc. ent. France lxxii.

LATHRIDIIDÆ.

[Cf. GABRIEL (585), POPPIUS (1186), REITTER (1248).]

- GABRIEL discusses the membrane on the thorax of *Lathridius*, Zeitschr. Ent. Breslau 1903, pp. 17-20.
Corticaria dentiventris, E. Siberia, POPPIUS, p. 87, Medd. Soc. Faun. Fenn. xxix, n. sp.
Enicmus transversus var. = (*alutaceus* Reitt.) REITTER, Wien. ent. Zeit. xxii, p. 31; *E. anthracinus*, a good species, characters, GERHARDT, p. 238, Deutsche ent. Zeitschr. 1903.
E. varendorffi, Greece, *anatolicus*, Asia Minor, REITTER, Wien. ent. Zeit. xxii, p. 234, n. spp.
Lathridius jakovlevi var. = (*quadraticollis* Sem.), SEMENOV, p. 306, Rev. Russe Ent. iii.
L. semenowi, p. 87, *lenensis*, p. 91, E. Siberia, POPPIUS, Medd. Soc. Faun. Fenn. xxix, n. spp.

MYCETOPHAGIDÆ and THORICTIDÆ.

- Litargus t-littera*, p. 199, *marmoratus*, *maculatus*, p. 200, GROUVELLE, Rev. Ent. franc. xxii, n. spp.
Thorictus foreli, myrmecophily, KOLBE, pp. 241-248, SB. Ges. naturf. Berlin 1903.
T. ruzskii, Transcaspian, SEMENOV, p. 353, Rev. Russe Ent. iii, n. sp.

DERMESTIDÆ.

[Cf. BLACKBURN (135), FAUVEL (495), PIC (1156), SLOSSON (1437).]

Dermestes, larval habits, FABRE, Souvenirs viii, chap. 16.

Revision of Australian *Dermestidæ*, BLACKBURN, pp. 159-172, Tr. R. Soc. S. Austral. xxvii.

Attagenus fallax var. n. *addendus*, SAHLBERG, p. 34, Ofv. Finska Forh. xlv, No. 19.

Anthrenus flavosquamosus, Madrid, PIC, p. 121, Echange 1903; *A. oceanicus*, New Caledonia, FAUVEL, p. 338, Rev. Ent. franc. xxii : n. spp.

Brachysphyrus n. g. near *Trogoderma*, for *B. irroratus*, n. sp., Queensland, BLACKBURN, p. 160, Tr. R. Soc. S. Austral. xxvii.

Cryptorhopalum casuarinæ, p. 169, *cecliense*, *nealense*, p. 170, *eucalypti*, *C. ? quadrifasciatum*, *C. terzonatum*, Australia, BLACKBURN, t. c., n. spp.

Dermestes vulpinus = (*australis* Macl.), BLACKBURN, p. 160, t. c.

Ignotus n. g. *enigmaticus*, n. sp., N. America, imperfectly described, systematic position doubtful, SLOSSON, p. 187, Canad. Ent. xxxv.

Trogoderma tolarinense, p. 163, *exsul*, *debilius*, p. 164, *longius*, *marulum*, p. 165, BLACKBURN, Tr. R. Soc. S. Austral. xxvii; *T. vulneratum*, p. 337, *asperatum*, p. 338, New Caledonia, FAUVEL, Rev. Ent. franc. xxii : n. spp.

BYRRHIDÆ.

[Cf. BLACKBURN (135), FAUVEL (495), SAHLBERG (1309), WICKHAM (1688).]

Byrrhinus antipodum, New Caledonia, FAUVEL, p. 348, Rev. Ent. franc. xxii, n. sp.

Byrrhus torrensensis referred to *Morychus*, *B. raucis* to *Pedilophorus*, BLACKBURN, p. 173, Tr. R. Soc. S. Austral. xxvii.

Curimus abbreviatus, Corcyra, SAHLBERG, p. 19, Ofv. Finska Forh. xlv, No. 10, n. sp.

Simplocaria basalis, p. 22, *elongata*, p. 23, Siberia, SAHLBERG, t. c., n. spp.

Nosodendron australe, New Caledonia, FAUVEL, p. 347, Rev. Ent. franc. xxii, n. sp.

Pedilophorus; table of the American, WICKHAM, pp. 179, 180, Canad. Ent. xxxv.

P. speciosus, Siberia, SAHLBERG, p. 20, Ofv. Finska Forh. xlv, No. 10; *P. lecontei*, Idaho, p. 180, *hesperus*, Colorado, p. 182, WICKHAM, Canad. Ent. xxxv : n. spp.

Microchætis solidus, *nigrovarius*, p. 175, *coloratus*, p. 176, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvii, n. spp.

PARNIDÆ and HETEROCERIDÆ.

Heterocerus maindroni, p. 345, *confusus*, p. 346, India, GROUVELLE, Ann. Soc. ent. France lxxii; *H. largensis*, p. 178, *debilipes*, p. 179, Australia,

BLACKBURN, Tr. R. Soc. S. Austral. xxvii; *H. caledonia*, New Caledonia, GROUVELLE, p. 201, Rev. Ent. franc. xxii, n. spp.

Sostea maculata, p. 344, *cribrosa*, p. 345, India, GROUVELLE, Ann. Soc. ent. France lxxii, n. spp.

LUCANIDÆ.

[Cf. BOILEAU (143), BROUN (220), KOLBE (869), MÖLLENKAMP (1022), WICKHAM (1689).]

Polymorphism of male, KOLBE (869): Gynandromorphism, WICKHAM (1689).

- Ægus bellus*, New Guinea, p. 352, *gracilicornis*, Borneo, p. 353, *bidens*, Tonkin, p. 354, MÖLLENKAMP, Deutsche ent. Zeitschr. 1903, n. spp.
- Cyclommatus giganteus*, Celebes, p. 337, *sumptuosus*, Kaiser Wilhelmsland, p. 338, *trifurcatus*, Solomon Ids., *mysticus*, p. 339, *pulchellus*, p. 340, New Guinea, MÖLLENKAMP, t. c., n. spp.
- Dorcus thoracicus*, Borneo, MÖLLENKAMP, p. 346, t. c., n. sp.
- Eurytrachelus egregius* var. n. *honesta*, MÖLLENKAMP, p. 350, t. c.
- E. praeclens*, Himalaya, MÖLLENKAMP, p. 344, t. c., n. sp.
- Gnaphaloryx capreolus*, Borneo, BOILEAU, p. 109, Bull. Soc. ent. France 1903, n. sp.
- Gnaphaloryx miles* var. n. *laticornis*, BOILEAU, p. 111, t. c.
- Leptinopterus consimilis*, Brazil, MÖLLENKAMP, p. 350, Deutsche ent. Zeitschr., n. sp.
- Lissotes auriculatus*, New Zealand, BROUN, Ann. Nat. Hist. xi, p. 615, n. sp.
- Lucanus elaphus*, abnormal mandibles, WICKHAM, p. 205, Canad. Ent. xxxv; *L. singularis*, sexes, PLANET, p. 12, cuts, Naturaliste 1903.
- Mitophyllus comognathus*, New Zealand, BROUN, Ann. Nat. Hist. xi, p. 616, n. sp.
- Metopodontus elaphus*, Sumatra, MÖLLENKAMP, p. 343, Deutsche ent. Zeitschr. 1903, n. sp.
- Neolucanus celebensis*, Celebes, MÖLLENKAMP, p. 349, t. c., n. sp.
- Nigidius gigas*, Tonkin, MÖLLENKAMP, p. 346, t. c., n. sp.
- Odontolabis cuvera* var. n. *alticola*, MÖLLENKAMP, p. 351, t. c.
- O. tarandus*, Philippine Ids.?, MÖLLENKAMP, p. 342, t. c.; *O. elegans*, Burma, p. 347, *relucens*, Sumatra, *cupreiventris*, Borneo, p. 348, MÖLLENKAMP, t. c. : n. spp.
- Prosopocelus forceps*, ♀ described (nec Boileau's 1901 ♀), MÖLLENKAMP, p. 341, t. c.
- P. mandibularis*, Tonkin, MÖLLENKAMP, p. 345, t. c., n. sp.

PASSALIDÆ.

[Cf. FAUVEL (495), ZANG (1706).]

- Synonymical and orthographical remarks on Kaup's *Passalidæ*, ZANG, pp. 417-419, Deutsche ent. Zeitschr. 1903.
- Comacupes pugnax*, New Caledonia, FAUVEL, p. 359, Rev. Ent. franc. xxii, n. sp.
- Kaupiolus* n. n. for *Vellejus* Kaup, ZANG, p. 418, Deutsche ent. Zeitschr. 1903.

SCARABÆIDÆ.

Coprini.

- [Cf. ARROW (32, 590), BLACKBURN (136), BOUCOMONT (163), FABRE (474), FAIRMAIRE (477, 478, 486), FAUVEL (495), D'ORBIGNY (1091, 1092), REITTER (1235), SEMENOW (1383, 1386), SHARP (1406), SIETTI (1421), SUMAKOW (1494).]
- D'ORBIGNY, Ann. Soc. ent. France lxxii, pp. 289-300, gives the synonymy and notes resulting from a comparison of his recently described species of *Onthophagides* with those of Péringuey (1901). For details reference must be made to the memoir itself.

- Acanthocerus relucens*, variation in size of eyes, ARROW, p. 516, Tr. ent. Soc. London 1903, n. sp.

- Egialia sabuleti* var. = (*latipuncta* Grell.), DANIEL, p. 251, Munchen. Kol. Zeitschr. i.
- Egidium vincentiæ*, Antilles, ARROW, p. 515, Tr. ent. Soc. London 1903, n. sp.
- Ahermes ahngeri*, Transcaspian, SEMENOW, Rev. Russe Ent. iii, p. 9; *A. kaznakovi*, *kozlavi*, Mongolia, SEMENOW, p. 27, Rev. Russe Ent. iii : n. spp.
- Amidorus thermicola*, *cribrarius*, distinctions, MÜLLER, Wien. ent. Zeit. xxii, p. 153.
- Aphodius pyrenæus* = (*reitterianus* Schew.), *A. hieroglyphicus castilianus* var. n., DANIEL, p. 251, Munchen. Kol. Zeitschr. i.
- Aphodius* (*Amidorus*) *brevithorax*, Caucasus, SUMAKOW, Wien. ent. Zeit. xxii, p. 47; *A. (Melinopterus) abeillei*, Algeria, SIETTI, p. 66, Miscell. ent. xi; *A. latecinctus*, p. 186, *tuberifrons*, *picescens*, p. 187, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii : n. spp.
- Atelodes frater*, Antilles, *tenebrosus*, Antilles and S. America, p. 512, *vincentiæ*, St Vincent, p. 513, ARROW, Tr. ent. Soc. London 1903, n. spp.
- Bolbocerus tucumanensis*, Argentina, BOUCOMONT, p. 260, Bull. Soc. ent. France 1903, n. sp.
- Caccobius schreberi* var. n. *corsicus*, SCHNEIDER, p. 52, SB. Ges. Isis 1902.
- Canthidium sladeni*, Matto Grosso, pl. xxviii, fig. 1, p. 249, ARROW, P. Zool. Soc. London 1903, ii, n. sp.
- Cleotus rufopiceus*, p. 517, *crassicollis*, p. 518, St Vincent, *bugabensis*, Panama, *acutipes*, Brazil, Costa Rica, p. 519, ARROW, Tr. ent. Soc. London 1903, n. spp.
- Cnemargulus* n. g. *Aphodides* near *Ahermes*, for *C. krulikowskii*, p. 354, *pusio*, p. 355, n. spp., Transcaspian, SEMENOW, Rev. Russe Ent. iii.
- Cœlodes nigripennis*, St Vincent, ARROW, p. 516, Tr. ent. Soc. London 1903, n. sp.
- Coptochirus hæmonius*, Thessaly, REITTER, Wien. ent. Zeit. xxii, p. 176, n. sp.
- Coptodactyla ducalis*, Queensland, BLACKBURN, p. 263, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Epilissus scarabæoides*, Madagascar, FAIRMAIRE, p. 35, Naturaliste 1903, n. sp.
- Geotrupes jakovlevi*, synonymy, SEMENOW, p. 170, Rev. Russe Ent. iii.
- Helicopris mouhotus*, *dominus*, varieties, SHARP, p. 285, cuts, Fascic. Malay. Zool. i.
- Ochodæus lineipunctatus*, Madagascar, FAIRMAIRE, p. 19, Rev. Ent. franc. xxii, n. sp.
- Onthobium asperatum*, p. 361, *simplex*, p. 362, *fracticolle*, *tibiale*, p. 363, *muticum*, p. 364, New Caledonia, FAUVEL, Rev. Ent. franc. xxii, n. spp.
- Onthophagus*, revision of Australian, with synonymy (for which refer to the memoir), BLACKBURN, pp. 263-306, Tr. R. Soc. S. Austral. xxvii; *O. amyntas* and allies, characters, REITTER, Wien. ent. Zeit. xxii, pp. 9-14; *O. transcaspicus* = (*lineatus* Reitt.), SEMENOW, p. 306, Rev. Russe Ent. iii; *O. nuchicornis*, spread in Canada, ROY, p. 129, Natural. Canad. xxx.
- O. escaleraï*, Congo, D'ORBIGNY, p. 125, Mem. Soc. espan. i; *O. cowleyi*, p. 272, *palmerstoni*, p. 275, *sloanei*, p. 276, *pugnaciior*, p. 277, *bovilli*, p. 278, *howitti*, p. 282, *zietsi*, p. 283, *tweedensis*, p. 285, *queenslandicus*, p. 287, *fitzroyensis*, p. 288, *aureoviridanus*, *macleayi*, p. 289, *helmsi*, p. 290, *koebelæi*, *pontilis*, p. 291, *tamworthi*, p. 292, *frenchi*, *victoriensis*, p. 293, *submuticus*, p. 294, *comperci*, p. 295, *sydneyensis*, p. 296, *dumbrelli*, *negatorius*, p. 297, *fletcheri*, p. 298, *subocelliger*, *margaretensis*, p. 299, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvii; *O. antillarum*, St Vincent, ARROW, p. 510, Tr. ent. Soc. London 1903 : n. spp.

- Philarmostes pilula, convexifrons*, Madagascar, FAIRMAIRE, p. 188, Ann. Soc. ent. France lxxii; *P. cribrarius, -corruscus*, Madagascar, FAIRMAIRE, p. 18, Rev. Ent. franc. xxii : n. spp.
- Pinotus roberti*, Brazil, ARROW, p. 250, P. Zool. Soc. London 1903, ii, n. sp.
- Psammobius catenatus, antipodum*, New Caledonia, FAUVEL, Rev. Ent. franc. xxii, n. spp.
- Rhyssemus sequensi*, Egypt, REITTER, Wien. ent. Zeit. xxii, p. 176, n. sp.
- Saprosites grenadensis*, Antilles, ARROW, p. 514, Tr. ent. Soc. London 1903, n. sp.
- Synarmostes latericostatus* = (*perroti* Wasm.), FAIRMAIRE, p. 18, Rev. Ent. franc. xxii.
- Trox perlatus*, larva, FABRE, Souvenirs viii, chap. 17.
- Uroxys vincentiæ*, Antilles, ARROW, p. 510, Tr. ent. Soc. London 1903, n. sp.

Glaphyrini.

[Cf. REITTER (1233), SEMENOW (1384).]

Revision of palæarctic *Glaphyrini*, REITTER, Verh. Ver. Brunn xli, pp. 126-154.

- Amphicoma corniculata*, Konia, *cornifrons*, Anatolia, p. 147, *ithæ*, Syria, p. 151, REITTER, t. c., n. spp.
- Anthypna carcelii* var. n. *duponchelii*, LUIGIONI, p. 20, Monit. Zool. ital. xiv Suppl.; *A. fairmairei* and *dubia* Sem. referred to *Toxocerus*, SEMENOW, p. 307, Rev. Russe Ent. iii.
- Glaphyrus soglianus, turkestanicus*, distinguished, SEMENOW, p. 307, t. c.
- G. luristanus*, p. 128, *onopordi*, p. 130, Persia, *sequensi*, Armenia, p. 131, *laufferi*; Tombol, p. 132, REITTER, Verh. Ver. Brunn xli, n. spp.
- Solskiola* subg. n. of *Amphicoma* for *A. analis* Solsky, SEMENOW, p. 391, Rev. Russe Ent. iii.

Melolonthini.

[Cf. ARROW (33, 590), BRENSKE (212-215), FAIRMAIRE (477, 479, 486), FAUVEL (495), GERMAIN (611), LEWIS (937), PIC (1152), REITTER (1232, 1233), SHARP (1405), WICKHAM (1687).]

Tables for determination of palæarctic *Melolonthini*, with numerous n. spp., REITTER, pp. 93-303, Verh. Ver. Brunn xl.

- Achranoxia koenigi* Br. = (*planipalpis* Reitt.), *A. varentzovi* is distinct, SEMENOW, p. 15, Rev. Russe Ent. iii.
- A. planipalpis*, Transcaspian, REITTER, p. 278, Verh. Ver. Brunn xl, n. sp.
- Adonides cinctiventris*, Madagascar, FAIRMAIRE, p. 362, Ann. Soc. ent. Belgique xlvii, n. sp.
- Aleucolomus* subg. n. cf. *Chioneosoma*.
- Allophyllus* n. g. near *Heteronyx*, for *A. tetraphyllus* n. sp., New Caledonia, FAUVEL, p. 373, Rev. Ent. franc. xxii.
- Amadotrogus* subg. n. for *Rhizotrogus scutellaris* Luc., REITTER, p. 248, Verh. Ver. Brunn xl.
- Ambloxia* n. g. for *Microphylla quedenfeldti* Kraatz, REITTER, p. 276, t. c.
- Amphimallus nigripennis*, Asia Minor, p. 238, *menorcanus*, Minorca, p. 241, *trisinuatus*, Portugal, p. 242, *serripes*, Algeria, p. 243, *felicitanus*, Andalusia, p. 245, *A. (Eriotrogus* subg. n., p. 252) *erivanicus*, Ordubad, p. 253, REITTER, t. c., n. spp.
- Anaptoplus grisescens*, Madagascar, FAIRMAIRE, p. 34, Rev. Ent. franc. xxii, n. sp.
- Anomatophylla* Reitt. = (*Melaserica* Brenske) REITTER, p. 296, Verh. Ver. Brunn xl.

- Anomolyta hexaphylla*, p. 23, *tædiosa*, p. 24, Madagascar, FAIRMAIRE, Rev. Ent. franc. xxii, n. spp.
- Anoxiella* subg. n. of *Brahmina*, REITTER, p. 178, Verh. Ver. Brunn xl.
- Apocamenta* n. g. near *Empecamenta*, for *A. cameruna* n. sp., Africa, and *E. variolosa*, BRENSKE, p. 89, Ent. Tidskr. xxiv.
- Aposchiza* n. g. *Schizonychidarum*, p. 296, for *A. schulzi* n. sp., Usambara, p. 297, BRENSKE, Deutsche ent. Zeitschr. 1903.
- Apterodema paraguayensis*, Paraguay, ARROW, p. 255, P. Zool. Soc. London 1903, ii, n. sp.
- Asaphomorpha anthracina*, Madagascar, FAIRMAIRE, p. 361, Ann. Soc. ent. Belgique xlvii, n. sp.
- Brachymis crinitus*, Cameroons, BRENSKE, p. 88, Ent. Tidskr. xxiv, n. sp.
- Brachypholis sjostedti*, Cameroons, BRENSKE, p. 92, t. c., n. sp.
- Chioneosoma* (*Chionotrogus* subg. n.) *sequensi*, p. 190, *molaris*, p. 191, Transcaspian, *C. (Aleucolomus* subg. n., p. 192) *subporosa*, Turkestan, p. 194, REITTER, Verh. Ver. Brunn xl, n. spp.
- Chionotrogus* subg. n. cf. *Chioneosoma*.
- Chlorochiton* n. g. type *Stethaspis suturalis* auctt. nec Fabr., ARROW, Ann. Nat. Hist. xi, p. 305.
- Clavipalpus tenuis*, Matto Grosso, ARROW, p. 251, pl. xxviii, fig. 2, P. Zool. Soc. London 1903, ii, n. sp.
- Clypearia* n. g. near *Enaria*, for *C. pruinosa* n. sp., Madagascar, FAIRMAIRE, p. 194, Ann. Soc. ent. France lxxii.
- Conebius* n. g. *Pachypodini*, for *C. carinipennis* n. sp., New Caledonia, FAUVEL, p. 374, Rev. Ent. franc. xxii.
- Coniotrogus* n. g. *Rhizotrogidarum*, p. 333, for *C. abdominalis* n. sp., Tibet, p. 334, BRENSKE, Munchen. Kol. Zeitschr. i.
- Crepsischiza* n. g. *Schizonychidarum*, p. 297, for *C. usambaræ* n. sp., E. Africa, p. 298, BRENSKE, Deutsche ent. Zeitschr. 1903.
- Cyphonotus testaceus* = (*integriceps* Reitt.), SEMENOW, p. 15, Rev. Russe Ent. iii.
- C. integriceps*, Transcaspian, REITTER, p. 292, Verh. Ver. Brunn xl, n. sp.
- Dasytrogus* n. g. for *Rhizotrogus transcaspicus* Brenske, REITTER, p. 230, t. c.
- Ectinohoplia chrysuræ*, Khasia Hills, p. 109, *variabilis*, *hispidula*, China, p. 110, REITTER, Verh. Ver. Brunn xli, n. spp.
- Elaphocera championi*, Gibraltar, p. 97, *ohausi*, Greece, p. 98, *E. (Elaphocerida* subg. n., p. 98) *rubicunda*, Carthage, p. 100, *tethys*, Gibraltar, p. 101, *cretica*, Crete, *denticornis*, Macedonia, p. 102, *staudingeri*, Syria, p. 103, *gibbifrons*, Attica, p. 105, REITTER, Verh. Ver. Brunn xl, n. spp.
- Elaphocerida* subg. n. cf. *Elaphocera*.
- Empecta major*, Madagascar, FAIRMAIRE, p. 361, Ann. Soc. ent. Belgique xlvii; *E. furfuracea*, p. 22, *obesa*, p. 23, Madagascar, FAIRMAIRE, Rev. Ent. franc. xxii : n. spp.
- Enaria adusta*, *albosparsa*, Madagascar, FAIRMAIRE, p. 35, Naturaliste 1903; *E. carinulata*, *speculifera*, Madagascar, FAIRMAIRE, p. 195, Ann. Soc. ent. France lxxii; *E. scapulata*, *densepunctata*, p. 20, *textilipennis*, *speculifera*, p. 21, *ampliata*, p. 22, Madagascar, FAIRMAIRE, Rev. Ent. franc. xxii : n. spp.
- Enarioidea* n. g. near *Rhizotrogus*, for *E. villigera* n. sp., Madagascar, FAIRMAIRE, p. 25, t. c.
- Encya densevestita*, Madagascar, FAIRMAIRE, p. 194, Ann. Soc. ent. France lxxii, n. sp.
- Erefusa* subg. n. of *Holotrichia*, for *nigra* Redt., REITTER, p. 174, Verh. Ver. Brunn xl.
- Eriotrogus* subg. n. cf. *Amphimallus*.
- Eugastra epigæa*, Texas, WICKHAM, p. 71, Canad. Ent. xxxv, n. sp.

- Euserica mutata* Gyll. = (*Serica segurana* Brenske), REITTER, p. 296, Verh. Ver. Brunn xl.
- Eusericula* subg. n. of *Euserica*, REITTER, t. c. p. 142.
- Ewolontha* n. g. for *Melolontha umbraculata* Burm., REITTER, p. 269, t. c.
- Faula insularis*, St. Vincent, ARROW, p. 520, Tr. ent. Soc. London 1903, n. sp.
- Geotrogus rectibasis*, Tunis, REITTER, p. 229, Verh. Ver. Brunn xl, n. sp.
- Gnaphalopodu seriata*, *baladica*, *anea*, p. 369, *opacina*, *curticollis*, p. 370, *porcata*, *pygialis*, p. 371, New Caledonia, FAUVEL, Rev. Ent. franc. xxii, n. spp.
- Hapalopus* n. g. *Elaphocerides*, for *H. chuni* n. sp., S. W. Africa, BRENSKE, Soc. ent. xviii, p. 185.
- Haplidia lateriventris*, Amasia, *dilatata*, p. 185, Smyrna, *caesarina*, Cæsarea, p. 187, REITTER, Verh. Ver. Brunn xl, n. spp.
- Hemictenius albociliatus*, Samarcand, p. 134, *opacipes*, *nitidipes*, p. 135, *scutellaris*, p. 136, Buchara, *ochripennis*, Baldschuan, p. 136, REITTER, t. c., n. spp.
- Heteronyx caledoniae*, *umbilicatus*, New Caledonia, FAUVEL, p. 372, Rev. Ent. franc. xxii, n. spp.
- Holochelus lineolatus*, Asia Minor, REITTER, p. 195, Verh. Ver. Brunn xl, n. sp.
- Holotrichia ernesti*, Mongolia, p. 177, *titanis*, Ussuri, p. 178, REITTER, t. c. : *H. repetita*, p. 467, *conferta*, p. 468, Nilgiri Hills, SHARP, Ann. Nat. Hist. xi : n. spp.
- Hoplia concolor* = (*weisei* Sem.); SEMENOW, p. 172, Rev. Russe Ent. iii.
- H.* (*Decamera*) *praticola*, *bosnica*, Bosnia, *jakobsoni*, Persia, p. 113, *H. cylindrica*, Transcaucasus, p. 123, *subnuda*, E. Europe, p. 124, *brunnescens*, Centr. Europe, p. 125, REITTER, Verh. Ver. Brunn xli ; *H. nivosutata*, Madagascar, FAIRMAIRE, p. 19, Rev. Ent. franc. xxii ; *H. difformis*, Madagascar, FAIRMAIRE, p. 361, Ann. Soc. ent. Belgique xlvii ; *H. lugubris*, *valida*, *rubriginea*, p. 189, *pruinosa*, *rufopubens*, *plicata*, p. 190, *asperata*, *albosparsa*, p. 191, *tenuitarsis*, *circumscutata*, p. 192, *stigmatica*, *bruchoides*, p. 193, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii : n. spp.
- Hoplochelus tenuepunctatus*, p. 196, *oblongulus*, p. 197, Madagascar, FAIRMAIRE, t. c., n. spp.
- Hymenoplia clypealis*, Spain, p. 157, REITTER, Verh. Ver. Brunn xl, n. sp.
- Lasiopsis duchoni*, Turkestan, p. 168, *lederi*, Mongolia, p. 169, REITTER, t. c., n. spp.
- Madotrogus* subg. n. for *Rhizotrogus glabripennis* Ball. etc., REITTER, p. 251, t. c.
- Meganoxia* n. g. p. 280, near *Anoxia*, for *M. orita* n. sp., Armenia, p. 281, REITTER, t. c.
- Melanocamenta rufina*, *kolbei*, E. Africa, BRENSKE, p. 295, Deutsche ent. Zeitschr. 1903, n. spp.
- Melaserica*, characters, SHARP, Ann. Nat. Hist. xi, p. 468. Cf. *anomalophyllæ*.
- M. barberi*, Ootacamund, id. t. c. p. 469, n. sp.
- Melolontha anita*, Asia Minor, REITTER, p. 263, Verh. Ver. Brunn xl ; *M. tricostata*, Tibet, BRENSKE, p. 335, Munchen. Kol. Zeitschr. i : n. spp.
- Miltotrogus* subg. n. cf. *Rhizotrogus*.
- Miridiba* n. g. for *Rhizotrogus trichophorus* Fairm., REITTER, p. 170, Verh. Ver. Brunn xl.
- Mitracamenta* n. g. for *M. lineella* n. sp., Usambara, BRENSKE, Deutsche ent. Zeitschr. 1903.
- Monotropus nordmanni* = (*starecki* Reitt.), SEMENOW, p. 15, Rev. Russe Ent. iii.
- Noanda* subg. n. for *Holotrichia standfussi* Brenske, REITTER, p. 174, Verh. Ver. Brunn xl.

- Odontria zealandica*, habits, HILGENDORF, p. 265, Tr. N. Zealand Inst. xxxv.
- O. epomeas*, New Zealand, LEWIS, p. 272, pl. xxxi, Tr. N. Zealand Inst. xxxv, n. sp.
- Oligolepis unguicularis*, p. 95, *pygidialis*, p. 97, Cameroons, BRENSKE, Ent. Tidskr. xxiv, n. spp.
- Pachychilecamenta* n. g. for *P. rufa* n. sp., Cameroons, BRENSKE, p. 90, t. c.
- Pachycolus dohrnii*=(*capillatus* Brenske), FAIRMAIRE, p. 24, Rev. Ent. franc. xxii.
- Pachydema letourneuxi*, Algeria, PIC, p. 113, Echange 1903; *P. (Physopalpus) grandipalpis*, Algeria, p. 108, *palposa*, Sinai, p. 109, *P. conica*, Egypt, p. 110, *phylloperthoides*, p. 111, *dubitalis*, p. 112, Tunis, *monochroa*, p. 116, *tarsalis*, p. 117, *albipilis*, Egypt, p. 118, REITTER, Verh. Ver. Brunn xl, n. spp.
- Pachydemocera* n. g., p. 105, for *P. pubimargo*, p. 106, *pubicavula*, p. 107, n. spp., Syria, and *Elaphocera lucidicollis* Kr., REITTER, t. c.
- Panotrogus* n. g., pp. 164 and 187, for *Rhizotrogus myschenkowi* Ball., REITTER, t. c.
- Paroplia* n. g. near *Hoplia*, for *P. semivestita* n. sp., Madagascar, FAIRMAIRE, p. 360, Ann. Soc. ent. Belgique xlvi.
- Pectinichelus bucharicus*, Buchara, REITTER, p. 172, Verh. Ver. Brunn xl, n. sp.
- Pholidochris sjostedti*, p. 92, *helleri*, p. 94, W. Africa, BRENSKE, Ent. Tidskr. xxiv, n. sp.
- Pledina* subg. n. for *Holotrichia sinensis*, etc., REITTER, p. 173, Verh. Ver. Brunn xl.
- Polyphylla naviana*, Mediterranean, REITTER, p. 273, t. c., n. sp.
- Proagosternus rubiginosus*, Madagascar, FAIRMAIRE, p. 196, Ann. Soc. ent. France lxxii, n. sp.
- Pseudotrochalus concolor* var. n. *nigromaculatus*, BRENSKE, p. 86, Ent. Tidskr. xxiv.
- P. quadrisubmaculatus*, p. 85, *sjostedti*, p. 86, *benitoensis*, *longithorax*, p. 87, *niger*, *congoanus*, p. 88, W. Africa, BRENSKE, t. c., n. spp.
- Rhizocolax duplopunctata*, Alexandra Mts., REITTER, p. 180, Verh. Ver. Brunn xl, n. sp.
- Brahmina darcisi*, Tibet, *mandarina*, China, REITTER, p. 181, t. c., n. spp.
- Rhizoproctus usambaræ*, E. Africa, BRENSKE, p. 298, Deutsche ent. Zeitschr. 1903, n. sp.
- Rhizotrogus ferganensis*=(*Chinosoma subporosum* Reitt.), SEMENOW, p. 99, Rev. Russe Ent. iii.
- R.* (*Miltotrogus* subg. n., p. 196), *setiventris*, p. 200, *mimicus*, p. 201, Syria, *R. areolus*, Gibraltar, p. 203, *nevadensis*, Spain, p. 205, *R. (Xanthotrogus* subg. n.), *fortis*, Turkestan, p. 212, *R. putoni*, Algeria, p. 214, *pilidorsis*, Marocco, p. 215, *phidias*, p. 216, *bedeli*, p. 218, *sparsinus*, *R. (Apterogyna) leucostethus*, p. 220, *pallidimargo*, p. 222, *ignobilis*, p. 223, Algeria, REITTER, Verh. Ver. Brunn xl, n. spp.
- Rivera* n. g. for *Athlia plebeia* Burm., GERMAIN, p. 4, An. Mus. Chile cxiii.
- Serica nilgirensis*, p. 469, *pilula*, p. 470, S. India, SHARP, Ann. Nat. Hist. xi, n. spp.
- Sericoides*; in this are to be merged *Accia*, *Maypa*, *Macrosoma*, ARROW, p. 256, P. Zool. Soc. London 1903, ii.
- Schistocometa* n. g. for *Brahmina brenskei* Reitt., BRENSKE, p. 334, Munchen. Kol. Zeitschr. i.
- Stethaspis* is *Xylonychus eucalypti*, ARROW, Ann. Nat. Hist. xi p. 304.
- Syntaxipholis* n. g. for *Pseudopholis kuluensis*, BRENSKE, p. 98, Ent. Tidskr. xxiv.
- Tanyproctocera* subg. n. cf. *Tanyproctus*.

Tanyproctus (*Tanyproctocera* subg. n. p. 119), *portusus*, Asia Minor, p. 120, *T. (Brachydema) demaisonii*, Asia Minor, p. 122, *kraatzi*, Syria, *novicius*, *beskindensis*, Beskinda, p. 124, *latimanus*, Syria, p. 125, *pilimargo*, Asia Minor, *pygidialis*, Lebanon, *verryi*, *acrossoides*, Akbès, p. 126, *T. subciliatus*, Turkestan, p. 128, *rubicundus*, Ordubad, p. 129, *satanas*, Persia, p. 130, *kurdistanus*, Kurdistan, p. 131, *araxis*, *ordubadensis*, Ordubad, p. 132, REITTER, Verh. Ver. Brunn xli, **n. spp.**

Tocama subg. n. for *Melolontha rubiginosa* Fairm., REITTER, p. 265, t. c.

Trochaloschema medusa, Buchara, p. 141, REITTER, t. c., **n. sp.**

Trochalus camerunensis, Africa, BRENSKE, p. 84, Ent. Tidskr. xxiv, **n. sp.**

Xanthotrogus subg. n. cf. *Rhizotrogus*.

Xestotrogus subg. n. for *Rhizotrogus validus* Kr., REITTER, p. 211, Verh. Ver. Brunn xli.

Xorema subg. n. of *Anomalophylla* for *X. thibetana* **n. sp.**, Kuku-noor, REITTER, t. c. p. 147.

Rutelini.

[Cf. ARROW (33, 590), FAIRMAIRE (486), JACOBSON (760), KOLBE (866), OHAUS (1087, 1088), REITTER (1233), SHARP (1405).]

Revision of palæarctic Rutelidæ, with numerous forms from E. Asia included, REITTER, Verh. Ver. Brunn xli, pp. 28–107.

Adoretus ovalis, description, SHARP, Ann. Nat. Hist. xii, p. 472.

A. rufifrons, Kashgar, *fuscitarsis*, Algeria, REITTER, p. 32, Verh. Ver. Brunn xli; *A. œdipus*, Madagascar, FAIRMAIRE, p. 9, Naturaliste 1903 : **n. spp.**

Ambtomala subg. n. of *Anomala* for *A. aurata*, etc., REITTER, p. 58, Verh. Ver. Brunn xli.

Anisoplia hebes, p. 104, *nasalis*, p. 105, Greece, REITTER, t. c.; *A. reitteriana* **n. n.** for *scytha* Reitt. nec Motsch., SEMENOW, p. 99, Rev. Russe Ent. iii : **n. spp.**

Anomala (*Orphnomala* subg. n. p. 57) *colorata*, p. 58, *A. (Idiocnema) obscurata*, p. 65, Mongolia, *A. (Idiocnemina* subg. n.) *gracilentata*, China, p. 67, *A. (Diplomala* subg. n.) *subvittata*, E. Siberia, p. 68, *tristigma*, *lobipes*, Soudan, p. 69, *A. (Paragematis* subg. n.) *melanopa*, Upper Egypt, p. 70, *A. mimeloides*, Hongkong, p. 71, *pleurimargo*, Japan etc., p. 72, *ignicolor*, Korea, p. 73, *neapolitana*, Italy, p. 75, REITTER, Verh. Ver. Brunn xli; *A. guazenkoi*, Mantchuria, JACOBSON, p. xiii, Annuaire Mus. St. Petersb. 1903; *A. olivieri*, *globulosa*, Ootacamund, SHARP, Ann. Nat. Hist. xii, p. 471 : **n. spp.**

Apleopertha subg. n. of *Cyriopertha* for *Phyllopertha reitteri* Sem., SEMENOW, p. 390, Rev. Russe Ent. iii.

Blitopertha **n. g.** for part of *Phyllopertha*, p. 85, *B. (Exomala* subg. n. p. 88) *pallidipennis*, E. Siberia, p. 89, REITTER, Verh. Ver. Brunn xli.

Bolax oberthuri, Ecuador, OHAUS, p. 235, Berlin. ent. Zeitschr. xlvi, **n. sp.**

Callistopopillia **n. g.** p. 219, for pt. of *Callistethus*, of which *C. davidis* Fairm. = (*compressidens* Fairm.), p. 221, OHAUS, Deutsche ent. Zeitschr. 1903.

Callistethus re-characterised, p. 214, *C. stoliczkæ* = (*seminitidus* Fairm.), p. 218, OHAUS, t. c.

C. pterygophorus, India, id., p. 217, t. c., **n. sp.**

Chrysoplethisa subg. n. of *Anomala* for *octocostata* Burm., REITTER, p. 56, Verh. Ver. Brunn xli.

Cyriopertha **n. g.** type *Phyllopertha glabra* Gebl., p. 91, with *Pleopertha* subg. n., p. 92, for *arcuata*, Gebl., REITTER, t. c.

Dichomala subg. n. of *Anomala* for *A. devota* Rossi, REITTER, p. 63, t. c.

Dicranoptia **n. g.** for *Phyllopertha deserticola* Luc., REITTER, p. 43, t. c.

Diplomala subg. n. cf. *Anomala*.

- Emphalena* subg. n. of *Anomala* for *exoleta* Fald., REITTER, p. 67, t. c.
Epadoretus subg. n. of *Pseudadoretus* for *reitteri* Sem., REITTER, p. 35, t. c.
Eriomela subg. n. of *Mimela* for *pomacea* Bates, REITTER, p. 52, t. c.
Euchronomala subg. n. of *Anomala* for *A. albopilosa* Hope, REITTER, p. 65, t. c.
Euchrysinda n. g. for *chinensis* Redt. and *Phyllopertha chromatica* Fairm., REITTER, p. 80, t. c.
Euporomala subg. n. of *Anomala* for *A. sieversi* Heyd., REITTER, p. 62, t. c.
Euporochlora subg. n. of *Anomala* for *A. viridis* Fabr., REITTER, p. 64, t. c.
Exomala subg. n. cf. *Blitopertha*.
Fruhstorferia anthracina, Tonkin, OHAUS, p. 225, Deutsche ent. Zeitschr. 1903, n. sp.
Geniastes schmidti, Ecuador, OHAUS, p. 236, Berlin. ent. Zeitschr. xviii, n. sp.
Gonadoretus subg. n. for *Adoretus clypeatus* Burm., REITTER, p. 30, Verh. Ver. Brunn xli.
Hybalonomala n. g. for *Anomala bleusei* Chob., REITTER, p. 82, t. c.
Idiocnemina subg. n. cf. *Anomala*.
Lagochile solimoensis, Ecuador, p. 220, *panamensis*, Chiriqui, p. 221, *sparsa*, p. 222, *andicola*, p. 226, *cachectica*, p. 227, Ecuador, OHAUS, Berlin. ent. Zeitschr. xviii, n. spp.
Lepadoretus subg. n. for *Adoretus umbrosus* Fabr., etc., REITTER, p. 30, Verh. Ver. Brunn xli.
Macraspis brasiliensis, S. America, ARROW, p. 256, P. Zool. Soc. London 1903, ii, n. sp.
Megapertha subg. n. of *Blitopertha* for *Phyllopertha massageta* and *reitteri*, REITTER, p. 90, Verh. Ver. Brunn xli.
Mimela excisipes, Centr. China, REITTER, p. 54, t. c., n. sp.
Orphnomala subg. n. cf. *Anomala*.
Paragematis subg. n. cf. *Anomala*.
Paranonca queried as *Schizognathus*, ARROW, Ann. Nat. Hist. xi, p. 304.
Parastasia moseri, Borneo, p. 223, *buruensis*, Buru, p. 224, *laratina*, Larat, p. 225, OHAUS, Deutsche ent. Zeitschr. 1903, n. spp.
Peradoretus subg. n. of *Pseudadoretus* for *koechlini* Mars., REITTER, p. 35, Verh. Ver. Brunn xli.
Phæadoretus subg. n. for *Adoretus comptus* Mén., REITTER, p. 31, t. c.
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Pleopertha subg. n. cf. *Cyriopertha*.
Popillia; list of African, with definitions of the subgenera, KOLBE, pp. 66-70, *P. laevicollis*=(*melanochlora* Kolbe), p. 78, Ann. Mus. Belgique xvii.
Popillia (*Eupopilla*) *unguela*, *fulleborni*, p. 70, *montium*, *spoliata*, p. 72, *nhondana*, p. 73, *goetzeana*, p. 74, *P. cameruna*, p. 75, *baliana*, p. 76, *tandalla*, p. 77, Africa, KOLBE, t. c., n. spp.
Pristadoretus subg. n. of *Pseudadoretus* for *fullax* Sem., REITTER, p. 36, Verh. Ver. Brunn xli.
Proagopertha n. g. for *Anomala pubicollis* Wat. and *Spilota acutisterna* Fairm., REITTER, p. 50, t. c.
Pseudadoretus (*Stichadoretus* subg. n.) *arabicus*, Arabia, p. 34, *P. perditulus*, Transcaspien, p. 37, REITTER, t. c., n. spp.
Pseudomacraspis n. g. for part of *Macraspis*, OHAUS, p. 229, Berlin. ent. Zeitschr. xviii.
Rutela dimorpha, Ecuador, OHAUS, p. 234, t. c., n. sp.
Spileuchlora n. g. p. 209, for *S. waterstraati*, *hauschildti*, p. 212, n. spp., Borneo, and *Mim. rosetti*, and *pyropus* Nonfr., OHAUS, Deutsche ent. Zeitschr. 1903.
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Trichopertha subg. n. of *Blitopertha* for *Phyllopertha hirtella* Brull., REITTER, p. 85, t. c.

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Dynastini.

[Cf. ARROW (590), FAIRMAIRE (478, 480), GERMAIN (612), HELLER (680), JAKOVLEFF (776), STERNBERG (1481).]

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Chalcocrates n. g. *Cyclocephalide*, p. 305, for *C. felschei*, n. sp., New Guinea, p. 306, HELLER, Deutsche ent. Zeitschr. 1903.

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Oryctomorphus; the Chilian, GERMAIN (612).

Pentodon; notes on with, *unidens* var. n. and *relictus* n. sp. i.l., JAKOVLEFF, pp. 304, 305, Rev. Russe Ent. iii.

P. foveipennis, Transcaucasus, JAKOVLEFF, p. 17, t. c., n. sp.

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Cetonini.

[Cf. ALLUAUD (23), FABRE (474), FAIRMAIRE (477, 478, 483, 484, 486), GAHAN (589), HEATH (676), HELLER (679, 680), JANSON (784), MOSER (1044, 1045), PREISS (1198).]

Natural history of *Cetonia* and *Oxythyrea stictica*, larvæ, FABRE, Souvenirs viii, Chap. i.

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Bothrorrhina rufonasuta = (*nickerli* Hell.) FAIRMAIRE, p. 197, Ann. Soc. ent. France lxxii.

B. nickerti, Madagascar, HELLER, p. 167, Deutsche ent. Zeitschr. 1903, n. sp.

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Epixanthis nigriceps, Madagascar, FAIRMAIRE, p. 36, Naturaliste 1903, n. sp.

- Gnathocera trivittata* = (*variabilis* Kr.), MOSER, p. 319, Berlin. ent. Zeitschr. xlviii.
- Heterophana dissimilis*, Madagascar, FAIRMAIRE, p. 197, Ann. Soc. ent. France lxxii, n. sp.
- Heterorrhina euryrhina* to *Ingrisma*, JANSON, p. 307, Tr. ent. Soc. London 1903.
- Heterosoma*; list with synonymy, ALLUAUD, pp. 77, 78, Bull. Soc. ent. France 1903.
- H. clephas*, Madagascar, id. p. 78, t. c., n. sp.
- Homothyrea inornatipennis*, Sokotra, GAHAN, Nat. Hist. Sokotra, p. 269, n. sp.
- Ingrisma binghami*, Tenasserim, p. 308, *femorata*, Siam, p. 309, JANSON, Tr. ent. Soc. London 1903, n. spp.
- Ischiopsopha wallacei* = (*exasperata* Kr.), MOSER, p. 320, Berlin. ent. Zeitschr. xlviii.
- Linotarsia cincticollis*, Madagascar, FAIRMAIRE, p. 197, Ann. Soc. ent. France lxxii, n. sp.
- Liostraca semistriata*, Madagascar, FAIRMAIRE, p. 9, Naturaliste 1903, n. sp.
- Lomaptera iridescens*, New Guinea, HELLER, p. 308, Deutsche ent. Zeitschr. 1903, n. sp.
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- Mecynorrhina oberthuri*, Ukami, FAIRMAIRE, pp. 261-263, cuts, Bull. Soc. ent. France 1903, n. sp.
- Mycteristes inermis*, Kina-balù, JANSON, p. 306, Tr. ent. Soc. London 1903; *M. tonkinensis*, Tonkin, MOSER, p. 315, Berlin. ent. Zeitschr. xlviii: n. spp.
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- Myctoplerus* n.n. for *Mycteropus*, FAIRMAIRE, p. 202, Bull. Soc. ent. France 1903.
- Pachnoda ephippiata* var. n. *maculata*, MOSER, p. 319, Berlin. ent. Zeitschr. xlviii.
- Pachnoda usambarica*, Africa, MOSER, p. 318, t. c., n. sp.
- Pantolia subcostata*, Madagascar, FAIRMAIRE, p. 36, Naturaliste 1903, n. sp.
- Plasiorrhina ugandensis*, E. Africa, HEATH, p. 98, cut, Entomologist xxxvi, n. sp.
- Pygora polypspila*, Madagascar, FAIRMAIRE, p. 26, Rev. Ent. franc. xxii; *P. cruralis*, *bioculata*, *immaculata*, p. 198, *diegana*, p. 199, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii: n. spp.
- Pyrrhopoda rufovaria*, Madagascar, FAIRMAIRE, p. 36, Naturaliste 1903, n. sp.
- Rhomborrhina gestroi*, Assam, MOSER, p. 317, Berlin. ent. Zeitschr. xlviii, n. sp.
- Smaragdesthes cinctipennis*, E. Africa, MOSER, p. 316, t. c., n. sp.
- Theodosia*; synonymy with list of species, JANSON, pp. 303, 304, Tr. ent. Soc. London 1903.
- T. rothschildi*, *aurata*, Kina-balù, JANSON, p. 305, t. c., n. spp.
- Tmesorrhina viridicyanea* var. n. *pruina*, MOSER, p. 318, Berlin. ent. Zeitschr. 1903.
- Trichius rosaceus* variation in Corsica, SCHNEIDER, pp. 47, 48, SB. Ges. Isis 1902.

BUPRESTIDÆ.

- [Cf. ABEILLE (3), BLACKBURN (135, 136), DANIEL & DANIEL (378), FAIRMAIRE (477, 478, 479, 486), JAKOBLEV (772, 773, 779), KERREMANS (814, 815), OBST (1084), SEMENOW (1390), SKINNER (1432), WICKHAM (1687).]

- KERREMANS, in Wytsinan Gen. *Ins.* fasc. xii, revises the genera, and catalogues the species of *Buprestida*.
- Acmeodera angustata* (n. subsp.) *aqualis*, p. 143, *cupreosuturata*, p. 144, Africa, OBST, Ann. Soc. ent. Belgique xlvii; *A. biedermani*, Arizona, SKINNER, p. 239, pl. x, fig. 2, Ent. News Philad. xiv : n. spp.
- Actenodes pyropyga*, Madagascar, FAIRMAIRE, p. 200, Ann. Soc. ent. France lxxii, n. sp.
- Ageocera fenyesi*, Mexico, p. 60, KERREMANS, Gen. *Ins.* fasc. xii, n. sp.
- Agrilaxia* n. g., p. 177, for some Neotropical *Anthaxia*, with *A. gounellei*, *bella*, *suturalis*, *lata*, *rugosa*, p. 178, *declivis*, p. 179, n. spp., S. America, KERREMANS, t. c., n. spp.
- Agriloides* n. g. for *hydropica* Klug, etc., KERREMANS, p. 264, t. c.
- Agrilus ganglbaueri* (= *albifrons* Reitt.), SEMENOW, p. 15, Rev. Russe Ent. iii; *A. melanopterus* (= *impressifrons* Kies.), SEMENOW, p. 171, t. c.; *A. fulvolineatus* n. n. for *flavolineatus* C. & G., p. 269, *fugitivus* n. n. for *fugax* Kerr., p. 271, *fossifer* n. n. for *foveicollis* Kerr., p. 272, *subfrontalis* n. n. for *frontalis* Fairm., p. 281, *ambiguellus* n. n. for *ambiguus* Kerr., *grassator* n. n. for *gracilicornis* Gangl., p. 285, *importunus* n. n. for *imbellis* Kerr., p. 286, *lewisi* n. n. for *brevitarsis* Lew., *lewisiellus* n. n. for *gracilipes* Lew., p. 287, *protractus* n. n. for *proximus* Baud., p. 289, KERREMANS, Gen. *Ins.* fasc. xii.
- A. cygneus*, Algeria, ABEILLE, p. 334, Bull. Soc. ent. France 1903; *A. bucephalus*, Armenia, K. DANIEL, p. 253, Munchen. Kol. Zeitschr. i; *A. tucumanus*, *saltensis*, p. 267, *eversor*, p. 268, *neuquensis*, *bellicus*, *messorius*, S. America, *domitor*, Mexico, p. 269, *bruchi*, *costifer*, *reliquus*, *bonariensis*, *aelescens*, *omissus*, *metuens*, S. America, *habilis*, Mexico, p. 270, *dualis*, *avulsus*, *argentinus*, *languens*, *percautus*, S. America, *raptor*, Mexico, p. 271, *garrulus*, p. 272, *amoenus*, *curator*, *faciatus*, *caroli*, *plicatus*, S. America, *gestator*, *luctator*, Mexico, p. 273, *bergi*, *armillatus*, S. America, *idoneus*, Mexico, p. 274, *dahomeicus*, *alluaudi*, *portonovensis*, *benevolus*, p. 279, *occisus*, *notus*, *suberraticus*, *orbatus*, *illibatus*, p. 280, *assinicus*, *fidens*, p. 281, Africa, KERREMANS, t. c.; *A. pinalicus*, p. 69, *mercurius*, p. 70, New Mexico, WICKHAM, Canad. Ent. xxxv : n. spp.
- Amorphosoma pyropyga*, Sumatra, KERREMANS, Gen. *Ins.* fasc. xii, p. 255, n. sp.
- Amorphosternus bruchi*, Tucuman, KERREMANS, p. 256, t. c., n. sp.
- Anilara tasmanica*, Tasmania, KERREMANS, p. 170, t. c.; *A. viridula*, Tasmania, KERREMANS, p. 60, Mt. Mus. Hamburg xix : n. spp.
- Anthaxia*; food-habits of French, DE BORISY, pp. 151, 152, Bull. Soc. ent. France 1903.
- A. nyassica*, Africa, OBST, p. 142, Ann. Soc. ent. Belgique xlvii; *A. illustris*, *serena*, *amasina*, Asia Minor, *rossica*, Russia, K. DANIEL, p. 252, Munchen. Kol. Zeitschr. i; *A. amplithorax*, *aterrima*, p. 172, *capensis*, p. 173, *auricollis*, p. 174, Africa, KERREMANS, Gen. *Ins.* fasc. xii : n. spp.
- Aphanisticus aeneolus* n. n. for *aeneus* Kerr., KERREMANS, p. 304, t. c.
- A. transversus*, *leonensis*, Africa, *latus*, Sumatra, p. 304, *nervosus*, *assinicus*, *bilobiceps*, p. 305, Africa, KERREMANS, t. c., n. spp.
- Aurigena transcaspica* (= *mutabilis* Ab.), SEMENOW, p. 171, Rev. Russe Ent. iii.
- Belgaumia* n. g. for *capucina* Kerr., KERREMANS, p. 252, Gen. *Ins.* fasc. xii.
- Belionota colossa*, characters, OBST, p. 143, Ann. Soc. ent. Belgique xlvii.
- Bergidora* n. g. for *Acmeodera picturella* Kerr., KERREMANS, p. 298, Gen. *Ins.* fasc. xii.
- Brachycoræbus* n. g. for *viridis* Kerr., etc., KERREMANS, p. 234, t. c.
- Brachys nodifer*, *depressus*, *bruchi*, *marmoreus*, *vicinus*, p. 325, *acutus*, p. 326, S. America, KERREMANS, t. c., n. spp.

- Briseis curta*, Australia, KERREMANS, p. 162, t. c., n. sp.
Callimicra cylindera, Brazil, KERREMANS, p. 331, t. c., n. sp.
Capnodis parumstriata=(*costulata* Fairm.), SEMENOW, p. 99, Rev. Russe Ent. iii; *C. bactriana*, 6-*maculata*, *metallica*, notes on, SEMENOW, p. 171, t. c.
Chalcophorella n. g., p. 79, for part of *Chalcophora*, KERREMANS, Gen. Ins. fasc. xii.
Chalcoplia thoracica, Cape Good Hope, p. 79, KERREMANS, t. c., n. sp.
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Chrysochroa pulcherrima, Somaliland, OBST, p. 144, Ann. Mus. Belgique xlvii, n. sp.
Chrysodema roseiventris, Borneo, p. 75, KERREMANS, Gen. Ins. fasc. xii, n. sp.
Cisseicoræbus n. g. for *grandis* Kerr., etc., KERREMANS, p. 253, t. c.
Cisseis laeta, *undulata*, *cuprea*, *violacea*, *purpurea*, p. 228, *fossicollis*, *theryi*, *collaris*, *ornata*, *oblonga*, *curta*, p. 229, Australia, KERREMANS, t. c., n. spp.
Corydon rotundicollis, *niger*, Brazil, KERREMANS, p. 225, t. c., n. spp.
Cryptodactylus weyerst, Sumatra, KERREMANS, t. c., n. sp.
Cylindromorphoides n. g. for *Taphrocerus agriliformis* Kerr., KERREMANS, p. 301, t. c.
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Cyphogastra aloreensis, *palliditarsis*, Alor Id., *lateimpressa*, Amboina, p. 87, KERREMANS, t. c., n. spp.
Dactylozodes bruchi, *ocularis*, *apicalis*, *dispar*, S. America, p. 215, KERREMANS, t. c., n. spp.
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Epimacha theryi, Andaman islds., KERREMANS, p. 249, Gen. Ins. fasc. xii, n. sp.
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Melibæopsis n. g. for *obesa* Kerr. and *densegranata* Fairm., KERREMANS, p. 239, Gen. Ins. fasc. xii.

- Melobasis fairmairei*, *ænea*, Australia, *jakowleffi*, N. Guinea, p. 158, *affinis*, Australia, p. 159, KERREMANS, t. c., n. spp.
- Metasambus* n. g. for *weyersi* Kerr., KERREMANS, p. 237, t. c.
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- Nascioides* n. g. for part of *Nascio* including *enysi* Sharp, KERREMANS, p. 147, t. c.
- Neobuprestis* n. g. for *Strigoptera australis* Blackburn, KERREMANS, p. 136, t. c.
- Neocorebus* n. g. for *Amorphosoma abyssinicus* Kerr., t. c., p. 230.
- Nisibia* n. g. near *Agrilus*, for *N. boopis* n. sp., Madagascar, FAIRMAIRE, Naturaliste 1903, p. 9.
- Pachyschelus capitatus*, *bruchii*, *circumscriptus*, *debilis*, p. 318, *hexagonalis*, *planatus*, *abnitidus*, *reflexus*, p. 319, *vicinus*, *nitidus*, *nigerrimus*, p. 320, S. America, KERREMANS, Gen. Ins. fasc. xii, n. spp.
- Paraeupea bellicosa*, Queensland, BLACKBURN, p. 181, Tr. R. Soc. S. Austral. xxvii; *P. marginalis*, Fiji islds., KERREMANS, Mt. Mus. Hamburg xix, p. 58; *P. capitata*, Ile du Sud-est, p. 84, KERREMANS, Gen. Ins. fasc. xii : n. spp.
- Phlocteis zanzibarica*, Africa, KERREMANS, p. 257, t. c., n. sp.
- Pithicus nigroceruleus*, *elongatus*, *gounellei*, p. 201, *bruchii*, p. 202, S. America, KERREMANS, t. c., n. spp.
- Polybothris bipustulata*, Madagascar, FAIRMAIRE, p. 363, Ann. Soc. ent. Belgique xlvii; *P. pyrogastra*, *semipolita*, Madagascar, FAIRMAIRE, p. 200, Ann. Soc. ent. France lxxii; *P. frontalis*, *plucifrons*, p. 27, *æneipes*, p. 28, *cribristernum*, p. 29, Madagascar, FAIRMAIRE, Rev. Ent. franc. xxii : n. spp.
- Polycesta opaca*, Somaliland, OBST, p. 145, Ann. Soc. ent. Belgique xlvii, n. sp.
- Pseudotænia* n. g. p. 81, for part of *Chalcotenia*, KERREMANS, Gen. Ins. fasc. xii.
- Psiloptera sulcicollis*, Madagascar, *aurocincta*, Congo, p. 95, *cupricollis*, E. Africa, *farinosa*, White Nile, p. 96, *similis*, *differens*, *dubitata*, p. 97, *azurea*, *subobtusa*, *laticollis*, p. 98, *carreti*, p. 99, *cæruleiventris*, p. 100, *insignis*, p. 101, *waterhousei*, p. 102, Madagascar, KERREMANS, t. c.; *P. ænea*, *sexnotata*, p. 141, *soror*, *albovittata*, p. 142, Africa, OBST, Ann. Soc. ent. Belgique xlvii : n. spp.
- Pygicera* n. g. p. 145 for *Buprestis scripta* Castl., KERREMANS, Gen. Ins. fasc. xii.
- Sambus africanus*, Africa, *villosus*, Sumatra, KERREMANS, p. 242, t. c.
- Sphenoptera* (*Chrysoblemma*) revision, JAKOWLEFF, pp. 248–277, Horæ Soc. ent. Ross. xxxvi; *S. karelini*, variation and synonymy, JAKOWLEFF, pp. 33–35, Rev. Russe Ent. iii; *S. dianthi* synonymy, *S. fallaciosa* n. n. for *dianthi* Gory nec Stev., JAKOWLEFF, p. 215, t. c.
- S. rugata*, Kurdistan, p. 112, *congolana*, Katanga, p. 114, *curtula*, Bengal, p. 115, *subparallela*, Sierra Leone, *colmanti*, Bahr-el-Ghazal, *seel-drayersi*, *gibbosa kassaiensis*, Congo, p. 116, *camerunica*, Cameroons, *clavareaui*, Congo, p. 117, *sulcifera*, Turkestan, p. 123, KERREMANS, Gen. Ins. fasc. xii; *S. (Hoplandrocne) decens*, p. 231, *alternecostata*, p. 232, *S. (Hoplistura) mocquerysi*, p. 234, *maculipennis*, p. 236, *aperta*, p. 237, Africa, JAKOWLEFF, Horæ Soc. ent. Ross. xxxvi; *S. (Chrysoblemma) eddin*, p. 266, *heroica*, p. 270, Persia, *theryana*, Algeria, p. 272, *glasunovi*, Persia, p. 273, *apta*, Transcaucasus, p. 274, JAKOWLEFF, t. c.; *S. oporina*, Elisabethpol, JAKOWLEFF, p. 386, Rev. Russe Ent. iii; *S. aliena*, Africa, OBST, p. 141, Ann. Soc. ent. Belgique xlvii : n. spp.
- Stenianthe violacea*, Madagascar, FAIRMAIRE, p. 363, Ann. Soc. ent. Belgique xlvii, n. sp.

- Steraspis fischeri*, Massailand, KERREMANS, p. 57, Mt. Mus. Dresden xix, n. sp.
- Sternocera hunteri* var. n. *inornata*, *S. boucardi somalica*, subsp. n., p. 143, *syriaca* = (*revoili* Fairm.) p. 145, Ann. Soc. ent. Belgique xlvii.
- Stigmodera tyrrhena*, p. 306, *subpura*, p. 307, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvii; *S. humeralis*, *opima*, *inequalis*, p. 207, *maculifer*, *deleta*, *nova*, p. 208, *libens*, *variata*, *deceptor*, *delicatula*, *obliqua*, *sulcicollis*, p. 209, *signata*, *simplex*, *suavis*, p. 210, Australia, KERREMANS, Gen. Ins. fasc. xii : n. spp.
- Strigula cœrulea*, Abyssinia, KERREMANS, p. 224, t. c., n. sp.
- Taphrocerus minutus*, Brazil, KERREMANS, p. 328, t. c. n. sp.
- Trachys pustulosa*, Madagascar, FAIRMAIRE, p. 201, Ann. Soc. ent. France lxxii; *T. mediana*, *cuneata*, *posticalis*, *crassula*, Madagascar, FAIRMAIRE, p. 31, Rev. Ent. franc. xxii; *T. pretoriensis*, Transvaal, *hova*, Madagascar, p. 308, *occisa*, *abietis*, *fidens*, *percauta*, *simoni*, *africana*, *diferens*, *erratica*, *juvenilis*, Africa, *grandiceps*, Madagascar, *horni*, Ceylon, p. 310, *fairmairei*, *hovasiana*, Madagascar, *levipennis*, *assinica*, Africa, p. 311, *discreta*, Africa, p. 312, KERREMANS, Gen. Ins. fasc. xii : n. spp.
- Tyndaris olneyæ*, Arizona, p. 236, pl. x, f. 4, *prosopis*, f. 6, *chamæleonis*, f. 1, p. 237, Texas, *barberi*, Arizona, p. 238, f. 3, SKINNER, Ent. News Philad. xiv, n. spp.
- Yamina* n. g. p. 143, for *Buprestis sanguinea*, KERREMANS, Gen. Ins. fasc. xii.

EUCNEMIDÆ, THROSCIDÆ.

- Palæoxenus dohrnii*, note on, FENYES, p. 220, Ent. News Philad. xiv.
- Phyllocerus subcostatus*, Madagascar, FLEUTIAUX, p. 263, Naturaliste 1903, n. sp.
- Plesioformax borealis*, Madagascar, FLEUTIAUX, t. c., n. sp.
- Lissomus pilosulus*, p. 399, *striatipennis*, p. 400, E. Africa, SCHWARZ, Deutsche ent. Zeitschr. 1903, n. spp.

ELATERIDÆ.

[Cf. BUYSSON (255), FAIRMAIRE (478, 486), FLEUTIAUX (516, 517, 518, 521, 522, 523), REITTER (1253), RYE (1303), SAHLBERG (1305), SCHWARZ (1371-1376), WICKHAM (1687).]

- Elateridæ* with 12 joints on antennae, FLEUTIAUX, p. 108, Bull. Soc. ent. France 1903.
- Adelocera dorsalis* var. n. *obscuripennis*, FLEUTIAUX, p. 263, Naturaliste 1903.
- A. angustata*, Siberia, SAHLBERG, p. 25, Ofv. Finska Forh. xlv, No. 10, n. sp.
- Æolus cylindricollis*, p. 65, *oberndorfferi*, p. 66, *mediofasciatus*, p. 67, *parvulus*, *virgatus*, p. 68, *venustus*, p. 69, S. America, SCHWARZ, Deutsche ent. Zeitschr. 1903, n. spp.
- Agonischius beauchenei*, Phnum-Penh, FLEUTIAUX, p. 228, Bull. Soc. ent. France 1903, n. sp.
- Agriotes sordidus* var. n. *nigriceps*, DANIEL, p. 251, Munchen. Kol. Zeitschr. i; *A. sordidus* var. n. *circumcinctus*, FUENTE, p. 343, Bol. Soc. espan. iii.
- Agrypnus moseri*, E. Africa, SCHWARZ, p. 357, Deutsche ent. Zeitschr. 1903, n. sp.
- Alaus sulcicollis*, pl. xvii, f. 1, p. 270, GAHAN, Nat. Hist. Sokotra.

- A. sjostedti*, Cameroons, SCHWARZ, p. 46, Arkiv. Zool. i, n. sp.
Athous exclamatoris, Alabama, SCHWARZ, p. 58, Deutsche ent. Zeitschr. 1903, n. sp.
Campylus acutangulus, Siberia, SAHLBERG, p. 26, Ofv. Finska Forh. xlv, No. 10, n. sp.
Cardiophorus; notes on palæarctic, with reference to varr. described by PIC, BUYSSON, pp. 15–18, Bull. Soc. ent. France 1903: cf. PIC, t. c., pp. 38, 39.
C. poncyi, Tangier, DU BUYSSON, p. 129, Bull. Soc. ent. France 1903; *C. tuberculatus*, p. 370, *sororius*, *cinctipennis*, p. 371, *ikuthaensis*, p. 372, Africa, SCHWARZ, Deutsche ent. Zeitschr. 1903; *C. vetulus*, Cameroons, SCHWARZ, p. 53, Arkiv. Zool. i; *C. tripartitus*, Madagascar, FAIRMAIRE, p. 204, Ann. Soc. ent. France lxxii: n. spp.
Cardiotarsus apicatus, Madagascar, FAIRMAIRE, p. 204, Ann. Soc. ent. France lxxii, n. sp.
Chrosis caledonica, New Caledonia, SCHWARZ, p. 390, Deutsche ent. Zeitschr. 1903, n. sp.
Corymbites cupreus, metamorphosis, XAMBEU, p. 240, Naturaliste 1903.
C. sordidus, Madagascar, FLEUTIAUX, p. 263, Naturaliste 1903; *C. trapezicollis*, N. America, SCHWARZ, p. 59, Deutsche ent. Zeitschr. 1903: n. spp.
Cosmesus flavus, Peru, SCHWARZ, p. 77, t. c., n. sp.
Crepidomenus rufipes, p. 391, *hirsutulus*, *quadraticollis*, p. 392, Australia, SCHWARZ, t. c., n. spp.
Cryptohypnus tristis, *rufoguttatus*, p. 203, *micros*, p. 204, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii, n. spp.
Ctenicera fairmairei, Madagascar, FLEUTIAUX, p. 45, Naturaliste 1903; *C. pupieri*, Comoro Islds., FLEUTIAUX, p. 228, Bull. Soc. ent. France 1903: n. spp.
Denticollis (*Campylus*) *jakobsoni*, Siberia, REITTER, Wien. ent. Zeit. xxii, p. 280, n. sp.
Dicronychus ambiguus, Congo, SCHWARZ, p. 365, Deutsche ent. Zeitschr. 1903, n. sp.
Dicteniophorus robustus, p. 396, *dubius*, p. 397, Australia, SCHWARZ, t. c., n. spp.
Dorygonus holomelas, Madagascar, FAIRMAIRE, p. 203, Ann. Soc. ent. France lxxii, n. sp.
Drasterius bimaculatus var. n. *lineato-basalis*, FUENTE, p. 342, Bol. Soc. espan. iii.
D. brevipennis, p. 57, *minor*, p. 58, Alabama, SCHWARZ, Deutsche ent. Zeitschr. 1903, n. spp.
Elater; table of Danish species, *E. cardinalis* = (*coccinatus* Rye), *dibaphus* distinct from *pomona*, RYE, Ent. Meddel. 1903, pp. 78–80.
Elathous oberndorfferi, New York, *smyrnensis*, p. 207, *syriacus*, p. 208, Syria, SCHWARZ, Wien. ent. Zeit. xxii, n. spp.
Esthesopus rufiventris, *grandis*, p. 75, *scutellaris*, p. 76, S. America, SCHWARZ, Deutsche ent. Zeitschr. 1903, n. spp.
Euplastius n. g. near *Aplastus*, p. 60, for *E. atchoiformis*, p. 61, *athoides*, p. 62, n. spp., N. America, SCHWARZ, t. c.
Hapatesus minutus, Australia, SCHWARZ, p. 395, t. c., n. sp.
Hemicleus minutus, Africa, SCHWARZ, p. 358, t. c., n. sp.
Heteroderes parallelus, Erythræa, FLEUTIAUX, p. 250, Bull. Soc. ent. France 1903, n. sp.
Horistonotus cinctipennis, Brazil, SCHWARZ, p. 74, Deutsche ent. Zeitschr. 1903, n. sp.
Hypnoidus monadicoides, Madagascar, SCHWARZ, p. 369, t. c., n. sp.
Hypnoidus (*Zorocheirus*) *meridionalis levantinus* var. n., DANIEL, p. 333, Munchen. Kol. Zeitschr. i.

- Idiotropia capensis*, S. Africa, SCHWARZ, p. 375, Deutsche ent. Zeitschr. 1903, n. sp.
- Isidus moreli* = (*letourneuxi* Pic), BUYSSON, p. 18, Bull. Soc. ent. France 1903; cf. PIC, t. c., p. 40.
- Lacon tellinii*, Erythræa, FLEUTIAUX, p. 250, Bull. Soc. ent. France 1903; *L. scutellatus*, *quadricollis*, *fallax*, Madagascar, FAIRMAIRE, p. 202, Ann. Soc. ent. France lxxii; *L. robustus*, p. 377, *setosulus*, *rectangulus*, p. 378, New Guinea, *gibbosus*, N. Queensland, p. 379, *marginipennis*, p. 380, *lateralis*, p. 381, Australia, SCHWARZ, Deutsche ent. Zeitschr. 1903 : n. spp.
- Lobotarsus brevipennis*, Cameroons, SCHWARZ, p. 44, Arkiv. Zool. i; *L. hamatus*, p. 360, *maculipennis*, p. 361, Madagascar, *triangulus*, Cameroons, p. 362, SCHWARZ, Deutsche ent. Zeitschr. 1903 : n. spp.
- Ludius æneus superbus* var. n., DANIEL, p. 252, Munchen. Kol. Zeitschr. i.
- L. (Metanomus) atriceps*, Siberia, SAHLBERG, p. 24, Ofv. Finska Forh. xlv, No. 10, n. sp.
- Lycoreus decorsei*, Madagascar, FLEUTIAUX, p. 45, Naturaliste 1903; *L. oculipennis*, Madagascar, FAIRMAIRE, p. 36, Naturaliste 1903 : n. spp.
- Margogastrius* n. n. for *Gastrimargus* Schw. 1902, SCHWARZ, p. 80, Deutsche ent. Zeitschr. 1903.
- Megapenthes lineatus*, p. 367, *carinicornis*, p. 368, *flavifrons*, p. 369, Africa, SCHWARZ, t. c., n. spp.
- Melanoxanthus cribricollis*, Seychelles, FLEUTIAUX, p. 14, Bull. Soc. ent. France 1903, n. sp.
- Metabrax plasoni*, p. 393, *trisulcatus*, p. 394, *linearis*, p. 395, Australia, SCHWARZ, Deutsche ent. Zeitschr. 1903, n. spp.
- Monocrepidius conspersus*, p. 63, *vitticollis*, *obscurus*, p. 64, S. America, SCHWARZ, t. c.; *M. pellitus*, p. 383, *nigricornis*, p. 384, *nigrolaterus*, p. 385, *discoidalis*, p. 386, *dolosus*, *nitidicollis*, p. 387, *minutus*, p. 388, *parvus*, p. 389, Australia, SCHWARZ, t. c. : n. spp.
- Nomopleus flavus*, Africa, SCHWARZ, p. 374, t. c., n. sp.
- Odontonychus sambesianus*, Africa, SCHWARZ, p. 366, t. c., n. sp.
- Paracardiophorus jensseensis*, Siberia, SAHLBERG, p. 27, Ofv. Finska Forh. xlv, No. 10; *P. dissimilis*, N. S. Wales, SCHWARZ, p. 390, Deutsche ent. Zeitschr. 1903 : n. spp.
- Paracosmesus bifasciatus*, *exiguus*, Bolivia, SCHWARZ, p. 79, t. c., n. spp.
- Paradoxon* n. g. near *Pachyelater*, p. 107, for *P. antennale* n. sp., Madagascar, p. 108, FLEUTIAUX, Bull. Soc. ent. France 1903.
- Parapomachilius brevipennis*, Brazil, SCHWARZ, p. 73, Deutsche ent. Zeitschr. 1903, n. sp.
- Parhemiopinus* n. g. for *P. nigripennis* n. sp., Madagascar, SCHWARZ, t. c.
- Physorhinus yuccæ*, Texas, WICKHAM, p. 67, Canad. Ent. xxxv, n. sp.
- Pomachilius intermedius*, p. 70, *antennalis*, p. 71, *marginicollis*, *pulchralis*, p. 72, S. America, SCHWARZ, Deutsche ent. Zeitschr. 1903, n. spp.
- Psephus corymbitoides*, p. 47, *apicalis*, p. 48, *submarmoratus*, p. 49, *miliaris*, p. 50, *senilis*, p. 51, Cameroons, SCHWARZ, Arkiv. Zool. i; *P. alluaudi*, Seychelles, FLEUTIAUX, p. 13, Bull. Soc. ent. France 1903 : n. spp.
- Steatoderus fulvus*, *concameratus*, Africa, SCHWARZ, p. 373, Deutsche ent. Zeitschr. 1903; *S. peruanus*, Vilcanota, SCHWARZ, t. c. : n. sp.
- Symphostethus* n. g. near *Dionyptherus*, for *S. collaris* n. sp., New Guinea, SCHWARZ, p. 382, t. c.
- Tetralobus reticollis*, *gabunensis*, p. 363, *auratilis*, p. 364, Madagascar, SCHWARZ, t. c., n. spp.
- Tilotarsus parvus*, p. 358, *angularis*, p. 359, Madagascar, SCHWARZ, t. c., n. spp.
- Tropidiplus* n. g. near *Cardiophorus*, for *T. tellinii* n. sp., Erythræa, FLEUTIAUX, p. 251, Bull. Soc. ent. France 1903.

DASCILLIDÆ and RHIPICERIDÆ.

- Arrhaphipterus*, characters of species, K. DANIEL, pp. 383–387, Munchen. Kol. Zeitschr. i.
A. phtomidis, Asia Minor, id. p. 386, t. c., n. sp.
Hydrocyphon championi, Spain, REITTER, Wien. ent. Zeit. xxii, p. 177, n. sp.

MALACODERMIDÆ.

- [Cf. ABEILLE (3), BONGARDT (148), BOURGEOIS (164–171), CSIKI (359), FAIRMAIRE (478), GORHAM (630), OLIVIER (1089, 1090), PIC (1133, 1147–1150, 1152, 1153, 1156–1159, 1163, 1165, 1166, 1168, 1169), SAHLBERG (1305), REITTER (1237), SCHILSKY (1336), SUMAKOW (1494).]

The light-organs and luminescence, BONGARDT (148).

Habits, sexes, metamorphosis, *Drilus flavescens*, CRAWSHAY, pp. 39–51, pls. i, ii, Tr. ent. Soc. London 1903.

Acanthocnemus brevicornis, Madagascar, PIC, p. 143, Bull. Soc. ent. France 1903, n. sp.

Aneoxodes croceomaculatus, S. Africa, PIC, p. 164, Echange 1903, n. sp.

Anthocomus (? *Paremballus*) *abdominalis*, China, PIC, p. 106, t. c.; *A. brasiliensis*, p. 303, *goyasensis*, p. 304, Brazil, PIC, Ann. Soc. ent. Belgique xlvii : n. spp.

Arthrobrachys brasiliensis, Brazil, PIC, p. 254, Naturaliste 1903, n. sp.

Astylosoma n. g. near *Astylos*, for *A. pallidonotatus* n. sp., Chile, PIC, p. 183, Echange 1903.

Astylos subannulatus, Peru, *atriceps*, Paraguay, PIC, p. 105, t. c.; *A. viridimicans*, Venezuela, p. 253, *rufitarsis*, Peru, p. 254, PIC, Naturaliste 1903 : n. spp.

Attalus alluaudi, Tunis, PIC, p. 113, Echange 1903; *A. sinensis*, China, PIC, p. 105, t. c.; *A. cyaneonotatus*, Sikkim, PIC, p. 122, t. c.; *A. oneili*, *brevithorax*, S. Africa, PIC, p. 152, t. c.; *A. (Mixis) latealbidus*, S. Africa, PIC, p. 164, t. c.; *A. guerryi*, China, PIC, p. 81, Naturaliste 1903; *A. mirabilis*, p. 301, *peruvianus*, *angulatus*, *arcuatipes*, p. 302, *jatayensis*, *gounellei*, p. 303, *A. ? ruficeps*, p. 303, S. America, PIC, Ann. Soc. ent. Belgique xlvii : n. spp.

Cantharis convexicollis var. n. *chapelierii*, BOURGEOIS, p. 73, Bull. Soc. ent. France 1903; *C. eurynota* Bourg. = (*atrocapitata* Pic), PIC, p. 212, Bull. Soc. zool. France 1903.

C. hungarica, Budapest, CSIKI, p. 443, Ann. Mus. Hungar. i; *C. (Telephorus) parnassicus*, Greece, PIC, p. 115, Echange 1903; *C. atrocapitata*, Anatolia, PIC, p. 145, t. c.; *C. amnicola*, Syria, PIC, p. 169, t. c. : n. spp.

Chalicorus ferox var. n. *testaceifrons*, PIC, p. 152, t. c.

Colophotia brevis, Sumatra, OLIVIER, p. 11, Ann. Soc. ent. Belgique xlvii, n. sp.

Colotes uncifer, Tunis, ABEILLE, p. 335, Bull. Soc. ent. France 1903, n. sp.

Danacea variepubens, Algeria, *denticulata*, Spain, PIC, p. 177, Echange 1903; *D. latipennis*, Crete, PIC, p. 146, t. c.; *D. amabilis*, Crete, p. 29, *argentata*, Turkestan, p. 31, SAHLBERG, Ofv. Finska Forh. xlv, No. 10; *D. splendida*, Tokat, PIC, p. 162, Echange 1903 : n. spp.

Dasytes minimus, Transcaspien, SAHLBERG, p. 32, Ofv. Finska Forh. xlv, No. 10; *D. (Metadasytes) baborensis*, Algeria, PIC, p. 128, Echange 1903; *D. (Metadasytes) bulgaricus*, Bulgaria, PIC, p. 129, t. c.; *D. (Mesodasytes) bourgeoi*, Danube, p. 95, *D. (Hapalogluta) gilvipes*, Samarcand, p. 96, SCHILSKY, Küster Käf. eur. xl : n. spp.

- Dasysitonus (Trithrix) corvinus*, Spain, REITTER, Wien. ent. Zeit. xxii, p. 43, **n. sp.**
- Diaphanes mendicanus*, India, GORHAM, p. 329, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Dinometopus ? diversifrons*, Cape Colony, PIC, p. 178, Echange 1903, **n. sp.**
- Ditoneces nilgirensis*, India, GORHAM, p. 323, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Divales densepunctatus*, Oran, PIC, p. 177, Echange 1903, **n. sp.**
- Drilus novoathonius*, Caucasus, SUMAROW, Wien. ent. Zeit. xxii, p. 48, **n. sp.**
- Dromanthus nigricolor*, p. 300, *maculithorax*, p. 301, Brazil, PIC, Ann. Soc. ent. Belgique xlvii, **n. spp.**
- Hapalochrous longior*, W. Africa, *malabarensis*, India, PIC, p. 81, Naturaliste 1903, **n. spp.**
- Haplocladon indicum*, Nilgiri Hills, GORHAM, p. 330, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Haplocnemus (Diplambe) anatolicus*, p. 97, *geniculatus*, p. 98, Konia, SCHILSKY, Küster Käf. eur. xl, **n. sp.**
- Hedybiocephalus n. g.* for *H. fossulifer n. sp.*, S. Africa, PIC, p. 145, Echange 1903.
- Hedybius quadrimaculatus*, Cape Colony, PIC, p. 178, t. c., **n. sp.**
- Hypebæus cameroni*, Red Sea, PIC, p. 177, t. c., **n. sp.**
- Laius jucundus* var. *n. maculithorax*, PIC, p. 81, Naturaliste 1903.
- Lamprophorus dorsalis*, Java, Sumatra, OLIVIER, p. 11, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Lemphus albofasciatus*, Brazil, PIC, p. 301, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Luciola perrieri*, Madagascar, FAIRMAIRE, p. 205, Ann. Soc. ent. France lxxii; *L. nigripes*, p. 327, *sudra*, p. 328, India, GORHAM, Ann. Soc. ent. Belgique xlvii; *L. nitescens*, Darjeeling, OLIVIER, p. 19, Bull. Mus. Paris ix; *L. dubia*, Barway, OLIVIER, p. 11, Ann. Soc. ent. Belgique xlvii : **n. spp.**
- Lycus sjöstedti*, Cameroons, BOURGEOIS, p. 285, Ent. Tidskr. xxiv, **n. sp.**
- Malachius rubidus* var. *n. mazafakii*, BÄCKMANN, p. 92, cut, p. 93, Rev. Russe Ent. iii.
- Malchinus brancsiki*, Dalmatia, REITTER, Wien. ent. Zeit. xxii, p. 232; *M. tokatensis*, Tokat, PIC, p. 97, Echange 1903 : **n. spp.**
- Malthinus (Progeutes) rufithorax*, Syria, PIC, p. 122, t. c., **n. sp.**
- Malthodes spathifer*, male characters, PETRI, pp. 410-412, cut, Ann. Mus. Hungar. i; *M. corcyreus*, diagnosis amended, BOURGEOIS, p. 220, Bull. Soc. ent. France 1903.
- M. silvicola*, Drôme, BOURGEOIS, p. 247, t. c.; *M. (Malthodellus) corcyreus*, Corfu, p. 152, *sahlbergi*, Crete, p. 153, *M. sulcatus*, Corfu, p. 154, BOURGEOIS, t. c.; *M. appendicifer*, Tunis, *trapezoidalis*, Algeria, p. 219, *teniatus*, Tunis, p. 220, BOURGEOIS, t. c.; *M. (Malthodellus) decorus*, Italy, BOURGEOIS, p. 336, t. c.; *M. semilimbatus*, Algeria, PIC, p. 90, Echange 1903, but t. c. p. 97 said to be *batillifer* Bourg.; *M. (Podistrina) latithorax*, Algeria, PIC, p. 114, t. c.; *M. euboicus*, p. 138, *M. (Malthodellus) nigerrimus*, p. 139, Greece, PIC, t. c.; *M. hipponensis*, p. 155, *mathieui*, *pictipennis*, *elaboratus*, p. 156, *tenietensis*, *pallidipennis*, *desbrochersi*, *diversiventris*, *subdiversus*, *romanus*, *barbarus*, p. 157, *goliath*, p. 158, Algeria, PIC, t. c.; *M. insulcatus*, Corfu, p. 161, *maronitus*, Lebanon, p. 162, PIC, t. c.; *M. favarcoqi*, Algeria, PIC, p. 169, t. c. : **n. spp.**
- Metacantharis angorensis*, Anatolia, PIC, p. 146, Echange 1903, **n. sp.**
- Microjulistus subconvexus*, Cape Colony, PIC, p. 179, t. c., **n. sp.**
- Phengodes*; supposed female, BRITTON, Third report Connecticut, pp. 268-270.
- Plateros indianus*, Nilgiri Hills, GORHAM, p. 324, Ann. Soc. ent. Belgique

- xlvi; *P. dalmasi*, Colombia, BOURGEOIS, p. 6, Rev. Ent. franc. xxii : **n. spp.**
- Podistrina doderoi*, Sardinia, BOURGEOIS, p. 210, Bull. Soc. ent. France 1903; *P. cameroni*, Malta, PIC, p. 155, Echange 1903 : **n. spp.**
- Progeutes longipennis* var. *n. flavicans*, BOURGEOIS, p. 75, Bull. Soc. ent. France 1903.
- Pseudocolotes oneili*, S. Africa, PIC, p. 152, Echange 1903; *P. innotatus*, S. Africa, PIC, p. 164, t. c. : **n. spp.**
- Pseudoplecteropus* **n. g.** for *P. nigerrimus* **n. sp.**, Cape Colony, PIC, p. 179, t. c.
- Psilocladus harmandi*, Darjeeling, OLIVIER, p. 19, Bull. Mus. Paris ix, **n. sp.**
- Pyrocalia oblita*, India, GORHAM, p. 329, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Rhagonycha querceti bugnioni* subsp. *n.*, BOURGEOIS, p. 74, Bull. Soc. ent. France 1903.
- R. spinifera*, Spain, PIC, p. 122, Echange 1903, **n. sp.**
- Silis costulata*, p. 205, *foveicollis*, p. 206, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii, **n. spp.**
- Sphinginopalpus* **n. g.** near *Sphinginus*, for *S. oneili* **n. sp.**, S. Africa, PIC, p. 164, Echange 1903.
- Stenocladus vittatus*, India, GORHAM, p. 331, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Telephorus*; note on Rey's species, PIC, p. 230, Bull. Soc. ent. France 1903; Rey's species, BOURGEOIS, t. c. p. 249.
- Tucumanus* **n. g.** near *Ebaeus*, for *T. validipes* **n. sp.**, S. America, PIC, p. 300, Ann. Soc. ent. Belgique xlvii.
- Urodactylus uncipennis*, W. Africa, PIC, p. 106, Echange 1903, **n. sp.**
- Xamerpus elongatus*, *brunneus*, *alluaudi*, Madagascar, PIC, p. 144, Bull. Soc. ent. France 1903, **n. spp.**
- Xylobanus unicolor*, India, GORHAM, p. 324, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Zygia subapicalis*, *taborensis*, Africa, PIC, p. 179, Echange 1903, **n. spp.**

CLERIDÆ.

[Cf. GORHAM (630), SCHENKLING (1331-1335), STEBBING (1468).]

SCHENKLING revises and describes the genera of *Cleridæ* and catalogues the species, Wytzman Gen. Ins. fasc. xiii, 124 pp., 5 pls.

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Apopemopsis **n. g.** near *Cardiostichus*, p. 17, for *A. pulchra*, **n. sp.**, Cameroons, p. 19, SCHENKLING, Stettin Ent. Zeit. lxiv.

Blasiophthalmus **n. n.** for *Metabasis* Gorb., SCHENKLING, Gen. Ins. fasc. xiii, p. 47.

Callimerus nilgirianus, *filiformis*, p. 333, *debilis*, p. 334, India, GORHAM, Ann. Soc. ent. Belgique xlvii, **n. spp.**

Cladiscus dispar, India, GORHAM, p. 332, t. c., **n. sp.**

Clerus and *Trichodes*, application of the names, SCHENKLING, pp. 202-204, Allg. Zeitschr. Ent. viii.

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Cylidrus cyaneus, characters, variation, SCHENKLING, p. 397, t. c.

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Lacordarius erythrus var. *n. nigromaculatus*, SCHENKLING, p. 19, Stettin Ent. Zeit. lxiv.

- Lemidia malthinus* var., *L. hilaris* var., SCHENKLING, p. 399, Ann. Mus. Hungar. i.
Natalis floccosus Schenkl. as *Opilo*=(*leai* Blackb.), BLACKBURN, p. 308, Tr. R. Soc. S. Austral. xxvii.
Opilo impressipennis, p. 334, *brunneus*, p. 335, India, GORHAM, Ann. Soc. ent. Belgique xlvii, n. spp.
Pelonium serotatum varr. n. *quadrinotatum*, *octoplagiatum*, SCHENKLING, p. 20, Stettin Ent. Zeit. lxiv.
P. schenklingi, *divisum*, p. 169, *thoracicum*, *cyaneum*, p. 170, Brazil, GORHAM, Deutsche ent. Zeitschr. 1903, n. spp.
Sisyrnophorus variabilis, India, GORHAM, p. 337, Ann. Soc. ent. Belgique xlvii, n. sp.
Stigmatium modestum, India, GORHAM, p. 336, t. c., n. sp.
Teloclerus n. g. for part of *Macrotelus*, SCHENKLING, Gen. Ins. fasc. xiii, p. 9.
Tenerus vittipennis, New Guinea, SCHENKLING, p. 396, Ann. Mus. Hungar. i, n. sp.
Thanasimus himalayensis, India, STEBBING, p. 105, life-history, pp. 105-110, J. Asiat. Soc. Bengal lxxii, n. sp.
Trogodendron aurotomentosum, Gawler, SCHENKLING, p. 17, Stettin Ent. Zeit. lxiv, n. sp.
Xenorthrus simplex, Hong Kong, SCHENKLING, p. 16, t. c., n. sp.

PTINIDÆ.

- [Cf. CSIKI (359), GAHAN (589), PIC (1142, 1149, 1150, 1154, 1167, 1169), REITTER (1231, 1251), SCHÄEFFER (1328).]
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Anobium albonotatum, Madagascar, PIC, p. 100, Echange 1903, n. sp.
Dorcatoma lomnickii, Lithuania, REITTER, Wien. ent. Zeit. xxii, p. 239;
D. pilosella, Amur, REITTER, p. 44, Verh. Ver. Brunn xl : n. spp.
Durangoum subg. vel g. n. cf. *Micranobium*.
Episerenus henschi, Bosnia, REITTER, p. 12, t. c., n. sp.
Ernobius bedeli, note, p. 27, *E. angusticollis* Ratz. and *tabidus* Kies. are sexes of one species, p. 28, PIC, Bull. Soc. ent. France 1903.
E. schilskyi, Taygetos Mts., REITTER, p. 15, Verh. Ver. Brunn xl, n. sp.
Fossanobium subg. n. cf. *Rhadine*.
Gastrallus javanus, Java, PIC, p. 183, Echange 1903, n. sp.
Hedobia maxima, China, PIC, p. 106, t. c., n. sp.
Lasioderma turkestanicum, Taschkent, REITTER, p. 36, Verh. Ver. Brunn xl, n. sp.
Maheoptinus n. g. for *Ptinus cephalotes* Pic, PIC, p. 183, Echange 1903.
Mesocelopus subattenuatus, Madagascar, PIC, p. 180, t. c., n. sp.
Mesothus brevipennis, Madagascar, PIC, p. 180, t. c., n. sp.
Micranobium (*Durangoum* subg. n.) for *D. mexicanum*, n. sp., Mexico, PIC, p. 183, t. c.; *M. antillarum*, Grenadines, *gorhami*, Guatemala, PIC, p. 171, t. c. : n. spp.
Microptinus melitensis, Malta, PIC, p. 162, t. c., n. sp.
Ochina bicolor, Hungary, CSIKI, p. 445, Ann. Mus. Hungar. i, n. sp.
Paranobium forbesii, Abd-el-Kuri, GAHAN, Nat. Hist. Sokotra, p. 290, n. sp.
Plananobius n. g. near *Xyletinus*, for *P. aureopubens*, n. sp., Bahia, PIC, p. 182, Echange 1903.
Polyplacotes nigropiceus, Australia, PIC, p. 183, t. c., n. sp.
Priartobium n. g., p. 23, for *P. serrifumis*, n. sp., Syria, p. 24, REITTER, Verh. Ver. Brunn xl.

- Pseudoxyletinus* n. g. for *P. fulvolineatus*, n. sp., "Amérique Sle," PIC, p. 182, Echange 1903.
- Ptilineurus* n. g. for *Ptilinus marmoratus* Reitt., REITTER, p. 24, Verh. Ver. Brunn xl.
- Ptinus capellei*, characters, BREIT, pp. 346-349, Munchen. Kol. Zeitschr. i.
- P. madagascariensis*, Majunga, p. 111, *subviolaceus*, New Hebrides, p. 112, PIC, Bull. Soc. ent. France 1903; *P. oneili*, Cape Colony, PIC, p. 179, Echange 1903; *P. texanus, rubroapicatus*, Texas, PIC, p. 183, t. c. : n. spp.
- Rhadine apicalis, striatipennis*, Mexico, *angulifer, subangulatus, brasiliensis, impressithorax*, S. America, *R. (Fossanobium* subg. n.) *bifoveatum*, Madagascar, PIC, p. 172, t. c., n. spp.
- Santiagonus* n. g. near *Episernus*, for *S. gorhami*, n. sp., Chili, PIC, p. 107, t. c.
- Theca latior* Pic = (*reitteri* Schilsky), PIC, p. 28, Bull. Soc. ent. France 1903; *T. cribricollis numidica* subsp. n., PIC, p. 81, t. c.
- Trichodesma lateritia*, Niger, PIC, p. 106, Echange 1903; *T. pulchra*, Sikkim, PIC, p. 119, t. c.; *T. texana*, p. 263, *pulchella*, p. 264, Texas, SCHAEFFER, Canad. Ent. xxxv : n. spp.
- Trigonogenius peruvianus*, Peru, PIC, p. 99, Echange 1903, n. sp.
- Tripopithys dendrobiformis*, E. Europe, etc., REITTER, p. 25, Verh. Ver. Brunn xl, n. sp.
- Xestobium ernobiformis*, Centr. Europe, REITTER, p. 13, t. c., n. sp.
- Xyletinus (Xeronthobius) ocularis*, Mongolia, *bucephaloides*, Egypt, p. 28, *X. (Calypterus) theanus*, Greece, p. 29, *X. asiaticus*, Mongolia, p. 33, REITTER, Verh. Ver. Brunn xl; *X. metholcoides*, Madagascar, PIC, p. 180, Echange 1903; *X. japonicus*, Japan, PIC, p. 183, t. c. : n. spp.
- Xyletomimus* subg. n. for *Xyletinus sanguineocinctus* Fairm., REITTER, p. 28, Verh. Ver. Brunn xl.
- Xystrophorus* (Dej.), characters, PIC, p. 100, Echange 1903.
- X. barbarus*, Algeria, PIC, p. 97, t. c.; *X. mouhoti*, Asia, PIC, p. 99, t. c. : n. spp.

BOSTRYCHIDÆ and CIOIDÆ.

- Tables for determining palæarctic *Cioidæ*, REITTER, pp. 46-64, Verh. Ver. Brunn xl.
- Factors in distribution of *Bostrychidæ*, LESNE, C.R. Ac. Sci. cxxxvii, p. 133.
- Bostrychidæ* of Hungary (in Hungarian), CSIKI, Rov. Lapok x, pp. 16-20.
- Cis lineatulus*, Turkestan, p. 51, *judæus*, Beirut, p. 55, REITTER, Verh. Ver. Brunn xl, n. spp.
- Phonapate chan, deserti*, notes, SEMENOW, p. 99, Rev. Russe Ent. iii.
- Rhopalodontus novorossicus*, S. Russia, REITTER, p. 58, Verh. Ver. Brunn xl, n. sp.
- Xylographus tomicoides*, Amur, REITTER, p. 47, t. c., n. sp.

TENEBRIONIDÆ.

- [Cf. BLACKBURN (136), BROUN (220), ESCALERA (466, 467), FAIRMAIRE (478-482), GERMAIN (610), KOLBE (865), OBERTHÜR (1083), OERTZEN (1085), PIC (1152, 1166), REITTER (1236, 1237, 1238, 1244), SAHLBERG (1305), SEMENOW (1383), SHARP (1404), WATERHOUSE (1647), WICKHAM (1687).]
- Adavius perrieri*, Madagascar, FAIRMAIRE, p. 208, Ann. Soc. ent. France lxxii, n. sp.

- Adelostoma granti*, pl. xvii, fig. 4, p. 291, GAHAN, Nat. Hist. Sokotra.
- Akis plana* = (*moravitzii* Sem.), *A. humeralis* = (*Cyphogenia semicarinata* Reitt.), SEMENOW, p. 100, Rev. Russe Ent. iii.
- Ammogenia* is subg. of *Trigonoscelis*, *lanuginosa* and *hauseri* distinguished, SEMENOW, p. 306, t. c.
- Andremius* n. g. near *Asidesthes*, for *A. crispatus* n. sp., Madagascar, FAIRMAIRE, p. 364, Ann. Soc. ent. Belgique xlvii.
- Apristopus* n. g. for *Prioscelis crassicornis* Westw., KOLBE, p. 167, Arch. Naturg. lxix, i.
- Asida*; distribution and peculiarities of the Aterciopelada group, ESCALERA, pp. 76-78, Bol. Soc. espan. iii.
- Asida escalerae*, LANJARON, ÖBERTHÜR, p. 74, Bol. Soc. espan. iii; *A. martini*, CADIZ, ESCALERA, p. 75, t. c.; *A. hispidula*, TUNIS, PIC, p. 114, Echange 1903: n. spp.
- Brachydidium ovatulum*, redescribed as *Adavius*, FAIRMAIRE, p. 207, Ann. Soc. ent. France lxxii.
- Cædius brevis*, Madagascar, FAIRMAIRE, p. 207, t. c., n. sp.
- Calyptopsis capnisiformis*, ASIA MINOR, REITTER, Wien. ent. Zeit. xxii, p. 44, n. sp.
- Camaria fruhstorferi*, *imperialis*, p. 15, *regia*, p. 16, Tonkin, FAIRMAIRE, Ann. Soc. ent. Belgique xlvii, n. spp.
- Camariodes suturatus*, Madagascar, FAIRMAIRE, p. 209, Ann. Soc. ent. France lxxii, n. sp.
- Cedrosius cærulans*, Madagascar, FAIRMAIRE, p. 209, t. c., n. sp.
- Cephalostenus demaisonii*, ASIA MINOR, REITTER, Wien. ent. Zeit. xxii, p. 132, n. sp.
- Ceropria laticollis*, Tonkin, FAIRMAIRE, p. 13, Ann. Soc. ent. Belgique xlvii, n. sp.
- Chirocharis* n. g. for *Chiroscelis australis* Westw., KOLBE, p. 179, Arch. Naturg. lxix, i.
- Chiroscelides*; revision, KOLBE, p. 167, t. c. pp. 161-180.
- Cilibe major*, *schauinslandi*, STEPHENS' ISLAND, p. 106, *subcostata*, CHATHAM ISLANDS, *tarsalis*, p. 107, *velox*, *lewisiana*, p. 108, *meridionalis*, p. 109, NEW ZEALAND, SHARP, Ent. Mag. xxxix, n. spp.
- Corticus rufithorax*, Greece, PIC, p. 162, Echange 1903, n. sp.
- Cyriogeton tonkinense*, p. 16, *grande*, p. 17, Tonkin, FAIRMAIRE, Ann. Soc. ent. Belgique xlvii, n. spp.
- Damatrix distinguenda*, Madagascar, FAIRMAIRE, p. 366, t. c., n. sp.
- Deretus denticollis*, pl. xvii, fig. 9, p. 281, GAHAN, Nat. Hist. Sokotra.
- Derosphærus crassierus*, ANNAM, FAIRMAIRE, p. 14, Ann. Soc. ent. Belgique xlvii, n. sp.
- Earophanta* n. n. to replace *Earophila*, SEMENOW, t. c. p. 172.
- Earophila* subg. n. cf. *Platyope* and *Earophanta*.
- Edrotinus* n. g. near *Edrotes*, for *E. tucumanus* n. sp., S. America, FAIRMAIRE, p. 461, Ann. Soc. ent. France lxxii.
- Entomogonus*; revision, with n. spp. and *Erionura* subg. n. for *E. giganteus* Kr., REITTER, Wien. ent. Zeit. xxii, pp. 18-20.
- È. clavimanus*, Armenia, p. 19, *duchoni*, Akbès, p. 20, id. t. c., n. spp.
- Erionura* subg. n. cf. *Entomogonus*.
- Eritelopus* n. g. near *Helops*, for *E. fruhstorferi* n. sp., Tonkin, FAIRMAIRE, p. 14, Ann. Soc. ent. Belgique xlvii.
- Eucyrtus foveipennis*, *nietneri*, Ceylon, v. OERTZEN, p. 234, Deutsche ent. Zeitschr. 1903, n. spp.
- Eusyntelia opacicollis*, pl. xvii, fig. 5, *balfouri*, p. 275, *glabra*, p. 277, GAHAN, Nat. Hist. Sokotra.
- Eutagenia minutissima*, CÉRIGO ISLAND, PIC, p. 162, Echange 1903, n. sp.
- Eutochia latipes*, *opatrinoïdes*, Madagascar, FAIRMAIRE, p. 208, Ann. Soc. ent. France lxxii, n. spp.

- Exangeltus gracilior*, S. Australia, BLACKBURN, p. 308, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Habrobates* n. g. near *Platyope*, p. 11, for *H. vernalis* n. sp., Transcaspian, p. 12, SEMENOW, Rev. Russe Ent. iii.
- Helops* (*Nalassus*) *phaeacus*, Corcyra, SAHLBERG, p. 33, Ofv. Finska Forh. xlv, No. 10, n. sp.
- Hemipristis* n. g. *Chirosclides*, p. 177, for *H. ukamia* n. sp., E. Africa, p. 178, KOLBE, Arch. Naturg. lxix, i.
- Himatismus emarginifrons*, *trochantericus*, queried, FAIRMAIRE, p. 207, Ann. Soc. ent. France lxxii.
- Histeromorphus undatus*, pl. xvii, fig. 7, p. 290, GAHAN, Nat. Hist. Sokotra.
- Lana bodemeyeri*, Asia Minor, REITTER, Wien. ent. Zeit. xxii, p. 224, n. sp.
- Leptinoderes strangulatus*, Tucuman, FAIRMAIRE, p. 462, Ann. Soc. ent. France lxii, n. sp.
- Nemostira bicolor*, *tenuicollis*, Madagascar, FAIRMAIRE, p. 213, t. c., n. spp.
- Nesogena* (*Bradygena*) *violacea*, *N. simplicifrons*, *basicollis*, p. 211, *cinctipennis*, *angusta*, p. 212, Madagascar, FAIRMAIRE, t. c., n. spp.
- Nycterinus* revised, GERMAIN, An. Univ. Chile cxii, 24 pp.
- N. quadricollis*, Chile, id. p. 14, n. sp.
- Nycteropus coloratus*, *chalybeus*, *perrieri*, p. 365, *obscurocupreus*, p. 366, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvii, n. spp.
- Ologlyptus texanus*, Texas, WICKHAM, p. 72, Canad. Ent. xxxv, n. sp.
- Oxycara gastonis*, Oran, REITTER, Wien. ent. Zeit. xxii, p. 45, n. sp.
- Parecatus dorsoplicatus*, Madagascar, FAIRMAIRE, p. 206, Ann. Soc. ent. France lxxii, n. sp.
- Pimelia*; food habits, REITTER, Wien. ent. Zeit. xxii, p. 30.
- Plastica* n. g. *Apocryphinae*, p. 563, for *P. polita* n. sp., Sorata, p. 564, WATERHOUSE, Ann. Nat. Hist. xii.
- Platyope* (*Ecarophila* subg. n.) *autumnalis*, p. 9, *loudoni*, p. 10, Transcaspian, SEMENOW, Rev. Russe Ent. iii, n. spp.
- Plesiophthalmus cruralis*, *metallicus*, *anthrax*, Tonkin, FAIRMAIRE, p. 17, Ann. Soc. ent. Belgique xlvii, n. spp.
- Praocidia* n. g. for *Praocis nervosa* Fairm., FAIRMAIRE, p. 463, Ann. Soc. ent. France lxii.
- Prioproctus* n. g. *Chirosclides*, p. 174, for *P. oertzeni* n. sp., E. Africa, p. 176, KOLBE, Arch. Naturg. lxix, i.
- Priosclides striatus*, Cameroons, KOLBE, p. 167, t. c., n. sp.
- Prioscelis westwoodi*, p. 169, with subsp. *cameruna*, p. 170, *haesitans*, p. 171, *preussi*, p. 173, Africa, KOLBE, t. c., n. spp.
- Pristophilus* n. g. for *Chirosclis passalooides* Westw., KOLBE, p. 174, t. c.
- Prosodes thylacoides*=(*Platyscelis hauseri* Reitt.), REITTER, Wien. ent. Zeit. xxii, p. 171.
- Prosodidius* n. g. near *Pelecyphorus*, for *P. perrieri* n. sp., Madagascar, FAIRMAIRE, p. 69, Bull. Soc. ent. France 1903.
- Psectrascelis ambigena*, p. 463, *semistrigosa*, p. 464, Tucuman, FAIRMAIRE, Ann. Soc. ent. France lxxii, n. spp.
- Pseudogena alternans*, *aqualis*, Madagascar, FAIRMAIRE, p. 210, t. c., n. spp.
- Pseudostira* n. g. near *Nemostira*, for *P. levipennis* n. sp., Madagascar, FAIRMAIRE, p. 213, t. c.
- Reitterella*: diagnosis augmented, SEMENOW, p. 356, Rev. Russe Ent. iii.
- R. gracillima*, Transcaspian, id., l. c., n. sp.
- Scotobius depressicollis*, *elegans*, Tucuman, FAIRMAIRE, p. 462, Ann. Soc. ent. France lxxii, n. spp.
- Sepidium serratum* var. n. *remotum*, SAHLBERG, p. 50, Ofv. Finska Forh. xlv, No. 19.
- Spherocaulus levicollis*, Madagascar, FAIRMAIRE, p. 210, Ann. Soc. ent. France lxxii, n. sp.

- Sphenaria*; synonymy of species of Reitter, SEMENOW, Rev. Russe Ent. iii, p. 307.
- Strongylium interstitiale*, Madagascar, FAIRMAIRE, p. 366, Ann. Soc. ent. Belgique xlvii; *S. horni*, Ceylon, v. OERTZEN, p. 235, Deutsche ent. Zeitschr. 1903; *S. longurium*, *fissicolle*, p. 18, *dorsocupreum*, *undulatum*, p. 19, *subimpressum*, p. 20, Tonkin, FAIRMAIRE, Ann. Soc. ent. Belgique xlvii; *S. cupreocinctum*, Tucuman, FAIRMAIRE, p. 465, Ann. Soc. ent. France lxxii : **n. spp.**
- Syrphetodes simplex*, New Zealand, BROUN, Ann. Nat. Hist. xii, p. 69, **n. sp.**
- Telleus n. g.* near *Nuptis*, for *T. crenatus n. sp.*, Tucuman, FAIRMAIRE, p. 465, Ann. Soc. ent. France lxxii.
- Tenebrio trivialis*, Madagascar, FAIRMAIRE, p. 209, t. c., **n. sp.**
- Tonkinius n. g.* near *Setenis* for *T. sculptilis n. sp.*, Tonkin, FAIRMAIRE, p. 13, Ann. Soc. ent. Belgique xlvii.
- Trigonoscelis lacerta*=(*pustulosa* Reitt.), SEMENOW, p. 100, Rev. Russe Ent. iii.

CISTELIDÆ.

[Cf. GAHAN (590), PIC (1156, 1163), REITTER (1237, 1252).]

- Cteniopus impressicollis* var. ♂=(*trifossus* Pic), REITTER, Wien. ent. Zeit. xxii, p. 258.
- C. bodemeyeri*, p. 257, *frater*, p. 258, Asia Minor, REITTER, t. c.; *C. trifossus*, Italy, *anatolicus*, Smyrna, PIC, p. 123, Echange 1903 : **n. spp.**
- Isomira eubœica*, Eubœa, *impressithorax*, Tokat, PIC, p. 146, t. c.; *I. bodemeyeri*, Asia Minor, REITTER, Wien. ent. Zeit. xxii, p. 45 : **n. spp.**
- Omophilus armillatus* varr., MÜLLER, p. 15, Verh. Ges. Wien liii.
- Prostenus sladeni*, Brazil, GAHAN, p. 253, pl. xxviii, fig. 6, P. Zool. Soc. London 1903, ii, **n. sp.**

LAGRIIDÆ.

- Lagria heros*, *denticornis*, p. 300, *rhytidonota*, p. 301, Borneo, FAIRMAIRE, Bull. Soc. ent. France 1903, **n. spp.**
- Sphinctoderus n. g.* for *S. strangulatus*, **n. sp.**, Borneo, FAIRMAIRE, p. 301, t. c.

ANTHICIDÆ, PEDILIDÆ.

[Cf. FAIRMAIRE (478), PIC (1134-1141, 1143-1145, 1150, 1154, 1166, 1168).]

Revision of palearctic *Hylophilidæ* with catalogue, PIC, pp. 65-107, Ann. Soc. ent. France lxxii.

- Andrahomanus n. g.* near *Formicomus*, for *A. luteipes*, **n. sp.**, Madagascar, PIC, p. 98, Echange 1903.
- Anthicus bisbipartitus* var. *n. oneili*, PIC, p. 184, Bull. Soc. ent. France 1903; *A. impressithorax* n. n. for *stricticollis* Fairm., *incertus* n. n. for *crassicollis* Fairm., PIC, p. 304, t. c.; *A. superbus*, *maculicollis*, distinctions, PIC, p. 212, t. c.; *A. superbus* variation, PIC, p. 170, t. c.
- A. (Aulacoderus) melitensis*, Malta, PIC, p. 139, Echange 1903; *A. episcopalis*, Bagdad, PIC, p. 170, t. c.; *A. canariensis* var. *n. bucheti*, PIC, p. 21, Bull. Mus. Paris ix; *A. jacobsoni*, Transcaspian, PIC, p. 89, Annuaire Mus. St. Petersb. 1903; *A. carmelita*, p. 215, *cribellatus*, *gibbosulus*, p. 216, *stricticollis*, *moerens*, *crassicollis*, p. 217, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii; *A. (Aulacoderus) recognitus*, *reverendus*, Cape Colony, PIC, p. 180, Echange 1903; *A. natalensis*,

- bisbipartitus*, p. 167, *subapicalis*, *A. (Aulacoderus) robusticeps*, p. 168, *convexus*, p. 169, Natal, PIC, Rev. Ent. franc. xxii; *A. (Aulacoderus) mediofasciatus*, S. Africa, PIC, p. 184, Bull. Soc. ent. France 1903; *A. argentatus*, p. 350, *mauriti*, p. 351, India, PIC, Ann. Soc. ent. France lxxii; *A. espirituensis*, Brazil, *medionotatus*, Manilla, PIC, p. 56, Naturaliste 1903 : n. spp.
- Falsoletolus* subg. n. cf. *Hylophilus*.
- Formicomus ruficollis* var. n. *annamitus*, PIC, p. 56, Naturaliste 1903.
- F. albipes*, Madagascar, FAIRMAIRE, p. 215, Ann. Soc. ent. France lxxii; *F. semiopacus*, *maindroni*, India, PIC, p. 349, Ann. Soc. ent. France lxxii; *F. annamitus*, Phuc-Son, PIC, p. 107, Echange 1903 : n. spp.
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- Leptaleus geayi*, Venezuela, PIC, p. 20, Bull. Mus. Paris ix, n. sp.
- Macratrìa strictula*, Madagascar, FAIRMAIRE, p. 214, Ann. Soc. ent. France lxxii; *M. tanaensis*, E. Africa, PIC, p. 368, Verh. Ges. Wien liii; *M. rubropicata*, India, PIC, p. 120, Echange 1903; *M. tucumanensis*, S. America, PIC, p. 81, Naturaliste 1903 : n. spp.
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- Scryptia hovana*, *soarezica*, Madagascar, PIC, p. 12, t. c.; *S. (Trotomideomorpha) trifasciata*, Madagascar, PIC, p. 145, t. c.; *S. maxina*, Kilimanjaro, PIC, p. 367, Verh. Ges. Wien liii; *S. aureopubens*, p. 119, *pallidonotata*, p. 120, Sikkim, PIC, Echange, 1903 : n. spp.
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- Telesinus* n. g. near *Macratrìa*, p. 214, for *T. griseus*, n. sp., Madagascar, p. 215, FAIRMAIRE, Ann. Soc. ent. France lxxii.
- Tomoderus arcuaticeps*, Addah, PIC, p. 81, Naturaliste 1903; *T. latipennis*, Soudan, PIC, p. 20, Bull. Mus. Paris ix; *T. microcephalus*, p. 183, *oneila*, p. 184, S. Africa, PIC, Bull. Soc. ent. France 1903; *T. natalensis*, Natal, PIC, p. 166, Rev. Ent. franc. xxii : n. spp.

RHIPIPHORIDÆ.

- Evaniocera hauseri*, Persia, REITTER, Wien. ent. Zeit. xxii, p. 238; *E. 9-flabellata*, Transcaspien, SAHLBERG, p. 34, Ofv. Finska Forh. xlv, No. 10 : n. spp.
- Trichopleurias* n. g., p. 35, for *P. deserti* n. sp., Transcaspien, p. 36, SAHLBERG, t. c.

MORDELLIDÆ.

- Mordellistena (Tolida) murina*, Armenia, SCHILSKY, Küster Käf. eur. xl, p. 100, n. sp.
- Stenaliu biskrensis*, Algeria, SCHILSKY, t. c. p. 99, n. sp.

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- Viviparity in *Strepsiptera*, HOLMGREN, pp. 458, 459, Zool. Jahrb. Syst. xix.
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 p. 241.
Xenos pallidus, p. 246, *nigrescens*, p. 247, Texas, BRUES, t. c.; *X. moutoni*,
 China, BUYSSON, p. 175, Bull. Soc. ent. France 1903 : n. spp.

CANTHARIDÆ.

- [Cf. FAIRMAIRE (479, 482), GAHAN (589), PIC (1136), REITTER (1246),
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 n. sp.

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Mylabris, to be used, not *Zonabris*, VOIGTS, pp. 234-239, Allg. Zeitschr.
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 Tucuman, *sulcifrons*, Peru, p. 468, FAIRMAIRE, Ann. Soc. ent. France
 lxxii, n. spp.

Pyrota dakotana, N. America, WICKHAM, p. 73, Canad. Ent. xxxv, n. sp.

Tegrodera erosa var. *n. atoga*, SKINNER, p. 168, Ent. News Philad. xiv.

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maculicornis, p. 101, *ertli*, p. 102, with varr. *nigripalpis*, *inæqualis*, p. 103,
bioculata, p. 104, with varr. *aperta*, *cordiformis*, *taborensis*, p. 106,
nativa, p. 107, Africa, VOIGTS, Deutsche ent. Zeitschr. 1903 : n. spp.

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 xlvi, n. sp.

ÆGIALITIDÆ, PYTHIDÆ, ŒDEMERIDÆ.

- [Cf. BROWN (220), CHOBOUT (304), FAIRMAIRE (479), KEEN (807), PIC (1161),
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Salpingus cedri, Algeria, PIC, p. 141, Echange 1903, n. sp.

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Thelyphassa fuscata, New Zealand, BROUN, t. c. p. 70, n. sp.

CURCULIONIDÆ.

[Cf. APFELBECK (31), BEDEL (89), BÉGUIN-BILLECOQ (90), BOVIE (175), BREIT (210), BROUN (220), CHAMPION (293, 628), CHOBOUT (305), DANIEL (376), DANIEL & DANIEL (378, 379), DESBROCHERS (385–389), ENDERLEIN (450), ENGELHART (463), FAIRMAIRE (477–480, 486), FORMÁNEK (537), GAHAN (590), GANGLBAUER (600), HARTMANN (674, 675), HELLER (680, 681), LEA (922), MALLASZ (962), PETRI (1122), PIC (1156, 1158, 1160, 1166), PIERRE (1179), REITTER (1240, 1242, 1245), SAHLBERG (1305), SCHILSKY (1336), SCHULTZE (1363–1365), SHARP (1404), SOLARI (1456), STEBBING (1473), STIERLIN (1484, 1485), VAYSSIÈRE & GERBER (1593), VITALE (1611, 1612), WATERHOUSE (1646).]

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Achia n. g. *Anthonomina*, for *A. rhombifera*, pl. ix, fig. 7, p. 149, *adusta*, fig. 8, *discifera*, fig. 9, p. 150, n. spp., Central America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4.

Adisius n. g. near *Magdalis*, for *A. rufinus*, *piceolus*, p. 230, *perrieri*, p. 231, n. spp., Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii.

Alaoxyba holdhausi, Herzegowina, GANGLBAUER, p. 184, Munchen. Kol. Zeitschr. i, n. sp.

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- squamiger*, p. 174, *annulipes*, fig. 14, p. 175, *alternans*, fig. 15, *cyani-pennis*, fig. 16, p. 176, *sulcipygus*, fig. 17, *ocularis*, p. 177, *abdominalis*, *canaliculatus*, fig. 18, p. 178, *rodriguezii*, fig. 19, *rotundicollis*, fig. 20, p. 179, *venustus*, fig. 21, *cinereus*, p. 180, *melanostictus*, *calvescens*, fig. 22, p. 181, *v-notatus*, fig. 23, *monostigma*, fig. 24, p. 182, *unipustulatus*, fig. 25, *curvirostris*, fig. 26, p. 183, *marmoratus*, fig. 27, *pruinosis*, fig. 28, p. 184, *subparallelus*, fig. 29, *rubiginosus*, fig. 30, p. 185, *fuscocomaculatus*, pl. xi, fig. 1, *cossonoides*, fig. 2, p. 186, *tenuirostris*, fig. 5, p. 187, *stipulosus*, fig. 7, *griseisquamis*, *triangulifer*, fig. 8, p. 188, *isthmicus*, fig. 9, p. 189, *parvidens*, fig. 10, *fulvipes*, *pauvillus*, p. 190, *teapensis*, *paleatus*, p. 191, *zunilensis*, *squamans*, *tantillus*, p. 192, Central America, CHAMPION, Biol. Centr.-Amer. Col. iv, p. 4 : **n. spp.**
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- Apion*, monographic table of Danish species (in Danish), ENGELHART, pp. 115-179, Ent. Meddel. 1903 ; *A.*, galls of on *Cistus*, *A. cyanescens*, *tubiferum*, parasites etc., VAYSSIERE & GERBER, Ann. Fac. Marseille xiii, pp. 23-82 ; *A. flavofemoratum*, gall, PEREZ, Marcellia i, p. 66.
- A. leonhardi*, Herzegovina, REITER, Wien. ent. Zeit. xxii, p. 178, **n. sp.**
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- Arachnopus patronoides*, New Guinea, HELLER, p. 313, Deutsche ent. Zeitschr. 1903, **n. sp.**
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- Baryssus* n. g. near *Mataxus*, for *B. callipygus*, **n. sp.**, Madagascar, FAIRMAIRE, p. 238, Ann. Soc. ent. France lxxii.
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- B. perrieri*, p. 38, *seriedentatus*, p. 39, Madagascar, FAIRMAIRE, Rev. Ent. franc. xxii, **n. spp.**
- Brachyolus albescens*, p. 73, *cervalis*, p. 74, New Zealand, BROUN, Ann. Nat. Hist. xii, **n. spp.**
- Camarotus singularis*, Brit. Honduras, pl. xv, fig. 2, p. 289, *dilatatus*, Guatemala, fig. 3, p. 290, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, **n. spp.**
- Camptochirus spinicauda*, pl. xii, fig. 15, *explanatus*, fig. 16, p. 218, *angulatus*, fig. 17, p. 219, *deplanatus*, fig. 18, p. 220, Central America, CHAMPION, t. c., **n. spp.**
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- C. poncyi*, Roumania, STIERLIN, p. 56, Mt. Schweiz. ent. Ges. viii; *C. venustus*, p. 65, *villosipes*, p. 67, *tibiellus*, p. 69, Russia, *subtilirostris*, p. 70, *incertus*, p. 72, *pistor*, p. 73, *languidus*, p. 75, *capucinus*, p. 78, *ahngeri*, p. 79, *marginellus*, p. 81, *protentus*, p. 82, Turkestan, *jakolevi*, Russia, p. 84, *gilvicornis*, Turkestan, p. 86, *bucharensis*, Buchara, p. 88, SCHULTZE, Horæ Soc. ent. Ross. xxxvi; *C. venustus*, p. 247, *villosipes*, p. 249, *tibiellus*, p. 250, Russia, *planicollis*, Algeria, p. 251, *capucinus*, p. 252, *ahngeri*, p. 253, *subtilirostris*, p. 255, *incertus*, p. 256, *pistor*, p. 257, *interjectus*, p. 258, *languidus*, p. 261, W. Asia, *confusus*, Caucasus, p. 263, *perversus*, Russia, p. 264, *suturalba*, Budapest, p. 265, *portentus*, Turkestan, p. 267, *jakolevi*, Jaroslav, p. 268, *atticus*, Athens, p. 269, *gracilicornis*, Kebin, p. 271, *gilvicornis*, Turkestan, p. 272, *bucharensis*, Buchara, p. 273, *marginellus*, Saratov, p. 275, *curtulus*, Spain, p. 276, *clunicularis*, Sicily, p. 277, *cribricollis*, Herzegowina, p. 278, *testudinella*, p. 279, *senilis*, p. 281, Armenia, *henschi*, Budapest, p. 283, *turbatus*, E. Europe, *maroccanus*, Saffi, p. 284, SCHULTZE, t. c. :
n. spp.
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n. sp.
- Cholus tuberculifer*, pl. xv, f. 4, p. 291, *leucozona*, f. 6, p. 292, *alutaceus*, f. 7, *levinodis*, f. 8, p. 293, *æqualis*, f. 9, *discolor*, f. 11, p. 294, *leucostictus*, f. 13, p. 295, *limbatus*, f. 14, *calvescens*, f. 15, 16, with var. *costaricensis*, p. 296, *xanthospilus*, f. 17, *conicicollis*, f. 18, p. 297, *bicinctus*, f. 22, p. 298, *circumnotatus*, f. 24, p. 299, *inequalis*, f. 25, *morio*, f. 26, p. 300, *foveolatus*, pl. xvi, f. 1, *confluens*, f. 2, p. 301, *insignis*, f. 3, *multiguttatus*, f. 5, p. 302, *subcaudatus*, f. 6, *pilicauda*, f. 7, p. 203, *leucogaster*, f. 9, p. 304, *pallidiventris*, f. 10, p. 305, *nigronotatus*, f. 12, *nigromaculatus*, f. 13, p. 306, *tenuis*, f. 14, *corrugatus*, f. 15, p. 307, *aureus*, f. 16, *estriatus*, f. 17, p. 308, *cretuceus*, f. 18, *chiriguensis*, f. 19, p. 309, *fusiformis*, f. 20, p. 310, Central America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, **n. spp.**
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- Cimbus venustus*, Angola, HARTMANN, Wient. ent. Zeit. xxii, p. 23, **n. sp.**
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- Cionopsis* **n. g.** near *Anthonomus*, p. 150, for *C. palliatus*, pl. ix, f. 10, p. 151, **n. sp.**, Guatemala, CHAMPION, t. c.
- Cionus tuberosus*, p. 241, *coriaceus*, *compactus*, p. 242, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii, **n. spp.**
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- C. (Vibertia)* subg. n. p. 285) *superciliosus*, Tunis, BEDEL, p. 284, Bull. Soc. ent. France 1903, **n. sp.**
- Cælosternus sturio*, Matto Grosso, ARROW, p. 252, pl. xxviii, f. 4, P. Zool. Soc. London 1903, ii, **n. sp.**
- Corecaulus* **n. g.** near *Caulostrophus*, for *C. breviceps*, **n. sp.**, Madagascar, FAIRMAIRE, p. 222, Ann. Soc. ent. France lxxii.
- Cratopus squalus*, Mauritius, FAIRMAIRE, p. 70, Bull. Soc. ent. France 1903, **n. sp.**
- Critomerus* **n. g.** near *Perissops*, for *C. emblematicus*, **n. sp.**, Queensland, LEA, p. 663, P. Linn. Soc. N. S. Wales xxviii.
- Cybebus pleuralis*, Madagascar, FAIRMAIRE, p. 42, Rev. Ent. franc. xxii, **n. sp.**
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- Dichotrachelus grignensis*, Bergamasker Alps, GANGLBAUER, p. 222, Munchen. Kol. Zeitschr. i; *D. benseæ*, Salerno, p. 178, *sardous*, Sardinia, p. 180, SOLARI, Bull. Soc. ent. Ital. xxxv : n. spp.
- Dietzia* n. g. near *Anthonomus*, p. 193, for *D. bifasciata*, n. sp., Panama, pl. xi, f. 12, CHAMPION, p. 194, Biol. Centr.-Amer. Col. iv, pt. 4.
- Diodyrhynchus austriacus cilicius*, DANIEL, p. 327, Munchen. Kol. Zeitschr. i.
- Dorytomus tremulae* (= *armatus* Petri), PETRI, Wien. ent. Zeit. xxii, p. 57.
- Dyscerus 6-punctatus*, Java, HARTMANN, Wien. ent. Zeit. xxii, p. 26, n. sp.
- Dysopirrhinus grandis*, Queensland, LEA, p. 674, P. Linn. Soc. N. S. Wales xxviii, n. sp.
- Ectemnorhinus*; ENDERLEIN figures and discusses the species, Valdivia exp. iii, pp. 209-215.
- Ectyrus elongatus*, pl. xii, f. 20, p. 221, *gibbipennis*, f. 21, p. 222, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, n. sp.
- Epiphylax clathratus*, p. 242, *variegatus*, p. 243, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii, n. spp.
- Eremiarhinus subalbidus*, Egypt, PIC, p. 130, Echange 1903, n. sp.
- Erethistes cyanipes*, pl. xvi, f. 21, *triangularis*, f. 22, p. 311, *lineatocollis*, f. 23, *zygopoides*, f. 24, p. 312, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, n. spp.
- Erodiscus appendiculatus*, pl. xiv, f. 11, *lamellatus*, figg. 12, 13, p. 275, *bituberculatus*, f. 14, *laevigatus*, p. 276, *angustatus*, p. 277, Centr. America, CHAMPION, t. c. n. spp.
- Eudipnus raveræ*, Salerno, SOLARI, p. 177, Bull. Soc. ent. Ital. xxxv, n. sp.
- Eumagdalis* subg. n. of *Magdalis*, K. DANIEL, pp. 238, 249, for *M. grilati* Bed., Munchen. Kol. Zeitschr. i.
- Flamingorhynchus helleri*, Australia, BOVIE, p. 306, Ann. Soc. ent. Belgique xlvi, n. sp.
- Gyratogaster* n. g. near *Cyclomaurus*, for *G. comosus*, n. sp., Asia Minor, DANIEL & DANIEL, p. 319, Munchen. Kol. Zeitschr. i.
- Hammatostylus* n. n. for *Hammaceras* Chev., with *H. criniger*, Nicaragua, n. sp., pl. xiv, figg. 6, 7, CHAMPION, p. 272, Biol. Centr.-Amer. Col. iv, pt. 4.
- Heliocarus marmoratus*, Spain, STIERLIN, p. 483, Mt. Schweiz. ent. Ges. x, n. sp.
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- Homæonychus fasciatus*, *fuscorufus*, p. 228, *proximus*, p. 229, Madagascar, FAIRMAIRE, Ann. Soc. ent. France lxxii, n. spp.
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- Hoplopactus lateralis*, Matto Grosso, ARROW, p. 251, pl. xxviii, f. 3, P. Zool. Soc. London 1903, ii, n. sp.
- Hoplorrhinus mexicanus*, pl. xiv, figg. 15, 16, *crispus*, f. 17, p. 278, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, n. spp.
- Hypera proxima* (= *barrosi* Guér.), PETRI, Wien. ent. Zeit. xxii, p. 52.
- Idernus* n. g. near *Rhynchodes*, for *I. plagiatus*, n. sp., Madagascar, FAIRMAIRE, p. 234, Ann. Soc. ent. France lxxii.
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- Megamastus apicatus*, Madagascar, FAIRMAIRE, p. 233, Ann. Soc. ent. France lxxii, n. sp.
- Nemes* n. g. near *Bantiades*, p. 78, for *M. rufirostris*, n. sp., New Zealand, p. 79, BROUN, Ann. Nat. Hist. xii.
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- Mesagroicus anatolicus*, Asia Minor, DANIEL & DANIEL, pp. 324, 333, Munchen. Kol. Zeitschr. i, n. sp.
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- N. inæqualis, tinctus*, Madagascar, id., l. c., n. spp.
- Naupactus leucogaster*, distinguished from *nodicolitis* and referred to *Pantomorus*, ARROW, p. 258, P. Zool. Soc. London 1903, ii.
- N. tuberculatus*, Paraguay, ARROW, p. 257, t. c., n. sp.
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- Oliabus* n. g. near *Eugnoristus*, p. 244, for *O. grandicollis* n. sp., Madagascar, p. 245, FAIRMAIRE, Ann. Soc. ent. France lxxii.
- Omius brandisi*, Bosnia, APFELBECK, p. 336, Munchen. Kol. Zeitschr. i, n. sp.
- Oopterinus piliferus*, pl. xiv, fig. 1, p. 268, *castaneipennis*, *bactrianus*, fig. 4, *gibbipennis*, p. 269, *æneopiceus*, *lævigatus*, pl. xiv, fig. 2, p. 270, *glabratus*, fig. 3, p. 271, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, n. spp.
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- Oxyonyx inornatus*, Transcaspian, p. 241, *acutangulus*, Siberia, p. 242, SCHULTZE, Deutsche ent. Zeitschr. 1903, n. spp.
- Pachyonyx inæqualis*, Madagascar, FAIRMAIRE, p. 238, Ann. Soc. ent. France lxxii, n. sp.
- Panopsis* subg. n. of *Magdalis* for *M. flavicornis* and *quercicola*, K. DANIEL, pp. 237 & 239, Munchen. Kol. Zeitschr. i.
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- Peribleptus parallelus*, Assam, HARTMANN, Wien. ent. Zeit. xxii, p. 29, n. sp.

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- Piazorrhinus cionoides*, pl. xii, fig. 22, *rufipes*, fig. 23, *inermis*, fig. 24, p. 224, *uniformis*, *albofasciatus*, fig. 25, p. 225, *rugulosus*, fig. 26, *cyaneus*, fig. 27, *cyanescens*, fig. 28, p. 226, *metallicus*, fig. 29, *asperatus*, p. 227, *cingulatus*, fig. 30, p. 228, *albocinctus*, *vestitus*, p. 229, *curtus*, p. 230, Central America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. 4, n. spp.
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- Pseudobalaninus metasternalis*, Madagascar, FAIRMAIRE, p. 240, Ann. Soc. ent. France lxxii, n. sp.
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- Scythropus lostiæ*, Sardinia, *auriceps*, Marocco, DESBROCHERS, p. 113, Frelon xi, n. spp.
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- Sipalus madecassus*, Madagascar, FAIRMAIRE, p. 245, Ann. Soc. ent. France lxxii, n. sp.
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- Sphenomorpha spectabilis*, New Guinea, HARTMANN, Wien. ent. Zeit. xxii, p. 24, n. sp.
- Sphenophorus subcosiatus*, Madagascar, FAIRMAIRE, p. 245, Ann. Soc. ent. France lxxii, n. sp.
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- Syzygops laterivireus, coquerellii*, Bourbon, FAIRMAIRE, p. 219, Ann. Soc. ent. France lxxii, n. spp.
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- Trachyphleus biskrensis*, Algeria, *notatipennis*, Tunis, PIC, p. 130, Echange 1903, **n. spp.**
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- [Cf. EICHELBAUM (443), FELT (503), SEMENOW (1387), STEBBING (1473).]
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- Ennadius* n. g. near *Tophoderes*, for *E. longitarsis* n. sp., Madagascar, FAIRMAIRE, p. 369, Ann. Soc. ent. Belgique xlvii.
- Eucorynus clavator*, Mauritius, FAIRMAIRE, p. 43, Rev. Ent. franc. xxii, n. sp.
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Prionidæ; revision, *Stenodontes* continued (5th mem.), LAMEERE, Ann. Soc. ent. Belgique xlvii, pp. 129-140; revision, part 6, *Basitoxus*, LAMEERE, t. c. pp. 213-224; revision, 7th memoir, *Macrotomines*, LAMEERE, Mem. Soc. ent. Belgique xi, 216 pp.; revision, 8th memoir, *Mécosarthrines*, LAMEERE, Ann. Soc. ent. Belgique xlvii, pp. 307-320. The changes of taxonomy involved in these memoirs are too extensive for

- us to follow in detail. Reference for them must be made to the memoirs themselves.
- Prionides of tropical Africa, LAMEERE (902).
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- Callidium violaceum*, sex characters, REITTER, Wien. ent. Zeit. xxii, p. 31.
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- Clytus*; taxonomical notes on African, and allies, JORDAN, Nov. Zool. x, pp. 141-145.
- C. (Clytanthus) taurusiensis*, Syria, PIC, p. 139, Echange 1903, n. sp.
- Clostrocera tricolor* Guér. referred to *Apiogaster*, JORDAN, p. 141, Nov. Zool. x.
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- Diaspila* n. g. type *Cyrtomerus bipunctatus*, with *D. periscelis* n. sp., W. Africa, JORDAN, p. 192, Nov. Zool. x.
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- Domitia nitidissima*, Cameroons, AURIVILLIUS, p. 269, Ent. Tidskr. xxiv, n. sp.
- Dorcadion scabricolle, caramanicum* var. n., *D. infernale revestitum* var. n., DANIEL, p. 332, Munchen. Kol. Zeitschr. i; *D. scabricolle* subsp. n. *mesmini*, PIC, p. 146, Echange 1903; *D. lederi* and *wagneri* distinguished, REITTER, Wien. ent. Zeit. xxii, p. 240; *D. tenuecinctum* valid, PIC, p. 204, Bol. Soc. espan. iii.
- D. brevipenne*, Spain, PIC, p. 178, Echange 1903; *D. glabrofasciatum*, with var. *imparivittatum*, p. 329, *bodemeyeri*, p. 330, Asia Minor, DANIEL & DANIEL, Munchen. Kol. Zeitschr. i : n. spp.
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- Graciella plena, mæa*, Cameroons, JORDAN, p. 174, Nov. Zool. x, n. spp.
- Grammoptera ingrica*, additional characters, BÆCKMANN, p. viii, Annuaire Mus. St. Petersburg. 1903.
- G. ingrica*, St. Petersburg, BÆCKMANN, p. 280, t. c., n. sp.
- Haphenistus*; cf. *Chariesthes*.

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- Malthonæa ruficornis*, Bolivia, BELON, p. 61, Rev. Ent. franc. xxii, n. sp.
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Michthysoma heterodoxum, habits, BEUTENMÜLLER, p. 519, pl. xlix, fig. 12, Bull. Amer. Mus. xix.
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Mimocoptops fulvosparsus, Madagascar, FAIRMAIRE, p. 375, Ann. Soc. ent. Belgique xlvii, n. sp.
Monochamus camerunensis, p. 267, fig. 3, *balteatus*, p. 268, Cameroons, AURIVILLIUS, Ent. Tidskr. xxiv; *M. lævis*, p. 145, *borussus*, *omias*, p. 146, *melaleuca*, *distigma*, p. 147, *isochrous*, *homæus*, p. 148, *cribellum*, *aurigutta*, p. 149, Africa, JORDAN, Nov. Zool. x; *M. thomensis*, W. Africa, JORDAN, p. 193, t. c.; *M. guerryi*, Yun Nam, PIC, p. 121, Echange 1903 : n. spp.
Murosternum maculatum, Cameroons, AURIVILLIUS, p. 275, fig. 8, Ent. Tidskr. xxiv, n. sp.
Musius fuscicornis, Madagascar, FAIRMAIRE, p. 249, Ann. Soc. ent. France lxxii, n. sp.
Neocorus diversipennis, Bolivia, BELON, p. 50, Rev. Ent. franc. xxii, n. sp.
Nitocris morio, *peplus*, Africa, JORDAN, p. 191, Nov. Zool. x, n. spp.
Nythophysis (= *Colpoderus*), p. 19, *N. lucanoides* (= *C. substriatus*), p. 22; *N. lævis* Jord., pl. i, fig. 6, p. 21, *stuhmanni*, ♂, pl. i, fig. 7, p. 23, LAMEERE, Prion. Afr. trop.
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Obereopsis linearis, Cameroons, AURIVILLIUS, p. 282, Ent. Tidskr. xxiv, n. sp.
Obriaccum gazella, E. Africa, JORDAN, Nov. Zool. x, p. 138, n. sp.
Oeax tichenea (= *Trachytus denticulatus* Kolbe), JORDAN, p. 156, t. c.; cf. also *Paroeax*.
O. collaris, *lateralis*, Africa, id., l. c., n. spp.
Oeme fusca, pl. xvii, fig. 2, p. 284, GAHAN, Nat. Hist. Sokotra.
Ommatomenus megalops, *sericatus* Higg. is the ♂, AURIVILLIUS, p. 260, Ent. Tidskr. xxiv.
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Opsamates piceonitens, Madagascar, FAIRMAIRE, p. 10, Naturaliste 1903, n. sp.
Oxycaula n. g. near *Hypomares*, for *O. verruca* n. sp., Congo, JORDAN, p. 133, Nov. Zool. x.
Oxyhammus derolius, *O. ?cinctus*, Africa, JORDAN, p. 150, t. c., n. spp.
Pachyctes n. g. near *Glaucytes*, p. 252, for *P. rufovestitus* n. sp., Madagascar, p. 253, FAIRMAIRE, Ann. Soc. ent. France lxxii.
Pachystola cf. *Comiesthes*.
P. trituberculata thomensis sp. n. (sic), W. Africa, JORDAN, Nov. Zool. x.
Paralocus brevipennis, Madagascar, FAIRMAIRE, p. 249, Ann. Soc. ent. France lxxii, n. sp.
Parandra kolbei, trop. Africa, LAMEERE, Prion. Afr. trop. p. 6, n. sp.

- Paratoxotus inexpectatus*, Madagascar, FAIRMAIRE, p. 10, Naturaliste 1903, n. sp.
- Paroëax* n. g. for *Oëax nasicornis* Pasc., JORDAN, p. 157, Nov. Zool. x.
- Paroëme semifemorata* Chevr. = (*bispina* Auriv.), JORDAN, t. c. p. 134.
- P. inermis*, *similis*, Africa, id., l. c., n. spp.
- Parophtes* n. g. p. 54, with *P. aurivillei* n. sp., Australia, p. 55, and *Olethrius edwardsi* and *Macrotoma australis*, LAMÈRE, Mem. Soc. ent. Belgique xii.
- Phitryonius* n. g. near *Logisticus*, for *P. cyanipennis* n. sp., Madagascar, FAIRMAIRE, p. 373, Ann. Soc. ent. Belgique xlvii.
- Phlæus* n. g. near *Œax*, for *P. brevis* n. sp., Sierra Leone, JORDAN, Nov. Zool. x.
- Phrynetia crassa*, Congo, JORDAN, p. 175, t. c., n. sp.
- Phymasterna annulata*, Madagascar, FAIRMAIRE, p. 10, Naturaliste 1903, n. sp.
- Pidonia lurida* var. *ganglbaueri*, synonymy, CSIKI, p. 67, Rev. Lapok x.
- P. suvorovi*, Amurland, BÆCKMANN, p. 115, Rev. Russe Ent. iii, n. sp.
- Pinacosterna mimica*, *smithi*, Africa, JORDAN, p. 164, Nov. Zool. x, n. spp.
- Plagiomus pilosus*, *leptis*, Africa, JORDAN, p. 171, t. c., n. spp.
- Plagionotulus*; characters, taxonomy, JORDAN, p. 145, t. c.
- Planodema unicolor*, Congo, JORDAN, p. 183, t. c., n. sp.
- Plectogaster severini*, Trop. Africa, LAMÈRE, p. 51, pl. iii, fig. 5, Prion. Afr. trop., n. sp.
- Plectonarthron microps*, W. Africa, JORDAN, p. 194, Nov. Zool. x, n. sp.
- Poimenesperus*; components, table of species, JORDAN, t. c. pp. 168, 169.
- P. callimus*, Congo, id., p. 168, t. c.; *P. niveicollis*, Cameroons, AURIVILLIUS, p. 275, fig. 9, Ent. Tidskr. xxiv: n. spp.
- Polyarthron bienerti* = (*bang-haasi* Pic), SEMENOW, p. 172, Rev. Russe Ent. iii; *P. tschitscherini*, note, SEMENOW, p. 203, t. c.
- Polyrrhaphis africanus*, Congo, JORDAN, p. 187, Nov. Zool. x, n. sp.
- Praonetha apicata*, Madagascar, FAIRMAIRE, p. 254, Ann. Soc. ent. France lxxii, n. sp.
- Prosopocera* cf. *Tetraulax*, *Anoplostetha* and *Anybostetha*.
- P. cylindrica*, Cameroons, AURIVILLIUS, p. 272, Ent. Tidskr. xxiv; *P. fulva*, *cretacea*, p. 158, *insignis*, p. 159, Africa, JORDAN, Nov. Zool. x: n. spp.
- Pseuderes* = (*Antennica* Jord.), JORDAN, t. c. p. 138.
- Pseudosaperda* n. g. for *P. goliath* n. sp., Yun Nam, PIC, p. 121, Echange 1903.
- Pteroplatus anchora*, Bolivia, BELON, p. 52, Rev. Ent. franc. xxii, n. sp.
- Purpuricenus zarudnianus*, Persia, SEMENOW, p. 358, Rev. Russe Ent. iii, n. sp.
- Rhaphipodus gahani*, India, p. 72, *fruhstorferi*, Tonkin, p. 74, LAMÈRE, Mem. Soc. ent. Belgique xi, n. spp.
- Rhaphidopsis* cf. *Spilotragus*.
- Sagridola armiventris*, Madagascar, FAIRMAIRE, p. 370, Ann. Soc. ent. Belgique xlvii, n. sp.
- Saphanidius*, characters, JORDAN, Nov. Zool. x, p. 131.
- S. æneus*, p. 131, *dubius*, *fulvus*, p. 132, Africa, JORDAN, t. c., n. spp.
- Sobarus poggei*, pl. iii, fig. 9, p. 101, LAMÈRE, Prion. Afr. trop.
- S. vethi*, Centr. Africa, VAN ROON, p. 243, cut, Tijdschr. Ent. xlv, n. sp.
- Sphæron sladeni*, Brazil, GAHAN, p. 253, pl. xxviii, fig. 7, P. Zool. Soc. London 1903, ii, n. sp.
- Spilotragus* n. g. for part of *Tragiscoschema* and part of *Rhaphidopsis*, with *S. xanthus*, n. sp., Zomba, Jordan, p. 173, Nov. Zool. x.
- Stenodontes downesii*, pt. i, fig. 8, p. 55, LAMÈRE, Prion. Afr. trop.
- S. gounellei*, Brazil, LAMÈRE, p. 135, Ann. Soc. ent. Belgique xlvii, n. sp.
- Sternotomis polyspila grandis* subsp. n., *amœna* var., JORDAN, p. 165, Nov. Zool. x.

- S. leucospila*, *rex*, Africa, JORDAN, t. c. p. 165, **n. spp.**
Strongylaspis (*Curitiba* subg. n.) *brunni*, Brazil, p. 26, *krapelini*, Ecuador, p. 28, *dohrni*, Mexico, p. 30, *batesi*, Brazil, p. 34, LAMEERE, Mem. Soc. ent. Belgique xi, **n. spp.**
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S. simonyi, Sokotra, id., t. c. p. 287, **n. sp.**
Syndere leptis, *lagria*, Africa, JORDAN, p. 140, Nov. Zool. x, **n. spp.**
Synhomelix dannfelti, Congo, AURIVILLIUS, p. 276, Ent. Tidskr. xxiv, **n. sp.**
Synnupsetha gracilis, *tripunctata*, W. Africa, AURIVILLIUS, p. 281, t. c., **n. spp.**
Tetraulax **n. g.**, p. 182, near *Mycerinicus*, for *T. lateralis*, **n. sp.**, Congo, p. 183, and *Prosopocera pictiventris* Chev., JORDAN, Nov. Zool. x.
Tetrops formosa, Issyk-kul, BÄECKMANN, p. 311, Rev. Russe Ent. iii, **n. sp.**
Theocris haltica, *obliqua*, Congo, JORDAN, p. 184, Nov. Zool. x, **n. spp.**
Theticus caudatus, Cameroons, AURIVILLIUS, p. 278, fig. 11, Ent. Tidskr. xxiv, **n. sp.**
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Tragiscoschema cf. *Spilotragus*.
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Tragocephala ochreatea var. **n. perrieri**, FAIRMAIRE, p. 253, Ann. Soc. ent. France lxxii.
T. biplagiata, Madagascar, FAIRMAIRE, p. 253, t. c.; *T. grandis crassicornis*, Madagascar, p. 166, *morio*, p. 167, *suturalis*, p. 168, Africa, JORDAN, Nov. Zool. x : **n. spp.**
Trichophorus electus, Brazil, GAHAN, p. 254, pl. xxviii, fig. 8, P. Zool. Soc. London 1903, ii, **n. sp.**
Xylotoles schauinslandi, p. 109, *abnormalis*, p. 110, Chatham islands, SHARP, Ent. Mag. xxxix, **n. spp.**
Xylotrechus fragilis, Cameroons, JORDAN, p. 143, Nov. Zool. x; *X. ædon*, W. Africa, JORDAN, p. 193, t. c. : **n. spp.**
Xystocera pulchra, Congo, JORDAN, t. c. p. 135; *X. interrupta*, W. Africa, JORDAN, p. 192, t. c. : **n. spp.**
Zarina semicyanea=(*Nethinius obtusicollis* Fairm.), FAIRMAIRE, Ann. Soc. ent. France lxxii.
Zographus balteatus, E. Africa, HEATH, p. 273, Entomologist xxxvi, **n. sp.**
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BRUCHIDÆ.

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B. rubrithorax, p. 169, *natalensis*, p. 170, Natal, PIC, Rev. Ent. franc. xxii, **n. spp.**
Spermophagus marshalli, p. 170, *rufonotatus*, p. 171, Natal, PIC, Rev. Ent. franc. xxii, **n. spp.**

CHRYSOMELIDÆ [except *Hispidæ* and *Cassididæ*].

[Cf. BROUN (220), CHAPMAN (295), CSIKI (363), FAIRMAIRE (477-479, 486), GAHAN (589), HOLMGREN (715), JACOBY (761-768), LEA (923), MACGILLIVRAY (960), MÜLLER (1050), PIC (1150, 1153, 1156, 1158, 1163, 1164), REITTER (1239), ROULE (1298), SEMENOW (1381), WEISE (1658-1662, 1668, 1669); also *Hispidæ* and *Cassididæ*, p. 209.]

Viviparous *Chrysomelidæ*, HOLMGREN, Zool. Jahrb. Syst. xix, pp. 437-440.
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- Ænidea hauseri*, Africa, WEISE, p. 210, Arch. Naturg. lxxix, i; *A. ertli*, Natal, WEISE, p. 332, Deutsche ent. Zeitschr. 1903: n. spp.
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- Agelastica*; cf. *Diacantha*.
- Amblynetes* n. g. near *Syagrus*, p. 41, for *A. morio* n. sp., Africa, p. 42, WEISE, Arch. Naturg. lxx, i.
- Anomalonyx* n. g. *Mimastrites*, for *A. concolor* n. sp., Togo, WEISE, p. 334, Deutsche ent. Zeitschr. 1903.
- Aphthona barkeri*, p. 9, *similis*, *senegalensis*, p. 10, *bimaculata*, p. 11, Africa, JACOBY, Tr. ent. Soc. London 1903; *A. nilgiriensis*, India, JACOBY, p. 103, Ann. Soc. ent. Belgique xlvii: n. spp.
- Apophyllia*; includes *Glyptolus* Jac., confusion as to *Malaxia*, JACOBY, p. 22, Tr. ent. Soc. London 1903.
- A. hebes*, Africa, WEISE, p. 48, Arch. Naturg. lxx, i, n. sp.
- Argopistes quadrimaculatus*, India, JACOBY, p. 107, Ann. Soc. ent. Belgique xlvii, n. sp.
- Arimetus* n. g. for *A. conradti*, n. sp., Cameroons, JACOBY, p. 320, Stettin Ent. Zeit. lxiv.
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- Atropidius nigroplagiatus*, India, JACOBY, p. 92, t. c., n. sp.
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- Aulexis assamensis*, Assam, JACOBY, p. 102, t. c., n. sp.
- Barombia* n. g. near *Sermyloides*, p. 324, for *B. metallica*, *cærulea* n. spp., Africa, p. 325, JACOBY, Stettin Ent. Zeit. lxiv.
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- Bucharis*; cf. *Cænobius*.
- Buphonella* n. g. near *Buphonida*, for *B. elongata* n. sp., Mashonaland, JACOBY, p. 37, Tr. ent. Soc. London 1903.
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- p. 407, *viridipennis*, *nigricornis*, p. 408, *juncta*, *parilis*, p. 409, *gloriosa*, 410, Australia, LEA, Rep. Australas. Ass. 1902, **n. spp.**
- Candezea* cf. *Iphidea*.
- C. pauli*, *viridipes*, p. 214, *kwaiensis*, *acutangula*, p. 215, Africa, WEISE, Arch. Naturg. lxx, i; *C. braunsi*, p. 35, *scutellata*, Algoa Bay, *infuscata*, Natal, p. 36, JACOBY, Tr. ent. Soc. London 1903; *C. humeralis*, p. 125, *nigrilabris*, p. 126, India, JACOBY, Ann. Soc. ent. Belgique xlvii : **n. spp.**
- Ceralces affinis*, Africa, WEISE, p. 207, Arch. Naturg. lxx, i; *C. occidentalis*, Africa, WEISE, p. 42, op. cit. lxx, i : **n. spp.**
- Chalcolampra consimilis*, *adelioides*, p. 384, *arthritica*, *impar*, p. 385, *soror*, *atropa*, 386, *oblonga*, *xanthorrhææ*, p. 387, *podagrosa*, *gyrata*, p. 388, *punctifrons*, p. 389, Australia, LEA, Rep. Australas. Ass. 1902, **n. spp.**
- Chalcomela cupreosplendens*, *viridimicans*, p. 395, *tricolor*, p. 396, Australia, LEA, t. c., **n. spp.**
- Chapuisia basalis*, *sjustedti*, pl. x, fig. 7, Cameroons, JACOBY, p. 231, Arkiv. Zool. i, **n. spp.**
- Chlamys andrewesi*, India, JACOBY, p. 93, Ann. Soc. ent. Belgique xlvii, **n. sp.**
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- C. uniformis*, Centr. Africa, JACOBY, p. 307, t. c., **n. sp.**
- Clytra jacobsoni* **n. n.** for *opaca* Jac., SEMENOW, p. 173, Rev. Russe Ent. iii, cf. *Clytraria*; *C. atraphaxidis* var. *n. sierrana*, DANIEL, p. 253, Munchen. Kol. Zeitschr. i.
- C. flavotibialis*, Pondicherry, JACOBY, p. 84, Ann. Soc. ent. Belgique xlvii, **n. sp.**
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- Nirina* cf. *Mesodonta*.
- Nirinoides* n. g. for *N. staudingeri*, p. 322, *abdominalis*, p. 323, n. spp., Africa, JACOBY, Stettin Ent. Zeit. lxxiv.
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- Nodostoma nilghiriense*, p. 96, *andrewesi*, p. 97, *elongata*, p. 98, JACOBY, Ann. Soc. ent. Belgique lxxvii, n. spp.
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- Œ. nilgiriensis*, India, JACOBY, p. 110, Ann. Soc. ent. Belgique lxxvii, n. sp.
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- Otilea ornata*, p. 183, *peruana*, p. 210, Peru, JACOBY, Entomologist xxxvi, n. spp.
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- Physodaetyla gerstaeckeri*, Centr. Africa, JACOBY, p. 309, Stettin Ent. Zeit. lxiv, n. sp.
- Physonychis dohrni*, Sierra Leone, JACOBY, p. 309, t. c., n. sp.
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- Platywantha semmionensis*, p. 324, *pauli*, p. 325, *fuscitarsis*, p. 326, *P. (Haplotes) antennalis, minor*, p. 328, *elongatula, thoracica*, p. 329, *tenella*, p. 330, *incomta, P. (Polexima) kraatzi*, p. 331, Africa, WEISE, Deutsche ent. Zeitschr. 1903; *P. sublevipennis*, p. 328, *apicornis, conradti*, p. 330, *longicornis*, p. 331, *laevipennis*, p. 332, *clavareaui*, p. 333, Africa, JACOBY, Stettin Ent. Zeit. lxiv; *P. varicornis*, Natal, JACOBY, p. 33, Tr. ent. Soc. London 1903 : n. spp.
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- Prasocuris varendorffi*, S. Africa, WEISE, p. 205, Arch. Naturg. lxix, i, n. sp.
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- Prosmidia passeti*, characters, WEISE, p. 54, Deutsche ent. Zeitschr. 1903.
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- Pseudoecrania assimilis*, Cameroons, WEISE, p. 321, Deutsche ent. Zeitschr. 1903, n. sp.
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- Pseudolognatha* n. g. type *Megal. immaculata* Jac., with *P. salisburyensis*, n. sp., Mashonaland, JACOBY, p. 31, Tr. ent. Soc. London 1903.
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- Pseudostonopa* n. g. near *Nodostoma*, p. 98, for *P. bicolor* n. sp., Nilghiri hills, JACOBY, p. 99, t. c.
- Psylliodes wachsmanni*, Hungary, CSIKI, p. 40, Rov. Lapok x; *P. libanicola*, p. 124, *longipennis, pallidicolor*, p. 125, Lebanon, PIC, Echange 1903 : n. spp.
- Rhagiosoma transactor*, Madagascar, FAIRMAIRE, p. 376, Ann. Soc. ent. Belgique xlvii, n. sp.

- Rhaphidopalpa africana*, E. Africa, WEISE, p. 36, Deutsche ent. Zeitschr. 1903, n. sp.
- Rhembastus sjostedti*, Cameroons, JACOBY, p. 228, pl. x, fig. 4, Arkiv. Zool. i; *R. subcæneus*, Cameroons, JACOBY, p. 302, Stettin Ent. Zeit. lxiv : n. spp.
- Sagra signoreti* redescribed, JACOBY, p. 292, t. c.
- S. donckieri*, Madagascar, FAIRMAIRE, p. 376, Ann. Soc. ent. Belgique xlvii, n. sp.
- Sardoides transvalensis*, Africa, JACOBY, p. 26, Tr. ent. Soc. London 1903, n. sp.
- Scotosus virens*, *cærulans*, p. 378, *S.?* *cærugineus*, p. 379, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvii, n. spp.
- Sebaethe pallidicornis*, Cameroons, JACOBY, p. 304, Stettin Ent. Zeit. lxiv; *S. intermedia*, p. 105, *nigritarsis*, *brevicollis*, p. 106, India, JACOBY, Ann. Soc. ent. Belgique xlvii : n. spp.
- Sikkimia metallica*, India, JACOBY, p. 122, t. c., n. sp.
- Sphærostola* n. g. near *Trichostola*, p. 45, for *S. rufopicea*, n. sp., Madagascar, p. 46, FAIRMAIRE, Rev. Ent. franc. xxii.
- Stethomela lateralis*, *discorufa*, p. 414, *t-splendens*, *cupripes*, p. 415, *chlorophana*, p. 416, Australia, LEA, Rep. Australas. Ass. 1902, n. spp.
- Stilodes flavofasciata*, p. 47, *flavilabrum*, *fruhstorferi*, p. 48, *ecuadoriensis*, *S.?* *geometra*, p. 49, S. America, JACOBY, P. Zool. Soc. London 1903, ii, n. spp.
- Stradioderes* queried as *Dicolectes*, WEISE, p. 203, Arch. Naturg. lxix, i.
- S. minor*, E. Africa, id., p. 204, l. c., n. sp.
- Taxaria* n. g. *Halticinorum* for *Galeruca indica* Fabr., WEISE, p. 215, t. c.
- Timarcha violaceonigra*, nomenclature, BERGROTH, Wien. ent. Zeit. xxii, pp. 279, 280.
- Titubæa* cf. *Melitonoma*.
- T. (Anomomæa) insularis*, Trinidad, JACOBY, p. 209, Entomologist xxxvi, n. sp.
- Vitruvia* n. g. near *Sumatrasia*, for *V. glabripennis*, n. sp., Cameroons, pl. x, fig. 8, JACOBY, p. 232, Arkiv. Zool. i.
- Weiseana barkevi*, Natal, JACOBY, p. 16, Tr. ent. Soc. London 1903, n. sp.
- Zeugophora indica*, p. 81, *andrewesi*, p. 82, India, JACOBY, Ann. Soc. ent. Belgique xlvii, n. spp.
- Zygotogramma interstitialis*, p. 55, *argentinensis*, S. America, *curvato-lineata*, Costa Rica, p. 56, *brasiliensis*, *burmeisteri*, p. 57, *cæruleovittata*, p. 58, S. America, JACOBY, P. Zool. Soc. London 1903, ii, n. spp.

HISPIDÆ, CASSIDIDÆ.

[Cf. FAIRMAIRE (486), GESTRO (613), SPAETH (1459-1461), WEISE (1657-1659).]

- Cassidides* of New Guinea; SPAETH, pp. 109-160, Ann. Mus. Hungar. i.
- Aspidomorpha* cf. *Sindiola*; *Aspidomorpha*=(*Iphinoë* Spaeth), p. 221, *A. areata* var. n. *nigripennis*, p. 223, WEISE, Arch. Naturg. lxix, i; *A.*, table of New Guinea species, SPAETH, pp. 137, 138, descriptions with varr. n., pp. 138-158, Ann. Mus. Hungar. i; *A. togata* Boh.=(*castula* Boh.), SPAETH, p. 177, Arkiv. Zool. i.
- A. sjostedti*, Cameroons, SPAETH, p. 176, t. c.; *A. kilimana*, p. 220, *viridula*, p. 221, *intricata*, *delitescens*, p. 222, *potens*, p. 223, Africa, WEISE, Arch. Naturg. lxix, i; *A. togoensis*, Africa, WEISE, p. 57, op. cit. lxx. i : n. spp.

- Botryonopa ingens*, Sumatra, GESTRO, p. 157, Bull. Soc. ent. Ital. xxxv, n. sp.
- Cassida* cf. *Hypocassida*; *C. viridis* in N. America, FYLES, p. 23, Canad. Ent. xxxv.
- C. suspiciosa*, Africa, WEISE, p. 223, Arch. Naturg. lxxix, i; *C. sparsuta*, Africa, WEISE, p. 55, op. cit. lxx, i : n. spp.
- Chirida breviscula*, Africa, WEISE, p. 55, t. c., n. sp.
- Coptocyclus weisei*, N. Australia, SPAETH, p. 118, Ann. Mus. Hungar. i; *C. camerunensis*, Africa, SPAETH, p. 171, Arkiv. Zool. i : n. spp.
- Elpinora* n. g. near *Thlaspidula*, for *E. mulleri* n. sp., New Guinea, SPAETH, p. 119, Ann. Mus. Hungar. i.
- Gyllenhalius*, characters, WEISE, p. 62, Arkiv. Zool. i.
- G. feæ*, Ogowè Riv., GESTRO, p. 155, Bull. Soc. ent. Ital. xxxv, n. sp.
- Hoplionota kohlschutteri*, p. 219, *vogeli*, p. 220, Africa, WEISE, Arch. Naturg. lxxix, i; *H. biroi*, p. 110, *csikii*, p. 111, *gestroi*, p. 112, New Guinea, SPAETH, Ann. Mus. Hungar. i : n. spp.
- Hypocassida*, is not subg. of *Cassida*, but distinct, tabulation of species, WEISE, pp. 224–226, Arch. Naturg. lxxix, i.
- H. flavescens*, Africa, WEISE, p. 56, op. cit. lxx, i, n. sp.
- Leptispa frontalis*, Africa, WEISE, p. 218, op. cit. lxxix, i, n. sp.
- Meroscalsis* n. g. near *Coptocyclus*, p. 113, for *M. pulcherrima*, p. 115, *selecta*, p. 117, n. spp., New Guinea, and *Coptocyclus radiata* Boh., SPAETH, Ann. Mus. Hungar. i.
- Metriona albertisi*, p. 121, *biguttata*, p. 126, *personata*, p. 127, *papuana*, p. 130, *astrolabiana*, p. 131, *callosipennis*, p. 135, New Guinea, SPAETH, t. c., n. spp.
- Metriopecta obscuricollis*, Madagascar, FAIRMAIRE, p. 10, Naturaliste 1903, n. sp.
- Sindiola* subg. n. of *Aspidomorpha*, p. 112, with *parallelipennis* n. sp., Birma, p. 111, SPAETH, Ent. Tidskr. xxiv.

EROTYLIDÆ.

[Cf. FAIRMAIRE (478), FAUVEL (495), GORHAM (630), OBST (1084), WEISE (1664).]

List of known larvæ, with references, XAMBEU, p. 106, Naturaliste 1903.

- Cænolanguria nilgirensis*, India, GORHAM, p. 340, Ann. Soc. ent. Belgique xlvii, n. sp.
- Coptolanguria splendida*, India, GORHAM, p. 341, t. c., n. sp.
- Euxestus parki*, synonymy, FAUVEL, p. 343, Rev. Ent. franc. xxii.
- E. æneipennis*, New Caledonia, id. p. 344, t. c., n. sp.
- Fatua andrewesi*, p. 339, *brevicornis*, p. 340, India, GORHAM, Ann. Soc. ent. Belgique xlvii, n. spp.
- Helota pauli*, Usambara, WEISE, p. 171, Deutsche ent. Zeitschr. 1903, n. sp.
- Linodesmus ornatus*, Africa, OBST, p. 146, Ann. Soc. ent. Belgique xlvii, n. sp.
- Stenodastus jucundus*, p. 343, *metallescens*, p. 342, India, GORHAM, Ann. Soc. ent. Belgique xlvii, n. spp.
- Thalitis scapulata* and *convexiuscula*, referred to *Triplax*, FAIRMAIRE, p. 185, Ann. Soc. ent. France lxxii.
- Triplax anea*, metamorphosis, XAMBEU, p. 91, Naturaliste 1903.
- Triplax azurina*, p. 184, *picescens*, p. 185, Madagascar, FAIRMAIRE, t. c., n. spp.

ENDOMYCHIDÆ.

[Cf. FAUVEL (495), GORHAM (630), WEISE (1665).]

Cyclotoma, synonymy, WEISE, p. 207, Deutsche ent. Zeitschr. 1903.

Danaë bulbifera, *abdominalis*, p. 201, *similis*, p. 202, Africa, WEISE, t. c., n. spp.

Rhymbus csikii, p. 204, *partitus*, *thoracicus*, p. 205, Africa, *drakei*, *rufus*, p. 206, Paraguay, WEISE, t. c., n. spp.

Spherosoma duplicatum, p. 345, *virescens*, p. 346, New Caledonia, FAUVEL, Rev. Ent. franc. xxii, n. spp.

Stenotarsus mombonensis, p. 202, *usambaricus*, *pauli*, p. 203, Africa, WEISE, Deutsche ent. Zeitschr. 1903, n. spp.

COCCINELLIDÆ.

[Cf. BURGESS (241), DONISTHORPE (412), FAUVEL (495), GORHAM (630), LENG (930), PIC (1148, 1166), WEISE (1657, 1659, 1663, 1666, 1667).]

Natural history notes on some species of economic importance, BURGESS, Bull. Dep. Agric. Ent. xl, pp. 25-32.

Revision of N. American, with varietal and synonymical notes, LENG, J. N. York Ent. Soc. xi.

Aulis gorhami, S. Africa, WEISE, p. 61, Arch. Naturg. lxx, i, n. sp.

Boschalis = (*Telsimia* Casey), WEISE, p. 58, Arkiv. Zool. i.

Brachyacantha aperta, Costa Rica, WEISE, p. 208, Deutsche ent. Zeitschr. 1903, n. sp.

Coccinella conglobata, metamorphosis, WEISE, pp. 164-167, t. c.; *C. conglomerata* = (*bothnica* Payk.), *C. divaricata* = (*distincta* Fald.), *sedakovi* and *distincta* are one, WEISE, p. 424, t. c.; *C. oncina* var. *n. sinaita*, WEISE, p. 579, allies tabulated, p. 580, Verh. Ges. Wien liii.

C. boletifera, New Caledonia, FAUVEL, p. 325, Rev. Ent. franc. xxii, n. sp.

Cœlophora quadrivittata, *vittipennis*, New Caledonia, FAUVEL, p. 328, t. c., n. spp.

Corystes cavifrons, Costa Rica, WEISE, p. 208, Deutsche ent. Zeitschr. 1903, n. sp.

Cycloneda pomacea, Costa Rica, WEISE, p. 207, t. c.

Epitachna hirta = (*peringueyi* Casey), *E. similis* = (*Chnootriba curriei* Casey), WEISE, Arkiv. Zool. i, p. 58; *E. 11-maculata* F. = (*angusticollis* Reiche), WEISE, p. 424, Deutsche ent. Zeitschr. 1903.

E. hauseri, Africa, WEISE, p. 57, Arch. Naturg. lxx, i; *E. versuta*, p. v, fig. 2, *moseri*, fig. 3, Cameroons, WEISE, p. 56, Arkiv. Zool. i; *E. andrevesi*, p. 345, *endomycina*, p. 346, India, GORHAM, Ann. Soc. ent. Belgique xlvii; *E. fulvimana*, *antiqua*, New Guinea, WEISE, Deutsche ent. Zeitschr. 1903 : n. spp.

Halzyia tschitscherini = (*reitteri* Fleisch.), SEMENOW, p. 15, Rev. Russe Ent. iii.

Lithophilus minutus, Tunis, PIC, p. 170, Echange 1903; *L. peyerimhoffi*, Petra, PIC, p. 89, t. c., n. spp.

Macrolasia n. g. near *Subcoccinella*, p. 230, for *M. arcuata* n. sp., Pondicherry, p. 231, WEISE, Deutsche ent. Zeitschr. 1903.

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Microweisea n. n. for *Epismilia*, COCKERELL, p. 38, Canad. Ent. xxxv.

Ortalia chlorops, India, GORHAM, p. 347, Ann. Soc. ent. Belgique xlvii, n. sp.

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- Scymnus limonii*, Isle of Wight, DONISTHORPE, Ent. Rec. xv, p. 287;
S. angusticollis, *rufidorsis*, *sexualis*, p. 323, *micros*, p. 324, New Caledonia, FAUVEL, Rev. Ent. franc. xxii : n. spp.
- Semichnoodes* = (*Pharopsis* Casey), WEISE, p. 58, Arkiv. Zool. i.
- Solanophila subsignata*, pl. v, fig. 7, variation, p. 58, WEISE, t. c.
- S. sjostedti*, p. 58, *19-guttata*, p. 60, Cameroons, WEISE, t. c.; *S. trigueta*, p. 58, *labyrinthica*, p. 59, *nigricollis*, p. 60, Africa, WEISE, Arch. Naturg. lxx, i : n. spp.
- Sticholotis melanaria*, Pondicherry, WEISE, p. 232, Deutsche ent. Zeitschr. 1903, n. sp.
- Verania bennigseni*, N. Guinea, WEISE, p. 31, t. c., n. sp.

CORYLOPHIDÆ.

- Arthrolips cribratum*, p. 289, *sparsutum*, *rustipenne*, p. 290, New Caledonia, FAUVEL, Rev. Ent. franc. xxii, n. spp.
- Corylophus explanatus*, New Caledonia, FAUVEL, p. 290, t. c. n. sp.
- Corylophodes marginicollis*, metamorphosis, MORRILL, pp. 135-138, pl. vi, Ent. News Philad. xiv.

(B.) HYMENOPTERA.

Sense-organs, antennæ, SCHENK (1330).

ACULEATA.

Origin and development of the social condition, R. VON IHERING, Zool. Anz. xxvii, pp. 113-118.

Inquilines and hosts, SAUNDERS, Ent. Mag. xxxix, pp. 272-274.

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Catalogue of *Aculeata* of Barrackpore, Bengal, with notes on habits, ROTHNEY, pp. 93-116, Tr. ent. Soc. London 1903.

APIDÆ.

[Cf. ALFKEN (22), ASHMEAD (36), AURIVILLIUS (52), BENETTI (96), BENGTTSSON (97), BINGHAM (130, 131), BRAUNS (180), BRUES (226), BUTTEL-REEPEN (252-254), CAMERON (266, 269, 271), CASTEL & PHILLIPS (283), COCKERELL (317-324, 327), CRAWFORD (354-356), DITTRICH (405), DREYLING (413), DUCKE (420), ENDERLEIN (460, 462), FABRE (474), FREY-GESSNER (540, 541), FRIESE (544-552), GRAENICHER (633), HACKER (659), HARLING (670), H. VON IHERING (748), R. VON IHERING (749, 751), KATHARINER (804), KIRBY (837), MELANDER & BRUES (999), MORICE (1031), MORRILL (1036), NIELSEN (1066, 1069), NURSE (1076), OUDEMANS (1098), PÉREZ (1111), ROBERTSON (1269-1272), ROULE (1297), SCHROTTER (1356), VACHAL (1587-1590), VIERECK (1604, 1605), WATERHOUSE (1645).]

VON IHERING gives an important paper on the stingless bees of S. America under the following headings :

1. Special biology of *Melipona* and *Trigona*.
2. General biology of Meliponides.
3. Rearing : the products and vernacular names of Brazilian bees.
4. Comparative biology of social and solitary bees.

He also points out the great errors prevalent as to nomenclature. Zool. Jahrb. Syst. xix, pp. 179-287, pls. x-xxii.

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The development of social life, BUTTEL-REEPEN (252-254).

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Comparative variability of drones and workers, *Apis*, CASTEEL & PHILLIPS (283).

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Hymenoptera of Sweden; systematic tables, part 1, General and *Apidæ*, AURIVILLIUS, Ent. Tidskr. xxiv, pp. 129-218.

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Nests, colonies and parthenogenetically produced males of *Bombus*, BENETTI (96).

[Omitted in Titles.] COCKERELL, T. D. A. Some N. American bees. *Osmia* and *Triepeolus*. *Ent. News Philad.* 1903, pp. 331–333.

Acanthopus excellens, Brazil, SCHROTTKY, p. 506, *Revis. Mus. Paulista* v, n. sp.

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Allodape interrupta, with var. *collaris*, *bouyssoui*, p. 386; *ictis*, *nigricollis*, *rolini*, p. 387, *pulla*, *vitrea*, p. 388, Congo, VACHAL, *Ann. Soc. ent. France* lxxii, n. spp.

Ammobates carinatus, host, MORICE, *Zeitschr. Hym. Dipt.* iii, p. 317.

Andrena; Bruner tabulates the N. American, and on p. 240 gives synonymy of about 20 species, *Tr. Amer. ent. Soc.* xxix, pp. 239–258; *A. nanula* Nyl. in Switzerland, FREY-GESSNER, *Soc. ent.* xviii, p. 97; *A. pluvialis* ♂, COCKERELL, *Ann. Nat. Hist.* xii, p. 443.

A. chrysopus, p. lxxviii, *mesolia*, *echinulata*, *molestus*, p. lxxix, *arcuata*, *emarginata*, *truncata*, p. lxxx, *dizona*, *strigifrons*, *ramlehiana*, p. lxxxii, *abeillei*, *squalida*, p. lxxxii, *simulans*, *pyrrhula*, *setosa*, *rhytura*, p. lxxxiii, *obscurella*, *alliaris*, *gilvifrons*, p. lxxxiv, *curtula*, *pusilla*, *lensis*, p. lxxxv, *nitidula*, *viridicenea*, *depressiuscula*, p. lxxxvi, *panurgina*, p. lxxxvii, *leptodactyla*, *fabrella*, p. lxxxviii, *semilaevis*, *gascheti*, *pallitarsis*, p. lxxxix, *rostellata*, *petroselini*, *divergens*, p. xc, *heterodoxa*, *senicula*, *problematica*, p. xci, *grandilabris*, *griseo-fusca*, p. xcii, Mediterranean region, PÉREZ, *Pr. verb. Soc. Bordeaux* lviii; *A. patella*, Kashmir, NURSE, *Ann. Nat. Hist.* xi, p. 542; *A. mimetica*, New Mexico, COCKERELL, *op. cit.* xii, p. 412; *A. thaspis*, p. 162, *cockerelli*, p. 163, *milwaukeeensis*, p. 164, *viburnella*, p. 165, *albofoveata*, p. 166, Milwaukee, GRAENICHER, *Canad. Ent.* xxxv; *A. placita*, New Mexico, COCKERELL, p. 215, *Ent. News Philad.* xiv; *A. beulahensis*, *truncata*, p. 53, *pacta*, p. 54, *atala*, p. 55, *delta*, p. 56, New Mexico, VIERECK, *Tr. Amer. ent. Soc.* xxix : n. spp.

A. hesperius, California, COCKERELL, p. 76, *Psyche* x; *A. hesperius*, California, COCKERELL, p. 35, *Bull. S. Calif. Ac.* 1903 : n. sp.

Anthemois n. g. p. 168, type *Megachile infragilis*, p. 172, ROBERTSON, *Tr. Amer. ent. Soc.* xxix.

Anthidium bouyssoui, p. 373, *severini*, *benguelsensis*, p. 374, Congo, VACHAL, *Ann. Soc. ent. France* lxxii; *A. modestum*, Pretoria, BINGHAM, *Ann. Nat. Hist.* xii, p. 59; *A. conciliatum*, Kashmir, NURSE, *op. cit.* xi, p. 547; *A. minutissimum*, Malay States, BINGHAM, *Fascic. Malay. Zool.* i, *App.* p. vi; *A. latum*, p. 447, *flavofasciatum*, p. 448, *nectariniaides*, p. 451, *erythrocephala*, pl. xii, fig. 8, p. 453, *musiforme*, p. 455, Brazil, SCHROTTKY, *Revis. Mus. Paulista* v : n. spp.

Anthophora annos, *arizusa*, Congo, VACHAL, p. 378, *Ann. Soc. ent. France* lxxii; *A. nubiterræ*, New Mexico, VIERECK, p. 46, *Tr. Amer. ent. Soc.* xxix; *A. euops*, New Mexico, COCKERELL, *Ann. Nat. Hist.* xii, p. 451; *A. gohrmanæ*, New Mexico, COCKERELL, t. c. p. 454; *A. guachalæ*, Ecuador, CAMERON, p. 233, *Tr. Amer. ent. Soc.* xxix : n. spp.

Anthrena aeneiventris, *incisa*, *parviceps*, *rogenhoferi*, sexes, FREY-GESSNER, pp. 40–45, *Mt. Schweiz. ent. Ges.* xi.

Apis; specific characters, COCKERELL, p. 177, *Entomologist* xxxvi.

Argyrotaenia n. g. type *Epeolus minimus* Rob., ROBERTSON, p. 284, *Canad. Ent.* xxxv.

Augochlora confusa, *coloradensis* Tit. is subsp., COCKERELL, *Ann. Nat. Hist.* xii, p. 412.

- A. (Augochloropsis) iris*, p. 372, pl. xii, fig. 4, *aphrodite*, p. 376, *semele*, p. 377, *hecuba*, p. 380, *cyanea*, fig. 6, p. 381, *cleopatra*, p. 384, *circe*, p. 385, *incerta*, p. 386, *A. francisca*, p. 391, Brazil, SCHROTTKY, Revist. Mus. Paulista v, n. spp.
- Bombias* n. g. *Bombiæ*, type *B. auricomus* n. n., ROBERTSON, p. 176, Tr. Amer. ent. Soc. xxix.
- Bombomelecta zygus*, p. 179, *azygos*, p. 181, N. America, VIERECK, t. c., n. spp.
- Bombus*; natural history of northern, specially *distinguendus* and *hypnorum*, the trumpeter, BENGTTSON, pp. 197-222, Arkiv. Zool. i; Bionomics of Brazilian, R. VON IHERING (751); *B. gelidus*, *kincaidi*, distinguished, VIERECK, p. 54, Ent. News Philad. xiv.
- B. cooleyi*, p. 222, *atrifasciatus*, p. 224, Montana, MORRILL, Canad. Ent. xxxv; *B. leucomelas*, Costa Rica, CRAWFORD, p. 268, Canad. Ent. xxxv; *B. schneideri* with var. *fuliginosus*, *weisi* with var. *albocaudata*, Costa Rica, p. 253, *vogti*, *bicolor*, *butteli*, *coccineus*, p. 254, *handlirschi*, p. 255, Peru and Ecuador, FRIESE, Zeitschr. Hym. Dipt. iii : n. spp.
- Cænohalictus* n. g. near *Halictus*, for *C. trichiothalmus* n. sp., Ecuador, CAMERON, p. 231, Tr. Amer. ent. Soc. xxix.
- Callobombus* Dalla Torre, omitted name, COCKERELL, Nature lxviii, p. 526.
- Centrius* n. g. type *Nomada erigeronis*, ROBERTSON, p. 176, Canad. Ent. xxxv.
- Centris buchwaldi*, *nigrofasciata*, distinguished, p. 211, *minuta* Mocs. = (*labrosa* Friese), p. 212, ALFKEN, Zeitschr. Hym. Dipt. iii.
- C. pocograndensis*, pl. xiii, fig. 3, p. 578, *ehrhardti*, fig. 2, p. 579, Brazil, SCHROTTKY, Revist. Mus. Paulista v, n. spp.
- Centrosmia* n. g., p. 166, type *O. bucephala*, p. 170, ROBERTSON, Tr. Amer. ent. Soc. xxix.
- Ceratias* n. g., p. 168, type *Megachile punctatus* Say, p. 172, ROBERTSON, t. c.
- Ceratina submaritima ehrhorni* subsp. n., COCKERELL, Ann. Nat. Hist. xii, p. 453.
- C. bouyssoui*, *areola*, p. 383, *ericia*, *mærenhouti*, p. 384, *lineola*, *cæsia*, p. 385, Congo, VACHAL, Ann. Soc. ent. France lxxii; *C. townsendi*, N. Mexico, COCKERELL, Ann. Nat. Hist. xii, p. 453; *C. titusi*, p. 201, *crewi*, p. 202, Brit. Guiana, COCKERELL, t. c.; *C. aspera*, pl. xii, fig. 10, p. 484, *cyanicollis*, fig. 11, p. 485, Brazil, SCHROTTKY, Revist. Mus. Paulista v : n. spp.
- Cælixys grindeliæ* var. n. *C. rufitarsis rhois* subsp. n., COCKERELL, Ann. Nat. Hist. xii, p. 452; *C. penetratrix*, ♂, BINGHAM, Ann. Nat. Hist. xii, p. 60.
- C. bouyssoui*, p. 375, *nigripes*, *lanuginea*, p. 376, Congo, VACHAL, Ann. Soc. ent. France lxxii; *C. stolidus*, India, NURSE, Ann. Nat. Hist. xi, p. 548; *C. curvispina*, Borneo, CAMERON, p. 9, Entomologist xxxvi; *C. scutellaris*, p. 424, *beroni*, p. 425, *amazonica*, *pygidialis*, p. 426, *chrysocephala*, p. 428, *aculeata*, pl. xii, fig. 15, p. 429, Brazil, SCHROTTKY, Revist. Mus. Paulista v : n. spp.
- Colletes*; its enemies, NIELSEN (1066); *C. inconspicua*, pl. xvi, fig. 15, p. 256, KIRBY, Nat. Hist. Sokotra.
- C. sierrensis*, pp. 150, 154, *elongata* (Tourn.), p. 155, Switzerland, FREY-GESSNER, Hym. Helvetiæ; *C. sierrensis*, pp. 146, 150, Valais, FREY-GESSNER, Bull. Soc. Murith. xxx; *C. foveolaris*, *abaillei*, p. ccxxiii, *mongolicus*, p. ccxxiv, *ventralis*, *emarginatus*, *constrictus*, p. ccxxv, *sericeus*, *brevicornis*, p. ccxxvi, *simus*, *fugidus*, p. ccxxvii, *cariniger*, *acutus*, p. ccxxviii, *chobauti*, p. ccxxix, *pulchellus*, p. ccxxx, Palæarctic region, PÉREZ, Pr.-verb. Soc. Bordeaux lviii; *C. skinneri*, p. 58, *spureus*, p. 59, *zonatus*, *zelodontus*, p. 60, *paniscus*, p. 61, *oromontis*, *brevispinosus*, p. 62, New Mexico, VIERECK, Tr. Amer. ent. Soc. xxix;

- C. ornatus*, p. 345, pl. xii, fig. 2, *punctatissima*, p. 347, Brazil, SCHROTTKY, *Revist. Mus. Paulista* v : n. spp.
- Crocisa forbesii*, pl. xvi, fig. 9, p. 251, *uniformis*, fig. 10, p. 252, KIRBY, *Nat. Hist. Sokotra*.
- C. jägerskioldi*, Khartum, MORICE, *Ann. Nat. Hist.* xii, p. 611; *C. scotaspis*, *pratexta*, *axillaris*, p. 379, *calceata*, *meripes*, p. 380, *hyalinata*, *delumbata*, *arcuata*, *tshoffeni*, *bouyssoui*, p. 381, *calcarata*, *interrupta*, p. 382, Congo, VACHAL, *Ann. Soc. ent. France* lxxii; *C. kashmirensis*, Kashmir, NURSE, *Ann. Nat. Hist.* xi, p. 548 : n. spp.
- Ctenoplectra*; species, VACHAL, p. 173, *Bull. Soc. ent. France* 1903.
- C. davidi*, Mou-Pin, *alluaudi*, Assinia, VACHAL, p. 99, t. c., n. spp.
- Cyphomelissa* n. g. *Nomadides*, p. 493, for *C. pernigra* n. sp., Brazil, p. 494, SCHROTTKY, *Revist. Mus. Paulista* v.
- Cyphopya* n. g., p. 169, type *Megachile montivaga*, p. 172, ROBERTSON, *Tr. Amer. ent. Soc.* xxix.
- Dasiapis* n. g. *Anthophorini*, for *D. ochracea* n. sp., N. Mexico, COCKERELL, *Ann. Nat. Hist.* xii, p. 450.
- Dasypoda minor*, Bordeaux, PÉREZ, p. ccxxii, *Pr.-verb. Soc. Bordeaux* lviii, n. sp.
- Diagonozus* n. g. *Anthreninae*, p. 35, for *D. bicometes* n. sp., Cameroons, p. 37, ENDERLEIN, *Berlin. ent. Zeitschr.* xlvi.
- Dialonia* n. g. type *Sphecodes antennariae*, ROBERTSON, p. 104, *Ent. News Philad.* xiv.
- Diandrena* n. g. type *Panurgus chalybæus*, COCKERELL, p. 74, *Psyche* x.
- Diceratomia* n. g., p. 166, type *O. quadridentata*, p. 171, ROBERTSON, *Tr. Amer. ent. Soc.* xxix.
- Drepanium* n. g. type *Sphecodes falcifer*, ROBERTSON, p. 103, *Ent. News Philad.* xiv.
- Epeolinae*; synopsis of N. American, ROBERTSON, pp. 284–288, *Canad. Ent.* xxxv.
- Epeolus*; Texas species, table, *E. concavus* ♀, p. 81, *E. scelestus* var. n. *tubercularis*, p. 82, BRUES, *Ent. News Philad.* xiv.
- E. friesei*, S. Africa, BRAUNS, *Zeitschr. Hym. Dipt.* iii, p. 362; *E. penicilliferus*, Texas, BRUES, p. 81, *Ent. News Philad.* xiv : n. spp.
- Epicharis tibialis*, Brazil, SCHROTTKY, pl. xiii, fig. 7, p. 567, *Revist. Mus. Paulista* v, n. sp.
- Eriades bouyssoui*, Congo, VACHAL, p. 372, *Ann. Soc. ent. France* lxxii n. sp.
- Euaspsis*, characters and composition, (= *Dilobopeltis* Fairm. = *Parevaspsis* Rits.), pp. 95, 96, *polyesia* n. n. for *Stelis abdominalis* Em., p. 97, VACHAL, *Bull. Soc. ent. France* 1903: Additional synonymy, VACHAL, p. 173, t. c.
- Eucera andicola*, Ecuador, CAMERON, p. 234, *Tr. Amer. ent. Soc.* xxix, n. sp.
- Eucerini*, mouth-parts, COCKERELL, *Ann. Nat. Hist.* xii, p. 449.
- Euglossa leucopyga* ♂, *ornata* ♀, *magrettii* ♀, var. n. *nigrita*, p. 574, *dimidiata* var. n. *quadrifasciata*, p. 575, FRIESE, *Ann. Mus. Hungar.* i; *E. cordata*, *nigrita*, *smaragdina*, nests, DUCKE, pp. 369–372, cuts, *Allg. Zeitschr. Ent.* viii; *E. nigrita*, pl. xiv, fig. 1, p. 596, *E. violacea*, nest, p. 581, SCHROTTKY, *Revist. Mus. Paulista* v.
- E. (Eulema) peruviana*, *pretiosa*, S. America, FRIESE, *Ann. Mus. Hungar.* i : n. spp.
- Exerete* Hoffm. = (*Chrysantheda* Perty), *E. frontalis* = (*lucida* Er.), *E. smaragdina* = (*aurata* Er.), DUCKE, *Zeitschr. Hym. Dipt.* iii, pp. 176, 177; *E. smaragdina*, habits, DUCKE, p. 372, *Allg. Zeitschr. Ent.* viii.
- Exomalopsis ursina*, Brazil, pl. xiii, fig. 4, p. 529, SCHROTTKY, *Revist. Mus. Paulista* v, n. sp.
- Fiorentinia*, omitted name [Dalla Torre *Cat. Hym.* x, p. 334], COCKERELL, *Nature* lxxviii, p. 526.

- Friesea* n. g. *Panurgides*, for *F. brasiliensis*, pl. xii, figg. 8, 9, n. sp., Brazil, SCHROTTKY, p. 418, t. c.
- Gnathias* n. g. type *Nomada bella* Cr., with *G. ovatus*, *cuneatus*, n. spp., N. America, ROBERTSON, p. 175, Canad. Ent. xxxv.
- Gnathodon*, n. g., p. 168, type *Megachile georgica*, p. 172, ROBERTSON, Tr. Amer. ent. Soc. xxix.
- Gnathosmia* n. g., p. 165, type *Osmia georgica*, p. 171, ROBERTSON, t. c.
- Habropoda* ? *carinifrons*, Ecuador, CAMERON, p. 235, Tr. Amer. ent. Soc. xxix, n. sp.
- Halictoides* (*Parahalictoides*) *oryx*, New Mexico, VIERECK, p. 49, Tr. Amer. ent. Soc. xxix, n. sp.
- Halictus*, the allied generic forms, COCKERELL, pp. 206-208, Entomologist xxxvi; *H. coloradinus* n. n. for *Agap. coloradensis* Crawford, VACHAL, p. 90, Miscell. ent. xi; *H. flavovittatus*, pl. xvi, fig. 6, p. 249, KIRBY, Nat. Hist. Sokotra; *Halictus*, habits, generations, parthenogenesis, FABRE, Souvenirs viii, chaps. 7, 8, 9: A male with the antennæ formed like legs, HARLING, Zeitschr. Hym. Dipt. iii, p. 208; *H. pruinosus*, natural history, MELANDER & BRUES, Biol. Bull. v, pp. 13-27.
- H. separandus*, pp. 165, 181, *ticinensis*, pp. 179, 200, Switzerland, FREY-GESSNER, Hym. Helvetiæ; *H. separandus* (Schm.), Valais, FREY-GESSNER, p. 63, Bull. Soc. Murith. xxxi, p. 63; *H. arctifrons*, Orotava, SAUNDERS, p. 215, Tr. ent. Soc. London 1903; *H. pyrenæus*, *altaicus*, *turkomannus*, p. ccviii, *geminatus*, *thevestensis*, *balearicus*, p. ccix, *gavarnicus*, *dissidens*, *mesosclerus*, p. ccx, *aureolus*, *barcelonicus*, *cordialis*, *cupromicans*, p. ccxi, *collopiensis*, *cyanomelas*, p. ccxii, *atrovirens*, *delmasi*, *lichtensteini*, *ventralis*, p. ccxiii, *gibbulus*, *fratellus*, *vergilianus*, p. ccxiv, *capitalis*, *delicatus*, *buccalis*, *melanoproctus*. p. ccxv, *analis*, *brevithorax*, *marqueti*, *planulus*, p. ccxvi, *misellus*, *unguinus*, *nitidulus*, *leucopygus*, Palearctic region, PÉREZ, Pr.-verb. Soc. Bordeaux lviii; *H. quadraticollis*, *mutilus*, *carliceps*, p. 129, *harmandi*, *vulsus*, *leoninus*, *apristus*, p. 130, *trispina*, *tæniolellus*, p. 131, Japan, VACHAL, Bull. Mus. Paris ix; *H. hotoni*, *duponti*, *scobis*, *crocinus*, p. 389, *nudulus*, *postumus*, p. 390, *capnopus*, *surdus*, *australis*, *atricrus*, *barbatus*, p. 391, *bouyssouvi*, *hædillus*, *allvaudi*, *haasi*, p. 392, *evanidis*, *mixtiscapis*, p. 393, Congo, VACHAL, Ann. Soc. ent. France lxxii; *H. magnificus*, p. 541, *resurgens*, p. 542, Kashmir, NURSE, Ann. Nat. Hist. xi; *H. itinerans*, *interstitialis*, p. 130, *bengalensis*, p. 131, Bengal, CAMERON, Tr. ent. Soc. London 1903; *H. carianus*, p. 330, Assam, *trincomalicus*, Ceylon; p. 331, CAMERON, Ann. Nat. Hist. xi; *H. validus*, Malay States, BINGHAM, Fascic. Malay. Zool. i, App. p. v; *H. petrellus*, *catalinensis*, California, COCKERELL, p. 84, Bull. S. Calif. Ac. ii; *H. aberrans*, Nebraska, CRAWFORD, p. 336, Canad. Ent. xxxv; *H. galpinsiæ*, New Mexico, COCKERELL, p. 342, t. c.; *H. niger*, New Mexico, VIERECK, p. 58, Tr. Amer. ent. Soc. xxix; *H. pissisi*, p. 89, *kohliellus*, *andensis*, p. 91, S. America, *chiriquiensis*, *leunculus*, Centr. America, p. 92, *chalcis*, p. 93, *divaricatus*, p. 94, S. America, *podager*, Mexico, p. 96, *secretus*, hab.?, *gaullei*, *schulthessi*, p. 97, *obnuptus*, *palumbes*, *columbus*, *macellus*, *dolator*, *calator*, *purpurissus*, p. 98, *scitulus*, *miratus*, *cuprellus*, p. 99, S. America, *brachycerus*, Guatemala, p. 101, *centratus*, Haiti, p. 103, VACHAL, Miscell. ent. xi: *H. ecuadorensis*, Quito, CAMERON, p. 231, Tr. Amer. ent. Soc. xxix; *H. nasus*, p. 38, *azureus*, p. 40, Peru, ENDERLEIN, Berlin. ent. Zeitschr. xlviii; *H. chetops*, *curticeps*, p. 122, *iodurus*, *canosus*, *cicindulus*, p. 123, *rectangulus*, *atrinodis*, *dilutior*, p. 124, *pæun*, *fuscicrinis*, p. 125, *nitidicollis*, *multiplex*, *sympleres*, *radians*, p. 126, *quadrans*, *taurifrons*, *nigriscapis*, *levidorsis*, p. 127, *peridens*, *patens*, *aurifluens*, *aerialis*, *anthrax*, p. 128,

- brethesi*, *apsidialis*, *varians*, *pentheres*, p. 129, *cyclis*, *rotalis*, *imperialis*, p. 130, *sparsilis*, *discors*, *angularis*, *drepanis*, p. 131, *pattoni*, *hemichrysis*, p. 132, *montensis*, *cubiceps*, p. 133, *terrestris*, *rudis*, p. 134, *scabrifrons*, *cholas*, *cirrhopus*, *illustris*, p. 135, *chorisis*, *notophos*, *dirhipis*, p. 136, VACHAL, *Miscell. ent.* 1903 : n. spp.
- Holonomada* n. g. type *N. superba* Cr., ROBERTSON, p. 177, *Canad. Ent.* xxxv.
- Koptorthosoma*; symbiosis of Acari with, historical, OUDEMANS, *Zool. Anz.* xxvii, pp. 137-139.
- Leucosmia* n. g., p. 166, type *O. albiventris*, p. 171, ROBERTSON, *Tr. Amer. ent. Soc.* xxix.
- Lestrimelitta* subg. n. of *Trigona*, for *Trigona limao* Sm., of which varr. n. *rufipes*, *rufa*, FRIESE, *Zeitschr. Hym. Dipt.* iii, p. 361.
- Lithurgus pullatus*, Tanganyika, VACHAL, p. 372, *Ann. Soc. ent. France* lxxii, n. sp.
- Machaeris* n. g. for part of *Sphecodes*, ROBERTSON, p. 104, with *M. illinoensis*, n. sp., p. 107, *Ent. News Philad.* xiv.
- Megachile canadensis* n. n. for *femorata* Prov., FRIESE, *Zeitschr. Hym. Dipt.* iii, p. 248; *M. funeraria* var. n. *chrysoptera*, FRIESE, t. c. p. 245; *M. frugalis*, *montivaga*, *inimica*, *pruina*, *mendica*, characters, COCKRELL, pp. 215, 216, *Canad. Ent.* xxxv; *M. vidua*=(*monardarum* Ckll.), VIERECK, p. 48, *Tr. Amer. ent. Soc.* xxix; *M. punctatissima*, pl. xvi, fig. 1, p. 250, *paucipunctulata*, fig. 3, p. 251, KIRBY, *Nat. Hist. Sokotra*; *M. maritima*, habits, HACKER ().
- M. sedentata*, p. 273, *grandiceps*, *metatarsalis*, p. 274, *perniciosa*, *ikuthaensis*, p. 275, *rufa*, *konowiana*, p. 276, *nigriceps*, *pachingeri*, p. 277, *nigrocaudata*, *sinuata*, p. 278, *braunsiana*, p. 279, *laminata*, *cerberus*, p. 280, *fulleborni*, *tricolor*, p. 281, *truncata*, p. 282, *accraënsis*, *schulthessi*, *stefenelli*, p. 283, *congruens*, p. 284, *bicornuta*, *nasicornis*, p. 286, *sokotrana* (Socotra), *simonyi*, p. 287, *kigonserana*, *regina*, p. 288, *imperialis*, *flavida*, p. 289, *flava*, p. 290, Africa, FRIESE, *Zeitschr. Hym. Dipt.* iii; *M. devexa*, *duponti*, p. 361, *bouyssonii*, p. 362, *stuppea*, *biseta*, p. 364, *trichora*, *exesa*, p. 365, *maritanda*, *loosi*, p. 366, *brochudens*, *rauda*, *muscaria*, p. 367, *pallorca*, *semierma*, *ancillula*, p. 368, *strictipalmis*, *altera*, *utra*, p. 370, *sosia*, *hopilitis*, *meles*, *hecate*, p. 371, Congo, VACHAL, *Ann. Soc. ent. France* lxxii; *M. scindularia*, Congo, BUYSSON, p. 600, *Bull. Mus. Paris* viii; *M. tricarinata*, Pretoria, BINGHAM, *Ann. Nat. Hist.* xii, p. 58; *M. nadia*, *appia*, Kashmir, NURSE, *Ann. Nat. Hist.* xi, p. 546; *M. eximia*, Borneo, *cingulata*, Key islands, p. 241, *albocaudata*, Kalidupa-Buton, *fusciventris*, Celebes, *rugicollis*, Borneo, p. 242, *ruficeps*, Lombok, *albiceps*, Gorom, p. 243, *kuehni*, Mysol, *birui*, N. Guinea, p. 244, *sladeni*, Khasia Hills, *concolor*, Key islands, p. 245, FRIESE, *Zeitschr. Hym. Dipt.* iii; *M. japonica*, Tokio, ALFKEN, *Zeitschr. Hym. Dipt.* iii, p. 209; *M. fusca*, Key islands, *rufa*, Dammer island, p. 349, *rufocaudata*, Key islands, *alboscopacea*, p. 350, *sicheli*, Java, p. 351, *tomentosa*, *assimilis*, Key islands, p. 352, *lativentris*, Wetter, p. 353, *acutiventris*, N. Guinea, *clio*, Celebes, p. 354, *fuscipennis*, Key islands, p. 355, *puncticollis*, *ingens*, N. Guinea, p. 356, *ferruginea*, Siam, p. 357, *monoceros*, Khasia Hills, *impresa*, *fruhstorferi*, Tenasserim, p. 358, *intermedia*, Siam, p. 359, FRIESE, *Zeitschr. Hym. Dipt.* iii; *M. nivatis*, Colorado, *pruinosa*, Texas, p. 246, *temporalis*, Colorado, p. 247, FRIESE, t. c.; *M. antisanella*, p. 232, *guachalensis*, p. 233, Ecuador, CAMERON, *Tr. Amer. ent. Soc.* xxix; *M. nigropilosa*, *gracilis*, p. 435, *anomala*, p. 437, *pocograndensis*, p. 438, *friesei*, pl. xiii, fig. 1, p. 439, *prulistana*, p. 440, *aureiventris*, *terrestris*, p. 441, *apiciopennis*, p. 442, Brazil, SCHROTTKY, *Revist. Mus. Paulista* v : n. spp.
- Megacilissa fulvo-pilosa*, Panama, CAMERON, p. 237, *Tr. Amer. ent. Soc.* xxix; *M. albofimbriata*, Ecuador, CAMERON, p. 232, t. c.; *M. obscura*, Brazil, SCHROTTKY p. 412, *Revist. Mus. Paulista* v : n. spp.

- Melanomada* subg. n. of *Nomada* for *N. grindeliæ*, COCKERELL, p. 587, P. Ac. Philad. lv.
- Melanostelis nyssonoides*, Texas, BRUES, p. 84, Ent. News Philad. xiv, n. sp.
- Melipona*; see VON IHERING, at head; *M. flavolineata* var. n. *nigritula*, FRIESE, Zeitschr. Hym. Dipt. iii, p. 360.
- M. cearina*, *ogouensis*, p. 359, *denoiti*, *bouyssouii*, p. 360, Congo, VACHAL, Ann. Soc. ent. France lxxii; *M. castanea*, p. vi, *basimaculata*, p. vii, Malay States, BINGHAM, Fascic. Malay Zool. i, App.; *M. seminigra*, Amazons, FRIESE, Zeitschr. Hym. Dipt. iii, p. 359 : n. spp.
- Melissodes humilior*, New Mexico, COCKERELL, Ann. Nat. Hist. xii, p. 447, n. sp.
- Meliturgula* n. g. near *Meliturga* and *Psænythia*, p. 33, for *M. braunsi*, n. sp., S. Africa, p. 34, FRIESE, Zeitschr. Hym. Dipt. iii.
- Microstelis* n. g. p. 170, type *Stelis lateralis*, p. 171, ROBERTSON, Tr. Amer. ent. Soc. xxix.
- Monilosmia* n. g. p. 166, type *Osmia canadensis*, p. 171, ROBERTSON, t. c.
- Nomada*; table of E. Indian, NURSE, Ann. Nat. Hist. xi, p. 545; *N.*; COCKERELL describes n. varr. of Californian and N. American in addition to the n. spp. recorded below, P. Ac. Philad. lv, pp. 559-614; *N. accepta* = (*pacata* Cresson), COCKERELL, Ann. Nat. Hist. xii, p. 447; *N. grindeliæ* ♀, CRAWFORD, p. 334, Canad. Ent. xxxv.
- N. beata*, p. 543, *radiata*, *arida*, p. 544, Kashmir, NURSE, Ann. Nat. Hist. xi; *N. modocorum*, p. 444, *cordleyi*, p. 445, Oregon, *placitensis*, New Mexico, p. 446, COCKERELL, Ann. Nat. Hist. xii; *N. erythrochroa*, *grayi*, *clarkii*, p. 203, *fowleri*, p. 204, *lewisii*, *oregonica*, p. 205, *ultima*, *astori*, p. 206, *corvallisensis*, p. 207, *aquilarum*, p. 208, *beulahensis*, *neomexicana*, p. 209, *grindeliæ*, p. 210, N. America, *aztecorum*, *vierecki*, Mexico, p. 211, *crucis*, p. 212, *sophiarum*, p. 213, *lippicæ*, p. 214, N. America, COCKERELL, t. c.; *N. (Holonomada) hemphilli*, p. 561, *excurrens*, *rhodotricha*, p. 562, *hesperia*, p. 563, *N. (Xanthidium) pascoensis*, p. 564, *decempunctata*, p. 565, *sonctæruis*, p. 566, *subsimilis*, *coquilletti*, p. 567, *ashmeadi*, p. 568, *N. (Phor) subgracilis*, p. 569, *N. subangusta*, p. 570, *rhodosoma*, *californica*, p. 571, *ultimella*, *latifrons*, *tintinnabulum*, p. 572, *atrofrontata*, *excellens*, p. 573, *angelarum*, p. 574, *davidsoni*, p. 575, *snbvicinalis*, *marginella*, p. 576, *bifurcata*, p. 577, *elegantula*, p. 578, California. COCKERELL, P. Ac. Philad. lv; *N. elrodi*, p. 583, *magnifica*, p. 587, *martinella*, p. 590, *scitiformis*, p. 591, *ruidosensis*, p. 594, *rhodomelas*, *washingtoni*, p. 598, *physura*, *schwarzi*, p. 599, *rhodatis*, p. 600, *louisianæ*, *carolinæ*, p. 602, *coloradensis*, p. 603, *wheeleri*, p. 604, *lehighensis*, p. 605, *armatella*, *bethunei*, p. 607, *hoodiana*, p. 608, *tiftonensis*, *crassula*, p. 610, *N. (Nomadula* subg. n.) *sphaerogaster*, p. 611, *N. electetta*, p. 612, *robertsonella*, p. 613, *kincaidiana*, p. 614, N. America, COCKERELL, t. c. : n. spp.
- Nomadula* subg. n. cf. *Nomada*.
- Nomia tegulata* ♂, MORICE, Ann. Nat. Hist. xii, p. 610.
- N. crociseiformis*, p. 51, *scitula*, p. 52, Nyasaland, BINGHAM, Ann. Nat. Hist. xii; *N. ruficoxis*, *pristis*, *bouyssouii*, p. 394, *granulata*, *atrinervis*, p. 395, *flavicarpa*, *tersa*, *martini*, *melanoprocta*, p. 396, *ampliata*, Africa, *latifrons*, Madagascar, *ligata*, *blandula*, p. 397, *crassula*, *andrenoides*, *cirrita*, p. 398, *collaris*, *thomæ*, *lactinea*, p. 399, Congo, VACHAL, Ann. Soc. ent. France lxxii : n. spp.
- Odyneropsis* n. g. *Stelides*, p. 432, for *O. holosericea*, pl. xii, fig. 14, n. sp., Brazil, p. 433, SCHROTTKY, Revist. Mus. Paulista v.
- Oligotropus* n. g. *Megachilini*, p. 168, for *O. campanulæ*, p. 171, n. sp. not described, ROBERTSON, Tr. Amer. ent. Soc. xxix.
- Omachthes gabonensis*, Africa, VACHAL, p. 382, Ann. Soc. ent. France lxxii, n. sp.

- Osmia fulviventris*, gynandromorph described, MORICE, p. vi, P. ent. Soc. London 1903; *O. iridis*, ♂, COCKERELL, p. 333, Ent. News Philad. xiv.
- O. gulmargensis*, p. 545, *kashmirensis*, p. 546, Kashmir, NURSE, Ann. Nat. Hist. xi; *O. excavata*, Japan, ALFKEN, Zeitschr. Hym. Dipt. iii, p. 210; *O. novomexicana*, Las Vegas, COCKERELL, p. 332, Ent. News Philad. xiv : n. spp.
- Oxaea versicolor*, S. America, SCHROTTKY, Zeitschr. Hym. Dipt. iii, n. sp.
- Oxynedys* n. g. *Nomadides*, p. 491, for *O. beroni*, pl. xiii, fig. 6, n. sp., Brazil, p. 492, SCHROTTKY, Revist. Mus. Paulista v.
- Panurginus nigrinus*, p. 51, *citrinifrons*, p. 52, New Mexico, VIERECK, Tr. Amer. ent. Soc. xxix; *P. piercei*, *nebrascensis*, Nebraska, CRAWFORD, p. 335, Canad. Ent. xxxv : n. spp.
- Panurgus rufiventris*, Sériziat, PÉREZ, p. ccxxii, Pr.-verb. Soc. Bordeaux lviii, n. sp.
- Paracentris* n. g. p. 235, for *P. fulvohirta* n. sp., Ecuador, p. 236, CAMERON, Tr. Amer. ent. Soc. xxix.
- Paranomia venablesii*, Brit. Columbia, ASHMEAD, p. 243, Canad. Ent. xxxv, n. sp.
- Perdita* (= *Friesea* Schr.), SCHROTTKY, Zeitschr. Hym. Dipt. iii, p. 176; *P. zebrata* var., COCKERELL, p. 52, Tr. Amer. ent. Soc. xxix.
- Phiarus melectoides*, host, MORICE, Zeitschr. Hym. Dipt. iii, p. 317.
- Podalirius canariensis*, is the same as *Anthopora alluaudi*, SAUNDERS, t. c. p. 551; *P. fulvitectus*, pl. xvi, fig. 14, *antennatus*, fig. 11, p. 253, *pyramidalis*, pl. xvi, fig. 13, p. 257, KIRBY, Nat. Hist. Sokotra.
- P. canariensis*, Tenerife, SAUNDERS, p. 216, Tr. ent. Soc. London 1903, n. sp.
- Prochelostoma* n. g. p. 167, type *Heriades philadelphia*, p. 171, ROBERTSON, Tr. Amer. ent. Soc. xxix.
- Prosopis pilosula*, *leptodactyla*, p. ccxxx, *longula*, *linearis*, *cylindrella*, p. ccxxxi, *cognata*, *pulla*, p. 232, *soror*, *nigripes*, p. ccxxxiii, *bicarinata*, *decolorata*, p. ccxxxiv, *grata*, *morawitzi*, *fallax*, p. ccxxxv, *punctifrons*, p. ccxxxvi, Palaearctic region, PÉREZ, Pr.-verb. Soc. Bordeaux lviii; *P. atra*, Tenerife, SAUNDERS, p. 212, Tr. ent. Soc. London 1903; *P. pernix*, *sandaracata*, p. 49, *gracilis*, p. 50, Natal, BINGHAM, Ann. Nat. Hist. xii; *P. kashmirensis*, p. 534, *gujaratica*, *repentens*, p. 535, *montana*, *vetusta*, p. 536, *secreta*, *advocata*, p. 537, India, NURSE, Ann. Nat. Hist. xi; *P. globula*, Japan, VACHAL, p. 132, Bull. Mus. Paris ix; *P. nucleolus*, *anigmus*, p. 64, *clandestinus*, p. 65, New Mexico, SKINNER, Tr. Amer. ent. Soc. xxix; *P. femoralis*, p. 339, *gracillinea*, p. 340, pl. xii, fig. i, *exigua*, p. 341, Brazil, SCHROTTKY, Revist. Mus. Paulista v : n. spp.
- Protandrenopsis* n. g. near *Protandrena*, for *P. fuscipennis* n. sp., Nebraska, CRAWFORD, p. 337, Canad. Ent. xxxv.
- Proteraner* n. g. type *Sphecodes ranunculi*, ROBERTSON. p. 103, Ent. News Philad. xiv.
- Psithyrus latitarsus*, Montana, MORRILL, p. 224, Canad. Ent. xxxv, n. sp.
- Rhophites trispinosus*, Lyons, PÉREZ, p. ccxxi, Pr.-verb. Soc. Bordeaux lviii, n. sp.
- Solenopalpa fertoni*, characters, PÉREZ, p. xciii, t. c.
- Sphecodinæ*; ROBERTSON establishes several n. genn. for N. American *Sphecodes*, cf. *Drepanium* etc., Ent. News Philad. xiv, pp. 103-107.
- Sphecodes*; habits and variation, NIELSEN, pp. 22-30, Ent. Meddel. 1903.
- S. valesianus*, *murithianus*, Valais, FREY-GESSNER, p. 100, Bull. Soc. Murith. xxx; *S. sulcicollis*, *hispanicus*, p. ccxviii, *majalis*, *gracilior*, *opacifrons*, p. ccxix, *pinguiculus*, *bituberculatus*, p. ccxx, *biskrensis*, *rimalis*, p. ccxxi, Mediterranean region, PÉREZ, Pr.-verb. Soc. Bordeaux lviii; *S. guineensis*, Africa, VACHAL, p. 399, Ann. Soc. ent. France lxxii; *S. sutor*, *hanuman*, p. 538, *abuensis*, *tantalus*, p. 539, *perplexus*, *desertus*, p. 540, India, NURSE, Ann. Nat. Hist. xi; *S. oriundus*, Japan, VACHAL, p. 131, Bull. Mus. Paris ix; *S. fragariae*, New Mexico, COCKERELL, p. 99, Tr. Amer. ent. Soc. xxix : n. spp.

- Stelidium* n. g. p. 104, for *S. cressonii* n. sp., N. America, p. 106, ROBERTSON, Ent. News Philad. xiv.
- Temnosoma inornatum*, Brazil, SCHROTTKY, p. 351, Revist. Mus. Paulista v, n. sp.
- Tetralonia brevipennis*, characters, NURSE, Ann. Nat. Hist. xi, p. 549.
- Tetrapædia pygmaea*, pl. xiii, fig. 9, p. 544, *bimaculata*, *obsoleta*, p. 547, *fuliginosa*, p. 551, Brazil, SCHROTTKY, Revist. Mus. Paulista v, n. spp.
- Trigona*, see von IHERING above; also *Lestrimelitta*; *T. mocsaryi* var. n. *lutea*, FRIESE, Zeitschr. Hym. Dipt. iii, p. 361; *T. kohli*, relations with *Eutermes*, SILVESTRI, pp. 210-212, Redia i; *T. collina*, *ruficornis*, nests, *T. collina*, ♂, WATERHOUSE, pp. 133-136, pl. vi, Tr. ent. Soc. London 1903.
- T. longicornis*, *longicollis*, Amazons, FRIESE, Zeitschr. Hym. Dipt. iii, p. 360, n. spp.
- Tripeolus mesilla* var. a, COCKERELL, p. 331, Ent. News Philad. xiv.
- T. simplex*, p. 285, *micropygius*, p. 286, N. America, ROBERTSON, Canad. Ent. xxxv, n. spp.
- Trypetes barbatus*, Illinois, ROBERTSON, p. 171, Tr. Amer. ent. Soc. xxix, n. sp.
- Xanthidium* n. g. p. 178, type *Nomada luteola* Ol., with *X. dentariæ* n. sp., N. America, p. 179, ROBERTSON, Canad. Ent. xxxv.
- Xanthosmia* n. g. p. 166, type *O. cordata*, p. 171, ROBERTSON, Tr. Amer. ent. Soc. xxix.
- Xanthosarus* n. g. p. 168, type *Megachile latimanus*, p. 172, ROBERTSON, t. c.
- Xenoglossodes excurrens*, New Mexico, COCKERELL, Ann. Nat. Hist. xii, p. 449, n. sp.
- Xylocopa violacea*, northern distribution, SCHUSTER, p. 28, Zool. Garten xlv; *Xylocopa*: ENDERLEIN describes numerous varr. n. from Africa, in addition to the spp. n. recorded below, Berlin. ent. Zeitschr. xlviii, pp. 45-63.
- X. *erlangeri*, p. 45, *schoana*, p. 46, *lepeletieri*, p. 48, *nyassica*, p. 53, *caffrariæ*, p. 55, *togoensis*, p. 57, *preussi*, p. 58, *absurdipes*, p. 59, *vittata*, p. 60, *longespinosa*, p. 62, *montana*, *fimbriatopilosa*, p. 63, Africa, ENDERLEIN, Berlin. ent. Zeitschr. xlviii; *X. bimaculata*, *eburnea*, p. 202, *burmeisteri*, *lehmanni*, p. 203, S. America, *thoracica*, Celebes, *aurantiaca*, p. 204, *grubaueri*, Perak, *tumida*, p. 205, *bangkaënsis*, Bangka, *kuhni*, Wetter, p. 206, *imitator*, var. n. *nigriceps*, Sierra Leone, *konowi*, E. Africa, p. 207, FRIESE, Zeitschr. Hym. Dipt. iii; *X. crotalaricæ*, p. 472, *chrysopoda*, pl. xi, fig. 13, *bambusæ*, p. 473, Brazil, SCHROTTKY, Revist. Mus. Paulista viii : n. spp.

VESPIDÆ, EUMENIDÆ, MASARIDÆ (DIPLOPTERA).

- [Cf. BINGHAM (130), BRAUNS (179), BRÈTHES (218), R. DU BUYSSON (256, 258, 259), CAMERON (266, 269, 277), CARPENTER & PACK-BERESFORD (280), DUSMET (428), FABRE (474), H. VON IHERING (748), R. VON IHERING (750), JANET (783), KIRBY (837), MOCsÁRY (1020), MORICE (1031), NURSE (1076), SAUNDERS (1324), SCHULTHESS-RECHBERG (1358), SCHULZ (1367), SHARP (1408), VIERECK (1604).]
- Vespidæ*, *Eumenidæ* and *Masaridæ* of Spain monographed, DUSMET, Mem. Soc. espan. ii, pp. 119-225.
- Account of nests and habits of *Vespa* and *Polistes* in North France, JANET (783).
- Habits of social wasps in Brazil, H. VON IHERING, Zool. Jahrb. Syst. xix, pp. 180, 181.
- Nests of *Polybia vicina*, census of inhabitants, VON IHERING, pp. 147-151, of *P. sylveiræ*, p. 152, Ann. Soc. ent. France lxxii.

- Alastor antigæ*, Spain, BUYSSON, p. 164, Mem. Soc. espan. ii; *A. chrysocephalus*, Brazil, SCHROTKY, Zeitschr. Hym. Dipt. iii : n. spp.
- Belenogaster saussurei*, pl. xvi, fig. 2, nest figd., p. 248, KIRBY, Nat. Hist. Sokotra.
- Ceramius macrocephalus* and other S. African characters, BRAUNS, Zeitschr. Hym. Dipt. iii, pp. 65-68.
- C. beyeri*, S. Africa, id., t. c. p. 69, n. sp.
- Chartergus globiventris*, nest, BRÈTHES, p. 417, pl. viii, figg. 5, 6, An. Mus. Buenos Aires (3) i.
- Eumenes granti*, pl. xv, fig. 5, p. 246, KIRBY, Nat. Hist. Sokotra; *E. dimidiatipennis*, habits, relations with *Stilbum*, CRETIN, pp. 820-823, J. Bombay Soc. xiv.
- E. placens*, p. 530, *viatrix*, p. 531, India, NURSE, Ann. Nat. Hist. xi, n. spp.
- Icaria grossepunctata*, pl. xvi, fig. 2, p. 248, *aterrima*, pl. xvi, fig. 8, p. 256, KIRBY, Nat. Hist. Sokotra.
- Ischnogaster* referred to *Eumenidae*, ASHMEAD, p. 285, P. ent. Soc. Washington v.
- Nectarinia augusti* var. n. *quinta*, IHERING, p. 153, Ann. Soc. ent. France lxxii.
- N. baccalaurea*, Brazil, id., p. 154, t. c., n. sp.
- Nortonia violacea*, Key Ids., p. 361, *viridis*, New Guinea, p. 362, *lævis*, W. Africa, p. 363, *surinama*, Surinam, p. 364, SCHULTHESS-RECHBERG, Verh. Ges. Wien liii, n. spp.
- Odynerus timidus* var. n. *robustus*, DUSMET, p. 201, Mem. Soc. espan. ii.
- O. (Ancistrocerus) sociabilis*, p. 173, *hispanicus*, p. 174, *O. (Lionotus) schulthessi*, p. 186, *matritensis*, p. 189, *perforatus*, p. 194, *O. (Hoplomerus) schrammi*, p. 207, *davv*, p. 208, *eburneo-fusciatus*, p. 212, *antigai*, *navasi*, p. 214, Spain, DUSMET, t. c.; *O. (Ancistrocerus?) aberraticus*, White Nile, MORICE, Ann. Nat. Hist. xii, p. 613; *O. praeclusus*, *sequestratus*, p. 532, *hostis*, p. 533, *segregatus*, p. 534, India, NURSE, Ann. Nat. Hist. xi; *O. sibilans*, Bengal, CAMERON, p. 129, Tr. ent. Soc. London 1903 : n. spp.
- Plagiolabra* n. g. *Eumenides*, p. 365, for *P. nigra* n. sp., Paraguay, p. 366, SCHULTHESS-RECHBERG, Verh. Ges. Wien liii.
- Polistes annularis* and *canadensis*, united, SCHULZ, p. 255, Berlin. ent. Zeitschr. xlviii.
- P. merceti*, Madrid, DUSMET, p. 149, Mem. Soc. espan. ii; *P. hertwigi*, Haiti, SCHULZ, p. 486, SB. Ak. Munchen 1903; *P. candidoi*, Bolivia, p. 144, *limai*, Brazil, p. 145, IHERING, Ann. Soc. ent. France lxxii : n. spp.
- Polybia scutellaris*, nest and habits, BRÈTHES, pp. 413-416, pl. viii, figg. 1, 2, *P. sericea*, nest, pl. viii, figg. 3, 4, BRÈTHES, An. Mus. Buenos Aires (3) i.
- P. bella cassununga*, p. 146, *buyssoni*, p. 151, S. America, VON IHERING, Ann. Soc. ent. France lxxii; *P. theresiana*, Colombia, SCHULZ, p. 257, Berlin. ent. Zeitschr. xlviii : n. spp.
- Provespa* n. g. for *Vespa doryloides* Sauss., ASHMEAD, p. 182, Ent. News Philad. xiv.
- Pterochilus sanzi*, Escorial, DUSMET, p. 218, Mem. Soc. espan. ii, n. sp.
- Rhynchium versicolor*, pl. xv, fig. 11, p. 247, KIRBY, Nat. Hist. Sokotra.
- R. sirdari*, Khartum, MORICE, Ann. Nat. Hist. xii, p. 612; *R. curvicaulatum*, p. 328, *collinum*, p. 329, Assam, CAMERON, Ann. Nat. Hist. xi : n. spp.
- Symmorphus meridionalis*, New Mexico, VIERECK, p. 69, Tr. Amer. ent. Soc. xxix, n. sp.
- Synagris fulva*, *clypeata*, p. 503, *inermis*, p. 504, with var. *atrata*, *fusciata*, p. 505, *denticulata*, p. 506, Africa, MOCSÁRY, Ann. Mus. Hungar. i, n. spp.

- Vespa*: generalities, natural history, social life, introduction to monograph, R. DU BUYSSON, pp. 260–288, pls. iii, iv, Ann. Soc. ent. France lxxii; Habits, nests, FABRE, Souvenirs viii, chaps. 18, 19, 20; Resting attitude, METZMAIN, p. 137, Entomologist xxxvi; Attitude of hibernating ♀, FROHAWK, p. 33, cut, Entomologist xxxvi. *V. austriaca*, note, PACK-BERESFORD, pp. 15–17, Irish Natural. xii. *V. austriaca*, *rufa*, relations, variation, CARPENTER & PACK-BERESFORD, Irish Natural. xii, pp. 221–238, pl. ii; SAUNDERS (1324), SHARP (1408); in Scotland, EVANS, t. c. p. 299. *V. magnifica* var. n. *latilineata*, CAMERON, p. 278, Entomologist xxxvi; *V. vulgaris*, carnivorous habit, GIARD, p. 9, Bull. Soc. ent. France 1903, DE LA PORTE, t. c. p. 41; *V. germanica* in India, CAMERON, Zeitschr. Hym. Dipt. iii, p. 317; *V. mongolica*, nest, BUYSSON, p. 127, Bull. Mus. Paris ix.
- V. nigrans*, Yunnan, lama, Sikkim, BUYSSON, p. 175, Bull. Soc. ent. France 1903; *V. tridentata*, *xanthoptera*, p. 278, *micado*, p. 279, *flavofasciata*, p. 280, Japan, CAMERON, Entomologist xxxvi : n. spp.

HYMENOPTERA FOSSORIA (or SPHEGOIDEA).

- [Cf. ADLERZ (9), ANDRÉ (26, 27), ASHMEAD (34, 47, 50), BINGHAM (130, 131), CAMERON (266, 267, 269, 271, 275), CRETIN (358), DUCKE (418), FABRE (474), FERNALD (505, 506), GARCIA (605, 606), MARQUET (975), MANTERO (967), MELANDER (995, 997), MELANDER & BRUES (999), MORICE (1031), NIELSEN (1069), NURSE (1076, 1078), PICARD (1170), RUCKER (1300), SAUNDERS (1322), SCHULZ (1367), VIERECK (1604, 1606).]

Classification of Fossoria continued, ASHMEAD, Canad. Ent. xxxv, pp. 3–8 etc.

ADLERZ studies the habits and instincts of upwards of 40 species of European Fossors, Svenska Ak. Handl. xxxvii, No. 5, 181 pp.

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Eolothynnus n. g. for *A. multiguttatus*, Ashm., Australia, ? n. sp. (not described), ASHMEAD, p. 101, Canad. Ent. xxxv.

Agenia architecta, nests, JOHNSON, p. 290, Ent. News Philad. xiv.

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Ammoplanus mandibularis, S. Africa, CAMERON, p. 178, Entomologist xxxvi; *A. cockerelli*, New Mexico, ASHMEAD, p. 295, Ent. News Philad. xiv : n. spp.

Ampulex pilosa, characters, sexes, CAMERON, Ann. Nat. Hist. xi, p. 322.

A. montana, p. 319, *himalayensis*, p. 320, *interstitialis*, p. 321, Assam, CAMERON, Ann. Nat. Hist. xi; *A. khasiana*, p. 234, *assamensis*, p. 236, *carinifrons*, p. 237, Khasia Hills, CAMERON, Tr. ent. Soc. London 1903 : n. spp.

Andreas n. g. *Methocinae* for *M. abbottii* n. sp., Congo, ASHMEAD, p. 156, Canad. Ent. xxxv.

Anoplius omerus, p. 325, *icades*, p. 326, *styrus*, *atargates*, p. 327, Assam, CAMERON, Ann. Nat. Hist. xi, n. spp.

- Apteromutilla* n. g. type *Mutilla aeda* Pér., ASHMEAD, p. 324, Canad. Ent. xxxv.
- Apterogyna maculata* var. n. *rufescens*, GARCIA Y MERCET, p. 98, Bol. Soc. espan. iii.
- Astata lubricata*, India, NURSE, Ann. Nat. Hist. xi, p. 514; *A. quettae*, India, NURSE, p. 1, J. Bombay Soc. xv : n. spp.
- Bembex dissimilis*, pl. xvi, fig. 4, p. 255, KIRBY, Nat. Hist. Sokotra.
- B. irritata*, India, NURSE, Ann. Nat. Hist. xi, p. 523, n. sp.
- Blakeius* n. g. type *Mutilla bituberculata* Sm., ASHMEAD, p. 327, Canad. Ent. xxxv.
- Brachycistis cremastogaster*, Texas, MELANDER, p. 329, Tr. Amer. ent. Soc. xxix, n. sp.
- Bruesia* n. g. type *Mutilla harmonia* Fox, ASHMEAD, p. 306, Canad. Ent. xxxv.
- Campsomeris (Dielis) argenteopilosa*, Andes, CAMERON, p. 225, Tr. Amer. ent. Soc. xxix, n. sp.
- Cephalothynnus* n. g. type *Thynnus odyneroides* Westw., ASHMEAD, p. 100, Canad. Ent. xxxv.
- Cerceris lobata*, pl. xv, fig. 13, p. 245, KIRBY, Nat. Hist. Sokotra.
- C. peninsularis*, Madrid, GARCIA Y MERCET, p. 103, Bol. Soc. espan. iii; *C. kashmirensis*, Kashmir, p. 524, *dolosa*, India, p. 525, NURSE, Ann. Nat. Hist. xi; *C. annandali*, Malay States, BINGHAM, Fascic. Malay. Zool. i, App. p. v; *C. marcia*, Kashmir, NURSE, Ann. Nat. Hist. xi, p. 513; *C. ligea*, Perak, BINGHAM, Fascic. Malay. Zool. i, App. p. v : n. spp.
- Chyphotes heathii*, California, MELANDER, p. 326, Tr. Amer. ent. Soc. xxix, n. sp.
- Compomeris socotrana*, pl. xv, fig. 14, p. 238, KIRBY, Nat. Hist. Sokotra.
- Crabro gulmargensis*, Kashmir, NURSE, Ann. Nat. Hist. xi, p. 529; *C. balucha*, p. 16, *protopiformis*, p. 17, *elongatus*, p. 18, India, NURSE, J. Bombay Soc. xv : n. spp.
- Dasylabris egregia*, characters, GARCIA Y MERCET, p. 321, Bol. Soc. espan. iii; *D. mephitis*, ♂, p. 236, *anna*, ♀, p. 237, ANDRÉ, Zeitschr. Hym. Dipt. iii; *D. nursei* n. n. for *Mutilla suspecta* Nurse, ANDRÉ, p. 427, Ann. Soc. ent. France lxxii.
- D. andrei*, W. Africa, GARCIA Y MERCET, p. 102, Bol. Soc. espan. iii; *D. hurei*, Madagascar, ANDRÉ, Zeitschr. Hym. Dipt. iii, p. 238 : n. spp.
- Dasylabroides caffra, eumenis*, characters, synonymy, ANDRÉ, Zeitschr. Hym. Dipt. iii, pp. 82-85.
- D. willowmorensis*, S. Africa, id. t. c. p. 85, n. sp.
- Diodontus tenuis, selectus*, p. 13, *rusticus*, p. 14, India, NURSE, J. Bombay Soc. xv, n. spp.
- Discolia erythropoda*, Assam, CAMERON, Ann. Nat. Hist. xi, p. 323, n. sp.
- Dimorphomutilla* n. g. type *M. lunulata* Spin., ASHMEAD, p. 325, Canad. Ent. xxxv.
- Dolichurus obidensis*, Amazons, DUCKE, p. 265, Verh. Ges. Wien liii, n. sp.
- Elis*; synonymy, confusion, ASHMEAD, p. 8, Canad. Ent. xxxv.
- E. rubricata*, India, NURSE, Ann. Nat. Hist. xi, p. 402; *E. (Dielis) niasensis*, Nias Id., p. 38, *dohrni*, Sumatra, p. 42, MANTERO, Bull. Soc. ent. Ital. xxxv; *E. (Dielis) pygmaea*, Brazil, KONOW, Zeitschr. Hym. Dipt. iii, p. 39 : n. spp.
- Ephuta (Travmatomutilla) lineifera*, Brazil, p. 451, *ingens*, p. 452, *graviceps*, p. 453, *vulneriventris*, p. 454, *E. trilineata*, p. 456, Argentina, *hydrocephala*, Guiana, p. 457, ANDRÉ, Ann. Soc. ent. France lxxii, n. spp.
- Ephutomorpha haematogastra*, p. 431, *albosignata*, p. 433, *fulvescens*, p. 435, *rigidorsis*, p. 437, *ceneifrons*, p. 441, *oviventris*, p. 444, *uniformis*, p. 445, *froggatti*, p. 446, Australia, ANDRÉ, t. c., n. spp.

- Euspinolia* n. g. type *Mutilla chilensis* Spin., ASHMEAD, p. 325, Canad. Ent. xxxv.
- Gastrosericus electus*, India, NURSE, p. 7, J. Bombay Soc. xv, n. sp.
- Gorytes lenis*, India, NURSE, Ann. Nat. Hist. xi, p. 521; *G. intrudens*, p. 14, *impudens*, p. 15, India, NURSE, J. Bombay Soc. xv : n. spp.
- Guerinius* n. g. type *Thynnus flavilabris* Guér., ASHMEAD, p. 100, Canad. Ent. xxxv.
- Hemithynnus* n. g. type *Thynnus hyalinatus* Westw., ASHMEAD, p. 101, t. c.
- Homogambrus creon, menelaus*, NURSE, p. 2, J. Bombay Soc. xv, n. spp.
- Hypoferreola machachiensis, ambatoensis*, Equatorial Andes, CAMERON, p. 229, Tr. Amer. ent. Soc. xxix, n. spp.
- Isodontia*; the N. American, p. 269, *macrocephala* var. n. *cinerea*, pp. 271, 333, FERNALD, Canad. Ent. xxxv.
- I. exornata*, N. America, id., p. 270, t. c., n. sp.
- Isotiphia* n. g. for *I. nigra* n. sp., Santarem, ASHMEAD, p. 43, t. c.
- Klugianus* n. g. type *Thynnus hamatodes* Kl., ASHMEAD, p. 102, t. c.
- Labidomilla tauriceps* ♀, p. 138, var. *subinermis* var. nov., p. 139, ANDRÉ, Zeitschr. Hym. Dipt. iii.
- Larra neæra*, Quetta, NURSE, p. 4, J. Bombay Soc. xv; *L. parvula*, Brazil, SCHROTTKY, Zeitschr. Hym. Dipt. iii : n. spp.
- Leucospilomutilla* n. g. type *Mutilla cerberus* Kl., ASHMEAD, p. 310, Canad. Ent. xxxv.
- Methoca incerta*, S. Africa, ANDRÉ, Zeitschr. Hym. Dipt. iii, p. 81, n. sp.
- Mimecomutilla* n. g. type *Mut. purpurata* Sm., ASHMEAD, p. 327, Canad. Ent. xxxv.
- Mimesa alticola*, New Mexico, VIERECK, p. 66, Tr. Amer. ent. Soc. xxix, n. sp.
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FORMICIDÆ (or HETEROGYNA).

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Chrysis petri, p. 397, *fax*, p. 399, Semiretshje, SEMENOW, Rev. Russe Ent. iii; *C. gujaratica*, *bahadur*, p. 11, *lucinda*, p. 12, *autocrata*, *hoggei*, p. 40, *thalia*, *quettaensis*, *balucha*, p. 41, *arrestans*, p. 42, India, NURSE, Entomologist xxxvi; *C. hedychroides*, Beluchistan, p. 440, *nila*, p. 441, India, *elizabethæ*, Tenasserim, p. 449, pl. i, fig. 9, *nugatrix*, India, p. 450, *lanka*, Ceylon, p. 451, *paria*, Beluchistan, p. 455, *greeni*, Ceylon, p. 459, pl. i, fig. 7, *nursei*, p. 463, *sandaracata*, p. 466, India, *bhavanæ*, Tenasserim, p. 472, *furcifera*, p. 480, *danaë*, p. 483, *durga*,

- p. 487, Burma, BINGHAM, Hym. Brit. Ind. ii; *C. baeri*, Tucuman, R. DU BUYSSON, p. 311, Bull. Soc. ent. France 1903; *C. guedesi*, p. 136, *leucochiloides*, p. 226, *paraensis*, *glabriceps*, p. 227, *affinissima*, p. 229, *obidensis*, p. 231, S. America, DUCKE, Zeitschr. Hym. Dipt. iii; *C. schrottkyi*, p. 270, *missionera*, p. 273, *ameghinoi*, p. 274, *boutheryi*, p. 278, *mattogrossensis*, p. 279, *lynchi*, p. 282, *charruana*, p. 283, *bruchi*, p. 285, S. America, BRÈTHES, An. Mus. Buenos Aires (3) i : n. spp.
- Chrysogona saussurei* and *armata* are one, *C. alfkeni* variation, DUCKE, Zeitschr. Hym. Dipt. iii, p. 134.
- Ellampus harmandi*, Japan, BUYSSON, p. 126, Bull. Mus. Paris ix; *E. (Philoctetes) minutissimus*, Argentina, BRÈTHES, p. 265, An. Mus. Buenos Aires (3) i; *E. andinus*, Machachi, CAMERON, p. 160, Entomologist xxxvi : n. spp.
- Hedychridium amabile*, New Mexico, COCKERELL, p. 262, Canad. Ent. xxxv, n. sp.
- Hedychrum naugianum*, Congo, BUYSSON, p. 600, Bull. Mus. Paris viii, n. sp.
- Holopyga nursei*, India, BINGHAM, Hym. Brit. Ind. ii, p. 423; *H. (Hedychridium) pallidolimbata*, Tapajós, DUCKE, Zeitschr. Hym. Dipt. iii, p. 133; *H. boutheryi*, Argentina, BRÈTHES, p. 267, An. Mus. Buenos Aires (3) i : n. spp.
- Notozus panzeri*, habits, MORICE, Ent. Mag. xxxix, p. 172.
- Olochrysis semicuprea*, New Mexico, VIERECK, p. 70, Tr. Amer. ent. Soc. xxix, n. sp.
- Parnopes boutheryi*, Argentina, BRÈTHES, p. 287, An. Mus. Buenos Aires (3) i, n. sp.
- Parnopidea* n. g. for *P. mocsaryi* n. sp., Cape Colony, BRAUNS, p. 460, Ann. Mus. Hungar. i.
- Pleurocera*, redefined, BRÈTHES, p. 264, An. Mus. Buenos Aires (3) i.
- Pseudopyris*, characters amended, p. 131, *P. paradoxa* ♀, p. 132, DUCKE, Zeitschr. Hym. Dipt. iii.
- P. flavipes*, Pará, id. p. 132, t. c., n. sp.
- Stilbum splendidum*, habits, CRETIN, pp. 820-823, J. Bombay Soc. xiv.

HYMENOPTERA PARASITICA.

ICHNEUMONIDÆ.

[Cf. ASHMEAD (37), BERTHOUMIEU (110, 111), BRADLEY (177), BRUES (223), CAMERON (265, 267, 270, 272, 274, 276), COCKERELL (322), FISKE (154), HABERMEHL (657, 658), HÖPPNER (716), JACOBS (758), KIEFFER (822), KIRBY (837), KOKUJEV (862), KRIEGER (885), MEUNIER (1007), MORLEY (1033), ROMAN (1277), SCHMIEDEKNECHT (1338, 1339), STROBL (1490), SZÉPLIGETI (1504), TOSQUINET (1537), VIERECK (1604).]

KRIEGER has published very numerous additions and synonymical corrections to Dalla Torre's Catalogue; these are not given below, reference must be made to the article, Zeitschr. Hym. Dipt. iii, pp. 290-294.

SCHMIEDEKNECHT, continues his tabulation of *Ichneumonidæ* (1339).

The genera and the palæarctic species of *Anomalini*, SCHMIEDEKNECHT (1338).

Monograph of the British species of the subfam. *Ichneumoninae*, MORLEY (1033).

FISKE deals with the biology of various species of *Ichneumonidæ* and *Braconidæ* that attack *Clisiocampa americana*; primary to quinquenary parasites, Bull. N. Hampsh. exp. Stat. vi, pp. 184-230.

Fossil, Tertiary, *Ichneumonidæ*, MEUNIER, Mem. Ac. Barcel. iv, No. 34.

- Acanthojoppa indica*, p. 180, *lutea*, p. 181, Assam, CAMERON, Ann. Nat. Hist. xi; *A. xanthopsis*, *tinctipennis*, p. 370, *varicornis*, p. 371, *apicilineata*, p. 565, *nigromaculata*, p. 566, *nigrolineata*, *curtispina*, p. 567, Khasia Hills, CAMERON, op. cit. xii : **n. spp.**
- Achius* n. g. *Joppini* near *Trogus*, p. 266, for *A. flavobalteatus* n. sp., Khasia Hills, p. 267, CAMERON, t. c.
- Acolobus oratorius* var. n. *marginalis*, *sericeus* ♂, HABERMEHL, Zeitschr. Hym. Dipt. iii, p. 188.
- Ætheceus variegatus*, Java, TOSQUINET, p. 282, Mem. Soc. ent. Belgique x, **n. sp.**
- Æthria* n. g., near *Celocentrum*, for *Æ. conspicua* n. sp., Java, TOSQUINET, p. 114, t. c.
- Acenites nigrolineatus*, Sumatra, p. 109, *testaceus*, Celebes, p. 112, TOSQUINET, t. c., **n. spp.**
- Agathobanchus æquatus*, description, BRADLEY, p. 144, Ent. News Philad. xiv.
- Aglaocryptus* n. g. *Cryptides*, for *A. curvamaculatus*, p. 31, *striatifrons*, p. 33, **n. spp.**, Khasia Hills, CAMERON, Mem. Manchester Soc. xlvii, No. 14.
- Aglaojoppa flavolineata*, p. 177, *femorata*, p. 178, *cæruleodorsata*, p. 179, Assam, CAMERON, Ann. Nat. Hist. xi; *A. rufofemorata*, p. 363, *violaceipennis*, p. 364, *quadrinaculata*, p. 365, *5-maculata*, *latemaculata*, p. 366, Khasia Hills, CAMERON, op. cit. xii : **n. spp.**
- Algathia albitarsis*, *khasiana*, Assam, CAMERON, Ann. Nat. Hist. xi, p. 315; *A. parvimaculata*, Khasia Hills, CAMERON, op. cit. xii, p. 581 : **n. spp.**
- Amblyjoppa rufocincta*, p. 268, *flavo-ornata*, *violaceipennis*, p. 269, *varipes*, p. 270, *tibialis*, p. 271, Khasia Hills, CAMERON, t. c.; *A. rufipes*, p. 179, *fuscipennis*, p. 180, India, CAMERON, Zeitschr. Hym. Dipt. iii : **n. spp.**
- Amblyteles montivagans* ♂, BERTHOUMIEU, p. 148, Echange 1903.
- A. canariensis*, Teneriffe, *medinai*, Spain, BERTHOUMIEU, p. 310, Bull. Soc. ent. France 1903, **n. spp.**
- Ameloctonus clisiocampæ*, N. America, FISKE, p. 230, Bull. N. Hampsh. exp. Stat. vi, **n. sp.**
- Ancyra* n. g., p. 228, for *A. flavomaculata* n. sp., Khasia Hills, p. 229, CAMERON, Tr. ent. Soc. London 1903.
- Angitia, anomala*, New Guinea, TOSQUINET, p. 16, Mem. Soc. ent. Belgique x, **n. sp.**
- Anisobas laticeps* ♂, BERTHOUMIEU p. 148, Echange 1903.
- Anomalon (Agrypon) caliginosum*, New Guinea, p. 25, *A. ? sumatrensis*, p. 28, *A. (Camposcopus ?) villosum*, p. 31, Sumatra, TOSQUINET, Mem. Soc. ent. Belgique x, **n. spp.**
- Asius* n. g. *Cryptides*, p. 260, for *A. fulvus* n. sp., Sumatra, p. 261, TOSQUINET, t. c.
- Bassus (Homoporus) nigrolineatus*, p. 97, *tauriscorum*, p. 99, Styria, STROBL, Mt. Ver. Steiermark xxxix, **n. spp.**
- Bathycetes nidia*, New Mexico, VIERECK, p. 85, Tr. Amer. ent. Soc. xxix, **n. sp.**
- Belargea* n. g. for *B. albomaculata* n. sp., Khasia Hills, CAMERON, Zeitschr. Hym. Dipt. iii, p. 15.
- Beneclis* n. g. *Phæogenini*, p. 260, for *B. rufomaculatus* n. sp., Ceylon, p. 261, CAMERON, Entomologist xxxvi.
- Benyllus* n. g. *Amblypygi*, for *B. rufus* n. sp., Khasia Hills, CAMERON, p. 232, Tr. ent. Soc. London 1903.
- Bolbomyschus* n. g. near *Hoplismenus*, for *B. albipictus* n. sp., Java, TOSQUINET, p. 342, Mem. Soc. ent. Belgique x.
- Bosmina mandibularis*, Darjeeling, CAMERON, Zeitschr. Hym. Dipt. iii, p. 338, **n. sp.**
- Buathra* n. g., p. 233, for *B. rufiventris* n. sp., Khasia Hills, p. 234, CAMERON, Tr. ent. Soc. London 1903.

- Callajoppa* n. g., p. 236, for *C. bilineata* n. sp., Japan, p. 237, CAMERON, Entomologist xxxvi.
- Campoplex cytaeis*, *prytanes*, Darjeeling, CAMERON, Zeitschr. Hym. Dipt. iii, p. 339; *C. fervidus*, p. 18, Java, *rufiventris*, p. 20, *subniger*, p. 23, Sumatra, TOSQUINET, Mem. Soc. ent. Belgique x : n. spp.
- Caspipina* n. g. for *C. ferruginea* n. sp., Khasia Hills, CAMERON, p. 219, Tr. ent. Soc. London 1903; *C. violaceipennis*, Khasia Hills, CAMERON, Ann. Nat. Hist. xii, p. 580, n. sp.
- Catoglyptus splendens*, Styria, STROBL, p. 29, Mt. Ver. Steiermark xxxix, n. sp.
- Ceratocryptus* n. g. near *Mesostenus*, p. 5, for *C. bituberculatus*, p. 6, *tibialis*, p. 8, n. spp., Khasia Hills, CAMERON, Mem. Manchester Soc. xlvii, No. 14.
- Charitajoppa varicolor*, Khasia Hills, CAMERON, Ann. Nat. Hist. xii, p. 574, n. sp.
- Charmis* n. g. near *Hemiteles*, for *C. limbatus* n. sp., Java, TOSQUINET, p. 274, Mem. Soc. ent. Belgique x.
- Chasmodes experrectus*, Java, TOSQUINET, p. 345, t. c., n. sp.
- Chiaglas varipes*, Assam, CAMERON, Ann. Nat. Hist. xi, p. 314; *C. longicornis*, p. 578, *tinctipennis*, p. 579, *longiventris*, p. 580, Khasia Hills, CAMERON, op. cit. xii : n. spp.
- Chirotica inermis*, New Mexico, VIERECK, p. 83, Tr. Amer. ent. Soc. xxix, n. sp.
- Chlorocryptus* n. g., p. 34, for *C. metallicus*, p. 35, *cæruleus*, p. 36, n. spp., Khasia Hills, CAMERON, Mem. Manchester Soc. xlvii, No. 14.
- Cnemopimpla* n. g., p. 159, for *C. pilosa* n. sp., Machachi, p. 160, CAMERON, Entomologist xxxvi.
- Cnemocryptus* n. g. *Cryptides* for *C. validicornis* n. sp., Khasia Hills, CAMERON, p. 38, Mem. Manchester Soc. xlvii, No. 14.
- Cœnocryptus bimaculatus*, habits, HÖPPNER, pp. 194–202, Allg. Zeitschr. Ent. viii.
- Coleocentrus mollerii* Bingham, referred to *Rhyssa*, CAMERON, Zeitschr. Hym. Dipt. iii, p. 303.
- Cratichneumon restrictus* var. n. *subrestrictus*, VIERECK, p. 77, Tr. Amer. ent. Soc. xxix.
- C. cockerelli*, p. 76, *adonis*, p. 77, *skinneri*, *patroclus*, p. 78, *pluto*, *gracilicornis*, p. 79, New Mexico, VIERECK, t. c., n. spp.
- Cryptopyge tricolor*, *unicolor*, Peru, SZÉPLIGETI, p. 480, Ann. Mus. Hungar. i, n. spp.
- Cryptus verticalis* and *præpes*, position queried, CAMERON, Zeitschr. Hym. Dipt. iii, p. 300; *C. curvicaudus*, *tarsoleucus*, characters of sexes, ROMAN, pp. 77, 78, cuts, Ent. Tidskr. xxiv; *C. pulcherrimus*, pl. xvi, fig. 7, p. 237, KIRBY, Nat. Hist. Sokotra.
- C. adornatus*, Java, p. 168, *albatrus*, Aru, p. 171, *almus*, p. 174, *delenitus*, p. 176, Celebes, *decens*, p. 179, *definis*, p. 181, Java, *depictus*, p. 184, New Guinea, *diffidens*, Celebes, p. 187, *eburatus*, Java, p. 189, *suffitus*, p. 192, Java, *evagatus*, Celebes, p. 194, *fensus*, Java, p. 197, *fulvitergus*, Sumatra, p. 199, *lenocinans*, Sumatra, p. 204, *mobilis*, Java, p. 206, *nigellus*, Celebes, p. 209, *notabilis*, Borneo, p. 211, *oxymorus*, p. 214, *perliberalis*, p. 216, Java, *pisticus*, Sumatra, p. 219, *præclarus*, Java, p. 222, *recalæ*, Borneo, p. 224, *sciolus*, Celebes, p. 227, *scotinus*, Sumatra, p. 229, *serius*, Java, p. 231, *tribax*, Sumatra, p. 233, *C.?* *tripartitus*, Sumatra, p. 236, *C. trossulus*, Mentawai, p. 239, TOSQUINET, Mem. Soc. ent. Belgique x, n. spp.
- Ctenichneumon plicatus*, Britain, MORLEY, Mon. Brit. Ichn., p. 172, n. sp.
- Cultrarius flavobaltecatus*, Darjeeling, CAMERON, Zeitschr. Hym. Dipt. iii, p. 342, n. sp.
- Cyanoocryptus* n. g. near *Joppoceras*, p. 121, for *C. metallicus* n. sp., Ecuador, p. 122, CAMERON, Entomologist xxxvi.

- Cyanojoppa cærulea*, p. 175, *albonotata*, *striata*, p. 176, Assam, CAMERON, Ann. Nat. Hist. xi; *C. rufofemorata*, p. 9, *cæruleicaudis*, p. 10, *nigrocærulea*, p. 12, India, CAMERON, Zeitschr. Hym. Dipt. iii : n. spp.
- Dagathia* n. g. *Cryptides* for *D. brunnea* n. sp., Khasia Hills, CAMERON, p. 29, Mem. Manchester Soc. xlvii, No. 14.
- Darachosia* n. g., p. 221, for *D. fulvipes* n. sp., Khasia Hills, p. 222, CAMERON, Tr. ent. Soc. London 1903.
- Delebaea* n. g. near *Lampronota* for *D. albomaculata*, p. 158, *fuscipes*, p. 159, n. spp., Ecuador, CAMERON, Entomologist xxxvi.
- Delopia* n. g. *Ophionini*, p. 304, for *D. cariniscutis* n. sp., Darjeeling, p. 337, CAMERON, Zeitschr. Hym. Dipt. iii.
- Diadromus cabrerai*, Tenerife, BERTHOUMIEU, p. 310, Bull. Soc. ent. France 1903, n. sp.
- Dicælotus gaullei*, France, BERTHOUMIEU, p. 148, Echange 1903, n. sp.
- Dimetha flavinera*, p. 571, *nigrolineata*, p. 572, Khasia Hills, CAMERON, Ann. Nat. Hist. xii, n. spp.
- Dinotomus spinosus*, England, MORLEY, p. 11, Mon. Brit. Ichn.; *D. ? bicolor*, E. Africa, SZÉPLIGETI, Ann. Mus. Hungar. i, n. sp.
- Dolichoblastus* subg. n., cf. *Monoblastus*.
- Eclytus hematothorax*, Styria, STROBL, p. 66, Mt. Ver. Steiermark xxxix, n. sp.
- Echtrus sibiricus*, Irkutsch, KOKUJEV, p. 288, Rev. Russe Ent. iii; *E. dominator*, Celebes, p. 241, *maculipennis*, Java, p. 244, *cingulatus*, Sumatra, p. 250, *ditissimus*, Java, p. 252, TOSQUINET, Mem. Soc. ent. Belgique x : n. spp.
- Enchistades* n. g. for *E. rufipes* n. sp., Khasia Hills, CAMERON, p. 220, Tr. ent. Soc. London 1903.
- Ephialtes insignis*, Germany, HABERMEHL, Zeitschr. Hym. Dipt. iii, p. 192; *E. feralis*, Sumatra, TOSQUINET, p. 94, Mem. Soc. ent. Belgique x : n. spp.
- Erronemus defectivus*, p. 74, *trochanteratus*, p. 75, *bimucronatus*, p. 76, *annulicornis*, p. 77, Styria, STROBL, Mt. Ver. Steiermark xxxix, n. spp.
- Erythrojoppa lineata*, Assam, CAMERON, Ann. Nat. Hist. xi, p. 184; *E. nigromaculata*, Khasia Hills, CAMERON, op. cit. p. 368 : n. spp.
- Etha* n. g. near *Osprynchotus*, p. 17, for *E. striatifrons*, p. 18, *laevifrons*, p. 20, *plumbea*, p. 21, *fusciventris*, p. 22, *testaceipes*, p. 24, *dentata*, p. 26, *rufo-femorata*, p. 28, n. spp., Khasia Hills, CAMERON, Mem. Manchester Soc. xlvii, No. 14.
- Euryproctus alboannulatus*, p. 32, *albitarsis*, p. 36, *E. (Phobetus) subalpinus*, p. 38, *splendidissimus*, p. 39, *albocoxatus*, p. 40, Styria, STROBL, Mt. Ver. Steiermark xxxix, n. spp.
- Eutanyacra* n. g. for *E. pallidicoxis* n. sp., Khasia Hills, CAMERON, p. 227, Tr. ent. Soc. London 1903; *E. stramineomaculata*, Khasia Hills, CAMERON, Ann. Nat. Hist. xii, p. 576, n. sp.
- Evirchoma* n. g. for *E. pallidimaculata*, n. sp., Khasia Hills, CAMERON, p. 223, Tr. ent. Soc. London 1903.
- Exenterus facetus*, Java, TOSQUINET, p. 42, Mem. Soc. ent. Belgique x, n. sp.
- Exetastes*; British species, larval habits of *E. cinctipes*, MORLEY, Ent. Mag. xxxix, pp. 157-164.
- Exochilum varicolor*, New Mexico, VIERECK, p. 90, Tr. Amer. ent. Soc. xxix, n. sp.
- Exochus fasciatus*, p. 84, *pseudaffinis*, p. 85, Styria, STROBL, Mt. Ver. Steiermark xxxix, n. spp.
- Fedalma* n. g. *Pneustici* for *F. tricolor* n. sp., Assam, CAMERON, Ann. Nat. Hist. xi, p. 318.
- Fovaya* n. g., p. 341, *Mesoleptini* for *F. annulicornis* n. sp., Simla, p. 342, CAMERON, Zeitschr. Hym. Dipt. iii.
- Glypta flavocingulata*, Java, p. 71, *subfusca*, Celebes, p. 73, TOSQUINET,

- Mem. Soc. ent. Belgique x; *G. areolata*, New Mexico, VIERECK, p. 89, Tr. Amer. ent. Soc. xxix : n. spp.
- Gnathoxys flavopictus*, Sumatra, p. 277, *rufigaster*, Java, p. 280, TOSQUINET, Mem. Soc. ent. Belgique x, n. spp.
- Gotra carinifrons*, Khasia Hills, CAMERON, p. 10, Mem. Manchester Soc. xvii, No. 14, n. sp.
- Gurfyia* n. g. *Amblypygi*, p. 178, for *G. albipilosa* n. sp., Simla, p. 179, CAMERON, Zeitschr. Hym. Dipt. iii.
- Habrojoppa leucozona, maculiceps*, Khasia Hills, CAMERON, Ann. Nat. Hist. xii, p. 570, n. spp.
- Hadrocryptus* n. g. *Cryptides*, p. 11, for *H. nasutus* n. sp., Khasia Hills, p. 12, CAMERON, Mem. Manchester Soc. xvii, No. 14.
- Hadrojoppa forticornis*, N. India, CAMERON, Ann. Nat. Hist. xii, p. 272, n. sp.
- Haliphera* n. g. *Amblypygi*, p. 237, for *H. maculipes* n. sp., Darjeeling, p. 238, CAMERON, Entomologist xxxvi.
- Harrimanella ariel*, p. 86, *minor*, p. 87, New Mexico, VIERECK, Tr. Amer. ent. Soc. xxix, n. spp.
- Harsaces* n. g. *Amblypygi*, p. 238, for *H. nigripes* n. sp., Himalaya, p. 239, CAMERON, Entomologist xxxvi.
- Hedycryptus* n. g. p. 298, for *H. filicornis* n. sp., Sikkim, p. 299, CAMERON, Zeitschr. Hym. Dipt. iii.
- Hemiteles khasianus*, p. 44, *intermedius*, p. 45, Khasia Hills, CAMERON, Mem. Manchester Soc. xvii, No. 14; *H. asemus*, Java, p. 269, *decoratus*, Sumatra, p. 271, TOSQUINET, Mem. Soc. ent. Belgique x : n. spp.
- Herpestomus rufithorax*, Tenerife, BERTHOUMIEU, p. 309, Bull. Soc. ent. France 1903, n. sp.
- Herus* n. g. *Pimplides*, p. 394, for *H. sagus* n. sp., Congo, p. 395, TOSQUINET, Mem. Soc. ent. Belgique x.
- Hierax* n. g. near *Macrogaster* for *H. raptor* n. sp., Java, TOSQUINET, p. 255, t. c.
- Homoporus vassilievi*, Russia, ASHMEAD, p. 332, Canad. Ent., xxxv, n. sp.
- Hoplismenus brevispinosus*, p. 347, *capitatus*, p. 350, *citus*, p. 352, *decor*, p. 355, Java, *geniatus*, p. 357, *immitis*, p. 360, Sumatra, *pancarpius*, New Guinea, p. 362, *productus*, p. 365, *signatus*, p. 368, Java, TOSQUINET, Mem. Soc. ent. Belgique x, n. spp.
- Ichneumon fortipes* ♂, *lacrymator* ♀, BERTHOUMIEU, p. 148, Echange 1903; *I.*: varr., *I. guttatus* var. n. *flavipetiolatus*, p. 100, *sarcitorius* varr. n., p. 102, HABERMEHL, Zeitschr. Hym. Dipt. iii.
- I. febilis, kervillei*, France, *cabreai*, p. 308, *canariensis, nivaliensis*, p. 309, Canaries, BERTHOUMIEU, Bull. Soc. ent. France 1903; *I. calculosus, erebeus, gaullei*, p. 147, *famelicosus, fallaciosus*, p. 148, Europe, BERTHOUMIEU, Echange 1903; *I. montanus*, Oberthal, HABERMEHL, Zeitschr. Hym. Dipt. iii, p. 99; *I. venustus*, Transcaspien, KAKUJEV, p. 388, Rev. Russe Ent. iii; *I. absolutus*, Sumatra, p. 290, *efferus*, Mentawai, p. 293, *dædalus*, p. 295, *demissus*, Java, p. 298, *dicas*, Celebes, p. 300, *dispex*, p. 302, *flavodis*, p. 304, *formosulus*, p. 307, Java, *impexus*, Celebes, p. 310, *ludibundus*, p. 312, *metulus*, p. 315, Java, *molliculus*, Sumatra, p. 317, *ocellus*, p. 319, *pensus*, Java, p. 321, *perunctus*, Sumatra, p. 323, *picinus*, p. 326, *properans*, p. 329, Celebes, *requietus*, p. 331, *satageus*, p. 332, Java, *scutulus*, Sumatra, p. 335, *suavidus*, Java, p. 337, *tricosus*, New Guinea, p. 339, TOSQUINET, Mem. Soc. ent. Belgique x : n. spp.
- Icyona* n. g. near *Ctenopelma*, p. 340, for *I. rufipes* n. sp., Simla, p. 341, CAMERON, Zeitschr. Hym. Dipt. iii.
- Ileanta trochanterata*, p. 574, *fulvipes*, p. 575, Khasia Hills, CAMERON, Ann. Nat. Hist. xii, n. spp.

- Imeria* n. g. *Joppini*, p. 173, for *I. albomaculata* n. sp., Assam, p. 174, CAMERON, op. cit.
- Ischnoceros acceptus*, Java, TOSQUINET, p. 67, Mem. Soc. ent. Belgique x, n. sp.
- Ischnopus subbifasciatus*, Peru, SZÉPLIGETI, Ann. Mus. Hungar. i, p. 482, n. sp.
- Javra* n. g., p. 47, near *Phygadeuon*, for *J. parviceps*, p. 48, *longicornis*, p. 49, n. spp., Khasia Hills, CAMERON, Mem. Manchester Soc. xlvii, No. 14.
- Joppa paraguayensis*, Paraguay, *peruana*, p. 477, *marginalis*, *parva*, p. 478, *major*, *bipunctata*, *affinis*, p. 479, Peru, SZÉPLIGETI, Ann. Mus. Hungar. i, n. spp.
- Kentrotryphon* n. g. near *Trematopygus* for *K. longicaudatus* n. sp., Styria, STROBL, p. 71, Mt. Ver. Steiermark xxxix.
- Labrorychus transcaspicus*, Utsh-adshi, KOKUJEV, p. 389, Rev. Russe Ent. iii, n. sp.
- Lachmetha* n. g. near *Protichneumon* for *L. spinatarsis* n. sp., Khasia Hills, CAMERON, Zeitschr. Hym. Dipt. iii, p. 182.
- Lagenesta ferruginea* ♂, CAMERON, Ann. Nat. Hist. xi, p. 185.
- Lamprojoppa fuscinerua*, Khasia Hills, CAMERON, op. cit. xii, p. 574, n. sp.
- Lareiga*, n. g., p. 13, for *L. rufofemorata* n. sp., Khasia Hills, p. 14, CAMERON, Zeitschr. Hym. Dipt. iii.
- Larsephna* n. g. *Hemitelini*, p. 97, for *L. varipes*, p. 120, *flavolineata*, p. 101, n. spp., Ecuador, CAMERON, Entomologist xxxvi.
- Laufeia* n. g. inc. sed., p. 381, for *L. mira* n. sp., Java, p. 382, TOSQUINET, Mem. Soc. ent. Belgique x.
- Legnatia* n. g., p. 225, for *L. fulvipes* n. sp., Khasia Hills, p. 226, CAMERON, Tr. ent. Soc. London 1903.
- Leptocryptus* n. g. *Cryptides*, p. 14, for *L. longiventris* n. sp., Khasia Hills, p. 15, CAMERON, Mem. Manchester Soc. xlvii, No. 14.
- Leptothecus* n. g. *Oxygygi*, p. 240, for *L. rufomaculatus* n. sp., Darjeeling, p. 260, CAMERON, Entomologist xxxvi.
- Limnerium obscuripes*, *australis*, p. 91, *teniolata*, p. 92, New Mexico, VIERECK, Tr. Amer. ent. Soc. xxix, n. spp.
- Linychus* n. g. *Phygadeuonini* for *L. rufipes* n. sp., Ceylon, CAMERON, p. 234, Entomologist xxxvi.
- Lissonota brevicaudis*, Germany?, HABERMEHL, Zeitschr. Hym. Dipt. iii, p. 223; *L. fenella*, p. 83, *electra*, p. 84, New Mexico, VIERECK, Tr. Amer. ent. Soc. xxix : n. spp.
- Lortygia* n. g. *Joppini*, p. 235, for *L. rufa* n. sp., Khasia Hills, p. 236, CAMERON, Entomologist xxxvi.
- Losgna* n. g., p. 229, for *L. forticeps* n. sp., Khasia Hills, p. 230, CAMERON, Tr. ent. Soc. London 1903.
- Lusius* n. g., inc. sed., p. 384, for *L. macilentus* n. sp., Sumatra, p. 385, TOSQUINET, Mem. Soc. ent. Belgique x.
- Macrojoppa hamatodes*, *bifasciata*, Peru, SZÉPLIGETI, p. 481, Ann. Mus. Hungar. i, n. spp.
- Macrosterotrichus* subg. n. cf. *Xylonomus*.
- Mansa conformalis*, p. 264, *pulchricornis*, p. 266, Java, TOSQUINET, Mem. Soc. ent. Belgique x, n. spp.
- Melanomicrus* n. g., p. 287, for *M. elliotti* n. sp., England, p. 288, MORLEY, Mon. Brit. Ichn.
- Meloboris rubriventris*, p. 5, *tibialis tibialis*, p. 7, Java, TOSQUINET, Mem. Soc. ent. Belgique x, n. spp.
- Meniscus occidentalis*, New Mexico, VIERECK, p. 84, Tr. Amer. ent. Soc. xxix, n. sp.
- Mesitius myrmecophilus*, Texas, BRUES, p. 124, Tr. Amer. ent. Soc. xxix, n. sp.

- Mesochorus impiger*, N. Guinea, TOSQUINET, p. 1, Mem. Soc. ent. Belgique x;
M. arcolatus, New Mexico, VIERECK, p. 92, Tr. Amer. ent. Soc. xxix :
n. spp.
- Mesoleius leucomelas*, Schwerin, HABERMEHL, Zeitschr. Hym. Dipt. iii,
 p. 347; *M. jugorum*, p. 11, *albotibialis*, p. 13, *fuscotrochanteratus*, p. 14,
albicoxis, p. 18, *compressiventris*, p. 20, *lævissimus*, p. 24, *subcoriaceus*,
 p. 27, Styria, STROBL, Mt. Ver. Steiermark xxxix : **n. spp.**
- Mesoleptus alticola*, Admont, STROBL, p. 5, t. c., **n. sp.**
- Mesostenus actuarius*, Celebes, p. 121, *anthracinus*, Timor, p. 123, *austerus*,
 p. 125, *disgregus*, p. 129, *enitescens*, p. 131, *erroneus*, p. 134, New
 Guinea, *extensus*, Java, p. 137, *eversor*, Celebes, p. 140, *falsosus*, p. 144,
interritus, p. 146, Java, *ominosus*, Celebes, p. 155, *palatus*, New Guinea,
 p. 158, *pellax*, Borneo, p. 160, *pudens*, p. 163, *simulator*, p. 165, New
 Guinea, TOSQUINET, Mem. Soc. ent. Belgique x, **n. spp.**
- Moansa exquisitus*, p. 57, Java, *ornatus*, Sumatra, p. 60, *spectabilis*, New
 Guinea, p. 63, TOSQUINET, t. c., **n. spp.**
- Monoblastus* (*Dolichoblastus* subg. n.) *flavopictus*, Styria, STROBL, p. 52,
 Mt. Ver. Steiermark xxxix, **n. sp.**
- Myermo fumipennis*, p. 316, *maculitarsis*, p. 317, Assam, CAMERON, Ann.
 Nat. Hist. xi, **n. spp.**
- Nanaria* n. g. *Heresiarchini* for *N. grandiceps* n. sp., Assam, CAMERON,
 t. c. p. 313.
- Nemeritis albovaria*, Sumatra, p. 9, *cana*, Java, p. 12, TOSQUINET, Mem.
 Soc. ent. Belgique x, **n. spp.**
- Notopygus alpinus*, p. 42, *N. (Glyptocentrus) flavopictus*, p. 44, *N.*
(Eriglea) flavoscutellatus, p. 45, Styria, STROBL, Mt. Ver. Steiermark
 xxxix, **n. spp.**
- Obba micans*, Congo, TOSQUINET, p. 397, Mem. Soc. ent. Belgique x, **n. sp.**
- Occia* n. g. *Pimplides* for *O. pulchella* n. sp., Mysol, TOSQUINET, p. 48, t. c.
- Odontocryptus* n. g. near *Hemiteles* for *O. bidentatus*, p. 40, *sulcatus*, p. 42,
n. spp., Khasia Hills, CAMERON, Mem. Manchester Soc. xvii, No. 14.
- Odontojoppa* n. g., p. 16, for *O. metallica* n. sp., Khasia Hills, p. 177,
 CAMERON, Zeitschr. Hym. Dipt. iii.
- Ædicephalus aureolus*, Celebes, TOSQUINET, p. 370, Mem. Soc. ent. Belgique x,
n. sp.
- Ophion trilobus* Br. redescribed, TOSQUINET, p. 40, Mem. Soc. ent.
 Belgique x.
- O. elumbis*, p. 33, N. Guinea, *O. (Allocamptus) corculus*, Celebes, p. 35,
O. (Enicospilus) signativentris, p. 37, Sumatra, TOSQUINET, t. c., **n. spp.**
- Ophionopsis* n. g. for *O. fulvipes*, p. 389, *nigrocyaneus*, p. 392, **n. spp.**,
 Africa, TOSQUINET, t. c.
- Oronotus celer*, Java, TOSQUINET, p. 285, t. c., **n. sp.**
- Orthocentrus macrocerus*, Styria, STROBL, p. 88, Mt. Ver. Steiermark xxxix,
n. sp.
- Pagarenes* n. g. *Phæogenini*, p. 183, for *P. erythropus* n. sp., Khasia Hills,
 p. 184, CAMERON, Zeitschr. Hym. Dipt. iii.
- Paniscus nigriventris* Br. redescribed, TOSQUINET, p. 2, Mem. Soc. ent.
 Belgique x.
- Parabates whymperi*, Chimborazo, CAMERON, p. 160, Entomologist xxxvi,
n. sp.
- Perilissus punctatissimus*, Styria, STROBL, p. 63, Mt. Ver. Steiermark xxxix,
n. sp.
- Pezomachus birkmani*, *maculicollis*, p. 121, *angularis*, p. 122, *crassulus*,
wheeleri, p. 123, N. America, BRUES, Tr. Amer. ent. Soc. xxix, **n. spp.**
- Phæogenes fulvidens*, Spain, BERTHOUMIEU, p. 310, Bull. Soc. ent. France
 1903; *P. beulahensis*, New Mexico, VIERECK, p. 80, Tr. Amer. ent.
 Soc. xxix : **n. spp.**
- Phygadeuon nanopterus* Bitsch, KIEFFER, Zeitschr. Hym. Dipt. iii, p. 111;

- P. polita*, New Mexico, VIERECK, p. 82, Tr. Amer. ent. Soc. xxix; *P. pulchripes*, Khasia Hills, CAMERON, p. 46, Mem. Manchester Soc. xlvii, No. 14 : n. spp.
- Phytodietus decorosus* Java, TOSQUINET, p. 107, Mem. Soc. ent. Belgique x, n. sp.
- Pimpla zonata*, *affinis*, p. 219, *kriechbaumeri*, p. 220, Germany, HABERMEHL, Zeitschr. Hym. Dipt. iii; *P. arrosor*, p. 75, *depulsator*, p. 77, Celebes, *disgrex*, New Guinea, p. 79, *nigricolor*, Celebes, p. 81, TOSQUINET, Mem. Soc. ent. Belgique x; *P. neomexicana*, New Mexico, VIERECK, p. 88, Tr. Amer. ent. Soc. xxix : n. spp.
- Platylabus*, table of N. American, BRADLEY, pp. 275–283, Canad. Ent. xxxv; *P. gigas* ♂, BERTHOUMIEU, p. 308, Bull. Soc. ent. France 1903.
- P. cabrerai*, Tenerife, BERTHOUMIEU, p. 309, Bull. Soc. ent. France 1903; *P. ferrugineus*, Ceylon, CAMERON, p. 237, Entomologist xxxvi; *P. luzernensis*, p. 279, *metallicus*, p. 280, N. America, BRADLEY, Canad. Ent. xxxv : n. spp.
- Plesiocryptus* n. g., p. 299, for *P. carinifrons* n. sp., Simla, p. 300, CAMERON, Zeitschr. Hym. Dipt. iii.
- Plesiognathus fragilis*, New Mexico, VIERECK, p. 82, Tr. Amer. ent. Soc. xxix, n. sp.
- Pecilojoppa variegata*, Peru, SZÉPLIGETI, Ann. Mus. Hungar. i, n. sp.
- Polyenus cingulatus*, New Guinea, TOSQUINET, p. 45, Mem. Soc. ent. Belgique x, n. sp.
- Polyblastus bipunctatus*, p. 55, *longiceps*, p. 56, *punctatissimus*, p. 57, *rufofasciatus*, p. 59, *albotrochanteratus*, p. 61, Styria, STROBL, Mt. Ver. Steiermark xxxix, n. spp.
- Porizon vierecki*, New Mexico, COCKERELL, Ann. Nat. Hist. xii, p. 200; *P. canaliculatus*, New Mexico, VIERECK, Tr. Amer. ent. Soc. xxix : n. spp.
- Pramha* n. g. *Amblypygi* for *P. mandibularis* n. sp., Khasia Hills, CAMERON, p. 231, Tr. ent. Soc. London 1903.
- Proboloides* n. g., p. 160, for *P. glabratus*, *maculatus* n. spp., Britain, p. 161, MORLEY, Mon. Brit. Ichn.
- Procinctus frauenfeldi*, ♂, ♀ = (*Heterolabis petiolata* Kr.), HABERMEHL, Zeitschr. Hym. Dipt. iii.
- Pyracmon pectoralis* ♀, HABERMEHL, t. c. p. 348.
- P. rufiventris*, Java, TOSQUINET, p. 14, Mem. Soc. ent. Belgique x, n. sp.
- Pyramidophorus flavoguttatus* ♂, HABERMEHL, Zeitschr. Hym. Dipt. iii, p. 189; *P. flavoguttatus* ♂, BERTHOUMIEU, p. 149, Echange 1903.
- Rhorus braunsi*, Germany, HABERMEHL, Zeitschr. Hym. Dipt. iii, p. 346, n. sp.
- Rhyssa*; oviposition on *Sirex*, STEBBING, Forestry Insects, No. 2, pp. 156–158.
- R. veteratrix*, New Guinea, TOSQUINET, p. 100, Mem. Soc. ent. Belgique x; *R. skinneri*, New Mexico, VIERECK, p. 87, Tr. Amer. ent. Soc. xxix : n. spp.
- Sarntheimia gansuana*, China, KOKUJEV, p. 389, Rev. Russe Ent. iii, n. sp.
- Satrius* n. g. inc. sed., p. 377, for *S. ornatus* n. sp., Matawei, p. 378, TOSQUINET, Mem. Soc. ent. Belgique x.
- Setanta femoralis*, Khasia Hills, CAMERON, Ann. Nat. Hist. xii, p. 577, n. sp.
- Silsila* n. g. *Cryptinae*, p. 1, for *S. fulvipes*, p. 2, *bilineata*, p. 4, n. spp., Khasia Hills, CAMERON, Mem. Manchester Soc. xlvii, No. 14.
- Spillocryptus exareolatus*, *neomexicanus*, New Mexico, VIERECK, p. 81, Tr. Amer. ent. Soc. xxix, n. spp.
- Steriphocryptus* n. g. near *Callicryptus*, p. 233, for *S. luteus* n. sp., Darjeeling, p. 234, CAMERON, Entomologist xxxvi.
- Suvatta* n. g. near *Polycyrtus*, p. 301, for *S. laevifrons*, *rugifrons* n. spp., India, p. 302, CAMERON, Zeitschr. Hym. Dipt. iii.

- Sycaonia* n. g. for *S. rufofacies* n. sp., Khasia Hills, CAMERON, p. 224, Tr. ent. Soc. London 1903.
- Syrites* n. g. *Cryptides*, p. 117, for *S. acanthogaster* n. sp., Sumatra, p. 118, TOSQUINET, Mem. Soc. ent. Belgique x.
- Taphanes* n. g. *Oxyptigi*, for *T. rufiventris* n. sp., Darjeeling, CAMERON, p. 240, Entomologist xxxvi.
- Teleutea macilenta*, Java, TOSQUINET, p. 89, Mem. Soc. ent. Belgique x, n. spp.
- Theronia fulvescens* var. n. *mellipennis*, VIERECK, p. 88, Tr. Amer. ent. Soc. xxix.
- T. callida*, Java, TOSQUINET, p. 91, Mem. Soc. ent. Belgique x, n. sp.
- Thyreodon rufithorax* cf. *Tipulophion*.
- Tipulophion rufithorax* Cam. as (*Thyreodon*)=*gigas* Kr., SCHULZ, Zeitschr. Hym. Dipt. iii, p. 250, ♂ described, p. 252.
- Trematopygus levithorax*, Styria, STROBL, p. 69, Mt. Ver. Steiermark xxxix, n. sp.
- Trichrus* n. g. inc. sed., p. 373, for *T. stupenda* n. sp., Java, p. 374, TOSQUINET, Mem. Soc. ent. Belgique x.
- Trichopimpla* n. g. *Acenitini*, p. 303, for *T. pilosa* n. sp., Simla, p. 304, CAMERON, Zeitschr. Hym. Dipt. iii.
- Tryphon genalis*, p. 48, *bidentatus*, p. 49, Styria, STROBL, Mt. Ver. Steiermark xxxix, n. spp.
- Tyanites* n. g. near *Probus*, for *T. rufipes* n. sp., Antisana, CAMERON, p. 95, Entomologist xxxvi.
- Ulesta* n. g. *Oxyptigi*, p. 582, for *U. varicornis* n. sp., Khasia Hills, p. 583, CAMERON, Ann. Nat. Hist. xii.
- Vabsaris* n. g. near *Amblyteles*, for *V. forticornis* n. sp., Antisana, CAMERON, p. 96, Entomologist xxxvi.
- Whymperia* n. g. near *Habrocryptus*, p. 122, for *W. carinifrons* n. sp., Ecuador, p. 123, CAMERON, t. c.
- Xanthojoppa nigrolineata*, p. 182, *crassispina*, p. 183, Assam, CAMERON, Ann. Nat. Hist. xi ; *X. geniculata*, p. 367, *femorata*, p. 369, Khasia Hills, CAMERON, op. cit. xii : n. spp.
- Xestojoppa bilineata*, p. 568, *X. ? maculiceps*, p. 569, Khasia Hills, CAMERON, t. c., n. spp.
- Xorides opacus*, Irkutsk, KOKUJEV, p. 287, Rev. Russe Ent. iii ; *X. comis*, Borneo, TOSQUINET, p. 51, Mem. Soc. ent. Belgique x : n. spp.
- Xylonomus alpestris*, Centr. Europe, HABERMEHL, Zeitschr. Hym. Dipt. iii, p. 224 ; *X. (Macrosterotrichus)* subg. n., p. 287, *jakovlevi*, Irkutsk, KOKUJEV, p. 288, Rev. Russe Ent. iii ; *X. blanditor*, p. 53, Java, *morulus*, p. 55, New Guinea, TOSQUINET, Mem. Soc. ent. Belgique x : n. spp.

BRACONIDÆ.

[Cf. ASHMEAD (42, 45), CAMERON (272), FISKE (154), KOKUJEV (861, 862), MELANDER & BRUES (999), SZÉPLIGETI (1505-1507), VAYSSIÈRE & GERBER (1593), VIERECK (1604).]

SZÉPLIGETI gives a new edition of his 1901 [Zool. Rec. Ins. Titles (1349)] tables of palæarctic *Braconidæ*, subfam. *Braconini* and *Sigalphoini*, some n. spp. being added, Math. naturw. Ber. Ungarn xix, pp. 145-201. It is however difficult to decide which are the n. spp. as those described in 1901 are still marked "n. sp." We must therefore leave students to collate the two works themselves.

- Agathis parvus*, New Mexico, VIERECK, p. 96, Tr. Amer. ent. Soc. xxix, n. sp.
- Anarcha micans*, New Mexico, VIERECK, p. 93, t. c., n. sp.

- Apanteles clisiocampæ*, N. America, ASHMEAD, p. 229, Bull. N. Hampsh. exp. Stat. vi, n. sp.
- Bæognatha* n. g. *Agathidinae*, for *B. turanica* n. sp., Transcaspian, KOKUJEW, p. 243, Horæ Soc. ent. Ross. xxxvi.
- Bracon nicevillei*, pl. vii, fig. 2, p. 177, Indian Mus. Notes v.
- B. marshalli*, S. France, on *Apion*, VAYSSIÈRE & GERBER, pp. 56-66, Ann. Fac. Marseille xiii, n. sp.
- Celestiella* n. g., *Meteorinae* aberrant, p. 343, for *C. testaceipes* n. sp., Simla, p. 344, CAMERON, Zeitschr. Hym. Dipt. iii.
- Chelonus brevipennis*, Massachusetts, MELANDER & BRUES, p. 20, Biol. Bull. v; *C. australis*, New Mexico, VIERECK, p. 95, Tr. Amer. ent. Soc. xxix : n. spp.
- Disophrys dissors*, p. 245, *manifesta*, p. 246, Transcaspian, KOKUJEW, Horæ Soc. ent. Ross. xxxvi, n. spp.
- Doryctes marothiensis*, Hungary, SZÉPLIGETI, p. 134, Allatt. Kozl. 1902, n. sp.
- Meteorus agilis*, p. 94, *mellinervus*, p. 95, New Mexico, VIERECK, Tr. Amer. ent. Soc. xxix, n. spp.
- Microdus fumipennis*, pl. vii, fig. 1, p. 107, Indian Mus. Notes v.
- M. meridionalis*, New Mexico, VIERECK, p. 96, Tr. Amer. ent. Soc. xxix, n. sp.
- Myosoma hirtipes* = (*Acanthobracon lagopus* Kr.), SCHULZ, p. 253, Berlin. ent. Zeitschr. xlviii.
- Orgilus kearfotti*, New Jersey, ASHMEAD, p. 144, J. N. York Ent. Soc. xi, n. sp.
- Phanerotoma fracta*, Mongolia, *parva*, p. 285, *minuta*, p. 286, Transcaspian, KOKUJEW, Rev. Russe Ent. iii, n. spp.
- Protapanteles recurvariae*, New Jersey, ASHMEAD, p. 144, J. N. York Ent. Soc. xi, n. sp.
- Rhogas diversus*, pp. 110 & 114, *similis*, pp. 111 & 114, Hungary, SZÉPLIGETI, Allatt. Kozl. 1903; *R. sibiricus*, Irkutsk, KOKUJEW, p. 286, Rev. Russe Ent. iii; *R. nigricoxis*, New Mexico, VIERECK, p. 97, Tr. Amer. ent. Soc. xxix : n. spp.

EVANIIDÆ.

[Cf. ENDERLEIN (461), KIEFFER (25, 822, 823, 828), SZÉPLIGETI (1503).]

KIEFFER publishes the first portions of the tabulation of European and Algerian *Evaniide*, being pp. 347-432 of André Spec. Hym. Eur. Alg. vii bis (or *Cynipides* ii).

- Anaulacus* n. g. for *Aulacus sibiricola*, SEMENOV, p. 173, Rev. Russe Ent. iii.
- Aulacinus planiceps*, p. 390, *biroi*, p. 391, New South Wales, *brasiliensis*, *notatus*, Brazil, p. 392, SZÉPLIGETI, Ann. Mus. Hungar. i, n. spp.
- Aulax*, see also *Cynipide*.
- Aulax pterostigmatus*, New Guinea, SZÉPLIGETI, p. 394, Ann. Mus. Hungar. i, n. sp.
- Brachygaster*, *E. nitida* Cam, referred to, KIEFFER, Zeitschr. Hym. Dipt. iii, p. 111.
- B. oculata*, Brazil, SZÉPLIGETI, p. 377, Ann. Mus. Hungar. i, n. sp.
- Eufoenus* n. g. for *Evania antennalis* etc., SZÉPLIGETI, p. 365, Ann. Mus. Hungar. i.
- Evania schlettereri* Kohl and *cribrata* Sem. are the same, SEMENOV, p. 199, Rev. Russe Ent. iii; *E. punctata* varr. n. *glabrescens*, *græca*, SZÉPLIGETI, p. 379, Ann. Mus. Hungar. i.
- E. orientalis*, Borneo and Sumatra, *alboannulata*, Java, p. 380, *parva*, Singapore, *pubipennis*, p. 381, *pulchra*, p. 382, *lombokiensis*, Lombok,

- chinensis*, China, *australiensis*, N. S. Wales, p. 383, *tomentosa*, New Guinea, p. 384, *similata*, *similis*, *major*, p. 385, *pilifera*, p. 386, N. S. Wales, *rufidorsum*, p. 387, *pulcherrima*, p. 388, Brazil, SZÉPLIGETI, t. c., n. spp.
- Evaniscus* n. g. near *Evania* for *E. tibialis* n. sp., Venezuela, SZÉPLIGETI, p. 378, t. c.
- Gasteruption*; table of palæarctic, SZÉPLIGETI, pp. 367–370, Ann. Mus. Hungar. i; *G. ignorata*, n. n. for *jaculator* Ab., KIEFFER, p. 406, Spec. Hym. Eur. Alg. vii bis.
- G. andrei*, Victoria, KIEFFER, Zeitschr. Hym. Dipt. iii, p. 384; *G. foveolum*, p. 370, *caudatum*, *exiguum*, p. 371, *floreum*, Hungary, *syriacum*, Syria, p. 372, *biroi*, *coriaceum*, New Guinea, *proximum*, Moluccas, p. 373, *hyalinipenne*, N. S. Wales, *fallaciosum*, Brazil, p. 374, SZÉPLIGETI, Ann. Mus. Hungar. i : n. spp.
- Hyptia*; to this are referred *E. crassa*, *dorsalis*, *guatemalensis*, *rugosa* Cam., KIEFFER, Zeitschr. Hym. Dipt. ii, p. 111.
- H. nigriventris*, p. 375, *brasiliensis*, *similis*, p. 376, Brazil, SZÉPLIGETI, Ann. Mus. Hungar. i, n. spp.
- Hyptiogaster* n. g. near *Gasteruption*, type *G. crassiceps* Schlett., KIEFFER, p. 93, Bull. Soc. ent. France 1903.
- Ibalia cultellator*, *schirmeri*, habits, SCHIRMER, Soc. ent. xviii, p. 121.
- Monomachus bicolor*, Espirito Santo, SZÉPLIGETI, p. 388, Ann. Mus. Hungar. i, n. sp.
- Odontaulacus* n. g., p. 382, species not yet indicated, KIEFFER, Spec. Hym. Eur. Alg. vii bis.
- Pristaulacus (Deraiodontus) caudatus*, *tricolor*, Minas Geraes, p. 393, *P. major*, N. S. Wales, p. 394, SZÉPLIGETI, Ann. Mus. Hungar. i, n. spp.
- Pseudevania*; to this are referred *E. trochanterata* and *E. marginata* Cam., KIEFFER, Zeitschr. Hym. Dipt. iii, p. 111.
- Pseudofœnus kiefferi*, p. 365, *nasutus*, *azurescens*, p. 366, New Guinea, SZÉPLIGETI, Ann. Mus. Hungar. i, n. spp.
- Semenovia* n. g., p. 382, species not yet indicated, KIEFFER, Spec. Hym. Eur. Alg. vii bis.
- Tetraconus* n. g. near *Monomachus* for *T. mocsaryi* n. sp., Espirito Santo, SZÉPLIGETI, p. 389, Ann. Mus. Hungar. i.
- Zeuxevania globiceps*, p. 41, *tenuistilus*, p. 43, Lake Nyassa, ENDERLEIN, Berlin. ent. Zeitschr. xlvi, n. spp.

CHALCIDIDÆ.

[Cf. ASHMEAD (48, 49), BLOESCH (139), ECKEL (441), ENDERLEIN (449), FISKE (514), KRYGER (889), MAYR (985), MELANDER & BRUES (999), PIERRE (1179), TAVARES (1510), VATSSIÈRE & GERBER (1593), VIERECK (1604), WEBSTER (1655).]

Notes on hosts of Danish trimerous *Chalcididæ*, KRYGER, Ent. Meddel. 1903, pp. 192–197.

Cheiloneurus swezeyi, N. America, ASHMEAD, p. 193, Ent. News Philad. xiv, n. sp.

Chiloneurus swezeyi, natural history, SWEZEY, p. 446, pl. xxi, figs. 3–6, Ohio Natural. iii.

Dibrachys boucheanus, natural history, FISKE, pp. 224–227, Bull. N. Hampsh. exp. Stat. vi.

Eupelmus ashmeadi, Massachusetts, MELANDER & BRUES, p. 21, Biol. Bull. v, n. sp.

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CYNIPIDÆ.

[Cf. ASHMEAD (38-41, 46), BEIJERINCK (92), BIGNELL (127), BLOESCH (139), CECCONI (291), COCKERELL (325), GIRAULT (625), KIEFFER (25, 822, 824-828), KORLEVIĆ (880), LEWIS (935), NIELSEN (1068), DE STEFANI PEREZ (1113-1116), TAVARES (1510).]

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- P. acconus*, Sikkim, p. 43, pl. i, figg. 1, 2, *gylippos*, Asku, p. 45, FRUHSTORFER, Iris Dresden xvi, n. spp.
- Pathysa naiva*, Travancore, p. 22, pl. 475, fig. 1, *P. pernomius*, Sikkim, p. 29, pl. 478, fig. 1, MOORE, Lep. Ind. vi, n. spp.
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PIERIDÆ.

- [Cf. CLARK (312), DIXEY (406), ELWES (447), FAWCETT (497), FRUHSTORFER (572), JACHONTOV (754), SCHULTZ (1361), SHARPE (1415), THURAU (1533), WAGNER (1619), WEYMER (1675).]
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- Seasonal trimorphism, Russian *Pieridæ*, JACHONTOV, Rev. Russe Ent. iii, pp. 157-160.
- Gynandromorph *Pierids*: *Gonepteryx* and *Colias*, SCHULTZ, pp. 270-272, Berlin. ent. Zeitschr. xlvi.
- Pieridæ*, new varr. from E. Asia, FRUHSTORFER, Soc. ent. xviii, pp. 35, 36.
- Tonkin *Pieridæ*, FRUHSTORFER, Soc. ent. xviii, pp. 41, 42.
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- Migration of *Pieridæ* in Venezuela, CLARK, pp. 219-222, Canad. Ent. xxxv.
- Anthocharis genutia*, larval habits, HORNIG, p. 252, Ent. News Philad. xiv.
- Aporia crategi*, life-history, BATTLE, pp. 249-251, Entomologist xxxvi.
- Baltia sikkima*, Sikkim, FRUHSTORFER, p. 50, Iris Dresden xvi, n. sp.
- Belenois teutonia anita* subsp. n., FRUHSTORFER, p. 107, Berlin. ent. Zeitschr. 1903; *B. anomala*, ♂, pl. xix, fig. 4, p. 309, OGILVIE-GRANT, Nat. Hist. Socotra.
- Catopsilia scylla bangkejana* subsp. n., FRUHSTORFER, Soc. ent. xviii, p. 73.

- Colias erate*, *myrmidone*, *hyale*, new varr., KRULIKOVSKY, pp. 301, 302, Rev. Russe Ent. iii; *C. nastes*, varr., THURAU, pp. 113-116, cuts, Berlin. ent. Zeitschr. xlviii; *C. phicomone phila* subsp. n., *C. palæno aias* subsp. n., p. 47, *C. eogene miranda* subsp. n., p. 48, pl. i, figg. 3, 4, FRUHSTORFER, Iris Dresden xvi.
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- Mylothris narcissus*, varr. n., THURAU, pp. 140-142, pl. ii, fig. 13, Berlin. ent. Zeitschr. xlviii.
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- Pieris brassicæ* ab. n. *nigronotata*, JACHONTOV, p. 38, Rev. Russe Ent. iii; *P. rapæ* varr. *manni* and *rossii*, characters, SCHIMA, pp. 566-568, Verh. Ges. Wien liii; *P. napi*, variation, WAGNER, Verh. Ges. Wien liii, pp. 174-178, pl. i; *P. thysa* var. n. *obumbrata*, p. 228, *P. theora* var. n. *leta*, p. 229, WEYMER, Iris Dresden xvi; *P. gidica*, larva, pl. vi, figg. 17, 18, pupa, figg. 19, 20, FAWCETT, p. 168, Tr. Zool. Soc. London xvii.
- P. hospitis*, E. Africa, WEYMER, p. 226, Iris Dresden xvi; *P. itatiayæ*, Brazil, pl. xvi, fig. 5, p. 624, FOETTERLE, Revist. Mus. Paulista v: n. spp.
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- Prioneris thestylis formosana*, subsp. n., FRUHSTORFER, p. 109, Berlin. ent. Zeitschr. xlviii.
- Rhodocera cleopatra* var. *italica*, STEFANELLI, p. 80, Bull. Soc. ent. Ital. xxxv.
- Tatochila autodice*, pl. xii, figg. 1-4, *demodice*, figg. 7, 8, p. 292, ELWES, Tr. ent. Soc. London 1903.
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- Trifurcula* n. g. (GROTE, previously), cf. GROTE, Canad. Ent. xxxv, p. 139.

DANAIDÆ and ITHOMIIDÆ.

[Cf. FRUHSTORFER (573), HAENSCH (661), ROTHSCHILD & JORDAN (1295).]

- Abyssian *Danaidæ*, ROTHSCHILD & JORDAN, Nov. Zool. x, pp. 501, 502.
- Ithomiinae* of Ecuador, HAENSCH, Berlin. ent. Zeitschr. xlviii, pp. 157-213, pl. iii.
- Amauris*; Abyssinian with new varieties, ROTHSCHILD & JORDAN, Nov. Zool. x, pp. 503, 504; *A. echeria* var. n. *oscarus*, THURAU, p. 301, Berlin. ent. Zeitschr. xlviii.
- Calloleria* (= *Epileria* Reb.), HAENSCH, p. 185, Berlin. ent. Zeitschr. xlviii.
- C. radiosa*, Ecuador, HAENSCH, pl. iii, fig. 10, p. 187, t. c., n. sp.
- Ceratinia moebiusi*, p. 169, pl. iii, fig. 3, *tenna*, fig. 4, *napona*, p. 171, Ecuador, HAENSCH, t. c., n. spp.
- Crastia circuta*, *tonkinensis*, Tonkin, SWINHOE, Ann. Nat. Hist. xi, p. 499, n. spp.
- Dircenna visina*, pl. iii, fig. 7, p. 178, *suna*, *vandona*, fig. 8, *loreta*, p. 179, Ecuador, HAENSCH, Berlin. ent. Zeitschr. xlviii, n. spp.
- Dismenitis* n. g., p. 207 for Sect. B of *Hymenitis*, with *D. hewitsoni*, p. 208, *hermana*, p. 209, n. spp., Ecuador, HAENSCH, t. c.
- Episcada præstigiosa*, Ecuador, HAENSCH, p. 196, t. c., n. sp.
- Éuplæa*; varr. n., FRUHSTORFER, pp. 87-93, Berlin. ent. Zeitschr. 1903.

- Hestia*; revision with subspp. n., FRUHSTORFER, pp. 51–58, Iris Dresden xvi.
Heterosais pallidula, Ecuador, HAENSCH, p. 212, Berlin. ent. Zeitschr. xlviii, n. sp.
Hymenitis umbrosa, pl. iii, fig. 23, p. 210, *ochretis*, p. 211, Ecuador, HAENSCH, t. c., n. spp.
Hypoleria karschi, pl. iii, fig. 19, *oculata*, fig. 20, p. 204, HAENSCH, t. c., n. spp.
Hyposcada ida, Ecuador, pl. iii, fig. 11, p. 188, HAENSCH, t. c., n. sp.
Ithomia morena, p. 182, *terrana*, p. 183, *amarilla*, pl. iii, fig. 9, p. 184, HAENSCH, t. c., n. spp.
Leucothyris sexmaculata, pl. iii, fig. 12, p. 190, *assimilis*, p. 191, *santineza*, fig. 13, p. 192, *banjana*, p. 193, *fasciata*, *baizana*, *makrenita*, pl. iii, fig. 14, p. 194, *modesta*, *quadrata*, p. 195, Ecuador, HAENSCH, t. c., n. spp.
Miraleria n. g. type *cymothoë*, Hew., HAENSCH, p. 211, t. c.
Napeogenes quadrilla, pl. iii, fig. 4, p. 174, *avila*, p. 176, Ecuador, HAENSCH, t. c., n. spp.
Nectaria; revision with subspp. n., *N. leucoñoë javana*, fig., p. 60, FRUHSTORFER, pp. 58–65, Iris Dresden xvi; *N. idea vosseleri* var. n., FRUHSTORFER, Soc. ent. xviii, p. 73.
Pseudoscada subtilis, Ecuador, HAENSCH, pl. iii, fig. 18, p. 203, Berlin. ent. Zeitschr. xlviii, n. sp.
Pteronymia barilla, pl. iii, fig. 15, *inania*, p. 197, *serrata*, *santanella*, fig. 16, p. 198, *glauca*, fig. 17, p. 201, HAENSCH, t. c., n. spp.
Saletara panda engania and *chrysea* subspp. n., FRUHSTORFER, Soc. ent. xviii, p. 124.

ACRÆIDÆ and HELICONIIDÆ.

- [Cf. BETHUNE-BAKER (114), DRUCE (415), FRUHSTORFER (568), STICHEL (1483), THURAU (1533, 1534), WEYMER (1675).]
Acræa; 5 varr. from E. and Centr. Africa, THURAU, pp. 303–306, Berlin. ent. Zeitschr. xlviii; *A. igola leonina* subspp. n., BETHUNE-BAKER, Ann. Nat. Hist. xii, p. 325; *A. acrita bella*, pl. ii, fig. 4, *A. acontias decora*, fig. 5, *A. terpsichore* var. n. *bukoba*, fig. 6, p. 225, WEYMER, Iris Dresden xvi.
A. emini, p. 221, pl. ii, fig. 2, *wissmanni*, p. 223, fig. 3, Africa, WEYMER, Iris Dresden xvi; *A. goetzei*, pl. ii, fig. 10, p. 132, *fulleborni*, fig. 7, p. 133, Lake Nyassa, THURAU, Berlin. ent. Zeitschr. xlviii: n. spp.
Actinote sarsanda, *elatus*, Ecuador, *chea*, Colombia, DRUCE, Ann. Nat. Hist. xii, p. 220, n. spp.
Eueides; list of known forms with many new varietal names, STICHEL, pp. 1–34, pl. i, Berlin. ent. Zeitschr. xlviii.
Planema epæa var. n. *melina*, THURAU, p. 135, Berlin. ent. Zeitschr. xlviii.

NYMPHALIDÆ.

- [Cf. ALBISSON (20), AURIVILLIUS (54), BAUER (84A), DRUCE (415), DUPONT (423), DUPUY (425), FAWCETT (497), FOETTERLE (525), FRUHSTORFER (566, 570), GIARD (615), LATHY (914, 915), MARTIN (978), MENGEL (1002), POULTON (1197), RÖBER (1268), ROCQUIGNY-ADANSON (1275), ROTHSCHILD (1290), ROTHSCHILD & JORDAN (1292, 1295), SCHULTZ (1361), SIÉPI (1420), SLEVOGT (1433), SWINHOE (1500), THURAU (1533).]
Gynandromorph *Nymphalidæ*; *Apatura*, *Argynnis*, SCHULTZ, pp. 272, 273, Berlin. ent. Zeitschr. xlviii.
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- Antanartia* n. g. for African forms of *Hypanartia*, ROTHSCHILD & JORDAN, Nov. Zool. x, p. 508.
- Apatura* var. n. *thamantantis*, SCHULTZ, Soc. ent. xvii, p. 161.
- Argynnis* *paphia*, variation, AIGNER-ABAFI, pp. 162-164, Verh. Ges. Wien liii; *A. pales* var. n. *balcanica*, REBEL, p. 169, Ann. Hofmus. Wien xviii; *A. pales eupales* subsp. n., *A. eugenia genia* subsp. n., FRUHSTORFER, Soc. ent. xviii, p. 124; *A. aglaia* var., cut, GEEST, p. 309, Allg. Zeitschr. Ent. viii; *A. lathonia*, egg and early stages, FROHAWK, pp. 300-304, Entomologist xxxvi; *A. hyperbius aruna*, ROTHSCHILD & JORDAN, Nov. Zool. x, p. 508. *A. nitocris*, note, SKINNER, p. 36, Tr. Amer. ent. Soc. xxix.
- Argynnis* and *Melitæa* of N. France, GIARD, pp. 43-46, Feuille Natural. xxxiii; *A.* and *M.* in Normandy, DUPONT, t. c. pp. 80, 81; *A.* and *M.* in Centr. France, ROCQUIGNY-ADANSON, t. c. pp. 119-123; *A.* and *M.* of La Charente Gironde etc., DUPUY, t. c. pp. 196-198.
- Asterope*, variation, ROTHSCHILD & JORDAN, Nov. Zool. x, pp. 528-535.
- A. consors*, Angola, p. 532, *ansorgei*, Nandi, p. 534, ROTHSCHILD & JORDAN, t. c., n. spp.
- Atella phalantha* and *columbina* n. varr., Abyssinia, ROTHSCHILD & JORDAN, t. c. pp. 505-507.
- Aterica galena incisa* subsp. n., ROTHSCHILD & JORDAN, t. c. p. 537.
- Athyma perius perinus* subsp. n., FRUHSTORFER, p. 95, Berlin. ent. Zeitschr. 1903.
- Azania* subg. n. of *Cyrestis* for *C. camillus* and *elegans*, MARTIN, p. 160, Iris, Dresden xvi.
- Byblia lithyia*, larva, pl. vi, figg. 5, 6, pupa, figg. 7, 8, FAWCETT, p. 166, Tr. Zool. Soc. London xvii; *B. anvatarã*, nomenclature, varr. n., ROTHSCHILD & JORDAN, p. 527, Nov. Zool. x.
- Callithea lugens*, Peru, DRUCE, Ann. Nat. Hist. xii, p. 221; *C. adamsi*, Peru, LATHY, p. 105, pl. ii, Entomologist xxxvi : n. spp.
- Catacroptera cloanthe*, wet and dry phases, ROTHSCHILD & JORDAN, Nov. Zool. x, p. 520.
- Charaxes* allies; completion of monograph, *Palla* and *Euxanthe*, ROTHSCHILD & JORDAN, t. c. pp. 326-342; *C.*; Abyssinian with subsp. n., ROTHSCHILD & JORDAN, p. 539, t. c.; *C. harmonius infernus*, *C. castor comoranus* n. subsp., ROTHSCHILD, p. 310, t. c.; *C. orilus kissericus* subsp. n., FRUHSTORFER, p. 95, Berlin. ent. Zeitschr. 1903; *C. jasius*, metamorphosis, STÉPI, pp. 56-64, pl. iv, Feuille Natural. xxxiii; *C. jasius*, egg, larva, larval habits, ALBISSON, pp. 77-82, Bull. Soc. Nimes xxx; *C. velox*, with larva and pupa, pl. xviii, p. 297, *balfouri*, pl. xix, figg. 1, 1a, p. 299, OGILVIE-GRANT, Nat. Hist. Sokotra; *C. varanes*, larva, pl. vi, fig. 16, pupa 16a, FAWCETT, p. 168, Tr. Zool. London xvii.
- C. acuminatus*, Lake Nyassa, THURAU, p. 139, pl. ii, fig. 12, Berlin. ent. Zeitschr. xlvi, n. sp.
- Chlorippe sultana*, Brazil, FOETTERLE, pl. xvi, figg. 1, 2, 4, p. 627, Revist. Mus. Paulista v, n. sp.
- Crenis natalensis*, larva, pl. vi, figg. 11-13, pupa, figg. 14, 15, *boisduvali*, larva, figg. 9, 10, FAWCETT, p. 167, Tr. Zool. Soc. London xvii.
- Cupha erymanthis kangeana*, subsp. n., FRUHSTORFER, p. 96, Berlin. ent. Zeitschr. 1903.
- Cymothoë lurida sublurida*, subsp. n., FRUHSTORFER, p. 359, Stettin Ent. Zeit. lxiv.
- Cynthia arsinœ* subsp. n., FRUHSTORFER, pp. 40-42, Iris, Dresden xvi.
- Cyrestis*; revision, with *Sykophages* and *Azania*, subgenn. n., many subsp. n., and 4 spp. n., MARTIN, pp. 71-169, Iris Dresden xvi.
- C. rothschildi*, Mindoro, p. 112, *ceramensis*, Ceram, p. 128, *ularavana*, Solomon Ids., p. 136, *excellens*, Borneo, p. 154, Martin, t. c., n. spp.

- Cystineura cana* = (*floridana* Streck.), MENGEL, p. 160, Ent. News Philad. xiv.
- Dichorragia nesimachus*, subspp. n., FRUHSTORFER, pp. 23–25, Iris Dresden xvi.
- Diestogyna iris*, Congo, AURIVILLIUS, p. 250, cuts, p. 251, Arkiv. Zool. i, n. sp.
- Doleschallia bisaltide*, subspp. n., FRUHSTORFER, pp. 34–36, Iris Dresden xvi; *D. dascon dasconides*, *D. dasyclus endasyclus*, subspp. n., FRUHSTORFER, Soc. ent. xviii, p. 65.
- Ergolis merione*, stages, pl. ix, fig. 5, p. 135, Indian Mus. Notes v.
- E. phemonoë*, Wetter Is., FRUHSTORFER, p. 38, Iris Dresden xvi, n. sp.
- Eulepis pyrrius watubela*, subspp. n., ROTHSCHILD, Nov. Zool. x, p. 311; *E. pyrrius and hebe*; varr. n., FRUHSTORFER, pp. 93, 94, Berlin. ent. Zeitschr. xlviii.
- Euphædra themis* ab. n. *niveovittata*, AURIVILLIUS, p. 249, Arkiv. Zool. i; *E. medon* varr. n., THURAU, p. 307, Berlin. ent. Zeitschr. xlviii; *E. medon* var. n. *fernanda*, FRUHSTORFER, p. 359, Stettin Ent. Zeit. lxiv.
- E. nigrocilia*, p. 190, pl. viii, fig. 1, *aureofasciata*, p. 191, Nigeria, LATHY, Tr. ent. Soc. London 1903, n. spp.
- Euripus consimilis* varr., pp. 25–28, *E. halitherses* varr., pp. 28–34, FRUHSTORFER, Iris Dresden xvi; *E. funebris* var. n. *genestieri*, C. OBERTHÜR, p. 286, Bull. Soc. ent. France 1903.
- Eurytela hiarbas* varr. n., ROTHSCHILD & JORDAN, Nov. Zool. x, p. 525; *E. hiarbas*, larva, figg. 1, 2, pupa, figg. 3, 4, FAWCETT, pl. vi, p. 166, Tr. Zool. Soc. London xvii.
- Euxanthe* cf. *Charaxes*.
- Helcyra hemina masinia* subspp. n., FRUHSTORFER, p. 37, Iris Dresden xvi.
- Hypanartia splendida*, Peru, ROTHSCHILD, p. 309, pl. xi, fig. 8, Nov. Zool. x, n. sp.
- Hypocysta leucomelas*, N. Guinea, ROTHSCHILD, p. 309, t. c., n. sp.
- Hypolimnas*: the species, with numerous varr. n., FRUHSTORFER, pp. 73–87, Berlin. ent. Zeitschr. 1903; *H. salmacis platydema* subspp. n., ROTHSCHILD & JORDAN, p. 524, Nov. Zool. x; *H. deois divina* subspp. n., FRUHSTORFER, p. 66, Iris Dresden xvi.
- H. aurifascia*, New Hebrides, MENGEL, p. 167, pl. vii, Ent. News Philad. xiv, n. sp.
- Isodema adelma* var. n. *latifasciata*, LATHY, p. 12, Entomologist xxxvi.
- Leucosticha* n. n. for *Hamamunida*, Hübn. part, ROTHSCHILD & JORDAN, Nov. Zool. x, p. 538.
- Limenitis sibylla, populi*, larval habits, BAUER, pp. 515–519, Biol. Centrbl. xxiii; *L. daraxa theoda* subspp. n., FRUHSTORFER, p. 22, Iris Dresden xvi.
- Lucinia torrebia* and *sida* distinguished, LATHY, p. 203, Entomologist xxxvi.
- Marpesia camillus*, in place of *Cyrestis*, ROTHSCHILD & JORDAN, Nov. Zool. x, p. 535.
- Melitea aurinia* varr., FREKE, pp. 86 and 108, Entomologist xxxvi; *M. cinxia* ab. n. *witei*, GEEST, p. 308, Allg. Zeitschr. Ent. viii; *M. didyma* var. n. *nigra*, BALESTRE, p. 306, Bull. Soc. ent. France 1903; *M. didyma* ab., ROWLAND-BROWN, p. 153, Entomologist xxxvi; *M. athalia, aurelia, parthenie, asteria*, relations, CHAPMAN and others, discussion, P. ent. Soc. London 1903, pp. xlix–lii; *M. parthenie* and *athalia*, distinctions, C. OBERTHÜR, p. 312, Ent. Rec. xv,—cf. also *Argynnis* and *Melitea*.
- Mynes doubledaii* var. n. *florensis*, RÖBER, p. 342, Stettin Ent. Zeit. lxiv.
- Neptidopsis fulgurata platyptera* subspp. n., ROTHSCHILD & JORDAN, p. 526, Nov. Zool. x.

- Neptis nemetes obtusa* subsp. n., ROTHSCHILD & JORDAN, t. c. p. 536.
Palla cf. *Charaxes*.
Parhestina mena subdecorata, subsp. n., FRUHSTORFER, p. 24, Iris Dresden xvi.
Precis; variation considered, varr. n., ROTHSCHILD & JORDAN, Nov. Zool. x, pp. 511—519.
P. nobilitata, Lake Nyassa, THURAU, p. 137, pl. ii, fig. 11, Berlin. ent. Zeitschr. 1903, n. sp.
Pseudacraea dolomena var. n. *rubrobasalis*, p. 248, *P. clarki* var. n. *egina*, p. 249, AURIVILLIUS, Arkiv. Zool. i; *P. dolomena pharsa* subsp. n., FRUHSTORFER, p. 9, Iris Dresden xvi.
P. karschi, Togo, FRUHSTORFER, p. 10, t. c., n. sp.
Pyrameis cardui, migration, REBEL, p. 571, Verh. Ges. Wien liii; *Salamis*; Abyssinian forms, ROTHSCHILD & JORDAN, Nov. Zool. x, pp. 521—524.
Sykophages subg. n. of *Cyrestis* for *C. thyodamas*, etc., MARTIN, p. 81, Iris Dresden xvi.
Symbrenthia florida, Amboina, SWINHOE, Ann. Nat. Hist. xi, p. 500, n. sp.
Vanessa cardui, migration, Baltic, SLEVOGT, Soc. ent. xviii, p. 100; *V. cardui*, profusion in California, RIVERS, pp. 57, 58, Bull. S. Calif. Ac. ii; *V. caryæ*, id. t. c. p. 77; *V. urticæ ichnusoides* in Normandy, DUCLOS, p. 337, Bull. Soc. Rouen xxxviii; *V. io* var. n. *cyanostricta*, RAYNOR, p. 67, Entomologist xxxvi.

MORPHIDÆ, BRASSOLIDÆ.

[Cf. RÖBER (1267, 1268), SMYTH (1449).]

- Clerome eumeus*, larva, KERSHAW, p. lvi, P. ent. Soc. London 1903.
Discophora muscina, Lower India, STICHEL, p. 5, SB., Berlin. ent. Zeitschr. 1903, n. sp.
Hyantis xanthophthalma, p. 339, *hageni*, p. 341, New Guinea, RÖBER, Stettin Ent. Zeit. lxiv, n. spp.
Morphindra n. g. for *Thaumantis aliris*, RÖBER, p. 337, t. c.
Morpho godartii var. n. *assarpai*, p. 348, *peleides* var. n. *maculata*, p. 349, *hector* var. n. *subfasciata*, p. 351, RÖBER, t. c.
M. thoosa, Mexico [*?polyphemus* var.], SMYTH, Ent. News Philad. xiv, p. 85, pl. v; *M. fruhstorferi*, Ecuador, RÖBER, Soc. ent. xvii, p. 154; *M. hector* (Stgr.) Bolivia, p. 349, *telamon*, Colombia, p. 351, *peleus*, Venezuela, p. 352, *trojana*, Paraguay, p. 353, *hermione*, Colombia, p. 354, *electra*, Bolivia, p. 355, RÖBER, Stettin Ent. Zeit. lxiv: n. spp.
Selenophanes supremus var. n. *dilatatus*, THIEME, Berlin. ent. Zeitschr. 1903, SB. p. 12.
Stichophthalma fruhstorferi, Tonkin, RÖBER, Soc. ent. xvii, p. 153, n. sp.

SATYRIDÆ.

[Cf. AURIVILLIUS (54), ELWES (447), FOETTERLE (525), POULTON (1197), THURAU (1533).]

- Aphantopus hyperanthus cæca*, note, FUCHS, p. 69, Jahrb. Nassau. Ver. lvi.
Cænonympha tiphon var. *rhodopensis*, pl. iii, figg. 3, 4, p. 181, REBEL, Ann. Hofmus. Wien xviii; *C. tiphon*, Baltic varr., SLEVOGT, pp. 51, 52, Soc. ent. xviii; *C. corinna*, life-history, BACOT, p. 94, Ent. Rec. xv.
Cosmosatyrus leptoneuroides, p. 279, pl. xv, figg. 3, 4, 6, *chiliensis*, figg. 9, 10, *monticolens*, figg. 7, 8, p. 281, ELWES, Tr. ent. Soc. London 1903.

- Elina neomyrioides* ♂, ELWES, p. 274, pl. xiv, fig. 5, Tr. ent. Soc. London 1903.
- E. calvertii*, Chile, ELWES, p. 275, pl. xiv, figg. 3, 4, t. c. n. sp.
- Epinephele jurtina*, variation in eye-spots, BACHMETJEW, Allg. Zeitschr. Ent. pp. 253–256.
- E. bonninghauseni*, Brazil, FOETTERLE, pl. xvii, fig. 3, p. 632, Revist. Mus. Paulista v, n. sp.
- Erebia*; notes on in France, CHRÉTIEN, pp. 71, 72, Naturaliste 1903;
E. rhodopensis, p. 174, pl. iii, figg. 1, 2, *E. tyndarus* var. n. *balkanica*, p. 176, REBEL, Ann. Hofmus. Wien xviii; *E. polaris* ab. n. *pseudomedusa*, STRAND, Arch. Naturv. Christian. xxv, No. 9, p. 3; *E. glacialis*, egg, GILLMER, Soc. ent. xviii, p. 74.
- Erites madura ines* subsp. n., FRUHSTORFER, p. 20, Iris Dresden xvi.
- Faunula stelligera*, pl. xv, figg. 1, 2, p. 282, *leucoglène*, fig. 6, p. 283, ELWES, Tr. ent. Soc. London 1903.
- Henotesia* varr. n., THURAU, pp. 123–125, pl. ii, figg. 2, 3, 4, Berlin. ent. Zeitschr. 1903.
- H. centralis*, Congo, AURIVILLIUS, p. 246, Arkiv. Zool. i; *H. ubenica*, Lake Nyassa, THURAU, p. 121, pl. ii, fig. 1, Berlin. ent. Zeitschr. xlviii: n. spp.
- Melanargia galathea*, pupa, CHAPMAN, Ent. Rec. xv, p. 240.
- Melanitis ismene*, wet- and dry-season forms, pl. ix, figg. 4, 4a, p. 137, Indian Mus. Notes v.
- Mycalasis*; notes on Ceylon species, MANDERS, pp. 71, 72, Spolia Zeylan. i.
- M. vicaria* with var. *neglecta*, Lake Nyassa, THURAU, p. 118, Berlin. ent. Zeitschr. xlviii, n. sp.
- Neocænryra heckmanni*, pl. ii, fig. 5, p. 126, *fulleborni*, fig. 6, p. 128, Lake Nyassa, THURAU, t. c., n. spp.
- Neomenas? inornata*, Chile, ELWES, p. 278, pl. xiv, figg. 1, 2, Tr. ent. Soc. London 1903, n. sp.
- Neosatyris vesagus*, pl. xiv, figg. 9, 10, p. 284, *nycteropus*, figg. 7, 8, p. 285, ELWES, t. c.
- Pararge hiera* var. n. *ominata*, KRULIKOVSKY, p. 30, Rev. Russe Ent. iii.
- Pronophila schreineri*, Brazil, FOETTERLE, p. xvi, fig. 3, p. 634, Revist. Mus. Paulista v, n. sp.
- Satyris hermione*, pupa, TUTT, p. 289, Ent. Rec. xv.
- Tetraphlebia germanii*, pl. xv, fig. 5, p. 286, ELWES, Tr. ent. Soc. London 1903.

ERYCINIDÆ s. l.

[Cf. FRUHSTORFER (567), GODMAN (627), HOLLAND (713), C. OBERTHÜR (1082), RÖBER (1268), SHARPE (1416).]

- Abisara meta*, p. 285, Tonkin, *schedeli*, Liu-Kiu Ids., p. 286, FRUHSTORFER, Berlin. ent. Zeitschr. xlviii; *A. hunteti*, New Guinea, SHARPE, p. 310, Entomologist xxxvi: n. spp.
- Anteros carus*, Colombia, pl. xxi, fig. 5, GODMAN, p. 535, Tr. ent. Soc. London 1903, n. sp.
- Apodemia glaphyra* (= *Anatole modesta* Meng.), p. 545, *multiplaga* Schaus, pl. xxiii, fig. 6, GODMAN, t. c.
- Aricoris plagiaria* ♀, GODMAN, p. 546, pl. xxiii, fig. 8, t. c.
- A. hippocrate*, pl. xxiii, fig. 9, *phaedon*, Ecuador, *maia*, Colombia, fig. 10, p. 547, *helice*, Amazons, *A.? terias*, Paraguay, fig. 11, p. 548, GODMAN, t. c., n. spp.
- Caria smaragdina*, Bolivia, pl. xxi, fig. 12, *marsyas*, Brazil, figg. 13, 14, GODMAN, t. c., n. spp.
- Chamelimnas joviana* var. = (*similis* Schaus), p. 534, figured, pl. xx, fig. 14, GODMAN, t. c.

- C. pansa*, Brazil, id. p. 534, pl. xx, fig. 13, **n. sp.**
Charis dukinfieldia, pl. xxii, fig. 3, GODMAN, t. c.
C. arcuata, Colombia, pl. xxii, figg. 1, 2, id. p. 539, t. c.; *C. carteri*,
 Bahamas, HOLLAND, p. 486, Ann. Carnegie Mus. i : **n. spp.**
Cremna malis, Colombia, GODMAN, pl. xx, fig. 4, p. 530, Tr. ent. Soc.
 London 1903, **n. sp.**
Cricosoma asclepia Hew. redescribed, p. 540, pl. xxii, fig. 5, GODMAN, t. c.
C. irroratum, Guiana, pl. xxii, fig. 6, id., l. c., **n. sp.**
Elymnias nigrescens formosana subsp. n., FRUHSTORFER, p. 17, Iris
 Dresden xvi.
Ematurgina **n. g.** near *Nymphidium* for *E. mabildei*, **n. sp.**, Rio Grande do
 Sul, RÖBER, Stettin Ent. Zeit. lxiv.
Emesis neemias, redescribed, p. 537, pl. xxi, figg. 8, 9, GODMAN, Tr. ent.
 Soc. London 1903.
E. eurydice, pl. xxi, figg. 6, 7, Ecuador, GODMAN, p. 536, t. c., **n. sp.**
Esthemopheles **n. g.** *Erycinidæ* for *E. lamprolenis*, **n. sp.**, Colombia, and
Esthemopsis radiata G. and S., RÖBER, p. 344, Stettin Ent. Zeit. lxiv.
Eunica mabillei, Rio Grande do Sul, RÖBER, p. 346, t. c., **n. sp.**
Eurygona aurantiaca (= *elmira* Hew.), GODMAN, p. 531, *E. tarinta* Schaus,
 pl. xx, fig. 10, Tr. ent. Soc. London 1903.
E. licinia, Guiana, pl. xx, fig. 6, p. 531, *anthe*, Brazil, fig. 7, *rhodogyne*,
 Colombia, figg. 8, 9, p. 532, *fabia*, Peru, fig. 11, p. 533, GODMAN, t. c.,
n. spp.
Hyphilaria orsedice, S. America, GODMAN, pl. xx, fig. 5, p. 531, t. c., **n. sp.**
Hyporion **n. g.** for *Polycæna princeps* Ob., RÖBER, p. 357, Stettin Ent.
 Zeit. lxiv.
Lasaia merita, Bolivia, pl. xxii, fig. 9, *oileus*, Paraguay, figg. 10, 11, p. 541,
 GODMAN, Tr. ent. Soc. London 1903, **n. spp.**
Lemonias axenus, genus doubtful, ♀, pl. xxiii, fig. 5, GODMAN, p. 545, t. c.
L. annulifera, pl. xxii, fig. 12, *mæonoides*, fig. 14, Guiana, *mæon*, fig. 13,
elypnice, pl. xxiii, fig. 1, p. 542, *martha*, fig. 2, *standingeri*, p. 543,
 Colombia, *pirene*, Ecuador, fig. 3, *nomia*, p. 544, *fannia*, fig. 4, p. 545,
 Guiana, GODMAN, t. c., **n. spp.**
Libythea werneri subsp. n., FRUHSTORFER, p. 112, Berlin. ent. Zeitschr. 1903.
Mesene iasis, Peru, pl. xxii, fig. 7, *eanes*, Amazons, fig. 8, p. 540, GODMAN,
 Tr. ent. Soc. London 1903, **n. spp.**
Mesenopsis pulchella, Amazons, GODMAN, pl. xx, fig. 12, p. 533, t. c., **n. sp.**
Mesosemia chalybæa, Colombia, RÖBER, p. 356, Stettin Ent. Zeit. lxiv ;
M. phace, Guiana, p. 529, pl. xx, fig. 1, *thera*, Brazil, fig. 2, *orbona*,
 Surinam, fig. 3, p. 530, GODMAN, Tr. ent. Soc. London 1903 : **n. spp.**
Monethe molione, Peru, pl. xxii, fig. 4, GODMAN, p. 539, t. c., **n. sp.**
Nymphidium grande, Colombia, pl. xxiii, fig. 7, GODMAN, p. 546, t. c., **n. sp.**
Polycæna princeps var. (= *lua* Gr.). Cf. also *Hyporion*, RÖBER, p. 358,
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Riódina? theodora, Brazil, pl. xxi, figg. 2, 3, *albofasciata*, Argentina, fig. 4,
 GODMAN, p. 535, Tr. ent. Soc. London 1903, **n. spp.**
Siseme pedias, Colombia, GODMAN, pl. xxi, fig. 1, p. 534, t. c., **n. sp.**
Sospita and *Laxita* subsp. n., FRUHSTORFER, pp. 281-284, Berlin. ent.
 Zeitschr. xlviii.
Symmachia progne, Bolivia, pl. xxi, fig. 10, *hippodice*, Brazil, fig. 11,
 GODMAN, p. 537, Tr. ent. Soc. London 1903, **n. spp.**
Taxila; **n. subsp.**, FRUHSTORFER, pp. 276-282, Berlin. ent. Zeitschr.
 xlviii.
T. dora, Tonkin, FRUHSTORFER, p. 277, t. c., **n. sp.**
Zemeros emesoides eso subsp. n., FRUHSTORFER, p. 276, t. c.

LYCÆNIDÆ.

[Cf. AURIVILLIUS (54), BETHUNE-BAKER (113-116), H. H. DRUCE (416), LATHY (914), NEAVE (1053), RÖBER (1268), SCHULTZ (1360), WATERHOUSE (1648, 1649).]

Lycænida: revision of the Australian, WATERHOUSE, pp. 132-272, pls. ii, iii, P. Linn. Soc. N. S. Wales 1903.

Revision of *Arhopala* and allied genera, BETHUNE-BAKER, pp. 1-164, pls. i-v, Tr. Zool. Soc. London xvii. Reference must be made to the work itself for the synonymy in it. The genitalia are figured on pls. iv, v.

Variation in Swiss *Lycænida*, COURVOISIER, Mt. Schweiz. ent. Ges. xi, pp. 18-25.

Alphæus questiauxi, Congo, AURIVILLIUS, p. 252, Arkiv. Zool. i; *A. brahami*, Nigeria, LATHY, p. 199, pl. viii, fig. 10, Tr. ent. Soc. London 1903: n. spp.

Arhopala hercules var. *herculina*, pl. i, fig. 9, p. 28, *æxone*, pl. iii, fig. 22, p. 35, *eupolis*, pl. i, fig. 11, p. 41, *acetes*, pl. iii, fig. 18, p. 45, *padus*, pl. i, figg. 12, 13, p. 46, *eridanus*, fig. 14, p. 49, *viola* Semp., fig. 7, p. 51, *tephlis*, figg. 15, 16, p. 53, *bazaloides*, fig. 17, p. 55, *sangira*, fig. 20, p. 57, *helius*, fig. 21, and var. *antheilus*, fig. 22, p. 58, *myrtha*, fig. 23, p. 61, *mindanensis*, fig. 24, p. 62, *myrtale*, fig. 25, p. 63, *vihara*, pl. ii, fig. 1, p. 66, *phænops*, pl. i, fig. 27, *quercoides*, fig. 26, p. 68, *nobilis*, pl. ii, figg. 4, 5, p. 74, *anunda*, pl. iii, figg. 19-21, p. 76, *javensis*, pl. i, fig. 28, *auxesia*, pl. iii, fig. 23, *pseudomuta*, pl. i, fig. 30, p. 87, *epimuta*, pl. ii, fig. 9, p. 88, *moolaiana*, fig. 6, p. 89, *amphimuta*, fig. 7, p. 90, *inornata*, fig. 8, p. 91, *agesilaus*, fig. 10, p. 93, *agesias*, pl. iii, fig. 27, *hesba*, fig. 28, p. 95, *davaona*, pl. ii, fig. 12, p. 96, *gunongensis*, fig. 13, p. 97, *brahma*, fig. 14, *hypomuta*, fig. 15, p. 99, *oberthuri*, fig. 16, p. 101, *adonias*, fig. 17, p. 102, *eumolphus*, figg. 19-24, p. 104, *horsfieldi*, fig. 26, p. 107, *basiviridis*, fig. 27, p. 108, *staudingeri*, fig. 25, p. 109, *kukni*, figg. 28, 29, p. 113, *morphina*, fig. 30, p. 117, *chinensis*, pl. iii, fig. 1, p. 118, *corinda*, fig. 2, p. 121, *ænotria*, fig. 3, *ædias*, fig. 4, p. 124, *anamuta*, fig. 6, *allata*, fig. 7, p. 128, *atrax*, fig. 8, p. 130, *japonica*, pl. iii, fig. 10, p. 134, *perissa*, fig. 11, p. 137, *tounguwa*, fig. 12, *asopia*, fig. 13, p. 138, *acron*, fig. 14, p. 140, *admete* var. n. *waigeoensis*, fig. 15, *epimete*, fig. 16, p. 141, *ammonides*, pl. iii, fig. 31, p. 143, *ariet*, fig. 24, p. 145, *canula*, fig. 26, p. 149, *wildei*, pl. i, figg. 18, 19, BETHUNE-BAKER, Tr. Zool. Soc. London xvii.

A. kirivini, Trobriand and Fergusson Islds., pl. i, fig. 10, p. 38, *dohertyi*, Celebes, fig. 8, p. 64, *malayica*, Philippines, Java, pl. ii, fig. 2, p. 71, *nicevillei*, Burma and Sikkim, pl. ii, fig. 3, p. 73, *brookii*, Borneo, pl. i, fig. 29, p. 84, *sceva*, Sumatra, p. 85, *catori*, Borneo, pl. ii, fig. 11, p. 93, *irregularis*, Celebes, pl. ii, fig. 18, p. 111, *barami*, Borneo, pl. iii, fig. 5, p. 126, *hewitsoni*, India, pl. iii, fig. 9, p. 132, *buddha*, Java, pl. iii, fig. 25, p. 148, BETHUNE-BAKER, Tr. Zool. Soc. London xvii; *A. chamaleona*, New Guinea, BETHUNE-BAKER, Ent. Mag. xxxix, p. 217, *A. malayana*, Singapore, id. t. c. p. 218: n. spp.

Candalides hyacintha Semp., synonymy, H. H. DRUCE, Ent. Mag. xxxix, p. 196.

C. gilberti, Port Darwin, WATERHOUSE, p. 181, P. Linn. Soc. N. S. Wales 1903, n. sp.

Catochrysops pandava, variation, MANDERS, p. 14, cuts, Spolia Zeylan. i.

Chrysophanus ochimus var. n. *hyrcana*, NEUBURGER, Soc. ent. xviii, p. 59;

C. alciphron, *hippotohe*, eggs, TUTT, Ent. Rec. xv, p. 238; *C. dispar* in Britain, DALE, Ent. Mag. xxxix, pp. 147, 148.

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D. caliginosa, Nigeria, LATHY, p. 197, pl. viii, fig. 7, Tr. ent. Soc.
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- Epamera mirabilis*, Sierra Leone, H. H. DRUCE, Ann. Nat. Hist. xi, p. 71,
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- Epitola gordonii*, W. Africa, H. H. DRUCE, t. c. p. 70; *E. albomaculata*,
 p. 329, *moyambina*, p. 330, *nigra*, p. 331, W. Africa, BETHUNE-BAKER,
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- Iolais adamsi*, Nigeria, LATHY, p. 199, pl. viii, fig. 9, Tr. ent. Soc. London
 1903, n. sp.
- Ialmenus leucochroa*, S. Australia, WATERHOUSE, p. 258, pl. ii, fig. 29,
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- Iraota lazarena*, pl. i, fig. 2, p. 13, BETHUNE-BAKER, Tr. Zool. Soc. London
 xvii.
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L. corydon varr., GIARD, p. 56, Allg. Zeitschr. Ent. viii; *L. cyllarus*
 var. n. *schneideri*, STRAND, Arch. Naturv. Christian. xxv, No. 9, p. 4;
L. escheri var. n. *subapennina*, TURATI, p. 43, pl. iii, figg. 8-11, Atti
 Mus. Milano xlii; *L. eumedon*, variation, varr. n., SCHULTZ, p. 263,
 Berlin. ent. Zeitschr. xlvi; *L. icarus* L. varr. n., VERITY, pp. 287-
 289, Bull. Soc. ent. France 1903; *L. galba*, *ubaldus*, *thebana*, synonymy,
 characters, REBEL, p. 7, Verh. Ges. Wien liii; *L. arion*, life-history,
 KLÖCKER, pp. 188-191, Ent. Meddel. 1903; *L. arion*, early stages,
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 FUCHS, p. 67, Jahrb. nassau. Ver. lvi.
- Lycænesthes subnitens*, *marshalli*, p. 332, *leonina*, p. 333, W. Africa,
 BETHUNE-BAKER, Ann. Nat. Hist. xii; *L. modestus*, Australia,
 WATERHOUSE, p. 198, pl. iii, fig. 38, P. Linn. Soc. N. S. Wales 1903 :
 n. spp.
- Larinopoda brenda*, W. Africa, H. H. DRUCE, Ann. Nat. Hist. xi, p. 69,
 n. sp.
- Liphyra brassolis*, correction as to larva, CHAPMAN, p. 36, Entomologist
 xxxvi.
- Liptena submacula*, Nigeria, LATHY, p. 196, pl. viii, fig. 6, Tr. ent. Soc.
 London 1903, n. sp.
- Mahathala hainani*, Hainan Ids., pl. i, fig. 1, BETHUNE-BAKER, p. 23,
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- Micropentila dorothea*, W. Africa, BETHUNE-BAKER, Ann. Nat. Hist. xii,
 p. 327, n. sp.
- Miletus miskini*, p. 164, pl. iii, figg. 30, 31, *meleagris*, p. 270, Australia,
 WATERHOUSE, P. Linn. Soc. N. S. Wales 1903, n. spp.
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 p. 325; *P. clarensis*, Uganda, NEAVE, Ent. Mag. xxxix, p. 136; *P.*
radiata, pl. viii, fig. 3, *multipunctata*, fig. 4, Nigeria, LATHY, p. 195,
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- Pseudonotis turneri*, Queensland, WATERHOUSE, p. 648, P. Linn. Soc. N. S.
 Wales 1902, n. sp.
- Surendra vivarna*, pl. i, fig. 6, *amisena*, figg. 3-5, p. 6, BETHUNE-BAKER,
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- Tarucus socotranus*, pl. xix, figg. 2-2b, *quadratus*, figg. 3-3b, p. 305,
 OGLIVIE-GRANT, Nat. Hist. Sokotra.

- Telipna actinotina*, Nigeria, LATHY, p. 194, pl. viii, fig. 2, Tr. ent. Soc. London 1903, n. sp.
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T. wernickei, Brazil, RÜBER, p. 343, Stettin Ent. Zeit. lxiv, n. sp.
Thestor ballus, habits, oviposition, egg, TUTT, pp. 119–122, Ent. Rec. xv.
Thysonotis schaeffera annamensis, subsp. n., FRUHSTORFER, p. 110, Berlin. ent. Zeitschr. 1903.
Utica onycha varr. n., WATERHOUSE, pp. 241, 242, P. Linn. Soc. N. S. Wales 1903.
Zizera delospila, N. W. Australia, WATERHOUSE, p. 211, pl. ii, fig. 5, t. c., n. sp.

HESPERIIDÆ.

- [Cf. DODGE (407), DRUCE, H. H. (417), ELWES (447), FOETTERLE (525), GRINNELL (639), HOLLAND (713), LATHY (914), MABILLE (959), ROTHSCHILD & JORDAN (1293), WATERHOUSE (1650).]
- Revision of *Hesperidæ*, MABILLE in Wytsman Gen. Ins. fasc. xvii.
- Æthilla subviolacea*, Ecuador, MABILLE, p. 32, Wytsman Gen. Ins. fasc. xvii, n. sp.
Anatolmis regulus, California, GRINNELL, p. 11, Ent. News Philad. xiv, n. sp.
Argopteron puelmæ, pl. xiii, figg. 11, 12, p. 295, ELWES, Tr. ent. Soc. London 1903.
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B. ogrugana, Nigeria, LATHY, p. 204, pl. viii, fig. 12, Tr. ent. Soc. London 1903, n. sp.
Bolla n. g. for part of *Staphylus* G. & S., MABILLE, p. 72, Wytsman Gen. Ins. fasc. xvii.
Butleria fruticolens, pl. xiii, figg. 9, 10, p. 295, *valdivianus*, figg. 15–17, *polyspilus*, fig. 18, *bissexguttatus*, figg., p. 296, ELWES, Tr. ent. Soc. London 1903.
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Charidia n. g. for *lucaria* D. & H., MABILLE, p. 73, t. c.
Choaspes illuensis ornatus subsp. n., ROTHSCHILD & JORDAN, Nov. Zool. p. 481, pl. xi, fig. 2.
C. hemixanthus, New Guinea, ROTHSCHILD & JORDAN, t. c., pl. xi, fig. 3, n. sp.
Cocceus syloson, Cayenne, MABILLE, p. 39, Wytsman Gen. Ins. fasc. xvii, n. sp.
Croniades n. g. for *periera* Hew. and *machaon* D. & H., MABILLE, p. 13, t. c.
Cyclogypha n. g. for *thrasylbulus* Fabr. and *C. cæruleonigra* n. sp., Guiana, MABILLE, p. 70, t. c.
Dichelura n. g. for *tricuspidata* Mab., MABILLE, p. 47, t. c.
Epargyreus arsaces, St. Thomas, MABILLE, p. 24, t. c., n. sp.
Erycides batabanoides, Bahamas, HOLLAND, p. 488, Ann. Carnegie Mus. i, n. sp.
Eudamus myrto, Haiti, *loxo*, Brazil, MABILLE in Wytsman Gen. Ins. fasc. xvii, p. 21, n. spp.
Gerosis n. g. for *hamiltoni* Nicév., MABILLE, p. 49, t. c.
Granila n. g. type *puseas* Hew., MABILLE, p. 11, t. c.
Hesperia alveus varr. n. *suffusa*, *scandinavicus*, STRAND, Arch. Naturv.

- Christian. xxv, No. 9, p. 6; *H. fusca*, pl. xiii, figg. 1, 2, p. 293, *tresignatus*, figg. 3, 4, p. 294, ELWES, Tr. ent. Soc. London 1903.
- Hylephila fasciolata*, pl. xiii, fig. 7, *fulva*, figg. 5, 6, 8, p. 295, ELWES, t. c.
- Leucocitonea kindei*, E. Africa, H. H. DRUCE, Ann. Nat. Hist. xii, p. 636, n. sp.
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- Metardaris* n. g. type *consinga* Hew., MABILLE, p. 11, t. c.
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BOMBYCES.

- (*s. l.*, including CHALCOSIIDÆ, PSYCHIDÆ, HEPIALIDÆ, COSSIDÆ, AGARISTIDÆ, and various families of more or less doubtful position. Uraniidæ and Epiplemidæ, see Geometridæ; Cymatophoridaæ, see Noctuidæ and Geometridæ; Thyrididæ, see Pyralidæ.)

[Cf. AURIVILLIUS (51), BARTEL (80-82), BEUTENMÜLLER (119), CHAPMAN (297, 299), DISTANT (392), DOGNIN (408, 409), DRUCE (414, 415), DYAR (434, 436), FAWCETT (497), FOETTERLE (525), GIBSON (621), GRINNELL (639), HAMPSON (667), HERON & HAMPSON (698), JANET & WYTSMAN (782), JOANNIS (787, 789), JORDAN (798), LOWER (949, 950), MERRICK (1003), MEVES (1012-1014), OTTOLENGUI (1097), PACKARD (1103), PAGENSTECHER (1104), PIEPERS & SNELLEN (1174), POUJADE (1193), QUAIL (1201), ROTHSCHILD (1289, 1290), ROTHSCHILD & JORDAN (1293), SONTTHONNAX (1457), SWINHOE (1498-1502), TSCHETWERIKOFF (1552), TURNER (1574, 1575), VERSON (1602), WARREN (1636, 1637, 1639), WEYMER (1675).]

Metamorphosis of silkworm, VERSON (1602).

Larvæ with urticating hairs, CARTER, p. 68, Entomologist xxxvi; COCKAYNE, t. c. p. 201; urticating hairs and cocoons, GREEN, t. c. p. 171.

Abynotha n. g. type *Liparis preussi* Mab., SWINHOE, p. 479, Tr. ent. Soc. London 1903.

Acantharctia aurivillii, *fuscosa*, Africa, BARTEL, p. 194, Iris Dresden xvi, n. spp.

Acanthopsyche reidi Watt. [? previously unrecorded], WATT & MANN, Tea-pests, p. 193.

- Acnissa* cf. *Haploapseustis*.
Acolothus falsarius, larva, DYAR, p. 325, P. ent. Soc. Washington v.
Egocera mahdi, Hanadscho, PAGENSTECHER, pl. 1, fig. 3, p. 9, Jahrb. nassau. Ver. lvi, n. sp.
Aganais conspicua, Transvaal, *concolora*, Madagascar, SWINHÖE, Ann. Nat. Hist. xi, p. 503, n. spp.
Aglia tau ab. n. *cæcata*, SCHULTZ, Soc. ent. xvii, p. 179; *A. tau* ab. n. *subcæca*, STRAND, Arch. Naturv. Christian. xxv, No. 9, p. 9; *A. tau*, larval characters, DYAR, p. 88, Canad. Ent. xxxv.
Amaxia flavipuncta, Brazil, HAMPSON, Ann. Nat. Hist. xi, p. 351, n. sp.
Amesia phatenaria, larva, PIEPERS, p. 180, Tijdschr. Ent. xlv.
Amphicallia tigris, pl. i, fig. 10, p. 15, PAGENSTECHER, Jahrb. nassau. Ver. lvi.
A. piceosignata, E. Africa, BARTEL, p. 211, Iris Dresden xvi, n. sp.
Amsacta radiosa, p. 13, *mediopunctata*, p. 14, E. Africa, PAGENSTECHER, Jahrb. nassau. Ver. lvi, n. spp.
Anadiasa simplex, E. Africa, PAGENSTECHER, p. 20, t. c., n. sp.
Anaphe reticulata, pl. viii, fig. 6, p. 90, DISTANT, Ins. transvaal.
Anaphosia n. g. *Lithosianæ* for *A. cyanogramma* n. sp., Mashonaland, HAMPSON, Ann. Nat. Hist. xi, p. 344.
Anepa n. g. type *Acyphas fusca* Walk., SWINHÖE, p. 478, Tr. ent. Soc. London 1903.
Anisobathra cf. *Apodecta*.
Anomæotes elegans, E. Africa, PAGENSTECHER, p. 11, Jahrb. nassau. Ver. lvi, n. sp.
Anthela rubicunda Swinh. as *Darala*=(*phænicias* Turn.), LOWER, p. 216, Tr. R. Soc. S. Austral. xxvii.
A. ostra, *unisigna*, p. 447, *tritonea*, p. 448, *carneotincta*, *crenulata*, p. 451, *flavala*, p. 452, Australia, SWINHÖE, Tr. ent. Soc. London 1903, n. sp.
Anthema simplex, pl. viii, fig. 11, *spurcata*, fig. 10, *tricolor* var. fig. 13, p. 92, DISTANT, Ins. transvaal.
Antheræa jana subspp. n. *platessa* and *fusca*, ROTHSCHILD, p. 311, Nov. Zool. x.
A. carnea, N. Australia, SONTTHONNAX, Lep. Soie ii, p. 47, ?n. sp.
Antherina n. g. near *Antheræa*, p. 56, for *Saturnia suraka* Boisid., SONTTHONNAX, p. 56, Lep. Soie fasc. iii.
A. consanguinea, Transvaal, DISTANT, p. 92, pl. viii, fig. 12, t. c., n. sp.
Anthroceridæ; revision of N. American, DYAR, pp. 322-329, P. ent. Soc. Washington v.
Apantesis; the Canadian and their larvæ, GIBSON, Canad. Ent. pp. 110-123, 143-154, pl. vi.
Apluda invitabilis, pl. viii, fig. 18, *similis*, fig. 19, p. 95, DISTANT, Ins. transvaal.
Apodecta monodisca Turn.=(*Anisobathra actinias* Low.), TURNER, p. 24, Tr. R. Soc. S. Austral. xxvii.
Arbela tetraonis, life-history, STEBBING, pp. 252-257, J. Asiat. Soc. Bengal lxxii.
Arctia maculosa var. n. *slivnoensis*, p. 274, pl. iii, fig. 9, REBEL, Ann. Hofmus. Wien xviii; *A. caja*, alimentary system, BORDAS, p. 676, C.R. Soc. Biol. 1903.
Argyroides lydia, S. Brazil, DRUCE, Ann. Nat. Hist. xi, p. 197, n. sp.
Argyrolepida aurea, N. Guinea, JORDAN, p. 315, pl. xii, fig. 21, Nov. Zool. x; *A. unimacula*, Queensland, LOWER, p. 29, Tr. R. Soc. S. Austral. xxvii; n. spp.
Arichalca elegans, E. Africa, WEYMER, p. 233, pl. ii, fig. 7, Iris Dresden xvi, n. sp.
Aroa quadriplagiata, E. Africa, PAGENSTECHER, p. 22, Jahrb. nassau. Ver.

- lvi; *A. mirma*, Sumatra, p. 455, *risoria*, Java, p. 457, SWINHÖE, Tr. ent. Soc. London 1903 : n. spp.
- Asota anawa*, Malay States, SWINHÖE, p. 66, Fascic. Malay Zool. i; *A. spadix*, Solomon Ids., *donatuna*, Tenasserim, SWINHÖE, Ann. Nat. Hist. xi, p. 504 : n. spp.
- Asura acteola*, *orsova*, Siam, *undulata*, Khasia Hills, SWINHÖE, t. c. p. 501, n. spp.
- Aurivillia* n. g. *Pachygastrinae*, type *decolorata*, TUTT, Brit. Lep. iii, p. 2.
- Automolis troias*, S. Brazil, DRUCE, Ann. Nat. Hist. xi, p. 197, n. sp.
- Bombyx* cf. *Entometa* and *Sitina*; *B. populi*, larva, etc., CALAND, pp. 65-70, Tijdschr. Ent. xlv; *B. quercus*, influence of food on larva, PICTET, Arch. Sci. Nat. (4) xv, pp. 98-101.
- Brachartona lucasseni*, pl. xv, fig. 8, *quadrisignata*, fig. 9, p. 234, *trisignata*, fig. 10, p. 235, *sythoffi*, fig. 11, p. 236, Java, SNELLEN, Tijdschr. Ent. xlv, n. spp.
- Bunæa tyrrhena*, larva, pl. vi, figg. 30-33, pupa, fig. 34, FAWCETT, p. 171, Tr. Zool. Soc. London xvii; *B. epithyrena* var., pl. vii, fig. 13, p. 96, DISTANT, Ins. transvaal.
- B. patruelis*, Transvaal, id. p. 96, pl. vii, fig. 14; *B. pallens*, pl. xvii, fig. 1, p. 35, *inornata*, p. 36, fig. 2, *rosea*, pl. xxiii, fig. 1, p. 39, *tanganice*, pl. xx, fig. 2, p. 42, Africa, SONTTHONNAX, Lep. Soie fasc. iii (previously published in Ann. Lab. Soie 1899) : n. spp.
- Burgena reducta*, Solomon Ids., ROTHSCHILD & JORDAN, p. 487, Nov. Zool. x, n. sp.
- Calidota zella*, Arizona, DYAR, p. 291, P. ent. Soc. Washington v, n. sp.
- Callioratis bellatrix*, larva, pl. viii, fig. 11, pupa, fig. 12, FAWCETT, p. 182, Tr. Zool. Soc. London xvii.
- Callizygena chala*, pl. xv, fig. 6, p. 226, SNELLEN, Tijdschr. Ent. xlv.
- Caragola clara*=(*Porthesia collucens* Luc.), TURNER, p. 16, Tr. R. Soc. S. Austral. xxvii.
- Caryatis holoclera*, figure, BARTEL, p. 199, Iris Dresden xvi.
- Cascera amydra*, Queensland, TURNER, p. 74, P. Linn. Soc. N. S. Wales 1903, n. sp.
- Celama omphalota*, Old Calabar, p. 341, *fovifera*, Queensland, p. 342, HAMPSON, Ann. Nat. Hist. xi, n. spp.
- Cerura spiritalis*, pl. iv, fig. 13, *swierstræ*, pl. viii, fig. 20, p. 93, DISTANT, Ins. transvaal. i.
- Chadisira bicolor*, pl. iv, fig. 10, p. 93, DISTANT, t. c.
- Chalcosia caestina*, pl. xiv, fig. 5, p. 196, *distincta*, larva, p. 198, SNELLEN & PIEPERS, Tijdschr. Ent. xlv.
- Charagia virescens*, natural history notes, QUAIL, pp. 249-255, Tr. N. Zealand Inst. xxxv.
- Chioncema flavicincta*, Assam, p. 345, *selangorica*, Selangor, *amelæna*, Singapore, *yunnanensis*, Yunnan, p. 346, *capensis*, Grahamstown, p. 347, HAMPSON, Ann. Nat. Hist. xi, n. spp.
- Chryomesia* n. g. *Lithosiana*, for *C. barbicostata* n. sp., New Guinea, HAMPSON, t. c. p. 350.
- Chrysopoloma isabellina*, pl. viii, fig. 1, p. 85, *bicolor*, figg. 2, 3, *varia*, fig. 4, *restricta*, fig. 5, DISTANT, Ins. transvaal.
- C. nivea*, Cameroons, AURIVILLIUS, p. 106, Ent. Tidskr. xxiv, n. sp.
- Cinabra* n. g. for *Bunæa hyperbius*, etc., SONTTHONNAX, Lep. Soie fasc. iii, p. 61.
- Clathe* cf. *Sitina*.
- Clerckia thoracica*, pl. xi, fig. 6, *omissa*, fig. 7, figured, ROTHSCHILD & JORDAN, Nov. Zool. x; *C. fulvia trigona* subsp. n., ROTHSCHILD, p. 312, Nov. Zool. x.
- Clostera anachoreta*, breeding, BARRETT, Ent. Mag. xxxix, pp. 215, 216, EDWARDS, t. c. p. 268.

- Cobanilla plumbacea*, Malay States, SWINHOE, p. 62, Fascic. Malay. Zool. i, n. sp.
- Cænobasis amæna*, pl. viii, fig. 14, p. 94, DISTANT, Ins. transvaal. i.
- Cænotoca* n. g. for *C. monophyes* n. sp., N. S. Wales, TURNER, p. 2, Tr. R. Soc. S. Austral. xxvii.
- Colassa* and *Teara*, synonymy of Australian, TURNER, pp. 16, 17, t. c.
- Copaxa flavinata*, larva, pl. vi, fig. 25, pupa, fig. 26, FAWCETT, p. 170, Tr. Zool. Soc. London xvii.
- Corma murifica*, Siam, SWINHOE, Ann. Nat. Hist. xi, p. 500, n. sp.
- Cosmotriche* cf. *Routledgeia*.
- Cossus persona* Le Guill. = (*Zeuzera leuconota* Walk.), POUJADE, p. 122, Bull. Soc. ent. France 1903.
- Cretonotus brunnipennis*, p. 195, *flavidus*, p. 196, Africa, BARTEI, Iris Dresden xvi, n. spp.
- Crina forda*, larva, pl. vi, figg. 27, 28, pupa, fig. 29, FAWCETT, p. 170, Tr. Zool. Soc. London xvii.
- Cruria placodes* and *hemiphragma* referred to *Idalima*, LOWER, p. 216, Tr. R. Soc. S. Austral. xxvii.
- C. synopla*, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvii, p. 1 ; *C. ? placodes*, Tasmania, *hemiphragma*, Australia ?, LOWER, p. 30, t. c. : n. spp.
- Ctenocompa ganale*, E. Africa, PAGENSTECHER, pl. i, fig. 9, p. 26, Jahrb. nassau. Ver. lvi, n. spp.
- Ctenucha cressonana* and *venosa* characters, GROTE, p. 77, Canad. Ent. xxxv.
- Cyclosia uniformis*, pl. xiv, fig. 2, *papilionaris*, larva, pl. xiii, fig. 4, p. 189, *metachloros*, larva, fig. 5, p. 192, *sordida* ♀, pl. xiv, fig. 4, ♂, fig. 8, larva, p. 194, PIEPERS, Tijdschr. ent.
- Cyclura inconspicua* cf. *Urogonodes*.
- Dalaca sladeni*, Matto Grosso, HAMPSON, p. 260, P. Zool. Soc. London 1903, ii, n. sp.
- Darantasia pervittata*, New Guinea, HAMPSON, Ann. Nat. Hist. xi, p. 344, n. sp.
- Darna conscita*, Peru, DRUCE, Ann. Nat. Hist. xi, p. 198, n. sp.
- Dasychira strigata* ♂, SWINHOE, Ann. Nat. Hist. xii, p. 197 ; *D. gnava* n. n. for *Pseudonotodonta virescens* Möschl., SWINHOE, p. 477, Tr. ent. Soc. London 1903.
- D. nora*, *grisea*, E. Africa, PAGENSTECHER, Jahrb. nassau. Ver. lvi ; *D. magnalia*, Khasia Hills, SWINHOE, Ann. Nat. Hist. xii, p. 198 ; *D. cromptoni*, Old Calabar, p. 467, *chinensis*, Moupin, p. 468, *gwelita*, E. Africa, p. 469, *horrida*, Old Calabar, p. 470, SWINHOE, Tr. ent. Soc. London 1903 : n. spp.
- Deilemera* revised, SWINHOE, pp. 53-84, pls. iii, iv, Tr. ent. Soc. London 1903 ; *D. sangira* n. n. for *distincta* Swinh. (below), SWINHOE, Ann. Nat. Hist. xii, p. 193.
- D. semperi*, Palawan, p. 57, *distincta*, Sangir, pl. iv, fig. 4, p. 58, *oroya*, fig. 8, Sula Besi, *amosa*, Damma Is., fig. 6, p. 59, *uniplaga*, Fergusson Ids., p. 61, pl. iii, fig. 2, *leuctra*, Sangir, pl. iv, fig. 5, p. 62, *gera*, Talaut, fig. 1, p. 63, *popiya*, Java, pl. iii, figg. 3, 7, p. 69, *lombokiana*, Lombok, p. 71, *synria*, Fergusson Is., pl. iii, fig. 6, p. 72, *kapauensis*, New Guinea, fig. 1, *drucei*, N. Australia, *dispar*, Rossel Id., p. 73, *nigrovena*, Celebes, pl. iv, fig. 2, p. 74, *kinagananga*, New Britain, p. 76, *illustris*, Solomon Ids., *nisa*, Sangir, pl. iv, fig. 7, p. 77, *ovada*, Sumba, *optata*, Sumatra, pl. iv, fig. 3, p. 82, SWINHOE, Tr. ent. Soc. London 1903, n. spp.
- Dendrolimus (Bombyx) pini*, egg and young larva, OUDEMANS, p. 74, Ent. Ber. Nederland i.
- D. laricis*, Ural, TSCHETWERIKOFF, Soc. ent. xviii, p. 89, n. sp.

- Desmeocræra hierax*, pl. iv, figg. 3, 4, *vernalis*, fig. 1, *basalis*, fig. 14, p. 89
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- Destolmia lineata*, larva, pupa, GOUDIE, p. 132, *Victorian Natural.* xix.
- Devara semidolens*, Peru, DRUCE, *Ann. Nat. Hist.* xi, p. 198, **n. sp.**
- Diacrisia sanio* ab. n. *moerens*, STRAND, *Arch. Naturv. Christian.* xxv,
No. 9, p. 23.
- D. viridis*, Peru, DOGNIN, p. 213, *Naturaliste* 1903; *D. euryphlebia*,
Brazil, HAMPSON, *Ann. Nat. Hist.* xi, p. 351 : **n. spp.**
- Diaphone lampra*, figure, BARTEL, p. 198, *Iris, Dresden* xvi.
- D. libentina*, Africa, BARTEL, p. 197, t. c., **n. sp.**
- Digama albicosta*, E. Africa, PAGENSTECHEER, p. 18, *Jahrb. nassau. Ver.* lvi,
n. sp.
- Discophlebia blosyrodes*, Queensland, TURNER, p. 67, *P. Linn. Soc. N. S.*
Wales 1903, **n. sp.**
- Doratifera* cf. *Natada*.
- Doratopteryx xanthomelas*, Angola, ROTHSCHILD & JORDAN, *Nov. Zool.* x,
p. 484, pl. xi, fig. 16, **n. sp.**
- Drepana cultraria aestiva*, note, FUCHS, p. 72, *Jahrb. nassau. Ver.* lvi.
- Enomodes* n. g. type *Chlenias sagittarius* Luc., TURNER, p. 69, *P. Linn.*
Soc. N. S. Wales 1903.
- Egybolis vaillantina*, larva, pl. viii, fig. 13, pupa, fig. 14, FAWCETT, p. 182,
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- Eligma orthoxantha*, Queensland, LOWER, p. 27, *Tr. R. Soc. S. Austral.*
xxvii, **n. sp.**
- Entometa rufescens*=(*Bombyx crenulata* Luc.), TURNER, p. 24, *Tr. R. Soc.*
S. Austral. xxvii; *E. ignobilis*, habits, LITTLER, p. 217, *Entomologist*
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- Enydra karschi*, Lake Nyassa, BARTEL, p. 130, *Verh. Ges. Wien* liii, **n. sp.**
- Ephemeroidea virescens*, Java, pl. xv, figg. 4, 5, larva, pl. xiii, fig. 11, p. 222,
SNELLEN, *Tijdschr. Ent.* xlv, **n. sp.**
- Epicoma argentata*=(*Teara argentosa* Luc.), TURNER, p. 23, *Tr. R. Soc.*
S. Austral. xxvii.
- Epicopeia*, revision, JANET & WYTSMAN, in *Wytsman Gen. Ins. fasc.* xvi,
5 pp., 2 pls.
- Epipyrops* sp., larval habits in Japan, DYAR, p. 180, *P. ent. Soc.*
Washington v.
- Epitoxis albicincta*, E. Africa, *nigra*, Gazaland, HAMPSON, *Ann. Nat. Hist.*
xi, p. 339, **n. spp.**
- Eressa xanthostacta*, Queensland, HAMPSON, t. c. p. 339, **n. sp.**
- Estigmene dissimilis*, pl. vii, fig. 20, larva, fig. 21, pupa, fig. 22, FAWCETT,
p. 179, *Tr. Zool. Soc. London* xvii.
- E. atropunctata*, Natal, pl. vii, fig. 23, larva, figg. 24, 25, pupa, fig. 26,
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- Euchromia vitiensis*, Fiji, HAMPSON, *Ann. Nat. Hist.* xi, p. 340, **n. sp.**
- Eugoa immunda*, Siam, SWINHOE, *Ann. Nat. Hist.* xi, p. 501, **n. sp.**
- Euproctis albescens* n. n. for *immaculata* Moore, p. 399, *drucei* n. n. for
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p. 412, *catala* n. n. for *atomaria* Walk., p. 416, *hampsoni* n. n. for
Artaxa variegata Hamps., p. 423, SWINHOE, *Tr. ent. Soc. London*
1903; *E. (Teara) edwardsi*=(*togata* Luc.), TURNER, p. 16, *Tr. R. Soc.*
S. Austral. xxvii; *E. renifera*, ♂, p. 196, *magna*, ♂, p. 197, SWINHOE,
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- E. anna*, p. 194, *gentia*, *sexmacula*, *civitta*, Borneo, p. 195, *recraba*, Java,
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- Woodlark Is., p. 409, *cheela*, Singapore, p. 412, *peela*, *livia*, New Guinea, p. 414, *mirabilis*, Andaman Ids., *utilis*, Old Calabar, p. 415, *osuna*, New Guinea, *egregia*, Batjan, p. 419, *postnigra*, Borneo, *funeralis*, Singapore, p. 421, *chirunda*, Sandakan, *perplexa*, p. 422, *atri-signata*, p. 423, *minutissima*, p. 425, Singapore, *ornea*, Borneo, *cerasina*, Sambawa, p. 426, *faceta*, New Guinea, p. 427, *alba*, Sambawa, p. 428, SWINHOE, Tr. ent. Soc. London 1903; *E. hunttei*, New Guinea, WARREN, Nov. Zool. x, p. 120; *E. meeki*, N. Australia, DRUCE, Ann. Nat. Hist. xii, p. 222; *E. pycnadelpha*, S. Australia, LOWER, p. 28, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Eurosia fuliginea*, S. Africa, HAMPSON, Ann. Nat. Hist. xi, p. 347, n. sp.
- Eusyssaura* n. g. for *Attacus honesta* Stoll, PACKARD, p. 246, J. N. York Ent. Soc. xi.
- Flavinia superba*, Peru, DRUCE, Ann. Nat. Hist. xi, p. 197, n. sp.
- Gallaba ochropepla*, Australia, TURNER, p. 69, P. Linn. Soc. N. S. Wales 1903, n. sp.
- Gargetta acarodes*, Queensland, TURNER, p. 71, t. c., n. sp.
- Gastropacha quercifolia*, larval susceptibility, POULTON, Tr. ent. Soc. London 1903, pp. 332-356, pls. xvii, xviii.
- Gnophria rubricollis* ab. *flavicollis*, NEUBURGER, Soc. ent. xvii, p. 155.
- Godasa side* var. n. *orientis*, BARTEL, p. 129, Verh. Ges. Wien liii.
- Guillemeia* n. g. near *Holocera*, SONTTHONNAX, p. 158, Ann. Lab. Soie ix, 1897-98, and Lep. Soie fasc. iv, p. 47; *G. tristis*, pl. xxvi, fig. 1, p. 47, *incana*, fig. 2, p. 48, Africa, SONTTHONNAX, Lep. Soie fasc. iv : n. spp.
- Gynanisa albescens*, pl. xxviii, fig. 3, *semialba*, fig. 2, p. 66, *gigas*, fig. 1, p. 67, Africa, SONTTHONNAX, t. c., n. spp.
- Haploa contigua*, *militaris* varr., MERRICK, Ent. News Philad. xiv, p. 1, pl. i.
- Haplopeustis* Meyr. (= *Acnissa* Turn.), *H. erythrias* (= *A. pyrrhias* T.), TURNER, p. 16, Tr. R. Soc. S. Austral. xxvii.
- Harrisina americana*, larva, p. 325, *texana*, larva, p. 326, DYAR, P. ent. Soc. Washington v.
- Heliosia micra*, Queensland, HAMPSON, Ann. Nat. Hist. xi, p. 345, n. sp.
- Hemijana subrosea*, pl. vii, fig. 9, p. 83, DISTANT, Ins. transvaal.
- Hemiteuca electra*, larva, DYAR, p. 305, P. ent. Soc. Washington v.
- Henucha smilarx*, larva, pl. vi, fig. 35, p. 171, *H. delegorguei*, larva, fig. 36, p. 172, FAWCETT, Tr. Zool. Soc. London xvii.
- Hepialiscus algeriensis*, Philippeville, JOANNIS, p. 223, Bull. Soc. ent. France 1903, n. sp.
- Heracula leonina*, N. Queensland, TURNER, p. 17, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Heterogynis penella*, habits, POUJADE, p. 218, Bull. Soc. ent. France 1903.
- Heteronygmia chismona*, Gold Coast, SWINHOE, p. 480, Tr. ent. Soc. London 1903, n. sp.
- Heterusia ligata*, pl. xii, fig. 22, p. 483, *regina*, fig. 23, p. 484, New Guinea, ROTHSCHILD & JORDAN, Nov. Zool. x; *H. rufifimbria*, Marcapata, DOGNIN, p. 272, Ann. Soc. ent. Belgique xlvi; *H. triflavata*, Bolivia, DOGNIN, t. c. : n. spp.
- Himantopterus fuscineris*, ♀, pl. xiv, fig. 1, p. 167, larval habits, PIEPERS, l. c., SNELEN, Tijdschr. Ent. xlv.
- Histia libelluloides*, larva, PIEPERS, p. 170, Tijdschr. Ent. xlv.
- Holocera pancratia*, E. Africa, WEYMER, p. 232, pl. ii, fig. 8, Iris Dresden xvi, n. sp.
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SCHAUS (1329), SMITH (1443-1448), SWINHÖE (1500-1502), TURNER
(1574), WARREN (1636), WARREN & C. ROTHSCHILD (1640).]

Vol. IV. of the Cat. Lep. *Phalænæ* by Sir GEORGE HAMPSON, devoted to
Agrotinæ and including upwards of 1100 species is referred to below
as HAMPSON *Agrotinæ*. Only the new genera and species are noted
below, no attempt being made to deal with the synonymy and taxo-
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- Aporophyla australis*, larva, JOANNIS, pp. 157, 158, Bull. Soc. ent. France 1903.
- Aretypa* n. g. near *Eucalyptra*, for *A. obliqua* n. sp., Florida, SMITH, p. 222, Tr. Amer. ent. Soc. xxix.
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- Euxoa chretieni*, La Granja, DUMONT, p. 83, Bull. Soc. ent. France 1903; *E. polybela*, Algeria, JOANNIS, p. 28, Bull. Soc. ent. France 1903; *E. longidentifera*, E. Africa, pl. lx, fig. 10, p. 166, *proleuca*, S. Russia, pl. lx, fig. 19, p. 180, *araucaria*, Chili, fig. 21, p. 182, *poliottis*, Queensland, pl. lx, fig. 22, p. 184, *coquimbensis*, Chili, pl. lx, fig. 25, p. 185, *pallidifrons*, Centr. Asia, p. lxi, fig. 9, p. 191, *subspiniifera*, Punjab, fig. 19, p. 205, *falclandica*, Falkland Ids., pl. lxii, fig. 22, p. 224, *cursorioides*, Syria, fig. 27, p. 226, *nyctopsis*, Kashmir, pl. lxiii, fig. 30, p. 250, *axilioides*, E. Africa, pl. lxvi, fig. 31, p. 308, *xanthiodes*, Kashmir, pl. lxvii, fig. 7, p. 315, *pronycta*, Mashonaland, fig. 14, p. 324, *epipyria*, E. Africa, fig. 17, p. 325, *peperida*, Kashmir, fig. 20, p. 329, *nyctina*, Kumaon, fig. 29, p. 336, *hemispherica*, Cyprus, pl. lxxviii, fig. 6, p. 660, *viguræa*, Aksu, *rufomixta*, Cape Colony, pl. lxxviii, fig. 14, *ruficeps*, Mashonaland, fig. 12, p. 661, HAMPSON, Agrotinæ; *E. nesileus*, Manitoba, SMITH, p. 192, J. N. York Ent. Soc. xi : n. spp.
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- H. (Xylophasia) sora*, Calgary, SMITH, p. 133, Canad. Ent. xxxv; *H. (Xylophasia) albiserrata*, *albata*, p. 8, *parcata*, p. 9, N. America, SMITH, J. N. York Ent. Soc. xi; *H. exhausta*, New York, SMITH, p. 194, Tr. Amer. ent. Soc. xxix : n. spp.
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- Micra* cf. *Eublemma*.
- Micragotis* n. g. p. 148, with *M. exusta*, pl. lx, fig. 1, S. Africa, p. 149, *axylide*, Punjab, *lacetata*, E. Africa, pl. lix, fig. 31, p. 150, *rufescens*, Cape Colony, pl. lx, fig. 2, *acydonta*, E. Africa, p. 152, *microstigma*, pl. lxxviii, fig. 10, *prosarca*, fig. 11, p. 659, HAMPSON, *Agrotinæ* : n. spp.
- Miselia iota*, N. Zealand, HUDSON, p. 243, pl. xxx, fig. 3, *Tr. N. Zealand Inst.* xxxv, n. sp.
- Molopa planalis* Swinh. = (*Churia thermodes* Low., supra) LOWER, p. 217, *Tr. R. Soc. S. Austral.* xxvii.
- Molvena guttalis* = (*Bryophila militata* Luc.), TURNER, p. 6, *Tr. R. Soc. S. Austral.* xxvii.
- Moma geminata*, Manitoba, SMITH, *J. N. York Ent. Soc.* xi, p. 1, n. sp.
- Mormoscopa* cf. *Pseudaglossa*.
- Noctua amia*, Arizona, DYAR, p. 224, *P. ent. Soc. Washington* v; *N. trumani*, Dakota, SMITH, p. 128, *Canad. Ent.* xxxv : n. spp.
- Nonagria*; the N. American, SMITH, pp. 311-321, *P. ent. Soc. Washington* v; *N. inferens*, stages, pl. xii, fig. 9, pp. 178-180, *Indian Mus. Notes* v.
- N. alameda*, California, SMITH, p. 318, *P. ent. Soc. Washington* v, n. sp.
- Noorda accensalis*, Siam, SWINHÖE, *Ann. Nat. Hist.* xi, p. 507, n. sp.
- Neocleptria* n. g. for *Heliothis punctifera* Walk., HAMPSON, *Agrotinæ*, p. 32.
- Nephelodes tertialis*, Winnipeg, SMITH, p. 19, *J. N. York Ent. Soc.* xi, n. sp.
- Neurois* n. g. type *Diphtera nigroviridis* Walk., HAMPSON, *Agrotinæ*, p. 610.
- Oncocnemis* cf. *Pseudanarta*, *O. chorda*, Grote as (*Homohadena*) = (*refecta* Sm.), SMITH, p. 11, *J. N. York Ent. Soc.* xi.
- O. nigerrima*, p. 160, *euta*, *rosea*, p. 11, *simplicia*, p. 12, N. America, SMITH, t. c., n. spp.
- Onychagrotis* n. g. for *Agrotis rileyana* Morr., HAMPSON, *Agrotinæ*, p. 465.
- Ophiusa* cf. *Thyas*, *O. indeterminata*, larva, pl. viii, fig. 15, pupa fig. 16, FAWCETT, *Tr. Zool. Soc. London* xvii; *O. stolidia*, in Britain, JÄGER, *Ent. Mag.* xxxix, p. 269; *O. melicerta*, stages, pl. xiii, fig. 2, p. 135, *Indian Mus. Notes* v; *O. dianaris*, pl. xx, fig. 15, p. 328, HAMPSON, *Nat. Hist. Sokotra*.

- O. diagamma* (sic), p. 37, *monogona*, p. 38, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Orosagrotis* n. g. for *O. amphora*, pl. lix, fig. 17, p. 135, *cashmirensis*, fig. 19, p. 136, n. spp., Kashmir, and *Agrotiphila rigida* Sm., HAMPSON, Agrotinæ.
- Orrhodia torrida*, pl. iii, fig. 6, p. 228, REBEL, Ann. Hofmus. Wien xviii; *O. staudingeri*, egg, pl. v, fig. 3, p. 403, larva, fig. 4, p. 404, LUCAS, Ann. Soc. ent. France lxxii.
- Orthosia macilenta nigrodentata*, note, FUCHS, p. 74, Jahrb. Nassau Ver. lvi.; *O. helvola* ab. n. *cinnamomea*, FUCHS, Soc. ent. xviii, p. 3; *O. helvola cinnamomea*, note, SLEVOGT, Soc. ent. xviii, p. 60.
- Oxænanus longipalpis*, Malay States, SWINHOE, p. 83, Fascic. Malay. Zool. i, n. sp.
- Pachnobia roosta*, Alaska, SMITH, p. 203, Tr. Amer. ent. Soc. xxix, n. sp.
- Panilla melanosticta*, Queensland, TURNER, p. 12, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Papaipema appasionata*, life-history, BIRD, pp. 91-94, Canad. Ent. xxxv.
- Paræstia* n. g. for *Amphipyra flavicaudata* Warr., HAMPSON, Agrotinæ, p. 601.
- Perigonica tertia*, California, DYAR, p. 294, P. ent. Soc. Washington v, n. sp.
- Perigrapha dukinfeldi*, Brazil, SCHAUS, p. 236, J. N. York Ent. Soc. xi, n. sp.
- Phiprosopus callitrichoides*, larva, DYAR, p. 105, J. N. York Ent. Soc. xi.
- Placerobela* n. g. near *Zethes*, p. 13, for *P. brachyphylla* n. sp., N. Queensland, p. 14, TURNER, Tr. R. Soc. S. Austral. xxvii.
- Platyja sada*, Malay States, SWINHOE, p. 79, Fascic. Malay. Zool. i, n. sp.
- Plecoptera pellicea*, Siam, SWINHOE, Ann. Nat. Hist. xi, p. 507, n. sp.
- Plotheia celtis*, stages, pl. xii, fig. 10, p. 108, Indian Mus. Notes v.
- Plusiodonta compressipalpis*, larva, DYAR, p. 292, P. ent. Soc. Washington v.
- Polia canescens*, larva, habits, LUCAS, p. 401, pl. v, fig. 1, Ann. Soc. ent. France lxxii.
- Polydesma prasina*, Assam, SWINHOE, Ann. Nat. Hist. xii, p. 199; *P. auriculata*, Queensland, TURNER, p. 9, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Porosagrotis brachystria*, pl. lix, fig. 25, p. 143, Argentina, *caffra*, Natal, pl. lxxvii, fig. 29, p. 658, HAMPSON, Agrotinæ, n. spp.
- Prionophora rhodinastis* Meyr. = (*Marapana rhodea* Turn.), LOWER, p. 217, Tr. R. Soc. S. Austral. xxvii.
- Proconis eulopha*, N. S. Wales, LOWER, p. 44, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Prolophota* cf. *Tipasa*.
- Propatria* n. g. type *Heliothis neuroides*, with *P. mundoides*, N. S. Wales, pl. lxxvii, fig. 24, n. sp., HAMPSON, Agrotinæ, p. 651.
- Prorocopsis stenota*, ~~*adelops*~~, p. 45, *leucocrossa*, p. 46, N. S. Wales, LOWER, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Protagrotis* n. g. type *Agrotis viralis* Grote, HAMPSON, Agrotinæ, p. 655.
- Proteuxoa* n. g. for *P. mniodes*, N. S. Wales, p. 649, *amaurodes*, Tasmania, p. 650, n. spp., HAMPSON, Agrotinæ.
- Pseudacontia groteana*, Arizona, DYAR, p. 225, P. ent. Soc. Washington v, n. sp.
- Pseudaglossa sordescens* Ros. as (*Bleptina*) = (*Mormoscopa crossodora* Meyr.), TURNER, p. 12, Tr. R. Soc. S. Austral. xxvii.
- Pseudanarta*, application, GROTE, p. 341, Canad. Ent. xxxv; *P. aurea* Gr. to *Oncocnemis*, SMITH, p. 10, J. N. York Ent. Soc. xi.
- Pseudotamila carminatra*, Colorado, SMITH, p. 207, Tr. Amer. ent. Soc. xxix, n. sp.
- Pterocyclophora huntæi*, N. Guinea, WARREN, Nov. Zool. x, p. 122, n. sp.

- Pyrocleptria* n. g. type *Heliothis cora* Ev., with *P. californica* sp. n., pl. lv, fig. 8, HAMPSON, Agrotinæ, p. 25.
- Pyrrhia experimens* = (*vexilliger* Chr. = *aconiti* Hölztz.), in Russia, TSHETVERIKOV, Rev. Russe Ent. iii, p. 384.
- Raghuva stigmatia*, p. 29, *perdentata*, pl. lv, fig. 11, p. 30, *discahis*, fig. 12, *cana*, fig. 13, p. 31, Africa, *perstriata*, Himalaya, fig. 14, p. 32, HAMPSON, Agrotinæ, n. spp.
- Rancora*; composition, *Cucullia serraticornis*, *solidaginis* added, SMITH, p. 135, Canad. Ent. xxxv.
- R. brucei*, Colorado, p. 136, *albicinerea*, Calgary, p. 137, id. t. c., n. spp.
- Raparna*; cf. *Mesoptila* in *Geometridæ*. *R. nebulosa*, stages, pl. xiii, fig. 8, p. 162, Indian Mus. Notes v.
- R. marmorea*, *byrsopa*, Queensland, LOWER, p. 43, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Raphia cinderella*, California, SMITH, p. 193, Tr. Amer. ent. Soc. xxix, n. sp.
- Remigia frugalis*, pl. xiii, fig. 4, p. 137, *R. archesia*, fig. 3, p. 159, Indian Mus. Notes v.
- Rhanidophora cinctigutta*, pl. viii, fig. 17, larva, figg. 18, 19, FAWCETT, p. 183, Tr. Zool. Soc. London xvii.
- Rhodocleptria* n. g. for *Noctua incarnata* Fr., HAMPSON, Agrotinæ, p. 33.
- Rhynchagrotis niger*, meta, N. America, SMITH, p. 3, J. N. York Ent. Soc. xi, n. sp.
- Richia xestiodes*, pl. lxxvi, fig. 14, p. 596, *fuscisignata*, fig. 15, p. 597, Kashmir, HAMPSON, Agrotinæ; *R. carnea*, Chili, DRUCE, Ann. Nat. Hist. xi, p. 200 : n. spp.
- Rivula niphodesma* = (*proleuca* Holl.), TURNER, p. 12, Tr. R. Soc. S. Austral. xxvii.
- Sarrothripa polycyama* = (*crystallites* Meyr.), TURNER, t. c. p. 7.
- Schinia marginata*, larva, DYAR, p. 291, P. ent. Soc. Washington v.
- Scolecocampa atriluna*, Arizona, SMITH, p. 217, Tr. Amer. ent. Soc. xxix, n. sp.
- Scopelosoma satellitia* ab. n. *albipuncta*, STRAND, Arch. Naturv. Christian. xxv, No. 9, p. 14.
- S. colorado*, N. America, SMITH, p. 21, J. N. York Ent. Soc. xi, n. sp.
- Scotogramma albinuda*, Labrador, SMITH, p. 19, t. c., n. sp.
- Siavana rigida*, Arizona, SMITH, p. 14, Canad. Ent. xxxv, n. sp.
- Stenagrotis* n. g. for *Trachodopalpus edmondsi* Butl., HAMPSON, Agrotinæ, p. 139.
- Stretchia mys*, California, DYAR, p. 234, P. ent. Soc. Washington v, n. sp.
- Stictoptera huma*, Malay States, SWINHOE, p. 75, Fascic. Malay. Zool. i, n. sp.
- Stilbia insularis*, Sicily, FUCHS, Soc. ent. xviii, p. 9, n. sp.
- Teniocampa* varr., GEEST, pp. 312, 313, Allg. Zeitschr. Ent. viii; *T. rorida*, pl. iii, fig. 5, p. 224, REBEL, Ann. Hofmus. Wien xviii; *T. columbia* referred to *Mamestra*, SMITH, p. 199, Tr. Amer. ent. Soc. xxix.
- Talapa gebenna*, Siam, SWINHOE, Ann. Nat. Hist. xi, p. 509, n. sp.
- Tarache melæna*, pl. xx, figg. 9, 10, p. 324, HAMPSON, Nat. Hist. Sokotra; *T. nivipicta* Butl. as (*Acontia*) = (*clerana* Low. = *hieroglyphica* Low.), TURNER, p. 10, Tr. R. Soc. S. Austral. xxvii.
- T. lunata*, p. 32, *micrastis*, *neurota*, p. 33, Australia, LOWER, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Tatrorhynchus vinctalis*, pl. xii, fig. 6, p. 159, Indian Mus. Notes v.
- Thalpocharis* cf. *Eublemma*.
- Thelxinoa* cf. *Esionistis*.
- Thyas pallescens* = (*Lagoptera violetta* Pag.), SWINHOE, Ann. Nat. Hist. xi, p. 507; *T. redunda* Swinh. as (*Ophiusa*) = (*ellora* Meyr. = *O. trophidota* Turn.), TURNER, p. 8, Tr. R. Soc. S. Austral. xxvii.

- T. amideta*, p. 8, *hicanora*, p. 9, N. Queensland, TURNER, t. c., n. sp.
Thyria eubotes, *meres*, p. 201, Colombia, *scione*, *antioquia*, *phtaortes*, S. E. Brazil, p. 202, DRUCE, Ann. Nat. Hist. xi, n. spp.
Thyrsocelis hunteti, N. Guinea, WARREN, Nov. Zool. x, p. 123, n. sp.
Timora albiseriata, p. 200, *metarhoda*, p. 201, W. Africa, DRUCE, Ann. Nat. Hist. xi; *T. nubila*, pl. lvii, fig. 27, p. 168, *nigrifasciata*, fig. 32, *trifasciata*, pl. lviii, fig. 1, *fissifasciata*, fig. 3, Africa, *nigristriata*, fig. 2, India, p. 110, *flaviviridis*, fig. 4, p. 111, *rubristriata*, fig. 8, p. 112, Africa, *flavica*, Bombay, fig. 9, p. 113, *flagistrigata*, fig. 15, Africa, p. 114, *metaphæa*, Beloochistan, fig. 16, *albicilia*, Sikkim, fig. 18, *flavocarnea*, fig. 19, p. 115, *hololeuca*, fig. 23, p. 117, Abyssinia, *flaviceps*, Nigeria, fig. 22, p. 116, HAMPSON, Agrotinæ: n. spp.
Tipasa demonias Meyr. as (*Trigonistis*) = (*Tip. macrobela* Turn.), *Tip. athenopa* Meyr. as (*Trigonistis*) = (*Prolophota campitola* Turn.), TURNER, p. 15, Tr. R. Soc. S. Austral. xxvii.
Tornacontia altera, p. 209, *tripartita*, p. 210, Arizona, SMITH, Tr. Amer. ent. Soc. xxix, n. spp.
Trama, vide *Lepidotrama*.
Trichoclea nova, Arizona, SMITH, p. 198, Tr. Amer. ent. Soc. xxix, n. sp.
Trigonistis cf. *Tipasa*.
Trigonodes ino, stages, pl. xiii, fig. 6, p. 114, Indian Mus. Notes v, *T. hyppassia*, pl. xiii, fig. 5, p. 161, t. c.
T. isocetes, N. Guinea, WARREN, Nov. Zool. x, p. 123, n. sp.
Triphaena comès, variation and synonymy; PROUT, pp. 217-222, Ent. Rec. xv.
Triphosa dubitata ab. n. *punctigera*, STRAND, Arch. Naturv. Christian. xxv, No. 9, p. 15.
Tripseucoa n. g. for *T. strigata* n. sp., Argentina, HAMPSON, Agrotinæ, p. 139.
Trissernis Meyr. = (*Bryomima* Turn.) *T. prasinoscia* = (*B. elacodes*), TURNER, p. 12, Tr. R. Soc. S. Austral. xxvii.
Xanthopastis timais, larva, DYAR, p. 104, J. N. York Ent. Soc. xi.
Xanthoptera albiceris, *crocodeta*, Queensland, TURNER, p. 11, Tr. R. Soc. S. Austral. xxvii; *X. euchrysa*, *macrosema*, Queensland, LOWER, p. 48, Tr. R. Soc. S. Austral. xxvii: n. spp.
Xylina nigrica ab. n. *basidiluta*, STRAND, Arch. Naturv. Christian. xxv, No. 9, p. 14.
Xylophasia ferens, Calgary, SMITH, p. 134, Canad. Ent. xxxv, n. sp.
Yrias albiciliatus, *strigatus*, Arizona, SMITH, p. 215, Tr. Amer. ent. Soc. xxix, n. spp.
Zagira xylonota, Queensland, LOWER, p. 34, Tr. R. Soc. S. Austral. xxvii, n. sp.
Zethes loria, *capatra*, Malay States, SWINHÖE, p. 81, Fascic. Malay. Zool. i; *Z. megaspila*, *subapicata*, p. 125, *distorta*, p. 126, New Guinea, WARREN, Nov. Zool. x; *Z. blechrodes*, N. Queensland, TURNER, p. 12, Tr. R. Soc. S. Austral. xxvii; *Z. syndesma*, Queensland, LOWER, p. 40, Tr. R. Soc. S. Austral. xxvii: n. spp.

GEOMETRIDÆ, EPIPLEMIDÆ, URANIIDÆ.

[Cf. DOGNIN (408), DYAR (430, 432), FAWCETT (497), HAMPSON (663), HUDSON (743), JORDAN (798), LOWER (949, 951), PHILPOTT (1132), REBEL (1207), ROTHSCHILD & JORDAN (1293), SCHRÖDER (1352), SWINHÖE (1500-1502), THIERRY-MIEG (1530), TURNER (1574), WARREN (1636-1639), WARREN & ROTHSCHILD (1640).]

Geometrid larva clothing itself with buds, SHELFORD, Zoologist 1903, p. 161, pl. iv.

Uraniidæ and *Epiplemidæ*, relations, WARREN, Nov. Zool. x, p. 258.

- Abraaxas* cf. *Calleulype*; *Abraaxas grossulariata* varr. n., RAYNOR, pp. 9, 10, Ent. Rec. xv; *A. grossulariata*, variation of markings, SCHRÖDER (1352); *A. sylvata* ab. n. *continuata*, WARREN, p. 269, Nov. Zool. x.
- Acidalia filicearia*, larva, REBEL, p. 245, *camparia*, larva, p. 246, Ann. Hofmus. Wien xviii.
- A. immorata* var. n. *albomarginata*, HABICH, p. 424, Verh. Ges. Wien liii.
- A. carpheraria*, *perpulverea*, Kashmir, *marmorata*, India, p. 650, *conioptera*, Kashmir, *pulchrafascia*, pl. c, fig. 13, *methemaria*, Sikkim, p. 651, HAMPSON, J. Bombay Soc. xiv, n. spp.
- Acropterus* cf. *Micronia*; *A. striataria* Clerck = (*Anteia canescens* Luc.), TURNER, p. 18, Tr. R. Soc. S. Austral. xxvii.
- Acrortha* cf. *Diplodesma*.
- Actenochroma* cf. *Pseudoterpna*.
- Adeta* n. g. *Tephroclystiinae* for *A. semifascia* n. sp., New Guinea, WARREN, p. 377, Nov. Zool. x.
- Æschrostoma* n. g. near *Cænocalpe* for *A. marmorata* n. sp., New Guinea, WARREN, p. 372, t. c.
- Agathia conjunctiva*, *obnubilata*, New Guinea, WARREN, p. 353, t. c., n. spp.
- Alcis flaccida*, *papuensis*, New Guinea, WARREN, p. 388, t. c., n. spp.
- Amphicrossa hemadelpha*, characters, LOWER, p. 198, Tr. R. Soc. S. Austral. xxvii.
- Anapalta aurifera*, New Guinea, WARREN, p. 373, Nov. Zool. x; *A. carneoviridis*, Bolivia, DOGNIN, p. 273, Ann. Soc. ent. Belgique xlvii: n. spp.
- Angelia* n. g. near *Amelora*, p. 193, for *A. tephrochroa*, *callisarca*, n. spp., N. S. Wales, p. 194, and *Amelora platydesma heteropa*, LOWER, Tr. R. Soc. S. Austral. xxvii.
- Angerona prunaria* varr. n., PROUT, p. 149, Ent. Rec. xv.
- Aniserpetes* n. g. near *Chloroclystis* for *A. purpureoviridis*, *sordida*, n. spp., New Guinea, WARREN, p. 378, Nov. Zool. x.
- Anisocolpia aroensis*, New Guinea, WARREN, p. 382, t. c., n. sp.
- Anisogamia albifimbria*, Solomon Ids., WARREN, p. 262, Nov. Zool. x; *A. caerulea*, *rufipunctata*, New Guinea, WARREN, p. 354, t. c.: n. spp.
- Anosiodes* n. g. *Prosopolphinae* for *A. hybrida*, n. sp., New Guinea, WARREN, p. 412, t. c.
- Antarchia* n. g. *Ennominae* for *A. subrubescens* n. sp., New Guinea, WARREN, p. 407, t. c.
- Anteia* cf. *Acropterus*, and *Pseudomicronia*.
- Anticlea subcesia*, N. Guinea, WARREN, p. 373, Nov. Zool. x, n. sp.
- Apicia lepida*, Bolivia, DOGNIN, p. 278, Ann. Soc. ent. Belgique xlvii, n. sp.
- Apochlora subflava* ♂, WARREN, p. 383, Nov. Zool. x.
- A. fallax*, Solomon Ids., WARREN, p. 268, t. c., n. sp.
- Arrhodia porphyropis* cf. *Xenochlæna*.
- Arycanda alternata*, p. 385, *concussa*, *fasciata*, *fritillaria*, p. 386, New Guinea, WARREN, t. c., n. spp.
- Astheniodes* n. g., p. 647, for *A. polymaria*, India, *argentiplumbea*, pl. c, fig. 24, Tibet, n. spp., p. 648, HAMPSON, J. Bombay Soc. xiv.
- Auzea torridaria*, transferred to *Decetia*, the ♂, frenulum present, WARREN, Nov. Zool. x, p. 258.
- Bapta bimaculata* ab. *bipunctata*, note, FUCHS, Soc. ent. xviii, p. 43.
- Biston suppressaria*, stages, pl. xiii, fig. 10, p. 185, Indian Mus. Notes v.
- B. inversarius* (? hybrid), SLIVNO, REBEL, p. 265, pl. iii, fig. 8, Ann. Hofmus. Wien xviii, n. sp.
- Blepharoctenucha albescens*, hab. is Malasia, WARREN, p. 389, Nov. Zool. x.
- Boarmia lioptilaria*, Penang, SWINHOE, p. 91, Fascic. Malay. Zool. i; *B. xylotrema*, Queensland, LOWER, p. 29, Tr. R. Soc. S. Austral. xxvii: n. spp.

- Bordeta furcata*, New Guinea, pl. xii, fig. 20, p. 486, ROTHSCHILD & JORDAN, Nov. Zool. x; *B. floridata*, Solomon Ids., WARREN, p. 269, Nov. Zool. x : n. spp.
- Brachycola* cf. *Eremocentra*.
- Cabira carnea*, Ecuador, DOGNIN, p. 275, Ann. Soc. ent. Belgique xlvii, n. sp.
- Calamodes lignaria*, Angola, WARREN, p. 275, Nov. Zool. x, n. sp.
- Callectera ansorgei*, Niger, WARREN, p. 275, t. c., n. sp.
- Callectylus* n. g. for *Abraxas whitelyi* Butl., WARREN, p. 264, t. c.
- Calluga* cf. *Gullaca*.
- Cambogia canariata*, Ecuador, DOGNIN, p. 272, Ann. Soc. ent. Belgique xlvii, n. sp.
- Capasa bifurcata*, New Guinea, WARREN, p. 408, Nov. Zool. x, n. sp.
- Carpella sublineata*, Bolivia, DOGNIN, p. 277, Ann. Soc. ent. Belgique xlvii, n. sp.
- Casbia scardamiata* is a *Trochistis*, ♂, WARREN, p. 405, Nov. Zool. x.
- C. albinotata*, New Guinea, WARREN, p. 401, t. c., n. sp.
- Celerena siamica*, Siam, SWINHÖE, Ann. Nat. Hist. xi, p. 501: *C. hirtipes*, *nigriceps*, New Guinea, WARREN, p. 348, Nov. Zool. x : n. spp.
- Chesiadodes bidisata*, Arizona, DYAR, p. 226, P. ent. Soc. Washington v, n. sp.
- Chlorochroma gigas*, *indistincta*, p. 355, *marginepunctata*, *minutipuncta*, *polluta*, p. 356, *punctulata*, p. 357, New Guinea, WARREN, Nov. Zool. x, n. spp.
- Chloroclystis rectoria*, Ceylon, HAMPSON, p. 642, J. Bombay Soc. xiv; *C. pallidivirens*, p. 378, *seminasata*, p. 379, New Guinea, WARREN, Nov. Zool. x : n. spp.
- Chrysochloroma ornatifimbria*, Solomon Ids., WARREN, p. 262, t. c., n. sp.
- Chrysoeraspeda croceicincta*, pl. c, fig. 22, *rubrifuscaria*, Ceylon, HAMPSON, J. Bombay Soc. xiv, p. 652; *C. rubricata*, Malay States, SWINHÖE, p. 94, Fascic. Malay. Zool. i; *C. lilacina*, p. 365, *rothschildi*, p. 366, New Guinea, WARREN, Nov. Zool. x : n. spp.
- Chrysolene aurora*, N. Guinea, WARREN, p. 366, t. c., n. sp.
- Cidaria holophæa*, pl. xx, figg. 3, 22, p. 331, HAMPSON, Nat. Hist. Sokotra.
- Cirrhora* n. g. *Epipleminæ* for *C. cometifera* n. sp., New Guinea, WARREN, p. 343, Nov. Zool. x.
- Collix icteraria*, Malay States, SWINHÖE, p. 93, Fascic. Malay. Zool. i, n. sp.
- Coniodes plumigeraria*, life-history, DYAR, p. 168, Psyche x.
- Craspedia fulvicolor*, pl. xx, fig. 7, p. 331, *disparata*, fig. 18, p. 332, HAMPSON, Nat. Hist. Sokotra.
- C. naias*, E. Africa, WARREN, p. 272, Nov. Zool. x; *C. polystigmata*, Kashmir, HAMPSON, J. Bombay Soc. xiv, p. 649 : n. sp.
- Crasilogia* n. g. *Hydriomeninæ* for *C. dispar* n. sp., New Guinea, WARREN, p. 374, Nov. Zool. x.
- Craspedosis casta*, *flavicollis*, *laticlava*, p. 387, *nigerrima*, p. 388, New Guinea, WARREN, t. c., n. spp.
- Cymatophora* or ab. n. *fuscostigmata*, STRAND, p. 22, Arch. Naturv. Christian. xxv, No. 9.
- Darantasia perichroa*, Victoria, LOWER, p. 187, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Declana glacialis*, New Zealand, HUDSON, p. 245, pl. xxx, fig. 2, Tr. N. Zealand Inst. xxxv, n. sp.
- Decetia* cf. *Auzea*.
- Deilinia erythremaria*, p. 195, *pulveraria*, p. 196, *behrensaria*, p. 197, *litaria*, p. 199, *retifascia*, p. 200, life-histories, DYAR, Psyche x.
- Devara fleximargo*, Peru, DOGNIN, p. 275, Ann. Soc. ent. Belgique xlvii, n. sp.
- Devarodes suppressa*, p. 275, *D. ? amæna*, p. 276, Peru, DOGNIN, t. c., n. spp.

- Dichromodes orthozona*, p. 189, *aristadelpha*, p. 190, Australia, LOWER, Tr. R. Soc. S. Austral. xxvii; *D. griseata*, N. Zealand, HUDSON, p. 244, pl. xxx, fig. 5, Tr. N. Zealand Inst. xxxv : n. spp.
- Diplodesma* and *Acerontha* are sexes of one, WARREN, Nov. Zool. x, p. 263; *Diplodesma* see *Thalassodes*.
- Dirades mutans* Butl. as (*Erosia*) = (*leucocera* Hamps.), p. 21, *D. leucocephala* Walk. as (*Erosia*) = (*Epiplema lugens* Warr.), p. 22, TURNER, Tr. R. Soc. S. Austral. xxvii.
- D. platyphylla*, p. 21, *stereogramma*, p. 22, Queensland, TURNER, t. c., n. spp.
- Dysplania imperatrix*, Solomon Islds., WARREN, p. 261, Nov. Zool. x, n. sp.
- Ectropis recticomata*, Malay States, SWINHOE, p. 90, Fascic. Malay. Zool. i, n. sp.
- Ellicrinia trinotata* var. n. *æstiva*, REBEL, p. 624, Ann. Hofmus. Wien xviii.
- Ellopia prosapiaria* var. n. *ochrearia*, PIC, p. 231, Bull. Soc. ent. France 1903.
- E.?* *ordinata*, Peru, DOGNIN, p. 278, Ann. Soc. ent. Belgique xlvi, n. sp.
- Elphos exalbata*, New Guinea, WARREN, p. 390, Nov. Zool. x, n. sp.
- Endemia* n. g. *Geometrine*, p. 357, for *E. tenera* n. sp., New Guinea, p. 358, WARREN, t. c.
- Energopteryx* n. g. for *Ourapteryx nigrociliaria* Leech, THIERRY-MIEG, p. 383, Ann. Soc. ent. Belgique xlvi.
- Ennomos autumnaria*, larva, DOLLMAN, pp. 226-235, Ent. Rec. xv.
- Epione advenaria* var. n. *fulva*, GILLMER, p. 183, Arch. Ver. Mecklenb. lvii.
- Epiphyryne citrinata*, New Zealand, WARREN, p. 265, Nov. Zool. x, n. sp.
- Epipleminæ*, variation of nervuration, TURNER, p. 18, Tr. R. Soc. S. Austral. xxvii.
- Epiplema inquinata*, New Guinea, WARREN, p. 344, Nov. Zool. x; *E. alabastraria*, *sparsipunctata*, *stigmatalis*, Solomon Islds., WARREN, p. 259, Nov. Zool. x; *E. argilloides oxytypa*, p. 19, *xylinopsis*, p. 20, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Epirrhoë subrufaria*, E. Africa, WARREN, p. 273, Nov. Zool. x, n. sp.
- Episothalma cognataria*, Siam, SWINHOE, Ann. Nat. Hist. xi, p. 510, n. sp.
- Eranis tiliaria*, life-history, DYAR, p. 116, Psyche x.
- Erateina* cf. *Pseuderateina*.
- Eremocentra* n. g. for *Brachycola flavareata* Warr., WARREN, p. 267, Nov. Zool. x.
- Erosia* cf. *Lobogethes* and *Dirades*.
- Euchloris devocata*, pl. viii, fig. 5, larva, figg. 6, 7, pupa, fig. 8, FAWCETT, Tr. Zool. Soc. London xvii.
- E. dickroa*, Queensland, LOWER, p. 217, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Eucrostes cymaria*, Simla, HAMPSON, p. 655, J. Bombay Soc. xiv, n. sp.
- Eucymatoge falsidica*, New Guinea, WARREN, p. 379, Nov. Zool. x, n. sp.
- Eugnesia*; *Syntaracta varians* is referred to this genus, the var. *lineata* is a distinct species, WARREN, p. 384, t. c.
- E. decolorata*, New Guinea, WARREN, p. 383, t. c., n. sp.
- Euipepe inferna*, New Guinea, WARREN, p. 405, t. c., n. sp.
- Eupithecia*: nocturnal habits, BARRETT, Ent. Mag. xxxix, p. 199.
- E. eurosoma*, Ceylon, *incurvaria*, p. 643, *thermosaria*, p. 644, Kashmir, HAMPSON, J. Bombay Soc. xiv, n. spp.
- Eurythecodes mutabilis*, with varr., E. Africa, WARREN, p. 277, Nov. Zool. x, n. sp.
- Gasterocome subdivisa*, New Guinea, WARREN, p. 390, t. c., n. sp.
- Gastrinopa* n. g. near *Gastrina*, for *G. xylistis* n. sp., S. Australia, LOWER, p. 197, Tr. R. Soc. S. Austral. xxvii.
- Gathynia* cf. *Lobogethes*.
- Geometra vernaria*, life history, RUSSELL, pp. 227, 228, Entomologist xxxvi.
- G. rufifrontaria*, India, HAMPSON, p. 655, J. Bombay Soc. xiv, n. sp.

- Gnophos difficilis* var. n. *korlata*, FUCHS, Soc. ent. xviii, p. 43; *G. iveni* ab. n. *perruptata*, FUCHS, p. 54, Jahrb. nassau. Ver. lvi; *G. operaria* var. n. *hoefneri*, REBEL, p. 425, Verh. Ges. Wien liii; *G. sordaria* ab. n. *strandata*, FUCHS, Soc. ent. xviii, p. 73.
- Gonanticlea sublustris*, New Guinea, WARREN, p. 375, Nov. Zool. x, n. sp.
- Gonophaga subpulchra*, ♂ and variation, WARREN, p. 410, t. c.
- G. straminea*, p. 408; *subgriseata*, p. 409, New Guinea, WARREN, t. c., n. spp.
- Graphipidus subpisciata*, Bolivia, DOGNIN, p. 273, Ann. Soc. ent. Belgique xlvii, n. sp.
- Gullaca* n. g. type *Calluga modesta* Warr., with *G. festivata* n. sp., Celebes, and including *Phrissogonus catastreptes* Meyr., WARREN, Nov. Zool. x, p. 266.
- Gymnoscelis festiva*, New Guinea, WARREN, p. 380, Nov. Zool. x, n. sp.
- Halterophora thalassias*, New Guinea, WARREN, p. 263, t. c., n. sp.
- Hemistola*? *punctifimbria*, New Guinea, WARREN, p. 358, t. c., n. sp.
- Heterodisca ignea*, New Guinea, WARREN, p. 410, t. c., n. sp.
- Heteromiza robusta*, New Guinea, WARREN, p. 411, t. c., n. sp.
- Holorista seminigra*, New Guinea, WARREN, p. 383, t. c., n. sp.
- Hulstina* n. g. near *Aleis*, for *H. terlineata* n. sp., Utah, DYAR, p. 178, P. ent. Soc. Washington v.
- Hybernia declinans*, ♂, pl. iii, fig. 7, p. 264, REBEL, Ann. Hofmus. Wien xviii.
- Hydrelia aurantiaca*, pl. c, fig. 25, *rubraria*, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 646, n. spp.
- Hydriomene magniolata*, life-history, p. 191, *multiferata*, p. 193, *excurvata*, p. 194, DYAR, Psyche x.
- Hypephyra plenimargo*, New Guinea, WARREN, p. 406, Nov. Zool. x, n. sp.
- Hyperythra œdiphebia*, pl. xx, fig. 21, p. 330, HAMPSON, Nat. Hist. Sokotra.
- Hypochroma saturataria*, variation and synonyms, WARREN, p. 350, Nov. Zool. x.
- H. modesta*, p. 350, *subrubella*, p. 351, New Guinea, WARREN, t. c., n. spp.
- Hypographa dilutaria*, W. Australia, WARREN, p. 260, t. c.; *H. cyanorrhœa*, S. Australia, LOWER, p. 191, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Hypycenopa* n. g. *Hydriomeniidae*, p. 183, for *H. delotis* n. sp., Australia, p. 184, LOWER, t. c.
- Ingena lucifera*, New Guinea, WARREN, p. 385, Nov. Zool. x, n. sp.
- Iodis costipicta*, p. 358, *fragilis*, p. 359, New Guinea, WARREN, t. c., n. spp.
- Iridobapta* n. g. near *Bapta*, p. 120, for *I. huntii* n. sp., New Guinea, p. 121, and *Leucetara subfuscata*, WARREN, t. c.
- Larentia bilineata*, variation, AIGNER-ABAFI, p. 165, Verh. Ges. Wien liii; *L. dotata* ab. n. *deleta*, p. 15, *serraria* n. f. *continua*, p. 16, *teniata* n. ff. *latefasciata*, *angustifasciata*, p. 17, *montanata* ab. ii. *constricta*, *polata* ab. n. *constricta*, p. 19, *byssata* ab. n. *subbyssata*, p. 20, *badicata* ab. n. *subbadicata*, p. 21, STRAND, Arch. Naturv. Christian. xxv, No. 9.
- Leptomeres isodesma*, N. S. Wales, LOWER, p. 217, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Leptosidia* n. g. for *L. arcæaria* n. sp., Kashmir, HAMPSON, p. 653, J. Bombay Soc. xiv.
- Leucetara* cf. *Iridobapta*.
- Lobogethes interrupta* = (*Gathynia despecta* Warr. = *Erosia radiata* Luc.), TURNER, p. 23, Tr. R. Soc. S. Austral. xxvii.
- Lobophorodes* n. g., p. 645, for *L. undulans* n. sp., Tibet, p. 646, HAMPSON, J. Bombay Soc. xiv.
- Loxochila*? *meeki*, New Guinea, WARREN, p. 359, Nov. Zool. x, n. sp.
- Lycauges fragilis*, E. Africa, WARREN, p. 272, t. c., n. sp.
- Lycia cognataria*, life-history, DYAR, pp. 78, 79, Psyche x.

- Lygris peloponnesiaca*, early stages, PÜNGELER, p. 321, Berlin. ent. Zeitschr. xlviii.
- Mesoleuca gratulata*, life-history, DYAR, p. 191, Psyche x.
- Mesoptila anthracias*, transferred to *Raparna*, *Hypheninæ*, LOWER, p. 184, Tr. R. Soc. S. Austral. xxvii.
- Mesotrophe? rufiplagia*, WARREN, p. 367, Nov. Zool. x, n. sp.
- Metrocampa praegrandaria*, life-history, DYAR, p. 190, Psyche x.
- Micronia nanula* Warr. to *Acropterus*, TURNER, p. 18, Tr. R. Soc. S. Austral. xxvii.
- Microschema* n. n. for *Dysschema* Warr. nec Hubn., WARREN, p. 349, Nov. Zool. x.
- Milionia*; numerous spp. figured, ROTHSCHILD & JORDAN, Nov. Zool. x, pl. xii, p. 484.
- M. distorta*, pl. xii, fig. 19, p. 485, *eichhorni*, fig. 32, p. 486, New Guinea, ROTHSCHILD & JORDAN, t. c.; *M. macrospila*, p. 315, *paradisea*, p. 316, New Guinea, JORDAN, Nov. Zool. x : n. spp.
- Monobolodes ustimacula*, New Guinea, WARREN, p. 344, t. c., n. sp.
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- Nearcha oxyptera*, *pyrosema*, Australia, LOWER, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Nelo subcuprea*, Peru, DOGNIN, p. 276, Ann. Soc. ent. Belgique xlvii, n. sp.
- Nemoria pulmentaria* var. n. *palastinensis*, FUCHS, Soc. ent. xviii, p. 51.
- Neoscelis* n. g. for *N. rivula* n. sp., Ceylon, HAMPSON, p. 639, J. Bombay Soc. xiv.
- Neostega* n. g. *Fidoniinæ*, for *N. flaviguttata* n. sp., Niger, WARREN, Nov. Zool. x, p. 276.
- Notoreas synclinalis*, N. Zealand, HUDSON, p. 244, pl. xxx, fig. 6, Tr. N. Zealand Inst. xxxv, n. sp.
- Nyctalemon curvata*, New Hebrides, SKINNER, p. 298, pl. xiii, P. Ac. Philad. lv, n. sp.
- Obeidia lucifera*=(*tigridata* Th.-Mieg), SWINHOE, Ann. Nat. Hist. xii, p. 199.
- Odezia* cf. *Scordonia*.
- Odontopera bidentata*, larval susceptibility to environment, POULTON, pp. 320-331, pl. xvi, Tr. ent. Soc. London 1903.
- Enochroma simplex*, ♀, WARREN, p. 261, Nov. Zool. x.
- Æ. guttilinea*, Queensland, WARREN, p. 260, t. c., n. sp.
- Enoptila flavirupta*, New Guinea, WARREN, p. 402, t. c., n. sp.
- Opisthoxia aurelia*, Brazil, DOGNIN, p. 274, Ann. Soc. ent. Belgique xlvii, n. sp.
- Orthostixis cribraria*, larva, REBEL, p. 260, Ann. Hofmus. Wien xviii.
- Ourapteryx primularis* var. n. *integra*, p. 382, *clara* var. n. *major*, p. 383, THIERRY-MIEG, Ann. Soc. ent. Belgique xlvii; *O.* cf. *Energopteryx*, *O. breviararia*=(*hilaris* Th.-M.), *O. peruvianaria* transferred to *Ripula*, THIERRY-MIEG, p. 384, t. c.
- O. peermaadiata*, India, p. 382, *javana*, Java, p. 383, THIERRY-MIEG, t. c., n. spp.
- Pachytyla* n. g. near *Selidosema*, p. 192, for *P. doliopa* n. sp., Australia, p. 193, LOWER, Tr. R. Soc. Austral. xxvii.
- Paradromulia anomala*, variation, synonymy, WARREN, pp. 395, 396, Nov. Zool. x.
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- Paramelora* n. g. for *P. zophodesma* n. sp., N. S. Wales, and *Xanthorrhoe lychnota* Low., LOWER, p. 196, Tr. R. Soc. S. Austral. xxvii.

- Pareclipsis ansorgeata*, Niger, WARREN, p. 278, Nov. Zool. x, n. sp.
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- Sangala subcyanea*, Cuzco, DOGNIN, p. 276, Ann. Soc. ent. Belgique xlvii, n. sp.
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- Scardamia fasciata* is a *Trochistis*, WARREN, p. 405, t. c.
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- Scioglyptis trisyneura*, Centr. Australia, LOWER, p. 192, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Scotosia* cf. *Xylopteryx* and *Xenospora*. *S. rubritincta*, pl. xx, fig. 20, p. 330, HAMPSON, Nat. Hist. Sokotra.
- Scordonia* n. g. for *Odezia brephos* Ob., with *S. fausta* n. sp., Ta-tsien-lou, THIERRY-MIEG, p. 384, Ann. Soc. ent. Belgique xlvii.
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- Semiothisa adjacens*, San Salvador, DOGNIN, p. 278, Ann. Soc. ent. Belgique xlvii, n. sp.
- Sterra sacra* ab. n. *excecaria*, *ochracearia*, FUCHS, Soc. ent. xviii, p. 3.
- S. rufula*, Borneo, SWINHOE, Ann. Nat. Hist. xii, p. 199, n. sp.
- Stibarostoma* cf. *Perixera*.
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- Synecta invenusta*, Amazons, DOGNIN, p. 277, Ann. Soc. ent. Belgique xlvii, n. sp.
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- Tanaorhinus unipuncta*, ♀, WARREN, p. 364, Nov. Zool. x.
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- Thamnocausta* n. g. near *Chloroclystis*, for *T. maluchitis* n. sp., New Guinea, WARREN, p. 381, Nov. Zool. x.
- Therapis pallidilinea*, New Guinea, WARREN, p. 411, t. c., n. sp.
- Therina fiscellaria*, life-history, DYAR, p. 13, Psyche x.

- Thysanotricha* n. g. near *Craspedia*, for *T. ziczacata* n. sp., Solomon Ids., WARREN, Nov. Zool. x, p. 264.
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- T. carnecostata*, p. 404, *fulviplaga*, p. 405, New Guinea, WARREN, Nov. Zool. x, n. spp.
- Uliocnemis cassidara*, larval habits, GREEN, p. 74, *Spolia zeylan.* i.
- Venusia pallidaria*, India, *conisaria*, *ochrota*, pl. c, fig. 5, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 647; *V. princeps*, N. Zealand, HUDSON, p. 244, pl. xxx, fig. 1, Tr. N. Zealand Inst. xxxv : n. spp.
- Xanthorrhoe* cf. *Paramelora*.
- X. lucirivata*, New Guinea, WARREN, p. 376, Nov. Zool. x; *X. roseopicta*, Celebes, WARREN, p. 265, t. c.; *X. hypogramma*, Victoria, LOWER, p. 185, Tr. R. Soc. S. Austral. xxvii; *X. occulta*, pl. xxxii, fig. 5, *oraria*, fig. 6, New Zealand, PHILPOTT, Tr. N. Zealand Inst. xxxv : n. spp.
- Xenobiston* n. g. for *X. casta* n. sp., Egypt, WARREN, p. 226, pl. iv, figg. 3, 4, Entomologist xxxvi.
- Xenochlæna* n. g. for *Arrhodia porphyropis* Low., LOWER, p. 191, Tr. R. Soc. S. Austral. xxvii.
- Xenosia* [in error for *Xenosina*] *eremias* Meyr. type, RAINBOW, Ent. Mag. xxxix, p. 101.
- Xenospora* n. g. for *Scotosia latifasciaria* Leech, WARREN, p. 265, Nov. Zool. x.
- Xylopteryx*; components, transfers from *Scotosia*, WARREN, p. 275, t. c.
- Zamarca flabellaria*, resting attitude, BATE, p. 106, cut, Entomologist xxxvi.
- Zygocenia albisparsa* = (*singularis* Swinh.), WARREN, p. 401, Nov. Zool. x.

PYRALIIDÆ, THYRIDIDÆ.

[Cf. BARRETT (77-79), BONJOUR (149), DOGNIN (408), DRUCE (414), DYAR (432, 434), FUCHS (577), HAMPSON (663, 666), HERING (696, 697), KEARFOTT (806), LOWER (949, 951), METALNIKOFF (1004), REBEL (858, 1207, 1209-1211), SWINHOE (1500, 1502), WARREN (1637, 1638).]

HERING concludes his enumeration of the *Pyralidæ* of Sumatra, *Hydrocampinae*, *Schanobiinae*, *Crambinae*, *Galleriinae*, *Phycitinae*, *Anerastinae* and *Pterophorinae*, Stettin Ent. Zeit. lxiv, pp. 38-97, pl. i: many of the species described in his 1901 memoir are figured on this plate.

Microlepidoptera [incl. *Pyralidæ*], Loire-inférieure, BONJOUR, pp. 393-470, Bull. Soc. Ouest France (2) iii.

Acara dohrni, Sumatra and Java, HERING, p. 87, pl. i, fig. 34, Stettin Ent. Zeit. lxiv, n. sp.

Acrobasis verrucella and *rubrotibiella* in Britain, BARRETT, Ent. Mag. xxxix, pp. 164-166.

Ambia cyanealis, Ceylon, HAMPSON, p. 210, J. Bombay Soc. xv; *A. dohrni*, Sumatra, HERING, p. 51, pl. i, fig. 30, Stettin Ent. Zeit. lxiv : n. spp.

- Anarmodia nebulosalis, remotalis*, p. 284, *pallidicostalis, perfulvalis*, p. 285, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvii, n. spp.
- Anerastia minoralis, xiphimela*, Queensland, LOWER, p. 52, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Anisothrix nobilis*, British Guiana, DRUCE, Ann. Nat. Hist. xi, p. 202, n. sp.
- Archernis argocephala*, Queensland, LOWER, p. 64, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Asarta nigrella*, Castille, HAMPSON, Ann. Nat. Hist. xi, p. 58, n. sp.
- Aulacodes triplaga*, Queensland, LOWER, p. 62, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Blabioides* n. g. *Phycitinae*, for *B. strigerella* n. sp., Ceylon, HAMPSON, p. 25, J. Bombay Soc. xv.
- Bocchoris amandalis*, Siam, SWINHOE, Ann. Nat. Hist. xi, p. 511, n. sp.
- Brixia particolor*, Solomon Ids., WARREN, p. 256, Nov. Zool. x, n. sp.
- Cænodomus fumosalis*, N. India, HAMPSON, p. 35, pl. c, fig. 30, J. Bombay Soc. xv, n. sp.
- Calamachrous sterrhalis*, Simla, HAMPSON, p. 219, t. c., n. sp.
- Charltona fusca*, Ceylon, p. 659, pl. c, fig. 18, HAMPSON, op. cit. xiv, n. sp.
- Chilo simplex*, natural history, pp. 139–141, pl. xiv, fig. 1, and stages, pp. 168–174, Ind. Mus. Notes v.
- C. boxanus*, China, HERING, p. 111, Stettin Ent. Zeit. lxiv, n. sp.
- Chrysaugæ eutelia, citrina*, S. Brazil, DRUCE, Ann. Nat. Hist. xi, p. 203, n. spp.
- Cirrhochrista grabczewskyi*, Cameroons, HERING, p. 108, Stettin Ent. Zeit. lxiv; *C. cyclophora*, Queensland, LOWER, p. 50, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Cledeobia moldavica* var., Spain, HAMPSON, Ann. Nat. Hist. xi, p. 58; *C. uxorialis nuptialis* var. n., REBEL, p. 4, Iris Dresden xvi; *C. moldavica* gynandromorph, REBEL, p. 300, Ann. Hofmus. Wien xviii.
- C. syriaca*, Jordan, REBEL, p. 5, Iris Dresden xvi, n. sp.
- Clupeosoma ? mimetica*, W. Australia, LOWER, p. 65, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Constantia pectinalis jordanalis* var. n., REBEL, p. 4, Iris Dresden xvi.
- C. sinica*, Sinai, REBEL, p. 586, Verh. Ges. Wien liii, n. sp.
- Crambus biformellus*, pl. iii, figg. 10, 11, p. 290, REBEL, Ann. Hofmus. Wien xviii.
- C. semicanellus*, Armenia, FUCHS, p. 232, Stettin Ent. Zeit. lxiv; *C. numidellus*, Sahara, REBEL, p. 406, Verh. Ges. Wien liii; *C. phæostrigellus*, Kashmir, HAMPSON, p. 658, J. Bombay Soc. xiv; *C. photoleuca*, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvii; *C. vachellellus*, N. Jersey, KEARFOTT, p. 149, pl. ix, fig. 6, J. N. York Ent. Soc. xi : n. spp.
- Criophthona trileuca*, W. Australia, LOWER, p. 66, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Crocidophora exstigmatis*, Burma, HAMPSON, p. 217, J. Bombay Soc. xv, n. sp.
- Cryptoblabe ephestialis*, Ceylon, HAMPSON, p. 32, t. c., n. sp.
- Cydalima violalis*, pl. i, fig. 22, HERING, Stettin Ent. Zeit. lxiv.
- C. fimbriata*, Celebes, HERING, p. 105, t. c., n. sp.
- Desmia semivacuialis*, p. 279, *validalis*, p. 280, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvii, n. spp.
- Diathraustodes*, N. India, HAMPSON, p. 211, J. Bombay Soc. xv, n. sp.
- Diatraea aculeata*, Sikkim, p. 659, pl. c, fig. 15, HAMPSON, J. Bombay Soc. xiv; *D. virgosa*, Sumatra, HERING, p. 79, pl. i, fig. 32, Stettin Ent. Zeit. xlv : n. spp.
- Dichocrocis bicodula*, pl. i, fig. 18, HERING, op. cit. lxiv.
- D. leptalis*, India, HAMPSON, p. 214, J. Bombay Soc. xv, n. sp.

- Dioryctria schutzeella* and allies, FUCHS, pp. 233-239, Stettin Ent. Zeit. lxiv.
- Eccopidia vinistis*, Ceylon, HAMPSON, p. 21, J. Bombay Soc. xv, n. sp.
- Eldana leucostictalis*, Queensland, LOWER, p. 50, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Embryoglossa bipuncta*, N. India, HAMPSON, p. 658, J. Bombay Soc. xiv, n. sp.
- Enchocnemidia bradata*, pl. i, fig. 23, HERING, Stettin Ent. Zeit. lxiv.
- Endotricha albicinctalis*, *ochrifuscalis*, *mediolineata*, India, HAMPSON, p. 206, J. Bombay Soc. xv; *E. pyrocaustalis*, *desmotoma*, Australia, LOWER, p. 60, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Eristena straminealis*, Sikkim, HAMPSON, p. 209, J. Bombay Soc. xv, n. sp.
- Eromene pygmaea*, Sumatra, HERING, p. 81, pl. i, fig. 33, Stettin Ent. Zeit. lxiv, n. sp.
- Etiella grisea*, Ceylon, *myosticta*, *uniformalis*, India, HAMPSON, p. 33, J. Bombay Soc. xv; *E. holozona*, Queensland, LOWER, p. 57, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Eucallenia ragonoti*, Cameroons, HERING, p. 110, Stettin Ent. Zeit. lxiv, n. sp.
- Eurycreon oculifera*, pl. i, fig. 20, HERING, t. c.
- Euzophera albicostalis*, *cedrella*, India, HAMPSON, p. 24, J. Bombay Soc. xv, n. spp.
- Euzopherodes irroralis*, Ceylon, *ephestialis*, Sikkim, HAMPSON, p. 24, t. c.; *E. allocrossa*, Queensland, LOWER, p. 57, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Evergestis tenuiscriptalis*, N. Persia, *flavifuscalis*, Armenia, REBEL, p. 6, Iris Dresden xvi, n. spp.
- Galleria mellonella*, physiological peculiarities of larva, METALNIKOFF (1004).
- Glyphodes negatalis*, pl. xiv, fig. 5, p. 114, Indian Mus. Notes v; *G. hageni*, pl. i, fig. 24, HERING, Stettin Ent. Zeit. lxiv.
- G. prœfulgida*, E. Africa, HERING, p. 107, pl. i, fig. 25, t. c.; *G. violescens*, Bolivia, *contactalis*, p. 280, *decapitalis*, Ecuador, *semaphoralis*, Bolivia, p. 281, DOGNIN, Ann. Soc. ent. Belgique xlvi : n. spp.
- Goniopalpa* n. g. *Schaenobianæ*, for *G. delicatalis* n. sp., Khasia Hills, HAMPSON, p. 19, J. Bombay Soc. xv.
- Herculia nitidiciliialis*, pl. i, fig. 7, HERING, Stettin Ent. Zeit. lxiv
- H. medialis*, Simla, HAMPSON, p. 208, J. Bombay Soc. xv, n. sp.
- Heterographis flammealis*, pl. xx, fig. 19, p. 334, *innotalis*, pl. xx, fig. 17, p. 337, HAMPSON, Nat. Hist. Sokotra.
- H. microstictella*, *fulvimarginella*, India, *obscuralis*, Ceylon, HAMPSON, p. 23, J. Bombay Soc. xv; *H. molybdophora*, p. 57, *proleuca*, p. 58, Australia, LOWER, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Heteroschista* n. g. near *Striglina*, for *H. nigranalis* n. sp., Niger, WARREN, p. 271, Nov. Zool. x.
- Homœosoma nebulella*, larval food, BANKES, Ent. Mag. xxxix, p. 148.
- H. nigrimediulis*, India, HAMPSON, p. 21, J. Bombay Soc. xv; *H. ? melano-sticta*, W. Australia, LOWER, p. 58, Tr. R. Soc. S. Austral. xxvii; *H. elongellum*, Arizona, DYAR, p. 227, P. ent. Soc. Washington v : n. spp.
- Homopyralis monodia*, N. America, DYAR, p. 295, t. c., n. sp.
- Hyalorista agraptalis*, Ecuador, DOGNIN, p. 286, Ann. Soc. ent. Belgique xlvi, n. sp.
- Hypochalcia ghilianii*, *lignella*, *griseocænella*, synonymy, MEYRICK, Ent. Mag. xxxix, p. 6.
- Hypogryphia pulverialis*, pl. xx, fig. 16, p. 333, HAMPSON, Nat. Hist. Sokotra.
- Hypsipyla robusta*, Natural History, STEBBING, pp. 312-317, pl. xix, fig. 3, Forestry insects, No. 2.

- H. psarella, rotundipex*, India, *elachistalis*, Ceylon, HAMPSON, p. 30, J. Bombay Soc. xv, n. spp.
- Hypsopygia costalis ingens* ab. n., REBEL, p. 3, Iris Dresden xvi.
- Jocara thermoptera*, N. S. Wales, LOWER, p. 59, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Lamacha angulifera*, India, HAMPSON, p. 209, J. Bombay Soc. xv, n. sp.
- Lambasia* n. g. near *Hypochoalcia*, for *L. caradjae* n. sp., Algeria, REBEL, p. 1, Iris Dresden xvi.
- Lamoria nigrisparsalis*, Ceylon, HAMPSON, p. 658, J. Bombay Soc. xiv, n. sp.
- Luma longidentalis*, Bhutan, HAMPSON, p. 211, op. cit. xv, n. sp.
- Lygropia chryselectra*, Queensland, LOWER, p. 64, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Macalla rufibarbalis*, p. 34, pl. c, fig. 1, *plicatalis, metasarcia*, India, p. 35, HAMPSON, J. Bombay Soc. xv, n. spp.
- Macna protextata*, Borneo, HERING, p. 98, pl. i, fig. 1, Stettin Ent. Zeit. lxiv, n. sp.
- Marasma trapezalis*, stages, pl. xiv, fig. 3, p. 141, Indian Mus. Notes v.
- M. hexagona*, Queensland, LOWER, p. 63, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Margaronia eburnealis*, Malay States, SWINHOE, p. 105, Fascic. Malay. Zool. i; *M. seitzialis*, Brazil, HERING, p. 106, Stettin Ent. Zeit. lxiv : n. spp.
- Maricopa lustrella*, Arizona, DYAR, p. 227, P. ent. Soc. Washington v, n. sp.
- Massepha ambialis*, N. India, HAMPSON, p. 214, J. Bombay Soc. xv, n. sp.
- Melissoblaptes agramma*, Queensland, LOWER, p. 49, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Mesinia olivesalis*, Ceylon, HAMPSON, p. 25, J. Bombay Soc. xv, n. sp.
- Metasia prionogramma*, pl. xx, fig. 5, p. 336, HAMPSON, Nat. Hist. Sokotra.
- M. ectodontalis, phragmatias*, Queensland, LOWER, p. 66, Tr. R. Soc. S. Austral. xxvii; *M. coniotalis*, E. Asia, p. 220, *straminealis, annuliferalis*, p. 221, India, HAMPSON, J. Bombay Soc. xv : n. spp.
- Myelois cribrella* var., FUCHS, p. 239, Stettin Ent. Zeit. lxiv.
- Nacoleia albiciliatis, albifavalis*, Ceylon, *ustulalis*, India, HAMPSON, p. 215, J. Bombay Soc. xv; *N. xanthoscota*, Queensland, LOWER, p. 63, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Nephoteryx similella* in England, BARRETT, Ent. Mag. xxxix, p. 1.
- N. kraussi*, Sahara, REBEL, p. 408, Verh. Ges. Wien liii; *N. hypocaustella*, India, p. 26, *N. (Palibothra) tumidella*, p. 27, *albifasciatis, striginnervella*, Ceylon, *rubralis*, Madras, p. 28, *calamalis*, Ceylon, *asbolalis*, Africa, India, *ephestialis*, India, p. 29, HAMPSON, J. Bombay Soc. xv; *N. orthozona*, p. 53, *ereboscopa, hades*, p. 54, *dasyptera, thermalopha*, p. 55, *metasarca*, p. 56, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Noctuelia dichroalis*, Ceylon, pl. c, fig. 6, p. 224, HAMPSON, J. Bombay Soc. xv, n. sp.
- Noorda albizonalis*, India, Celebes, HAMPSON, p. 219, t. c.; *N. molybdis, metalloma*, Australia, LOWER, p. 65, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Nymphula diplopa*, N. S. Wales, LOWER, p. 62, t. c., n. sp.
- Odontopaschia* n. g. *Epipaschianæ*, for *O. virescens* n. sp., N. India, HAMPSON, p. 34, J. Bombay Soc. xv.
- Oligostigma auro-punctalis*, Bhutan, HAMPSON, p. 210, t. c., n. sp.
- Orenaiä preisseeckeri*, Austria, REBEL, p. 90, Verh. Ges. Wien liii, n. sp.
- Orthaga subbasalis*, pl. i, fig. 5, *fumida*, fig. 6, HERING, Stettin Ent. Zeit. lxiv; *O. aribasalis*=(*Stericta leucodesma* Low.) and *O. seminivea*=(*S. chionopa* Low.), LOWER, p. 219, Tr. R. Soc. S. Austral. xxvii.

- Pachynoa fruhstorferi*, Celebes, HERING, p. 102, Stettin Ent. Zeit. lxiv, n. sp.
- Pachyzancla mimeticalis*, pl. i, fig. 21, HERING, t. c.
- P. hirsuta*, Ecuador, DOGNIN, p. 284, Ann. Soc. ent. Belgique xlvii, n. sp.
- Pagyda quinquelineata*, Yokohama, HERING, p. 101, Stettin Ent. Zeit. lxiv;
- P. pullalis*, Siam, SWINHOE, Ann. Nat. Hist. xi, p. 510 : n. spp.
- Patania floccosa*, pl. i, fig. 19, HERING, Stettin Ent. Zeit. lxiv.
- Patissa heldi*, Sumatra, HERING, p. 68, pl. i, fig. 31, t. c.; *P. fulvidorsalis*, Sikkim, HAMPSON, p. 19, J. Bombay Soc. xv : n. spp.
- Persicoptera chionozyga*, Queensland, LOWER, p. 60, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Phlyctenodes subvitrealis*, Ceylon, HAMPSON, p. 218, J. Bombay Soc. xv, n. sp.
- Phryganodes discipunctalis*, India, HAMPSON, p. 214, t. c., n. sp.
- Phycita hemipexella*, p. 30, *phaella*, *steniella*, *ardentia*, *ochralis*, India, *erythrolophia*, Ceylon, p. 31, HAMPSON, t. c.; *P. deltophora*, *leucomilla*, Queensland, LOWER, p. 53, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Pileocera discalis*, Ceylon, HAMPSON, p. 212, J. Bombay Soc. xv, n. sp.
- Pilocrocis dohrnialis*, pl. i, fig. 26, HERING, Stettin Ent. Zeit. lxiv.
- Pionea poliostricta*, Ceylon, *longipalpalis*, *bryophilalis*, India, HAMPSON, p. 222, J. Bombay Soc. xv; *P. leucura*, Queensland, LOWER, p. 67, Tr. R. Soc. S. Austral. xxvii; *P. leucotypa*, *achroa*, Queensland, LOWER, p. 218, t. c.; *P. albipennis*, *costalis*, Ecuador, DOGNIN, p. 286, Ann. Soc. ent. Belgique xlvii : n. spp.
- Platamonia pœcitura*, Sumatra, HERING, p. 42, pl. i, fig. 29, Stettin Ent. Zeit. lxiv, n. sp.
- Platytes trichialis*, Bombay, HAMPSON, p. 659, J. Bombay Soc. xiv, n. sp.
- Platythyris oculatana*, larva (it is Pyraloid), DYAR, p. 295, P. ent. Soc. Washington v.
- Polygrammodes nigrilinealis*, Sikkim, pl. c, fig. 35, p. 218, HAMPSON, J. Bombay Soc. xv; *P. uniflexalis*, p. 281, *aurapurpuralis*, Loja; *biangulalis*, San Salvador, p. 282, *fusinotalis*, *P. ? supproximalis*, Loja, *nigrifrons*, Venezuela, p. 283, DOGNIN, Ann. Soc. ent. Belgique xlvii : n. spp.
- Polyocha tricoloralis* = (*variegatella* Hamps.), *pulvrealis*, p. 20, *ornatella*, p. 21, India, HAMPSON, J. Bombay Soc. xv, n. spp.
- Prasinozena viridissima*, Malay States, SWINHOE, p. 98, Fascic. Malay. Zool. i, n. sp.
- Psorosa proleucalis*, *bifiliferalis*, India, HAMPSON, p. 22, J. Bombay Soc. xv, n. spp.
- Ptyomazia* n. g. *Phycitince*, for *P. trigonifera* n. sp., Ceylon, HAMPSON, p. 26, t. c.
- Pyralis lienigialis* var. n. *dacicalis*, CARADJA, p. 362, Bull. Soc. Bucarest xii; *P. costalis* var. n. *ustocilialis*, FUCHS, p. 227, Stettin Ent. Zeit. lxiv.
- P. transcaspica*, W. Asia, REBEL, p. 3, Iris Dresden xvi; *P. prepialis*, Sikkim, HAMPSON, p. 207, J. Bombay Soc. xv : n. spp.
- Pyrausta sambucalis*, p. 228, *nubilalis*, p. 230, varr., FUCHS, Stettin Ent. Zeit. lxiv; *P. macheralis*, stages, pl. xiv, fig. 6, p. 112, Indian Mus. Notes v; *P. macheralis*, natural history, STEBBING, pp. 301-311, pl. xviii, fig. 2, and xix, fig. 2, STEBBING, Forestry Insects, No. 2; *P. fracidalis*, pl. i, fig. 9, *abdicatrix*, fig. 10, *byrrhalis*, fig. 11, *quadrigalis*, fig. 12, *retostalis*, fig. 13, HERING, Stettin Ent. Zeit. lxiv; *P. ochosalis* Fitch [? n. sp.], characters, DYAR, p. 305, P. ent. Soc. Washington v.
- P. amatalis*, Slivno, REBEL, p. 307, pl. iii, fig. 7, Ann. Hofmus. Wien xviii; *P. euprepialis*, *minimalis*, *euralis*, *atrifusalis*, p. 223, *xanthothysana*, p. 224, pl. c, fig. 4, India, HAMPSON, J. Bombay Soc. xv; *P. epicroca*,

- p. 67, *petrosarca*, p. 68, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Rhodoneura capotona*, Malay States, SWINHOE, p. 96, Fascic. Malay. Zool. i, n. sp.
- Sacada pusilla*, pl. i, fig. 8, HERING, Stettin Ent. Zeit. lxiv.
- Saluria minutella*, India, HAMPSON, p. 20, J. Bombay Soc. xv, n. sp.
- Sandrabatis phœella*, Sikkim, HAMPSON, p. 25, t. c., n. sp.
- Schœnobius aurivena*, Khasia Hills, HAMPSON, p. 20, t. c., n. sp.
- Scirpodes auriflua*, natural history, pp. 174-178, pl. xiv, fig. 2, Indian Mus. Notes v.
- Scoparia crocalis*, p. 212, *phœalis*, *polialis*, *straminealis*, *ochrotalis*, p. 213, India, HAMPSON, J. Bombay Soc. xv, n. spp.
- Statina cashmiralis*, Kashmir, HAMPSON, p. 20, t. c., n. sp.
- Staudingeria holophacella*, Sahara, REBEL, p. 407, Verh. Ges. Wien liii, n. sp.
- Stemmatophora subflavalis*, p. 207, *minoralis*, p. 208, Ceylon, HAMPSON, J. Bombay Soc. xv, n. spp.
- Stenia grisealis*, pl. xx, figg. 4, 23, p. 335, HAMPSON, Nat. Hist. Sokotra.
- S. rubriceps*, India, HAMPSON, p. 212, J. Bombay Soc. xv, n. sp.
- Stericta sectilis*, pl. i, fig. 2, *ambifaria*, fig. 3, *dohru*, fig. 4, HERING, Stettin Ent. Zeit. lxiv.
- S. rubrescens*, *olivialis*, N. India, HAMPSON, p. 36, J. Bombay Soc. xv; *S. aleuropa*, Queensland, LOWER, p. 59, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Striglina scalata*, Solomon Ids., *straminea*, Amboina, *xanthoscia*, New Guinea, WARREN, p. 257, Nov. Zool. x, n. spp.
- Sufetula melanophthalma*, pl. i, fig. 27, HERING, Stettin Ent. Zeit. lxiv.
- Sylepta satanas*, pl. i, fig. 14, *phalangioidalis*, fig. 15, *distinguenda*, fig. 16, *œnigmatica*, fig. 17, HERING, t. c.; *S. multilinealis*, stages, pl. xiv, fig. 4, p. 182, Indian Mus. Notes v.
- S. picalis*, N. India, p. 216, pl. c, fig. 9, HAMPSON, J. Bombay Soc. xv, n. sp.
- Symphysa adelalis*, N. Jersey, KEARFOTT, p. 145, pl. ix, figg. 11, 20, J. N. York Ent. Soc. xi, n. sp.
- Talis stenipteralis*, *eremenopa*, Australia, LOWER, p. 51, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Tegulifera phœaptera*, Ceylon, HAMPSON, p. 207, J. Bombay Soc. xv, n. sp.
- Tephris glaucobasis*, Queensland, LOWER, p. 56, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Teratausta* n. g. near *Noctuelia*, for *T. odontalis* n. sp., India, HAMPSON, p. 225, J. Bombay Soc. xv.
- Teratausta paradoxa*, pl. i, fig. 28, HERING, Stettin Ent. Zeit. lxiv.
- Tirathaba chlorosema*, Queensland, LOWER, p. 219, Tr. R. Soc. S. Austral. xxvii, n. sp.
- Trichophysetis acutangulalis*, India, HAMPSON, p. 207, J. Bombay Soc. xv; *T. crocoplaga*, *fulvifusalis*, Queensland, LOWER, p. 61, Tr. R. Soc. S. Austral. xxvii : n. spp.
- Tyndis albidefinis*, Simla, HAMPSON, p. 209, J. Bombay Soc. xv, n. sp.
- Tyspanodes metachrysiatis*, Queensland, LOWER, p. 63, Tr. R. Soc. S. Austral. xxvii, n. sp.

PTEROPHORIDÆ.

[Cf. FUCHS (576), DYAR (432, 434), SNELLEN (1450).]

- Aciptilia nivea*, Java, SNELLEN, p. 56, pl. v, fig. 17, Tijdschr. Ent. xlv, n. sp.
- Agdistis minima*, pl. xxi, fig. 1, p. 354, WALSHINGHAM, Nat. Hist. Sokotra.
- Oxyptilus geoductylus*, Eriwan, FUCHS, p. 15, Stettin Ent. Zeit. lxiv, n. sp.

- Platyptilia rhusiodactyla*, Eriwan, FUCHS, p. 14, t. c.; *P. (Amblyptilia) sythoffi*, Java, SNELLEN, p. 54, pl. v, figg. 15, 16, Tijdschr. Ent. xlvj; *P. marmorodactyla*, N. America, DYAR, p. 296, P. ent. Soc. Washington v : n. spp.
Pterophorus caudelli, Arizona, DYAR, p. 228, t. c., n. sp.
Stenoptilia schwarzi, Arizona, DYAR, p. 228, t. c., n. sp.

TORTRICIDÆ.

- [Cf. BONJOUR (149), BUSCK (249, 251), DYAR (431-435), FUCHS (576, 577), LOWER (949, 951), REBEL (1207, 1209, 1210), RODZIANKO (1276), SANDERSON (1316, 1318), SIMPSON (1427), SNELLEN (1450), WALSHINGHAM (1631, 1632).]
- Acalla contaminana* ab. n. *unicolorana*, FUCHS, p. 57, Jahrb. nassau. Ver. lvi.
Archips socotranus, pl. xxi, figg. 14, 15, p. 352, WALSHINGHAM, Nat. Hist. Sokotra.
A. granadanus, Spain, WALSHINGHAM, Ent. Mag. xxxix, p. 183, n. sp.
Arotrophora cosmoplaca, W. Australia, LOWER, p. 219, Tr. R. Soc. S. Austral. xxvii, n. sp.
Atychia mesochrysa, episcota, Australia, LOWER, p. 68, t. c., n. spp.
Cacacia excessana, habits, HILGENDORF, p. 266, Tr. N. Zealand Inst. xxxv.
Carpocapsa, to be used for *pomonella*, BUSCK, pp. 106-111, J. N. York Ent. Soc. xi.
Cerace triphaenella, Java, SNELLEN, p. 26, pl. iv, fig. 1, Tijdschr. Ent. xlvj, n. sp.
Cnephasia (Sciaphila) lætana, characters, early stages, CHRÉTIEN, p. 11, Naturaliste 1903.
Conchylis ciliella var. n. *koniana*, FUCHS, p. 5, Stettin Ent. Zeit. lxiv; *C. ciliella* var. n. *tectana*, FUCHS, p. 240, t. c.; *C. lambessana*, characters, REBEL, p. 409, Verh. Ges. Wien liii; *C. santolinana*, larval habits, CHRÉTIEN, p. 112, Bull. Soc. ent. France 1903.
C. diacrisiana, Austria, REBEL, pl. iii, fig. 13, p. 317, Ann. Hofmus. Wien xviii; *C. (Coccyx) suaveolana*, Konia, FUCHS, p. 6, Stettin Ent. Zeit. lxiv : n. spp.
Cryptophlebia socotrensis, pl. xxi, fig. 13, p. 351, WALSHINGHAM, Nat. Hist. Sokotra.
Cydia pomonella in N. America, natural history etc., SIMPSON, Bull. U. S. Dep. Agric. Ent., No. xli; *C. pomonella* var. n. *simpsoni*, BUSCK, p. 236, P. ent. Soc. Washington v.
Cymolomia faillana, Sicily, FUCHS, p. 7, Stettin Ent. Zeit. lxiv, n. sp.
Epiblema subuculana, Engadine, REBEL, p. 92, Verh. Ges. Wien liii, n. sp.
Epinotia favillana, p. 230, *E. ? cornutana*, p. 231, Arizona, DYAR, P. ent. Soc. Washington v, n. spp.
Eucelis malcolmix, Spain, Tangier, WALSHINGHAM, Ent. Mag. xxxix, p. 213, n. sp.
Eucosma optimana, Colorado, DYAR, p. 180, P. ent. Soc. Washington v; *E. gilletteana*, *E. ? edemoidana*, Arizona, DYAR, p. 229, t. c.; *E. pulsatillana, cercocarpana*, N. America, DYAR, p. 297, t. c. : n. spp.
Evetria neomexicana, Las Vegas, DYAR, p. 286, t. c., n. sp.
Grapholitha larseni, Austria, REBEL, p. 93, Verh. Ges. Wien liii, n. sp.
Gypsonoma pædiscana, characters, WALSHINGHAM, Ent. Mag. xxxix, p. 186.
Laspeyresia ilipulana, Granada, p. 209, *blackmoreana, intacta*, p. 210, Morocco, WALSHINGHAM, Ent. Mag. xxxix, n. spp.
Loxopera rubiginana, Morocco, WALSHINGHAM, t. c. p. 183, n. sp.
Olethreutes bifasciana, larval habits, CROMBRUGGHE, p. 270, Ann. Soc. ent. Belgique xlvii.

- Pammene rediella*, RODZIANKO (1276).
P. cocciferana, p. 211, *ornata*, p. 212, Morocco, WALSINGHAM, Ent. Mag. xxxix, n. spp.
Phalonia moribundana = (*respirantana* Stgr.), WALSINGHAM, t. c. p. 184.
P. loxoperoides, Granada, p. 184, *puellana*, Morocco, p. 185, WALSINGHAM, t. c.; *P. unistrigana*, Arizona, DYAR, p. 232, P. ent. Soc. Washington v : n. spp.
Phoxopteryx lundana var. n. *rhusiana*, FUCHS, p. 8, Stettin Ent. Zeit. lxiv.
Phthiniolophus n. g. near *Tmetocera*, for *P. indentanus* n. sp., N. America, DYAR, p. 307, P. ent. Soc. Washington v.
Semasia citrana var. n. *major*, REBEL, p. 321, Ann. Hofmus. Wien xviii;
S. aspidiscana var. n. *catoptrana*, REBEL, p. 91, Verh. Ges. Wien liii.
Steganopterycha pyricolana, larva and pupa, structure, SANDERSON, pp. 158-161, cuts, Canad. Ent. xxxv.
S. tantillana, Norway, FUCHS, p. 241, Stettin Ent. Zeit. lxiv, n. sp.
Thiodia stringulatana Kenn., characters, habitat, WALSINGHAM, Ent. Mag. xxxix, p. 186.
T. stygiana, Arizona, DYAR, p. 230, P. ent. Soc. Washington v, n. sp.
Tortricomorpha transversella = (*obliquefasciata* Walsingh.), SNELLEN, p. 30, Tijdschr. Ent. xlvii.
T. leiochroa, *stilbiota*, *lichneopa*, p. 69, *monodesma*, p. 70, Australia, LOWER, Tr. R. Soc. S. Austral. xxvii, n. spp.
Tortrix (*Cacoecia*) *vulpeculana*, Konia, p. 1, *fallaciana*, Sicily, p. 2, FUCHS, Stettin Ent. Zeit. lxiv; *T. dorsalana*, Arizona, DYAR, p. 231, P. ent. Soc. Washington v : n. spp.

TINEIDÆ, s. l.

- [Cf. BONJOUR (149), BUSCK (247, 248, 250), CHRÉTIEN (311), DURRANT (427), DYAR (437, 438), ENDERLEIN (450, 451), FUCHS (576-578), KEARFOTT (806), KRULIKOVSKY (887), LOWER (949-951), MEYRICK (1015), POCOCK (1182), REBEL (1207-1210), SLINGERLAND & FLETCHER (1435), SNELLEN (1450), TURNER (1575), WALSINGHAM (1630-1633).]
- Revision of *Gelechiidæ*, BUSCK, P. U. S. Mus., No. 1304, Vol. xxv, pp. 767-938, pls. xxviii-xxxii. The n. spp. of this memoir are given below, but we have not attempted to deal with its synonymy. This is extensive, but what part of it may be new is not indicated; most of it is probably recorded in Dyar's list.
- Examination and enumeration of Clemens' types of N. American *Tineina*, BUSCK, pp. 181-220, P. ent. Soc. Washington v. For the synonymy of this paper reference must be made to the paper itself.
- N. g., n. sp., Kerguelen, ENDERLEIN, p. 218, figg. 35, 39, 42, Valdivia exp. iii.
- Abebea gerdanella*, *delicatella*, p. 53, *cockerella*, *nella*, p. 54, *querciella*, p. 55, N. America, BUSCK, J. N. York Ent. Soc. xi, n. spp.
- Acompsia mesozona*, Victoria, LOWER, p. 225, Tr. R. Soc. Austral. xxvii, n. sp.
- Agriophara tephroptera*, N. S. Wales, LOWER, p. 230, t. c., n. sp.
- Alabonia herculeella*, Portugal, Morocco, *chapmani*, Spain, WALSINGHAM, Ent. Mag. xxxix, p. 292, n. spp.
- Anacamptis coverdalella*, N. Jersey, KEARFOTT, p. 162, pl. ix, fig. 13, J. N. York Ent. Soc. xi; *A. cyclella*, *paltodoriella*, p. 848, N. America, BUSCK, P. U. S. Mus. xxv; *A. balcanica*, Slivno, REBEL, p. 330, Ann. Hofmus. Wien xviii : n. spp.
- Apodia helotella* = (*damonella* Mill. = *algeriella* Bkr.), WALSINGHAM, Ent. Mag. xxxix, p. 262.

- A. asterisci*, p. 263, *scholastica*, p. 264, S. Spain, id., t. c., n. sp.
Aprocrerna kearfottella, New Jersey, BUSCK, p. 842, P. U. S. Mus. xxv, n. sp.
Aristeis macrotricha, Victoria, LOWER, p. 225, Tr. R. Soc. S. Austral. xxvii, n. sp.
Argyresikia ephippella and *mendica* in cop., FUCHS, p. 243, Stettin Ent. Zeit. lxiv.
Argyritis ochricapilla, Austria, REBEL, p. 96, Verh. Ges. Wien liii, n. sp.
Aristotelia remissella, characters, WALSINGHAM, Ent. Mag. xxxix, p. 214.
A. bifasciella, p. 799, *argentifera*, *cockerella*, p. 800, *kearfottella*, p. 803, *quinquepunctellâ*, p. 804, N. America, BUSCK, P. U. S. Mus. xxv, n. spp.
Atteva subaurata = (*modesta* Sn.), *basalis* = (*conspicua* Wals.), SNELLEN, p. 30, Tijdschr. Ent. xlvii.
A. niphocosma, p. 79, *charopis*, p. 80, Queensland, TURNER, P. Linn. Soc. N. S. Wales 1903, n. spp.
Augasma æratella, galls, HOUARD, p. 44, Marcellia i.
Autoneda, n. n. for *Neda* Chambers, BUSCK, p. 782, P. U. S. Mus. xxv.
Batrachedra atomosella, pl. xxi, fig. 6, p. 347, WALSINGHAM, Nat. Hist. Sokotra.
B. stegodyphobius, S. Africa, WALSINGHAM, Ent. Mag. xxxix, pp. 166, 167, n. sp.
B. stegodyphobius, its association with spiders, POCOCK, t. c. pp. 167-170.
Borkhausenia iagathella, Morocco, WALSINGHAM, Ent. Mag. xxxix, p. 293;
B. kokujevi, Saratov, KRULIKOVSKY, p. 31, Rev. Russe Ent. iii; *B. callioptis*, Victoria, LOWER, p. 226, Tr. R. Soc. S. Austral. xxvii : n. spp.
Brachmia (*Cladodes*) *procursella*, Vienna, REBEL, p. 97, Verh. Ges. Wien liii, n. sp.
Brackenridgia n. g. for *Incurvaria acerifoliella* Fitch, BUSCK, p. 193, P. ent. Soc. Washington v.
Bucculatrix pomifoliella, natural history, SLINGERLAND & FLETCHER, Bull. Cornell Exp. Stat., No. 214.
B. mehadiensis, Mehadia, REBEL, p. 101, Verh. Ges. Wien liii, n. sp.
Cacogamia n. g. near *Dasycera*, p. 48, for *C. elegans*, pl. v, figg. 10-12, p. 49, *C. luteella*, fig. 13, 14, p. 50, n. spp., Java, SNELLEN, Tijdschr. Ent. xlvii.
Cæsya maculopa, S. Australia, LOWER, p. 224, Tr. R. Soc. S. Austral. xxvii, n. sp.
Catatinagma n. g. near *Tinagma*, p. 94, for *C. trivitellum*, n. sp., Hungary, p. 95, REBEL, Verh. Ges. Wien liii.
Cemiostoma aceris, Rhineland, FUCHS, p. 245, Stettin Ent. Zeit. lxiv, n. sp.
Ceratophora phoxopterella, Java, SNELLEN, p. 41, pl. iv, figg. 11, 12, Tijdschr. Ent. xlvii, n. sp.
Cerostoma; 5 genn. adopted for it, BUSCK, pp. 45-47, J. N. York Ent. Soc. xi; *C. rugosella* cf. *Dasyces*; *C. parenthesesellum* ab. n. *paricostella*, FUCHS, p. 58, Jahrb. Nassau. Ver. lvi.
C. indecorella, Sahara, REBEL, p. 410, Verh. Ges. Wien liii; *C. unicipunctella*, p. 48, *angelicella*, *oliviella*, p. 49, *arizonella*, p. 50, *barberella*, *schwarziella*, *manella*, p. 51, *striatella*, p. 52, N. America, BUSCK, J. N. York Ent. Soc. xi : n. spp.
Ceuthomadarus viduellus, Slivno, pl. iii, fig. 15, p. 332, REBEL, Ann. Hofmus. Wien xviii, n. sp.
Choreutis myllerana var. n. *alpina*, MEYRICK, Ent. Mag. xxxix, p. 5.
Chrysoryctis heminephela, *hemisemâ*, Australia, LOWER, p. 238, Tr. R. Soc. S. Austral. xxvii, n. spp.
Coleophora unguistiorella, p. 10, *metallicella*, *implicitella*, p. 11, Eriwan, *longipalpella*, Konia, p. 12, *debilella*, Eriwan, p. 13, FUCHS, Stettin Ent. Zeit. xlvii, n. spp.

- Coprophtilia* n. g. *Gelechioides*, p. 32, for *C. glebicolorella* n. sp., Java, p. 34, pl. v, figg. 4, 5, SNELLEN, Tijdschr. Ent. xlvii.
- Cryptolechia obsolete*, synonymy, larva, BUSCK, p. 206, P. ent. Soc. Washington v.
- Cryptophaga gypsomera*, Victoria, LOWER, p. 70, Tr. R. Soc. S. Austral. xxvii; *C. melanoscia*, p. 198, *diplosema*, p. 199, Australia, LOWER, t. c. : n. spp.
- Cryptophasa*? *stipella*, Java, SNELLEN, p. 31, pl. v, figg. 1, 2, Tijdschr. Ent. xlvii, n. sp.
- Cryptophlebia carpophaga*, stages, pl. xv, fig. 2, p. 121, Indian Mus. Notes v.
- Ctenocampa baliodes*, ♀, LOWER, p. 231, Tr. R. Soc. S. Austral. xxvii.
- Dasytes* n. g. for *Cerostoma rugosella* and *Morophaga barbata*, DURRANT, p. 92, Indian Mus. Notes v; *D. rugosellus*, figure, pl. xv, fig. 3, p. 104, t. c.
- Deoclona* n. g. for *D. yuccasella* n. sp., California, BUSCK, p. 837, P. U. S. Mus. xxv.
- Depressaria depressella prangosella* var. n., WALSINGHAM, Ent. Mag. xxxix, p. 268.
- D. genistella*, p. 266, *fruticosella*, p. 267, Granada, WALSINGHAM, t. c.; *D. uhrykella*, Budapest, FUCHS, p. 244, Stettin Ent. Zeit. lxvii; *D. semenovi*, Kazan, KRULIKOVSKY, Rev. Russe Ent. iii, p. 181 : n. spp.
- Didactylota altithermella*, S. Europe, WALSINGHAM, Ent. Mag. xxxix, p. 265, n. sp.
- Elachista dimicatella*, Marmaros, REBEL, p. 100, Verh. Ges. Wien liii, n. sp.
- Embryonopsis haiticella*, figg. and descr., ENDERLEIN, pp. 217, 218, figg. 31-38, Valdivia Exp. iii.
- Endrosa irrorella* ab. n. *fumata*, STRAND, Arch. Naturv. Christian. xxv, No. 9, p. 24.
- Epermenia (Chauliodus) kroneella*, Mödling, REBEL, p. 98, Verh. Ges. Wien liii, n. sp.
- Epidictica* n. g. *Hyponomeutide* type *E. calliphylla* n. sp., p. 81, *triospila* n. sp., p. 83, Queensland, and *Cyptasia cristata* Butl., TURNER, P. Linn. Soc. N. S. Wales 1903.
- Epimenia cicutaella*, p. 162, pl. ix, figg. 12, 15, 16, *ramapoella*, p. 164, fig. 4, N. Jersey, KEARFOTT, J. N. York Ent. Soc. xi, n. spp.
- Epithectis sylvicolella*, New York, BUSCK, p. 818, P. U. S. Mus. xxv, n. sp.
- Epopsia* n. g. *Hyponomeutide*, p. 89, for *E. metreta* n. sp., Queensland, p. 90, TURNER, P. Linn. Soc. N. S. Wales 1903.
- Eudrymopsis* n. g. near *Guestia*, for *E. xyloscopa* n. sp., N. S. Wales, LOWER, p. 228, Tr. R. Soc. S. Austral. xxvii.
- Eulechria atradelpha*, Victoria, LOWER, p. 221, t. c., n. sp.
- Eulepiste kearfotti*, Arizona, DYAR, p. 76, Canad. Ent. xxxv, n. sp.
- Eusynopa* n. g. for *Scardia chrysogramma* Low., LOWER, p. 237, Tr. R. Soc. S. Austral. xxvii.
- Gelechia perobscurella* n. n. for *obscurella* Chamb., WALSINGHAM, Ent. Mag. xxxix, p. 260; *G. hibisci* St., pl. v, figg. 3, 4, characters, p. 43, *pubescentella*, figg. 7-9, p. 45, SNELLEN, Tijdschr. Ent. xlvii; *G. sarcochroma*, pl. xxi, fig. 5, p. 346, WALSINGHAM, Nat. Hist. Sokotra; *G. nanella* injurious to apricots, life-history, HOUGHTON, Ent. Mag. xxxix, pp. 219-221.
- G.*? *similella*, Java, SNELLEN, p. 44, pl. v, figg. 5, 6, Tijdschr. Ent. xlvii; *G. arizonella*, p. 856, *coloradensis*, p. 857, *trophella*, p. 860, *dentella*, *sistrella*, p. 862, *abdominella*, p. 863, *pauella*, *unifasciella*, p. 865, *aristella*, p. 866, *striatella*, p. 868, *hibiscella*, p. 869, *cockerelli*, *variabilis*, p. 871, *barnesiella*, p. 875, *lindenella*, p. 876, *dysariella*, p. 877, *nigrimaculella*, p. 880, *serotinella*, p. 882, *panella*, *abella*, p. 889, N. America, BUSCK, P. U. S. Mus. xxv : n. spp.

- Genosteles reniger*, pl. xxi, figg. 10, 11, pp. 349, 350, WALSINGHAM, Nat. Hist. Sokotra.
- Gnorimoschema busckiella*, p. 158, pl. ix, figg. 7, 8, *artemisiella*, p. 160, fig. 5, N. Jersey, KEARFOTT, J. N. York Ent. Soc. xi; *G. baccharisella*, p. 825, *semicyclionella*, *dudiella*, p. 828, *florella*, *banksiella*, p. 832, *batanella*, p. 833, *tetradymiella*, p. 834, N. America, BUSCK, P. U. S. Mus. xxv : n. spp.
- Gracilaria theivora*, natural history, WATT & MANN, Tea pests, pp. 228-232.
- G. strassenella*, New Amsterdam, ENDERLEIN, p. 251, figg. 22, 25-28, Valdivia Exp. iii, n. sp.
- Greya* n. g. for part of *Clemens' Incurvaria*, BUSCK, p. 194, P. ent. Soc. Washington v.
- Guestia? ischnota*, N. S. Wales, p. 226, *G. amydrosema*, Tasmania, p. 227, LOWER, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Harpella aureatella*, Java, SNELLEN, p. 47, pl. iv, fig. 13, Tijdschr. Ent. xlvi, n. sp.
- Harpipteryx* Hübn., definition and composition, BUSCK, p. 56, J. N. York Ent. Soc. xi.
- Hedycharis* n. g. *Hyponomeutidæ*, for *H. phænobapta* n. sp., Queensland, TURNER, p. 90, P. Linn. Soc. N. S. Wales 1903.
- Heliocausta episcara*, *pericosma*, Victoria, LOWER, p. 220, Tr. R. Soc. S. Austral. xxvii, n. spp.
- Hoplitica rhodopepla*, N. S. Wales, LOWER, p. 221, t. c., n. sp.
- Hypertricha ephelota* ♀, LOWER, p. 201, t. c.
- Hyponomeutidæ*; revision of Australian, TURNER, pp. 76-92, P. Linn. Soc. N. S. Wales 1903.
- Hypsolophus granti*, pl. xxi, fig. 3, p. 345, *thoracellus*, fig. 4, p. 346, WALSINGHAM, Nat. Hist. Sokotra; *H. limbipunctellus* (= *millierellus* Stn.), WALSINGHAM, Ent. Mag. xxxix, p. 265.
- H. helianthemii*, S. Europe, id. l. c., n. sp.
- Incurvaria stangei*, Corvara, REBEL, p. 102, Ver. Ges. Wien liii, n. sp.
- Iphiaera crypsilopha*, Queensland, LOWER, p. 73, Tr. R. Soc. S. Austral. xxvii; *I. polyzona*, Victoria, LOWER, p. 239, t. c. : n. spp.
- Lactura eupacila*, Queensland, TURNER, p. 86, P. Linn. Soc. N. S. Wales 1903, n. sp.
- Lecithocera tenuipalpella*, p. 35, *L.? bipunctella*, p. 36, pl. iv, fig. 6, *costimaculella*, p. 37, fig. 7, *heylaerti*, fig. 8, p. 38, Java, SNELLEN, Tijdschr. Ent. xlvi, n. spp.
- Lepidoscia melanogramma*, Victoria, LOWER, p. 71, Tr. R. Soc. S. Austral. xxvii; *L. eurystola*, p. 234, *placoxantha*, *polychrysa*, *trileuca*, p. 235, *barysema*, p. 237, Australia, LOWER, t. c. : n. spp.
- Limnæcia xanthopelta*, N. S. Wales, LOWER, p. 231, t. c., n. sp.
- Linosticha myriospila*, *melaleuca*, Australia, LOWER, p. 222, t. c., n. spp.
- Lita solanella* in Australia, FROGGATT, Agric. Gaz. N. S. W. xiv, pp. 321-326.
- L. trinella*, Eriwan, FUCHS, p. 9, Stettin Ent. Zeit. lxiv, n. sp.
- Lithocolletis hamameliella*, N. America, BUSCK, p. 189, P. ent. Soc. Washington v, n. sp.
- Macrozygona* n. g. near *Phylomyctis*, for *M. microtoma* n. sp., Melbourne, LOWER, p. 200, Tr. R. Soc. S. Austral. xxvii.
- Malacotrichia deceptella*, Java, SNELLEN, p. 40, pl. iv, fig. 9, Tijdschr. Ent. xlvi, n. sp.
- Megacraspedus pusillus*, Andalusia, WALSINGHAM, Ent. Mag. xxxix, p. 266, n. sp.
- Metzneria clitella*, Sahara, REBEL, p. 411, Verh. Ges. Wien liii, n. sp.
- Micropteryx kardamylensis*, Morea, REBEL, p. 248, Berlin. ent. Zeitschr. xlviii, n. sp.

- Mieza inornata*, pl. xxi, fig. 12, p. 351, WALSINGHAM, Nat. Hist. Sokotra;
M. psammitis, larva, DYAR, p. 298, P. ent. Soc. Washington v.
- Mompha conturbatella*, larva and pupa, BANKES, Ent. Mag. xxxix, pp. 133-136.
- Morophaga barbata* cf. *Dasyses*.
- Nargyia* (*Xysmatodoma*) *epichrysa*, p. 231, *semiota*, *hyalistic*, p. 232, *campylo-*
tota, *callista*, p. 233, *lasiomicra*, *euscia*, p. 234, *photidias*, *epitricha*,
gastromela, p. 236, *trizona*, p. 237, Australia, LOWER, Tr. R. Soc.
 S. Austral. xxvii, n. spp.
- Neodactylota* n. g. type *Dact. snellenella* Wals., p. 835, with *N. barberella*
 n. sp., Arizona, p. 836, BUSCK, P. U. S. Mus. xxv.
- Ocystola paralia*, Melbourne, LOWER, p. 225, Tr. R. Soc. S. Austral. xxvii,
 n. sp.
- Œcophora aragonella*, Albarracin, CHRÉTIEN, p. 405, Ann. Soc. ent. France
 lxxii, n. sp.
- Olycha* n. g. near *Setomorpha*, p. 28, for *O. grossepunctella* n. sp., Java,
 p. 29, pl. iv, figg. 2, 3, SNELLEN, Tijdschr. Ent. xlvi.
- Onebrala simplex*, pl. xxi, fig. 2, p. 344, WALSINGHAM, Nat. Hist. Sokotra.
- Opogona dimidiatella*, habitat etc., SNELLEN, pp. 52, 53, Tijdschr. Ent.
 xlvi.
- Opszyga* n. g. for *Limnœcia eugramma* Low., LOWER, p. 230, Tr. R. Soc. S.
 Austral. xxvii.
- Paltodora magnella*, p. 776, *dietziella*, p. 777, *antelliella*, p. 778, N. America,
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T. alpestris, Stilfzer Joch, id. p. 36, t. c., n. sp.
Thyreophora furcata, habits and position, YERBURY, p. lx, P. ent. Soc. London 1903 ; cf. *Centrophlebomyia*.
Trypeta luisieri, Portugal, TAVARES, p. 77, Ann. Sci. nat. Porto vii ;
T. incompleta, p. 135, *planiscutellata*, p. 136, Egypt, BECKER, p. 136, Mt. Mus. Berlin ii, 2 : n. spp.

Zonosema? dubia, New Mexico, JOHNSON, p. 102, Tr. Amer. ent. Soc. xxix, n. sp.

PUPIPARA.

[Cf. AUSTEN (56), LAVERAN (919), SPEISER (1463), WESCHÉ (1673), VAN DER WULP (628).]

Notes on the *Pupipara* in the British Museum, with synonymical remarks, and much geographical information, AUSTEN, Ann. Nat. Hist. xii, pp. 255-266.

Viviparity in *Pupipara*, HOLMGREN, pp. 454-457, Zool. Jahrb. Syst. xix.

Ascodipteron siamense, Biserat in Jalor, SPEISER, p. 125, Fascic. Malay. Zool. i, n. sp.

Braula cæca; Lósy's Hungarian paper of last year is abstracted in German by GORKA, Zool. Zentrbl. 1903, pp. 840-842.

Hippobosca uralensis auctt., discussed, queried as a Brachycerous *Dipteron*, SPEISER, pp. 71, 72, Berlin. ent. Zeitschr. xlviii; *H. camelina* = (*dromedaria* sp.), AUSTEN, Ann. Nat. Hist. xii, p. 258; *H. tasmanica* [infra] referred to *Ortholfersia*, id. p. 260; *H. rufipes* and *maculata* transmitters of *Trypanosoma*, LAVERAN, p. 242, C. R. Soc. Biol. 1903.

H. tasmanica, on *Macropus ruficollis*, WESCHÉ, Ann. Nat. Hist. xi, p. 385, cuts, p. 384, n. sp.

Lipoptena gracilis, Malay States, SPEISER, p. 121, Fascic. Malay. Zool. i, n. sp.

Nycteribia (Ærocholidia) chlamydophora, Malay States, SPEISER, p. 123, t. c., n. sp.

Olfersia coriacea Wulp referred to *Pseudolfersia*, AUSTEN, Ann. Nat. Hist. xii, p. 265.

O. vulturis, p. 429, pl. xiii, fig. 1, *coriacea*, fig. 2, *angustifrons*, fig. 3, p. 430, Mexico, VAN DER WULP, Biol. Centr.-Amer. Diptera ii, n. spp.

Ornithomyia perfuga = ("Olfersia macleayi Leach" Froggatt), *O. avicularia* = (*remota* = *opposita* Walk.), p. 261; *O. nigricans* = (*batchianica* Walk.), p. 263, AUSTEN, Ann. Nat. Hist. xii.

O. robusta, pl. xiii, fig. 5, p. 431, *pilosula*, fig. 6, p. 432, VAN DER WULP, Biol. Centr.-Amer. Diptera ii, n. sp.

Raymondia pagodarum, characters, SPEISER, p. 123, Fascic. Malay. Zool. i.

APHANIPTERA, (or SIPHONAPTERA).

[Cf. ENDERLEIN (451), KOHAUT (859), RABARY (1203), N. C. ROTHSCHILD (1282-1288), TIRABOSCHI (1535), WAGNER (1619-1625), WAHLGREN (1626, 1627).]

The *Aphaniptera* of birds, WAGNER, pp. 278-293, pls. iii, iv, Horæ Soc. ent. Ross. xxxvi.

The *Aphaniptera* of Hungary, monographed in Hungarian language, KOHAUT, pp. 25-46, pls. iii-v, Allatt. Kozl. 1903.

Synonymy of types in the "Dale" collection, ROTHSCHILD, Ent. Mag. xxxix, pp. 144-146.

Double receptaculum seminis in some *Aphaniptera*, WAGNER, Zool. Anz. xxvii, pp. 148-150.

Collecting *Aphaniptera*, WAGNER (1623), in Russian.

To rear cat's and dog's fleas, RIVERS, pp. 118-120, Bull. S. Calif. Ac. ii.

Chinese flea-trap, BLANCHARD, p. 169, Arch. parasit. vii.

Fleas and transmission of plague, GALLI-VALERIO (592), NUTTALL (1080A).

- Ceratophyllus gallinulæ* Dale=(*newsteadi* Auctt.), ROTHSCHILD, Ent. Mag. xxxix, p. 146; *C. fringillæ*, distinctive characters, ROTHSCHILD, p. 308, pl. xii, Ent. Rec. xv.
- C. rectangulatus*, Norway on *Myodes*, p. 182, pl. viii, fig. 7, *groelandicus*, Greenland on *Myodes*, p. 183, pl. vii, figg. 1, 2, *digitalis*, Spitzbergen, fig. 3, *angulatus*, Norway on *Lestris*, pl. viii, fig. 8, p. 184, WAHLGREN, Arkiv. Zool. i; *C. londiniensis*, England, ROTHSCHILD, p. 64, Ent. Rec. xv, pl. iii; *C. dalei*, Britain, C. ROTHSCHILD, p. 297, pl. v, Entomologist xxxvi; *C. spinosus*, p. 287, *rusticus*, p. 288, *oligochaetus*, p. 290, bird-fleas, WAGNER, Horæ Soc. ent. Ross. xxxvi; *C. terribilis*, Canada, ROTHSCHILD, p. 317, pl. ix, figg. 1-3, Nov. Zool. x : n. spp.
- Ceratopsylla wagneri*, Hungary on *Myotis*, KOHAUT, p. 62, pl. vii, figg. 3, 8, 9, 10, Allatt. Kozl. 1903; *C. ægyptius*, Cairo, N. C. ROTHSCHILD, Ent. Mag. xxxix, p. 83, pl. i, fig. 1; *C. signata*, Java on *Nyctenopus*, WAHLGREN, p. 189, pl. vii, figg. 5, 6, Arkiv. Zool. i; *C. insignis*, Canada, pl. ix, figg. 8-12, p. 319, *wolffsohni*, Paraguay, p. 321, pls. ix, x, *martialis*, Réunion, pl. x, figg. 17-20, p. 322, *camina*, W. Australia, figg. 21, 22, *reductus*, Melbourne, p. 323, *fosteri*, p. 324, figg. 23-26, *distinctus*, p. 325, fig. 27, Paraguay, ROTHSCHILD, Nov. Zool. x : n. spp.
- Chaetopsylla* n. g., p. 37, for *P. globiceps* Tasch. and *C. trichosa*, p. 39, pl. iv, fig. 6, and pl. v, fig. 2, *rothschildi*, p. 40, pl. iv, figg. 7-9, and pl. v, figg. 3, 5, 6, n. spp., Hungary, KOHAUT, Allatt. Kozl. 1903.
- Ctenopsylla*, characters, and components, WAGNER, pp. 149-152, Horæ Soc. ent. Ross. xxxvi.
- Megapsyllidæ*; the family, validity, origin, WAHLGREN, pp. 191-193, Arkiv. Zool. i.
- Megapsylla inermis*, Argentina on *Dasytus*, WAHLGREN, p. 194, pl. ix, figg. 11-15, t. c., n. sp.
- Neopsylla* n. g. for part of *Typhlopsylla*, with three species, WAGNER, p. 138, Horæ Soc. ent. Ross. xxxvi.
- Oncopsylla* n. g. for *Pulex vulpes* Rits., pl. viii, fig. 4, WAHLGREN, p. 186, Arkiv. Zool. i.
- Paleopsylla* n. g. for part of *Typhlopsylla*, with three species, WAGNER, p. 137, Horæ Soc. ent. Ross. xxxvi.
- Parapsyllus* n. g., p. 259, for *Pulex longicornis* End. 1901, ENDERLEIN, Valdivia Exp. iii.
- Pulex vagabunda* Boh. is a *Ceratophyllus* and not synonymous with *P. fasciatus*, WAHLGREN, p. 219, Ent. Tidskr. xxiv; *P. pallidus* Tasch., forms allied to, WAGNER, pp. 308-310, Rev. Russe Ent. iii; *P. pallidus* =(witherbyi), ROTHSCHILD, Nov. Zool. x, p. 542; *P. cuniculi* Dale=(*goniocephalus* auctt.), ROTHSCHILD, Ent. Mag. xxxix, p. 146; *P. glacialis*, characters, WAHLGREN, p. 185, Arkiv. Zool. i.
- P. nubicus*, pl. ii, figg. 10, 16, *cleopatra*, pl. i, figg. 4, 8, pl. ii, figg. 13, 17, p. 84, *cheopis*, pl. i, figg. 3, 9, pl. ii, figg. 12, 19, p. 85, Shendi, *chepherensis*, Cairo, pl. i, fig. 7, pl. ii, figg. 14, 18, *witherbyi*, White Nile, pl. i, figg. 2, 5, 6, pl. ii, figg. 11, 15, p. 86, N. C. ROTHSCHILD, Ent. Mag. xxxix; *P. regis*, S. Arabia, p. 312, pl. v, figg. 1 etc., *isidis*, p. 313, figg. 2 etc., ROTHSCHILD, Nov. Zool. x; *P. gerbilli*, p. 309, *conformis*, p. 310 (formerly confounded with *pallidus*), WAGNER, Rev. Russe Ent. iii : n. spp.
- Sarcopsylla gallinacea* var. n. *murina* or *italica*, on rats in Italy, TIRABOSCHI, pp. 124-132, Arch. parasit. vii; *S.* in Madagascar, RABARY (1203).
- Stephanocircus thomasi*, N. W. Australia, p. 318, pl. ix, figg. 4, 5, *minerva*, Paraguay, p. 319, figg. 6, 7, ROTHSCHILD, Nov. Zool. x, n. sp.
- Typhlocercus* n. g. for *T. poppei* n. sp., Germany, on *Mus*, WAGNER, pp. 152, 154, cut, Horæ Soc. ent. Ross. xxxvi.

- T. poppei*, in Britain, ♂, ROTHSCHILD, p. 196, pl. ix, Ent. Rec. xv.
Typhlopsylla, divided, cf. *Palæopsylla*, *Neopsylla*, *T. sorecis* Dale = (*gracilis* auctt.), ROTHSCHILD, Ent. Mag. xxxix, p. 146.
T. proxima, Europe ♀, pp. 141, 147, WAGNER, Horæ Soc. ent. Ross. xxxvi, n. sp.
Vermipsyllidæ, and its species, note on in Russian, WAGNER, pp. 294-296, Rev. Russe Ent. iii.
Vermipsylla strandi, Norway, on *Ursus arctos*, WAHLGREN, p. 190, pl. viii, figg. 9, 10, Arkiv. Zool. i, n. sp.

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

- The trophi MEEK (990).
 KIRKALDY, *Entomologist* xxxvi, pp. 213 etc., continues his review of generic nomenclature.
 Catalogue of *Hemiptera* described by UHLER and list of his writings, HENSHAW (694).
 The *Hemiptera* of Sokotra, KIRKALDY (844).

HEMIPTERA-HETEROPTERA.

- Criticism of "Kissing-bug" literature, DAVIDSON, pp. 120-122, *Bull. S. Calif. Ac.* ii.
 Catalogue of *Heteroptera* of Germany, HUEBER (745).
 Synonymic notes on palæarctic *Heteroptera*, HORVÁTH, pp. 555, 556, *Ann. Mus. Hungar.* i.
Cimex, its type, W. T. B.; *Nature* lxix, p. 200.
 No position is assigned, nor is any ally mentioned, for the following:
Typhaocoris n. g. for *T. fulvifemur* n. sp., Ecuador, BREDDIN, *Soc. ent.* xviii, p. 122.

PENTATOMIDÆ.

- [The following memoirs relate to *Pentatomidæ*, viz.: BERGROTH (100), BREDDIN (183, 184, 191-193, 195, 199, 203, 205, 207), DISTANT (396, 397, 399, 403, 408), FABRE (474), HORVÁTH (729, 730), JAKOBLEV (770, 774, 775, 780), MONTANDON (1225), SCHOUTEDEN (1346), VAN DUZEE (1591).]
- Adoxoplatus* n. g. for *A. minax*, p. 368, *comis*, p. 369, n. spp., Peru and Bolivia, BREDDIN, *SB. Ges. naturf. Berlin* 1903.
Ælia granum, Alai, p. 1, *aspersa*, Bougas, p. 2, JAKOBLEV, *Rev. Russe Ent.* iii; *A. syriaca*, Akbès, HORVÁTH, p. 404, *Ann. Mus. Hungar.* i: n. spp.
Afrius rubromarginatus, E. Africa, BERGROTH, p. 289, *Ann. Soc. ent. Belgique* xlvii, n. sp.
Agonosoma dohrni, Mexico,? SCHOUTEDEN, p. 362, *Stettin Ent. Zeit.* lxiv, n. sp.
Aspongopelta reuteri=(*monticola* Karsch), BERGROTH, p. 297, *Ann. Soc. ent. Belgique* xlvii; *A. viduatus*=(*assar* Kirk.), DISTANT, *Ann. Nat. Hist.* xii, p. 477; *A. assar*, pl. xxiii, fig. 10, p. 389, KIRKALDY, *Nat. Hist. Sokotra*.
Baracellus n. g. *Pentatominae* near *Coccoteris*, p. 250, for *B. lanceolatus* n. sp., Jobie, p. 251, DISTANT, *Ann. Nat. Hist.* xii.
Brachyaulax majuscula, Key island, DISTANT, t. c. p. 249, n. sp.
Brachynema balfouri, Sokotra, DISTANT, t. c. p. 479, n. sp.
Brachystethus vexillum, Bolivia, BREDDIN, p. 371, *SB. Ges. naturf. Berlin* 1903, n. sp.

- Byrsinus pevtzovi*, Chinese Turkestan, JAKOBLEV, p. 377, Rev. Russe Ent. iii, n. sp.
- Calliphara lanceolata*, Tenimber island, *rostrata*, Key island, DISTANT, Ann. Nat. Hist. xii, p. 250, n. spp.
- Canthecona javana*=(*cognata* Dist.), BREDDIN, p. 203, SB. Ges. naturf. Berlin 1903.
- Catacanthus incarnatus* and allies, synonymy and characters, BREDDIN, pp. 195-200, SB. Ges. naturf. Berlin 1903.
- Catadipson* n. g. *Acanthosominae* near *Microdeuterus*, for *C. aper* n. sp., Fernando Po, BREDDIN, Soc. ent. xviii, p. 90.
- Catalampusa* n. g., p. 369, for *C. anops* n. sp., Bolivia, p. 370, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Cazira bergrothi, reuteri*, p. 33, *montandoni, horvathi*, Tonkin, *kirkaldyi*, Sumatra, p. 34, BREDDIN, Soc. ent. xviii, n. spp.
- Chrysocoris iris* var. n. *sultanina*, BREDDIN, Soc. ent. xviii, p. 75; *C. auratus* var. n. *sanguineiventris*, BREDDIN, t. c. p. 59.
- C. sericeomicans*, Java, BREDDIN, t. c. p. 58; *C. viridiventris*, Flores, BREDDIN, t. c. p. 74 : n. spp.
- Chrysodarecus* n. g. for *C. moneta* n. sp., Peru, BREDDIN, p. 367, SB. Ges. naturf. Berlin 1903.
- Coptosoma josuæ*, Jericho, HORVÁTH, p. 400, Ann. Mus. Hungar. i; *C. mirabilis*, Halmahera, DISTANT, Ann. Nat. Hist. xii, p. 248 : n. spp.
- Cyrtomenus vestigiatus*, Costa Rica, DISTANT, p. 525, Tr. ent. Soc. London 1903, n. sp.
- Dichobothrium* n. g. near *Sastragala*, p. 207, for *D. sastragaloides*, p. 208, *tenuspinum*, p. 209, *elasmotethoides*, p. 210, n. spp., Java, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Ectmetocara virescens*, Nigeria, DISTANT, Ann. Nat. Hist. xii, p. 470, n. sp.
- Edessa sternalis, arrogantula, lavata, imbecilla, rorativentris, arcuballista*, S. America, BREDDIN, Soc. ent. xviii, p. 123; *E. gazella, oryx, ibex*, p. 131, *saiga, leucoryx, dorcas, addax*, p. 132, *pugil, virus, tragulus, tragelaphus, rupicapra, musimon, argali, zebu, bibos, civilis, pacifica, graminicolor*, S. America, BREDDIN, t. c. : n. spp.
- Elasmotethus griseus*, parental care, PIERRE, p. 131, Bull. Soc. ent. France 1903.
- E. minax*, Java, BREDDIN, p. 204, SB. Ges. naturf. Berlin 1903, n. sp.
- Erachteus ventralis*, Usambara, BREDDIN, Soc. ent. xviii, p. 115, n. sp.
- Eurydema nigriceps* var. n. *collare*, HORVÁTH, p. 408, Ann. Mus. Hungar. i.
- E. blandum*, with var. *albicans*, Asia Minor, HORVÁTH, p. 407, t. c., n. sp.
- Euschistus inflatus*, New Mexico, VAN DUZEE, p. 107, Tr. Amer. ent. Soc. xxix, n. sp.
- Galasastra* n. g. near *Elasmotethus*, p. 205, for *G. salebrosa* n. sp., New Guinea, p. 206, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Garsauria haglundi*, Gaboon, BERGROTH, p. 288, Ann. Soc. ent. Belgique xlvii, n. sp.
- Geotomus attar*, Sokotra, KIRKALDY, Nat. Hist. Sokotra, p. 390, pl. xxiii. figg. 9, 9a, n. sp.
- Gonopsis recurva*, Tanganyika, DISTANT, Ann. Nat. Hist. xii, p. 471, n. sp.
- Graphosoma consimile*, Caucasus, p. 348, with var. *personatum, melanoxanthum*, Armenia, p. 349, HORVÁTH, Ann. Mus. Hungar. i, n. spp.
- Hermolaus Wladiwostok*, HORVÁTH, p. 405, t. c., n. sp.
- Holcogaster fibulata* var. n. *exilis*, HORVÁTH, p. 406, t. c.
- Hyperoncus complutus*, Java, BREDDIN, Soc. ent. xviii, p. 66, n. sp.
- Lamprocoris smaragdus*, Perak, BREDDIN, t. c. p. 33, n. sp.
- Menaccarus eremita*, Transcaspian, JAKOBLEV, p. 289, Rev. Russe Ent. iii, n. sp.
- Menida pœcila*, Transcaspian, JAKOBLEV, p. 378, t. c., n. sp.

- Microdeuterus javanus*, Java, BREDDIN, p. 218, SB. Ges. naturf. Berlin 1903, **n. sp.**
- Murgantia histrionica* var. *n. nigricans*, COCKERELL, p. 85, Bull. S. Calif. Ac. ii.
- Neodicus æthiopicus*, p. 469, *angulatus*, p. 470, Nigeria, DISTANT, Ann. Nat. Hist. xii, **n. spp.**
- Neottiglossa seorsa*, Moscow, p. 327, *nigella*, Siberia, p. 328, *compta*, p. 329, *cephalotes*, p. 330, Crimea, JAKOBLEV, Horæ Soc. ent. Ross. xxxvi; *N. calva*, Irkutsk, JAKOBLEV, p. 319, t. c. : **n. spp.**
- Nezara viridula* var. *n. hepatica*, HORVÁTH, p. 406, Ann. Hus. Hungar. i.
- N. satunini*, Transcaucasus, JAKOBLEV, p. 290, Rev. Russe Ent. iii; *N. horvathi*, Gaboon, BERGROTH, p. 289, Ann. Soc. ent. Belgique xlvii; *N. pulchricornis*, Fernando Po, BREDDIN, Soc. ent. xviii, p. 115; *N. gentilis*, Peru, BREDDIN, p. 369, SB. Ges. naturf. Berlin 1903 : **n. spp.**
- Niarius haglundi*, Australia, MONTANDON, p. 289, Bull. Soc. Bucarest xii, **n. sp.**
- Oncacontias n. g.* near *Acanthosoma*, p. 219, for *O. brunneipennis n. sp.*, New Zealand, p. 220, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Oncocoris dimidiatus*, p. 291, *subsimilis*, p. 293, *lethievryi*, p. 294, Australia, MONTANDON, Bull. Soc. Bucarest xii, **n. spp.**
- Pachycoris ruth*, Bolivia, BREDDIN, p. 366, SB. Ges. naturf. Berlin 1903, **n. sp.**
- Paterculus conspersus*, Malay States, DISTANT, p. 236, pl. xv, Fascic. Malay. Zool. i, **n. sp.**
- Pentatomia nigricornis, ornata*, natural history, eggs, *P. grisea*, maternal instinct, FABRE, Souvenirs viii, chap. 5.
- Philia dohertyi*, Jobie, DISTANT, Ann. Nat. Hist. xii, p. 249; *P. compacta*, p. 57, *leucochalcea*, p. 58, Australia, BREDDIN, Soc. ent. xviii : **n. spp.**
- Phimodera caucasica*, Caucasus, p. 187, *bianchii*, St Petersburg, p. 188, *picturata*, Altai, p. 190, JAKOBLEV, Horæ Soc. ent. Ross. xxxvi; *P. borealis*, Irkutsk, p. 81, *aridella*, Turkestan, p. 82, JAKOBLEV, Rev. Russe Ent. iii : **n. spp.**
- Platycoris distinctus*, Australia, MONTANDON, p. 286, Bull. Soc. Bucarest xii, **n. sp.**
- Podops malayensis*, Perak, DISTANT, p. 229, pl. xv, Fascic. Malay. Zool. i, **n. sp.**
- Polytes fenestra*, Peru, BREDDIN, Soc. ent. xviii, p. 122, **n. sp.**
- Proctophantasta n. g.*, p. 212, near *Anischys*, for *P. colax*, p. 213, *pseustes*, Sumatra, *satanas*, Borneo, p. 215, *diabolus*, Java, p. 217, **n. spp.**, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Rhacognathus callosus*, E. Siberia, HORVÁTH, p. 408, Ann. Mus. Hungar. i, **n. sp.**
- Risibia geniculata*, Asia Minor, HORVÁTH, p. 406, t. c., **n. sp.**
- Sastragala javanica*; *lunifera* Bredd. is ♂, p. 201, *guttasanguinis*, characters, p. 202, BREDDIN, SB. Ges. naturf. Berlin 1903.
- S. guttamellis*, Java, id. p. 203, t. c.; *S. smaragdina*, Ceylon, DISTANT, Ann. Nat. Hist. xi, p. 72 : **n. spp.**
- Sciocoris lautus*, Transcaspian, p. 400, *modestus*, Algeria, p. 401, HORVÁTH, Ann. Mus. Hungar. i; *S. placidus*, Transbaikal, p. 84, *agnatus*, Kirghiz Steppes, *dilutus*, Khami, p. 191, JAKOBLEV, Rev. Russe Ent. iii : **n. spp.**
- Scutellera nobilis*, eggs and stages, pl. xvi, fig. 3, p. 119, Indian Mus. Notes v.
- Sepontia formosa*, Malay Arch., DISTANT, Ann. Nat. Hist. xii, p. 474, **n. sp.**
- Stachyomia luteovarva*, Malay States, DISTANT, p. 233, pl. xv, Fascic. Malay. Zool. i, **n. sp.**
- Symphylus lativittatus*, Ecuador, BREDDIN, Soc. ent. xviii, p. 57, **n. sp.**

- Tessaratoma usambarica*, Africa, BREDDIN, t. c. p. 107, n. sp.
Tibilis scabriscula, Bolivia, p. 370, *glabriuscula*, Ecuador, p. 371, BREDDIN, SB. Ges. naturf. Berlin 1903, n. spp.
Timuria n. g. near *Sciocoris*, p. 402, for *T. melanocera* n. sp., Mongolia, p. 403, HORVÁTH, Ann. Mus. Hungar. i.
Tropidotylus annandalei, Malay States, DISTANT, p. 225, pl. xv, Fascic. Malay. Zool. i, n. sp.

COREIDÆ.

[Cf. BREDDIN (183, 184), DISTANT (398, 403), JAKOBLEV (780), VAN DUZEE (1591).]

N.B. In last year's Record entries relating to the following genera of *Coreidæ* were misplaced in *Pentatomidæ*, viz. *Cletus*, *Colpura*, *Notobitus*, *Petilia*, *Typhlocolpura*.

- Acestra malayana*, Jalor, DISTANT, p. 245, pl. xv, Fascic. Malay. Zool. i, n. sp.
Alydus scutellatus, New Mexico, VAN DUZEE, p. 108, Tr. Amer. ent. Soc. xxix, n. sp.
Anoplocnemis phasianus, pl. xvi, fig. 6, p. 144, Indian Mus. Notes v.
Bardistus complutus, Bolivia, BREDDIN, p. 372, SB. Ges. naturf. Berlin 1903, n. sp.
Bothrostethus rufulus, Transcaucasus, JAKOBLEV, p. 291, Rev. Russe Ent. iii, n. sp.
Cochrus subferrugineus, Bolivia, BREDDIN, p. 381, SB. Ges. naturf. Berlin 1903, n. sp.
Corizus hyalinus, in Britain, SAUNDERS, Ent. Mag. xxxix, p. 294.
C. robinsoni, Malay States, DISTANT, p. 246, pl. xv, Fascic. Malay. Zool. i, n. sp.
Clavigralla annulipes Sign. referred to *Acanthomia*, BERGROTH, p. 297, Ann. Soc. ent. Belgique xlvi.
Ctenomelynthus n. g. *Acanthocephalini*, for *C. coxalis*, p. 374, *brunneiventris*, p. 375, n. spp., Bolivia, BREDDIN, SB. Ges. naturf. Berlin 1903.
Curupira; cf. *Colobathristes*, *Lygæidæ*.
Derepteryx laticornis, Tonkin, BREDDIN, p. 222, SB. Ges. naturf. Berlin 1903, n. sp.
Dulichius thompsoni, Shan States, DISTANT, p. 43, Ann. Soc. ent. Belgique xlvii, n. sp.
Eubule subdepressa, Bolivia, BREDDIN, p. 381, SB. Ges. naturf. Berlin 1903, n. sp.
Eudarmistus n. g. near *Darmistus*, p. 381, for *E. bicolor* n. sp., Bolivia, p. 382, BREDDIN, t. c.
Euthetus granti, pl. xxiii, figg. 7, 7a, p. 388, KIRKALDY, Nat. Hist. Sokotra.
Haploprocta pustulifera St. = (*christophi* Jak.), BERGROTH, p. 32, Rev. Russe Ent. iii.
Holopterna alata, biological note, FRY, p. 392, Zoologist 1902.
Holymenia persimilis, Bolivia, BREDDIN, p. 382, SB. Ges. naturf. Berlin 1903, n. sp.
Hyalymenus aterrimus, Bolivia, BREDDIN, p. 383, t. c., n. sp.
Laminiceps superbus, Bolivia, BREDDIN, p. 376, t. c., n. sp.
Leptocoris bahram, pl. xxiii, fig. 8, p. 387, KIRKALDY, Nat. Hist. Sokotra.
Leptoscelis matronalis, Bolivia, BREDDIN, p. 380, SB. Ges. naturf. Berlin 1903.
Lycambes andicola, Bolivia, BREDDIN, p. 372, t. c., n. sp.
Malvana lauta, Bolivia, BREDDIN, p. 381, t. c., n. sp.
Melucha acutispina, *ruficornis*, Bolivia, BREDDIN, p. 379, t. c., n. spp.
Meluchopetalops n. g. for *M. bancausus* n. sp., Bolivia, BREDDIN, p. 378, t. c.

- Myrmus hirsutus*, Crimea, JAKOBLEV, p. 192, Rev. Russe Ent. iii, n. sp.
Petalops triumphator, proletarius, Bolivia, BREDDIN, p. 377, SB. Ges. naturf. Berlin 1903, n. spp.
Phyllomorpha laciniata, habits, MAYER, p. 12, Bull. Soc. ent. France 1903, and PIERRE, t. c. p. 57.
Porta n. g. Alydaria, p. 245, for *P. gracilis n. sp.*, Malay States, p. 246, pl. xv, DISTANT, Fascic. Malay. Zool. i.
Prioptychomia n. g. Helcomeraria, for *P. euryptera n. sp.*, Tonkin, BREDDIN, p. 221, SB. Ges. naturf. Berlin 1903.
Serinetha abdominalis=(*Leptocoris bahram* Kirk.), DISTANT, Ann. Nat. Hist. xii, p. 477.
Stenometapodus n. g. near *Acanthocephala*, for *S. v-luteum n. sp.*, Bolivia, BREDDIN, SB. Ges. naturf. Berlin 1903, n. spp.
Stenoscelidia nigroaenea, p. 376, *hilaris*, p. 376, Bolivia, BREDDIN, t. c., n. spp.
Zenkeria membranipicta=(*Petillia distanti* Hagl.), BERGROTH, p. 297, Ann. Soc. ent. Belgique xlvii.

LYGÆIDÆ.

[Cf. BERGROTH (100, 101), BREDDIN (187, 196, 207), DISTANT (393, 396-399, 401, 403, 408), GARBER (604).]

N.B. In last year's Record entries relating to the following genera of *Lygæidæ* were misplaced in *Coreidæ*, viz. *Aspilogeton*, *Pamera*, *Scopiastes*.

- Abdolominus n. g.* near *Gonatas*, p. 90, for *A. picinus, intaminatus n. spp.*, Burma, p. 91, DISTANT, Faun. Brit. India Rhynchota ii.
Altomarus n. g. near *Bedunia*, p. 72, for *A. greeni n. sp.*, Ceylon, p. 73, DISTANT, Ann. Nat. Hist. xi.
Aphanus mirabilis, Fernando Po, DISTANT, Ann. Nat. Hist. xii, p. 471; *A. orientalis, sparsus, latus*, India, DISTANT, p. 81, Faun. Brit. India Rhynchota ii : n. spp.
Arrianus n. g. Rhyparochromaria for *A. excavatus n. sp.*, Sikkim, DISTANT, Faun. Brit. India Rhynchota ii, p. 74.
Artemidorus n. g. Aphaninae, p. 73, for *A. pressus n. sp.*, Ceylon, p. 74, DISTANT, Ann. Nat. Hist. xi; *A. ornatus*, Bonthain Peak, *sobrinus*, Bali, DISTANT, op. cit. xii, p. 252; *A. noctis*, Malay States, DISTANT, p. 248, pl. xv, Fascic. Malay. Zool. i : n. spp.
Aspilocoryphus forbesii, pl. xxiii, fig. 6, p. 385, KIRKALDY, Nat. Hist. Sokotra.
Astacops occidentalis, Sylhet, DISTANT, Faun. Brit. India Rhynchota ii, p. 4, n. sp.
Aulacopeltus minor, Zomba, DISTANT, p. 57, Ann. S. African Mus. iii, n. sp.
Blissus leucopterus, causes of wing-dimorphism, GARBER, pp. 330-335, Biol. Bull. v.
Boccharis n. g. Heterogastrince for *B. significatus n. sp.*, Burma, DISTANT, p. 36, Faun. Brit. India Rhynchota ii.
Bosbequius n. g. near *Polyerates*, p. 64, for *B. latus n. sp.*, Tenasserim, p. 65, DISTANT, t. c.
Budæus n. g. Rhyparochromaria for *B. brevipennis n. sp.*, E. India, DISTANT, p. 76, t. c.
Cavelerius n. g. near *Macropes* for *C. illustris n. sp.*, Burma, DISTANT, p. 44, Ann. Soc. ent. Belgique xlvii.
Cligenes patricius, Burma, DISTANT, Faun. Brit. India Rhynchota ii, n. sp.
Cenocoris dudgeoni, India, KIRKALDY, Wien. ent. Zeit. xxii, p. 17, n. sp.
Colobasiastes n. g. near *Colabathristes*, p. 246, for *C. nigrifrons, albipes*

- n. spp.**, Bolivia, p. 247, BREDDIN, Wien. ent. Zeit. xxii; *C. nigrifrons*, *albipes*, *fulvicollis*, *flavidus*, Bolivia, BREDDIN, Soc. ent. xviii, p. 131 : **n. spp.**
- Colobathristes* = (*Curupira* Dist.), BREDDIN, Wien. ent. Zeit. xxii, p. 243.
- C. krugeri*, p. 245, *robustus*, p. 246, Java, id. t. c., **n. spp.**
- Critobulus n. g. Rhyparochromaria* for *C. insignis n. sp.*, Assam, DISTANT, p. 77, Faun. Brit. India Rhynchota ii.
- Dieuches fuscans*, Assam, p. 83, *uniformis*, Ceylon, p. 84, *pallidulus*, Sind, p. 85, DISTANT, t. c. **n. spp.**
- Dinomachus sikhimensis*, India, DISTANT, p. 38, t. c., **n. sp.**
- Dromocoris n. g.* for *Plocimerus triguttatus* Sign., BERGROTH, p. 291, Ann. Soc. ent. Belgique xlvii.
- Edulica n. g.* near *Clerada* for *E. ornata n. sp.*, Ceylon, DISTANT, p. 45, Ann. Soc. ent. Belgique xlvii.
- Entisberus n. g.* near *Rhodiginus* for *E. archetypus n. sp.*, Ceylon, DISTANT, Ann. Nat. Hist. xi, p. 74.
- Fontejanus n. g.* near *Fontejus* for *F. wasmanni n. sp.*, Bombay with Termites, BREDDIN, Soc. ent. xviii, p. 75.
- Geocoris sokotranus*, pl. xxiii, fig. 5, p. 386, KIRKALDY, Nat. Hist. Sokotra.
- G. splendidus*, *pulviusculatus*, p. 30, *rutilus*, p. 31, Burma, DISTANT, Faun. Brit. India Rhynchota ii, **n. spp.**
- Gonatas clypeatus*, *majusculus*, Burma, DISTANT, p. 90, t. c.; *G. costaricensis*, Costa Rica, DISTANT, p. 526, Tr. ent. Soc. London 1903 : **n. spp.**
- Gonsalvus n. g.* near *Scolopostethus* for *G. typus n. sp.*, Burma, DISTANT, p. 93, Faun. Brit. India Rhynchota ii.
- Graptostethus dixoni*, Bombay, DISTANT, p. 10, t. c., **n. sp.**
- Iphicrates n. g.* near *Ischnodemus* for *I. subauratus*, cf. infra, DISTANT, p. 27, t. c.; *I. subauratus*, Ceylon, DISTANT, p. 44, Ann. Soc. ent. Belgique xlvii, **n. sp.**
- Lachnophorus noctis*, p. 69, *merula*, p. 70, Burma, DISTANT, Faun. Brit. India Rhynchota ii, **n. spp.**
- Lemnius n. g.* near *Entisberus*, p. 66, for *L. ovatus n. sp.*, Ceylon, p. 67, DISTANT, t. c.
- Lygæosoma orientale*, Bengal, DISTANT, p. 13, t. c., **n. sp.**
- Lygæus dohertyi*, p. 7, *autolytus*, p. 8, Burma, DISTANT, t. c., **n. spp.**
- Macropes præcerptus*, *tinctus*, *subauratus*, Burma, DISTANT, p. 26, t. c.; *M. humboldti*, New Guinea, DISTANT, Ann. Nat. Hist. xii, p. 251 : **n. spp.**
- Melanotelus timorensis*, Timor, DISTANT, t. c. p. 251, **n. sp.**
- Naudarensia n. g.* near *Peantius* for *N. pedata n. sp.*, Assam, DISTANT, p. 87, Faun. Brit. India Rhynchota ii.
- Neoblissus n. g.* for *N. parasitaster n. sp.*, Brazil (with *Solenopsis*), BERGROTH, Wien. ent. Zeit. xxii.
- Nysius dohertyi*, Tenasserim, *inconspicuous*, India, DISTANT, p. 18, Faun. Brit. India Rhynchota ii, **n. spp.**
- Oxycarenus heraldus*, Burma, DISTANT, p. 44, t. c., **n. sp.**
- Pachygrontha dixoni*, Bombay, DISTANT, p. 42, t. c., **n. sp.**
- Paromius piratoides* Costa = (*Nabis bicolor* Walk.), DISTANT, Ann. Nat. Hist. xi, p. 255.
- Peritrechus æruginosus*, Burma, DISTANT, p. 76, Faun. Brit. India Rhynchota ii, **n. sp.**
- Phlegyas burmanus*, Peru, DISTANT, p. 40, t. c., **n. sp.**
- Pinkimerus n. g.* *Blissinae* for *P. sesquipedalis n. sp.*, Burma, DISTANT, p. 22, t. c.
- Polycrates nexus*, India, DISTANT, p. 64, t. c., **n. sp.**
- Sadoletus n. g.* *Heterogastrinae* for *S. validus n. sp.*, Ceylon, DISTANT, p. 37, t. c.

- Salacia signanda*, Ceylon, DISTANT, p. 46, Ann. Soc. ent. Belgique xlvii, n. sp.
Scolopostethus ornandus, Burma, DISTANT, p. 93, Faun. Brit. India Rhynchota ii, n. sp.
Scopiasites bergrothi, Queensland, KIRKALDY, Wien. ent. Zeit. xxii, p. 16, n. sp.
Sinierus cingalensis, Burma, etc., DISTANT, p. 65, t. c., n. sp.
Suffenus n. g. type *Rhyparochromus fusconervosus* Motsch., DISTANT, p. 75, t. c.
Thebanus n. g. *Rhyparochromaria* for *T. politus* n. sp., Burma, DISTANT, p. 67, t. c.
Udubricus n. g. *Myodocharia*, p. 49, for *U. scutellatus* n. sp., Burma, p. 150, DISTANT, t. c.
Vertomannus n. g. near *Myodocha*, p. 45, for *V. capitatus* n. sp., Assam p. 46, DISTANT, Ann. Soc. ent. Belgique xlvii.

PYRRHOCORIDÆ.

[Cf. BERGROTH (100), BREDDIN (206), DISTANT (393, 403), KIRKALDY (849).]

- Anilochus pygmaeus*, Ceylon, DISTANT, p. 102, Faun. Brit. India Rhynchota ii, n. sp.
Courtesius n. g. near *Dindymus* for *C. illuminatus* n. sp., Burma, DISTANT, p. 114, t. c.
Delacampius n. g. near *Dindymus*, p. 252, for *D. typicus* n. sp., Perak, p. 253, pl. xv, DISTANT, Fascic. Malay. Zool. 1.
Dermatinus lugubris, Madras, DISTANT, p. 115, Faun. Brit. India Rhynchota ii, n. sp.
Dysdercus migratorius, Ceylon and Africa, DISTANT, p. 120, t. c., n. sp.
Euscopus gestroi, Burma, DISTANT, p. 106, t. c., n. sp.
Iphita grandis, Ceylon, DISTANT, p. 97, t. c., n. sp.
Odontopus schoutedeni, E. Africa, BERGROTH, p. 290, Ann. Soc. ent. Belgique xlvii, n. sp.
Scantius pallens, Sind, DISTANT, p. 117, t. c., n. sp.
Theraneis amabilis, Bolivia, BREDDIN, Soc. ent. xviii, p. 122, n. sp.

TINGIDÆ.

[Cf. DISTANT (393, 398, 403), HORVÁTH (727), JAKOBLEV (780), MORRILL (1039).]

- Acalypta sibirica*, Irkutsk, JAKOBLEV, p. 4, Rev. Russe Ent. v, n. sp.
Ammianus n. g. for *Monanthia erosa* Fieb., DISTANT, p. 136, Faun. Brit. India Rhynchota ii.
Ayrerus n. g. for *Tingis hystericellus* Richt., DISTANT, p. 140, t. c.
Bredenbachius n. g. near *Cysteochila* for *B. pictus* n. sp., Tenasserim, DISTANT, p. 50, Ann. Soc. ent. Belgique xlvii.
Cadamustus n. g. near *Leptobyrsa* for *C. typicus, suffusus* n. spp., Ceylon, DISTANT, p. 47, t. c.
Celantia n. g. for *Leptodictya vagans* Dist., DISTANT, p. 137, Faun. Brit. India Rhynchota ii.
Collinutius n. g. for *Tingis alicollis* Walk., DISTANT, p. 134, t. c.
Cantacader infuscatus, Burma, DISTANT, p. 124, t. c., n. sp.
Corythuca, early stages, egg, MORRILL, pp. 127-133, pl. iii, *C. arcuata eratægi* subsp. n., p. 132, Psyche x.
Cysteochila elongata, nexa, Assam, DISTANT, p. 49, Ann. Soc. ent. Belgique xlvii, n. spp.

- Dictyonota idonea*, Tauria, JAKOBLEV, p. 291, Rev. Russe Ent. iii, n. sp.
Dulinius n. g. near *Dicysta* for *D. conchatus* n. sp., Ceylon, DISTANT, p. 48, Ann. Soc. ent. Belgique xlvii.
Eteoneus n. g. near *Paracopium* for *Serenthia dilatata* Dist., DISTANT, p. 129, Faun. Brit. India Rhynchota ii.
Gonycentrum and *Phatnoma*, African components, DISTANT, Ann. Nat. Hist. xii, p. 474.
Leptodictya vagans, Ceylon, DISTANT, p. 48, Ann. Soc. ent. Belgique xlvii, n. sp.
Monanthia (*Platycheila*) *taurica*, Crimea, JAKOBLEV, p. 193, Rev. Russe Ent. iii; *M. (Platycheila) distans*, p. 2, Mongolia, *M. (Lasiotropis) corniculata*, Crimea, *longipennis*, Transcaspien, p. 3, JAKOBLEV, t. c.; *M. nilgiriensis*, India, DISTANT, p. 50, Ann. Soc. ent. Belgique xlvii : n. spp.
Paracopium lewisi, Ceylon, DISTANT, p. 48, t. c., n. sp.
Penottus n. g. for *P. jalorensis* n. sp., Malay States, pl. xv, DISTANT, p. 254, Fascic. Malay. Zool. i.
Phatnoma athiops, testaceum, obesum Dist. referred to *Gonycentrum*, BERGROTH, p. 297, Ann. Soc. ent. Belgique xlvii.
Phyllontocheila Fieb. = (*Sakuntala* Kirk.), DISTANT, p. 51, t. c.
Phyllontocheila letabilis, Algeria, HORVÁTH, p. 77, Rev. Ent. franc. xxii, n. sp.
Physatocheila municeps, delicatula, Algeria, HORVÁTH, p. 78, Rev. Ent. franc. xxii, n. spp.
Serenthia dilatata, Tenasserim, DISTANT, p. 46, Ann. Soc. ent. Belgique xlvii, n. sp.
Teleonemia assamensis, Assam, DISTANT, p. 49, t. c., n. sp.
Urentius n. g. *Tingidaria* for *U. echinus* n. sp., Ceylon, DISTANT, p. 134, Faun. Brit. India Rhynchota ii.

BERYTIDÆ.

- Berytus nigrolineatus*, Tiflis, JAKOBLEV, p. 379, Rev. Russe Ent. iii, n. sp.
Parajalysus nigrescens, Brazil, DISTANT, p. 44, Ann. Soc. ent. Belgique xlvii, n. sp.

ARADIDÆ.

- [Cf. DISTANT (393), FYLES (584), MJÖBERG (1019), OSBORN (1093).]
Aneurus tuberculatus, Sweden, MJÖBERG, p. 79, Ent. Tidskr. xxiv, n. sp.
Aradus ornatus, characters, OSBORN, p. 22, Ohio Natural. iv.
A. luteolus, Quebec, FYLES, p. 75, Canad. Ent. xxxv; *A. duryi*, Ohio, OSBORN, Ohio Natural. iv, p. 39 : n. spp.
Brachyrhynchus lateralis (Walk. as *Crimia*) = (*montanus* Bergr.), DISTANT, Ann. Nat. Hist. xii, p. 477.
Eumenotes obscura = (*Odonia truncata* Bergr.), DISTANT, t. c. p. 476.
Neuroctenus affinis, India, DISTANT, p. 165, Faun. Brit. India Rhynchota ii; *N. elongatus*, Ohio, OSBORN, p. 41, Ohio Natural. iv : n. spp.

PHYMATIDÆ.

- [Cf. DISTANT (393, 398, 403).]
Carcinochelis determinatus, Jalor, DISTANT, p. 255, pl. xv, Fascic. Malay. Zool. i, n. sp.
Carcinochelis perpugnax, Borneo, DISTANT, p. 51, Ann. Mus. Belgique xlvii, n. sp.

Carcinocoris bilineatus, Batchian, DISTANT, p. 52, t. c., n. sp.
Glossopelta truncata, Burma, DISTANT, p. 150, Faun. Brit. India Rhynchota ii, n. sp.

HYDROMETRIDÆ, HEBRIDÆ.

[Cf. BREDDIN (190), DISTANT (393, 397, 403), KIRKALDY (845, 846).]

Alardus n. g. *Velinæ* for *A. typicus* n. sp., Malay peninsula, DISTANT, Ann. Nat. Hist. xii, p. 475.
Baptista n. g. near *Velia* for *B. gestroi* n. sp., Burma, DISTANT, p. 173, Faun. Brit. India Rhynchota ii.
Gerris selma, India, KIRKALDY, p. 181, Entomologist xxxvi, n. sp.
Halobates sexualis, Malay States, DISTANT, pl. xv, p. 258, Fascic. Malay. Zool. i, n. sp.
Hebrus orientalis, Burma, DISTANT, p. 167, Faun. Brit. India Rhynchota ii, n. sp.
Hydrometra vittata Stål = (*albolineata* Scott), DISTANT, Ann. Nat. Hist. xi, p. 256.
Metrocoris athiops, Nigeria, p. 472, *natalensis*, Natal, p. 473, DISTANT, op. cit. xii, n. spp.
Metrocoris illustrarius, Ceylon, DISTANT, p. 189, Faun. Brit. India Rhynchota ii; *M. nigrofasciatus*, Malay States, DISTANT, pl. xv, p. 257, Fascic. Malay. Zool. i : n. spp.
Microvelia repentina, Calcutta, DISTANT, p. 174, Faun. Brit. India Rhynchota ii; *M. singalensis*, Ceylon, KIRKALDY, p. 180, Entomologist xxxvi : n. spp.
Onychotrechus n. g. for *O. rhevenor* n. sp., S. India, KIRKALDY, p. 44, t. c.
Perittopus rufus, Tenasserim, DISTANT, p. 175, Faun. Brit. India Rhynchota ii, n. sp.
Ptilomera lelaps, ♀, BREDDIN, Soc. ent. xvii, p. 147.
P. dromas, argus, Java, p. 147, *hylactor*, Annam, p. 148, BREDDIN, t. c., n. spp.
Rhagovelia maculata, Nigeria, DISTANT, Ann. Nat. Hist. xii, p. 472; *R. insignis*, Malay States, DISTANT, pl. xv, p. 256, Fascic. Malay. Zool. i : n. spp.

REDUVIIDÆ, incl. HENICOCEPHALIDÆ, NABIDÆ.

[Cf. BERGROTH (98, 100, 101), BREDDIN (182, 185, 189, 193, 198, 201-205), DISTANT (393-399, 401-403), FABRE (474), GARCIA VARELA (607, 608), JAKOBLEV (771, 780), SCHOUTEDEN (1350).]

Completion of revision of Walker's *Reduviidæ*, *Apiomerinæ*, *Harpactorinæ*, *Nabinæ*, DISTANT, Ann. Nat. Hist. xi, pp. 203-213, 245-258. Only the new genera and species included are here recorded. A summary of the synonymic and taxonomic changes will be found on pp. 254, 255 of the memoir.

Acanthaspis lydenburgi, Transvaal, p. 46, *curvidens*, Mashonaland, p. 52, DISTANT, Ann. S. African Mus. iii; *A. binghami*, Burma, *apicata, subrufa*, India, p. 354, *tavoyana*, Pegu, *gregoryi, noctis*, E. Africa, p. 355, DISTANT, Ann. Nat. Hist. xi; *A. werampilina, vineta*, p. 57, *succinea*, Burma, *inscripta*, Ceylon, p. 58, DISTANT, Ann. Mus. Belgique xlvi : n. spp.
Adricomius n. g. near *Conorhinus*, p. 60, for *A. annulatus* n. sp., Samoa, p. 61, DISTANT, t. c.
Afrocastra n. g. near *Castra*, for *A. procera* n. sp., Usambara, BREDDIN, Soc. ent. xviii, p. 116.

- Agriolestes melanopterus*, Burma, DISTANT, Ann. Nat. Hist. xi, p. 359, n. sp.
- Agriosphodrus perelegans*, Tonkin, BREDDIN, Soc. ent. xvii, p. 170, n. sp.
- Agryrius othello*, Borneo, BREDDIN, t. c. p. 170, n. sp.
- Allæocranum maculosum*, Perak, DISTANT, pl. xvi, p. 260, Fascic. Malay. Zool. i, n. sp.
- Allæorhynchus marginalis*, Burma, DISTANT, p. 1, Entomologist xxxvi, n. sp.
- Amauroclapius ornatus*, Brazil, DISTANT, Ann. Nat. Hist. xi, p. 205, n. sp.
- Androclous borneensis*, Borneo, DISTANT, p. 61, Ann. Mus. Belgique xlvii; *A. javanus*, Java, p. 3, *A. (Dichraotropis) sculpturatus*, E. Africa, p. 4, BREDDIN, Soc. ent. xviii : n. spp.
- Apiomerus elegans*, p. 63, *scriptus*, *evanidus*, *auratus*, Brazil, DISTANT, Ann. Mus. Belgique xlvii, n. spp.
- Arcesius bicolor*, Malay States, DISTANT, pl. xvi, p. 265, Fascic. Malay. Zool. i; *A. sicarius*, New Guinea, BREDDIN, Soc. ent. xvii, p. 169; *A. annulatus*, New Guinea, DISTANT, Ann. Nat. Hist. xi, p. 359 : n. spp.
- Astinus siamensis*, Siam, DISTANT, t. c. p. 248, n. sp.
- Aulacoclopius* n. g. near *Spheclanolestes*, for *A. cyaneoniger* n. sp., Tonkin, BREDDIN, Soc. ent. xviii, p. 4.
- Bagauda* n. g. near *Orthunga*, p. 12, for *B. avidus*, Bombay, p. 13, BERGROTH, Rev. Ent. franc. xxii.
- Biasticus horsfieldi*, Java, DISTANT, Ann. Nat. Hist. xi, p. 208; *B. gaganinus*, *lutescens*, Java, BREDDIN, Soc. ent. xviii, p. 12 : n. spp.
- Breddinia* n. g. type *Archilochus bispinosus* Carl., BERGROTH, p. 292, Ann. Soc. ent. Belgique xlvii.
- Cæcina* = (*Camelocastra* Bredd.), DISTANT, p. 262, Fascic. Malay. Zool. i.
- Camelocastra* n. g. *Ectrichodiides*, p. 508, for *C. javana*, Java, *borneensis*, Borneo, n. spp., p. 509, BREDDIN, Zool. Anz. xxvi.
- Caprocethera* n. g., p. 115, near *Carcinomina*, for *C. cava*, *maculipennis* n. spp., Africa, p. 116, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Caridomma* Bergr. = (*Macrophthalmus* Lap. = *Macrops* Burm. = *Sorglana* Kirk.), BERGROTH, p. 297, Ann. Soc. ent. Belgique xlvii.
- Castrucciis* n. g. near *Staliastes*, for *C. insignis* n. sp., N.-W. Australia, DISTANT, Ann. Nat. Hist. xi, p. 357.
- Censorinus* n. g. *Acanthaspinae*, for *C. ferrugineus* n. sp., Madagascar, DISTANT, p. 58, Ann. S. African Mus. iii.
- Centrogonus ducalis*, W. Australia, DISTANT, Ann. Nat. Hist. xi, p. 352; *C. ochreipennis*, N.-W. Australia, BREDDIN, p. 120, SB. Ges. naturf. Berlin 1903 : n. spp.
- Cerellius* n. g. near *Helonotus*, p. 364, for *C. typicus*, *nigricans*, Madagascar, p. 365, DISTANT, Ann. Nat. Hist. xi.
- Cerilocus cameronensis*, p. 104, *conradi*, p. 105, Cameroons, GARCIA, Bol. Soc. espan. iii; *C. karschi*, p. 114, *pæcilus*, p. 115, W. Africa, BREDDIN, SB. Ges. naturf. Berlin 1903; *C. parvus*, Transvaal, p. 47, *bicolor*, Mashonaland, p. 52, DISTANT, Ann. S. African Mus. iii : n. spp.
- Chatacantha excellens*, variation, BERGROTH, p. 293, Ann. Soc. ent. Belgique xlvii.
- Cleontes genitus*, Mashonaland, DISTANT, p. 53, Ann. S. African Mus. iii, n. sp.
- Cleptriola* n. g. *Ectrichodiini*, p. 107, for *C. nigrolutea*, *subobscura* n. spp., Africa, p. 108, BREDDIN, Soc. ent. xviii.
- Coranopsis rossi*, Transvaal, DISTANT, p. 48, Ann. S. African Mus. iii, n. sp.
- Coranus atricapillus*, Ceylon, DISTANT, Ann. Nat. Hist. xi, p. 77, n. sp.
- Cosmocleptus rubromarginatus*, Philippines, DISTANT, t. c. p. 249, n. sp.
- Cosmolestes insignis*, Transvaal, DISTANT, p. 47, Ann. S. African Mus. iii, n. sp.

- Cricetopareis* n. g. *Ectrichodiinæ*, p. 65, for *C. boliviana* n. sp., Bolivia, p. 66, and *E. tucumana* Berg, BREDDIN, Soc. ent. xviii.
- Cutocoris fasciiventris*, E. Asia, BREDDIN, op. cit. xvii, p. 170, n. sp.
- Cydnocoris tabularis*, Malay Arch., DISTANT, Ann. Nat. Hist. xi, p. 245, n. sp.
- Daraxa carnifex*, Bolivia, BREDDIN, Soc. ent. xviii, p. 100, n. sp.
- Diaditus errabundus*, Ceylon, DISTANT, p. 54, Ann. Mus. Belgique xlvii, n. sp.
- Diplosiacantha* n. g., p. 121, near *Centrogonus*, for *D. monticola* n. sp., Cameroons, p. 122, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Domnus coloratus*, E. Africa, DISTANT, Ann. Nat. Hist. xi, p. 360, n. sp.
- Ectinoderus sumptuosus*, Philippines, p. 64, *exortivus*, Burma, p. 65, DISTANT, Ann. Mus. Belgique xlvii, n. spp.
- Ectrichodia tucumana* cf. *Cricetopareis*.
- E. humeralis*, Sumatra, *scutellaris*, Assam, p. 512, *præcox*, Borneo, p. 513, BREDDIN, Zool. Anz. xxvi, n. sp.
- Ectrychotes rufescens*, Burma, DISTANT, Ann. Mus. Belgique xlvii, n. sp.
- Edocla slateri*, Mysore, *pilosula*, E. Africa, DISTANT, Ann. Nat. Hist. xi, p. 353, n. spp.
- Emesodema domestica*, note, GREDLER, p. 63, Ber. Ver. Innsbruck xxvii.
- Endochus carbonarius*, Assam, BREDDIN, Soc. ent. xvii, p. 170; *E. subniger*, merula, Burma, DISTANT, Ann. Nat. Hist. xi, p. 76; *E. migratorius*, Hong Kong etc., DISTANT, t. c. p. 246; *E. modestus*, N. W. Australia, DISTANT, t. c. p. 360 : n. spp.
- Epidaurus pretiosus*, New Guinea, *bicolor*, Malabar, DISTANT, t. c. p. 247, n. spp.
- Epirodera impexa*, Burma, DISTANT, p. 56, Ann. Mus. Belgique xlvii, n. sp.
- Eugubinus* n. g. *Emesaria*, for *E. araneus* n. sp., Bombay, DISTANT, Ann. Nat. Hist. xii, p. 253.
- Eulyes sanguinolentus*, Tondano, DISTANT, op. cit. xi, p. 213, n. sp.
- Forestus* n. g. near *Blapton*, for *F. typicus*, Sikkim, p. 251, *montanus*, Assam, *spinosus*, Sikkim, p. 252, *inermis*, Assam, p. 253, n. spp., DISTANT, t. c.
- Gardena bicolor*, Burma, DISTANT, p. 214, Faun. Brit. India Rhynchota ii, n. sp.
- Gerbelius* n. g. near *Paraleneus*, for *G. typicus*, Burma, *ornatus*, Ceylon, n. spp., DISTANT, p. 59, Ann. Mus. Belgique xlvii; *G. confluentis*, Malay States, DISTANT, pl. xvi, p. 260, Fascic. Malay. Zool. i : n. spp.
- Ghilianella matercula*, p. 8, *nutricula*, p. 9, Africa, BERGROTH, Rev. Ent. franc. xxii; *G. phasma*, Burma, DISTANT, p. 211, Faun. Brit. India Rhynchota ii : n. spp.
- Gomesius* n. g. *Emesiinæ*, for *G. predatorius* n. sp., Ceylon, DISTANT, p. 212, t. c.
- Graptoclopius pallescens*, New Guinea, DISTANT, Ann. Nat. Hist. xi, p. 207, n. sp.
- Hæmatoloecha morosa*, Tonkin, BREDDIN, p. 511, Zool. Anz. xxvi; *H. andersoni*, Yunnan, DISTANT, p. 62, Ann. Mus. Belgique xlvii; *H. fokienensis*, China, DISTANT, Ann. Nat. Hist. xii, p. 476 : n. spp.
- Harpactor paludatus*, Nyasaland, DISTANT, p. 56, Ann. S. African Mus. iii; *H. pygmaeus*, *nilgiriensis*, India, DISTANT, Ann. Nat. Hist. xi, p. 75; *H. picturatus*, p. 205, *ornatellus*, E. Africa, *flavus*, Hong Kong, p. 206, *chersonesus*, Penang, p. 207, DISTANT, t. c. : n. spp.
- Harpagocoris perspectans*, Gaboon, BERGROTH, p. 294, Ann. Soc. ent. Belgique xlvii, n. sp.
- Helonotus nigrurus*, Gilolo, p. 363, *malayanus*, Sumatra etc., *confusus*, Batchian, p. 364, DISTANT, Ann. Nat. Hist. xi, n. spp.
- Henicocephalus collaris* var., DISTANT, p. 52, Ann. Mus. Belgique xlvii;

- H.* sp., habits, MALLY, p. 466, Zoologist 1903; *H. basalis* = (*ostentus* Dist.), DISTANT, p. 195, Faun. Brit. India Rhynchota ii.
- H. braunsii*, Port Elizabeth, with *Rhoptromyrmex*, BERGROTH, Wien. ent. Zeit. xxii; *H. robustus*, Ceylon, DISTANT, p. 195, Faun. Brit. India Rhynchota ii; *H. ostentus*, Burma, p. 52, *lewisii*, Japan, p. 53, DISTANT, Ann. Mus. Belgique xlvii : n. spp.
- Heteropinus* n. g., p. 112, near *Staliastes*, for *H. mollis* n. sp., Cameroons, p. 113, BREDDIN, SB. Ges. naturf. Berlin 1903.
- Hexamerocerus junodi*, Delagoa Bay, DISTANT, p. 60, Ann. S. African Mus. iii, n. sp.
- Holotrichius insularis*, Sokotra, DISTANT, Ann. Nat. Hist. xii, p. 479, n. sp.
- Homalosphodrus abdominalis*, Cambodia, DISTANT, t. c. p. 211, n. sp.
- Inara currax*, Sumatra, BREDDIN, p. 116, SB. Ges. naturf. Berlin 1903, n. sp.
- Iphithereuta* n. g., p. 122, for *I. longipennis* n. sp., New Guinea, p. 123, BREDDIN, t. c.
- Irantha biseratensis*, Malay States, DISTANT, p. 267, pl. xvi, Fascic. Malay. Zool. i; *I. bramarbas*, Sumatra, BREDDIN, Soc. ent. xviii, p. 4; *I. doreyana*, Dorey, DISTANT, Ann. Nat. Hist. xi, p. 366 : n. spp.
- Ischnobœna ejuncida*, Ivory Coast, BERGROTH, p. 10, Rev. Ent. franc. xxii, n. sp.
- Ischnonyctes alluaudi*, Ivory Coast, BERGROTH, p. 11, t. c.; *I. alatus*, Ceylon, DISTANT, p. 217, Faun. Brit. India Rhynchota ii : n. spp.
- Junghuhnidia* n. g. near *Crocicæus*, for *J. cruenta* n. sp., Java, BREDDIN, p. 124, SB. Ges. naturf. Berlin 1903.
- Katanga* n. g. *Ectrichodiides*, for *K. bergrothi* n. sp., Centr. Africa, SCHOUTEDEN, Wien. ent. Zeit. xxii, p. 217.
- Khafra modesta*, Nyasaland, DISTANT, p. 59, Ann. S. African Mus. iii; *K. distanti*, Cameroons, GARCIA, p. 106, Bol. Soc. espan. iii : n. spp.
- Lenæus ulysses*, E. Africa, DISTANT, Ann. Nat. Hist. xi, p. 356; *L. marmoratus*, Perak, BREDDIN, p. 113, SB. Ges. naturf. Berlin 1903 : n. spp.
- Leptomendis* n. g. *Ectrichodiides*, for *L. bipartita* n. sp., Cameroons, BREDDIN, Zool. Anz. xxvi, p. 514.
- Libyomendis* n. g. near *Mendis*, p. 115, for *L. hamatobapha* n. sp., Fernando Po, p. 116, BREDDIN, Soc. ent. xviii.
- Lisarda æthiopica*, E. Africa, DISTANT, Ann. Nat. Hist. xi, p. 352; *L. longispina*, Burma, p. 54, *uniformis*, Ceylon, p. 55, DISTANT, Ann. Mus. Belgique xlvii; *L. recurva*, p. 238, *erecta*, p. 239, Burma, DISTANT, Faun. Brit. India Rhynchota ii : n. spp.
- Lopodytes mashona*, Mashonaland, DISTANT, p. 53, Ann. S. African Mus. iii, n. sp.
- Loricerus rufipectus*, Cameroons, BREDDIN, p. 513, Zool. Anz. xxvi, n. sp.
- Luteva feana*, Burma, Distant, p. 1, Entomologist xxxvi; *L. malayana*, Biserat, DISTANT, pl. xvi, p. 258, Fascic. Malay. Zool. i : n. spp.
- Margasus opulentus*, Nyasaland, p. 56, *maurus*, Madagascar, p. 62, DISTANT, Ann. S. African Mus. iii; *M. luridus*, Madagascar, DISTANT, Ann. Nat. Hist. xi, p. 361 : n. spp.
- Mendis bicolor*, Ceylon, DISTANT, Ann. Mus. Belgique xlvii; *M. amula*, Borneo, BREDDIN, p. 511, Zool. Anz. xxvi : n. spp.
- Microscanta* n. g. near *Santosia*, for *M. aurantiaca*, Java, *sanguinea*, Borneo, n. spp., BREDDIN, p. 509, Zool. Anz. xxvi.
- Mirambulus morio*, Bolivia, BREDDIN, Soc. ent. xviii, p. 108, n. sp.
- Myiophanes greeni*, Ceylon, *karenia*, Burma, DISTANT, p. 205, Faun. Brit. India Rhynchota ii, n. spp.
- Myiophanes pilipes*, Richmond River, DISTANT, Ann. Nat. Hist. xii, p. 253, n. sp.
- Nabis subcoleopratus* = (*xanthopus* Walk.), DISTANT, Ann. Nat. Hist. xi, p. 367.

- N. telomi*, Perak, DISTANT, pl. xvi, p. 268, Fascic. Malay. Zool. i, n. sp.
Nagusta subflava, Transvaal, p. 49, *albata*, Mashonaland, p. 54, DISTANT, Ann. S. African Mus. iii; *N. calamobata*, Java, BREDDIN, Soc. ent. xviii, p. 12 : n. spp.
- Nalata armiventris*, Bolivia, BREDDIN, Soc. ent. xviii, p. 108, n. sp.
Narsetes n. g. near *Homalosphodrus*, for *N. longinus* n. sp., Cambodia, DISTANT, Ann. Nat. Hist. xi, p. 358.
- Oncocephalus picturatus*, Ceylon, p. 228, *lineosus*, Ceylon, *klugi*, N. India, p. 230, *morosus*, Sikkim, p. 233, DISTANT, Faun. Brit. India Rhynchota ii, n. spp.
- Opistoplatys nigripes*, Java, p. 177, *nanus*, *immundus*, Sumatra, *oculatus*, Cameroons, p. 178, BREDDIN, Soc. ent. xvii, n. spp.
- Paloptus papuensis*, p. 361, *sulphurellus*, N. Guinea, *molochinus*, Malay Arch., p. 362, DISTANT, Ann. Nat. Hist. xi, n. spp.
- Panthous tarsatus*, Perak, DISTANT, t. c. p. 76; *P. bimaculatus*, S. India, DISTANT, t. c. p. 249 : n. spp.
- Pasiropsis maculata*, *notata*, p. 56, *marginata*, p. 57, Burma, DISTANT, Ann. Mus. Belgique xviii; *P. morio*, Sumatra, BREDDIN, p. 117, SB. Ges. naturf. Berlin 1903 : n. spp.
- Petalochirus burmanus*, Burma, *perakensis*, Perak, DISTANT, p. 55, Ann. Mus. Belgique xvii; *P. fasciatus*, p. 259, *spinosisissimus*, p. 260, Malay States, DISTANT, pl. xvi, Fascic. Malay. Zool. i : n. spp.
- Phalantus feanus*, Burma, DISTANT, p. 61, Ann. Mus. Belgique xvii, n. sp.
Phonergates imperator, Cameroons, BREDDIN, p. 115, SB. Ges. naturf. Berlin 1903; *P. quadrimaculatus*, Transvaal, DISTANT, p. 46, Ann. S. African Mus. iii : n. spp.
- Phonoctonus*; mimicry, BERGROTH, p. 293, Ann. Soc. ent. Belgique xvii.
Phorticus cingalensis, Ceylon, DISTANT, p. 2, Entomologist xxxvi, n. sp.
- Physoderus serraticollis*, Java, p. 125, *fuscus*, Tonkin, *nigroalbus*, Sumatra, p. 126, *brunneus*, Java, p. 127, BREDDIN, SB. Ges. naturf. Berlin 1903, n. spp.
- Physorhynchus robustus*, Cameroons, GARCIA, p. 173, Bol. Soc. espan. iii; *P. crocatus*, Transvaal, p. 47, *principalis*, Mashonaland, p. 53, *abbreviatus*, *costalis*, E. Africa, p. 60, *splendens*, Delagoa Bay, p. 61, DISTANT, Ann. S. African Mus. iii : n. spp.
- Pirates rendalli*, Zomba, p. 55, *erebus*, Madagascar, p. 59, DISTANT, t. c.; *P. bicolor*, Assam, DISTANT, p. 61, Ann. Mus. Belgique xvii : n. spp.
- Platerus* n. g. near *Epidaus*, p. 247, for *P. pilcheri* n. sp., Sikkim, p. 248, DISTANT, Ann. Nat. Hist. xi.
- Platymenis (Khafra?) elegans*, W. Africa, BREDDIN, Soc. ent. xviii, p. 99, n. sp.
- Platymicrus* n. g. near *Opinum*, p. 295, for *P. albiventris* n. sp., Africa, BERGROTH, Ann. Soc. ent. Belgique xvii.
- Ploiaria culiciformis*, feeding, CHARBONNIER, Ent. Mag. xxxix, p. 123.
- P. greeni*, Ceylon, DISTANT, p. 209, Faun. Brit. India Rhynchota ii, n. sp.
Ploiariola contaminata, Malay States, DISTANT, p. 258, pl. xvi, Fascic. Malay. Zool. i, n. sp.
- Plynus santosioides*, Fernando Po, BREDDIN, Soc. ent. xviii, p. 107, n. sp.
Polidius australis, N. W. Australia, DISTANT, Ann. Nat. Hist. xi, p. 251, n. sp.
- Polytoxus maculatus*, Burma, *femoralis*, Ceylon, DISTANT, p. 53, Ann. Mus. Belgique xvii; *P. pallescens*, Ceylon, DISTANT, Ann. Nat. Hist. xi, p. 257; *P. procerus*, Key Ids., *geniculatus*, *nitidicollis*, Java, BREDDIN, Soc. ent. xvii, p. 177 : n. spp.
- Pothea hematogaster*, Bolivia, BREDDIN, Soc. ent. xviii, p. 108, n. sp.
Pristhesancus wallacei, New Guinea, DISTANT, Ann. Nat. Hist. xi, p. 250; *P. variabilis*, p. 362, *nigrounnulatus*, New Guinea, *uniformis*, Australia, p. 363, DISTANT, t. c.; *P. aurantiacus*, *modestus*, New Guinea, BREDDIN,

- Soc. ent. xviii, p. 76; *P. maculiventris*, Murray Ids., BREDDIN, t. c., p. 12; *P. melitus*, Queensland, *chrysis*, Murray Is., DISTANT, Ann. Nat. Hist. xi, p. 77 : n. spp.
- Psophis consanguineus*, Burma, DISTANT, p. 56, Ann. Mus. Belgique xlvii, n. sp.
- Reduvius personatus*, natural history, eggs, FABRE, Souvenirs viii, chap. 6; *R. horridus* Carl., *zonogaster* Carl., referred to *Rhinocoris*, BERGROTH, p. 297, Ann. Soc. ent. Belgique xlvii; *R. azrael*, pl. xxiii, fig. 4, p. 384, KIRKALDY, Nat. Hist. Sokotra.
- R. (Opsicatus) semenovi*, Bukhara, JAKOBLEV, p. 194, Rev. Russe Ent. iii; *R. formosus*, Cameroons, GARCIA, p. 171, Bol. Soc. espan. iii : n. spp.
- Rhinginia haenschii*, Ecuador, BREDDIN, Soc. ent. xviii, p. 65, n. sp.
- Rhochmogaster* is young *Physorhynchus*, GARCIA, p. 171, Bol. Soc. espan. iii.
- Ricolla femoralis*, Amazons, p. 359, *jamaicensis*, Jamaica, p. 360, DISTANT, Ann. Nat. Hist. xi, n. spp.
- Santosia atropicta*, Burma, DISTANT, p. 62, Ann. Mus. Belgique xlvii; *S. schultheissi*, Sumatra, BREDDIN, p. 509, Zool. Anz. xxvi : n. spp.
- Scadra rufithorax*, Tsu-sima, BREDDIN, p. 510, t. c.; *S. relata*, Burma, DISTANT, p. 62, Ann. Mus. Belgique xlvii : n. spp.
- Schultheissidia* n. g. near *Velitra* for *S. mitis* n. sp., Sumatra, BREDDIN, p. 114, SB. Ges. naturf. Berlin 1903.
- Scipinia arenacea*, Australia, DISTANT, Ann. Nat. Hist. xi, p. 366, n. sp.
- Sindala purpurascens*, Brazil, DISTANT, t. c. p. 365, n. sp.
- Sirthenea africana*, Transvaal, DISTANT, p. 47, Ann. S. African Mus. iii, n. sp.
- Sphedanocoris camerunensis*, Africa, BREDDIN, p. 128, SB. Ges. naturf. Berlin 1903; *S. sacalava*, Madagascar, BERGROTH, p. 296, Ann. Soc. ent. Belgique xlvii : n. spp.
- Sphedanolestes annulipes*, Burma, DISTANT, Ann. Nat. Hist. xi, p. 75; *S. signatus*, *stigmatellus*, S. India, *incertis*, China, Japan, p. 209, *funeralis*, Kashmir, *elegans*, *ornatellus*, E. Africa, DISTANT, t. c.; *S. (Lissonyctes) vesbioides*, Java, *S. (S.) sericatus*, Tonkin, BREDDIN, Soc. ent. xviii, p. 11 : n. spp.
- Spiniger nugax*, Ecuador, BREDDIN, t. c. p. 108; *S. rapax*, p. 113, *pertinax*, *mordax*, *sagax*, Bolivia, *fugax*, *vorax*, Ecuador, p. 114, BREDDIN, t. c., n. spp.
- Staliastes melancholicus*, Tonkin, BREDDIN, p. 113, SB. Ges. naturf. Berlin 1903, n. sp.
- Stenolæmus marshalli*, Mashonaland, DISTANT, p. 52, Ann. S. African Mus. iii; *S. greeni*, *atkinsoni*, India, DISTANT, Ann. Nat. Hist. xi, p. 256 : n. spp.
- Sycanus obtusifurcatus*, Sumba, BREDDIN, Soc. ent. xvii, p. 170, n. sp.
- Tetroxia blanda*, Fernando Po, BREDDIN, t. c. p. 82; *T. (Tetroxia) picipes*, Cameroons, p. 117, *T. (Acanthaspis) scurra*, Ceylon, *nigricollis*, E. India, p. 118, *T. severa*, Tonkin, p. 119, *T. (Ulocleptes) spurca*, New Guinea, p. 120, BREDDIN, SB. Ges. naturf. Berlin 1903 : n. spp.
- Tiarodes malayanus*, Perak, DISTANT, p. 60, Ann. Mus. Belgique xlvii; *T. picturatus*, Batchian, DISTANT, Ann. Nat. Hist. xi, p. 357; *T. waterstradti*, Borneo, BREDDIN, p. 111, SB. Ges. naturf. Berlin 1903 : n. spp.
- Tiarodurganda* n. g. near *Tiarodes* for *T. apicalis* n. sp., Tonkin, BREDDIN, p. 112, t. c.
- Timotheus* n. g. near *Platymeris* for *T. peringueyi* n. sp., Cape Colony, DISTANT, p. 58, Ann. S. African Mus. iii.
- Triatoma migrans*, Java, etc., BREDDIN, p. 111, SB. Ges. naturf. Berlin 1903, n. sp.
- Tribelocephala oculata*, Fernando Po, DISTANT, Ann. Nat. Hist. xii, p. 473;

- T. tristis*, Fernando Po, BREDDIN, Soc. ent. xviii, p. 115; *T. spurca*, Cameroons, BREDDIN, t. c. p. 178; *T. ornata*, Penang, DISTANT, Ann. Nat. Hist. xii, p. 475 : n. spp.
- Vachiria insignis*, p. 201, *semenovi*, p. 202, Transcaspian, JAKOBLEV, Horæ Soc. ent. Ross. xxxvi, n. spp.
- Vadimon comedo*, Gaboon, BERGROTH, p. 294, Ann. Soc. ent. Belgique xlvii, n. sp.
- Velinus rotifer* = (*Sphedanolestes singularis* Dist.), BERGROTH, p. 297, Ann. Soc. ent. Belgique xlvii.
- V. faersteri*, Sumatra, BREDDIN, Soc. ent. xviii, p. 4; *V. parvus*, Sarawak, DISTANT, Ann. Nat. Hist. xi, p. 211; *V. pallidus*, Borneo, *princeps*, Australia, DISTANT, t. c. p. 357 : n. spp.
- Velitra maculata*, Burma, p. 58, *stigmatica*, Assam, p. 59, DISTANT, Ann. Mus. Belgique xlvii; *V. maxima*, Tonkin, BREDDIN, p. 114, SB. Ges. naturf. Berlin 1903 : n. spp.
- Vilius nigriventris*, Ceylon, DISTANT, Ann. Mus. Belgique xlvii; *V. monocerus*, Java, BREDDIN, p. 508, Zool. Anz. xxvi : n. spp.
- Vitumnus scenicus*, synonymy and varr., varr. n. *barbertonus* and *pretorius*, DISTANT, p. 49, varr. n. *salisburyanus*, *rhodesianus*, p. 54, *nyasanus*, p. 61, id., Ann. S. African Mus. iii.
- Yolinus conspicuus*, Tavoy, p. 212, *mouhoti*, Cambodia, p. 213, DISTANT, Ann. Nat. Hist. xi : n. spp.

CIMICIDÆ, ANTHOCORIDÆ.

Klinophilos horrifer, pl. xxiii, fig. 3, p. 383, KIRKALDY, Nat. Hist. Sokotra. *Nesidiocheilus* (n. g. recorded in *Capsidæ* last year) belongs to *Anthocoridae*.

CAPSIDÆ.

[Cf. BERGROTH (101), DISTANT (403), HUEBER (744), JAKOBLEV (780), KIRKALDY (849), REUTER (1257, 1258), STEVENSON (1482).]

Synopsis deutsch. Blindwanz., vol. i, completed, HUEBER (744).

Variety in food, and other habits, REUTER, Ent. Mag. xxxix, pp. 121-123.

Anniessa n. g. *Capsaria*, p. 15, for *A. chlaunacha* n. sp., Brazil, p. 16, KIRKALDY, Wien. ent. Zeit. xxii.

Brediniessa n. n. for *Periscopos* Bredd., KIRKALDY, t. c. p. 13.

Deraocoris cordiger var. n. *fallaciosa*, REUTER, Ent. Mag. xxxix, p. 119.

Dicyptus geniculatus var. n. *dispuncta*, REUTER, t. c. p. 121.

Dimorphocoris lividipennis, Spain, REUTER, t. c. p. 119, n. sp.

Guianerius n. g. near *Kosmiomiris*, p. 268, for *G. typicus* n. sp., Malay States, p. 269, pl. xvi, DISTANT, Fascic. Malay. Zool. i.

Helopeltis; notes on the species, WATT & MANN, tea pests, pp. 247-285, pls. xiii, xiv.

H. cuneata, Malay States, DISTANT, p. 270, pl. xvi, Fascic. Malay. Zool. i, n. sp.

Hyperoides n. n. for *Melinna* Uhl., KIRKALDY, Wien. ent. Zeit. xxii, p. 14.

Laodamia n. n. for *Strongylotes* Reut., KIRKALDY, t. c. p. 13.

Lissocapsus n. g. near *Systellonotus* for *L. wasmanni* n. sp., Madagascar, with *Cremastogaster*, BERGROTH, Wien. ent. Zeit. xxii, p. 256.

Lygus biseratensis, *bukitensis*, Malay States, DISTANT, p. 269, pl. xvi, Fascic. Malay. Zool. i; *L. chagnoni*, Montreal, STEVENSON, p. 214, Canad. Ent. xxxv : n. spp.

Mabelia n. g. near *Lopidea*, p. 14, for *M. pulcherrima* n. sp., Brazil, p. 15, KIRKALDY, Wien. ent. Zeit. xxii.

- Macgregorius* n. g. *Capsaria* for *M. regalis* n. sp., Brisbane, KIRKALDY, t. c. p. 14.
Myrmecoris gracilis in Britain, SAUNDERS, Ent. Mag. xxxix, p. 269.
Neofurius thetis, Brazil, KIRKALDY, Wien. ent. Zeit. xxii, p. 15, n. sp.
Phytocoris vittiger Reut., var. β , REUTER, Ent. Mag. xxxix, p. 119.
Platylingomiris, taxonomy, KIRKALDY, Wien. ent. Zeit. xxii, p. 13.
Psilorhamphocoris n. n. for *Psilorhamphus* Stål, KIRKALDY, t. c. p. 14.
Sahlbergella singularis, figure, KIRKALDY, t. c. p. 13.
Systellonotus championi, Spain, REUTER, Ent. Mag. xxxix, p. 120, n. sp.
Tiryus n. n. for *Trichia* Reut., KIRKALDY, Wien. ent. Zeit. xxii, p. 14.
Tuptionia tincta, Transcaspian, JAKOBLEV, p. 292, Rev. Russe Ent. iii, n. sp.

SALDIDÆ.

- Velocipeda minor*, Java, BREDDIN, Wien. ent. Zeit. xxii, p. 248, n. sp.

HYDROCORISÆ.

[Cf. BUENO (236, 237), LEFÈVRE (925), MONTANDON (1024, 1026-1028).]

Salivary gland of *Nepa*, LEFÈVRE (92).

Belostomidae, the genera, MONTANDON, pp. 110-113, Bull. Soc. Bucarest xii.
Belostoma, the species and synonymy, MONTANDON, t. c. pp. 113-121.

Belostoma noualhieri, p. 21, *discretum*, p. 22, S. America, MONTANDON, Bull. Mus. Paris ix; *B. horvathi*, p. 359, *denticolle*, *sanctulum*, p. 362, *candidulum*, p. 363, S. America, MONTANDON, Ann. Mus. Hungar. i: n. spp.

Cercometus compositus, Laos, MONTANDON, p. 109, Bull. Soc. Bucarest xii, n. sp.

Curicta Stål (= *Nepoidea* Mont. = *Helotentis* Bergr.), MONTANDON, pp. 97, 98, t. c.

C. suspecta, p. 99, *borellii*, p. 100, Argentina, id. t. c., n. spp.

Pelocoris femorata, habits and life-history, TORRE BUENO, pp. 166-172, J. N. York Ent. Soc. xi.

Ranatra fusca, habits, stridulation, BUENO, p. 235, Canad. Ent. xxxv; *R. chinensis* (= *valida* Stål = *pallidenotata* Scott), *grandocula* Bergr. ♂ and *subulata* Bergr. ♀ of *grandocula*, p. 103, MONTANDON, Bull. Soc. Bucarest xii.

R. dispar, Australia, p. 104, *atrophæa* [no locality], p. 105, id. t. c.; *R. æthiopica*, p. 20, *bottegoi*, p. 22, N. E. Africa, *feana*, Burma, p. 23, MONTANDON, Horæ Soc. ent. Ross. xxxv: n. spp.

HEMIPTERA-HOMOPTERA.

Synonymic notes on palæarctic *Homoptera*, HORVÁTH, pp. 556-558, Ann. Mus. Hungar. i.

CICADIDÆ.

[Cf. DISTANT (408), JACOBI (756), MEEK (990), MELICHAR (1000).]

Australian *Cicada*, FROGGATT (558).

The mouth-parts of *Cicada* and *Hemiptera* generally, MEEK, Bull. Univ. Kansas ii, pp. 257-277, pls. vii-xi.

Acrilla nana, New Guinea, JACOBI, p. 13, SB. Ges. naturf. Berlin 1903, n. sp.

- Cicada septendecim*, food-habits, ALWOOD, pp. 75-77, Bull. U. S. Dep. Agric. Ent. xl.
- Cicadetta montana* in North France, LANCELEVÉE, Bull. Soc. Rouen xxxviii, pp. 39-41; *C. montana* in France, LANCELEVÉE, Bull. Soc. Elbeuf xxi, pp. 43-45; *C. omar*, pl. xxiii, figg. 1, 1a, p. 381, KIRKALDY, Nat. Hist. Sokotra.
- Drepanopsaltria russula*, New Guinea, JACOBI, p. 10, SB. Ges. naturf. Berlin 1903, n. sp.
- Gymnotympana nenians*, New Guinea, JACOBI, p. 14, t. c., n. sp.
- Lembeja*, characters, JACOBI, p. 13, t. c.
- Melampsalta tibialis* = (*Cicadetta omar* Kirk.), DISTANT, Ann. Nat. Hist. xii, p. 478.
- Odopœa biolleyi*, Costa Rica, DISTANT, p. 526, Tr. ent. Soc. London 1903, n. sp.

FULGORIDÆ.

[Cf. KIRKALDY (846), MELICHAR (1000), OSBORN (1094, 1095).]

- KIRKALDY criticises some of the nomenclature of Melichar's paper on *Acanaloniden*, recorded last year, Entomologist xxxvi, pp. 77-79.
- Amphiscepsa bivittata*, early stages, SWEZEY, p. 354, pl. vi, figg. 1-5, Ohio Natural. iii.
- Cathedra* n. g. for *Phrictus serratus* Fabr., KIRKALDY, p. 179, Entomologist xxxvi.
- Cixius pilifer*, Ceylon, MELICHAR, Homopteren Ceylon, p. 30, n. sp.
- Dendrophora* n. g. near *Dictyophara*, p. 21, for *D. ramosa* n. sp., Ceylon, p. 22, pl. i, fig. 5, MELICHAR, t. c.
- Dictyophara bistrata*, p. 23, *hastata*, p. 25, Ceylon, MELICHAR, t. c., n. spp.
- Dictyopharina* n. g. near *Dictyophara*, p. 25, for *D. viridissima* n. sp., Ceylon, p. 26, MELICHAR, t. c.
- Egropa* n. g. *Tettigometrini* for *E. inusta*, pl. iii, fig. 13, n. sp., Ceylon, MELICHAR, t. c. p. 82.
- Elasmocelis iram*, pl. xxiii, fig. 2, p. 383, KIRKALDY, Nat. Hist. Sokotra.
- Epirama* n. g. *Achilides* for *E. conspergata* n. sp., Ceylon, MELICHAR, Homopteren Ceylon, p. 45.
- Eudelphax* n. g. *Cixiides* for *E. setulosus* n. sp., Ceylon, pl. i, fig. 6, MELICHAR, t. c. p. 32.
- Eurysa maculiceps*, Hungary, HORVÁTH, p. 475, Ann. Mus. Hungar. i, n. sp.
- Fulgora pallida*, natural history, pp. 164-166, Indian Mus. Notes v.
- Gordia* n. g. *Achilides* for *G. oculata* n. sp., Ceylon, MELICHAR, Homopteren Ceylon, p. 43.
- Hemispherius secundus*, Ceylon, MELICHAR, t. c. p. 75, n. sp.
- Hemispheroides* n. g. for *H. æneoniger*, p. 75, *lineatus*, p. 76, n. spp., Ceylon, MELICHAR, t. c.
- Heremon* n. n. for *Enipeus* Stål, KIRKALDY, Wien. ent. Zeit. xxii, p. 13.
- Hysteropterum sellatum*, pl. iii, fig. 8, *fusculum*, p. 77, *subfasciatum*, p. 78, Ceylon, MELICHAR, Homopteren Ceylon, n. spp.
- Interamma rubrofasciata*, Ceylon, MELICHAR, p. 61, pl. ii, fig. 8, t. c., n. sp.
- Kermesia* n. g. *Derbides*, p. 53, for *K. albida* n. sp., Ceylon, p. 54, pl. i, fig. 14, MELICHAR, t. c.
- Kirbya* n. g. near *Ptoleria*, p. 37, for *K. pagana* n. sp., Ceylon, p. 38, pl. ii, fig. 1, MELICHAR, t. c.
- Lasonia* n. g. *Ricanoides*, p. 87, for *L. kirkaldyi*, p. 88, pl. ii, fig. 9, n. sp., Ceylon, MELICHAR, t. c.
- Liburnia fumipennis*, p. 97, *minutula*, p. 98, pl. ii, fig. 6, p. 99, *frontalis*, p. 100, *pallidula*, *flavida*, *albomarginata*, p. 103, Ceylon, MELICHAR, t. c.; *L. slossoni*, Florida, BALL, p. 231, Canad. Ent. xxxv : n. spp.

- Myndus radialis*, Ohio, subterranean, OSBORN, p. 42, Ohio Natural. iv ;
M. fulvus, Ohio, id. t. c. p. 46 : n. spp.
Nisia n. g. for *Meenoplus atrovexus* Leth., MELICHAIR, Homopteren
 Ceylon, p. 53.
Oliarus taprobanensis, Ceylon, MELICHAIR, t. c. p. 31, n. sp.
Orchesma n. g. *Delphacides*, p. 94, for *O. marginepunctata*, pl. iii, fig. 3,
serendiba, pl. ii, fig. 9, p. 95, n. spp., Ceylon, MELICHAIR, t. c.
Ormenis septentrionalis, early stages, SWEZEY, p. 355, pl. vi, figg. 6-10,
 Ohio Natural. iii.
O. fatua, Ceylon, MELICHAIR, Homopteren Ceylon, p. 90, n. sp.
Paranda n. g. *Delphacides*, p. 92, for *P. globiceps* n. sp., Ceylon, p. 93,
 pl. ii, fig. 10, MELICHAIR, t. c.
Paratangia n. g. *Achilides* for *P. notata*, p. 46, *marginata*, *fimbriolata*,
 p. 47, n. spp., Ceylon, MELICHAIR, t. c.
Paruzelia n. g. *Tropiduchides* for *P. psyllomorpha* n. sp., Ceylon, pl. iii,
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Perkinsiella n. g. near *Aræopus* for *P. saccharicida* n. sp., Oahu, KIRKALDY,
 p. 179, Entomologist xxxvi.
Phyllodinus flabellatus, N. America, BALL, p. 232, Canad. Ent. xxxv ;
P. koebelei, p. 44, *fuscous* (sic), p. 46, Ohio, OSBORN, Ohio Natural. iv :
 n. spp.
Pleroma n. g. *Achilides*, p. 41, for *P. ceylonica*, pl. i, fig. 12, *fumata* n. spp.,
 Ceylon, p. 42, MELICHAIR, Homopteren Ceylon.
Pterygoma n. g. near *Pterilia* for *P. nasuta*, pl. iii, fig. 7, n. sp., Ceylon,
 MELICHAIR, t. c. p. 81.
Putala n. g. near *Dictyophara* for *P. rostrata* n. sp., Ceylon, pl. i, fig. 8,
 MELICHAIR, t. c. p. 26.
Radha n. g. *Issides* for *R. acuminata*, pl. iii, fig. 6, n. sp., Ceylon,
 MELICHAIR, t. c. p. 76.
Rhotana iridipennis, albata, Ceylon, MELICHAIR, t. c. p. 62, n. spp.
Ricania distincta, Ceylon, p. 84, pl. ii, fig. 7, MELICHAIR, t. c., n. sp.
Sardia n. g. *Delphacides* for *S. rostrata*, pl. ii, fig. 4, n. sp., Ceylon,
 MELICHAIR, t. c. p. 96.
Sarima n. g. near *Hysteropterum*, p. 78, for *S. illibata*, p. 79, *elongata*,
 p. 80, n. spp., Ceylon, MELICHAIR, t. c.
Sassula similata, Ceylon, MELICHAIR, t. c. p. 86, n. sp.
Stiborus n. g. *Tropiduchides* for *S. viridis* n. sp., Ceylon, MELICHAIR, t. c.
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Tangina n. g. *Achilides* for *T. bipunctata*, pl. ii, fig. 19, n. sp., Ceylon,
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Temesa n. g. *Achilides*, p. 40, for *T. tenella*, pl. iii, fig. 11, *punctula* n. spp.,
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Tettigometra lyncea, Servia, HORVÁTH, p. 26, Ann. Mus. Hungar. i, n. sp.
Thracia egregia, Ceylon, MELICHAIR, Homopteren Ceylon, p. 58, pl. ii,
 fig. 18, n. sp.
Udugamma n. g., p. 27, for *U. exoleta* n. sp., Ceylon, p. 28, pl. i, fig. 7,
 MELICHAIR, t. c.

MEMBRACIDÆ.

[Cf. BAER (66), BALL (68), BUCKTON (235), GODING (626), MELICHAIR (1000).]

BUCKTON'S monograph of *Membracidæ* completed (235). With regard to the new genera and species contained in this work, I regret that it is not possible to give an accurate account of them, as the work is replete with gross errors.

Monograph of Australian, GODING, P. Linn. Soc. N. S. Wales 1903, pp. 2-41, pl. i.

- Acanthucius kershawi*, Blue Mts., GODING, p. 17, t. c., n. sp.
Adippe ocellata, pl. xl, fig. 5, *testudo*, fig. 6, p. 188, *fasciata*, fig. 7, p. 189, Colombia, BUCKTON, Mon. Membracidae, n. spp.
Anchon n. g. p. 214, for *Centrotus nodicornis* Fairm. and *A. rectangulatum*, Ceylon, pl. xlvi, fig. 3, *remigium*, fig. 5, no locality, p. 215, *albo-lineatum*, fig. 6, Niger, *ulniforme*, Tenasserim, pl. xlix, fig. 1, *dirce*, Ceylon, fig. 2, p. 216, n. spp., BUCKTON, t. c.
Antianthe compressa, New York, BUCKTON, p. 191, pl. xli, fig. 6, t. c., n. sp.
Campylocentrus falco, Philippines, pl. lvi, fig. 2, *rugosus*, hab.?, fig. 3, p. 243, BUCKTON, t. c., n. spp.
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Centrotypus occidentalis, p. 27, *minutus*, p. 28, Australia, GODING, P. Linn. Soc. N. S. Wales 1903; *C. alatus*, Perak, pl. liv, fig. 2, p. 237, *securis*, fig. 4, *ater*, fig. 5, p. 238, Burma, BUCKTON, Mon. Membracidae: n. spp.
Centruchus ferrugineus, Ceylon, MELICHAR, Homopteren Ceylon, p. 114, n. sp.
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Daimon n. g. *satyrus* n. sp. no locality, pl. lv, fig. 4, BUCKTON, p. 240, t. c.
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Elaphiceps n. g. for *E. cervus* n. sp., China, pl. xlvi, fig. 4, p. 217, BUCKTON, Mon. Membracidae.
Emphusis n. g. *tumescens* n. sp., Java, pl. lix, fig. 6, p. 256, BUCKTON, t. c.
Enchenopa ferruginea, habits, BAER, p. 306, Bull. Soc. ent. France 1903.
Entylia adipus, Mexico, BUCKTON, p. 183, pl. xxxix, fig. 3, Mon. Membracidae, n. sp.
Eufrenchia n. g. type *Centrotus falcatus* Walk., p. 24, with *E. leæ* n. sp., W. Australia, p. 26, GODING, P. Linn. Soc. N. S. Wales 1903.
Eufroggattia n. g. p. 37 for *E. tuberculata* n. sp., Australia, p. 38, GODING, t. c.
Eutryonia n. g. type *Centrotus monstrifer* Walk., GODING, p. 34, t. c.
Gargara piceola, *fasciata*, p. 122, *variegata*, *ferrugata*, *tumida*, p. 123, *apicata*, p. 124, Ceylon, MELICHAR, Homopteren Ceylon, n. spp.
Gibbomorpha n. g. for *G. parvula*, pl. xli, fig. 9, p. 192, *aurea*, p. 193, pl. xlii, fig. 1, n. spp., hab.?, BUCKTON, Mon. Membracidae.
Heliria anoflava, N. America?, pl. xliii, fig. 4, p. 198, BUCKTON, t. c., n. sp.
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Ibicus n. g., p. 238, for *I. falcatus*, pl. liv, fig. 6, Australia, *ansatus*, fig. 7, New Guinea, *labatus*, pl. lv, fig. 1, Timor, p. 239, *laminiifer*, Australia, fig. 3, p. 240, n. spp., BUCKTON, t. c.
Ischnocentrus inconspicuus, Cachabe, pl. lix, fig. 2, p. 255, BUCKTON, t. c., n. sp.
Kleidos n. g. for *K. romeris* n. sp., Ceylon, pl. xlvi, fig. 2, p. 214, BUCKTON, t. c.
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Lubra n. g. near *Daurus*, p. 28, for *L. regulis* n. sp., Brisbane, p. 30, and

- Oxyrhachis spinicornis* Walk., GODING, P. Linn. Soc. N. S. Wales 1903.
- Lycoderes igniventer*, pl. xlv, fig. 2, p. 200, *angustata*, fig. 3, p. 201, S. America, *torta*, p. 202, fig. 6, *capitata*, fig. 7 and pl. xiii, fig. 8, *truncatulus*, pl. xlv, fig. 1, p. 203 (no localities for these three), *fuscata*, Miers collection, p. 204, BUCKTON, Mon. Membracidæ, n. spp.
- Machærotypus incultus*, p. 124, *discretus*, *complicatus*, p. 125, Ceylon, MELICHAR, Homopteren Ceylon, n. spp.
- Mærops* n. g. *mixtus* n. sp., Ceylon, pl. lix, fig. 8, p. 257, BUCKTON, Mon. Membracidæ.
- Maguva* n. g. for *M. horrida*, pl. ii, fig. 21, n. sp., Ceylon, MELICHAR, Homopteren Ceylon, p. 109.
- Megaloschema* n. g. *laticornis* n. sp., Sumatra, pl. lii, fig. 2, p. 231, BUCKTON, Mon. Membracidæ.
- Methëisa cucullata*, hab.?, pl. xxxix, fig. 8, *sinuata*, Brazil, pl. xl, fig. 1, BUCKTON, p. 186, t. c., n. spp.
- Micreume macularum*, Perak, Borneo, pl. xlvi, fig. 7, p. 214, BUCKTON, t. c., ? n. sp.
- Ophicentrus varipennis*, Old Calabar, pl. lvii, fig. 1, *curvicornis*, New Guinea, fig. 8, p. 250, BUCKTON, t. c., n. spp.
- Eda frondosa*, Brazil, pl. xlv, fig. 5, p. 206, BUCKTON, t. c., n. sp.
- Otaris* n. g. *auritus* n. sp., Sumatra, pl. lix, fig. 1, p. 249, BUCKTON, t. c.
- Otinotus* n. g. for *O. belus*, hab.?, pl. lii, fig. 3, *pallipes*, New Guinea, fig. 4, *exigua*, Natal, fig. 5, p. 232, *ammon*, India, fig. 6, *pactolus*, fig. 7, *midas*, fig. 8, Perak, p. 233, n. spp., BUCKTON, t. c.
- Oxygonia acuminata* (sic), Brazil, BUCKTON, p. 187, pl. xl, fig. 2, t. c., n. sp.
- Oxyrhachidia* n. g. for *Oxyrhachis inermis* Stål, MELICHAR, Homopteren Ceylon, p. 118.
- Oxyrhachis uncatu*s, Ceylon, MELICHAR, t. c. p. 108; *O. concolor*, Cape of Good Hope, pl. xlix, fig. 4, *neglectus*, Australia, fig. 5, *lignicola*, India, fig. 6, p. 224, *tanganensis*, fig. 7, p. 225, BUCKTON, Mon. Membracidæ : n. spp.
- Pedalion* n. g., p. 251, for *P. triste*, pl. lvii, fig. 5, *ornatum*, fig. 6, p. 252, *fasciatum*, pl. lx, fig. 8, *punctipennis*, fig. 8, n. spp., Africa, BUCKTON, t. c.
- Phærotus* n. g. *stipulipennis*, Borneo, n. sp., pl. lix, fig. 3, p. 255, BUCKTON, t. c.
- Pogon* n. g. *incurvatum* n. sp., Ceylon, pl. lviii, fig. 6, p. 248, BUCKTON, t. c.
- Polocentrus* n. g. *latipes*, pl. lviii, fig. 1, p. 253, Natal, *rufus*, fig. 2, *neuter*, fig. 3, India, p. 254, n. spp., BUCKTON, t. c.
- Porcorhinus* n. g., p. 38, for *P. mastersi* n. sp., Sydney, p. 39, GODING, P. Linn. Soc. N. S. Wales 1903.
- Pterosticta* n. g. *Centrotides*, p. 229, for *P. rubrilinea*, pl. li, fig. 4, *spretæ*, fig. 5, *rubridorsata*, fig. 6, p. 230, *wantha*, fig. 7, *interposita*, fig. 8, p. 231, Australia, n. spp., BUCKTON, Mon. Membracidæ.
- Publilia grisea*, pl. xxxix, fig. 5, *vittata*, fig. 6, New York, BUCKTON, p. 184, t. c., n. spp.
- Pyramba* n. g. *aurifacies* n. sp., Jamaica, pl. lviii, fig. 5, p. 248, BUCKTON, t. c.
- Rabduchus* n. g. *gnomon* n. sp., W. Africa, pl. lvii, fig. 4, p. 251, BUCKTON, t. c.
- Sertorius giganticus*, p. 20, *brevicornis*, p. 21, *tepperi*, p. 22, *areolatus*, p. 23, *curvicaudus*, p. 24, Australia, GODING, P. Linn. Soc. N. S. Wales 1903, n. spp.
- Sextius depressus*, Australia, GODING, p. 12, t. c., n. sp.
- Smiliina*: Catalogue, BUCKTON, pp. 218-221, Mon. Membracidæ.
- Sphærocentrus luteus*, Australia, BUCKTON, pl. lvi, fig. 6, p. 244, t. c., n. sp.

- Stictocephala nervosa*, New York, BUCKTON, p. 195, pl. xlii, fig. 8, t. c.,
n. sp.
Tauriona n. g. *obesum* n. sp., Ecuador, pl. lx, fig. 9, p. 259, BUCKTON, t. c.
Telamona bruneipennis, pl. xliii, fig. 1, New York, *dorsalis*, fig. 3,
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fig. 6, p. 198, BUCKTON, t. c.; *T. pruinosa*, p. 177, *viridis*, *obsoleta*,
p. 178, *extrema*, *lugubris*, *decorata*, p. 179, *compacta*, *ehrhorni*, p. 180,
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n. spp.
Tricoceps n. g. *bruneipennis* n. sp., Natal, pl. lvi, fig. 8, p. 249, BUCKTON,
Mon. Membracidae.

CERCOPIDÆ.

- [Cf. BALL (69), BREDDIN (186, 200), GADD (1713), MELICHAR (1000, 1001).]
Alimentary canal of *Aphrophora*, GADD (1713).
Aphrophora deserta, Ceylon, MELICHAR, Homopteren Ceylon, p. 132,
n. sp.
Callitettix, cf. *Caloscarta*.
Caloscarta n. g. type *Callitettix capitata* Stål, BREDDIN, Soc. ent. xviii,
p. 99.
Capnodistes n. g. near *Ptyelus*, for *C. esox*, *carpio* n. spp., Perak, BREDDIN,
t. c. p. 91.
Cosmoscarta mnemosyne n. n. for *submaculata* Stål nec Walk., BREDDIN,
p. 94, Deutsche ent. Zeitschr. 1903.
C. hecuba, p. 81, *niobe*, p. 83, Borneo, *progne*, Java, *philomele*, p. 84, *medea*,
p. 85, Flores, *hippodamia*, Malacca, *eurydice*, Java, p. 87, *hecate*,
Malacca, p. 89, *leucothoe*, Celebes, p. 91, *erato*, Java, etc., p. 93, *helena*,
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Borneo, p. 97, *polyxena*, Java, p. 98, *C. (Trichoscarta) deianira*,
Borneo, p. 99, *C. ? silpha*, Java, p. 100, BREDDIN, t. c., n. spp.
Hæmatoscarta n. g. for *H. jacobii* n. sp., Roon, BREDDIN, Soc. ent. xviii,
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Machæropsis n. g., p. 137, for *M. valida* n. sp., Ceylon, p. 138, pl. iv, fig. 19,
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Ptyelus declaratus, p. 133, *pallidus*, p. 135, Ceylon, MELICHAR, t. c., n. spp.
Triecphora septemmaculata, Palestine, MELICHAR, Wien. ent. Zeit. xxii,
p. 282, n. sp.

JASSIDÆ.

- [Cf. BALL (69), BREDDIN (200), FOWLER (628), HORVÁTH (728, 731, 732),
MELICHAR (1000).]
Food-plants of some N. American *Bythoscopidae*, BALL, pp. 397-399, Ohio
Natural. iii.
Acinopterus varr. n., BALL, p. 231, Canad. Ent. xxxv.
Aconura colombensis, p. 187, *solitaria*, p. 188, Ceylon, MELICHAR, Homo-
pteren Ceylon, n. spp.
Acropona n. g. for *Gypona prasina* Walk., MELICHAR, t. c. p. 168, n. sp.
Agallia biplagiata, p. 150, *quadrinotata*, p. 151, *atrovenosa*, p. 152, Ceylon,
MELICHAR, t. c., n. spp.
Anoterostemma corvinum, Hungary, HORVÁTH, p. 474, Ann. Mus. Hungar. i,
n. sp.
Athysanus pellax, Hungary, HORVÁTH, p. 473, t. c., n. sp.

- Betsileonas* n. n. for *Thaumastus* Stål, KIRKALDY, Wien. ent. Zeit. xxii, p. 13.
- Chiasmus uzeli*, Ceylon, MELICHAR, pl. iv, fig. 7, p. 164, Homopteren Ceylon, n. sp.
- Chlorotettix rugicollis*, N. America, BALL, p. 230, Canad. Ent. xxxv, n. sp.
- Cicadula halophila*, Hungary, HORVÁTH, p. 472, Ann. Mus. Hungar. i; *C. vaga*, Ceylon, MELICHAR, Homopteren Ceylon, p. 187 : n. spp.
- Conogonia* n. g. near *Tettigonia*, for *C. trucidula*, *placidula*, p. 98, *hebetula*, p. 99, n. spp., New Guinea, and certain *Tettigonia*, BREDDIN, Soc. ent. xviii.
- Cyrtoisa* Fitch = (*Cyrtosia* Stål), KIRKALDY, p. 179, Entomologist xxxvi.
- Deltocephalus latus*, *oneratus*, p. 202, *rufolineatus*, *infirmus*, pl. v, fig. 11, p. 203, *porticus*, pl. vi, fig. 9, *bimaculatus*, p. 204, *intermedius*, p. 205, Ceylon, MELICHAR, Homopteren Ceylon, n. spp.
- Doratulina* n. g. *Jassini*, p. 198, for *D. jocosa* n. sp., Ceylon, p. 199, pl. iv, fig. 6, MELICHAR, t. c.
- Doratura*; table of species, HORVÁTH, pp. 451-458, pl. xvii, Ann. Mus. Hungar. i.
- D. exilis*, E. Europe, Siberia, p. 454, *concors*, p. 456, *salina*, p. 457, Hungary, HORVÁTH, t. c.; *D. heterophyla*, Servia, HORVÁTH, p. 22, t. c. : n. spp.
- Driotura*: varr. n., BALL, p. 231, Canad. Ent. xxxv.
- Empoasca rufa*, pl. vi, fig. 2, p. 212, *centromaculata*, fig. 7, *citrina*, fig. 12, p. 213, *miniata*, *notata*, p. 214, *petasata*, p. 215, Ceylon, MELICHAR, Homopteren Ceylon, n. spp.
- Epiclines godmani*, Central America, FOWLER, pl. xx, fig. 1, p. 293, Biol. Centr.-Amer. Rhynch. Homopt. ii, n. sp.
- Erythria seclusa*, Servia, HORVÁTH, p. 19, Ann. Mus. Hungar. i, n. sp.
- Eupteryx picta*, p. 210, *insecata*, pl. vi, fig. 4, p. 211, Ceylon, MELICHAR, Homopteren Ceylon, n. spp.
- Eutettix apricus*, p. 190, *punctulatus*, *olivaceus*, pl. vi, fig. 1, p. 191, *bipunctatus*, p. 192, Ceylon, MELICHAR, t. c., n. spp.
- Gnathodus lineatus*, *rubrostriatus*, p. 208, *intrusus*, *lævis*, p. 209, Ceylon, MELICHAR, t. c., n. spp.
- Goniagnathus nervosus*, p. 180, *spurcatus*, p. 181, Ceylon, MELICHAR, t. c., n. spp.
- Gypona delicata*, pl. xx, fig. 5, p. 297, *chiriquensis*, fig. 6, *pallidovirens*, fig. 7, *dubia*, fig. 8, p. 298, *excelsa*, fig. 9, *lacteipennis*, figg. 10, 11, p. 299, *obscurior*, fig. 13, *puniceiventris*, fig. 14, p. 300, *compta*, figg. 15, 16, *vilior*, fig. 17, p. 301, *marginifrons*, fig. 19, p. 302, *notanda*, pl. xxi, fig. 2, *spretta*, fig. 4, p. 304, *atitlana*, fig. 5, p. 305, *albororata*, fig. 6, *jansonii*, fig. 7, *marmorata*, figg. 8, 9, p. 306, *teapensis*, fig. 10, p. 307, *adusta*, fig. 11, *scutellata*, fig. 12, p. 308, *abjecta*, fig. 13, *proscripta*, fig. 14, p. 309, *hebes*, fig. 15, p. 310, *decorata*, fig. 16, *propior*, fig. 19, p. 311, *tergata*, figg. 20, 21, *hieroglyphica*, fig. 22, p. 312, *notula*, *bisignata*, fig. 23, *reservanda*, fig. 24, p. 313, *præterita*, fig. 25, *extranea*, p. 314, *exornata*, fig. 26, *nana*, fig. 28, p. 315, *celata*, fig. 29, *resima*, fig. 30, p. 316, Central America, FOWLER, Biol. Centr.-Amer. Rhynch. Homopt. ii, n. spp.
- Hecalus nervosus*, Ceylon, MELICHAR, Homopteren Ceylon, p. 173, n. sp.
- Heliona* n. g. near *Empoasca* for *H. constricta*, pl. vi, fig. 5, p. 215, *bioculata*, fig. 8, p. 216, n. spp., Ceylon, MELICHAR, t. c.
- Idiocerus niveosparvus* as a food for birds, PEAL, pp. 7-9, J. Asiat. Soc. Bengal lxxii.
- I. balcanicus*, Servia, HORVÁTH, p. 24, Ann. Mus. Hungar. i; *I. quinquepunctatus*, p. 146, *basalis*, p. 147, *nigroclypeatus*, p. 148, pl. v, fig. 1, *unimaculatus*, p. 149, *astutus*, p. 150, Ceylon, MELICHAR, Homopteren Ceylon : n. spp.
- Igerna* n. n. for *Pachynus* Stål, KIRKALDY, Wien. ent. Zeit. xxii, p. 13.

- Jafar* n. n. for *Setabis* Stål, KIRKALDY, t. c. p. 13.
Jassus alticola, Hungary, HORVÁTH, p. 474, Ann. Mus. Hungar. i; *J. fuscus*, *luridus*, Ceylon, MELICHAR, Homopteren Ceylon, p. 179 : n. spp.
Ledromorpha producta, p. 140, *punctulata*, p. 141, Ceylon, MELICHAR, t. c., n. spp.
Ledropsis glauca, pl. iv, fig. 13, p. 142, *kirbyi*, fig. 14, *stati*, fig. 16, p. 143, *fuscipennis*, fig. 15, *remota*, fig. 17, *walkeri*, fig. 10, p. 144, Ceylon, MELICHAR, t. c., n. spp.
Mesargus n. g. *Acocephalini*, p. 175, for *M. asperatus* n. sp., Ceylon, p. 176, pl. iv, fig. 12, MELICHAR, t. c.
Neodartus n. g. *Tettigonini*, p. 162, for *N. acocephaloides* n. sp., Ceylon, MELICHAR, t. c.
Nirvana pallida, pl. v, fig. 3, *decora*, fig. 4, *suturalis*, fig. 5, Ceylon, MELICHAR, t. c. p. 166, n. spp.
Oncometopia undata garryæ subsp. n., COCKERELL, Ann. Nat. Hist. xii, p. 453.
Pachyopsis chlorophana, Ceylon, MELICHAR, Homopteren Ceylon, p. 153, n. sp.
Parallygus n. g. *Jassini*, for *P. divaricatus* n. sp., Ceylon, pl. v, fig. 7, MELICHAR, t. c. p. 179.
Phlepsius collitus, Iowa, *lippulus*, Florida, p. 228, *pauperculus*, Colorado, *franconiana*, New Jersey, p. 229, BALL, Canad. Ent. xxxv, n. spp.
Platyretus n. g. *Acocephalini*, for *P. marginatus* n. sp., Ceylon, MELICHAR, Homopteren Ceylon, p. 174.
Pythamus n. g. near *Signoretia*, for *P. dealbatus* n. sp., Ceylon, pl. v, fig. 6, MELICHAR, t. c. p. 161.
Scaphoideus ornatus, pl. v, fig. 9, p. 196, *morosus*, fig. 14, p. 197, *elegantulus*, fig. 10, p. 198, Ceylon, MELICHAR, t. c., n. spp.
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Signoretia gratiosa, Ceylon, p. 160, pl. iv, fig. 8, MELICHAR, t. c., n. sp.
Tettigonia cf. *Conogonia*.
T. matutinula, p. 91, *vespertinula*, *morosula*, p. 92, Perak, BREDDIN, Soc. ent. xviii; *T. mutata*, p. 155, *rubromaculata*, *ceylonica*, p. 156, *fuscovenosa*, p. 157, *exigua*, p. 158, *gagatina*, *festiva*, p. 159, Ceylon, MELICHAR, Homopteren Ceylon : n. spp.
Thagria n. g. *Jassini*, for *T. fasciata* n. sp., Ceylon, pl. iv, fig. 9, MELICHAR, t. c. p. 176.
Thamnotettix fraudulentus, Servia, HORVÁTH, p. 20, Ann. Mus. Hungar. i; *T. alboguttulatus*, p. 184, *umbratus*, *greeni*, p. 185, *cicur*, p. 186, Ceylon, MELICHAR, Homopteren Ceylon; *T. waldana*, *orbonata*, p. 229, *shermani*, p. 230, N. America, BALL, Canad. Ent. xxxv : n. spp.
Typhlocyba orbata, p. 216, *funesta*, pl. vi, fig. 10, *fumigata*, p. 217, *T. (Zygina) curvax*, *bipunctula*, pl. vi, fig. 3, *tripunctula*, p. 218, Ceylon, MELICHAR, Homopteren Ceylon, n. spp.
Uzelina n. g. *Jassini*, p. 181, for *U. laticeps* n. sp., Ceylon, p. 182, pl. v, fig. 2, MELICHAR, t. c.
Xestocephalus apicalis, *paganurus*, Ceylon, MELICHAR, t. c. p. 207, n. spp.
Zygina rhamnicola n. n. for *Z. rhamni* Fieb., HORVÁTH, pp. 556, Ann. Mus. Hungar. i.

PSYLLIDÆ.

[Cf. FROGGATT (555), MARRINER (977).]

Australian *Psyllidæ*, pt. 3, FROGGATT, pp. 315-337, pls. iv, v, P. Linn. Soc. N. S. Wales 1903.

- Aphalara flavilabris*, p. 318, *obscura*, p. 319, *leptospermi*, p. 320, Australia, FROGGATT, t. c., n. spp.
Cardiaspis rubra, Tasmania, FROGGATT, p. 322, t. c., n. sp.
Geijerolyma n. g., p. 335, for *G. robusta* n. sp., Australia, p. 336, FROGGATT, t. c.
Psylla obsoleta Buckton, referred to *Trioza*, FROGGATT, p. 111, Indian Mus. Notes v.
P. acaciæ-dealbata, Tasmania, p. 326, *gracilis*, p. 327, *acaciæ-juniperinæ*, p. 328, Australia, FROGGATT, P. Linn. Soc. N. S. Wales 1903, n. spp.
Rhinocola nigripennis, pl. iv, fig. 1, p. 316, *multicolor*, p. 317, Australia, FROGGATT, t. c., n. spp.
Spondylaspis hirsutus, Australia, p. 323, *nigrocincta*, Tasmania, p. 324, FROGGATT, t. c., n. spp.
Thea wellingtonia, Tasmania, FROGGATT, p. 325, t. c., n. sp.
Trioza tasmaniensis, p. 329, *dobsoni*, p. 331, *olearicæ*, p. 332, Tasmania, *tristania*, Queensland, p. 334, FROGGATT, t. c.; *T. alexina*, New Zealand, MARINER, pp. 305-308, pls. xxxiii, xxxiv, Tr. N. Zealand Inst. xxxv : n. spp.

APHIDÆ.

[Cf. CHOLODKOVSKY (308), CLARKE (314), T. D. A. COCKERELL (326, 329, 330, 337), W. P. COCKERELL (321), EMBLETON (448), FABRE (474), FROGGATT (556), HOLMGREN (715), KIEFFER (831), NÜSSLIN (1080), SCHOUTEDEN (1345, 1347, 1348), STAUFFACHER (1446), STEBBING (1467, 1469), TAVARES (1510).]

Galls of palæarctic *Aphidæ*, arranged according to plants, SCHOUTEDEN, Marcellia ii, pp. 91-99.

The *Aphid*-galls of the palæarctic region, SCHOUTEDEN, Ann. Soc. ent. Belgique xlvii, pp. 167-193.

Viviparous *Aphidæ*, HOLMGREN, p. 433, Zool. Jahrb. Syst. xix.

California *Aphidæ*, list of 43 species, 10 new, CLARKE, pp. 247-254, Canad. Ent. xxxv.

Aphis sp., natural history, enemies, parthenogenetic young, FABRE, Souvenirs viii, chaps. 10-13.

A. brunellæ, p. 194, *leontopodii*, p. 195, Brussels, SCHOUTEDEN, Ann. Soc. ent. Belgique xlvii; *A. suberis*, Portugal, TAVARES, p. 83, Ann. Sci. nat. Porto vii; *A. rociadæ*, *atronitens*, New Mexico, COCKERELL, p. 115, Tr. Amer. ent. Soc. xxix; *A. ochrocentri*, New Mexico, COCKERELL, p. 248, Ent. News Philad. xiv; *A. ceanothi*, p. 250, *alemedensis*, *mori*, p. 251, California, CLARKE, Canad. Ent. xxxv : n. spp.

Callipterus arundicolens, California, CLARKE, p. 249, t. c., n. sp.

Cerataphis latania: account of synonymy, biology, EMBLETON, pp. 90-107, pl. xii, J. Linn. Soc. xxix.

Chermes; the North-European gall-makers, KIEFFER, Marcellia i, pp. 30-33; *C. piceæ*, biology, NÜSSLIN (1080); *C. piceæ* var. n. *bouvieri*, galls, p. 258, pl. i, *C. pini*, cycles etc., pp. 259-263, CHOLODKOVSKY, Zool. Anz. xxvi; *C. abietis-piceæ*, biology, winged form, STEBBING, J. Asiat. Soc. Bengal lxxii, pp. 57-60, pl. i, and pp. 229-235.

Forda kingi, p. 216, *interjecti*, p. 217, New Mexico, W. P. COCKERELL, Psyche x, n. spp.

Myzus asclepiadis (= *Cryptosiphum nerii* Per.), PEREZ, Marcellia ii, p. 44; *M. rosarum*, wingless male, SCHOUTEDEN, Zool. Anz. xxvi, p. 685.

M. ajugæ, Brussels, SCHOUTEDEN, p. 194, Ann. Mus. Belgique xlvii; *M. phenax*, New Mexico, COCKERELL, p. 115, Tr. Amer. ent. Soc. xxix : n. spp.

- Nectarophora*; notes on some N. American, COCKERELL, pp. 167-171, *Canad. Ent.* xxxv.
- N. corallorhizæ*, p. 167, *agrimoniella*, *rudbeckiarum*, p. 168, *heleniella*, *martini*, p. 169, New Mexico, COCKERELL, t. c.; *N. jasmini*, p. 252, *lycopersici*, *valerianæ*, p. 253, *ramni*, *baccharidis*, *californica*, p. 254, California, CLARKE, *Canad. Ent.* xxxv : n. spp.
- Nectarosiphon rhinanthi*, Belgium, SCHOUTEDEN, p. 687, *Zool. Anz.* xxvi, n. sp.
- Pergandeida* n. g. near *Cryptosiphum*, for *P. ononidis* n. sp., Belgium, SCHOUTEDEN, p. 686, t. c.
- Phylloxera piri*, habits etc., CHOLODKOVSKY, p. 118, *Zool. Anz.* xxvii.
- Rhopalosiphum grabhami*, New Mexico, COCKERELL, p. 342, *Canad. Ent.* xxxv, n. sp.
- Siphocoryne pastinacæ*, winged ♀, COCKERELL, p. 114, *Tr. Amer. ent. Soc.* xxix.
- Tychea lasii*, *pallidula*, p. 217, *crassa*, p. 218, New Mexico, W. P. COCKERELL, *Psyche* x, n. spp.

ALEURODIDÆ.

[Cf. GOSSARD (632), MORRILL (1035, 1037), PEAL (1105, 1107), QUAINANCE (1202).]

Monograph of, Oriental, pt. i, PEAL, *J. Asiat. Soc. Bengal* lxxii, pp. 61-98, pls. ii-vi.

Vasiform orifice and lingula, honey-dew, PEAL, t. c. p. 6.

Parthenogenesis in *Aleyrodes*, MORRILL, p. 81, *Psyche* x.

Aleyrodes mori maculata subsp. n., MORRILL, p. 81, t. c.; *A. citri*, natural history, ravages, GOSSARD (632).

A. religiosa, pl. v, figg. 6-9, p. 67, *bengalensis*, pl. ii, figg. 10-16, p. 70, *alcocki*, pl. ii, figg. 1-9, p. 74, *quaintancei*, pl. v, figg. 10-14, p. 78, *simula*, pl. iii, figg. 1-14, p. 81, *bambusæ*, pl. iv, figg. 1-9, p. 85, *leakii*, pl. v, figg. 4, 5, p. 87, *hoyæ*, pl. v, figg. 1-3, p. 88, India, PEAL, *J. Asiat. Soc. Bengal* lxxii; *A. marlattii*, Japan, p. 61, *spinifera*, Java, p. 63, QUAINANCE, *Canad. Ent.* xxxv; *A. packardii*, N. America, MORRILL, p. 25, t. c.; *A. fernaldi*, N. America, MORRILL, p. 83, *Psyche* x : n. spp.

COCCIDÆ.

[Cf. BERLESE (104), COCKERELL (331-337, 1429), COLEMAN (340), FERNALD (507), GREEN (636, 637), HETSCHKO (700), HOFER (710), HOLMGREN (715), KING (835, 836), MANGIN & VIALA (966), MARLATT (974), NEWSTEAD (1063), PEREZ (1114), REH (1218), REUTER (1256), SANDERS (1315), SILVESTRI (1425), THRO (1532), WATT & MANN (1652).]

NEWSTEAD has completed his monograph of British *Coccidæ* (1063).

Catalogue of the *Coccidæ* of the world; about 1500 species. For the changes in nomenclature and for synonymy refer to the work, FERNALD (507).

Viviparous *Coccidæ*, HOLMGREN, *Zool. Jahrb. Syst.* xix, pp. 440-442.

Notes on the natural history of some North-German *Orthezia* and *Dactylopius*, REH, pp. 301-308, *Cryptococcus*, *Asterolecaniina*, *Lecaniina*, pp. 351-355, 407-419, 457-465, *Diaspina*, pp. 465-469, *Allg. Zeitschr. Ent.* viii.

Symbiosis of *Dactylopius vitis* and a fungus, MANGIN & VIALA (966).

Coccidæ, found on Conifers in N. America, COLEMAN, *J. N. York Ent. Soc.* xi, pp. 61-85.

Structure of a Coccid-gall, PIERRE (1178).

Synonymical note on Costa's Prospetto, Mrs FERNALD, p. 22, Canad. Ent. xxxv.

- Akermes colimæ*, Mexico, COCKERELL, p. 47, Entomologist xxxvi, n. sp.
Aspidiotus confiferarum var. n. *shastæ*, COLEMAN, p. 67, J. N. York Ent. Soc. xi; *A. ostreeformis*, note, NOEL, p. 213, Naturaliste 1903.
A. (Targionia) glomeratus, India, GREEN, p. 93, Indian Mus. Notes v; *A. californicus*, p. 64, *florenciæ*, p. 66, *A. (Diaspidiotus) ehrhorni*, p. 68, N. America, COLEMAN, J. N. York Ent. Soc. xi: n. spp.
Asterolecanium pustulans var. n. *sambuci*, COCKERELL, p. 112, Entomologist xxxvi; *A. orchidearum* Westw. is the Aphid *Cerataphis lataniæ*, EMBLETON, p. 95, J. Linn. Soc. xxix; *A. variolosum*, habits, instars, PEREZ, Marcellia i, pp. 161-164.
Cardiococcus n. g. near *Inglisia* for *C. umbonatus* n. sp., Mexico, COCKERELL, Ann. Nat. Hist. xi, p. 155.
Ceroplastes rubens and other *Coccidæ* in China, MARLATT, pp. 81, 82, Canad. Ent. xxxv; *C. mexicanus*, adult, p. 156, *C. cistudiformis* var., *C. roseatus* var., p. 157, *C. townsendi* var. n. *percrassus*, p. 159, *albo-lineatus* var. n. *vulcanicus*, p. 160, COCKERELL, Ann. Nat. Hist. xi.
C. brachyurus, p. 157, *marmoreus*, p. 158; *purpurellus*, p. 159, Mexico, COCKERELL, t. c., n. spp.
Ceroputo yuccæ var. n. *ceanothi*, COCKERELL, t. c. p. 163.
C. orthezoides, Mexico, id. l. c., n. sp.
Chionaspis decurvata, India, GREEN, p. 63, Indian Mus. Notes v; *C. gleditsiæ*, Ohio, SANDERS, p. 413, Ohio Natural. iii: n. spp.
Coccus minimus in America, characters, COCKERELL, Ann. Nat. Hist. xi, p. 162.
Dactylopius vagabundus, synonymy, GIARD, pp. 222, 223, Bull. Soc. ent. France 1903; *D. citri* var. n., COCKERELL, p. 614, *D. magnolicida*, KING, p. 616, Revist. Mus. Paulista v.
D. andersoni, p. 62, *dudleyi*, p. 63, California, COLEMAN, J. N. York Ent. Soc. xi, n. spp.
Eriochiton cajani referred to *Ceroplastodes*, GREEN, p. 95, Indian Mus. Notes v.
Eulecanium pruinosum kermoides, characters, KING, p. 197, Canad. Ent. xxxv; *E.* varr. n. from France, COCKERELL, pp. 19-22, Psyche x.
Inglisia bivalvata, S. India, GREEN, p. 95, Indian Mus. Notes v, n. sp.
Kermes quercus in Britain, NEWSTEAD, Ent. Mag. xxxix, p. 57.
K. arizonensis, Arizona, KING, Ent. News Philad. xiv, p. 21, n. sp.
Lecanium hesperidum, true male, NEWSTEAD, Brit. Coccidæ ii, p. 83.
L. hoferi, Switzerland, KING, p. 478, Schweiz. ent. Ges. x; *L. imbricans*, Nilgiri Hills, GREEN, p. 94, Indian Mus. Notes v; *L. obtusum*, pl. iii, figg. 10-12, and v, fig. 4, p. 212, *corrugatum*, pl. iv, figg. 13-15, and v, fig. 11, *cornuparvum*, pl. iv, figg. 16-18, and v, fig. 12, p. 216, N. America, THRO, Bull. Cornell Exp. Stat., No. 209: n. spp.
Lepidosaphes Shim. = (*Mytilaspis* Targ. T.), Mrs FERNALD, p. 90, Canad. Ent. xxxv.
Leucaspis kelloggi, p. 68, *cupressi*, p. 71, N. America, COLEMAN, J. N. York Ent. Soc. xi, n. spp.
Lichtensia zapotlana var. n. *townsendi*, COCKERELL, Ann. Nat. Hist. xi, p. 162.
Megasaissetia subg. n. of *Saissetia*, COCKERELL, p. 32, Ent. Student ii.
Monophlebus, antennæ are only 10-jointed, GREEN, Zoologist 1902, p. 437, cut; *M. stebbingi*, natural history, pp. 318-323, pl. xix, STEBBING, Forestry Insects, No. 2.
M. stebbingi, p. 100, *dalbergiæ*, p. 101, India, GREEN, Indian Mus. Notes v, n. spp.
Mytilaspis, cf. *Lepidosaphes*.

- M. ficifolii*, Italy, BERLESE, Atti Ist. Napoli (5) v, No. 12, 7 pp, i pl.;
M. mimosarum, p. 45, *townsendiana*, p. 46, Mexico, COCKERELL, Entomologist xxxvi : n. spp.
- Neolecanium leucaneæ*, Mexico, COCKERELL, p. 46, t. c.; *N. plebeium*,
manzanillense, Mexico, COCKERELL, Ann. Nat. Hist. xi : n. spp.
- Orthezia cataphracta* and *floccosa* in Austria, HETSCHKO, Wien. ent. Zeit.
 xxii, p. 8.
- Phenacaspis* n. g. type *P. pyssæ*, COOLEY & COCKERELL, p. 48, Canad. Ent.
 xxxv.
- Phenacaspis gossypii* var. n. *psidiarum*, COCKERELL, Ann. Nat. Hist. xi,
 p. 164.
- P. vipersioides*, New Mexico, COCKERELL, p. 112, Tr. Amer. ent. Soc. xxix;
P. cockerelli, Colorado, KING, p. 195, Canad. Ent. xxxv; *P. kuwanae*,
 California, COLEMAN, p. 62, J. N. York Ent. Soc. xi : n. spp.
- Physokermes taxifoliae*, p. 72, *concolor*, p. 73, California, COLEMAN, t. c.,
 n. spp.
- Platysaissetia* subg. n. of *Saissetia*, COCKERELL, p. 32, Ent. Student ii.
- Pseudococcus elongatus* (= *graminis* on p. 66), Finland, REUTER, Medd.
 Soc. Faun. Fenn. xxix, pp. 66, 251; *P. (Dactylopius* auctt.) *cualatensis*,
 Mexico, COCKERELL, p. 47, Entomologist xxxvi : n. spp.
- Pulvinaria innumerabilis betheli* subsp. n., KING, p. 195, Canad. Ent. xxxv.
- P. simplex*, Switzerland, KING, p. 475, Schweiz. ent. Ges. x, n. sp.
- Saissetia**, a valid genus, cf. *Platysuissetia*, *Megasaissetia*, COCKERELL,
 p. 31, Ent. Student ii.
- Solenophora zapotlana*, Mexico, COCKERELL, Ann. Nat. Hist. xi, p. 165,
 n. sp.
- Stictococcus* n. g. *Lecaniinae* for *S. sjostedti* n. sp., Cameroons, COCKERELL,
 Canad. Ent. xxxv.
- Tachardia*, secretion of lac integumental, GREEN, p. 96, Indian Mus.
 Notes v.
- T. fici*, India, GREEN, p. 97, t. c.; *T. aurantiaca*, Java, COCKERELL, p. 65,
 Canad. Ent. xxxv; *T. rotundata*, Mexico, COCKERELL, Ann. Nat. Hist.
 xi, p. 165 : n. spp.

ANOPLURA.

The morphology of *Pediculidæ*, making of them with *Mallophaga*, the
 Order *Pseudorhynchota*, CHOLODKOVSKY, Zool. Anz. xxvii, pp. 120-124.

* *Saissetia*, FAUVEL, Bull. Soc. Normand. ix, 1865, p. 127, genus not previously
 recorded.

(F.) NEUROPTERA.

Amphibiotica of Sokotra, McLACHLAN, Nat. Hist. Sokotra, pp. 398-403.
 Viviparous *Neuroptera*, HOLMGREN, Zool. Jahrb. Syst. xix, p. 734.

TRICHOPTERA.

[Cf. BANKS (73, 74), Klapálek (851-854), LAUTERBORN & RIMSKY-KORSAKOW (917), McLACHLAN (987), NEEDHAM (1059), RIS (1266), SILFVENIUS (1422-1424), SPEISER (1465), STRUCK (1491), THIENEMANN (1529), ULMER (1579-1585).]

Genitalia of *Rhyacophilidæ*, *Philopotamidæ*, *Hydroptilidæ*, described in Bohemian, Klapálek, Rozp. Ceske Ak. Praze xi, No. 35, 39 pp., 2 pls., and of *Hydropsychidæ*, *Molannidæ*, *Leptoceridæ*, *Phryganeidæ*, *Sericostomatidæ*, *Limnophilidæ*, Klapálek, op. cit. xii, No. 43, 62 pp., 3 pls.

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NEUROPTERA-PLANIPENNIA (incl. PANORPIDÆ).

- Planipennia* divided into suborders *Liopteros*, *Prosostomios*, the latter for *Panorpidæ* and *Mecopteridæ*, the *Prosostomios* of the Iberian penins. tabulated, NAVÁS, pp. 107-113, 1 pl., Broteria ii.
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Leucochrysa punctata, Guatemala, BANKS, p. 238, J. N. York Ent. Soc. xi, n. sp.
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PSEUDO-NEUROPTERA.

PSOCIDÆ.

[Cf. BANKS (73, 74), ENDERLEIN (449, 452-459).]

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Cerastipsocus subcostalis, Singapore, ENDERLEIN, p. 215, pl. iv, fig. 7, t. c., n. sp.

Copostigma n. g., p. 229, for *C. dorsopunctatum*, New Guinea, p. 230, pl. iv, fig. 15, *maculiceps*, Sydney, fig. 12, *fumatum*, New Guinea, fig. 16, p. 231, *indicum*, Bombay, pl. xiv, fig. 73, p. 232, *brevistylus*, New Guinea, fig. 76, p. 233, ENDERLEIN, t. c., n. spp.

Cymatopsocus n. g., p. 314, for *C. opalinus* n. sp., Malacca, fig. 56, p. 315, ENDERLEIN, t. c.

Deinopsocus n. g. near *Rhyopsocus*, p. 358, for *D. spheciophilus* n. sp., Peru, p. 359, ENDERLEIN, Zool. Jahrb. Syst. xviii.

Dendroneura n. g. near *Epipsocus*, p. 354, for *D. ramulosa* n. sp., Peru, p. 355, ENDERLEIN, t. c.

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- Hemipsocus chloroticus* var. n. *luridus*, ENDERLEIN, p. 235, Ann. Mus. Hungar. i.
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- Kolbea solox*, Singapore, pl. v, fig. 32, p. 278, *hieroglyphica*, Ceylon, pl. xiv, fig. 72, p. 279, ENDERLEIN, Ann. Mus. Hungar. i, n. spp.
- Lepidopsocus* n. g., p. 328, for *L. nepticulides* n. sp., Singapore, p. 330, fig. 62, ENDERLEIN, t. c.
- Leptellinæ* subfam. n. for *Leptella* Reut., the characters of which are amended, ENDERLEIN, p. 133, Zool. Anz. xxvii.
- Leptella*, characters, ENDERLEIN, p. 375, cut, Zool. Jahrb. Syst. xviii.
- Mesopsocus diopsis*, E. Africa, ENDERLEIN, p. 13, pl. v, figg. 7, 9, Mt. Mus. Berlin ii, 2, n. sp.
- Micropsocus* n. n. for *Kiefferia*, which is a Psocid, characters, ENDERLEIN, pp. 288–292, Zool. Jahrb. Syst. xix. Cf. *Kiefferia* in *Cecidomyiidae*.—*M. erosus*, New Guinea, pl. vii, fig. 48, p. 297, *myrmecophilus*, Bombay, pl. xiv, fig. 77, p. 298, ENDERLEIN, Ann. Mus. Hungar. i, n. spp.
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- Philotarsus froggatti*, pl. ix, fig. 52, p. 308, *viridis*, fig. 3, p. 209, Sydney, ENDERLEIN, Ann. Mus. Hungar. i, n. spp.
- Protodypsocus* n. g. for *D. fssiceps* n. sp., New Guinea, pl. xiii, fig. 66, ENDERLEIN, p. 251, t. c.
- Pseudoæcilius* n. g., p. 260, for *P. elutus*, p. 261, *ornatus*, Singapore, *testaceus*, pl. v, fig. 28, New Guinea, p. 262, *lachlani*, Sydney, fig. 30, p. 263, n. spp., ENDERLEIN, t. c.
- Psilopsocus* n. g., p. 305, for *P. nigricornis* n. sp., New Guinea, pl. xiv, fig. 74, p. 306, ENDERLEIN, t. c.
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- Psylloneura* n. g., p. 317, for *P. simbangana* n. sp., New Guinea, fig. 58, p. 318, ENDERLEIN, Ann. Mus. Hungar. i.
- Pterodelu pedicularia* var. n. *brevipennis*, ENDERLEIN, p. 381, Zool. Jahrb.

- Syst. xviii; *P. pedicularia* var. n. *æthiopica*, ENDERLEIN, p. 11, Mt. Mus. Berlin ii, 2.
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- Genera tabulated, KELLOGG, pp. 85, 86, Biol. Bull. v.
Mallophaga and *Pediculidæ* form the Order *Pseudorhynchota*, CHOLODKOVSKY, p. 124, Zool. Anz. xxvii.
Mallophaga cf. *Psocidæ*, ENDERLEIN.
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E. æconomus, p. 23, *terricola*, p. 31, Soudan, TRÄGÅRDH, Swedish exp. White Nile, No. 12; *E. usambarensis*, Africa, SJÖSTEDT, p. 76, Ent. Tidskr. xxiv; *E. microsoma*, S. America, SILVESTRI, p. 94, Redia i : n. spp.
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- Embiidæ*, to be a sub-order *Embiodea*, KUSNEZOV, p. 208, Rev. Russe Ent. iii.
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- [Cf. BANKS (75), BERRY (109), EATON (440), GROSS (641), NEEDHAM (1057).]
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ODONATA.

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- Regeneration of appendages, *Agrionidæ*, CHILD & YOUNG (301).
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- Agrionidæ*, imagos subaqueous, ROCQUIGNY-ADANSON, Rev. Sci. Bourbonnais xvi, pp. 121-124; *Agrionidæ*, key to nymphs of N. American, NEEDHAM, pp. 237-263, pls. xiii-xviii, Bull. N. York Mus. 68.
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- Bironides* n. g. *Libellulidæ*, p. 521, for *B. superstes* n. sp., New Guinea, p. 523, FÖRSTER, Ann. Mus. Hungar. i.
- Caconeura torrenticola*, New Guinea, FÖRSTER, p. 552, t. c., n. sp.
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- D. necans*, Brazil, id. t. c. p. 184, pl. viii, figg. 5, 9, 12, n. sp.
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- Eusynthemis* subg. n. for *Synthemis brevistyla* Sel., FÖRSTER, p. 546, Ann. Mus. Hungar. i.
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- Hemianax ephippiger*, pl. xxiv, fig. 3, p. 402, McLACHLAN, Nat. Hist. Sokotra.
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- Huonia* n. g. *Libellulidae*, p. 515, for *H. epinephela*, p. 517, *thalassophila*, p. 520, n. spp., New Guinea, FÖRSTER, Ann. Mus. Hungar. i.
- Hydrobasileus brevistylus* var. n. *papuanus*, FÖRSTER, p. 528, t. c.
- Hyponeuva lugens*, nymph, NEEDHAM & COCKERELL, Psyche x, p. 135.
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- I. ? grantii*, Sokotra, McLACHLAN, Nat. Hist. Sokotra, pl. xxiv, figg. 1, 2, p. 402; *I. barberi*, New Mexico, CURRIE, p. 302, P. ent. Soc. Washington v : n. spp.
- Lestes*, oviposition, GARD, Feuille Natural. xxxiii, pp. 189–192; *L. viridis*, oviposition, ROCQUIGNY-ADANSON, Rev. Sci. Bourbonnais xvi, p. 189.
- Libellulidae papuanina*, n. group, FÖRSTER, p. 513, Ann. Mus. Hungar. i.
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- Micromerus semiopacus* and allies, FÖRSTER, p. 198, Fascic. Malay. Zool. i.
- M. annandali*, Malay States, LAIDLAW, p. 197, Fascic. Malay. Zool. i; *M. rubropictus*, Borneo, MARTIN, p. 508, Bull. Mus. Paris viii : n. spp.
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- Nannophya* and allies, characters, FORSTER, p. 510, t. c.
- Neoneura amelia*, Mexico, pl. v, fig. 36, pl. vi, fig. 8, p. 138, *aaroni*, Texas, pl. v, fig. 37, p. 139, CALVERT, Biol. Centr.-Amer. Neuroptera, n. spp.
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- Nesozenia*, the papuan species, FÖRSTER, pp. 529–533, Ann. Mus. Hungar. i.
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- N. martini*, Key Ids., id. p. 263, t. c., n. sp.
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- O. schneideri*, Sumatra, FÖRSTER, p. 541, t. c., n. sp.
- Palaemnema*, characters of Central American species, CALVERT, pp. 135–137, pl. vi, Biol. Centr.-Amer. Neuroptera.
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- Paleosynthemis* subg. n. cf. *Synthemis*.
- Palaiaargia* n. g. *Cænagrionidae*, p. 549, for *A. flavovittata* Selys, FÖRSTER, Ann. Mus. Hungar. i.
- Paracnemis* n. g. near *Hemicnemis*, for *P. alluaudi* n. sp., Madagascar, MARTIN, p. 509, Bull. Mus. Paris viii.
- Paraphæa* n. g. near *Euphæa*, for *P. barbata* n. sp., Manilla, MARTIN, p. 507, t. c.
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- Protoneura cupida*, pl. v, figg. 46, 47, p. 142, *cara*, pl. v, figg. 33, 45, and pl. vi, fig. 9, *remissa*, pl. v, fig. 43, p. 144, Central America, CALVERT, Biol. Centr.-Amer. Neuroptera, n. spp.
- Pseudophlebia trinervulata*, Madagascar, MARTIN, p. 510, Bull. Mus. Paris viii, n. sp.
- Rhinocypha adamantina, aurentata*, New Guinea, FÖRSTER, p. 547, Ann. Mus. Hungar. i, n. spp.
- Rhyothemis semihyalina separata*, pl. xxiva, fig. 3, p. 399, McLACHLAN, Nat. Hist. Sokotra.
- Somatochlora provocans*, New Jersey, CALVERT, p. 39, pl. iii, figg. 7, 8, Ent. News Philad. xiv, n. sp.
- Synthemis brevistyla* cf. *Eusynthemis*.
- S. (Paleosynthemis) subg. n. p. 546) primigenia*, New Guinea, FÖRSTER, p. 543, Ann. Mus. Hungar. i, n. sp.

- Telagrion? dackii*, New Jersey, CALVERT, p. 36, pl. iii, figg. 1-5, Ent. News Philad. xiv, n. sp.
Tramea burmeisteri, pl. xxiv, fig. 4, p. 398, McLACHLAN, Nat. Hist. Sokotra.
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THYSANOPTERA.

- Acanthothrips magnæfemoralis*, characters, young, FRANKLIN, p. 221, Psyche x.
Euthrips tritici, galls, COCKERELL, p. 262, Canad. Ent. xxxv.
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(G.) *APTERA.*

Classification of *Apterygogenea*, HANDLIRSCH (668).

THYSANURA.

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Morphology and taxonomy of *Japygidae*, VERHOEFF, t. c. pp. 259-297.—
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Stigmata of *Japygidae*, and phylogeny; *Anajapyx* a primitive form, SILVESTRI, Ann. Scuol. Agric. Portici v, and Annuar. Mus. Univ. Napoli i.

Structure of compound eyes, *Machilis*, SEATON, Amer. Natural. xxxvii, pp. 319-329.

Anajapyx n. g. *Projapygidae*, for *A. vesiculosus* n. sp., Italy, SILVESTRI, Ann. Scuol. Agric. Portici v, p. 4 (sep. copy), and Annuar. Mus. Univ. Napoli i.

Grassiella, revision, ESCHERICH, Zool. Anz. xxvi, pp. 350-357.

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J. dolinensis, Herzegovina, p. 103, *braueri*, Austria, *grassii*, Trebinje, p. 104, *græcus*, Nauplia, p. 105, *corcyraeus*, Corfu, p. 107, VERHOEFF, Arch. Naturg. lxx, i; *J. minimus*, Nebraska, SWENK, p. 131, cut, J. N. York Ent. Soc. xi; *J. novaezeelandiae*, Greymouth, VERHOEFF, p. 295, Acta Ac. German. lxxxi : n. spp.

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Parajapyx n. g. for *Japyx isabellæ* Grassi, SILVESTRI, Ann. Scuol. Agric. Portici v, p. 6 (sep. copy), and Annuar. Mus. Univ. Napoli i.

COLLEMBOLA.

- [Cf. ABSOLON (6), ÅGREN (13, 14), AXELSON (57), BÖRNER (159), DAVENPORT (381), ENDERLEIN (450), GUTHRIE (656), KRAUSBAUER (884), VOIGTS (1613), WILLEM (1691).]
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- Collembola* of S. Sweden, ÅGREN, pp. 117-176, pl. ii.
Work not seen, said to contain n. spp., KRAUSBAUER (884).
- Achorutes rufescens*, p. 121, pl. ii, fig. 1, *manubrialis* Tullb. = (*schotti* Reut.), p. 122, pl. ii, figg. 2, 3, *reuteri* n. n. for *manubrialis* Reut., p. 123, ÅGREN, Stettin Ent. Zeit. lxiv; *A. purpurascens* var. n. *galiciana*, BÖRNER, p. 130, SB. Ges. naturf. Berlin 1903.
- A. nivalis*, Sweden, ÅGREN, p. 126, Ent. Tidskr. xxiv, n. sp.
- Achorutoides* n. g. *antarcticus* n. sp., Harry Is., WILLEM, p. 8, pl. ii, figg. 3-10, pl. iii, figg. 1-3, Resultats Belgica Collemb.
- Alloschefferia* n. g. for *Isotoma conjugens* Sch., BÖRNER, p. 176, SB. Ges. naturf. Berlin 1903.
- Anurida tullbergi*, pl. ii, fig. 10, p. 126, ÅGREN, Stettin Ent. Zeit. lxiv.
- Anurophorus laricis* var. n. *dentata*, BÖRNER, p. 138, SB. Ges. naturf. Berlin 1903.
- A. isotoma*, Palermo, id. l. c., n. sp.
- Biclavella* n. g. *pallida* n. sp., Patagonia, WILLEM, p. 10, pl. iii, figg. 4-6, Resultats Belgica Collemb.
- Borneria* n. g. *quadrisetosa* n. sp., Tierra del Fuego, WILLEM, p. 4, pl. i, figg. 1-6, t. c.
- Brachystomella* n. g. *Achorutides*, *maritima* n. sp., Sweden, ÅGREN, p. 127, Ent. Tidskr. xxiv.
- Cryptopygus* n. g. *antarcticus* n. sp., Gerlache Straits, WILLEM, p. 11, pl. iii, fig. 7, pl. iv, figg. 1-4, Resultats Belgica Collemb.
- Cyphoderus heymonsii*, Transcaucasus, BÖRNER, p. 158, SB. Ges. naturf. Berlin 1903, n. sp.
- Dicranocentrus silvestrii*, S. America, ABSOLON, p. 105, Ann. Hofmus. Wien xviii, n. sp.
- Dicyrtoma setosa* var. n. *ceratoleucaspis*, BÖRNER, p. 167, SB. Ges. naturf. Berlin 1903.
- Dicyrtomina* subg. n. of *Dicyrtoma* for *Papyrii setosi* + *pilosi*, BÖRNER, p. 167, t. c.
- Entomobrya* varr. n. from Sweden, ÅGREN, pp. 153-156, Stettin Ent. Zeit. lxiv.
- E. comosa*, Samarcand, BÖRNER, p. 145, SB. Ges. naturf. Berlin 1903; *E. bicolor*, p. 73, pl. xvi, fig. 2, *clitellaria*, p. 75, pl. xv, Minnesota, GUTHRIE, Collemb. Minnesota : n. spp.
- Folsomia* is subg. of *Isotoma*, BÖRNER, p. 142, SB. Ges. naturf. Berlin 1903.
- Friesea decemocolata*, Palermo, BÖRNER, p. 134, t. c.; *F. caldaria*, Minnesota, GUTHRIE, p. 95, pl. xi, figg. 16-18, Collemb. Minnesota : n. spp.
- Heteromurus tetraphthalmus*, Rome, *cærulescens*, Sicily, BÖRNER, p. 156, SB. Ges. naturf. Berlin 1903, n. spp.
- Hydropodura*; this name not good, ÅGREN, p. 118, Stettin Ent. Zeit. lxiv. *Isotoma minuta* var. n. *palermitana*, BÖRNER, p. 139, SB. Ges. naturf. Berlin 1903; *I. palustris* var. n., p. 133, *viridis* var. n.; p. 134,

- tigrina* and *maritima* varr. n., pp. 135–138, ÅGREN, Stettin Ent. Zeit. lxiv; *I. octo-oculata* subsp. n. *kerquelenensis*, ENDERLEIN, p. 239, figg. 66, 68–72, Valdivia Exp. iii; *I. klovsstadi* Carp., the locality, Tierra del Fuego, given last year for this species was erroneous: it should have been Geikie land, Antarctic Cont.
- I. elongata*, p. 6, *clavipila*, p. 7, *fmetarioides*, p. 8, *bipunctata*, p. 9, *tenuicornis*, p. 10, Finland, AXELSON, Acta Soc. Faun. Fenn. xxv, No. 8 [? No. 7]; *I. (Isotomina* subg. n.), *agreni*, Genoa, p. 140, *I. (Euisotoma) menotabilis*, Palermo, p. 142, BÖRNER, SB. Ges. naturf. Berlin 1903; *I. octo-oculata*, Gerlache Straits, WILLEM, p. 13, pl. iv, figg. 7–11, Resultats Belgica Collemb.; *I. borneri*, Kerguelen, ENDERLEIN, p. 239, figs. 63, 65, 67, Valdivia Exp. iii; *I. minima*, p. 63, pl. ix, figg. 17–19, pl. x, fig. 1, *bidentacula*, p. 66, pl. x, figg. 2–4, *catena*, p. 69, pl. ix, figg. 15, 16, *cæruleatra*, p. 70, pl. ix, figg. 11–14, *muskegts*, p. 72, pl. xiii, Minnesota, GUTHRIE, Collemb. Minnesota : n. spp.
- Isotomina* subg. n. cf. *Isotoma*.
- Isotomurus* n. g. for *Isotoma palustris* Müll., BÖRNER, p. 171, SB. Ges. naturf. Berlin 1903.
- Lepidocyrtinus* subg. n. cf. *Lepidocyrtus*.
- Lepidocyrtus 8-punctatus* var. n. *picta*, BÖRNER, p. 152, SB. Ges. naturf. Berlin 1903; *L. sp.*, Kerguelen, ENDERLEIN, p. 240, fig. 75, Valdivia Exp. iii.
- L. (Pseudosira) nyassicus*, p. 149, *L. flavovirens*, p. 150, Africa, *domesticus*, Berlin, p. 151, *L. (Pseudosinella) fallax*, Sicily, p. 153, *L. (Lepidocyrtinus* subg. n.), *annulicornis*, Lake Nyassa, p. 154, BÖRNER, SB. Ges. naturf. Berlin 1903; *L. decemoculatus*, p. 85, pl. vii, fig. 14, *sexoculatus*, p. 86, fig. 13, *ænescens*, p. 89, Minnesota, GUTHRIE, Collemb. Minnesota : n. spp.
- Lepidophorella flavescens*, characters, ABSOLON, pp. 106–108, Ann. Hofmus. Wien xviii.
- Megalothorax incertus*, Sicily, BÖRNER, p. 160, SB. Ges. naturf. Berlin 1903, n. sp.
- Neanurinae*; the group rejected, ÅGREN, p. 117, Stettin Ent. Zeit. lxiv.
- Neanura pseudomuscorum*, Italy, p. 135, *verrucosa*, Galicia, p. 136, BÖRNER, SB. Ges. naturf. Berlin 1903; *N. quadrioculata*, Minnesota, GUTHRIE, p. 101, pl. xii, fig. 15, Collemb. Minnesota : n. spp.
- Odontella suecica*, Sweden, ÅGREN, p. 128, Ent. Tidskr. xxiv, n. sp.
- Onychiurus ambulans* varr. n., ÅGREN, p. 130, Stettin Ent. Zeit. lxiv.
- O. affinis*, Sweden, ÅGREN, p. 128, Ent. Tidskr. xxiv; *O. pseudinermis*, Calabria, BÖRNER, p. 132, SB. Ges. naturf. Berlin 1903 : n. spp.
- Orchesella* varr. n. from Sweden, ÅGREN, pp. 148–153, Stettin Ent. Zeit. lxiv.
- O. albosa*, pl. i, figg. 14, 15, *zebra*, pl. i, figg. 8–13, and pl. xvi, fig. 1, p. 61, GUTHRIE, Collemb. Minnesota, n. spp.
- Paronella fueleborni*, Nyassa-land, BÖRNER, p. 143, SB. Ges. naturf. Berlin 1903, n. sp.
- Pentapleotoma* n. g. *Isotominae* for *P. dahli* n. sp., Germany, BÖRNER, p. 137, t. c.
- Podura lamelligera*, Calabria, BÖRNER, p. 143, t. c., n. sp.
- Pseudachorutes silvaticus*, Sweden, ÅGREN, p. 127, Ent. Tidskr. xxiv; *P. palmiensis*, Calabria, BÖRNER, p. 133, SB. Ges. naturf. Berlin 1903 : n. spp.
- Pseudosinella voigtsi*, Bremen, BÖRNER, p. 285, Abh. Ver. Bremen xvii, n. sp.
- Schættella subcrassa* referred to *Pseudachorutes*, BÖRNER, p. 134, SB. Ges. naturf. Berlin 1903, n. sp.

- Sira flava*, Sweden, ÅGREN, p. 157, pl. ii, fig. 15, Stettin Ent. Zeit. lxiv;
S. villosa, Samarcand, BÖRNER, p. 147, SB. Ges. naturf. Berlin 1903 :
n. spp.
- Sminthurides malmgreni* varr. n., ÅGREN, p. 161, Stettin Ent. Zeit. lxiv.
S. inaequalis, p. 160, *hystrix*, p. 161, Palermo, BÖRNER, SB. Ges. naturf.
 Berlin 1903, **n. spp.**
- Sminthurinus binoculatus* var., BÖRNER, p. 163, t. c.
- Sminthurus repandus*, Sweden, ÅGREN, p. 163, pl. ii, figg. 16-18, Stettin
 Ent. Zeit. lxiv; *S. schotti*, Finland, with varr. *principalis*, *bilineata*,
ornata, AXELSON, Acta Soc. Faun. Fenn. xxv, No. 8; *S. friedlaenderi*,
 Fiji Ids., p. 164, *S. (Eusminthurus) erinaceus*, Sicily, p. 165, BÖRNER,
 SB. Ges. naturf. Berlin 1903; *S. curvisetis*, p. 50, pl. iii, figg. 1-7,
longisetis, p. 51, figg. 8-13, *minnesotensis*, p. 52, pl. ii, figg. 10-16, and
 pl. xiv, Minnesota, GUTHRIE, Collemb. Minnesota : **n. spp.**
- Tomocerini*; taxonomy, ABSOLON, pp. 101-110, Ann. Hofmus. Wien xviii.
Triacanthurus n. g. clavatus n. sp., Patagonia, WILLEM, p. 5, pl. i, figg. 7-12,
 pl. ii, figg. 1, 2, Resultats Belgica, Collemb.
- Tritomurus scutellatus* Fraueuf. recharacterised; ABSOLON, pp. 94-101,
 Ann. Hofmus. Wien xviii.
- Tullbergia antarctica, bisetosa*, ENDERLEIN, p. 241, figg. 73 etc., Valdivia
 Exp. iii.
- Xenylla humicola*, pl. ii, figg. 6, 7, p. 124, *maritima*, fig. 8, p. 125, *brevicauda*,
 fig. 9, p. 126, ÅGREN, Stettin Ent. Zeit. lxiv.
- X. pallida*, Sweden, ÅGREN, p. 126, Ent. Tidskr. xxiv; *X. mucronata*,
 Finland, AXELSON, p. 5, Acta Soc. Faun. Fenn. xxv, No. 8; *X. schillei*,
 Galicia, BÖRNER, p. 130, SB. Ges. naturf. Berlin 1903; *X. gracilis*,
 Minnesota, GUTHRIE, p. 95, pl. xi, figg. 12-15, Collemb. Minnesota :
n. spp.
- Xenyllodes n. g. Achorutidae* for *X. lamellifer*, p. 1, *armatus*, p. 2, **n. spp.**,
 Finland, AXELSON, Acta Soc. Faun. Fenn. xxv, No. 8.

(H.) *ORTHOPTERA.*

- POCHE discusses the nomenclature of the divisions and genera of Orthoptera, and also the name *Dermaptera*, with special reference to the views of Krauss recorded last year, *Zool. Anz.* xxvi, pp. 233-241.
- BRUYANT catalogues the *Orthoptera* of Auvergne, *Rev. Sci. Bourbonnais* xvi, pp. 3-18.
- Orthoptera* of Germany, FRÖHLICH (564).
- Orthoptera* of Indiana, handbook [not seen by Recorder], BLATCHLEY (137).

FORFICULIDÆ or DERMAPTERA.

- [Cf. BORELLI (155), BURR (242, 245, 246), GADEAU (586), KIRBY (839), REHN (1220, 1221, 1224, 1229), SEMENOW (1382, 1385), VERHOEFF (1594, 1596, 1597, 1600), XAMBEU (1702).]
- External structure of *Dermaptera*, VERHOEFF, *Acta Ac. German.* lxxxi, pp. 82-96.
- Terminal segments and cerci, morphology, VERHOEFF, t. c., pp. 259-297.
- Synopsis of *Forficulidæ* of W. Europe, BURR, *Ent. Rec.* xv, pp. 314-318.
- Use of forceps, *Labidura*, BURR, t. c. p. 262.
- Copula, *Forficula auricularia*, GADEAU DE KERVILLE, pp. 85-87, cut, *Bull. Soc. ent. France* 1903.
- Notes on Russian *Forficulidæ*, SEMENOW, pp. 196-199, *Rev. Russe Ent.* iii.
- Allostethidæ* n. fam. for the following:—*Allostethus* n. g. for part of *Psalis*, with *A. lombokianus*, *setiger*, *martensi* n. spp., Java, VERHOEFF, pp. 115-117, *Arch. Naturg.* lxx, 1.
- Ancistrogaster burri* n. n. for *luctuosa* Borm., KIRBY, *Ann. Nat. Hist.* xi, p. 68.
- A. javanus*, Java, DE BORMANS, *Ann. Nat. Hist.* xi, p. 266, n. sp.
- Anechura asiatica* n. n. for *Forficula biguttata* Kitt., SEMENOW, p. 194, *Horæ Soc. ent. Ross.* xxxvi; *A. fedtchenkoi* in Sokotra, BURR, *Nat. Hist. Sokotra*, p. 414.
- Anisolabis dubronii* n. n. for *læta* De Borm. nec Gerst., KIRBY, *Ann. Nat. Hist.* xi, p. 68; *A. dubronyi*, characters, BURR, t. c. p. 270.
- A. ? incerta*, Ecuador, DE BORMANS, *Ann. Nat. Hist.* xi, p. 234, n. sp.
- Apterygida buscki*, Porto Rico, REHN, p. 129, *Tr. Amer. ent. Soc.* xxix, n. sp.
- Carcinophora boliviana*, S. America, DE BORMANS, *Ann. Nat. Hist.* xi, p. 233, n. sp.
- Chelidura dilatata*, habits, maternal instinct, XAMBEU, p. 143, *Naturaliste* 1903.
- C. peringueyi*, Cape Good Hope, BURR, *Ann. Nat. Hist.* xi, p. 275, n. sp.
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Diplatys ridleyi, Singapore, KIRBY, t. c. p. 61, n. sp.
Echinopsalis brevibractea, Mexico, REHN, p. 300, P. Ac. Philad. lv, n. sp.
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Opisthocosmia burri, Celebes, DE BORMANS, Ann. Nat. Hist. xi, p. 267; *O. (Sarcinatrix subg. n.) anomalia*, Costa Rica, REHN, p. 308, P. Ac. Philad. lv : n. spp.
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Psalis pulchra, Costa Rica, REHN, p. 303, P. Ac. Philad. lv, n. sp.
Pygidicrana frontalis, Cameroons, p. 61, *bettoni*, Brit. E. Africa, *guttata*, Celebes, p. 62, *atriceps*, Queensland, p. 63, KIRBY, Ann. Nat. Hist. xi; *P. papua*, New Guinea, *biaffra*, Cameroons, *quadriguttata*, p. 232, *celebensis*, p. 233, Celebes, DE BORMANS, Ann. Nat. Hist. xi : n. spp.
Sarcinatrix subg. n. cf. *Opisthocosmia*.
Sparatta dohrni n. n. for *plana* Dohrn nec Burm., KIRBY, Ann. Nat. Hist. xi, p. 68.
S. aculeata, Celebes, DE BORMANS, Ann. Nat. Hist. xi, p. 265; *S. flavipennis*, Mexico, REHN, p. 306, P. Ac. Philad. lv; *S. biolleyi*, Costa Rica, BORELLI, Boll. Mus. Torino xviii, No. 449, p. 2 : n. spp.
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Spongiphora lewisi, Japan, DE BORMANS, t. c. p. 234, n. sp.

HEMIMERIDÆ.

POCHE has an explanatory note as to Krauss's work in "Tierreich," Zool. Anz. xxvi, pp. 229, 230.

BLATTIDÆ.

[Cf. AGNUS (11, 12), BURR (243), CAUDEL (287), HOLMGREN (715), KIRBY (840-842), REHN (1220, 1221, 1223, 1227), VERHOEFF (1594).]

External structure of *Blattidæ*, VERHOEFF, Acta Ac. German. lxxxii, pp. 74-82.

Viviparous *Blattidæ*, HOLMGREN, Zool. Jahrb. Syst. xix, pp. 434-436.

Fossil *Blattidæ*, see Palæo-Ent. p. 130.

Biolleya [n. g.] *alaris* [n. sp.], Saussure, this description appeared in An. Inst. Costa Rica vii, 1894, p. 135: the name of the genus is included in Waterhouse's Index Zoologicus.

- Archimandrita tessellata*, Costa Rica, REHN, p. 287, Tr. Amer. ent. Soc. xxix, n. sp.
- Arenivaga* subg. n. of *Homæogamia*, for *H. bolliana* etc., p. 181, with *H. (A.) erratica* n. sp., Arizona, p. 187, REHN, P. Ac. Philad. lv.
- Blaberus distanti*, hab.?, KIRBY, Ann. Nat. Hist. xi, p. 404, n. sp.
- Blatta*; *orientalis* is the type, CAUDELL, p. 233, P. ent. Soc. Washington v.
- B. brunneri*, Australia, KIRBY, Ann. Nat. Hist. xii, p. 375, n. sp.
- Blattella* n. n. for *Phyllodromia* Auctt., CAUDELL, p. 234, P. ent. Soc. Washington v; *B. titania*, Brit. Guiana, p. 267, *pavida*, p. 268, *spectativa*, p. 269, Costa Rica, REHN, Tr. Amer. ent. Soc. xxix : n. spp.
- Calolampra tepperi*, S. Australia, KIRBY, Ann. Nat. Hist. xii, p. 275; *C. hamiltoni*, Cuba, p. 274, *cicatricosa*, Costa Rica, p. 275, REHN, Tr. Amer. ent. Soc. xxix : n. spp.
- Corydia tonkinensis*, Tonkin, *purpuralis*, China, p. 405, *hilaris*, hab.?, p. 406, KIRBY, Ann. Nat. Hist. xi, n. spp.
- Deropeltis saussurei* (= *longipennis* Sauss.), KIRBY, op. cit. xii, p. 377.
- Dicellonotus lævis*, India, p. 409, *insularis*, Bouru, p. 410, KIRBY, op. cit. xi, n. spp.
- Duryodana* n. g. for *Blatta palpalis* Walk., KIRBY, op. cit. xii, p. 274.
- Dyscologamia cesticulata*, ♂, KIRBY, op. cit. xi, p. 406.
- Epilampra maya*, Nicaragua, REHN, p. 3, Tr. Amer. ent. Soc. xxix; *E. lucifuga*, p. 272, *abortivipenna*, p. 273, Brit. Guiana, REHN, t. c. : n. spp.
- Eremoblatta* subg. n. for *Homæogamia subdiaphana* Sc., REHN, p. 181, P. Ac. Philad. lv.
- Hedaia abdominalis*, *immaculata*, Tonkin, p. 279, *horologica*, Khasia Hills, p. 280, KIRBY, Ann. Nat. Hist. xii, n. spp.
- Heterolampra* n. g. type *Epilampra dilatata*, p. 276, *H. staeli* (= *puncticollis* Stål), Philippines, *saussurei* (= *puncticollis* Sauss.), China, *monticola*, p. 277, *pallida*, Tonkin, *ridleyi*, Singapore, n. spp., KIRBY, t. c.
- Heteroplana* n. g. near *Macropanesthia*, for *H. thomsoni* n. sp., Louisiade Arch., KIRBY, op. cit. xi, p. 415.
- Homalopteryx templetonii*, Ceylon, KIRBY, op. cit. xii, p. 275, n. sp.
- Homæogamia*; revision, REHN, P. Ac. Philad. lv, pp. 177-192: subgen. n. cf. *Arenivaga*, *Eremoblatta*.
- Ischnoptera johnsoni*, Florida, REHN, p. 234, Ent. News Philad. xiv; *I. jamaicana*, Jamaica, REHN, p. 264, Tr. Amer. ent. Soc. xxix : n. spp.
- Leucophaea* Br. (= *Rhyparobia* Kr.), REHN, p. 282, t. c.
- L. striata*, Selangor, KIRBY, Ann. Nat. Hist. xii, p. 378, n. sp.
- Loboptera peculiaris*, pl. xxv, fig. 8, p. 415, BURR, Nat. Hist. Sokotra.
- Melanozosteria bicolor*, Torres Straits, KIRBY, Ann. Nat. Hist. xii, p. 373, n. sp.
- Methana zehntneri*, Madagascar, *rufescens*, N. S. Wales, KIRBY, t. c. p. 374, n. spp.
- Microdina* n. g. for *Panesthia forceps* Sauss., KIRBY, op. cit. xi, p. 409.
- Molytria imperatrix*, Tonkin, p. 274, *shelfordi*, Borneo, p. 275, KIRBY, op. cit. xii, n. spp.
- Mylacrina* n. g. near *Dicellonotus*, for *M. wrayi* n. sp., Perak, KIRBY, op. cit. xi, p. 414.
- Nauphaeta basalis*, Tonkin, KIRBY, op. cit. xii, p. 378, n. sp.
- Nyctibora noctivaga*, Nicaragua, REHN, p. 3, Tr. Amer. ent. Soc. xxix, n. sp.
- Panchlora maderæ*, viviparous, GIARD, p. 168, Bull. Soc. ent. France 1903.
- P. translucida* (= *hyalina* Sauss.), KIRBY, Ann. Nat. Hist. xii, p. 378, n. sp.
- Panesthia monstrosa* and *panteli* referred to *Dicellonotus*, p. 409, *P. javanica*, variation, p. 411, *P. tepperi* n. n. for *transversa* Tepp., p. 412, *P. perfecta* n. n. for *australis* Sauss., p. 414, *P. aethiopsis* distinct from *javanica*, p. 412, KIRBY, op. cit. xi.
- P. quinquedentata*, Nilgiris, p. 411, *ruficeps*, Christmas Is., *morosa*, S. India,

- p. 412, *hilaris*, Sandakan, p. 413, KIRBY, t. c.; *P. nigricans* (= *nigrita* Sauss.), KIRBY, op. cit. xii, p. 381 : n. spp.
- Pelloblatta* n. g. near *Leucophaea*, for *P. lata* n. sp., Costa Rica, REHN, p. 283, Tr. Amer. ent. Soc. xxix.
- Pelmatosilpha purpurascens*, Dominica, p. 375, *decipiens*, Trinidad, *P. ? antipoda*, Queensland, p. 376, KIRBY, Ann. Nat. Hist. xii; *P. coriacea*, Porto Rico, REHN, p. 278, Tr. Amer. ent. Soc. xxix : n. spp.
- Phyllodromiinae* to be called *Pseudomopinae*, REHN, p. 260, t. c.
- Phyllodromia*, to be called *Blattella* Caud., REHN, p. 266, t. c.
- Plectoptera hastifera*, Costa Rica, REHN, p. 281, t. c., n. sp.
- Polyphaga camelorum*, Afghanistan, KIRBY, Ann. Nat. Hist. xi, p. 407; *P. limbata* (= *sinensis* Sauss.), KIRBY, op. cit. xii, p. 379 : n. spp.
- Polyzosteria*, *Eurycotis*, synonymy, REHN, p. 277, Tr. Amer. ent. Soc. xxix.
- Prosoplecta rufa*, Philippines, KIRBY, Ann. Nat. Hist. xii, p. 379, n. sp.
- Pseudomops walkeri*, Tejuca = (*flavipes* Walk.), KIRBY, t. c.; *P. grata*, Costa Rica, REHN, p. 260, Tr. Amer. ent. Soc. xxix : n. spp.
- Pseudophoraspis* n. g. type *Epilampra nebulosa*, KIRBY, Ann. Nat. Hist. xii, p. 275.
- Pseudophyllodromia pavonacea*, British Guiana, REHN, p. 262, Tr. Amer. ent. Soc. xxix, n. sp.
- Rhabdoblatta* n. g. type *Epilampra præcipua*, KIRBY, Ann. Nat. Hist. xii, p. 276.
- Rhyparobia rufipes*, *pallescens*, Sierra Leone, KIRBY, t. c. p. 377; *R. thoracica*, Shire River, KIRBY, op. cit. xi, p. 404 : n. spp.
- Salganea dux*, Obi, KIRBY, t. c. p. 408, n. sp.
- Syntomaptera tepperi*, Australia, KIRBY, op. cit. xii, p. 374, n. sp.
- Thysanoblatta* n. g. *Perisphaerinae*, for *T. latipennis* n. sp., E. Africa, KIRBY, t. c. p. 380.

MANTIDÆ.

[Cf. BUGNION (238), BURR (243), JAKOBLEV (778), KIRBY (843), REHN (1225), SHELFORD (1418).]

Habits of Bornean *Mantida*, SHELFORD, pp. 293-304, Zoologist 1903.

Ameles malaccana, Siam, REHN, p. 703, P. Ac. Philad. 1903, n. sp.

Blepharis mendica, attitude, mimicry, BUGNION, Bull. Soc. Vaudoise xxxix, pp. 385-388, pl. i.

Calidomantis equalis, S. Africa, REHN, p. 713, P. Ac. Philad. 1903, n. sp.

Deroplatys shelfordi, Borneo, KIRBY, p. 304, Zoologist 1903, n. sp.

Leomantis n. g. near *Sphodropoda*, for *L. ignota* n. sp., S. Africa, REHN, p. 706, P. Ac. Philad. 1903.

Mantis religiosa, ethological note, GREDLER, p. 62, Ber. Ver. Innsbruck xxvii.

Parameles taurica, Crimea, JAKOBLEV, p. 41, Rev. Russe Ent. iii, n. sp.

Paratenodera n. g. for part of *Tenodera*, type *sinensis* Sauss., REHN, p. 705, P. Ac. Philad. 1903.

Phyllothelys mitratum, Siam, REHN, p. 715, t. c., n. sp.

Rhombodera megara, Siam, REHN, p. 710, t. c., n. sp.

Teddia dioscoris, pl. xxv, figg. 3-3b, p. 416, BURR, Nat. Hist. Sokotra.

PHASMIIDÆ.

[Cf. CAUDELL (286), MORTON (1042), REHN (1220, 1221), TEPPER (1517).]

Revision of North American *Phasmiidæ*, CAUDELL, P. U. S. Mus. xxvi, pp. 863-885.

- Diapheromera arizonensis*, Hot Springs, CAUDELL, p. 877, t. c., **n. sp.**
Lamponius portoricensis, Antilles, REHN, p. 132, Tr. Amer. ent. Soc. xxix,
n. sp.
Leptynia, *Parabacillus*, distinguished, CAUDELL, p. 314, Ent. News Philad.
xiv.
Megaphasma n. g. for *Diapheromera dentricus* Stål, CAUDELL, p. 878,
P. U. S. Mus. xxvi.
Parabacillus n. g. for *Bacillus coloradus* Scudd., *B. palmeri* and *B. his-*
panicus, CAUDELL, p. 865, t. c.
Phyllium scythe reared in Europe, natural history notes, MORTON, Bull.
Soc. Vaudoise xxxix, pp. 401-407, pl. iii.
Pseudosermyle n. g., p. 867, for *P. banksii*, p. 871, *truncata*, p. 869, pl. lviii,
fig. 3, **n. spp.**, Texas and Arizona, and including *Sermyle strigata* etc.,
CAUDELL, P. U. S. Mus. xxvi.
Sermyle guatemalæ, Guatemala, REHN, p. 7, Tr. Amer. ent. Soc. xxix, **n. sp.**
Timema californica, N. America, SCUDDER, p. 882, pls. lvii, lviii, P. U. S.
Mus. xxvi, **n. sp.**

GRYLLIDÆ.

- [Cf. BAUMGARTNER (85), CAUDELL (288), CONKLIN (342), HERBIG (695),
REHN (1220, 1228).]
Auditory apparatus, *Gryllus domesticus*, HERBIG (695).
Oogenesis and amitosis in *Gryllus*, CONKLIN (342).
Aphonomorphus n. n. for *Aphonogryllus* Rehn nec Perkins, REHN, p. 260,
Ent. News Philad. xiv.
Fulvicula n. g. near *Anaxipha* for *F. hebardei n. sp.*, Georgia, REHN,
pp. 258, 302, t. c.
Gryllus bermudensis, Bermuda, CAUDELL, p. 330, P. ent. Soc. Washington v,
n. sp.

LOCUSTIDÆ.

- [Cf. BEUTENMÜLLER (120), BOLÍVAR (144, 147), BURR (243), FAGNIEZ (476),
MEI (992), REHN (1220, 1226), REHN & COCKERELL (1230), SNODGRASS
(1453), TITUS (1536), WERNER (1671, 1672).]
MEI gives an account of the *Locustidæ* and *Acridiidæ* of Cadore, N. Italy,
with notes on variation and distribution, Boll. Mus. Torino xviii,
No. 457.
Anatomy, internal, of *Peranabrus scabricollis*, SNODGRASS, pp. 183-188,
pls. xii, xiii, J. N. York Ent. Soc. xi.
Ægimia elongata, Centr. America, REHN, p. 19, Tr. Amer. ent. Soc. xxix,
n. sp.
Alogopteron n. g. Phaneropterinae for *A. caribbeum n. sp.*, Costa Rica,
REHN, p. 141, Ent. News Philad. xiv.
Biroa n. g. Phricteæ, p. 163, for *B. carinata*, *atrospinosa n. spp.*, New
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XIV. ECHINODERMA.

BY

F. A. BATHER.

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INTRODUCTION.

I. TITLES. The total 341 is thus made up: 1891, 1; 1893, 1; 1895, 2; 1897, 1; 1898, 1; 1899, 2; 1900, 6; 1901, 12; 1902, 26; 1903, 288; 1904, 1. The actual number for 1903 thus exceeds by 21 the highest number previously attained in the Record for any one year, and this is far from being due to exceptional labour by the Recorder. At least three of the papers assigned to 1903 were, it is believed, not published technically till 1904; but since a few favoured recipients of authors' copies quoted or reviewed them in 1903, they have been included for convenience. On the other hand a few works for which the date 1903 appears to be commonly claimed are held over till 1904, the year of their actual appearance; of these the Echinoderm volume in Delage & Hérouard's *Traité de Zoologie concrète* is a notable example. While it is doubtless the case that many papers herein recorded contain but incidental references to Echinoderms, still the proportion of important works is large, and if this

section of the Zoological Record is no shorter than usual, it is not the Recorder's fault.

II. BIOLOGY. Some of the speculations on matters of wider interest are surprising rather than noteworthy. But it is an interesting paper (111) in which GRAVE brings the pelmatozoic theory a step further by showing the relation of the ciliated bands to the *Dipleurula* and to the primitive pelmatozoon. JÄEKEL (154) is led by study of Ordovician Stellerids from Bohemia to infer that the oldest Ophiuroids still possessed in their arm-structure all essential characters of Asteroids, though with a tendency to the specialised Ophiuroid type, in the multiplication of ambulacrals, their excavation by podia, the lateral expansion of adambulacrals, which eventually become lateral scutes, the lateral flexibility of the distal parts of the arms, and the closure of the distal ends of the ventral grooves by the approach of the adambulacrals; it is desirable that the proof of these important conclusions should be set out in more detail, and that systematic diagnoses should be given of the alleged new genera and species on which the argument is based.

Many valuable observations on Asteroid anatomy are scattered through LUDWIG's account of the starfish collected by the 'Belgica' (204), while the anatomy of the rare genus *Palaeopneustes* is carefully described by WAGNER in a memoir (316) so expensively illustrated that its price is beyond the means of most zoologists; the more important observations relate to the coelomic sinuses and lacunar system. The pedicellariae of Echinoids receive attention from DE MEIJERE (53) and are elaborately described by MORTENSEN (229). RUSSO's work on the lacunar system of *Astrophyton* (280 & 281) leads to some interesting results.

Many notes on variations and abnormalities are scattered through the literature dealt with, but the only serious study by modern biometric methods is that of MCINTOSH (212) on *Ophiocoma nigra*. Fossils are rarely obtained in sufficient numbers for such enquiries to be practicable, but FOURTAU (88) shows how a single species, *Hemiaster cubicus*, from a single locality and horizon, may present variations usually considered distinctive of larger groups.

A new worker on Echinoderm Physiology appears in HENRI, whose discoveries, however, do not quite equal in number the papers in which he has described them (130-141). RUSSO's idea that the gonads act as excretory organs when not otherwise engaged (277), should be considered in the light of other observations by CAULLERY & SIEDLECKI (28), KOBERT (168), LOISEL (198), and MITSUKURI (224).

Many interesting notes, though fewer than usual, are collected under Bionomics, and among papers written mainly from this point of view reference should be made to MITSUKURI (224). Miss MONKS (225) has answered in the affirmative the long discussed question whether the disc and rays of a starfish can be reproduced from a ray to which no portion of the disc is adherent. Remembering how MEAD has shown normal growth to vary with food supply one is the more struck with the facts as to regenerative growth without food, elicited by ZELENY (334) who does not however state that micro-organisms were removed from the sea-water used. R. ETHERIDGE (75), returning to the study of swollen crinoid stems, has written an interesting account of a supposed fungus that infests cavities probably first formed by other organisms.

Zoologists will read with mingled feelings the statement that the small provincial museum of EXETER (76) has been presented with the late W. P. Sladen's collection of recent and fossil Echinoderms, including collections formed by W. B. & P. H. Carpenter & P. M. Duncan.

Many of the papers indexed under Auxology treat the subject in its broader biological aspect and need not be referred to here. MITSUKURI's paper on the habits of *Stichopus japonicus* (224) is concerned chiefly with

its breeding; he shows that the genital tubes are annual outgrowths from the main genital strand in the dorsal mesentery, thus confirming and extending the observation of THEEL (298, Zool. Rec. 1901). The difficulties presented by the developing *Echinus* have at last been surmounted by MACBRIDE (207), who shows that the process agrees essentially with that already described by him for *Asterina*, although there is some compression and modification. This fact, and the homologies that he proves for various structures, such as the jaw apparatus and the epineural canals, lead him to derive the *Echinoidea* directly from the *Asteroidea* and to criticise views ascribed by him to Bather & Gregory. Readers not favoured with an author's copy should be warned that the paper contains a larger percentage of misprints than they might expect in the Philosophical Transactions of the Royal Society.

Rather more attention is now being paid to post-larval growth-changes, but the observations are too scattered. GRABAU (109) modifies the usual statement as to the development of biserial brachials in Crinoids, and indicates a new line of phylogenetic research.

For experimental embryologists, VIGUIER's paper (313) must be lively reading, but its account of seasonal variation in the faculty of development and its insistence on the differences between different forms would alone suffice to commend it to the simple student of Echinoderms. LOEB (192) has fertilised the egg of a sea-urchin with the sperm of a starfish; a similar success was claimed by Morgan in 1893, Turbyne in 1895, Giard in 1900, and Rawitz in 1901, without Loeb's chemical aids, but possibly without his precautions. See also SCHUECKING (291) and VIGUIER (313).

III. DISTRIBUTION. A. The bipolar hypothesis is again the object of attack. MORTENSEN (229), by critical re-study of many Challenger Echinoids, destroys much of the evidence on which it was based, while the Belgian Antarctic Expedition, having made known a true polar fauna, has, as LUDWIG (204) again illustrates from the star-fish, proved the complete distinctness of this from the Arctic fauna, and even its great difference from the Subantarctic. MORTENSEN's memoir on the 'Ingolf' Echinoids is in other respects an important contribution to the study of the N. Atlantic fauna, while another is PERRIER's welcome monograph on the Holothurians dredged by the 'Travailleur' and the 'Talisman.' Faunistic studies are indeed both numerous and valuable this year. Leaving the reader to find details in the Index, one may refer to ÖSTERGREN (244) and NORMAN (239) on N. Norway, LÖNNBERG (197) and PETERSEN (259) on the Kattegat and Skagerack, SIMPSON (294) and NICHOLS (236) on British seas, the dredgings of the 'Princesse-Alice II' (4, 5, 271) in the neighbourhood of the Azores. Passing to the Indian Ocean, we find the highly important paper by DOEDERLEIN (62) on the Echinoids, with DE MEIJERE's preliminary note (53) on those collected by the 'Siboga': BELL (11) catalogues 17 spp. of *Ast.*, 3 of *Oph.* and 19 of *Ech.* from Zanzibar, slightly adding to the list of LUDWIG (1899); the most noteworthy is *Ophioteropsis*. Several additions to the Holothurian fauna of Ceylon waters have been made by HERDMAN and described by PEARSON (250) in an interesting report. The Arctic fauna is fully discussed by MICHAÏLOVSKIJ (223), while MORTENSEN (227, 229) and MARENZELLER (214) also add to our knowledge of it.

B. Among the larger papers dealing with extinct faunas, the following may be mentioned. The Tertiary Echinoid fauna of Patagonia is discussed by LAMBERT (177), while both it and that of Japan are added to by DE LORIOI (200), who also describes many new species from the Tithonian of Isère & Ardèche and the Cenomanian of Lebanon, FALLOT (78-81) deals with Tertiary Echinoids of the Gironde, especially the *Scutellidae*. OPPENHEIM (241) summarises the Miocene Echinoids of the Vicéentin. The Mesozoic Echinoids of Savoy are catalogued by SAVIN (263) with help from

LAMBERT. Nominally monographing the *Echinocorytidae* (= *Ananchytidae*) of Belgium, LAMBERT (176) discusses the family as a whole in his usual learned fashion, and his work should be welcomed by English palaeontologists. ROWE's paper on the Chalk of Devonshire (276) contains many valuable notes on the Echinoderms. LISSAJOUS (189) begins a catalogue of the Jurassic Echinoids of the Maconnais. BROUÏ (25) describes the Echinoderms from a new Upper Triassic horizon in the Tyrol. A large number of Devonian and Carboniferous Crinoids and Blastoids, mostly from Indiana, are described by ROWLEY (114-119).

IV. SYSTEMATIC. PERRIER (254) in his monograph of Atlantic *Holothurioides*, mentioned above, proposes a new classification, which it is easy to see does not agree with his genealogical tree (quoted II, A, iii); most of the generic and specific names introduced by him as new have already been used and defined, either by himself or by E. Perrier, some as long ago as 1886; *Ypsilothuria*, as a correction of *Hypsilothuria*, has been used by Sluiter, but not formally indexed as a new name; as really new there remains only *Elpidiogone*. Need one point out again that the attachment of "n. sp." to a name already 17 years old is likely to beget confusion? PERRIER (255) also describes two new species from New Zealand. *Havelockia*, a new genus allied to *Colochirus*, and a few other new species, are described by a welcome recruit, PEARSON (250), who however omits measurements from his very clear plates and retains a classification long since rightly rejected.

The amount of important work on *Echinoidea* is great. MEISSNER in HAMANN (125) leaning chiefly on the work of MORTENSEN (229), supplemented by that of Gregory (1900) and of Duncan, proposes the following classification of recent forms:

<i>Regularia</i> Cuvier	<i>Irregularia</i> Cuvier
<i>Endobranchiata</i> Bell	<i>Gnathostomata</i> Zittel
<i>Cidaridae</i>	<i>Holactypoida</i> Duncan
<i>Ectobranchiata</i> Bell	<i>Pygasteridae</i>
<i>Streptosomata</i> Duncan	<i>Clypeastroida</i> Duncan
<i>Echinothuridae</i>	<i>Fibularidae</i>
<i>Stereodermata</i> Keeping	<i>Laganidae</i>
<i>Sateniidae</i>	<i>Clypeastridae</i> (<i>Clypeastrinae</i> , <i>Arachnoidinae</i>)
<i>Diademataidae</i>	<i>Scutellidae</i>
<i>Phymosomatidae</i>	<i>Atelostomata</i> Zittel
<i>Arbaciidae</i>	<i>Asternata</i> Gregory
<i>Stomopneustidae</i>	<i>Echinoneidae</i>
<i>Temnopleuridae</i> (<i>Temnopleurinae</i> , <i>Glyphocyphinae</i>)	<i>Nucleolitidae</i>
<i>Echinidae</i> (<i>Parechininae</i> , <i>Echinae</i>)	<i>Cassidulidae</i>
<i>Toxopneustidae</i> (<i>Schizechininae</i> , <i>Strongylocentrotinae</i> , <i>Parasaleninae</i>)	<i>Sternata</i> Gregory
<i>Echinometridae</i>	<i>Spatangidae</i> (<i>Adetinae</i> , <i>Prymnaedetinae</i> , <i>Prymnodesminae</i>)
	<i>Palaeostomatidae</i>
	<i>Urechinidae</i>
	<i>Ananchytidae</i>
	<i>Pourtalesidae</i>

MORTENSEN (229), without disregarding the accepted bases of classification, has attempted to push the analysis further by a study of pedicellariae, spicules, and plates of the buccal membrane, characters which, by reason of their very insignificance, are less likely to be affected by the homoeomorphosis due to outer circumstance; unfortunately they are almost wholly inapplicable to extinct species. He finds the following new genera: *Acanthocidaris*, *Histocidaris*, *Petalocidaris*, *Schizocidaris*, and

Tretocidaris in *Cidaridae*; *Araeosoma*, *Hapalosoma*, *Hygrosoma*, *Kamptosoma*, and *Tromikosoma* in *Echinothuridae*; *Pseudechinus*, an Echinometrid; *Hypsiechinus*, a Temnopleurid; *Paracentrotus*, *Gymnechinus*, *Pseudocentrotus*, and *Parechinus* in *Echinidae*. In other papers (228, 230) MORTENSEN proposes the new Diadematis *Chaetodiadema* and *Lissodiadema*. The genus *Cidaris* is also discussed and defined by several other writers, but one fails to gather who, under the rules of nomenclature, is its author, or which species is the genotype, although these should be the first points settled. DE MEIJERE (53) gives preliminary descriptions of the Nucleolitid *Aphanopora*, the Echinocorytid *Stereopneustes*, the Spatangid *Plesiozonus*, and the Pourtalesiid *Sternopatagus*. DE LORIO (200) establishes *Stereopedina* as a subgenus of *Echinopedina*, a Cassidulid *Platypygus*, and a Diadematis *Aplodiadema*; the prefix 'aplo-' which can only mean 'unseaworthy' is of ill omen for a new genus. LAMBERT is responsible for *Aulacocidaris*, *Isechinus*, and *Craginaster*. The same author's important monograph of the genus *Echinocorys* (176) or rather of the *Echinocorytinae*, while professedly describing the Belgian specimens in the Brussels Museum, really deals with the whole subject from every point of view. To do justice to it here is impossible; it is also unnecessary, for no echinologist can afford to overlook the work, though in using it he should remember the author's partiality for pre-Linnean writers. *Ganbirettia* is a new Holasterid, due to GAUTHIER (100), and *Chuniola*, a Spatangid, is described by GAGEL (97) with other interesting Echinoids from drift blocks of Middle Miocene age in S. E. Holstein. The names *Scagliaster* and *Spileccia* are here properly recorded for the first time, since of MUNIER-CHALMAS' work (231), so long regarded as semi-mythical like many others ascribed to the same author, two copies representing two editions have now come to hand. This unbarring the flood-gates may be connected with the demise of the lamented author. It may be well to draw attention to a new species founded, but not diagnosed, by P. OPPENHEIM in an untitled report of some remarks "Ueber Ostreen" by J. BOEHM (17), appearing in the *Zeitschrift* of the German Geological Society under a date which appears to be that of private distribution to members only; the uncertainty as to the genus is compensated by the specific name "*Linthia* (?) *Joannis Bohmi*."

Among the many new *Asteroidea* collected by the Belgica, LUDWIG (204) describes a new Brisingid genus—*Belgicella*. The new names *Ataraster* and *Siluraster* for Ordovician Asteroids and *Eophiura* [non *Eophiurites* Stürtz], *Palaeura*, and *Bohemura* for Ordovician Ophiurids are introduced by JAEKEL (154) without diagnoses, but supported in some cases by anatomical diagrams.

Among *Crinoidea* the only new genus is the doubtful Platycrinid *Helicocrinus*, described by CHAPMAN (29) from the Silurian of Victoria. The systematic importance of minute characters is again proved by MORTENSEN (227) in his careful account of the ambulacral covering-plates in certain species of *Antedon*.

Among *Cystidea* are only *Jaekelocystis* and *Coelocystis*, new Glyptocystids due to SCHUCHERT (289), who also describes other new species from the Devonian of Maryland.

HAMBACH (126) has revised the *Blastoidea* of N. America, performing the valuable service of redescribing and figuring some old type-specimens of Troost, Meek, and others. His own large collection has enabled him to make many interesting observations on the structure of some genera, but other workers seem unwilling to accept his conclusions as to the water-vascular and generative systems, and the covering-plates of tegmen and food-grooves, holding them inconsistent with generally accepted facts of Echinoderm, and especially Blastoid, morphology. The many new names due to him—*Cidaroblastus*, *Clavaeblastus*, *Crioblastus*, *Eleutheroblastus*,

Globoblastus, and *Saccoblastus*.—will unfortunately be rejected by all who obey any ordinary rules of nomenclature.

The following table gives the numbers of the new names proposed, but the Recorder declines to be responsible for the correctness of his statements so long as Authors persist in the obscurity of theirs.

	New genera	Altered generic names	New sub-genera	New species	Altered specific names	New varr.
Holothurioidea	2	1	0	8	0	4
Echinoidea	30 + 1 n. n.	0	1	101 + 4 n. n.	1	27
Asteroidea	3	0	0	14	0	0
Ophiuroidea	3	0	0	1	0	0
Crinoidea	1	0	0	31	0	7
Cystidea	2	0	0	6	0	0
Blastoidea	4	2	0	19	0	0
Total	45 + 1 n. n.	3	1	180 + 4 n. n.	1	38

ADDENDA et CORRIGENDA in previous Records.

Record for 1899, vol. xxxvi :—

- p. 19. No. 128. JAEKEL, O. The volume number should be "1," not lix, and the date "Nov." not Dec.
 p. 62. *Fibularia acuta*. Instead of 'n. sp.', read 'Yoshiwara, 1898,' and alter total of n. spp. on p. 8 accordingly.

Record for 1900, vol. xxxvii :—

- p. 18. No. 81. For "Trudui," read "Protok." and dele *.
 p. 20. No. 111. FLICK. For III, B, ii, f, read III, B, ii, e.

Record for 1901, vol. xxxviii :—

- p. 17. No. 103. ELBERT, J. pp. 77-96 published 1901; pp. 97-167 and pls. published 1902.

Record for 1902, vol. xxxix :—

- p. 25. No. 199. MEEK. Instead of "(Printed 16 Oct.," read "Privately issued, 1903."
 p. 29. No. 254. SCHMIERER. This was issued as an Inaugural Dissertation in 1902, but the Heft of the Zeitschrift in which it was printed was not published till the summer of 1903.

The Recorder is always glad to receive corrections, and would be specially grateful if Authors, Editors, or Publishers would occasionally enable him to remove the asterisk indicating that a work has not been seen.

Further personal remarks by the Recorder are placed in [].

I. TITLES.*

1. ADAMS, G. I., GIRTY, G. H. & WHITE, D. Stratigraphy and paleontology of the Upper Carboniferous rocks of the Kansas section. Bull. U. S. Geol. Surv., No. 211, pp. 1-123, 2 maps. [III, B, iv, d.]
- AIRAGHI, C. (3) Zool. Rec. 1900. Abstract by [A.] TORNQVIST, N. Jahrb. Min. 1904, i, p. -152- (15 Jan.). (4) Zool. Rec. 1900. Abstract by [A.] TORNQVIST, N. Jahrb. Min. 1903, ii, p. -452- (1 Dec.). (5) Zool. Rec. 1900. Abstract by [A.] TORNQVIST, N. Jahrb. Min. 1904, i, p. -152- (15 Jan.). (1) Zool. Rec. 1901. Abstract by [A.] TORNQVIST, N. Jahrb. Min. 1903, ii, p. -453- (1 Dec.). (3) Zool. Rec. 1902. Abstracts: Boll. Com. geol. Ital. xxxiv, pp. 79, 80 (April, 1903); by VINCASSA DE REGNY, Geol. Centrbl. iii, p. 617 (15 June, 1903); by [A.] TORNQVIST, N. Jahrb. Min. 1904, i, p. -152- (15 Jan.).
2. —. Alcuni echinidi del Terziario Veneto. Atti Mus. Milano, xli, pp. 415-424, pl. xi. (Mar.) [III, B, ii, f. iv, c.]
Review: by J. LAMBERT, Rev. paleozool. vii, p. 172 (July, 1903).
3. —. Echinidi della Scaglia cretacea Veneta. Mem. Acc. Torino (2) liii, pp. 315-330, pls. i, ii. (1903? vol. not yet received Nov. 1904.) [III, B, iii, b, 1. iv, c.]
Review: by J. LAMBERT, Rev. paleozool. vii, p. 223 (Oct. 1903).
4. *ALBERT HONORÉ CHARLES (Prince de MONACO). Notes de Géographie biologique marine. Verh. Internat. geogr. Kongr. vii, pp. 312-322. (1900.) [III, A, ii.]
Abstract: by G. PRUVOT, Annee biol. 1899-1900, pp. 422, 423 (1901).
5. —. Sur la quatrième campagne de la Princesse Alice II. C.R. Ac. Sci. cxxxvi, pp. 211-215. (Jan.) [II, D, viii, b. III, A, ii.]
Abstract: in LUDWIG (205).
- 5A. ALBRECHT, E. Experimentelle Untersuchungen ueber die Kernmembran. Beitr. path. Anat., Bollinger-Festgabe, pp. 115-143, pls. iii-x & A-D. Wiesbaden. [II, F, viii.]
Abstract by P. MAYER, Zool. Jahresber. 1903, p. 8 (1904).
- ALESSANDRI, G. DE. See DE ALESSANDRI, G.
- ALMERA, J. (9-11) Zool. Rec. 1899, and (8 & 9) Zool. Rec. 1900. Translated in Bol. Com. geol. espan. xxvii (1903).
6. ANON. A new locality of *Linthia nipponica* Yosh. J. geol. Soc. Tokyo, x, p. 585. (20 Dec.)
7. ANTULE, D. J. [ANTHULA]. Sredn' i neokom kod Tzrnol' evitze. [Middle Neocomian at Crnoljevica (Servia)]. Ann. geol. Balkan. vi, pp. 6-73, pls. i, ii. (July.) [III, B, iii, b, 2.]
- ARIOLO, V. (11) Zool. Rec. 1902. Abstract by J. CATTANEO, Annee biol. 1901, p. 126 (1903).
- ARNAUD, H. (12) Zool. Rec. 1902. Abstract by [A.] TORNQVIST, N. Jahrb. Min. 1903, i, p. -529-.

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

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

8. ARNOLD, R. The paleontology and stratigraphy of the marine Pliocene and Pleistocene of San Pedro, California. Mem. Calif. Ac. iii, pp. 1-420, pls. i-xxxvii. (27 June.) [III, B, ii, b, c.]
9. BALL, J. & BEADNELL, H. J. L. Baharia Oasis: its topography and geology. 8vo. 84 pp., viii pls., 2 text-figg. Cairo: Survey Dept. Egypt. [III, B, ii, f; iii, b, I.]
- BARFURTH, D. See DAWYDOFF, C., KING, H. D., and PRZIBRAM, H.
- BARROIS, C. See GENTIL, L.
10. BARRON, T. & HUME, W. F. Topography and Geology of the Eastern desert of Egypt, central portion. Rep. geol. Survey Egypt, 1902, xii+332 pp., ix pls., iv panoramas and xi sections. (May.) [III, B, ii, b.]
- BATAILLON, E. See LOEB, J., RAWITZ, B., and WASSILIEFF, A.
- BATHER, F. A. (16A) Zool. Rec. 1898, and (20) Zool. Rec. 1900. Abstracts by [A.] TORNQUIST, N. Jahrb. Min. 1904, i, p. -153- (15 Jan.).
- BEADNELL, H. J. L. See BALL, J. (9).
- BELL, F. J. (17) Zool. Rec. 1902. Abstract in J. R. Micr. Soc. 1903, p. 303 (June).
11. —. Report on a collection of Echinoderms from the neighbourhood of Zanzibar. Part I. Ann. Mag. Nat. Hist. (7) xii, pp. 244-248. (Aug.) [III, A, iii.]
12. —. [Exhibition of, and remarks upon, a Holothurian of the genus *Actinopyga*.] P. Zool. Soc. London, 1903, i, p. 192. (Aug.) [II, B, ii, e; D, vii.]
13. BERTOLO, P. Ricerca microchimica e localizzazione del fosforo nelle ovaie degli Echinidi (*Strongylocentrotus lividus* e *Sphaerechinus granularis*). Atti Acc. Gioen. (4), xvi, Mem. 17, 14 pp., i pl. [II, B, i, c, 12; c, vii.]
- Abstract in LUDWIG (205).
14. BISTRAM, A. VON. Beiträge zur Kenntnis der Fauna des unteren Lias in der Val Solda. Geologisch-paläontologische Studien in den Comasker Alpen. I. Ber. Ges. Freiburg, xiii, pp. 116-214, pls. i-viii. (July.) [III, B, iii, d.]
15. †BLAKE, J. H. The geology of the country around Reading. Mem. geol. Surv. England and Wales. (Explanation of sheet 268), 92 pp., 13 text-figg. [III, B, iii, b, I.]
- The notes on the Chalk are by A. J. JUKES-BROWNE.
- BLANCKENHORN, M. See FOURTAU, R., & (87, 89).
16. BLANFORD, W. T. The 'Tanganyika Problem.' Correspondence. Geogr. Journ. xxii, pp. 92-96. (July.) [III, B, iv, b.]
17. BOEHM, J. ["Ueber Ostreen von General Roca am Rio Negro." Zeitschr. Deutsch. geol. Ges. Protok. pp. 71, 72. (Date of Monatschr. said to be 1903; but this Heft of Zeitschrift was published July, 1904.) [III, B, ii, f. IV, c.]
- Abstract by O. WILCKENS, N. Jahrb. Min. 1904, i, pp. -432-434- (25 June, 1904).
18. BOESE, E. Die Fauna der liasischen Brachiopodenschichten bei Hindelang (Algäu). Jahrb. geol. Reichsanst. xlii, pp. 627-650, pls. xiv, xv. (28 Feb., 1893.) [III, B, iii, d.]
19. BOHN, G. Influence des rayons du radium sur les oeufs vierges et fécondés, et sur les premiers stades du développement. C.R. Ac. Sci. cxxxvi, pp. 1085, 1086. (May.) [II, F, viii.]
- Abstracts: J. R. Micr. Soc. 1903, p. 483 (Aug.); in LUDWIG (205).

20. [BOHN, G.] Sur les caractères des divers mouvements larvaires. C.R. Soc. Biol. iv, pp. 641, 642. (22 May.) [II, c, vii.]
21. BOULÉ, M. & THEVENIN, A. Notes sur la géologie et la paléontologie de Madagascar. Bull. Soc. geol. France (4) iii, pp. 433-439, 1 text-fig. (Oct.) [III, B, iii, b, 1.]
A *Micraster* described by J. LAMBERT.
22. BOVERI, MARCELLA. Ueber Mitosen bei einseitiger Chromosomenbindung. Jena Zeitschr. xxxvii, pp. 401-446, pls. xxi-xxiii, 25 text-figg. (Feb.) [II, F, iv.]
Abstract: in LUDWIG (205).
- BOVERI, T. (40 & 42) Zool. Rec. 1901. Abstracts by P. BOUIN, Année biol. 1901, pp. 40-42 & 123 (1903). (43) Zool. Rec. 1901. Abstract by A. LÉCAILLON, t. c., p. 138 (1903).
23. —. Ueber den Einfluss der Samenzelle auf die Larvencharaktere der Echiniden. Arch. Entwicklmech. xvi, pp. 340-363, pl. xv, 3 text-figg. (24 April.) [II, F, viii.]
Abstract: in LUDWIG (205).
24. —. Ueber das Verhalten des Protoplasmas bei monocentrischen Mitosen. SB. Ges. Wurzburg (n. s.) 1903, pp. 12-16, 6 text-figg.; pp. 17-21, 4 text-figg. [II, F, viii.]
Abstract: in LUDWIG (205).
25. BROILLI, F. Die Fauna der Pachycardientuffe der Seiser Alp. (Mit Ausschluss der Gastropoden und Cephalopoden.) Palaeontogr. I, pp. 145-227, pls. xvii-xxvii. (Author's copy recd. May, 1903, Lieferung published Jan. 1904.) [II, B, iii, e. iv, c, F.]
[Since Reviews of this work had already appeared in 1903, and since there are no new names under *Echinodermata*, it is entered in the present Record.]
26. BUETSCHLI, O. Bemerkungen zu der Arbeit von A. Giardina. [(102) Zool. Rec. 1902.] Anat. Anz. xxii, pp. 381-387. (10 Jan.) [II, F, iv.]
- BULLER, A. H. R. (49) Zool. Rec. 1901. Abstract by M. GOLDSMITH, Année biol. 1901, p. 105 (1903).
- CAMPANA, D. DEL. See DEL CAMPANA, D.
27. CAREZ, L. La géologie des Pyrénées françaises. Fasc. I. Mem. carte geol. France, 4to, x+744 pp., ii pls. Paris. [II, E, iii. III, B, i.]
- CATTANEO, J. See ARIOLA, V.
28. CAULLERY, M. & SIEDLECKI, M. Sur la résorption phagocytaire des produits génitaux inutilisés chez *Echinocardium cordatum* Penn. C.R. Ac. Sci. cxxxvii, pp. 496-498. (Sept.) [II, c, vii.]
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- CAZIOT, —. See DEFÉRET (57).
- CHALON, J. See WINKLER, H.
29. CHAPMAN, F. New or little-known Victorian fossils in the National Museum, Melbourne. Part I.—Some Palaeozoic species. Proc. R. Soc. Victoria (n. s.) xv, pp. 104-122, pls. xvi-xviii. (Feb.)
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Abstract: by W. S. DUN, Geol. Centrbl. iv, p. 115 (15 Sept. 1903).
- CHECCHIA, G. (40) Zool. Rec. 1902. Abstracts: Boll. Com. geol. Ital. xxxiv, p. 102 (April, 1903); by [A.] TORNQUIST, N. Jahrb. Min. 1904, i, p. -465- (25 June).

30. [CHECCHIA, G.] Nuova contribuzione alla Echinofauna Eocenica del Monte Gargano. Boll. Soc. geol. Ital. xxii, pp. 101-114, pl. v. (May.) [III, B, ii, f. IV, c.]
 Abstracts: by J. LAMBERT, Rev. paleozool. vii, p. 224 (Oct. 1903); by Author, Riv. ital. Pal. ix, p. 59 (Oct. 1903); by [A.] TORNQUIST, N. Jahrb. Min. 1904, i, p. -465- (25 June).
 —. See also LAMBERT (176).
- CLARK, D. See DENNANT, J. (55).
- CLARK, H. L. (48) Zool. Rec. 1902. Abstract: in LUDWIG (205).
- CLARKE, J. M. (68) Zool. Rec. 1900. Abstract by [E.] KAYSER, N. Jahrb. Min. 1903, i, p. 482 (1903). (69) Zool. Rec. 1901. Abstract by T. W. STANTON, Geol. Centrbl. iv, p. 124 (15 Sept. 1903).
31. — & RUEDEMANN, R. Catalogue of type specimens of Paleozoic fossils in New York State Museum. Bull. N. York Mus. lxxv, 848 pp. (May.) [II, E, i, c.]
32. CLELAND, H. F. A study of the fauna of the Hamilton formation of the Cayuga Lake section in Central New York. Bull. U. S. Geol. Surv., No. 206, 112 pp., 5 pls., 3 text-figg. [III, B, iv, f.]
33. COBBOLD, E. S. Geology. Caradoc Record, No. 11, pp. 48-53; No. 12, pp. 45-48. (1901, 1902.) [III, B, iv, h.]
34. COCKERELL, T. D. A. The name *Solenopsis*. Nature, lxxvii, p. 559. (16 April.) [IV, B, *Ludwigia*.]
- CONTE, A. See MORGAN, T. H.
35. CORNET, J. La craie phosphatée de Ciplly (*Cp4b*) dans la région de Baudour. Communication préliminaire. Ann. Soc. geol. Belgique, xxvi, Bull. pp. lxxii-lxxv. (Feb. & May, 1899.) [III, B, iii, b, I.]
 Prelim. to CORNET (36).
36. —. Étude géologique sur les gisements de phosphate de chaux de Baudour. Ann. Soc. geol. Belgique, xxvii, Mem. pp. 3-32, 4 text-figg. (Jan. 1900.) [III, B, iii, b, I.]
37. —. Compte rendu de l'excursion du 24 Mars 1901 à Hautrages et Baudour. Bull. Soc. Belge Geol. xvi, Mem. pp. 179-192. (Feb.) [III, B, iii, b, I.]
38. COSSMANN, M. Rectifications de nomenclature. [No. 15.] Rev. paleozool. vii, pp. 67, 68. (Jan.) [IV, G, *Marginata*.]
 —. See also FOURTAU (92).
39. COUFFON, O. Étude critique sur les faluns de Saint-Clément-de-la-Place. Bull. Soc. Angers (n. s.) xxxii, pp. 83-151, i pl. (Dec.) [III, B, ii, b.]
- COUTIÈRE, H. (63) Zool. Rec. 1899. Abstract by L. CUÉNOT in Année biol. 1899-1900, pp. 379-381 (1901).
40. COWLES, R. P. Notes on the rearing of the larvae of *Polygordius appendiculatus* and on the occurrence of the adult on the Atlantic Coast of America. Biol. Bull. iv, pp. 125-128. (Feb.) [II, D, iv; E, i, b.]
- CRAGIN, F. W. (26) Zool. Rec. 1894, (77) Zool. Rec. 1901. Review: by J. LAMBERT, Rev. paleozool. vii, pp. 218, 219 (Oct. 1903). [IV, C, *Holectypus*, *Cruginaster*.]
 —. (27) Zool. Rec. 1895. Review: by J. LAMBERT, Rev. paleozool. vii, p. 219 (Oct. 1903). [IV, C, *Scutellaster*.]
- CUÉNOT, L. (78) Zool. Rec. 1901. Abstract by the author, Année biol. 1901, p. 218 (1903).

41. [CUÉNOT, L.] Les moyens de défense dans la série animale. Encyclop. scient. des aide-mémoire, 8vo, 184 pp. Paris, Gauthier-Villars. [II, D, v.]
 —. See also COUTIÈRE, H., DAWYDOFF, C., DELAGE, Y., and LOEB, J.
42. DACQUÉ, E. Mittheilungen ueber den Kreidecomplex von Abu Roash bei Cairo. Palæontogr. xxx, pp. 337-392, pls. xxxiv-xxxvi, 4 text-figg. (Feb.) [III, B, iii, b, f. IV, c.]
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43. —. Fossili batoniani della Sardegna. Boll. Soc. geol. Ital. xxii, pp. 253-346, pls. xi, xii. (Nov.) [III, B, iii, c, 3.]
44. DAVENPORT, C. B. The animal ecology of the Cold Spring Sand Spit, with remarks on the theory of adaptation. Decennial Publications, Univ. Chicago (1) x, pp. 157-176. (Jan.) [II, D, iii, a; iv, d.]
 DAWYDOFF, C. (84) Zool. Rec. 1901. Abstracts: by D. BARFURTH, Anat. Hefte. Ergeb. xi, p. 543 (1902); by L. CUÉNOT, Annee biol. 1901, p. 177 (1903).
45. DE ALESSANDRI, G. Il gruppo del Monte Misma (Prealpi Bergamasche). Atti Mus. Milano, xlii, pp. 229-279, 4 text-figg. (Nov.) [III, B, iii, d.]
46. DEECKE, W. Neue Materialien zur Geologie von Pommern (Fortsetzung). Mt. Ver. Vorpomm. xxxiv, pp. 1-55. (April.) [III, B, ii, e. IV, c, *Caratonus, Hemicara.*]
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47. DE GIORGI, C. La serie geologica dei terreni nella penisola salentina. Mem. Acc. Pont. Lincei, xx, pp. 155-218. [III, B, ii, b, c, d.]
- DELAGE, Y. (87 & 90) Zool. Rec. 1901. Abstract by L. CUÉNOT, Annee biol. 1901, p. 124 (1903). (88) Zool. Rec. 1901. Abstract by A. LABBÉ, t. c. p. 100. (61, 62, 64, 65) Zool. Rec. 1902. Abstracts by R. FLORENTIN, Annee biol. 1902, pp. 93, 94, 123 (1903).
48. —. La Parthénogénèse. Annee biol. 1901, pp. xlvii, xlviii. [II, F, viii.]
49. —. Élevage des larves parthénogénétiques d'Astéries dues à l'action de l'acide carbonique. C.R. Ac. Sci. cxxxvii, pp. 449-451. (Sept.) [II, F, v, d; viii.]
 Abstract: in LUDWIG (205).
50. —. La parthénogénèse par l'acide carbonique, obtenu chez les œufs après l'émission des globules polaires. C.R. Ac. Sci. cxxxvii, pp. 473-475. (Sept.) [II, F, viii.]
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51. —. Sur la non régénération des sphéridies chez les Oursins. C.R. Ac. Sci. cxxxvii, pp. 681, 682. (Nov.) [II, c, vii: D, vii.]
 Abstracts: J. R. Micr. Soc. 1904, p. 66 (Feb.); in LUDWIG (205).
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The reasons for the previous omission of this work from the Record will be found under (219) Zool. Rec. 1901, and in Corrigenda, Zool. Rec. 1902. The copy from which the above entry was made is in the British Museum (Nat. Hist.). My own library is indebted to the kindness of Prof. Haug for another copy, issued as vol. I. of "Série stratigraphique" [never continued], in which the author's name appears as MUNIER-CHALMAS, and his paper, dated 1891 (1^{er} Mars), is "Précédée d'une série de Notes sur les Terrains tertiaires du Vicentin, par MM. Hébert & Munier-Chalmas 1877-1878," reprinted from C.R. Ac. Sci. and Bull. Soc. geol. France for those years. The introduction to the Thesis (pp. ix-xi) here serves as introduction to the volume (pp. i-iii). Page 184 is here followed by a page of Errata, not in the Thesis.
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II. BIOLOGY.

(A.) EVOLUTION.

- i. **General Principles**:—Hermaphroditism in *Hol.*, esp. *Molpadidae* and *Synaptidae*, a sign of degeneration; SCHAPIRO (284) p. 373.
 Tendency of some species to produce geographical forms more than others, illustrated by *Leiocidaris pistillaris*, *Echinometra lucunter*, *Culcita*, and *Solaster papposus*, perh. connected with differing duration of larval stage; DOEDERLEIN (61) pp. 423, 439: see also (62).
- ii. **Relations of Echinoderma**:—General evolution of Echinoderms from a segmented form, through a fixed stage, and division into two groups based mainly on relations of haemal and genital lacunae, *Hol.* being associated with *Pelmatozoa*; RUSSO (279).—Derivation of Echinoderms from *Protocoelomata* (p. 314) but adoral ciliated band not homologous with endostyle of *Protochordata* (p. 296); MACBRIDE (207).—The bilateral ancestor, modifications in views of Bury, McBride, and Bather, probably had 5 ciliated bands and apical tuft; this banded condition primitive for all classes; origin of radial symmetry, pentamerism follows outgrowth of 5 tentacles; GRAVE (111).—Larva of Echinoderms compared with *Cephalodiscus*, pelmatozoic stage of all Echinoderms; GOETTE (105) p. 313.—Homology of larval nervous organ in *Echinus*, *Asterias*, and *Tornaria*; MACBRIDE (208 & 207).

- iii. **Phylogenies of smaller groups:**—Genealogical tree of *Hol.*, descendants of *Proholothurioidea* split into two branches of which one gives rise to the following families, grouped as indicated by brackets, (*Pelagothuriidae*) (*Synallact-*, *Elpidi-*, *Deimat-*, *Psychropot-idae*) (*Holothuriidae*), the other branch to *Synaptidae*, *Molpadidae*, (*Rhopalodinidae*, *Cucumariidae*); PERRIER (254) p. 298.—*Synapta* preserves trace of primitive bilateral symmetry of Cystid; POLARA (260).

Evolution of *Echinocorys*, history of mutation, and table of filiation of spp.; LAMBERT (176) pp. 147-151.

Origin of *Ech.* from *Ast.*; MACBRIDE (207) p. 316.—Origin of *Oph.* from *Ast.*; JAEKEL (154) p. 112.—*Astrophyton* a primitive form of *Oph.*; RUSSO (280 & 281).

Relations of *Cyst.* to *Hol.*, *Ast.*, *Oph.*, *Crin.* and derivation of *Ech.* from *Blast.* (p. 200), *Uintacr.* from *Melocrinoidea* (p. 176), *Marsupites* from *Cyathocrinoidea* (p. 180); STEINMANN (299).

(B.) MORPHOLOGY.

i. Anatomy:—

a. ECHINODERMA.

1. General accounts:—Echinoderm anatomy; GOETTE (105) pp. 307-328.
2. Symmetries:—Vacant.
3. Homologies of Classes:—of sphaeridia and ambulacrals in *Ast.* and *Ech.*; MORTENSEN (227) p. 79.
Spiracles of *Blast.*, bursae of *Oph.*, and secondary hydropores of larval *Antedon* homologised, and said to have similar physiological relations to the perioesophageal genital cord; RUSSO (278).
4. Skeletal tissue or Stereom:—Recent and fossil *Ech.* stereom proved calcite not aragonite by chemical tests; MEIGEN (218) p. 92.
- 5-12. Vacant.

b. HOLOTHURIOIDEA.

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2. Symmetries:—Vacant.
3. Homologies:—Vacant.
4. Stereom:—Growth of sclerites from triradiate spicules (p. 330) also details of sclerites in spp. of genera listed under III, A, ii; PERRIER (254).
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9. Nervous System and Sense-organs:—Vacant.
 10. Mesodermal tissues (exc. skeletal):—Vacant.
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 12. Genital System:—Genital tubes in *Stichopus*, their meaning in *Hol.* generally; MITSUKURI (224) p. 8,—of *Synapta*, 2 caeca, bilaterally placed; POLARA (260).
- c. **ECHINOIDEA.**
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 2. Symmetries:—Vacant.
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 4. Stereom:—Account of HESSE (159) Zool. Rec. 1900; HAMANN (125) p. 1313.—Structure of plates of test in *Echinocorys*, esp. *E. cyplyensis*; LAMBERT (176) p. 27, f. 21.
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 - 7, 8. Vacant.
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 - 10, 11. Vacant.
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- d. **ASTEROIDEA.**
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 - 2–4. Vacant.
 5. Skeletal Anatomy:—Arm-structure of Ordovician spp.; JAEKEL (154).—Numerous structural details esp. concerning spines, paxillae, papulae, pedicellariae, disc-plates in spp. of *Mimaster*, *Cheiraster*, *Porania*, *Lophaster* (w. tubular paxilla-

- shaft), *Hymenaster*, *Anasterias* (reduction of skeleton, and young stages), *Belgicella*; LUDWIG (204).
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 10. Mesodermal tissues (exc. skeletal):—Muscles in *Cheiraster*; LUDWIG (204) p. 18.
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- e. **OPHIUROIDEA.**
- 1-4. Vacant.
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 7. Coelom and other body-cavities:—Aboral lacunae of *Astrophyton* and relations to genital cord; RUSSO (280).—Peri-oesophageal and intestinal lacunae of *Astrophyton*; RUSSO (281).
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- f. **CRINOIDEA.**
- 1-4. Vacant.
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 - 6-12. Vacant.
- g. **CYSTIDEA.**
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- h. **BLASTOIDEA.**
- 1, 2. Vacant.
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 6. Hydrocoel, &c.:—Water-vascular ring and branches in *Pentremites*; HAMBACH (126) pp. 6, 16, pl. ii.
 - 7, 8. Vacant.
 9. Nervous system:—Canals in *Pentremites*; HAMBACH (126) pp. 6, 12.
 - 10, 11. Vacant.
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forked tubes (p. 7), supposed ova in hydrosphere folds (p. 20); HAMBACH (126).

ii. Variation:—

- a. In form:—length and breadth of *Holothuria atra*; PEARSON (250) p. 203.—*Echinus acutus*, high and low forms; SIMPSON (294) p. 42.—Form and measurements of *Scutella striatula*; FALLOT (81) p. 74.
- b. In form and surface characters:—Numerous details of variation in proportions, spinulation, etc. of Echinoderms of Spitzbergen district (vide III, A, v); MICHAÏLOVSKIJ (223).—In shape and ambulacra of *Scutella subrotunda*; FALLOT (81) p. 81.—In contour, position of apex, arrangement of apical plates, and shape of anterior groove in *Hemiaster cubicus*; FOURTAU (88).—In spines, granules, scales, mouth-papillae, etc., in spp. of *Asterias*, *Cribrella*, *Rhegaster*, *Solaster*, *Hymenaster*, *Pentagonaster*, *Ophioglypha*, *Ophiacantha*; MORTENSEN (227).—In shape of disc and in ratio R: r in *Ophiocoma nigra*; McINTOSH (212).—Ornament of *Megistocr.*; ROWLEY in GREENE (116) p. 131.
- c. In colour:—Colour in life of several spp. of *Hol.* genera listed under III, A, ii; PERRIER (254): of spp. of *Synapta*, *Cucumaria*, *Colochirus*, *Actinopyga* (much variation in *A. mauritiana*), *Stichopus*, also in spirit of other spp. (see list of genu. III, A, iii); PEARSON (250): of numerous spp. of *Ech.* as indexed in IV, c, coloured figg. from specimens in spirit of spp. of *Cidaris*, *Echinus*, *Strongylocentrotus*, *Parechinus*, *Calveria* (pls. i—iii); MORTENSEN (229).—In life and in spirit of *Ast.* dredged by S.Y. Belgica, see list under III, A, v; LUDWIG (204).

In shape and size of coloured patch on disc of *Ophiocoma nigra*; McINTOSH (212).—In colour of spp. of *Ophiocten*, *Ophiopholis*, and *Gorgonocephalus*; MICHAÏLOVSKIJ (223) pp. 492, 494, 498.—*Ophiocoma nigra*, black from Orkneys, red from Kincardineshire; SIMPSON (294) p. 41.

d. Meristic variation:—

1. Variation from pentamerous symmetry:—in *Ech.* generally; HAMANN (125) p. 1302.—In number of rays in *Stichaster* (p. 477), *Crossaster* (p. 484); MICHAÏLOVSKIJ (223).—*Solaster papposus*, 10–18 rays; SIMPSON (294) p. 40.—4 and 6 rays in *Ophiocoma nigra*; McINTOSH (212).—4-rayed *Dolatochr.*; ROWLEY in GREENE (114) p. 102, & (119) pp. 157, 164.—Various instances, more or less complete, in *Pentremites*; HAMBACH (126) p. 3.
2. Reduplication or absence of parts:—number and size of Polian vesicles, stone canals, and tentacular ampullae in *Holothuria atra*; PEARSON (250) p. 203.—From 2 to 5 madreporites in *Ophiocoma nigra*; McINTOSH (212).—Abnormal *Dolatochr.* approaching *Stereocr.*; ROWLEY in GREENE (119) p. 158.—Doubled ambulacra in *Pentremites* (p. 121), a ray partly suppressed (pp. 125, 126); ROWLEY in GREENE (115).
- e. Abnormalities:—*Cucumaria*, torsion of ambulacra; PEARSON (250) p. 191.—Abnormal *Actinopyga*, see II, D, vii; BELL (12).—In *Ech.* generally; HAMANN (125) p. 1303.—Closure of periferous zones in one or more ambulacra of an *Echinocorys* is teratologic, but connected with tendency of all *Atelostomata* to formation of petals; LAMBERT (176) p. 24.—Intercalated plate in R. circle of *Pentremites* (p. 120), an ambulacrum aborted (p. 121), ditto in *Codaster* (p. 128); ROWLEY in GREENE (115).

iii. Secondary Sexual Characters:—

- a. Differences of Form or Structure:—Vacant.
- b. Differences of Colour:—Vacant.
- c. Protection of Young:—Nursery formed by radioles above apical

area in *Hypsiechinus coronatus*; MORTENSEN (229) p. 89, pl. vii.—Marsupial ambulacra of *Epiaster nutrix*; LAMBERT (174) p. 87.—Young on ventral surface of disc in *Anasterias chirophora* (p. 47) and *A. belgicae* (p. 53) connected with one another, but not with the mother, by a white strand; general remarks on nursing *Ast.*, all are cold-water forms, complete list of spp. (pp. 54–58); LUDWIG (204).

(C.) PHYSIOLOGY.

- i. **General**:—Vacant.
- ii. **Circulation**:—in *Hol.*, see II, c, iv; ENRIQUES (73).—Circulation of internal liquid due to rhythmic contraction of respiratory trees in *Hol.*; HENRI (136).
- iii. **Respiration**:—Membranes surrounding internal fluid in *Ech.* are permeable to water but not to its contained salts, whence osmotic regulation of the fluid, proof from *Strongylocentrotus lividus*, *Sphaerechinus granularis*, and *Spatangus purpureus*; HENRI & LALOU (139): same is case with membranes of respiratory trees, polian vesicle, and digestive tube in *Holothuria tubulosa* and *Stichopus regalis*; HENRI & LALOU (140): thus they regulate osmosis of internal liquids to exterior; HENRI & LALOU (141).
- iv. **Alimentation and Digestion**:—Digestion, circulation, and absorption in *Hol.* esp. *Holothuria tubulosa*, and critical examination of results of FRENZEL (1892), HÉROUARD (1889), CUÉNOT (1891), SCHULTZ (1895), et al.; ENRIQUES (73).—Digestive ferments in caecum of *Spatangus*; HENRI (135, 137, 138).
- v. **Excretion and its Products**:—Excretion by genital organs of *Holothuria* during their quiescent stage; RUSSO (277).—Poisonous secretions, toxalbumins and alkaloids, of ovaries, and to less extent of testes, in *Toxopneustes lividus*; LOISEL (198).
Colour, see II, B, ii, c.
- vi. **Sensation**:—So-called heliotropism of larvae discussed; VIGUIER (313) pp. 65–69.
Muscle-contraction and reflexes in *Stichopus regalis*; HENRI (130): no wave propagated by longitudinal muscles; HENRI (131): but the stimulus is transmitted by the radial nerves, and the nerve-ring acts as central nervous system; HENRI (132): action of strychnine, atropine, and nicotine, shows that radial nerves consist of a series of elementary nerve-centres, subordinate to the nerve-ring; HENRI (133).—Rhythmic waves of contraction descend oesophagus and accessory intestine of *Ech.*, causing flow of water; HENRI (134).
- vii. **Miscellanea and Experimental Physiology**:—Movements of *Ech.* gastrula, ciliary and muscular forces contrasted; BOHN (20).
Sphaeridia removed from *Strongylocentrotus* are not regenerated; DELAGE (51).
Chemical constitution, esp. position of phosphorus, in ova of *Strongylocentrotus* and *Sphaerechinus*; BERTOLO (13).—Resorption of unused gonads by phagocytes in *Echinocardium*; CAULLERY & SIEDLECKI (28).—Enzyme in gonads of *Arbacia aequituberculata*; KOBERT (168) pp. 128, 150, 181.

(D.) BIONOMICS.

- i. **General Accounts**:—Semi-popular, of recent Echinoderms from bionomic stand-point; JORDAN & HEATH (160) pp. 140–150.
- ii. **Special habits**:—Hibernation, in December *Thyone* withdraws

- below mud and retracts all tentacles; GRAY (112).—Aestivation of *Stichopus*; MITSUKURI (224) p. 2.
- iii. **Habitat**:—(a) Bottom of spp. & varr. of Echinoderms from Spitzbergen district (vide II, A, v); MICHAÏLOVSKIÏ (223).—Abundance of *Brissopsis lyrifera* on soft clay below 15 fm. (p. 46), also *Amphiura* and *Asterias* (p. 47) and in the channels *Ophioglypha* (p. 48) in Kattegat; PETERSEN (259).—Habitat of Echinoderms at Cold Spring Sandpit, Long Id.; DAVENPORT (44) pp. 161, 162. (b) *Hol.*:—Depth and bottom of spp. in Kattegat (see III, A, ii); LÖNNBERG (197) p. 24.—*Synapta striata* in sponge branches; PEARSON (250) p. 187. (c) *Ech.*:—Depth and bottom of spp. in Kattegat (see III, A, ii); LÖNNBERG (197) p. 25.—*Ech.* in pits on reef-flat; GARDINER (98) p. 426.—*Echinocorys* lived in ooze with apex uncovered (p. 12), influence of habitat on height of ambulacrals and disposition of pores (pp. 21, 93); LAMBERT (176). (d) *Ast.*:—Depth and bottom of spp. in Kattegat (see III, A, ii); LÖNNBERG (197) p. 26. (e) *Oph.*:—Depth and bottom of spp. in Kattegat (see III, A, ii); LÖNNBERG (197) p. 27.—*Amphiura elegans* abundant amongst *Corallina officinalis*, *Ophiactis balli* in crevices of stones and dead shells, *Ophiopholis aculeata* below stones; SIMPSON (294) p. 41. (f) *Crin.*:—*Anedon bifida* common, associated with hydroid zoophytes; SIMPSON (294) p. 39.—Habitat of *Holopus* and *Cyathidium* and relation to currents; RAVN (265) pp. 422, 442.
- iv. **Feeding**:—(a) Diatoms as food of young Echinoderms; COWLES (40) p. 126. (d) *Ast.* smother oyster "until it is forced to open its valves for fresh water"; DAVENPORT (44) p. 161.—Starfish, esp. *Pentaceros*, attack oysters; HERDMAN (143) p. 107.—Large *Asterias rubens* eats *Cyprina* 77 mm. long; LÖNNBERG (197) p. 26.
- v. **Defence and Protection**:—Means of defence, active and passive, including autotomy, summary; CUÉNOT (41).—Echinoid succumbs to the attacks of a Blenny; RICHARD (270) p. 59.
- vi. **Locomotion**:—By tentacles flattened at end in *Synapta*; PEARSON (250) p. 187.
- vii. **Autotomy and Regeneration**:—(a) Autotomy; REEKER (267): full account, with references to recent literature; RIGGENBACH (272) pp. 803–817: see also CUÉNOT (41). (b) Gemmation or fission, *Actinopyga* sp. with tentaculiferous oral and anal extremities in different radii; BELL (12). (c) Non-regeneration of sphaeridia artificially removed in *Strongylocentrotus*; DELAGE (51). (d) Regeneration of disk and rays with ambulacral grooves from distal half of a single ray in *Phataria*; MONKS (225). (e) Regeneration of rays in *Ophioglypha*, rate at maximum in medium sized individuals, also increases with number of rays removed, no food being given; ZELENY (334).
- viii. **Parasites and Commensals**:—
- (b) Actinian parasite near mouth of *Pseudostichopus*; RICHARD (271) p. 66: ALBERT HONORÉ (5) p. 212.—*Eutosiphon*, gastropod in *Deima blakei*; KOEHLER & VANÉY (170).—*Gregarina irregularis* in blood vessels of *Holothuria nigra*; WOODCOCK (330). (c) General account; HAMANN (125) pp. 1304–1306.—Parasitic copepod on radiole of *Calveria* (v. Hansen, 120 Zool. Rec. 1902); MORTENSEN (229) pp. 51, 175, pl. xiv.—Crab and cirripede on spines of *Chaetodiadema*; MORTENSEN (228).—Cirripede *Paecilasma aurantium*, also *Palythoadae* on radioles of *Dorocidaris*; RICHARD (271) pp. 66, 67, 71.—Rhizopod in *Arbacia* ovary, envelops ova which fuse and form giant larvae; JANSSENS (156).—Acoelous Turbellarian [*Avagina incola* Leiper (166) Zool. Rec. 1902] in accessory canal of *Echinocardium*; LEIPER

- (185). (d) Nematode in body-cavity of *Hymenaster* (p. 34) and in genital gland of *Diplasterias* (p. 41); LUDWIG (204). (f) An aulopoid coral attached to *Dolatocr.*, checking growth of arm-branches, and partly imbedded; ROWLEY in GREENE (119) p. 160.—Swellings on *Crin.* stems, general summary, and account of stems from the Carboniferous of Gascoyne District, W. Australia, infested by a fungus—*Achlyites*; ETHERIDGE (75) p. 25, pl. iv. (h) Injury and regeneration of ambulacrum in *Pentremites*; ROWLEY in GREENE (115) p. 121.
- ix. **Echinoderms as Food**:—of corals, e.g. *Euphyllia*—ova and larvae; GARDINER (98) p. 482.—Of fish in English Channel—various *Ech.* and *Oph.*; TODD (305) p. 557.—Of *Gadus aeglefinus*—*Amphiura filiformis*; PETERSEN (259) p. 43.—Of man—protection and breeding of *Stichopus*, piles of stones to form retreats and nurseries; MITSUKURI (224) p. 20.—Of man—*Ech.*; HAMANN (125) p. 1306.
- x. **Echinoderms in Geological Aspect**:—*Hol.* spicules caught in *Peridinia* slime on floor of Adriatic; STEUER (300).
Stratum 1 foot thick exclusively composed of *Fibularia gregata*; HOWCHIN (149).—*Ech.* as constituents in coral rock; SKEATS (295) passim.—*Crin.* fragments forming beds round Palaeozoic coral reefs, mode of origin; GRABAU (108).—Echinoderm fragments in Senonian rocks; LORY (202) pp. 265, 270, 275, pl. i.—Echinoderm elements in composition of Jurassic and Cretaceous rocks near Besançon; DEPRAT (58).—Middle Lias Marlstone of Tainton is “a mass of ferro-crinoid segments, held together by a matrix of clear calcite”; WALFORD (317).
Mode of silicification of *Ech.* tests in the Chalk; MEUNIER in DOUVILLÉ (66) p. 97.—Ditto, *Echinocorys*; HANSSSEN (127) p. 229.—Ditto in Upper Cretaceous of Egypt, assigned to “action des eaux météoriques sur la silice de la roche encaissante”; FOURTAU (91).—Mode of preservation of *Crin.* columnals in Devonian iron ore of N.W. Germany; HARBORD (128).
Chemical tests for Echinoderm constituents of limestone; SKEATS (295) p. 66: see also MEIGEN (218).
Grinding of coral fragments into sand by *Holothuria atra*, *Stichopus chloronotus*, and numerous *Ech.*; GARDINER (99).

(E.) MISCELLANEOUS.

- i. **Research and Instruction**:—
- a. **Preservation**:—Solution of ether as narcotic for *Oph.*, *Ast.*, *Ech.*, *Hol.*, occasionally supplemented by Magnesium sulphate or hot formalin; ÖSTERGREN (243).
- b. **Methods of research**:—Rearing larvae,—on diatoms; COWLES (40) p. 126.—*Ech.*, clean water containing food, also cooling in hot weather; DONCASTER (63).—Hybrid *Ech.* and study; DONCASTER (64) p. 120.—*Echinus* and study; MACBRIDE (207) p. 288.—*Ast.*, see II, F, V, d; DELAGE (49).
Histological examination *Ech.* and *Hol.* ova; GUENTHER (121).
Decalcification, section-cutting, and staining of *Palaeopneustes*; WAGNER (316).—Radioles of *Ech.* heated in potassium iodide show the fine alveolar structure well; ROEMER (274).—Method of preparing pedicellariae of *Ech.*; MORTENSEN (229) pp. 10, 169.
Machine for grinding fossils at regular intervals, and photography of serial sections, applied to *Lapworthura* and *Ophiura*; SOLLAS (296).
- c. **Museum Exhibits and Collections**:—Aquarium at Port Erin, I. of Man, account of Echinoderms; HERDMAN (142) p. 79

- and fig.—W. P. Sladen collection of recent and fossil Echinoderms and library presented to Albert Memorial Museum, Exeter, briefly described; EXETER (76) p. 94.—Type and figd. specimens of Palaeozoic *Echinoderma* in N.Y. State Museum; CLARKE & RUEDEMANN (31) pp. 63–80, 783–785.—Labels explaining skeletal anat. of *Crin.*, with illustrative specimens; MERRILL (222) pp. 222–225, pls. lxii–lxix.—Slab of *Vintacr.* in American Mus. Nat. Hist. figd.; HOVEY (148).—U.S. National Museum, I. H. Harris Coll. Echinoderms from Ordovician of Cincinnati, Silurian of Waldron, Ind., and Carboniferous of Crawfordsville, Ind., and Burlington, Ia.; SCHUCHERT (288).—Comparison of the Hambach coll. of *Blast.* with that in British Museum, which, by omission to indicate any type-specimens in the latter, appears to exalt the former; HAMBACH (126) p. 63.
- d. Instruction:—Text-books,—systematic summary; WILDER (324).—General account of Echinoderms pp. 94–111, text-figg. 16–19; WIERZEJSKI (323).—Brief account of common French spp. of fossil *Crin.*, *Ast.*, *Ech.*, esp. *Ech.* with original figg.; FRITEL (96A) pp. 46–70, pls. iii–vi.—Dissections of *Ech.* and *Ast.*; PRATT (261).—Dissections of *Asterias*, *Echinus*, *Holothuria*; KUEKENTHAL (173).—Demonstration of *Echinus* and *Asterias* to students; THOMSON & RENNIE (304) p. 53.—Account of fossil *Echinoderma* with new woodcuts; STEINMANN (299) pp. 141–201.—Condensed account of fossils, down to families; ZITTEL (339) pp. 123–226.—Account of fossil *Pelmatozoa*; STOPPANI (302) p. 201 & figg.
- ii. **Economics**:—see II, D, ix, Echinoderms as food of man.
- iii. **Bibliography**:—Irish Echinoderms; NICHOLS (236) p. 234.—Echinoderms of Spitzbergen district; MICHAÏLOVSKIJ (223) p. 541.—Geology of French Pyrenees, with references to all occurrences of fossil Echinoderms; CAREZ (27) pp. 172, 231, 286, 390, 395, 404, 416, 530, 553.—List of papers and summary of his work on *Echinoderma*; MUNIER-CHALMAS (232) pp. 30–36.—*Hol.* chiefly of Atlantic forms; PERRIER (254) p. 541.—Supplementary, of *Ech.*; HAMANN (125) pp. 1318–1320.—Of *Ech.* since 1872; MORTENSEN (229) pp. 183–193.—Foss. *Ech.* Savoy; SAVIN (283) pp. 65–68.—Literary history of spp. of *Echinocorys* and *Galeola* from 1565 to date; LAMBERT (176) pp. 98–138.—Artificial parthenogenesis; VIGUIER (313) pp. 131–134.
- iv. **Historical, Popular notions, &c.**:—J. Bennie's discoveries in Scottish fossil Echinoderms; HORNE, (147) p. 191.

(F.) AUXOLOGY.

- i. **General Principles**:—Vacant.
- ii. **General Accounts**:—Vacant.
- iii. **Formation of Gonads**:—(b) in *Stichopus*; MITSUKURI (224) p. 3. (b–c) Origin and meaning of nucleolus in maturing ova of *Holothuria* and *Psammechinus*; GUENTHER (121). (d) Ova and ovaries of *Anasterias chirophora*; LUDWIG (204) p. 47.
- iv. **Oviposition, Fertilisation, and Segmentation**:—Breeding season of *Stichopus japonicus*; MITSUKURI (224) pp. 1, 8.—Two breeding seasons in *Anasterias chirophora*; LUDWIG (204) p. 43. Criticism of GIARDINA (102) in Zool. Rec. for 1902; BUETSCHLI (26).—Reply, but Echinoderms not specially mentioned; GIARDINA (102).—Spermatozoa of *Arbacia* live in sea-water, when sterilized, from 48 to 133½ hours, and retain fertilising power so long as they retain ciliary motion; FISCHER (83).—Fertilisation in *Asterias*, *Strongylocentrotus*, and *Arbacia*, effect of mass of ova on spermatozoon, and

details of the process; SCHUECKING (290).—Influence of ovum plasma, reply to SCHUECKING (290); DUNGERN (71).—Reply; SCHUECKING (291).

Segmentation,—appearance of a "Gallertschicht"; KRASSUSKAJA & LANDAU (172).—First formation of groove studied in *Strongylocentrotus*; ZIEGLER (337) p. 170, figg.—Relation of grooves to astrospheres elucidated by experimental study of mitosis in *Echinus*; TEICHMANN (303).—Independence of the halves of the nucleus or "gonomere Zustand der Keimbahnkerne"; HAECKER (122) p. 359.—Abnormal mitoses in fragments of ova of *Echinus microtuberculatus* deprived of nucleus and fertilised with sperm of *Strongylocentrotus lividus*; BOVERI (22).

- v. **Larval Stages**:—(a) Larvae with transverse bands of cilia in *Hol.*, *Crin.*, *Oph.*, *Ech.*, and their bearing on Echinoderm ancestry; GRAVE (111). (c) Normal gastrulation of *Strongylocentrotus*, one-tenth total number of cells are invaginated as in other *Ech.*, and not one-half as BOVERI stated; MORGAN (226) p. 122.—Movements of gastrula see II, c, vii; BOHN (20).—Spatangid plutei as red felt-like masses, G. of Trieste (p. 146), and variations of larvae in plankton (pl. i); STREUER (301).—Complete account of larval development of *Echinus esculentus*, and comparison with *E. acutus* and *E. miliaris*; MACBRIDE (207) see also (210).—*E. esculentus*, 21 days, pit with nerve fibrils and ganglion cells; MACBRIDE (208 & 207).—Difficulty in rearing later stages varies with the species, account of results with *Sphaerechinus*, *Echinus*, and *Strongylocentrotus*, also hybrids of last two; DONCASTER (63).—Description of skeletons of normal and hybrid plutei of *Sphaerechinus* and *Strongylocentrotus*; DONCASTER (64) p. 123 & figg. (d) Rearing *Ast.* larvae, shade, movement, and nutriment are needed; DELAGE (49).—Larvae of *Luidia sarsi*, young stages; MACBRIDE (209).
- vi. **Organogeny**:—(c) *Echinoidea*:—General account of growth and metamorphosis of young sea-urchin in *Echinus esculentus*; MACBRIDE (207) pp. 303–310.—Abstract of THÉEL (277) Zool. Rec. 1902; HAMANN (125) p. 1316.
- vii. **Post-larval Growth-stages**:—Growth of young *Stichopus japonicus* from 3·5 mm. to 20 mm. long, reach adult (i.e. reproductive) stage in 2 years, and live about 5 years (p. 11), correlation with growth of spicules (p. 19); MITSUKURI (224).—Growth of spicules in *Holothuria*; PEARSON (250) pp. 200, 204.—Ditto in *Chirodotu laevis*; NORMAN (239) p. 414. (c) Development of apical area in young *Phormosoma placenta*, diam. 7–35 mm. (p. 69, pl. iv), further details in specimens of diam. 3–7 mm. (p. 174), brephic *Hypsiechinus* (p. 89, pl. vii); MORTENSEN (229).—Brephic stages of various undetermined spp. of *Echinus* from 5 mm. diam., with special reference to podia, gut, dental sacs, gonads; MACBRIDE (207) pp. 310–314.—Differences between neanic and ephelic *Iheringina*; LAMBERT (177) p. 478.—Neanic to ephelic *Hemiasiter cubicus*; FOURTAU (88).—Differences between specimens of *Asthenosoma varium* 48 mm. & 160 mm. diameter; DOEDERLEIN (62) p. 703. (d) Comparison of young and adult in spp. of *Cheiraster*, *Anasterias*; LUDWIG (204). (f) In arms with biserial Br., the distal Br. originate uniserially, although they might be biserial in highly specialised genera, illustrated by descr. and figg. of *Encrinus*, *Platyser.*, *Dichocr.*, *Acrocr.*, *Eucalyptocr.*, *Hydreionocr.*, *Zeacr.*; GRABAU (109).
- viii. **Developmental mechanics and Experimental Embryology**:—General account and discussion of recent work; DRIESCH (68).—Spermatozoa of *Ech.*, movement in a drop of water; WINSLOW (325).—Life of ovum prolonged by sterilising sea-water; GORHAM & TOWER (107).—Experimental study of mitosis in *Ech.* ova; TEICH-

MANN (303).—Relations of protoplasm in mitosis of shaken sperm-ova of *Strongylocentrotus*, in cases where a monaster replaces the usual amphiaster; BOVERI (24).—Fusion and changes in form of nuclei in pressed blastulae or ova of *Echinus*, with myelin formation on nuclear membrane; ALBRECHT (5A) pp. 120–124, 127, pls. A–D.—Necessity for presence of vegetative plasma in development of isolated blastomeres of *Ech.*; DRIESCH (70).—Gastrulation of separated blastomeres in *Sphaerechinus*, compared with previous results in *Toxopneustes*; MORGAN (226).—Development of ova of *Echinus microtuberculatus* fused before fertilisation; DRIESCH (70).—Artificial production of double larvae and monsters in *Arbacia*, also fusion of ova forming giant larvae, fusion aided by parasite (cf. II, D, viii, c); JANSSENS (156). Asymmetric formation of first cleavage groove induced by subacetate of lead in *Strongylocentrotus*; ZIEGLER (337) p. 174, figg.

Development of larvae of *Sphaerechinus* and *Strongylocentrotus* hindered by alcohol, 1% to 2.5%, the more alcohol the greater the hindrance; ZIEGLER (338).—Action of solutions of non-electrolytes isotonic with sea-water on sperm-ova of *Asterias* and *Arbacia*, nuclear division without cleavage; LILLIE (188).—Free hydroxyions not necessary in normal fertilisation, and not present in normal sea-water, which is not alkaline; LOEB (195).—Action of distilled water and of sugar solution isotonic with sea-water on *Ech.* ova; LOEB (196) p. 67. —Effect of mechanical shock on development of ova and sperm-ova of *Arbacia*; MATHEWS & WHITCHER (216).—Gastrulation checked by radium rays in *Strongylocentrotus*; BOHN (19).

Hybrids: *Echinus microtuberculatus* ♀ × *Strongylocentrotus lividus* ♂ reared past the metamorphosis, but *Strongylocentrotus* ♀ × *Echinus* ♂ died in pluteus stage; DONCASTER (63).—*Sphaerechinus granularis* ♀ × *Strongylocentrotus lividus* ♂, or × *Echinus microtuberculatus* ♂, also *Arbacia pustulosa* ♀ × *S. granularis* ♂, reared under various conditions to determine causes of dominance of various characters, especially skeletal, correlation between characters, and causes hindering crossing; DONCASTER (64).—*Echinus* ♂ × *Sphaerechinus* ♀ and *Strongylocentrotus* ♂ × *Sphaerechinus* ♀ also × *Echinus* ♀, the male element influences the larva in form, skeleton, number and pigmentation and arrangement of chromatophores, number of primary mesenchyme cells, and size; general discussion with special reference to the different conclusions of Driesch; BOVERI (23).—Similar crossings, also *Echinus* ♂ × *Strongylocentrotus* ♀, give results conflicting with those of BOVERI (23) except as regards form of plutei and, in part, distribution of chromatophores; DRIESCH (69).—*Asterias glacialis* ♀ × *Arbacia pustulosa* ♂ also *Strongylocentrotus lividus* ♀ × *Asterias* ♂; SCHUECKING (291).—*Asterias glacialis* ♀ × *Sphaerechinus granularis* ♂ gave a single blastula, × *Toxopneustes lividus* ♂ ditto; *Ophidiaster ophidianus* ♀ × *Toxopneustes lividus* ♂, gave first cleavage only (pp. 21, 23, 99); plutei obtained from *Sphaerechinus granularis* ♀ × *Toxopneustes lividus* ♂, and *Arbacia pustulosa* ♂, also *Arbacia* ♀ × *Sphaerechinus* ♂ and *Toxopneustes* ♂, but not from *Toxopneustes* ♀ (pp. 23, 89); VIGUIER (313).—*Strongylocentrotus purpuratus* ♀ × *Asterias ochracea* ♂ in certain solutions reach gastrula; LOEB (192).—*Strongylocentrotus purpuratus* or *S. franciscanus* ova fertilised by sperm of *Asterias ochracea* and reach gastrula, when medium is alkaline, in which case they are not fertilised by sperm of their own species; LOEB (194 & 193).—See also BOVERI (22) II, F, iv.

Artificial Parthenogenesis:—Summary of work published in 1901; DELAGE (48).—Regarded as a remnant of former normal parthenogenesis; WEDEKIND (319).—Comparison with natural parthenogenesis

in *Ast.* and *Ech.*, review and criticism of theories, esp. of Chicago school, discussion of so-called heliotropism of larvae, confirmation of own previous work (see 343, 344, [Zool. Rec. 1900; 312-314, Z. R. 1901; 286, 287, Z. R. 1902), seasonal variations and climatic changes affect the two kinds differently, plates show relative development of fertilised and unfertilised cultures from same ♀ *Arbacia*, reiteration of differences due to species and locality; VIGUIER (313).—Carbon dioxide,—acts on *Asterias glacialis* ova as observed by DELAGE (61, 62, 64 Zool. Rec. 1902); VIGUIER (313) p. 127 and (314): but also acts on ripe ova of *Strongylocentrotus*, *Sphaerechinus*, and *Arbacia* sometimes favourably sometimes harmfully, more development from unripe ova; VIGUIER (314): *Ast.* larvae reared almost to metamorphosis by nutrition; DELAGE (49): after extrusion of polar bodies, in *Strongylocentrotus*, rendered effective by shaking and warmth; DELAGE (50).—Parthenogenesis induced by chemical, thermal, electric, and luminous stimuli; SCHUECKING (290).—Induced in ova of *Arbacia*, *Strongylocentrotus*, and *Sphaerechinus* at Naples by same methods as at Wood's Hole, with slight differences; use of carbon dioxide and potassium cyanide; effect of oxygen and of change of temperature; LYON (206).—Mitosis induced in *Arbacia* ova by lack of oxygen, rise of temperature, ether, chloroform, and alcohol, all methods which liquefy protoplasm and therefore either liquefy cell-contents or produce a liquefying enzyme—the centrosome [is it not rather that they disturb surface-tension?]; MATHEWS (215).—Parthenogenesis in *Ast.* by ether, larvae reach 18 days; YATSU (333).—*Arbacia*, *Echinus*; OTTOLENGHI (245).—Conditions of purity of solutions in concentrated sea-water, stage of development of ova, duration in solution, and temperature, studied in *Arbacia*, variations in nature of ova, and contrast with *Strongylocentrotus*; HUNTER (151).—Action of temperature in checking stimuli in ova of *Arbacia* and *Asterias*; GREELEY (113).—Cleavage started in unfertilised ova of *Arbacia* by shaking, but no further development; MELTZER (220).—Parthenogenesis produced by action of radium rays in *Strongylocentrotus*; BOHN (19).

III. DISTRIBUTION*.

A. GEOGRAPHICAL.

- i. **General**:—Echinoderm fauna of deep sea, elementary summary; ÖSTERGREN (242).—Distribution of genera of *Ech. Regularia* from *Cidaridae* to *Temnopleuridae*; MEISSNER in HAMANN (125) pp. 1339-1366.—Revision of distrib. of living spp. of *Cidar*-, *Echinothur*-, *Temnopleur*-, *Echinometr*-, *Echin*-, and *Toxopneustidae* (see spp. indexed in iv, c), supposed resemblance between Arctic-subarctic and Antarctic-subantarctic *Ech.* faunas quite illusory (p. 167); MORTENSEN (229).—*Ast.* collected by S.Y. Belgica afford additional argument against bipolar hypothesis; LUDWIG (204) p. 3.
 - ii. **Atlantic Ocean and adjacent Seas**:—Tables of all spp. of *Cidaridae*, *Echinothuridae*, *Echinidae*, and *Toxopneustidae* occurring in N. Atlantic and Mediterranean; MORTENSEN (229).
- N. Norway, discussion of Arctic and boreal character of *Hol.* and list of spp. of *Stichopus*, *Bathyploetes*, *Mesothuria*, *Cucumaria*, *Phyllophorus*, *Psolus*, *Trochostoma*, *Ankyroderma*, *Synapta*, *Chiridota*, *Myriotrochus*, *Trochoderma*, *Labidoplax*; ÖSTERGREN (244).—E. Finmark, list of *Hol.*, *Ech.*, *Ast.*, *Oph.*, partly compiled, excludes *Amphiura elegans*, *Asteronyx loveni*, *Pedicellaster typicus*, casts

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

- doubt on *Psilaster andromeda*, *Asterias glacialis*, but adds *Asterias panopla* and *Eupyrigus scaber*; NORMAN (239).
- Denmark, larvae of *Asterias* and *Luidia*; JOHANSEN & LEVINSÉN (158) pp. 284, 294.—Kattegat (Skeldervik) spp. of *Psolus*, *Phyllophorus*, *Cucumaria*, *Echinus*, *Toxopneustes*, *Echinocardium*, *Brissopsis*, *Asterias*, *Cribrella*, *Solaster*, *Astropecten*, *Ophiura*, *Amphiura*, *Ophiopholis*, *Ophiothrix*, and comparison with fauna of Öresund; LÖNNBERG (197).—Skagerack, spp. of *Pteraster*, *Archaster*, *Poraniomorpha*, *Ophioscolex*, *Asteronyx*, *Chirodota*, *Echinocucumis*, and *Holothuria*, new to fauna; comparison with Kattegat; also spp. of *Astropecten*, *Goniaster*, *Solaster*, *Asterias*, *Luidia*, *Ophiothrix*, *Amphiura*, *Ophioglypha*, *Amphidetus*, *Echinus*, *Brissopsis*, *Spatangus*, and *Synapta*; PETERSEN (259).
- British coasts,—Aberdeen and neighbouring seas, list of *Echinoderma* with habitats of some; SIMPSON (294).—Yorkshire coast, *Uraster*, *Ophiocoma*, *Solaster*; HEY (145): *Echinus*, *Uraster*, *Solaster*, *Ophiocoma*; PETCH (257): Hornsea, *Ophiocoma*, *Uraster*, *Solaster*; PETCH (258).—English Channel, bays between the Start and Exmouth, lists of Echinoderms, with summary on p. 554; TODD (305).—Irish Sea near Southport, list of Echinoderms; HERDMAN & THOMPSON (144) p. 167.—General discussion of Irish Echinoderm fauna, with detailed locc. of spp. of *Synapta*, *Cucumaria*, *Thyone*, *Psolus*, *Phyllophorus*, *Holothuria*, *Stichopus*, *Laetmogone*, *Antedon*, *Pontaster*, *Plutonaster*, *Astropecten*, *Psilaster*, *Luidia*, *Pentagonaster*, *Nymphaster*, *Porania*, *Asterina*, *Palmipes*, *Stichaster*, *Neomorphaster*, *Zoroaster*, *Solaster*, *Pteraster*, *Hymenaster*, *Henricia*, *Asterias*, *Brisinga*, *Ophiura*, *Ophiocten*, *Ophiomusium*, *Ophiocnida*, *Amphiura*, *Ophiactis*, *Ophiopholis*, *Ophiocoma*, *Ophiopsila*, *Ophiothrix*, *Ophiobyrsa*, *Cidaris*, *Asthenosoma*, *Phormosoma*, *Echinus*, *Strongylocentrotus*, *Echinocyamus*; NICHOLS (236).—Coasts of Antrim and Down, Ireland, summary of *Crin*, *Ast.*, *Oph.*, *Ech.*, *Hol.*; NICHOLS (235).
- North Sea, Plankton during August, *Ast.* larvae (p. 127), benthos *Asterias*, *Crossaster*, *Ophiothrix*, *Ophioglypha*, *Echinus* (p. 145); REDEKE & VAN BREEMEN (266).
- Belgian coast, list of *Ech.*, *Ast.*, *Oph.*; GILSON (103) p. 34.
- French coast,—Chaniel, Luc, abundance of *Cucumaria pentactes* in 1899; BRASIL, Bull. Soc. Normand. (5) iii, p. xli (1900).
- Mediterranean—near Capri,—plankton, larvae of *Hol.*, *Ast.*, *Oph.* (p. 217), benthos *Antedon*, *Amphiura*, *Ophioglypha*, *Chirodota* (p. 268); Lo BIANCO (191): Auricularia of *Synapta* sp. (p. 456) and *Ankyroderma* (p. 460); Lo BIANCO (190).
- Hol.* dredged by 'Travailleur' and 'Talisman,' chiefly in Atlantic from B. of Biscay to S. of Azores, with general history of deep sea discoveries in this region (pp. 273–287), descriptions of spp. of *Mesothuria*, *Zygothuria*, *Pseudostichopus*, *Synallactes*, *Bathyplores*, *Pelopatides*, *Benthothuria*, *Laetmogone*, *Benthogone*, *Oneirophanta*, *Eliptida*, *Pentagone*, *Periamma*, *Euphronides*, *Benthodytes*, *Psychropetes*, *Holothuria*, *Gastrothuria*, *Stichopus*, *Cucumaria*, *Psolus*, *Thyone*, *Ypsilothuria*, *Ankyroderma*, *Trochostoma*, and *Protankyra*; PERRIER (254).—From coast of Portugal to Azores, deep-sea dredgings, *Psychropotes*, *Pseudostichopus*, *Mesothuria*, *Laetmogone*, *Holothuria*, *Allanitis*, *Centrostephanus*, *Dorocidaris*, *Echinus*, *Asthenosoma*, *Sperosoma*, *Strongylocentrotus*, *Salenia*, *Palaeotropus*, *Cribrella*, *Astropecten*, *Styraacaster*, *Plutonaster*, *Hymenaster*, *Paragonaster*, *Pentagonaster*, *Neomorphaster*, *Pedicellaster*, *Astrogonium*, *Ophioglypha*, *Ophiomusium*, &c.; RICHARD (271).—Between Azores and Josephine bank, 4275 m., *Hymenaster*, *Paragonaster*, *Plutonaster*,

- Hyphalaster*, and *Pseudostichopus*; ALBERT HONORÉ (5) p. 212.—Azores probable centre of distribution of *Synallactinæ*; ALBERT HONORÉ (4).
- S. coast of New England, *Linckia*, *Poraniomorpha*, *Diploaster*, *Archaster*, *Schizaster*, *Ophiopholis*, *Ophioscolex*, *Ophiacantha*, *Thyone*, *Antedon*; HOWE (150).
- iii. **Indian Ocean and adjacent Seas**:—Four zoogeogr. districts based mainly on *Ech.* distrib. (p. 686); from Amboina spp. of *Eucidaris*, *Leiucidaris*, *Diadema*, *Echinothrix*, *Astropyga*, *Asthenosoma*, *Toxopneustes*, *Tripneustes*, *Salmacis*, *Mespilia*, *Echinometra*, *Heterocentrotus*, *Colobocentrotus*, *Arachnoides*; from Thursday Id. spp. of *Leiucidaris*, *Pleurechinus*, *Salmacis*, *Echinometra*, *Arachnoides*, *Laganum*, *Echinodiscus*, *Breytia*; DOEDERLEIN (62).
- G. of Suez, *Ech.* fauna, *Rhabdocidaris*, *Diadema*, *Heterocentrotus*, *Echinometra*, *Echinus*, *Clypeaster*, *Tetrodiscus*, *Echinolampas*, *Lovenia*, *Metalia*, *Schizaster*, *Moiria*; FOURTAU (89).
- Zanzibar, list of Ast., incl. *Ophidiaster fuscus*, *Oph.*, incl. *Ophioteris elegans*, and *Ech.* incl. *Schizaster gibberulus*, collected by Crossland; BELL (11).
- Gulf of Manaar, dredgings including several Echinoderms; HERDMAN (143) passim: new to district are spp. of *Synapta*, *Cucumaria*, *Thyone* (n. sp.), *Phyllophorus*, *Actinocucumis* (n. sp.), *Colochirus*, *Havelockia* (n. g.), *Actinopyga* (n. sp.), *Holothuria* (n. sp.), and n. var. of *Stichopus*; PEARSON (250).—G. of Siam, *Chaetodiadema* (n. g.); MORTENSEN (228).—Malay Archipelago, n. spp. of *Porocidaris*, *Phormosoma*, *Dermatodiadema*, *Hemipedinia*, *Micropyga*, *Astropyga*, *Echinus*, *Echinocyamus*, *Fibularia*, *Clypeaster*, *Aphanopora* (n. g.), *Neolampas*, *Stereopneustes* (n. g.), *Sternopatagus* (n. g.), *Palaeopneustes*, *Plesiozonus* (n. g.), *Linopneustes*, *Homolampas*, and *Phrisocystis*, collected by 'Siboga'; DE MEIJERE (53).—Amboina, *Lissodiadema* (n. g.); MORTENSEN (230).—Java, *Holothuria*, *Diadema*; KARAWAEW (164).
- iv. **Pacific Ocean and adjacent Seas**:—Japan, locc. of many *Ech.*, also found fossil; TOKUNAGA (306).
- Jaluit in Marshall Is., coral flats *Holothuria*, *Ophiocoma*, *Ophiothrix*; SCHNEE (286) p. 377.—Ocean and Pleasant Id., *Echinothrix*, *Heterocentrotus*, *Echinometra*, *Ophiocoma*, *Muelleria*, *Holothuria*; WHITELEGGE (322).
- New Zealand, n. spp. of *Thyonidium* and *Cucumaria*; PERRIER (255).
- v. **Arctic Ocean and adjacent Seas**:—List and general discussion of Echinoderm fauna of Spitzbergen district, with special notes on spp. of *Cucumaria*, *Phyllophorus*, *Psolus*, *Eupyrgus*, *Chiridota*, *Myriotrochus*, *Elpidia*, *Kolga*, *Strongylocentrotus*, *Asterias*, *Stichaster*, *Pedicellaster*, *Cribrella*, *Hymenaster*, *Pteraster*, *Lophaster*, *Solaster*, *Crossaster*, *Rhegaster*, *Ctenodiscus*, *Pontaster*, *Ophiura*, *Amphiura*, *Ophiocten*, *Ophiopholis*, *Ophiacantha*, *Ophioscolex*, *Gorgonocephalus*, and *Antedon*; also, on the way to Spitzbergen, spp. of *Ankyroderma*, *Lasiaster*, *Leptoptychaster*, and *Astropecten*; MICHAÏLOVSKIÏ (223).—Arctic, C. Flora, Northbrook Id., *Ophioglypha robusta*; NOBILI (237).—*Ech.* collected by Ingolf Exped. near Iceland and Greenland, spp. of *Dorocidaris*, *Cidaris*, *Stereocidaris* (n. sp.), *Porocidaris*, *Phormosoma*, *Calveria*, *Araeosoma* (n. g.), *Sperosoma*, *Tromikosoma* (n. g. & sp.), *Hypsicchinus* (n. g. & sp.), *Parechinus* (n. g.), *Echinus* (n. sp.), *Strongylocentrotus*; MORTENSEN (229).—East Greenland, *Antedon*, *Asterias*, *Stichaster*, *Cribrella*, *Rhegaster*, *Solaster*, *Pteraster*, *Hymenaster*, *Pentagonaster*, *Pontaster*, *Ophioglypha*, *Ophiocten*, *Ophiopleura*, *Ophiopholis*, *Ophiopus*, *Amphiura*,

- Ophiacantha*, *Ophiocolax*, *Gorgonocephalus*, *Strongylocentrotus*, *Myriotrochus*, *Eupyrigus*, *Trochostoma*; MORTENSEN (227).
 E. of C. Sesuro in N. of Korea, 200–1600 metres, *Antedon*, *Lophaster*, *Solaster*, *Stichaster*, *Ophiopholis*, *Strongylocentrotus*, *Trochostoma*; MARENZELLER (214).
 vi. **Antarctic Ocean and adjacent Seas**:—Antarctic, between 70°–71° 24' S. & 80° 48'–102° 15' W., 400–560 m., *Lophaster*, *Pteraster*, *Porania*, *Mimaster*, *Diplasterias*, and n. spp. of *Hymenaster*, *Anasterias*, *Odontaster*, *Solaster*, *Echinaster*, *Pedicellaster*, *Chevaster*, *Stolasterias*, and at 2800 m. *Belgicella* (n. g.): Subantarctic, Magellan Str., Magallanes, and Terra del Fuego, *Cosmasterias*, *Sporasterias*, *Asterodon*, *Labidiaster*; LUDWIG (204).

B. GEOLOGICAL.

(i) GENERAL.

Distrib. of Echinoderms; WOODWARD (331) p. 148.—Summary of palaeontology of *Ech.*; HAMANN (125) pp. 1308–1312.—Distrib. of *Crin.* (p. 161), *Cyst.* (p. 178), *Ech.* (p. 224); ZITTEL (339).—Distrib. of *Ech.* (p. 159), *Stelleroidea* (p. 165), *Crin.* (p. 187); STEINMANN (299).

Occurrences of Echinoderms in strata from Silurian to Tertiary in French Pyrenees; CAREZ (27) pp. 172, 231, 286, 390, 395, 404, 416, 530, 553.—Correlation of Australian Cretaceous-Tertiary strata with European, evidence of *Ech.*; HALL (124) p. 181: see also LAMBERT in Review.

(ii) CAINOZOIC.

- a. **General**:—Japan, —n. spp. of *Salenia*, *Echinolampas*, *Hypsospatangus*; LORIOL (200): Neogene of uncertain age, list of *Ech.*; TOKUNAGA (306).
 b. **Pleistocene**:—Otranto, *Sphaerechinus*, *Psammechinus*; DE GIORGI (47) p. 184.—G. of Suez, *Fibularia*, *Brissus*; FOURTAU (89).—Raised beaches and coral reefs of Red Sea from Harib to Qosseir, *Ech.* fauna compared with recent; BARRON & HUME (10) pp. 132–141.—Redonian, St Clement-de-la-Place, *Arbacia*; COUFFON (39) p. 91.
 San Pedro, California, *Strongylocentrotus*, *Echinarachnius*; ARNOLD (8) p. 90.
 c. **Pliocene**:—Lombardy, *Cidaris*, *Schizaster*, and *Echinocyamus*; PATRINI (247) pp. 739, 743.—Otranto, *Stirechinus*, *Sphaerechinus*, *Psammechinus*, *Echinolampas*, *Leiocidaris*, *Spatangus*; DE GIORGI (47) p. 193.
 Upper:—G. of Suez, immigration of *Temnopleurus toreumaticus* from Indo-pacific basin; FOURTAU (90).—Near G. of Suez, *Echinus*, *Tetradiscus*, *Temnopleurus*, *Laganum*; FOURTAU (89).
 Lower:—Plaisancian and Astian near Nice, *Dorocidaris*; DEPÉRET & CAZIOT (57) pp. 324–326.
 Japan, list of *Ech.* esp. *Fibularia*, *Linthia*, and *Schizaster*; TOKUNAGA (306).
 Various locc. in California, *Echinarachnius*; ARNOLD (8) p. 91.
 d. **Miocene**:—Lithothamnium limest. of Rzeszów in Galicia, *Echinolampas*; FRIEDBERG (96).—Macigno di Porretta, *Spatangus*; NELLI (233) p. 194.—Pietra leccese, Otranto, *Scutella*, *Echinolampas*, *Leiocidaris*, *Clypeaster*, *Schizaster*, *Micraster*, *Spatangus*, *Cidaris*; DE GIORGI (47) p. 199.—Nurri in Sardinia, age of bed doubted by TORNIQUIST (308) p. 822, confirmed by *Clypeaster* and *Scutella*; LOVISATO

- (203) p. 227.—Japanese Is., *Echinodiscus*, *Astriclypeus*; TOKUNAGA (306).—Bellevue, Victoria, *Lovenia*; DENNANT & CLARK (55) p. 23.
- Middle:—drift at Tesperhud, N. Germany, *Echinocyamus*; KOERT (171).—Near Zarrentin, S.E. Holstein, *Chuniola* n.g., *Spatangus*, *Mareta*, *Psammechinus* and *Pentaceros*; GAGEL (97).
- Helvetian,—near Bordeaux, *Echinolampas*, *Conoclypeus*; FALLOT (79) p. 223.—Meeresmolasse near St Gallen, Switzerland, locc. of *Psammechinus*, *Schizaster*, *Echinocardium*, *Euspatangus*; FALKNER & LUDWIG (77) p. 535.—Egypt, Matrouh 260 km. W. of Alexandria, *Temnechinus*, *Clypeaster*, *Echinolampas*, *Amphiope*, *Agassizia*; PACHUNDAKI (245).—Gizeh, *Clypeaster*; RABOISSON (263) but assigned to Pliocene by FOURTAU in discussion: position defended by RABOISSON (264), criticism repeated; FOURTAU (86).
- Calcare grossolano delle latomie di Siracusa, *Echinolampas* cf. *perrieri* an Eocene sp.; MELI (219) p. 18.
- Tortonian,—Upper Mediterranean Beds, age of Leithakalk, Tuff of Amphibolite-andesite at Felső-Esztergály, Hungary, *Conoclypus*, *Schizaster*, *Spatangus*; KOCH (169) pp. 43, 162.
- Lower:—Glauconite Marls near Bremen, *Echinocyamus*; JORDAN (159) p. 525.
- Langhian (= Burdigalian),—Gironde, locc. of *Scutella subrotunda* (p. 81) and *Amphiope bioculata* p. 86; FALLOT (81).—Mollasse ossifère near Bordeaux, *Scutella*, *Echinolampas*, *Clypeaster*; FALLOT (79) pp. 218, 222.—Isola di Malo and Schio, various *Ech.*; MUNIER-CHALMAS (231) pp. 77, 91.—Central Tunis, *Scutella*; PERVINQUIÈRE (256) p. 211.
- Aquitanian,—near Bordeaux, *Scutella*, *Amphiope*; FALLOT (79) pp. 203, 204.—Gironde, brief note on *Scutella* spp.; FALLOT (80) p. 437: *Scutella bonali* from Pindères (Lot-et-Garonne) is Upper Aquitanian, but a var. from Castelviel (Entre-deux-mers) is Mid. Aquitanian, and from Gornac comes n. var. *gornacensis*, also *Amphiope ovalifera*; FALLOT (81).—Schioschichten of Vicentin, *Clypeaster*, *Scutella*, *Echinolampas*, *Palaeopneustes*, *Pericosmus*, *Echinocardium*, *Spatangus*, *Echinocyamus*; OPPENHEIM (241).
- d, e. **Oligo-miocene**:—Patagonian beds, various locc. *Cidaris* (n. sp.), *Goniocidaris* (n. sp.), *Echinopedina* (n. sp.), *Psammechinus* (n. sp.), *Boletia*, *Platipygus* (n. g.), *Schizaster* (n. sp.), *Iheringina*, *Antedon* (n. sp.); LORIOI (200): *Psammechinus* (n. spp.), *Isechinus* (n. g.), *Hypechinus*, *Iheringina*, *Monophora*, *Platipygus*, *Schizaster* (n. sp.), *Lanthia* (n. sp.); LAMBERT (177): Locc. of *Ech.* same as descr. by LAMBERT (177); TOURNOUER (310) pp. 466, 467, 471.
- e. **Oligocene**:—Middle,—Stettin sand, Cavelwisch, Pomerania, *Echinospatangus*; DEECKE (46) p. 37.
- Tongrian, Calcaire à Astéries, Gironde, list and locc. of *Ech.* (pp. 293, 296), couches de Terre Negre (pp. 298–301); FALLOT (78) pp. 293, 296.—Of Gironde, *Scutella striatula*, list of locc., is not Mid. Eoc. as cited by Cotteau, also locc. of *Amphiope agassizi*; FALLOT (81).—Upper, near Bordeaux, *Scutella*, *Echinolampas*, *Echinocyamus*; FALLOT (79) p. 199.
- Infra-tongrian, Montecchio Maggiore, various *Ech.* [apparently nom. nudd.]; MUNIER-CHALMAS (231) pp. 68, 89.
- Sandstone at Biarritz, *Euspatangus* (p. 393), Flysch of Biarritz, *Scutella* (p. 392); MAYER-EYMAR (217).
- f. **Eocene**:—Venetia, *Echinanthus*, *Conolampas* (n. sp.), *Echinolampas* (n. sp.), *Macropneustes*, *Mareta* (n. sp.); AIRAGHI (2).—Vicentin, general discussion of *Crin.* and *Ech.* fauna; MUNIER-CHALMAS (231) pp. 22, 23.—Mte. Spilecco, *Bourgueticr.*, *Pentacr.*, *Spileccia* (n. g.),

- Cidaris*, *Pyrina*, *Cyclaster*; MUNIER-CHALMAS (231) p. 29.—Central Tunis, *Conoclypeus*, *Harionia*, *Echinolampas*, *Euspatangus*, *Thagastea*, *Anisaster*, *Schizaster*, *Orthechinus*, *Plesiolampas*, *Cassidulus*, *Scutella*, *Clypeaster*; PERVINQUIÈRE (256) pp. 183–204.—Ranikot and Khirthar series of Sind, horizons of *Ech.*; GRIESBACH (120) p. 35.—Japan, *Harionia*, *Schizaster* (n. sp.), *Prenaster*; TOKUNAGA (308).—Bonin Is. n. spp. of *Harionia* and *Prenaster*; LORIOL (200).—Kangaroo Id. Australia, *Cassidulus*, *Echinolampas*, *Eupatagus*, *Fibularia*; HOWCHIN (149) p. 76.—Lower Mitchell R., Victoria, *Clypeaster*, *Monostychia*, *Eupatagus*, *Astrophyton*, *Antedon*; DENNANT & CLARK (55) p. 42.—General Roca on Rio Negro, 39° S., *Linthia* (n. sp.); BOEHM (17).
- Upper:—Priabonian,—calcaire de St Estèphe, Bordeaux, *Sismondia*, *Echinolampas*; FALLOT (79) p. 194.—Biarritz, *Scutella*, *Clypeaster*; HAUG (129) p. 496.—Priabona, various *Ech.* and *Crin.*; MUNIER-CHALMAS (231) p. 64.
- Middle:—Mussolino, *Pentacr.* (p. 37), various *Ech.* (p. 40), Mte. Pozza, various *Ech.* (p. 53); MUNIER-CHALMAS (231).
- Lutetian,—calcaire grossier of Blaye, Bordeaux, *Echinolampas*; FALLOT (79) p. 193.—Mte Gargano, *Porocidaris*, *Leiopodina*, *Conoclypeus*, *Ditremaster*, *Echinolampas*; CHECCHIA (30).—At Zinder (?) *Ech.* since lost; at Tamaské, 400 km. W. of Zinder, S.E. Sahara, *Plesiolampas*, *Leiocidaris*, *Linthia*; at Dakar, *Echinolampas*; LAPPARENT (181).
- (? Lower),—Upper Libyan beds at Baharia Oasis, *Porocidaris*, *Echinocyamus*, *Sismondia*; BALL & BEADNELL (9) p. 59.

(iii) MESOZOIC.

- a. **General**:—Horizons and locc. of *Ech.* of Savoy, from Bajocian to top of Cretaceous, with *Aulacocidaris* (n. g. et sp.) and n. spp. or n. varr. in *Cardiopelta*, *Phymechinus*, *Phymysoma*, *Diplopodia*, and *Plegiocidaris*; SAVIN (263) esp. tables pp. 182–184.
- b. **Cretaceous**:—Železnice near Jičín, Bohemia, various *Ech.*; ZELIZKO (336).—Japan, *Pygurus* (n. sp.), *Toxaster*, *Cidaris*, *Pseudocidaris*; TOKUNAGA (306); n. sp. of *Toxaster* LORIOL (200) p. 36.—Spp. of *Codiopsis* with horizons; LAMBERT (175).
1. **Upper**:—Distrib. of *Echinocorytinae* and account of mutation in time; LAMBERT (176) pp. 142–150, see also under the separate spp.—Upper Chalk near Reading, locc. of *Ech.*; BLAKE (15) pp. 9–12.—Limestone of Calloneghe near L. di S. Croce, Venetian Alps, *Cidaris*; LONGHI (199) p. 27.—Vancouver, doubtful fragments referred to *Pseudodiadema*, *Calliderma*, and *Pentacr.*; WHITEAVES (321) p. 405.—Patagonia, *Cidaris* (n. sp.); LORIOL (200) p. 52.—Opal series of White Cliffs, Wilcannia, N. S. Wales, *Isoer.*; ETHERIDGE (74) p. 10.
- Danian,—phosphate de Baudour Belgium=craie grise de Ciply, *Catopygus*, *Ananchytes*, *Cardiaster*, *Nucleolites*, *Cyphosoma*; CORNET (35, 36, 37).—Mancha Real, Spain, *Stenonia*, *Ovulaster*, Scaglia of various locc. N. Italy, *Ananchytes*, *Stenonia*, *Scagliaster* (n. g.) *Ovulaster*, *Coraster*, and discussion of *Ech.* fauna; MUNIER-CHALMAS (231) pp. 11, 12.—Overwegi-schichten und Blätterthone, Libyan desert, *Bourguetier*. [sic], *Pentacr.*, *Balanocr.*, *Cidaris*, *Coelopleurus* (?) (n. sp.), *Micraster*, *Hemiaster*; QUAAAS (262) pp. 162–165.—Uppermost Danian “Blättermergel” Thebes, Egypt, *Balanocr.*, *Porocidaris*; OPPENHEIM (240).—Maestrichtian or Dordonian, Charente-Inférieure, *Hemiaster* (p. 273), *Hemipneustes*, *Echinocoanus* (p. 274); FALLOT (78).—Maestrichtian, Baluchistan, *Echinanthus*, *Pyrina*, *Protechinus*, *Hemipneustes*, *Holcetypus*, *Clypeolampas*, *Hemiaster*;

- NOETLING (238).—Lower Danian, Bryozoenkalk, Aggersborggaard, Denmark, *Goniatster*, *Tennocidaris*, *Tylocidaris*; RAVN (265) p. 423: Gau (Basses Pyrenées) *Ganbirettia* n. g.; GAUTHIER (100) p. 20.—Aturian, Montagne des Français, Madagascar; LEMOINE (186).
- Senonian and Danian, Central Tunis, *Pentacr.*, *Balanocr.*, *Cyphosoma*, *Holactypus*, *Discoidea*, *Adelopneustes*, *Echinobrissus*, *Stenonia*, *Holaster*, *Pseudoholaster*, *Galeaster*, *Entomaster*, *Guettaria*, *Micraster*, *Plesiaster*, *Brissopneustes*, *Hemiasster*, *Periaster*; PERVINQUIÈRE (256) pp. 111–150.
- Senonian, —Suffolk, locc. and horizons of *Micraster*, *Cidaris*, *Echinocorys*, *Galerites*, *Offaster*, *Marsupites*, &c.; JUKES-BROWNE (161).—Near Chichester, distribution of spp. of *Bourguetier.*, *Marsupites*, *Pentacr.*, *Cidaris*, *Cyphosoma*, *Echinocorys*, *Galerites*, *Micraster*, *Offaster*, *Holaster*; REID (268A) pp. 28–32.—Marsupites zone, Old Sarum, *Uintacr.*; STEBBING (298) p. 146: near Royston, Herts., *Micraster*; WOODWARD (332): Luneburg, *Marsupites*, *Bourguetier.*, *Austinoer.*, *Pentacr.*, *Echinoconus*, *Ananchytes*, *Micraster*, *Epiaster*, *Stereocidaris*, *Offaster*, *Cidaris*, *Salenia*, *Cyphosoma*, *Cardiaster*; WOLLEMANN (326).—Scaglia of Venetia, *Cidaris*, *Tylocidaris*, *Echinocorys*, *Offaster*, *Stenonia*, *Lampadocorys*, *Stegaster* (n. sp.), *Cardiaster* (n. sp.), *Ovulaster*, *Coraster*, *Micraster* (n. sp.), *Isopneustes* (n. sp.), also notes on *Pericosmus*, *Macropneustes*, and *Scagliaster*; AIRAGHI (3).—Near Mentone, age of beds discussed on evidence of spp. of *Echinocorys* and *Micraster*; RIAZ (269).—Peru, *Holactypus*; PAULCKE (248) p. 260.
- Upper Senonian, —Dévoluy, *Echinocorys*; LORY (202) p. 261.—Boring near Bremen, *Ananchytes*, *Cidaris*, *Pentacr.*, *Bourguetier.*; JORDAN (159) pp. 527, 530, 534, 537.—Misburg, Hannover, *Cyphosoma*, *Micraster*; WOLLEMANN (328).—Fort Benton beds, Montana, U.S.A., *Astropecten?*; DOUGLASS (65) p. 6.—Mode of occurrence of *Uintacr.* in Kansas; HOVEY (148).
- Campanian, Bordeaux, *Micraster*, *Echinocorys*, *Offaster*, *Echinoconus*; FALLOT (79) p. 192.—? Campanian, E. Madagascar, *Epiaster* (n. sp.), *Hemiasster*; Upper Campanian, N. Madagascar, *Guettaria*, *Lampadaster*, *Cardiaster*, *Micraster*, *Homoeaster* (n. sp.); LAMBERT (174).
- Lower Senonian, —Vollhynia, *Cyphosoma*, *Micraster*, *Ananchytes*; LASKAREV (184).—Madagascar, *Micraster*; BOULE & THEVENIN (21) p. 434.
- Santonian, —Abu Roash, Cairo, *Rhabdocidaris*, *Echinobrissus*; DACQUÉ (42) p. 356.—Upper Santonian of Frayssinet-le-Gelat (Lot), silicified *Hemiasster*, *Micraster*, *Hemipneustes*, *Bothriopyus*, *Cidaris*, *Orthopsis*, and *Faujasia* (? Dordonian); DOUVILLE (66) p. 94: the spp. are descr. by GAUTHIER (101).
- Senonian to Turonian, —near Salisbury, *Micraster*, *Echinocorys*, *Cidaris*, *Holaster*, *Epiaster*, *Echinoconus*, *Offaster*, *Bourguetier.*, *Marsupites*, *Uintacr.*; REID (268) pp. 50–59.—Zones of Chalk from *Rhynchonella cuvieri* to *Micraster cortestudinarium* in Devon, with notes on spp. of *Bourguetier.*, *Pentacr.*, *Antedon*, *Metopaster*, *Arthraster*, *Cidaris*, *Cyphosoma*, *Salenia*, *Glyphocyphus*, *Echinocorys*, *Echinoconus*, *Discoidea*, *Micraster*, *Hemiasster*, *Holaster*, *Cardiaster*; ROWE (276).—Passage to Turonian, Saumur, *Codiopsis volutairei* n. sp.; LAMBERT (175).
- Turonian, —near Royston, Herts., *Echinocorys*, *Micraster*, *Holaster*; WOODWARD (332).—Suffolk, zone of *Holaster planus*, *Holaster*, *Micraster*; JUKES-BROWNE (161).—Zone of *Terebratulina gracilis*, Amberley and Houghton, Sussex, *Galerites*, *Holaster*; REID (268A) p. 26.—Lüneburg, *Ananchytes*, *Holaster*, *Infulaster*, *Micraster*; WOLLEMANN (326).—Beds with *Inoceramus brougnieri*, Nettleingen

- near Hildesheim, *Micraster*, *Holaster*, *Echinocorys*; MENZEL (221) p. 55.—Near Brunswick, "Scaphiten-pläner," *Holaster*, *Infulaster*, *Micraster*, *Stereocidaris*; "Brongniarti-pläner," *Ananchytes*; WOLLEMAN (327).—Central Tunis, *Orthopsis*, *Cyphosoma*, *Holactypus*, *Discoidea*, *Echinobrissus*, *Holaster*, *Hemiaster*, *Periaster*; PERVINQUIÈRE (256) pp. 95–108.—Abou-Roach, Egypt, *Goniopygus peroni*; FOURTAU (93).
- Cenomanian,—sandstones, Devonshire, sole British loc. for 4 spp. of *Caratomus*, *Codiopsis*, *Hemiaster*, *Pygurus*; JUKES-BROWNE (162) p. 791.—Zone of *Holaster subglobosus*, Duncton near Chichester, *Echinocyphus*, *Holaster*, *Pentacr.*; REID (268A) p. 21.—Lüneburg, *Pentacr.* (n. sp.), *Holaster* (n. sp.), *Cidaris*, *Peltastes*, *Discoidea*, *Salenia*; WOLLEMAN (326).—Central Tunis, *Salenia*, *Diplopodia*, *Heterodiadema*, *Pedinopsis*, *Cyphosoma*, *Goniopygus*, *Holactypus*, *Discoidea*, *Archiacia*, *Claviaster*, *Echinobrissus*, *Holaster*, *Epiaster*, *Hemiaster*, *Periaster*; PERVINQUIÈRE (256) pp. 66–91.—Lebanon, *Cidaris*, and n. spp. of *Pseudosalenia* and *Hemipedina*; LORIOU (200).—Baharia Oasis, *Rhabdocidaris*, *Diplopodia*, *Heterodiadema*, *Toxaster*, *Hemiaster*; BALL & BEADNELL (9) p. 55.—(?) Abu Roash, Cairo, *Cyphosoma*, *Linthia*; DACQUÉ (42) p. 357.—Base of Cenomanian, St. Paul, Arabian Desert, *Hemiaster cubicus* et varr.; FOURTAU (88).
- Albian,—Middle Gault, Brunswick, *Pentacr.* (n. sp.); WOLLEMAN (329).—Lower Gault near Uzès, *Holaster*; PELLAT (251) p. 126.—(?), S.W. Madagascar, *Salenidia* (n. sp.), *Holactypus*, *Discoidea*; LAMBERT (174).
2. Lower:—Murcia, Spain, *Heteraster* (?), *Pseudocidaris*; JIMÉNEZ DE CISNEROS (157) p. 300.
- Aptian,—Central Tunis, *Salenia*, *Pseudodiadema*, *Codechinus*, *Cyphosoma*, *Holactypus*, *Pyrina*, *Toxaster*, *Heteraster*, *Enallaster*, *Holaster*, *Epiaster*; PERVINQUIÈRE (256) pp. 42–59.—(Upper), Gargasian near Uzès and Serviers, *Discoidea*, *Toxaster*; PELLAT (251) p. 126.
- Urgonian,—(Middle), Barremian near Brouzet (Gard) *Toxaster*, *Pygaulus*, *Discoidea*; PELLAT (251) p. 121.—(Lower), Gorges de l'Areuse, Switzerland, *Ech.*, *Crin.*; SCHARDT & DUBOIS (275) p. 427.
- Hauterivian,—*ibid*; *Ech.*; op. cit. pp. 416, 418, 421.—Near Brouzet (Gard) *Toxaster*; PELLAT (251) p. 120.—Biassala in Crimea, *Holaster*, *Echinospatagus*, *Cidaris*, *Holactypus*, *Fibularia*, *Collyrites*; *Cyphosoma*; KARAKASCH (163) p. 213.—Marls with *Alectryonia rectangularis* at Crnoljevica in Serbia, *Pseudodiadema*, *Psammochinus*, *Holaster*; ANTULE (7).
- Valangian,—Gorges de l'Areuse, Switzerland, *Ech.*, *Crin.*; SCHARDT & DUBOIS (285) pp. 407, 410, 412.—Of Isère, *Antedon* n. sp.; LORIOU (200) p. 38.
- Neocomian,—Top of Lower Greensand near Leighton Buzzard, Bedfordsh., *Bourgueticr.*, *Cardiaster*, *Catopygus*, *Echinobrissus*, *Pyrina*; LAMPLUGH & WALKER (179).—Central Tunis, *Toxaster*, *Pseudodiadema*, *Holactypus*, *Heteraster*; PERVINQUIÈRE (256) pp. 38, 40.—Chile, *Cyphosoma* (n. sp.); PAULCKE (248) p. 286.
- c. Jurassic:—Various horizons and locc. in Poland, *Holactypus*, *Hemicidaris*, *Disaster*, *Pygurus*, *Echinobrissus*, *Collyrites*, *Stomochinus*, *Cidaris*, *Pseudodiadema*, *Rhabdocidaris*, *Glypticus*, *Hyboclypeus*, *Acrosalenia*, *Sphaeraster*, *Crenaster*, *Mespilocr.*, *Pentacr.*, *Balanocr.*, *Apioer.*; SIEMIRADZKI (293) pp. 326–443 passim.—Spp. of *Codiopsis*, with horizons; LAMBERT (175).—Hakim Mt. S. of Harar, Abyssinia, *Hemicidaris*; Harro Rufa, *Cidaris*; NEUMANN (234).
1. Upper:—near Bourges, lists of *Ech.* and *Crin.*; PERON (253).—

- ? Tithonian, of the Briançonnais, *Phyllocr.* (p. 222), *Cidaris* (pp. 232, 233), *Rhabdocidaris*, *Apiocr.* (p. 233); KILIAN & RÉVIL (166).
- Portlandian (= Tithonian):—of Isère and Ardèche, *Cidaris* (n. spp.), *Rhabdocidaris*, *Pseudocidaris*, *Aplodiadema* (n. g.); LORIOL (200).—Vicentin, *Metaporhinus*, *Collyrites*; DEI CAMPANA (52) p. 387.—Murcia, Spain, *Collyrites*, *Metaporhinus*; JIMÉNEZ DE CISNEROS (157) p. 299.
- Kimmeridgian:—near Macon, *Pseudocidaris*; LISSAJOUS (189) p. 109.—Near Kalisz, *Dysaster*, *Stomechinus*, *Pentacr.*; LEVĪNSKĪĪ (187).—Weisser Jura γ & δ in Swabia, *Disaster*, *Cidaris*, *Diadema*, *Holactypus*, *Rhabdocidaris*, *Eugeniocr.*, *Balanocr.*; HAIZMANN (123).
- Sequanian:—Upper,—Astartian near Macon, *Cidaris*; LISSAJOUS (189) pp. 103, 105.—Lower,—Gorges de l'Areuse, Switzerland, *Ech.*, *Crin.*; SCHARDT & DUBOIS (285) p. 398.
2. Middle:—Oxfordian:—near Macon, *Cidaris*, *Rhabdocidaris*; LISSAJOUS (189) pp. 101, 102, 103, 107.—Marnes à *Creuiceras renggeri* at Trepot near Besançon, *Chirodota*; DEPRAT (58) p. 31.—Near Moscow *Cidaris*, *Pentacr.*; ILOVAĪSKY (152) p. 248.—Rauracian,—near Macon, *Cidaris*, *Rhabdocidaris*, *Hemicidaris*, *Tiaris*, *Acrocidaris*; LISSAJOUS (189) pp. 102, 103, 104, 105, 107, 108, 110.—In pocket at Liesberg near Basle, *Cidaris*, *Hemicidaris*, *Pentacr.*; ROLLIER (275).—Callovian near Macon, *Cidaris*, *Rhabdocidaris*, *Acrosalenia*; LISSAJOUS (189) pp. 100, 101, 107, 109.—Lower Argovian, Gorges de l'Areuse, Switzerland, *Ech.*, *Crin.*; SCHARDT & DUBOIS (285) p. 394.
3. Lower:—Bathonian:—near Macon, *Cidaris*, *Hemicidaris*, *Acrosalenia*; LISSAJOUS (189) pp. 100, 109, 110.—Gorges de l'Areuse, Switzerland, *Ech.*; SCHARDT & DUBOIS (285) pp. 382, 388.—Sardinia, *Hypodiadema*; DAINELLI (43) p. 255.—Djerma Taltani, N. E. of Figuig oasis, Algeria, n. spp. of *Acrosalenia*, *Hemicidaris*, *Stomechinus*, *Acrocidaris*, and *Rhabdocidaris*; GAUTHIER (100).
- Bajocian near Macon, *Cidaris*, *Rhabdocidaris*; LISSAJOUS (189) pp. 98, 99, 100, 106.—Near Besançon, Calcaires à Entroques, origin and composition; DEPRAT (58) p. 23.
- d. Lias:—Upper, or Toarcian:—near Macon, *Cidaris*; LISSAJOUS (189) p. 98.
- Charmouthian and Toarcian near Zandobbio, Prealpi Bergamasche, *Millerier.*; DE ALESSANDRI (45) pp. 248, 253.
- Middle, or Pliensbachian (= Charmouthian):—Calce, E. Pyrenees, *Pentacr.*; DEPÉRET (56) pp. 208, 212.
- Lower, or Sinemurian:—Arran, *Pentacr.* [i.e. *Isocr.*]; PEACH (249) p. 168.—Near Macon, *Cidaris*; LISSAJOUS (189) p. 98.—Hindelang in Algäu, *Pentacr.*; BOESE (18) p. 650.—Pradalunga, Prealpi Bergamasche, *Pentacr. tuberculatus*; DE ALESSANDRI (45) p. 246.—'Planorbisschichten,' Val Solda, *Pentacr.*, *Diademopsis*; BISTRAM (14), p. 194.
- Rhaetic and Lias near Leicester, locc. of *Ech.*, *Oph.*, and *Crin.*; FOX-STRANGWAYS (94) p. 97.—Rhaetic,—Semmering, Austria, *Pentacr.*, *Cidaris*; TOULA (309) p. 23.—Fischerwiese in Salzkammergut *Cidaris*, *Encr.*, *Pentacr.*; KITTL (167) p. 92.
- e. Trias:—Upper,—Pachycardientuff, Seiser Alp, Tyrol, spp. of *Encr.*, *Pentacr.*, and *Cidaris*; BROILI (25) pp. 150-157.—Cassian beds, Sella pass, *Encrinus*, *Pentacr.*, *Cidaris*; GORDON (106) pp. 26, 27.—Keuper, Semmering, Austria, *Encr.*; TOULA (309) p. 26.—Cephalopod Limest. of Mt. Clapsavon, *Encrinus*, *Pentacr.*, *Cidaris*; TOMMASI (307) pp. 435, 436.
- Middle,—various locc. in Poland, *Encrinus*, *Cidaris*; SIEMIRADZKI

(293) pp. 231, 237, 239.—Muschelkalk,—of Germany, figures of characteristic Echinoderms; FRECH (95) pl. vi.—Germany, esp. Freyburg a. Unstrut, Gogolin, Königshütte, Gotha am Seeberg, Laband in Upper Silesia, *Encrinus*, *Dadoocr.*, *Pentacr.*, *Cidaris*, and general remarks (p. 21); LANGENHAN (180).—Sardinia, Mte. Sta. Giusta, *Encr.*; TORNGUIST (308) p. 826: section criticised by LOVISATO (203) p. 221.—(Upper), Montenegro, *Encr.*, *Pentacr.*, *Cidaris* (n. sp.); VINASSA DE REGNY (315).

(iv) PALAEOZOIC.

- a. **General**:—Vacant.
- b. **Permian**:—of Chitichun and Malla Sangcha, central Himalayas, *Poteriocr.*; DIENER (60) pp. 46, 97.—Discussion of an "Oligocene" Echinoderm imagined by J. E. S. Moore ("Tanganyika Problem" p. 72) to occur in Drummond's beds N.W. of L. Nyasa; BLANFORD (16).
- c. **Permo-Carboniferous**:—Vacant.
- d. **Upper Carboniferous**:—various locc. and horizons, Mills and Fremont cos., Iowa, with complete list of *Ech.* and *Crin.* on p. 160; UDDEN (311).—Kansas, various horizons and localities, *Archaeocidaris*, *Eocidaris*, *Eupachycr.*; ADAMS & GIRTY (1) p. 77, et passim.—Colorado, Hermosa formn., Molas formn., Weber Limest., various locc., *Archaeocidaris*, Weber Limest., *Eocidaris*, and Hermosa formn., *Eupachycr.* sp. indet.; GIRTY (104).—Tapajós, Lower Amazon, *Erisocr.*, *Cyathocr.*, *Archaeocidaris*, *Eocidaris*; KATZER (165) pp. 159, 178.
- e. **Lower Carboniferous**:—Redesdale Ironstone and Limest., low in zone of *Productus giganteus*; *Ulocr.*, *Forbesiocr.*, *Scytalecr.*, *Archaeocidaris*; HIND (146) p. 216.—N. Arran, locc. of Echinoderm remains; PEACH (249) p. 157.—I. of Man; *Actinocr.*?, *Poteriocr.*, *Archaeocidaris*; LAMPLUGH (178) p. 257.—Localities near Dublin for *Echinoderma*; McHENRY (211) p. 17.—Various locc. in Poland, *Poteriocr.*; SIEMIRADZKI (293) pp. 186, 197.—Limestone of Denée, Belgium, *Oph.* or possibly ambulacra of *Ech.* apud FRAIPONT; FOURNIER (85).—Petit granite, Belgium, *Platycr.*, *Poteriocr.*; DESTINEZ (59) p. 573.—Etroeungt beds at Ratingen near Düsseldorf, *Adelocr.*, *Poteriocr.*, *Platycr.*; DREVERMANN (67) p. 518.
- Kaskaskia (=Chester) group:—E. Tennessee, *Ceriocr.* (n. sp.); ROWLEY in GREENE (119).—Kentucky and Tennessee, *Pentremites* (n. sp.); ROWLEY in GREENE (115).—N. spp. *Pentremites*; HAMBACH (126).
- St Louis group:—n. spp. *Cidaroblastus*; HAMBACH (126).
- Warsaw Limest., n. spp. *Pentremites*, *Saccobl.*; HAMBACH (126).—Indiana, *Pentremites*, *Metablastus*; ROWLEY in GREENE (116).—Lanesville, Ind., *Metablastus*; ROWLEY in GREENE (119).
- Knobstone, Kentucky, *Calceocr.* (n. sp.); ROWLEY in GREENE (116).
- Keokuk:—Kentucky, *Carpenteroblastus* (n. sp.); ROWLEY in GREENE (115).—*Stemmatocr.* (n. sp.); ROWLEY in GREENE (116).
- Burlington Limest.:—n. spp. *Pentremites*, *Cribrobl.*, *Globobl.*; HAMBACH (126).
- Chouteau Limest.:—n. sp. *Cribrobl.*; HAMBACH (126).
- f. **Devonian**:—various locc. in Poland, *Haplocr.*, *Cupressocr.*, *Rhodocr.*, *Actinocr.*, *Pentacr.*; SIEMIRADZKI (293) pp. 119, 122, 124.
- Middle:—Lummaton, Devonshire, list of *Crin.* apud Whidborne (p. 68), Eifelian slates at Mudstone Bay, *Cyathocr.* (p. 70); USSHER (312).
- Lower:—in Nassau, *Otenocr.* and *Crin.* columnals; WALTHER (318) pp. 66, 69, 71, 74.
- Devonian:—W. Tennessee, Linden Limest. *Camarocr.* (pp. 683, 684,

- 685); Camden Chert, *Edriocr.* (pp. 687, 692); Onondaga Limest., *Nucleocr.* (p. 687); FOERSTE (84).—Rio Maecurú, Lower Amazons, *Ctenocr.*; KATZER (165) pp. 192, 200, 210.
- Upper:—Indiana, *Nucleocr.*; ROWLEY in GREENE (116).—Charlestown, Ind., *Gennaocr.* (n. spp.), *Aroocr.*, *Dolatocr.*, *Megistocr.* (n. varr.), and Falls of Ohio, *Gennaocr.*; ROWLEY in GREENE (114): *Dolatocr.* (n. sp.) *Megistocr.*, *Aroocr.*; ROWLEY in GREENE (117): *Dolatocr.* (n. spp.); ROWLEY in GREENE (118): *Dolatocr.*; *Eleutheroocr.*; ROWLEY in GREENE (119): *Dolatocr.* (n. sp. et var.), Falls of Ohio, *Megistocr.*; ROWLEY in GREENE (116).—Ibid., *Dolatocr.* (n. sp.); ROWLEY in GREENE (117).—Clark Co., Ind., *Dolatocr.*, *Megistocr.*; ROWLEY in GREENE (119).
- Middle:—Indiana, *Dolatocr.* (n. sp. & var.) *Platycr.* (n. sp.) *Nucleocr.*, Ohio, *Codaster*; ROWLEY in GREENE (115).—Falls of Ohio, *Dolatocr.* (n. sp.), *Megistocr.* (n. sp.); ROWLEY in GREENE (116): *Dolatocr.* (n. spp.); ROWLEY in GREENE (117): *Dolatocr.*, *Hadroocr.*; ROWLEY in GREENE (119).—Hamilton group at L. Cayuga, N.Y. *Granatocr.*, *Ancyroocr.*, *Dichoocr.*; CLELAND (32) p. 38.—Oriskany, *Spirifer murchisoni* zone, Peter's valley, New Jersey, *Edriocr.*; WELLER (320) p. 101.
- Lower,—New Scotland beds, Nearpass quarry, Wallpack Ridge, New Jersey, *Ichthyocr.* (n. sp.); WELLER (320) p. 86.—Becraft Limest., N.Y., *Aspidocr.*; GRABAU (110) p. 1061.
- g. **Silurian**:—Various locc. in Poland, *Actinoocr.*, *Crotalocr.*, *Cyathocr.*, *Scyphocr.*; SIEMIRADZKI (293) pp. 48, 50, 51, 57, 61, 92.—Middle Bohemia, *Scyphocr.* (p. 9), *Crotalocr.* (p. 22); JAHN (155).—E of Barrande, Urfer Schichten, Kellerwald, Prussia (p. 12), also Untere Steinhorn Schichten (p. 21) *Scyphocrinus*; DENCKMANN (54).—Llandoverly of Grand-Manil, Belgium *Sphaeronis* and *Crin.* columnals; MALAISE (213).
- W. Tennessee, Laurel Limest. *Pisocr.* (p. 558); Osgood Bed, *Pisocr.*, *Stephanocr.*, *Caryocr.* (pp. 562, 692); Waldron Bed, *Eucalyptocr.* (p. 563); Brownsport Bed, *Caryocr.* (p. 572), *Pisocr.* (p. 576) and list (p. 711); Waldron Bed, *Macrostylocr.*, *Lecanocr.*, *Eucalyptocr.*, *Stephanocr.* (n. sp.) (p. 708); FOERSTE (84).
- Manlius Beds, Maryland, *Jaekelocystis* (n. g.) and n. spp. of *Sphaerocystis* and *Pseudocr.*, Lower Helderberg, *Camarocr.* (n. sp.); SCHUCHERT (289): see also (287).
- Niagara group:—Indiana, *Stephanocr.* (n. spp.); ROWLEY in GREENE (114): *Holocystis*; ROWLEY in GREENE (119).
- Victoria, Australia, *Helicocr.* n. g., and *Botryoocr.*; CHAPMAN (29) p. 108.
- h. **Ordovician**:—Various horizons and locc. in Shropshire, *Glyptocr.*; COBBOLD (33).—Tremadoc, *Dictyonema* zone, Penmorfa, Wales, *Macrocytella*; FEARNSIDES (82).
- Bohemia, *Siluraster*, *Bohemura*, *Eophiura*, *Palaeura* (n. gg.); JAEKEL (154).—Middle Bohemia, *Culeidocr.*, *Dendrocystis*, *Aristocystis*, *Craterina*; JAHN (155) p. 14.—d 1 γ, Lhotka, Bohemia, *Entrochus* and *Anomalocystis*; ZELIZKO (335) p. 65.
- k. **Cambrian**:—Vacant.

IV. SYSTEMATIC†.

(A.)—ECHINODERMA IN GENERAL.

Echinoderms placed with *Vermiformia* and *Chordata* in a group 'Bilateralis pleurogastrica,' and divided into 5 Classes, *Pelmatozoa* ranking as one; GOETTE (105) pp. 307-328.—Echinoderms in six Classes: 1 *Hol.*, 2 *Ech.*, 3 & 4 *Stelleroidea* (*Ast.* and *Oph.*), 5 *Crin.*, 6 *Cyst.* (incl. *Edrioasteroidea* and *Blast.*), for further new divisions see under *Crin.* and *Cyst.*; STEINMANN (299) p. 142.—Echinoderms classified as A. *Pelmatozoa* (*Crin.*, *Cyst.*, *Blast.*), B. *Asterozoa* (*Oph.*, *Ast.*), C. *Echinozoa* (*Ech.*, *Hol.*): for further divisions, see under Classes; ZITTEL (339) p. 124.

(B.)—HOLOTHURIOIDEA.

History of classification of *Hol.* from Theel (1882) onwards, following system proposed: Sub-class I. *Pedata*, Ord. i. *Aspidochirota*, Famm. 1. *Synallactidae*, 2. *Deimatidae*, 3. *Elpidiidae*, 4. *Psychropotidae*, 5. *Holothuriidae*, 6. *Pelagothuriidae*. Ord. ii. *Dendrochirota*, Famm. 1. *Crucumariidae*, 2. *Rhopalodimidae*. Sub-class II. *Apoda*, Ord. i. *Anactinopoda*, Fam. *Molpadiidae*. Ord. ii. *Paractinopoda*, Famm. 1. *Synaptidae*, 2. *Chirodotidae*, 3. *Myriotrochidae* (see further under these names in Index); PERRIER (254) pp. 288-297.

Actinocucumis donnani n. sp., Galle, Ceylon; PEARSON (250) p. 195, pl. ii.

Actinopyga sp.; BELL (12). *A. mauritiana*, colour, *A. serratidens* n. sp., lagoon at Galle, Ceylon (pl. iii); PEARSON (250) p. 199.

Allantis rejected; ÖSTERGREN (244) p. 31: PERRIER (254) p. 309. *A. intestinalis* (p. 66) var. *verrilli* (p. 71); RICHARD (271).

Anactinopoda, ord. nov. of *Apoda*, comprising only *Molpadiidae* (p. 291) diagnosis (p. 524); PERRIER (254).

Ankyroderma, diagnosis; PERRIER (254) p. 528. *A. jeffreysii*; NORMAN (239) p. 412: ÖSTERGREN (244) p. 11: incl. *A. affine*; MICHAÏLOVSKIJ (223) pp. 470, 522. *A. loricatum* R. Perr. 1898, off Senegal, 1090-2324 m., descr., sclerites figd. (p. 535, pl. xxii), *A. maroccanum* R. Perr. 1898, off Morocco, 2210 m., descr. and first figd. (p. 533, pl. xii); PERRIER (254). *A. musculus*; LO BIANCO (190) p. 460: incl. *A. danielsseni*, descr., sclerites figd.; PERRIER (254) p. 529, pl. xxii.

Apoda, diagnosis as Subclass; PERRIER (254) p. 524.

Aspidochirota rediagnosed as Order of *Pedata*; PERRIER (254) p. 299.

Bathyherpistikes, diagnosis; PERRIER (254) p. 358.

Bathyplotes, incl. *Herpysidia*, rediagnosed and validity discussed, list of spp.; PERRIER (254) p. 345. *B. natans*; ÖSTERGREN (244) p. 6. *B. reptans* (R. Perr. sub *Herpysidia*, 1898), off Morocco, 2212 m., redescr. and first figd. (p. 352, pls. xii, xviii), *B. tizardi*, descr. (p. 350); PERRIER (254).

† 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.* *Ankyroderma jeffreysii*; NORMAN (239) p. 412] 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.

- Benthodytes*, diagnosis (p. 455), table of spp. (p. 465), *B. glutinosa* R. Perr. 1896, Sargasso Sea and S. of Azores, 3412 m., descr. and first figd. (p. 462, pls. xiii, xx), *B. lingua* R. Perr. 1896, off Morocco, 2200 m., descr. and first figd. (p. 456, pls. xii, xxi); PERRIER (254).
- Benthogone*, revised diagnosis (p. 398), *B. rosea*, descr., var. *cylindrica* R. Perr. 1900, maintained, var. *4-lineata* R. Perr. 1900, suppressed (p. 399, pls. xiv, xix); PERRIER (254).
- Benthothuria*, diagnosis, validity maintained, *B. funebris* R. Perr. 1898, off C. Bojador and Senegal 782–1200 m., redescri., not yet figd.; PERRIER (254) p. 365.
- Chirodota*: †*C.* sp.; DEPRAT (58) pp. 35, 38, 46. *C. laevis*; MICHAÏLOVSKIJ (223) pp. 471, 522; ÖSTERGREN (244) p. 13; PETERSEN (259): growth of spicules; NORMAN (239) p. 414, pl. xxvii. †*C. sieboldi*; DEPRAT (58) p. 31.
- Chirodotidae* n. fam. comprising *Chirodota*, *Sigmodota*; PERRIER (254) p. 292.
- Colochirus* sp. (?) juv. (p. 197), *C. doliolum*, *C. quadrangularis* n. var. *mollis*, S. of Thanni-Kodi, 8 fm. (pl. ii); PEARSON (250) p. 196.
- Cucumaria andrewsi*; NICHOLS (236) p. 243. *C. (Ocnus) compressa* R. Perr. 1898, B. of Biscay, 627 m. descr. and first figd.; PERRIER (254) p. 505, pls. xii, xxi. *C. conjungens*; PEARSON (250) p. 191. *C. elongata*; LÖNNBERG (197) p. 25; ÖSTERGREN (244) p. 24: distinct fr. *C. montagui*, name preferred to *C. pentactes*; PERRIER (254) p. 495. *C. filholi* n. sp., Wellington, N. Z., cotypes in Mus. Hist. Nat. Paris; PERRIER (255) p. 144, fig. *C. frondosa*; NORMAN (239) p. 411; ÖSTERGREN (244) p. 7; SIMPSON (294) p. 39: arrangement of spicules; MICHAÏLOVSKIJ (223) pp. 463, 520. *C. glacialis*; MICHAÏLOVSKIJ (223) p. 466, 520. *C. hispida*; ÖSTERGREN (244) p. 7: incl. *Echinocucumis typica* Théel 1886; NICHOLS (236) p. 242. *C. hyndmani*; NICHOLS (236) p. 241. *C. imbricata*, arrangement of podia; PEARSON (250) p. 190. *C. incurvata* (E. Perr. 1886, sub. *Siphothuria*) descr., distinguished fr. *C. tergestina*; PERRIER (254) p. 497, pls. xii, xxi. *C. lactea*; SIMPSON (294) p. 39: incl. *Ocnus brunneus*; NICHOLS (236) p. 242. *C. minuta*, perhaps not distinct from *C. frondosa*; MICHAÏLOVSKIJ (223) pp. 464, 520. *C. pentactes*; NICHOLS (236) p. 242. *C. planici*; NICHOLS (236) p. 241; PERRIER (254) p. 495. *C. saxicola*; NICHOLS (236) p. 243. *C. tricolor*, colour, slight variations from type (p. 188), *C. turbinata* (Hutton, sub *Labidodesmus*) redescri. fr. Ceylon, and holotype in Brit. Mus. (p. 189, pl. i); PEARSON (250).
- Cucumariidae*, diagnosis, comprises *Cucumariinae* and *Psoliniae*; PERRIER (254) p. 492.
- Cucumariinae*, n. subfam. of *Cucumariidae*, comprises *Cucumaria*, *Thyone*, *Orcula*, *Phyllophorus*, *Pseudocucumis*, *Actinocucumis*, and *Colochirus*; PERRIER (254) p. 492.
- Deima blakei*, parasitic Gastropod; KOEHLER & VANEY (170).
- Deimatidae*, diagnosed, comprise *Deima*, *Oneirophanta*, *Scotodeima*, *Orphnurgus*, *Laetmogone*, *Benthogone*, *Iliodaemon*, *Pannychia*, *Laetmophasma*, *Capheira* (p. 371) list of spp. (p. 405); PERRIER (254).
- Dendrochirota* rediagnosed as Order of *Pedata*; PERRIER (254) p. 492.
- Echinocucumis typica*; PETERSEN (259).
- Elpidia* rediagnosed, with single sp. *E. glacialis*; PERRIER (254) p. 423. *E. ambigua*, vide *Elpidiogone*. *E. glacialis*, incl. *Tutela echinata*, distrib.; PERRIER (254) p. 423: variations in dorsal processes; MICHAÏLOVSKIJ (223) p. 462. *E. incerta*, vide *Elpidiogone*. *E. purpurea*, vide *Peniagone*. *E. rigida* and *E. verrucosa*, vide *Elpidiogone*. *E. willemoesti*, vide *Peniagone*.
- Elpidiidae*, diagnosis, systematic position, discussion of genera, adoption of *Irpa*, *Kolga*, *Scotoplanes*, *Periamma*, *Achlyonice*, *Elpidia*, *Paralpidia*,

- Elpidiogone*, *Peniagone*, *Scotoanassa*, *Enypniastes*; PERRIER (254) p. 405.
- Elpidiogone* n. g. of *Elpidiidae* (p. 412) diagnosis (p. 424) based on spp. of *Elpidia* given in this order: *E. ambigua*, *rigida*, *verrucosa*, and *incerta* (p. 425), no genotype; PERRIER (254).
- Euphronides*, revised diagnosis, list of spp. (p. 433), *E. auriculata*, descr. and first figd. (p. 434, pls. xiii, xx), *E. depressa* restr. to specimens fr. Juan Fernandez, that for *E. Atlantic* refd. to *E. auriculata* (p. 434), *E. talismani* R. Perr. 1896, S. of Fayal, ca. 2200 mm., descr. and sclerites figd. (p. 441, pl. xx), *E. violacea* R. Perr. 1896, off Morocco, 2210 m., descr. and sclerites figd. (p. 438, pl. xx); PERRIER (254).
- Eupyrgus scaber*; MORTENSEN (227) p. 89: spicules descr.; NORMAN (239) p. 412, pl. xxvii: Lütken's description of calcareous ring confirmed; MICHALOVSKIJ (223) pp. 469, 521.
- Gastrothuria* R. Perr. 1899, diagnosis, genus justified (p. 468), *G. limbata* R. Perr. 1899, B. of Biscay, 564 m., descr. and sclerites figd. (p. 469, pl. xv); PERRIER (254).
- Havelockia* n. g. of *Cucumariidae* (p. 198), with genotype *H. herdmani* n. sp. S. of Adam's Bridge, 4-40 fm. (p. 197, pl. ii); PEARSON (250).
- Herpysidia*, v. sub *Bathyplotes*.
- Holothuria*, diagnosis; PERRIER (254) p. 473. *H. aspera*; NICHOLS (236) p. 246. *H. atra*; GARDINER (99): WHITELEGGE (322) p. 13: variations; PEARSON (250) p. 202. *H. calcarea* et *ecalcareae*, vide *Stichopus tremulus*. *H. farcimen*, descr. and sclerites figd.; PERRIER (254) p. 477, pl. xv. *H. forskali*; RUSSO (277): incl. *H. tubulosa* Haines 1853; NICHOLS (236) p. 245. *H. gallensis* n. sp. lagoon at Galle, Ceylon; PEARSON (250) p. 203, pl. iii. *H. intestinalis*; NICHOLS (236) p. 245: vide etiam sub *Allantis* et *Mesothuria*. *H. kurti*, growth of spicules; PEARSON (250) p. 200, pl. iii. *H. mammata*, sclerites descr.; PERRIER (254) p. 474, pl. xv. *H. marmorata*, compared with *H. tenuissima*, wh. is perh. syn. (p. 202), *H. monacaria*, podia (p. 201); PEARSON (250). *H. murrayi*, refd. to *Mesothuria*; PERRIER (254) p. 316. *H. nigra*; WOODCOCK (330). *H. poli*; RUSSO (277). *H. sanctorii*, purely Mediterranean, distinguished fr. *H. farcimen*, which occurs at Azores; PERRIER (254) p. 481. *H. tenuissima*, perh. incl. *H. vitiensis*, *H. koellikeri*, and *H. clemens*; PEARSON (250) p. 201. *H. tremula*; NICHOLS (236) p. 245: PETERSEN (259). *H. tubulosa*; ENRIQUES (73); GUENTHER (121); LYON (206); RUSSO (277): (!); KARAWAEW (164): osmosis; HENRI & LALOU (140, 141): dissection; KUEKENTHAL (173) p. 140. *H. vagabunda*; PEARSON (250) p. 201. *H. verrilli*; RICHARD (271) p. 69: vide etiam sub *Allantis* et *Mesothuria*.
- Holothuriidae*, diagnosis, = *Holothuriinae* Ludw., comprises *Holothuria*, *Muelleria*, *Labidodemas*, *Stichopus*, *Gastrothuria*; PERRIER (254) p. 466.
- Hypsilothuria*, vide *Ypsilothuria*.
- Irpa*, maintained with single sp. *I. abyssicola*; PERRIER (254) p. 416.
- Kolga*, maintained for *K. nana*, *hyalina*, and *ludwigi* (p. 416), *K. furcata* refd. to *Periamma* (p. 418); PERRIER (254). *K. hyalina*, notes; MICHALOVSKIJ (223) p. 463.
- Labidodesmus*, v. sub *Cucumaria*.
- Labidoplax buski*, incl. *Synapta tenera* Norm. and many specimens refd. to *S. inhaerens*; ØSTERGREN (244) p. 12.
- Laetmogone*, diagnosis, list of spp. (p. 388), *L. brongniarti*, syn. of *L. violacea* (pp. 388, 390), *L. jourdaini*, is var. of *L. violacea* (pp. 388, 397), *L. spongiosa*, syn. of *L. violacea* (pp. 388, 394); PERRIER (254). *L. violacea*; NICHOLS (236) p. 246: incl. *L. brongni-*

- arti*, *L. spongiosa*, and as var. *L. jourdaini*, descr.; PERRIER (254) p. 390, pl. xix. *L. wyvillethomsoni*; RICHARD (271) pp. 66, 69.
- Ludwigia* Reiffen 1901, nom. preocc. PIC, Coleopt., 1893; COCKERELL (34).
- Meseres* Ludw. [non Schewiakoff], diagnosis and list of spp.; PERRIER (254) p. 359.
- Mesothuria* revised diagnosis (p. 301), table of spp. (p. 320), *M. expectans* R. Perrier 1899, between Azores and France, 4255 m. redescr. (p. 317); PERRIER (254). *M. intestinalis*, descr., distrib.; PERRIER (254) p. 304, pl. xvi; distinguished fr. *M. verrilli*; ÖSTERGREN (244) p. 6: vide etiam sub *Allantis* et *Holothuria*. *M. lactea*; RICHARD (271) p. 67. *M. marginata*, refd. to *Zygothuria* (pp. 303, 322, 332), *M. maroccana* R. Perrier 1898, off Morocco, redescr. and first figd. (p. 312, pl. xvi), *M. verrilli*, descr., distrib. (p. 307, pl. xvi); PERRIER (254).
- Molpadidae*, diagnosis, comprises *Molpadia*, *Eupyrgus*, *Haplodactyla*, *Caudina*, *Trochostoma*, and *Ankyroderma*; PERRIER (254) p. 524.
- Muelleria echinites*; WHITELEGGE (322) p. 13.
- Myriotrochidae* n. fam., comprising *Myriotrochus*, *Trochoderma*, *Acanthotrochus*; PERRIER (254) p. 292.
- Myriotrochus rinkii*; MICHAÏLOVSKIJ (223) pp. 471, 523; MORTENSEN (227) p. 89: spicules descr.; NORMAN (239) p. 415, pl. xxvii: redescr., incl. *M. brevis*, differences in wheels; ÖSTERGREN (244) p. 14. *M. vitreus*, redescr. and maintained; op. cit. p. 18.
- Oenus* discussed and made s. g. of *Cucumaria* (q. v.); PERRIER (254) p. 505.
- Oenirophanta*, diagnosis, list of spp. (p. 373), *O. alternata* R. Perr. 1900, betw. Azores and Europe, 4060–5005 m., redescr. with var. nov. *talismani* = "*O. mutabilis*" E. Perrier, Explor. sous-mar. f. 201 (p. 380, pls. xiv, xviii), *O. mutabilis*, distrib., variation, sclerites (p. 374, pl. xviii); PERRIER (254).
- Orcula* syn. of *Phyllophorus*; ÖSTERGREN (244) p. 9. *O.* (?) sp.; MICHAÏLOVSKIJ (223) p. 521.
- Paelopatides*, vide *Pelopatides*.
- Paractinopoda* ord. of *Apoda*, diagnosis; PERRIER (254) p. 538.
- Paroriza prouhoi* compared with *Mesothuria expectans*; PERRIER (254) p. 320.
- Pedata*, rediagnosed as Sub-class; PERRIER (254) p. 299.
- Pelopatides*, orthography corrected, list of spp. (p. 359), *P. appendiculata*, probably *Benthothuria* (pp. 360, 366), *P. grisea* R. Perr. 1898, redescr. (p. 361); PERRIER (254).
- Peniagone* revised diagnosis, comprises *P. affinis*, *challengeri*, *vitrea*, *wyvillei*, *azorica*, *porcellus*, *vevillum*, *Elpidia purpurea*, *E. willemoesi*, *P. lugubris*, *atrox*, *intermedia*, but *P. discrepans* and *ecalcareo* doubtful; PERRIER (254) p. 425. *P. naresi*, vide *Periamma*. *P. porcellus* R. Perr. 1900, betw. Azores and France, 4060 m. (p. 426, pls. xii, xix), *P. vevillum* R. Perr. 1900, loc. unknown (p. 429, pls. xiii, xix), both descr. and first figd.; PERRIER (254).
- Periamma*, diagnosis, comprises *P. insigne*, *robustum*, *naresi*, *roseum*, *furcatum* (p. 417), *P. roseum* [E. Perr. 1886, sub *Peniagone*, and not n. sp. as here stated], descr. (p. 419, pls. xiii, xx); PERRIER (254).
- Phyllophorus cebuensis* (Semper, sub *Thyonidium*), with n. var. *theeli* based on Challenger specimen; PEARSON (250) pp. 194, 205, pl. ii. *P. drummondi*, relation to *P. pellucidus*; ÖSTERGREN (244) p. 9: perh. incl. *Thyonidium dubeni* Norm. and *Thyone portlocki* Forbes; NICHOLS (236) p. 244: descr., perhaps incl. *Orcula luminosa* Lamp.; MICHAÏLOVSKIJ (223) pp. 467, 521. *P. pellucidus*; LÖNNBERG (197) p. 25; NICHOLS (236) p. 244; NORMAN (239) p. 411; ÖSTERGREN (244) p. 8: growth of spicules; MICHAÏLOVSKIJ (223) pp. 466, 521.

- Protankyra*, diagnosis, *P. abyssicola*, sclerites descr. ; PERRIER (254) p. 538.
- Pseudocucumis mixta* ; ÖSTERGREN (244) p. 24.
- Pseudostichopus*, revised diagnosis (p. 332) table of spp. (p. 338), *P. atlanticus* R. Perr. 1898, between Azores and France, 4060 m., redescr. (p. 333, pl. xvii) ; PERRIER (254). *P. villosus* ; ALBERT HONORÉ (5) p. 212 : parasite ; RICHARD (271) p. 66.
- Psolinae*, n. subfam. of *Cucumaridae*, comprises *Psolus*, *Psolidium*, and *Theelia* ; PERRIER (254) pp. 493, 512.
- Psolus fabricii* ; MICHAÏLOVSKIJ (223) p. 521 : specimens so recorded refd. to *P. phantapus* and *P. japonicus* ; ÖSTERGREN (244) p. 24. *P. nummularis* R. Perr. 1899, off Morocco, 1050 m., descr., sclerites figd. ; PERRIER (254) p. 512, pl. xxii. *P. phantapus* ; LÖNNBERG (197) p. 24 : MICHAÏLOVSKIJ (223) pp. 468, 521 : NICHOLS (236) p. 244 : NORMAN (239) p. 411 : ÖSTERGREN (244) p. 10 : SIMPSON (294) p. 39. *P. squamatus*, most, if not all, specimens recorded from Arctic and Subarctic are *P. phantapus* or *P. fabricii* ; ÖSTERGREN (244) p. 10.
- Psychropotes*, diagnosis and list of spp. (p. 444), *P. buglossa* E. Perr. 1886, descr. (p. 445, pls. xiii, xx), *P. fucata* R. Perr. 1896, betw. Azores and France, 4165 m., descr. and sclerites figd. (p. 453, pl. xx) ; PERRIER (254). *P. kervillei* ; RICHARD (271) p. 66.
- Psychropotidae* n. fam., comprising *Benthodytes*, *Psychropotes*, *Euphronides*, and *Psycheotrepes* ; PERRIER (254) p. 432.
- Rhopalodina lageniformis*, incl. *R. heurteli* ; PERRIER (254) p. 523 and fig.
- Rhopalodiniidae* n. fam. = *Tesselatae* E. Perr., comprises *Echinocucumis*, *Ypsilothuria*, and *Rhopalodina* ; PERRIER (254) pp. 297, 515.
- Scotoplanes*, revised diagnosis, comprises *S. globosa*, *murrayi*, *delagei*, *mollis*, *papillosa* (p. 417), *S. insignis* and *S. robusta* refd. to *Periamma* (p. 418) ; PERRIER (254).
- Stereoderma murrayi*, v. *Thyone sacellus*.
- Stichopus* diagnosis ; PERRIER (254) p. 482. *S. chloronotus* ; GARDINER (99) : and n. var. *fuscus*, Pearl Banks, G. of Manaar, 9-26 fm. ; PEARSON (250) p. 204. *S. japonicus* ; MITSUKURI (224). *S. moseleyi* Theel, which is refd. to *Bathyplotes* by Östergren, is *Synallactes* ; PERRIER (254) p. 349. *S. natans* ; NICHOLS (236) p. 246. *S. regalis* ; HENRI (130-133) : osmosis ; HENRI & LALOU (140, 141) p. 721 : descr. ; PERRIER (254) p. 482. *S. richardi*, vide *S. tremulus*. *S. tremulus* ; NORMAN (239) p. 411 : incl. *S. richardi*, descr., sclerites figd. ; PERRIER (254) p. 484, pl. xvi : incl. *S. richardi*, *Holothuria ealcareae* and perh. *H. calcarea* ; ÖSTERGREN (244) p. 5. *S. variegatus* ; PEARSON (250) p. 205.
- † *Stueria elegans* Schlumb., probably syn. of *Myriotrochus rinki* ; NORMAN (239) p. 416.
- Synallactes*, revised diagnosis, and list of spp. (p. 338), *S. crucifera* R. Perr. 1898, off Morocco, 2212 m., redescr. and first figd. (p. 339, pls. xii, xvii) ; PERRIER (254). *S. moseleyi*, v. sub *Stichopus*.
- Synallactidae* n. fam. = *Synallactinae* Ludw., comprises *Pelopatides*, *Pseudostichopus*, *Mesothuria*, *Meseres*, *Synallactes*, *Bathyplotes*, *Zygothuria*, *Benthothuria*, *Bathyherpystikes* ; PERRIER (254) p. 299.
- Synapta* sp. ; PETERSEN (259) : spicules, two spp. apparently nondescr. ; PEARSON (250) p. 187. *S. beselii* ; i.e. *S. buski* ; NORMAN (239) p. 414. *S. digitata*, incl. *S. thomsoni* Herapath ; NICHOLS (236) p. 241. *S. inhaerens* ; DAVENPORT (44) p. 162 : NICHOLS (236) p. 240 : POLARA (260) : most records from northern regions due to confusion with *Labidoplax buski* ; ÖSTERGREN (244) p. 12. *S. striata*, habitat, colour, spicules, movement ; PEARSON (250) p. 186, pl. i. *S. tenera*, vide *Labidoplax buski*.

- Synaptidae*, restricted and rediagnosed (p. 291), quite a different diagnosis (p. 538), comprises *Euapta*, *Chondroclaea*, *Synapta*, *Labidoplax*, *Protankyra*; PERRIER (254).
- Thyone briareus*; GRAY (112). *T. (?) calcarea* n. sp., Cod B., Trincomalee, 6 fm.; PEARSON (250) p. 194, pl. i. *T. (?) fusca* n. sp., Back B., Trincomalee, 8-12 fm.; PEARSON (250) p. 192, pl. i. *T. fusus*; NICHOLS (236) p. 243; PERRIER (254) p. 510: var *papuensis*, spicules; PEARSON (250) p. 191, pl. i. *T. gadeana* R. Perr. 1898, C. St Vincent, 106 m. descr., and first figd.; PERRIER (254) p. 510, pl. xxi. *T. (?) hornelli* n. sp., lagoon at Galle, Ceylon; PEARSON (250) p. 193, pl. i. *T. raphanus*; NICHOLS (236) p. 243. *T. recurvata*; HOWE (150). *T. sacellus* (Selenka, sub *Stolus*) incl. *Stereoderma murrayi*, spicules; PEARSON (250) p. 192, pl. i.
- Thyonidium anatinum* n. sp., Wellington, N. Z., holotype in Mus. Hist. Nat. Paris; PERRIER (255) p. 143, fig. *T. dubeni*, vide *Phyllophorus drummondii*.
- Trochoderma elegans*; NORMAN (239) p. 417; ÖSTERGREN (244) p. 21.
- Trochostoma*, diagnosis (p. 525), *T. albicans*, descr., sclerites figd., and a variation (p. 526, pl. xxii), *T. blakei*, descr., sclerites figd. (p. 525, pl. xxii); PERRIER (254). *T. boreale*; MARENZELLER (214) p. 564; MICHAÏLOVSKIÏ (223) p. 522; MORTENSEN (227) p. 89; NORMAN (239) p. 411; ÖSTERGREN (244) p. 11.
- Tutela echinata*, syn. of *Elpidia glacialis*; PERRIER (254) p. 423.
- Ypsilothuria*, nom. emend. pro *Hypsilothuria*, revised diagnosis, incl. *Sphaerothuria* Ludw. (p. 515), *Y. attenuata*, descr. (p. 522), *Y. talismani* E. Perr. 1886, descr. (p. 518, pl. xii); PERRIER (254).
- Zygothuria*, diagnosed, with genotype *Holothuria lactea* (p. 321), *Z. connectens* R. Perr. 1898, Canaries and off C. Garnet, 1975-2518 m., redescr. (p. 327, pl. xvii), *Z. lactea*, and var. *oxysclera*, off Morocco, 900-1300 m., redescr. (p. 322, pl. xvii); PERRIER (254).

(C).—ECHINOIDEA.

- Classification of *Ech.*: Subclass *Palechinoidea*, Orders *Cystocidarida*, *Bothriocidarida*, *Perischoechinida*. Subclass *Euechinoidea*. Ord. 1 *Regulares*. A. *Holostomata*, *Cidaridae*, *Echinothuridae*. B. *Glyphostomata*, *Salenidae*, *Diadematidae*, *Echinidae*. Ord. 2 *Irregulares*. A. *Gnatostomata*, *Holactypidae*, *Conoclypeidae*, *Clypeustridae*. B. *Atelostomata*, *Cassidulidae*, *Holasteridae*, *Spatungidae*; ZITTEL (339) pp. 203-224. Classification of *Ech.*, characters available, and classification down to suborders, as already published in BERNARD (20) Zool. Rec. 1893; MUNIER-CHALMAS (232) pp. 30-36. General discussion of generic and specific characters, importance of pedicellariae and spicules, with revision of recent *Cidaridae*, *Echinothuridae*, *Temnopleuridae*, *Echinometridae*, *Echinidae*, and *Toxopneustidae* (qq. v); MORTENSEN (229). History of attempts to classify recent *Ech.* (pp. 1321-1338), adoption of a system based on Duncan, Gregory, and Mortensen (pp. 1339-1344) and special diagnoses of Orders, Families, and Genera of *Regularia*, down to *Temnopleuridae*, with lists of spp. (pp. 1339-1366); MEISSNER in HAMANN (125) [for the scheme of classification, down to sub-fam., see INTRODUCTION].
- Acanthocidaris* n. g. of *Cidaridae* with genotype *Cidaris curvatispinis* Bell; MORTENSEN (229) pp. 29, 21. *A.* diagnosed; MEISSNER in HAMANN (125) p. 1347. *A. curvatispinis*, pedicellariae; MORTENSEN (229) p. 173.
- † *Acrocidaris*, diagnosis; SAVIN (283) p. 180. *A. bistrinata* n. sp., Bathonian? near Figuig oasis, radioles, in École des Mines; GAUTHIER (100)

- p. 27, pl. i: perhaps *Pseudocidaris*; LAMBERT in Review. *A. granulosa* n. sp., Rauracian, zone of *Peltoceras bimammatum*, near Macon, cotypes radioles in author's collection; LISSAJOUS (189) p. 110, pl. i. *A. minor* (p. 181), *A. nobilis* (p. 180); SAVIN (283).
- †*Acropeltis*, diagnosis, *A. [ae]-joequituberculata* [sic]; SAVIN (283) p. 160.
- †*Acrosalenia*, diagnosis; SAVIN (283) p. 182. *A. decorata* (?); SEMIRADZKI (293) p. 433. *A. patella*; SAVIN (283) p. 182. *A. roberti* n. sp., Bathonian?, near Figuiq oasis, holotype in École des Mines; GAUTHIER (100) p. 22, pl. i. *A. spinosa*; LISSAJOUS (189) p. 109; FRITEL (96A) p. 58, text-fig.
- †*Agassizia zitteli*; PACHUNDAKI (246).
- Amblypneustes* diagnosed; MEISSNER in HAMANN (125) p. 1365.
- Amphidetus cordatus*, *A. flavescens*, *A. ovatus*; PETERSEN (259).
- †*Amphiope*:—*A.* sp. ind.; FALLOT (79) p. 204. *A. agassizi*; FALLOT (81) p. 82. *A. aff. arcuata*; PACHUNDAKI (246). *A. bioculata*; FRITEL (96A) p. 63, text-fig: holotype and another specimen descr.; FALLOT (81) p. 85: but LAMBERT in Review says this is not the holotype. *A. ovalifera* n. sp. ex Des Moulins MS., (= "*Scutella bioculata* var. B." Des M.) Mid. Aquitanian, Cazeneuve (Gironde); FALLOT (81) p. 82, pl. ii.
- †*Ananchites* (vel *Ananchytes*), vide etiam *Echinocorys*. *A. beaumonti*; MUNIER-CHALMAS (231) pp. 11, 12. *A. carinata* Lam., holotype is *Collyrites*, therefore name not to be used for *Holaster*; LAMBERT in Review of WOLLEMANN (326): Risso non Defr. nec Lam., probably not this genus; LAMBERT (176) p. 97. *A. conoidea*; CORNET (36) pp. 18, 26 and (37) p. 187. *A. corculum*; WOLLEMANN (326) p. 26. *A. eudesi* Sorig., based on individual abnormality of apex: *A. intumescens* Phillips n. n.: *A. orbicularis*, discussed; LAMBERT (176) p. 97. *A. ovata*; CORNET (35) p. lxiii, (36) p. 26, and (37) p. 187; LASKAREV (184) pp. 230, 266; RAVN (265) pp. 375, 434; WOLLEMANN (327): variations in size and shape, range through Turonian and Senonian at Lüneburg, also var. *conica*; WOLLEMANN (326) p. 25. *A. pustulosa* Lam. non Leske, syn. of *Echinocorys conicus* (p. 96), *A. rotundatus* Risso, ? a *Discoides* (p. 97), *A. rustica* Defr., probably MS. (p. 96), *A. stella* Risso, not *Ech.* (p. 97), *A. striata*, the striae discussed (p. 27); LAMBERT (176). *A. sulcata*; RAVN (265) pp. 375, 434.
- Ananchitidae*, diagnosed; LAMBERT (176) p. 32.
- †*Ananchytinarum* sp. indet. of JIMBO (49), Zool. Rec. 1894, referred to *Aeropidae* and probably to *Homoeaster*; LAMBERT (176) p. 46.
- †*Anorthopygus orbicularis*; FRITEL (96A) p. 62, pl. vi.
- Anthocidaris*, diagnosis as member of *Strongylocentrotinae*, with genotype *Echinus homalostoma* (p. 138), *A. crassispina* (v. infra), *A. homalostoma*, descr., pedicellariae figd., genus maintained, distinguished fr. *Toxocidaris tuberculatus* (p. 125, pl. xxi), specimen so named on pp. 125 & 138 apparently not same sp. as cotypes of *Echinus homalostoma* Val., and should therefore be named *A. crassispina* (Ag.) (p. 179); MORTENSEN (229).
- Aphanopora* n. g. of *Nucleolitidae*, with genotype *A. echinobrissoides* n. sp., Malay Archipelago, 390 m.; DE MEIJERE (53) p. 8.
- Aplodiadema* n. g. of *Diadematiidae* (p. 49) with genotype *Pseudodiadema langi* Des.; LORL (200) p. 50, pl. iii: diagnosis (p. 192), †*A. langi* (p. 193); SAVIN (283).
- Arachnoides placenta*; DOEDERLEIN (62) p. 688.
- Araeosoma* n. g. of *Echinothuridae*, with genotype *Calveria fenestrata*, comprising *A. coriaceum*, *A. tessellatum*, and ? *A. belli*; MORTENSEN (229) p. 64: diagnosed; MEISSNER in HAMANN (125) p. 1352. *A. belli* n. sp., Barbados, 137 fm., holotype in Brit. Mus. (p. 55, pls. xii, xiii),

- A. fenestratum*, incl. *Asthenosoma reynoldsi* A. Ag. radioles, pedicellariae, and colour descr. (p. 72, pls. xi, xii, xiv), pedicellariae (p. 175), *A. violaceum* n. sp., Porcupine Bank, W. of Ireland, 199 fm. [cotypes in Brit. Mus. ?] (p. 176 & fig.); MORTENSEN (229).
- Arbacia* diagnosed; MEISSNER in HAMANN (125) p. 1360. *A.* sp.; MELTZER (220); dissection; PRATT (261). †*A. monilis*; COUFFON (39) p. 91. *A. pustulata*; LYON (206). *A. pustulosa*; DONCASTER (64); OTTOLENGHI (245); VIGUIER (313, 314).
- Arbacia forbesiana*, vide sub *Cottaldia*. *A. pallaryi*, syn. of *Genocidaris maculata*; MORTENSEN (229) p. 85.
- †*Archaeocidaris*:—*A. cratis*, perhaps incl. *A. megastylus* (p. 331), *A. ornata* (p. 331), *A. ourayensis* n. sp., Upper Carboniferous, Hermosa formn., Ouray, Colorado, radiole only (p. 329, pl. i), *A. triplex*?, large radioles descr. (p. 330), *A. tridifer*?, radiole, cf. *A. edgarensis* (p. 330); GIRTY (104). *A. urei*; HIND (146) p. 216; LAMPLUGH (178) p. 257.
- Aspidodiadema* diagnosed; MEISSNER in HAMANN (125) p. 1356.
- Asthenosoma*, rediagnosed, comprising *A. varium*, *A. grubei*, *A. urens*, *A. heteractis* (p. 63), radioles, spicules, and pedicellariae descr. in the four spp. (p. 49); MORTENSEN (229): diagnosed; MEISSNER in HAMANN (125) p. 1351: Indo-pacific spp. fall into group (A) *coriaceum*, *grubei*, *heteractis*, *ijimai*, *urens*, *varium*, (B) *gracile*, *longispinum*, *pellucidum*, *tesselatum*; DOEDERLEIN (62) p. 704. *A. coriaceum*, pedicellariae descr., refd. to *Araeosoma*, spicules descr. (p. 53, pls. xi, xii, xiv), *A. gracile*, referred to *Calveria* (p. 51), other Challenger specimens so named are not this sp. (p. 52), "*Asthenosoma gracilis*" Challenger stat. 184 is an undescr. sp. of *Echinostoma* (p. 57); MORTENSEN (229). *A. hystrix*; NICHOLS (236) p. 259; RICHARD (271) p. 66: vide etiam *Calveria*. *A. longispinum*, probably *Calveria* or *Araeosoma* (p. 56), *A. pellucidum*, pedicellariae descr. (pp. 45, 55, pls. xii, xiii, xiv), made genotype of *Hapalosoma* (p. 56), *A. reynoldsi*, probably syn. of *Araeosoma fenestratum* (p. 53), *A. tessellatum*, pedicellariae descr., refd. to *Araeosoma* provisionally (p. 54, pls. xiii, xiv); MORTENSEN (229). *A. varium* fr. Amboina descr. and compared with younger individual fr. Java, and with *A. urens*; DOEDERLEIN (62) p. 702, pl. lx: pedicellariae; MORTENSEN (229) p. 46, pl. viii: juv. of de Loriol 1893-5, vide *Lissodiadema*.
- †*Astrictypus integer*, redescr.; TOKUNAGA (306) p. 15, pls. i, ii: Japanese form differs from Formosan; LAMBERT in Review.
- Astropyga* diagnosed; MEISSNER in HAMANN (125) p. 1358. *A. denudata* n. sp., Malay Archipelago, 148-274 m.; DE MEIJERE (53) p. 4. *A. desori* Ag. fr. Red Sea, var. of *Echinothrix calamaris* (p. 699), *A. pulvinata* (p. 699, pl. lix); DOEDERLEIN (62). *A. radiata*; BELL (11) p. 247: incl. *A. mossambica* Peters, *A. elastica* Stud., and *A. freudenbergi* Sarasin, comparison w. *A. pulvinata* and measurements of both; DOEDERLEIN (62) p. 699, pl. lix.
- "Atelostomes" defined and divided into Tétrabasales and Monobasales, the former again divided into Synastéridés and Dysastéridés; MUNIER-CHALMAS (232) p. 35.
- †*Aulacocidaris*, n. g. of *Cidaridae*, with genotype *A. lamberti* (v. infra) and comprising *Cidaris salviensis* and *Rhabdocidaris thomasi*; LAMBERT in SAVIN (283) p. 222. *A. lamberti* n. sp., Pterocerian of Chanaz, Savoy, coll. Savin; SAVIN (283) p. 225, pl. iii.
- "Blastoéchinides," a class for reception of *Tiarechinus*; MUNIER-CHALMAS (232) p. 31.
- Bolbaster*, as s. g. of *Hemiaster*, diagnosis, †*B.* sp. indet., note by LAMBERT; SAVIN (283) p. 78.
- Boletia* Desor 1846, with genotype *Echinus pileolus* Lam., preferred to *Toxopneustes* Ag. 1841, with same genotype (p. 13), †*B. praecursor*

- (Ortm. sub *Toxopneustes*) redescr. (p. 11, pl. i); LORIOLO (200). *B. rosea*, distinct fr. *Toxopneustes pileolus*; MORTENSEN (229) p. 111.
- †*Bothriopygus* (vel *Botriopygus*, et errore *Botryopygus*), diagnosis, *B. demolyt*; SAVIN (283) p. 124. *B. nandasi*; DOUVILLÉ (66) p. 94: GAUTHIER (101) p. 109. *B. savini* (p. 126), *B. torcapeli* (p. 128), *B. valdensis* (p. 129); SAVIN (283).
- Breytia australasiae*; DOEDERLEIN (62) p. 688.
- Brisopsis*:—†*B. cf. ottningensis*; OPPENHEIM (241) p. 129. †*B. luzonica*; TOKUNAGA (306) p. 23. *B. lyrifera*; LÜNNBERG (197) p. 26: NICHOLS (236) p. 264: PETERSEN (259): SIMPSON (294) p. 43.
- †*Brisus carinatus*; FOURTAU (89).
- †*Brontia*, discussed; LAMBERT (176) p. 101.
- Caenopedina* (et errore *Coenopedina*), revived for *Hemipedina cubensis*; MORTENSEN (229) p. 130: diagnosed; MEISSNER in HAMANN (125) p. 1359.
- Calveria*, rediagnosed, comprising *C. hystrix*, *C. gracilis*; MORTENSEN (229) p. 63: also MEISSNER in HAMANN (125) p. 1352. *C. fenestrata*, pedicellariae distinct from those of *C. hystrix*, forms genotype of *Aracosoma* (q. v.) (p. 53), *C. gracilis*, parasitic copepod (p. 175), *C. hystrix*, radioles, pedicellariae, spicules descr. (p. 70, pls. iii, xi, xii, xiii, xiv); MORTENSEN (229).
- †*Caratomus*:—*C. faba*; JUKES-BROWNE (162). *C. parviporus* nom. nud. SCHLUETER for specimen recorded as *C. avellana*, from Grimme near Löcknitz; DEECKE (46) p. 54.
- †*Cardiaster*, diagnosis; SAVIN (283) p. 96. *C. ?* sp. indet.; AIRAGHI (3) p. 325, pl. ii. *C.* sp. indet., descr.; LAMBERT (174) p. 76. *C. ananchytis*; CORNET (36) pp. 5, 17, 26, & (37) p. 188: WOLLEMANN (326) p. 29. *C. cotteau* (pp. 45, 49), *C. cretaceus* (pp. 33, 50); ROWE (276). *C. dallagoi* n. sp., Senonian scaglia of Valdagno in Vicentine; AIRAGHI (3) p. 325, pl. ii. *C. (Sternotaxis) aff. C. granulatus*, note by LAMBERT; SAVIN (283) p. 96, pl. i. *C. latissimus*; LAMPLUGH & WALKER (179) p. 263. *C. maximus*; WOLLEMANN (326) p. 30, pl. vii. *C. pygmaeus*; ROWE (276) pp. 32, 37, 50: = *C. truncatus*; LAMBERT in Review. *C. subtrigonatus*, incl. *C. italicus*; AIRAGHI (3) p. 323, pl. ii.
- †*Cardiopelta*, diagnosis (p. 104), *C. carinata*, descr. cum var. nov. minor, Upper Tithonian, Savoy (p. 105, pl. iii), *C. jaccardi* (p. 107), *C. malbosi*, descr. (p. 109), *C. ovulum* (p. 108); SAVIN (283).
- †*Cassidulus longianus*; HOWCHIN (149).
- †*Catopygus*:—*C. columbarius*; LAMPLUGH & WALKER (179) p. 263. *C. fenestratus*; CORNET (35) p. lxiii; (36) pp. 5, 17, 26; & (37) p. 188.
- Centrostephanus* diagnosed; MEISSNER in HAMANN (125) p. 1357. *C. longispinosus*; RICHARD (271) p. 66.
- Chaetodiadema* n. g. of *Diadematae* allied to *Astropyga*, with genotype *C. granulatum* n. sp., G. of Siam, 10-30 fms.; MORTENSEN (228).
- Chondrocidaris*, rediagnosed, with genotype *C. gigantea*; MORTENSEN (229) pp. 29, 20: also MEISSNER in HAMANN (125) p. 1347.
- †*Chuniola* n. g. of *Spatangidae* allied to *Lovenia* (p. 537) with genotype *C. carolinea* n. sp., Mid. Miocene, Holstein, cotypes at Geol. Landesanst. Berlin, and Museums of Hamburg and Lübeck; GAGEL (97) p. 531, pl. xxiv.
- Cidaridae*, classification discussed, new divisions based largely on pedicellariae, viz. *Cidaris*, *Doro-*, *Treto-*, *Stephano-*, *Schizo-*, *Chondro-*, *Acantho-*, *Stereo-*, *Gonio-*, *Disco-*, *Petalo-*, *Histo-*, *Poro-cidaris*, and *Phyllacanthus* (qq. v.); MORTENSEN (229) pp. 11-31.
- Cidaris* (vide etiam s.-gg. *Doro-*, *Disco-*, *Eu-*, *Gonio-*, *Leio-*, *Para-*, *Plegio-*, *Poly-*, *Poro-*, *Rhabdo-*, *Stereo-*; *Typo-cidaris*, and *Phyllacanthus*)

diagnosis; SAVIN (283) p. 199: rediagnosed, comprising *C. affinis*, *C. reini*, *C. tribuloides*, *C. galapagensis*, *C. metularia*, *C. thouarsi*, *C. verticillata*, *C. baculosa* (incl. *Echinus cidaris* L.); MORTENSEN (229) pp. 28, 19 [the name is ascribed to Klein, who is pre-Linnean; no genotype is mentioned, but the spp. include none named by Klein or even by Leske; *Echinus cidaris*, having, apud Loven, no validity whatever, cannot be genotype]: diagnosed; MEISSNER in HAMANN (125) p. 1347: history of name and value of subdivisions, recent spp. conveniently arranged in subgenera *Eucid.*, *Dorocid.*, *Stereocid.*, *Leiocid.*, *Goniocid.*, and *Porocidaris*; DOEDERLEIN (62) p. 689. †*C.* sp.; LONGHI (199) p. 27, pl. i: radioles; QUAAS (262) p. 164. †*C.* spp. indett., radioles; TOKUNAGA (306) pp. 25-27, pl. ii. †*C.* spp. nondescr.; SAVIN (283) p. 203, pl. ii, p. 206, pl. iii. †*C.* spp., radioles cf. *transversa* et *wissmanni*; VINASSA DE REGNY (315) p. 464, pl. ii. †*C. abichi*; SIEMIRADZKI (293) pp. 357, 358. *C. affinis*, pedicellariae (p. 17), retained in this genus (p. 19, 28), distinguished fr. *Dorocidaris papillata* and descr., distrib. (p. 35, pls. i, vi, viii, ix, xi); MORTENSEN (229). †*C. aizyensis* n. sp. Upper Tithonian of Aizy-Noyarez (Isère), holotype in Gevrey coll.; LORIOU (200) p. 43, pl. iii. †*C. alata*; BROILI (25) p. 155, pl. xvii: GORDON (106) p. 27. †*C. alpina* Cott.; KARAKASCH (163) p. 214. †*C. andreae* n. sp., Bajocian near Macon, type a radiole in author's collection; LISSAJOUS (189) p. 99, pl. i. "*Cidaris annulifera* Lam." Auctt.; DOEDERLEIN (62) p. 687: distinguished from *C. baculosa* (p. 19), holotype only var. of *C. baculosa* (p. 172); MORTENSEN (229). †*C. antarctica*, radioles and plates; LORIOU (200) p. 4, pl. i. *C. baculosa*, distinguished from *C. annulifera*; MORTENSEN (229) p. 19 [vide sub *Cidaris*]: incl. *E. cidaris* L., refl. to *Phyllacanthus* (q. v.); LAMBERT in SAVIN (283) p. 224. †*C. bathonica*, differences from Cotteau's description; LISSAJOUS (189) p. 101. *C. (Leiocidaris) bispinosu* with varr. *typica*, n. var. *ramsayi* fr. Queensland (incl. "*Phyllacanthus annulifera*" Ramsay), and n. var. *chinensis* fr. China Sea; DOEDERLEIN (62) pp. 687, 695, pl. lviii. †*C. blumenbachi*; LISSAJOUS (189) p. 101: ROLLIER (275): SIEMIRADZKI (293) pp. 371, 374, 376, 379, 383, 433, 435, 443. †*C. brauni*; GORDON (106) pp. 26, 27: incl. *C. catenifera*, *baculifera*, and *waechteri* of Münster, and *C. similis* Des.; BROILI (25) p. 155, pl. xvi. †*C. cf. braunii*; KITTEL (167) p. 92. †*C. buchi*; BROILI (25) p. 156, pl. xvii. †*C. cf. campichei*; SAVIN (283) p. 204. †*C. cartieri*, ?incl. *C. spinosus* Quenst., redescr. (p. 102, pl. i), †*C. cervicalis*, radioles (p. 103, pl. i); LISSAJOUS (189). †*C. chomeracensis* n. sp., Upper Tithonian of Chomérac (Ardèche), holotype in Gevrey coll.; LORIOU (200) p. 42, pl. iii. †*C. clavigera*; JUKES-BROWNE (161) p. 93: REID (268) p. 54 & (268A) p. 29: (or ?*sorigneti*); ROWE (276) pp. 35, 37, 49. †*C. cornifera*, radioles; SAVIN (283) p. 206, pl. i. †*C. coronata*; FRITEL (96A) p. 57, text-fig.: HAIZMANN (123) pp. 494, 496: LISSAJOUS (189) p. 103: SIEMIRADZKI (293) pp. 358, 361, 363, 371, 374, 376, 379, 383, 397, 421, 433, 436, 443. †*C. cucumifera*, incl. *C. court-eaudina* Auctt.; LISSAJOUS (189) p. 98. *C. curvatispinis* made genotype of *Acanthocidaris*; MORTENSEN (229) pp. 21, 29. †*Cidarites cylindricus*; HAIZMANN (123) pp. 491, 511. †*C. dagordauensis* n. sp., based on radioles from Lusitanian of Panasqueira, Portugal, formerly referred to *C. lineata*; LORIOU (200) p. 45, pl. ii. †*C. decorata*; BROILI (25) p. 155, pl. xvii: GORDON (106) pp. 26, 27. †*C. dorsata*; locc. citt.: incl. *C. scrobiculata*; BROILI (25) p. 153, pl. xvii. †*C. cf. dorsata*; LANGENHAN (180) p. 10, pl. vii. †*C. elegans*; HAIZMANN (123) pp. 497, 517: ILOVAISKY (152) p. 248: apex; SEGUIN (292). †*C. filigrana*; SIEMIRADZKI (293) pp. 355, 358, 359, 433. †*C. florigemma*; FRITEL (96A) p. 57, text-fig.: LISSAJOUS (189) p. 105:

ROLLIER (275); SIEMIRADZKI (293) pp. 369, 371, 374, 383, 385, 419, 433. †*C. forchammeri*; FRITEL (96A) p. 58, text-fig. †*C. ?fustis*; BROILLI (25) p. 157, pl. xvii. †*C. glandarius*, test descr.; LORIOLO (200) p. 24, pl. ii. *C. gracilis*; NICHOLS (236) p. 259. †*C. grandaevus*; LANGENHAN (180) p. 10, pl. vii. †*C. hausmanni*; BROILLI (25) p. 154, pl. xvii. GORDON (106) p. 26. †*C. helenae* n. sp., Upper Muschelkalk, Sutorman, Montenegro, test and radioles, holotype at Univ. Bologna; VINASSA DE REGNY (315) p. 463, pl. ii. †*C. hirudo*; REID (268) p. 56; ROWE (276) pp. 33, 37, 49. †*C. histicoides*; SIEMIRADZKI (293) pp. 358, 436. *C. (Leiocidaris) imperialis* with varr. *typica*, *fustigera*, *dubia*, *parvispina*, wh. are defined and measured; DOEDERLEIN (62) pp. 685, 687, 690, pl. lviii. †*C. julianensis* n. sp., Lower Miocene, Patagonia; LORIOLO (200) p. 7, pl. i. †*C. klipsteini*; BROILLI (25) p. 153, pl. xvii. †*C. cf. klipsteini*; GORDON (106) p. 26. †*C. linearis*; l. c. *C. luetkeni* Lor., probably syn. of *C. annulifera*; MORTENSEN (229) p. 20. †*C. matheyi*; LISSAJOUS (189) p. 101. *C. mauritanicus* n. sp., Tithonian of Chomérac (Ardèche), type in Gevrey coll., radioles, also = *C. lineata* from Algeria, not the type; LORIOLO (200) p. 44, pl. ii. *C. metularia*; BELL (11) p. 246: A. Ag., syn. of *C. mauri*; LAMBERT in SAVIN (283) p. 223: v. etiam sub *Euclidaris*. †*C. mitratus*; HAIZMANN (123) p. 499. †*C. monilifera* (p. 200), †*C. muricata*, p. 204; SAVIN (283). †*C. nobilis*; SIEMIRADZKI (293) pp. 374, 383. †*C. noyarezensis* n. sp., Tithonian of Aysy-Noyarez (Isère), holotype in Gevrey coll.; LORIOLO (200) p. 41, pl. iii. *C. nutrita*, distinguished from *Goniocidaris canaliculata*, and refd. to *Stereocidaris*; MORTENSEN (229) pp. 24, 25. †*C. ortmanni* n. sp., radioles, Upper Cretaceous, Patagonia; LORIOLO (200) pp. 8, 52, pl. i. *C. papillata*; NICHOLS (236) p. 258; SIMPSON (294) p. 42. †*C. pasquierei* n. sp., radioles fr. Tithonian of Chomérac (Ardèche), in Gevrey coll.; LORIOLO (200) p. 45, pl. iii. †*C. payebieni* n. sp., Bathonian near Macon, type a radiole in author's collection; LISSAJOUS (189) p. 100, pl. i. †*C. perornata*; ROWE (276) pp. 43, 49. *C. pistillaris*, holotype lost, not proved same as *C. baculosa*; MORTENSEN (229) p. 172: refd. to (*Leiocidaris*), distinction fr. *C. hispinosa*, incl. varr. *typica*, *annulifera* (Lam.), *australis* (Ramsay), and n. var. *erythraea* fr. Red Sea; DOEDERLEIN (62) pp. 687, 692, pl. lix. †*C. pretiosa*; SAVIN (283) p. 202. †*C. propinqua*; LISSAJOUS (189) p. 103; SIEMIRADZKI (293) pp. 357, 358. †*C. pseudopistillum*, radioles, perh. incl. *C. figueiroensis*; AIRAGHI (3) p. 318. †*C. pyrenaica*; SAVIN (283) p. 205, pl. iii. †*C. renesi*, descr. fr. Chomérac (Ardèche); LORIOLO (200) p. 40. †*C. cf. roemeri*; BROILLI (25) p. 157, pl. xvii. †*C. salviensis*, v. sub *Aulacocidaris*. †*C. savini*; SAVIN (283) p. 200. †*C. sceptrifera*; FRITEL (96A) p. 56, text-fig.: JUKES-BROWNE (161) p. 93; ROWE (276) p. 49. †*C. scrobiculata*; GORDON (106) pp. 26, 27. †*C. semicostata*, incl. *C. orbignyana*, *C. spinulosa*, and *C. ovifera* of Klipstein; BROILLI (25) p. 157, pl. xvii. †*C. serrata* Desor; WOLLEMANN (326) p. 19. †*C. serrifera*; JUKES-BROWNE (161) p. 93; ROWE (276) pp. 35, 41. †*C. spileccensis*; MUNIER-CHALMAS (231) p. 29. †*C. spinosa*; SIEMIRADZKI (293) p. 358; LISSAJOUS (189) p. 102. †*C. cf. spinosa*; SIEMIRADZKI (293) p. 435. †*C. spinulosa*; LISSAJOUS (189) p. 99. †*C. subcoronata*; GORDON (106) pp. 26, 27: discussed; BROILLI (25) p. 152, pl. xvii. †*C. sublovis* [sic]; LISSAJOUS (189) p. 100. †*C. subvesiculosa*; REID (268) p. 52. †*C. cf. tessurata*; PATRINI (247) p. 743. *C. thouarsi*, pedicellariae; MORTENSEN (229) p. 172: v. et. sub *Aulacocidaris*. †*C. transversa*; LANGENHAN (180) p. 10, pl. vii. SIEMIRADZKI (293) p. 239. †*C. trigona*; GORDON (106) pp. 26, 27: incl. *C. imbricata* Cornalia; BROILLI (25) p. 156, pl. xvii. †*C. turonensis*; DOUVILLÉ (66) p. 94: imperfect specimen descr., com-

- parison of type with *C. subvesiculosa*; GAUTHIER (101) p. 111. †*C. valfinensis*, Cotteau's description corrected; LISSAJOUS (189) p. 104, pl. i. †*C. vesiculosa*; JUKES-BROWNE (161) p. 93: FRITEL (96A) p. 56, text-fig. †*C. wissmanni*; BROILI (25) p. 156, pl. xvii. †*C. cf. wissmanni*; KITTL (167) p. 92. †*C. wrighti*, cited by Berthaud from Macon, probably wrong; †*C. schzokkei*: LISSAJOUS (189) p. 99.
- Clypeaster*:—†*C. aegyptiacus*, Miocene of Egypt; RABOISSON (263): but is Pliocene and = *C. pliocenicus* Seg., FOURTAU in discussion. †*C. altus* in Egypt; RABOISSON (263): but referred to *C. aegyptiacus* by FOURTAU in discussion. †*C. audouini* nom. nud.; FOURTAU (89). †*C. biarritzensis*, †*C. bouillei*; HAUG (129) p. 496. †*C. crassicosatus*; FALLOT (79) p. 218. †*C. gippslandicus*; DENNANT & CLARK (55) p. 42. †*C. martinianus* (p. 123), †*C. michelini* (pp. 123, 148), †*C. michelottii* (pp. 117, 123, 148), †*C. placenta* (p. 148); OPPENHEIM (241). †*C. pseudoplacinaris*; PACHUNDAKI (246). *C. rarispinus* n. sp., Malay Archipelago 36-91 m.; DE MEIJERE (53) p. 7. †*C. regulus*; OPPENHEIM (241) pp. 117, 148. *C. reticulatus*; BELL (11) p. 247. †*C. rohlfsi*; PACHUNDAKI (246). †*C. scillae*; FALLOT (79) pp. 218, 222. †*C. scutum*; OPPENHEIM (241) p. 148. †*C. testitudinaris* [sic]; TOKUNAGA (306) p. 7.
- †*Clypeolampas*:—*C. helios*, *C. vishnu*; NOETLING (238) pp. 517, 518.
- †*Clypeopygus*, diagnosis as s. g. [of ?], *C. subquadratus*; SAVIN (283) p. 135.
- †*Clypeus ploti*; FRITEL (96A) p. 64, pl. iv.
- †*Codechinus*, diagnosis, *C. rotundus*; SAVIN (283) p. 157.
- †*Codiopsis*, diagnosis; SAVIN (283) p. 153: general discussion and list of spp., *C. alpina*, *C. arnaudi* (p. 89), *C. cae* (p. 90); LAMBERT (175). *C. doma*; JUKES-BROWNE (162). *C. jaccardi*; LAMBERT (175) p. 89. *C. pilleti*; SAVIN (283) p. 154. *C. regalis* (p. 90), *C. valotairei* n. sp., passage from Turonian to Senonian, Saumur (p. 90, pl. iii); LAMBERT (175).
- †*Coelopleurus* diagnosed; MEISSNER in HAMANN (125) p. 1361. *C. coronalis* noted by MIGUEL É IRIZAR (205) Zool. Rec. 1902 in Cretaceous of Morella is that sp. but is Eocene; LAMBERT in Review. *C. equis*; FRITEL (96A) p. 61, text-fig. (?) *C. fourtauvi* n. sp. Blätterthone [Danian], Chargeh oasis; QUAAS (262) p. 164, pl. xxxi: a form intermediate between *Arbacia* and *Codiopsis*; LAMBERT in Review.
- Coenopedina* err. pro *Caenopedina* (q. v.).
- †*Collyrites*, diagnosis; SAVIN (283) p. 103. *C. bicordata*; FRITEL (96A) p. 66, pl. iv: SAVIN (283) p. 103. *C. aff. bicordata*; SIEMIRADZKI (293) p. 345. *C. elliptica*; SAVIN (283) p. 104: SIEMIRADZKI (293) p. 341. *C. fribourgensis*; DEL CAMPANA (52). *C. ovalis* (pp. 329, 331, 337, 339, 341), *C. cf. ovalis* (p. 336); SIEMIRADZKI (293). *C. ovulum*; KARAKASCH (163) p. 213. *C. ringens* (p. 337), var. *eudesi* (p. 329), *C. thermarium* (p. 377); SIEMIRADZKI (293). *C. verneuli*; DEL CAMPANA (52). *C. cf. verneuli*; JIMÉNEZ DE CISNEROS (157) p. 299.
- Colobocentrotus* discussed (p. 129), diagnosis as member of *Echinometridae*, comprises *C. atratus* and *mertensi* (p. 140); MORTENSEN (229). *C. atratus*; DOEDERLEIN (62) p. 688: pedicellariae; MORTENSEN (229) p. 130, pl. xix.
- †*Conoclypeus*:—*C. conoideus*, descr.: CHECCHIA (30) p. 107, pl. v. *C. plagiosomus*; KOCH (169) pp. 43, 162. *C. semiglobus*; FALLOT (79) p. 223.
- †*Conolampas*, genus maintained, and to it are referred *Echinolampas plagiosomus*, *E. alienus*, *E. africanus*, and *E. osiris* (p. 420), *C. lagoi* n. sp., Mid. Eocene, Venetia (p. 420, pl. xi); AFRAGHI (2).
- †*Conulus*, diagnosis, name discussed and distinguished from *Echinoconus*

- by LAMBERT (p. 142), *C. castaneus* (p. 144), *C. mixtus*, descr. (p. 144); SAVIN (283). (Vide etiam *Galerites*.)
- †*Coptosoma crenulare*; TOKUNAGA (306) p. 4.
- †*Coraster* sp. ind.; AIRAGHI (3) p. 326.
- †*Corculum*, vide *Galeola*.
- Cottaldia forbesiana*, pedicellariae descr., the sp. may be *Arbacina* as Pomel said; MORTENSEN (p. 229) p. 83, pls. vii, viii.
- †*Craginaster* n. g., with genotype *Holaster completus* Cragin, probably one of *Echinocorytinae*; LAMBERT in Review of CRAGIN (77) Zool. Rec. 1901.
- Cyanosoma*, syn. of *Asthenosoma*; MORTENSEN (229) p. 63.
- †*Cyclaster oblongus*; MUNIER-CHALMAS (231) p. 29.
- †*Cyphosoma*:—*C. abbatei*; DACQUÉ (42) p. 357. *C. corneti*; CORNET (36) p. 26 & (37) p. 188. *C. koenigi*; WOLLEMAN (326) p. 23 & (328) p. *mollense* n. sp., Neocomian, Chile, cotypes at Strassburg and Hildesheim; PAULCKE (248) p. 286, pl. xvii. *C. nitidulum*; LASKAREV (184) pp. 230, 266. *C. paucituberculatum*; KARAKASCH (163) p. 214. *C. radiatum*; JUKES-BROWNE (161) p. 94: ROWE (276) pp. 34, 49. *C. raulini*; KARAKASCH (163) p. 214.
- †*Cyrtoma*, genus discussed; LAMBERT (177) p. 480: LORIOL (200) p. 18. *C. posthumum*, v. sub *Platipygus*.
- Dermatodiadema* diagnosed; MEISSNER in HAMANN (125) p. 1357. *D. amphigymnum* n. sp., Malay Archipelago, 1158 m.; DE MEIJERE (53) p. 2.
- Diadema* diagnosed; MEISSNER in HAMANN (125) p. 1357. *D.* sp.; KARAWAEW (164). *D. savatile*; BELL (11) p. 246: incl. *D. setosum*; DOEDERLEIN (62) p. 688. †*D. subangulare*; HAIZMANN (123) pp. 498, 517.
- †*Diademopsis*:—*D. buccalis*; BISTRAM (14). *D. serialis*; FRITEL (96A) p. 60, text-fig.
- Dialithocidaris* diagnosed; MEISSNER in HAMANN (125) p. 1361.
- Diplocidaris*, diagnosis (p. 234), *D. gigantea* (p. 235); SAVIN (283).
- †*Diplopodia* diagnosis, *D. aequale* (p. 196), *D. dubia* (p. 199); SAVIN (283). *D. marticensis*; BALL & BEADNELL (9) p. 55. *D. revili* n. sp., Haute-rivian, Sindon, Savoy, holotype in coll. Savin; SAVIN (283) p. 197, pl. ii.
- †*Disaster* (vel *Dysaster*), diagnosis; SAVIN (283) p. 101. *D. carinatus*; HAIZMANN (123) pp. 490, 497, 498, 511, 516. *D.* cf. *carinatus* (p. 329), *D. granosus* (p. 382); SIEMIRADZKI (293). *D. granulosus*; LEVINSKIĀ (187) pp. 584, 593, 597, 598: SAVIN (283) p. 101. *D. siliceus*; SIEMIRADZKI (293) p. 378. *D. subelongatus*; SAVIN (283) p. 102.
- Discocidaris*, rediagnosed as s.-g. of *Goniocidaris*, comprising *D. clypeata*, *D. mikado*, and ? *D. serrata*.; MORTENSEN (229) pp. 29, 24: diagnosed; MEISSNER in HAMANN (125) p. 1348. *D. serrata* n. sp., Challenger station 204, holotype in Brit. Mus.; MORTENSEN (229) p. 25, pl. x.
- †*Discoidea* (vel *Discoidea*), diagnosis; SAVIN (283) p. 145. *D. conica*; FRITEL (96A) p. 62, text-fig.; SAVIN (283) p. 146. *D. cylindrica*; WOLLEMAN (326) p. 25. *D. decoratus*; PELLAT (251) pp. 121, 125. *D.* cf. *decoratus*, descr.; LAMBERT (174) p. 85, pl. iii. *D. dixoni*; ROWE (276) pp. 32, 37, 39, 49.
- †*Ditremaster mascaie*, generic position maintained; CHECCHIA (30) p. 102.
- Dorocidaris*, s.-g. of *Vidaris* q. v.; DOEDERLEIN (62): rediagnosed, comprising *D. papillata*, *D. blakei*, and ? *D. micans*; MORTENSEN (229) pp. 28, 16: diagnosed; MEISSNER in HAMANN (125) p. 1345. *D. bracteata*, referred to *Stephanocidaris* (p. 17), *D. micans* n. sp., Albatross station 2345, holotype in Brit. Mus. (p. 22, pl. ix), *D. nuda* n. sp., G. of Guinea and near C. Verd, formerly referred to *D. papillata* and *D. hystrix* (p. 171 and fig.), *D. panamensis*, pedicel-

- lariae (p. 17), reft. ? to *Cidaris* (p. 19); MORTENSEN (229). *D. papillata*; †DEPÉRET & CAZIOT (57) pp. 324, 325, 326: parasites; RICHARD (271) pp. 66, 67, 71, 75: incl. *C. hystrix*, and ?*D. abyssicola*, but Red sea form is *C. baculosa*, description of tubercles, pedicellariae, spicules, and radiole structure, distrib. (p. 31, pls. v, vii, ix, xi), arrangement of tubercles, distrib., specimen recorded fr. R. Plate is *Stereocidaris lorioli*, Studer's specimen fr. G. of Guinea is *D. nuda* (p. 170), *D. reini*, pedicellariae (p. 17), reft. to *Cidaris* (pp. 19, 28), *D. tiara*, syn. of *Stephanocidaris bracteata* (p. 173); MORTENSEN (229).
- †*Duncania*, diagnosed and discussed; LAMBERT (176) p. 32.
- †*Dysaster* vide *Disaster*.
- †*Echinanthus*:—E. cfr. *ataxensis*, descr. (p. 419, pl. xi), *E. biarritzensis*, descr. (p. 418, pl. xi), *E. crassus*, Agassiz model is a var. of *E. desmoulinsi* not of *E. tumidus* as usually supposed, the name *crassus* has priority over *desmoulinsi* (p. 418); AIRAGHI (2). *E. desmoulinsi*; FALLOT (79) p. 193: syn. of *E. crassus*; AIRAGHI (2) p. 418: this not admitted by LAMBERT in Review. *E. griesbachi*; NOETLING (238) p. 517. *E. issyavensis*; FRITEL (96A) p. 65, pl. vi. *E. tumidus*, descr., the specimen figd. by Dames is *E. desmoulinsi*; AIRAGHI (2) p. 416, pl. xi: specimen figd. very different from type, which is in Deshayes coll.; LAMBERT in Review.
- Echinarachnius*:—†*E. mirabilis*; TOKUNAGA (306) p. 11: is a *Scutella*; LAMBERT in Review. *E. parma*; †TOKUNAGA (306) p. 12, pl. iii: movement of spermatozoa; WINSLOW (325).
- Echinidae* diagnosis, comprises subfam. *Parechininae* and *Echininae* (p. 134), table of spp. (p. 165); MORTENSEN (229).
- Echininae* n. subfam. of *Echinidae*, comprising *Echinus*, *Sterechinus*, *Paracentrotus*, diagnosis; MORTENSEN (229) p. 134.
- †*Echinites*, discussed (p. 99), *E. sursinus* Schloth., discussed (p. 96); LAMBERT (176).
- †*Echinobrissus* (vide etiam *Nucleolites*):—*E. clunicularis*; FRITEL (96A) p. 63, pl. iii, (p. 329). *E. cf. clunicularis* (p. 336, 337); SIEMIRADZKI (293). *E. lacunosus*; LAMPLUGH & WALKER (179) p. 263. *E. scutatus*; FRITEL (96A) p. 64, text-fig.: SIEMIRADZKI (293) p. 437. *E. cf. waltheri*; DACQUÉ (42) p. 357.
- Echinocardium cordatum*; CAULLERY & SIEDLECKI (28); LEIPER (185); LÖNNBERG (197) p. 25; NICHOLS (236) p. 263; NORMAN (239) p. 411; SIMPSON (294) p. 43. †*E. deickei*; FALKNER & LUDWIG (77) p. 535. *E. flavescens*; NICHOLS (236) p. 264; NORMAN (239) p. 411; SIMPSON (294) p. 43. †*E. (?) gibbosum*; OPPENHEIM (241) pp. 113, 150. *E. pennatifidum*; NICHOLS (236) p. 263.
- Echinocidaris* diagnosed; MEISSNER in HAMANN (125) p. 1360.
- †*Echinocoelus* (vide etiam *Covulus*):—*E. castanea*; ROWE (276) pp. 33, 49. *E. conicus*; FRITEL (96A) p. 61, pl. iv: REID (268) pp. 56, 57; WOLLEMANN (326) p. 23. *E. gigas*, *E. raulini*; FALLOT (79) p. 192; FALLOT (78) p. 274. *E. roemeri*, measurements; WOLLEMANN (326) p. 24, pl. i. *E. subrotundus*; ROWE (276) pp. 34, 37, 39, 49.
- †*Echinocorys* (vide etiam *Ananchites*):—diagnosis; SAVIN (283) p. 97: diagnosed, distrib., literary history, principles of division into spp. (p. 34), literary history of all spp. from 1565 to date (pp. 98–138); LAMBERT (176). *E. acuminatus*, discussed (p. 93), *E. arnaudi*, descr. (p. 79), *E. assulatus* Quenst., discussed (p. 93), *E. beaumonti*, type at École des Mines (p. 65), *E. belgicus*, descr. (p. 80), *E. carinatus* (Defr.), unimportant mutation of *E. vulgaris declivis* (pp. 52, 55, 56), *E. cipliensis*, stereom structure (p. 28, f. 21), descr. as var. of *E. ovatus* (p. 76); LAMBERT (176). *E. concava* (Catullo), maintained in this genus and descr.; AIRAGHI (3) p. 320, pl. 1: does not belong to *Echinocorytinae*; LAMBERT in Review. *E. conicus* Ag., ambulacrum,

(p. 23, f. 17), rediagnosed after neotype from Michery, with **varr. nov.** *lata, minor, fastigata* (p. 66, pls. iv, v), incl. Agassiz' plaster casts 14, 15 (?), and M 1 as type (p. 139), *E. conoideus* Goldf., incl. *A. crassissima* Ag. n. n., plaster cast P 93, descr. (pp. 78 & 140), *E. cotteaudi* [introduced as n. sp. but see Zool. Rec. 1902] for Agassiz' cast R 58, referred to *E. semiglobus* by Cotteau, with n. **varr.** *delumbata* and *stellaris* (p. 84, pl. iv & p. 140), *E. declivis*, as **subvar. nov.** of *E. vulgaris* var. *striatus*, incl. "E. pyramidatus" Rowe non Portlock (pp. 52, 56), *E. depressus*, discussed (p. 91), incl. Agassiz' plaster cast T 9 (p. 141), *E. douvillei*, discussed (p. 92), *E. duchesnei*, discussed (p. 94), *E. duponti* Lambert [see Zool. Rec. 1902], Magas Chalk of Slenaken, Belgium (p. 81, pl. vi), incl. Agassiz' plaster cast P 77 (p. 139), *E. fonticola*, redescrib. by Arnaud as sp., but regarded by Lambert as var. of *E. striatus* (p. 63, pl. iii); LAMBERT (176). *E. gibbus*; REID (268) pp. 53, 54 & (268A) p. 29: apex (p. 17, f. 14), plastron (p. 25, f. 19), diagnosed from Lamarck's type in Mus. Hist. Nat. Paris, with **varr. nov.** *maxima, turrita, brevis, oviformis, costulata* (p. 59, pl. ii), incl. Agassiz' plaster casts T 1, T 2 (p. 141), *E. gravesi*, outline (p. 12, f. 1), peristome and adjacent area (p. 19, f. 15), ambulacrum (p. 23, f. 16), redescrib. from plesiotype, zone of *Micraster decipiens*, Dieppe, also **varr.** (p. 48, pl. i), incl. Agassiz' plaster casts R 66 & R 91 (p. 140); LAMBERT (176). *E. heberti*; FALLOT (79) p. 192: descr.; LAMBERT (176) p. 65. *E. hemisphaericus* (Brong.), unimportant mutation of *E. vulgaris declivis* (p. 52), *E. humilis* n. **var.** of *E. ovatus*, type from Baculite Chalk of the Cotentin (p. 74, pl. iii), *E. lamberti*, discussed (p. 93), *E. limburgicus* n. **var.** of *E. ovatus*, type from Magas Chalk of Limburg (p. 75, pl. vi), *E. marginatus*, descr. as var. of *E. ovatus* (p. 72, pl. v), *E. mattsensis* (Laube sub *Oolaster*) diagnosed (p. 87), *E. maudunensis*, though correct is now changed to *meudonensis* (p. 133), apex (p. 17, f. 12), = *Ananchites ovatus* Blainv. non Lam., descr. (p. 77, pl. vi), incl. Agassiz' plaster cast Q 11 (p. 140), *E. orbis*, descr. (p. 68, pl. i), *E. ovalis*, discussed (p. 94), *E. ovatus*, apex (p. 17, f. 14'), descr., distinguished fr. *E. vulgaris*, with **varr.** *pyramidata, marginata, petasata, humilis, porosa, quenstedti, limburgicus, cipliyensis* (qq. v. sub nn. trivialibus) (p. 69, pls. iv, v), incl. Agassiz' plaster cast Q 67 (pp. 140, 141), var. *cipliyensis*, incl. Agassiz' plaster cast V 38 (p. 141), *E. perconicus*, descr. (p. 83, pl. vi), *E. petasatus*, n. **var.** of *E. ovatus*, Upper Campanian (p. 74), *E. porosa* n. **var.** of *E. ovatus*, from Coesfeld, Westphalia (p. 75, pl. v), *E. pustulosus* Leske (= *Galea taeniis laceris* Klein), syn. of *E. vulgaris* (p. 53), indeterminable flint casts (p. 95), *E. pyramidatus*, descr. as var. of *E. ovatus* (p. 71, pl. iv), *E. pyrenaicus*, outline (p. 12, f. 3), peristomial plates (p. 14, f. 4), discussed (p. 92), *E. quenstedti* n. **var.** of *E. ovatus*, type from Chalk of Haldem, perh. incl. *Ananchytes assulatus* Quenst. (p. 75, pl. v); LAMBERT (176). *E. scutatus*; BLAKE (15) p. 10, fig. 7: JUKES-BROWNE (161) p. 94: REID (268) pp. 56, 58, 59 & (268A) p. 28 & fig.: WOODWARD (332) p. 167: of Leske, diagnosed as var. of *E. vulgaris*; LAMBERT (176) pp. 52, 58: juv. & var. *gravesi*; RIAZ (269). *E. sphaericus* (Schl. sub *Offaster*), descr., probably Turonian, not Cenomanian (p. 47), *E. stellaris* n. **var.** of *E. cotteaudi*, perh. = var. *pyramidalis* Arnaud (p. 86, pl. v), *E. striata* (Lam.) restr. to Leske pl. xlii, f. 4, diagnosed as var. of *E. vulgaris* (pp. 52, 53, pl. ii), *E. subglobosus*, name assigned to Goldfuss [though this admittedly incorrect], descr. as var. of *E. striatus* (p. 62, pl. ii), *E. sulcatus* Goldf., discussed (p. 81), descr., variations in size (p. 88, pl. vi), *E. tenuituberculatus*, descr. (p. 86); LAMBERT (176). *E. vulgaris*; FALLOT (79) p. 192: MENZEL (221) p. 55: of Breynius, descr. fr. a Gravesend specimen, with **varr.** *striata, declivis, pyramidata, carinata, hemi-*

- sphaerica* (qq. v. sub nn. trivialibus), incl. Agassiz' cast M 24, and *E. pustulosus* Leske (p. 51, pl. i), outline (p. 12, f. 2), apex (p. 16, f. 8 & p. 17, f. 13), plastron (p. 25, f. 20), incl. Agassiz' plaster casts 16 as var., & M 24 as norm (p. 139); LAMBERT (176): varr.; SAVIN (283) p. 97: var. *gibbus*; ROWE (276) pp. 42, 44: probably *E. gravesi*; LAMBERT in Review: et var. *ovata*, fide Lambert; LORY (202) p. 261: cum varr. *ovata* et *conica*; AIRAGHI (3) p. 319: probably not this sp.; LAMBERT in Review: (= *Ananchytes ovata*); FRITEL (96A) p. 66, pl. v: really *E. meudonensis*; LAMBERT in Review.
- Echinocory[ti]nae*, diagnosed, discussion of possible subdivisions (p. 32), description of skeleton (pp. 11-30); LAMBERT (176).
- Echinoeyamus*:—†*E.* sp. fr. Mt. Moscalli; OPPENHEIM (241) pp. 116, 117, 151. †*E. luciana*; BALL & BEADNELL (9) p. 59. †*E. ovatus*; JORDAN (159) p. 525: KOERT (171). †*E. piriformis*; FALLOT (79) p. 199. *E. propectus* n. sp., Malay Archipelago, 36-390 m.; DE MEIJERE (53) p. 6. *E. pusillus*; NICHOLS (236) p. 262: NORMAN (239) p. 411: SIMPSON (294) p. 42: †PATRINI (247) pp. 739, 743. *E. scaber* n. sp., Malay Archipelago, 1158-1886 m.; DE MEIJERE (53) p. 5.
- †*Echinocyphus difficilis*; REID (268A) p. 21.
- Echinodiscus*, discussed (p. 721), comparative measurements of spp. (p. 725); DOEDERLEIN (62). *E. auritus*; BELL (11) p. 247: incl. *Scutella bifissa* Lam. (pp. 687, 722, pl. lxxv), var. *tenuissima* (Ag. & Des.), incl. *E. laevis* Al. Ag. (p. 723, pl. lxxv), *E. biforus* (Lam.) non *biforus* Gm., descr. (p. 724, pl. lxxv), *E. bisperforatus*, incl. *Echinus biforus* Gm. and *Lobophora truncata* Ag., descr. (p. 723, pl. lxxv); DOEDERLEIN (62). †*E. formosus*, redescr., now first figd.; TOKUNAGA (306) p. 14, pls. i, ii: is an *Amphiope*, cf. *A. placenta*; LAMBERT in Review. *E. laevis* pars, syn. of *E. auritus* var. *tenuissima* q. v.; DOEDERLEIN (62).
- †*Echinolampas*:—*E.* sp.; LAPPARENT (181). *E. amplus*; PACHUNDAKI (246). *E. bathystoma*; OPPENHEIM (241) p. 150. *E. blainvillei* (p. 199), *E. blaviensis* (p. 193); FALLOT (79). *E. chaumontianus*; FRITEL (96A) p. 65, pl. vi: floscelle incorrect; LAMBERT in Review. *E. discus*; OPPENHEIM (241) pp. 115, 150. *E. distefanianus* n. sp. Lutetian of Mte Gargano, holotype in Ufficio Geologico Roma; CHECCHIA (30) p. 112, pl. v. *E. globulus*, probably not the species from Rocca di Garda; OPPENHEIM (241) p. 231: descr.; CHECCHIA (30) p. 110, pl. v. *E. hemisphaericus*; FALLOT (79) pp. 218, 222, 223: FRIEDBERG (96). *E. hoffmanni* (p. 193), *E. kleini* (p. 199); DE GIORGI (47). *E. laurillardi*; FALLOT (79) pp. 218, 222. *E. oppenheimi* n. sp., Eocene, Veronese; AIRAGHI (2) p. 421, pl. xi. *E. orcagnanus*; OPPENHEIM (241) p. 150. *E. ovalis*; FALLOT (79) p. 193. *E. cf. perrieri*; MELI (219) p. 18. *E. posterocrassus*; HOWCHIN (149). *E. scurellensis*; OPPENHEIM (241) pp. 113, 150. *E. scutiformis*; DE GIORGI (47) p. 199. *E. similis*; FALLOT (79) p. 193. *E. stelliferus*; l.c.: FRITEL (96A) p. 65, text-fig. *E. subquadratus*; OPPENHEIM (241) p. 150. *E. yoshiwarai* n. sp., Tertiary, Kanaya, Kazusa province, Japan; LORIOL (200) p. 31, pl. iii; TOKUNAGA (306) p. 17.
- Echinometra*, diagnosis, comprises *E. lucunter*, *viridis*, *mathaei*, *oblonga*, *vanbrunti*, *macrostoma*; MORTENSEN (229) p. 139. *E. lucunter*; DOEDERLEIN (62) p. 688: WHITELEGGE (322) p. 12: is the W. Indian form, wrongly called *E. subangularis* by A. Agassiz, the Pacific form is *E. mathaei*; MORTENSEN (229) p. 128. *E. oblonga*; BELL (11) p. 247: WHITELEGGE (322) p. 12. *E. vanbrunti*, pedicellariae; MORTENSEN (229) p. 129, pl. xix.
- Echinometridae* Gray, classificatory characters discussed, criticism of previous classifications (p. 90), diagnosis, comprises *Pseudechinus*, *Heliocidaris*, *Echinostrephus*, *Toxocidaris*, *Echinometra*, *Colobocentrotus*, *Heterocentrotus* (p. 138); MORTENSEN (229).

- Echinoneus cyclostomus*; BELL (11) p. 247.
- †*Echinopedina* (*Stereopedina*) *ameghinoi* n. sp., Lower Miocene, Patagonia; LORIOLO (200) p. 10, pl. i.
- Echinosome*, rediagnosed, comprising *E. tenue*, *E. uranus*; MORTENSEN (229) p. 62: diagnosed; MEISSNER in HAMANN (125) p. 1351. *E. uranus*, radioles and pedicellariae; MORTENSEN (229) p. 176.
- †*Echinospatagus* (vel—*spatangus*):—*E. cordiformis* (= *Toxaster complanatus*); KARAKASCH (163) pp. 213, 214. *E. hofmanni*; DEECKE (46) p. 37.
- Echinostrephus*, diagnosis as member of *Echinometridae*, with genotype *E. molare*, and comprising ? *E. pentagonus*; MORTENSEN (229) p. 139. *E. molare*; BELL (11) p. 247: descr.; MORTENSEN (229) p. 128.
- Echinothrix* diagnosed; MEISSNER in HAMANN (125) p. 1358. *E. calamaris*, incl. *E. desori* Al. Ag., but *Astropyga desori* Ag. fr. Red Sea is regarded as a var.; DOEDERLEIN (62) pp. 687, 698, pls. lix, lxxiii: v. et. *Astropyga pulvinata*. *E. diadema*, incl. *E. turcarum*; DOEDERLEIN (62) p. 688. *E. turcarum*; WHITELEGGE (322) p. 12.
- Echinothuridae*, classification discussed (p. 43) and following genera based largely on pedicellariae: *Phormosoma*, *Echinosome*, *Asthenosoma*, *Calveria*, *Araeosoma*, *Hapalosoma*, *Hygrosoma*, *Tromikosoma*, *Sperosoma*, *Kamptosoma* (p. 62); MORTENSEN (229).
- Echinus* Rond. em., discussed, with genotype *E. esculentus* (p. 98), diagnosis as member of *Echininae*, comprises *E. acutus*, *melo*, *elegans*, *gracilis*, *alexandri*, *lucidus*, *affinis*, *atlanticus* (p. 134), *E. aciculatus*, syn. of *Paracentrotus gaimardi* (p. 179); MORTENSEN (229). *E. acutus*; NICHOLS (236) p. 260; SIMPSON (294) p. 42: development; MACBRIDE (207) p. 294: redescr., incl. *E. depressus*, *rarispinus*, and *microstoma*, also varr. *melo*, *flemingi*, and *norvegicus*, and n. var. *mediterranea*, distrib.; MORTENSEN (229) p. 152, pls. i, ii, xv, xvi, xviii, xix, xxi: from Ascension vide *E. atlanticus*: var. *norvegicus*, differences fr. *E. affinis* (p. 179), *E. affinis* n. sp., archibenthal zone of N. Atlantic, cotypes in Copenhagen Mus., previously confused with *E. alexandri* and *E. norvegicus* (p. 150, pls. v, xv, xvi, xviii, xix, xx, also pp. 100, 179), *E. albocinctus*, descr., pedicellariae figd. (p. 104, pl. xix); MORTENSEN (229). *E. alexandri*; RICHARD (271) p. 66: distinguished fr. *E. lucidus* (p. 100), redescr., distrib. (p. 146, pls. v, xv, xvi, xviii—xxi), *E. angulosus*, descr., pedicellariae figd., refd. to *Parechinus* (q.v.) (p. 108, pl. xvii); MORTENSEN (229). *E. armatus* n. sp., Sulu Sea?; DE MELJERE (53) p. 5. *E. atlanticus* n. sp. for "E. acutus" from Ascension, cotypes in Brit. Mus.; MORTENSEN (229) p. 101, pls. xviii, xix. *E. cidaris* L. v. sub *Cidaris* et *Phyllacanthus*. *E. darnleyensis*, specimen fr. Thursday Id., in Brit. Mus., descr., pedicellariae and spicules figd. (p. 110, pl. xxi), refd. to *Gymnechinus* (q.v.) (p. 115), *E. diadema*, refd. to *E. margaritaceus* (p. 102); MORTENSEN (229). *E. elegans*; NICHOLS (236) p. 261: distinguished fr. *E. acutus* (p. 99, pl. xviii, xx), incl. ? *E. wallisi*, redescr., specimens so called in Challenger Rep. are not this sp. (p. 142, pls. i, iii, xv, xvi, xviii, xix, xx), specimens recorded from Tristan d'Acunha not this sp. (p. 101), "E. elegans?" Studer fr. C. Verd are *Genocidaris maculata* and *Parechinus* sp. (p. 179), *E. elevatus* Hutton, syn. of *Amblypneustes formosus*, fide Hutton (p. 104); MORTENSEN (229). *E. esculentus*; LÖNNBERG (197) p. 25; MICHAÏLOVSKIJ (223) p. 524; NICHOLS (236) p. 261; NORMAN (239) p. 410; OTTOLENGHI (245); PETERSEN (259); SIMPSON (294) p. 42; THOMSON & RENNIE (304) p. 53: development; MACBRIDE (207) & (210): larval brain; MACBRIDE (208 & 207): dissection and good diagrams; KUEKENTHAL (173) p. 136: anat. apical pole; WAGNER (316) pl. viii: descr., esp. ambulacral areas, radioles, plates of buccal membrane, and pedicellariae, distrib. (p. 160, pls. i, iii, xv, xvi, xviii, xix, xx), Mediterranean and Port

Natal locc. unreliable, many other records incorrect (p. 180), var. *tenuispina* Norman raised to specific rank (p. 180), this not the form so named on p. 162; MORTENSEN (229). *E. fasciatus* Parfitt may be young of any British Echinid (p. 104), *E. gracilis* distinguished (p. 100, pl. xviii), *E. horridus*, pedicellariae (p. 102, pl. xix), *E. lucidus*, discussed (pp. 100, 177, pl. xix), *E. magellanicus*, descr., pedicellariae figd., specimens recorded from Crozet Is. are not this sp., specimens from Prince Edward Id., Australia, and New Zealand also doubted, specimens from Patagonia have been wrongly refd. to *E. norvegicus* (p. 103, pl. xix), *E. margaritaceus* descr., pedicellariae figd., incl. *Sterechinus antarcticus* and *E. diadema* (p. 101, pl. xix); MORTENSEN (229). *E. microstoma*; NICHOLS (236) p. 260. *E. microtuberculatus*; ALBRECHT (5A): BOVERI (23): DONCASTER (64): DRIESCH (70): TEICHMANN (303): ZIEGLER (338): descr., pedicellariae figd., but the sp. so called is clearly not that to which De Blainville gave the name, it may be *E. pulchellus*, refd. to *Parechinus* (q.v.); MORTENSEN (229) p. 107, pls. xv, xvi. *E. miliaris*; LÖNNBERG (197) p. 25: NICHOLS (236) p. 261: PETCH (257): SIMPSON (294) p. 42: development; MACBRIDE (207) p. 294: descr., pedicellariae figd., refd. to *Parechinus* (q.v.); MORTENSEN (229) p. 107, pl. xvii. *E. neumayeri*, descr., pedicellariae figd.; MORTENSEN (229) p. 103, pls. xix, xx. *E. norvegicus*; NICHOLS (236) p. 260: NORMAN (239) p. 410: PETERSEN (259): SIMPSON (294) p. 42: specimens recorded from Patagonia are partly *E. magellanicus*, partly another sp., specimens recorded from Japan are probably *E. lucidus*; MORTENSEN (229) p. 101. “†*E. cf. pusillus* Müntst.” of Oehmke 1887, from Bockup Sandst., compared with “*Psammechinus pusillus*” Ebert; GAGEL (97) p. 530. *E. robillardi*, descr., pedicellariae figd. (p. 109, pl. xxi), refd. to *Gymnechinus* (q.v.) (p. 115), *E. tenuispinus* n. sp., descr. fr. specimens fr. Porcupine Bank, 91 fm., in Brit. Mus., but = *E. esculentus* var. *tenuispina* Norman (p. 181, fig.); MORTENSEN (229). *E. verruculatus* (p. 1101) & †(p. 1102); FOURTAU (89): refd. to *Psammechinus*; MORTENSEN (229) p. 115. *E. wallisi*, discussed, remains ‘problematic’ (p. 99), either syn. of *E. elegans* or no *Echinus* (p. 145); MORTENSEN (229).

†*Enallaster*, diagnosis (p. 84), *E. couloni* (p. 87), *E. fittoni*, referred to *Toxaster* (*Miotoxaster*) by LAMBERT (p. 91), *E. oblongus* (p. 86), *E. renevieri*, distinguished from *E. fittoni* by LAMBERT (p. 88); SAVIN (283). *Endocysti* (and *Exocysti*), note by LAMBERT on etymology; SAVIN (283) p. 72.

†*Eocidaris halliana*?; GIRTY (104) p. 332. *E. cf. hallianus*; KATZER (165) p. 163.

†*Epiaster*:—*E. brevis*; WOLLEMAN (326) p. 33. *E. gibbus*; JUKES-BROWNE (161) p. 94; REID (268) p. 56: large specimens and depressed specimens; WOLLEMAN (326) p. 33: resembles *E. schlueteri*; LAMBERT in Review. *E. nutrix* n. sp., Upper Senonian of Fanivelona, Madagascar; LAMBERT (174) p. 86, pl. iii.

Eucidaris Pomel, founded for fossil spp. can not in present knowledge be applied to recent spp.; MORTENSEN (229) p. 19: s.-g. of *Cidaris* (q. v.) and *E. metularia*; DOEDERLEIN (62) p. 688.

†*Eupatagus* (vel *Euspatangus*):—*E. coranguinum*; HOWOHIN (149): *E. joanneti*; FALLOT (78) p. 300. *E. maximus*; FALKNER & LUDWIG (77) p. 535. *E. murrayensis*; DENNANT & CLARK (55) p. 42. *E. ornatus*; MAYER-EYMAR (217) p. 393.

Euryechinus Verrill will probably have to be used for *Strongylocentrotus drobachiensis*, *purpuratus*, and *franciscanus*; MORTENSEN (229) p. 121.

Evechinus, syn. of *Heliocidaris* (p. 116), *E. chloroticus*, descr., pedicellariae figd. (p. 115, pl. xix), *E. rarituberculatus* distinguished fr. *E. chloroticus*, pedicellariae figd. (p. 116, pl. xix); MORTENSEN (229).

- +*Faujasia faujasi*; DOUVILLÉ (66) p. 94: descr.; GAUTHIER (101) p. 110.
- Fibularia*.—†*F. acuta*, now first figd.; TOKUNAGA (306) p. 7, pl. ii: is *Echinocyamus*; LAMBERT in Review. †*F. ambigua*; KARAKASCH (163) p. 213. *F. cribellum* n. sp., Malay Archipelago, 14–522 m.; DE MEIJERE (53) p. 7. †*F. gregata*; HOWCHIN (149). †*F. volva*; FOURTAU (89).
- +*Galea niendorpiensis* Klein=*quateradiatus* Leske, rejected; LAMBERT (176) pp. 95, 102.
- +*Galeola* Klein [i.e. Gmelin], diagnosed, literary history, incl. *Corculum* (p. 36), literary history of all spp. from 1565 to date (pp. 98–138), *G. cuneata*, discussed (p. 44), *G. gauthieri*, descr., perh. is syn. of *Holaster senonensis* d'Orb. (p. 42, pl. i), *G. papillosa* Klein, sphaeridia (p. 30, f. 22), synonymy discussed, Belgian specimen descr., other forms noted, distrib. (p. 39, pl. i), *G. undosa* Klein, is *Echinocorys*, ? young *E. vulgaris* (p. 95); LAMBERT (176).
- +*Galerites* (vide etiam *Conulus*):—*G. albogalerus*; JUKES-BROWNE (161) p. 94. *G. subrotundatus*; REID (268A) p. 26.
- +*Ganbirretia* n. g. of *Holasteridae*, with genotype *G. douvillei* n. sp., Lower Danian of Gan (Basses-Pyrénées), holotype in École des Mines; GAUTHIER (100) p. 20, pl. i: allied to *Galeola*; LAMBERT in Review.
- Genocidaris*, restored with its genotype *G. maculatus*, vide sub *Temnechinus*; MORTENSEN (229) p. 85.
- +*Glyphocyphus radiatus*; ROWE (276) pp. 33, 49.
- "Glyphostomes" defined and divided into 'Endocycles' and 'Exocycles'; MUNIER-CHALMAS (232) p. 34.
- +*Glypticus*, diagnosis; SAVIN (283) p. 158. *G. hieroglyphicus*; FRITEL (96A) p. 61, text-fig.; SAVIN (283) p. 159; SIEMIRADZKI (293) pp. 374, 421, 435. *G. loryi* (p. 159), *G. sulcatus* (p. 160); SAVIN (283).
- Glyptocidaris*, revived for *Phymosoma crenulare*; MORTENSEN (229) p. 130: diagnosed; MEISSNER in HAMANN (125) p. 1359.
- Goniocidaris* (vide etiam *Discocidaris*), s.-g. of *Cidaris* (q. v.); DOEDERLEIN (62): rediagnosed, comprising *G. tubaria*, *G. geranioides*, *G. biserialis*, *G. umbraculum*; MORTENSEN (229) pp. 23, 29: diagnosed; MEISSNER in HAMANN (125) p. 1348. *G. biserialis*, pedicellariae (p. 24, pl. ix), *G. canaliculata* is probably *Stereocidaris* (p. 26), *G. florigera*, made genotype of *Petalocidaris* (p. 18), *G. geranioides*, pedicellariae (p. 24); MORTENSEN (229). †*G. jorgensis* n. sp., Lower Miocene, Patagonia, scattered plates; LORIOL (200) p. 8, pl. 1. *G. membranipora* Stud., distinguished from *G. canaliculata*; LORIOL (200) p. 9: syn. of *Cidaris nutrix* (q. v.); MORTENSEN (229) pp. 24, 26. *G. mortenseni*, probably *Stereocidaris* (p. 27), *G. tubaria*, pedicellariae (p. 24), *G. umbraculum*, pedicellariae (p. 24, pl. x), *G. vivipara*, syn. of *G. canaliculata* (pp. 24, 25, 26); MORTENSEN (229).
- Goniopneustes* diagnosed; MEISSNER in HAMANN (125) p. 1365.
- +*Goniopygus*, diagnosis (p. 161), *G. decoratus*, descr. (p. 164, pl. i), *G. loryi*, descr. (p. 162), *G. peltatus*, descr. (p. 163); SAVIN (283). *G. peroni*; FOURTAU (93). *G. pilleti*; SAVIN (283) p. 162.
- +*Guettaria rocardi*; LAMBERT (174) p. 75; LEMOINE (186).
- Gymnechinus* n. g. of *Schizechininae*, comprises *G. robillardi* and *darnleyensis* (p. 115) diagnosis (p. 136); MORTENSEN (229).
- Hapalosoma* n. g. of *Echinothuridae*, with genotype *Asthenosoma pellucidum*; MORTENSEN (229) p. 64: diagnosed; MEISSNER in HAMANN (125) p. 1353.
- Heliocidaris*, re-established with genotype *H. chloroticus* (p. 116), diagnosis as member of *Echinometridae*, incl. *Evechinus* (q. v.), comprises *H. chloroticus*, *raritytuberculatus*, and *australiae* (p. 139); MORTENSEN (229).
- +*Hemiasiter*, diagnosis; SAVIN (283) p. 76. *H.* sp. indet.; LAMBERT (174) p. 87, pl. iii. *H. blanfordi*; NOETLING (238) p. 517. *H. bufo*; JUKES-

- BROWNE (162). *H. charginensis*; QUAAS (262) p. 165. *H. cubicus* n. var. *depressus*, *cordiformis*, et *excentricus*, Cenomanian of St Paul, Arabian Desert; FOURTAU (88). *H. fourneli*?; DACQUÉ (42) p. 356. *H. lamberti*, incl. "*H. nasutululus* Sorignet" Cotteau, 1864; SAVIN (283) p. 242. *H. lusitanicus*; BALL & BEADNELL (9) p. 55. *H. minimus*; SAVIN (283) p. 76; ROWE (276) pp. 33, 37, 39, 49; = *Peroniaster nasutululus*; LAMBERT in Review. *H. nasutululus*, a globular var., quoted by REYT (1890) as "*H. prunella* Des."; FALLOT (78) p. 273. *H. nucleus*; DOUVILLÉ (66) p. 94: large individual descr., discussion of specimens descr. by Desor, d'Orbigny, and Cotteau, relations to *Opisaster*; GAUTHIER (101) p. 103. *H. oldhami*; NOETLING (238) pp. 517, 518. "*H. pseudo-fourneli* Per. & Gauth." of FOURTAU (119) Zool. Rec. 1901, referred to *H. proclivis* of ZITTEL's list, by BLANCKENHORN in Review. *H. (Bolbaster) regulusi*?, note by LAMBERT; SAVIN (283) p. 77.
- †*Hemicara pommeranum* **nom. nud.**, SCHLUETER for specimen recorded as *Conoclypeus ovatus*,—from Grimme near Löcknitz; DEECKE (46) p. 54.
- †*Hemicidaris*, diagnosis; SAVIN (283) p. 177. *H. apollo*?; SIEMIRADZKI (293) p. 329. *H. crenularis*; FRITEL (96A) p. 59, text-fig.: ROLLIER (275); SIEMIRADZKI (293) p. 397: et var. *intermedia*; SAVIN (283) p. 178. *H. delaunayi*; LISSAJOUS (189) p. 110. *H. djermanensis* n. sp., Bathonian near Figuig oasis, holotype in Ecole des Mines; GAUTHIER (100) p. 24, pl. i. *H. grimaultensis*; LISSAJOUS (189) p. 110: apex; LAMBERT (176) p. 16, f. 9. *H. intermedia*; LISSAJOUS (189) p. 110: ROLLIER (275). *H. luciensis*; LISSAJOUS (189) p. 109: SAVIN (283) p. 179. *H. pilleti*; l. c.
- Hemipedina cubensis*, not a Triplechinid, better called *Coenopedina*; MORTENSEN (229) p. 130. †*H. eliasensis* n. sp., Cenomanian of Mar Elias, Lebanon; LORIOU (200) p. 28, pl. iii. *H. indica* n. sp., Malay Archipelago, 984 m.; DE MEIJERE (53) p. 3.
- †*Hemipneustes*:—*H. compressus*; NOETLING (238) p. 517. *H. cotteaui*; DOUVILLÉ (66) p. 94: distinguished fr. *H. tenuiporus* and *H. marticensis*; GAUTHIER (101) p. 107. *H. leymeriei*; NOETLING (238) p. 517. *H. pyrenaicus*; FALLOT (78) p. 274: NOETLING (238) p. 518.
- Heterocentrotus* discussed (p. 129), diagnosis as member of *Echinometridae*, comprises *H. mamillatus* and *trigonarius* (p. 139); MORTENSEN (229). *H. mamillatus*; DOEDERLEIN (62) p. 688: WHITELEGGE (322) p. 12: pedicellariae; MORTENSEN (229) p. 129, pl. xix. *H. trigonarius*, pedicellariae; l. c., pl. xix.
- †*Heterodiadema libycum*; BALL & BEADNELL (9) p. 55. "Hétérognathes" or "Platygnathes" defined; MUNIER-CHALMAS (232) p. 34.
- Hipponoë* (vide etiam *Tripneustes*), *H. variegata*; BELL (11) p. 247: syn. of *Tripneustes gratilla* q. v.; DOEDERLEIN (62).
- Histocidaris* n. g. of *Cidaridae* with genotype *Porocidaris elegans*; MORTENSEN (229) pp. 30, 21: diagnosed; MEISSNER in HAMANN (125) p. 1349. *H. elegans*, pedicellariae; MORTENSEN (229) p. 173.
- †*Holaster*, diagnosis (p. 91), *H.* sp. indet. (p. 93); SAVIN (283). *H. carinatus*, said to come from Lüneburg, probably = *H. subglobosus*; WOLLEMANN (326) p. 27: name is syn. of *H. nodulosus*; LAMBERT in Review. *H. completus*, vide *Craginaster*. *H. cordatus*; SAVIN (283) p. 92: compared with *Toxaster cordiformis* (Breyn.); ANTULE (7) p. 23. *H. exilis*; KARAKASCH (163) p. 213. *H. intermedius*; ANTULE (7) p. 25: SAVIN (283) p. 93. *H. loevis* [sic]; SAVIN (283) p. 95. *H. latissimus*; PELLAT (251) p. 126. *H. perezi*; SAVIN (283) p. 95. *H. placenta*; JUKES-BROWNE (161) p. 94: ROWE (276) pp. 35, 45, 49. *H. planus*; BLAKE (15) p. 9, fig. 3: JUKES-BROWNE (161) p. 94: MENZEL (221) p. 55: REID (268) p. 55 & (268A) pp. 26, 29 & fig.:

- ROWE (276) pp. 35, 39, 42, 49; WOLLEMAN (326) p. 28 & (327); WOODWARD (332) pp. 168, 170. *H. senonensis* d'Orb., perhaps a *Galeola* including *G. gauthieri*; LAMBERT (176) p. 42. *H. stuemcki* n. sp., Cenomanian Rhotomagensis-Pläner of Lüneburg, holotype in Strombeck coll.; WOLLEMAN (326) p. 28, pl. i: name corrected to *stuemcke* in author's abstract. *H. subglobosus*; WOLLEMAN (326) p. 27; FRITEL (96A) p. 67, pl. v: really is *H. suborbicularis*; LAMBERT in Review.
- †*Holasteropsis credneriana* nom. nud. [the only authority for the citation "*Holaster credneriana* Elbert" (v. Zool. Rec. 1901, sub *Holasteropsis*), so that this species has to be recorded as n. sp. Elbert 1902 (for date v. sub *Corrigenda*)]; ELBERT (72).
- †*Holactypus*, diagnosis; SAVIN (283) p. 147. *H.* sp. indet.; LAMBERT (174) p. 84. *H. baluchistanensis*; NOETLING (238) pp. 517, 518. *H. cenomanensis*, apex; LAMBERT (176) p. 16, fig. 11. *H. charltoni*, probably syn. of *H. castilloi*; LAMBERT in Review of CRAGIN (77) Zool. Rec. 1901. *H. corallinus*; SAVIN (283) p. 148. *H. depressus*; HAIZMANN (123) pp. 498, 517; SAVIN (283) p. 147; SIEMIRADZKI (293) pp. 327, 329, 382. *H.* aff. *hemisphaericus*; op. cit. p. 327. *H. macropygus*; KARAKASCH (163) p. 213; SAVIN (283) p. 150. *H. numismalis* (Gabb, sub *Discoidea*), ? = *H.* cf. *serialis*; PAULCKE (248) p. 261. *H. orificiatus* (p. 149), *H. punctulatus* (p. 148); SAVIN (283). *H.* cf. *serialis*, Peru; PAULCKE (248) p. 260, pl. xvi. *H. speciosus*; SIEMIRADZKI (293) p. 397.
- Holopneustes* diagnosed; MEISSNER in HAMANN (125) p. 1366.
- "Holostomes" defined and divided into Mono-, Poly-, Téträ-, and Diplocidés; MUNIER-CHALMAS (232) p. 33.
- †*Homoeaster*, discussed, with genotype *H. tunetanus* Gauthier, criticised, genus referred to *Ovulasterinae*; LAMBERT (174) p. 78. *H.* sp. v. sub *Ananchytinarum* sp. *H. ardouini* n. sp. Upper Campanian, Madagascar, types in Mus. Hist. Nat. Paris; LAMBERT (174) p. 80, pl. iii.
- "Homognathes" or "Orthognathes," sub-class, defined; MUNIER-CHALMAS (232) p. 32.
- Homolampas rostrata* n. sp., Malay Archipelago 538-694 m.; DE MEIJERE (53) p. 14.
- Hygrosoma* n. g. of *Echinothuridae*, with genotype *Phormosoma petersi*, comprising *H. hoplakantha*, *H. luculentum*; MORTENSEN (229) p. 64: diagnosed; MEISSNER in HAMANN (125) p. 1354. *H. luculentum* & *H. petersi*, pedicellariae; MORTENSEN (229) p. 176 & fig.
- †*Hypsechinus patagonensis* (d'Orb.); TOURNOUËR (310) p. 466: descr.; LAMBERT (177) p. 477.
- †*Hypodiadema lamarcki*; DAINELLI (43) p. 255.
- Hypsiechinus* n. g. of *Temnopleuridae*; MORTENSEN (229) p. 81: diagnosed; MEISSNER in HAMANN (125) p. 1366. *H. coronatus* n. sp., S. of Iceland, 450-799 fm., full descr., nurses brood, notes on young; MORTENSEN (229) p. 86, pls. v, vii, viii, xi.
- †*Hypsospatangus japonicus* n. sp., Tertiary, Wakkanai, Kitame province, Japan; LORIO (200) p. 32, pl. iii: loc.; TOKUNAGA (306) p. 23.
- †*Iheringia* maintained, referred to *Dendrasterinae*; LAMBERT (177) p. 478. *I. juliensis*, confirms Lahille that this is not separable from *I. patagonensis* and accepts genus, but does not follow Lahille, Lambert, & Ortmann in preferring latter; LORIO (200) p. 15, pl. i. *I. (Scutella) patagonensis*; TOURNOUËR (310) pp. 466, 467, 471: name preferred to *juliensis*; LAMBERT (177) p. 478.
- †*Ilarionia yoshiwarai* n. sp., Eocene of Bonin Is.; LORIO (200) p. 34, pl. iii: loc.; TOKUNAGA (306) p. 16.
- †*Infulaster*:—*I. boulei*; LEMOINE (186). *I. excentricus*; JUKES-BROWNE (161) p. 94; WOLLEMAN (326) p. 30 & (327).

- †*Isechinus* n. g. of *Echininae Triplechinae*, with genotype *Toxopneustes praecursor* Ortmann; LAMBERT (177) p. 476. *I. praecursor*; TOURNOUËR (310) pp. 466, 471: peristome and ambulacral area descr.; LAMBERT (177) p. 477.
- †*Isomicraster*, incl. *Micraster meunieri*, *M. brevis*, *M. senonensis*, *M. stolleyi*, and *Epiaster renati*, but is a simple section not a valid genus (p. 78), *I. stolleyi*, discussed (p. 77); LAMBERT (174).
- †*Isopneustes lamberti* n. sp., Senonian near Padua; AIRAGHI (3) p. 329, pl. i.
- †*Jeronia* referred to *Oeropidae* [sic passim, = *Aeropidae*], diagnosis modified as regards apex; LAMBERT (176) p. 46.
- Kamptosoma* n. g. of *Echinothuridae*, with genotype *Phormosoma asterias*; MORTENSEN (229) p. 65: diagnosed; MEISSNER in HAMANN (125) p. 1355. *K. asterias*, incl. "*Phormosoma tenue*?" A. Ag.; MORTENSEN (229) p. 177.
- Laganum deagonale*; DOEDERLEIN (62) p. 688: †TOKUNAGA (306) p. 8. *L. depressum*; BELL (11) p. 247: †var. *sinaiticum*; FOURTAU (89). †*L. fudsiyama*; TOKUNAGA (306) p. 11.
- †*Lampadaster*:—*L. gauthieri*; LAMBERT (174) p. 75: LEMOINE (186). *L. grandidieri*; l. c.
- †*Lampadocorys sulcatus*, descr.; AIRAGHI (3) p. 322, pl. ii.
- Leiocidaris* Desor, syn. of *Phyllacanthus* (q. v.); LAMBERT in SAVIN (283) p. 224: ditto; MORTENSEN (229) pp. 18, 30: s. g. of *Cidaris* q. v.; DOEDERLEIN (62). †*L.* sp. indet.; LAPPARENT (181). *L. baculosa*; BELL (11) p. 246. †*Lejocydaris* [sic] *histrix*; DE GIORGI (47) pp. 193, 199. *L. pistillaris*, geographical var.; DOEDERLEIN (61) p. 423. *L. verticillata*; BELL (11) p. 246.
- †*Leiopedina tallavignesi*, descr.; CHECCHIA (30) p. 105, pl. v.
- †*Lenita patellaris*; FRITEL (96A) p. 63, text-fig.
- Linopneustes excentricus* n. sp., Malay Archipelago 694–1788 m.; DE MEIJERE (53) p. 13.
- †*Linthia*:—*L.* cf. *durococqui*; LAPPARENT (181). *L. gaudryii*; TOURNOUËR (310) p. 466: "Tournouër et Lamb.", apparently n. sp., Patagonian of Casa Mayor; LAMBERT (177) p. 481, pl. xv. *L.* (?) *joannis boehmi* n. sp. Eocene of Rio Negro, with type Burekhardt (50, Zool. Rec. 1901), pl. i, ff. 1–8; OPPENHEIM in BOEHM (17). *L. nipponica*; ANON (6): redescri., now first figd.; TOKUNAGA (306) p. 18, pls. i, iii: probably contains more than one sp.; LAMBERT in Review. *L. roachensis* (Gauth. sub *Periaster*); DACQUÉ (42) pp. 353, 357.
- Lissodiadema* n. g. of *Diadematidae* allied to *Echinothrix*, with genotype *L. lorioli* n. sp., Amboina, holotype in Geneva Mus., previously considered by de Loriol as young *Asthenosoma varium*, redescri.; MORTENSEN (230) see also (229) p. 50.
- Lobophora truncata*, vide *Echinodiscus bisperforatus*.
- Lovenia elongata*; BELL (11) p. 248. †*L. forbesi*; DENNANT & CLARK (55) p. 23.
- Loxechinus* Desor, re-established with genotype *Echinus albus* and comprising *Strongylocentrotus gibbosus* and *bullatus* (p. 123), diagnosis as member of *Parechininae* (p. 134); MORTENSEN (229).
- Lytechinus*, v. sub *Psammechinus*.
- †*Macropneustes*:—*M. beaumonti* recorded from Scaglia by d'Orbigny, not determinable (p. 317), *M. gibbus* from Apennines (p. 328), *M. pellati*, descr. (p. 422, pl. xi); AIRAGHI (2).
- †*Magnosia*, diagnosis (p. 154), *M. nodulosa* (p. 155), *M. pilleti* (p. 155); SAVIN (283).
- Maretia*:—†*M. fuchsi*, vide *Sarsella*. †*M. marianii* n. sp., Eocene of Tirol, AIRAGHI (2) p. 423, pl. xi. *M. planulata*; BELL (11) p. 248. †*M. zeisii* n. sp., Mid. Miocene, Holstein, cotypes at Geol. Landesanst. Berlin and Lübeck Mus.; GAGEL (97) p. 541, pls. xxiv, xxv.

Mellita testudinata, pluteus and young, with ciliated bands; GRAVE (111) p. 177, figg. 9, 10.

†*Mevuthiaster cotteaui*; LEMOINE (186).

Mespilia diagnosed; MEISSNER in HAMANN (125) p. 1364. *M. globulus*; DOEDERLEIN (62) p. 688.

†*Metaporhinus*, diagnosis; SAVIN (283) p. 99. *M. convexus*; DEL CAMPANA (52); JIMÉNEZ DE CISNEROS (157) p. 299; SAVIN (283) p. 100. *M. gueymardi*; l. c.

†*Michelinia* Dujardin and Hupé, 1862, predated by *Michelinia* de Koninck, 1842, coral; COSSMANN in FOURTAU (92).

†*Micraster*, diagnosis; SAVIN (283) p. 79: dismemberment of the genus into *Epiaster*, *Gibbaster*, *Isomicraster* (q. v.), and *Isopneustes*; LAMBERT (174) p. 78. (?) *M. sp.*, internal casts; QUAAAS (262) p. 165, pl. xxxi: resembles *Hemiaster*; LAMBERT in Review. *M. arenatus*; RIAZ (269). *M. aturicus*; FALLOT (79) p. 192. *M. breviporus*; MENZEL (221) p. 55: WOLLEMANN (327): FRITEL (96A) p. 69, pl. iv: should be *M. leskei*, LAMBERT in Review. *M. brevis* Desor, topotypes from Paderborn differ from specimens from Corbières; LAMBERT (174) p. 77: (= *turonensis*); FRITEL (96A) p. 69, pl. v: and *M. cf. brevis*; RIAZ (269). *M. brongniarti*; l. c.: FRITEL (96A) p. 69, pl. v. *M. carentonensis*; DOUVILLÉ (66) p. 94: distinguished fr. *M. laxoporus* d'Orb.; GAUTHIER (101) p. 106. *M. coranguinum*; BLAKE (15) pp. 9, 12, fig. 3: FRITEL (96A) p. 68, pl. v: REID (268) pp. 53, 56, 57, & (268A) p. 28 & fig.: WOLLEMANN (328): incl. *M. gottschei*; WOLLEMANN (326) p. 31: this union inadmissible, and the range assigned suggests doubts as to determination; LAMBERT in Review: juv., note by LAMBERT; SAVIN (283) p. 79: and var. *gibbosa*; JUKES-BROWNE (161) p. 94. *M. corbaricus*; RIAZ (269). *M. cor-bovis*; JUKES-BROWNE (161) p. 94: ROWE (276) pp. 35, 39, 42, 49: WOODWARD (332) p. 167. *M. cortestudinarium*; FRITEL (96A) p. 69, pl. v: LASKAREV (184) pp. 230, 266: MENZEL (221) p. 55: REID (268A) p. 29: WOLLEMANN (326) p. 31 & (327): WOODWARD (332) p. 170: ROWE (276) pp. 44, 49, = *M. decipiens*; LAMBERT in Review: & cf. *cortestudinarium*; REID (268) pp. 51, 52, 55. *M. decipiens*; RIAZ (269). *M. fastigatus* descr. and distinguished from *M. gibbus*; AIRAGHI (3) p. 327, pl. ii. *M. gibbus* Stolley = *M. fastigatus* Gauth.; LAMBERT (174) p. 77. *M. glyphus*; WOLLEMANN (326) p. 32, pl. vii. *M. heberti* and *M. latus*; RIAZ (269). *M. leskei*; JUKES-BROWNE (161) p. 94: REID (268) p. 55: ROWE (276) pp. 35, 42, 49: (?) WOODWARD (332) p. 167: (= *M. breviporus*); RIAZ (269). *M. massalongianus* n. sp. ex Zigno MS., Senonian of Veronese; AIRAGHI (3) p. 328, pl. i. *M. matheroni*, distinguished fr. *M. arenatus*; RIAZ (269) p. 371: discussion should be based on type figd. in Paleont. franc.; LAMBERT in Review. *M. meunieri*; LEMOINE (186): further notes, is an *Isomicraster*; LAMBERT (174) p. 76. *M. praecursor*; JUKES-BROWNE (161) p. 94: REID (268A) p. 29: ROWE (276) pp. 42, 44, 49: WOODWARD (332) pp. 168, 170. *M. cf. schroederi*?, note by LAMBERT; SAVIN (283) p. 80. *M. cf. turonensis*, note by LAMBERT; BOULE & THEVENIN (21) p. 434.

Microcyphus diagnosed; MEISSNER in HAMANN (125) p. 1364.

Micropyga diagnosed; MEISSNER in HAMANN (125) p. 1359. *M. tuberculata*, podia (p. 15), *M. violacea* n. sp., Malay Archipelago 924 m. (p. 3); DE MEIJERE (53).

†*Monophora darwini*; LAMBERT (177) p. 479.

†*Monostychia australis*; DENNANT & CLARK (55) p. 42.

Neolampas tenera n. sp., Malay Archipelago 390 m.; DE MEIJERE (53) p. 8.

†*Nucleolites* (vide etiam *Echinobrissus*):—*N. anatis*; CORNET (36) p. 26

- (i) & (37) p. 188. *N. elatus* Forbes, apparently a *Cyrtoma*, although genotype of *Stigmatopygus*; LAMBERT (177) p. 480.
- †*Nucleopygus*, diagnosis (p. 121), *N. roberti*, discussed by LAMBERT (p. 122); SAVIN (283).
- †*Offaster*, diagnosis; SAVIN (283) p. 98. *O. cuneata* (p. 44) and *O. gauthieri* (p. 42) referred to *Galeola* (q. v.), *O. meunieri*, genus doubted (p. 45); LAMBERT (176). *O. pilula*; FRITEL (96A) p. 67, text-fig.: really is *Galeola gauthieri*; LAMBERT in Review: JUKES-BROWNE (161) p. 94: REID (268) pp. 58, 59; SAVIN (283) p. 99; WOLLEMAN (326) p. 27: (p. 45), anal plates (p. 15, f. 5); LAMBERT (176): incl. *Nucleolites coravium* et *convexus* Catullo; AIRAGHI (3) p. 321: probably not this sp., and in any case *O. pilula* is not related to *Nucleolites convexus* Cat., which is a *Metaporhinus*; LAMBERT in Review. *O. cf. pilula*; FALLOT (79) p. 192. *O. pomeli*, notes on holotype, which is at the Sorbonne; LAMBERT (176) p. 45. *O. sphaericus*, v. sub *Echinocorys*.
- †*Ombria*, discussed; LAMBERT (176) p. 101.
- †*Oolaster*, syn. of *Echinocorys*; LAMBERT (176) p. 87.
- Oolopygus savini* is Senonian not Turonian; SAVIN (283) p. 242.
- †*Orthocidaris*, diagnosis (p. 226), *O. inermis* (p. 227); SAVIN (283).
- †*Orthopsis miliaris*; DOUVILLÉ (66) p. 94: descr., incl. *O. granularis*, possible specific independence of large examples; GAUTHIER (101) p. 112.
- †*Urolaster*:—*O. gauthieri*; MUNIER-CHALMAS (231) p. 11. *O. zignoanus*; l. c.: incl. *O. gauthieri* Cott. and *Holaster nasutus* Quenst.; AIRAGHI (3) p. 326.
- Palaeopneustes*, literary history; WAGNER (316). †*P. conicus*; OPPENHEIM (241) pp. 117, 125, 127, 150. *P. fragilis* n. sp., Malay Archipelago 724–1018 m.; DE MEIJERE (53) p. 12. *P. niasicus*, anat., compared with other spp.; WAGNER (316). *P. spectabilis* n. sp., Malay Archipelago 450–520 m.; DE MEIJERE (53) p. 11.
- Palaeotropus hirondelei*; RICHARD (271) pp. 71, 72.
- Paracentrotus* n. g. of *Echininae* with genotype *Strongylocentrotus lividus* (p. 124), diagnosis (p. 135), *P. gaimardi*, incl. *Echinus aciculatus* (p. 179); MORTENSEN (229).
- †*Paracidaris*, diagnosed as s.-g. of *Cidaris* (p. 218), *P. blumenbachi*, radioles descr. (p. 219), *P. florigemma* (p. 220); SAVIN (283).
- Parasalenia* discussed, no *Echinometrid* (p. 168), diagnosis, comprises *P. gratiosa* and *poehlii* (p. 138); MORTENSEN (229). *P. gratiosa*; BELL (11) p. 247: descr., spicules figd.; MORTENSEN (229) p. 127, pl. xxi.
- Parasaleninae* n. subfam. of *Toxopneustidae*, comprises only *Parasalenia*; op. cit. p. 138.
- Parechininae*, n. subfam. of *Echinidae*, comprising *Parechinus* and *Loxechinus*, diagnosis; op. cit. p. 134.
- Parechinus* n. g. of *Parechininae*, diagnosis (p. 134), comprises *Echinus miliaris*, *microtuberculatus* Auctt., and *angulosus* (p. 108), *P. microtuberculatus*, holotype is the Mediterranean form (p. 178), *P. miliaris*, descr., esp. plates of buccal membrane, pedicellariae, and spicules (p. 141, pls. ii, xv, xvi, xvii); MORTENSEN (229).
- †*Peltastes* diagnosis; SAVIN (283) p. 170. *P. clathratus*; WOLLEMAN (326) p. 21. *P. stellulatus* and *P. studeri* (p. 172), *P. valleti* (p. 171); SAVIN (283).
- †*Periaster roachensis*, identity and locality; BLANCKENHORN in Review of FOURTAU (119) Zool. Rec. 1901.
- †*Pericosmus*:—*P. latus* recorded from Scaglia by d'Orbigny, not determinable; AIRAGHI (3) p. 317. *P. montevalensis*; OPPENHEIM (241) pp. 115, 121, 123, 138, 150. *P. spatatinus*, probably a *Linthia*; LAMBERT in Review of MARTELLI (193) Zool. Rec. 1902.
- †*Peronella* Gray, 1855, *Ech.*, anticipates *Peronella* Zittel, 1878, sponge;

- FOURTAU (92): COSSMANN states that Zittel makes *Peronella* Gray a syn. of *Rumphia* Desor, 1858, to which FOURTAU replies that *Peronella* Gray has priority.
- Petalocidaris* n. g. of *Cidaridae*, with genotype *Goniocidaris florigera*; MORTENSEN (229) pp. 29, 18: diagnosed; MEISSNER in HAMANN (125) p. 1348.
- Phormosoma*, rediagnosed, comprising *P. placenta*, *P. bursarium*, *P. rigidum*; MORTENSEN (229) p. 62: diagnosed; MEISSNER in HAMANN (125) p. 1350. *P. alternans* n. sp., Malay Archipelago, 694 m.; DE MEIJERE (53) p. 2. *P. asterias*, pedicellariae (p. 46), redescr. from holotype, made genotype of *Kamptosoma* (p. 60), *P. bursarium*, diagnostic characters (p. 47), *P. hoplacantha*, reft. to *Hygrosoma* (p. 59), *P. luculentum*, pedicellariae (p. 46), reft. to *Hygrosoma* and pedicellariae descr. (p. 59, pls. xii, xiii), *P. panamense*, discussed (p. 48), *P. petersi*, distinguished from *P. uranus* (p. 58), redescr. and made genotype of *Hygrosoma* (p. 59); MORTENSEN (229). *P. placenta*; NICHOLS (236) p. 259: pedicellariae (p. 46), longitudinal muscles (p. 47), incl. *P. sigsbei*, radioles, podia, pedicellariae, internal muscles, and development of apical area descr. (p. 66, pls. iv, xi, xii, xiii), young 3, 5, and 7 mm. diam., descr. (p. 173), *P. rigidum*, diagnostic characters of holotype, perhaps syn. of *P. placenta* (p. 48), *P. tenue*, pedicellariae (p. 46), redescr. and reft. to *Echinostoma* (p. 57), ? Challenger stat. 272 is a *Kamptosoma* (p. 61); MORTENSEN (229). *P. uranus*; NICHOLS (236) p. 259: notes on holotype, reft. to *Echinostoma* (p. 57), specimen from Challenger stat. 78 is quite indeterminate, specimen so named by Koehler is *Phormosoma* (i.e. *Hygrosoma*) *petersi* (p. 58); MORTENSEN (229).
- Phrissocystis humilis* n. sp., Malay Archipelago 462 m.; DE MEIJERE (53) p. 14.
- Phyllacanthus* [vide etiam sub *Cidaris* spp.], rediagnosed, incl. *Leiocidaris*, compr. *P. imperialis*, and ? *P. dubia* and *P. parvispina*; MORTENSEN (229) pp. 30, 18: diagnosed; MEISSNER in HAMANN (125) p. 1349: Section A, with genotype *Cidaris tribuloides* Lam. s. str., is a simple syn. of *Cidaris*; Section B. had genotype *P. dubia*, syn. of *C. imperialis* Lam. which is also genotype of *Leiocidaris* Des. a consequent syn. of *Phyllacanthus*; LAMBERT in SAVIN (283) p. 223. *P. annulifera*, referred to *Stephanocidaris* (p. 17), *P. australis*, probably not this genus (p. 28); MORTENSEN (229). *P. baculosa*, syn. of *Leiocidaris pistillaris* (q. v.); DOEDERLEIN (62). *P. gigantea*, genotype of *Chondrocidaris*; MORTENSEN (229) p. 20. *P. imperialis*, v. sub *Leiocidaris*.
- † *Phyllobrissus*, diagnosis (p. 130), *P. gresslyi* and *P. neocomiensis* (p. 131), *P. nicoleti*, descr. (p. 132), *P. renaudi*, descr., discussed by LAMBERT (p. 133); SAVIN (283).
- † *Phymechinus*, diagnosis, *P. lamberti* n. sp., Mid. Valanginian, Col de Joigny, Savoy, types in Mus. Chambéry, and coll. Savin and Révil; SAVIN (283) p. 116, pl. i.
- Phymosoma*, diagnosis; SAVIN (283) p. 168. *P. crenulare*, discussed, better called *Glyptocidaris*; MORTENSEN (229) p. 130. † *P. revili* n. sp., Hauterivian, Les Combettes, Savoy, holotype in coll. Savin; SAVIN (283) p. 169, pl. ii.
- Phymosomatidae* n. fam. = Phymosomiens Pomel; MEISSNER in HAMANN (125) p. 1359.
- † *Platipygus* [sic, melius *Platypygus*] n. g. of *Cassidulidae* with genotype *Cyrtoma posthumum* Ortm., redescr.; LORIOLO (200) p. 17, pl. ii: vide etiam LAMBERT (177) pp. 479, 480, & TOURNOUËR (310) p. 466.
- † *Plegiocidaris*, diagnosed as s. g. of *Cidaris*; SAVIN (283) p. 207: *P. cervicalis* (p. 212), *P. coronata* (p. 211), *P. cucumifera* (p. 208), *P. cf. delatourei* (p. 217), *P. elegans* and *P. filograna* (p. 213), *P. glandifera*,

- discussed by LAMBERT (p. 214), *P. laeviuscula* (p. 210, pl. iii), *P. matheyi*, descr. with radiole (p. 209, pl. iii), *P. pilleti* (p. 216), *P. platyspina* (p. 217), *P. revili* n. sp., Urgonian, Grésy-sur-Aix, Savoy, based on radioles, Mus. Chambéry (p. 217, pl. ii), *P. zschoskei* [sic] (p. 208); SAVIN (283).
- †*Plesiolampas*, sp. nondescr.; LAPPARENT (181).
- Plesiozonus* n. g. of *Spatangidae* *Adetinae*, with genotype *P. hirsutus* n. sp., Malay Archipelago, 521 m.; DE MEIJERE (53) p. 12.
- Pleurechinus*, diagnosed; MEISSNER in HAMANN (125) p. 1363: contrasted with *Temnopleurus*, contains spp. *P. bothryoides*, fully descr., *P. ruber*, and *P. variabilis*, all figd. and measured; DOEDERLEIN (62) p. 705, pl. xi.
- Podocidaris* diagnosed; MEISSNER in HAMANN (125) p. 1361.
- †*Polycidaris*, diagnosed as s.-g. of *Cidaris*, *P. legayi*; SAVIN (283) p. 221.
- †*Polydiadema*, diagnosis (p. 189), *P. complanatum* (p. 191), *P. lenticulatum* (p. 190), *P. mamillanum* (p. 191), *P. neglectum* (p. 190), *P. rhodani* (p. 192); SAVIN (283).
- Porocidaris*, s.-g. of *Cidaris* q. v.; DOEDERLEIN (62): rediagnosed with type *P. purpurata* [inadmissible as genotype; genus founded on fossil spp.]; MORTENSEN (229) pp. 30, 21: diagnosed; MEISSNER in HAMANN (125) p. 1349. *P. elegans*, pedicellariae descr., genotype of *Histocidaris* (pp. 21, 30), *P. gracilis* Slad., young of *P. purpurata* (p. 21), *P. gracilis* Doederl., pedicellariae descr., not this genus (p. 23), *P. incerta*, pedicellariae figd., not this genus (p. 23, pl. viii), but ?*Stereocidaris* (p. 27); MORTENSEN (229). *P. maculicollis* n. sp., Malay Archipelago, 69-94 m.; DE MEIJERE (53) p. 1.
- †*P. prior* n. sp., Uppermost Danian, Thebes, radiole fragment only; OPPENHEIM (240) p. 451, pl. vii: FOURTAU considers this = *P. schmideli*, but the author does not agree; OPPENHEIM in Erratum. *P. purpurata*, incl. *P. gracilis* Slad., pedicellariae and radioles descr. (p. 41, pls. vi, viii, x, xi), n. var. *talismani*, R. Ouro, 1439 m., holotype Mus. Hist. Nat. Paris (p. 173); MORTENSEN (229). †*P. schmideli*; BALL & BEADNELL (9) p. 59: coronal fragment of large individual descr.; CHECCHIA (30) p. 102, pl. v. *P. sharreri*, discussed and distinguished from *Stereocidaris ingolfiana* and *Dorocidaris micans*; MORTENSEN (229) p. 22.
- Pourtatesia jeffreysii*; MICHAILOVSKIJ (223) p. 524.
- †*Prenaster*:—*P. boninensis* n. sp., Eocene of Bonin Is.; LORIOLO (200) p. 35, pl. iii: "diffère de tous les *Prenaster* connus, et semble le type d'un genre nouveau...des *Prospatangidae*"; LAMBERT in Review: loc.; TOKUNAGA (306) p. 23. *Prenaster excentricus* Wright, probably a *Heterobrissus*; LAMBERT (174) p. 81.
- Prionechinus sagittiger*, Agassiz' description corrected from the type-specimens, of which that from Challenger stat. 207 is not this genus; MORTENSEN (229) pp. 82, 177, pl. vii.
- Prospatangidae*, fam. comprises *Asterostominae* and *Loveninae*; LAMBERT (176) p. 23.
- †*Protechinus paucituberculatus*; NOETLING (238) p. 517.
- Psammechinus*, diagnosis; SAVIN (283) p. 156: restricted, with genotype *E. variegatus* Lam., and comprising *P. semituberculatus* and *verruculatus* (pp. 108, 114), diagnosis as member of *Schizechininae*, incl. *Lytechinus*, *Psilechinus*, *Schizechinus* (p. 136); MORTENSEN (229). †*P. hiselyi*; ANTULE (7) p. 22. †*P. iheringi*; TOURNOUER (310) pp. 466, 467: additional notes; LORIOLO (200) p. 14, pl. i: slight differences from type; LAMBERT (177) pp. 474 & 477, pl. xv. †*P. lahillei* n. sp., Patagonian of Cabo Curioso; LAMBERT (177) pp. 475 & 477, pl. xv: TOURNOUER (310) p. 471. *P. microtuberculatus*; GUENTHER (121):

- †DE GIORGI (47) p. 193. †*P. mirabilis*; FALKNER & LUDWIG (77) p. 535. †*P. pilleti*; SAVIN (283) p. 156. †*P. pusillus* from Zarrentin; GAGEL (97) p. 531, v. et. sub *Echinus*. †*P. tournoueri* n. sp., Patagonian of Casamayor; LAMBERT (177) p. 495, pl. xv: TOURNOUER (310) p. 466. *P. verruculatus* interpreted according to De Loriol's description, added details, pedicellariae and spicules figd.; MORTENSEN (229) p. 109, pl. xxi.
- †*Psephachinus* discussed; SAVIN (283) p. 151; v. et. sub *Stomechinus*.
- †*Pseudananchis* diagnosed, genotype *P. algirus*, the source of *Echinocorytinae*; LAMBERT (176) p. 33.
- Pseudechinus* n. g. of *Echinometridae*, with genotype *P. albocinctus* (pp. 106, 138, 178), connection with *Echinidae* (p. 140); MORTENSEN (229).
- Pseudoboletia* maintained as genus closely related to *Sphaerechinus* (p. 119), diagnosis as member of *Schizechininae* (p. 137) comprises *P. indiana*, descr. (p. 118) & *P. maculata*, pedicellariae figd. (p. 118, pl. xxi); MORTENSEN (229).
- Pseudocentrotus* n. g. of *Schizechininae*, with genotype *Strongylocentrotus depressus*; MORTENSEN (229) pp. 122, 137.
- †*Pseudocidaris*, diagnosis; SAVIN (283) p. 175. *P.* spp. indet. radioles; TOKUNAGA (306) pp. 25, 26, pl. ii: all resemble *Cidaris glandarius*; LAMBERT in Review. *P.* cf. *clunifera* & *P. ovifera*; JIMÉNEZ DE CISNEROS (157) p. 300. *P.* cf. *subcrenularis*; SAVIN (283) p. 176. *P. thurmanni*; JIMÉNEZ DE CISNEROS (157) p. 300: probably incl. "*Hemicydaris ovifera*" Berthaud; LISSAJOUS (189) p. 109: radioles refd. by Pillet to *Cidaris pyrifer*; SAVIN (283) p. 175. *P. zitteli*, radioles fr. Chomérac (Ardèche); LORIOL (200) p. 48, pl. iii.
- †*Pseudodiadema*, diagnosis (p. 184), *P.* sp. nondescr., note by LAMBERT (p. 185), *P. carthusianum*, descr. (p. 186); SAVIN (283). *P. grasi*; ANTULE (7) p. 21. *P. hemisphaericum*; FRITEL (96A) p. 60, pl. iii. *P. langi*, vide *Aplodiadema*. *P. subpentagonum*; SIEMIRADZKI (293) p. 337.
- †*Pseudoepiaster* Seunes, syn. of *Epiaster*; LAMBERT (174) p. 78.
- †*Pseudosalenia*, diagnosis, *P. aspera*; SAVIN (283) p. 174. *P. zumoffeni* n. sp., Cenomanian of Antelias, Lebanon; LORIOL (200) p. 25, pl. iii.
- Psilechinus*, v. sub *Psammechinus*.
- †*Pygaulus*, diagnosis; SAVIN (283) p. 116. *P. desmoulinsi*; PELLAT (251) p. 121: discussed by LAMBERT; SAVIN (283) p. 117. †*P. numidicus*; SAVIN (283) p. 120.
- †*Pygorhynchus*, diagnosis (p. 136), *P. cylindricus* (p. 139); SAVIN (283). *P. grignonensis*; FRITEL (96A) p. 63, pl. vi. *P. mortoti* (p. 137), *P. obovatus*, descr. (p. 138); SAVIN (283).
- †*Pygorhytis* diagnosed as s. g. [of ? *Collyrites*?], *P. analis* (p. 110), *P. ovalis* (p. 111), *P. pseudoringens*, *P. ringens* (p. 112); SAVIN (283).
- †*Pygurus*, diagnosis; SAVIN (283) p. 140. *P. asiaticus* n. sp., Cretaceous?, Torinosu in Sakawa, Tosa prov., Japan; TOKUNAGA (306) p. 16, pl. iii. *P. lumpas*; JUKES-BROWNE (162). *P. michelini*; SIEMIRADZKI (293) p. 329 & (!) p. 336. *P. montmolini* (p. 140), *P. productus* (p. 142); SAVIN (283). *P. rostratus*; FRITEL (96A) p. 66, pl. iv: SAVIN (283) p. 141.
- †*Pyrina*, diagnosis; SAVIN (283) p. 113. *P. ataxensis*; NOETLING (238) p. 517. *P. cylindrica*, descr.; SAVIN (283) p. 115. *P. gigantea*; NOETLING (238) p. 517. *P. incisa*; SAVIN (283) p. 114. *P. laevis*; LAMPLUGH & WALKER (179) p. 263. *P. pygoea* [sic]; SAVIN (283) p. 114.
- †*Rachiosoma delamarei*, apex; LAMBERT (176) p. 16, fig. 6.
- †*Rhabdocidaris*, discussed, "not to be used for any recent Cidarid";

- MORTENSEN (229) p. 18: diagnosis; SAVIN (283) p. 230. *R. sp.*; SIEMIRADZKI (293) p. 361. *R. caprimontanus*; HATZMANN (123) p. 516; SAVIN (283) p. 231; SIEMIRADZKI (293) pp. 364, 376, 378, 383: descr.; LISSAJOUS (189) p. 107. *R. copeoides*; SAVIN (283) p. 231: descr.; LISSAJOUS (189) p. 107. *R. crameri*; DACQUÉ (42) p. 356. *R. crassissima*; SAVIN (283), p. 232. *R. delgadoi*, name given to a Cretaceous sp., 1887, which stands, and to a Jurassic sp., 1889, which becomes *R. roquettei*; LORIOU (201) p. 2. *R. ferryi*; LISSAJOUS (189) p. 106, pl. i. *R. helicoides* n. sp., Bathonian? near Figuig oasis, radioles in Ecole des Mines; GAUTHIER (100) p. 29, pl. i. *R. horrida*; LISSAJOUS (189) p. 106, pl. i. *R. janitoris*, radioles and isolated plates fr. Chomérac (Ardèche); LORIOU (200) p. 46, pl. iii. *R. lafayi* n. sp., Bajocian, zone of *Ludwigia murchisonae*, near Macon, types in Lafay's collection; LISSAJOUS (189) p. 106, pl. i. *R. aff. lamberti*, note by LAMBERT; SAVIN (283) p. 233, pl. iii. *R. nobilis*; SAVIN (283) p. 232; SIEMIRADZKI (293) pp. 357, 358, 378, 379. *R. orbignyana*; op. cit. p. 415. *R. orbigny*; FRITEL (96A) p. 58, pl. iii: SAVIN (283) p. 233. *R. remus*; SIEMIRADZKI (293) p. 358. *R. roquettei* n. sp., v. sub *R. delgadoi*; LORIOU (201). *R. thomasi*, v. sub *Aulacocidaris*. *R. trispinata*, descr.; LISSAJOUS (189) p. 108, pl. i.
- Rumphia* Desor, vide *Peronella*.
- Salenia* diagnosed; MEISSNER in HAMANN (125) p. 1356; SAVIN (283) p. 173. †*S. sp.*; l. c. †? *S. anthophora*; WOLLEMAN (326) p. 22. †*S. gibba* Ag., original figure incorrect, the sp. is a *Salenidia* (p. 83), †*S. gibba* Wright, Mon. Cretac. Ech. pl. xxxiv, f. 4, is a true *Salenia* and therefore not identical with Agassiz' sp. (p. 84); LAMBERT (174). †*S. granulosa*; ROWE (278) pp. 33, 49. †*S. (Pleurosalenia) hakkaidoensis* n. sp., Tertiary, Jubari coal field, Hash Kaido [= Hokkaido], Japan; LORIOU (200) p. 29, pl. iii: details of loc., age Pliocene; TOKUNAGA (306) p. 4, pl. ii. *S. hastigera*; RICHARD (271) pp. 69, 71, 72. †*S. heberti*; WOLLEMAN (326) p. 22. †*S. scutigera*; FRITEL (96A) p. 59, text-fig.
- †*Salenidia boulei* n. sp., Albian?, Madagascar; LAMBERT (174) p. 82, pl. iii.
- Salmacis*, discussed, revision of all spp. and key (pp. 707-711) comparative measurements (p. 720); DOEDERLEIN (62): diagnosed; MEISSNER in HAMANN (125) p. 1363. *S. bicolor*; BELL (11) p. 247: ? incl. *S. rubroinctus* Grube, descr. (p. 714, pl. lxi), *S. dussumieri*, incl. *S. lactea* Doed. and ? *S. rufa* Bell, descr. (p. 715, pl. lxiii), *S. rarispina*, descr. (p. 719, pl. lxiv), *S. sphaeroides*, incl. *S. festivus* Grube, also specimens referred by several authors to *S. globator*, *S. sulcata*, and *S. rarispina*, descr. (p. 716, pl. lxiii), n. var. *belli*, Thursday Id. (p. 718, pl. lxiv), var. *pyramidata* Martens, ? incl. *S. globator* β Bell, descr. (p. 717, pl. lxiv); DOEDERLEIN (62). *S. sulcata*; BELL (11) p. 247: syn. of *S. sphaeroides* (q.v.) (p. 716), *S. virgulata* Ag. incl. “*S. conicus* Martens” of Grube (p. 712, pl. lxii), var. *alexandri* Bell, incl. *S. globator* Al. Ag. non L. Ag., descr. (p. 712, pl. lxii); DOEDERLEIN (62).
- Salmacopsis* diagnosed; MEISSNER in HAMANN (125) p. 1364.
- †*Sarsella tuberosa* Fraas sp.” of FOURTAU (119) Zool. Rec. 1901, probably = *Maretia fuchsii* Oppenheim; BLANCKENHORN in Review.
- †*Scagliaster* discussed and doubted; AIRAGHI (3) p. 324. †“*S. concavus* (Catullo spec.) Mun.-Ch., *S. italicus* (Ag. sp.) Mun.-Ch.” [first use of name *Scagliaster*] “un nouveau genre voisin des *Stegaster* Pomel,” “appartiennent au groupe qui a pour chefs de file les *Ananchytes* et non les *Holaster*”; MUNIER-CHALMAS (231) pp. 11, 12.
- Schizaster*:—†*S. sp.* de Boticelle, probably *Linthia*; LAMBERT in Review of name MARTELLI (193) Zool. Rec. 1902. †*S. ameghinoi*; Tournouër (310) pp. 466, 467; LAMBERT (177) p. 480. †*S. desmoulinsi*, Tongrian and

probably not Mid. Eocene as quoted by Cotteau; FALLOT (78) p. 296. *S. fragilis*; HOWE (150): NORMAN (239) p. 410. *S. gibberulus*; BELL (11) p. 248. †*S. iveringi*, redescr., distinguished fr. *S. ameghinoides*; LORIOL (200) p. 21, pl. ii. †*S. karreri*; KOCH (169) pp. 43, 162. †*S. leymeriei*; FRITEL (96A) p. 70, text-fig. †*S. major*; PATRINI (247) p. 743. †*S. nummuliticus* n. sp., Eocene of Bonin Is.; TOKUNAGA (306) p. 21, pl. iv. †*S. patagonensis* n. sp., Patagonian of Punta Nava; LAMBERT (177) p. 481, pl. xv: TOURNOÛER (310) p. 467. †*S. recticanalis*, redescr., now first figd.; TOKUNAGA (306) p. 20, pl. iv. *S. savignyi* Fourt. (= *S. gibberulus* Al. Agass. non L. Agass.) probably a mutation of *S. canaliferus*; FOURTAU (89). †*S. scillai*; FALKNER & LUDWIG (77) p. 535.

Schizechininae Pomel [sic], diagnosis as subfam. of *Toxopneustidae*, comprising *Psammechinus*, *Gymmechinus*, *Toxopneustes*, *Tripleneustes*, *Sphaerechinus*, *Pseudoboletia*, *Pseudocentrotus*; MORTENSEN (229) p. 135. [Pomel did not use the name *Schizechininae*, nor could he well have done so since he made *Schizechinus* s.-g. of *Anapesus*; neither should Mortensen use the name, since for him *Schizechinus* is syn. of *Psammechinus*; the name should be *Toxopneustinae*.]

Schizechinus, v. supra et sub *Psammechinus*.

Schizocidaris n. g. of *Cidaridae*, with genotype *S. assimilis* n. sp., holotype in Brit. Mus., near New Guinea; MORTENSEN (229) pp. 25, 28: diagnosed; MEISSNER in HAMANN (125) p. 1346.

Schleinitzia crenularis, Studer's types belong to both *Leiocidaris pistillaris* var. *annulifera* and *L. bispinosa*; DOEDERLEIN (62) p. 696: discussed (p. 20), original specimens reld. to *Cidaris baculosa* var. *annulifera* and *Stephanocidaris bispinosa* (p. 173); MORTENSEN (229).

†*Scutella*:—*S.* sp.; FALLOT (80) p. 437. *S. agassizi*, v. sub *S. striatula*. *S. bonali*; FALLOT (79) p. 203: (80) p. 437: age and mutations (81) p. 76, pl. ii: n. var. *gornacensis*, Mid. Aquitanian of Gornac (Entredeux-Mers) (81) p. 78, pl. ii. *S.* cf. *bonali*; FALLOT (79) p. 203. *S. cavipetala*, syn. of *S. tenera*; OPPENHEIM (241) p. 149. *S. (Echinarachnius) excentricus*; ARNOLD (8) p. 91. *S. jacquemeti*, name maintained in preference to *S. striatula* M. de Serres, but identity of the 2 spp. not admitted; LORIOL (200) p. 51. *S. lamberti* Airaghi [not n. sp. as here introduced] probably = *S. agassizi* Oppenh.; OPPENHEIM (241) p. 149. *S. leognanensis*, v. sub *S. subrotunda*. *S. melitensis*, better to accept this than to transfer name *S. subrotunda* to Maltese form from that of Bordeaux (*S. leognanensis*) (p. 231), *S. paronai*, syn. of *S. isseli*, and probably both synn. of *S. tenera* (p. 149); OPPENHEIM (241): rather allied to *S. agassizi*; LAMBERT in Review. *S. striatula*; FALLOT (79) p. 199: variations; FALLOT (81) p. 74, pl. i: this, however, is not M. de Serres' sp., but = *S. agassizi* Oppenh.; LAMBERT in Review: de Serres' original description quite insufficient, and no loc. given; LORIOL (200) p. 52: identity with *S. jacquemeti* admitted until holotype be found; OPPENHEIM (241) p. 230. *S. subrotunda*; DE GIORGI (47) p. 199: FALLOT (79) p. 218: LOVISATO (203) p. 227: FRITEL (96A) p. 63, text-fig.: variations and locc.; FALLOT (81) p. 81, pl. i: the last two entries = *S. leognanensis*; LAMBERT in Reviews. *Scutella* cf. *subrotunda*; PERVINQUIÈRE (256) p. 214. *S. subrotundaeformis*, distinguished from *S. lusitanica*, *S. jacquemeti*, *S. bonali*, *S. tenera*, and *S. subrotunda*; OPPENHEIM (241) pp. 113, 116, 117, 148, 231, pl. xi. *S. subtrigona*; HAUG (129) p. 496: (et errore, *subtrigona*); MAYER-EYMAR (217) p. 392.

†*Scutellaster* probably not a Clypeastrid, why not a Cassidulid?; LAMBERT in Review of CRAGIN (27) Zool. Rec. 1895.

†*Sismondia*:—*S. occitana*; FALLOT (79) p. 194: FRITEL (96A) p. 62, pl. vi. *S. saemannii*; BALL & BEADNELL (9) p. 59.

- Spatangus*:—†*S. cf. austriacus*; KOCH (169) pp. 43, 162. †“*S. cf. desmarestii* Goldf.” of OEHMKE 1887, is a *Schizaster acuminatus*, is Upper Oligocene and not from Bockup Sandst.; GAGEL (97) p. 530. †*S. euglyphus*; OPPENHEIM (241) p. 151. †*S.?* (*Eupatagus?*) *gottschëi* n. sp., Mid. Miocene, Holstein, cotypes at Geol. Landesanst. Berlin and Hamburg Mus.; GAGEL (97) p. 539, pls. xxiv, xxv. †*S. manzoni*, distinguished from *S. austriacus*, incl. *Maretia paretii* of Airaghi 1899; NELLI (233) p. 194, pls. viii, x. †*S.?* *meyni* n. sp., Mid. Miocene, Holstein, cotypes at Museums of Hamburg and Lübeck; GAGEL (97) p. 537, pl. xxv. *S. purpureus*; †DE GIORGI (47) p. 193; HENRI (135, 137, 138); NICHOLS (236) p. 262; NORMAN (239) p. 410; PETERSEN (259); SIMPSON (294) p. 42; osmosis; HENRI & LALOU (139, 141) p. 721. *S. raschi*; NICHOLS (236) p. 263; SIMPSON (294) p. 42.
- Sperosoma*, rediagnosed, comprising *S. grimaldii* (genotype) and *S. biserialatum*; MORTENSEN (229) p. 65: diagnosed; MEISSNER in HAMANN (125) p. 1355. *S. grimaldii*; RICHARD (271) p. 68: distrib., variation (p. 177), spicules and pedicellariae descr. (p. 61, pls. xiii, xiv), redescr., slight variations from type, also a younger specimen (p. 75, pls. iv, xii, xiii, xiv); MORTENSEN (229).
- Sphaerechinus* maintained as full genus (p. 117), diagnosis as member of *Schizechininae*, comprises *S. granularis*, *roseus*, and *australiae* (p. 137), *S. australiae*, descr., but specimen so recorded fr. Bass's Str. is not this genus (pp. 117, 178); MORTENSEN (229). *S. granularis*, see II, c, vii; BERTOLO (13); BOVERI (23); †DE GIORGI (47) pp. 184, 193; DONCASTER (64); LYON (206); VIGUIER (313, 314): osmosis; HENRI & LALOU (139, 141) p. 721: descr., pedicellariae figd.; MORTENSEN (229) p. 117, pl. xxi. *S. pulcherrimus*, descr., pedicellariae figd.; op. cit. p. 121, pl. xx.
- †*Spileccia* “genre nouveau d'Echinide voisin de *Coelopleurus*,” with genotype *S. cotteau* Mun.-Ch. [both nom. nudd.]; MUNIER-CHALMAS (231) p. 29.
- †*Stegaster* discussed and dismembered, apparently retaining *Spatangus truncatus* Gf. as genotype (p. 324), *S. bonarellii* n. sp., Senonian scaglia of Sassoferrato in Ancona, based on “*Scagliaster* sp. ind.” fig. 6 of BONARELLI (42) Zool. Rec. 1899 (p. 324), *S. dallagoi* n. sp., Scaglia of Novale in Vicentine (p. 323, pl. i); AIRAGHI (3): not a *Stegaster*; LAMBERT in Review.
- †*Stenonia* referred to *Oeropidae* [sic passim, = *Aeropidae*]; LAMBERT (176) p. 46. *S. tuberculata*; AIRAGHI (3) p. 320; MUNIER-CHALMAS (231) p. 11.
- Stephanocidaris*, rediagnosed, comprising *S. bispinosa*, *S. annulifera*, *S. bracteata*; MORTENSEN (229) pp. 28, 17: diagnosed; MEISSNER in HAMANN (125) p. 1346. *S. bispinosa* v. sub *Leiocidaris*.
- Stereochinus*, characters discussed, re-established on fresh characters, with *Echinus margaritaceus* as genotype, and comprising *E. horridus*, *E. neumayeri*, *E. magellanicus*, key to spp. (p. 105), diagnosis as member of *Echininae* (p. 135), *S. antarcticus* refd. to *S. margaritaceus* (p. 102), syn. of *S. diadema*, *S. horridus*, perh. only var. of *S. diadema*, *S. magellanicus*, syn. of *S. margaritaceus* (p. 178), *S. margaritaceus*, incl. *S. magellanicus*, specimen previously descr. by Mortensen = *S. diadema* (p. 177); MORTENSEN (229).
- Stereocidaris*, s.-g. of *Cidaris* q. v.; DOEDERLEIN (62): rediagnosed, comprising among recent spp., *S. japonica*, *S. grandis*, *S. sceptriferoides*, *S. indica*, *S. ingolfiana*, *S. nutrix*, *S. canaliculata*, *S. mortenseni*, and ?*S. incerta*; MORTENSEN (229) pp. 29, 23: diagnosed; MEISSNER in HAMANN (125) p. 1348. *S. ingolfiana* n. sp., circa 61°-65° N. and 25°-27° W., 170-633 fm., also Florida (p. 38, pls. vi, viii, xi, xvi), *S. lorioli* n. sp., mouth of R. Plate, holotype in Brit.

- Mus. (p. 170 & figg.), *S. nutrix* (*Goniocidaris membranipora*) (p. 173); MORTENSEN (229). †*S. reussi*; WOLLEMAN (327) p. 51. †*S. sceptri-fera*, radioles and test-fragments; WOLLEMAN (326) p. 20.
- †*Stereopedina* n. s.-g. of *Echinopedina* (q. v.) for *E. ameghinoi* and *E. cubensis*; LORIOL (200) p. 11.
- Stereopneustes* n. g. of *Echinocorytidae* with genotype *S. relictus* n. sp., Malay Archipelago, 522-827 m.; DE MEIJERE (53) p. 9.
- Sternopatagus* n. g. of *Pourtalesidae*, with genotype *S. sibogae* n. sp., Timor Sea, 2050 m.; DE MEIJERE (53) p. 10.
- †*Stigmatopygus*, discussed; LORIOL (200) p. 19; LAMBERT (177) p. 480. *S. elatus*, v. sub *Nucleolites*.
- †*Stirechinus scillae*; DE GIORGI (47) p. 193.
- †*Stomechinus*, diagnosis; SAVIN (283) p. 151. *S. aroviensis*; LEVINSKIĀ (187) pp. 586, 593; SIEMIRADZKI (293) pp. 383, 385. *S. cf. cognatus*; op. cit. p. 336. *S. denudatus*; SAVIN (283) p. 152. *S. (Psephechinus) quoniami* n. sp., Bathonian ?, near Figuig oasis, holotype in École des Minés; GAUTHIER (100) p. 25, pl. i. *S. serratus*; SAVIN (283) p. 153.
- Stomopneustes*, diagnosis as member of *Stomopneustidae*, comprises *S. variolaris* and *latropurpurea*; MORTENSEN (229) p. 133: diagnosed; MEISSNER in HAMANN (125) p. 1362. *S. variolaris*, descr., spicules and pedicellariae figd.; MORTENSEN (229) p. 126, pl. xvii.
- Stomopneustidae* n. fam., diagnosis, comprises only *Stomopneustes*; op. cit. p. 133.
- Strongylocentrotinae* n. subfam. of *Toxopneustidae*, comprising *Strongylocentrotus* and *Anthocidaris*; MORTENSEN (229) p. 137.
- Strongylocentrotus*, diagnosis as member of *Strongylocentrotinae*, comprises *S. chlorocentrotus*, *pulcherrimus*, *intermedius* and provisionally *S. drobachiensis*, *purpuratus*, *franciscanus*; MORTENSEN (229) pp. 121, 137. *S. sp.*, dissection; PRATT (261). *S. albus*, descr., pedicellariae figd., refd. to *Loxechinus* (p. 122, pl. xvii), *S. bullatus*, refd. to *Loxechinus* (p. 123), *S. chlorocentrotus* discussed (pp. 120, 178), *S. depressus*, descr., pedicellariae and spicules figd., refd. to *Pseudocentrotus* (q. v.) (p. 122, pl. xxi); MORTENSEN (229). *S. drobachiensis*; MARENZELLER (214) p. 564; NORMAN (239) p. 410: (?) RICHARD (271) p. 68; SIMPSON (294) p. 42: local varieties; MICHALOVSKIJ (223) pp. 472, 523; MORTENSEN (227) p. 88: descr., spicules and pedicellariae figd. (p. 120, pl. xx), descr., esp. plates of buccal membrane and pedicellariae, distrib., variations (p. 162, pls. i, ii, xvi, xx); MORTENSEN (229) (v. et sub *Toxopneustes*). *S. erythrogrammus*, incl. *Toxocidaris delalandi* and becomes genotype of *Toxocidaris*; op. cit. p. 125. *S. franciscanus*; LOEB (194) & (193): †ARNOLD (8) p. 90: spicules, pedicellariae; MORTENSEN (229) p. 120. *S. gaimardi*, discussed (p. 124), *S. gibbosus*, descr., pedicellariae figd., refd. to *Loxechinus* (p. 123, pl. xvii), type-specimens probably *Toxocidaris*, Challenger specimen was wrongly determined (p. 178); MORTENSEN (229). *S. intermedius* discussed (p. 120), specimen mentioned on that page is *S. pulcherrimus*, the true sp. now descr. (p. 178); MORTENSEN (229). *S. lividus*, see II, c, vii; BERTOLO (13): BOHN (19): BOVERI (23): DELAGE (51): DONCASTER (64): GUENTHER (121): LYON (206): NICHOLS (236) p. 261; SCHUECKING (290): ZIEGLER (337 & 338): osmosis; HENRI & LALOU (139) & (141) p. 721: descr., pedicellariae figd., forms genotype of *Paracentrotus* (p. 123, pl. xvii), of Sluiter fr. Dogger Bank is *S. drobachiensis* (p. 181); MORTENSEN (229): (v. et sub *Toxopneustes*). *S. mexicanus* (p. 179), *S. nudus*, pedicellariae (p. 179); MORTENSEN (229). *S. pictus*; NORMAN (239) p. 410. *S. purpuratus*; LOEB (192, 193 & 194): †ARNOLD (8) p. 90: ventral view; JORDAN & HEATH (160) p. 144, f. 90: pedicellariae figd.; MORTENSEN (229) p. 120, pl. xx.

- S. tuberculatus*, descr. pedicellariae figd., refd. to *Toxocidaris*; op. cit. p. 124, pl. xix.
- Temnechinus* :—†*T. aff. stellulatus*, in Egypt; PACHUNDAKI (246). *T. maculatus*, spicules and pedicellariae descr., replaced in *Genocidaris*, incl. *Arbacina pallaryi*; MORTENSEN (229) p. 84, pls. vii, viii.
- †*Temnocidaris danica*; RAVN (265) p. 423.
- Temnopleurus* diagnosed; MEISSNER in HAMANN (125) p. 1362. †*T. torumaticus*; FOURTAU (89 & 90): TOKUNAGA (306) p. 5.
- †*Tetracidaris*, systematic relations; MUNIER-CHALMAS (232) p. 33.
- Tetrodiscus auritus* (p. 1101) and †(p. 1102); FOURTAU (89).
- †*Tiarechinus*, systematic position; MUNIER-CHALMAS (232) p. 31.
- †*Tiaris quenstedti*; LISSAJOUS (189) p. 110.
- †*Tiaromma*, diagnosis (p. 187), *T. rotulare*, descr. (p. 188); SAVIN (283).
- †*Toxaster*, diagnosis; SAVIN (283) p. 81. *T. amplus*; PELLAT (251) p. 120: distinguished from *T. retusus* and *T. verani*; PELLAT (252). *T. collegnoi*; PELLAT (251) p. 126. *T. complanatus*; FRITEL (96A) p. 67, pl. iv. *T. cf. lorioli*, note by LAMBERT; SAVIN (283) p. 82. *T. radula*; BALL & BEADNELL (9) p. 55. *T. retusus*; SAVIN (283) p. 83: vide *T. amplus*. *T. ricordeaui*; FRITEL (96A) p. 68, text-fig.: PELLAT (251) p. 121. *T. tosaensis* n. sp., Cretaceous of Torinosu Sakawa, Tosa province, Japan; LORIOLO (200) p. 36, pl. iii: not a true *Toxaster*, "mieux à sa place dans le groupe des *Ovulasterinae* de ma famille *Oeropidae*;" LAMBERT in Review: loc.; TOKUNAGA (306) p. 18: not *Toxaster* and therefore no proof of Lr. Cretac.; LAMBERT in Review. *T. verani* Sism. is probably *Enallaster (Heteraster) oblongus*; PELLAT (252).
- Toxocidaris* re-established with genotype *Strongylocentrotus erythrogrammus* (= *T. delalandi*), and comprising *S. armiger* and *S. tuberculatus* (p. 125), diagnosis as member of *Echinometridae* (p. 139); MORTENSEN (229).
- Toxopneustes* Ag. 1841, with genotype *Echinus pileolus*, rejected in favour of *Boletia* Desor 1846 (q. v.): *Toxopneustes* Ag. 1841, with genotype *E. tuberculatus*, syn. of *Strongylocentrotus*: *Toxopneustes* Al. Ag. em Duncan, is a homonym; LORIOLO (200) p. 13: distinguished fr. *Tripneustes* and *Psammechinus*, genotype *E. pileolus* Lam. (pp. 110–114), diagnosis as member of *Schizechininae*, incl. *Boletia*, comprises *T. pileolus*, *roseus*, and *elegans* (p. 136); MORTENSEN (229). *T. dröbachiensis*; LÖNNBERG (197) p. 25 (v. et. sub *Strongylocentrotus*). *T. elegans*, distinguished fr. *T. pileolus* only by colour; MORTENSEN (229) p. 112. *T. lividus*; LOISEL (198): VIGUIER (219) and (314): (v. et. sub *Strongylocentrotus*). *T. pileolus*; DOEDERLEIN (62) p. 688: descr., pedicellariae and spicules figd., distinguished fr. *Boletia rosea*; MORTENSEN (229) p. 111, pl. xxi. †*T. praecursor*, v. sub *Isechinus*. *T. semituberculatus*, slight differences fr. *T. variegatus* (p. 112), *T. variegatus*, pedicellariae and spicules figd. (p. 112, pls. xx, xxi); MORTENSEN (229).
- Toxopneustidae*, diagnosis, comprises subfam. *Schizechininae*, *Strongylocentrotinae*, and *Parasaleninae* (p. 135), table of spp. (p. 165); MORTENSEN (229).
- Tretocidaris* n. g. of *Cidaridae* with genotype *Dorocidaris bartletti* Ag.; MORTENSEN (229) pp. 28, 16: diagnosed; MEISSNER in HAMANN (125) p. 1346. *T. annulata*, W. Indies (p. 16), *T. spinosa*, St Helena (p. 17) n. spp., holotypes in Brit. Mus.; MORTENSEN (229).
- Trigonocidaris albida* and *T. monolini*, pedicellariae and spicules descr.; MORTENSEN (229) p. 84, pl. vii.
- Triplechinidae*, classification discussed in connection with *Echinometridae* (q. v.); op. cit. p. 90.
- Tripneustes*, name preferred to *Hipponoë*, genus defined, comprising

- T. esculentus*, *T. depressus*, and *T. gratilla* (pp. 113, 114), diagnosis as member of *Schizechininae* (p. 136), *T. depressus*, differences fr. *T. esculentus* (p. 113), *T. esculentus* (Leske), descr., pedicellariae and spicules figd. (p. 112, pl. xxi); MORTENSEN (229). *T. gratilla*; BELL (11) p. 247: incl. *Hipponeo variegata*; DOEDERLEIN (62) p. 688. *T. variegatus* (Leske), descr., syn. of *Echinus gratilla* Linn.; MORTENSEN (229) p. 113.
- †*Trochotiara*, diagnosis (p. 194), *T. priscum* and *T. superbum* (p. 195); SAVIN (283).
- Tromikosoma* n. g. of *Echinothuridae*, with genotype *T. koehleri* n. sp., Davis Str. (pp. 62, 65) pedicellariae (p. 45, pl. xiv) complete description, p. 78, pls. xi–xiv; MORTENSEN (229): genus diagnosed; MEISSNER in HAMANN (125) p. 1354.
- †*Tylocidaris*:—*T. clavigera*, radioles; AIRAGHI (3) p. 319. *Tylocidaris vevilifera* [sic]; RAVIN (265) p. 423.
- †*Typocidaris* diagnosed as s.-g. [of *Cidaris*?] (p. 227), *T. cf. farringdonensis* (p. 230), *T. marginata*, discussed by LAMBERT, radioles descr. (p. 228); SAVIN (283).
- Urechinidae* n. fam. = *Urechininae* Duncan; MEISSNER in HAMANN (125) p. 1344.
- Urechinus naresi*, possible specific difference between fasciolate and adete individuals figd. Agassiz, Challenger Rep.; LAMBERT (176) p. 29.

(D.)—ASTEROIDEA.

- Acanthaster echinites*; DOEDERLEIN (62) p. 687.
- Anasterias*, the genotype *A. minuta* (cum syn. *A. nuda*) is sytl. of *Anasterias antarctica*, but the genus is maintained and rediagnosed, apparently with *A. perrieri* Stud. as genotype (p. 42), *A. belgicae* 70° S., 84° W., 560 m., detailed descr. of adult and young (p. 51, pls. vi, vii), *A. chirophora*, circa 70°–71° S., 82°–89° W., 450–560 m., detailed descr. of adult and young (p. 43, pls. v, vi, vii), *A. lactea* 71° S., 89° W., 450 m. (p. 50) n. spp.; LUDWIG (204).
- Archaster agassizi*, *A. robustus*? HOWE (150). *A. tenuispinus*; NORMAN (239) p. 407; PETERSEN (259).
- †*Arthraster dixonii*; ROWE (276) p. 49.
- †*Aspidosoma arnoldi*, arm-structure; JAEKEL (154) p. 112.
- Asterias glacialis*; NICHOLS (236) p. 252; NORMAN (239) p. 409; PETERSEN (259); SCHUECKING (290); SIMPSON (294) p. 40; VIGUIER (313). *A. groenlandica*, notes; MICHAÏLOVSKIJ (223) pp. 474, 525. *A. hispida*; NICHOLS (236) p. 253. *A. hyperborea*, incl. *A. normani* as young, measurements and notes; MICHAÏLOVSKIJ (223) pp. 476, 525. †*A. jurensis*; SIEMIRADZKI (293) p. 421. *A. lincki*, incl. *A. gunneri*, a regenerate ray; MICHAÏLOVSKIJ (223) pp. 473, 524: incl. *A. gunneri* and *A. stellionura*; NORMAN (239) p. 409: var. *gunneri*, pedicellariae; MORTENSEN (227) p. 71, pl. ii. *A. muelleri*; LÖNNBERG (197) p. 27; NORMAN (239) p. 409: incl. *A. groenlandica* as var.; MORTENSEN (227) p. 68, pl. ii. *A. murrayi*; NICHOLS (236) p. 253. *A. ochracea*; LOEB (192), (193) & (194): ventral view; JORDAN & HEATH (160) p. 141, fig. 87. *A. panopla*; MICHAÏLOVSKIJ (223) pp. 474, 524: NORMAN (239) p. 409: pedicellariae; MORTENSEN (227) p. 70, pl. ii. *A. rubens*; JOHANSEN & LEVINSSEN (158) p. 284; NICHOLS (236) p. 252; NORMAN (239) p. 409; PETERSEN (259); SIMPSON (294) p. 40; THOMSON & RENNIE (304) p. 55: dissection and good diagrams; KUEKENTHAL (173) p. 126: food; LÖNNBERG (197) p. 26: (v. et. sub *Urastër*): var. *attenuata*; SIMPSON (294) p. 41. *A. vulgaris*, dissection; PRATT (261).
- Asterina cepheus*; BELL (11) p. 245. *A. gibbosa*; NICHOLS (236) p. 249.

- Asterodon singularis*, incl. *A. granulatus*, measurements of various specimens ; LUDWIG (204) p. 19.
- Astrogonium annectens* ; RICHARD (271) p. 68.
- Astropecten* (?) sp. ; MICHAJLOVSKIJ (223) p. 489. *A. andromeda* ; PETERSEN (259) *A. hemprichii* ; BELL (11) p. 244. *A. irregularis* ; LÖNNBERG (197) p. 27 ; NICHOLS (236) p. 247 ; SIMPSON (294) p. 40. †*A. ? montanus* n. sp., Fort Benton beds, 23 miles N. of Bozeman, Montana, U.S.A. ; DOUGLASS (65) p. 6 and fig. *A. muelleri* ; PETERSEN (259). †*A. nodotianus* ; FRITEL (96A) p. 52, text-fig. *A. polyacanthus* ; BELL (11) p. 244. *A. serratus* ; RICHARD (271) p. 66. *A. sphenoplax* ; NICHOLS (236) p. 247.
- †*Ataxaster* n. g. with genotype *A. pygmaeus* n. sp., Lr. Ordovician D 1 γ of Sta. Benigna, Bohemia, proximal Amb. opposed, distal alternate [no further diagnosis, description, or fig.] ; JÄRREL (154) p. 106.
- Belgiocella* n. g. of *Brisingidae*, with genotype *B. racovitana* n. sp., 70° 40' S., 102° 15' W., 2800 m., detailed descr. ; LUDWIG (204) p. 89, pls. iv, v.
- Brisinga coronata* ; NICHOLS (236) p. 253 ; boreal not Arctic ; ÖSTERGREN (244) p. 28. *B. endecacmenos* [sic] ; NICHOLS (236) p. 253.
- Cheiraster*, key to spp. (p. 18), *C. gerlachei* n. sp. about 70° S. & 80°–84° W., 450–560 m., 57 specimens of all ages, complete descr. (p. 9, pls. i, ii) ; LUDWIG (204).
- Cosmasterias lurida* ; LUDWIG (204) p. 40.
- †*Crenaster priscus* ; SEMIRADZKI (293) p. 336.
- Cribrella abyssalis* ; RICHARD (271) pp. 65, 68. *C. sanguinolenta* ; LÖNNBERG (197) p. 27 ; NORMAN (239) p. 408 : two forms of spinulation distinguished, *laevior* and *scabrior* ; MICHAJLOVSKIJ (223) pp. 478, 526 : variations from type, relations to *Echinaster scrobiculatus* ; MORTENSEN (227) p. 72, pl. ii : (v. et. sub *Henricia*).
- Crossaster* (v. et. *Solaster*) :—*C. affinis* ; NORMAN (239) p. 408. *C. papposus* ; l. c., variation in number of rays and other points ; MICHAJLOVSKIJ (223) pp. 484, 528.
- Ctenodiscus corniculatus*, measurements and minor variations ; MICHAJLOVSKIJ (223) pp. 487, 529. *C. crispatus* ; NORMAN (239) p. 407.
- Culcita* distrib. ; DOEDERLEIN (62) p. 687. *C. pentangularis* ; BELL (11) p. 245.
- Diplasterias lütkeni*, notes ; LUDWIG (204) p. 41.
- Diploaster multipes* ; HOWE (150).
- Echinaster purpureus* ; BELL (11) p. 246. *E. smithi* n. sp., 71° S., 88° W., 450 m. ; LUDWIG (204) p. 34.
- Goniaster* :—†*G. parkinsoni* ; FRITEL (96A) p. 53, text-fig. *G. phrygianus* ; NORMAN (239) p. 408 ; PETERSEN (259). †*G. quinqueloba* ; RAVN (265) p. 423.
- Goniodiscus* sp. ; BELL (11) p. 244.
- Henricia sanguinolenta* ; SIMPSON (294) p. 40 : et var. *abyssicola* ; NICHOLS (236) p. 252 (v. et. sub *Cribrella*).
- Hexaster obscurus* ; NORMAN (239) p. 408 (v. et. sub *Pteraster*).
- Hypasterias phrygiana* ; SIMPSON (294) p. 40.
- Hymenaster giborzi* ; RICHARD (271) p. 66. *H. giganteus* ; NICHOLS (236) p. 252. *H. pellucidus*, mouth spines descr. ; MICHAJLOVSKIJ (223) pp. 480, 526 : var. with 3 adambulacral spines ; MORTENSEN (227) p. 80. *H. perspicuus* n. sp., 71° S., 89° W., 450 m., detailed descr. ; LUDWIG (204) p. 30, pl. iii.
- Labidiaster radiosus*, regenerating arms, but none intercalated, 3 inter-radial caeca ; LUDWIG (204) p. 88, pl. iv.
- Lasiaster hispidus* ; MICHAJLOVSKIJ (223) p. 486.
- Leiaster coriaceus* ; BELL (11) p. 245.
- Leptophycaster* [sic] *arcticus* ; NORMAN (239) p. 408.

- Leptoptychaster arcticus*, neanic; MICHAÏLOVSKIJ (223) p. 486.
- Linckia ehrenbergi*, *L. marmorata*; BELL (11) p. 245.
- Lophaster furcifer*; MARENZELLER (214) p. 564: measurements; MICHAÏLOVSKIJ (223) pp. 482, 527. *L. stellans*, incl. *L. pentactis vel levinseni* Perr., descr.; LUDWIG (204) p. 27, pl. iii.
- Luidia ciliaris*; NICHOLS (236) p. 248: SIMPSON (294) p. 40. *L. sarsi*; JOHANSEN & LEVINSEN (158) p. 284: NICHOLS (236) p. 248: PETERSEN (259): SIMPSON (294) p. 40: larvae; MACBRIDE (209). *L. savignii*; BELL (11) p. 244.
- †*Metopaster cornutus*; ROWE (276) pp. 38, 49.
- Mimaster cognatus*, half-grown example, descr., referred to *Astropectinidae*, close to *Luidia*; LUDWIG (204) p. 6, pl. ii.
- Mithrodia clavigera*; BELL (11) p. 246.
- Nardoa variolata*; BELL (11) p. 245.
- Neomorphaster talismani*; RICHARD (271) pp. 66, 68, 69: incl. *N. eustichus*; NICHOLS (236) p. 251.
- Nymphaster subspinosus*, incl. *N. protentus*; NICHOLS (236) p. 249.
- Odontaster cremeus* n. sp., 71° 18' S., 88° 02' W., 450 m.; LUDWIG (204) p. 21.
- Ophidiaster fuscus*, 3 rows of plates on arms, not 8; BELL (11) p. 245. *O. ophidianus*; VIGUIER (313).
- Palmipes placenta*; NICHOLS (236) p. 250: SIMPSON (294) p. 40.
- Paragonaster subtilis*; RICHARD (271) p. 66.
- Pedicellaster*, key to spp. (p. 38). *P. antarcticus* n. sp., circa 70°–71° S., 82°–87° W., 450 m. (p. 35); LUDWIG (204). *P. searadiatus*; RICHARD (271) pp. 67, 68, 69. *P. typicus*; NORMAN (239) p. 408: notes; MICHAÏLOVSKIJ (223) pp. 478, 526.
- Pentaceros*:—†*P.* sp.; GAGEL (97) p. 543, and text-fig. *P. hiulcus*; BELL (11) p. 245. *C. lincki*; HERDMAN (143) p. 107, and fig.: incl. "*P. muricatus* Linck" of Ludwig; BELL (11) p. 244.
- Pentagonaster gosselini*; RICHARD (271) p. 66. *P. granularis*; NORMAN (239) p. 408: incl. *P. balteatus* et *concinus* Slad.; NICHOLS (236) p. 248: variations from type; MORTENSEN (227) p. 81. *P. greeni*; NICHOLS (236) p. 249.
- Phataria fasciatis*, regeneration; MONKS (225).
- Plutonaster bifrons*; NICHOLS (236) p. 247: ?; RICHARD (271) p. 66. *P. granulatus*?; op. cit. p. 68. *P. parelii* var. *longibrachialis*; NORMAN (239) p. 407.
- Pontaster tenuispinus*; NICHOLS (236) p. 247: MORTENSEN (227) p. 82: notes; MICHAÏLOVSKIJ (223) pp. 488, 530.
- Porania antarctica*, half-grown example descr.; LUDWIG (204) p. 22, pl. ii. *P. pulvillus*; NICHOLS (236) p. 249: SIMPSON (294) p. 40.
- Poraniomorpha borealis*; HOWE (150). *P. rosea*; NORMAN (239) p. 408: PETERSEN (259).
- Psilaster andromeda*; NICHOLS (236) p. 248: NORMAN (239) p. 408.
- Pteraster lebruni*, descr.; LUDWIG (204) p. 29, pl. iii. *P. militaris*; MICHAÏLOVSKIJ (223) pp. 481, 527: NORMAN (239) p. 408: SIMPSON (294) p. 40: secondary mouth-spines homologous with sphaeridia; MORTENSEN (227) p. 77, pl. ii. *P. multipes*; PETERSEN (259). *P. obscurus*; MORTENSEN (227) p. 77: measurements; MICHAÏLOVSKIJ (223) pp. 481, 527: Arctic not boreal; ØSTERGRØN (244) p. 28 (v. et. sub *Hexaster*). *P. personatus*; NICHOLS (236) p. 251. *P. pulvillus*; MICHAÏLOVSKIJ (223) p. 527: NORMAN (239) p. 408.
- Retaster cribrosus*; BELL (11) p. 246.
- Rhegaster tumidus*, relations to var. *tuberculata*; MICHAÏLOVSKIJ (223) pp. 485, 529: variations, causing suppression of var. *tuberculata*; MORTENSEN (227) p. 74.
- †*Siluraster* n. g. with genotype *S. perfectus* n. sp., Upper Ordovician D 4 of Zahorzan, Bohemia; JAEKEL (154) p. 106, figg. 2, 3.

- Solaster endeca*; LÖNNBERG (197) p. 27: NICHOLS (236) p. 251: NORMAN (239) p. 408: PETERSEN (259): SIMPSON (294) p. 40: notes; MICHAÏLOVSKIÏ (223) pp. 483, 528. *S. furcifer*, spines descr.; MORTENSEN (227) p. 76. *S. octoradiatus* n. sp., about 70°-71° S. and 80°-88° W., 450-500 m.; LUDWIG (204) p. 25, pl. iii. *S. papposus*; HEY (145): LÖNNBERG (197) p. 27: MARENZELLER (214) p. 564: NICHOLS (236) p. 251: PETCH (257) & (258) p. 38: PETERSEN (259): SIMPSON (294) p. 40: great number of geographical forms, of wh. *S. affinis* is an instance; DOEDERLEIN (61) p. 424: and var. *squamata*; MORTENSEN (227) p. 75, pl. ii (v. et. sub *Crossaster*). *S. syrtensis*; MICHAÏLOVSKIÏ (223) p. 528: MORTENSEN (227) p. 74: NORMAN (239) p. 408.
- †*Sphaeraster punctatus*; SIEMIRADZKI (293) p. 358.
- Sporasterias antarctica* (p. 39), var. *rupicola* (p. 40); LUDWIG (204).
- Stichaster albus*; MARENZELLER (214) p. 564: MORTENSEN (227) p. 72: variations in number of rays; MICHAÏLOVSKIÏ (223) pp. 477, 525. *S. roseus*; NICHOLS (236) p. 250: SIMPSON (294) p. 40.
- Stolasterias candicans* n. sp., circa 70° S., 82°-84° W., 450-560 m.; LUDWIG (204) p. 41.
- Styracaster horridus*; RICHARD (271) p. 66.
- Uraster rubens*; HEY (145): PETCH (257) & (258) p. 38.
- Zoroaster fulgens*; NICHOLS (236) p. 251.

(E.)—OPHIUROIDEA.

- Amphiura chiajei*; LÖNNBERG (197) p. 28: NICHOLS (236) p. 255: SIMPSON (294) p. 41. *A. elegans*; NORMAN (239) p. 407: SIMPSON (294) p. 41: incl. *A. leachi* Greene; NICHOLS (236) p. 256. *A. filiformis*; LÖNNBERG (197) p. 28: NICHOLS (236) p. 255: PETERSEN (259): SIMPSON (294) p. 41. *A. sundevalli*; MORTENSEN (227) p. 85: minor variations, mouth papillae; MICHAÏLOVSKIÏ (228) pp. 493, 532.
- †*Aspidura loricata*; LANGENHAN (180) p. 10, pl. vi.
- Asteronyx loveni*; NORMAN (239) p. 407: PETERSEN (259): SIMPSON (294) p. 41.
- Astrophyton arborescens*, aboral lacunae and genital cord; RUSSO (280): ovoid gland and lacunae; RUSSO (281).
- †*Bohemura* n. g. with genotype *B. jahni* n. sp., Upper Ordovician, D 4, Zahorzan, Bohemia, no diagnoses, but a diagram; JAEKEL (154) p. 111, fig. 6.
- †*Eophiura* n. g. *caelebs*, no diagnosis, but two diagrams, Lower Ordovician D 1 γ of Osek, Bohemia; JAEKEL (154) p. 107, figg. 1, 4.
- Gorgonocephalus agassizi*; MORTENSEN (227) p. 88: NORMAN (239) p. 407: variations in colour and measurements; MICHAÏLOVSKIÏ (223) pp. 498, 534. *G. eucnemis*; MORTENSEN (227) p. 88: NORMAN (239) p. 407: local variations; MICHAÏLOVSKIÏ (223) pp. 497, 534. *G. lamarcki*; NORMAN (239) p. 407. *G. lincki*; SIMPSON (294) p. 41.
- †*Lapworthura miltoni*; SOLLAS (296).
- Ophiacantha anomala*; MORTENSEN (227) p. 86. *O. bidentata*; NORMAN (239) p. 407: local variations, influence of bottom; MICHAÏLOVSKIÏ (223) pp. 495, 533: extra mouth-papillae; MORTENSEN (227) p. 86. *O. segesta*? HOWE (150).
- Ophiactis balli*; NICHOLS (236) p. 256: SIMPSON (294) p. 41.
- Ophiobyrsa hystericis*; NICHOLS (236) p. 258.
- Ophiocnida brachiata*; NICHOLS (236) p. 255: SIMPSON (294) p. 41.
- Ophiocoma brevipes*; WHITELEGGE (322) p. 12. *O. nigra*; MCINTOSH (212): NICHOLS (236) p. 257: SIMPSON (294) p. 41. *O. rosula*; HEY (145): PETCH (257) & (258) p. 38.
- Ophiocten sericeum* [sic]; MORTENSEN (227) p. 84: NICHOLS (236) p. 254:

- NORMAN (239) p. 407: variations in colour, measurements, &c.;
 MICHAÏLOVSKIJ (223) pp. 492, 531.
- Ophioglypha albida*; PETERSEN (259). *O. convexa*; RICHARD (271) p. 67.
O. laeertosa; LO BIANCO (191) p. 268: regeneration; ZELÉNY (334).
O. robusta; NOBILI (237): distinct from *O. maculata*; MORTENSEN
 (227) p. 83. *O. sarsi*; PETERSEN (259): tentacle-scales; MORTENSEN
 (227) p. 82. (Vide etiam sub *Ophiura*.)
- Ophiomusium lymani*; NICHOLS (236) p. 254: RICHARD (271) pp. 68, 69.
Ophiomyxa australis?; BELL (11) p. 246.
- Ophiopholis aculeata*; HOWE (150): LÖNNBERG (197) p. 28: MAREN-
 ZELLER (214) p. 564: MORTENSEN (227) p. 85: NICHOLS (236) p. 257:
 NORMAN (239) p. 407: SIMPSON (294) p. 41: variations in colour and
 measurements; MICHAÏLOVSKIJ (223) pp. 494, 532.
- Ophiopleura borealis*; MICHAÏLOVSKIJ (223) p. 530: disc epidermis not
 thick as supposed by Danielssen and Koren; MORTENSEN (227)
 p. 84.
- Ophioplocus imbricatus*; BELL (11) p. 246.
- Ophiopsila annulosa*; NICHOLS (236) p. 257.
- Ophiopus arcticus*; MICHAÏLOVSKIJ (223) p. 532: MORTENSEN (227)
 p. 85.
- Ophioscolex glacialis*; HOWE (150): NORMAN (239) p. 407: PETERSEN
 (259): notes; MICHAÏLOVSKIJ (223) pp. 496, 533: "glas-plättchen";
 MORTENSEN (227) p. 86, pl. ii. *O. purpureus*; NORMAN (239) p. 407:
 or ?*O. quadrispinus*; MORTENSEN (227) p. 87.
- Ophioteresis elegans*; BELL (11) p. 246.
- Ophiothrix fragilis*; LÖNNBERG (197) p. 29: NICHOLS (236) p. 257:
 PETERSEN (259): SIMPSON (294) p. 41. *O. lütkeni*, incl. *O. penta-*
phyllum Bell, 1890; NICHOLS (236) p. 258.
- Ophiura affinis*; LÖNNBERG (197) p. 28: NICHOLS (236) p. 254: NORMAN
 (239) p. 407. *O. albida*; LÖNNBERG (197) p. 28: NICHOLS (236)
 p. 254: NORMAN (239) p. 407: SIMPSON (294) p. 41. *O. brevispina*,
 larva with transverse ciliated bands; GRAVE (111) p. 173, figg. 5, 6.
O. carnea; NORMAN (239) p. 407. *O. ciliaris*; NICHOLS (236) p. 253:
 SIMPSON (294) p. 41. *O. ciliata* (= *O. texturata*); LÖNNBERG (197)
 p. 27. †*O. egertoni*; SOLLAS (296). †*O. ludeni*; LANGENHAN (180)
 p. 10, pl. vi. *O.* (= *Ophioglypha*) *nodosa*; MICHAÏLOVSKIJ (223)
 pp. 491, 531. *O. robusta*; LÖNNBERG (197) p. 28: NORMAN (239)
 p. 407: (= *Ophioglypha*), minor variations; MICHAÏLOVSKIJ (223)
 pp. 490, 531. *O. sarsi*; NICHOLS (236) p. 254: NORMAN (239) p. 407:
 (= *Ophioglypha*) incl. *O. coriacea*; MICHAÏLOVSKIJ (223) pp. 489, 530.
O. signata; NICHOLS (236) p. 254. (Vide etiam sub *Ophioglypha*.)
- †*Palaeura* n. g. *caelebs*, no diagnosis, but a diagram, Lower Ordovician
 D 1γ, Bohemia; JÄBKEL (154) p. 110, fig. 5.

F. CRINOIDEA*.

Crinoidea classified in Orders 1. *Larviforma*, 2. *Costata*, 3. *Fistulata*,
 4. *Camerata*, 5. *Flexibilia*, 6. *Articulata*; for further divisions see
 these names in Index; ZITTEL (339) pp. 124-161. *Crin.* classified as
 I. *Monocyclica*, *Hyo-*, *Platy-*, *Actino-crinacea*, II. *Dicyclica*, groups
Rhodo-, *Ichthyo-*, *Cyatho-crinacea*, III. *Cryptocyclica*, groups *Pentia-*,
Apio-, *Holopo-crinacea*, *Antedonacea*, see further in Index; STEINMANN
 (299) pp. 172-186.

†*Acrochordocrinus*, v. sub *Bourgueticr.* et *Mespilocr.*

†*Acrocrinus amphora*, arms; GRABAU (109) p. 298.

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

- †*Actinocrinacea*, group of *Monocyclica*, subdivided into *Melo-*, *Actino-*, *Bato-crinoidae* (qq. v.); STEINMANN (299) p. 175.
- †*Actinocrinidae* defined (p. 147) with subfam. *Batocrinidae* and *Actinocrinidae* (s. str.); ZITTEL (339).
- †*Actinocrinoidea*, subdivision of *Actinocrinacea* (q. v.), presumably same as Bather's; STEINMANN (299) p. 177.
- †*Actinocrinus*:—*A.* ? sp.; LAMPLUGH (178) p. 257. *A. laevis* Gürich & *A. moniliferus*; SIEMIRADZKI (293) p. 124.
Actinometra iowensis n. sp., Dry Tortugas, Florida, 3 ft.; SPRINGER (297) p. 217, pl. i.
- †*Adelocrinus hystrix*; DREVERMANN (67) p. 518, pl. xiv.
- †*Allocrinus typus*; FOERSTE (84) p. 711.
- Antedon*:—†*A.* sp. non-descr.; ROWE (276) pp. 36, 38, 49. *A. barentsi*, syn. of *A. eschrichti*; MORTENSEN (227) p. 67. *A. bifida*; NICHOLS (236) p. 246; SIMPSON (294) p. 39. *A. dentata*; HOWE (150). *A. eschrichtii*; MARENZELLER (214) p. 564: measurements; MICHAILOVSKIJ (223) pp. 499, 534: pinnules descr., incl. *A. barentsi*; MORTENSEN (227) p. 65, pl. i. †*A. gevreyi* n. sp., Valangian of Malleval (Isère), holotype in Gevrey coll. (p. 38, pl. ii), †*A. iheringi* n. sp., Lower and Mid. Patagonian, various locc., Patagonia (p. 22, pl. ii); LORIOI (200). *A. milleri*; NICHOLS (236) p. 246. *A. phalangium*; LO BIANCO (191) p. 268; NICHOLS (236) p. 246. *A. proluxa*, measurements, numbers of pinnulars; MICHAILOVSKIJ (223) pp. 501, 535: pinnules descr.; MORTENSEN (227) p. 65, pl. i. *A. quadrata*, measurements, numbers of brachials, pinnulars, and cirrals (pp. 500, 534), *A. tenella* (p. 535); MICHAILOVSKIJ (223).
- Antedonacea*, group of *Cryptocyclica*, = *Comatulidae* Auctt.; STEINMANN (229).
- †*Aorocrinus casedayi* (p. 108, pl. xxxiii), descr. and compared with *Gennaeocr.* (p. 101, pl. xxxii); ROWLEY in GREENE (114): var. *charlestownensis*, redescri. possibly of specific rank; ROWLEY in GREENE (117) p. 142, pl. xli.
- Apiocrinacea*, group of *Cryptocyclica*, comprises *Apiocrinidae* and *Bourgueticrinidae*; STEINMANN (299) p. 185.
- †*Apiocrinus*:—*A. annulatus*; SIEMIRADZKI (293) p. 371. *A. magnificus*; FRITEL (96A) p. 49, text-fig. *A. milleri*; SIEMIRADZKI (293) pp. 371, 378, 379, 383. *A. parkinsoni* (p. 50, text-fig.), *A. roissyanus* (p. 49, text-fig.); FRITEL (96A). *A. rosaceus*; SIEMIRADZKI (293) pp. 374, 376, 383.
- Articulata* defined as Order (p. 155) comprises *Encrinidae*, *Apiocrinidae*, *Bourgueticrinidae*, *Eugenia-crinidae*, *Holopidae*, *Pentacrinidae*, *Comatulidae*; ZITTEL (339).
- †*Aspidocrinus scutelliformis*; GRABAU (110) p. 1061.
- †*Austinocrinus*:—*A.* sp., *A. rothpletzi*, *A. zitteli*; WOLLEMAN (326) p. 19.
- †*Balanoocrinus* (v. et. sub *Pentacr.*):—? *B.* sp., columnals; QUAAS (262) p. 164. *B. subteres*; HAIZMANN (123) pp. 511: SIEMIRADZKI (293) pp. 361, 433.
- †*Batocrinidae* defined as sub-fam. of *Actinocrinidae* (p. 147) comprises *Periechocr.*, *Megistocr.*, *Carpocr.*, *Desmidocr.*, *Barrandeocr.*, *Macarocr.*, *Agaricocr.*, *Dorycr.*, *Batocr.*, *Eretmoocr.*, *Alloprosallocr.*, *Dizygoocr.*, *Lobocr.*; ZITTEL (339).
- †*Batocrinoidea*, subdivision of *Actinocrinacea* (q. v.), presumably same as Bather's; STEINMANN (299) p. 177.
- †*Botryocrinus longibrachiatus* n. sp., Silurian, Brunswick, Victoria; CHAPMAN (29) p. 108, pl. xviii.
- †*Bourgueticrinus*:—*B.* sp.; JUKES-BROWNE (161) p. 93; REID (268) p. 58: columnals; QUAAS (262) p. 162, pl. xxxi: reference to genus doubted by LAMBERT in Review [certainly not *Bourgueticr.*]: change in size

- with zones; ROWE (276) pp. 34, 49. *B.* [i.e. *Acrochordocr.*] sp.; LAMPLUGH & WALKER (179) p. 244. *B. ellipticus*; JUKES-BROWNE (161) p. 93: variations; WOLLEMANN (326) p. 16. *B. suessi* Héb. and Mun.-Ch.; MUNIER-CHALMAS (231) p. 29.
- †*Brachiocrinus* sp.; FOERSTE (84) p. 714: (v. et. sub *Myelodactylus*).
- †*Calceocrinus granuliferus* n. sp., Knobstone group, Louisville, Ky.; ROWLEY in GREENE (115) p. 114, pl. xxxv.
- †*Callicrinus (Eucalyptocrinus) ramifer*; FOERSTE (84) p. 711.
- †*Camarocrinus*:—*C.* sp. (pp. 683-685), *C. saffordi* (p. 714); FOERSTE (84). *C. ulrichi* n. sp., Lower Helderberg, Hunton formn., Indian territory, U.S.A., cotypes in U.S. Nat. Mus.; SCHUCHERT (289) p. 239.
- †*Camerata* defined as Order (p. 145) comprises *Platy-, Hexa-, Actino-, Reteo-, Dimero-, Rhodo-, Melo-, Calypto-crinidae*; ZITTEL (339).
- †*Centrocrinus tennesseensis*; FOERSTE (84) p. 712.
- †*Ceriocrinus? priscus* n. sp., Kaskaskia group, East Tennessee; ROWLEY in GREENE (119) p. 161, pl. xlvii.
- †*Coclocrinus bacca*; FOERSTE (84) p. 712.
Costata defined as Order (p. 137) comprises *Hapalo-, Plicato-, Hyocrinidae*, and *Saccocomidae*; ZITTEL (339).
- †*Crotalocrinus rugosus*; SIEMIRADZKI (293) pp. 48, 50, 57, 61.
Cryptocyclica ord. nov. pseudomono-cyclic, vide supra p. 95; STEINMANN (299) p. 182.
- †*Ctenocrinus* sp.; KATZER (165) pp. 192, 201, 210, text-fig.: WALTHER (318) p. 66.
- †*Cyathidium holopus*, as argument for Gulf-stream, criticised; RAVN (265) pp. 422, 442.
- †*Cyathocrinacea*, group of *Dicyclica*, = *Inadunata Fistulata*, subdivided into *Cyathocrinoidea* and *Poteriocrininoidea* (qq. v.); STEINMANN (299) p. 180.
- †*Cyathocrinoidea*, subdivision of *Cyathocrinacea* (q. v.), comprise *Porocr., Sphaerochr., Marsupites*, and *Cyathocr.*; STEINMANN (299) p. 180.
- †*Cystocrinus tennesseensis*; FOERSTE (84) p. 712.
- †*Dadocrinus* (v. et. sub *Encrinus*):—*D. gruneyi* (p. 9, pl. v), *D. kunischi* (p. 9, pls. v, vi); LANGENHAN (180): a slab figd.; FRECH (95) p. 56.
- †*Dichocrinus*:—*D. hamiltonensis* and *D. inornatus*, arms; GRABAU (109) p. 297 and figg.
- Dicyclica*, as Order, vide supra p. 95; STEINMANN (299).
- †*Dolatocrinus*:—*D.* sp.?, 4-armed (114) p. 102, pl. xxxii. *D. amplus?*, descr. (118) p. 154, pl. xlv. *D. aplatus*, descr. (116) p. 136, pl. xxxix. *D. arrosus?* (116) p. 132, pl. xxxviii: n. var. *cognatus*, Upper Devonian, Charlestown, Ind. (116) p. 137, pl. xxxix. *D. aspratilis*, descr., v. sub *D. pulchellus* (114) p. 102, pl. xxxii. *D. caelatus*, incl. *D. arrosus* (119) p. 165, pl. xlviii. *D. charlestownensis*, descr., perhaps only a var. of *D. preciosus* (118) p. 153, pl. xlv. *D. corbuliformis* n. sp., Upper Devonian, Charlestown, Ind. (118) p. 151, pl. xlv. *D. corporosus?*, 4-rayed (119) p. 157, pl. xlvii: n. var. *concinus*, Upper Devonian, Charlestown, Ind. (118) p. 148, pl. xlv: n. var. *decoratus*, ibid. (118) p. 149, pl. xlv. *D. currieri* n. sp., Middle Devonian, Falls of Ohio (117) p. 143, pl. xlii. *D. elegantulus* n. sp., Upper Devonian, Charlestown, Ind. (118) p. 150, pl. xlv. *D. excavatus* (116) p. 134, pl. xxxix: ?(117) p. 145, pl. xlii: n. var. *incarinatus*, Middle Devonian, Clark Co. Ind. (115) p. 112, pl. xxxv. *D. fungiferus* n. sp., Mid. Devonian, Falls of Ohio (116) p. 134, pl. xxxix. *D. greenei*, with only 13 arm-bases in cup, and single 1Br in 3 rays (119) p. 158, pl. xlvii. *D. marshi*, descr. (119) p. 159, pl. xlvii. *D. multibrachiatus* n. sp., Middle Devonian, Falls of Ohio (117) p. 141, pl. xli. *D. multinodosus* n. sp., Upper Devonian, Charlestown, Ind. (118) p. 147, pl. xlv. *D. nodosus*, descr. (119)

- p. 163, pl. xlviii. *D. noduliferus* n. sp., Upper Devonian, Charlestown, Ind. (117) p. 140, pl. xli. *D. pernodosus* n. sp., Upper Devon., Hamilton group, Charlestown, Ind. (115) p. 113, pl. xxxv. *D. preciosus*, descr. (118) pp. 152, 153, pl. xlv. *D. pulchellus*, descr., probably incl. *D. bulbaceus*, *D. argutus*, and *D. aspratilis* (114) p. 109, pl. xxxiii. *D. spinosus*, 4-rayed (119) p. 164, pl. xlviii. *D. springeri* n. sp., Upper Devonian, Charlestown, Ind. (116) p. 136, pl. xxxix. *D. venustus* with attached coral (119) p. 160, pl. xlvii. *D. welleri* n. sp., Upper Devonian, Falls of Ohio (117) p. 143, pl. xli. All reff. are to ROWLEY in GREENE.
- †*Edriocrinus*:—*E.* sp.; FOERSTE (84) pp. 687, 692. *E. pocilliformis*, horizon; SCHUCHERT (287) p. 422. *E. sacculus*, described from Maryland specimens, also in New Jersey; WELLER (320) p. 342, pl. xlv.
- †*Encrinurus*:—*E. aculeatus*; SIEMIRADZKI (293) p. 239: fig. of crown; FRECH (95) pl. vi. *E. brahli* (p. 8, pl. iv), *E. carnalli* (p. 8, pls. iii, iv); LANGENHAN (180). *E. cassianus*; BROILI (25) p. 151, pl. xvii: GORDON (106) pp. 26, 27: TOMMASI (307) p. 435: columnals and patinas; VINASSA DE REGNY (315) p. 461, pl. i. *E. gracilis*; SIEMIRADZKI (293) p. 239 (v. et. sub *Dadocrinus*). *E. granulatus*; BROILI (25) p. 150, pl. xvii: GORDON (106) pp. 26, 27: TOMMASI (307) p. 436: columnals; VINASSA DE REGNY (315) p. 462, pl. ii. *E. cf. granulatus*; KITTL (167) p. 92. *E. liliiformis*; FRITEL (96A) p. 51, text-fig.: LANGENHAN (180) p. 8, pl. ii: SIEMIRADZKI (293) pp. 231, 237: TOULA (309) p. 26: TORNQUIST (308) p. 826 & LOVISATO (203) p. 221: arms; GRABAU (109) p. 290 & figg. *E. cf. liliiformis*, columnals; VINASSA DE REGNY (315) p. 460, pl. ii. *E. liliiformis* oder *cassianus*; KITTL (167) p. 92. *E. varians*; BROILI (25) p. 150, pl. xvii: GORDON (106) p. 26.
- †*Entrochus*:—*E. primus*; ZELIZKO (335) p. 65. *E. silesiacus*; LANGENHAN (180) p. 8, pl. iv.
- †*Erisocrinus loczyi* n. sp., Upper Carboniferous, Lower Amazons; KATZER (165) pp. 159, 263, & fig.
- †*Eucalyptocrinus*:—*E. elrodi* (pp. 563, 708), *E. lindahli* (= *E. wortheni*) (p. 712), *E. magnus* (pp. 563, 708), *E. milliganae* (p. 712); FOERSTE (84). *E. ovalis*, arms; GRABAU (109) p. 299. *E. ventricosus* (= *E. caelatus*); FOERSTE (84) p. 712. (Vide etiam sub *Calliocrinus*.)
- †*Eugeniocrinus hoferi*; HAIZMANN (123) p. 494.
- †*Fistulata* defined as Order (p. 139) comprises *Hybo-*, *Stephano-*, *Hetero-*, *Culceo-*, *Catillo-crinida*, *Gasterocomidae*, *Cyatho-*, *Crotalo-*, *Poteriocrinidae*, and *Marsupitidae*; ZITTEL (339).
- †*Flexibilia* defined as Order (p. 153) comprises *Ichthyocrinidae*, *Uinta-crinidae*; ZITTEL (339).
- †*Forbesiocrinus* sp.; HIND (146) p. 216.
- †*Gazacrinus tennesseensis*; FOERSTE (84) p. 712.
- †*Gemmaocrinus*:—*G. comptus* n. sp., Upper Devonian, Charlestown, Ind. (p. 105, pl. xxxiii), n. var. *spiniferus*, ibid. (p. 107, pl. xxxiii), *G. facetus* n. sp., ibid. (p. 99, pl. xxxii), *G. kentuckiensis*?, 30 arm-branches, descr. (p. 108, pl. xxxiii), *G. sculptus* n. sp., Upper Devon., Charlestown, Ind. (p. 107, pl. xxxiii); ROWLEY in GREENE (114).
- †*Glyptaster milliganae*; FOERSTE (84) p. 712.
- †*Glyptocrinus basalis*; COBBOLD (33).
- †*Hadrocrinus plenissimus*, discussion of genus; ROWLEY in GREENE (119) p. 165, pl. xlviii.
- †*Haplocrinus cf. stellaris*; SIEMIRADZKI (293) p. 119.
- †*Helicocrinus* n. g. of *Coccocrininae* (p. 107) with genotype *H. plumosus* n. sp., Silurian, W. Brunswick, Victoria; CHAPMAN (29) p. 108, pls. xvii, xviii.
- †*Herpetocrinus*, vide *Brachiocr.* et *Myelodactylus*.

- Holopocrinacea*, group of *Cryptocyclica*, comprises *Eugeniocrinidae* and *Holopodidae*; STEINMANN (299) p. 185.
- Holopus rangi*, habitat; RAVN (265) pp. 422, 442.
- †*Hydreionocrinus depressus*, arms; GRABAU (109) p. 299 & fig.
- Hycrinacea*, group of *Monocyclica*, comprising *Haplocr.*, *Triacr.*, *Heterocr.*, *Calceocr.*, *Costata* Jaekel, and allies; STEINMANN (299) p. 172.
- †*Ichthyocrinacea*, group of *Dicyclica*, = *Flexibilia impinnata* Bather; STEINMANN (299) p. 179.
- †*Ichthyocrinus magnaradiatis* n. sp., Lower Devonian, New Jersey; WELLER (320) pp. 86, 299, pl. xxxiii.
- †*Idiocrinus tennesseensis*; FOERSTE (84) p. 712.
- Isocrinus* (v. et. sub *Pentacr.*):—†*I. australis*, redescr.; ETHERIDGE (74) p. 10, pl. iv.
- †*Lampitocrinus tennesseensis*; FOERSTE (84) p. 712.
- †*Larviformia* defined as Order (p. 135) comprises *Haplo-*, *Allage-*, *Tria-*, *Symbatho-*, *Cupresso-crinidae*; ZITTEL (339).
- †*Lecanocrinus*:—*L. pisiformis* (*Poteriocrinus*) (p. 712), *L. pusillus* (pp. 708, 712); FOERSTE (84).
- †*Macrostylocrinus striatus*; FOERSTE (84) p. 708.
- †*Mariocrinus*, v. sub *Melocrinus*.
- †*Marsupiocrinus* [i.e. *Marsipocr.*]:—*M. striatus*, *M. (Platyocrinus) tennesseensis*; FOERSTE (84) p. 712.
- †*Marsupites*:—*M. ornatus*; FRITEL (96A) p. 48, text-fig.: WOLLEMAN (326) p. 16. *M. testudinarius*; JUKES-BROWNE (161) p. 94: REID (268) pp. 52, 58: REID (268A) p. 28 & fig.: ROWE (276) p. 3.
- †*Megistocrinus*:—*M. corniger* (117) p. 145, pl. xlii: *M. expansus* (119) p. 160, pl. xlvii: ornament discussed (119) p. 166, pl. xlviii: n. var. *magniventrus*, Upper Devonian, Charlestown, Ind. (114) p. 103, pl. xxxii & ? (117) p. 141, pl. xli. *M. hemisphericus*?, slight differences (117) p. 145, pl. xlii. *M. oppelti* n. sp., Mid. Devonian, Falls of Ohio (116) p. 135, p. xxxix. *M. rugosus*, variations in ornament (116) p. 131, pl. xxxviii: n. var. *spinuliferus*, Upper Devonian, Charlestown, Ind. (114) p. 102, pl. xxxii. All entries refer to ROWLEY in GREENE.
- Melocrinoidea*, subdivision of *Actinocrinacea* (q. v.), comprising *Melocr.*, *Eucalyptocr.*, and *Uintacr.*; STEINMANN (299) p. 175.
- †*Melocrinus (Mariacr.) nobilissimus* [sic], †*M. (Cytocr.) roemeri* (= *laevis*), may be †*Actinocr. verneuili* Troost; FOERSTE (84) p. 712.
- †*Mespilocrinus* (v. et. *Acrochordocr.*):—*M. caryophyllatus* (p. 336), *M. macrocephali* (p. 329); SIEMIRADZKI (293).
- †*Millericr.* cf. *adneticus*; DE ALESSANDRI (45) pp. 248, 253.
- Monocyclica*, as Order, vide supra p. 95; STEINMANN (299).
- †*Myelodactylus* (v. et. *Brachiocr.*), *B. gorbyi*; FOERSTE (84) p. 712.
- Pentacrinacea*, group of *Cryptocyclica*, = *Pentacrinidae* sensu Bather; STEINMANN (299) p. 183.
- †*Pentacrinus* (including *Balanocr.* q. v., *Extracr.* [i.e. *Pentacr.* s. str.] and *Isocr.* q. v. [i.e. *Pentacr.* neontologorum] syn. *Cainocr.*) *P.* sp.; WOLLEMAN (326) p. 19: columnals of 2 spp.; QUAA (262) p. 163, pls. xx, xxxi: change in size with zones; ROWE (276) pp. 34, 38, 42, 49: nondescr., columnals; VINASSA DE REGNY (315) p. 462, pl. i. *P. (Balanocr.) africanus*; OPPENHEIM (240) p. 450, pl. vii. *P. alternans*; SIEMIRADZKI (293) p. 415. *P. amblyscalaris*; ROLLIER (275): SIEMIRADZKI (293) p. 383. *P. angulatus*; BISTRAM (14). *P. basaltiformis*; FRITEL (96A) p. 51, text-fig.: PEACH (249) p. 168: SIEMIRADZKI (293) p. 436. *P. bicoronatus*; WOLLEMAN (326) p. 18. *P. bollensis*; FRITEL (96A) p. 50, text-fig. *P. carinatus*; WOLLEMAN (326) p. 17. *P. cingulatus*; SIEMIRADZKI (293) pp. 336, 433, 435. *P. dentato-granulatus* n. sp., Middle Gault, Algermissen, Braunschweig, holotype in coll. Schrammen, columnals; WOLLEMAN (329) p. 24, pl. iv. *P. desori*;

- SIEMIRADZKI (293) p. 379. *P. dubius*; LANGENHAN (180) p. 7, text-fig. *P. fuchsi*; GORDON (106) pp. 26, 27. *P. jurensis*; DEPÉRET (56) pp. 208, 212. *P. pentagonalis*; ILOVAĚSKÝ (152) p. 248; SIEMIRADZKI (293) pp. 336, 435. *P. priscus*; op. cit. p. 124. *P. propinquus*; BROILI (25) p. 151, pl. xvii; GORDON (106) p. 26; TOMMASI (307) p. 436. *P. sigmaringensis*; LEVINSKIĪ (187) pp. 584, 597; SIEMIRADZKI (293) p. 433. *P. spileccensis* Mun.-Ch.; MUNIER-CHALMAS (231) pp. 29, 37. *P. subcrenatus*; GORDON (106) p. 27. *P. tuberculatus*; DE ALESSANDRI (45) p. 246; FRITEL (96A) p. 51, text-figg. *P. cf. tuberculatus*?, contrast with var. *alpina*; BOESE (18) p. 650. *P. zeltbergensis* n. sp., Cenomanian, Tourtia of Lüneburg; WOLLEMANN (326) p. 18, pl. vii.
- †*Periechocrinus tennesseensis* (= *Saccocr. speciosus*); FOERSTE (84) p. 712.
- †*Pisocrinus*:—*P. campana* (p. 712), *P. gemmiformis* (pp. 558, 562, 692, 712), *P. milligani* (incl. *P. gorbyi*) (pp. 576, 712), *P. (Synbathocrinus) tennesseensis* (p. 712); FOERSTE (84).
- †*Platyocrinacea*, group of *Monocyclica*, = *Adunata* Bather; STEINMANN (299) p. 174.
- †*Platyocrinus*:—*P.* sp., columnals with cirri; DREVERMANN (67) p. 519. *P. americanus*, arms; GRABAU (109) p. 295. *P. devonicus* n. sp., Middle Devonian, Falls of Ohio; ROWLEY in GREENE (115) p. 114, pl. xxxv. *P. hemisphericus* & *P. huntsvillae*, arms; GRABAU (109) p. 295 & figg. *P. laevis* & *P. trigintidactylus*; DESTINEZ (59) p. B 73.
- †*Plicatocrinus tetragonus*; SIEMIRADZKI (293) p. 436.
- †*Poteriocrinoidea*, subdivision of *Cyathocrinacea* (q. v.) comprise *Cupressocr.*, *Poteriocr.*, *Encr.*; STEINMANN (299) p. 181.
- †*Poteriocrinus*:—*P.* (?) sp. ind.; DIENER (60) p. 46, pl. ii & p. 97, pl. iii. *P. barumensis*?; DREVERMANN (67) p. 518. *P. crassus*; DESTINEZ (59) p. B 73; LAMPLUGH (178) p. 257; SIEMIRADZKI (293) p. 186. [*P.*] *Cupressocr.* [sic] *crassus*; op. cit. p. 197. *P. granulosis*; op. cit. p. 186. *P. spissus*; DESTINEZ (59) p. B 73.
- †*Rhodocrinacea*, group of *Dicyclica*, apparently = *Dicyclica Camerata* Bather; STEINMANN (299) p. 178.
- †*Rhodocrinus crenatus*; SIEMIRADZKI (293) p. 124.
- †*Scyphocrinus*:—*S.* sp.; DENCKMANN (54) pp. 12, 21. *S. elegans*; SIEMIRADZKI (293) p. 92.
- †*Scytalecrinus* sp.; HIND (146) p. 216.
- †*Stemmatocrinus*? *veryi* n. sp., Keokuk group?, Cumberland Co., Ky.; ROWLEY in GREENE (116) p. 133, pl. xxxviii.
- †*Stephanocrinus*:—*S. deformis* n. sp., Niagara group, Big Creek, Jefferson co., Ind.; ROWLEY in GREENE (114) p. 103, pl. xxxii. *S. gemmiformis*; FOERSTE (84) p. 708: descr.; ROWLEY in GREENE (114) p. 104, pl. xxxii. *S. hammelli*, descr.; loc. et pl. cit. *S. osgoodensis*; loc. et pl. cit.: FOERSTE (84) pp. 562, 692. *S. quinquepartitus* n. sp., Niagara group, Big Creek, Jefferson co., Ind.; ROWLEY in GREENE (114) p. 105, pl. xxxii. *S. tennesseensis* apparently n. sp., Waldron Bed, Silurian, various locc. W. Tennessee; FOERSTE (84) p. 708, no. fig.
- †*Tetracrinus langenhani*; SIEMIRADZKI (293) p. 436.
- †*Thalamocrinus*:—*T. cylindricus*, *T. ovatus*; FOERSTE (84) p. 712.
- †*Thylacocrinus vanniotti*; FRITEL (96A) p. 48, text-fig.
- †*Thysanocrinus milliganae*; FOERSTE (84) p. 712.
- †*Uintacrinus*:—*U.* sp.; REID (268) p. 58; STEBBING (298) p. 146. *U. socialis*, figured; HOVEY (148).
- †*Ulocrinus nuciformis*; HIND (146) p. 216.
- †*Zeacrinus commaticus*, arms; GRABAU (109) p. 298.
- †*Zophocrinus howardi*; FOERSTE (84) p. 712.

†G. CYSTIDEA*

(including EDRIOASTEROIDEA).

- Cystoidea* classified in Orders 1. *Thecoidea*, 2. *Carpoidae*, 3. *Hydrophoridae* = *Cystidea* s. str., with Sub-orders *Rhombifera* and *Diploporita*; ZITTEL (339) pp. 169-178. *Cyst.* classified as 1. *Edrioasteroidea*, 2. *Carpoidae*, 3. *Dichoporita*, 4. *Diploporita*, 5. *Blastoidea* [vide IV, H] (p. 191), certain of these forms might prove separable as *Cystostelleroidea*, *Cystoholothurioidea*, *Cystocrinoidea*, and *Cystechinoidea* (p. 201); STEINMANN (299).
- Carpoidae*, defined as Order (p. 170) comprises *Anomalocystidae*, *Malacocystidae* [sic], *Cryptocrinidae*; ZITTEL (339).
- Caryocrinus bulbulus* and *C. milliganae* (p. 712), *C. ornatus* (pp. 562, 572, 711); FOERSTE (84).
- Coelocystis* n. g. of *Callocystinae*?, with genotype *Hemicosmites subglobosus* Hall = *Sphaerocystis dolomiticus* Jaekel; SCHUCHERT (289) p. 234.
- Cystechinoidea*, suggested for supposed linking forms of *Cyst.* and *Blast.*; STEINMANN (299) p. 201.
- Cystocrinoidea*, suggested for supposed linking forms in *Dichoporita* and *Diploporita*; l. c.
- Cystoholothurioidea*, suggested for supposed linking forms in *Carpoidae* or *Dichoporita*; l. c.
- Cystostelleroidea*, suggested for *Edrioasteroidea*; l. c.
- Diploporita*, sub-ord. of *Hydrophoridae*, comprise *Aristocyst-*, *Sphaeron-*, *Gomphocyst-*, *Glyptosphaer-*, *Protocrin-*, *Mesocystidae*; ZITTEL (339) pp. 176-179.
- Hemicosmites subglobosus*, vide *Coelocystis*.
- Holocystis papulosus*?, discussion of genus; ROWLEY in GREENE (119) p. 166, pl. xlviii.
- Hydrophoridae* ord. nov. pro *Cystidea* s. str. diagnosed (p. 172) comprise sub-ordd. *Rhombifera* and *Diploporita*; ZITTEL (339).
- Jaekelocystis* n. g. of *Apiocystinae* [Jaekel, = *Callocystinae* Bather pars] (p. 230), with genotype *J. hartleyi* n. sp., Upper Silurian, Manlius beds, Keyser, W. Va., holotype in U. S. Nat. Mus.; SCHUCHERT (289) p. 231.
- Macrocystella mariaae*; FEARNSIDES (82).
- Marginata*, subord. of *Carpoidae* Jaekel 1901, nom. preocc. *Reptilia* Schoepf and *Mollusca* Férussac; COSSMANN (38).
- Pseudocrinus clarki* (p. 237), *P. gordonii* (p. 235), *P. perdewi* (p. 238), *P. stellatus* (p. 236): n. spp., Upper Silurian, Manlius beds, Keyser, W. Va., holotypes in U. S. Nat. Mus.; SCHUCHERT (289).
- Rhombifera*, sub-ord. of *Hydrophoridae*, comprise *Echinosphaerit-*, *Caryocrin-*, *Macrocystell-*, *Chirocrin-*, *Scoliocyst-*, *Pleurocyst-*, *Callocyst-*, *Cystoblastidae*; ZITTEL (339) pp. 172-176.
- Sphaerocystis*, rediagnosed (p. 232), *S. dolomiticus* reld. to *Coelocystis* (p. 234), *S. globularis* n. sp., Upper Silurian, Manlius beds, Keyser, W. Va., also near Cumberland, Md., cotypes in U. S. Nat. Mus. (p. 233); SCHUCHERT (289). *S. multifasciatus*, precise horizon; SCHUCHERT (287) pp. 417, 418, 423.
- Thecoidea*, defined as Order [= *Edrioasteroidea*] comprises *Thecocystidae*, *Agelaerinae*; ZITTEL (339) p. 169.

† 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.

†H. BLASTOIDEA.

A classification based on summit openings, development of deltoids, and surface ornament, embracing only American spp., and rejecting names that end in 'crinus': Order A. *Regulares*, Fam. 1. *Pentremidae* [sic], Genn. *Pentremites*, *Crioblastus*, *Saccobl.*, *Clavaeobl.*, *Mesobl.*, *Cidarobl.*, *Globobl.*, *Codonites*; Fam. 2. *Codasteridae*, Gen. *Codaster*; Order B. *Irregulares*, Fam. 1. *Olivanidae*, Gen. *Olivanites*; Fam. 2. *Eleuthero-blastidae*, Gen. *Eleutheroobl.*; HAMBACH (126) pp. 34-63. Classification merely follows Etheridge & Carpenter; ZITTEL (339) pp. 184-186.

Carpenteroblastus veryi n. sp., Keokuk Group, Cumberland Co. Ky.; ROWLEY in GREENE (116) p. 127, pl. xxxvi.

Cidaroblastus n. g., with genotype *Pentatrematites granulatus* Roem., incl. *Granatocr. cidariformis* & *G. globosus* Troost MS. [this is genotype of *Granatocr.*, though not of *Orbitremites*, and if the species is to be separated as a genus, the name must be *Granatocrinus*], diagnosed; HAMBACH (126) p. 45, pl. iii. *C. parvus* n. sp., St Louis group, S.W. Missouri, holotype in Hambach coll.; op. cit. p. 58, pl. v: unrecognisable; ROWLEY in GREENE (119) p. 163.

Clavaeblastus n. g., genotype not mentioned, the genus includes all American spp. hitherto referred to *Pentremitidea* [and so far may be well conceived, but since it also includes the genotype of *Troostocr.*, the name must fall into the synonymy of that genus, and the Devonian *Pentremitidea* may, as the author suggests, "necessitate the creation of a new genus"], diagnosed, *C. americana* (Barris as *Pentremitidea*), *C. filosa* (Whiteaves as *Pentremitidea*?) incl. *Pentremites whitei* Hall [which has priority], *C. milwaukensis* (Weller as *Pentremitidea*), *C. reinwardti* (Troost as *Pentremites*); HAMBACH (126) p. 44.

Codaster, rediagnosed (p. 47), *C. americanus* (p. 48); HAMBACH (126). *C. attenuatus*; l. c.: abnormal; ROWLEY in GREENE (115) p. 128, pl. xxxvi. *C. canadensis*, incl. *C. hindei*, *C. gracilis*, *C. kentuckyensis*, *C. pulchellus*, *C. pyramidalis*, *C. subtruncatus*; HAMBACH (126) p. 48.

Codonites, rediagnosed, name preferred to prior *Orophocr.* because desinence in *crinus* is rejected (p. 46), *C. campanulatus* Hamb., maintained as full sp., *C. conicus* (W. & Spr.), *C. fusiformis* (W. & Spr.), *C. gracilis* (M. & W.), *C. stelliformis* (Ow. & Sh.), *C. whitei* (Hall) (p. 47); HAMBACH (126).

Crioblastus n. g., genotype not mentioned [but, since the genus includes the genotypes of *Schizoblastus* and *Cryptoblastus*, it must, unless further division be possible, fall into synonymy], diagnosed (p. 39), *C. cornutus* (M. & W. as *Pentremites*) (p. 40), *C. curtus* (Shum. as *Pentremites*) (p. 40), *C. granulatus* (M. & W. as *Pentremites*) (p. 40, pl. v); HAMBACH (126). *C. incisus* n. sp., Lower Burlington Limest., Burlington, Ia., holotype in Hambach coll.; op. cit. p. 57, pl. v: syn. of *Granatocr. projectus*; ROWLEY in GREENE (119) p. 163. *C. kirkwoodensis* (Shum. as *Elaeacr.*), *C. lotoblastus* (White, as *Granatocr.*), doubtful, *C. melo* (Ow. & Sh. as *Pentremites*) (p. 40), *C. melonoides* (M. & W. as *Granatocr.*) (p. 41), *C. neglectus* (M. & W. as *Granatocr.*), *C. pisum* (M. & W. as *Granatocr.*), *C. potteri* (Hamb. as *Pentremites*), maintained as distinct from *C. sayi* (p. 41, pl. v), *C. projectus* (M. & W. as var. of *Pentremites melo*) (p. 41), *C. roemeri* (Shum. as *Pentremites*), *C. sampsoni* (Hamb. as *Pentremites*) distinguished fr. *C. roemeri* (p. 41, pl. v), *C. sayi* (Shum. as *Pentremites*), holotype figd. (p. 42, pl. v); HAMBACH (126). *C. schucherti* n. sp., Lower Carbonif., Montana, originally included under *Pentremites bradleyi*, holotype in Smithsonian Inst.; op. cit. p. 59,

† All extinct,

- pl. v: syn. of *Granatocr. spinuliferus*; ROWLEY in GREENE (119) p. 163. *C. shumardi* (M. & W. as *Granatocr.*); HAMBACH (126) p. 42. *C. tenuis* n. sp., Chouteau Limest., Pettis co., Mo., holotype in Hambach coll.; op. cit. p. 63, pl. v: syn. of *Granatocr. roemeri*; ROWLEY in GREENE (119) p. 163. *C. tenuistriatus* n. sp., Burlington Limest., Cooper co., Mo., holotype in Hambach coll.; HAMBACH (126) p. 59, pl. v: syn. of *Lophoblastus inopinatus*; ROWLEY in GREENE (119) p. 163. *C. verrucosus* n. sp., chert of Burlington age, Allenton, St Louis co., Mo., holotype in Hambach coll.; HAMBACH (126) p. 58, pl. v: syn. of *Schizoblastus sayi*; ROWLEY in GREENE (119) p. 163.
- Cryptoblastus*, vide *Cribroblastus*.
- Eleutheroblastus*, nom. nov. pro *Eleutheroocrinus*, desinence in *crinus* being rejected, rediagnosed (pp. 35, 50), *E. canadayi* [sic], *E. whitfieldi* (p. 51); HAMBACH (126).
- Eleutheroocrinus* (v. et. sub *Eleutheroblastus*):—*E. casedayi*; ROWLEY in GREENE (119) p. 161, pl. xlvii.
- Globoblastus* n. g., with genotype *Pentremites norwoodi* Ow. & Sh., and admittedly syn. of *Orbitremites*, which name is rejected because originally unaccompanied by a diagnosis, rediagnosed; HAMBACH (126) p. 46. *G. magnificus* n. sp., chert of Burlington age, S.W. Missouri, holotype in Hambach coll.; op. cit. p. 61, pl. iii: syn. of *Orbitremites norwoodi*; ROWLEY in GREENE (119) p. 163. *G. ornatus* n. sp., Burlington Limest., "various places in Missouri," holotype in Hambach coll.; HAMBACH (126) p. 62, pl. v: probably syn. of *Lophoblastus aplatus*; ROWLEY in GREENE (119) p. 163. *G. spathatus* n. sp., Burlington Limest., Allenton, St Louis co., Mo., holotype in Hambach coll.; HAMBACH (126) p. 62, pl. v: probably syn. of *Lophoblastus aplatus*; ROWLEY in GREENE (119) p. 163.
- Granatocrinites*, first publication of Troost's description from MS. at Smithsonian Inst., with list of Troost's specimens (p. 29) also Troost's MS. descriptions of his *G. cidariformis* (p. 29), which is believed identical with his *G. granularis*, and of his *G. globosus* (p. 30), all original specimens being figd. (pl. iii); HAMBACH (126).
- Granatocrinus* [i.e. *Orbitremites*], vide *Cidaroblastus*, *Globoblastus*, its history reviewed, and unphilosophical nature of the classification maintained (pp. 21–33), *G. granularis* Troost MS., holotype now first descr., = *Pentremites granulatus* Roem., and *G. cidariformis* Troost MS. (p. 28, pl. iii); HAMBACH (126).
- Lophoblastus*, v. sub *Globoblastus*.
- Mesoblastus*, rediagnosed, *M. glaber*; HAMBACH (126) p. 45.
- Metablastus*, vide *Saccoblastus*. *M. bipyramidalis*, descr. (p. 161, pl. xlvii), *M. lineatus*, stem descr. (p. 162); ROWLEY in GREENE (119). *M. nitidulus*; ROWLEY in GREENE (115) p. 128, pl. xxxvi.
- Nucleocrinus* (v. et. *Olivanites*):—*N. greeni*; op. cit. p. 129, pl. xxxvi. *N. verneuili*; op. cit. p. 128, pl. xxxvi: FOERSTE (84) p. 687.
- Olivanites*, rediagnosed, the names *Nucleocr.* and *Elaeocr.* rejected because of desinence in *crinus*, the former also having been insufficiently diagnosed (p. 48), *O. angularis*, *O. conradi* (p. 49), *O. elegans*, incl. *Nucleocr. canadensis*, *N. halli*, and *N. venustus* (p. 50), *O. globosus*, maintained as sp., *O. green[e]*, *O. meloniformis*, *O. obovatus*, *O. verneuili* (p. 50); HAMBACH (126).
- Orbitremites*, vide *Cidaroblastus*, *Globoblastus*, *Granatocrinites*, and *Granatocrinus*.
- Orophocrinus*, vide *Codonites*.
- Pentremites*, diagnosed; HAMBACH (126) p. 35: the spp. arranged in groups of which representative forms are *P. godoni*, *P. piriformis*, *P. sulcatus*, *P. conoideus*, *P. cervinus*; ROWLEY in GREENE (116) p. 118. *P. abbreviatus*, maintained; HAMBACH (126) p. 36 & fig.:

syn. of *P. godoni*; ROWLEY in GREENE (119) p. 163. *P. angustus* n. sp., Chester Limest., Washington Co., Arkansas, holotype in Hambach coll.; HAMBACH (126) p. 52, fig. 14 & pl. iv: only a var. of *P. conoideus*; ROWLEY in GREENE (119) p. 163. *P. basilaris* Hamb. 1880, syn. of *P. sulcatus*; l. c. *P. bradleyi* Meek, rediagnosed from cotypes in Smithsonian Inst. (see also *Cribrabl. schucherti*); HAMBACH (128) p. 56, pl. v: syn. of *P. godoni*, ROWLEY in GREENE (119) p. 163. *P. broadheadi*, syn. of *P. sulcatus*; l. c. *P. calycinus* (p. 125, pl. xxxvi). *P. cherokeus*?, descr., and validity of sp. discussed (p. 116, pl. xxxvi). *P. chesterensis*, variation fr. type (p. 117, pl. xxxvi); ROWLEY in GREENE (115). *P. conoideus*, abnormalities; op. cit. p. 126, pl. xxxvi: contrasted with *P. angustus*; HAMBACH (126) p. 53, fig. 14. *P. elegans*, incl. *P. tennesseae* Troost, nom. nud.; *P. florealis*, distinct fr. *P. godoni*, but incl. *P. symmetricus* Hall and *P. altus* Rowley; HAMBACH (126) p. 37. *P. gemmiformis*, syn. of *P. calycinus*; ROWLEY in GREENE (119) p. 163. *P. godoni*; ROWLEY in GREENE (115) pp. 121-125, pl. xxxvi: incl. *P. globosus* Troost; HAMBACH (126) p. 38, pl. iii. *P. kirki* n. sp., Lower Burlington Limest. [? Burlington, Ia.], holotype in E. Kirk coll.; op. cit. p. 55, pl. v. *P. koninckanus*, compared with *P. conoideus*, anchylosed columnals; ROWLEY in GREENE (115) p. 126, pl. xxxvi. *P. nodosus*, syn. of *P. sulcatus*; ROWLEY in GREENE (119) p. 163. *P. obesus*, descr.; ROWLEY in GREENE (115) p. 115, pl. xxxvi. *P. obtusus* n. sp., Warsaw Limest., Boonville, Mo., holotype in Hambach coll.; HAMBACH (126) p. 53, fig. 13 & pl. iv: only a var. of *P. conoideus*; ROWLEY in GREENE (119) p. 163. *P. potteri*, syn. of *Schizoblastus sayi*; l. c. *P. pyriformis*, large specimen, elongate young, and specimen with "6th R.;" ROWLEY in GREENE (115) p. 120, pl. xxxvi: distinguished fr. *P. florealis*, incl. *P. subconoideus*; HAMBACH (126) p. 38, pl. iii. *P. robustus*; ROWLEY in GREENE (115) p. 118, pl. xxxvi. *P. rusticus* n. sp., Chester Limest., Washington co., Arkansas, holotype in Hambach coll.; HAMBACH (126) p. 54, fig. 15. *P. sampsoni*, syn. of *P. sulcatus*; ROWLEY in GREENE (119) p. 163. *P. serratus* n. sp., Chester Limest., Ste. Genevieve, Mo., holotype in Hambach coll., also found at Baldwin, Ill.; HAMBACH (126) p. 56, pl. iv: a marked form of *P. sulcatus*; ROWLEY in GREENE (119) p. 163. *P. speciosus* n. sp., Kaskaskia group, Chittenden co., Ky.; ROWLEY in GREENE (115) p. 119, pl. xxxvi. *P. spinosus*, syn. of *P. sulcatus*; ROWLEY in GREENE (119) p. 163. *P. sulcatus* (?); ROWLEY in GREENE (115) p. 116, pl. xxxvi: incl. *P. robustus* and *P. laterniformis*; HAMBACH (126) p. 39, pls. i, iii, vi. *P. tulipaformis* n. sp., Chester group, Kaskaskia, Ill., holotype in Hambach coll.; op. cit. p. 52, pl. iv: syn. of *P. cervinus*; ROWLEY in GREENE (119) p. 163. *P. turbinatus* n. sp., Chester Limest., Evansville, Ill., holotype in Hambach coll.; HAMBACH (126) p. 54, pl. v: is a young form; ROWLEY in GREENE (119) p. 163.

Pentremitidea rejected on anatomical grounds; HAMBACH (126) p. 8. Vide etiam sub *Clavaeblastus*.

Saccoblastus n. g., genotype not mentioned, but genus said to comprise *Troostocr.*, *Tricoelocr.*, and *Metablastus* (qq.v.) [and since it does in fact include the genotypes of the last two, it must fall into synonymy], diagnosed; HAMBACH (126) p. 42, pls. ii, iii: rejected; ROWLEY in GREENE (119) p. 162. *S. bipyramidalis* (Hall as *Pentremites*) (p. 43), *S. lineatus* (Shum. as *Pentremites*) (p. 43, pl. iv), *S. meekianus* (Eth. & Carp. as *Tricoelocr.*) (p. 44), *S. obliquatus* (Roem. as *Pentatrematites*) (p. 43, pl. iv), *S. pyramidalis* [?err. pro *bipyramidalis*] (pl. iv); HAMBACH (126). *S. ventricosus* n. sp., Warsaw Limest., Booneville, Mo., holotype in Hambach coll.; op. cit. p. 60, pl. iv: syn. of *Metablastus bipyramidalis*; ROWLEY in GREENE (119) p. 163. *S. woodmani*

- (M. & W. as *Tricoelocr.*), *S. wortheni* (Hall as *Pentremites*), incl. *Pentremites grosvenori* Shum., *Troostocr. nitidulus* Mill. & Gurl., *Pentremites varsouviensis* M. & W., *Troostocr. wachsmuthi* Gurl.; HAMBACH (126) p. 43, pl. iv.
- Schizoblastus*, vide *Crioblastus*. *S. sayi*, anal tube; ROWLEY in GREENE (119) p. 163.
- Tricoelocrinus*, vide *Saccoblastus*. *T. laterniformis* is an internal cast of *P. sulcatus*; HAMBACH (126) p. 39.
- Troostocrinus*, vide *Clavaeblastus* et *Saccoblastus*. *T. (Pentatrematites) reinwardti*; FOERSTE (84) p. 712.

K. INCERTAE SEDIS.

†“Ferrocrinoids”; WALFORD (317).

XV. VERMES.

BY

ALICE L. EMBLETON, B.Sc.

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INTRODUCTION.

VOIGT (437) has monographed the *Rotifera* and *Gastrotricha* of the neighbourhood of Plön, describing many new species and genera, with systematic and biological considerations. CLERC (82) gives studies of the helminthological fauna of the Urals (mostly avian parasites).

A monograph by MÜLLER (301) deals with the development of *Ascaris megalocephala*.

There has also appeared a monographic study by DIXON-NUTTALL & FREEMAN (119) on the Rotatorian genus *Diaschiza*, including a new species.

A valuable contribution to the knowledge of Sipunculids and Echiurids has this year been given by AUGENER (13), who has described the Göttinger Museum Collection, many of which are new to science. CUÉNOT (102) has devoted a paper to the Sipunculids and Echiurids of Arcachon.

The morphology, histology and physiology of *Hirudo medicinalis* has been monographed by SPIESS (404).

STUMMER-TRAUNFELS (419) contributes a memoir on the anatomy and histology of *Myzostoma asteria*.

The morphology of *Hirudinea* is dealt with by LIVANOW (246), and the excretory organs and their functions form the subject of a monograph by GRAF (167).

The anatomy of *Michaelsena macrochaeta* is described by PIERANTONI (333).

MICHAELSEN (286) gives a full description of the numerous n. spp. of *Oligochaeta* found in N.E. Africa; they belong to the families *Megascolecidae* and *Glossoscolecidae*.

SCHMIDT'S (384) work on the musculature of *Branchiobdella* is very exhaustive, and WACKE (442) gives a detailed account of the *Temnocephala*.

Histology is represented by a paper on *Ctenodrilus* by GALVAGNI (149) and by GOLDSCHMIDT (162) on the sense-organs of *Ascaris lumbricoides* and *A. megalocephala*, while MAZIARSKI (273) has published his researches on the cytology of the segmental organs of earthworms and there is a paper containing much new material on the finer structure of the setæ of Oligochaeta and Polychaeta, by SCHEPOTIEFF (382).

The northern *Nemertina* are monographed by BERGENDAL (28), and the Arctic forms by BÜRGER (64). COE (83) describes those from Porto Rico, while TREADWELL (428) gives an account of the *Polychaeta* from the same district. The free-living *Nematoda* of the Bay of Naples are described by TÜRK (432). The *Polychaeta* of Zanzibar and British East Africa are described by CROSSLAND (100 & 101). The *Turbellaria* of East Prussia are considered by DORNER (121).

GRAFF'S (168) work on *Turbellaria* as hosts and parasites includes an account of a new family *Genostomatidae*.

HÉRUBEL (183 & 185) has contributed new matter on the distribution and affinities of Sipunculids, and also a paper on their comparative morphology and physiology.

Much information has been added to our knowledge of *Oligochaeta* from various parts of the world by MICHAELSEN (279-286).

The *Enteropneusta* of the Maldives and Laccadives are monographed by PUNNETT (349), who also describes the *Nemertean*s of Norway (350).

LAIDLAW (223-227) treats with matters relating to *Turbellaria*, and gives many new species; he also makes suggestions for a revision of the classification of Polyclad forms (225).

The trophocœle theory is discussed by LANG (231).

The periodic variation of *Anuræa cochlearis* is studied by LAUTERBORN (234).

SOULIER (401) has revised the Annelids of the region of Cette, and SPENGLER (403) treats of *Ptychodera flava* of Laysan, while ZSCHOKKE (473) gives an account of the Arctic *Cestoda*.

A new genus and two new species of *Eudrilidae* from Africa are described by BEDDARD (21), who also gives an account of the earthworms of the Maldives and Laccadives. BENHAM (24-26) also writes on earthworms, contributing a new aquatic species from New Zealand; he also discusses their geographical distribution. Swiss *Oligochæta* are the subject of several papers by BRETSCHER (54-57). Italian *Oligochæta* are dealt with by COGNETTI (85-90). South Japanese Annelids are treated by MARENZELLER (260).

BARDEEN (17) writes on the factors in heteromorphosis in Planarians, and BARFURTH (18) reviews the work done on regeneration. CHILD (76-78) continues his work on regulation in *Stenostoma*. IWANOW (196) has experimented in the regeneration of the head segments in *Lumbriculus variegatus*, and NUSBAUM (310) in the *Enchytraeidae*, while SCHULTZ (388) has done similar work on *Phoronis mülleri* and *Actinotrocha branchiata*. Experiments on cleavage and localization in the nemertine egg have been carried on by WILSON (450-452) with good results. CHILD (78) has obtained many interesting results on regulative destruction of zooids and parts of zooids in *Stenostoma*; this treatise is the continuation of work on the same subject which he published last year [vide Zool. Rec. XXXIX (72)]. SEKERA (391) writes on reproduction in *Stenostomidae*, and STEVENS (408) describes the oogenesis and spermatogenesis of *Sagitta bipunctata*. IKEDA (195) has added considerably to our knowledge of the development of the sexual organs and of their products in *Phoronis*.

Phoronis and *Actinotrocha* are dealt with by LONGCHAMPS (251).

NEUHAUS (306) has worked out the post-embryonic development of *Rhabditis nigrovenosa*, and SUKATSCHOFF (420) that of *Nephele vulgaris*. The development of *Rhychemis* eggs is studied by VEJDOVSKÝ & MRÁZEK (434).

I. TITLES.*

1. ADAMS, G. P. On the negative and positive phototropism of the earthworm *Allolobophora fetida* (Sav.) as determined by light of different intensities. Amer. J. Physiol. ix, pp. 26-34.
2. ——. On the negative and positive phototropism of the earthworm *Allolobophora fetida* (Sav.) as determined by light of different intensities. Science xvii, pp. 530 & 531. [Review of (1).]
3. ADAMS, G. I., GIRTY, G. H. & WHITE, D. Stratigraphy and palaeontology of the Upper Carboniferous rocks of the Kansas Section. Bull. U. S. Geol. Surv. No. 211, 123 pp.
4. ALTMANN, C. A. Hydatid cyst of the heart: rupture into the left auricle. Lancet 1903, clxiv, p. 677.
5. AMBERG, O. Biologische Notiz über den Lago di Muzzano. Forschber. Plon x, pp. 74-85.
6. ——. Untersuchung einiger Planktonproben vom Sommer 1902. T. c. pp. 86-89.

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

7. ANDERSSON, K. A. Eine Wiederentdeckung von *Cephalodiscus* (M'Intosh). Zool. Anz. xxvi, pp. 368 & 369.
- 7A. [ANON. Editor.] The rôle of antiferments in the protection of intestinal parasitic worms. Brit. Med. J. 1903, ii, p. 36.
8. ARIOLA, V. Le ipotesi nella partenogenesi sperimentale e la fecondazione normale. Bull. Mus. Genova 1903, No. 123, 11 pp.
9. ——. Ricerche anatomo-zoologiche sui Cestodi parassiti del *Centralophus pompilus*. Atti Univ. Genova xvii, 44 pp., 5 pls.
Title in Zool. Jahresber. 1902, Vermes, p. 1. Volume not yet received.
10. ——. Sono i Cestodi polizoici? Atti Soc. Ligustica xiii, No. 4, pp. 236-244, also in Boll. Mus. Genova 1902, No. 120, and in Monit. Zool. ital. xiii, p. 15 (suppl.).
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12. *ASAM, W. *Tenia cucumerina* bei einem Kinde. München. med. Wochenschr. I, pp. 334 & 335 [from Zool. Anz. xxvi, Liter. p. 435].
13. AUGENER, H. Beiträge zur Kenntnis der Gephyreen nach Untersuchung der im Göttinger zoologischen Museum befindlichen Sipunculiden und Echiuriden. Arch. Naturg. lxi, pp. 297-371, pls. xvi-xx.
14. BALL & MAROTEL. Cysticerose cérébrale chez le chien. Ann. Soc. Linn. Lyon xlix, pp. 55 & 56.
15. *BARBAGALLO, P. Nuova contributo alla casuistica dell' ossiurasi cutanea. Gazzetta degli ospedali e delle cliniche, No. 5, 7 pp. [*Nematoda*.]
Title from Arch. parasit. vii, p. 175.
16. —— & DRAGO, U. Primo contributo allo studio della fauna elmintologica dei pesci della Sicilia Orientale. Arch. parasit. vii, pp. 408-427.
17. BARDEEN, C. R. Factors in Heteromorphosis in Planarians. Arch. Entwicklmech. xvi, pp. 1-20, 18 figg.
Review by BERGH, Zool. Zentrbl. x, p. 892.
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19. BATAILLON, E. [Review of Löeb's paper "Ueber Methoden und Fehlerquellen der Versuche über künstliche Partenogenese." Arch. Entwicklmech. pp. 481-486, 1 pl.] Annee biol. vii, pp. 91 & 92.
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28. —. Till kändedom om de nordiska Nemertinerna. 4. Förteckning öfver vid Sveriges västkust iakttagna Nemertiner. Arkiv. Zool. i, pp. 85-156, 4 text-figg.
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ACANTHOCEPHALA.

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GENERAL BIOLOGY.

(Vacant.)

DISTRIBUTION.

List of human parasites, with parts affected, and geographical distribution, WARD (443).

White Sea, Behring Island, Black Sea, and Russia, n. spp., LINSTOW (242).

Lake of Plön, hosts of *Echinorhynchus polymorphus*, ZACHARIAS (461).—Fish parasites, VOIGT (439).

Sicily, fish parasites, BARBAGALLO & DRAGO (16).

Lower Siam and Malay, 4 n. spp., SHIPLEY (395).

New York, n. sp., LINSTOW (242).

SYSTEMATIC.

Echinorhynchus spp. in fish, Sicily, BARBAGALLO & DRAGO, Arch. parasit. vii, pp. 417 & 418; *E. polymorphus*, Plön, host and intermediate host, ZACHARIAS, Forschber. Plön x, p. 104; *E. proteus* in *Lota vulgaris*, Plöner See, VOIGT, Forschber. Plön x, p. 97.

E. hepaticola, White Sea, from *Gadus callarias*, p. 278, figg. 3 & 4, *E. alpinus*, Central Asiatic Alps, from *Schizopygopsis*, p. 278, figg. 5-7, *E. exiguus*, Black Sea, from *Engraulis encrasicolus*, p. 279, figg. 8-11, *E. oricola*, New York, from *Grystes salmonoides*, p. 279, figg. 12-14, *E. borealis*, Russia, from *Lota lota*, p. 279, figg. 15-17, *E. arcticus*, Behring Island, from *Gadus callarias*, p. 280, figg. 18-20, LINSTOW, Bull. Ac. St. Petersb. xv; *E. patani*, from a snake, p. 149, pl. xvi, figg. 9 & 10, *E. bufonis*, from *Bufo*, p. 150, pl. xvi, figg. 1, 2, & 4, *E. xenopeltidis*, from *Xenopeltis unicolor*, p. 151, fig. 3, *E. tigrinae*, from *Rana tigrina*, p. 151, Malay and Lower Siam, SHIPLEY, P. Zool. Soc. London 1903, ii: n. spp.

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CHÆTOGNATHA.

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Organs of light-perception in *Spadella* and *Sagitta*, HESSE (186).

Ovogenesis and spermatogenesis of *Sagitta bipunctata*, STEVENS (408).

Occurrence of *Sagitta* etc., LOHMANN (249).

North Sea, plankton, REDEKE & BREEMEN (358).

North Atlantic, distribution of species in November, GÜNTHER (170).

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SYSTEMATIC.

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GENERAL BIOLOGY.

Occurrence of male forms, MARKS & WESCHÉ (263); list, male forms found, ROUSSELET (369).

Deposits of the sea-bottom, BOEGGILD (36).

Variation of *Anuræa cochlearis*, LAUTERBORN (234).

Commensalism between the *Philodinidae* and *Telphusa fluviatilis*, PIOVANELLI (337).

Hereditry of sex, CASTLE (74).

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DISTRIBUTION.

Russia, winter plankton of the Volga at Saratow, ZYKOFF (477); fauna, ZYKOFF (474), pp. 76-80.

England and Scotland, 2 n. spp., BRYCE (62).—Lancashire, n. sp., DIXON-NUTTALL & FREEMAN (119).

Lake of Plön; collections, AMBERG (6), collections, ZACHARIAS (463), collections in moor ponds, ZACHARIAS (464), collections, VOIGT (437), collection, MARSSON (264), Lake of Plön and district, n. gen. and spp., systematic and biological considerations, VOIGT (437).

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Alpine lakes, collections, BUFFA (63).

Tyrol, Achensee, plankton, periodicity, BREHM (50).

Hungary, Lake Balaton, spp. collected, DADAY (107).

Upper Austria, fauna of a lake, KEISSLER (207).

Gulf of Triest, plankton, STEURER (407).

Italy, 2 n. spp., commensal in *Telphusa fluviatilis*, PIOVANELLI (337); Lugano (Lago di Muzzano), collection, AMBERG (5).

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Pennsylvania, n. sp., on *Myriophyllum*, MONTGOMERY (292).

SYSTEMATIC.

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- Cathypna ligona*, VOIGT, Forschber. Plön xi, p. 70, pl. iv, fig. 38.
- Cochleare turbo*, VOIGT, t. c. pl. ii, fig. 16.
- Cælopus rousseleti*, p. 57, pl. iv, figg. 35a-c, *C. uncinatus*, p. 58, pl. iv, figg. 36a & b, Plöner See, VOIGT, t. c., n. spp.
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- Dasydytes stylifer*, Plön, Voigt, t. c. p. 151, pl. vii, fig. 55, n. sp.
- Diaschiza gibba*, p. 6, pl. i, fig. 1, *D. globata*, p. 7, pl. iii, fig. 9, *D. stercæ*, p. 8, pl. i, fig. 3, *D. gracilis*, p. 10, pl. i, fig. 4, *D. lacunculata*, p. 11, pl. ii, fig. 6, *D. ventripes*, p. 14, pl. ii, fig. 7, *D. hoodii*, p. 129, pl. ii, fig. 5, *D. exigua*, p. 133, pl. iii, fig. 10, *D. cæca*, p. 134, pl. iv, fig. 11, *D. tenuior*, p. 135, pl. iv, fig. 12, *D. tenuiseta*, p. 138, pl. i, fig. 2, *D. megalcephala*, p. 139, pl. iv, fig. 14, synonymy, anatomy, DIXON-NUTTALL & FREEMAN, J. R. Micr. Soc. 1903.
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- Distyla plænenzis*, Plön, VOIGT, t. c. p. 71, pl. iv, figg. 39a & b, n. sp.

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F. conklini, Pennsylvania, MONTGOMERY, Biol. Bull. v, p. 233; *F. discophora*, Central Asia, SKORIKOV, Annuaire Mus. St. Petersb. viii, 2, p. xix : n. spp.
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P. nemoralis, S. England, Stuttgart and Scotland, p. 526, pl. xxvii, *P. rugosa*, England and Spitsbergen, p. 528, pl. xxvii, BRYCE, J. Quekett Club viii, n. spp.
Polyarthra platyptera, pp. 32 & 112, *P. aptera*, pp. 34 & 113, Plön, distribution, characters, VOIGT, Forschber. Plön xi.
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Pterodina patina, male, MARKS & WESCHÉ, J. Quekett Club viii, p. 509, pl. xxvi, fig. 3.
Rattulus collaris, Plön, pp. 59 & 115, pl. iii, fig. 28, VOIGT, Forschber. Plön xi.
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GASTROTRICHA.

[The following memoirs relate to *Gastrotricha* :—VOIGT (437 & 438), ZACHARIAS (464).]

DISTRIBUTION.

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SYSTEMATIC.

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- Chætonotus arquatus*, Plön, anatomy and affinities, VOIGT, op. cit. x, pp. 90-93, 3 figg.; *C. acanthodes*, VOIGT, op. cit. xi, p. 140, pl. v, fig. 44; *C. larus*, *C. succinctus*, *C. chuni*, Plön, in ponds, ZACHARIAS, Forschber. Plon x, pp. 238 & 245.
- C. lingueformis*, p. 133, pl. v, fig. 41, *C. nodicaudus*, p. 134, pl. v, fig. 42, *C. serraticaudus*, p. 137, pl. v, fig. 43, *C. uncinus*, p. 139, pls. vi & vii, figg. 47 & 51, *C. succinctus*, p. 141, pls. vi & vii, figg. 46 & 50, *C. chuni*, p. 143, pls. vi & vii, figg. 48 & 52, Plön, VOIGT, Forschber. Plon xi, n. spp.
- Dasydytes goniathrix*, VOIGT, t. c. p. 147, pl. vii, fig. 54.
- Gossea antennigera*, VOIGT, t. c. p. 152, pl. vii, fig. 56.
- Ichthyidium forcipatum*, Plön, VOIGT, t. c. p. 126, pl. v, figg. 40 a-e, n. sp.

MESOZOA.

- Lohmannia* n.g. *catenata* n.sp., parasite of *Fritillaria* at Villafranca, NERESHEIMER, Biol. Centrbl. xxiii, pp. 757-760, cuts.
- Trichoplax*, anatomy, development and affinities, GABROWSKI (145) [Review, Science xvii, pp. 466 & 467]; *T. adharens*, histology, STRASNY, Zeitschr. wiss. Zool. lxxv, pp. 430-436, 2 figg.

HEMICHORDA.

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GENERAL BIOLOGY.

- Classification and anatomy of the *Enteropneusta* n. spp., PUNNETT (349).
- Body-cavities and nephridia of the *Actinotrocha* larva, GOODRICH (166).
- Development of sexual organs and their products in *Phoronis*, IKEDA (195).
- Regeneration in *Phoronis mülleri*, SCHULTZ (388).
- Regeneration of *Actinotrocha branchiata*, SCHULTZ (388).

DISTRIBUTION.

- Geographical distribution of *Cephalodiscus*, HARMER (174).
- Helgoland, n. sp. *Phoronis*, LONGCHAMPS (251).
- Azores, n. sp., JULLIEN & CALVET (205).
- Madras, n. sp. *Dolichoglossus*, MENON (276).
- Maldive and Laccadive Archipelagos, n. spp., PUNNETT (349).
- Falkland Islands and Terra del Fuego, rediscovery of *Cephalodiscus*, ANDERSSON (7).
- Coast of Laysan, collection, *Ptychodera* spp., SPENGLER (403).

SYSTEMATIC.

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- B. parvulus*, Mahlos Atoll, external and internal features, PUNNETT, t. c. p. 640, pl. xxxviii, figg. 15, 18, 22, pl. xxxix, fig. 24, pl. xli, figg. 1-4, n. sp.
- Cephalodiscus dodecalophus*, and other species, geographical distribution, HARMER, Zool. Anz. xxvi, p. 593; *C.*, Terra del Fuego, ANDERSSON, Zool. Anz. xxvi, pp. 368 & 369.
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- P. mülleri*, Helgoland, p. 9, pl. i, figg. 1-12, pl. ii, figg. 16-21, anatomy, histology, mode of life, LONGCHAMPS, Wiss. Meeresuntersuch. vi, 1, art. xiv, n. sp.
- Ptychodera flava*, *P. laysanica*, *P. caledoniensis*, affinities, anatomy, occurrence, SPENGLER, Zool. Jahrb. Anat. xviii, pp. 271-326, pls. xxiv-xxix, 5 text-figg.; *P. flava* var. *parva*, pp. 644, 662, pl. xxxviii, figg. 16, 20, 21, pl. xxxix, fig. 26, pl. xl, figg. 21-28, pl. xli, figg. 30-32, pl. xlii, fig. 48, var. *laccadivensis*, p. 646, pl. xxxix, fig. 25, pl. xl, figg. 36, 38-40, pl. xli, fig. 43, pl. xlii, figg. 49, 51, 57, var. *maldivensis*, p. 648, pl. xxxix, fig. 27, var. *saxicola*, p. 650, pl. xxxviii, fig. 17, pl. xxxiv, figg. 28, 30, 31, pl. xli, figg. 33-41, var. *gracilis*, p. 651, pl. xxxvii, fig. 5, pl. xxxviii, figg. 10, 19, pl. xli, figg. 42, 44, pl. xlii, figg. 50, 53-55, var. *muscula*, p. 653, pl. xlii, fig. 18, var. *cooperi*, p. 655; pl. xxxviii, fig. 12, pl. xli, figg. 45-47, Maldives and Laccadives, external and internal features, PUNNETT, Fauna Maldive ii, 2.
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- Willeyia* n. gen. for *W. bisulcata* n. sp., Zanzibar, external and internal features, PUNNETT, t. c. pp. 637-640, pl. xxxviii, figg. 14, 23, pl. xxxix, fig. 29, pl. xli, figg. 9 & 10, pl. xlii, figg. 12-16.

XVI. CŒLEENTERATA.

By

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INTRODUCTION.

SEVERAL important monographs have been published during the year, including that by MAAS (135) on the *Scyphomedusæ* of the Siboga Expedition. He makes the *Paraphyllinidæ* a new family, for *Paraphyllia* a new genus.

BROWNE (23) reports on the *Medusæ* from Norway and Spitzbergen; the cœlenterate fauna of Porto Rico has been worked out by DUERDEN (56), who deals with the Actinians; HARGITT & ROGERS (103) are responsible for the *Alcyonaria*, and VAUGHAN (218) for the stony corals.

The *Ctenophora* collected by the Siboga Expedition are the subject of a monograph by MOSER (152). RÖMER (186) writes on *Ctenophora* from the Arctic regions. VANHÖFFEN too (214) deals with the same group.

The "Valdivia" Expedition acraspedote and craspedote medusæ have been described by VANHÖFFEN (212 & 213) who gives two new genera and numerous new species.

Further publications by GARDINER (74-77) on the Maldives and Laccadives have been published during the year, mainly concerning the formation of the islands, and on the vexed question of the origin of reefs in general, as shown by the Maldives.

HICKSON (108) and PRATT (172) give an account of the Alcyonarian fauna of the Maldives.

BERNARD (12) has published a monograph on the genus *Goniopora*, in which he includes the genera *Rhodaræa*, *Tichopora* and *Litharæa*. The relations of the genus to *Porites* is dealt with. He has traced the genus to the Cretaceous period, and has followed some of the alterations of its distribution. 150 modifications on the primitive type are described, illustrating the method of growth and the structure of the calicle, and the variations in each of these two chief structural characters; it is shown that there exists some close interdependence between calicle-forms and growth-forms.

A revision of the family *Nephtyidae* (Alcyonarians) has been undertaken by KÜKENTHAL (126) with diagnoses of genera and spp. and descriptions of 15 n. spp.

DENNANT (39) contributes four papers on new species of corals from the Australian Tertiaries, and D'OSSAT (44-46) describes the Miocene *Zoantharia* of Central France, and the Tertiary forms from Patagonia.

A further part has appeared this year from Miss ELLES and Miss WOOD (59) on British Graptolites.

The *Anthozoa* of the Eastern Alps are described by FELIX (69).

The histology of *Hydromedusæ* has been worked out in detail by CHUN & WILL (27).

The question of spermatogenesis in *Hydra viridis* and *Aurelia aurita* has been considered by ADERS (2), and by GÖRICH (88 & 89).

LAMEERE (128) discusses the origin of *Ctenophora*, and LANG (129) has published a monograph on the trophocœle theory.

Many memoirs have appeared this year on the subject of regeneration—these include BARFURTH (7 & 8), CHILD (26), GAST & GODLEWSKI (78), HARGITT (100 & 102), HAZEN (104), KING (118), MORGAN (150), PEEBLES (166).

TITLES.*

1. ADAMS, C. I., GIRTY, C. H. & WHITE, D. Stratigraphy and paleontology of the Upper Carboniferous rocks of the Kansas section. Bull. U. S. Geol. Surv. No. 211, 123 pp.
2. ADERS, W. M. Beiträge zur Kenntnis der Spermatogenese bei den Cöleenteraten. Zeitschr. wiss. Zool. lxxiv, pp. 81-108, 2 pls. i. Über die Entstehung und Ausbildung der Hoden von *Hydra viridis*. ii. Nährzellen in den männlichen Gonaden von *Aurelia aurita*.

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

3. AGASSIZ, A. IV. Coral reefs of the Tropical Pacific. (Reports on the scientific results of the expedition to the Tropical Pacific, in charge of A. Agassiz, by the U. S. Fish Comm. steamer "Albatross" from August 1899, to March 1900.) Mem. Mus. Harvard xxviii, 410 pp., 138 pls. [No zoology.]
4. ——. The coral reefs of the Maldives. Op. cit. xxix, 168 pp., 82 pls. [No zoology.]
5. AMI, H. M. On the Upper Cambrian age of the *Dictyonema* slates of Angus Brook, New Canaan and Kentville, U. S. P. Nova Scotia Inst. x, 4, pp. 447-450.
6. [ANON.] Review. Agassiz, A. On the formation of barrier reefs and of the different types of atolls. Nature lxxvii, i, p. 547.
7. BARFÜRTH, D. Regeneration und Involution, 1901. Anat. Hefte. Ergebn. xi.
8. ——.1902. Op. cit. xii, pp. 444-544.
9. BEECHER, C. E. Observations on the genus *Romingeria*. Amer. J. Sci. (4) xvi, pp. 1-10, pls. i-v [3 n. spp.].
10. BEEDE, J. W. Fauna of the Shawnee Formation (Haworth), the Wabaunsee Formation (Prosser), the Cottonwood Limestone. Coal Measures Faunal Studies, II. J. W. Beede and Austin F. Rogers. Kansas quart. i, pp. 163-181.
11. [BELL, J. & KIRKPATRICK, —. Guide to the Coral gallery. British Museum of Natural History. Review, Ann. Nat. Hist. (7) xi, p. 132.]
12. BERNARD, H. M. Catalogue of the Madreporarian Corals in the British Museum (Natural History). IV. The family *Poritidae*. I. The genus *Goniopora*. London, 1903, viii+206 pp., 14 pls.
13. BILLARD, A. Les hydroïdes de la baie de la Hougue. Bull. Mus. Paris 1902, pp. 531-536.
14. ——. Note sur les variations du *Plumularia halecioides* Alder. Op. cit. 1903, pp. 57-62, 1 fig.
15. ——. De l'excrétion chez les hydroïdes. C.R. Ac. Sci. cxxxvii, pp. 340-342.
16. BLÄNCKENHORN, M. Neue geologisch-stratigraphische Beobachtungen in Ägypten. SB. Ak. München 1902, pp. 353-433, 21 figg.
17. *BOULART, R. L'aquarium d'eau douce. Naturaliste xxiv, pp. 12 & 13, 59-61. [Title from Zool. Anz. xxvi, p. 477.]
18. BOURNE, G. C. Some new and rare corals from Funafuti. J. Linn. Soc. xxix, No. 187, pp. 26-37, pls. v & vi.
- BREEMEN, P. J. VAN. [See REDEKE & BREEMEN (176).]
19. BRESSON, A. Études sur les formations anciennes des Hautes et Basses-Pyrénées (Haute Chaîne). Bull. Carte geol. France xiv, No. 93, pp. 1-273.
20. BROGH, H. Die von dem norwegischen Fischereidampfer "Michael Sars" in den Jahren 1900-1902 in dem Nordmeer gesammelten Hydroïden [5 n. sp.]. Bergens Mus. Aarbog 1903, part ii, 14 pp., 1 map, 4 pls.
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22. BROWNE, A. J. J. On the zones of the Upper Chalk in Suffolk. P. Geol. Ass. xviii, pp. 85-94, 1 map. [Unimportant.]
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27. CHUN, C. & WILL, L. Cœlenterata. (Hohlthiere). Bronn, Class. Ordn. ii, 2, 18-21 Liefg., pp. 327-370. [*Hydromedusæ*.]
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58. ——. On the Actinian *Bunodeopsis globulifera* Verrill. Tr. Linn. Soc. London (2) viii, pp. 297-317, 2 pls.
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63. —. *Fossopora* a new genus of palæozoic perforate Corals. Rec. Austral. Mus. v, pp. 16-19, 2 pls.
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68. FELIX, J. Die Fossile Fauna des Libanesischen Jurakalkes. Beitr. Pal. Oesterr.-Ung. xv, pp. 165-183, pls. xvi & xvii.
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I. GENERAL

(i.e. works relating to *Cœlenterata* generally).

[The following memoirs refer to *Cœlenterata* generally:—ADAMS, GIRTY & WHITE (1), BARFURTH (7 & 8), BEEDE (10), BLANCKENHORN (16), BROWNE (22), CALVIN (24), CLELAND (28), DAVENPORT (37), GOETTE (83), GÖRICH (88 & 89), HERTWIG (106), KNUDSEN (122), KORSCHULT & HEIDER (123), KULCZYCKI (127), LANG (129), LEON (131), LO BIANCO (132), MUDGE (155), OSTWALD (164), PEARCEY (165A), PERRIER (169), PRATT (174), RIGGENBACH (183), RÖMER (185), ROWE (188), SCHARDT & DUBOIS (191), TODD (205), UDDEN (210 & 211), VOLK (220), WILLIAMS (225), ZACHARIAS (230).]

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- †*Placosmilæa europhila*, Alps, FELIX, t. c. p. 339, pl. xxiv, fig. 5, **n. sp.**
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- †*Striatopora vermicularis*, characters, PENECKE, Jahrb. geol. Reichsanst. liii, p. 150, pl. vii, fig. 4.
- †*Stylina parvistella*, Bukovina, VOLZ, Beitr. Pal. Oesterr.-Ung. xv, p. 19, pl. iii, figg. 13-20, n. sp.
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- Cestus veneris*, VANHÖFFEN, Nordisches Plankton ii, p. 6, figg. 14 & 15.
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XVII. SPONGIÆ.

BY

PROFESSOR E. A. MINCHIN.

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INTRODUCTION.

I. THE Zoological Record of Sponges for 1903 includes 60 publications, exclusive of abstracts or reviews. This number is a good deal below the average of the three previous years, but the fact that every one of these publications belongs to the year 1903, takes off considerably from the apparent poverty of the present Record. It is nevertheless a fact, sufficiently obvious from the subject index, that the year 1903 has been comparatively unproductive as regards additions to our knowledge of Sponges.

II. In Biology, except for the important contributions of COTTE (9-14), upon sponge-physiology, there is but little to mention. GÖRICH (19) studies spermatogenesis, URBAN (53) has a note upon the dermal epithelium of a calcareous sponge, and SOLLAS (49) has interesting observations upon the structure of the horny fibres in a new genus of Keratosa. Under the heading of Bionomics there is nothing to record. TOPSENT (52) describes a remarkable type of armoured sponge-larva from one of the boring sponges.

III. Under the heading of Geographical Distribution the most important memoirs are those of ARNESEN (3) upon the Halichondrina of Norway, of KIRKPATRICK (25 & 26) upon South African Sponges, and of BAAR (4), PREIWISCH (39), and THIELE (50) upon Sponges from the Pacific. There are no extensive palæontological monographs to record, but POČTA (35-38), NELLI (34), and BISTRAM (5), describe some new fossil sponges.

IV. The contributions to the systematic study of sponges are more important than those under other sections of the Record, and scarcely fall below the standard of the previous year. IJIMA (22) continues his important studies on Japanese Hexactinellids; KIRKPATRICK (25 & 26) describes new Lithistida and Monaxonida from South Africa; THIELE (51) revises the nomenclature of some of the Monaxonida; and LENDENFELD (27) is the author of the first number of *Das Tierreich* which deals with a group of sponges, the Tetraxonida. The last-named work revises the nomenclature of the genera and species in the most approved modern fashion, with the usual result of introducing numerous changes likely to lead to great confusion. Thus the well-known generic name *Tethya* is applied to the genus of Tetractinellid sponges hitherto known as *Craniella* (type *C. cranium*). It is not apparent what the familiar Monaxonid genus, universally referred to as *Tethya*, is now to be called. Professor Lendenfeld is evidently no longer in the frame of mind which led him formerly to characterize such changes of nomenclature as "eine lächerliche Namen-prioritäts-Reiterei."

The existence of the problematic Gastreadæ of Haeckel is denied by CARAZZI (6), but affirmed by LEON (29), who professes to have found a specimen of *Prophysema* on the Norwegian Coast.

The following table is a summary of the new genera, etc., recorded below.

	New genera	New species	New varieties
Calcarea	2	8	
Hexactinellida	2	7	1
Demospongiæ			
(1) Tetraxonida ...	6	18	
(2) Monaxonida ...	2	52	3
(3) Keratosa ...	1	4	
Incertæ Sedis		1	
Total	13	90	4

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3. ARNESEN, EMILY. Spongien von der norwegischen Küste II. Monaxonida: Halichondrina. Bergens Mus. Aarbog, Afh. i, 30 pp., 7 pls. [III, A, a, ii. IV, D, ii, b.]
4. BAAR, R. Hornschwämme aus dem Pacific. Ergebnisse einer Reise nach dem Pacific, Schauinsland, 1896-97. Zool. Jahrb. Syst. xix, pp. 27-36, 3 text-figg. [III, A, a, iv. IV, D, iii, a.]
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10. —. Sur quelques phénomènes dégénératifs observés chez *Sycandra raphanus*. C.R. Ass. Franc. xxxi, ii, pp. 733-739, 3 text-figg. Abstract, l. c. i, p. 237. [II, B, v, b: c, iii: e, ii, b.]
11. —. Sur la présence de la tyrosinase chez *Suberites domuncula*. C.R. Soc. Biol. Iv, pp. 137-139. Abstract by LENDENFELD, Zool. Zentrbl. x, p. 178. [II, c, iv.]
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The Symbols in [] refer to the divisions of the Subject-Index II, III, IV. Those referring to the Systematic portion, IV, A-G, are inserted only when some question of definite importance to the systematist is dealt with in the work.

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II. BIOLOGY.

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Phylogeny of Hexactinellida; IJIMA (22), pp. 23-25 (footnote.)—Phylogeny of the Lithistina; SCHRAMMEN (46), pp. 10-15.

B. MORPHOLOGY.

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(iii) *Anatomy of the Soft Tissues. Canal-System.*

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(b) **Material of the Skeleton.**—Vacant.

(c) **Morphology, Development and Nomenclature of Skeletal Elements.**—"Tylfloricome" for a floricome in which the terminals end in pin-head knobs ; IJIMA (22) p. 52.—Application of the names Discohexactin and Discohexaster discussed ; SCHULZE (48) p. 9.—Spicule-forms of Tetraxonia ; LENDENFELD (27) pp. 4-13, figg. 6-44.—Structure and development of the pithed fibres of *Haddonella topsenti* n. g. n. sp. ; SOLLAS (49).

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(v) *Histology.*

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(ii) **Nutrition.**—Ingestion of food in sponges; “the ingestion of solid particles which traverse the canals of Sponges, is the function of the choanocytes, while the transport into the interior of the body of the substances ingested, belongs to the wandering cells”, pp. 437–451: digestion in Sponges: “in *Calcarea* the function of ingestion and, for the most part, that of digestion, are performed by the choanocytes: in non-*Calcarea* the choanocytes ingest, the amœbocytes digest. The digestion is intracellular.” The digestive action of sponges upon various substances, pp. 452–501: reserve materials in sponges, pp. 549–554; COTTE (9).

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(iv) **Secretion and Excretion.**—Pigments of Sponges, their nature and function, pp. 502–531: Diastases of sponges and their action, 463–501: secretion in sponges, pp. 502–548: excretion of sponges, expulsion of waste matters, and nature of the products of disassimilation, pp. 555–564; COTTE (9).—Action of phagocytes in absorbing collar-cells which have degenerated as the result of asphyxiation; COTTE (10).—The presence of tyrosinase in *Suberites domuncula*, *Tethya lyncurium*, and *Cydonium gigas*; COTTE (11).—Presence of manganese in *Spongelia pallescens elastica massa* F.E.S., *Tethya lyncurium*, *Reniera simulans*, *Suberites domuncula*: the gemmules of the last-named especially rich in it: manganese found especially in tissues of rapid growth: iron in tissues of *Tethya lyncurium*; COTTE (12).—Starch probably not elaborated by sponges: when found, its presence due to commensal algæ; COTTE (13).—On the nature of lipochromes; COTTE (14).

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(iii) *Asexual Reproduction.*(a) **Fission and Vegetative Budding.**—Vacant.(b) **Germinal budding.**—Development of gemmules, differing slightly from the normal, in a young specimen 18 days old of *Spongilla fragilis*; LENDENFELD (28).—Gemmules of *Suberites domuncula* rich in manganese; COTTE (12) p. 140.

F. MISCELLANEOUS.

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(i) **General.**—Vacant.(ii) **Atlantic Ocean and Adjacent Seas.**—Coasts of Belgium, list of common sponges, with descriptions and figures of some of the species; ROUSSEAU (43).—Monaxonida of the Norwegian coast, *Chalina*, *Halichondria*, *Reniera*, *Eumastia*, *Gellius*, *Oceanapia*, *Esperiopsis*, *Esperella*, *Hamacantha*, *Cladorhiza*, *Homæodictya*, *Desmacidon*, *Dendoryx*, *Iophon*, *Melonanchora*, *Histoderma*, *Yvesia*, *Plumohalichondria*, *Hamigera*, *Clathria*, *Placomia* [sic], *Phakellia*, *Tragosia*, *Axinella*, in all 31 spp., of which 9 nn.; ARNESEN (3).—North Sea, North of Bergen, Norway, *Prophysema haeckelii* n. sp.; LEON (29).—Sponges collected by the Princesse-Alice in 1902; RICHARD (42).—Sponges collected in deep water in the Mediterranean; LO BIANCO (30) pp. 243, 245, 246 & 270.(iii) **Indian Ocean and Adjacent Seas.**—South Africa, Cape and Natal Coasts, *Discodermia natalensis* n. sp., *Microscleroderma hirsutum* n. g. n. sp., *Lithobactrum forte* n. g. n. sp., *Monanthus plumosus* n. g. n. sp., and *Triptolemus incertus* n. sp.; KIRKPATRICK (25): *Placospongia*, *Latrun-culia*, *Kalastrella* n. g., *Coppatias*, *Tethya*, *Trachya*, *Hymeniacidon*, *Phakellia*, *Tragosia*, *Axinella*, *Syringella*, *Axinyssa*, *Sigmaxinella*, *Higginsia*, *Sollasella*, *Bubaris*, *Clathria*, *Stylostichon*, *Histoderma*, *Dendoryx*, *Desmacidon*, *Hamacantha*, *Phlæodictyon*, *Pellina*, *Halichondria*, *Coscino-derma*, *Stelospongia*, *Hircinia*, *Psammopemma*, in all 33 spp., of which 19 nn., and 3 nn. varr.; KIRKPATRICK (26).(iv) **Pacific Ocean and Adjacent Seas.**—Sunda Islands, *Calycosoma gracile* n. sp.; SCHULZE (48).—Torres Straits, *Haddonella topsenti* n. g. n. sp.; SOLLAS (49).—Sponges of Ternate; THIELE (50).—Horny sponges from Honolulu, Adelaide, Chatham Islands and Laysan: *Euspongia*, *Hippospongia*, *Thorecta*, *Stelospongia*, and *Hircinia*, in all 13 spp., of which 1 n., and 4 varr.; BAAR (4).—Calcareous sponges from Chatham Islands, from Laysan (a coral island N. W. of Honolulu), and from Bare Island (between the southern extremity of Vancouver and the

mainland), *Ascetta*, *Leucetta*, *Sycandra* and *Ebnerella*, in all 7 spp., of which 5 nn.; PREIWISCH (39).—Sagami Sea, Japan, *Placosoma* n. g., *Leucopsacus*, *Chaunoplectella*, *Caulophacus*, and *Sympagella*, in all 7 spp., of which 4 nn.; IJIMA (22).

(v) (vi) Vacant.

β. FRESHWATER SPONGES.

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(ii) CAINOZOIC.

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(b), (c) Vacant.

(d) Miocene:—Miocene of Porretta, *Craticularia* spp., *Euplectella bianconii* n. sp.; NELLI (34) pp. 192–194.

(iii) MESOZOIC.

(a) Vacant.

(b) Cretaceous:—Upper Chalk of Suffolk, *Coscinopora*, *Porosphæra*, *Ventriculites*; JUKES-BROWNE (23).—Lower and Middle Chalk of England, lists of sponges; JUKES-BROWNE & HILL (24) pp. 31, 42, 78, 87, 91, 102, 183, 205, 215, 257, 379, 395, 407, 423, 449, 467, 472.—Chalk of English Coast, list of sponges; ROWE (44) p. 49.—Chalk of Luneburg, sponges; WOLLEMANN (56) pp. 7–13.—Upper Cretaceous of Le Dévoluy, sponge spicules; LORV (31) pp. 262, 265, 270, 275, 278, pl. i, fig. 1, pl. ii, figg. 1 & 2.—Upper Cretaceous of Pyrenees, sponges, p. 412: Lower Cretaceous, pp. 288–290; CAREZ (7).—Cenomanian of Bohemia, *Rhaphidonema*, *Sestrostomella*, *Porosphæra*, and *Plectinia* n. g., 5 spp. of which 2 nn.; POČTA (35 & 36).—Cenomanian of Kuttenberg, Bohemia, *Megalelasma* n. g., *Craticularia*, *Guettardia*, *Plocoscyphia*, *Leptophragma*, *Chonella*, *Verruculina*, *Thecosiphonia*, *Poterionella* n. g., 11 spp. of which 5 nn. and 1 n. var.; POČTA (37 & 38).—Scaphiten-Pläner, Brunswick, *Ventriculites*; WOLLEMANN (57) p. 50.—Scaphiten-Pläner of Halberstadt, *Thecosiphonia torgeri* n. sp.; SCHRAMMEN (47).—Hauterivien and Upper Valangian (Neocomian), list of sponges; SCHARDT & DUBOIS (45) pp. 410, 416 & 421.—Neocomian of Tzrnolévitz, *Peronella*, *Elasmocelia* and *Elasmostoma*; ANTULA (2) pp. 17–19.

(c) Jurassic:—Spicules of *Pachastrella* and *Geodites* in chert; RAISIN (41) p. 80.—Lower Argovien (Malm or Upper Jurassic), and Urgonien (Barranian), list of sponges; SCHARDT & DUBOIS (45).

(d) Lias:—Lias of Val Solda, *Eudictyon steinmanni* n. g. n. sp. and a problematic sponge; BISTRAM (5) pp. 84–87.

(e) Vacant.

(iv) PALÆOZOIC.

(a) General:—Type specimens of Palæozoic sponges in the New York State Museum; CLARKE & RUEDEMANN (8) pp. 11-34.

(b), (c), (d) Vacant.

(e) Lower Carboniferous:—Carboniferous of Colorado, *Hyalostelia* and *Hystriospongia*; GIRTY (18).

(f) Devonian:—Devonian of New Jersey, *Hindia fibrosa*; WELLER (54) p. 297. Devonian of Western Tennessee, *Astræospongia*; FOERSTE (17) pp. 692, 694.

(g) Silurian:—Silurian of Western Tennessee, list of sponges; FOERSTE (17).

(h) Ordovician:—Cincinnati group in Western Tennessee, *Hindia* sp.; FOERSTE (16) p. 35.—Trenton of New Jersey, *Hindia* and *Receptaculites*; WELLER (54) p. 135.

IV. SYSTEMATIC.

[A name of a species, followed only by a reference to a name from the list of titles, is a record of occurrence pure and simple. The locality (or horizon) can be found by looking up the reference letters of section III, following the title in the list above (section 1).]

A. PORIFERA, GENERAL.

B. CALCAREA.

(i) *HOMOCÆLA*.

Family CLATHRINIDÆ.

Clathrina (*Ascetta*) *coriacea* H., physiology; COTTE (9): *C. (Leucosolenia) contorta* (Bwk.) and *C. (Leucosolenia) lacunosa* Johnst.; ROUSSEAU (43) p. 7. *C. (Ascetta) primordialis* H.; PREIWISCH (39) p. 10.

Family LEUCOSOLENIIDÆ.

Leucosolenia botryoides (Ell. & Sol.), described, p. 5, fig. 1; *L. complicata* (Mont.), described, p. 7, fig. 3; *L. fabricii* O. S., described, p. 6, fig. 2; *L. variabilis* (H.), described, p. 8, fig. 4; ROUSSEAU (43).

(ii) *HETEROCÆLA*.

Family SYCETIDÆ.

Sycon seu *Sycandra*, *S. ciliatum* (Fabr.), described; ROUSSEAU (43) p. 9, fig. 5: physiology; COTTE (9): *S. coronatum* (Ell. & Sol.), described; ROUSSEAU (43) p. 10, fig. 6; PREIWISCH (39) p. 10: *S. elegans*, physiology; COTTE (9): *S. parvula* n. sp. from Laysan Is.; PREIWISCH (39) pp. 15-17, pl. iv, figg. 9-12: *S. raphanus* H., physiology; COTTE (9): degenerative changes in; COTTE (10): spermatogenesis; GÖRICH (19): *S. stauriferu* n. sp. from Laysan Is.; PREIWISCH (39) pp. 17-19, pl. iii, fig. 8.

Family AMPHORISCIDÆ.

Ebnerella compressa n. sp. from Pitt's Is., Chatham Ids.; PREIWISCH (39) pp. 19-23, pl. iv, figg. 13-18.

Family GRANTIDÆ.

Grantia compressa Fabr., described; ROUSSEAU (43) p. 10, fig. 7: physiology; COTTE (9).

Leucandra fistulosa (Johnst.) and *L. nivea* (Johnst.); ROUSSEAU (43) p. 12. *Leucetta sambucus* n. sp. from Pitt's Is., Chatham Ids., pp. 12-14, pl. iii, fig. 7; *L. schauinslandi* n. sp. from Waitangi, Warekauri Is., Chatham Group, pp. 10-12, pl. ii, figg. 1-6: PREIWISCH (39).

Ute glabra O. S.; ROUSSEAU (43) p. 10.

Family PHARETRONIDÆ seu PHARETRONES.

(1) *Dialytinæ*.

†*Discolia cottaldi* From., p. 416; †*D. cotteavi* From., p. 428; †*D. flabelata* d'Orb., p. 428; †*D. gillieronii* de Lor., pp. 421, 428: SCHARDT & DUBOIS (45). †*D. glomerata* From.; CAREZ (7) pp. 241 & 242, 248, 288: SCHARDT & DUBOIS (45) p. 428. †*D. icaunensis* d'Orb., pp. 242, 248, 288; †*D. monilifera* de Lor., pp. 241, 242, 248, 288: CAREZ (7). †*D. peroni* From., pp. 416, 421, 428; †*D. porosa*, pp. 410, 416: SCHARDT & DUBOIS (45).

†*Elasmocelia sequana* (From.); ANTULA (2) p. 18.

†*Elasmojerea tortuosa* de Lor.; SCHARDT & DUBOIS (45) p. 421.

†*Elasmostoma acutimargo* de Lor., p. 416; †*E. neocomiensis* d'Orb., pp. 410, 421: SCHARDT & DUBOIS (45): †*E. aff. neocomiensis* de Lor.; ANTULA (2) p. 19: CAREZ (7) pp. 241, 242, 248, 290: †*E. sp.*; SCHARDT & DUBOIS (45) p. 418.

Megalelasma n. g., allied to *Elasmostoma*, for †*M. dispansum* n. sp., from the Cenomanian of Kuttenberg, Bohemia; POČTA (37) pp. 9, 10, pl. i, figg. 17 & 18, pl. ii, fig. 7, and (38) p. 117, pl. i, figg. 17 & 18, pl. ii, fig. 7.

†*Peronella*, aff. *essertensis* (de Lor.); †*P. glomerata* (From.) and †*P. strangulata* (From.): ANTULA (2) pp. 17 & 18.

†*Pharetrospongia strahani* Soll.; JUKES-BROWNE & HILL (24) pp. 205, 379.

†*Rhaphidonema cenomanense* n. sp. from Cenomanian deposits of Kamajka, Časlau, Bohemia; POČTA (35) pp. 3-5, and (36) pp. 118 & 119, pl., figg. 1 & 2.

†*Sestrostomella* sp., skeletal structure; POČTA (35) pp. 5 & 6, and (36) p. 119, fig. 3.

†*Siphoneudea* sp.; SCHARDT & DUBOIS (45) p. 416.

†*Siphonocelia oblonga* de Lor.; CAREZ (7) pp. 241, 248, 290.

†*Tremacystia d'Orbigny* Hinde; JUKES-BROWNE & HILL (24) p. 257.

(2) *Lithoninæ*.

†*Plectinia* n. g. of Lithoninæ, for †*P. minuta* n. sp. from Cenomanian of Kamajka near Časlau, Bohemia; POČTA (35) pp. 11 & 12, and (36) pp. 122 & 123, pl., figg. 13-18, text-fig. 2.

†*Porosphæra globularis* Rss., description of the skeleton; POČTA (35) pp. 8 & 9, and (36) pp. 120 & 121, pl., figg. 4-12, and text-fig. 1: CAREZ (7) p. 412: JUKES-BROWNE (23) pp. 89, 94: JUKES-BROWNE & HILL (24) pp. 379, 395, 407, 414, 423, 449: ROWE (44) p. 49: WOLLEMAN (56) p. 15. †*P. pileolus* Lam.; ROWE (44) p. 49: †*P. sp.*;

JUKES-BROWNE & HILL (24) p. 87. †*P. texturata* n. sp. from Cenomanian of Kamajka, near Časlau, Bohemia; POČTA (35) pp. 10 & 11, and (36) pp. 121 & 122, pl., figg. 19 & 20. †*P. urceolata* Phil.; JUKES-BROWNE & HILL (24) p. 423.

C. HEXACTINELLIDA.

Hexactinellida divided (following Schulze) into *Amphidiscophora* and *Hexasterophora*; the latter subdivided into *Lychniscosa* and *Hexactinosa*. The *Hexactinosa* comprise three subtribes: (1) *Uncinataria* F. E. S.; (2) *Inermia* F. E. S.; (3) *Euplectellaria* n. subtr., comprising the families *Euplectellidæ*, *Asconematidæ*, and *Rossellidæ*; the families *Protospongida*, *Dictyospongida*, *Plectospongida* and *Brachiospongida* regarded as *incertæ sedis* [i.e. the author abandons his group *Stauractinophora*, v. Zool. Rec. 1902]; SCHRAMMEN (46).

Classification of the *Hexactinellida*, pp. 23–25 (footnote); criticism of SCHRAMMEN (46), pp. 115–117: IJIMA (22).

(i) LYSSACINA.

Family EUPLECTELLIDÆ.

Euplectellidæ, remarks on the family and emended diagnosis (pp. 23 & 108); divided into two subfamilies, (1) *Euplectellinæ* (= *Euplectellinæ* Schulze + *Holascinæ* Schulze), characterized by the possession of a rooting tuft of basal spicules, and (2) *Corbitellinæ* (= *Tægerinæ* Schulze + *Placosoma* n. g.), comprising forms attached by a compact base; IJIMA (22) pp. 19–28.

†*Euplectella bianconii* n. sp. from the Miocene of Porretta; NELLI (34) pp. 193 & 194, pl. x, fig. 1.

Placosoma n. g. for *P. paradictyum* n. sp. from the Sagami Sea, 501–572 meters; IJIMA (22) pp. 2–28 & p. 109, pls. i & ii.

Family CAULOPHACIDÆ.

Caulophacidæ n. fam. for the genera *Sympagella* and *Caulophacus*, formerly placed in the family *Asconematidæ* (the other four genera of *Asconematidæ*, viz. *Asconema*, *Hyalascus*, *Calycosoma*, and *Calycosaccus*, probably to be referred to the *Rossellidæ*); diagnosis and key to genera; IJIMA (22) pp. 78–84 & p. 111.

Calycosoma gracile n. sp. from Timor, Sunda Ids. (10° 30' S., 126° 30' E.), 421 m.; SCHULZE (48) pp. 14–21, pl. ii: is identical with *Sympagella anomala* Ij.; IJIMA (22) pp. 119–122. *C. validum* F. E. S., diagnosis; SCHULZE (48) p. 21.

Caulophacus F. E. S., diagnosis and key to species; IJIMA (22) pp. 85, 86 & p. 111: tabular review of the characters of known species; SCHULZE (48) p. 13. *C. arcticus* for *Hyalonema arcticum* A. Hans., fully described; SCHULZE (48) pp. 1–14, pl. 1: remarks on; IJIMA (22) pp. 118 & 119. *C. lotifolium* n. sp. from the Sagami Sea, 572 m.; IJIMA (22) pp. 87–96 & p. 112, pl. vii.

Sympagella O. S. to include *Aulascus* F. E. S., diagnosis and key to species, pp. 96, 97 & p. 112; diagnosis emended, p. 121; *S. anomala* n. sp. from the Sagami Sea, 430–572 m., pp. 97–108 & p. 112, pl. viii; is identical with *Calycosoma gracile* F. E. S., to be named *Sympagella gracilis*, pp. 119–122: IJIMA (22).

Family ROSSELLIDÆ.

Rossellidæ, diagnosis of the family; IJIMA (22) p. 114.

Family LEUCOPSACIDÆ.

Leucopsacidæ n. fam. for the genera *Leucopsacus*, *Chaunoplectella*, *Caulocalyx* and *Placoplegma*, formerly placed, with *Aulocalyx* and *Euryplegma*, as the subfamily *Leucopsacinæ* of the family *Rossellidæ*; the two last named genera to be removed to the family *Dactylocalycidæ*; diagnosis and key to the genera and species given; IJIMA (22) pp. 29-34 & p. 110.

Chaunoplectella Ij., diagnosis, p. 53 & p. 111; *C. cavernosa* Ij., fully described, pp. 53-71 & p. 111, pls. iv & v, figg. 8-13, text-fig.; *C. spinifera* n. sp. from the Sagami Sea, pp. 71-77 & p. 111, pl. v, figg. 14-17, pl. vi, figg. 1-8: IJIMA (22).

Leucopsacus Ij., diagnosis, p. 34 & p. 110; *L. orthodoxus* Ij., fully described, pp. 34-46 & p. 110, pl. iii, figg. 14-26; *L. scoliodocus* Ij., fully described, pp. 46-52 & p. 110, pl. iii, figg. 27-37: IJIMA (22).

Family HYALONEMATIDÆ.

Pheronema grayi; RICHARD (42), p. 71.

Family RECEPTACULITIDÆ.

†*Receptaculites occidentalis* Salter, described; WELLER (54) pp. 135 & 136, pl. vi, figg. 2-4.

Family POLLAKIDÆ.

†*Hyalostelia* sp.; GIRTY (18) pp. 249, 250, 319.

(ii) DICTYONINA.

Family EURETIDÆ.

†*Stauronema carteri* Sol., pp. 18, 31, 42, 78, 87, 91, 164; †*S. lobata* Soll. p. 42: JUKES-BROWNE & HILL (24).

Family CRATICULARIDÆ.

†*Craticularia fittoni* Mant; JUKES-BROWNE & HILL (24) pp. 31, 72, 91, 102, 370, 379, 407, 423, 449: ROWE (44) p. 49. †*C. manzoni* Malf., and †*C.* sp.; NELLI (34) p. 192. †*C. zitteli* Pošta, description of specimens from Kuttenberg, Bohemia; POŠTA (37) pp. 3 & 4, and (38) pp. 113 & 114.

†*Cribrospongia obliqua* Gf.; SCHARDT & DUBOIS (45), p. 395.

Family MELLITIONIDÆ.

†*Aphrocallistes alveolites* (Roem.); WOLLEMANN (56) p. 8.

Family COSCINOPORIDÆ.

- †*Coscinopora infundibuliformis* Gf. ; WOLLEMAN (56) p. 8. †*C. quincuncialis* Smith ; JUKES-BROWNE (23) pp. 90, 94.
 †*Guettardia stellata* Mich. ; CAREZ (7) p. 544 : JUKES-BROWNE & HILL (24) pp. 257, 370, 379, 407, 423, 449 : ROWE (44) p. 49. †*G. thiolati* d'Arch. ; CAREZ (7) p. 544. †*G. trilobata* var. *enormis* n. var., described ; POČTA (37) p. 4 and (38) p. 114, pl. ii, fig. 1.
 †*Leptophragma cauliformis* Počta ; POČTA (38) p. 2. †*L. membranaceum* (Roem.) ; WOLLEMAN (56) p. 7. †*L. murchisoni* Gf., p. 215 ; †*L.* sp., p. 78 : JUKES-BROWNE & HILL (24).

Family MÆANDROSPONGIDÆ.

- †*Camerospongia campanulata* Sm. ; WOLLEMAN (56) p. 10. †*C. capitata* Sm., p. 379 ; †*C. subrotunda* Mant., p. 395 : JUKES-BROWNE & HILL (24).
 †*Plocoscyphia convoluta* Sm. ; JUKES-BROWNE & HILL (24) pp. 370, 379, 407, 423, 449 : ROWE (44) p. 49. †*P. fenestrata* (Smith), lychniskis figured ; POČTA (38) p. 2, pl. i, fig. 1 : JUKES-BROWNE & HILL (24) pp. 42, 87, 91. †*P. flexuosa* Mant., p. 370 ; †*P. labrosa* Smith, pp. 18, 31, 42, 78, 87, 91, 102, 215, 379, 407 ; †*P. reticulata* Hinde, pp. 78, 87, 91 ; †*P.* sp., p. 183 ; †*P. subruta* Qst., p. 91 : JUKES-BROWNE & HILL (24).
 †*Tremabolites* cf. *perforatus* T. Sm. ; ROWE (44) p. 49.

Family STAURODERMIDÆ.

- †*Placotrema cretaceum* ; JUKES-BROWNE & HILL (24) p. 31.
 †*Porospongia* sp. ; SCHARDT & DUBOIS (45) p. 416.

Family CALLODICTYONIDÆ.

- †*Eudictyon* n. g. [non Marshall 1875, nec Schrammen 1902] perhaps representing a new family *Eudictyonidæ*, for †*E. steinmanni* n. sp., Lias of Val Solda ; BISTRAM (5) pp. 84-86, pl. vii, fig. 1, pl. viii, figg. 1-5.

Family CÆLOPTYCHIDÆ.

- †*Cæloptychium agaricoides* Gf., †*C. decimimum* Roem., †*C. princeps* Roem., †*C. rude* Seeb. and †*C. seebachi* Z. ; WOLLEMAN (56) pp. 11-13.

Family VENTRICULITIDÆ.

- †*Cephalites benettii* Mant. ; JUKES-BROWNE & HILL (24) p. 370, 379 : ROWE (44) p. 49. †*C. catenifer* Sm., p. 407 ; †*C. longitudinalis* Sm., pp. 370, 379, 407 ; †*C. paradoxus* Sm., pp. 407, 467 : JUKES-BROWNE & HILL (24).
 †*Sporadoscinia decheni*, var. *quadrata* Lot., †*S. micrommata* (Roem.) and †*S. venosa* (Roem.) ; WOLLEMAN (56) p. 10.
 †*Ventriculites alcyonoides* Mant. ; JUKES-BROWNE & HILL (24) pp. 370, 395. †*V. angustatus* Roem. ; WOLLEMAN (56), p. 9 and (57) p. 50. †*V. cribrus* Phil. ; JUKES-BROWNE & HILL (24) pp. 379, 423 : ROWE

(44) p. 49. †*V. decurrens* Sm.; JUKES-BROWNE & HILL (24) pp. 370, 379, 407, 449, 472 : ROWE (44) p. 49. †*V. impressus*; JUKES-BROWNE & HILL (24) pp. 370, 379, 407 : ROWE (44) p. 49. †*V. infundibuliformis* Woodw.; JUKES-BROWNE & HILL (24) pp. 379, 395. †*V. mammillaris* Smith; JUKES-BROWNE & HILL (24) pp. 379, 407, 423, 472 : ROWE (44) p. 49. †*V. radiatus* Mant.; JUKES-BROWNE (23) pp. 88, 94 : JUKES-BROWNE & HILL (24) pp. 370, 379, 395, 407, 423 : ROWE (44) p. 49 : WOLLEMAN (56) p. 9. †*V.* sp. JUKES-BROWNE & HILL (24) pp. 42, 215, 395, 467. †*V. striatus* Sm.; WOLLEMAN (56) pp. 8 & 9. †*V. tessellatus* Sm.; JUKES-BROWNE & HILL (24) p. 78.

INCERTÆ SEDIS.

†*Brachiolites* sp.; JUKES-BROWNE & HILL (24) p. 225.
 †*Goniospongia striata* Gf.; SCHARDT & DUBOIS (45) 395.
 †*Scyphia quinquelobata* d'Arch. and †*S. samueli* d'Arch.; CAREZ (7) p. 542 : †*S.* sp.; SCHARDT & DUBOIS (45) p. 395.
 †*Strephinia convoluta* Hinde; JUKES-BROWNE & HILL (24) pp. 31, 78, 172, 215.

D. DEMOSPONGIÆ.

(i) *TETRAXONIDA*.

Tetraxonia, defined, p. 1 and classified into—

- A. Order Tetractinellida, p. 14, with suborders Sigmatophora (*Tetillidæ*, *Samidæ*, *Tethyopsillidæ*), Astrophora (*Stellettidæ*, *Pachastrellidæ*, *Geodidæ*) and Megasclerophora (*Plakinidæ*, *Oscarellidæ*).
- B. Order Lithistida, p. 125, with suborders Hoplophora (*Theonellidæ*, *Coscinospongiidæ*, *Pteromatidæ*, *Neopeltidæ*, *Scleritodermatidæ*, *Siphoniidæ*, and genus *Lyidium*) and Anoplia (*Desmanthidæ*, *Leiodermatidæ*, *Vetulidæ*); LENDENFELD (27).

(a) Order CARNOSA.

Sub-order MICROTRIÆNOSA.

Dercitus Gray, genus defined, with diagnoses of 5 spp.; LENDENFELD (27) pp. 81–83.
Samidæ, definition of the family, to include the sole genus and species *Samus anonyma* Gray; LENDENFELD (27) p. 28.
Thrombus Soll., genus defined, with diagnosis of 1 sp.; LENDENFELD (27) pp. 122 & 123.

Sub-order MICROSCLEROPHORA.

Definition of the suborder under the name Megasclerophora; LENDENFELD (27) p. 28.

Family CORTICIDÆ.

Corticium O. S., genus defined, with diagnosis of 1 sp.; LENDENFELD (27) pp. 121 & 122.

Family PLAKINIDÆ.

Plakinidæ, family defined, to include genera *Plakinastrella*, *Plakina*, *Plakortis*, *Corticium*, and *Thrombus*; LENDENFELD (27) p. 118.

Plakina F. E. S., genus defined, with diagnosis of 4 spp.; LENDENFELD (27) pp. 119-121.

Plakinastrella F. E. S., genus defined, with diagnosis of 1 sp.; LENDENFELD (27) pp. 118 & 119.

Plakortis F. E. S., genus defined, with diagnosis of 1 sp.; LENDENFELD (27) p. 121.

Sub-order OLIGOSILICINA.

Family CHONDROSIDÆ.

Chondrosia reniformis Ndo., physiology; COTTE (9).

(b) Order TETRACTINELLIDA.

(1) Sub-order CHORISTIDA.

Classification of the Tetractinellida (Choristida); SCHRAMMEN (46) pp. 16-19.

Tribe SIGMATOPHORA.

Sigmatophora definition; LENDENFELD (27) p. 15.

Family TETILLIDÆ.

Tetillidæ, definition of family, to contain the genera *Tetilla*, *Tethya*, and *Cinachyra*; LENDENFELD (27) p. 16.

Cinachyra Soll., genus defined, placed in the family *Tetillidæ*, with diagnoses of 8 spp.; LENDENFELD (27) pp. 26-28 & pt. 151.

Craniella O. S., see *Tethya*. *C. lens* O. S. and *C. lentiformis* Thiele, see *Tethyopsilla*.

Proteleia truncata for *Tetilla truncata* Tops.; LENDENFELD (27) p. 29.

Tethya Lam. = *Craniella* O. S., genus defined, placed in the family *Tetillidæ*, with diagnoses of 8 spp., pp. 23-25; *T. oscari* **nom. nov.** for *Craniella schmidtii* Soll. p. 25; LENDENFELD (27).

Tethyopsilla Ldf., genus defined, with diagnoses of 7 spp., pp. 30-32; *T. lens* for *Craniella lens* O. S., p. 32; *T. lentiformis* for *Craniella lentiformis* Thiele, p. 31; *T. pedifera* for *Tetilla pedifera* Soll., p. 30; LENDENFELD (27).

Tethyopsillidæ, definition of the family, to include the genera *Tethyopsilla* and *Proteleia*; LENDENFELD (27) p. 29.

Tetilla O. S., definition of genus and diagnoses of the 19 spp.; LENDENFELD (27) p. 16. *T. casula* (Crtr.), note on; KIRKPATRICK (25) p. 178. *T. lindgreni* **nom. nov.** for *T. ternatensis* Lindgren non Kieschnick; LENDENFELD (27) p. 18. *T. pedifera* Soll., see *Tethyopsilla*. *T. truncata* Tops., see *Proteleia*.

Tribe ASTROPHORA.

Astrophora, definition; LENDENFELD (27) p. 32.

Family THENEIDÆ.

Thenea, see *Ancorina*. *T. muricata*; LO BIANCO (30) pp. 243, 245, 246, 270.

Family PACHASTRELLIDÆ.

Pachastrellidæ, definition of the family, to include the genera *Pachastrella*, *Pachastrissa*, *Dercitus*, and *Calthropella*; LENDENFELD (27) pp. 71 & 72.

Calthropella Soll., genus defined, with diagnoses of 2 spp.; LENDENFELD (27) p. 83.

Pachastrella O. S., genus defined, with sub-genera *Triptolemus*, *Pachastrella* and *Nethea*, and diagnoses of 22 spp.; LENDENFELD (27) pp. 72-80. †*P. antiqua*, spicules of, in chert; RAISIN (41) p. 80.

Pachastrissa n. g., for *Stelletta pathologica* O. S., *Pachastrella geodioides* Crtr., and *P. connectens* O. S.; LENDENFELD (27) pp. 80 & 81.

Triptolemus incertus n. sp. from the canals of *Discodermia natalensis*, Natal Coast; KIRKPATRICK (25) p. 178, pl. iv, figg. 4, 4a-f.

Family STELETTIDÆ.

Stellettidæ, definition of the family, to include the genera *Stelletta*, *Ancorina*, *Tribrachion*, *Disyringa*, *Tethyopsis*, *Papyrula*, and *Sphinctrella*; LENDENFELD (27) p. 33.

Ancorina O. S., genus defined, with sub-genera *Ancorina*, *Stryphnus*, *Thenea*, *Sanidastrella*, *Penares*, and *Ecionemia*, and diagnoses of 34 spp., pp. 49-67; *A. (Ecionemia) amboinensis* nom. nov. for *Stelletta truncata* Kieschnick, p. 63; *A. (Sanidastrella) atlantica* nom. nov. for *Stelletta pachastrelloides* O. S., p. 59; *A. (Thenea) grayii thielii* nom. nov. for *Thenea compacta* Thiele, p. 57; LENDENFELD (27).

Disyringa Soll., genus defined, with diagnoses of 1 sp.; LENDENFELD (27) p. 68.

Ecionemia, see *Ancorina*.

Papyrula O. S., genus defined, with diagnoses of 2 spp.; LENDENFELD (27) pp. 69 & 70.

Penares, see *Ancorina*.

Sanidastrella, see *Ancorina*.

Sphinctrella O. S., genus defined, with diagnoses of 4 spp.; LENDENFELD (27) pp. 70 & 71.

Stelletta O. S., genus defined, with diagnoses of 52 spp.; LENDENFELD (27) pp. 33-49. *S. grubei* O. S.; ROUSSEAU (43) p. 13. †*S. inclusa* Hinde; JUKES-BROWNE & HILL (24) p. 370-379. *S. renilla* nom. nov. for *S. reniformis* Kieschnick; LENDENFELD (27) p. 44.

Stryphnus, see *Ancorina*.

Tethyopsis Stew., genus defined, with diagnoses of 2 spp.; LENDENFELD (27) pp. 68 & 69.

Tribrachion Weltn., genus defined, with diagnoses of 1 sp.; LENDENFELD (27) p. 67.

Family GEODIDÆ.

Geodiidæ, family defined, includes genera *Erylus*, *Caminella*, *Pachymatisma Caminus*, *Geodia*, *Isops*, *Sidonops*, and *Geodinella*; LENDENFELD (27) p. 84.

Caminella Ldf., genus defined, with diagnoses of 2 spp.; LENDENFELD (27) pp. 89 & 90.

- Caminus* O. S., genus defined, with diagnoses of 4 spp.; LENDENFELD (27) pp. 92 & 93.
- Cydonium gigas* (O. S.); physiology; COTTE (9), see II, c, iv.
- Erylus* Gray, genus defined, with diagnoses of 12 spp., pp. 85-89; *E. topsenti* **nom. nov.** for *E. mammillaris* Tops. non O. Schm. p. 87: LENDENFELD (27).
- Geodia* Lam., genus defined, with diagnoses of 26 spp., pp. 104-116; *G. tuber* **nom. nov.** for *Geodia tuberosa* O. S., p. 113: LENDENFELD (27).
- Geodinella* n. g. for *Geodia cylindrica* Thiele; LENDENFELD (27) p. 117.
- †*Geodites* sp., spicules of in chert; RAISIN (41) p. 80.
- Isops* Soll., genus defined, with diagnoses of 16 spp.; LENDENFELD (27) pp. 94-98.
- Pachymatisma* Johnst., genus defined, with diagnoses of 4 spp.; LENDENFELD (27) pp. 90-92. *P. johnstonia* Bwk.; ROUSSEAU (43) p. 14.
- Sidonops* Soll., genus defined, with diagnoses of 15 spp., pp. 99-104; *S. lindgreni* **nom. nov.** for *S. picteti* Lindgren non Tops., p. 102: LENDENFELD (27).

(2) LITHISTIDA.

Classification of the Lithistida into 9 families, (1) *Tetracladinidæ*, (2) *Eutaaxiadinidæ*, (3) *Rhaphidinidæ*, (4) *Megamorinidæ*, (5) *Corallistiniidæ*, (6) *Anomocladinidæ*, and (7) *Rhizomorinidæ* (including four sub-families, *Azoricidæ*, *Scleritodermidæ*, *Neopeltidæ* and *Cladopeltidæ*), (8) *Megarhizinidæ* n. fam. (type *Megarhiza* Schr.) and (9) *Scolioraphinidæ* (type *Scolioraphis* Z.); with diagnoses of the families; SCHRAMMEN (46) pp. 10-21. [See also p. 19 supra.]

Tribe HOPLOPHORA.

Hoplophora, definition; LENDENFELD (27) p. 125.

Family TETRACLADIDÆ.

- †*Callopegma acanule* Z.; WOLLEMAN (56) p. 7: †C. sp.; JUKES-BROWNE & HILL (24) p. 87.
- †*Chiastoclonella headi*; FOERSTE (17), p. 714.
- †*Dendroclonella rugosa*; FOERSTE (17), p. 714.
- Discodermia* Boc., genus defined, with diagnoses of 10 spp.; LENDENFELD (27) pp. 128-131. *D. natalensis* n. sp., Coast of Natal; KIRKPATRICK (25) pp. 172 & 173, pl. iv, figg. 2, 2a-k, 3 & 3a-d.
- †*Hallirhoa agariciformis* Ben.; JUKES-BROWNE & HILL (24) p. 87.
- †*Jerea websteri* Sow.; JUKES-BROWNE & HILL (24).
- Jereopsis* O.S., genus defined, with diagnosis of 1 sp.; LENDENFELD (27) p. 133.
- Kaliopsis* Bwk., genus defined, with diagnoses of 3 spp.; LENDENFELD (27) pp. 133 & 134.
- †*Nelumbia* sp., p. 78; †*N. tuberosa* Hinde, p. 31: JUKES-BROWNE & HILL (24).
- †*Pholadocladia ramosa* Hinde; JUKES-BROWNE & HILL (24) p. 379.
- †*Phymatella intumescens* Roem., pp. 31, 78, 183; †*P.* sp., p. 78: JUKES-BROWNE & HILL (24).
- †*Plinthosella compacta* Hinde; JUKES-BROWNE & HILL (24) p. 379.
- Racodiscula* Z., genus defined, with diagnoses of 4 spp.; LENDENFELD (27) pp. 131-133.
- †*Ragadinia sulcata* Hinde; JUKES-BROWNE & HILL (24) p. 379.

- †*Siphonia ficus*; CAREZ (7) p. 412; JUKES-BROWNE & HILL (24) p. 31.
 †*S. koenigi* Mant., pp. 379, 395; †*S. sp.*, p. 91; †*S. tulipa* Z. pp. 78, 87;
 JUKES-BROWNE & HILL (24).
Sulcastrella O.S., genus defined, with diagnoses of 1 sp.; LENDENFELD (27)
 p. 134.
 †*Thecosiphonia cenomana* n. sp., from Cenomanian of Kuttenberg, Bohemia;
 POČTA (37) pp. 7, 8, and (38) p. 116, pl. i, fig. 10, pl. ii, fig. 5.
 †*T. nobilis* (Roem.), horizon and occurrence; †*T. torgeri* n. sp. from
 the Scaphiten-Pläner of Halberstadt, p. 23; SCHRAMMEN (47).
Theonella Gray, genus defined, with diagnoses of 4 spp.; LENDENFELD (27)
 pp. 126-128.
Theonellidæ, family defined, includes genera *Theonella*, *Discodermia*,
Racodiscula, *Jereopsis*, *Kaliopsis*, and *Sulcastrella*; LENDENFELD (27)
 p. 126.

Family DESMANTHIDÆ.

- Desmanthidæ*, family defined, includes the single genus *Desmanthus*;
 LENDENFELD (27) p. 144.
Desmanthus Tops., genus defined, with diagnosis of 1 sp.; LENDENFELD (27)
 pp. 144 & 145.
Monanthus n. g. for *M. plumosus* n. sp., Natal Coast; KIRKPATRICK (25)
 pp. 176 & 177, pl. iv, figg. 6, 6a-e, 7 & 7a, b.

Family CORALLISTIDÆ.

- Coscinospongiidæ* nom. nov. for *Corallistidæ* Soll., defined, includes the
 recent genera *Coscinospongia* and *Macandrewia*; LENDENFELD (27)
 p. 135.
Coscinospongia Bwk., genus defined, includes *Corallistes* and *Heterophymia*,
 with diagnoses of 8 spp.; LENDENFELD (27) pp. 135-137.
Macandrewia Gray, genus defined, with diagnoses of 4 spp.; LENDENFELD
 (27) pp. 138-140. *M. azorica*; RICHARD (42) p. 72.

Family PLEROMIDÆ seu MEGAMORINIDÆ.

- Pleromatidæ* for *Pleromidæ* Soll., defined, includes the single recent genus
Pleroma; LENDENFELD (27) p. 140.
 †*Doryderma ramosum* Mant.; JUKES-BROWNE & HILL (24) p. 379.
 †*Heterostinia obliqua*; JUKES BROWNE & HILL (24) pp. 379 & 407.
Pleroma Soll., genus defined, with diagnosis of 1 sp.; LENDENFELD (27)
 p. 140.

Family NEOPELTIDÆ.

- Neopeltidæ*, family defined, includes the single recent genus *Neopelta*;
 LENDENFELD (27) p. 140.
Neopelta O. S., genus defined, with diagnoses of 2 spp.; LENDENFELD (27)
 pp. 140 & 141.

Family SCLERITODERMIDÆ.

- Scleritodermatidæ*, family defined, includes the recent genera *Scleritoderma*
 and *Aciculites*; LENDENFELD (27) p. 141.
Aciculites O. S., genus defined, with diagnosis of 1 sp.; LENDENFELD (27)
 p. 143.

Microscleroderma n. g. for *M. hirsutum* n. sp., Durnford Point, Natal; KIRKPATRICK (25) pp. 173 & 174.

Scleritoderma O. S., genus defined, with definition of 3 spp.; LENDENFELD (27) pp. 141 & 142.

Family CLADOPELTIDÆ.

Siphonidiidæ nom. nov. for *Cladopeltidæ* Soll., defined, includes the single recent genus *Siphonidium*; LENDENFELD (27) p. 143.

Siphonidium O. S., genus defined, with diagnoses of 2 spp.; LENDENFELD (27) pp. 143 & 144.

Tribe ANOPLIA.

Anoplia, definition; LENDENFELD (27) p. 144.

Family AZORICIDÆ.

Leiodermatidæ nom. nov. for *Azoricidæ* Soll., defined, includes genera *Leiodermatium* and *Gastrophanella*; LENDENFELD (27) p. 145.

Azorica pfeifferæ; RICHARD (42) p. 72.

†*Chonella* Z., genus defined; †*C. congregata* n. sp. from Cenomanian of Kuttenberg, Bohemia; POČTA (37) pp. 6 & 7 and (38) pp. 114 & 115, pl. i, figg. 6-9, pl. ii, fig. 2. †*C. petagiata* n. sp. from Cenomanian of Kuttenberg, Bohemia; POČTA (37) pp. 5 & 6 and (38) pp. 114 & 115, pl. i, figg. 2-5, pl. ii, fig. 2. †*C.* sp.; POČTA (38) p. 115, pl. i, figg. 11-13.

Gastrophanella O. S., defined, includes *Tremaulidium* O. S. and *Sympyla* Soll., with diagnoses of 3 spp.; LENDENFELD (27) pp. 148 & 149.

†*Jereicu polystoma* (Roem.); WOLLEMAN (56) p. 7.

Leiodermatium O. S., defined, includes *Azorica* Crtr., *Poritella* O. S., *Amphibleptula* O. S., *Setidium* O. S. and *Tretolophus* Soll., with diagnoses of 9 spp.; LENDENFELD (27) pp. 145-148.

Lithobactrum n. g. for *L. forte* n. sp., Natal Coast; KIRKPATRICK (25) pp. 175 & 176, pl. iv, figg. 5, 5a-g.

†*Verruculina* sp. described; POČTA (37) p. 7 and (38) p. 115, pl. ii, fig. 4.

Family ANOMOCLADIDÆ.

Vetuliniidæ nom. nov. for *Anomocladidæ* Soll., defined, includes the single recent genus *Vetulina*; LENDENFELD (27) p. 149.

†*Anomoclonella zitteli*; FOERSTE (17) p. 713.

†*Astylomanon cratera*, pp. 572, 713; †*A. plurixcavatum*, and *A. verrucosum*, p. 714; FOERSTE (17).

†*Astylosporgia imbricato-articulata*, p. 714; †*A. præmorsa*, pp. 583 & 708; FOERSTE (17).

†*Carpomanon glandulosum*; FOERSTE (17) p. 174.

†*Caryomanon inusolobatum*, pp. 583 & 714; †*C. roemeri*, p. 714; †*C. stellatim-sulcatum*, p. 571, 572, 575 & 714; FOERSTE (17).

†*Hindia fibrosa* (Roem.) described, p. 297, pl. xxxiii, figg. 1 & 2; †*H. parva* Ulrich, described, p. 135, pl. vi, fig. 1; WELLER (54). †*H. prox. gregaria*; FOERSTE (16) p. 35. †*H. sphaeroidalis*; FOERSTE (17) p. 714.

Poterionella n. g. allied to *Lecanella* Z. for †*P. trunciformis* n. sp., from the Cenomanian of Kuttenberg, Bohemia; POČTA (37) pp. 8 & 9 and (38) pp. 116 & 117, pl. i, figg. 14-16, pl. ii, fig. 6.

- +*Pycnopegma callosum*, +*P. pileum*, and +*P. stromatoporoides*; FOERSTE (17) p. 714.
Vetulina O. S., genus defined, with diagnosis of 1 sp.; LENDENFELD (27) p. 149.

Family RHIZOMORINIDÆ.

- +*Cupulospongia patella* Gf., and +*C. pezizoides* d'Orb.; SCHARDT & DUBOIS (45) p. 395.
 +*Hippolimnus cylindricus* Gf.; SCHARDT & DUBOIS (45) p. 395.
 +*Pachinion scriptum* Roem.; JUKES BROWNE & HILL (24) p. 379.
 +*Stichophyma tumidum* Hinde; JUKES-BROWNE & HILL (24) p. 379.
 +*Tragos mammillatus* d'Arch. and *T. pisiformis* Gf.; CAREZ (7) pp. 327, 412 & 542.

(ii) MONAXONIDA.

(a) Order HADROMERINA.

1. Sub-order ACICULINA.

Family COPPATIDÆ.

- Coppatias* Soll., genus redefined, *C. baculifer* n. sp., from Durnford Point, Natal, 90 fathoms; KIRKPATRICK (26) pp. 239 & 240, pl. v, fig. 5, pl. vi, fig. 5a-b.
Jaspis biangulata (Lindgr.), described; THIELE (50) pp. 933 & 934. *J. dendi*; RICHARD (42) p. 72.

Family TETHYIDÆ.

- Tethya lyncurium* (L.), description and synonymy; ROUSSEAU (43) pp. 15 & 16, fig. 8: physiology; COTTE (9) see II, c, iv. *T. magna* n. sp., from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26) pp. 240 & 241, pl. v, fig. 6, pl. vi, figg. 6a-d.
Tethya sensu *Craniella*, vide *Tetillidæ* (p. 20, supra).
Trachya nuda n. sp. from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26) pp. 241, pl. v, fig. 7, pl. vi, fig. 7a, b.

Family STYLOCORDYLIDÆ.

- Cometella spermatozoon* O. S., vide *Ficulina*.

2. Sub-order CLAVULINA.

Family CLIONIDÆ.

- Cliona celata* Grant, synonymy and description; ROUSSEAU (43) pp. 24 & 25, fig. 15: physiology; COTTE (9). +*C. cretacea* Portl.; JUKES-BROWNE & HILL (24) p. 379, 407 & 423. *C. lobata* Hanc., synonymy and description, p. 26, fig. 17; *C. vastifica* Hanc., synonymy and description, pp. 25 & 26, fig. 16: ROUSSEAU (43): physiology; COTTE (9). *C. viridis* (O. S.), physiology; COTTE (9).
Thoosa armata Tops., larvæ; TOPSENT (52).

Family SPIRASTRELLIDÆ.

- Hastatus mammillaris* Frist., vide *Hymedesmia*.
Hymedesmia crux for *Desmacidon crux* O. S., redescribed, pp. 392 & 393, pl. xxi, fig. 26; *H. filifera* for *Desmacidon filiferum* O. S., redescribed, p. 391, pl. xxi, fig. 25; THIELE (51). *H. hallezi* Tops., described; ROUSSEAU (43) p. 17, fig. 9. *H. mammillaris* for *Hastatus mammillaris* Frist., redescribed; THIELE (51) p. 390, pl. xxi, fig. 22. *H. norvegica* n. sp.; THIELE (51) p. 390, pl. xxi, fig. 23. *H. prostrata* n. sp.; THIELE (50) p. 955, pl. xxviii, fig. 20. *H. stellata* Bwk.; ROUSSEAU (43) p. 17. *H. vidua* for *Spirastrella vidua* O. S., redescribed; THIELE (51) p. 393, pl. xxi, figg. 27.
- Kalastrella* n. g. of *Spirastrellidæ* allied to *Spirastrella*, for *K. vasiformis* n. sp., from mouth of Tugela River, 65 fathoms, and *K. vasiformis* var. *minor* n. var., from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26), pp. 238 & 239, pl. v, figg. 3 & 4, pl. vi, figg. 3a-f & 4a-c.
- Latrunculia natalensis* n. sp., from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26) pp. 237 & 238, pl. v, fig. 2, pl. vi, figg. 2a-e. *L. triloba* for *Sceptrella triloba* O. S., redescribed; THIELE (51) pp. 377 & 378, pl. xxi, fig. 3.
- Sceptrella triloba* O. S., vide *Latrunculia*.

Family POLYMASTIDÆ.

- Spirastrella vidua* O. S., vide *Hymedesmia*.
Polymastia mammillaris (O. F. M.), synonymy and description; ROUSSEAU (43) pp. 22 & 23, fig. 14. *P. mespilus* O. S., redescribed; THIELE (51) p. 376, pl. xxi, fig. 1. *P. robusta* Bwk.; ROUSSEAU (43) p. 23. *P. uberrima* for *Rinalda uberrima* O. S., redescribed; THIELE (51) pp. 376 & 377, pl. xxi, fig. 2.
- Proteleia* Dendy & Ridley, genus defined, placed in family *Tethyopsillidæ*, with diagnoses of two spp.; LENDENFELD (27) pp. 29 & 30.
- Rinalda uberrima* O. S., vide *Polymastia*.

Family SUBERITIDÆ.

- Ficulina ficus* (L.), synonymy and description; ROUSSEAU (43) pp. 18-20, fig. 10. *F. spermatozoon* for *Cometella spermatozoon* O. S., redescribed; THIELE (51) p. 378, pl. xxi, fig. 4.
- Prosuberites epiphytum* (Lam.), described; ROUSSEAU (43) p. 18, fig. 10.
- Suberites caminatus*; RICHARD (42) p. 69. *S. dianæ* O. S., vide *Microcionæ*. *S. domuncula* Ndo., physiology; COTTE (9), see II, c, iv. *S. panis* Selenka is a *Tedania*; THIELE (50) p. 946.
- Terpios fugax* Duch. et Mich., described; ROUSSEAU (43) p. 20, fig. 11.

Family MESAPIDÆ.

- Mesapos stellifera* (Bwk.); ROUSSEAU (43) p. 21.
- Tethyspira spinosa* (Bwk.), described; ROUSSEAU (43) p. 21, fig. 13.

Family PLACOSPONGIDÆ.

- Placospongia labyrinthica* n. sp. from East London Coast, Natal, 85 fathoms; KIRKPATRICK (26) pp. 236 & 237, pl. v, figg. 1, 1a & 1b, pl. vi, figg. 1a-f.

(b) Order HALICHONDRINA.

Family HAPLOSCLERIDÆ.

Sub-family CHALININÆ.

- Chalina* Grant, diagnosed; *C. rectangularis* (?) R. & D.: ARNESEN (3) p. 4.
Siphonochalina claviformis Kieschnick, a doubtful species; THIELE (50)
 p. 940.
Toxochalina ternatensis Kieschnick, a doubtful species; THIELE (50)
 p. 940.

Sub-family RENIERINÆ.

- Amorphina appendiculata* O. S., vide *Eumastia*. *A. paciscens* O. S., vide
Pellina.
Eumastia O. S., diagnosed; ARNESEN (3) p. 6. *E. appendiculata* for
Amorphina appendiculata O. S., redescribed; THIELE (51) pp. 379 &
 380, pl. xxi, fig. 7. *E. sitiens* O. S., described; ARNESEN (3) pp. 6 & 7,
 pl. i, fig. 1, pl. vii, fig. 1.
Gellius Gray, diagnosed; ARNESEN (3) p. 7. *G. conchi* (Bwk.); THIELE
 (50) p. 941. *G. esperi* n. sp.; ARNESEN (3) p. 7, pl. i, fig. 2. *G.*
fibulatus (O. S.); THIELE (50) p. 941. *G. forcipatus* n. sp., Ternate;
 THIELE (50) p. 942, pl. xxviii, fig. 6. *G. irregularis* Kieschnick is a
 doubtful species; THIELE (50) p. 941. *G. jugosus*; THIELE (50) p. 941.
G. massa n. sp., Bergen, 130 m.; ARNESEN (3) pp. 7 & 8, pl. i, fig. 3.
G. truncatus Kieschnick is a doubtful species; THIELE (50) p. 941.
Halichondria Fleming, diagnosed; ARNESEN (3) pp. 4 & 5. *H. fragilis*
 Kieschnick and *incrustans* Kieschnick are doubtful species; THIELE
 (50) pp. 935 & 936. *H. pachastrelloides* Tops.; KIRKPATRICK (26)
 p. 254. *H. panicea* Instn., described; ARNESEN (3) p. 5. *H.*, 2 spp.
 from Ternate; THIELE (50) p. 937.
Pellina paciscens for *Amorphina paciscens* O. S., redescribed; THIELE (51)
 p. 380, pl. xxi, fig. 8. *P.*, sp. from mouth of Tugela River, 65-80
 fathoms; KIRKPATRICK (26) p. 254.
Petrosia cancellata n. sp., Ternate, pp. 938 & 939, pl. xxviii, fig. 3;
P. strongylata n. sp., Ternate, p. 938, pl. xxviii, fig. 2; THIELE (50).
Protoschmidtia expansa n. sp., Ternate, p. 939, pl. xxviii, fig. 4; *P.*
pulvillus n. sp., Ternate, p. 939, pl. xxviii, fig. 5; THIELE (50).
Reniera Ndo., diagnosed; ARNESEN (3) p. 5. *R. fistulosa* O. S., physiology;
 COTTE (9). *R. simplex* Bwk., described; ARNESEN (3) pp. 5 & 6. *R.*
simulans (Johnst.), physiology; COTTE (9), see II, c, iv. *R.* sp.,
 described; ARNESEN (3) p. 6.

Sub-family SPONGILLINÆ.

- Carterius stepanovi* Dyb. in the Schöhsee, near Plön; ZACHARIAS (58).
Ephydatia fluviatilis, spermatogenesis; GÖRICH (19) pp. 65-67, fig. 1:
 ZUIKOV (59) p. 43. *E. mülleri* Liebk., described; ZUIKOV (59) pp. 42
 & 43, fig. 20.
Spongilla fragilis Leidy, growth and gemmule formation; LENDENFELD
 (28).
Spongilla lacustris Lam., physiology; COTTE (9).

Sub-family GELLIODINÆ.

Gelliodes hamata n. sp., Ternate, pp. 942 & 943, pl. xxviii, fig. 7; *G. porosa* n. sp., Ternate, p. 943, pl. xxviii, fig. 8: THIELE (50).

Sub-family PHLÆODICTYINÆ.

Oceanapia Norm. diagnosed; *O. robusta* Bwk.: ARNESEN (3) p. 8.
Phlæodictyon eumitum [errore *eumatum*] n. sp. from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26) pp. 253 & 254, pl. v, fig. 18, pl. vi, figg. 19a, b. *P. fistulosum* (Bwk.), described; THIELE (50) pp. 937 & 938.
Rhizochalina crassispicula Kieschnick, a doubtful species; THIELE (50) p. 936.

Family PÆCILOSCLERIDÆ.

Sub-family ESPERELLINÆ.

Biemna Gray, discussion of the genus, p. 943; *B. humilis* n. sp. p. 944, pl. xxviii, fig. 10; *B. trirhaphis* (Tops.), pp. 944 & 945; *B.*, sp., p. 945, all three from Ternate: THIELE (50). *B. korenii* for *Desmacidon korenii* O. S., redescribed; THIELE (51) pp. 380 & 381, pl. xxi, fig. 10.
Chondrocladia ramosa Kieschnick, a doubtful species; THIELE (50) p. 947.
Cladorhiza M. Sars, diagnosed; *C. abyssicola* M. Sars, described: ARNESEN (3) p. 12. *C. pennatula* O. S., additions to the description of; THIELE (51) p. 385.
Desmacidon Bwk., diagnosed; ARNESEN (3) p. 13. *D. anceps* O. S., a non-existent species, founded on types belonging to several genera and species; THIELE (51) pp. 388-390. *D. clavellata* n. sp., Bergen, 100-300 m.; ARNESEN (3) pp. 13 & 14, pl. ii, fig. 2, pl. iv, fig. 4. *D. emphysema* O. S., vide *Melonanchora*. *D. filiferum* O. S. and *D. crux* O. S., vide *Hymedesmia*. *D. grande* R. & D.; KIRKPATRICK (26) p. 252. *D. korenii* O. S., vide *Biemna*; *D. neptuni* O. S., vide *Plumohalichondria*. *D. physa* O. S., vide *Histoderma*. *D. ramosum* R. & D.; KIRKPATRICK (26) p. 252.
Esperella Vosm. seu *Esperia* O. S., diagnosed; ARNESEN (3) p. 9: see also *Mycale*. *E. cegagropila* (Johnst.), physiology; COTTE (9). *E. fabricans* O. S., vide *Hamigera*. *E. lanugo* O. S., described, p. 10, pl. i, fig. 6; *E. massa* O. S., described, pp. 9 & 10, pl. i, fig. 5, pl. iv, fig. 2: ARNESEN (3): *E. lanugo* O. S., *E. intermedia* O. S., *E. lucifera* O. S., and *E. massa* O. S., vide *Mycale*. *E. plumosa* n. sp., Trondhjems fjord; ARNESEN (3) p. 11, pl. ii, fig. 1, pl. iv, fig. 3, pl. vi, fig. 7. *E. rhopatophora* O. S., described; ARNESEN (3) pp. 10 & 11, pl. i, fig. 7: see also *Rhaphidotheca*.
Esperiopsis Crtr., diagnosed; *E. schmidtii* n. sp., Osterfjord, Norwegian Coast, 500 m.: ARNESEN (3) pp. 8 & 9, pl. i, fig. 4, pl. iv, fig. 1, pl. vi, fig. 3.
Gomphostegia Tops., a synonym of *Rhaphidotheca* Sav. Kent; THIELE (51) p. 383.
Hamacantha Gray, diagnosed; ARNESEN (3) p. ii. *H. esperioides* (R. & D.); KIRKPATRICK (26) p. 253. *H. johnsoni* (Bwk.) Gray, described; ARNESEN (3) p. 12.
Homæodictya Ehlers, diagnosed; *H. palmata* (Johnst.) Tops., described: ARNESEN (3) p. 13.

- Inflatella pellicula* O. S., redescribed; THIELE (51) pp. 385 & 386, pl. xxi, fig. 17.
- Joyeuxia* Tops., a synonym of *Inflatella* O. S.; THIELE (51) p. 386.
- Mycale* Gray, to replace *Esperia* and *Esperella*; *M. armata* n. sp. p. 950, pl. xxviii, fig. 16; *M. moluccensis* n. sp. p. 950, pl. xxviii, fig. 17: THIELE (50). *M. intermedia* for *Esperia intermedia* O. S., redescribed, pp. 381 & 382, pl. xxi, fig. 12; *M. lanugo* for *Esperia lanugo* O. S., redescribed, p. 381, pl. xxi, fig. 11; *M. lingua* Bwk. to include *Esperia lucifera* O. S. and *E. massa* O. S., p. 382, pl. xxi, fig. 13: THIELE (51).
- Rhaphidotheca rhopalophora* for *Esperia rhopalophora* O. S., redescribed, includes *R. affinis* Crtr.; THIELE (51) pp. 382 & 383, pl. xxi, fig. 14.

Sub-family DENDORYCINÆ.

- Dendoryx* Gray, diagnosed; *D. incrustans* (Esper), described: ARNESEN (3) pp. 14 & 15, pl. ii, fig. 3, pl. vii, fig. 3: KIRKPATRICK (26) pp. 251 & 252: physiology; COTTE (9).
- Grayella*, to include *Yvesia* Tops.; *G. polymastia* n. sp.; THIELE (51) p. 391, pl. xxi, fig. 24.
- Histoderma* Crtr., diagnosed; ARNESEN (3) p. 16. *H. natalense* n. sp. from mouth of Tugela River, 65-80 fathoms; KIRKPATRICK (26) pp. 250 & 251, pl. v, fig. 17, pl. vi, figg. 18a-e. *H. physa* (O. S.), described; ARNESEN (3) pp. 16 & 17, pl. ii, fig. 5, pl. vi, fig. 9: redescribed; THIELE (51) p. 385, pl. xxi, fig. 16.
- Histoderma singaporensis* (Crtr.); THIELE (50) p. 955.
- Iophon* Gray, diagnosed; *I. pattersoni* (Bwk.), described: ARNESEN (3) p. 15. *I. pommeraniae* n. sp.; THIELE (51) p. 389, pl. xxi, fig. 20.
- Iotrochota baculifera* Ridl.; THIELE (50) p. 947.
- Melonanchora* Crtr., diagnosed, *M. elliptica* Crtr., described; ARNESEN (3) pp. 15 & 16, pl. ii, fig. 4, pl. v, fig. 4. *M. emphysema* for *Desmacidon emphysema* O. S., redescribed; THIELE (51) p. 392.
- Tedania coralliophila* n. sp., p. 946, fig. 12, pl. xxviii; *T. reticulata* n. sp., p. 946, pl. xxviii, fig. 13; *T. mæandrica* n. sp., p. 947, pl. xxviii, fig. 14; *T. brevispiculata* n. sp., p. 947, pl. xxviii, fig. 15: THIELE (50). *T. increscens* O. S., redescribed; THIELE (51) p. 380, pl. xxi, fig. 9.
- Yvesia* Tops., diagnosed; ARNESEN (3) p. 17: a synonym of *Grayella*; THIELE (5) p. 391. *Y. lobata* n. sp., Trondhjem, p. 18, pl. ii, fig. 7, pl. v, fig. 1, pl. vi, fig. 2; *Y. mammillata* n. sp., Bodö, pp. 17 & 18, pl. ii, fig. 6, pl. vii, fig. 2: ARNESEN (3).

Sub-family ECTYONINÆ.

- Acarus ternatus* Ridl. and *A. wolfgangi* Keller; THIELE (50) pp. 960 & 961, pl., figg. 26 & 27.
- Agelas cavernosa* n. sp.; THIELE (50) p. 963, pl., fig. 28.
- Clathria* O. S., diagnosed, p. 21, *C. dichotoma* (L.), described; ARNESEN (3) pp. 21 & 22, pl. iii, fig. 4, pl. vi, fig. 8. *C. dichotoma* (Esper) includes *Raspailia mæbii* O. S. and *Dictyocylindrus abyssorum* Crtr.; THIELE (51) p. 394. *C. mollis* n. sp. from East London, Natal, 85 fathoms, pp. 249 & 250, pl. v, fig. 15, pl. vi, figg. 16 a-d; *C. typica* (Crtr.), described, pp. 248 & 249: KIRKPATRICK (26).
- Echinocalina* n. g. for *Ophlitaspongia australiensis* Ridl.; THIELE (50) pp. 961 & 962.
- Eurypon clavatum* (Bwk.) Gray to include *Hymenaphia plicata* O. S., redescribed; THIELE (51) p. 386, pl. xxi, fig. 18.

- Forcipina* Vosm., a subgenus of *Hamigera* Gray; THIELE (51) p. 384.
Hamigera Gray, diagnosed; ARNESEN (3) p. 20: discussion of the genus, p. 951; *H. ternatensis* n. sp., p. 952, pl. xxviii, fig. 18: THIELE (50).
H. (Forcipina) fabricans for *Esperia fabricans* O. S., redescribed; THIELE (51) pp. 383-385, pl. xxi, fig. 15. *H. stipitata* n. sp.; ARNESEN (3) pp. 20 & 21, pl. iii, fig. 3, pl. vi, fig. 6.
Hymeraphia distincta n. sp., p. 956, pl. xxviii, fig. 21; *H. similis* n. sp., p. 957, pl. xxviii, fig. 22: THIELE (50). *H. plicata* O. S., a synonym of *Eurypon clavatum* (Bwk.); THIELE (51) p. 386. *H. vermiculata* Bwk., vide *Bubaris*.
Microciona diana for *Suberites diana* O. S., redescribed; THIELE (51) p. 394, pl. xxi, fig. 28.
Myxilla O. S., discussion of the genus, p. 953; *M. grata* n. sp., p. 954, pl. xxviii, fig. 19; *M. schmidti* Ridley, p. 954: THIELE (50). *M.* sp.; physiology; COTTE (9).
Plumohalichondria Crtr., diagnosed; ARNESEN (3) p. 19. *P. incrustans* (Crtr.), vide *Pytheas*. *P. neptuni* for *Desmacidon neptuni* O. S., redescribed, includes *P. microcionides* Crtr.; THIELE (51) pp. 387 & 388, pl. xxi, fig. 19. *P. papillosa* n. sp., Bergen, pp. 19 & 20, pl. v, fig. 3, pl. iii, fig. 2, pl. vi, fig. 5; *P. plumosa* (Mont.), described, p. 19, pl. iii, fig. 1, pl. v, fig. 2, pl. vi, fig. 1: ARNESEN (3).
Pytheas incrustans for *Plumohalichondria incrustans* (Crtr.); THIELE (51) p. 388.
Rhaphidophlus spinifer for *R. filifer* var. *spinifera* Lindgr., p. 958, pl. fig. 23; *R. cervicornis* n. sp., p. 959, pl. fig. 24; *R. coralliophilus* n. sp., p. 959, pl. fig. 25: THIELE (50).
Stylostichon Tops., a synonym of *Plumohalichondria* Crtr.; THIELE (51) p. 387. *S. involutum* n. sp. from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26) p. 250, pl. v, fig. 16, pl. vi, figg. 17a-e.

Sub-family BUBARINÆ.

- Bubaris reptans* n. sp. from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26) p. 248, pl. v, fig. 14, pl. vi, figg. 15 a-c. *B. topsenti* nom. nov. for *Monocrepidium vermiculatum* Tops.; THIELE (51) p. 379. *B. vermiculata* for *Hymeraphia vermiculata* Bwk., redescribed; THIELE (51) p. 379, pl. xxi, fig. 6: physiology; COTTE (9).
Plocamia [errore *Placomia*] O. S., diagnosed; *P. ambigua* (Frist.), described: ARNESEN (3) pp. 22 & 23, pl. iii, fig. 5: THIELE (51) p. 389, pl. xxi, fig. 21.

Family AXINELLIDÆ.

- Axinella* O. S., diagnosed; ARNESEN (3) p. 24. *A. echidnaea* Kieschnick, is a doubtful species; THIELE (50) p. 935. *A. erecta* R. & D., described; ARNESEN (3) pp. 24 & 25. *A.* sp. from Cone Point, Natal, 34 fathoms, pp. 243 & 244: *A.* sp. from mouth of Tugela River, p. 244; KIRKPATRICK (26).
Axinyssa tethyoides n. sp. from Cone Point, Natal, 34 fathoms; KIRKPATRICK (26) pp. 244 & 245, pl. v, fig. 12, pl. vi, figg. 8a & b.
Dictyocylindrus abyssorum Crtr., vide *Clathria dichotoma*.
Higginsia bidentifera (R. & D.); KIRKPATRICK (26) p. 247.
Hymeniacion caliculatum n. sp. and var. *osculatum* n. var. from East London, Natal, 85 fathoms; KIRKPATRICK (26) pp. 241 & 242, pl. v, fig. 8, pl. vi, figg. 12 & 13.

- Phakellia* Bwk., diagnosed; ARNESEN (3) p. 23. *P. microxephora* n. sp. from East London, Natal, 85 fathoms; KIRKPATRICK (26) pp. 242 & 243, pl. v, fig. 9, pl. vi, figg. 9a-d. *P. ventilabrum* (Johnst.); ARNESEN (3) pp. 23 & 24.
- Phycopsis* prox. *valida* Thiele, described; THIELE (50) pp. 934 & 935, pl. xxviii, fig. 1.
- Pseudaxinella sulcata* O. S., redescribed; THIELE (51) pp. 378 & 379, pl. xxi, fig. 5.
- Raspailia mœbii* O. S., vide *Clathria dichotoma*.
- Sigmaxinella arborea* n. sp. from Natal Coast, p. 246, pl. v, fig. 13, pl. vi, figg. 14a-c; *S. incrustans* n. sp. from East London, Natal, 85 fathoms, pp. 246 & 247: KIRKPATRICK (26).
- Sollasella hystrix* (Tops.), described; KIRKPATRICK (26) p. 247.
- Syringella gorgonioides* n. sp. from East London, 85 fathoms; KIRKPATRICK (26) pp. 244 & 245, pl. v, fig. 11, pl. vi, figg. 11a & b.
- Thrinacophora incrustans* Kieschnick a doubtful species; THIELE (50) p. 935.
- Tragosia* Gray, diagnosed, *infundibuliformis* (Johnst.); ARNESEN (3) p. 24. *T. infundibuliformis* var. *natalensis* n. var. from Natal Coast, 65-10 fathoms; KIRKPATRICK (26) p. 243, pl. v, fig. 10, pl. vi, figg. 10a-c.

(iii) KERATOSA.

(a) DICTYOCERATINA.

Family SPONGIDÆ.

- Coscinoderma concentricum* n. sp. from Natal Coast, 30 fathoms; KIRKPATRICK (26) pp. 254 & 255, pl. vi, figg. 19, 19a.
- Euspongia irregularis* varr. *dura* Ldf., *lutea* Ldf., *mollior* O. S., *tenuis* Ldf.; BAAR (4) pp. 28 & 29.
- Hippospongia densa* Ldf.; BAAR (4) p. 29.
- Hircinia arbuscula* Lend. described, pp. 256 & 257, pl. v, figg. 20, 20a, b, pl. vi, fig. 20; *H. arenosa* Lend., described, p. 256: KIRKPATRICK (26).
- H. variabilis* var. *typica* O. S.; BAAR (4) p. 34.
- Stelospongia chaliniformis* Ldf., p. 31; *S. flava* n. sp. from the Chatham Ids., pp. 31-33, figg. a-c; *S. intertextata* Hyatt, p. 31; *S. kingii* Ldf., p. 31; *S. reticulata* Ldf., pp. 30 & 31; *S. lordii* Ldf., p. 31: BAAR (4).
- S.* sp., physiology; COTTE (9). *S.* sp. from Cape Vidal, Natal, 80-100 fathoms; KIRKPATRICK (26) pp. 255 & 256.

Family SPONGELIDÆ.

- Psammopemma inordinatum* n. sp. from Natal Coast, 65-100 fathoms; KIRKPATRICK (26) pp. 257 & 258, pl. vi, figg. 21 & 21a.
- Spongelia patlescens* varr., physiology; COTTE (9): see II, c, iv.

Family APLYSINIDÆ.

- Thorecta cacos* Ldf., *T. exemplum* varr. *secunda* Hyatt and *tertia* Ldf., *tuba* Ldf., and *T. wootan* Ldf.; BAAR (4) pp. 29 & 30.

(b) DENDROCERATINA.

Family APLYSILLIDÆ.

Aplysilla sulfurea F. E. S; ROUSSEAU (43) p. 12.
Haddonella n. g. for *H. topsenti* n. sp. from Torres Straits; SOLLAS (49).

(iv) MYXOSPONGIDA.

Family OSCARELLIDÆ.

Oscarellide Ldf., family defined, for single genus *Oscarella*; LENDENFELD (27) p. 123.
Oscarella Vosm., genus defined, with diagnosis of 1 sp.; LENDENFELD (27) pp. 123 & 124. *O. lobularis* (O. S.); ROUSSEAU (43) p. 14.

Family HALISARCIDÆ.

Halisarca dujardini Johnst.; ROUSSEAU (43) p. 13.

E. OCTACTINELLIDA.

†*Astreospongia meniscus*; FOERSTE (17) pp. 571 & 572, 575, 692, 694.

F. HETERACTINELLIDA.

Vacant.

G. INCERTÆ SEDIS.

The *Gastreadæ* of Haeckel do not exist; CARAZZI (6).
 Problematic sponge from Lias of Val Solda; BISTRAM (5) pp. 86 & 87, pl. vii, figg. 2 & 3.
 †*Actinofungia porosa* From.; SCHARDT & DUBOIS (45) p. 416.
 †*Amorphofungia cæspitosa* de Lor., p. 416; †*A. multiformis* de Lor., p. 428; SCHARDT & DUBOIS (45).
 †*Cupulochonia* sp.; SCHARDT & DUBOIS (45) p. 416.
 †*Hylospongia* sp.; JUKES-BROWNE & HILL (24) pp. 42, 178.
 †*Hystriospongia* sp.; GIRTY (18) pp. 249 & 250, 320.
 †*Monothetes stellata* From.; SCHARDT & DUBOIS (45) p. 416.
Prophysema haeckelii n. sp. from the island of Radoc, north of Bergen; LEON (29).

XVIII. PROTOZOA.

BY

H. M. WOODCOCK, B.Sc. (Lond.).

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INTRODUCTION.

THE *Protozoa* Record for 1903 deals with 433 papers, shewing a decrease of about 17 as compared with 1902. As, however, there are fewer memoirs belonging to previous years included this time, the decline in output is more apparent than real.

Works of a medico-biological character are, of course, again much in evidence; those concerning trypanosomosis largely predominate in number. In this connection the Recorder would point out that he has felt himself obliged to leave out—speaking broadly—"malarial" papers. Reference to the literature appendices of the "Referate" section of the "Centralblatt für Bakteriologie" will shew scores of such memoirs, most of which the Recorder could not possibly see, and to include which would greatly swell the list of titles to no useful purpose so far as this Record is concerned. Papers relating to trypanosomosis have, on the other hand, practically all to be included.

The reason for this differential treatment is supplied by the character of the works in question. While the study of malaria is at present chiefly confined to the discussion of prophylactic and hygienic measures—there being scarcely anything to note with regard to the morphology and life-history of the parasite, that of diseases caused by other forms of *Hæmatozoa* is, as yet, in its infancy and hardly a paper appears which does not contain important remarks bearing upon the Trypanosomes themselves.

The only other point to mention here is that there is a slight decrease, not so much in number as in importance, of papers of a palæontological nature, the falling off being more especially noticeable in the case of those dealing with the description of Italian fossil Foraminifera.

The Subject-index this year is modified in character, owing to considerations of space, and merely indicates the contents of the papers referred to, without abstracting or analysing them. Attention may therefore be here directed to the more important works in the different sub-divisions. SCHAUDINN (333) again contributes a most able and valuable memoir, albeit described as a preliminary note! Returning to the Rhizopods, the author considers principally (though not by any means solely) the parasitic *Entamoebæ* of the alimentary canal and reveals a far more complicated life-cycle in these organisms than has hitherto been known. Unfortunately, the paper, though lengthy, is not provided with any figures. TRAUBE-MENGARINI (388 & 389) describes the first authentic instance of conjugation in *Amœba*. FOWLER (119) gives an interesting account of the complicated structure of the Radiolarian *Planktonetta*. The Sporozoa do not, on the whole, bulk so largely in this year's Record, and only three or four papers require special notice. NUSBAUM (282) describes a remarkable new Gregarine, appropriately named *Schaudinnella*, which possesses very distinctive features, some of them being unique in this order. LÉGER & DUBOSCQ (211) figure the interesting case of anisogamy in *Ptercephalus*, of which mention was made last year (*Zool. Rec.* 1902, No. 217). A brief paper, also only a preliminary note, but one of fundamental importance in the study of *Hæmosporidia* is that of SIEGEL (349), who demonstrates the existence of an alternation of hosts and of a digenetic life-cycle in the case of a *Hæmogregarine*. In a footnote Schaudinn corroborates these facts for *Karyolysus*, parasitic in lizards. LAVERAN & MESNIL (203) describe a new *Piroplasma*, causing Dum-dum fever in India, this being the first instance of the occurrence of piroplasmosis in man. Among Flagellata, Trypanosome papers naturally occupy a prominent place. BRUCE & NABARRO (38 & 39), CASTELLANI (52-55), and DUTTON & TODD (94) contribute to our knowledge of the parasite of sleeping-sickness, the last-named investigators further describing

certain other forms from wild animals. The Trypanosome of mal de Caderas has also received much attention, chiefly on the part of ELMASIAN & MIGONE (98), LIGNIÈRES (227) and SIVORI & LECLER (357).

Turning to minute structure, several interesting papers dealing mainly with the locomotor organs and associated directive (nervous?) elements of various Flagellates and Ciliates have to be recorded. Among these are the contributions of LÉGER (204), MAIER (243), NERESHEIMER (279) and PROWAZEK (302), all of which are to be found in the *Archiv für Protistenkunde*. This periodical, it may be added, continues to admirably satisfy a long-felt want of protistologists.

Of a more generalized character are HERTWIG's thoughtful papers (150 & 151) on the various conditions affecting the relative size of nucleus and cytoplasm and the metabolic interchange between these two constituents of the cell, in which he draws frequently upon the Protozoa for illustration. The "recuperation" question and its significance is discussed by LOISEL (236-238), whose conclusions somewhat differ from those of Calkins. PROWAZEK has been occupied with regeneration experiments, which he recounts in (304 & 305) and STEVENS, in her instructive and well-illustrated account (371) of *Licnophora* also treats of this subject, reserving a fuller consideration of it, however, for her paper in this connection on *Stentor* (372).

In the Bionomical section, the Recorder would like to comment, on the one hand, upon the inexhaustible capacity of the ponds at Plön to reveal new treasures, of which full advantage is taken by VOIGT (394-396), ZACHARIAS (418-422), and others, and, on the other hand, upon the continued and futile attempts of BOSC (30), FENBERG (108-9), and PLIMMER (299) to find Protozoan parasites that may be held responsible for cancer and other epitheliomatous maladies, an explanation more than ever improbable, at any rate, as regards the first-named disease, at the present time.

For various works on Geographical Distribution, the reader is referred to the different papers by CALKINS, DADAY, FOREL, ISSEL, KLER, LEVANDER, MILLETT, PEARCEY, PENARD, SILVESTRI, and WEST, and on Geological Distribution to those by BAGG, FORNASINI, GUPPY, HERRMANN, LIEBUS, NEWTON & HOLLAND, SCHLUMBERGER, SCHUBERT, SILVESTRI, SQUINABOL, TOUTKOWSKI, VOLZ, WOJCIK, WRIGHT and others.

An important event in the Protozoan world in 1903 was the publication of the part of Lankester's "Treatise on Zoology" dealing with this group, or rather, to be precise, of the first fascicle of that part. The work comprises four sections, the first of which, in a measure introductory, is by FARMER (107) on the structure of animal and vegetable cells; the others are, in order, the Foraminifera by LISTER (232), the Sporozoa by MINCHIN (265), and the Infusoria by HICKSON (155). Minchin's account of the Sporozoa and Lister's of the Foraminifera are particularly well done and merit high commendation. Considerations of space preclude more detailed notice; let it suffice to add that if the second fascicle maintains the high level reached by the first, Protozoan researchers will possess, in this account, by far the best treatise on their group extant.

Among general Systematic works, CALKINS (47) enumerates and diagnoses the marine Protozoan fauna of Woods Hole. PENARD (288 & 289) continues his study of Rhizopods, considering, in the latter paper, several interesting forms which shew affinities in more than one direction. As already indicated, there are not many Foraminiferal papers of great importance to chronicle. Were it not for the fact that RHUMBLER (318) commences to monograph the "recent Reticulosa," the systematic part allotted to this order would be shorter than usual. SILVESTRI, it may be noted, continues in (352-355) his efforts in the direction of a natural classification based upon form-modification and transitional types, and

SCHLUMBERGER (337) adds to our knowledge of the Orbitoidæ, while, of course, the J. R. Micr. Soc. for the year would scarcely be complete without one or more instalments of the "Recent Foraminifera of the Malay Archipelago" by MILLET (263 & 264). Vinassa de Regny resigns, at any rate, temporarily, his premier position as a describer of new fossil Radiolaria in favour of SQUINABOL, who in (361) makes a gallant attempt to emulate him. This author's memoir, indeed, provides practically the entire material for the list of Radiolaria. It only remains to say that CRAWLEY (68 & 69) and LÉGER & DUBOSCQ (207 & 209) describe several new Gregarines, DANGEARD (79) gives a full and detailed account of the Euglenidæ, MOROFF (274) describes several new Flagellates and BEZZENBERGER (17) many new parasitic Infusoria; and, lastly, ISSEL (164) contributes an important study on a new family of Ciliates, the Ancistridæ.

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† For explanation of the arrangement of this periodical, see *Protozoa Record* for 1902, p. 5.

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Artificial cultivation of *Trypanosoma lewisi*, MCNEAL & NOVY (255).—Transmission of the Trypanosome of sleeping-sickness by *Glossina palpalis*, BRUCE & NABARRO (38 & 39).—LIGNIÈRES (227) & ELMASSIAN & MIGONE (98) were unable to transmit the Trypanosome of Mal de Caderas by means of *Stomoxys calcitrans*, and do not think this insect is the natural conveyer; SIVORI & LECLEER (357), on the other hand, think that it is; they all agree that the capybara is the original "source" of the parasite.—Apparently *Hippobosca rufipes* and *H. maculata*, are the usual transmitters of *Trypanosoma theileri*, LAVERAN (200).

2. Technique.

Description of a suction-tube for removing Rhizopods and Infusoria from the slime etc. at the surface of stagnant ponds, ZACHARIAS (415).

Different methods of capturing Plankton; filtering apparatus, etc. LOHMANN (234).

Effects of Romanowsky's stain on Protozoa, FEINBERG (108 & 109).—Modification of Romanowsky's stain, HARRIS (145).

Technique for Hæmatozoa, particularly for malarial parasites, LE DANTEC (81), also LAVERAN (198).—Method of staining the blood for malarial parasites, GILLOT (124), & KORECK (185).—Method of staining Spirilla and Trypanosomes in the blood, LEVADITI (216).—Means of distinguishing between true endoglobular Hæmatozoa and para-nuclear grains etc., LAVERAN (199).

3. Bibliography, etc.

Bibliography of Protozoan papers for 1902, with abstracts of several, MAYER (253).—List of Certes' Protozoan works, GUIART (140).

Bibliography of works on plankton (incl. Protozoa), LEMMERMANN (215).

Bibliography of Foraminifera from 1888–1898, TOUTKOWSKI (382).—On a note of Costa's (publ. 1855) concerning *Rosalina amalix* (= *Rotalia peccarii*), FORNASINI (118).

Bibliography of the Coccidia for the last four years, LÜHE (240).

On the nomenclature of the different forms and varieties of malaria and its parasites, BRUCE (37), WILLIAMSON (407).—Collection of papers relating to the history of the discovery of the transmission of malaria, GRASSI (133).—According to BLANCHARD (20), Klencke was the first to see a malarial parasite ("quartan" form). This observer noted flagelliform bodies (probably microgametes) in his own blood in 1843.

BABES (11) points out that he himself was the first to discover *Protoplasma*.

Bibliography of Trypanosome literature, 1900–1903, RABINOWITSCH & KEMPNER (311).—History of the discovery of Trypanosomes in man, BOYCE, ROSS & SHERRINGTON (33).

III. DISTRIBUTION.

A. GEOGRAPHICAL.

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The Hebrides, various Rhizopods, many of them n. spp., WEST (405).

Marine Foraminifera from Norwegian Fiords, KLÆR (178).

Gymnomyxa from Spitzbergen, with n. spp., PENARD (288).

Neighbourhood of Esbo-Löfo (near Helsingfors), fresh-water and marine Rhizopods, Heliozoa, Mastigophora, and Ciliophora, LEVANDER (221); fresh-water ponds, islands off the Finnish coast, Rhizopods (including *Diffugia curvicaulis*), Heliozoa, and Mastigophora, LEVANDER (222).

Lake Balaton and other Hungarian lakes, fresh-water Protozoa from, DADAY (73).—Siebenbürgen (Hungary), Protozoan fauna of saline ponds and lakes in, ENTZ (104).

Trieste, Grand Canal, *Eutreptia viridis* Perty, STEUER (370).

Alpine Lakes, Trentino, Protozoa, BUFFA (44).

Sea of Tirreno (Mediterranean between Italy and Sardinia), *Lagenidæ* from, several n. spp., SILVESTRI (351).—Ciliates (*Ancistridæ*) from the Gulf of Naples, ISSEL (164).—Mediterranean near Capri, Foraminifera, Lo BIANCO (233).

Lake of Geneva, Protozoa from, FOREL (116).

Locality and source of the different Nummulitic types described by d'Archiac in his monograph, THEVENIN (378).

Asia:—Asia Minor, Protozoa, DADAY (72).

Ceylon, Protozoa, DADAY (71).

Malay Archipelago, Foraminifera, MILLETT (263 & 264).

Africa:—Lake Tanganyika, curious Infusorian from, MOORE (272).

America:—United States, Wood's Hole, marine Protozoa, CALKINS (47).
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B. GEOLOGICAL.

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Diluvial Foraminifera, from Boizenburg in Mecklenburg, MADSEN (242).

Tertiary:—Different neighbourhoods in Lower Alsace, Foraminifera, HERMANN (147 & 148).

Tertiary, Wiesloch, Baden, Foraminifera, HERRMANN (149).

Tertiary ("sarmatischen Stufe"), near Presburg, *Nubecularia cæspitosa* n. sp., STEINMANN (363).

Tertiary, Piedmont, Foraminifera, and occurrence of Radiolaria, SILVESTRI (355).

Tertiary borings, Trinidad, Foraminifera from, GUPPY (141 & 142).

Tertiary (mostly Miocene), Foraminifera from the raised reefs of Fiji, SHERLOCK (345).

Pella beds, St Louis formation, occurrence of Rhizopods (mostly *Endothyra baileyi*), UDDEN (391).

Miocene, Rzeszow (Bohemia), Foraminifera, FRIEDBERG (121).

Miocene ("Schioschichten"), S. Orso, Italy, *Orbitoides elephantina*, OPPENHEIM (283).

Miocene ("orbitoidal-limestone"), Riu-Kiu, Formosa, Foraminifera, NEWTON & HOLLAND (280).

Oligocene, Istro-Dalmatia, Foraminifera, KERNER (176).

Oligocene, Bavaria, Foraminifera, LIEBUS (223).

Oligocene ("*Clavulina szaboi*-layers"), Priabona, Foraminifera, LIEBUS (224).

Lower Oligocene, Kruhel maly, near Przemysl, Foraminifera, WOJCIK (408).

Eocene to Pliocene limestones of coral islands, with Foraminifera, SKEATS (358).

Eocene and Oligocene, Italy, *Textularidæ*, FORNASINI (117).

Eocene, Maryland, Foraminifera, BAGG (12).

Eocene, Pyrenees and Alps, *Orbitoidæ*, SCHLUMBERGER (337).

Eocene of Catania, Foraminifera from, CHECCIA-RISPOLI (59).

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- Cretaceous deposits in Lubline, Foraminifera, TOUTKOWSKI (385).
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 Cretaceous, Australia, Foraminifera and Radiolaria, ETHERIDGE & DUN (106).
 Upper Cretaceous, Le Dévoluy, Foraminifera, LORY (239).
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 Lower and Middle Chalk, England, Foraminifera from, JUKES-BROWNE (172).
 Junction of Upper Lias and Inferior Oolite, a few Foraminifera met with, THOMPSON (380).
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 "Fusulina-chalk" (Carboniferous), Western Carnia, Foraminifera from, GORTANI (128).
 Coal-measures, Iowa, Foraminiferal ooze, UDDEN (390).

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- General:**—Complete list of Sporozoan hosts, MINCHIN (265).
 Animal parasites and their hosts, v. WAGNER (399).
Protozoa:—In *Volvox minor*, *Amæbae*, MOLISCH (269).
 In Dinoflagellates (*Ceratium fusus*, *C. tripos* and *Ceratocorys horrida*), *Hyalosaccus ceratii* n. g., n. sp., KEPPENA (175).
Cœlenterata:—Ectoparasitic on *Cordylophora lacustris*, *Lernæophrya capitata* n. g., n. sp., PEREZ (293).
 In the cœlenteric cavity of Siphonophores (*Cucubatus kochii*, *Halistemma tergestinum*, and *Monophyes gracilis*), *Trypanosoma grobbeni* n. sp., and *Oxyrrhis parasitica* n. sp., POCHE (300).
 From the digestive cavity of *Actinia equina*, *Anemonia sulcata*, and *Tealia crassicornis*, *Fœttingeria* (n. g.) *actiniarum*, CAULLERY & MESNIL (56).
Platyhelminthia:—In intestinal epithelium of *Temnocephala chilensis*, a Coccidian (?) parasite, WACKE (398).
Rotifera:—In *Synchaeta pectinata*, body-cavity, *Bertramia asperspora*, ZACHARIAS (420).
Chaetopoda:—In the intestine (free and in the epithelium) of *Henlea leptodera*, *Schaudinnella henleæ* n. g., n. sp., NUSBAUM (282).
 In *Polymnia nebulosa*, intestine and (rarely) cœlome, *Selenidium costatum* n. sp., SIEDLECKI (348).
 In *Rhynchobolus americanus*, intestine, *Doliocystis rhynchoboli*, CRAWLEY (68).
Hirudinea:—In *Placobdella catenigera*, stomach, salivary glands, etc. and ova, *Hæmogregarina stepanovi*, SIEGEL (349).
Gephyrea:—*Sipunculus nudus*, blood corpuscles, a new Sporozoan parasite, GINESTE (125).
Crustacea:—In body-cavity and organs of *Daphnia longispina*, *Polycaryum læve* n. sp., STEPELL (364).
 Exclusively in developing eggs and young embryos of parthenogenetic females of *Daphnia obtusa*, *Blastulidium pædophthorum* n. g., n. sp., PÉREZ (294).

Ectoparasitic on *Daphnia pulex* and *Simocephalus vetulus*, *Amœbidium* sp., ZACHARIAS (421).

In *Eupagurus prideauxi*, intestine and cœlome, *Aggregata vagans* n. sp., LÉGER & DUBOSCQ (212).

Myriapoda:—In *Blaniulus hirsutus*, *Brachydesmus superus* and *B. pusillus lusitanus*, intestine, *Stenophora brôlemanni* n. sp., LÉGER & DUBOSCQ (207, 209).

In *Geophilus* sp., intestine, *Nosema geophili*, CRAWLEY (70).

In *Pontaria* and *Polydesmus*, intestine, *Amphoroides fontariæ* n. sp., CRAWLEY (68).

In *Lithobius forficatus*, intestine, *Acutispora* n. g., *macrocephala* n. sp., and *Trichorhynchus lithobii* n. sp., CRAWLEY (69).

In *Schizophyllum corsicum*, intestine, *Stenophora varians* n. sp., LÉGER & DUBOSCQ (207, 209).

In: *Scolopendra cingulata*, intestine, *Actinocephalus striatus* n. sp.; *S. oraniensis lusitanica*, intestine, *Pterocephalus giardi* var. *corsicum*, and *Adelea dimidiata* var. *coccidioides*, LÉGER & DUBOSCQ (207-209); *S. woodi*, intestine, *Hoplorhynchus scolopendras* n. sp., CRAWLEY (69).

In *Strongylosomâ italicum*, intestine, *Stenophora nematoides* n. sp., LÉGER & DUBOSCQ (207, 209).

Insecta:—In the following Lepidoptera and Orthoptera, new Glugeidæ, viz.: *Brassolis astyra*—*Nosema astyræ*, *Catopsilia eubules*—*N. eubules*, *Danaïd erippus*—*N. erippi*, *Dione junô*—*N. junonis* and *N. vanillæ*, *Lophocampa flavosticha*—*N. lophocampæ*, *Mechanites lysimnia*—*N. lysimnia*, *Periplaneta americana*—*N. periplanetæ*, LUTZ & SPLENDRE (241).

In intestine of: *Boletophagus cornutus*—*Gregarina*(?) *boletophagi* n. sp., *Lysioptelalum lactarium*—*G. calverti* n. sp., *Harpalus caliginosus*—*Actinocephalus harpali* n. sp., a beetle of the fam. *Cucujidæ*(?), (larva)—*Hirmocystis*(?) *ovalis* n. sp., *Elater* sp. (larva)—*Gregarina*(?) *elateræ* n. sp., *Dicælus ovalis*—*G.*(?) *dicæli* n. sp., *Xylopinus saperdoides*—*G.*(?) *xylopinii* n. sp., *Lucanus dama*—*Euspora*(?) *lucani* n. sp., *Spirobolus* sp.—*Cnemidospora spiroboli* n. sp., *Cratoparis lunatus*—*Asterophora cratoparis* n. sp., CRAWLEY (68); *Harpalus caliginosus*—*Gigaductus parvus* n. g., n. sp., *Galerita bicolor*—*Actinocephalus americanus*, CRAWLEY (69).

In *Anopheles lutzii*, stomach walls, oocysts of a malarial parasite, GALLI-VALERIO (122).

In *Chironomus plumosus* (larvæ), intestine, *Crithidia campanulata* n. sp., LÉGER (204).

In *Dasyphora pratorum*, intestine and Malpighian tubès, *Herpetomonas lesnei* n. sp., LÉGER (204).

In *Ephemerella ignita* (larvæ), fat-bodies, connective tissue, and muscles, *Gurleya legeri* n. sp., HESSE (153).

In *Glossina palpalis*, digestive tube, *T. gambiense*, BRUCE & NABARRO (38 & 39).

In *Homalomyia scalaris*, *Pollenia rudis*, and *Theicomomyza fusca*, intestine, *Herpetomonas muscæ-domesticæ*, LÉGER (204).

In *Limnophilus rhombicus* (larvæ), fat-bodies, *Thelohania janus* n. sp., HESSE (154).

In *Stegomyia fasciata*, all parts, but chiefly in the walls of the digestive tube (intercellular), *Nosema stegomyæ* n. sp., MARCHOUX, SALIMBENI & SIMOND (248), & SIMOND (356).—In *S. f.* (larvæ and adults), digestive canal and Malpighian tubules, a Gregarine (sp. indet.), MARCHOUX, SALIMBENI & SIMOND (248).

In *Tabanus tergustinus*, intestine, *Crithidia minuta* n. sp., LÉGER (204).

In *Tanypus* sp. (larvæ), Malpighian tubes, *Herpetomonas gracilis* n. sp., LÉGER (204).—In *T. varius* (larvæ), fat-bodies, *Thelohania pinguis* n. sp., HESSE (154).

In *Tineola biseliella*, fat-bodies, *Adelea mesnili*, PEREZ (292).

Mollusca:—In branchial-cavity of many Mollusca (Amphineura, Gastropods and Lamellibranchs), members of the fam. *Ancistridae* (Ciliates) as commensals, ISSEL (164).

In various Lamellibranchs (*Donax vittatus*, *Maetra solida*, *Tapes pul-lastra*, *Tellina balthica*), branchial and renal epithelium, *Nematopsis schneideri* n. sp., LÉGER (205).

In the brood-pouch of *Littorina rudis* (females), creeping over the eggs, *Protophrya ovicola* n. g., n. sp., KOFOID (183).

Pisces:—Ectoparasitic on *Alburnus lucidus*, *Chilodon cucullus* and *Ichthyophthirius cryptostomus*, ZACHARIAS (418).

In *Carassius vulgaris*, peritoneum, *Myxobolus* cysts, VOIGT (395).

In blood of carp, *Trypanoplasma cyprini* n. sp., PLEHN (298).

In *Coregonus albula*, muscles, *Myxobolus bicaudatus*, VOIGT (395).

In *Clupea sprattus*, testis, spores of an unknown Sporozoan, SCHNEIDER (339).

In *Cyprinodontes* and *Girardinus* sp., skin, muscles, and mucous membrane, *Nosema girardini* n. sp., LUTZ & SPLENDORE (241).

Ectoparasitic on *Leuciscus rutilus*, *Ichthyophthirius cryptostomus*, ZACHARIAS (418).

In *Perca fluviatilis*, urinary bladder, *Trichodina* sp., VOIGT (395).

In rainbow-trout, brain, *Myxobolus cerebralis* n. sp., HOFER (156).—In mid-gut of rainbow-trout, *Urophagus (Hexamitus) intestinalis*, MOROFF (274).

Amphibia:—In blood of *Rana limnocharis* and *R. tigrina*;—*Lankesterella monilis*, "*Danilewskyia krusei*," a new Hæmogregarine, and a Trypanosome, BERESTNEFF (14).

In small intestine and rectum of: *Bufo melanostictus*,—*Opalina macronucleata* n. sp.; *Rana cyanophlyctis*,—*Balantidium helenæ* n. sp., *B. gracile* n. sp., *Nyctotherus macropharyngeus* n. sp., and *O. coracoidea* n. sp.; *R. esculenta* L. var. *chinensis*,—*B. rotundum* n. sp., *B. giganteum* n. sp., and *O. lanceolata* n. sp.; *R. hexadactyla*,—*N. macropharyngeus*, *N. magnus* n. sp., *B. helenæ*, and *B. gracile*; *R. limnocharis*,—*B. helenæ*, *O. lata* n. sp., and *O. longa* n. sp.; *R. tigrina*,—*N. macropharyngeus*, and *B. helenæ*, BEZZENBERGER (17).

In frog, blood, *Trypanosoma mega* and *T. karyozeukton* n. spp., DUTTON & TODD (94).

Reptilia:—In *Lacerta muralis*, *L. stirpium*, and *L. vivipara*, cloaca, *Bodo lacertæ*, GALLI-VALERIO (122).

Aves:—In *Estrela estrela*, blood, *Trypanosoma johnstoni* n. sp., DUTTON & TODD (94).

In *Syrnium aluco* (an owl), blood, "*Hæmamæba*" *danilewskyi*, "*H. ziemanni*" and *Trypanosoma avium*, LAVERAN (196 & 201).

In pigeon and crow, blood, *Trypanosoma* sp., HANNA (144).

Mammalia:—In *Auchenia* (llama), musculature, a Sarcosporidian, RIEVEL & BEHRENS (319).

In *Myoxus avellanarius* (dormouse), blood, a Trypanosome, GALLI-VALERIO (122).

In *Bos bubalis*, tongue muscles, *Sarcocystis siamensis* n. sp., v. LINSTOW (230).

In Bovines in India, blood, a giant form of Trypanosome [see IV. D. 1], LINGARD (229).

In horses, Senegambia, blood, a Trypanosome, sp. indet., DUTTON & TODD (94).

In Man:—intestine, *Coccidium jalinum* n. sp., and *Microsporidium [= Glugei] polyedricum*, PERRONCITO (296); blood and spleen, *Piroplasma donovani* n. sp., LAVERAN & MESNIL (203); cerebro-spinal fluid, *Trypano-*

soma gambiense, CASTELLANI (50-55), and BRUCE & NABARRO (38 & 39); blood, a new Protozoan parasite of uncertain affinity, SERGENT (344); in a cancer of the jaw, *Cercomonas gallinae* (probably accidental), GALLI-VALERIO (122); intestine, *Chilodon dentatus*, GUIART (139).

IV. SYSTEMATIC.

[Note. Only new forms, forms whose occurrence is of special interest, and forms described and figured are mentioned specifically.]

A. PROTOZOA IN GENERAL.

[For lists of Protozoa from various localities, see under Plankton (II. c. 1) and Distribution (III. A.).]

Protozoa: correlation between the size of the cell and of the nucleus in various, HERTWIG (150), pp. 49, 62, 108-119; "senile degeneration" in, ENRIQUES (100); causes of senescence in, LOISEL (237 & 238); various, consideration of their muscular elements, PRENANT (301).

Protozoa in stagnant or impure waters, MARSSON (249).

A new Protozoan parasite of Man, of uncertain affinity, SERGENT (344) pp. 1163-1165, 1 text-fig.

Protozoa and disease, CLARKE (64).

B. GYMNOMYXA.

1. MYCETOZOA.

Mycetozoa: list of, observed, LISTER (231) p. 12; general account of, TEMPÉRE (377).

(a) Protomyxidea:—

Arachnula, p. 188, *A. impatiens*, p. 189, fig. 4, diagnosed, RHUMBLER (318); *A. i.*, from Spitzbergen, described, PENARD (288) pp. 241-244, fig. 1.

Biomyxa, p. 186, *B. vagans*, p. 187, fig. 2, *B. cometa*, p. 187, fig. 3, diagnosed, RHUMBLER (318).

Dictiomyxa, p. 191, *D. trinchesei*, p. 192, fig. 9, diagnosed, RHUMBLER (318).

Myxodictium, p. 192, *M. sociale*, p. 192, fig. 10, diagnosed, RHUMBLER (318).

Pontomyxa, p. 189, *P. pallida*, p. 189, fig. 5, *P. flava*, p. 190, fig. 6, diagnosed, RHUMBLER (318).

Protogenes, p. 186, *P. primordialis*, p. 186, fig. 1, diagnosed, RHUMBLER (318).

Protomyxa, p. 190, *P. aurantiaca*, p. 190, fig. 7, diagnosed, RHUMBLER (318).

Rhizoplasma, p. 190, *R. kaiseri*, p. 190, fig. 8, diagnosed, RHUMBLER (318).

(b) Mycetozoidea:—Vacant.

2. RHIZOPODA.

Various Rhizopods, action of a constant current upon the internal cytoplasmic movement of, WALLENGREN (400).

Rhizopods, various marine, structure and composition of shells, AVERINTZEV (8 & 9).

(a) Lobosa:—

Occurrence of Lobosa in pools, etc., HOHENMÖLSEN, ZACHARIAS (424).

Amœba coli var. *mitis* and var. *felis*, pathogenicity of, and notes on, GROSS (138) pls. 16 & 17; *A. guttula*, p. 417, fig. 1, *A. sp.*, p. 417, fig. 2, Woods Hole, diagnosed, CALKINS (47); *A. radiosa* Duj. var. *gemmifera*, n. var., p. 245, fig. 2; *A. vespertilio*, p. 247, fig. 3, from Spitzbergen, described, PENARD (288); *A. undulans*, conjugation and spore-formation in, described, TRAUBE-MENGARINI (388) pp. 381-386, 4 text-figg.

Amœbæ and their cysts, influence of light upon, DREYER (90) pp. 399-421, 2 pls.; *Amœbæ*, parasitic in *Volvox*, MOLISCH (269) pp. 20-23, pl. 3.

Arcella vulgaris, "diplozoan" nature of, described, DANGEARD (76) pp. 769-771; variability of shell in, PEARL & DUNBAR (287) pp. 321-327, 2 text-figg.; *A. sp.*, minute structure of the chitinous test in, KUNSTLER (189) p. 81, text-fig. 11.

Centropyxis aculeata, morphology of, with special reference to the chromidia, reproduction and life-cycle, SCHAUDINN (333) pp. 553-560.

Clathrella foreli Pen., described, PENARD (289) pp. 293-300, figg. 4 & 5.

Cochliopodium obscurum Pen., p. 249, fig. 4, *C. opalinum* n. sp., p. 250, fig. 5, Spitzbergen, described, PENARD (288).

Cryptodiffugia turfacea n. sp., East Holstein, diagnosed, ZACHARIAS (421) p. 239, pl. 2, fig. 18.

Diffugia, general account of biology, PROWAZEK (308) pp. 160 & 161, 4 text-figg.; *D. curvicaulis*, occurrence, f. w. ponds, islands off Finnish coast, LEVANDER (222) pp. 12 & 13, text-fig. 1; *D. olleiformis* Lagerh., noteworthy occurrence, East Holstein, ponds, ZACHARIAS (421) p. 286, pl. 2, fig. 20; and from "pools in the market-place" Hohenmölsen, id. (424) p. 307.

† *Endothyra baileyi*, occurrence, Polla bods, Iowa, UDDEN (391) p. 120.

Entamoeba coli, pp. 565-570, and *E. histolytica* n. sp., pp. 570-575 (the harmless and pathogenic *Amœbæ* of man), reproduction and life-cycle of, SCHAUDINN (333).

Euglypha compressa, Spitzbergen, described, PENARD (288) p. 269, fig. 11.

Hyalosphenia inconspicua n. sp., p. 115, pl. 13, figg. 7-11, *H. platystoma* n. sp., p. 114, pl. 13, figg. 3-6, diagnoses and occurrence, WEST (405).

Nebela bigibbosa Pen., Spitzbergen, described, PENARD (288) p. 259, fig. 7.

Pelomyxa intermedia n. sp., from "town-puddles," Hohenmölsen, diagnosed, ZACHARIAS (424) p. 306.

Pseudochlamys patella, var. *arctica* n. var., Spitzbergen, described, PENARD (288) p. 254, fig. 6.

Quadrula irregularis, Spitzbergen, described, PENARD (288) p. 260, fig. 8.

Sphenoderia pulchella n. sp., diagnosis and occurrence, WEST (405) p. 115, pl. 13, figg. 12-15.

Trichosphærium sieboldi, Woods Hole, diagnosed, CALKINS (47) p. 418, fig. 3.

(b) Foraminifera:—

Foraminifera, general account, LISTER (232) pp. 47-149, 57 text-figg.

Various marine Foraminifera, structure of calcareous shell of, AVERINTZEV (8).

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† Foraminifera, mostly lists, from:—Eocene, Maryland, descriptive (no new forms), BAGG (12) pp. 233-258, pls. 62-64; Eocene, Catania, CHECCIA-RISPOLI (59) p. 14; Cretaceous, Australia, ETHERIDGE & DUN (106); Miocene, Rzeszow, FRIEDBERG (121); Tertiary, Lower Alsace, HERMANN (147 & 148); Tertiary, Wiesloch, Baden, id. (149); Gault, Merstham, HOLMES (158); Chalk, England, including several new,

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- †*Carpenteria*, sp., Miocene, Formosa, note on, NEWTON & HOLLAND (280) p. 15, pl. ii, fig. 3, pl. iii, fig. 6.
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- †*C. aculeata*, p. 4, pl. ii, fig. 13, *C. rotulata*, p. 4, pl. ii, fig. 12, Tertiary, Trinidad, noted, GUPPY (141); *C. acutaureolaris*, p. 129, pl. iv, fig. 6, *C. contracta*, p. 131, pl. iv, fig. 10, *C. costata*, p. 136, pl. iv, fig. 17, *C. crepidula*, p. 130, pl. iv, fig. 8, *C. cultrata*, p. 127, pl. iv, fig. 2, *C. gibba*, p. 127, pl. iv, figs. 3 & 4, *C. gladius*, p. 134, pl. iv, fig. 15, *C. levigata*, p. 129, pl. iv, fig. 5, *C. lata*, p. 134, pl. iv, fig. 14, *C. major*, p. 132, pl. iv, fig. 11, *C. parallela*, p. 132, pl. iv, fig. 12, *C. plana*, p. 133, pl. iv, fig. 13, *C. prima*, p. 135, pl. iv, fig. 16, *C. reniformis*, p. 129, pl. iv, fig. 7, *C. rotulata*, p. 126, pl. iv, fig. 1, *C. securiformis*, p. 131, pl. iv, fig. 9, Lias, Swabia, synonymy and diagnosed, SCHICK (335); *C. gibba*, p. 241, pl. lxiii, fig. 4; *C. rotulata*, p. 242, pl. lxiii, fig. 5, *C. radiata*, p. 243, pl. lxiii, fig. 6, Eocene, Maryland, diagnosed, BAGG (12); *C. granulataeformis* n. sp., p. 803, pl. xvii, fig. 5, *C. kubinyiformis* n. sp., p. 803, pl. xvii, fig. 10, *C.*, n. sp., p. 803, pl. xvii, fig. 9, Oligocene, Kruhel maly, diagnosed, WOJCIK (408).
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- Dendrophrya*, p. 220, *D. erecta*, p. 221, fig. 45, *D. radiata*, p. 221, fig. 44, diagnosed, RHUMBLER (318).
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- †*D. cylindroides* n. sp., p. 298, pl. xv, fig. 9, *D. variabilis* n. sp., p. 298, pl. xv, figs. 10-12, Cretaceous, Hungary, diagnosed, LIEBUS & SCHUBERT (225).
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- †*Gaudryina crassa*, Cretaceous, Hungary, note on, LIEBUS & SCHUBERT, (225) p. 299, pl. xv, fig. 13.
- †*Glandulina lævigata*, Tertiary, Piedmont, notes on, SILVESTRI (355), p. 211, text-figg. 2 & 3; *G. strobilus*, Oligocene, Bavaria, note on, LIEBUS (223) p. 75, pl. v, fig. 1.
- Globigerina helicina*, Malay Archipelago, noted, MILLETT (264) p. 688, pl. vii, fig. 1.
- †*G. bulloides*, Eocene, Maryland, diagnosed, BAGG (12) p. 250, pl. lxiii, figg. 15 & 16.
- †*Gonatosphæra prolata*, oceanic beds, Trinidad, notes on, GUPPY (142) p. 7, pl. i, figg. 1–7.
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- Haliphysema*, p. 266, *H. ramulosum*, p. 268, fig. 114, *H. tumanowiczi*, p. 268, figg. 112 & 113, diagnosed, RHUMBLER (318).
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- †*Lingulina carinata*, p. 150, pl. vi, fig. 9, *L. tenera*, p. 151, pl. vi, fig. 10, Lias, Swabia, SCHICK (335).
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- Orbiculina adunca*, structure of shell in, AVERINTZEV (8) p. 483, pl. xxiv, fig. 5.
- †*Orbitoides (Lepidocyclina) angularis* n. sp., p. 10, pl. i, figg. 1, 6, pl. iii, fig. 7, *O. (L.) sumatrensis*, p. 11, pl. i, fig. 7, Miocene, Formosa, diagnosed, NEWTON & HOLLAND (210); *O. (L.) elephantina*, Miocene, Italy, note on, OPPENHEIM (283) p. 143, pl. x, fig. 4, pl. xi, fig. 2.
- †*Orthophragmina archiaci* n. sp., p. 277, pl. viii, figg. 5-7, 11, text-fig. 3, *O. bartholomei* n. sp., p. 281, pl. xi, fig. 45, pl. xii, figg. 46-50, *O. chudeaui* n. sp., p. 282, pl. ix, figg. 18-20, text-fig. 5, *O. discus*, p. 279, pl. ix, fig. 26, text-fig. 4, *O. dispansa*, p. 285, pl. xi, figg. 42-44, pl. xii, figg. 51 & 52, *O. douvillei* n. sp., p. 283, pl. ix, figg. 21-24, *O. martha* n. sp., p. 284, pl. x, figg. 27-29, pl. xi, figg. 39 & 40, *O. nummulitica*, p. 280, pl. x, fig. 34, pl. xi, fig. 41, *O. pratti*, p. 274, pl. viii, figg. 1-3, 8-10, pl. ix, fig. 17, text-fig. 1, *O. scalaris* n. sp., p. 277, pl. viii, fig. 4, pl. ix, figg. 12 & 13, *O. sella*, p. 278, pl. ix, figg. 14-16, 25, *O. strophiolata*, p. 284, pl. x, figg. 30, 36 & 37, text-fig. 6, *O. varians*, p. 281, pl. x, figg. 31, 33, 35, 38, Eocene, Pyrenees and Alps, described, SCHLUMBERGER (337).
- Pamphagus hirsutus* n. sp., Spitzbergen, described, PENARD (288) p. 266, fig. 10.
- Pelosina*, p. 238, *P. cylindrica*, p. 239, fig. 72, *P. rotundata*, p. 239, fig. 71, *P. spiculotesta*, p. 240, fig. 73, *P. variabilis*, p. 240, fig. 74, diagnosed, RHUMBLER (318).
- Peneropsis pertusus*, structure of shell in, AVERINTZEV (8) pp. 481-483, pl. xxiv, figg. 1-4.
- Pilulina*, p. 249, *P. jeffreysi*, p. 249, fig. 88, diagnosed, RHUMBLER (318).
- Platophrys*, p. 200, *P. cylindrica*, p. 200, fig. 15, diagnosed, RHUMBLER (318).
- †*Planorbulina (Discorbina) elegans*, Tertiary, Trinidad, note on, GUPPY (141) p. 5, pl. ii, fig. 15.
- †*Plectofrondicularia* n. g. diagnosis, p. 76, *P. concava* n. sp., p. 94, pl. v, fig. 6, *P. striata* (Hantk.), p. 76, text-fig. 2, Oligocene, Bavaria, described, LIEBUS (223).

- †*Pleurostomella brevis*, Tertiary, Piedmont, notes on and relation to *Ellipsoidina*, SILVESTRI (355) p. 208, text-fig. 1.
- Polymorphina lactea* var. *oblonga*, Malay Archipelago, noted, MILLETT (263), p. 262, pl. v, fig. 5.
- †*P. austriaca*, p. 244, pl. lxiii, fig. 7, *P. communis*, p. 244, pl. lxiii, figg. 8 & 9, *P. compressa*, p. 246, pl. lxiii, fig. 10, *P. elegantissima*, p. 247, pl. lxiii, fig. 11, *P. gibba*, p. 248, pl. lxiii, fig. 12, *P. lactea*, p. 248, pl. lxiii, fig. 13, *P. praelonga*, p. 249, pl. lxiii, fig. 14, Eocene, Maryland, diagnosed, BAGG (12).
- Polystomella crispa*, notes on chromidia and reproduction of, SCHAUDINN (333); *P. sp.*, structure of shell in, AVERINTZEV (8), p. 485, pl. xxiv, figg. 11-13.
- Polytremma minaceum*, structure of shell in, AVERINTZEV (8), p. 484, pl. xxiv, figg. 7-10.
- †*Proporopus subquadriaterus* n. sp., Cretaceous, Hungary, diagnosed, LIEBUS & SCHUBERT (225) p. 295, pl. xv, fig. 7.
- Proteonina*, p. 244, *P. ampullacea*, p. 248, fig. 85, *P. difflugiformis*, p. 247, figg. 80 & 81, *P. fusiformis*, p. 248, fig. 84, *P. hystrix*, p. 248, fig. 86, *P. pyriformis*, p. 247, fig. 82, *P. roseolata*, p. 247, fig. 83, diagnosed, RHUMBLER (318).
- Psammonyx*, p. 278, *P. vulcanicus*, p. 279, fig. 127, diagnosed, RHUMBLER (318).
- Psammosphaera*, p. 241, *P. fusca*, p. 242, figg. 75 & 76, *P. parva*, p. 242, fig. 77, diagnosed, RHUMBLER (318).
- †*Pseudotextularia gibbosa*, Oligocene, Bavaria, note on, LIEBUS (223), p. 79, pl. v, fig. 2; *P. lata*, Cretaceous, Hungary, note on, LIEBUS & SCHUBERT (225), p. 303, text-fig. 6.
- †*Pulvinulina elegans*, Tertiary, Trinidad, note on, GUPPY (141) p. 5, pl. ii, fig. 16; *P. exigua* var. *obtusa*, p. 255, pl. lxiv, fig. 7, *P. schreibersii*, p. 256, pl. lxiv, fig. 8, Eocene, Maryland, diagnosed, BAGG (12); *P. lobsannensis*, Oligocene, Bavaria, note on, LIEBUS (223), p. 96, text-fig. 7; *P. tricarinata*, Cretaceous, Le Dévoluy, note on, LORY (239), p. 263, pl. i, fig. 1.
- †*Ramulina fornasinii* n. sp., Tertiary, Priabona, diagnosed, LIEBUS (224) p. 113, pl. v, fig. 1.
- †*Reophax scorpiurus* Montf., Tertiary, Trinidad, note on, GUPPY (141) p. 3, pl. ii, fig. 2.
- Rhabdammina*, p. 262, *R. abyssorum*, p. 264, fig. 108, *R. cornuta*, p. 264, fig. 107, *R. discreta*, p. 263, fig. 105, *R. irregularis*, p. 264, fig. 106, *R. linearis*, p. 262, fig. 104, diagnosed, RHUMBLER (318).
- Rhaphidoscene*, p. 225, *R. conica*, p. 226, fig. 50, diagnosed, RHUMBLER (318).
- Rhizammina*, p. 252, *R. algæformis*, p. 253, fig. 92, *R. indivisa*, p. 252, fig. 91, diagnosed, RHUMBLER (318).
- Rhynchogromia*, p. 212, *R. linearis*, p. 213, fig. 33, *R. nigricans*, p. 213, fig. 32, *R. squamosa*, p. 213, fig. 31, *R. variabilis*, p. 212, fig. 30, diagnosed, RHUMBLER (318).
- Rhynchosaccus*, p. 210, *R. immigrans*, p. 211, fig. 29, diagnosed, RHUMBLER (318).
- †*Rotalia* n. sp., p. 804, pl. xvii, fig. 15, Oligocene, Kruhel maly, diagnosed, WOJCIK (408).
- Saccammina*, p. 243, *S. socialis*, p. 244, fig. 79, *S. sphaerica*, p. 243, fig. 78, diagnosed, RHUMBLER (318).
- Sagenina*, p. 221, *S. frondescens*, p. 221, fig. 46, diagnosed, RHUMBLER (318).
- Sagrina columellaris*, p. 270, pl. v, figg. 10 & 11, *S. limbata*, p. 273, pl. v, figg. 17-19, *S. nodosa*, p. 271, pl. v, figg. 12-15, *S. tessellata*, p. 273, pl. v, figg. 16, Malay Archipelago, noted, MILLETT (263).

- Schultzella* **nom. nov.** p. 197, *S. diffuens*, p. 197, fig. 11, diagnosed, RHUMBLER (318).
- †*Schwagerina fusulinoides*, p. 43, pl. iv, figg. 4 & 5, *S. princeps*, p. 43, pl. iv, figg. 1-3, Carboniferous, Western Carnia, notes on, GORTANI (128).
- Shepherdella*, p. 210, *S. tenuiformis*, p. 210, fig. 28, diagnosed, RHUMBLER (318).
- Siphogenerina columellaris*, remarks on structure of, SILVESTRI (353) pp. 64-66, text-figg. 7-9.
- Spirulina margaritifera*, var. *semiornata* **n. var.**, Malay Archipelago, diagnosed, MILLETT (264) p. 694, pl. vii, fig. 3.
- †*Spiroloculina asperula*, Oligocene, Bavaria, note on, LIEBUS (223) p. 100, pl. v, fig. 8; *S. waageni* **n. sp.**, Cretaceous, Hungary, described, LIEBUS & SCHUBERT (225) p. 287, pl. xv, fig. 1; *S. concentrica*, Lias, Swabia, synonymy and notes, SCHICK (335), p. 156, pl. vi, fig. 24; *S. tenuisep-tata*, Tertiary, Trinidad, occurrence, GUPPY (141) p. 3, pl. ii, fig. 5.
- †*Spiroplecta articulata*, Cretaceous, Hungary, note on, LIEBUS & SCHUBERT (225) p. 293, text-fig. 2; *S. clarki*, p. 235, pl. lxii, fig. 4, Eocene, Maryland, diagnosed, BAGG (12); *S. sagittula*, Pliocene, Italy, dimorphism in, and nomenclature of, SILVESTRI (353) pp. 59-63, 6 text-figg.
- Squamulina*, p. 226, *S. laevis*, p. 226, fig. 51, diagnosed, RHUMBLER (318).
- Sorosphaera*, p. 235, *S. confusa*, p. 235, fig. 63, diagnosed, RHUMBLER (318).
- Storthosphæra*, p. 235, *S. albidæ*, p. 235, fig. 64, diagnosed, RHUMBLER (318); *S. depressa* **n. sp.**, Clyde area, diagnosed, PEARCEY (286).
- †*Sumatrina* **n. g.**, p. 182, *annæ* **n. sp.**, p. 182, text-figg. 27-31, Carboniferous, Sumatra, described, VOLZ (397).
- Syringamina*, p. 224, *S. fragilissima*, p. 224, fig. 47, diagnosed, RHUMBLER (318).
- Technitella*, p. 256, *T. legumen*, p. 256, fig. 96, *T. melo*, p. 256, fig. 95, *T. raphanus*, p. 257, fig. 97, diagnosed, RHUMBLER (318).
- †*Textularia aspersa*, p. 4, pl. ii, fig. 17, *T. carinata*, p. 3, pl. ii, fig. 7, *T. gramen*, p. 3, pl. ii, fig. 18, *T. sagittula*, p. 3, pl. ii, fig. 6, *T. trochus*, p. 4, pl. ii, fig. 8, occurrence, Tertiary, Trinidad, GUPPY (141); *T. gramen*, p. 233, pl. lxii, fig. 1, *T. sagittula*, p. 234, pl. lxii, fig. 2, *T. subangulata*, p. 234, pl. lxii, fig. 3, Eocene, Maryland, diagnosed, BAGG (12).
- †*Textularidæ*, Eocene and Oligocene, Italy, enumerated, FORNASINI (117), pp. 88-95.
- Tholosina*, p. 226, *T. bulla*, p. 227, fig. 52, *T. vesicularis*, p. 228, fig. 53, diagnosed, RHUMBLER (318).
- Thyrammina*, p. 236, *T. albicans*, p. 237, fig. 67, *T. cariota*, p. 238, fig. 69, *T. compressa*, p. 238, fig. 70, *T. erinacea*, p. 237, fig. 66, *T. favosa*, p. 236, fig. 65, *T. papillata*, p. 238, fig. 68, diagnosed, RHUMBLER (318).
- Tolypamina*, p. 276, *T. schaudinni* **nom. nov.**, p. 277, fig. 126, *T. vagans*, p. 277, fig. 125, diagnosed, RHUMBLER (318).
- †*Truncatulina haidingeri*, Oligocene, Bavaria, note on, LIEBUS (223) p. 90, text-fig. 4; *T. lobatula*, p. 252, pl. lxiv, fig. 3, *T. ungeriana*, p. 253, pl. lxiv, fig. 4, Eocene, Maryland, diagnosed, BAGG (12).
- Turritellella* **nom. nov.**, p. 283, *T. shoneana*, p. 283, fig. 135, *T. spectabilis*, p. 283, fig. 134, diagnosed, RHUMBLER (318).
- Urnulina*, p. 251, *U. diffugiiformis*, p. 251, fig. 90, diagnosed, RHUMBLER (318).
- Uvigerina auerberiana*, var. *glabra* **n. var.**, p. 268, pl. v, figg. 8 & 9, *U. canariensis*, p. 266, pl. v, fig. 7, Malay Archipelago, noted, MILLETT (263).
- †*U. angulosa*, Tertiary, Priabona, note on, LIEBUS (224), p. 120, pl. v, fig. 3; *U. (Sagrina) raphanus*, Tertiary, Trinidad, note on, GUPPY (141) p. 4, pl. ii, fig. 14.

- † *Vaginulina legumen*, Eocene, Maryland, diagnosed, BAGG (12) p. 240, pl. lxiii, fig. 1; *V. recta*, Tertiary, Priabona, note on, LIEBUS (224) p. 124, pl. v, figg. 5 & 6; *V. sulzensis* n. sp., Tertiary, Lower Alsace, diagnosed, HERRMANN (147) p. 273, text-fig. 1.
- † *Verneuilina szajnochae* Grzyb. var. *elongata* n. var., Cretaceous, Hungary, diagnosed, LIEBUS & SCHUBERT (225) p. 299, text-fig. 3.
- Verrucina*, p. 232, *V. rudis*, p. 233, fig. 62, diagnosed, RHUMBLER (318).
- † *Virgulina pauciloculata*, Oligocene, Bavaria, note on, LIEBUS (223) p. 81, pl. v, fig. 4
- Webbina tenuicollis*, Norwegian Fiords, diagnosed, KJÆR (178) p. 17, pl. i, figg. 12 & 13.
- Webbinella* nom. nov., p. 228, *W. clavata*, p. 229, fig. 55, *W. hemisphaerica*, p. 228, fig. 54, diagnosed, RHUMBLER (318).

3. HELIOZOA.

Heliozoa, f. w. and mar., neighbourhood of Esbo-Löfö near Helsingfors, LEVANDER (221); f. w. ponds, islands off Finnish coast, LEVANDER (222).

(a) *Aphrothoraca* :—

- Actinocoma* n. g. *ramosa* n. sp., description and occurrence, PENARD (289) p. 283, fig. 1.
- Actinophrys sol*, Woods Hole, diagnosed, CALKINS (47) p. 420, fig. 5.
- Actinosphaerium eichhorni*, mass-relations of nucleus and cytoplasm in, SMITH (359) pp. 241–254, 4 pls.; *A. sp.*, nuclear structure in, ROHDE (321) p. 503, pl. xxxviii, figg. 27–30.
- Nuclearia caulescens* n. sp., Spitzbergen, described, PENARD (288) p. 272, figg. 12 & 13; *N. conspicua* n. sp., occurrence and diagnosis, WEST (405) p. 111, pl. xiii, figg. 16–19.

(b) *Chlamydothoraca* :—

- Heterophrys myriapoda*, Woods Hole, diagnosed, CALKINS (47) p. 421, fig. 6; *H. m.* using silicious needles belonging to the skeleton of *Acanthocystis turfacea* to reinforce its own envelope, PENARD (291) pp. 351 & 352.

(c) *Chalarothoraca* :—

- Rhaphidiophrys brunii* n. sp., Spitzbergen, described, PENARD (288) p. 277, fig. 14.

(d) *Desmothoraca* :—

- Artodiscus saltans* Pen., described, PENARD (289) p. 286, fig. 2.
- Clathrulina elegans*, from Spitzbergen, described, PENARD (288) p. 279, fig. 15.

4. RADIOLARIA.

Radiolaria, in Mediterranean plankton, near Capri, LO BIANCO (233).

- † Radiolaria: occurrence of, Tertiary, Piedmont, SILVESTRI (355) p. 206; Cretaceous, Australia, noted, ETHERIDGE & DUN (106) pp. 63 & 64; Cretaceous, Teolo (Euganei Mts.), Italy, full account, SQUINABOL (361).

(a) *Peripylaria* :—

- † *Acanthosphaera parvipora* n. sp., p. 115, pl. viii, fig. 5, *A. tenuispina* n. sp., p. 115, pl. x, fig. 12, *A. wisniowskii* n. sp., p. 114, pl. viii, fig. 6, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- † *Cenellipsis biacutus* n. sp., p. 116, pl. viii, fig. 24, *C. microporatus* n. sp., p. 116, pl. viii, fig. 4, Cretaceous, Italy, diagnosed, SQUINABOL (361).

- +*Cenosphaera amissa* n. sp., p. 109, pl. viii, fig. 2, *C. cretacea* n. sp., p. 109, pl. viii, fig. 3, *C. euganea* n. sp., p. 109, pl. viii, fig. 1, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Cromyodrymus mirabilis* n. sp., p. 116, pl. x, fig. 15, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Dactylodiscus* n. g., p. 120, *D. cayeuxi* n. sp., p. 120, pl. ix, fig. 18, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Dictyastrum triacanthos* n. sp., p. 121, pl. ix, fig. 28, *D. truncatum* n. sp., p. 122, pl. ix, fig. 24, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Dispongotripus* n. g., p. 123, *D. acutispina* n. sp., p. 123, pl. viii, fig. 22, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Dorysphaera brevispina* n. sp., p. 111, pl. x, fig. 30, *D. elegans* n. sp., p. 110, pl. viii, fig. 15, *D. euganea* n. sp., p. 111, pl. x, fig. 23, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Heliosphaera isseli* n. sp., p. 115, pl. viii, fig. 8, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Hexapyramis* n. g., p. 113, *pantanellii* n. sp., p. 114, pl. x, fig. 5, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Hexastylus euganeus* n. sp., p. 113, pl. x, fig. 14, *H. grandiporus* n. sp., p. 113, pl. x, fig. 17, *H. macrospina* n. sp., p. 112, pl. viii, fig. 7, *H. microporus* n. sp., p. 113, pl. ix, fig. 25, *H. ombonii* n. sp., p. 113, pl. viii, fig. 10, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Lithapium ellipticum* n. sp., p. 117, pl. x, fig. 27, *L. incrassatum* n. sp., p. 117, pl. viii, fig. 17, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Rhopalastrum clavatum* n. sp., p. 122, pl. ix, fig. 23, *R. irregulare* n. sp., p. 122, pl. ix, fig. 10, *R. nevanii* n. sp., p. 122, pl. x, fig. 6, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Saturnalis brustolensis* n. sp., p. 112, pl. x, fig. 4, *S. ellipticus* n. sp., p. 111, pl. x, fig. 3, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Spongoacanthus* n. g., p. 118, *horridus* n. sp., p. 118, pl. x, fig. 9, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- Spongodymus*, 2 n. spp., from Mediterranean plankton near Capri, Lo BIANCO (233) p. 225.
- +*Spongoprunum macroacanthos* n. sp., p. 118, pl. x, fig. 33, *S. minimum* n. sp., p. 118, pl. x, fig. 26, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Spongotripus communis* n. sp., p. 123, pl. ix, fig. 7, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Stauralastrum euganeum* n. sp., p. 123, pl. ix, fig. 19, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Stawrosphaera euganea* n. sp., p. 112, pl. x, fig. 18, *S. longispina* n. sp., p. 112, pl. ix, fig. 1, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Stylotrochus helios* n. sp., p. 124, pl. x, fig. 23, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Tetracanthellipsis* n. g., p. 117, *euganeus* n. sp., p. 117, pl. viii, fig. 9, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Theodiscus horridus* n. sp., p. 119, pl. viii, fig. 18, *T. minimus* n. sp., p. 119, pl. viii, fig. 21, *T. paronai* n. sp., p. 119, pl. viii, fig. 19, *T. parvus* n. sp., p. 119, pl. viii, fig. 20, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Trochodiscus maximus* n. sp., p. 120, pl. x, fig. 24, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Xiphosphaera euganea* n. sp., p. 110, pl. viii, fig. 11, *X. fossilis* n. sp., p. 110, pl. viii, fig. 14, *X. longispina* n. sp., p. 110, pl. viii, fig. 13, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- +*Xiphostylus amissus* n. sp., p. 111, pl. viii, fig. 12, *X. communis* n. sp., p. 111, pl. x, fig. 20, Cretaceous, Italy, diagnosed, SQUINABOL (361).

(b) **Acantharia:**—Vacant.

(c) **Monopylaria:**—

- †*Acanthocircus* n. g., p. 124, *coronatus* n. sp., p. 126, pl. ix, fig. 5, *A. dendroacanthos* n. sp., p. 125, pl. ix, fig. 9, *A. irregularis* n. sp., p. 125, pl. ix, fig. 6, *A. horridus* n. sp., p. 125, pl. ix, fig. 3, *A. rarus* n. sp., p. 125, pl. ix, fig. 2, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Archicapsa euganea* n. sp., p. 129, pl. 9, fig. 13, *A. fusus* Par., p. 129, pl. ix, fig. 11, *A. micropora* n. sp., p. 129, pl. ix, fig. 14, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Artophormis obesa* n. sp., p. 137, pl. x, fig. 1, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Bathropyramis rara* n. sp., p. 127, pl. ix, fig. 27, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Carpocanistrum conicum* n. sp., p. 128, pl. viii, fig. 36, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Clistosphaena fossilis* n. sp., p. 130, pl. x, fig. 11, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Cyrtocapsa perspicua* n. sp., p. 142, pl. viii, fig. 35, *C. turris* n. sp., p. 142, pl. x, fig. 16, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Cyrtophormis costata* n. sp., p. 127, pl. x, fig. 31, *C. fossilis* n. sp., p. 127, pl. x, fig. 32, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Diacanthocapsa* n. g., p. 133, *euganea* n. sp., p. 133, pl. viii, fig. 26, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Dicolocapsa cor* n. sp., p. 133, pl. ix, fig. 31, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Dictyocephalus cayeuxi* n. sp., p. 132, pl. viii, fig. 28, *D. euganeus* n. sp., p. 132, pl. viii, fig. 27, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Dictyomitra euganea* n. sp., p. 139, pl. viii, fig. 45, *D. pseudomacrocephala* n. sp., p. 139, pl. x, fig. 2, *D. pulchra* n. sp., p. 140, pl. x, fig. viii, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Diplostrobos* n. g., p. 140, *D. crassispina* n. sp., p. 140, pl. viii, fig. 37, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Eusyringium spinosum* n. sp., p. 141, pl. viii, fig. 42, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Halicapsa gutta* n. sp., p. 128, pl. viii, fig. 23, *H. maxima* n. sp., p. 128, pl. x, fig. 19, *H. vinassai* n. sp., p. 128, pl. viii, fig. 29, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Lithocampe obesa* n. sp., p. 141, pl. ix, fig. 4, *L. veneta* n. sp., p. 141, pl. ix, fig. 15, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Lithostrobos duodecimcostatus* n. sp., p. 138, pl. x, fig. 21, *L. elegans* n. sp., p. 138, pl. ix, fig. 22, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Lychnocanium crassispina* n. sp., p. 129, pl. viii, fig. 33, *L. elegans* n. sp., p. 130, pl. viii, fig. 34, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Micromelissa ventricosa* n. sp., p. 130, pl. x, fig. 22, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Phormocyrtis veneta* n. sp., p. 134, pl. ix, fig. 30, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Podocampe eifeliana* n. sp., p. 136, pl. ix, fig. 26, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Pterocorys euganea* n. sp., p. 134, pl. x, fig. 25, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Sethocapsa pomum* n. sp., p. 132, pl. viii, fig. 16, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Sethocephalus hueckeli* n. sp., p. 132, pl. ix, fig. 20, Cretaceous, Italy, diagnosed, SQUINABOL (361).

- †*Sethoconus gracilis* n. sp., p. 131, pl. x, fig. 13, *S. pulcher* n. sp., p. 131, pl. viii, fig. 31, *S. speciosus* n. sp., p. 131, pl. ix, fig. 16, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Sethophormis radiata* n. sp., p. 130, pl. ix, fig. 17, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Stichocapsa euganea* n. sp., p. 142, pl. viii, fig. 30, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Stichomitra communis* n. sp., p. 141, pl. viii, fig. 40, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Stichophormis costata* n. sp., p. 136, pl. viii, fig. 41, *S. macropora* n. sp., p. 137, pl. viii, fig. 39, *S. montis serei* n. sp., p. 137, pl. viii, fig. 38, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Theocampe subtilis* n. sp., p. 135, pl. viii, fig. 43, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Theoconus cretaceus* n. sp., p. 134, pl. x, fig. 10, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Theocorys antiqua* n. sp., p. 135, pl. viii, fig. 25, *T. euganea* n. sp., p. 135, pl. viii, fig. 44, *T. fossilis* n. sp., p. 135, pl. x, fig. 29, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Tricolocapsa inflata* n. sp., p. 136, pl. ix, fig. 8, Cretaceous, Italy, diagnosed, SQUINABOL (361).
- †*Tripilidium dendroacanthus* n. sp., p. 126, pl. viii, fig. 32, Cretaceous, Italy, diagnosed, SQUINABOL (361).

(d) **Tripylaria** or **Phaeodaria**:—

- Aulacanthidæ*, formation of additional skeletal elements in certain, IMMERMANN (162).
- Aulokleptes* n. g. for certain *Aulacanthidæ*, based on the nature of the skeletal elements, characteristics of, IMMERMANN (162) pp. 70-76, 6 text-figg.
- Planktonetta atlantica*, detailed account of, FOWLER (119) pp. 133-143, pls. xi & xii.

C. SPOROZOA.

- Sporozoa: general account of the class, MINCHIN (265) pp. 150-360, 127 text-figg.
- Sporozoan spores from testis of *Clupea sprattus*, SCHNEIDER (339) pp. 44 & 45, text-fig. 3.
- A new Sporozoan parasite (allied to the Hæmosporidia ?) described from *Sipunculus*, GINESTE (125) pp. ccxxxvii-ccxxxix.

1. TELOSPORIDEA.

(a) **Gregarinidea**:—

- Gregarines, myonemes of, discussed, PRENANT (301) pp. ciii & civ, 2 text-figg.—A Gregarine (sp. indet.), parasitic in *Stegomyia fasciata*, contribution to life-cycle of, MARCHOUX, SALIMBENI & SIMOND (248) pp. 713 & 714.
- Polycystid Gregarines of the United States, enumerated and described, CRAWLEY (68 & 69).
- Actinocephalus americanus* n. sp., p. 636, pl. xxx, fig. 22, *A. harpali* (Crawley) p. 637, pl. xxx, fig. 14, diagnoses and occurrence, CRAWLEY (69); *A. striatus* n. sp., habitat and description, LÉGER & DUBOSCQ (209) p. 334, text-fig. 16.
- Acutispora* n. g. *macrocephala* n. sp., diagnosis and occurrence, CRAWLEY (69) p. 632, pl. xxx, figg. 1-6.

- Aggregata vagans* n. sp., from *Eupagurus prideauxi*, described, LÉGER & DUBOSCQ (212) pp. cxlvii-cli, 6 text-figg
- Amphoroides fontariae* n. sp., diagnosis and occurrence, CRAWLEY (68) p. 53, pl. i, figg. 12-14.
- Asterophora cratoparis* n. sp., p. 54, pl. ii, fig. 23, *A. philica*, p. 53, pl. iii, figg. 31-33, diagnosis and occurrence, CRAWLEY (68).
- Bothriopsis histria*, diagnosis and occurrence, CRAWLEY (68) p. 54, pl. ii, figg. 15-18.
- Cnemidospora spiroboli* (Crawley), diagnosis, CRAWLEY (69) p. 638, pl. xxx, figg. 7-9.
- Corycella armata* Léger, mentioned, SANDORTOL (330), p. 3, fig. 1.
- Doliocystis rhyncoboli* n. sp., diagnosis and occurrence, CRAWLEY (68) p. 56.
- Euspora* (?) *lucani* n. sp., diagnosis and occurrence, CRAWLEY (68), p. 50, pl. iii, fig. 38.
- Gigaductus* n. g. *parvus* n. sp., diagnosis and occurrence, CRAWLEY (69) p. 633, pl. xxx, figg. 10-13.
- Gregarina achetaeabbreviata*, p. 45, pl. iii, figg. 34 & 35, *G.* (?) *boletophagi* n. sp., p. 47, pl. ii, figg. 26-28, *G. calverti* n. sp., p. 48, pl. ii, figg. 19-21 & (69) p. 638, pl. xxx, fig. 15, *G.* (?) *discaeli* [corrected to *dicaeli* (69) p. 641] n. sp., p. 47, pl. i, figg. 7-10, *G.* (?) *elaterae* n. sp., p. 46, pl. i, fig. 11, *G.* (?) *harpali* n. sp. [= *Actinocephalus h.* (Crawley), see above], p. 49, pl. i, figg. 1-4, *G. passalicornuti*, p. 45, pl. ii, fig. 24, *G. polydesmi-virginensis*, p. 45, pl. ii, fig. 25, *G.* (?) *xylopinii* n. sp., p. 47, pl. iii, figg. 29 & 30, occurrence and notes on, CRAWLEY (68).
- Hirmocystis* (?) *ovalis* n. sp., diagnosis and occurrence, CRAWLEY (68) p. 50, pl. i, figg. 5 & 6.
- Hoplorhynchus scolopendras* n. sp., diagnosis and occurrence, p. 636, pl. xxx, fig. 19, CRAWLEY (69).
- Monocystis agilis*, pl. ix, figg. 4, 6-16, *M. porrecta*, pl. ix, figg. 17-22, pl. x, figg. 23-34, *M.* sp., pl. ix, figg. 1-3, account of vegetative protoplasmic changes in, DRZEWECKI (91) pp. 107-125. [See II. A. 2.]
- Ptercephalus giardi* var. *corsicum* n. var., habitat and description, LÉGER & DUBOSCQ (209), p. 333, text-fig. 15; *P. nobilis*, formation of gametes and conjugation in, LÉGER & DUBOSCQ (211) pp. cxli-cxlvii, 11 text-figg.
- Schaudinnella* n. g. *henleae* n. sp. from *Henlea leptodera*, described, NUSBAUM (282) pp. 281-307, pl. xxii.
- Selenidium costatum* n. sp. from *Polymnia*, note on, SIEDLECKI (348) p. 454.
- Stenophora brölemanni* n. sp., p. 339, text-figg. 21 & 22, *S. nematoïdes* n. sp., p. 335, text-fig. 17, *S. varians* n. sp., p. 337, text-figg. 18, 19, & 20, habitat & description, LÉGER & DUBOSCQ (209); *S. brölemanni*, note on relation of, to intestinal epithelium, id. (210) p. xciv, text-fig. 2; *S. julipusilli*, diagnosis and occurrence, CRAWLEY (69) p. 634, pl. xxx, figg. 16 & 17; *S. polyxeni* n. sp., name only (described in a previous paper), LÉGER & DUBOSCQ (210) p. xciii; *S. spiroboli* n. sp. [= *Cnemidospora* s. (Crawley), see above], diagnosis and occurrence, CRAWLEY (68) p. 51, pl. ii, fig. 22.
- Stylorhynchus longicollis*, development of sporozoites and their relation to intestinal epithelium, LÉGER & DUBOSCQ (210) pp. lxxxix-xciii, text-fig. 1.
- Trichorhynchus lithobii* n. sp., diagnosis and occurrence, CRAWLEY (69) p. 637, pl. xxx, fig. 18.

(b) **Cocciidiidea:**—

Cocciidiidea, general summary of their life-cycle, classification, behaviour as parasites, etc., MESNIL (260) pp. 473-480, 505-510.

- Adelea dimidiata* var. *coccidioides* n. var., habitat and description, LÉGER & DUBOSCQ (209) pp. 342-348, text-figg. 23 & 24; *A. mesnili* from the coelome of *Tineola biseliella*, complete life-history of, PEREZ (292) pp. 1-12, pl. i, 4 text-figg.
- "*Benedenia*," see under *Legerina*.
- Caryotropha mesnili*, successful development of coelomic cysts hindered, or even their destruction brought about, by phagocytic action, SIEDLECKI (348) p. 454-456, pl. ix, figg. 14 & 15.
- Coccidium cuniculi* [= *C. oviforme*], detailed account of sporulation, and mode of infection of, METZNER (262) pp. 13-72, pl. ii; *C. faurei*, from the intestine of sheep, note on, MOUSSU & MAROTEL (276) pp. 73 & 74, 1 pl.; *C. jalinum* n. sp., occurrence in Man, PERRONCITO (296) p. 378.
- Klossia octopiana*, see under *Legerina*.
- Legerina* n. g., proposed by JACQUEMET (166) [but antedated by Lühe's *Eucoccidium* (Zool. Rec. 1902, No. 240)] for *L. octopiana* (Schneider) syn. *Klossia octopiana*, from *Octopus vulgaris*, and *L. eberthi* (Labbé) syn. "*Benedenia octopiana*," "*B. eberthi*," from *Sepia officinalis*.
- Nematopsis schneideri* n. sp., from various Lamellibranchs, described, LÉGER (205) pp. 1003-1006.
- A Coccidian (?) from the intestinal epithelium of *Temnocephala chilensis*, WACKE (398) p. 100, pl. v, fig. 45.

(c) **Hæmosporidia:**—

- Danilewskya*, syn. *Hæmogregarina*, which see.
- "*Hæmamœba*" *ziemannii* Lav. parasitic in *Athene* and *Syrnium*, described, LAVERAN (196), pp. 620-623, 7 text-figg.
- Hæmogregarina magna* [= *Danilewskya krusei*], pl. viii, figg. 10-12, *H. sp.* (probably new), pl. viii, figg. 1-9, occurrence in Indian frogs and description, BERESTNEFF (14) pp. 343-348; *H. stepanovi*, sexual cycle and sporozoite-formation in *Placobdella*, described, SIEGEL (349), pp. 339-342, 7 text-figg.
- Lankesterella monilis*, occurrence in Indian frogs, BERESTNEFF (14) pl. viii, fig. 7.
- Laverania malariae*, notes on gametocytes of, and "pitting" of erythrocytes by, ARGUTINSKY (5) pp. 146-148, pl. i, figg. 1-9; *L. m.*, actual fertilization witnessed in the blood, MOORE (273) pp. 235 & 236, 8 text-figg.; *L. m.* var. *mitis*, parthenogenesis of female forms, causing recurrence, PITTALUGA (297) pp. 389-397.
- Malarial parasite, oocysts of, stomach walls of *Anopheles lutzi*, GALLI-VALERIO (122) p. 85, text-fig. 1.
- Piroplasma bigeminum*, notes on, BABES (11) pp. 449-458, 4 text-figg.; *P. b.*, bacilliform variety of, described, LAVERAN (193) pp. 649 & 650, text-figg. 1-12; *P. b.*, peculiar mode of reproduction in, LIGNIÈRES (226) pp. 398-407, pl. 4; *P. donovani* n. sp., occurrence in Dum-Dum fever in man, and description, LAVERAN & MESNIL (203) pp. 957-961, 17 text-figg.
- Plasmodium præcox*, see *Laverania malariae*; *P. vivax* (the tertian parasite), notes on gametocytes of, and pitting of erythrocytes by, ARGUTINSKY (5) pp. 146-148, pl. 1, figg. 10-15.

2. NEOSPORIDIA.

(a) **Myxosporidia:**—

- Gurleya legeri* n. sp., from Ephemerid larvæ, description, HESSE (153) pp. 495 & 496.
- Microsporidium* [syn. *Glugea*] *polyedricum* Bolle, occurrence in Man, PERRONCITO (296) p. 378.

Myxobolus bicaudatus and *M. sp.*, occurrence in new piscine hosts, VOIGT (395) p. 95; *M. b.* and *M. psorospermicus*, occurrence in pike in Lake of Luzern, ZSCHOKKE (430) p. 441; *M. cerebralis n. sp.*, occurrence and note, HOFER (156) pp. 7 & 8.

Nosema [= *Glugea*] *astyre n. sp.*, text-fig. 2, *N. bombycis*, fig. 11, *N. erippi n. sp.*, fig. 7, *N. eubules n. sp.*, fig. 12, *N. girardini n. sp.*, fig. 4, *N. junonis n. sp.*, fig. 9, *N. lophocampæ n. sp.*, fig. 5, *N. lysimnie n. sp.*, fig. 10, *N. periplanete n. sp.*, fig. 3, *N. vanilla n. sp.*, figg. 1, 6, 8, from various Brazilian Insects and a fish (see III. c), notes on their spores for classificatory purposes, LUTZ & SPLENDRE (241) pp. 151-157; *N. geophili n. sp.* [possibly a Myxosporidian *sensu str.*], short account of, CRAWLEY (70) pp. 337 & 338, 4 text-figg.; *N. stegomyæ* (= *Myxococcidium s.*), from *Stegomyia fasciata*, description of, with "brown" spores and abnormal development as well, MARCHOUX, SALIMBENI & SIMOND (248) pp. 714-728, pl. 15, and SIMOND (248) pp. 1335-1337, 9 text-figg.

Thelohania janus n. sp. and *T. pinguis n. sp.*, from Insect-larvæ, notes on, HESSE (154) p. 418.

(b) Sarcosporidia:—

Balbiana [for *Balbiana*] *siamensis n. sp.*, v. Linstow. See under *Sarcocystis*.

Sarcocystis siamensis (Linstow), from tongue of *Bos bubalis*, note on, v. LINSTOW (230) p. 120, pl. 5, figg. 22 & 23; *S. tenella*, structure of cuticle in, FERRET (110) pp. 86-98, pl. 4, and (111) p. 1054 & 1045; *S. t.* [more probably *S. blanchardi*] from beef in Ceylon, SHIPLEY (346) pp. 45-47, pl. 1, figg. 10, 17; *S. sp.*, from *Auchenia*, notes on, and effects of poisonous enzyme from, RIEVEL & BEHRENS (319) pp. 341-352, 4 figg.

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Haplosporidia:—

Ascosporidium. See under *Bertramia*.

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Blastulidium n. g. paedophthorum n. sp., from *Daphnia obtusa*, described, PÉREZ (294) pp. 715 & 716, 5 text-figg.

Polycaryum leve n. sp., from *Daphnia*, described, STEPELL (364) pp. 349-360, pl. 9.

Exosporidia:—

Amœbidium sp., occurrence on *Daphnia* and note on, ZACHARIAS (421) p. 249, 3 text-figg.

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Sporozoan parasites [?], described from cells in "clavelée" and vaccine, Bosc (1) pp. 1175-1178, 22 text-figg., and (2) pp. 1178-1180, 18 text-figg.

Histosporidium n. g. carcinomatosum n. sp., considered to be a Sporozoan [most unlike one] and the cause of cancer, FEINBERG (109) pl. 4.

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1. FLAGELLATA (EUFLAGELLATA).

(a) Lissoflagellata :—

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Anisonema vitrea, Woods Hole, diagnosed, CALKINS (47) p. 426, fig. 17.

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Astasia contorta, Woods Hole, diagnosed, CALKINS (47) p. 426, fig. 16; *A. curvata*, p. 246, pl. 4, fig. 12, *A. margaritifera*, p. 241, text-fig. 45, diagnosed, DANGEARD (79).

Bodo [= *Heteromita* vel *Hæmatococcus*] *butschlii*, p. 346, and *B. pluvialis*, p. 346, pl. 18, figg. 1–5, notes on, SCHMIDLE (338); *B. caudatus*, p. 425, fig. 14, *B. globosus*, p. 425, fig. 13, Woods Hole, diagnosed, CALKINS (47); *B. lacerta*, occurrence in various Lizards and note, GALLI-VALERIO (122) p. 86; *B. ovatus* n. sp., described, MOROFF (274) pp. 82–84, pl. 7, figg. 8a–d, pl. 8, figg. 8e–f, 1 text-fig.; *B. ionica* n. sp., diagnosed, LOHMANN (234) p. 50, pl. 2, fig. 35.

Carteria alpina n. sp., diagnosed, p. 351, pl. 18, figg. 8–10, SCHMIDLE (338); *C. subcordiformis* n. sp., pp. 89–94, pl. 3, figg. 1–3, notes on, WILLE (406).

Cercomonas gallinæ, occurrence in Man, and note, GALLI-VALERIO (122) p. 86; *C. longicauda* Duj., note on, MOROFF (274) pp. 79 & 80, pl. 7, fig. 6a–d.

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Chlamydomonas, full account of the genus, pp. 109–121, 130–149, pl. 4, figg. 1–25, *C. caudata* n. sp., pp. 115, 135, pl. 3, figg. 4–11, *C. subcaudata* n. sp., p. 118, 136, pl. 3, figg. 12–18, diagnosed, WILLE (406); *C. mucicola*, notes on, SCHMIDLE (338) p. 349, pl. 18, figg. 11–15.

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- Dinobryon cylindricum*, var. *divergens*, p. 160, text-fig. 5, var. *holsaticum*, p. 162, fig. 6, *D. sociule*, p. 164, fig. 7, plankton, lakes of Plön, notes on, LEMMERMANN (214).
- Entosiphon sulcatum*, diagnosed, DANGEARD (79) p. 253, text-figg. 49 & 50; *E. s.*, nuclear division in, described, PROWAZEK (303) pp. 325-328, 12 text-figg.
- Eucomonas socialis* n. sp., described, MOROFF (274) pp. 80 & 81, pl. 7, fig. 7a-d.
- Euglena acus*, p. 197, text-fig. 22, *E. deses*, p. 188, pl. 3, figg. 12-14, pl. 4, figg. 1-9, text-figg. 18 & 19, *E. flava* n. sp., p. 180, text-fig. 14, *E. geniculata*, p. 149, pl. 1, figg. 1-11, text-fig. 4, var. *terricola*, p. 153, text-fig. 5, *E. gracilis*, p. 187, text-fig. 17, *E. granulata*, p. 173, pl. 1, fig. 15, text-fig. 11, *E. oxyuris*, p. 196, text-fig. 20, *E. pisciformis*, p. 184, text-fig. 16, *E. polymorpha* n. sp., p. 175, pl. 3, figg. 7-10, text-figg. 12 & 13, *E. proxima* n. sp., p. 154, text-fig. 6, *E. sanguinea*, p. 160, pl. 2, text-fig. 8, *E. sociabilis* n. sp., p. 182, text-fig. 15, *E. splendens* n. sp., p. 165, pl. 3, figg. 1-11, and text-fig. 9, *E. spirogyra*, p. 198, text-fig. 23, *E. tripteris*, p. 197, text-fig. 21, *E. variabilis*, p. 157, text-fig. 7, *E. velata*, p. 170, text-fig. 10, *E. viridis*, p. 134, text-fig. 1, var. *violacea*, p. 140, pl. 1, figg. 12-14, text-figg. 2 & 3, morphology and description of, DANGEARD (79); *E. quartana* n. sp., described, MOROFF (274) pp. 96-103, pl. 8, fig. 13a-h.
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- Euglenopsis vorax*, law of binary division in, DANGEARD (74) p. 164.
- Eutreptia lanovi* (provisional n. sp.), distinguished, p. 136, *E. viridis*, from Grand Canal, Trieste, fully described, STEUER (371) pp. 126-137, 13 text-figg.; *E. viridis*, diagnosed, DANGEARD (79) p. 199, text-fig. 24.
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- Mallomonas amphora* n. sp., description and occurrence, RAYMOND (312) p. 172; *M. fastigiata* n. sp., diagnosis and occurrence, ZACHARIAS (421) p. 259, pl. 2, fig. 15.
- Mastigamaba limax* n. sp., pp. 72-74, pl. 7, fig. 3a-g, *M. polyvacuolata* n. sp., pp. 74 & 75, pl. 7, fig. 2a-g, *M. radricula* n. sp., pp. 70-72, pl. 7, fig. 1a-c, described, MOROFF (274); *M. simplex* n. sp., Woods Hole, diagnosed, CALKINS (47) p. 422, fig. 7.
- Menoidium falcatum* n. sp., bogs of East Holstein, diagnosed, ZACHARIAS (421) p. 270, pl. 2, fig. 4; *M. incurvum*, diagnosed, DANGEARD (79) p. 247, text-fig. 46.
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- Monas vulgaris*, nuclear division and cytological details in, DANGEARD (75) pp. 319 & 320.
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- Petalomonas medioacnellata*, diagnosed, DANGEARD (79) p. 253, text-fig. 48.
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- Polytoma uvella*; conjugation-processes in, PROWAZEK (302) pp. 205-208, pl. 6, figg. 51-60.
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CORRIGENDA TO PREVIOUS PROTOZOA RECORDS.

1896. (Inserted by request.)
 p. 19, last line. For "LABBÉ, t. c.," read "LÉGER, Ann. Fac. Marseille vi (3)."
 And in Index to new Genera, 1896, p. 9. For "*Lycosella*, Labbé," read "*Lycosella*, Léger."
1902. p. 70, commencement of second paragraph. For "+*Textularia exigua*, n. sp.," read "+*Textularia exagona*, n. sp."

CORRIGENDA.

- INSECTA, p. 3, line 4 from bottom, delete "Kansas".
- „ p. 4, line 26, for "teleogical" read "teleological".
- „ p. 4, line 13 from bottom, for "developments" read "development".
- „ p. 256, for "*Arhopalo*" read "*Arhopala*".
- „ p. 262, for "*Mannoparce*" read "*Nannoparce*".
- „ p. 280, for "*Micragotis*" read "*Micragrotis*".
- „ p. 367, for "*Parisolabris*" read "*Parisolabis*."

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MENTIONED IN VOLUME XL,

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* The total number of names in this Index is 2054, distributed as follows:—
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